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MARGINALIA

HOUSE AND GARDEN-HOUSE. Architects today are rarely faced with the problem of relating a garden structure to a large house, and making certain fine social distinctions in doing so—as far as Europe is concerned that probably went out with Repton's picturesque gamekeeper's cottage at Holkham with its air of 'industry with an affectation, rather the reality of penury.' But, like most exotic things, it can happen in Brazil, and a new week-end house near Rio shows Affonso Reidy executing this delicate



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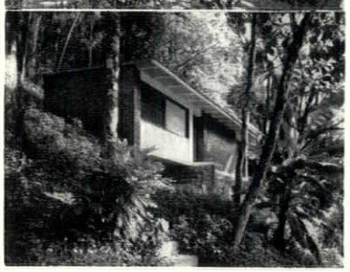

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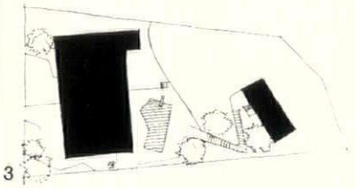
feat with his customary sensitivity. The main house, 1, which is fairly large, is asymmetrical yet formal, the imbalance of its façade—glazed and open one side, solidly muralled in by Burle-Marx on the other, single storey one side, double on the other—being contained within a strong and tidy rectangular frame. The site is not deep, 2, but the land behind the house rises steeply, and the caretaker's cottage, at the back of the main house, is likely to be seen over it, from the front. To use the solution evolved by Le Corbusier at Poissy, and make the cottage a miniature of the house, might therefore lead to some confusion as to who lived in what, and Reidy's answer has been to treat the cottage in a manner which is clearly related



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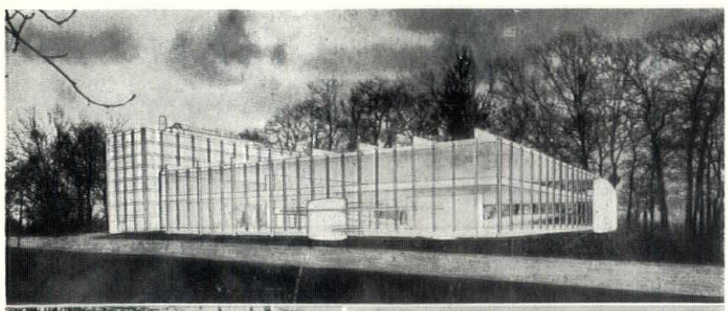
to the house, but much less formal, 3. There is no strong frame, the roof is pent, there are no decorated surfaces, and yet the family relationship of the two houses is immediately manifest.

EXHIBITION BUILDINGS FOR PARIS. Two projected buildings that stand well within the great Paris tradition of exhibition halls and museums have recently been announced. The *Musée des Arts et Traditions Populaires*, which might, but for the open-mindedness of Georges-Henri Rivière, have been all too easily a mélange of regional styles, will be instead a grouping of Miesian framed glass boxes with faintly Corbusian ancillary structures, 4. No doubt the relatively isolated site in the Bois de Boulogne, as well as the sympathetic interest of the Director, enabled the architects, Dubuisson and Jausserand, to offer so uncompromising a design. For a site even further from the centre of Paris, the *Place de la Défense*, an impressive team of designers including Zehrfuss, Nervi and Jean Prouvé, have projected a new hall for the *Centre Nationale des Industries et des Techniques*, 5. Although ancillary buildings will be spread over quite a large area to the west of the *Place*, interest will be concentrated on the great triangular hall on its north side, for which Nervi has devised a characteristic and exciting structure, 6.



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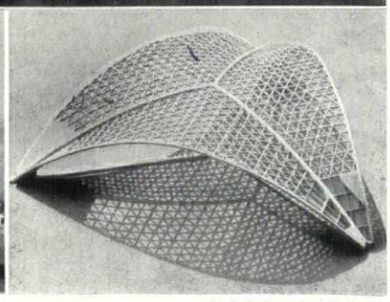

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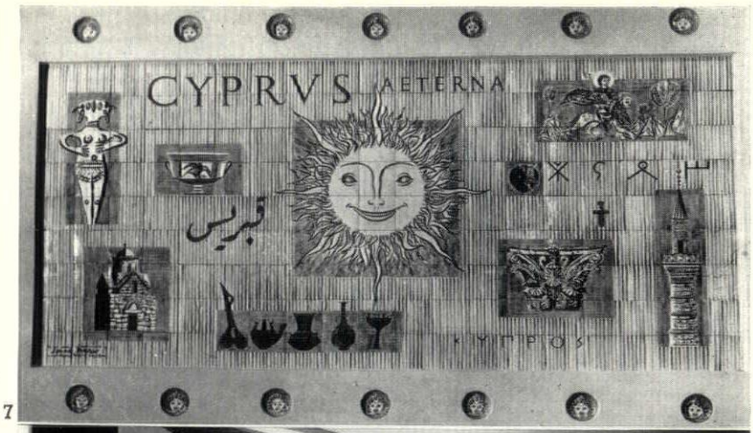
Techniques et Architecture



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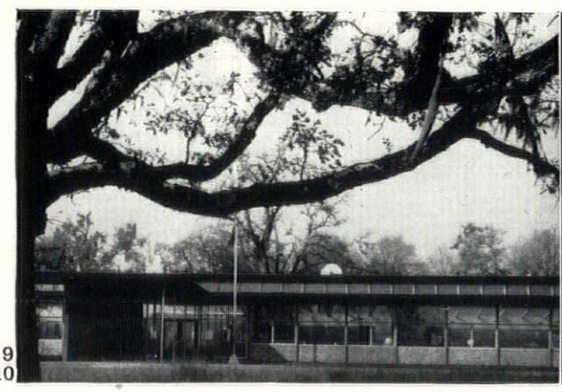
8

TILT-UP SCHOOL. Interesting variations on the common usages of site-cast concrete slabs tilted up into the vertical for walling purposes are seen in the Douglas High School, Oregon, USA, 9, designed by Dougan and Heims. The fill panels for under-window spaces of the simple frame structure are of concrete cast flat, over a bed of local river-run pebbles which, after sand-blasting, form a permanent surface, 10, free from the usual maintenance and æsthetic difficulties encountered with concrete walling.



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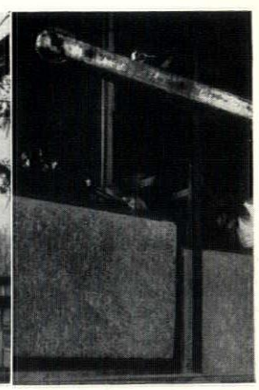

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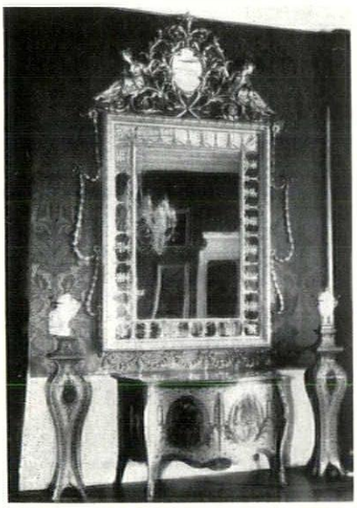
MURALS: now widely accepted as a proper decorative foil to modern architecture, large scale mural compositions still present æsthetic problems when considered as public statements. Both the style and the iconography need to be carefully considered—the first, it seems, can now be a kind of modified-representational without confusing the spectator, while the latter, though inseparable from style, remains largely for the artist to create for himself. In his wall of painted ceramics in the Information Office at Nicosia, 7, Sigmund Pollitzer has evolved a style and iconography which admirably fill the gap between material — painted tiles — and message—Cyprus, though he is undoubtedly aided in this by the way in which Cypriot artefacts, whether Archaic, or Byzantine, lend themselves both to his technique and his theme.

For his mural in the bar of the new Union Building, London University on the other hand, Clive Gardiner was faced by a more subtle problem in terms of both theme and audience. His solution, 8, a *capriccio* of University life and the Commedia dell'Arte, seems both appropriately donnish and donnishly appropriate, while the use of an ambiguous stage-set convention effects a suitably intellectualized compromise between reality and illusion, between iconography and style.

Corsham Court

As every great house should, that houses a great collection, Corsham Court offers a two-layer service of cataloguing and documentation on its treasures. For the student and historian there is still the definitive catalogue of the collection, issued a few years ago, but for the visitor who needs primarily to know merely who did what, there is now a supplementary brochure, less opulent in format than the usual charabanc trade keepsake, but still giving a short history of the house and family, and what it terms a 'topographical index' of the collection. This lists, on a room-by-room basis, not only the strangely mixed and highly characteristic assemblage of paintings that the Methuens have brought together, but also the more important furnishings, such as the Adam pier-glass, and the Cobb commode and torchères, below, that were seen in last winter's Royal Academy exhibition.



Peter Watson

The death at forty-eight of Peter Watson (properly Victor William, but always known as Peter) robs us of a personality who did much to shape our concept of the contemporary in art. He was one of the founders of *Horizon* just before the war, and of the Institute of Contemporary Arts after it, so that he was intimately concerned with two of the most influential organs in the creation of current attitudes to literature and the plastic arts. At the ICA he served on the Managing and Exhibition committees, his service on the latter being a kind of large scale projection of his private activities as a collector, and he was instrumental in bringing to the notice of the British public, artists as diverse as Matta, Wifredo Lam and Gerald Wilde.

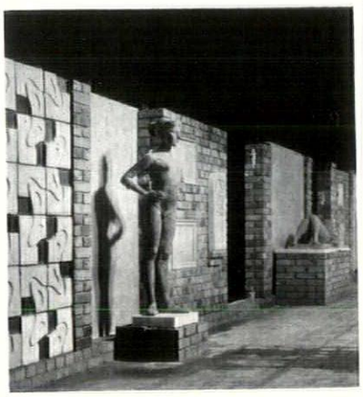
A Common Language

Diana Rowntree, who has been visiting the Hammersmith School of Building and Arts and Crafts, writes:

The retiring and businesslike manner in which the LCC goes to work tends to conceal the fact that it is increasingly the promoter of daring creative feats. The Hammersmith School of Building and Arts and Crafts aims at establishing a common language between the members of Trades, Professions, and Arts who train there. These include all the building trades, architects and structural engineers, furniture and textile designers, interior designers, potters and sculptors.

What this means can be understood by all tradesmen who have ever worked for architects, and by all architects who have striven to control operatives or artists all firmly bent on going their separate ways. They will recognize from the depths of the profound irritation they suffered what a necessary and what a revolutionary idea this is. The infinite misunderstanding that can build up between a designer's sweeping ideas and a craftsman's conservatism comes from their entirely separate education.

Art schools and colleges have worked on the lines of integrating the fine arts and industrial design, by encouraging the different departments to co-operate. Hammersmith has taken this idea a stage further, aiming to integrate their trade students with artists, designers and the professional students, by means of a common language and their student life in common. Periodically the work of all departments is on view at a single exhibition. At the last one, the level reached was



remarkably high for a local school. This success vindicates the principle, and to anyone who has grasped the implications of the general intention is only to be expected. This is only one stage short of the total education projected at Ulm.

If these trades, professions, and artists all understood a common language, imagine the ease and speed with which buildings and projects could be constructed. Imagine how immeasurably more interesting life would be for everyone concerned on such projects. But the supreme importance of this innovation is that it is the only way in which we can ever hope to build a coherent environment. It is probably the only answer to subtopia.

Illustrated is an exhibit at last year's exhibition of work, which includes the work of sculptors, bricklayers, mural designers and monumental masons.

CORRESPONDENCE

Motels

To the Editors,

Dear Sirs,—After perusing Diana Rowntree's article on motels*, I wish to congratulate her heartily on the suggestion to set up a panel dealing with motel buildings and preferably also with buildings, structures, signs, etc., scattered around our highways. I am fully aware, from my personal experience, of the need for such a body.

To pick out only a few points mentioned in the article—my Kent motel was rather better received (apart from the use of the waney-edged boarding, and on this point I must also agree with Diana Rowntree) than the others. The reason is quite plain: we have had practically no interference from the Kent Planning Authority, whilst in the New Forest we had to redesign the original scheme (which was a simple timber structure, expressed as such, with semi-flat roofs, etc.) three times, and control was exercised to such a degree that we were not even allowed to colour-wash our brickwork or use any but the locally prevalent red brick. Window sizes were drastically reduced, bars introduced, pitched roofs insisted upon. Similar, though not quite so stringent control was exercised in Exeter as well, and oddly enough the false stonework buttresses were required by the planning authority and were built at considerable cost to my client.

Again, in the New Forest, simplicity of design—most desirable from the operator's point of view for ease of control and servicing, had to be sacrificed because of the local authority's contention that a long building block would not fit into the surrounding locality.

Road signs are treated even more suspiciously by the authorities. The ones published are only temporary, since so far we have had no success in having any of our proposals accepted.

Planning permission in both the New Forest and the Devon Motel took approximately twelve and six months respectively as opposed to Kent, where it required only two months. Leaving aside all other benefits accrued by a Central Authority, the time saving alone would warrant any operator to gladly pay a fee, if necessary, to this authority, which thus could be made self-supporting. Particularly so if this authority could have a voice in drink and licensing matters too.

Two more points in conclusion—the morality aspect: of course there is no difference on this score between Hotel and Motel, control, registering, etc., being the same in both by law, and the running therefore depending on the management. Shabby finishes: They are due entirely to taxation policy, whereby it is cheaper in the long run to re-decorate frequently out of profits, on the untaxed maintenance account, than to increase the capital cost, which must perforce come from a taxed profit account. These conditions do not apply in the USA, where taxation is on a different basis; hence the avoidance of maintenance costs is the sounder financial policy over there.

Yours, etc.,

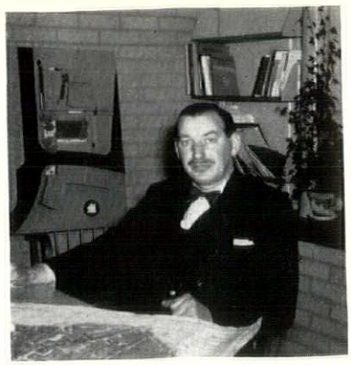
Louis Erdi.

*AR, February 1956

Arthur Ling, responsible as City Architect for the District Centre at Coventry, was trained at the Bartlett School of Architecture and studied Town Planning at University College, London.

In 1936 joined the town planning staff of the London County Council, but left the following year to work in the office of Maxwell Fry and Walter Gropius, continuing his theoretical studies of Metropolitan planning as secretary of the MARS Group town planning committee.

In 1941 he joined J. H. Forshaw and Sir Patrick Abercrombie's team to prepare a plan for London, eventually taking charge of the group preparing and editing the published County of London plan. At the end



of the war appointed planning officer in charge of all the LCC's planning work.

In 1946 took charge of the town planning course at University College and continued as senior lecturer until his appointment in 1955 as city architect and planning officer in Coventry.

Design in Cambridge

The Cambridge Design Society was formed in December, 1955, by undergraduates, 'to propagate interest in design of all kinds, particularly of objects mass produced and widely used . . .' The first chairman and secretary are respectively Michael Dower, of St. John's College, and Jeremy Taylor, of



Trinity. The Society has been working on a survey of Cambridge street furniture; the photograph shows the kind of problem it is up against.

ACKNOWLEDGMENTS

Cover: Denis Brihat. Marginalia, pages 1–2: House in Brazil, A. Michel; London mural, J. R. Pantlin. Wires Overhead, pages 7 and 8: BTC. Power Station at Kuwait, pages 9–11: Jack Hill. Buckminster Fuller, pages 12–20: 10, 15, US Defense Dept. (Marine Corps); 16, 18, R. Buckminster Fuller. District Centre at Coventry, pages 24–32: Galwey, Arphot. Factory at Stafford, pages 33–35: Galwey. Oxford College Barges, pages 36–42: photographs of paintings, Galwey; 6, Gillman & Soame; 9–13, Diana Rowntree; 14, Wallace Heaton. Current Architecture, pages 43–6: Highbury school, Mann Bros.; Binley pithead baths, P. W. & L. Thompson; Wallingford hospital, Toomey, Arphot. Miscellany, pages 47–54: Exhibitions, 1, Kleinhempel; 3, R. B. Fleming; 4, coll. Marquise de Potestad; 5, coll. J. Power. Sferisterio, M. Johnson. Faversham, Nairn, Arphot. Chandigarh, Denis Brihat. Skill: Design Centre, pages 55–9: 1, 3, 9, 14, COID; 2, 4–8, 10–13, 15, Galwey, Arphot. Design Review, pages 60–1: Swedish hollow-ware, 1, Wahlberg; plywood chairs, Erik Hansen; exhibition stand, Cowderoy & Moss.

THE ARCHITECTURAL REVIEW

Volume 120 Number 714 July 1956



The Cover joins what man at Chandigarh has put asunder. The rich plastic forms of Le Corbusier's Law Courts, the sacred cattle, the Sikhs with their uninhibited attitude to Western technology, are all elements of the townscape, but elements that the programmatic division of the circulation, and the regular gridiron of the plan, aim at keeping apart. On p. 53 Gordon Cullen questions whether the rigidity of the plan does not destroy many of the inherent townscape possibilities.

1 **Marginalia**

2 **Correspondence**

4 **Frontispiece**

5 **Wires Overhead** *by the Editors* The Transport Commission's announcement of its intention to electrify over twelve hundred route-miles of railway on the overhead system, though it contains many self-congratulatory statistics about economies of installation and support for the export industries, makes not a single reference to the visual consequences of this far-reaching programme. Some of the consequences may be beneficial to the eye—fewer lineside buildings will be required than with the direct-current third-rail system—but the wires themselves will alter, permanently, the aspect of large stretches of countryside, and routine excuses about the existing lineside telegraph wires, and other elements of rural wirescape, cannot diminish the visual responsibilities that the Commission is assuming. In some landscapes—the vastnesses of the prairies, or rugged mountains—overhead wires might have some value as symbols of human endeavour, but in the small-scale man-made landscape of England the existence of overhead wires and their supports may throw out of tune a hard-won harmony that now exists between the permanent way and the rest of the scene. The situation of the smaller, scenic, branch lines is particularly perilous, and for these the Commission should be prepared to take advice from experts in visual as well as electrical matters—if only because the economics of the Tourist trade may be affected. But beyond this, the electrification programme as a whole should be made a field of activity in which the present guerilla warfare between industrial and aesthetic interests might be replaced by an attitude of co-operation that could set an example for other situations of the same kind.

9 **Power Station at Kuwait:** *Architects, Farmer and Dark*

12 **Buckminster Fuller** *by John McHale* Though widely, and superficially, known for his domes, Buckminster Fuller is more than a man with an obsession for one kind of structure at the expense of all others. He is, in his own terminology, a Comprehensive Designer, and his task, as he sees it, is Total Design. These all-embracing concepts are themselves embraced within an attitude of mind that takes design problems back to their roots in technology, economics, social needs—even to a radical view of the world's physical form: an earth-island at the bottom of an air ocean. Mr. McHale traces the development of these Fullerian concepts through their biographical sequence, showing how specific themes have grown, waited on necessary technological developments, and then come to fruition after a lapse of years that Fuller, with his accurate sense of technical progress, has been able to estimate almost to the day. Seen against this background, the characteristic geodesic dome structures that have won him international fame in recent years appear as the logical outcome of almost forty years of thinking and research in fields as diverse as transportation and spherical geometry, light alloy fabrication and plastics chemistry, and the decision of the U.S. Marine Corps to replace its tents and quonsett-huts with air-liftable domes comes as a demonstrable justification of a lifetime of radical thought that had hitherto only earned him the reputation of a visionary and eccentric.

21 **Dursley** *by Gordon Cullen* To open its second series of Townscape studies undertaken in collaboration with a University—in this case the Department of Adult Education at Bristol—THE ARCHITECTURAL REVIEW has selected Dursley as the first of a group of West Country towns for study. Dursley's basic problem is that its town-centre—a composition of great character—is inadequately equipped for the press of traffic that now passes through it, and buildings are already being demolished to make more traffic space. In addition it is one of three towns that provide social and administrative facilities for its area, and it is now proposed to extract these facilities from the towns and move them to new sites in open country. This also, like the Dursley traffic jam, is a product of the new mobility and fluidity of a motorized society, and Gordon Cullen attempts to show just what is at stake before barbarous authority tries to convince the citizens of Dursley that the gutting and disintegration of the town will constitute an improvement—most notably, a gratifying and usable pedestrian precinct that will be irretrievably ruined if the town centre is made over for an arterial highway.

24 **District Centre at Coventry:** *Coventry City Architect, Arthur Ling*

33 **Factory at Stafford:** *Architects, Edward Mills and Partners*

36 **Oxford College Barges** *by Diana Rowntree* The tradition of the College barge at Oxford is just over a century old, and now appears to be coming to an end. The barges were part of the nineteenth-century style of oarsmanship, a feature of the social life of the university, some were the work of distinguished architects, and they constituted a curious and satisfying feature of the riverside scene. In the changed life of the twentieth-century oarsman, and his college's rowing activities, they have lost their essential place, and are being replaced by permanent boat-houses on a site made available by Christ Church. But it is to be feared that the new structures will not contribute as much to the landscape as did the barges—Mrs. Rowntree suggests that those already built have contributed only an air of tidy-minded desolation. What is needed is a type of building that will continue the elements of nautical tradition that were visible even in some of the least distinguished barges, will respect the old trees on the site, and resume the tradition of bringing Eights Week visitors well forward over the water. This last is difficult, because the stowage of long boats on a narrow site tends to force the upper storeys of the boathouses back from the bank, and some deliberately contrived feature will be required to bring the structure, and the viewer, to the front again.

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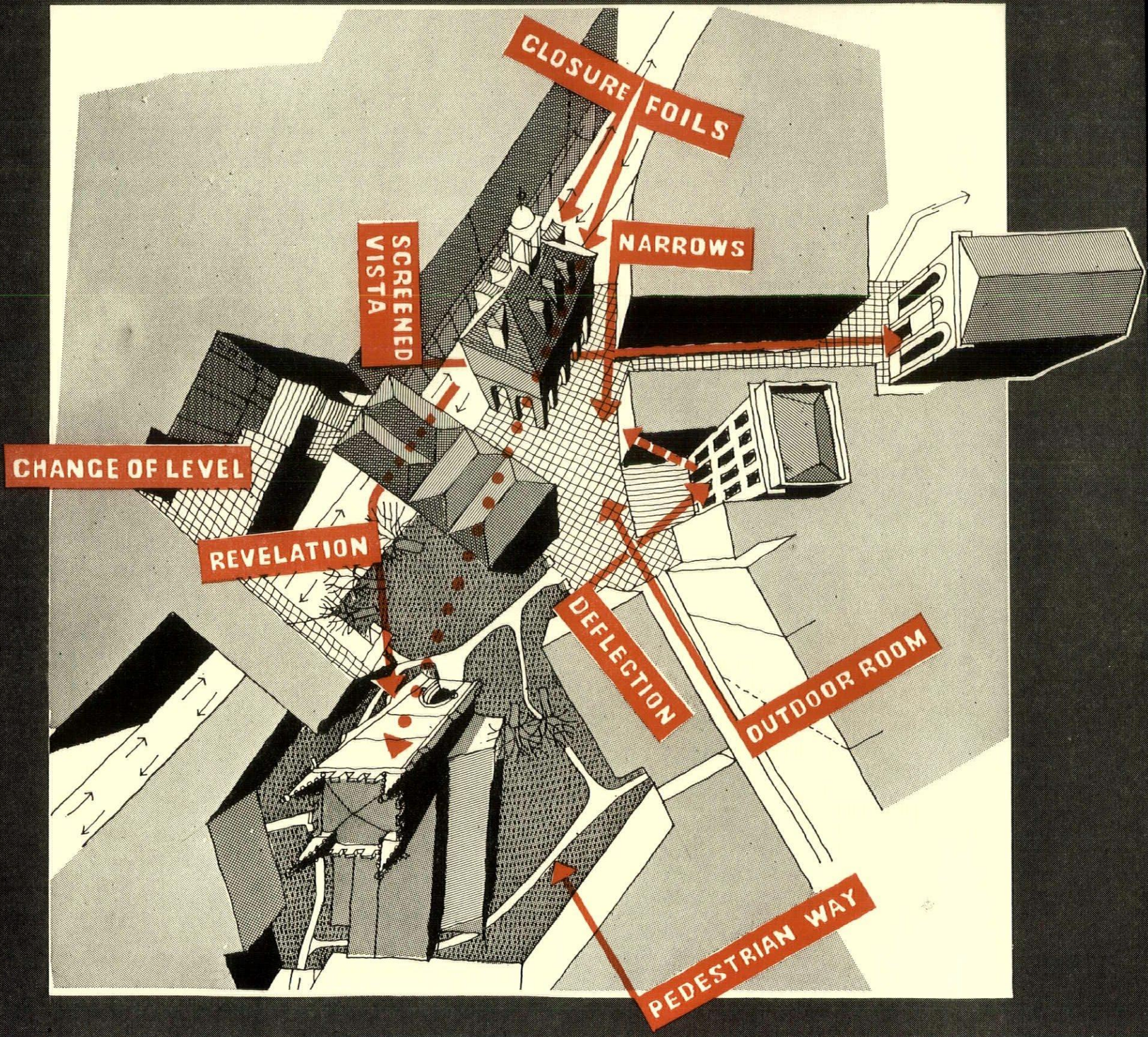
FIVE SHILLINGS

SERIAL VISION, *the unfolding of urban drama in the dimension of time, is particularly apt at the centre of a small town where intricacy is a continuing source of pleasure as opposed to the boredom created by opening up. Such a town is Dursley in Gloucestershire, and it forms the first subject of a new series of townscape studies in the west of England, undertaken by the* REVIEW *and Bristol University, who will use them as the basis of extra mural courses in the towns concerned. In a world in which the old town patterns are cracking open like chestnuts before a hot fire it is felt that only a broad, popular appreciation of townscape can ensure that the integrity of generations is not thrown away in an afternoon's search for a car park site.*

Below, the centre of Dursley showing some of its townscape effects which are more fully described in the article on page 21.



The Editors

WIRES OVERHEAD

'The Commission's decision to adopt the new system has the full concurrence of the Central Electricity Authority and is supported by the electrical manufacturing industry.'

So ends the British Transport Commission's general statement to the Press of its revised system for the electrification of British Railways. The report describes the process by which, at a cost of £185 millions, 1,210 route miles of BR—820 of main trunk routes and 390 of suburban lines—which had already been scheduled for electrification under the £1,200 million Modernization Plan will be saved from the method hereby rendered obsolete of direct current with third rail conduction, prevailing on all lines so far electrified, by the installation of alternating current, with overhead wire conduction. All subsequent electrification schemes, except on the eastern and central sections of Southern Region and on London Transport, will be carried out in this way. The advantages of AC over DC are apparently numerous[1]. And the case against steam seems strong enough to convince anyone accessible to reason. There is a chronic coal shortage; steam pollutes the air, and steam locos have bad acceleration, need excessive cleaning and maintenance, and need firing before use. But the advantages of electricity over diesel, considered even apart from aesthetics, seem moot. During the replacement of steam by electricity which will take about 25 years to complete (the last steam loco will be built next year) diesel locos will anyway be used on lines in the actual throes of change-over. About 2,500 will be ordered and will be moved about to fit temporary requirements and then used permanently on lines with light traffic, or in shunting, for which purposes they are apparently economical. What is remarkable is that the BTC thinks them uneconomical for the main lines. It is understandable that electric locos are more economical in running costs on lines with heavy traffic than on less frequented lines[2]:

[1] First, the cost of power supply equipment, sub-stations and feeder equipment, also of power consumed and maintenance, will all be less, it is said, by £1,000,000 annually on all the lines which it is proposed to electrify; secondly, with overhead equipment, both the wiring and the overhead structures are light and require less copper and steel respectively than do existing DC equipment—the expense of alterations to tunnels and bridges to give the necessary extra clearance being more than counterbalanced in the over-all saving; thirdly, this system gives better adhesion to the rails, thus making possible lighter locomotives, and easier control.

[2] In fact the difference is proved to be very great, the cost of running electric locos on main lines being assessed at 5s. per train-mile (as against something like £3 on lines used comparatively little). This compares with about 10s. per train-mile for steam, diesel coming 'somewhere in between'; research has apparently not yet arrived at a more accurate assessment.

(so, admits the BTC, would diesel locos be; a nice contradiction in their attitude there). But diesel can be put immediately into use; of course it has no need of the wiring, transforming and new signalling equipment necessary for electrification and which is going to cost the country such a packet. The time in which it is estimated that the capital cost of electrification will be recouped (if ever) has not been disclosed. It is merely stated that the electrification plan will be long-term . . . and 'under certain conditions, the most economical'. Sir Brian Robertson, chairman of BTC, states, that, by adopting the latest system of electrification, British Railways would enable our electrical engineering firms to build large quantities of equipment which would eventually have a great sale in overseas markets. Interested in the new system, he said, are the USA, Argentine, Brazil, East Africa, New Zealand and South Africa. At the prospect of all this milk and honey, the *Manchester Guardian* issued a very happy first leader on March 7. And no wonder the Central Electricity Authority and the electrical manufacturing industry concur; the quotation at the beginning of this article is a masterpiece of understatement.

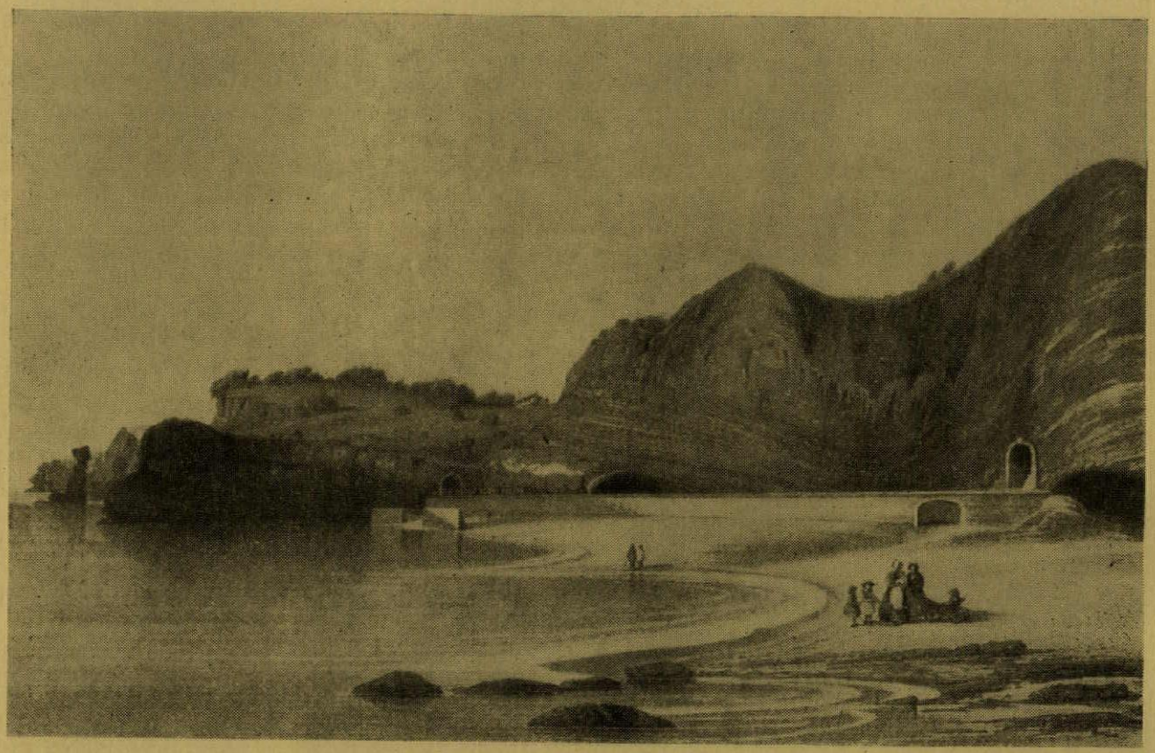
However, these are technical arguments which are difficult to answer without more evidence but, whatever their merits, the thing that is most striking about the Commission's statement is that it does not contain even a routine mention of the visual aspects of overhead wiring. One might have expected the defensive formula about there being enough mess in the country already for a little more, or a lot more to make practically no difference; but nothing, either defiant or excusatory, is to be found.

Perhaps we are fortunate in that the AC system (which involves overhead wires) requires many fewer sub-stations along the routes than does the DC. The voltage of the AC is 15,000; that of the DC at present in use in the Southern Region 660 volts. Hence the voltage 'drop' in transmission of current from the central station is less in the AC and many less sub-stations are needed, the ratio being approximately 7 to 1.

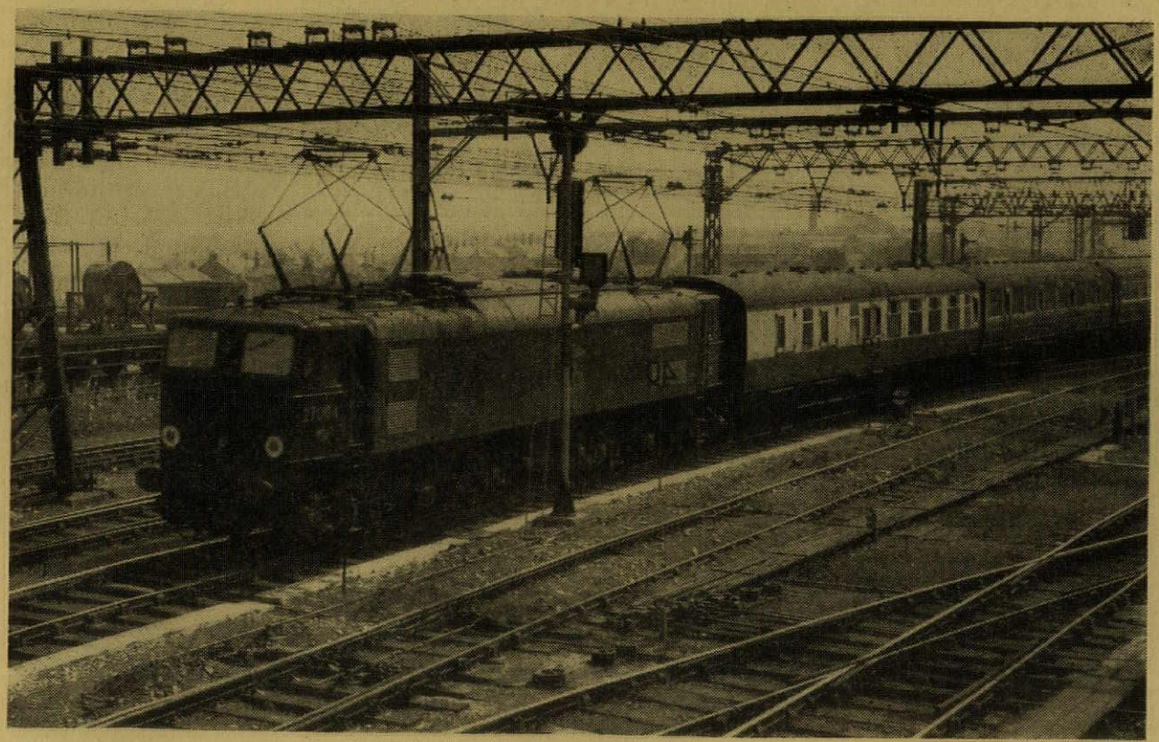
But overhead wiring makes the prospect immensely different. And before going into this point in detail, let us examine one facet of the question of association. A protagonist of the electrification of railways on the AC system, or the PRO of any of the interested bodies, if faced with the objection that overhead wiring would be detrimental to the beauty of the landscape, would certainly reply: 'But you have got pylons stretching for miles across down-land, not to mention the telegraph poles and wires which already run along-side railway lines and along a good many country roads and lanes. What difference will one more thing make? Pylons are much bigger than the gear necessary for AC electrification.' And a doubt will creep over the questioner. Has he not on many occasions half lulled himself to sleep by watching, from a comfortable corner-seat in a train, the apparent rise and fall, and crossing and uncrossing of the telegraph wires? Is the pleasure of watching stretches of country roll by anything comparable with it? Yet the most cunning PRO would find it hard to persuade anyone that the static wirescape along a railway track, seen from a nearby field, is more beautiful than the country surrounding it. The trouble is that whereas, to a child, landscape, considered pictorially as against something to be in, means next to nothing, wires probably mean much; and childhood's fascinations die hard. If you have grown up with telegraph poles along every country lane, and as a child put your ear to the pole to hear the wires 'singing' or watched the migrating swallows perched on the wires, it is difficult later to recommend that they all be torn up because they are detrimental to the landscape (which they undoubtedly are.) And pylons . . . many children must have been surprised at hearing their right-minded parents condemn a thrilling perspective of these giant conductors of imagination; and, in later life, when their own aesthetic sensibilities are developed, it may be impossible for them not to experience occasionally a return of the old elation and wonder if inveterate pylon-hatred is not simply a matter of prejudice.

What about overhead wires on railways? Except as travellers abroad, we have had little experience of them—only on the prototype stretches of line from London to Shenfield in Essex, and from Manchester to Sheffield. The trolley-bus wires in towns scarcely count, but it is difficult to see how their monstrous

eating-up of the sky and the façades of buildings could make even a child happy. In open country, the effect is less claustrophobic. This is particularly so in large-scale landscape, such as the lower Alpine valleys: there even a dam, or a power-station, if well designed, should not look amiss. Any claims either of those might make to dominance would be severely checked by the 10,000-ft. peaks above. In a great tree-less prairie, stretching for hundreds of miles in every direction, a grain elevator will appear to the native, or to anyone, as piazzas and parks do to a city-dweller, or to anyone—viz., as a beloved oasis. However gigantic and assertive, it cannot spoil the landscape. Similarly, wires in a rocky landscape of



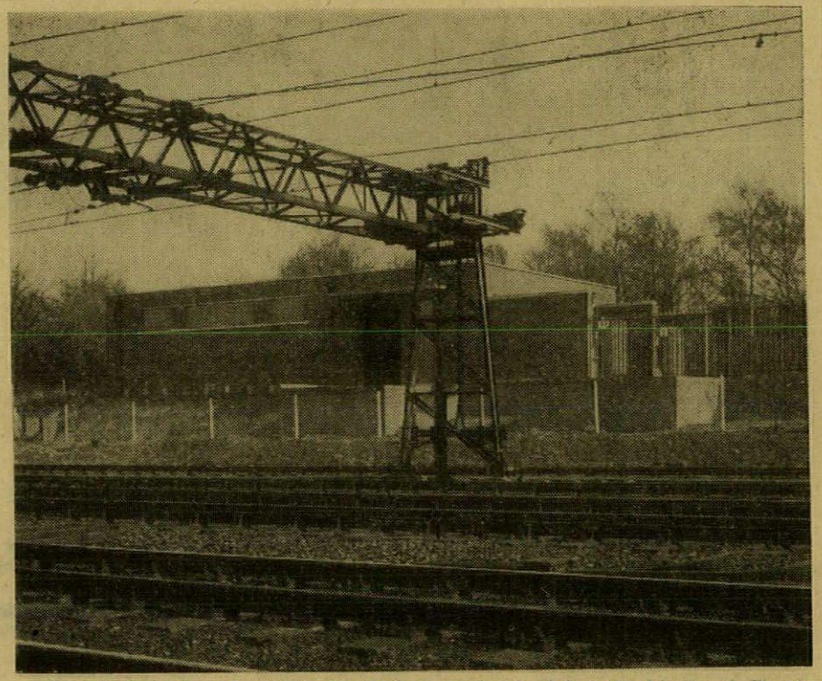
DAWLISH. The heroic age of steam—the permanent structure is in scale and in sympathy with the view, and stands only as high as the roadbed, whereas . . .



. . . in the fiddling age of electricity, the permanent structure stands twice the height of a train above the roadbed, niggling in scale and out of sympathy even with this view near MANCHESTER

vast scale, or even across hundreds of miles of empty prairie, might be seen as showing off man's achievement in a heroic light, the victory of minuscule man over great and hostile elements.

But in England, the battle is over before it has begun. The soft and gently undulating landscape has no defence against any punishment man may wish to inflict upon it. One slap, and the red mark stays for ever. Once again, it may be objected that scars and weals are so numerous that no more can make any difference; but the equipment necessary to carry the overhead wires on the railways, even if of unexceptionable design, will eat fifteen feet or more into every skyline. In many cases, where at present railway lines harmonise with the landscape and are only in evidence when a train passes by, a wirescape will appear, visible perhaps from far away, and obliterate the quiet and unassuming individual quality of the neighbourhood. This does not apply only to branch lines stretching into remote regions. Travelling on any of the great trunk lines, one will pass through many miles of deep countryside; and from the countryside itself, the new wirescape will be the visual equivalent of an unending express train, passing at 60 miles an hour with the whistle blowing. For the branch lines and less important national routes, the British Transport Commission should invite a committee, well qualified to advise on visual matters, to prepare a list of areas which it thinks specially important. This would be the minimum concession to opinion which dreads further spoliation of landscape and the spread of subtopia. It will then have the choice whether to act on such advice or not. If it does not, then protests can be made and put before the public, either by means of questions in Parliament or through articles and letters in the Press. The BTC would thus be brought down from its pedestal of cool disdain towards matters not obviously connected with economic expediency and good relations with the electrical manufacturing industry.



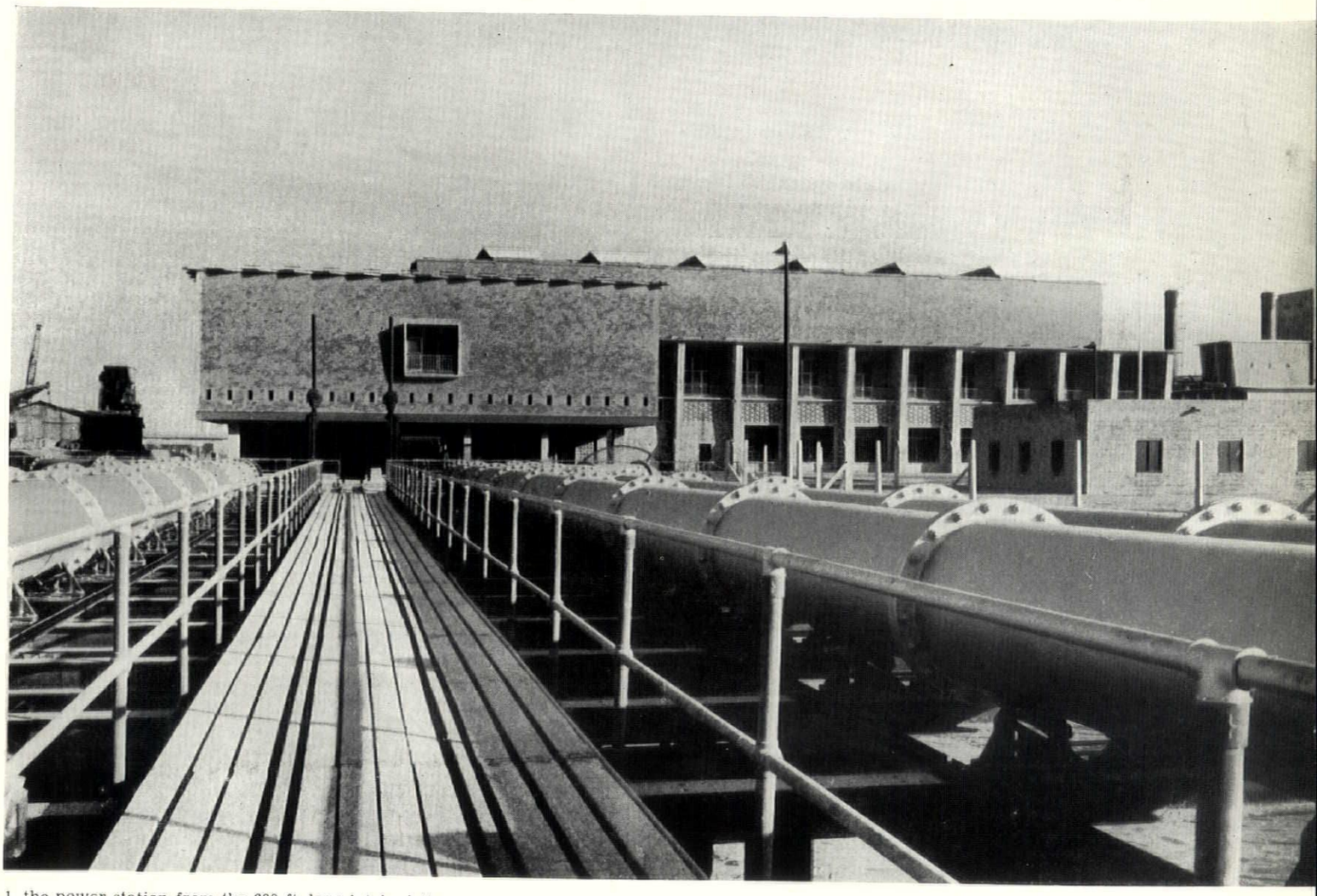
On a British railway line that already has overhead wiring, the Liverpool Street-Shenfield line: a sub-station building.

There are several reasons why BTC should have intentionally omitted to mention, in visual terms, how their re-wiring scheme would affect the landscape. Perhaps they foresaw long sessions during which they would have to be polite to members of the Royal Fine Art Commission—while the real point, namely an equivocal material advantage, was being missed. Perhaps their honesty forbad them to leave an apparent loop-hole open to visual objections, which they had no intention of gratifying. But on this score they can probably be given the benefit of the doubt: for it seems almost certain that visual considerations never even entered their heads. What is really surprising, however, is that it should never have dawned on them that to inflict further damage on the countryside, whose beauties they continually extol in their home and foreign publicity, might turn out to be bad business.

Like every nationalized industry and every big business worth speaking of, they prove themselves honest barbarians. Honest in that they never waver for one moment from the belief that only the material consideration counts; if they were to let aesthetics befoul their profitable schemes, they would be opening the floodgates to a national decadence. Or would they? Already, by the ignorance of local authorities and the indifference of private commercial interests big and small, local character is being erased throughout the British Isles. A brave new world of a sort can be developed by scouring human barrels free of any inhibiting accretions in the way of romantic associations with place. If everywhere is the same, there can be no harm in mass deportations *à la* Serov, etc., etc. And where will the patriotic impulse go, which has won our wars in the past, and which is largely based on place? Instead of it, no doubt, we shall have megaphone propaganda.

POWER STATION AT KUWAIT

ARCHITECTS | **FARMER AND DARK**



1, the power station from the 600-ft. long intake jetty. The control room faces the landward end of the jetty.

Kuwait is an independent state in the north-east of Arabia, at the head of the Persian Gulf, with a territory of 6,500 square miles and a population that has increased from 100,000 in 1951 to over 200,000 at the present time. The climate is hot and dry with a daily maximum shade temperature of over 100° F., with a sun temperature of up to 180°. Humidity is very low, rainfall being seldom more than 6 in. a year, and direct sun and reflected light is intense.

The station is the first part of a scheme commissioned

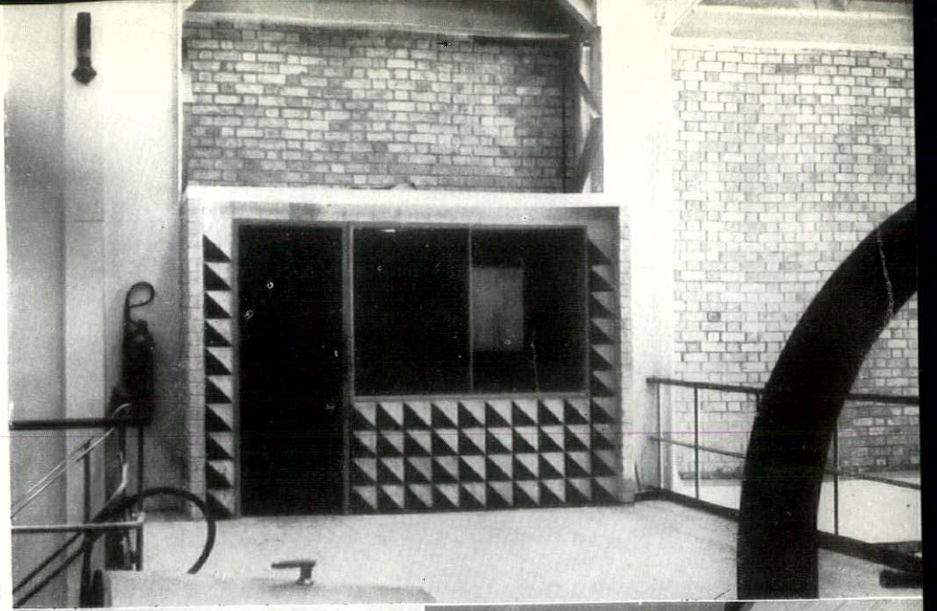
by the Ruler of Kuwait in 1954, before which time electricity supply to the town was very limited. It is in the industrial area 1½ miles south-west of the old town, directly overlooking the bay. The turbine house, which contains the four turbo-generators, has a roof height of 55 ft. 6 in. A tiled operating floor at 18 ft. 6 in. level has three large light wells north of the turbines, the rest of the floor in this area consisting of two bridges, leading through soundproof airlocks to the office corridor. From these bridges and from two points in the south aisle, steel staircases descend to ground level. The tubular balustrading is removable to allow easy handling of plant served by the overhead travelling crane.

In a lower block to the north, at the 18 ft. 6 in. level, are the administration offices, of which the north external wall has French windows opening on to a balcony. Under the balcony and offices are the transformer cubicles separated by 13½ in. brickwork, and the switchgear and battery rooms, for which fire protection is by a CO_2 installation.

The whole site was excavated to the full foundation depth. 4½ in. brickwork was built as permanent shuttering for the mass concrete stanchion foundations, which in general are 4 ft. thick. Steel channels were cast into the bases, and pockets left to receive the holding-down bolts for the stanchion base-plates. The ground-level concrete slab is 10 in. thick, reinforced by two layers of mesh, and has a granolithic floor screeded to fall slightly towards internal washdown drainage channels. Plinths for machinery and plant are mass concrete cast with the floor slab. The structural steel frame has three sets of double stanchions in the length of the station, isolated from each other to provide for expansion; it is rigid laterally. Additional crane stanchions are braced to the main steel. The steel box frames forming the turbine-house rooflights make a self-contained rigid frame with sliding joints supported on concrete upstand curbs from the main roof. External walls to the turbine-house are 1 ft. 6 in. thick brickwork; where bays between stanchions are uninterrupted by doors or windows, a core of 9 in. thick hollow concrete block is faced by 4½ in. brickwork on each face. Elsewhere external walls are mostly 13½ in. brickwork; internal walls the same or 9 in. No brickwork is load-bearing. All roofs are reinforced concrete; that above the raw water tanks has paint applied direct to the finished concrete. All others have a 2 in. vermiculite screed, bituminous asbestos fibre sheeting, and asbestos tiles in mastic: flashings are zinc.

Doors in the office block are flush with semi-solid core and teak plywood veneers. Those in the conference room are solid teak. All other doors are flush steel. There are roller shutters in the unloading bay west of the switchgear rooms and at either end of the turbine-house. The window frames, purpose made of universal aluminium sections, are built directly into the reveals. All external walls are left fairfaced. The turbine-house walls are fairfaced brick, and the floor is granolithic on the lower level; the 18 ft. 6 in. floor is of hard vitreous tiles, and the walls have a terrazzo tiled dado. Floors elsewhere are mostly terrazzo tiled, and the false ceilings plaster on clay lathing. The false ceiling in the control room is of perforated metal trays with fibre glass insulation, clipped to hangers from the roof steelwork.

All the work was carried out in collaboration with Messrs. Ewbank and Partners, consulting engineers to the Government of Kuwait.



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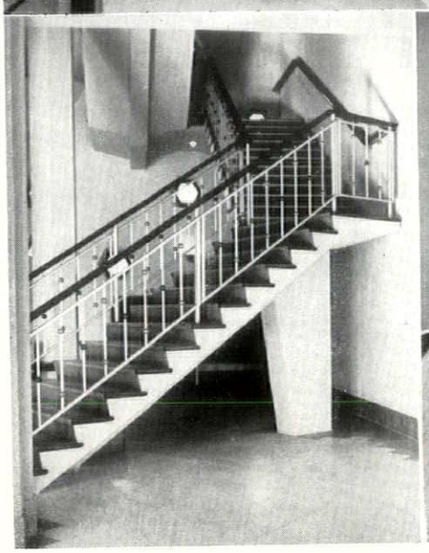

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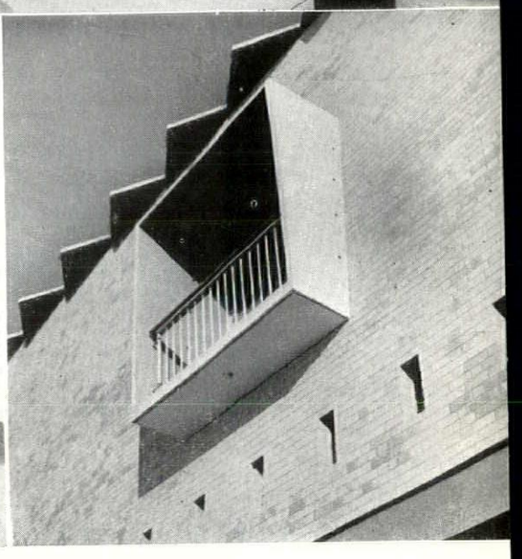
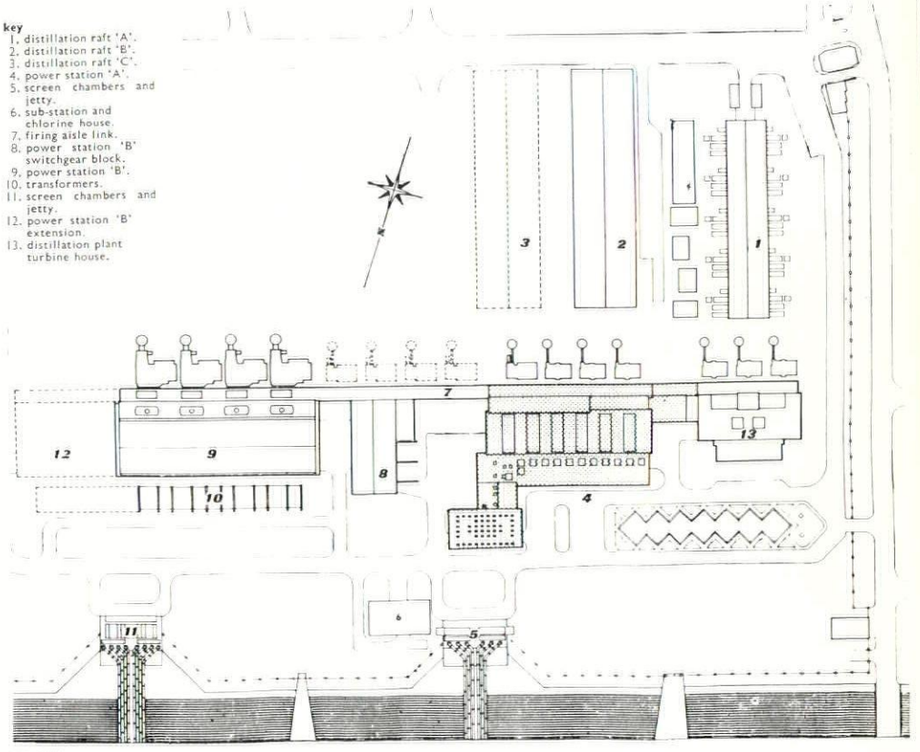


4

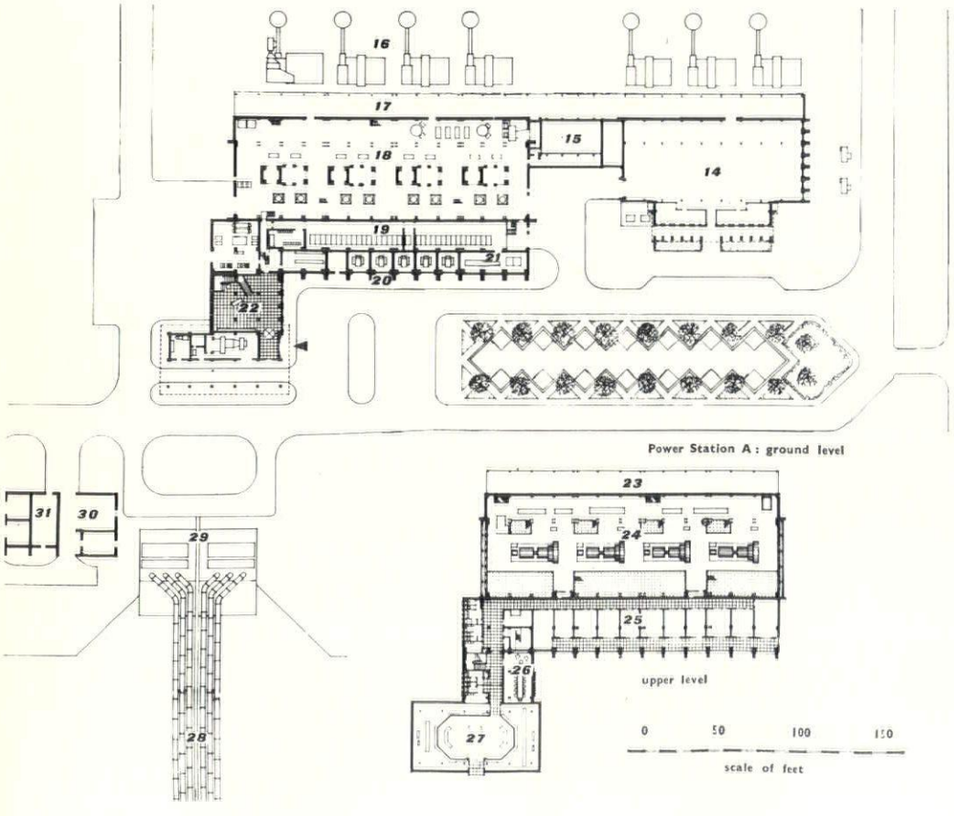
2 one of two links between 18 ft. 6 in. level of turbine-house and upper floor of office block, with sound-proofed air lock leading to office corridor. 3, concrete stairway in entrance hall. 4, control room balcony.



site plan

5, general view from west with, left, control room and *porte cochère* under ; centre, with louvred window, is the conference room, and right, behind brick piers, the administrative offices on the first floor and transformer cubicles under. The pool is the first to be made in Kuwait ; the eucalyptus trees lining it grow 6 feet every year.

POWER STATION AT KUWAIT



key
14, distillation plant turbine house.
15, plenum link.
16, boilers.
17, boiler firing aisle.
18, power station 'A' turbine house.
19, switchgear.
20, transformers.
21, neutral earthing switchgear.
22, entrance hall.
23, tank and duct galleries.
24, turbine operating floor.
25, offices.
26, conference room.
27, control room.
28, intake pipe jetty.
29, intake water screening chambers.
30, water chlorination plant.
31, electrical substation.

Though often dismissed as an eccentric with an obsession about technology, Richard Buckminster Fuller is one of the most radical thinkers on architectural problems that this century has produced. On the opposite page he is seen under his dome at Woods Hole, Massachusetts, while a helicopter lifts the prototype Marine Corps dome beyond. The latter is of magnesium, but the Woods Hole dome is made of one of the oldest building materials known—wood—and, as Mr. McHale makes clear in his article, Fuller's philosophy is too broad and all-embracing to be tied to a particular material or method.

BIOGRAPHY

John McHale

BUCKMINSTER FULLER

To many Richard Buckminster Fuller is still 'the man with the dome-house bug', and official historians and critics have done little to dispel this atmosphere of limited assessment. To the tidier mind, perhaps, he is a phenomenon which lies outside the customary canons of architectural judgment, a man whose varied career, development and ideas defy the usual categories. Yet, here, at the mid-century, he assumes a stature which renders pertinent some attempt at a balanced presentation.

His rise to prominence, and consequent influence, though confined mainly to America, coincides with a change in the climate of ideas, not only in design. This change employs, on the one hand, the Occam's razor of concept-economy, and, on the other, the idea that any formulation is acceptable which serves this economy, or identifies a situation in which action is possible. Tangential to this, Fuller's axiom, 'A problem adequately stated is a problem solved', expresses succinctly a basic premise of this new methodology.

The self-coined appellation 'Comprehensive Designer' is typically compressed in comparison with Fuller's recent citation by the University of North Carolina, 'As a distinguished engineer, mathematician, inventor, designer, mechanic, writer and philosopher, he has become one of the most influential and controversial personalities of the machine age.' Such a listing indicates the scope of his achievements but tends to distort them, by fragmenting what has been an impressively single-minded development towards his over-all manipulative position. Christopher Morley dedicated his 1936 book *Streamlines*

as follows: 'For Buckminster Fuller, scientific idealist, whose innovations proceed not just from technical dexterity but from an organic vision of life.' Each field in which he has engaged has been systematically ransacked for any knowledge or technique which would, in any way, add to his capacity to dominate the task he set himself—Total Design—with Fuller-indicated priorities.

It is important to place Fuller against his New England origins, and to define him as an indigenous American figure. 'Transcendental' is a favourite word with Buckminster. His aunt, Margaret Fuller, with Emerson, founded and edited *Dial*, the organ of Transcendentalism, which first published Emerson and Thoreau. She also brought Goethe and Schiller to the mid-nineteenth century audience through her translations. Though any adherence to -isms and movements was earnestly eschewed by Margaret Fuller, and the family in general, the atmosphere of ideas around *Dial* can be suggested as an important influence on Fuller's thought. New England Transcendentalism was a late love child of revolutionary humanism cross-bred with Puritan theocracy. 'A cosmic idealism coupled with Yankee practicality, Puritan pugnacity and grasp of fact.' Fuller has similarities with Thoreau, whose Walden experiment was an attempt to place life on a new basis, with its emphases on autonomy and strict accounting. Thoreau's basic shelter idea, costing one dollar, of a railroad worker's six-feet-by-three toolbox, antedates Fuller's grainbin-inspired Deployment Unit in use during World War II. On the side of design, the nineteenth-century balloon frame offers parallels with Fuller's later structural direction, with a similar lag in academic acceptance despite, in this case, widespread vernacular usage, and it 'marked the point at which industrialization began to penetrate housing.' The actual derivation, however, of Fuller's structure is not from architecture, but directly from ship rigging and aircraft framing, 2. Whilst disclaiming any such conscious æsthetic intent or association, Fuller's own assumption, of an economic and reliable structure being subconsciously employed æsthetically, allows one to place him on the side of functional æsthetics. Horatio Greenough with his 'beauty as the promise of function,' and Sullivan, 'form follows function,' are early American authors of this school.

Fuller was born in 1895 in Milton, Massachusetts. Of his early years he writes: 'My teleological stimulation first grew out of boyhood experience on a small island, eleven miles off the mainland, in Penobscot Bay of the State of Maine, U.S.A., where floatable at will in and out of nature's tidal dry-docks, with a 15 feet flood rise twice a day, boat building was the parent technology . . . .' Formal schooling led in the family tradition to Harvard. The fifth generation Fuller at Harvard, Buckminster disgraced himself by two consecutive expulsions. These led to involvement in the live economic pattern; first, as an apprentice to a group of cotton mill machine fitters, and secondly, in the meat industry with Armour & Co. These episodes were enjoyed more than Harvard. Following these came Naval Academy, entry into the U.S. Navy and marriage in 1917.

Fuller's wide naval experience gave him the kind of education he failed to find at Harvard. The atmosphere of precise mathematical reckoning, advanced communications and the technical know-how involved in the logistics of mass tonnage movements, ballistics and navigation is built into his later ideas as a fanatical belief in complete over-all pre-planning.

In 1919 he returned to Armour, and other work. 1922 was a fateful year for Fuller. His daughter died of an epidemic aggravated by four years of war. In the same year he had founded the Stockade Building System—a reinforced concrete scheme of his architect father-in-law. (James Monroe Hewlett, Vice-President and Fellow, American Institute of Architects; President, Society of Mural Painters and Director, American Academy in Rome—one of Fuller's most important inspiritors). Fuller recognized in the former event the human misery attending preventable breakdowns in society, and his experience in commercial building, with the latter venture, afforded him chapter and verse for later messianic condemnation of lack of foresight and ensuing chaos.

In 1927 the birth of a second daughter forced Fuller's 'blind date with principle.' Commercial considerations were set aside. His five-year labour on the Stockade system (during which he set up four plants and built 150 structures) was abandoned and he devoted himself to shaping his Dymaxion creed. Its title, compound of 'dynamic' and 'maximum,' refers to the 'maximum gain of advantage from minimal energy input.' This largest dividend of human advantage from the least investment of energy and materials is to be accomplished by an over-all consideration of technological means available, and their most integrated employment. The Dymaxion House model of 1927 was the end-product of this reasoning, applied to basic shelter. Hexagonal in shape, and tension-suspended from a central duraluminium mast, 3, it embodied total environmental control. Adjusted to minimal fuel and water requirements, it was envisaged as rentable on the same basis as the telephone and replaceable at intervals like a car.

Convinced of the inadequacy of the building industry, Fuller had looked for technical guidance to the growing car and aircraft industries. In their early stages these could, however, not provide the alloy chemistry which he saw as necessary. The Dymaxion idea made him see how slow was the resource development and predict an approximate twenty-year lag in the development of necessary materials, and for general acceptance of such total prefabrication. He settled down to explore further prototypes.

Research into mechanical cores for the American Radiator Co. produced in 1931 a full-sized bathroom

unit and schemes for other utilities. This was one of the first attempts to integrate such units, and he returned to it in 1938, in the Phelps Dodge laboratories. The later version was a simultaneous die-pressing of all components, as a compact unit, 4, with walls included, 5. Giedion, who never actually saw a Fuller bathroom, whilst applauding the expertise with which this was calculated, criticized it as being 'all right for a submarine,' and complains that 'the human problem was lost in the stamping.' Fuller states: 'Bathrooms specifically built for human dimensions, freedoms, and joy, not built for giants or gnomes, or superficial efficiency experts, and not built as yesterday's clothes closets filled with new fangled gadgets or any formally designed modifications of such fortuitous gadgeting.' Twelve of the early models were actually made and have since given, according to their varied owners, extremely satisfactory service.

Whilst in the Navy Fuller had paper-designed a hoverable-type jet stilt 'flying bedstead.' It was brought to model stage in 1927, and he returned to it in 1932. From the 'ground taxiing and crosswind travel problems' of this idea was born his automobile. Scooping Chrysler's Airflow by a year, the Dymaxion Transport Unit was a stream-lined three-wheel job, perhaps the most radical design till then to appear in the car field, 6. These cars, of which three were built (one, reputedly, is still on the road), were typical of all Dymaxion projects in being undertaken by Fuller as 'true' scientific research and not for personal gain. A later version, developed for Henry Kaiser in 1945, was an improved design, using 15-25 h.p. engines, mounted as detachable units with wheel and drive, which after starting used one engine only to cruise, giving a running average of 40-50 m.p.g.

Criticism of the Dymaxion house, bathroom and car, at this stage, can stem basically from the same premise: the operation in the consumer mart of what Fuller labels 'economically inessential æsthetics,' broadly inclusive of styling, packaging and design symbolism. In the case of the car all you got was transport! But current examination of this field shows how low technical adequacy comes in the list of consumer preferences—compared with chrome trim and paint. But Fuller was certainly not alone in this partial design myopia, which has only recently been critically noticed.

The first of Fuller's projects to reach any level of mass production was the Deployment Unit of 1940. Inspired by mid-Western cylindrical steel grain-bins this exploited the facts that for lightness, maximum space enclosure and most efficient heat distribution, a cylinder, whose walls needed no extra bracing, would be ideal and could be most speedily turned out.

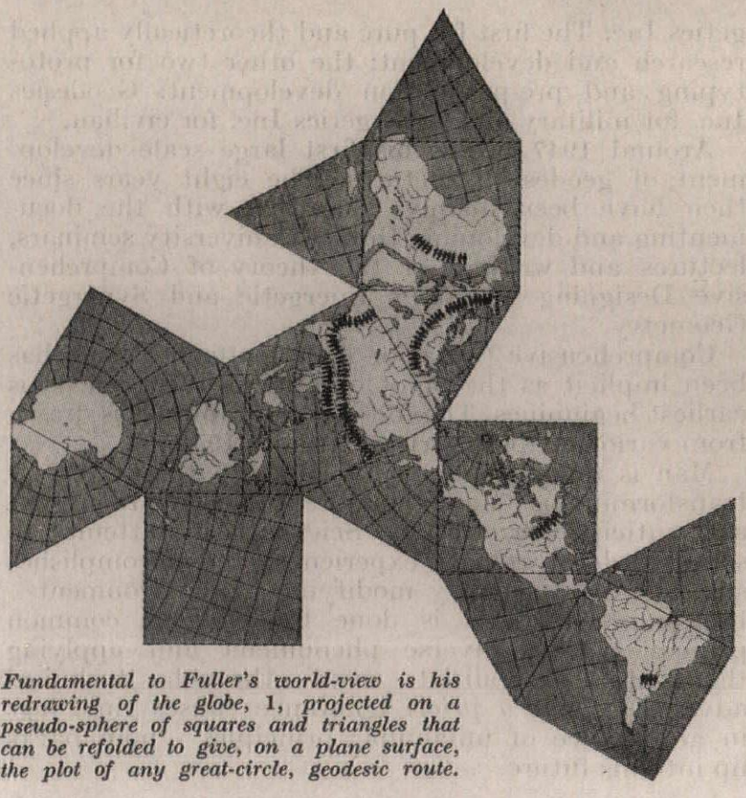
Concurrently Fuller undertook marginal activities, which, as well as helping to finance his explorating ventures, enabled him to activate other sectors of his Dymaxion philosophy. With Phelps Dodge and later as technical consultant to *Fortune*, he prepared statistical charts of scientific and industrial trends linked with process and material discoveries which resulted in new formulations in this field; notably the replacement of the old evaluation in 'Tonnage' and 'Manhours' by that of 'Energy' as more expressive of the industrial factor.

The Dymaxion World Map, also born of these researches and earlier naval and aeronautical studies, was published in *Life* in 1942. A new cartographic projection, this has since proved useful in global air routing. The map shows the world land masses as a 'one world island at the bottom of the air-ocean,' and is divided into squares and triangles to unwrap the world in any great circle direction, 1.

With the Board of Economic Warfare, from 1942-44, as Chief Mechanical Engineer, Fuller worked on motion economics and industrial development principles; from this came additions and expansion of his concept of 'Energetic Geometry,' first started in 1917, and to which we refer later. Aiding the State Department in the formulation of the world housing problem for UNRRA, Fuller also developed a programme to convert war production to a world-wide service industry, which would provide 'scientific living facilities.'

As a concrete implementation of this programme, long part of his ideas, Fuller returned to the Dymaxion house, having prophesied in 1927, from his analyses of industrial trends, that materials and technics, then missing, should be available around 1945. A new company was formed in conjunction with Beech Aircraft Inc., Wichita, and early in 1946 the first house came off the assembly line. Though a target of 500,000 a year was set, with a standard model priced around $4,000, it never reached mass production. Despite 3,700 purchase applications, the war being over, funds for complete tooling-up could not be raised.

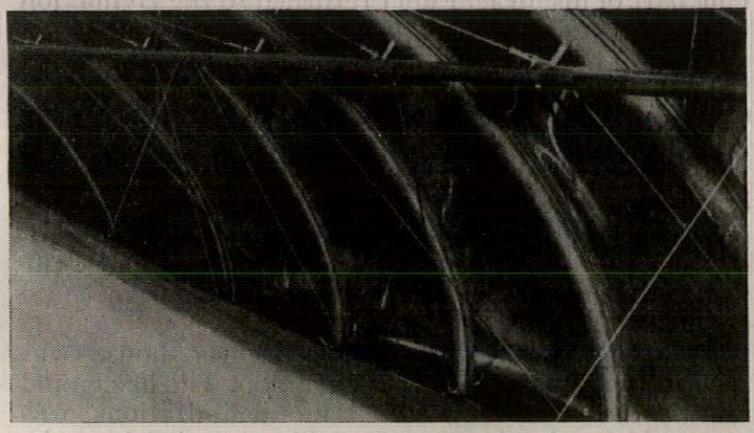
The over-all design of the Wichita house was roughly similar to the 1927 Dymaxion. The hexagonal form, forced by then-existent metal limitations, was replaced by a circular form, 7. Still suspended from the mast carrying the mechanical core, the new house



Fundamental to Fuller's world-view is his redrawing of the globe, 1, projected on a pseudo-sphere of squares and triangles that can be refolded to give, on a plane surface, the plot of any great-circle, geodesic route.

featured two Dymaxion bathrooms, indirect lighting of any colour, and air conditioning, with a patent ventilator capable of ten air changes an hour, operable by the slightest air current. Garage space could be given by raising the whole house one storey. To would-be purchasers of low-income, this was a dream house, notwithstanding its unconventional shape and generalized ship or aircraft atmosphere. Architectural criticism—that its shape would be a nightmare to city planners and its closed ground plan contrary to the development of the modern movement—probably did not reach them.

The Wichita House brings full circle a roughly twenty-year exploratory period. So far, though Fuller's various individual projects had been well planned and accounted for, the over-all advance of his career now required that they fit, in related organization, his concept of Comprehensive Designing. Three corporations are now maintained to correlate his manifold activities in such comprehensive fashion, the Fuller Research Foundation Inc., Geodesics Inc. and Synergetics Inc. The first for pure and theoretically applied research and development: the other two for prototyping and pre-production development: Geodesics Inc. for military and Synergetics Inc. for civilian.



2, a view between the twin skins of the **1946** *Wichita house shows the tell-tale structural elements—ribs, wire bracing, tubes and sheet—that reveals its dependence on aircraft technology.*

Around 1947 begins his first large scale development of geodesic structures. The eight years since then have been mainly concerned with the documenting and developing, through university seminars, lectures and writing, of the theory of Comprehensive Designing including Energetic and Synergetic Geometry.

Comprehensive (Total or Anticipatory) Design has been implicit as the pivot of Fuller's ideas since his earliest beginnings. The following paraphrase is drawn from various papers, written around 1946–50.

Man is unique only in his capacity to survive by transforming past accretions of experience into present and anticipatory strategy. Science is his attempt to set in order this past experience, and accomplishes survival by constantly modifying his environment—the universe. This is done by educing common principles from diverse phenomena and applying them to generalized cases through technical advantage, but *a priori* ignorance causes time lags in acceptance of unfamiliar principles—'man backs up into his future.'

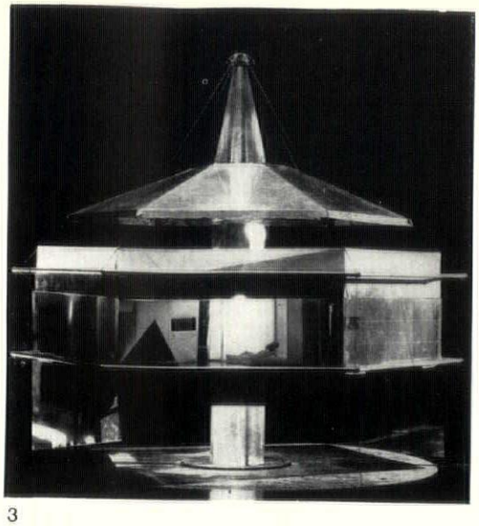
The generalized case, basic shelter, has been the last of man's major items to come under any comprehensive discipline. It is a priority thanks to the data compiled by the United Nations and other bodies, e.g., 'one-third of the human family, roughly 800,000,000, are now doomed to premature death arising from inadequate solution of the housing problem . . . in addition to this, 14,000,000 homes were destroyed in the war for which families still exist. Against this position, in 1949, the largest production of single family or deployed dwellings ever produced in one year by the U.S. was 572,000 in 1925, and of these only half had interior sanitation. Large buildings, as processed by engineers, economists and social scientists, are now almost on a par with other industrial group products, like the ocean liner, automobile, steel mill or telephone system. In contrast, less than 4 per cent of U.S. single family dwellings are erected with union labour, less than 2 per cent architect-designed and approximately 0 per cent involved the engineer. During a period in which the price of the auto has steadily decreased, the cost of housing has shot upwards. The 1949 Bill for returned veterans' housing suggested for a standard 1,080 square feet dwelling a figure of $17,745.

Fuller includes the 'International Style,' as operative in the U.S., in his criticism of current building, pointing out that its product, in the single dwelling range, is essentially the old house in a different garment, superficially simplified, and employing a hidden modern alloy structure under so-called 'tensed' or 'suspended' walls. He points out that the so-called modern house has, for example, in sanitation, modified the appearance of valve handles and improved bathroom tiling, but gone on using standard plumbing, without ever venturing to reassess the total sanitary function itself.

To deal with the housing problem in ways commensurate with developed technology, Fuller posits the comprehensive designer 'as an emerging synthesis of artist, inventor, mechanic, objective economist and evolutionary strategist.'

An example of what Fuller means by comprehensive strategy was his field trip through the paperboard industry in 1954, for the Triennale Dome, 16, which resulted in his correlating the industry's developments, in relation to his requirements, and taking current techniques, which used relatively expensive forming tools, a stage further, by suggesting a 'lost' mould which remained after forming plastic laminates, and constituted an interior packaging or scaffolding, 17.

Energetic and Synergetic Geometry were discovered by Fuller in 1917 and their subsequent development underlies his entire work. He defines them as 'an omni-directional, concentric wave topology—an isotropic vector matrix which discloses the means by which Nature accommodates all complimentary transformations in a finite rational manner while permitting an infinity of potential formulations. It is strictly a dynamic co-ordinate system, and accommodates all the field equations, Avogadro's law of gases, present-day solid-state mechanics, thermodynamics, Pauli's Exclusion Principle, Brouer's Fixed Point Theorem, as well as all the classical mechanics and Relativity, Quanta and Wave mechanics. Syn-En.



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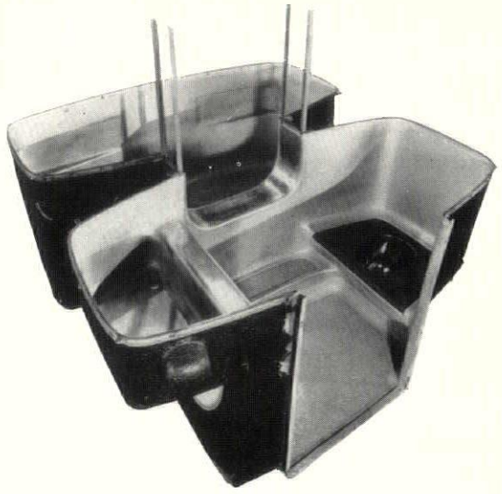
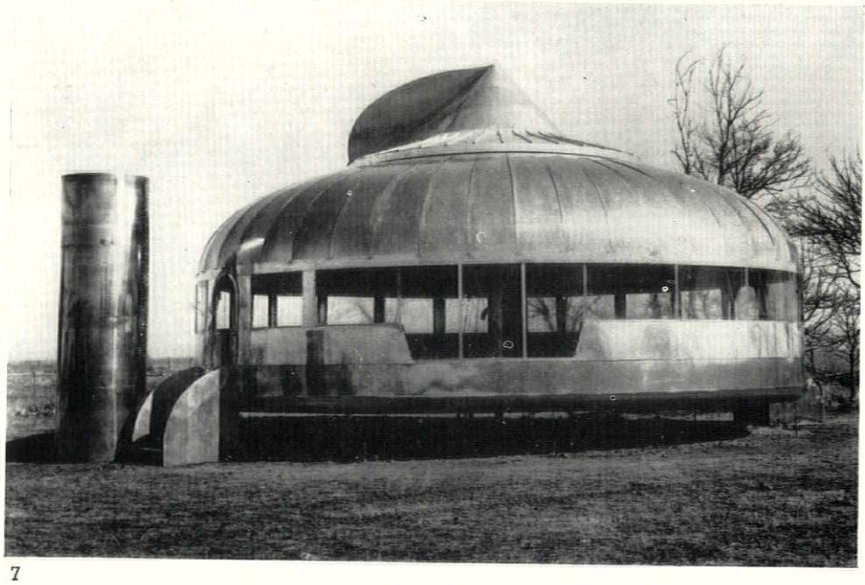


5

dymaxion: The first clearly distinguished phase of Fuller's development took him into many fields in search of the fundamental Dymaxion quality, maximum performance with maximum economy. The house, 3, of 1927, was an almost-autonomous, expendable, rentable provision of total environmental control. It never went beyond the project stage, but the Phelps-Dodge bathroom, 4 and 5, and the Dymaxion car, 6, attempts in 1938 and 1933 respectively to rethink over-standardized concepts, did reach prototype work, as did the Wichita house, 7, of 1946, which embodied revised Phelps-Dodge units.

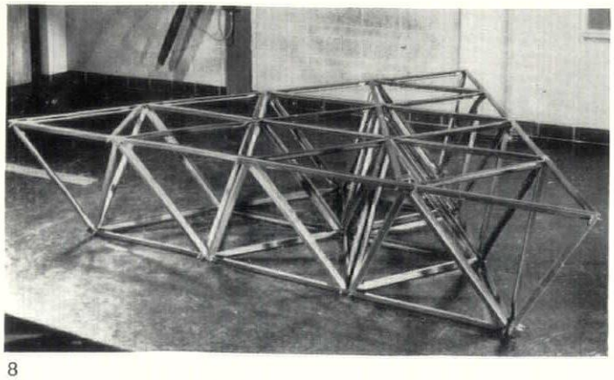


6



7

geodesics: The rapid development of Fuller's geodesic domes owes much to his clear separation of structure and cover. Structures based upon the octahedron-tetrahedron figure normally eventuate as space-frame approximations such as 8, a section of the Ford dome (see next page); covers depend much on current plastic technology to produce bathing-cap membranes pulled tight over the frame, 9, seen stripped in 11 (also next page).



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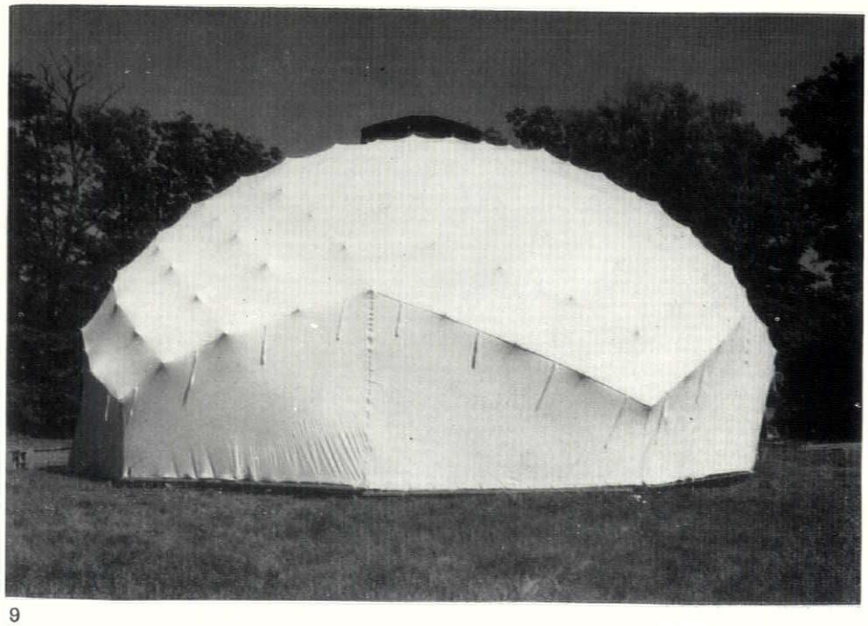

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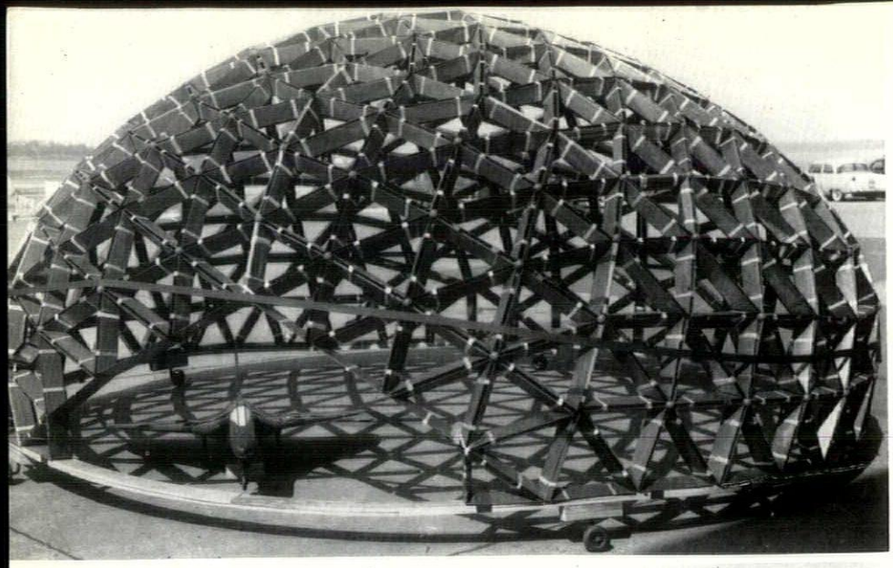
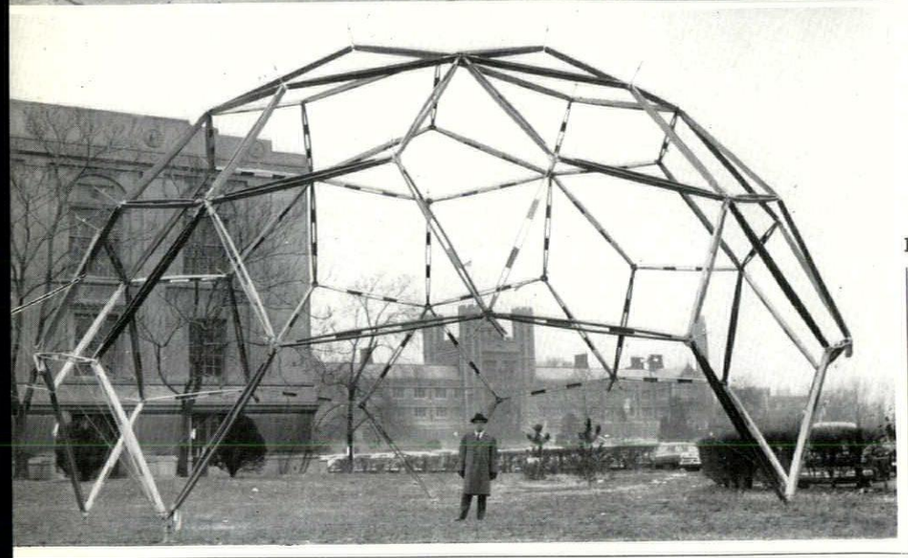




10, 11

seminar domes: Geodesic development has lain between pure academic research and industrial field-work, the project-organization being most frequently a research seminar. One at Tulane, 10, produced the paperboard structure subsequently passed to the Marine Corps; one at Minnesota the much-travelled 'Aspen' dome, 11, of 1953; and at St. Louis, 12, an interesting diamond-grid structure rigged over-all with external tension-wires.



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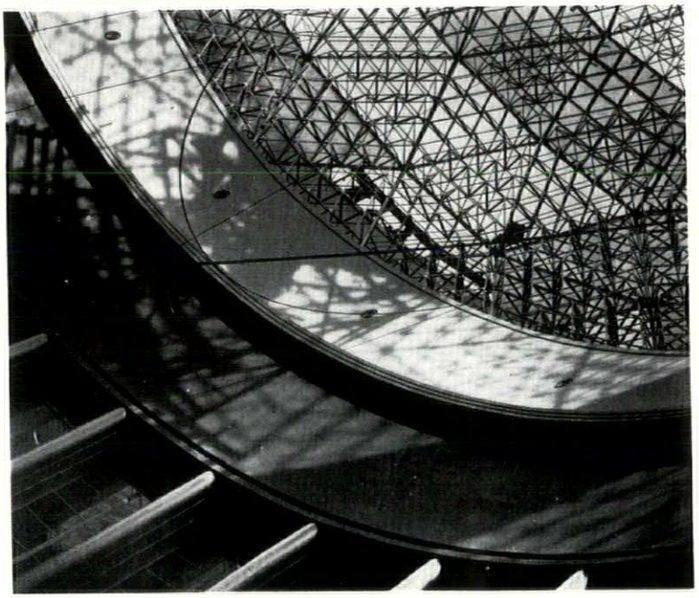

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light-weight shelter: The two most important large-scale realizations of Fuller's geodesic principles have been the Ford rotunda dome, sheltering an opening of 93 ft. diameter for a structural weight of only 8½ tons, 13, and the Marine Corps programme which aims to replace normal three-stage logistic shelter methods with a single phase under semi-expendable domes—the 'Kleenex' paper-board dome is seen airlifted in 14, MIT's fifty-foot dome for the Marine Corps in 15.

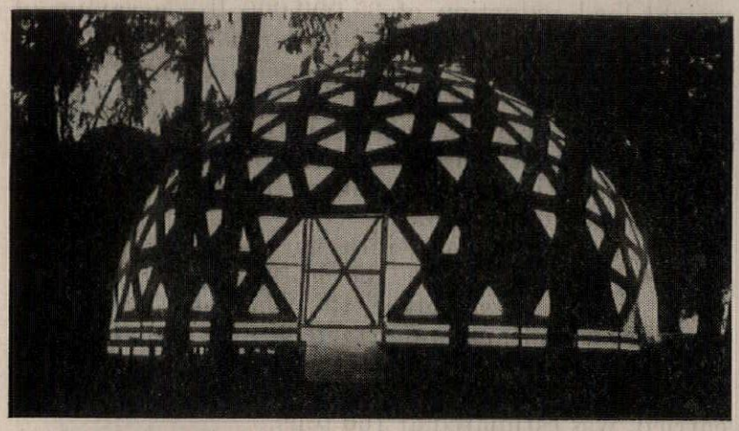


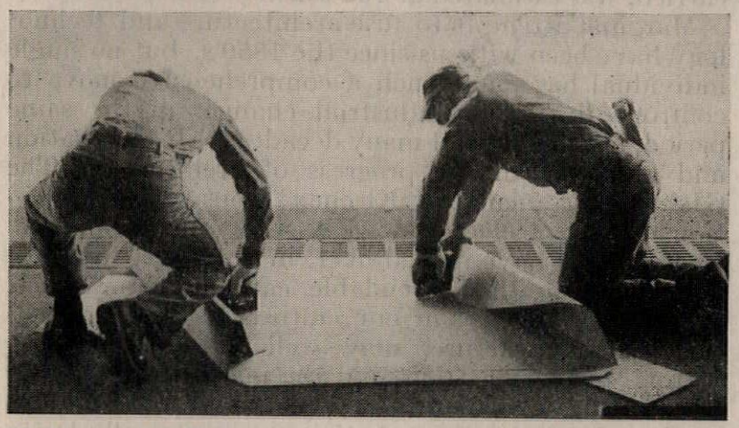


14, 15

geometry is a demonstrable mathematical phenomena proceeding logically from one proven stage to another proven stage. Unlike many of the limited mathematical theories, its dynamic behaviours are modelable, physically its vectorial equilibrium comprises the "Octet" truss.'

Though Fuller disagrees vigorously, this proposition, that all energy relationships occur, in dynamic





16, 17, *typical of Fuller's adventures in materials, the Triennale dome of 1954, above, was built of units scored, folded and stapled up from sheets of standard packaging cardboard.*

permutations of geometric constructs, derivable from the octahedron-tetrahedron truss with its assumption of a comprehensive mathematical patterning underlying the universe, does have metaphysical overtones which recall Emerson's: 'There is no chance and no anarchy in the world. All is system and gradation.' Transcendentalist philosophy, in general, also suggested that every part of the world is a microcosm comprehending within itself all the laws and meaning of the whole. Essentially a neo-Platonic conception, this makes the 'Octet' truss a twentieth century version of Plato's 'Spindle of Necessity,' with the magical properties of Solomon's Pentacle!

Synergy is defined, by Fuller, as: 'The unique behaviour of whole systems unpredicted by behaviour of their respective subsystems' events.' This is similar to the axiom of Gestalt psychology that, 'in the simplest sense-perception no analysis of the separate percepts can account for the total experience,' and to Korzybski's prime postulate of 'the organism as-a-whole-in-environment.'

Fuller comes out of this 'both/and' case with one foot in analytic and the other in holistic disciplines. His intuitive leaping about among the big abstractions is, when one shakes it down, usually ambivalent, and based on well-documented and pragmatic programming.

The 'Octet' truss, whatever its connotations, has demonstrated, in his hands, great flexibility and a surprising economy in usage. In general practice now, in a somewhat perverted form, as the 'Space-frame truss,' it is the basic structural device from which all Fuller's geodesic structures are derived, 8.

The Geodesic dome combines the structural virtues of the tetrahedron and sphere. The sphere encloses most space with least surface and is strongest against internal pressure; the tetrahedron encloses least space with most surface and is stiffest against external pressure. Trusses derived from the compounding of tetrahedron and octahedron have the synergetic property of 'surprise,' as a structural system with strength unpredictable from linear components. Any vertexial loading causes members to act in pure tension or compression, and subsequent loading of any adjacent vertex induces reversal of all the system's pure tension into pure compression, and vice versa. The icosahedron exploded on to the surface of a sphere gives a three-way triangulated grid each line of which is a great circle arc. Trusses derived from this triangulation give a similar three-way grid, all of whose vertices lie on the surface of a sphere. Pressure on any vertex is load-shed throughout the whole compression tension pattern, thus giving extreme strength unpredicated by the slenderness-to-weight ratio of individual truss members. Any modular frequency of symmetrical subdivision of spherical or linear tetrahedrons, octahedrons, or icosahedrons edges provides spring points for geodesic three-way grid interactions. This was unknown mathematically before Energetic-Synergetic Geometry.

All geodesic structure before that of Buckminster Fuller was applied only in approximately single curvature structures, as conic (masts), hyperbolic (battleship cage masts), cylindrical, and elliptical (air frame fuselage) spiralling and in lamellar roofs. Fuller's geodesics are inherently compound curvature, i.e., finite systems. Spirals are infinite.

This new derivation has been used throughout Fuller's recent work. In practice the type of truss member used in the domes varies, but all are drawn from this framework. Coverings of different kinds have been experimented with, 'bathing-cap,' 9, and internal stretched-membrane types and triangular panel filling with clear and translucent plastic, and combinations of these. Various domes under test at Air and Marine Corps laboratories, and at other organizations, show impressive snow and wind load figures. A 31-foot diameter three-quarter sphere has been installed since last year on the summit of Mount Washington, New Hampshire, where the world's highest land wind velocities occur, which no other structure has withstood. This year, Marine Corps final tests of a 35-foot diameter 700 lb. magnesium frame dome, have involved constant air lifts in assembled condition, giving their estimate of four years' usage, with no permanent effects. (This dome covers 1,000 square feet with 12,000 cubic feet clear span space, requires 135 man-minutes to erect with unskilled labour and packages in 2 feet by 2 feet by 8 feet—32 cubic feet dis-assembled.) Commercial

and private structures successfully weathered the U.S. hurricanes of 1954.

Usable in extreme climatic changes, the completed domes are energy valves, with natural internal air circulation, making them warm in winter and cool in summer. A 27-foot diameter structure in Canada, aluminium painted inside and out, with three inches of insulation, has passed three winters with 20° below exterior temperatures, whilst maintaining 70° above inside; each winter's electrical bill averaged $60.

The way to solve the housing problem, as Fuller sees it now, lies through technology via such geodesic structures. The 'Autonomous living under a hurricane-proof hemispherical enclosure of 50-foot diameter (864 square feet of platform plus 986 square feet of interior garden), with all super luxury appurtenances and sanitary controls, is now feasible. Weighing, in toto, 14,000 lb., it may be mass produced at $7,000. Push-button erected, it may be occupied at well below the present cost of bare miniature mansions sewered and paved together in "Siamese-twinness".'

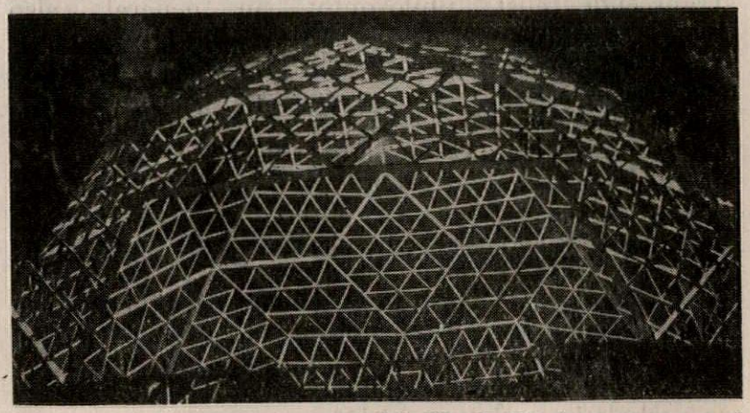
Fuller has integrated his personal efforts with the growing demands of educational service in typical fashion. Since 1949, invitations to lecture and conduct seminars in major U.S. universities and institutes have been increasingly numerous. The 'Autonomous Living Package,' quoted above, was partially assessed in this way. Student groups were given the problem of total evacuation of a city, and directed to design a unit which, loaded on a 24 foot trailer, would furnish, with no lowering of standards, living facilities, in the broadest sense, for a family of six. The result was no minimal æsthete's dream of 'the good life,' but contained elements ranging from high-grade kitchen, laundry and cleansing mechanics, complete furnishing and woodworking, photographic and sporting equipment to musical instruments. The whole assembled in a 25 foot by 8 foot by 8 foot container which provided, when hinged down, a floor space of 928 square feet. Calculations showed this luxury living package to cost, on present retail assemble, $18,000 per family. Mass produced, like 'an automobile package' it could be done for $4,500.

Usually, however, seminars involve the exposition of his principles, as so far noted, and the actual design and construction of a geodesic dome, 10. Invariably this is a new experimental type, and is worked stage by stage with a student group drawn from the final year, or a cross section of qualified grades. Students split up into groups to tackle different angles of structure, material supply and actual parts production. Fuller's contacts with industry enable him to obtain free new materials for testing. The average seminar length is one month.

An example of this scheme in practice was the *U.S. Marine Corps Shelter Study* of 1954, which is, in itself, one of Fuller's most interesting recent jobs. The Marine Corps called on him to investigate the contraction of their three-phase-forward-airfield-deployment, of tent, semi-permanent and permanent type structure, into a single-phase-multivalent structure. This had to be semi-permanent, weigh less than tents, cost less, be less bulk and take fewer man-hours to erect than tents. Within a short time Geodesics Inc. in conjunction with seminar programming, provided five full-sized domes ranging from a 50-foot diameter hanger type of magnesium extrusions, from MIT, 15, to a 36-foot diameter expendable paperboard type. The Marines nicknamed the latter the 'Kleenex house,' 14, because it was essentially a throw-away structure. Official computation by Marine Aviation of advantages of these gave a weight-load reduction of 35,000,000 lb., a saving of $15,000,000, and in a combat area of one million man-hours, over their original three-phase programme. Marine Aviation announced in July, 1955, that all tents in use will be replaced by domes, as they become unserviceable, describing the new shelters as the first basic improvement in mobile military shelters in the past 2,600 years.

The first excursion into large-scale permanent dome provision was for the Ford Rotunda in 1953 where a geodesic structure, 13, using only 8½ tons of aluminium and spanning 93 feet, was assembled in thirty working days. A conventional steel dome to do the same job, which the building could not have carried, was estimated at 160 tons.

Marginal attempts to fuse architecture and technology have been with us since the 1850's, but no single individual has made such a comprehensive move to confront the issue. Industrial change, in the same period, has had to wait many decades for incorporation and reflection in the progress of architecture. The GIs' remark anent the 'Kleenex' house gives indication of such a change now. As other environmental tools of man have moved over, in our time, from the permanent to the expendable category, the house, time-hallowed only, in our culture, as a permanent rectangular structure, may well follow. Emerging factors, like automation, and the increase of mobility and transient residence already render invalid much static urban planning. Anticipatory over-all design works now in aircraft construction, with its schedules of anticipated part failure, in preventive, as opposed to curative, medical science, and in many other fields. Its import is overdue in the laggard area of human dwelling provision, where most of us live in the 'hand-me-down' remnants of nineteenth-century boom building, and window-shop in the glossy pages of our architectural journals.

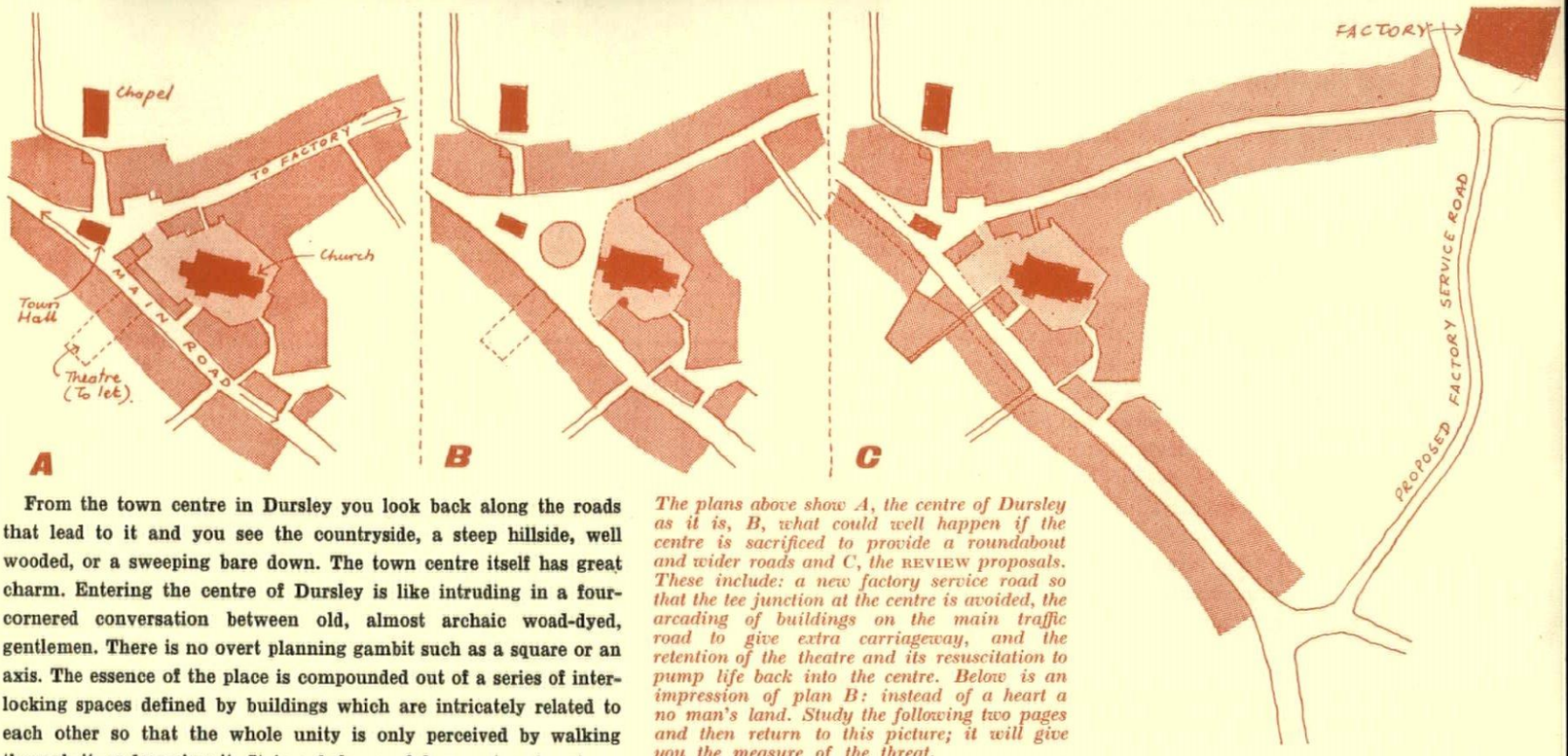


18, *the typically Fullerian tracery of the Woods Hole dome, a permanent structure in Massachusetts, is a geometrically complex, technically simple erection in wood, and serves to remind us that Comprehensive Design is an attitude of mind more than the possession of revolutionary materials and techniques.*

Three years ago the REVIEW, in collaboration with Birmingham University, carried the simple story of Townscape to Ludlow, Bewdley, Evesham and Shrewsbury, by means of articles, exhibitions, town meetings and study groups. This month we are happy to announce the start of a new series prepared in collaboration with the University of Bristol. The aim will be to present an assessment of certain towns as seen by the Townscaper: the drama, potential or real, arising from the relationship of buildings, spaces, levels and nature. To draw attention to probable threats to amenity and suggest a solution. This will be the basis for extramural studies so that the habit of thinking in these terms and using the eyes is fostered.

Gordon Cullen

DURSLEY

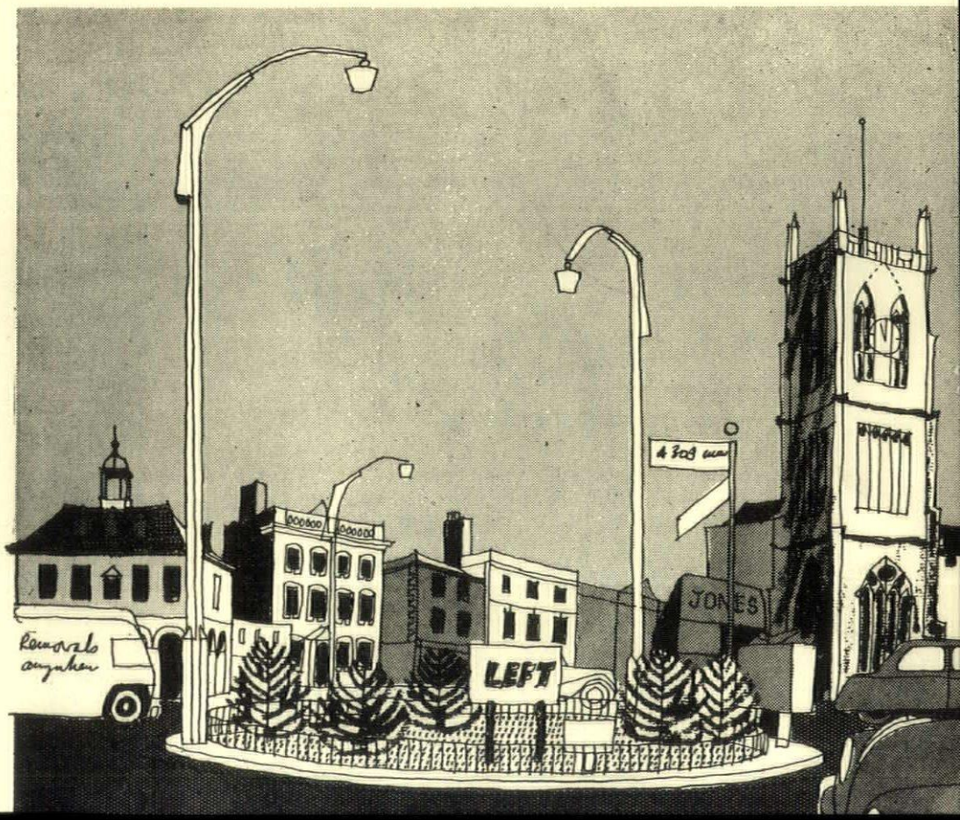


The plans above show A, the centre of Dursley as it is, B, what could well happen if the centre is sacrificed to provide a roundabout and wider roads and C, the REVIEW *proposals. These include: a new factory service road so that the tee junction at the centre is avoided, the arcading of buildings on the main traffic road to give extra carriageway, and the retention of the theatre and its resuscitation to pump life back into the centre. Below is an impression of plan B: instead of a heart a no man's land. Study the following two pages and then return to this picture; it will give you the measure of the threat.*

From the town centre in Dursley you look back along the roads that lead to it and you see the countryside, a steep hillside, well wooded, or a sweeping bare down. The town centre itself has great charm. Entering the centre of Dursley is like intruding in a four-cornered conversation between old, almost archaic woad-dyed, gentlemen. There is no overt planning gambit such as a square or an axis. The essence of the place is compounded out of a series of interlocking spaces defined by buildings which are intricately related to each other so that the whole unity is only perceived by walking through it or knowing it. It is a balance of forces at rest, a town centre of great charm and quality. This, you say to yourself, is a real town set in real country—the perfect contrast of Landscape and Townscape.

It doesn't take long for you to discover that you are living in a fool's paradise. You piece together several stray hints and discover that Dursley as you have seen it will last just about another 12 months before it is cracked open, gutted and scattered over the countryside. One of the buildings in front of the church is already demolished, a second is doomed: the theatre is up for sale. Cleverly concealed in a valley not half a mile from the town is one of the largest Diesel engine factories in England. Every day heavy lorries trundle past the Town Hall down to the factory, traffic piles up, the prosperous town needs bigger shops—multiple stores.

Added to this threat of disintegration comes another. Dursley and two nearby communities are to pool certain administrative and educational buildings such as police station, council offices and schools. These will be situated in the countryside at the geographical centre of the three communities. The economy and efficiency of the project are unquestionable; the telephone, the car and the bus have made it possible. We therefore have to place two weights in opposite sides of the balance. On the one side is Dursley as it is, as I have described it. Its great asset is that, in its own terms of reference, it has integrity. Not only is it the corporate out-door room, but its shape and arrangement are self-justifying just as is a painting by Klee,



i.e., if it were a machine you could patent it. No one can deny this. On the other side is the whole urge and inevitability of piston and valve. In comparison with this the rather gauche little Town Hall, the woad-dyed chairman, and the green hillside become ludicrous and laughable. Except for the one little niggling obstinate fact that in some strange way they have captured a pattern that ennobles, in however small a way, the life of the town.

Dursley is a microcosm of the national planning problem. The seed, the mediaeval town, is bursting open into a new and strange flower. It is a flower which will spread its scent over town and country or make both stink. The cause of the problem is the motor car . . . fluidity of communication. We can take the following steps, either:—

1. Dig in and cling to the status quo, disputing every inch and regarding the motor car as an evil which simply debases town and country;

or 2. Redesign England as a land fit for cars to live in. This is the obvious, commonsense course and the really fatal one;

or 3. Try to harness the potential of fluidity to redeem town and country;

it is this last course that we shall attempt to demonstrate in the particular case of Dursley.

The high street and town centre are no longer suitable for arterial traffic. The centre belongs to people on foot; the arterial roads belong to traffic. They are mutually exclusive and to operate successfully must be separated. To aid the flow of traffic whilst at the same time destroying the centre is no answer. In this article we are concerned to show just what is in danger of being lost and to suggest ways in which both functions can survive. But let there be no confused thinking—let not the barbarians who rule road transport beguile the residents of Dursley into believing that the removal of buildings to form a roundabout will actually improve the looks of Dursley by opening up a view of the church and allowing the two main monuments to face each other across no-man's land. The burden of this article is to explain the peculiar charm which Dursley possesses now. If when this is appreciated the barbarians are still determined to pull it down at least it will be done with the town's eyes open and not in the mistaken view that the town amenities are being improved.

In a future article we hope to show how fluidity of transport can help to redeem the twilight-tangle of town and country.



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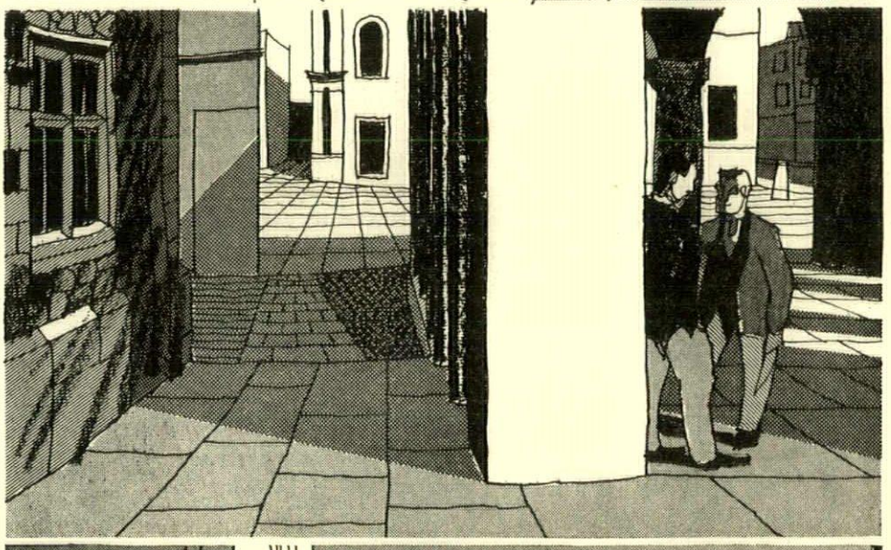

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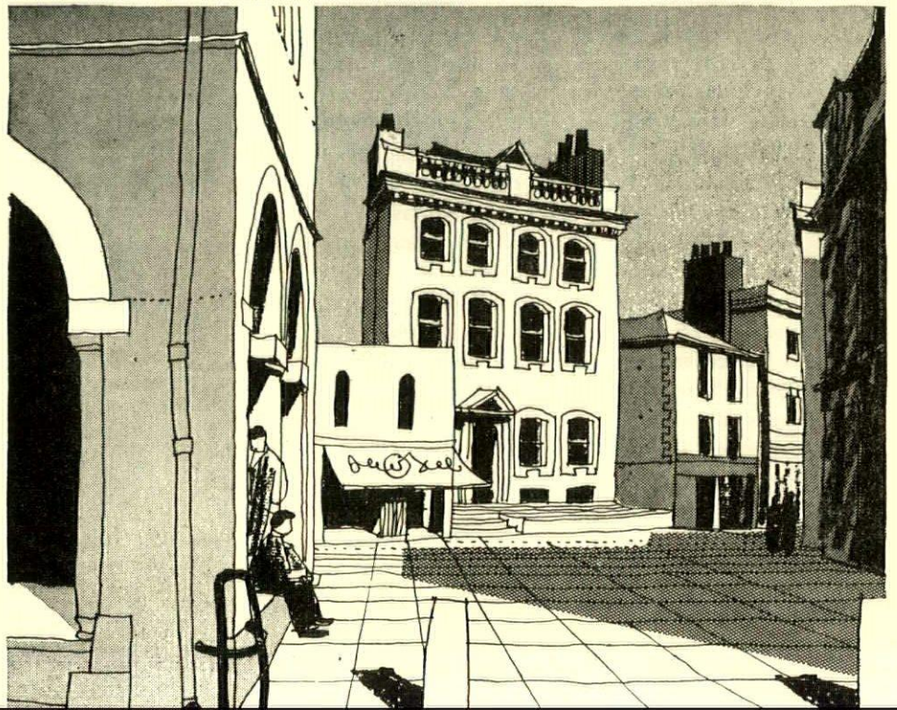
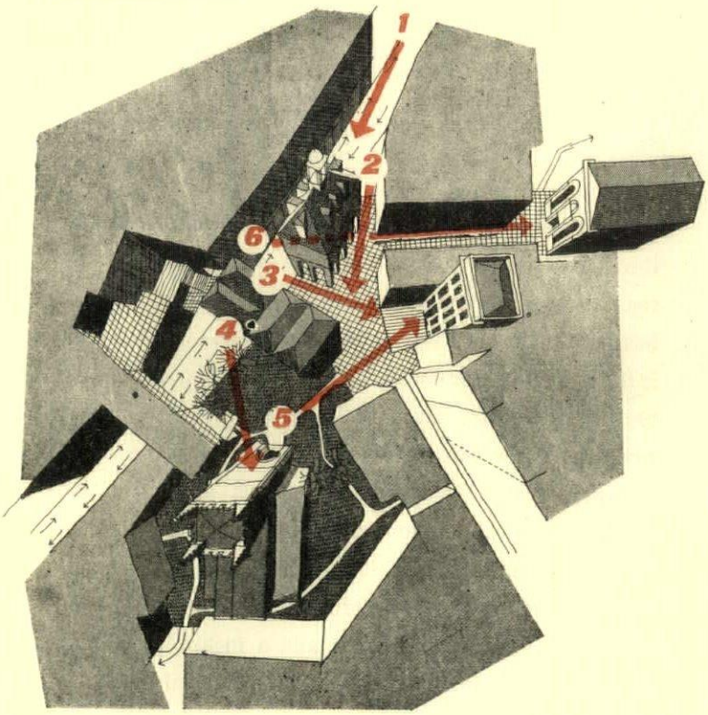


3

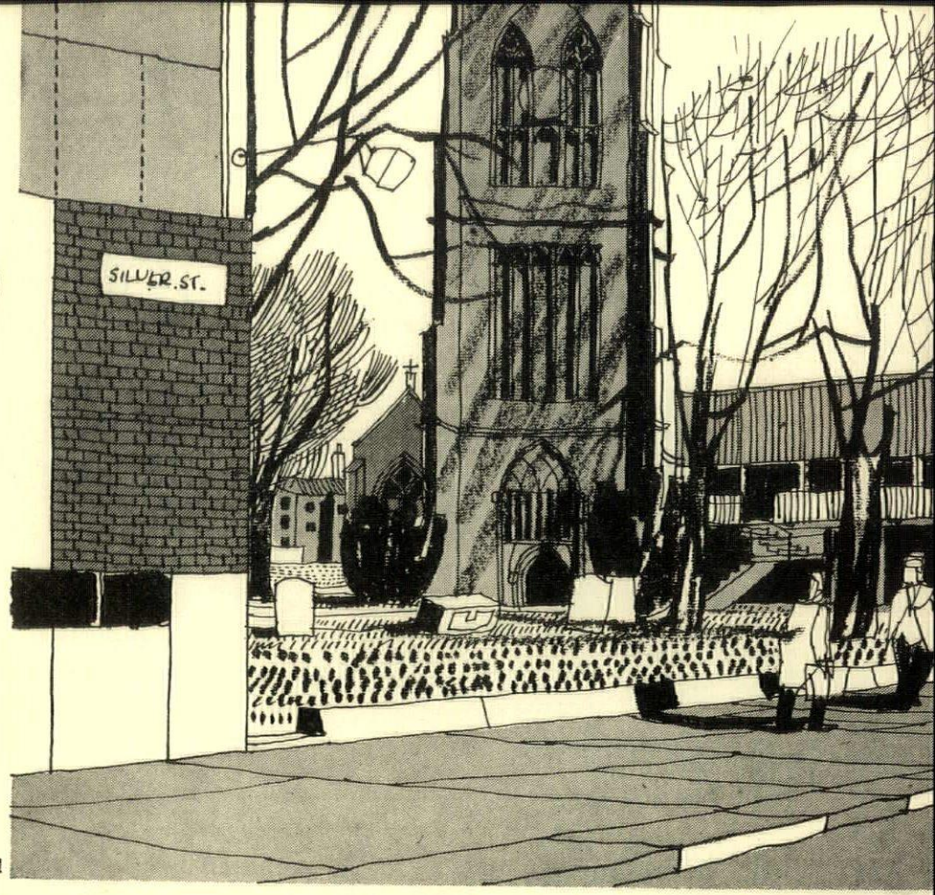
A TOUR THROUGH THE CENTRE

The description which follows presents Dursley as modified by our proposals which are aimed to increase or extend its present character (Plan C on preceding page). The key to understanding Dursley is the dimension of time. It cannot be seen in one glance; the nature of the place is built up out of a series of views which reveal a unified geometric pattern: a visual statement as plain as Nelson's column but only comprehended in experience, in time. To put it in another way, it is more akin to a four-cornered conversation than to an oration from the platform. And in a small county town, homely, unpretentious and lived in, this seems an admirable attitude to planning. Consequently, it can only be explained by walking through it.

1. *Approaching the centre from the north the Town Hall is seen fair and square across our path, this diverts the traffic to one side and forms a visual stop (closure). In this way the arterial function of flow is modified—and quite rightly since this is the town centre, the outdoor room inhabited by people not cars. Directly behind the Town Hall is*



Bird's-eye view of centre with viewpoints marked in red. See also page 4.



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seen the church tower; the two main monuments are seen in juxtaposition thus giving a concentration of urbanity and the intricacy arising from the relationship of different architectural styles.

2. To our left is seen the beginning of the pedestrian way which weaves throughout the town centre. It is narrow and in this way preserves the integrity of the space beyond. The pedestrian areas are varied inside the space allotted. They are usable. *It is little use drawing a rectangle on a piece of paper and labelling it PRECINCT. The space must be usable. In Dursley there is first the undercroft of the Town Hall which is sheltered from weather and traffic, there is the forecourt of the bank which is raised and quite separated from traffic and the whole is pedestrian priority.*

3. Proceeding south we look past the Town Hall and the first space is revealed. Closure and narrows have done their job in ensuring that the heart of the town is clearly and unmistakably defined. By paving we are able to emphasize the unity of the space, since then the facades of buildings and the floor surface form a single hollowed-out place as opposed to the disruption and alienation caused by pavements and a ribbon of tarmac.

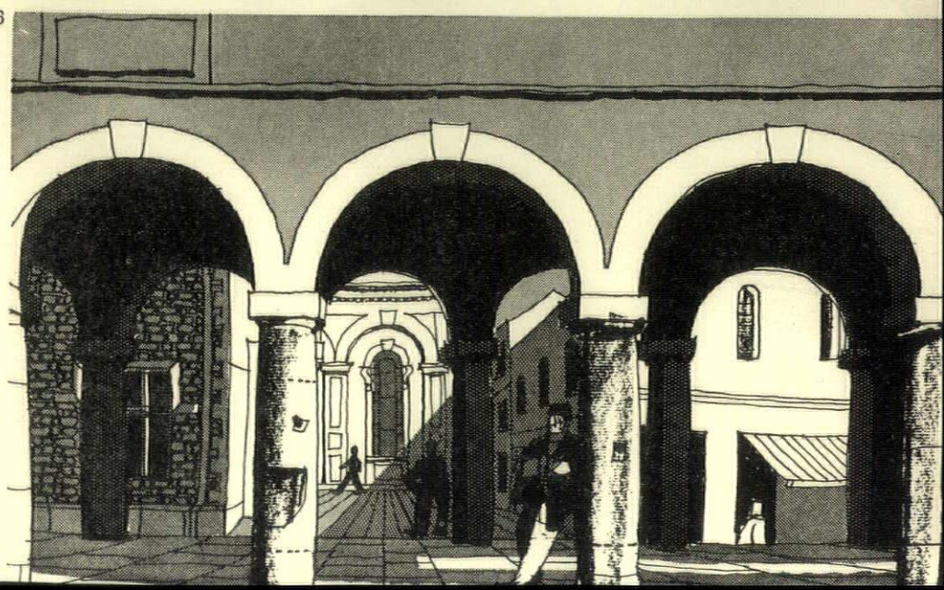
4. Continuing further south the church, which by now has been hidden by the proximity of buildings (and thus visually forgotten) is suddenly revealed standing in the second space, the quite different space of trees and grass.

5. Walking to the foot of the tower a new view is revealed. We look back from the sacred to the profane, from the grassy churchyard to the paved town square, and in this way obtain that rare juxtaposition of spaces; the feeling of Here and There. The division is clearly marked by the flanking buildings (symbolical gate-posts). The object building is inclined at an angle (deflection), thus it appears to belong *to the further space, it belongs to what is happening There.*

6. Although the actual space is small the sense of authority and spatial dominance is increased by the arrangement of outlying buildings. The chapel, lying well back, is brought right into the drama by its position at the end of a narrow lane. (Pure physical size is not the only way to get a sense of spaciousness and superficial area can kill character stone dead. The amount of space cannot be determined by what is left in the middle of a required number of shops.) This same principle has been used in the replanning to the east of the main street so that the facade of a rebuilt theatre becomes an integral part of the centre.



5



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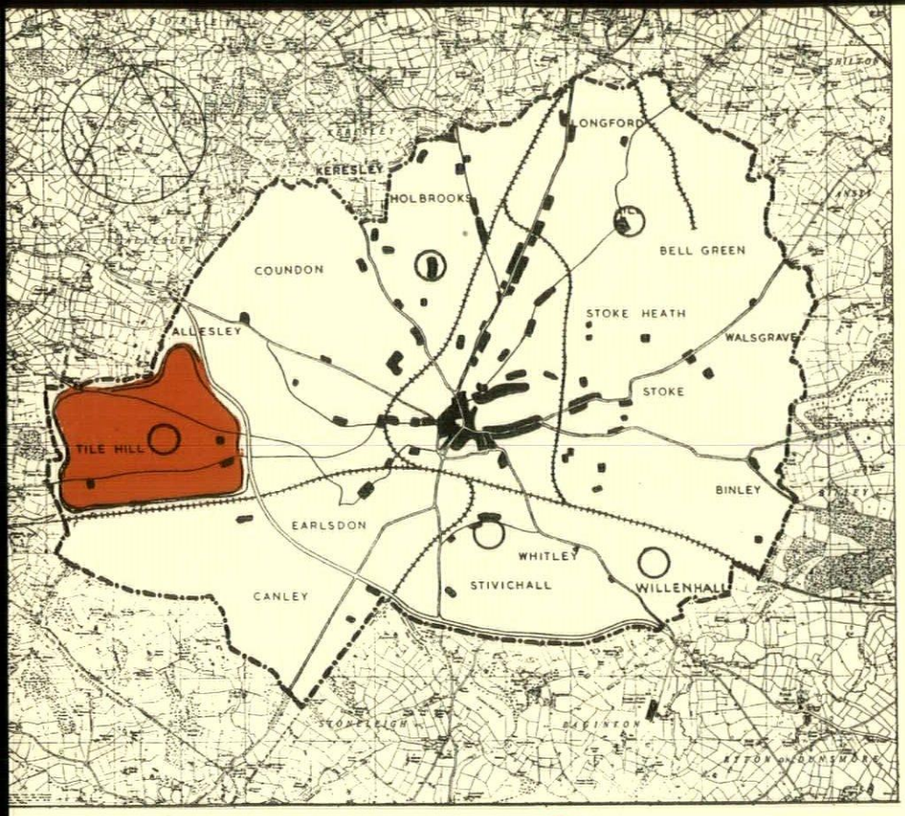
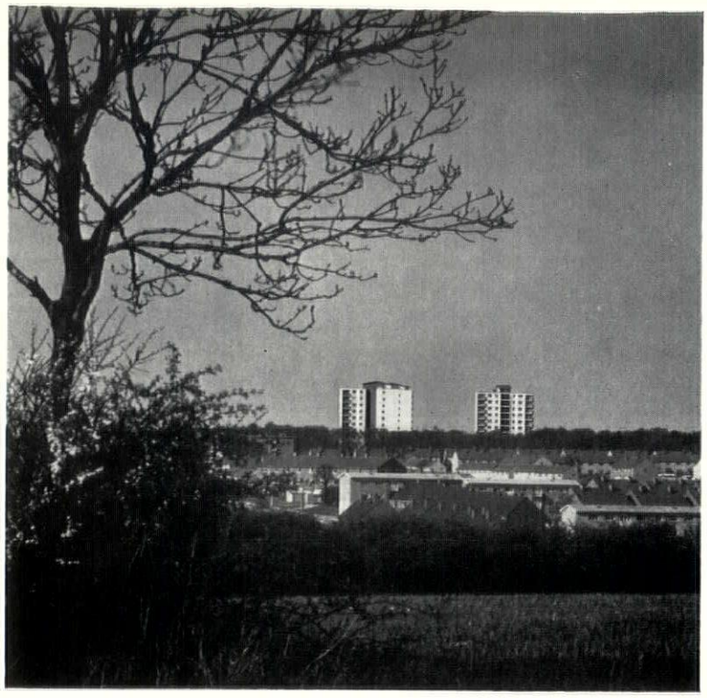


The population of Coventry has doubled in the last thirty years. The central shopping area is insufficient for the resulting sprawl, and a series of district centres has been planned in the outskirts. This one, at Tile Hill, is the first to be completed. The centre is three miles west of the city centre on a 150-acre strip with compact woodland to the east and west, serving both pre-war and post-war estates. It is on the highest ground in the district and was therefore also the best site for point blocks of flats. These are sited in a clearing tailor-made for them and show seven storeys above the trees, at the same time a distant landmark and a means of making the shopping centre a visual as well as a social focus.

key
1, point blocks.
2, maisonettes, shops under.
3, shops.
4, garages.
5, boiler houses.
6, piazza.
7, café.
8, laundry.
9, service yards.

100 75 50 25 0 25
scale of feet



1 The flats from the south-west above the screen of trees and the rest of the estate.

DISTRICT CENTRE AT COVENTRY

ARCHITECT	***A. G. LING, successor to D. E. E. GIBSON***
principal architect	***E. C. Tory***



2 The shopping centre from the top of one of the point blocks.

1. THE FLATS

These comprise 99 two-bedroom four-persons flats in three 11-storey blocks, T-shaped on plan. Each block has one lift and one staircase. The planning in its fire prevention aspect has been governed by LCC practice under which a single staircase is permissible given open access and living-rooms at the extremities of limbs.

The construction is in 'no-fines' concrete, poured in one-storey stages. Pockets are left in which reinforced columns are then formed in dense concrete. The resulting structure is a reinforced concrete frame with 12 in. no-fines infilling panels giving stiffness but not support. It is plastered internally and rendered and spardashed externally. The windows are of frameless ¼ in. plate glass, sliding in metal tracks, the whole being contained in a timber frame. Translucent plastic strips are attached to the edges of the glass for weather-proofing. The heating and hot water are supplied from a central boiler-house. In the flat the heat is distributed by means of a fan which circulates the air past a battery of gilled pipes and out through grilles into the living-room and passage. A thermostat is situated in the living-room. Each flat has a store on the communal landing and there is a refuse chute at each floor. A cycle store is incorporated with the boiler-house.

DISTRICT CENTRE AT COVENTRY



3

3, two of the blocks from the south-east.
4, the blocks from the south with the westernmost arm of the shopping centre on the right and the fish and chips shop in the foreground.



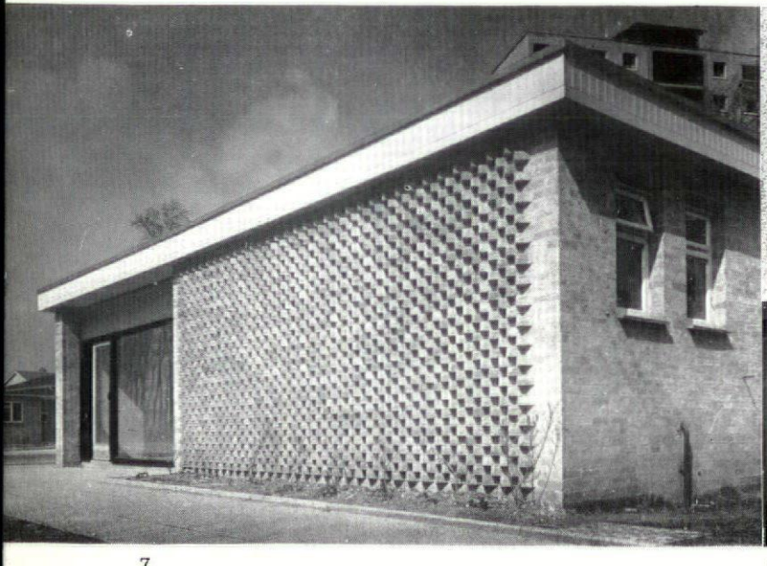
4

5, facing page, the access side of one of the blocks framed in existing silver birch trees.





6. view from the south showing relation of shops and easternmost point block.



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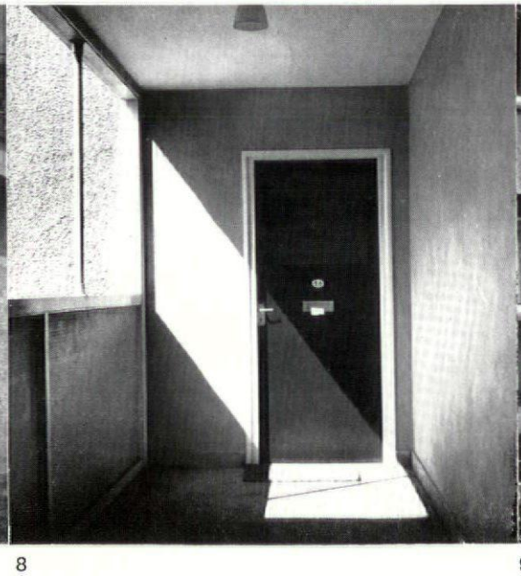

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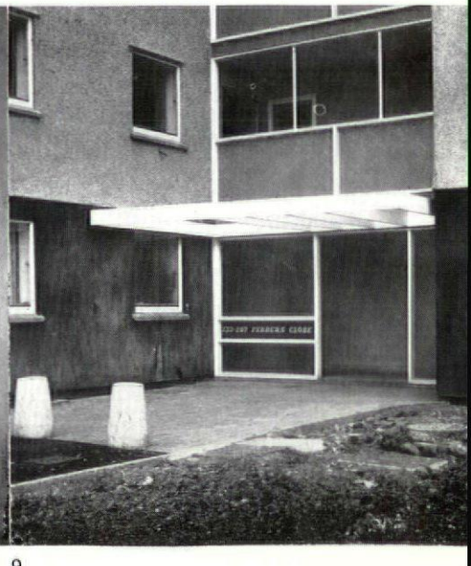
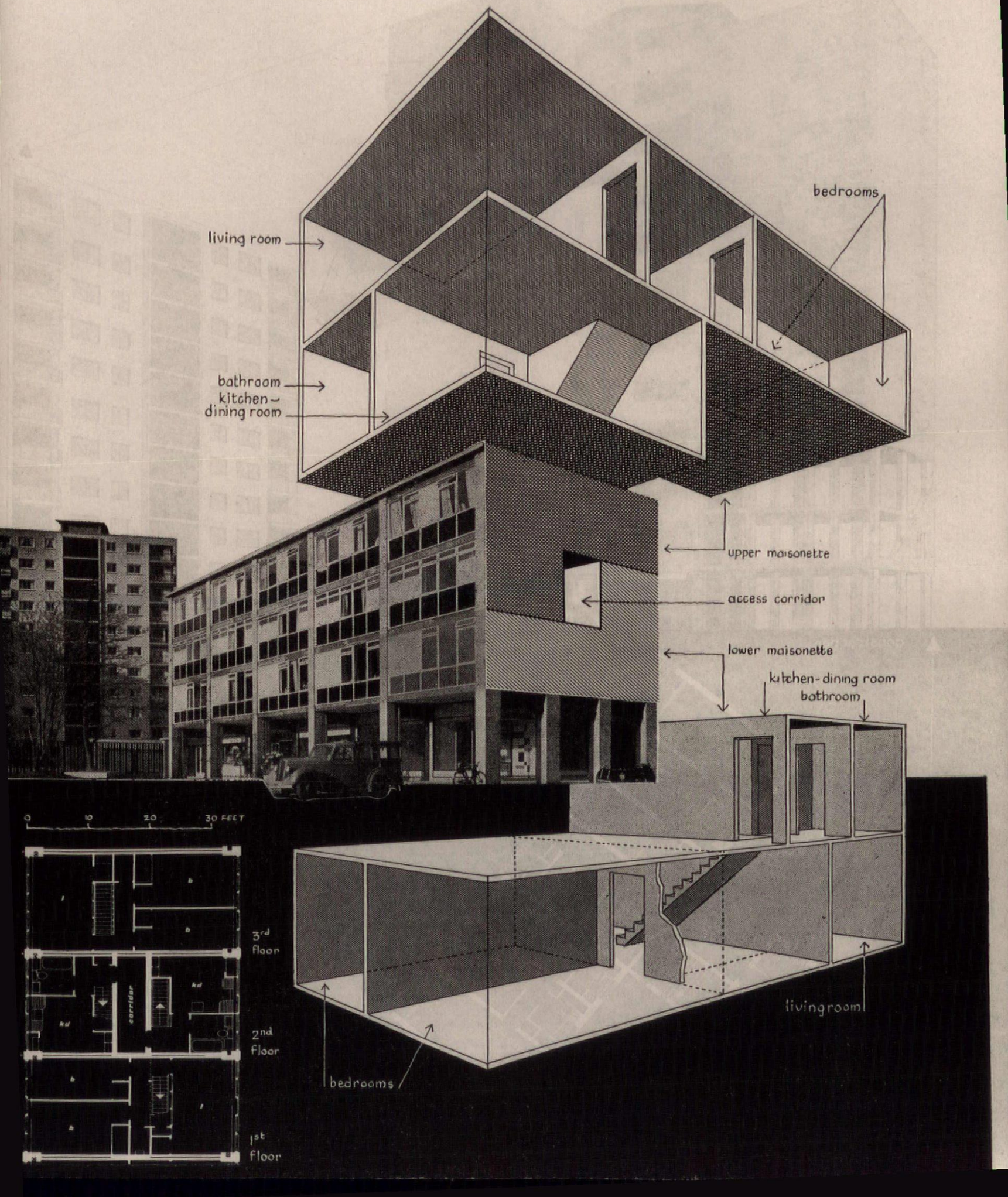
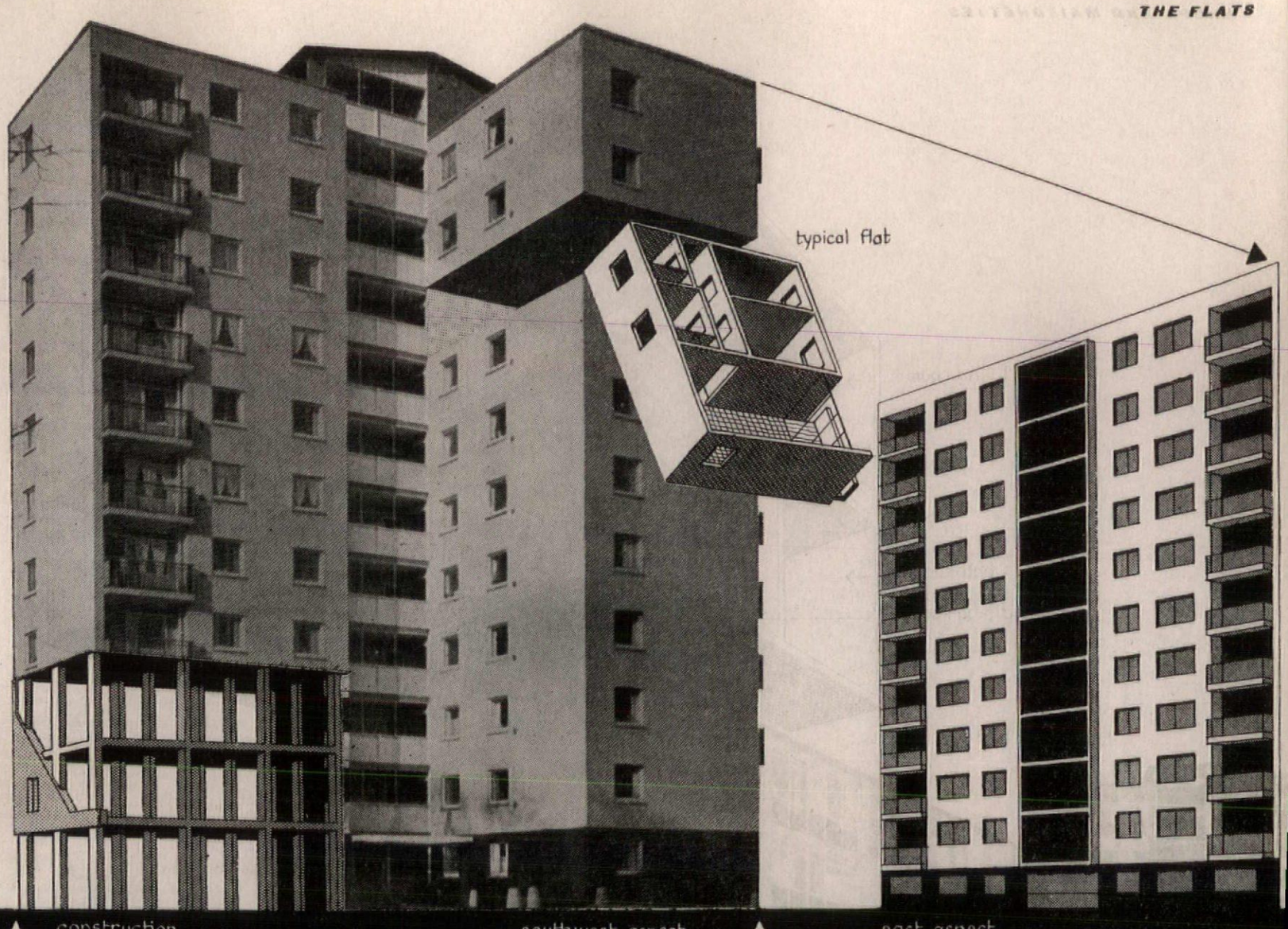


9

7. south side of the fish and chips shop. 8. access balcony and doorway to flat. and 9. detail of main entrance to point block.

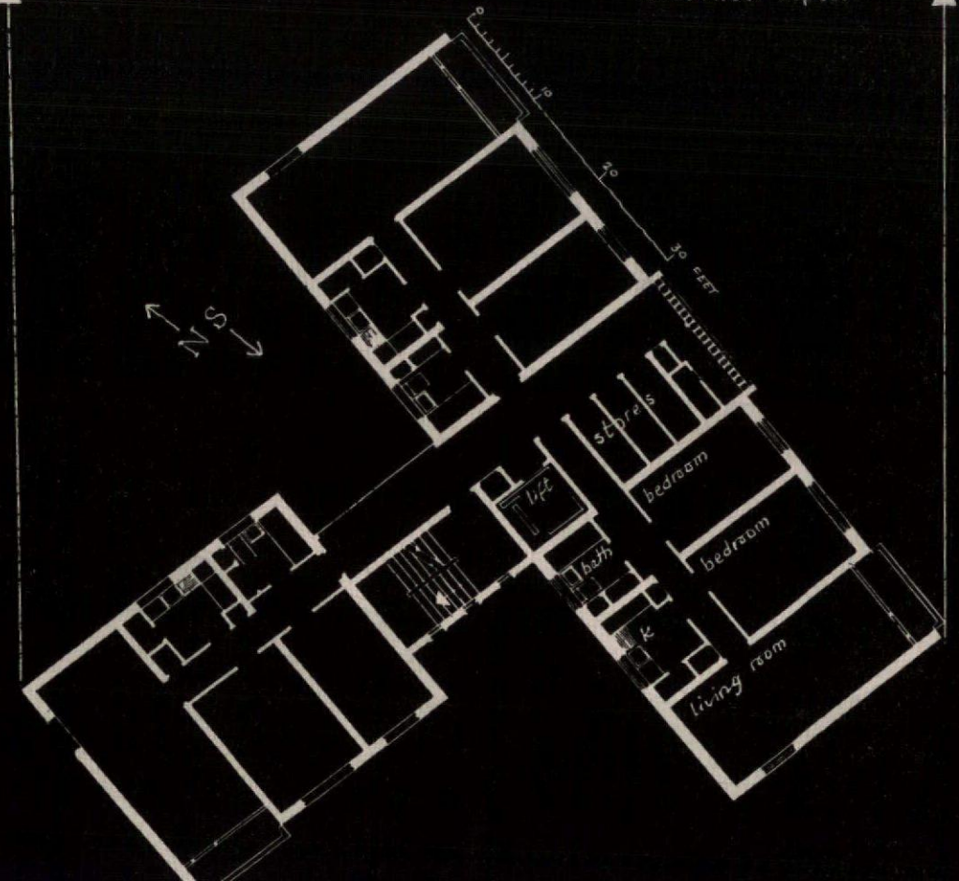

bedrooms
living room
bathroom
kitchen–
dining room
upper maisonette
access corridor
lower maisonette
kitchen-dining room
bathroom
0
10
20
30 FEET
3rd floor
2nd floor
1st floor
corridor
kd
kd
livingroom
bedrooms



construction

southwest aspect

east aspect

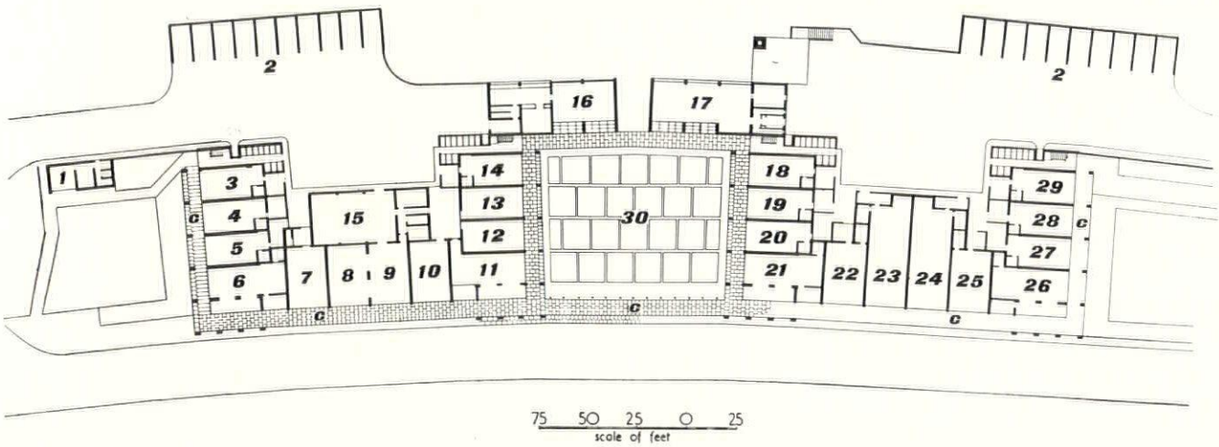


2. SHOPPING CENTRE

The scheme consists of 27 shop units and 40 two-bedroom maisonettes. The plan-form adopted allows sheltered semi-precinctual shopping. The shop service areas are concentrated and largely concealed from the public.

Four-storey blocks have shops at ground-floor level with interlocking maisonettes over, which are approached by staircase and central access corridor terminating at a fire-pick-up balcony on the road end of each block. Each maisonette has a living-room, dining kitchen and two bedrooms. All kitchens and bathrooms are on the access floor, to economise in services. Most shops have warm air heaters of the recirculated type but supply their own hot water. The four-storey blocks are connected by single-storey shops, café and launderette. The fish and chips shop is at the west end of the site, slightly separated from the main group of shops. All blocks are constructed on the principle of load-bearing brick cross walls with prestressed concrete beam floors and roofs, with the exception of the four-storey blocks which are roofed with open web nailable joists to save weight. The structure of the four-storey blocks is stiffened by solid 9 in. brickwork corridor walls at second-floor level. Curtain walls consist of 16 ft. 3 in. by 8 ft. softwood frames fixed between prestressed concrete edge beams, which are flashed with lead. Cladding is black and pale grey opaque and stove-enamelled coloured glass panels.

Shop tenants were responsible for their own interiors but shop fronts were provided by the Corporation to standard designs with variations to suit individual needs ; the majority are of framed hardwood stained black and finished with plastic polish. Decorative tiling to stall board rises and flanks on porches is black and white with a different colour for each shop. Size of fascia lettering was controlled but tenants were allowed choice of colour and letter types.



key
c. covered way.
1. fish and chips.
2. garages.
3. off licence.
4. baker and confectioner.
5. chemist.
6. ladies' outfitters.
7. Co-op. butcher.
8. Co-op. grocer.
9. ditto.
10. Co-op. greengrocer.
11. Co-op. draper.
12. Co-op. footwear
13. Co-op. chemist.
14. delicatessen.
15. Co-op. store.
16. café.
17. laundry.
18. bank.
19. radio and TV.
20. shoes and repairs.
21. gentlemen's outfitter.
22. newsagent.
23. grocer
24. butcher.
25. greengrocer.
26. cycles and hardwear.
27. dry cleaner.
28. gentlemen's hairdresser.
29. ladies' hairdresser.
30. piazza.

10, part of the shopping centre from the west showing the principle of four-storey maisonette blocks and single-storey links.



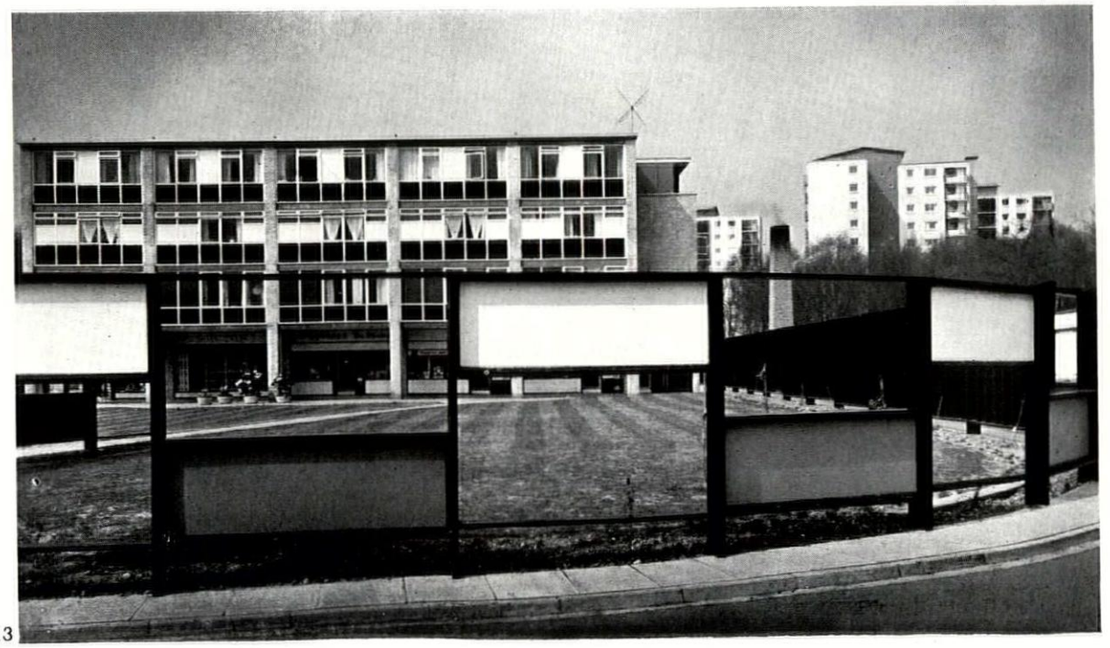


11

11, central piazza ; café and laundry on the right. 12, looking down at the laundry from the roof of the maisonettes. 13, from the east : shops and point blocks behind a screen which will eventually hold display panels.



12



13

FACTORY AT STAFFORD

ARCHITECTS | **EDWARD D. MILLS AND PARTNERS**

assistant-in-charge | **G. Partridge**

1, west side of the single-storey production area.



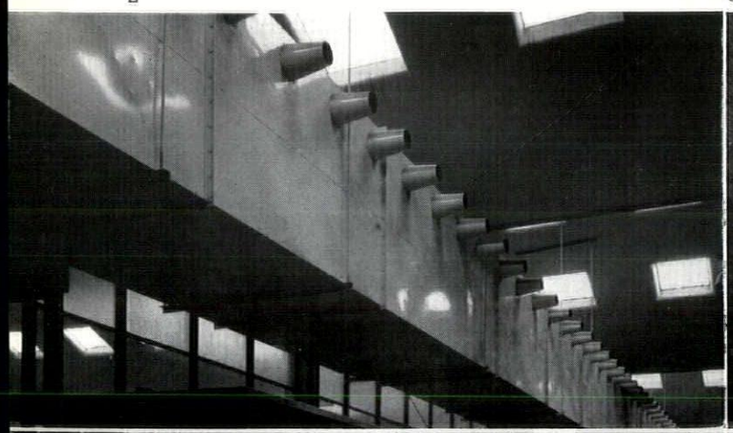
This factory, for the Universal Grinding Wheel Co., is on the Seighford road, about a mile north-west of the city, and occupies an area within the main works of some 60,300 sq. ft. Production buildings are single-storeyed, planned in large bays or shops, each of which contains plant dealing with a specific process. The two-storey building along the main road frontage houses administrative staff for the new factory on the first floor, and smaller process units and space for storage both at ground- and first-floor levels. There is a large loading bay at the west end of the two-storey block.

The area where the factory is situated has poor load-bearing subsoil. Some 370 reinforced concrete piles were therefore used, penetrating well down into the sub-strata. These support plant as well as carrying the structure, which includes a reinforced concrete suspended

raft over the whole site in which ducts and tunnels have been incorporated to carry service lines and provide access for certain of the machinery. The barrel-vault type of structure used for the single-storey production areas consists of a light framework of tubular steel over which reinforced vermiculite concrete is placed, plastered on the underside and screeded and finished with a mineral surface felt externally. The barrel roofs are supported on boxed tubular steel columns cased in normal concrete; a series of rectangular precast concrete and glazed units inserted between the barrel give an even distribution of light. Ventilation in non-air-conditioned shops is by continuous units placed along the crown of the barrels.

Owing to the types of materials being handled, the clients insisted on the floor being hardwearing and capable of standing heavy traffic, and at the same time having a clean and even surface. For the main traffic areas steel tiles have been employed, but the production floor areas generally are finished with a carefully graded crushed gravel concrete, moisture controlled, compacted and power floated. For exterior walling semi-engineering brickwork has been used generally. The two-storey block has a normal reinforced concrete frame separated structurally from the main single-storey building and having clear spans at first-floor level of approximately 30 feet. Compacted concrete has again been used for the floors of the main storage areas; the office section is finished in hardwood block flooring. Air conditioning is provided in certain shops with inlet ducting at high level, and return air ducts are contained within the floor structure. Every opportunity was taken, particularly in the main factory area, to use colour, especially in the exterior finish of panels, doors, windows, etc.

2



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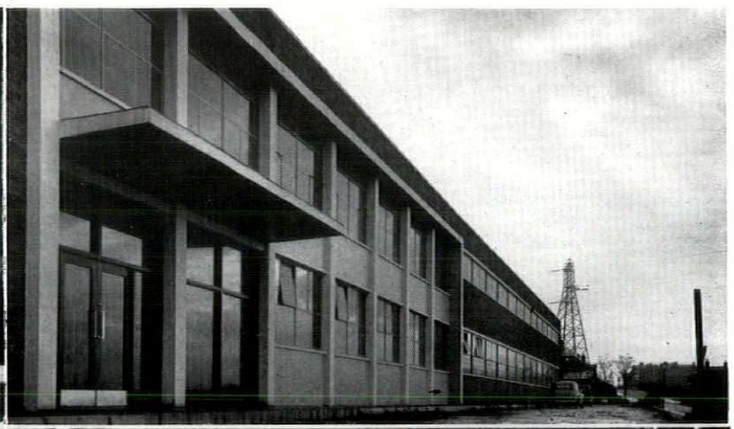
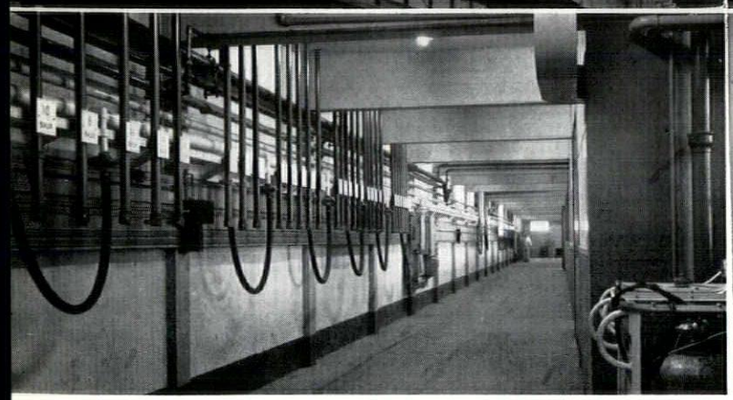
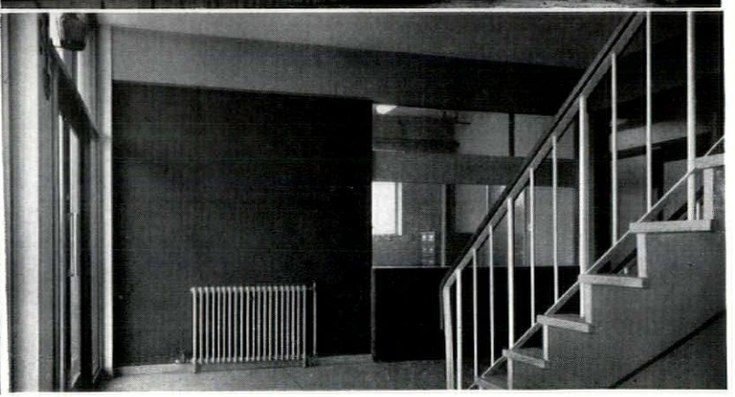


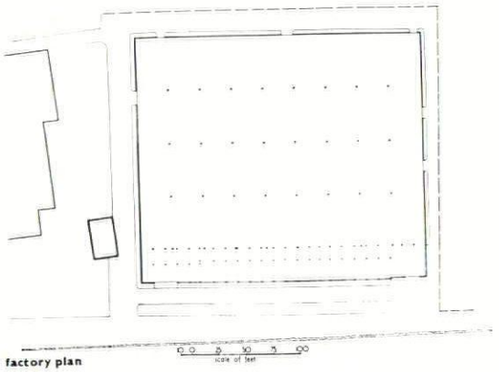




4

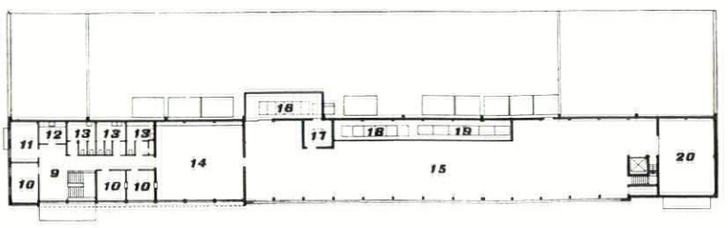
5

2 air conditioning trunking in press shop. 3, north front of buildings, with entrance and two-storey office, storage and small process block. 4, internal service road between office section and main factory, with loading bay at the end; the vertical pipes on the left feed grit silos in the mixing shop. 5, entrance hall and stairs at north-east corner.

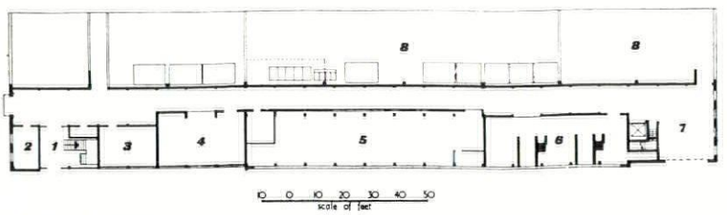


factory plan

key
1. entrance.
2. returns office.
3. diamond weighing.
4. fine mixing.
5. storage.
6. ball milling.
7. reception bay.
8. factory area.
9. landing.
10. private offices.
11. typist.
12. kitchen.
13. lavatories.
14. general offices.
15. storage.
16. powder resin cyclones.
17. fillers.
18. liquid resin tanks.
19. storage racks.
20. upper part of reception bay.



first floor



office block, ground floor

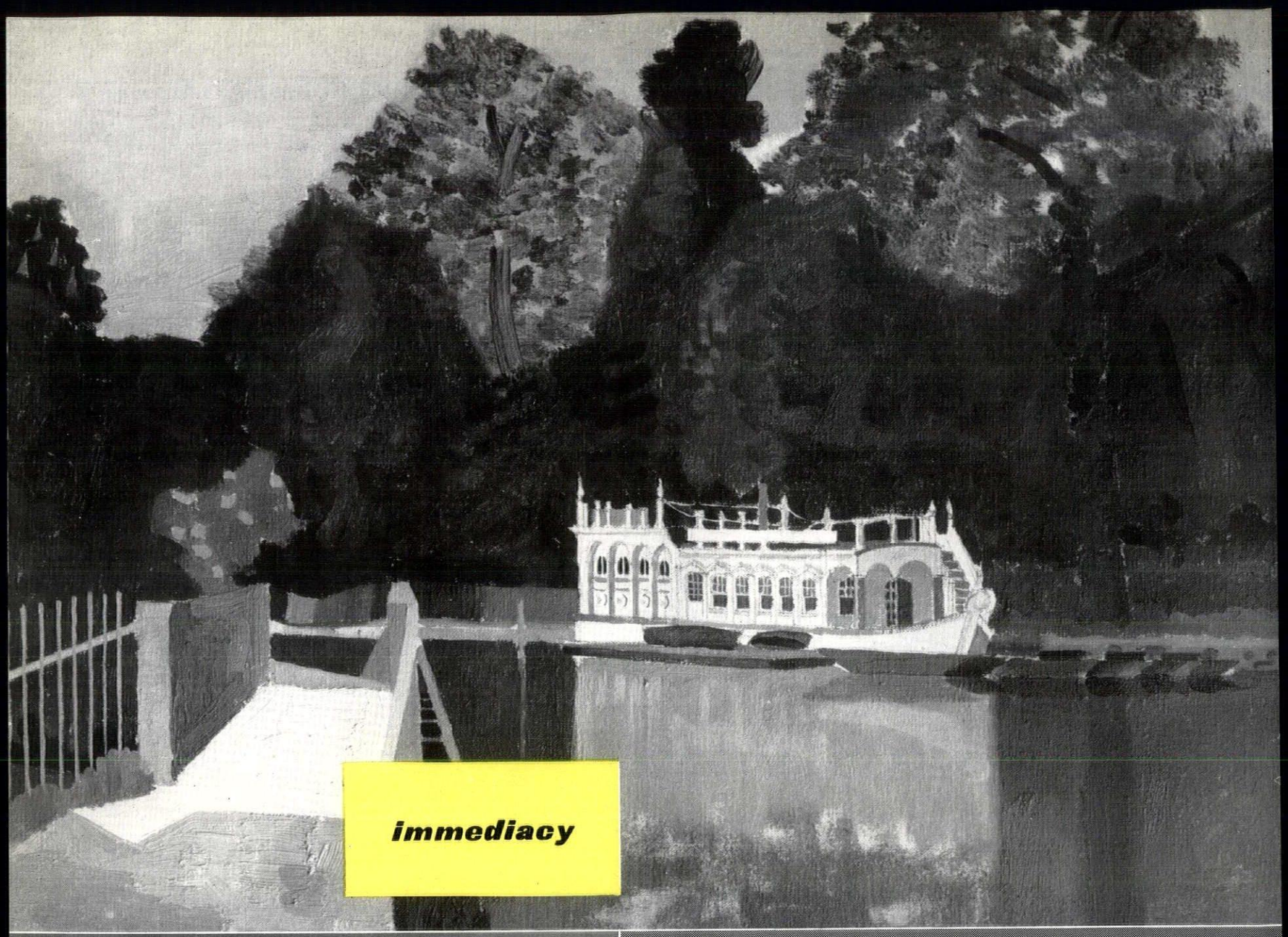


6

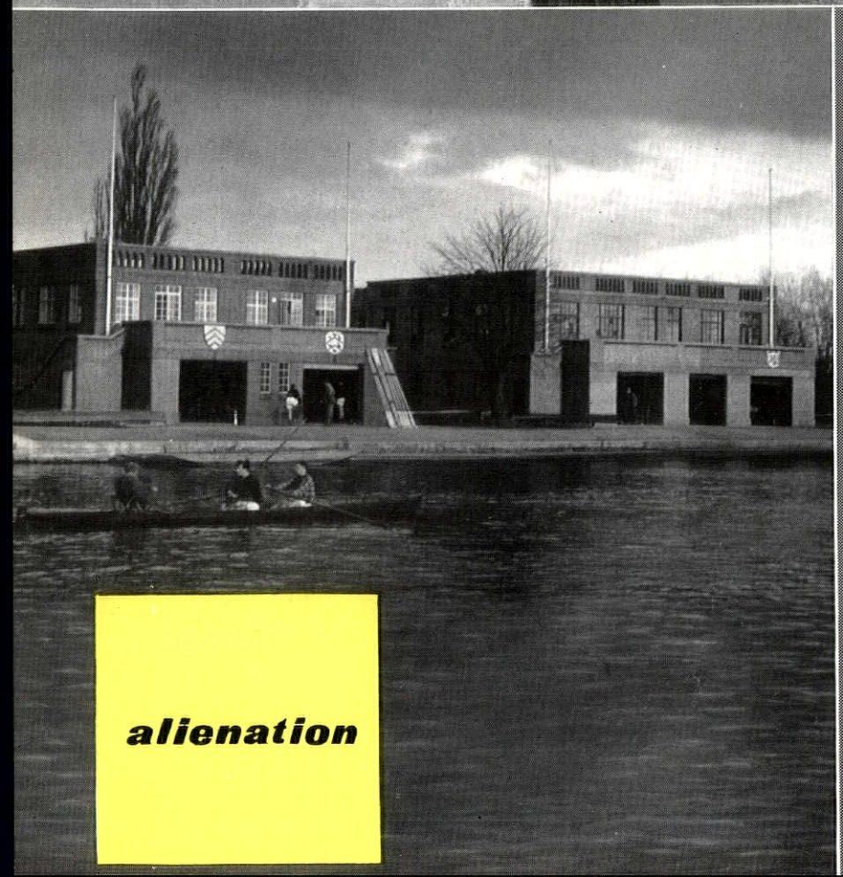


7

6, south front, with end of barrel roofing and folding metal doors. 7, entrance hall seen from opposite viewpoint to 5.

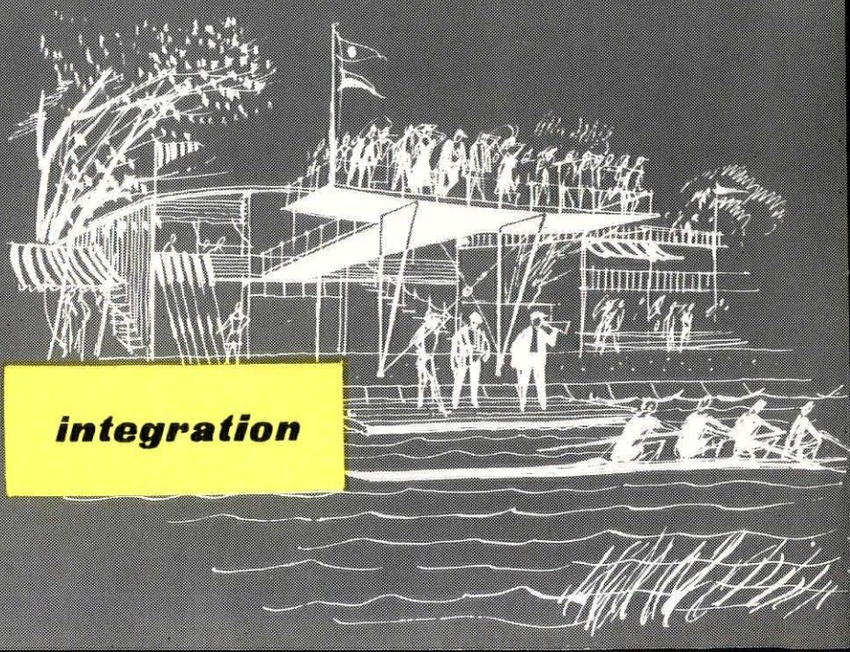


immediacy



alienation

The traditional college barges at Oxford look excitingly what they are, a means of getting people on to the water, as Kenneth Rowntree's painting shows (above). To replace them with brick boxes cowering back from the bank, left, is to lose this immediacy, and Diana Rowntree, in the article beginning opposite, calls for a type of boathouse, below, that presents man directly to water.



integration

Diana Rowntree

OXFORD COLLEGE BARGES

THEIR HISTORY AND DECAY, AND THEIR SUCCESSORS THE BOATHOUSES

It is almost a hundred years since it became the custom for college boat clubs to own a barge. Unfortunately this survey is undertaken not in honour of their centenary, but because the barges are now disintegrating so fast that they may soon have disappeared altogether. The line of barges along the Christ Church Meadows bank of the Isis is a well-known feature of Oxford. Yet their history is so little documented that they might well belong to some remote unlettered community. In this hive of academic activity no single person has got up the subject and some barges have disappeared leaving no record at all. Although many of the barges have been admired and cherished it has never occurred to their owners that they had architectural qualities. Architecture, it is widely believed in Oxford, is a pursuit inseparable from stone. This belief has had serious architectural consequences, and it is to challenge it before it does more damage on the Isis that this article is written.

The barges were originally a prestige item, bought because they appealed to the sense of style of Victorian rowing men. They are an ornament to Eights Week, and form an excellent grandstand for watching the races, with exactly the right air, neighbourly yet exclusive, for entertaining visitors to strawberries and cream. The mid-Victorians seem to have been alive to architectural appeal when they saw it. One salutes the acumen of the City Companies who dangled their redundant barges before these discriminating eyes. The charm of the barges would not have been acknowledged as architectural appeal in those days any more than in these. I have a letter from one of the colleges stating uncompromisingly that its barge 'is, I am sure, devoid of any interest, æsthetic or historic.' It is true that this barge is a pontoon supporting a simple weatherboarded structure lacking entablatures, orders, exuberance, or the well-considered proportions of some of its neighbours. But it has a simple marine character, and the architectural good manners that enable it to take its place in perfect accord with the other barges. Had its deficiencies not been so pointed out to me I doubt if I should have noticed them.

The thing that has made these barges one of the sights of Oxford is unanimity. They have very different styles of detailing and idiom. Some are pretentious—yet one feels pleasantly so—others delicately retiring, but the tenor of the line was never broken. They remain subservient to the landscape, a well-disciplined row beside the Isis, underneath the trees. The row is broken now. It was fashion and a sense of style which completed the row of barges, but the idea of staking a claim was in the first place grimly functional. Barges of the second vintage were designed to give more accommodation. Eventually the idea of a single building to contain the boats and comfortable changing rooms as well as a club room was bound to be considered. Christ Church who owns the meadows, has considered the matter of rowing amenities and produced a scheme for a row of boathouses on the island site between the junction with the Cherwell and the New Cut. Not, you notice, on the site of the barges. It is hoped that this indicates an intention to preserve this feature of Oxford, whose origin, like much else that has proved successful there, was fortuitous. Oxford is not given to demolishing the old whenever it embarks upon new forms. Many places there still recall the mediæval way of

life. The barges recall very aptly the way of life that was at its peak before the first world war. We look back nostalgically and, as envy abates, with increasing respect to that age which, though within living memory, has gone for ever. The barges, though perishable, are still there, giving us an architectural record of uncanny comprehensiveness. This, no less than mediæval stones, should be preserved.

Christ Church now offers any colleges wishing to build barges a businesslike layout. The frontage is divided into lots for pairs of boathouses, and can by this arrangement accommodate all the college Boat Clubs. Christ Church and four other Colleges built boathouses there before 1939. Seven more are at the design stage now. Any building that is to go up on Christ Church meadows must be considered in terms of landscape. Unfortunately, where landscape is concerned to be businesslike is only a beginning. Much more is required: imagination; someone with an idea. It sounds far-fetched to say passion. Yet to carry a planning project through committees, through the many months, even years, that will pass before the idea or its descendant rises in brick and concrete, requires a strength of purpose bordering on mania.

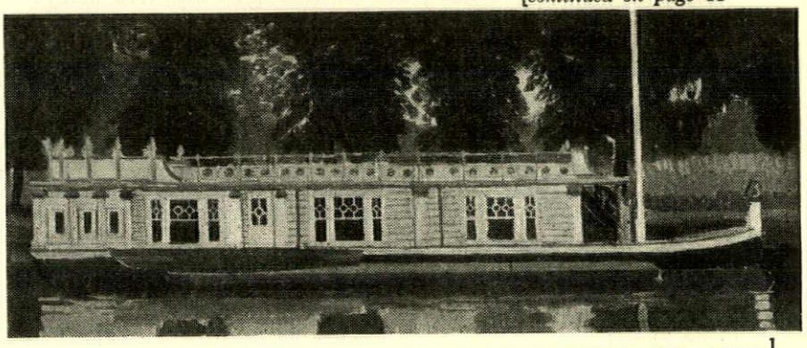
The first boathouses were built in durable materials and were planned for the job. Yet their effect upon the landscape is one of desolation. They give a curious impression that everyone has gone home and left no address. This is in sharp contrast to the barges whose shabbiness, sometimes cheerful, sometimes wistful, never fails to conjure up pictures of exuberant oarsmen, Processions of Boats by torchlight, or Edwardian gaieties on sunny afternoons in May. This is surely because it was the sight of the barges that suggested their possibilities. They were chosen because they were liked, not painstakingly planned. This seems a disloyal distinction to come from the side of the architects and planners. The distinction is in fact the basic one between positive planning for a desired end, and planning to get by. When an artist is at work on planning he has in his mind's eye a picture that delights him and has no doubt it will delight others. It makes no difference whether he is an undergraduate bidding for a state barge or an architect working out eighth scales. The early boathouses were not, I think, inspired by an inner vision, but simply by the wish for a hot shower. There is a vague belief current nowadays that comfort and beauty are alternatives. But one does not expect to find our older universities, guardians of precise thinking, the slaves of vague beliefs.

The existing boathouses fail to enchant; probably because too little was expected of them. It is significant that they are sited down at the end of the meadows "well out of sight." Evidently failure was assumed at the start, and indeed the final result is one of debased, pretentious ugliness. One could hardly find a sadder example of the architectural disease that is smothering the English countryside and transforming it into subtopia. What, more precisely, are these buildings' æsthetic faults? Their cardinal fault is that they do not flatter a well-loved landscape. Their own positive characteristic is solidity, with an air of desolation when the doors are shut. A minor shortcoming is the presence of waste paper on the external stairs.

The damage to the landscape is greater by contrast with the barges, which lie low under tall trees, light against dark foliage and water. Their small scale too is particularly elegant against these large masses. Their beauty is not simply due to the fact that they are floating, as one can see by glancing at the pleasure cruisers moored to the opposite bank, many of them hideous. Nevertheless successful waterside buildings —consider Venice or English water mills—do often rise sheer out of the water. This is impossible for buildings where eights are kept, as at least 30 ft. of ground is necessary in front of the boathouse for turning the boat. But if these boathouses could not rise out of the water, they could have flattered it with colour and tone. This they have not done, all sticking grimly to neutral toned brickwork. The present effect of foliage is equally unfortunate, but this can eventually be altered by putting in a row of trees containing quick-growing poplars behind the boathouses. Meanwhile, with the building line just in front of the existing trees it has been found necessary to lop the fine old trees out of all recognition. The plan to leave one tree between each pair of boathouses took too little account of the spread of the tree and its relation to the view from the terraces. Bridgwater and Shepheard, whose designs for further boathouses are illustrated here, suggest leaving two trees between every two blocks of building instead of one between each block. This would leave a more effective spread of foliage.

Solidity is a curious characteristic to bring to

[*continued on page* 41



1

History: In 1843 Oxford, owing to the illness of their stroke, rowed with seven oars against Cambridge at Henley-on-Thames, and won. The glory of this occasion roused many colleges to found or re-found boat clubs. In those days there was heavy traffic of commercial barges on the Isis, and ferocious feeling between the bargees and the undergraduates. The University Boat Club hired a barge from Heathers, which the Colleges used for changing in, but members had to get someone to punt them across from the meadows to the towing-path where the boats were, and still are, kept. Incompetent or ill-intentioned bargees often undertook this task, and accidents occurred. The OUBC issued badges to licensed punters, but their thwarted competitors countered this by mooring their barges along the shore of the meadows in such tight formation that the undergraduates could not get to the water at all. In 1851 the OUBC moored a raft to that shore, thus gaining a meagre footing.

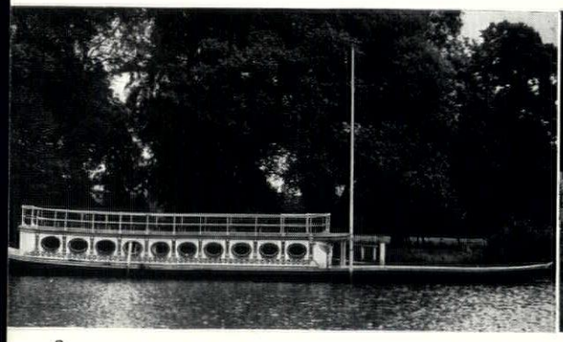
At this time the state barges of the London City Companies, that had hitherto graced the Lord Mayor's procession and state occasions, were becoming obsolete. The OUBC had bought the Merchant Taylors' barge in 1846. Balliol bought the Skinners' and Exeter the Stationers'. The fashion spread very quickly and gave the university final control of the meadows shore.

The City Companies' barges were designed to be rowed, with a long prow for the oarsmen and a cabin towards the stern. The colleges rowed them to Henley for the regatta each year. Their other dress occasion was Eights Week, when they made a grandstand for watching the bumping races and were used as a club-house. By the 'eighties the City Companies' barges were mostly coming to the end of their lives, and many colleges had barges built then, on the house-boat plan with more cabin space.

In 1881 Balliol commissioned Alfred Waterhouse to design their present barge, and it was completed by Salters in 1882. In 1885 Wadham hired a barge Corpus had vacated, so presumably Corpus's second barge dates from that year. Magdalen's barge was built by Salters in 1886, and Jesus's in 1887 by Tagg of

[*continued on page* 41

2



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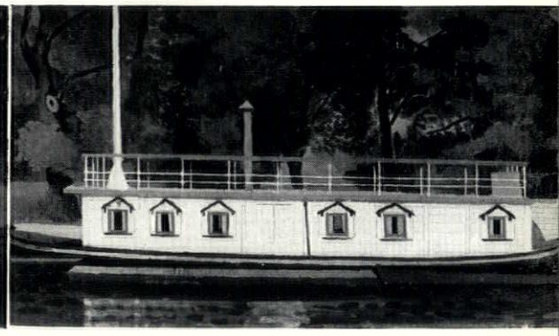

5

Facing page, 1, *New College barge built in* 1928 *by James Taylor and Bates, Chertsey.* 2, *the barges as they lie today.* 3, *Oriel barge designed by T. G. Jackson in* 1892 *as a copy of the earlier City company's barge; broken up in* 1954. 4, *St. Johns' barge built at Reading before* 1885. 5, *Brasenose barge; yellow and black paintwork on white. Below,* 6, *Jesus figurehead and stern of St. Johns' barge.* 7, *detail of Hertford barge.* 8, *poop detail of Keble barge.*

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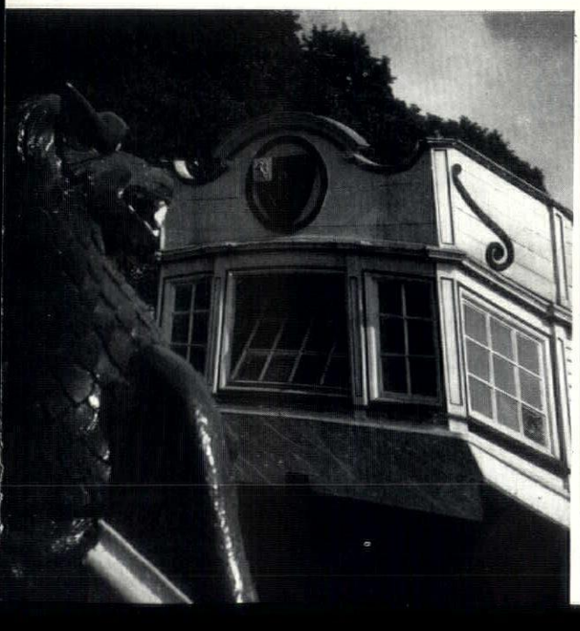

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8



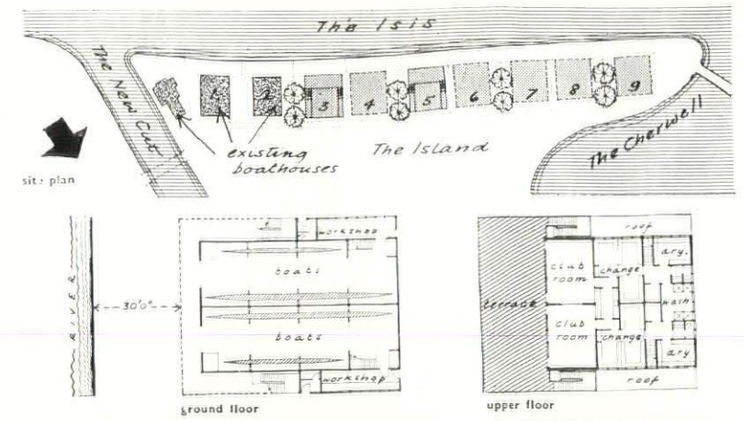
left, boathouse tradition. 9, Thames Rowing Club, Putney, a bold handling of the balcony motif. 10, Ranelagh Sailing Club, Putney, in casual riverside style.

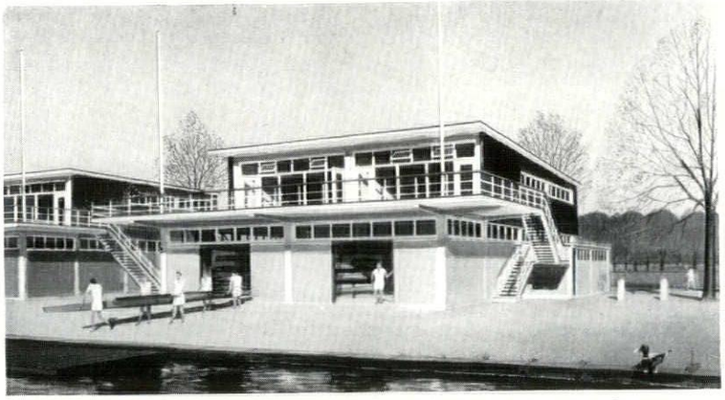


9

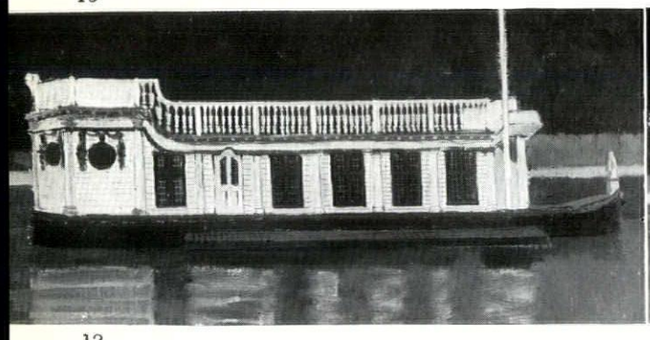


10





11, *Proposed boathouses for Oxford by Bridgwater and Shepheard.*



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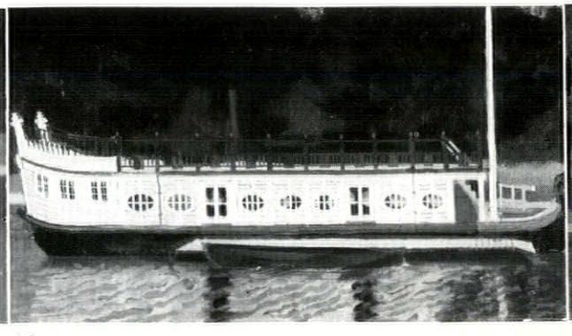

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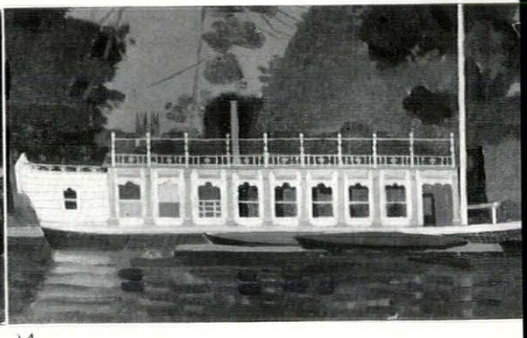

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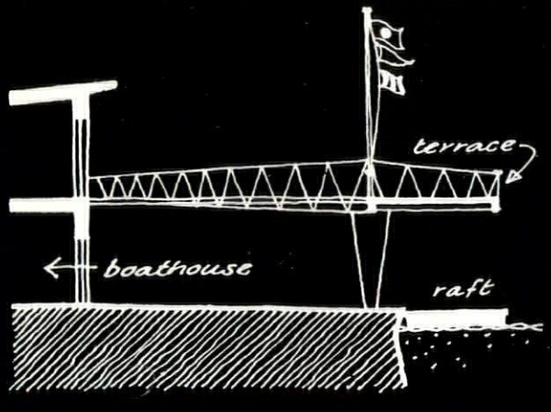
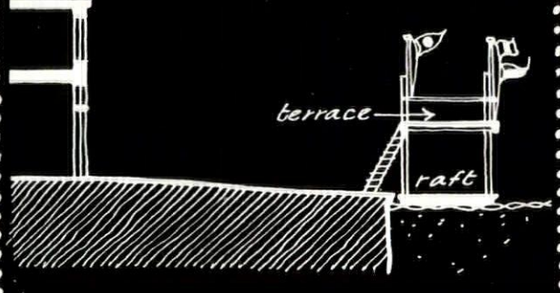
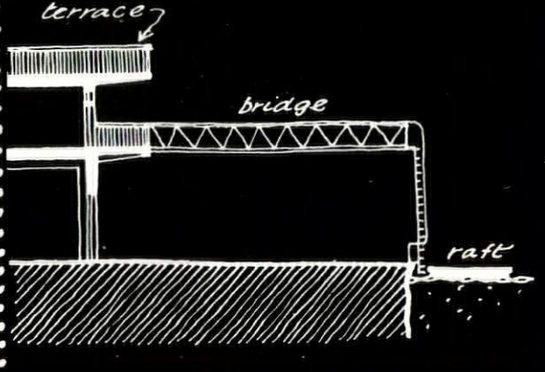
12, *Hertford's Edwardian barge.* 13, *Corpus Christi barge designed by Harrison and built by Salters,* 1930; *the hull is bright blue with a scarlet line, the superstructure salmon pink and white.* 14, *Wadham barge, built in* 1897 *and probably designed by Jackson. Facing page,* 15, *Jesus barge, built by Tagg, of East Molesey,* 1887. *(See* 6 *for figurehead.) Below, the three alternative suggestions given by Diana Rowntree for solving the problem.*



a terrace over raft with independent support



b terrace as upper story to raft.

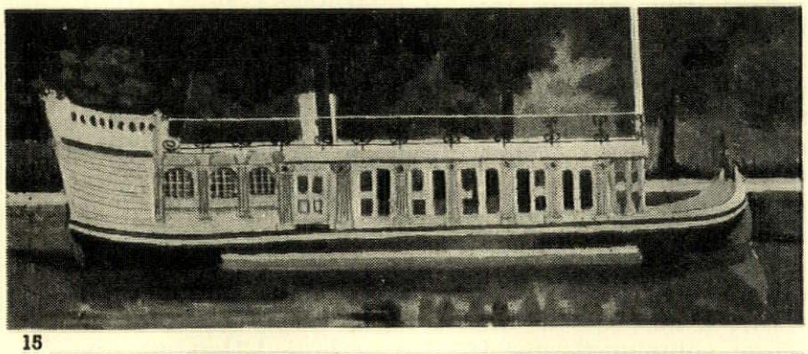


c terrace on boathouse roof - spectators' bridge to raft.

continued from page 38]

water-meadows. These boathouses seem to be modelled on the physique of their users. They would have done better to imitate the style of the boats. The fault is mainly due to the necessarily ungainly size of the boathouse doors. They present a real problem, which in the boathouses already built seems to have been regarded as insoluble. The overall size has been emphasized by recessing the doors, and in one case painting them to contrast with the brickwork. But instead of the rest of the design being logically subordinated to the doors, the upper story has been, on the contrary, heightened with a parapet, and the external stairs untraditionally and unnecessarily added to the visible brick cube. This gives the building, as it always must, the appearance of a cut cheese. Bridgwater and Shepheard have tackled the door problem by dividing the front elevation at door height. Everything below this line is solid and painted the same tone; above, all is glass. It would be equally possible to treat everything below door height with a unit pattern, using vertical boarding or something more inventive.

The external stair and balcony is a traditional feature of riverside architecture. The traditional materials are timber or wrought or cast iron. These materials do of course need regular painting, and it is only natural to try to avoid maintenance items. But has anyone ever seen a successful example of a solid balcony? At Putney, where the row of boathouses has, for all its squalor, the authentic waterside exuberance, it is most noticeable that the charming buildings are the ones with light and impermanent balconies. The newer boathouses in brick and solid concrete have just that air of desolation we notice on the Isis. Bridgwater and Shepheard solve this problem by using a ship's railing for the terrace, and external stairs with open risers. Unfortunately the tight boundaries of the site have compelled them to tack small workshop blocks on to the sides of the building, so that the open stair would be seen against a solid wall and robbed of its effect. One suspects that the waste paper, after blowing through the open stairs will collect after all in the angle of the workshop. If the rear building line could be relaxed, the workshops could go to the back of the block and not be seen at all from the riverside.



15

In making the change from barge to boathouse, colleges count on cutting down their maintenance costs. This is an optimistic assumption. They fail to take into account the much greater day-to-day upkeep the larger building will need. The litter is an outdoor symptom of the losing battle the watermen are fighting. Indoors there is a similar desolation. But it is not simply caused by lack of charing. The barges had their seating and splendid internal appointments built in. The club-rooms so far are simply three or four thousand cubic feet of club-room space. They appear to have been furnished by odd contributions from home. But it takes much more than this to produce the casual elegance they may hope to achieve. The architect or someone else will have to exercise some skill and spend some money if the change from the masculine dignity of the barge interior is not to be a tremendous come-down. The present appearance of the club-rooms is of such disheartened neglect that it is impossible to believe they are the habitat of the same men who occupied the barges.

The problem of fitting 60 ft. boats into an 80 ft. site does not allow for very great divergence of plan. The difficulties that Bridgwater and Shepheard have met will crop up again all down the line. Though I think the landlords mistaken in trying to tuck away out of sight an activity as attractive as rowing, they are certainly right in thinking that the design of the boathouses will cause their architects some trouble. Their mistake is to think an elegant boathouse cannot be achieved.

There are two main planning problems: first the great length and width of the plan of the paired boathouses in proportion to their height. Secondly the effect of a large terrace at first floor level. On the ground floor I can discover very little possible variation. Upstairs there is plenty of space to juggle with the plan components. But since the changing and club accommodation takes up so much less room than the boats, the obvious course is to make a spacious terrace on the first floor for watching races. This means that the admirable river elevation Bridgwater and Shepheard have achieved, with the glass wall rising high above the difficult doors, will not in fact exist. The proportions only exist if the ground and first floor glazing can be read as one. If the first floor windows are 20 ft. further back than the strip above the doors, the dominant ground floor reasserts itself.

continued from page 38]

East Molesey. Pembroke's had just been completed and Trinity's was on the stocks. All this vintage has lasted well. Enormous sums have been spent on the upkeep of the barges, although the colleges ignore the usual nautical practice of painting the hull annually. In the 'nineties Oriel, Keble and Wadham built barges, all designed by architects. Oriel employed the eminent T. G. Jackson, but firmly stipulated that the new barge should be upon the lines of the old. This one lasted until 1954, and Oriel was still so proud of it that the lead decorations are preserved in the College. We hope they may adorn the future boathouse. It is likely that the Wadham barge, built in 1897, was also Jackson's work, as he was an honorary Fellow, and consultant architect to Wadham. This barge has that grace, allied to functional simplicity, with which the Victorian designers who remained unmoved by the battle of the styles carried forward the best English tradition. The designer managed to use the large sheets of plate glass then available without the least sacrifice of delicacy in the surrounding details.

In 1903 Queen's decided to follow the prevailing fashion in shipbuilding and chose a steel hull, which she expected to last much longer than a timber one. The treatment of this barge lacked realism, as the danger of rust was apparently ignored. One of the Fellows of Queen's who had a great deal to do with commissioning the barge was approached in 1947. Although he could not clearly remember facts, dates or names, he wrote: 'I remember a visit I paid to the builders of the new barge, and my struggle with my æsthetic conscience before approving the design.' The design of BNC's present barge, which is constructed on a steel lighter from the first world war, gave rise also to strong feelings. One of Mr. Salter's men remembers that the then Mr. Salter would not take on the contract because the design was so ugly. It was therefore built by Rowhedge, of Colchester, and its humble East Anglian appearance clearly proclaims its origin. In fact, it has turned out so perfectly in the Essex vernacular that it seems likely that the design was greatly modified.

In these boathouses, as in many buildings, a painful choice seems necessary between an ideal plan and a successful elevation. During Eights Week the terraced plan will be ideal. For the rest of the year this gracious site would do far better with buildings with the glazing vertically above the doors or projecting beyond them. If the clubroom is brought to the front of the plan and given sliding-folding windows we get this effect. What then will serve as a terrace for the Eights Week crowds? There are several possible solutions, but let us first return to the problem of the large squat form of the building. This is due to the insistence on paired boathouses. The long, narrow form of the single boathouse would be an easier assignment for the architect. Since the landlords do not seem very sanguine about the capabilities of architects to surmount their difficulties, it would seem a good idea to cut down the difficulties as much as possible. If any colleges who wished to build single boathouses could do so, the row would gain in variety. A waterfront needs variety; particularly this one. Bridgwater and Shepheard's building is a conscientious and skilful solution of an exacting problem at the minimum cost to allow proper workmanship. If there is to be any architectural excitement or flight of fancy on this waterfront it is going to cost extra. Some colleges may have available endowments, gifts or bequests. It will be unfortunate if it turns out that these colleges are handcuffed to others less well endowed so that they cannot decently have their fling. The plan to hide the boathouses from sight will worsen their appearance, both by crowding them and by insisting upon uniformity. Building in pairs makes a saving in initial cost, but it means nine buildings instead of seventeen. This puts double the weight of responsibility on each design. Far more important, it introduces a compulsory symmetry. Symmetry has the virtue of emphasizing an axis. Here there is none. It also helps to build up an atmosphere of grandeur. But though pageantry has always been associated with rowing on the Isis it is hardly the same thing as grandeur. In the last century there was the annual Procession of Boats, and there was a procession for the opening of the New Walk in 1872. These traditions suggest colour and gaiety rather than symmetry.

It is very important to brood upon tradition and it may well solve problems which would seem entirely intellectual ones. An architect faced with the design of one of these boathouses has as his cue the elegance of racing boats, the barges lined up before his eyes and riverside tradition in general. Boatbuilding suggests tapering curves, stressed plywood, slender masts and shrouds, brasswork and gleaming varnish. The barges, timber detailing on a more solid scale, and above all bright fresh colours. Riverside tradition means railings, rafts, and balconies. The thought of all this does immediately suggest solutions both to the land-locked look of the boathouses and to the terrace problem.

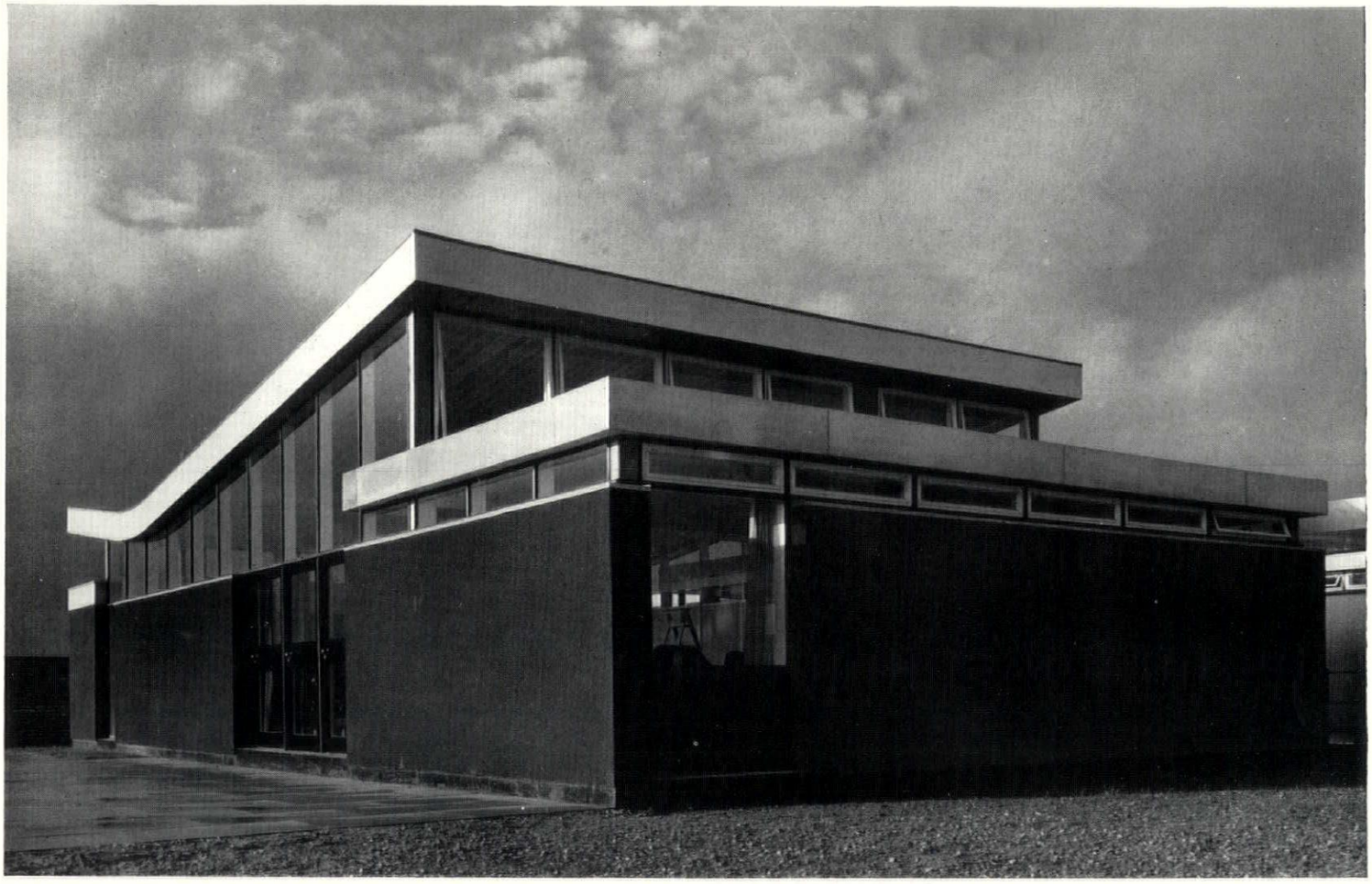
The most mundane solution to the terrace is to put the Eights Week spectators on the roof. Though this will increase the load on the roof it will not increase the total load on the building, as the same weight of spectators would have to have been supported on the first floor terrace. The roof terrace has the added advantage of being out of sight during the long period when it is not needed. It gives the building extra height which it needed, and an excuse for a decorated skyline. A second promising idea is to build first-floor terraces to the rafts which are necessary in any case to deal with differences of water level. If the rafts had tall posts at four corners the terraces could even be dismountable. This structure would have the architectural charm of the barges, and link the boathouses visually with the water, restoring to the scene the riverside architecture that the exigencies of boathouse planning have taken from it. The terrace could be reached by a light overhead bridge from the club room, to keep the spectators out of the way of the boats, or by a hinged stair from the towing path. Unfortunately this does not work on plan, but it gives rise to other ideas. One is simply to run a footbridge from the clubroom to the raft and let guests watch the races from the raft, after the boats are in the water. A more ambitious scheme for any college still fairly well endowed would be to cantilever two girders from the boathouse across to a pier at the river edge and support a terrace on these. The girder would support a bridge and form a handrail. And why should not the colleges that have no funds for cantilevers, girders and piles stick to their barges and use them as the spectators' terrace, and as a point of interest supplementary to a new functional boathouse?

Such detailed analysis may strike some people as disproportionate to these dull little buildings, which are after all only boathouses. Unfortunately the disease the existing Oxford boathouses suffer from is one that threatens to consume the whole of England. What has happened on the Isis shows exactly how subtopia creeps in. Evidently subtopia need not be the by-product of commerce, but may arise from the good intentions of the most august of clients. When the client happens to be a college it is unlikely that its past and present members should not include some people who care about architecture and landscape enough to be informed about them. At present great interest in art is discernible in Oxford, almost more in junior than in senior common-rooms. It is to be hoped that officers of colleges will co-opt the opinion of members who are interested in art, regardless of their age and standing.

As a result of Christ Church's magnanimity in keeping the meadows open to the public there is a vast body of people scattered over the entire world who have the future of this bit of landscape at heart. It is on their behalf that I urge Christ Church to use the same magnanimity in its dealings with tenants and architects, to give the scheme the consideration and revision that it deserves, and to apply it in the broadest and most amenable way when suggestions arise.

Other colleges who propose to build boathouses are urged to take the barges as an æsthetic standard, a standard not a model, and unless they have the courage, the vision and the architect to build a delightful boathouse, to have the good sense to stick to their barge.

Of the paintings by Kenneth Rowntree illustrated in the article, the following are from private collections: page 36, top, David Booth; 1 and 5, Lionel Cinnamon; 13, Dennis Clough.



1

1, *common room from the west. The roof is an* 11½ *in. timber roofing unit supported by a timber frame. The lower roof in the foreground covers the occupational therapy room and the store.*

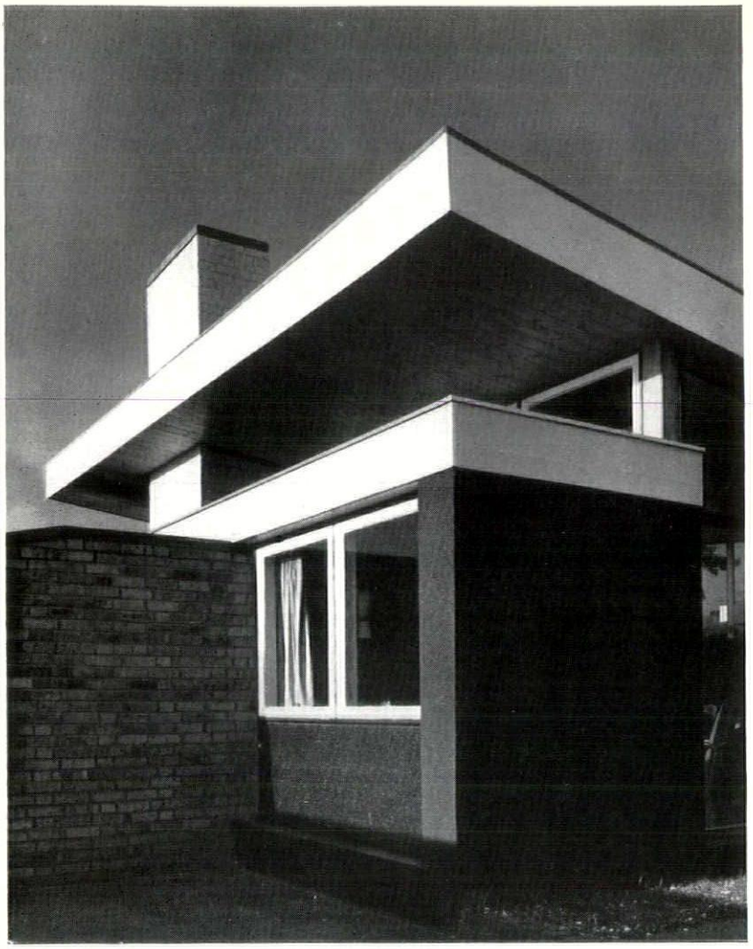
ADMISSION UNIT AT WALLINGFORD, BERKS.

ARCHITECTS, POWELL AND MOYA

ASSISTANT ARCHITECTS, ROBERT HENLEY AND DEREK STOWE

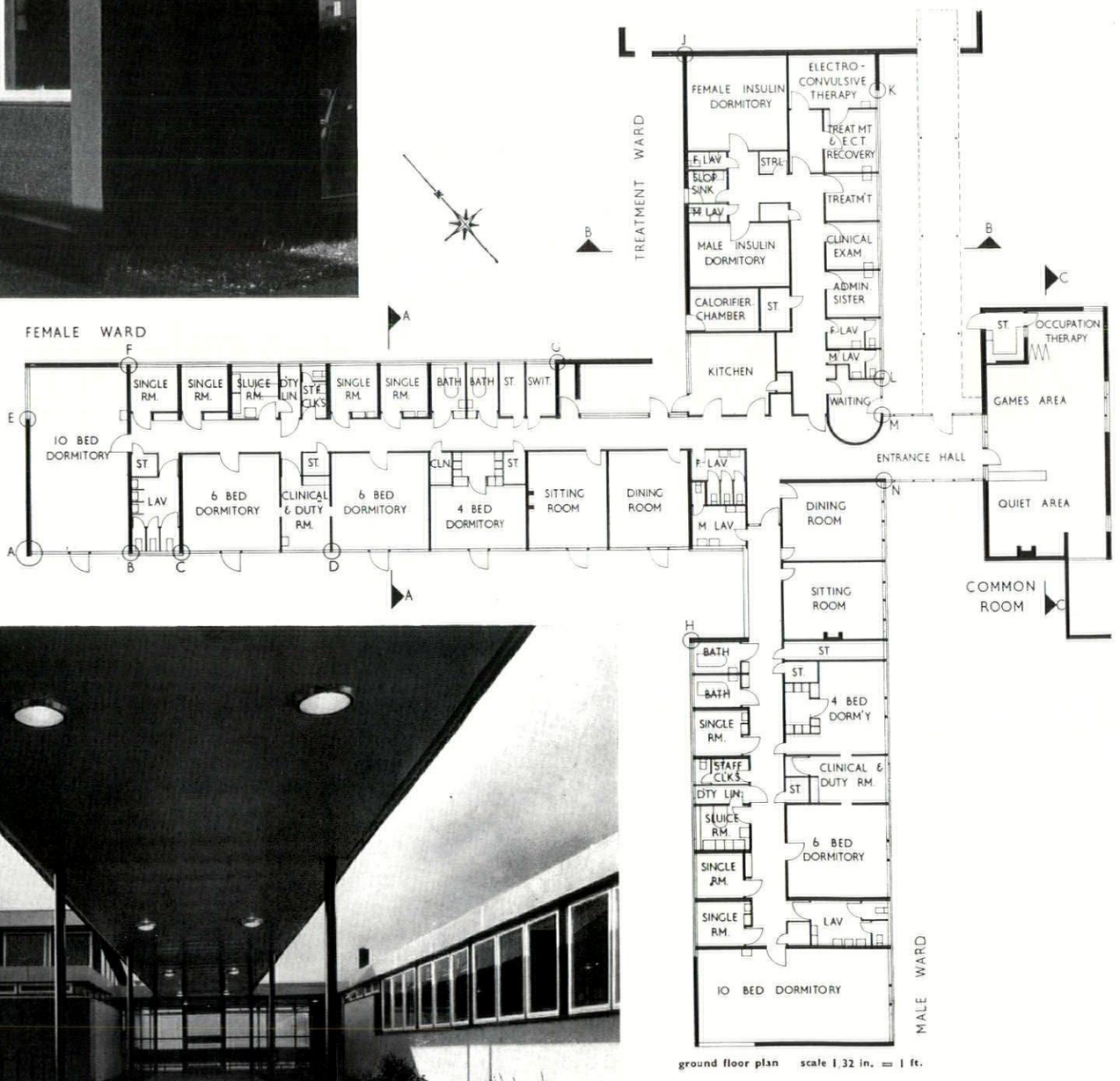
The admission unit of the Fairmile Mental Hospital, on the Reading road south of Wallingford, accommodates all new patients to the 950-bed main hospital. Many of these are discharged after observation or become out-patients; the average length of admission is six to eight weeks, and the emphasis has been on a cheerful atmosphere, which has been helped by relaxation of some of the previous requirements—e.g. that panes of glass must not be bigger than 15 × 12 in. It is on a gently sloping site with good views to east, south and west. As all the accommodation is on one floor, use has been made of different ceiling heights—10 ft. for the larger rooms and 7 ft. 6 in. for the

smaller to obtain clerestory lighting to wards, corridors and stores. Windows generally are of clear glass, privacy being obtained by planning the rooms so that no overlooking is possible; where this is not done, window cills are above eye level or, in the rooms next to the entrance path, venetian blinds are provided. Load-bearing brick cross walls are 9 in. thick where sound insulation is needed and 4½ in. thick elsewhere. Roofs are of light composite plywood and softwood construction in troughed units. External walls are 10½ in. cavity construction of two skins of 4½ in. expanded clay blocks. The opening lights of the windows are hinged so that the opening is limited to a few inches; below door-head height, ¼ in. polished plate glass is used to reduce the chance of breakage. However the windows are everywhere larger than is usual in mental hospitals. Floor finishes are mostly thermoplastic tiles; with woodblock in the common, dining and sitting rooms, and quarry tiles in the w.c.s, kitchen and sluice rooms. Heating is by a low-pressure, accelerated hot water system.

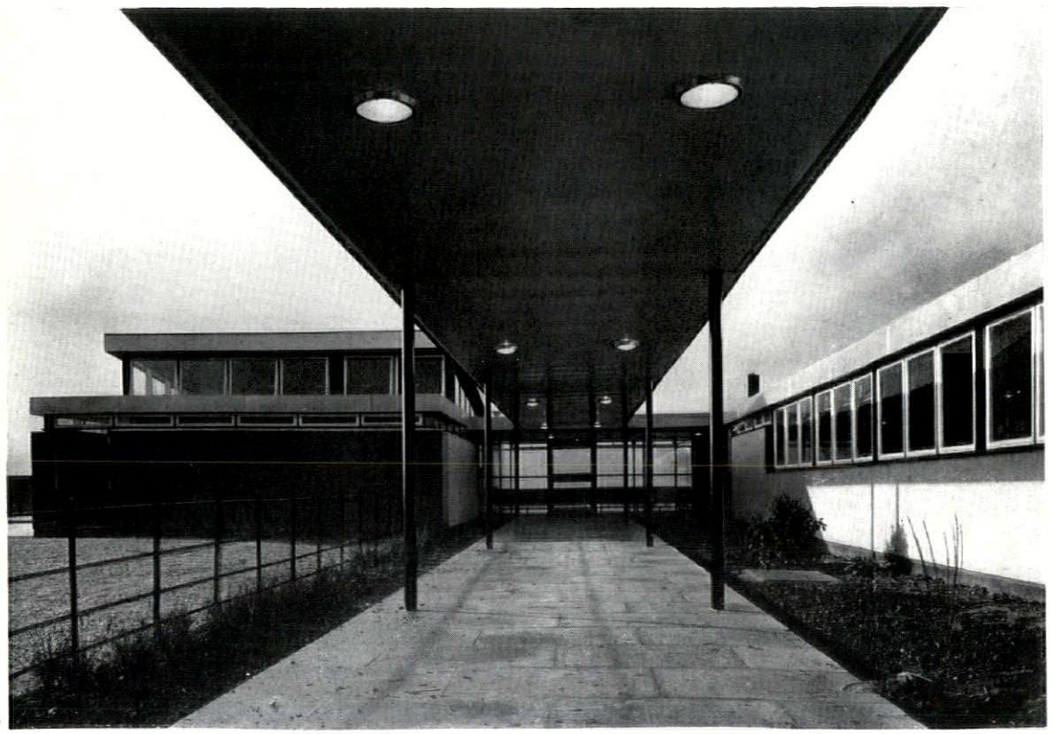


2

2, the south end of the common room: the lower roof is over a fireplace recess. 3, the main entrance and covered way, with the treatment block on the right and common room on the left.



ground floor plan scale 1.32 in. = 1 ft.



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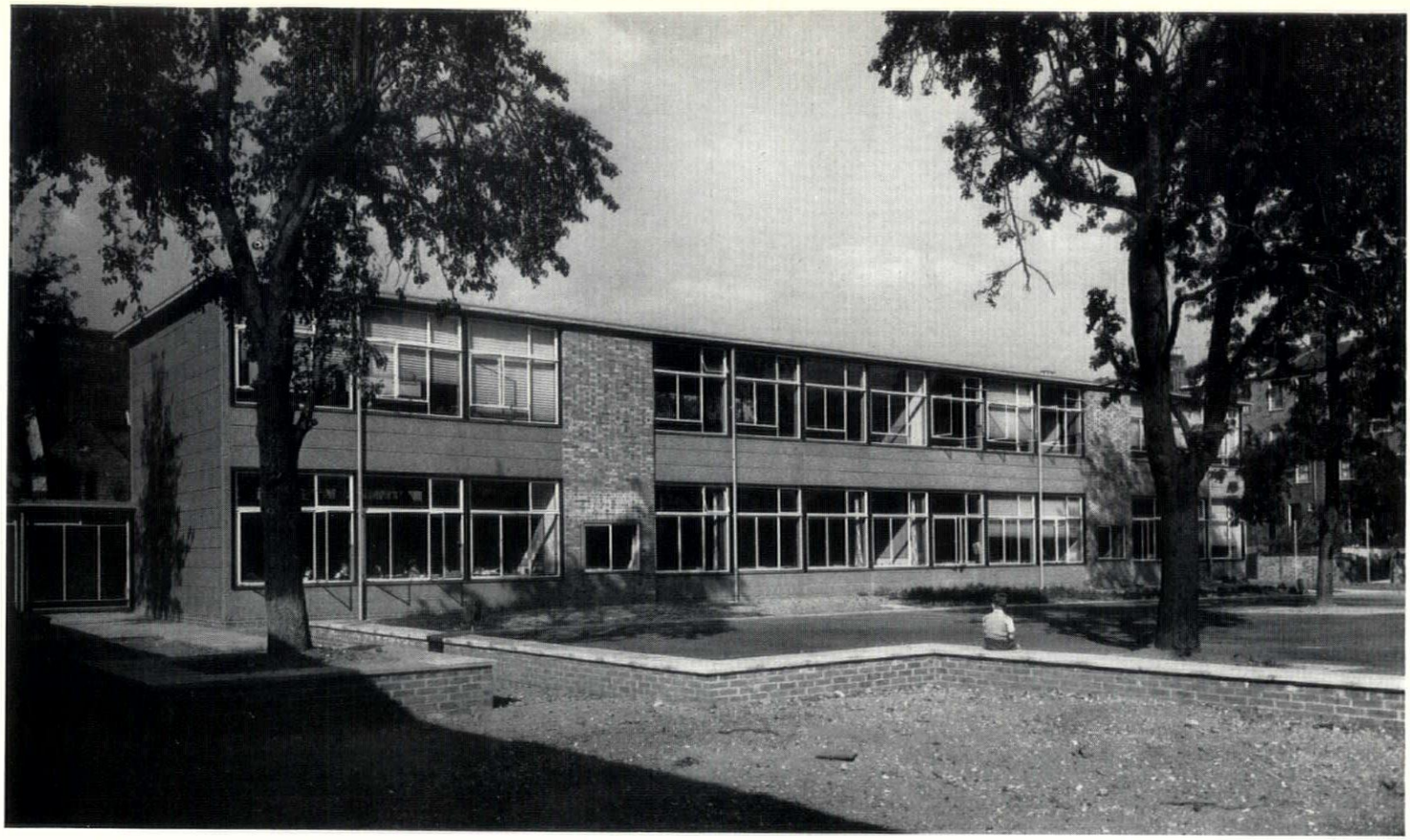


4, the junior wing from the south.

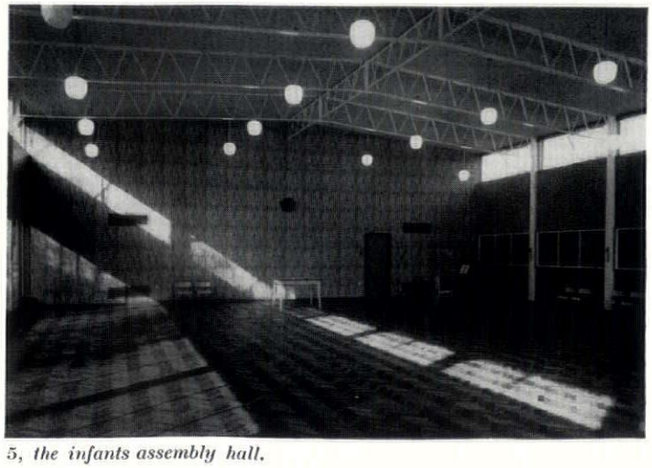
SCHOOL AT HIGHBURY, N.6

ARCHITECT, JACK HOWE

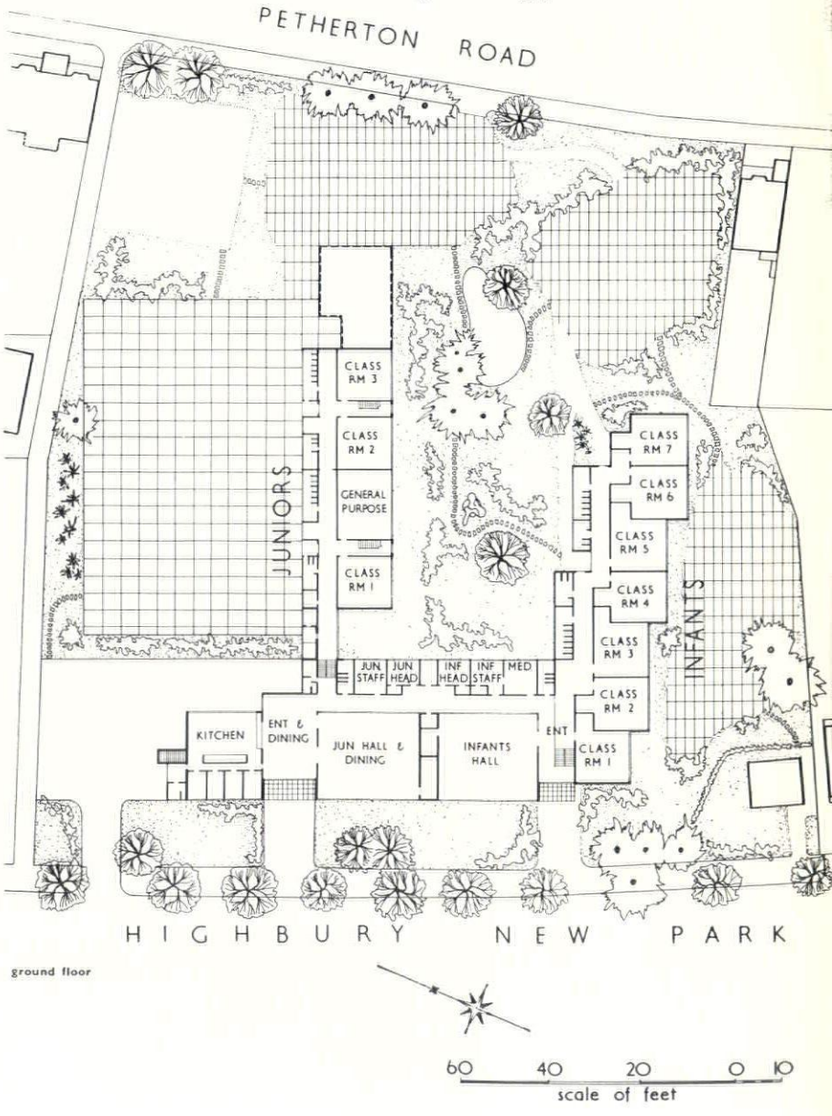
ASSISTANT ARCHITECT, ANDREW BAIN

The present buildings (representing the first of two stages) have accommodation for 320 juniors and 280 infants. The final stage will add three further classrooms, bringing the total accommodation to 720. The infants wing and the two-storey junior block are arranged at right angles to Highbury New Park and Petherton Road. The latter is the noisier road and the main teaching wings are therefore well set back, and run east west. The main entrances for both juniors and infants are in Highbury New Park. In the ultimate development a covered play area will be provided at the end of the junior block, adjoining the junior court.

The Ministry of Education cost limit of £140 per place has exerted a strong influence upon the planning and general arrangement. Construction is based on an 8 ft. 3 in. module. The two assembly halls are built as one unit thus reducing external walling; the junior hall will be used for public meetings and entertainments. There is no separate dining hall but the junior entrance hall can be combined with the junior assembly hall to provide adequate



5, the infants assembly hall.



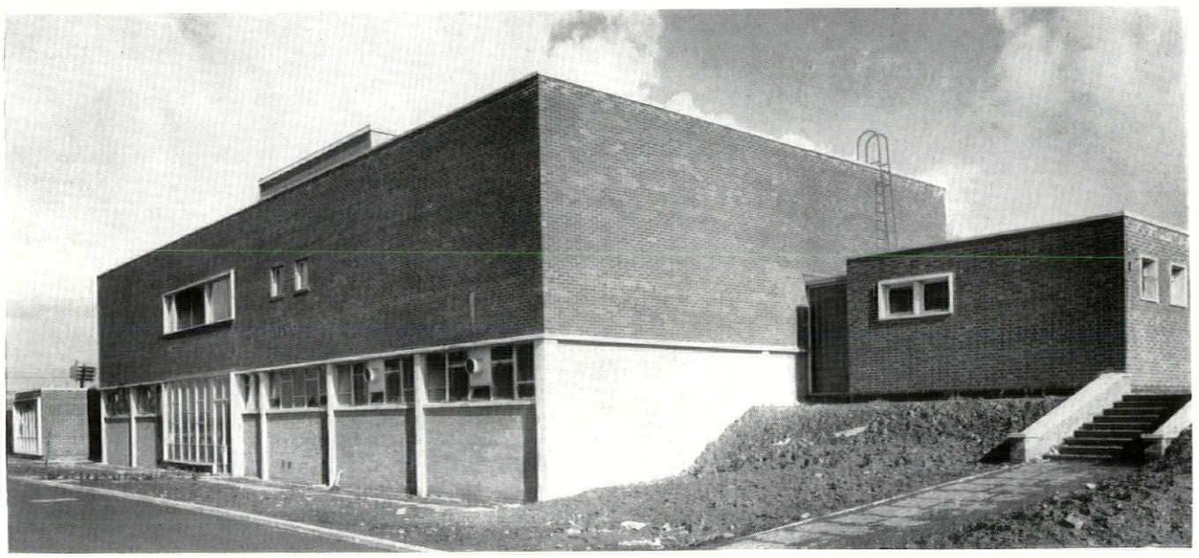


6, *infants classrooms from the south.*

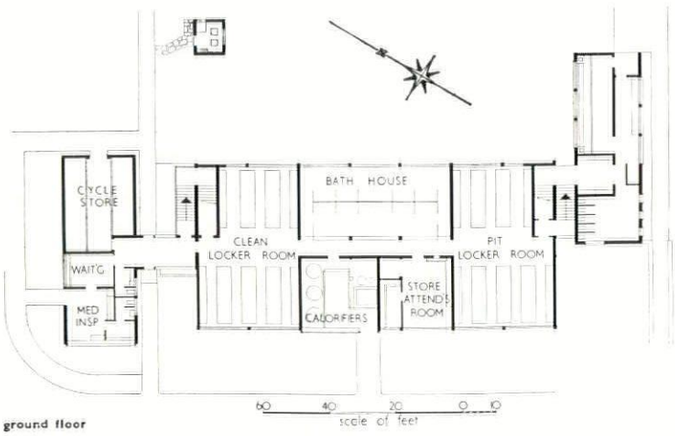
School at Highbury, N.6

dining accommodation. Separate cloakrooms are not included; fittings for coats and shoes are provided in the 8 ft. wide corridors adjacent to the classrooms. Direct staircase access is available to each pair of rooms on the first floor of the junior wing. This enables good daylight to be obtained on both of the main walls, and the room height to be reduced. The 8 ft. 3 in. module provided a larger area in the junior classrooms and general purpose rooms than is required. Separate stores have therefore been omitted, but a storage fitting is provided on the north walls of the rooms. Kitchen and service access is as close as possible to Highbury New Park for the sake of short approach roads. The cold water storage tanks are above the chair stores between the two assembly halls; with the main sanitary accommodation at a lower level than the halls, a sufficient head of water is available. The stores with tank room over provide an excellent sound barrier between the two halls.

Heating is by means of hand-fired solid fuel boilers operating a low pressure hot-water system, with convectors in all classrooms, fan convectors in assembly halls and junior entrance, and radiators in corridors and lavatories.



7, *the baths from the south, with medical centre beyond.*



ground floor

PITHEAD BATHS AT BINLEY, WARWICKSHIRE

ARCHITECTS, JOHN DUDDING AND PARTNERS in association with W. A. WOODLAND

These baths serve Binley Colliery, in the small coalfield between Coventry and Rugby, and contain locker and bathing accommodation on two floors for 1,000 mineworkers. They are of brick and concrete construction, the reinforced concrete frame finishing at first floor level, except for supports to water storage tanks. The water tower normal to pithead baths design has deliberately been avoided and the storage tanks housed on the roof.

External walling is of National Coal Board machine-made bricks, the lower panels and water tank cladding in buff facings and the upper storey in warm brown.

The site is alongside a colliery refuse tip and the entrance level from the pit is half way between ground and first floors.

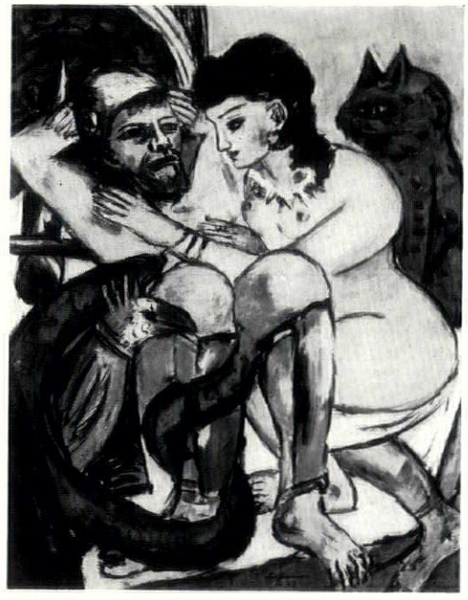
EXHIBITIONS

It would be difficult under any circumstances to arrange an exhibition that contained enough material for a fair assessment of the German contribution to the modern movement in painting, and if I dwell on some of the factors that led to the distorted view of twentieth-century German art recently presented at the Tate Gallery I shall seem ungracious, but I think that most English people who saw the exhibition have been left with the impression that the modern movement in Germany was for the most part in the hands of crude provincials who were desperately trying to outshine their Parisian betters, and as it is likely to be a very long time before we are given the opportunity of seeing a more balanced survey, I think it is rather important to try to defend German art against the impression left by this selection.

When the trustees of the Tate asked the organizers of the exhibition to cover a period of a hundred years, from 1850–1950, they were virtually asking for two shows in one, and Professor Hentzen was given the task of conveying the general aspect of two distinct periods in a space that was barely enough for one. Twentieth-century German painting started abruptly and sensationally with 'Die Bruecke,' the group formed by Kirchner, Heckel and Schmidt-Rottluff in 1905; it was a savage and unconditional break with every kind of dark tonality favoured by academician and secessionist alike until the turn of the century, and from that point on the 'German' contribution to painting (which includes Russian, Swiss and Austrian artists who worked in Germany, and German painters working in Paris, Holland and the United States) remained in one way or another intransigent, whether in the boundless fantasy of Klee, the paradoxes of human behaviour celebrated in Beckmann's exploitations of the triptych, the satire of Grosz, the automatism of Max Ernst or, in his pictures made of rubbish, the anarchism of Schwitters.

Klee and Beckmann are included in Professor Hentzen's selection, but not at their finest, and the fact that most of the exhibits had to be borrowed from collections in Western Germany may well have been an insuperable handicap, since it seems likely that Germany is now less rich in her own moderns than Switzerland or the United States. Nevertheless, although the Professor warned us in his very useful introduction to the catalogue that it would be an injustice to German art to measure it by a conception of painting derived from French art of the same period, I cannot help feeling that he himself disclosed an 'æsthetic' bias, and made as mild a selection as possible from an art that has attempted to use form and colour to capture the human condition rather than the visual sensation. A balanced survey would have been fiercer and uglier, more convulsive and irrational, but at the same time it would have dispelled the illusion that German art is a poor and loud-mouthed relation of the School of Paris.

The exhibition was, of course, fascinating and instructive, and the best way in which we could show our appreciation of its value would be to organize a full-scale exhibition of the art of Max Beckmann. Three of the six paintings which represented him in the Tate show were characteristic, and the 'Odysseus and Calypso,' 1, a kind of



1

visual counterpart of Winckelmann's expressionistic descriptions of classical statuary, provided a glimpse of the sensual grandeur of his triptychs.

It is a sign of our neglect of the German school that Alexej von Jawlensky, a Russian associate of the *Blaue Reiter* group who died in 1941, has just been exhibited in England for the first time. The early examples of his remarkable paintings of the human head, 2, in the Redfern Gallery exhibition are fauvist in colour, but although the greens and reds and mauves of the flesh are typical of fauvist practice they are not conceived in the same spirit. The fauvism of Vlaminck and Derain was a gayer and more extrovert enterprise, a kind of pictorial buccaneering in the domains of Gauguin and Van Gogh, and they dropped it as lightly as they took it up. Jawlensky on the other hand went on



2

striving for many years to relate his arbitrarily brilliant colour to his sense of the mystery of the human look, and his emotional response to the personality of the model. When he was in his fifties he turned to a much more abstract treatment of the head, which the Redfern catalogue calls 'a revitalized vision of the Russian Ikon,' but which seems to me to be closer to the Germanic yearning for the darkly sublime. Two of these heads were in the Redfern show and their harshly simplified and totally unrealistic forms bear a curious resemblance to some of Wyndham Lewis's early vorticist work in spite of a vaguely religious content.

Two paintings by Christian Rohlfs, a German painter who was born three years before Van Gogh and died in 1938, were in the German Exhibition, and one of them, a cottage with a blood-red roof, evoked the atmosphere—homely yet sinister—of German fairy-tales. But a group of some eighty works by Rohlfs shown at the Arts Council Gallery made a blurred and mournful impression. The best of them were ghostly flower pieces, 3, painted in a peculiarly misty body-colour, which had a touching air of 'otherness' as if they had been gathered in another world and brought back as proofs of its existence.

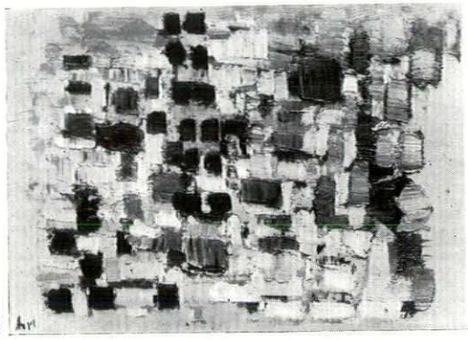
Nicolas de Staël, a Russian painter whose work truly belonged to the School of Paris, died last year at the age of forty-one. He had an enthusiastic following in this country, and two memorial exhibitions have been held in London; one at Arthur Tooth & Sons, where a group of late works in English collections was shown, and the other at Whitechapel Art Gallery where Mr. Bryan Robertson put on a large retrospective. His popularity



3

is a reminder of the fact that innovations in modern art are less revolutionary than they used to be, for although it has been claimed that de Staël developed a new way of seeing, his work presented no problems to connoisseurs, who recognized each new phase as delectable picture-making, no harder on the eye than Renoir, Bonnard and Braque.

Much has been written by painter-critics about the squarish blob, gob, dab or briquette of paint with which de Staël in his first important phase created lovely, light-filled walls to keep out objects, 4, and a flourishing school of square-dabsters

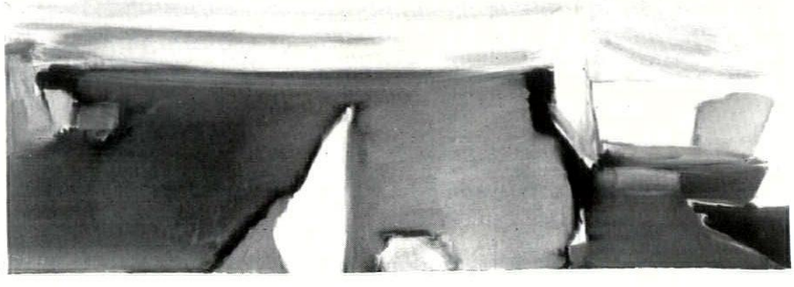


4

has been founded on his hypnotic and phantasmal brick-laying. I see the squarish dab as a 'rich nought' with which the magician in de Staël propounded the painterly statement that 'nothing' was very well worth doing. But this turned out to be only the defensive aspect of de Staël's strategy, and when he moved out into the world it was not to collaborate with it but to remove its particulars from sight and take over its spaciousness. He did this by perceiving the world as if it were under a pall of thin silky paint, which covered it like a wet dust-sheet. The very late landscape reproduced here, 5, is as eerily soft and runny as a Dali, and it seems to me that his pursuit of pictorial values finally became a paranoic activity and turned 'significant form' into *highly* significant form in the quite different senses in which a psycho-analyst and a poet might use such a term.

If one were looking at Marini's bronzes at the Hanover Gallery in terms of Moore's concept of 'truth to material' it could be argued that he has brilliantly exploited the hollowness of the bronze cast. It would justify not only his elaboration of surfaces but the sense his forms convey of a kind of drum-like plumpness instead of solidity. The *chef d'oeuvre* of his latest exhibition is a huge bronze of a horse and rider in a catastrophic situation, 6. It would have become pretentiously symbolic in more solemn hands, but is in fact an over-ripe example of Marini's ability to capture physical sensations in which the painful and the pleasurable are inextricably mingled.

Robert Melville



5



6

LANDSCAPE

MAN-MADE TOPOGRAPHY

The newcomer's first impression of Johannesburg is of the mine dumps. They approach to within half a mile of the city hall and could be the basis for an urban park of tremendous size and scale. Everything else but these large hills of white sand is normal twentieth-century building. From the air they can be seen set in the green of the mine lands stretching in a wide band along the sixty-odd miles of the reef, pinched here and there by nodules of towns. There are three main varieties of dump, the sand dumps some 300 or 400 feet high with the familiar silhouette of fine debris deposited by cocoa pans, the rock dumps similar in form, and the slimes dams, 50 to 100 feet high, covering wide areas, flat-topped, mastaba-like. Mostly their surfaces are bare, the sand dumps a glittering white, the slimes dams a yellowish colour. On the older sand and rock dumps occasional growth is taking place and persistent blue gums have established themselves. Here and there between the dumps are flat pans of water, a result of the mining process.

The dumps are beautiful things, particularly in the slanting pink light of sunset when the smooth surface of the sand glistens against the evening sky or

the eroded corrugations of the slimes dams cast deep mysterious shadows. In the surrounding flat country they form an exciting piece of topography. To the locals they symbolize so much of what Johannesburg is, its quick growth and its raw but somehow attractive crudity.

The dumps are Johannesburg's back yard. In the early days building was begun to the north and, since the reef formed a barrier hindering development to the south, the city has spread out in a wide fan to north, east and west. A small section of industrial and lower class residential building has squeezed between the dumps and out to the south. To-day from the city centre the character changes in quick gradation from commercial to industrial and ends against the dumps in a collection of corrugated iron buildings, often old and always unattractive.

The mines will not last for ever. Already there are abandoned mine dumps too large for future use or inconveniently placed for present working. There has been much discussion as to whether or not the dumps provide safe building land. An old sand dump very near in has been purchased by an enterprising business man who tried to develop it, first commercially, and then residentially. Official prejudice was strong, however, and so far nothing but his own lightly constructed offices have been built. It seems certain that in time the consolidation will be sufficient on the top and on the more gradual slopes for light building.

In time, if uncontrolled, the dumps will probably become part of industrial expansion. They will be either levelled or built upon without imagination. The area that they cover is vast. Within a three-mile radius of the city hall alone some 4,500 acres are mine land. Within the municipal area there are approximately 10,880 acres, about 25 per cent of the total area. Johannesburg is fortunate to have such a valuable stretch of land still undeveloped and it would be a great pity if its scenic possibilities were not exploited.

For this to be done aesthetic and planning control is essential. Unlike the rest of the city land, this area is not as yet divided into plots and an outstanding opportunity exists for imposing the necessary regulations and allocating big enough areas for unified development.

Three uses for this land come to mind. Firstly, some of it must be used for relieving the congestion in the city centre, secondly, it provides an excellent opportunity for planning parkway approaches from east to west, and, thirdly, some of it should be set aside as a stretch of the open space which Johannesburg is so conspicuously lacking. This suggests the retention of the present form of the area with an encroachment of buildings along the edges so that, in effect, there would be two 'green wedges' penetrating to the centre of the city.

The imaginative design of buildings in conjunction with the unusual forms of the mine dumps could produce most exciting results. The smaller dumps particularly, 1, are within the same scale range as multi-



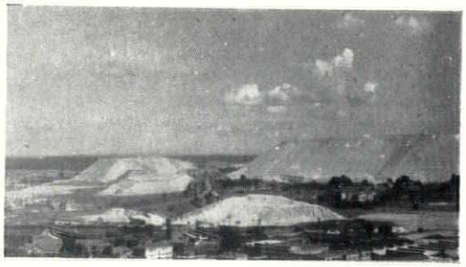
1



1a

storey buildings and might well be treated as elements in a composite composition, 1a.

So far as building on the dumps is concerned it is desirable not to destroy their form and the skyline is, therefore, of primary importance. On the high sand dumps, 2, low, uniform building forming a narrow crown at the top would appear best, 2a. Since these areas are in any case rather inaccessible, low density, perhaps even residential, building would be suitable here. The access road mounting the face of the dump diagonally would form a



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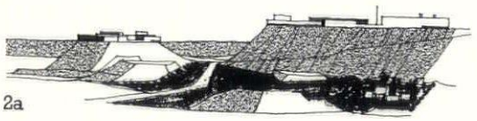

2a

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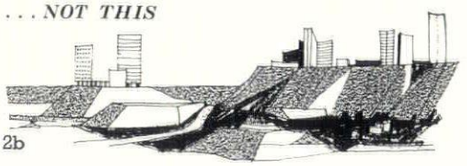
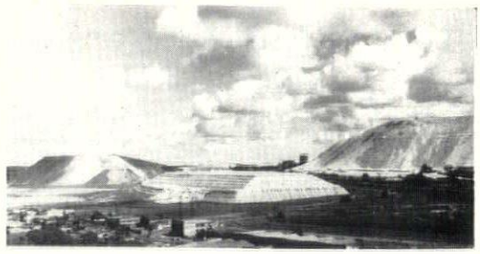


2b

dramatic approach and provide a visual link between the bottom and the top.

The slimes dams, on the other hand, 3, provide excellent sites for large scale commercial and industrial building. Their height is such that details of building can easily be perceived from below and the extra height therefore lends dignity while in a distant view they will stand framed against the higher sand dumps, 3a. It is,



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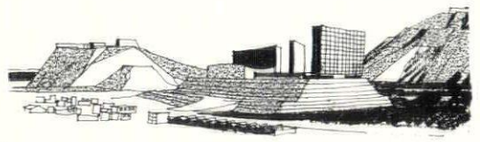


3a

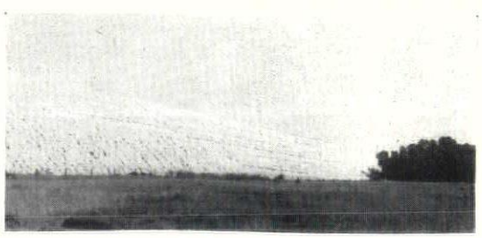
however, very important that all the buildings on one slimes dam should be designed together since they will necessarily be seen so, standing on their common pedestal.

Here, in order to preserve the mastaba-like form, 4, the access roads might well mount in cuttings, 4a.

The most important roads approaching Johannesburg are from the south and east and must pass either across or along the reef. There is, therefore, a very good opportunity for building new roads which would be used by almost all visitors. In South Africa practically all ground travel is done by car. Whereas in England most road traffic is commercial and only a small percentage private cars, here the situation is the reverse. So it is particularly important that the approach roads should be impressive and agreeable. There is, indeed, an excellent opportunity with an imaginative use of the mine dumps and viaducts to create interest and elevation enough for distant views.

Large parks so consistently appear in all the greatest cities of the world that one is tempted to conclude that they contribute towards their fame. Hyde Park and St. James's in London, the charming El Retiro of Madrid, the Tuileries and the open spaces along the Quais of Paris, the Pincio Gardens in Rome, the Tivoli at Copenhagen. All these parks are from 300 to 800 acres, but in America both Philadelphia and Los Angeles have parks of 4,000 acres, New York has one of 2,000 acres and the famous Central Park is 840 acres.

Both by their position and their topography the mine lands provide the opportunity for the development of a very beautiful central park. Of the 10,000-odd



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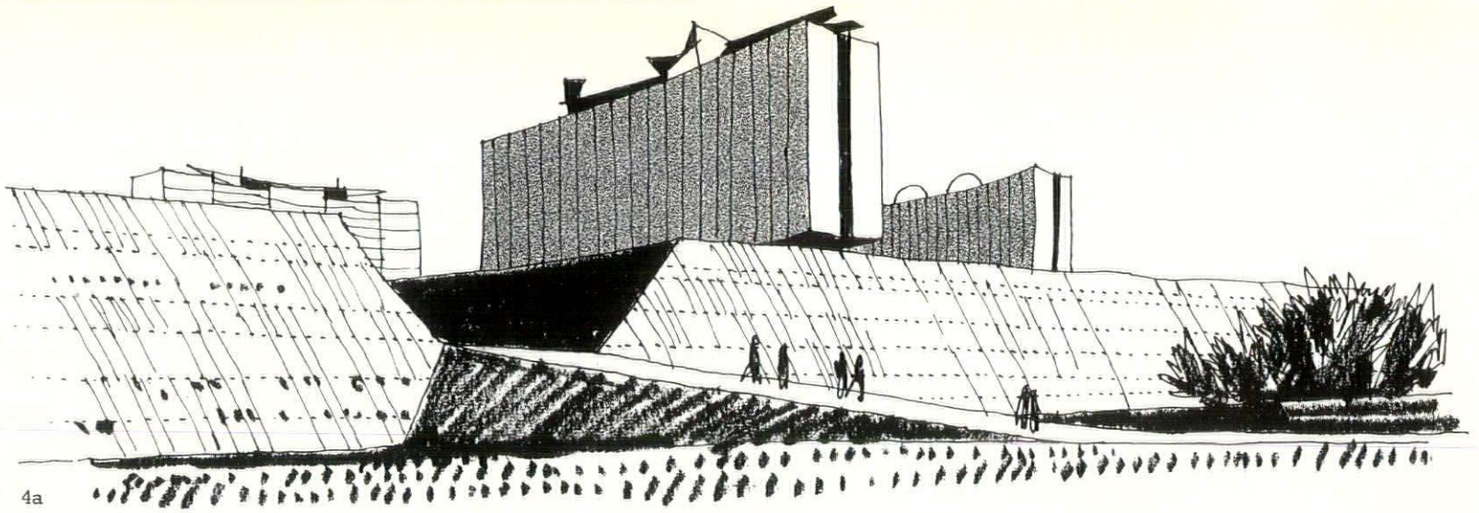
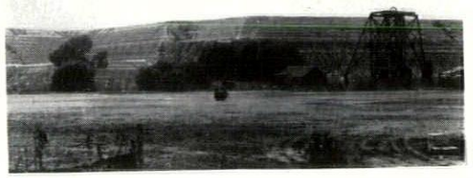


4a

acres within the municipal area some 2,000 acres would be ample for this purpose. Such a park, seen from the Braamfontein Hill, over which most of the roads from the northern suburbs pass, would form a green back-drop to the towering mass of building.

The park would need to provide recreational facilities for city and factory workers during lunch hours and after work. Its most valuable asset would be the



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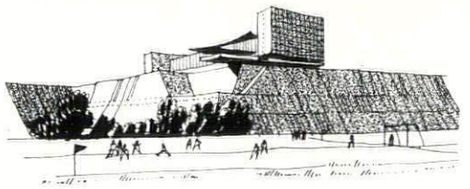


5a

restful shade of green grass and trees with here and there a peaceful lake. Restaurants could be provided for snacks, a sport area for the more energetic, swimming baths, perhaps even a golf course. In addition, certain cultural buildings, museums, theatres and so on, could be well sited in such an area, 5a.

The mine dumps themselves would require individual treatment. Some of them, cleared of the buildings and obsolete mine gear, 5, at their feet, would best be preserved as scenic features in the open park. Others, more accessible, could be planted and provide an enticing ascent for the adventurous.

Where the park adjoined residential areas certain slimes dams would lend themselves most effectively to development as children's playgrounds.

Johannesburg is in great need of such a park. The environment of the city is flat and the nearest scenic area is 40 miles away. In a city where outside living is the vogue, most of the inhabitants have to make use of their own gardens, often beautiful, but limited in function.

Betty Spence

HISTORY

THE SFERISTERIO OF MACERATA

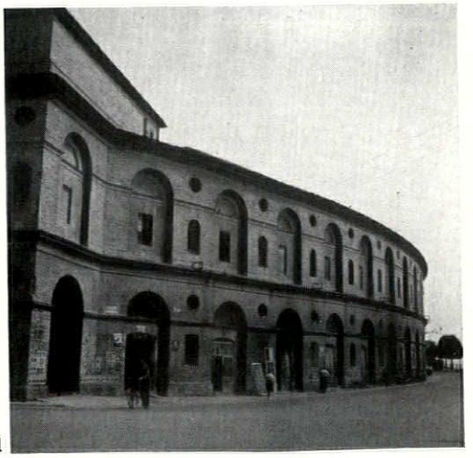
The vogue at the end of the eighteenth, and for the first half of the nineteenth, century of the 'Gioco di Pallone' in Italy, resulted in the building of 'Sferisteri' which were the direct precursors of the modern football stadium. The best known and probably the most interesting, architecturally, of these arenas is the 'Sferisterio' of Macerata in the province of the Marche.

The 'Gioco di Pallone,' the Italian version of Fives, Pelota, and the old French game 'Jeu de Paume,' is still played with a curious spiked wooden cylinder, which covers the hand, and a leather ball, some 12 cm. in diameter. It is of very ancient origin, and by the sixteenth century was universally popular in Italy. It was usually played in an open space outside city walls, the walls themselves being used in the game in the same manner as the Chapel wall at Eton. When, at the end of the eighteenth century, 'Sferisteri' began to be built, they usually occupied a similar site, just outside one of the city gates.

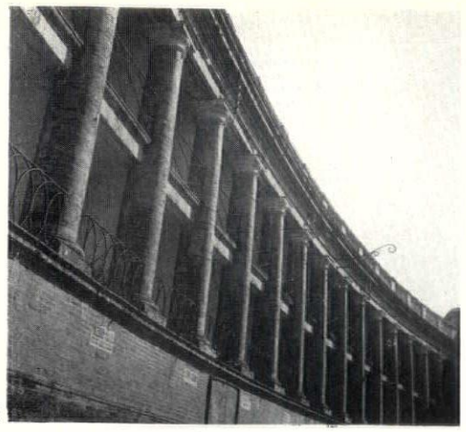
The 'Sferisterio' of Macerata is no exception to this rule and occupies an open space outside the Market gate where the game had been played for centuries. It was built as the result of the munificence of 'Cento Consorti, desiderosi di arrecare maggiore lustro e decoro all' Città.' Originally forty citizens banded together and offered a hundred Scudi apiece for the cost of erecting the building; but as time went on quarrels, and the cost of building, grew and in the end the 'Sferisterio,' whose first stone was laid in 1820, cost 40,000 Scudi and was only finally completed in 1829.

After the first interruption in the work of construction, a month after the first stone was laid, all the plans were changed and the design of the building was finally made the subject of an open competition for architects all over Italy. The terms were simple: 'A circus for the Gioco di Pallone and other spectacles. Apart from the supporting wall, it should contain steps, two rows of boxes, and a terrace above.' The designs of the competing architects were examined by the Academies of Bologna and St. Luke, in Rome, but there were so many differences of opinion that not much practical progress appears to have been made until the Apostolic Delegate at Macerata (which was then part of the Papal States) singled out the plans of Ireneo Aleandri and succeeded, after some difficulty, in getting them adopted. The architect's fee appears a trifle niggardly, only 17 Scudi, but one is relieved to find that he was allowed another eight Scudi for his expenses for two visits to Macerata in order to explain his plans.

The 'Sferisterio,' which is in the form of an arc, with two straight walls set at right angles to it and to the 'supporting wall' (which is in fact still the city wall), is built in the neo-classical style popular at that period, and has a double tier of



1



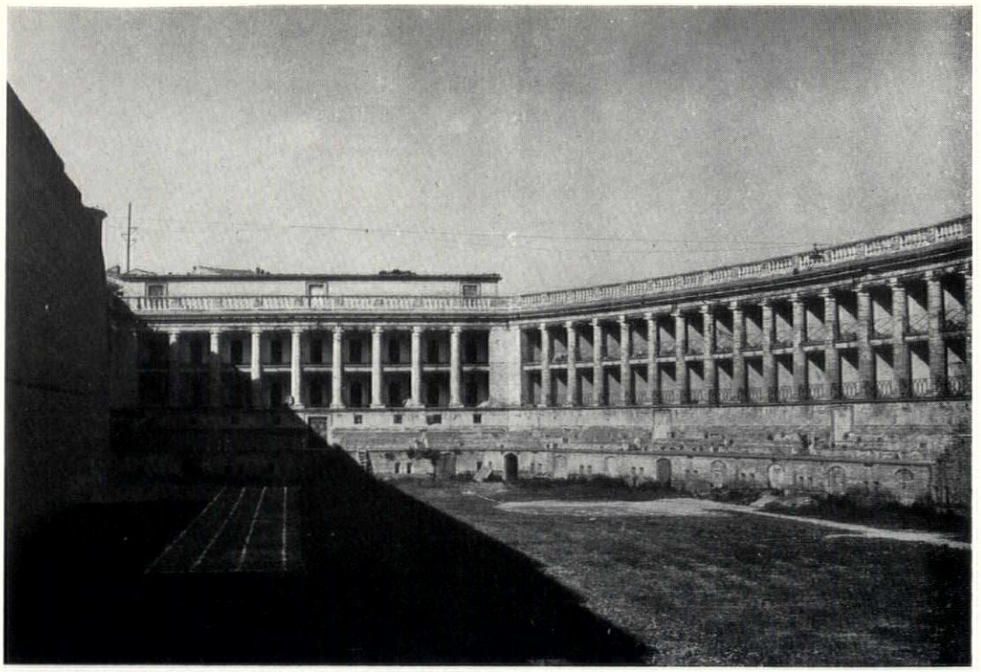
2

boxes separated by columns. It is constructed of brick throughout, and is a remarkably commodious and solid building. The main saloon over the entrance is now a good-sized cinema, and each of the 100 boxes approximates in size to a large double cabin on a modern liner. The whole building has emerged in a remarkable state of preservation from having been used more or less continually as a barracks for ten years, before and during the last war.

The floor of the arena, which provides ample space for the field of 95 by 17 metres required for the 'Gioco di Pallone,' has been the scene of many and varied festivities. After the opening on September 5, 1829, these continued for a month, and included a balloon ascent, jousts, tombolas, illuminations, bands and, of course, innumerable matches of the 'Gioco di Pallone.'

The Italian national finals of the 'Gioco di Pallone' are still played every September in the 'Sferisterio,' for the Marche is a conservative province, but the glory is departing and if today you talk about the 'Gioco di Pallone' in Rome or other big cities of Italy, your hearers will assume that you mean 'Futbal,' or 'Calcio,' as it is more commonly called, and many of them will be ignorant of the very existence of what was once their traditional national game.

Georgina Masson



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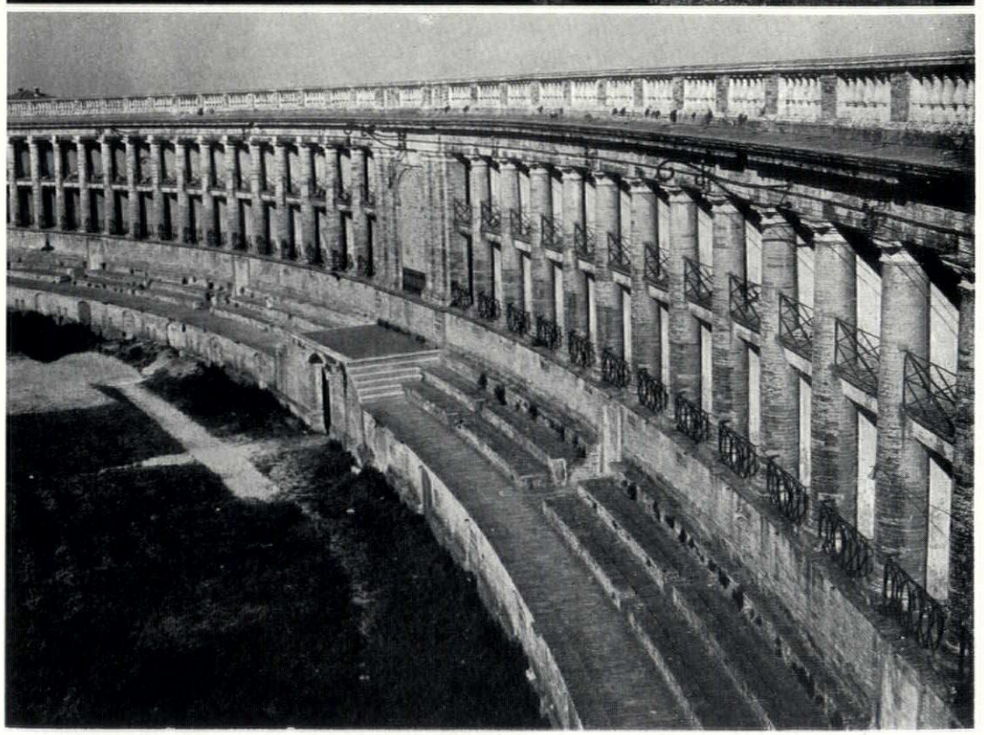


4

S.O.S.

[The miscellany label S.O.S. will be used when needed to draw attention to any deserving cases of beauty in danger. Sometimes it will be a call for immediate action; in other cases, such as Abbey Street, Faversham, described below, it will be an attempt to forestall an outrage by alerting public opinion.]

ABBEY STREET, FAVERSHAM

Faversham is that most elusive of all things, a town which is just off an arterial road—A.2 to Dover, Canterbury and Margate. You are either going somewhere else in a hurry or you are so put out by the traffic that you get no farther than the splendid jam at Rochester.

That is a pity. If you turn off the main road you find first of all an exceptionally pleasant Kentish town: sprawling vernacular market hall, encroached market place, system of back alleys still intact—to say nothing of a church steeple which is a copy by George Dance, Senior, of St. Dunstan's-in-the-East, complete with Scots crown, that would brighten up any day's outing. Beyond the market place there is a cul-de-sac—Abbey Street—that runs down for half a mile to the Swale marshes: and suddenly, as the street narrows, there bursts into view a tremendous curve of c.15–c.19 vernacular building—the sort of thing that you know existed in English towns from old photographs; that you can just sense today in King's Lynn, that you can recognize as having been there, under the pattern of 'redevelopment' in Boston and Norwich and Yarmouth. It is a marvel of unity-in-diversity: a street to demonstrate townscape's Radical Principle if ever there was one. It is hard to credit that the photographs 1 and 2 (overleaf) were taken on a grey morning recently and not fifty years ago.

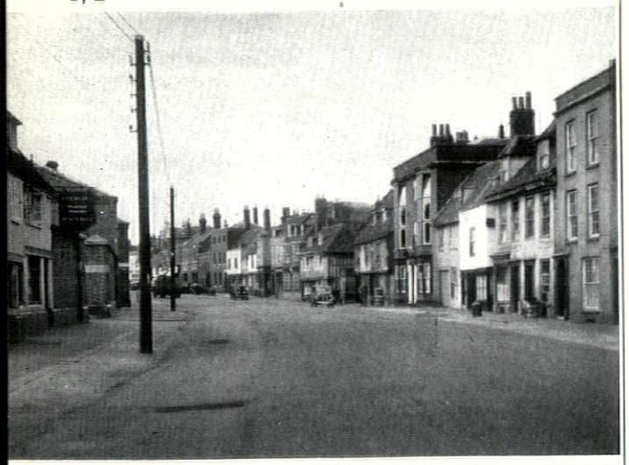
However, a close look shows peeling plaster on the framing of the house with the overhang in 1, and a walk down Abbey Street would show one or two houses empty, one or two more beginning to look shaky. Most of them are scheduled, even if it is only the purely nominal Grade III, and there is no plan for wholesale clearance. The threat is purely from neglect and piecemeal rebuilding, and the onus fairly and squarely on the private owners of the properties. The fate in store is familiar and inevitable, unless something is done quickly: decay, condemnation, demolition, then replacement—perhaps by a detached bungalow set back 25 ft. from the street line, or a cut-rate pair of shops, all fascia and nothing else.

The tragedy is that it is just this pattern of piecemeal rebuilding that made Faversham into the marvellous place that it is: to oppose it is to break the natural rhythm of small-town growth. But with an existing collective masterpiece, such as Abbey Street, it isn't worth the risk—one can't trust today's by-laws or today's builders or even today's provincial architects. In Basle or Amsterdam it would be a very different thing.

Abbey Street can still be saved, and the best way to help it is to go and see it and make as much fuss locally as you can. Go, in any case, to enjoy a street in the East Anglian manner which is better than anything in East Anglia: no cosy plaques, no fake timbering, no souvenirs. This is part of the real 'Tourists' England' —for the traveller with eyes, if not the flock of blurb-conditioned sheep.

Ian Nairn

1, 2





PROJECT

ANTI-PRAIRIE PLANNING

This scheme is an attempt to suggest one form of high-density housing which offers the possibility of a complex and coherent urban pattern.

It is limited to five storeys and uses a net residential density of 136 persons per acre, the normal maximum for London, though in fact no specific site was chosen. The architects are W. and G. Howell, Killick and Partridge.

The S-shaped-wall house unit has an 18 ft. 6 in. frontage. On the road side, the narrow bay is an entrance and staircase link between towers of habitable rooms, which being on the public side can benefit from a higher proportion of solid wall. On the garden side, the narrow bay becomes a tower housing all the services, and the living areas become the link, giving large glazed areas on to the private garden.

The living area is adaptable—one or two rooms per floor, with or without double height or changes of level (which can be used to solve problems caused by changes of level from front to back). As the main living area runs right through the ground floor, the house can face any way, provided the window to the street is increased when facing south or west. The front doors are up a few steps so that the sitting-room is 3 ft. above pavement level. There is a small terrace at this higher level, enclosed by railings, on which babies can be parked to observe the passers-by, or which can form an outside play-pen for mobile infants—with access through the french window into the sitting-room. On sites that fall away from the pavement, this terrace could be replaced by an 'area' in traditional London manner, giving access to an extra floor for use as a playroom, workshop, lettable bed-sitter, resident mother-in-law's quarters, etc. This gives a possible solution to larger houses, still keeping only three floors above entrance level.

Garage-in-the-house solutions were rejected, because with narrow frontages roughly half the pavement becomes cross-overs, and half the ground-floor elevation becomes garage doors. The garages are approached by a mews road with rough paving, which discourages speeding, and is less likely to be made sordid by oil-stains than a smoother surface. The mews could be double sided, with courtyard flats over the garages, or could form one side of a square. In this case the mews road would be screened by a 6 ft. brick wall, so that the square gardens would not peter out in a scrabble of dustbins and garage doors. The basic frontage allows for two garages —one for the flat or maisonette, but either being capable of being let separately. Some of them could be used as workshops or studios if not required immediately for cars.

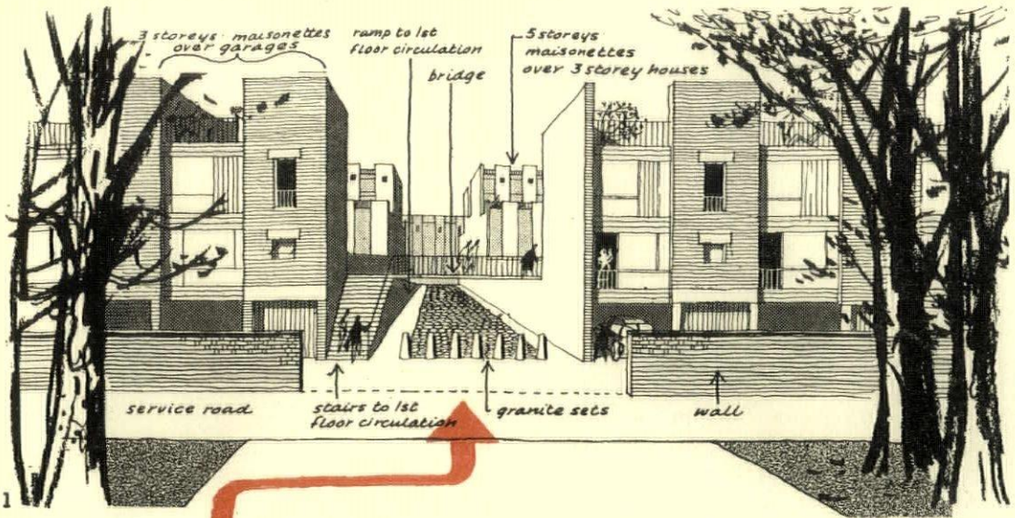
The flats or maisonettes over the garages are reached by a raised pavement, screened from the private gardens of the houses by a 6 ft. wall, with ramps at the ends for pram access. The staircase towers of the maisonettes stick out into the walkway, leaving a bay outside each front door for baby parking, geranium cultivation, carpet beating or budgerigar airing.

The houses can also have maisonettes on top of them, set back to form access and private balconies. These, like the maisonettes and flats over the garages, have a large roof terrace, so that each family has an adequate outdoor space for the activities of children, horticulturists and sun worshippers (Londoners appreciate every fleeting moment of sunshine, but have woefully inadequate facilities for enjoying it).

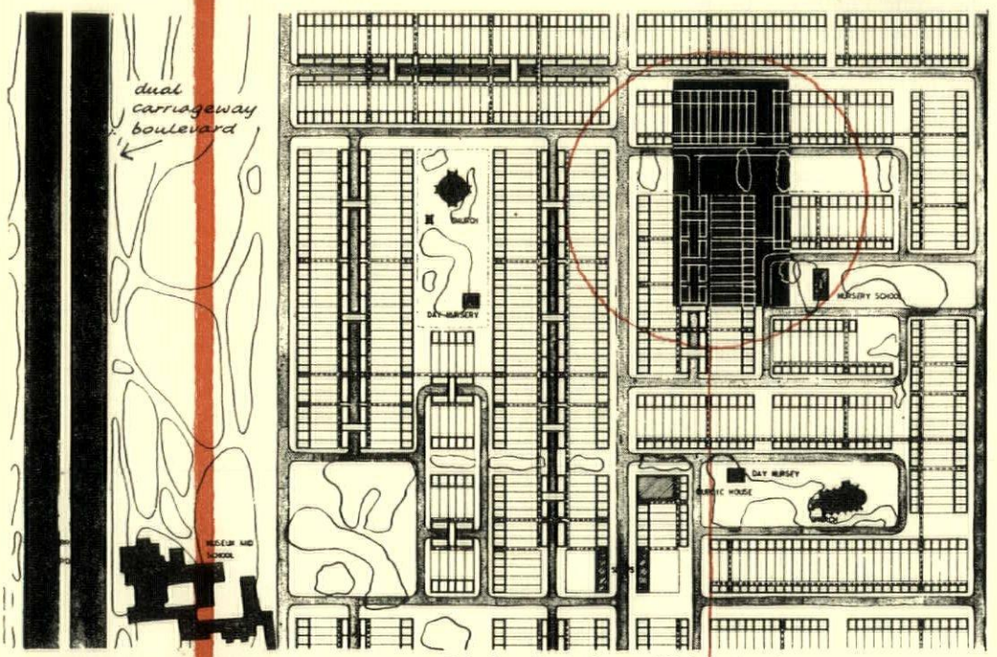
There are alleyways through the terraces at the public staircases at first floor level, linking with the access pavements over the garages. There can therefore be a complete network for pedestrian movement at first-floor level. This means that the maisonettes can be approached (or escaped from) in a variety of directions, which would seem to offer a less restricted feeling than the one-way access balcony.

The five-storey unit makes a high density compatible with wide squares or gardens, which would be large enough for trees to develop to full stature without overshadowing the houses. The gardens could be part public, which could be mainly paving and trees, and part private, enclosed for the use of the immediately adjacent houses, and kept up co-operatively. Shrubs and grass would have a better chance of surviving to enhance the urban scene in such semi-protected circumstances. This arrangement would permit the private part to be used as a supervised kindergarten in the day-time, so that wives could make occasional unhampered expeditions.

The majority of houses have a road coming to the front door forming a continuous system through the area, with frequent right-angle turns to discourage their use as short cuts between the main arteries of traffic. There are no cul-de-sacs,



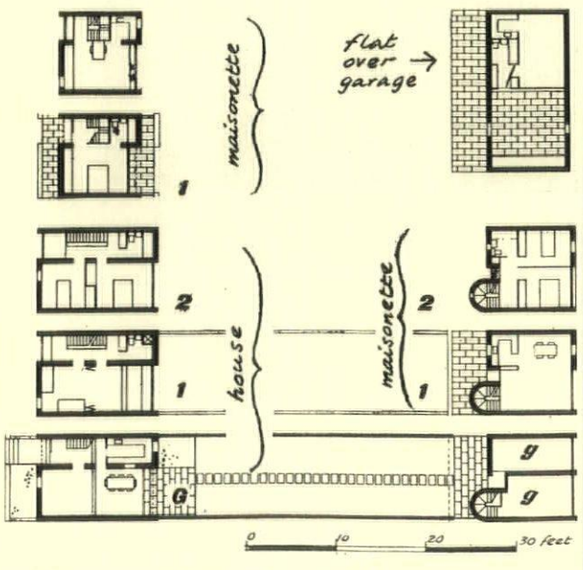
1



2

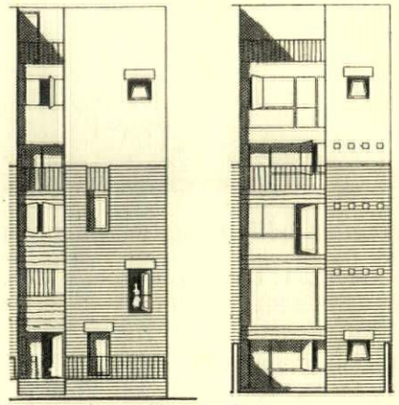
2, 3, *plans showing layout of high density scheme. 3 is indicated on 2 by dark area, upper right.*

3

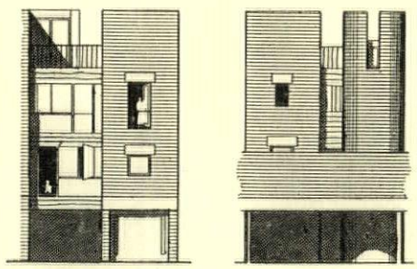


4, *left, 3-storey house with maisonette over. Right, maisonette over garage.*

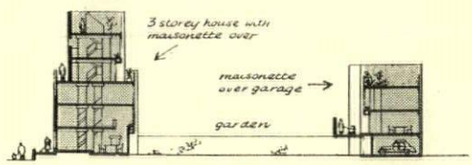
which are very frustrating to the motorist, and are sometimes rather dead and depressing. The 'tower' form of the houses means that the terraces can be stepped down hills, the access balconies having steps or ramps (depending on the degree of slope) behind the solid parapet.



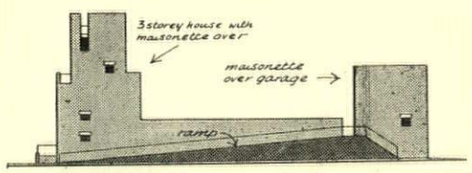
5, *3-storey house with maisonette over.*



6, *maisonette over garage.*



7, *section.*



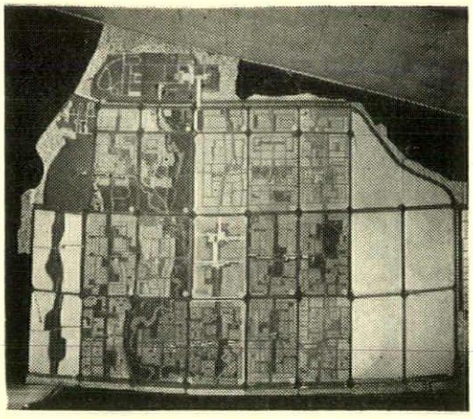
8, *side elevation.*

This proposal constitutes 'mixed development,' but it is suggested that each site should not necessarily attempt to contain the complete gamut of building types from bungalows to multi-storey blocks, though the city or town probably will. This particular proposal is one form of mixed development limited to five storeys, and assumes that other sites will be solved in terms of high buildings.

TOWNSCAPE

PREDIGESTED PLANNING

It comes as a surprise to realize that the battens which fix the plan of Chandigarh to the wall are not battens



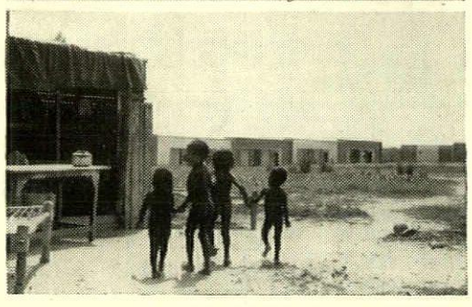
1

at all but a grid of roads—part of the plan itself, 1. It also comes as a surprise to see bearded Sikhs cycling through Hemel Hempstead and naked Indian children romping in Stevenage, 2 and 3.

Why be surprised? Because Chandigarh is an evocative name, and in our parochial way we load on to it our phantasies, our



2



3

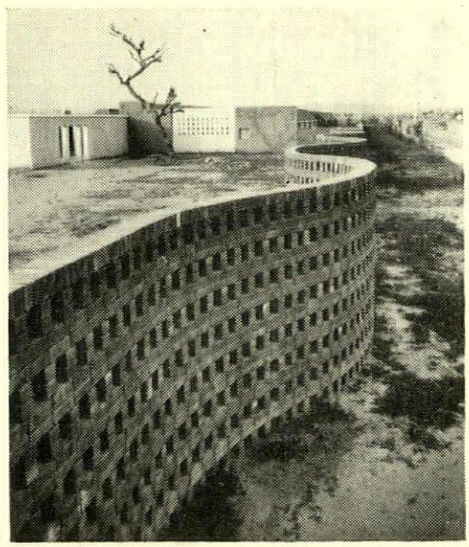
hopes of something new and strange, remote and lyrical. A sort of twentieth-century Angkor Vat, an intricacy of dark polished vaults stabbed by slits of blinding light, of cool cisterns reflecting deeply undercut walls of sculpture.

Let us go back to the battens; the phantasy that was destroyed when they were discovered to be roads was surely a quite legitimate phantasy. The plan seemed to have the genuine complexity resulting from the imagination of personal vision in the unborn town. To digress for a moment, the use of a centre line in designing simplifies the work a lot. It means that having made the original creative line the rest of the problem is taken out of the sphere of creation and resolves itself into the form of cunning useful in packing a trunk. 'Where can we fit this in? That would go over there,' etc.

Similarly, in town planning, one can escape from the exacting task of organic design by drawing a gridiron of roads and then starting to fit things in. Let us conquer the immensity of this vast plain with a formal device so that we can relax; something, anything to shield us from the challenge of continual creation and let us start putting our socks in one drawer and our shirts in another, a civic centre here, a business centre there, and so on.

An empty sheet of paper presents just the same challenge to an artist, it is so clean, so ready and so vast (because the line is the experience of one's life). And it is interesting to note that this emptiness can be conquered artificially, by a formal device, as Steinberg shows by his witty comments on graph paper or on a music sheet. Here the paper is predigested and all that remains is to be witty. In the same way the grid of roads provides just such an opportunity for the inspired disposition of utilities, but I would hesitate to equate this with creative design; it is an alibi for it.

Roads there must be, and usable roads (giving rise to the one great contrast of



4

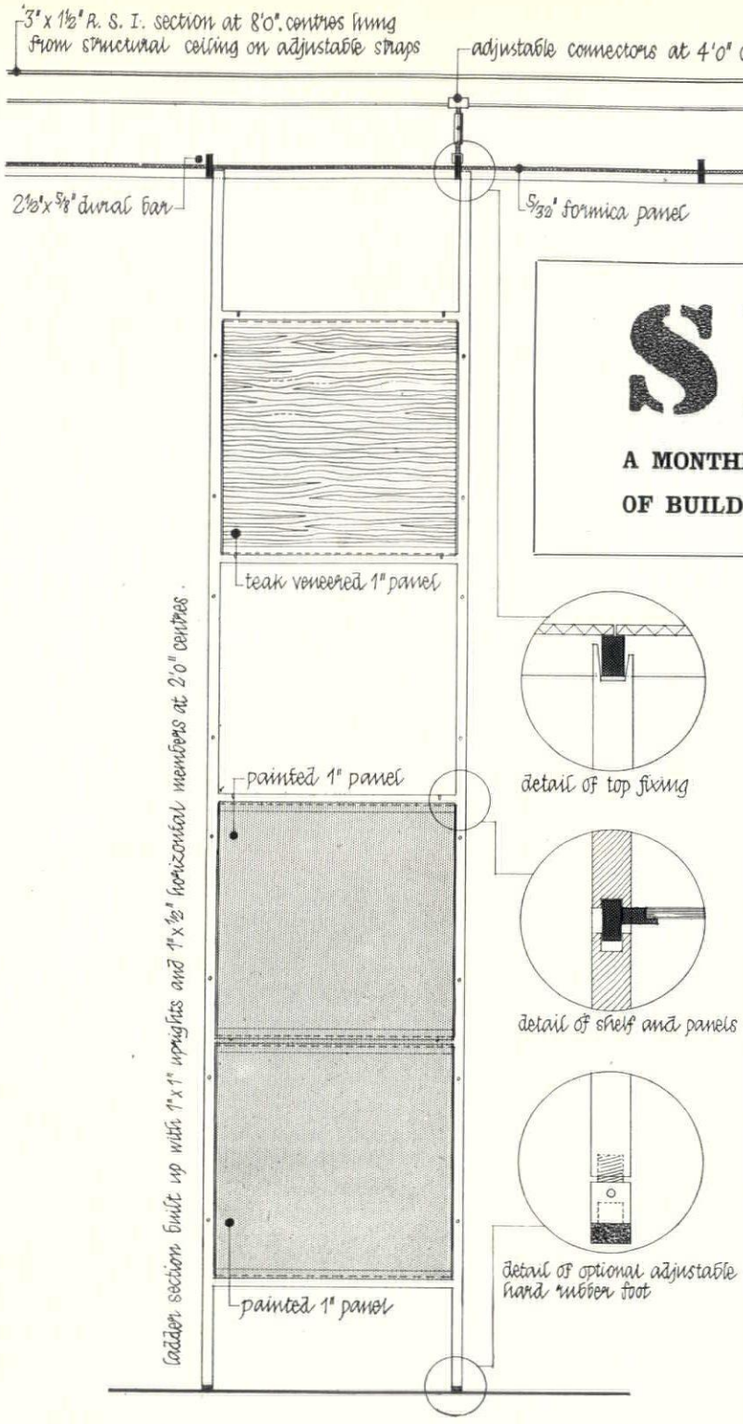
road and precinct, 4), but to interpret this as meaning a gridiron layout is stretching the point. The necessity for roads has been used to conquer the site visually and so create the predigestion which, in my view, precludes the real art of town design.

Gordon Cullen

SKILL

A MONTHLY REVIEW
OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

1 interiors
2 design review
3 techniques
4 the industry





1 INTERIORS

THE DESIGN CENTRE, LONDON, S.W.1.

Interior Designers, Robert and Roger Nicholson

The Design Centre in the Haymarket was opened in April by the Council of Industrial Design to house a permanent but changing exhibition of well-designed fittings, furniture, textiles, etc., indoor and outdoor. The opening exhibition will have partly changed by the time this issue appears, but it has been described in detail because it indicates the whole range of the COID's activities and displays particularly well the flexibility obtained by the use of the modular grid for the ceiling and the display units. Shelving, ladder units, ceiling panels and lighting can all be altered to meet the particular needs of any exhibition.

Above, one of the ladder display units showing how it is related to the ceiling grid. A section through a typical unit and details of the fixings are shown above, left.

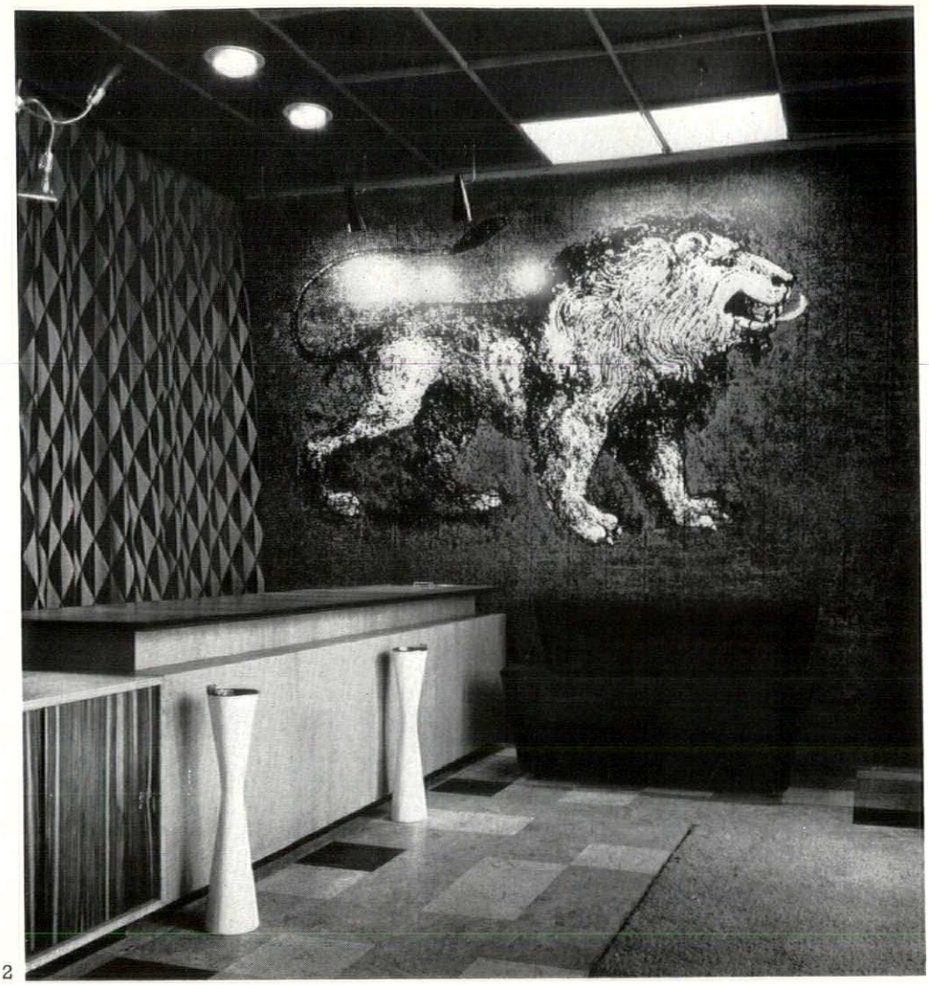
The Design Centre occupies part of the ground floor of Haymarket House, covering an area of 8,000 sq. ft. on three levels, and including a conference room and



1

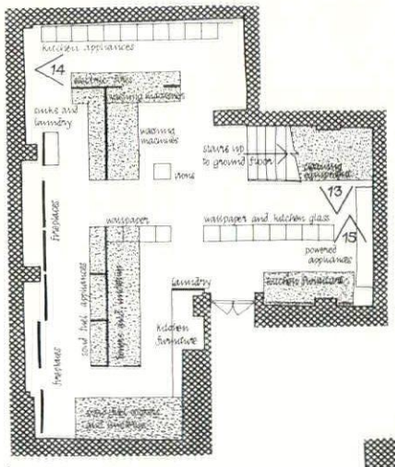
accommodation for the COID's Design Review. The Architects' Department of the Ministry of Works were responsible for adapting the premises, and on the recommendation of the Council of Industrial Design they commissioned Nicholson Brothers to design the interior and the exhibition fittings. Ward and Austin designed the Haymarket front with its two non-reflecting windows.

[continued on page 38

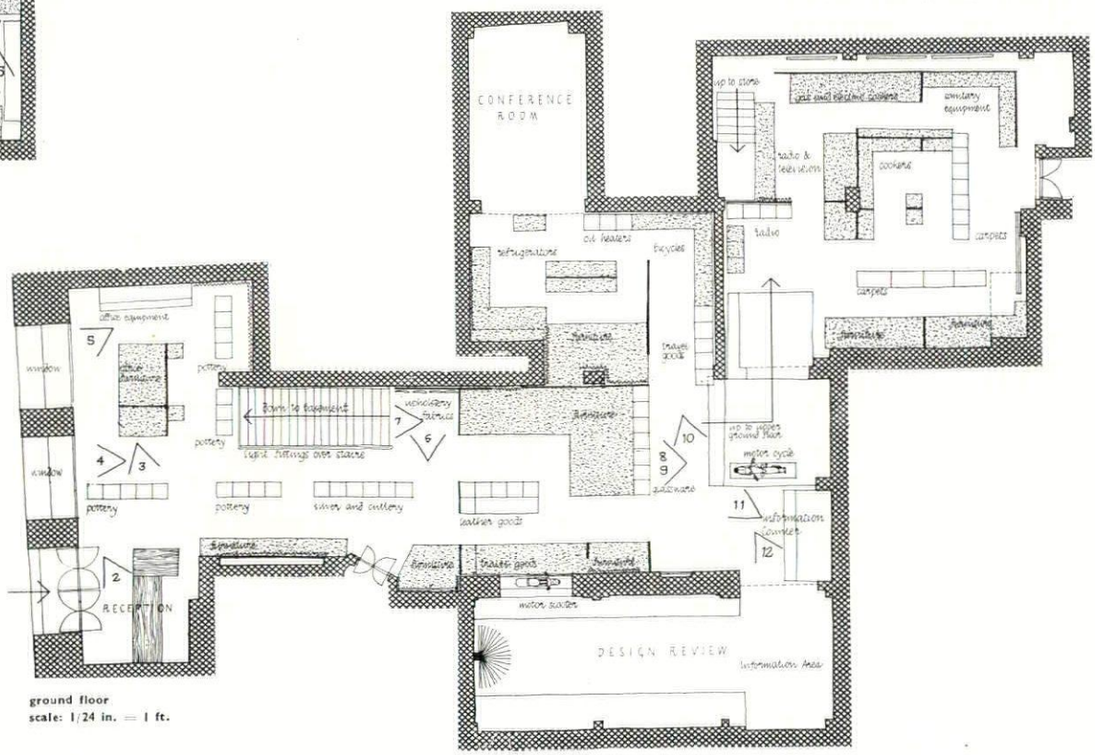


2

1, the Haymarket fascia by Ward and Austin; ironically it is set into one of the most reactionary and lumpish office blocks built in London since the war. 2, the entrance lobby with the green-stained photostat mural of the British lion by Roger Nicholson.



basement



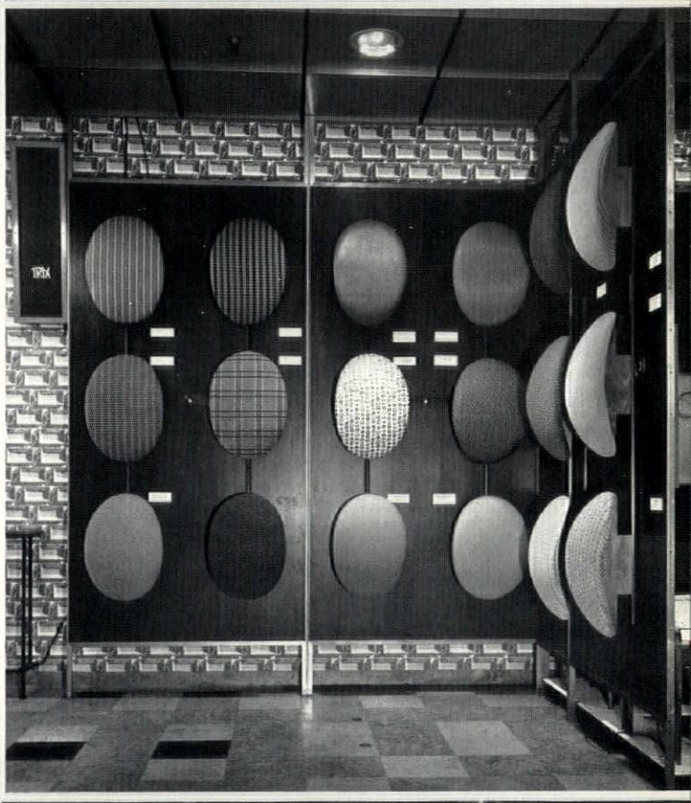
ground floor
scale: 1/24 in. = 1 ft.

key
The viewpoints on the plans correspond to the numbers of the illustrations on pages 56-60. Ladder units are shown unshaded: platforms have dust-grained shading.



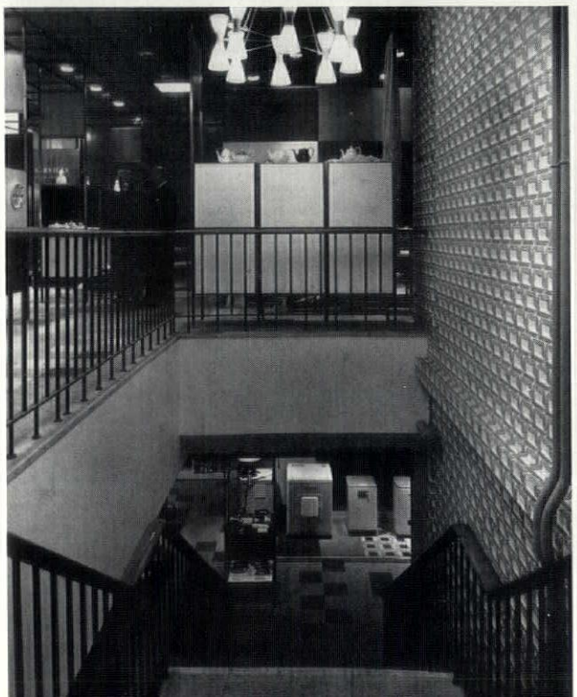






3	4
5	6
7	8

3, looking back to the reception desk over one of the pottery displays. 4 and 5, the two window bays on the Haymarket frontage. 6, display of covering fabrics at the head of the basement stairs. 7, looking down the basement stairs to the washing machines. 8, a window bay framed in part of the glassware ladder unit.





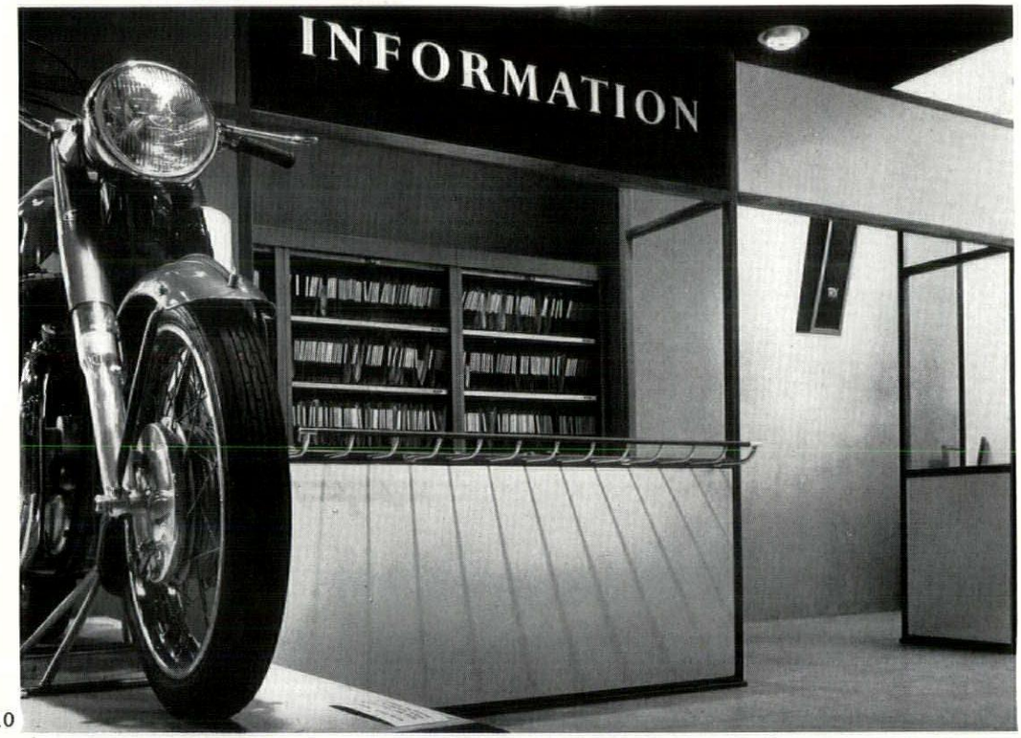
continued from page 56]

THE DESIGN CENTRE, LONDON, S.W.1.



9

9, looking back down the line of the ladder units from the glassware stand. 10, the information counter and the motor cycle display. 11, the glassware stand from the information counter; and 12, looking past the counter into the information area. The space set aside for Design Review is round the corner on the right.



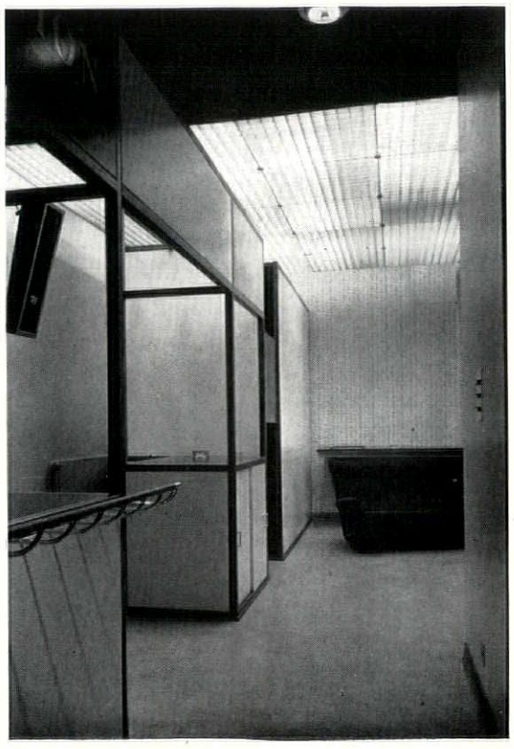
10

The Nicholsons' problem was to make the interior arrangement flexible enough to be at once a permanent and a changing review of well-designed goods. The display fitments had to be unobtrusive, easy to erect and dismantle, and able to be lit as needed. The key to their solution is a grid system on a module of two feet. A suspended aluminium ceiling grid is filled in with interchangeable coloured melamine plastic panels—for which panels containing various types of display lighting can be substituted. Thus there is the utmost flexibility in the lighting system, with spot lighting available where needed, and general lighting movable according to the layout of an exhibition. Aluminium ladder units, anodized slate grey, can be fitted between the floor and ceiling, and the 12-in. linoleum tiles line up with the ceiling grid so that they can be set vertically. Partitions either 2 ft. or 4 ft. wide can also be erected to divide up the areas and to act as backgrounds to larger exhibits. The ladder units are variable in size and are intended mainly for the display of smaller articles. Other display fittings include shelves, small panels and showcases which can be fixed either to the vertical partitions or to the walls. There are also display tables and raised platforms. Most of the horizontal display surfaces are covered in PVC plastic; the shelves of the ladder units are made of glass. The vertical display surfaces are covered in felt and their background, i.e., the parti-

[continued on page 59



11

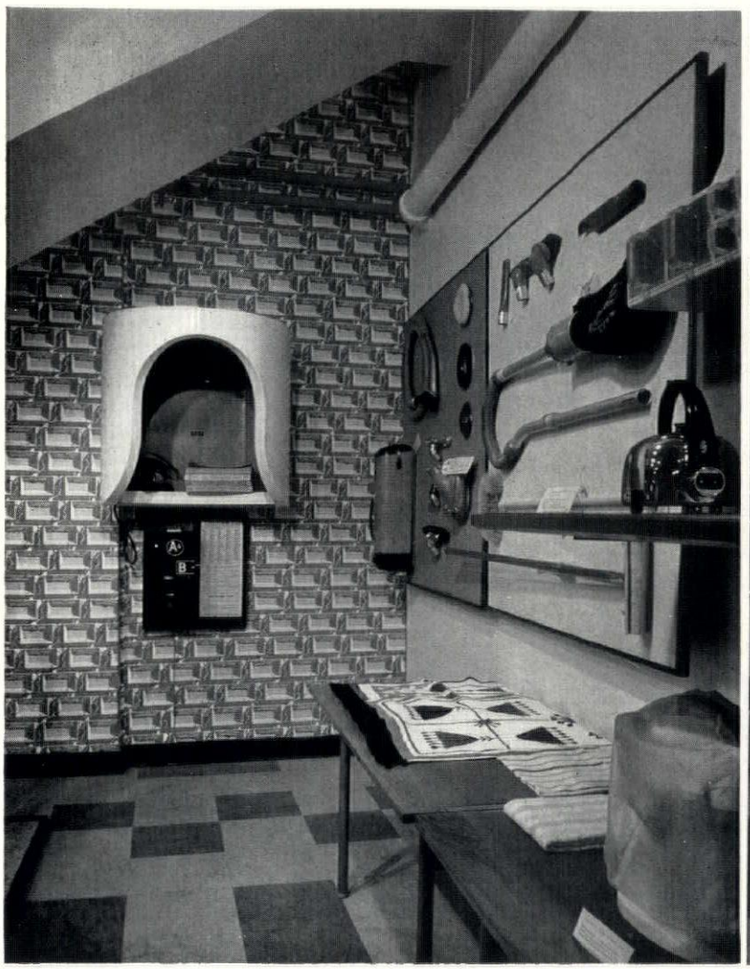


12

continued from page 58]

tions or walls, are either painted or veneered with rosewood.

The rectangular grid pattern of Ward and Austin's fascia relates it, through the module, to the interior. The non-reflecting windows not only provide a view from the pavement right through the 100-ft.-deep run of the main floor, but can accommodate self-contained displays; the fascia includes both mezzanine and ground floors within a single unit. Just inside the entrance is a photostat mural representing the British lion, by Roger Nicholson, and a specially designed reception desk of grey pickled sycamore with a Macassar ebony top, set against a mauve wall.



13



14



15

THE DESIGN CENTRE, LONDON, S.W.1.

Three photographs of the basement; 13, the display of cleaning equipment and public callbox under the stairs from the main showroom. 14, part of the display of household goods: kitchen appliances in the ladder unit on the left; electric fires on the platform on the right. 15, a corner displaying kitchen furniture textiles and powered appliances.

2 DESIGN REVIEW

Swedish Hollow-ware

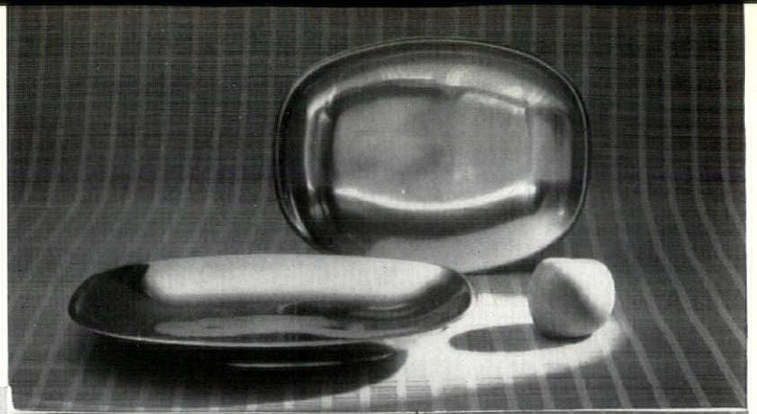
Stainless steel handsome, valuable, labour-saving and unbreakable. Is it simply an oversight that it is not the standard coveted tableware of this century? The cost is high but that is not always considered a disadvantage, and it can be offset against breakages.

The pieces illustrated are designed by Folke Arnstrom, made by Gense, Eskilstuna, Sweden, and marketed here by Finmar Limited. As well as excellent workmanship and simplicity, these designs have a weight and dignity not always found in contemporary work.

Diana Rowntree



1



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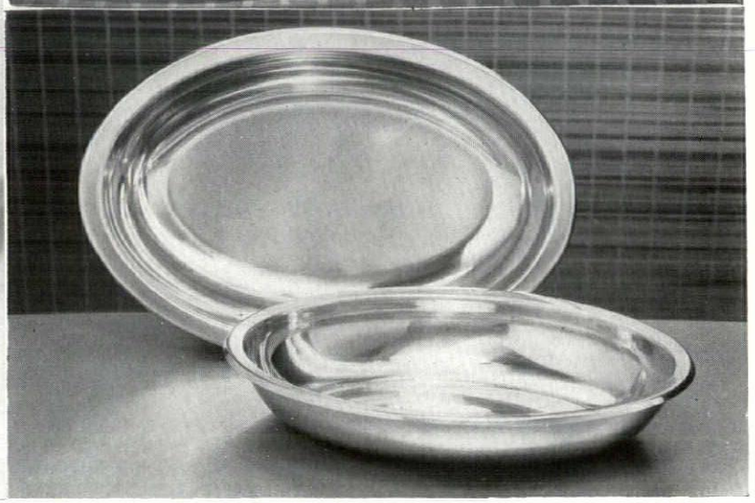


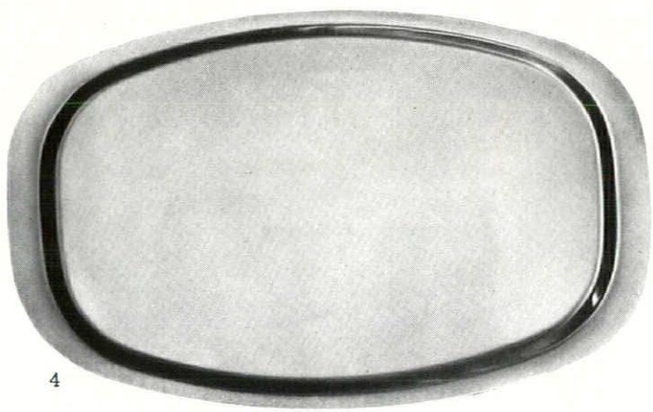
3

Moulded Plywood Chairs

Arne Jacobsen has designed two four-legged chairs, 5 and 6, from the same elements as his classic three-legged design. The broader base is off-set by wider support to the shoulders. Visual elegance is less than in the three-legged design but not as much less in fact as in the photograph. The chair legs are in brushed steel, with rubber feet. This admirable practical arrangement does not add to a chair's elegance. These chairs are made by Messrs. Fritz Hansen and marketed in this country by Finmar Limited. As stacking chairs they carry no tax.

D.R.

1, *fruit and bread server*, 9½ *in. long*, £2 15*s.* 6*d.*; 11 *in. long*, £3 9*s.* 0*d.* 2, *square dish*, £4 11*s.* 0*d. Casserole*, £5 1*s.* 3*d. The forthrightness of these designs, reminiscent of the best unpretentious Victorian design, is the outcome of assurance, and a welcome change from much strivingly contemporary work.* 3, *open vegetable dish*, 1 *pint size*, £2 1*s.* 0*d.*; 1¾ *pint*, £2 8*s.* 9*d.* 4, *serving tray*, 19 *in. long*, £5 2*s.* 6*d.*



4



5

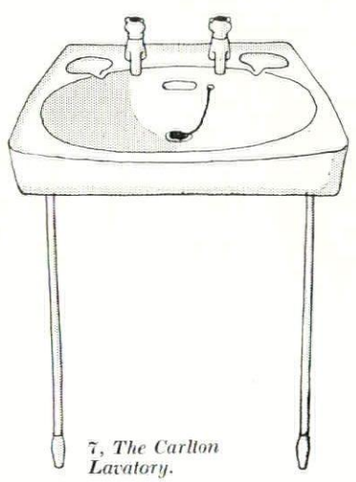


6

5, *this chair is produced in teak or palisander, or in a black finish. Black*, £7 16*s.* 0*d.*; *teak*, £8 10*s.* 0*d.*; *palisander*, £11 0*s.* 0*d. A modification of the design is made with arms.* 6, *produced in beech at* £5 17*s.* 0*d.*, *or in black at* £6 10*s.* 0*d.*

The Carlton Lavatory

Makers of sanitary fittings have in the past frequently changed their designs, but have usually been concerned with their being 'up to date' rather than graceful or even functional. It is encouraging to note that Messrs. Shanks are, in redesigning their range, taking the



7, *The Carlton Lavatory.*

visual element more seriously. The Carlton lavatory seen in isolation has not the inherent distinction of Adamsez Lotus, illustrated in November Skill. It could however be seen at Heals' spring exhibition that it is very well in the spirit of contemporary interior design. Its breadth and shallowness fitted in to the idea of designing a bathroom with a long work-table like a kitchen, and looked elegant and unassertive. The chromium stand, taps, and waste are extremely well designed.

Approximate retail price of the 27 in. basin with chromium stand, £17 12s. 9d. The trap £3 10s. 9d. **D.R.**

Exhibition Stands

These stands, 8, designed by Robert Wetmore for an exhibition of Denby Pottery were particularly successful in providing plentiful display space, and quietly creating a stimulating and expectant atmosphere. The use of plain metal channel and the simple construction of the movable shelves emphasises their temporary nature and dissociates them from the exhibits, while the use of a different veneer for each stand flatters the contents. The height of the table top and the proportions of the stand have been designed with mastery, to give a generous and leisurely effect. The detailing of edges has been well considered and eyecatching prettiness of detail carefully avoided. **D.R**



8

Two Notable Easy Chairs

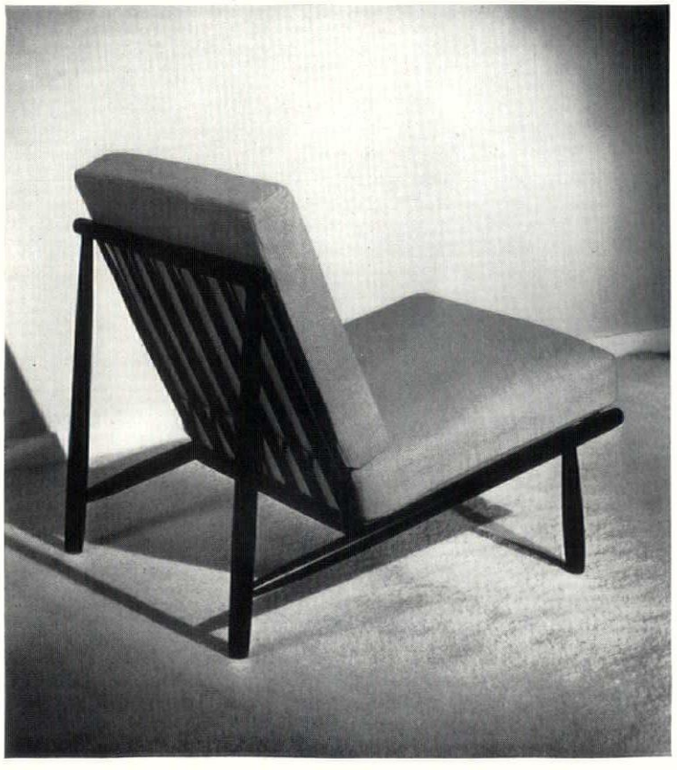
The two chairs illustrated successfully demonstrate contrasting techniques of design.

Dux 2, a Swedish fireside or casual low chair marketed by Finmar Limited, 9.

The extreme simplicity which is the virtue of this design is the result of approaching the problem from the angle of structural analysis. The structure is an assembly of turned wooden members, with flat battens to support the seat cushion. The upholstery takes the form of two rectangular Dunlopillo cushions, their stark outline contrasting with their considerable comfort.

This chair can be used as a unit to build up long seating, very unobtrusively. But when it is used singly its well considered frame gives it individual elegance, and it never looks like a slice of settee. The frame is in natural beech, grey, or black.

Prices are according to the fabric chosen for the covers. These approximate retail prices include tax. In cotton, £12 10s.; in wool, £14 5s.; in unika or cumulus, £16 10s.



9



9, left, Dux 2, from Sweden. 10, above, The Heron, by Ernest Race.

THE HERON, a larger easy chair designed by Ernest Race for Ernest Race Limited, 10.

Here frame and upholstery are used as a synthesis. The intention, to exploit the possibilities for free shape offered by welded steel used as a frame for upholstery. The designer has not only used this freedom to produce an inviting looking chair on generous lines, but its elegance and spareness mark an important step forward in his work. Hitherto Race chairs have suffered from a slight primness, sometimes about the neatly tapering legs, sometimes a fat look about the upholstery seeming to guarantee one's money's worth of

comfort. The Heron, while using the exactitudes of mass production, has achieved a fineness of line, an almost rickety look which brings humanity and vitality into the lines of an interior. It may be mere fashion which at present seeks for this quality in design. I think not, preferring to see the quality as one sought after in salerooms, belonging to the simplest seventeenth and eighteenth century cabinet work, and to real and revival Gothic. This quality of stark attenuation has been suggested as one of the poles of Englishness. If so it is as appropriate as it is unexpected to find it in the work of this most English of personalities.

It is always an event when mass production turns out true elegance instead of the good second best. May this spindly Heron prove as economic as the well-stuffed Dormice.

Construction note: Polyurethane foam is applied to the steel frame, supported on Pirelli webbing, and made up into reversible cushions. The steel legs have a satin chrome finish and are fitted with Armstrong furniture rests, which give a good bearing surface and slide easily.

Export: For economic packing and shipment the chair hulls can nest, and the legs be packed separately.

Prices, which include purchase tax, vary according to the covering fabric. In range 3 fabric, £28 12s. 3d.; in range 2 fabric, £30 3s. 10d.; in range 1 fabric, £32 12s. 8d. **D.R.**

3 TECHNIQUES

RECIRCULATED WARM-AIR HEATING

by Robert Maguire

The number of different types of heating system is now so large as to defy any simple classification. The authors of a current textbook have attempted a classification under two main headings: direct and indirect; direct systems being those consuming the fuel within the heated space and subdivided according to fuel type, and indirect systems being those in which the fuel is consumed elsewhere, subdivided firstly according to transmission medium (e.g., hot water, steam), and secondly according to fuel type. This classification is a useful one for those concerned with the detailed design of heating systems. Architects, however, have tended to approach the problem in their own characteristic way, making the end-product as a basis for classification. Here, the three main headings are primarily warm-air, primarily radiant, and combined systems.*

* Faber and Kell, *Heating and Air-conditioning of Buildings*, Architectural Press, 1951.

Personal comfort is a highly subjective sensation where the heating of buildings is concerned, and although scientific principles have been applied and produce evidence that combined radiation and warm-air systems offer the highest degree of theoretical comfort, there are bound to be many people with preferences which contradict this. An official survey* of a number of schools using various heating methods showed that the occupants professed to be satisfied in all cases where the heating, by whatever method, fulfilled its design requirements. It is not therefore proposed to answer here the objection sometimes heard, that recirculated warm-air heating *as such* has drawbacks as far as comfort goes, although some matters of actual arrangement of the systems which affect comfort are important and can be dealt with.

The great advantage of recirculated warm-air systems, not found in other types, is their quick response to control. With even the simplest type of installation, this means a shorter warming-up time, and with the more advanced forms (for which equally advanced control mechanisms have been developed) the 'heat machine' may be so sensitive to changing conditions and intermittent occupation of the building as to procure very large fuel savings.

From this it is evident that a warm-air system is an obvious choice for buildings which require heating intermittently, whether this intermittency is short-period or long-period, e.g., schools, which are occupied almost daily but then only 30 per cent of each day; or halls and churches, which may be occupied only one day in the week.

In addition a form of warm-air heating has been developed for use in factories and workshops, where less exacting requirements are found, which circulate warm air so rapidly that its effect is immediately felt. In this way the time-lag, at least at the transmission end of the system, is almost eliminated.

* Carried out by the Building Research Station and published in MOE Building Bulletin No. 13, H.M.S.O. 1955.

General principles

Since warm air rises, the air immediately under the ceiling of a heated space tends to be hotter than that in other places. This is so for all types of heating methods, with the possible exception of radiant floor systems, but is obviously most pronounced with recirculated warm air. The vertical temperature gradient may be so extreme as to give a difference of 20°F. or more between working or sitting level and ceiling level.

Since heating systems are generally designed to satisfy a given temperature at the lower level, it follows that excess temperatures above that point are wasteful. Not only will the system have to produce a greater quantity of heat to attain the design temperature, but there will be increased heat losses through the ceiling and by natural ventilation, for air usually leaves the building at the upper levels.

Some method of reducing the temperature gradient is therefore necessary if greater economy is to be achieved. Most of the various forms of warm-air heating have their own characteristic way of dealing with this problem, but it may be said that in general those which discharge a large quantity of air at a relatively low temperature are more successful in this way than those emitting a smaller quantity of very hot air. One other factor is the height at which the air is discharged; low-level discharge tends to produce a smaller gradient than high-level discharge.

There is one point, however, which works against what has been said. A layer of very hot air against a ceiling will warm it, if it is well insulated, to the same temperature; the ceiling will then act as a low-temperature radiant panel and add considerably to comfort at working level. The question of temperature gradients and the precise behaviour of warm air in heated interiors are difficult to be certain about, and although much research on the matter has been carried out, it is still at an early stage.

The essential requirement of a recirculated warm-air system is a heat exchange battery over which the air passes to raise its temperature. The simplest type is that in which the battery is exposed in the heated space, the air movement being caused solely by convection due to the battery itself. The conventional column-type 'radiator' is an example; even simpler forms are ordinary pipe runs and gilled tubes.

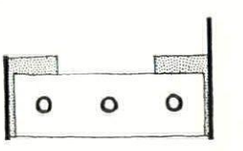
By enclosing the heater battery within a special casing, the natural convective air-flow can be increased, so cutting down the size of the battery, 1, and the weight of transmission medium for a given heat output. This reduction in the 'thermal mass' of the installation is one of the main reasons for the shorter time-lags associated with warm-air systems. Also, the casing provides protection of the battery against accidental burning (it will never be hotter than the emission air temperature), so that higher water or steam temperatures may be used, or batteries running on electricity or gas.

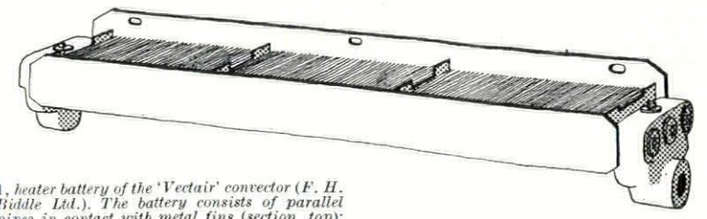
A fan may be introduced into the casing to increase the air-flow further, and this principle is often referred to as 'forced convection.' A distinction should be made here, however, since beyond a certain speed of air-flow, and depending on the position of the warm-air outlets in the room, the movement of air in the heated space ceases to be what is generally understood by convection.

Apart from the greater heat output, one advantage of using fan-power is that two useful variables are obtained: the temperature of the battery, and the speed of the fan. Both of these can be controlled thermostatically and by time-switch, and by making good use of this possibility very sensitive systems may be designed.

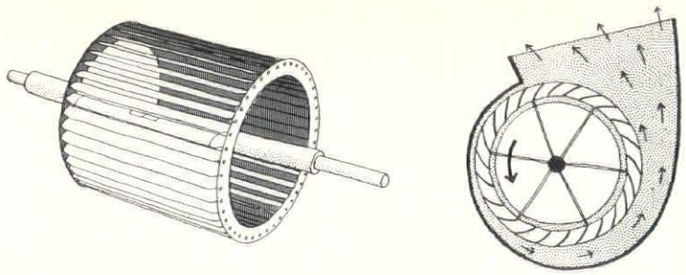
As has been said, the most efficient systems tend to be those recirculating large volumes of air, but in practice the quantities which can be moved by a propeller fan are limited. This type of fan, even if driven by a very silent motor, begins to make a noise when the tips of the blades reach high speed (the tip-speed considered to be the limit for quiet operation is 3,500 f.p.m.). Beyond a certain point centrifugal impellers, 2, must be used, and the initial cost of these is high.

For many industrial purposes, however, noise is considered not so

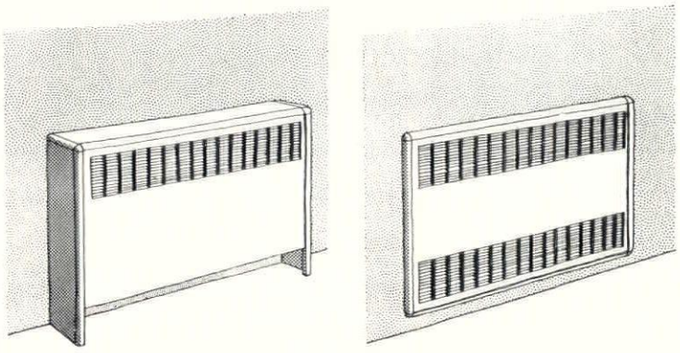




1, *heater battery of the 'Vectair' convector (F. H. Biddle Ltd.). The battery consists of parallel pipes in contact with metal fins (section, top); this arrangement is typical of hot water and steam batteries for all kinds of warm-air equipment.*



2, *centrifugal impeller fan* (*C. A. Dunham Co. Ltd.*)



3, *the 'Vectair' convector* (*F. H. Biddle Ltd.*). *Left, cabinet model; right, concealed model. Natural convectors of this type are available in a large range of sizes. Maximum heat outputs (for a convector 73 in. long by 42 in. high) are* 20,000 *B.Th.U./hour with low pressure hot water, and* 40,000 *B.Th.U./hour with steam. The largest electric model has an hourly output of* 10,000 *B.Th.U.*

important, and units are made which use propeller fans running at high speeds. Industrial unit heaters take many forms. They may be conveniently divided into overhead and floor types, although some are designed for flexibility of position.

Natural convectors

These may be regarded as a substitute for orthodox 'radiators,' although their manner of heat emission is not quite the same—radiators do in fact emit a small proportion of their heat as radiation (they should not be confused with panel-type radiators, which have a much larger radiant component).

The units are compact in design, standing about 30 to 40 inches high, and may be unobtrusive free-standing cabinets or concealed in shallow recesses in the wall, 3. Their height is governed by the flue effect of the casing; this increases rapidly with the height up to about 36 inches and then falls off again owing to the resistance of the casing to the air-flow. They are installed as close as possible to the floor in order to pick up the colder air. As a result the warm air discharge will be at a fairly low level, and this helps to lower temperature gradients by allowing the stream of warm air to expand and spread its heat early on its inevitable journey to the ceiling. To assist this effect the discharge grilles have louvres which direct the air somewhat downwards and away from the unit rather than allowing it to come straight out and upwards.

Units are obtainable to run on low or high pressure hot water, steam, electricity and gas. Electrical heater batteries generally consist of high-temperature elements of nickel-chrome; gas batteries of a combustion chamber surmounted by 'heat dispersal tubes' through which the hot products of combustion pass before mixing with the heated air. Gas convectors generally run hotter than the other types, and the discharge of the products of combustion into the room calls for good ventilation if healthy conditions are to be maintained.

Being rather limited in individual heat output, a number of units would be necessary to heat a space of any size.

Silent forced warm-air units

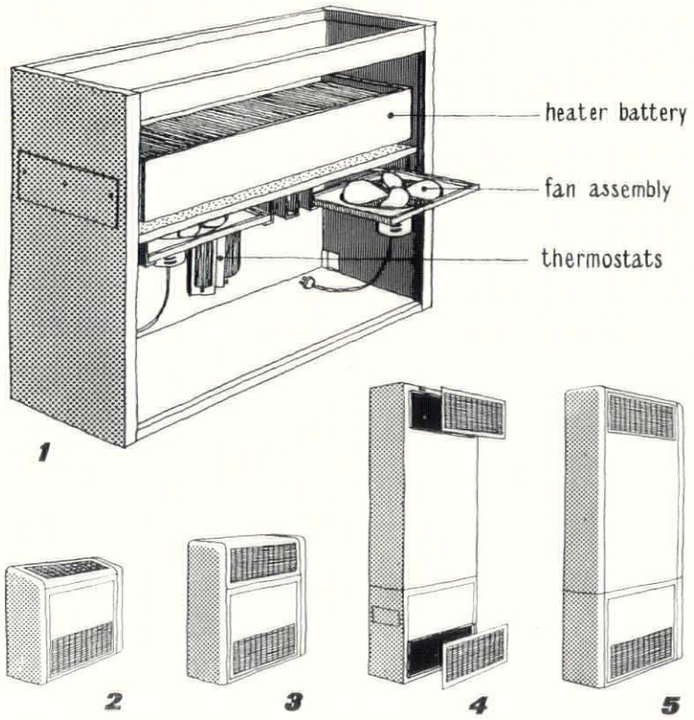
These units are not, of course, absolutely silent, for the electric motor, the fan and the resistance of the heater battery to the air-flow all contribute to produce noise. The noise level is, however, kept as low as possible consistent with output, and even when installed in quiet places such as libraries is not found to be objectionable.

Each unit consists of a duct casing within which an electric fan or impeller and a heater battery are mounted, with grilles for intake and discharge at the ends. Since the air-flow is forced, the duct need not be arranged vertically as in natural convectors, although most standard models adopt this arrangement. A common type of layout is to use a basic unit containing the essential mechanism, with various extension pieces and loose grilles, 4. In this way the unit may be built up into low or high, freestanding or recessed forms.

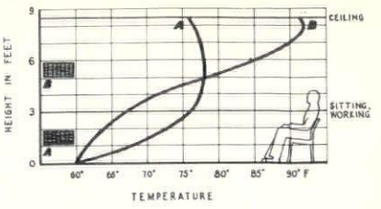
It has for long been thought that the best position for discharge grilles was at a fairly high level, the principle being to let the warm air into the heated space somewhere near the ceiling and continually to force down the hot air already there from above. A number of interesting tests† have been carried out in one of the Hertfordshire schools (in which this form of heating is a well-known success) in order to find out, among other things, the position of the discharge grilles which would give the lowest temperature gradient. Here the manufacturers, Weatherfoil Heating Systems Ltd., adapted their units to operate either vertically, with the discharge grille at a height of 5 to 6 feet, or horizontally, with the grille at 1 to 2 feet.

The low-level discharge arrangement gave the lower over-all temperature difference (about 15°F.) between floor and ceiling, 5, but most of this difference occurred in the first few feet above the floor, the upper part of the room remaining fairly constant. The high-level discharge arrangement gave a very high temperature difference (about 32°F.) but the

† Reported in full in MOE Building Bulletin No. 13.



4, *silent forced warm-air units* (*Copperad Ltd.*). 1, *basic unit, consisting of a chassis on which the essential equipment is mounted*; 2, *top discharge model, formed by the addition of grilles and end covers to the basic unit*; 3, *front discharge model, built up in a similar manner*; 4, *high-level discharge model with loose grilles, for building into a recess; basic unit plus extension*; 5, *high-level discharge cabinet model. These units give heat outputs of up to* 53,300 *B.Th.U./hour for low pressure hot water,* 103,200 *B.Th.U./hour for high pressure hot water, and* 58,800 *B.Th.U./hour for low pressure steam.*



5, *temperature gradients given by warm-air discharge at heights of* 1 *to* 2 *ft.* (*A*) *and* 5 *to* 6 *ft.* (*B*), *in a room* 8 *ft.* 6 *in. high.*

gradient in the lower levels was more reasonable. A large difference in temperature between one's head and feet can be objectionable,‡ and so it seems safe to infer that one arrangement gives less heat loss while the other slightly greater comfort.

It is assumed that the reason for the smaller temperature difference given by the low-level grille is that the 'jet' of warm air is able to spread its heat rapidly to the air surrounding it, while that at higher level is to some extent prevented from doing so by the ceiling.

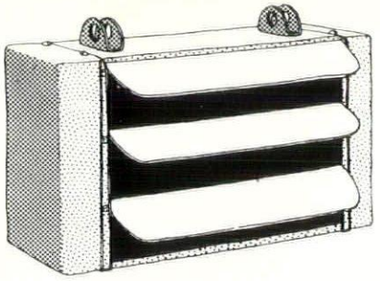
Some makers are now producing horizontal-type units, and besides their more usual positions these can be built into such places as counter-fronts and under the stage in assembly halls.

One method of automatic control which has been developed for this type of system regulates both fan-speed (i.e., air-flow) and battery temperature. The fan has two speeds; fast, for initial warming-up, and medium, for normal running. Occasionally a third speed is used for 'tick-over' periods, but it is generally considered that the fan may be stopped for this. The fan is switched on and off, and its speed governed, by a thermostat situated in the heated space itself. The temperature of the heater battery is regulated centrally from the boiler, which has a thermostat coupled to an outdoor compensator. The two variables are linked, since a reduced air-flow will cool the battery less, and this will reduce the heat demand on the boiler, which will begin to shut down. In such a way many rooms may be heated to different temperatures from the same central plant, while all of them control their own heat requirements. Every small saving in heat requirement in each room will be reflected as a fuel saving.

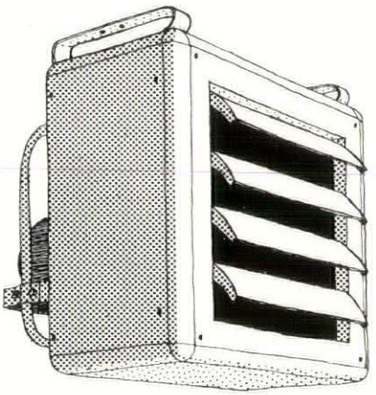
Industrial unit heaters

Overhead Units. These are being used increasingly in factories, particularly where floor space is valuable or where periodical arrangement of plant requires an unobstructed floor. The units are hung from the ceiling or the roof trusses, and draw in and discharge air at the same level. By taking air from high level, where it tends to be already fairly warm, the unit does not need to raise its temperature through so great a range as would be necessary if it were taken from near the floor. Also there is less possibility of picking up floor dust, which would both clog the battery and be spread into the air. On the other hand, unless the colder air at floor level is warmed, it will continue to cool and the vertical temperature gradient will become progressively greater. Overhead units are therefore designed to project the warm air with considerable force towards the floor. For mounting heights of about 8 to 14 feet there are horizontal discharge models,

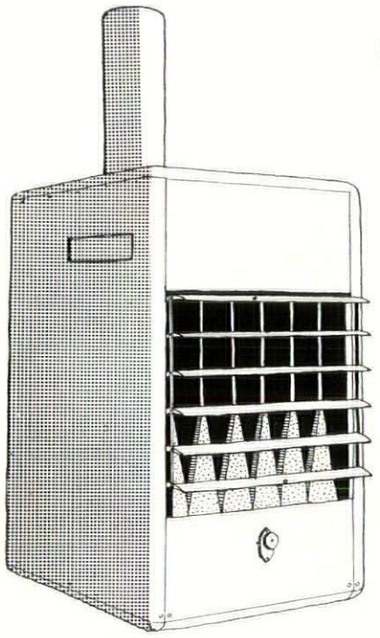
‡ The floor level temperatures were the same in each case.



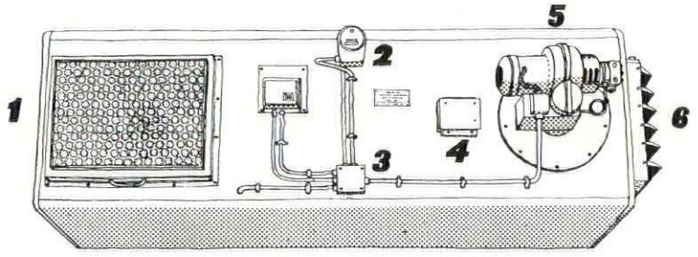
6, *left, 'Unirectaire' overhead industrial unit heater, for operation with hot water, steam or electricity. This type of unit heater consists of an electric propeller fan mounted immediately behind a heater battery. It is made in a very large range of sizes, varying in heat output from* 17,000 *to* 260,000 *B.Th.U./hour. They may be used to fan unheated air in summer.*



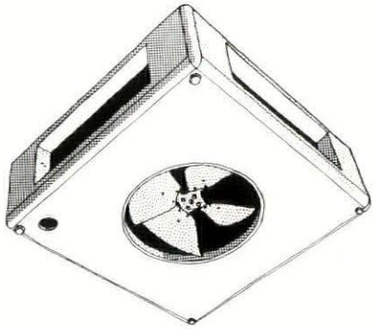
7, *right, Hurseal electric unit heater (Hurseal Ltd.). The heater battery of this unit is a nickel-chrome high-temperature element of mat formation. Available in three sizes,* 2.625 *kW,* 5.25 *kW and* 10.5 *kW; these loadings correspond to heat outputs of* 8,950, 17,900 *and* 35,700 *B.Th.U./hour.*



8, *left, an indirect gas-fired unit heater (Harris Engineering Co. Ltd.). The burning gas heats a pressed steel venturi tube, through which an electric propeller fan blows the air to be heated. The products of combustion pass out of the heater through a flue at the top, and are not projected into the heated space. This is especially important where industrial heaters are concerned, for apart from the matter of health, the products of combustion, if discharged into the interior of the building, tend to corrode structural steelwork. The heater also incorporates thermostatic control, and an overheat cut-out. It is available in three sizes, rated at* 50,000, 100,000 *and* 140,000 *B.Th.U./hour.*



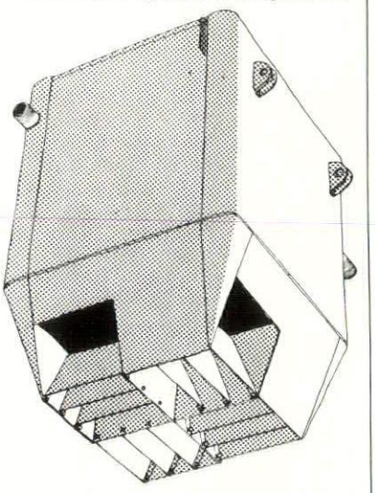
9, *an oil-fired industrial unit heater (Harris Engineering Co. Ltd.). 1, air intake grille with filters; 2, fan and limit control; 3, switch for operating fan without burner; 4, inspection door; 5, oil burner; 6, air discharge outlet.*
The oil burner, which is fed by a small diameter pipe from a storage tank, fires into a stainless steel combustion chamber. The hot products of combustion pass through a heat exchange, consisting of parallel flues, and out of the unit into a flue pipe. Air is drawn in through the filters by a centrifugal impeller fan, and forced between the flues of the heat exchanger and then over the combustion chamber, to be discharged at a temperature of about 160°F. *through the outlet louvres. The heater is equipped with completely automatic controls, which ensure that no air is circulated until the heater has warmed up; that the heated space is kept at a constant pre-set temperature; and which attempt twice to re-establish normal operation should the flame or burner fail. The model shown is intended for overhead operation; a vertical type is also available which stands on the floor. Heat outputs vary with size from* 75,000 *to* 300,000 *B.Th.U./hour.*



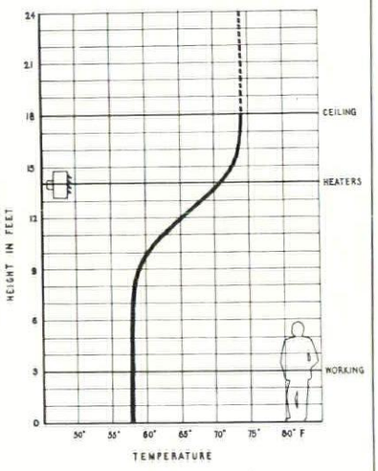
10, *the 'Projectaire' downward discharge industrial unit heater (F. H. Biddle Ltd.). Intended for mounting heights from* 14 *to* 36 *ft., this type of unit heater gives a greater floor spread than the horizontal discharge type. An interesting feature is the position of the fan, which is on the discharge side of the heater battery. This arrangement, necessary for reasons of compact design, also gives a more definite jet of air which reaches a greater distance. Heat outputs vary from* 40,000 *to* 300,000 *B.Th.U./hour for low pressure hot water, and from* 70,000 *to* 400,000 *B.Th.U./hour for steam.*

6, 7, 8 and 9, which have louvres to deflect the air stream downward at an angle. Above this height vertical discharge units, 10 and 11, become necessary; these give a very powerful jet of warm air with a wide floor coverage.

An interesting form of temperature



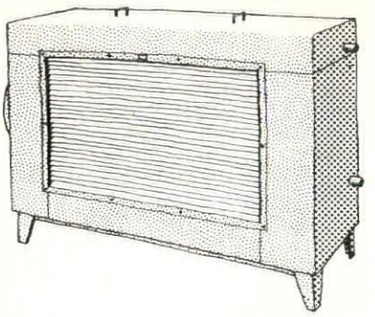
11, *the 'Downstream' industrial unit heater (Copperad Ltd.). Similar in function to that shown in* 10, *this unit is fitted with louvres to deflect the heated air to some extent sideways.*



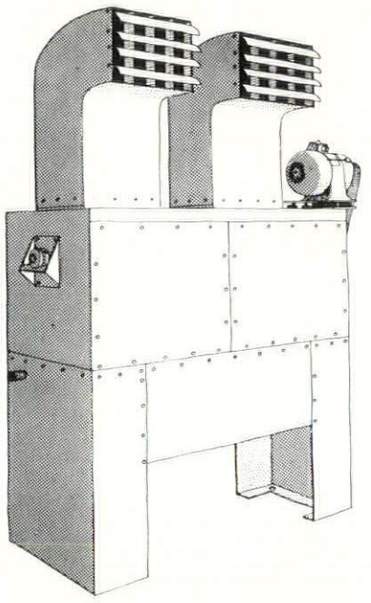
12, *typical temperature gradient given by overhead unit heaters.*

gradient, 12, is obtained with overhead industrial units. The temperatures are fairly even in the important lower levels, and then climb rapidly until a level just above the heaters is reached, above which the air temperature remains constant. This is due to the fact that there are two separate air-movement zones, one above and one below the level of the heaters. Conditions are good at working level, while the even temperature above heater-level is fortunate from the point of view of heat loss since there is no large increase immediately below the ceiling. The position of the kink in the curve depends only on the mounting height of the heaters; the height of the ceiling does not have much effect on the situation.

Floor Units. There are two types of industrial floor units, the one a heavy-duty version, 13, of the 'forced convection' type already described, and the other a high velocity projection type, 14. These last send a stream of warm air 30 to 40 feet; special nozzles discharge the air in any direction. They are ideal for factories where overhead mounting is impracticable, as for instance where there is a travelling gantry crane. The discharge temperature of the air is moderate, and



13, *floor type industrial warm air unit (Weatherfoil Heating Systems Ltd.). Available in three sizes;* 50,000, 75,000 *and* 100,000 *B.Th.U./hour.*



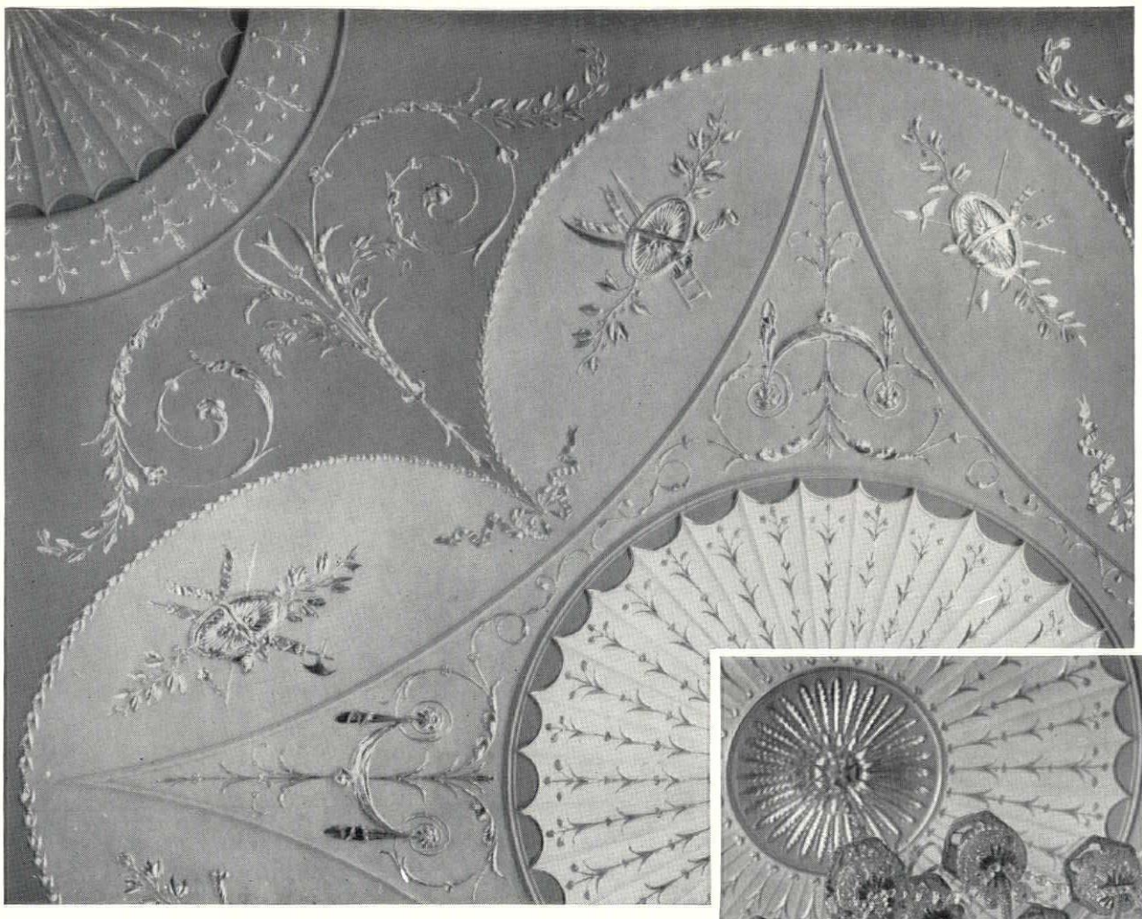
14, *'Jetstream' heavy duty unit heater (Copperad Ltd.). Although these heaters generally stand on the floor, they are also made without legs and with special nozzles for mounting in any position, vertical or horizontal. They send a jet of hot air over a great distance, making them ideal for factories where the only position for heaters is along the side walls. Average output for this type of heater is about* 300,000 *B.Th.U./hour.*

the nozzles somewhat above head level, so that the stream of air is not objectionable. Hot water and steam types have a heavy finned heater battery and a centrifugal impeller to each nozzle; models are available with one, two or three nozzles. A direct oil-fired version is also now available.

Direct fired stoves

One last type of warm-air heating system which should be mentioned is the warm-air stove. This has a much longer history than the other types described. Large freestanding stoves with gilled fireboxes, fired with coke or coal, were once a common form of church heating, and many are still to be found. The next development was to put them in a chamber below the floor, fed with air by natural convection through short ducts with floor grilles. The early forms of stove were very primitive in design, and almost always received the minimum of maintenance. Complaints are still heard from time to time when these old installations fail (generally producing asphyxiating fumes when the firebox burns through) and as a result they have fallen into disrepute among heating engineers.

There is no reason, however, why this method of heating should not be satisfactory given a higher





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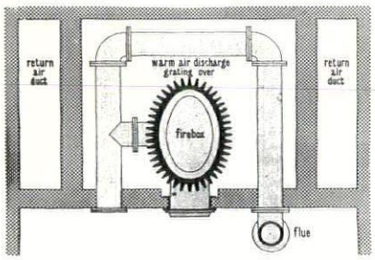
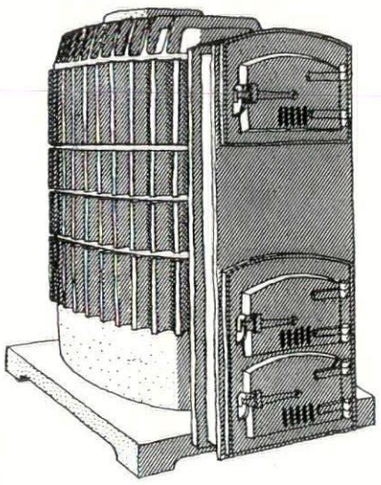
standard of design. One such improved system, 15, has been installed in a number of recent buildings, mainly churches, with extremely good results. It consists of an elliptical fire-box, built up vertically in sections, with exterior gills. The flue pipe, which may be taken off the top, back, or side of the firebox, is arranged to turn a complete loop around the heater before discharging into the main flue stack. This gives a maximum area of heat emission





15, the 'Hestia' air heater (John Grundy Ltd.). The heater may be fired with coke, oil or gas. It consists of an elliptical firebox with gills, which stands in a brick chamber. Cold air enters the chamber near the bottom through ducts and warm air leaves through a grating or duct at the top.

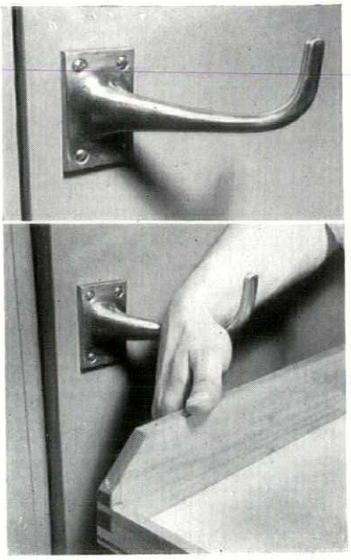
surface, and cuts down heat losses in the flue. The heater and flue coil stand in a brick chamber, which has a short warm-air discharge duct ending in a grille in either the floor or wall of the heated space. Return air ducts enter the chamber at low level. The air circulation is usually by natural convection (although fan assistance can be provided for installations where this is inadequate) and the ducts must be big since the system relies on the delivery of a large volume of rather hot air at low velocity.

The heater may be fired with coke, but the shape of the fire-box and the arrangement of the flue pipe make it very efficient when oil-fired. Oil-firing itself has the advantage that it is capable of sensitive thermostatic control. Since there is no water to heat up in the system it begins to deliver heat very soon after firing has started and may also be left unattended in frosty weather without fear of freezing—an important consideration in buildings such as churches where heating is required only occasionally. Lastly it has the great advantage of low initial cost.

4 THE INDUSTRY

Door Pulls

One of the many fittings specially designed for the experimental ward at Larkfield Hospital, Greenock, was a door pull fixed with the top of the crook 3 ft. 4 in. above the floor. Although designed for obvious hygienic reasons, more widespread applications are envisaged such as



in the kitchen or a canteen—anywhere in fact where a door must be opened with both hands full. The crook projects 4 in. from the face of the door and is supplied in brass, BMA or satin chrome (the latter costing 28s. each) by *Alfred G. Roberts Ltd., River House*, 182–3, *Upper Thames Street, London, E.C.4.*

Daylight through the Roof

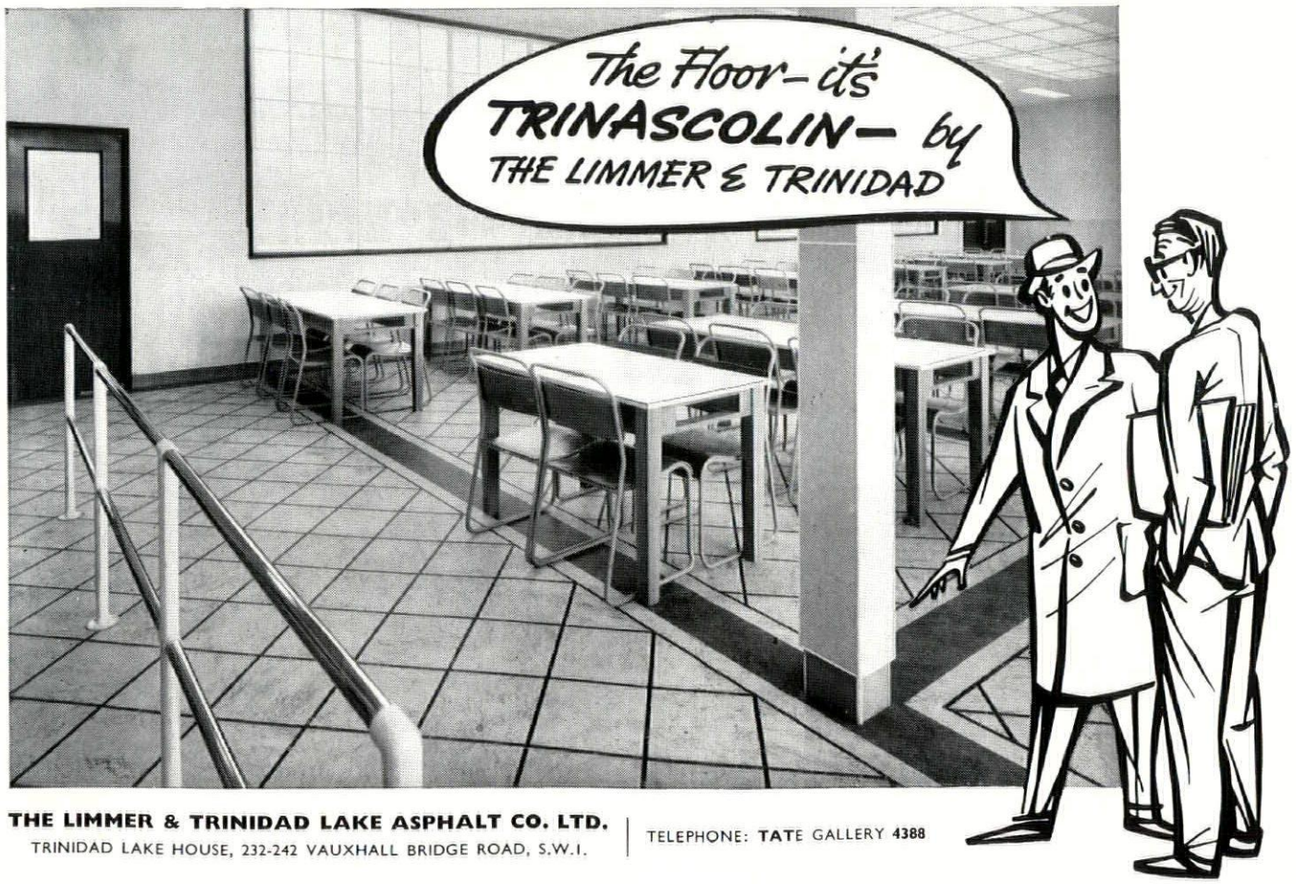
Following last month's article 'Daylight and Ventilation through the Roof,' it is interesting to note that a further criterion is proposed by Durasteel Ltd., the manufacturers of Galt-Glass. This is 'brightness ratio' by which is meant the ratio between the illumination levels of light and shadow. It is claimed that Galt-Glass shows a brightness ratio of only 8 : 1 where unreinforced thermoplastic shows 190 : 1 and wired glass 114 : 1; and that this spectacular lessening of glare is achieved without lessening the amount of light let through. Galt-Glass, an unreinforced thermoplastic, lets through 91 per cent as against 79 per cent for wired glass.

Durasteel Ltd., Oldfield Lane, Greenford, Middlesex.

Houses into Homes

Ascot continue their good tradition of beguiling the architects with hard facts by publishing a book on the conversions of erstwhile middle-class properties. Their point is made by illustrating a fair number of conversions up and down the country, most of them in spiky and intractable premises, giving plans before and after, and costs: the results are sanitary and neat but not beautiful, but the good people who do this

[continued on page 68



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The illustration shows service countering at Hobart House, London, for the National Coal Board, by whose courtesy the photograph is reproduced. This installation consists of service top and plain top hot-closets and cold service units, with tray shelving the entire length of the countering and a superstructure over the cold units. A tea and coffee service unit is also provided and can be seen in the background. The installation shown is one of many in which we have co-operated with Architects in planning for efficient catering service with economical use of floor space.

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continued from page 66]

valuable work are not trained æsthetes. The book concludes with full—we repeat *full*, because this is so rare—technical data of the equipment used and a sensible account of the art of placing flue terminals.

Near the beginning of the book are some interesting figures comparing the costs of installing multi-point gas water heaters as against back boilers in four different building types, which show that the gas water heater costs about the same in a bungalow, a few pounds less in houses and 4-storey flats, and £25–30 less in tall flats. In this connection it is perhaps worth noticing that the back boiler—which up to a few years ago was considered the answer to the Housing Manager's prayer—got a bad press at the recent Institute of Fuel Conference on Domestic Heating. The trouble is that on cold nights you have a choice of a cosy evening by the fire *or* a hot bath: you can't have both. While in summer you have the choice of roasting to death or of going dirty to bed. The case for the use of a refined fuel for water heating is very strong.

Ascot Gas Water Heaters Ltd., 255, *North Circular Road, N.W.*10.

CONTRACTORS etc

Power Station at Kuwait. *Architects:* Farmer & Dark. *General contractor:* The Gulf Engineering Co. *Sub-contractors: structural steelwork:* Societe Metallurgique D'Enghien St. Eloi. *Reinforcing bars:* Coutinho Caro. *Accrington Nori bricks:* Kenneth Craig & Partners. *Air conditioning plant:* Rosser & Russell, Ltd. *Troughed aluminium sheet:* Aluminium Union, Ltd. *Steel staircases and windows:* Maclean & Co. *Steel doors:* James Gibbons, Ltd. *Steel roller shutters:* Haskins, Ltd. *Steel fire-proof doors:* Haywards, Ltd. *Light steelwork:* Sagma, Ltd. *Hard vitreous and acid-resisting tiles:* Carters, Ltd. *Hard vitreous tiles:* Langley (London) Ltd. *Open grid flooring:* John Thompson (Beacon Windows) Ltd. *Chequerplate covers and open grid flooring:* F. A. Norris & Co. *Acoustic ceiling:* Horace W. Cullum, Ltd. *Fencing and gates:* A. & J. Main, Ltd. *Adjustable metal louvres:* Crittall Manufacturing Co. *Metal louvres and wire mesh screens:* McLaren Johnston, Ltd. *Flush doors and panels.* Saro Laminated Wood Products, Ltd. *Teak veneered flush doors:* Manor Joinery Works, Ltd. *Expanded metal reinforcement:* The Expanded Metal Co. *Welded mesh reinforcement:* British Reinforced Concrete Eng. Co. *Paints and primers:* Leyland Paint & Varnish Co. *Furniture:* Heal's Contracts, Ltd. *Light fittings:* Courtenay Pope, Ltd., P. H. Narker, Ltd. *Waterstop:* Expandite, Ltd. *Acoustic ceiling:* Burgess Products, Ltd. *Protective paints:* Detel Products, Ltd. *Concrete waterproofers and chlorinated rubber paints:* Evode, Ltd. *Bestos damp-proof course:* D. Anderson & Son. *Roofing materials:* Ruberoid Co. *Drainage goods:* Broads, Ltd., Doulton Sanitary Potteries, Ltd. *Stair nosings:* Ferodo, Ltd. *Glass lenses:* Lenscrete, Ltd. *Sheet, plate and non-actinic glass:* Pilkington Bros. *Antique and nailsea glass:* Chance Bros. '*Elkington Gatic*' *duct covers:* Dover Engineering Co. *Colterro' lathing:* Colt & Co. *Revolving door:* Elliot & Son. *Ventilation louvres:* Frederick Braby & Co. *Balustrade railings:* Light Steelwork, Ltd. *Terrazzo and cement tiles:* Yusef al Alghanim. *Ceramic tiles:* Jerusalem Potters. *Venetian blinds:* J. Avery & Co. '*Bricktor*' *reinforcement:* Johnson & Clapham, Ltd. *Zinc products:* Grey & Martin, Ltd. *Structural steelwork and platforms:* T. C. Jones & Co. *Drainage goods:* Burn Brothers. *Plywood, etc.:* Veneercraft, Ltd. '*Altro*' *flowing:* Adamite Co.

Eleven-Storey Flats, Tile Hill, Coventry. *Architects:* A. G. Ling, City Architect, in succession to D. E. E. Gibson. *General contractors:* George Wimpey Ltd. *Sub-contractors: lifts:* Express Lift Co. *Heating and hot water installation:* Weatherfoil Heating Systems Ltd. *Concrete screens:* City Concrete Ltd. *Bricks:* London Brick Co. *Electrical installation:* Thompson Electric Co. *Precast staircases:* Croft Granite, Brick & Concrete Co. *Bituminous felt roofing:* General Asphalte Co. *Plumbing:* J. C. Toogood Ltd. *Wood window frames:* Wm. Thomas & Sons. *Thermoplastic (plain):* Marley Tiles Ltd. *Ironmongery:* Lockerbie & Wilkinson Ltd. *Oil paints:* Docker Brothers Ltd. *Sliding windows:* P. G. Allday & Co.

Tile Hill Shopping Centre, Coventry. *Architects:* A. G. Ling, City Architect, in succession to D. E. E. Gibson. *General contractors:* J. G. Gray Ltd. *Sub-contractors: heating and hot water installation:* Weatherfoil Heating Systems Ltd. *Prestressed concrete floors:* Pierhead Ltd. *Bricks:* London Brick Co.; G. W. Jacques Ltd. *Reinforcing bars and fabrics:* Twisteel Reinforcement Ltd. *Wood window frames:* Boulton & Paul Ltd. *Electrical installation:* P. D. Brady. *Prefabricated joists:* Benfix Steel Co. *Stair balustrades:* George Wragge Ltd. *Preformed plumbing stacks:* J. S. Wright & Co. *Shopfronts:* Frdk. G. Plumb & Son. *Rooflights:* Guildford Glass & Metal Works Ltd. *Terrazzo rooflights, tiling and thermoplastic flooring:* Coventry Tile Co.; Marboline Co. *Bituminous felt roofing:* William Briggs & Sons. *Sanitary fittings:* Matterson, Huxley & Watson Ltd.; Edwin H. Fryer. *Doors:* F. Hills & Sons. *Tiling:* Carter & Co. *Thermoplastic flooring:* The Premier Tile Co. *Ironmongery:* Lockerbie & Wilkinson Ltd. *Oil paints:* Docker Brothers Ltd. *Emulsion paint and distemper:* Debney Fuidge Ltd. *Tanking:* Ragusa Asphalte Paving Co. *Sliding windows:* P. G. Allday & Co. *Plywood fascias:* Saro Laminated Wood Products Ltd.

Factory at Stafford. *Architect:* Edward D. Mills and Partners. *Quantity surveyor:* L. W. Clark. *Engineer for latticed shell roof:* C. V. Bloumfield. *General contractors:* Wilson Lovatt Ltd. *General contractors for latticed shell roof:* Overstructures Ltd. *Sub-contractors: vermiculite barrel roof and reinforced concrete columns:* Overstructures Ltd. *Foundation and piling:* West Piling Construction Co. *Design of reinforced concrete frame 2-storey section:* B.R.C. Engineering Co. *3-ply roofing felt:* Highways Construction Co. *Asphalte roofing:* Val de Travers Asphalte Ltd. *Metal windows:* James Couper & Co. *Precast concrete roof lights and cills:* J. A. King & Co. *Glazed partitions:* Sankey Sheldon Ltd. *Thermo-plastic flooring:* Armstrong Cork Co. *Folding metal gates:* Bolton Gate Co. *Bricks and facings:* Himley Brick Co. *Wall tiling:* Cope & Co. *Hardwood flooring:* Horsley Smith & Co. *Radiators:* Ideal Boilers & Radiators Ltd. *Plumbing and heating:* A. G. Curtis & Son. *Lift:* Gimsen & Co. (Leicester).

[continued on page 70

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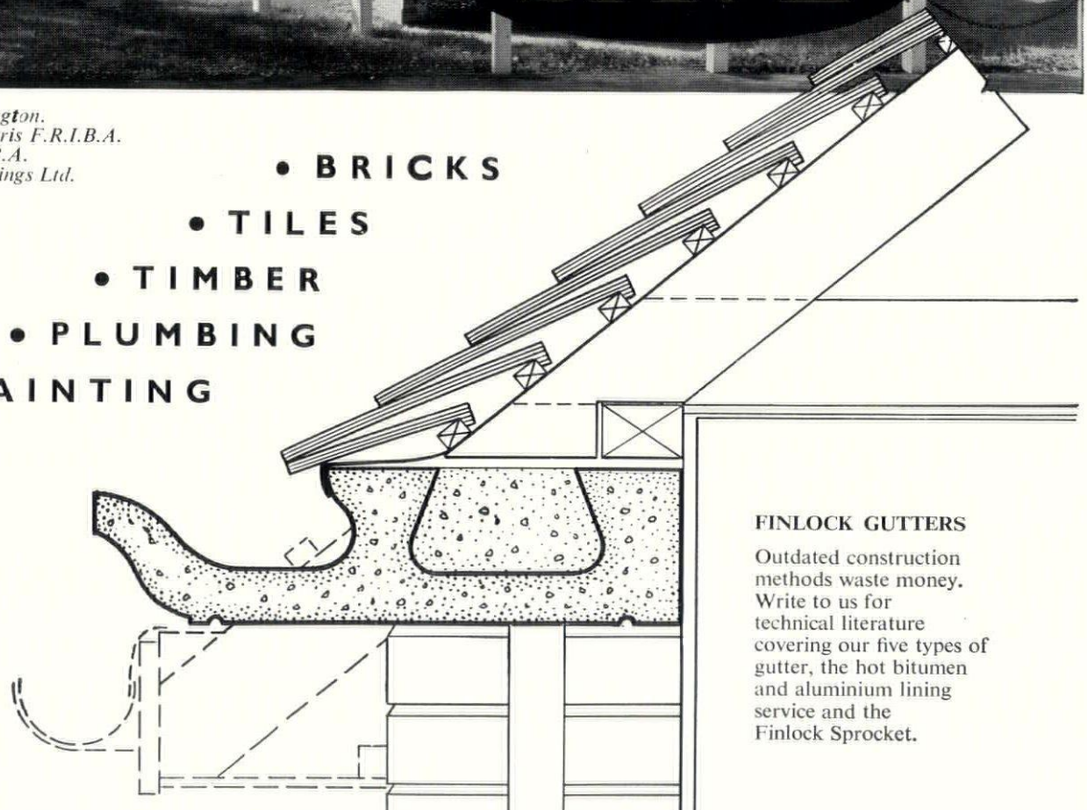

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Admission Unit at Wallingford. *Architects:* Powell and Moya. *Consulting engineers: heating and electrical:* J. Roger Preston & Partners. *Quantity surveyors:* Davis, Belfield and Everest. *Clerk of Works:* A. E. Beesley. *General contractors:* W. E. Chivers & Sons. *Nominated subcontractors and suppliers: roofing:* Newsum & Sons & Co. *Roofing felt:* William Briggs & Sons. *Wood block flooring:* Horsley, Smith & Co. (Hayes). *Door furniture and ironmongery:* Chubb & Sons Lock and Safe Co. *Electric wiring:* Troughton & Young Ltd. *Casements:* The Crittall Manufacturing Co. *Sliding door gear:* E. Hill Aldam & Co. *Kitchen equipment:* Radiation Group Sales Ltd. *'Stonite' rendering:* Callow & Keppich Ltd. *Wallpaper:* Arthur Sanderson & Sons. *Slate sills:* The Bow Slate and Enamel Co. *Sun blinds (Venetian):* The Crittall Manufacturing Co. *Clocks:* Gent & Co. *Asbestos cement:* Atlas Stone Co. *Timber preservative:* Hickson's Timber Impregnation Co.

School at Highbury, N.5. *Architect:* Jack Howe. *General contractors:* Tersons Ltd. *Sub-contractors: heating and ventilating:* G. N. Haden & Sons. *Electrical installation:* Duncan Watson Ltd. *Structure, windows and cladding:* Hills (West Bromwich) Ltd. *Roofing and tanking:* William Briggs & Sons. *Fibre board ceilings:* Sundeala Board Co. *Facing bricks:* London & Sussex Merchants Ltd.; R. Passmore & Co. *Gas installations:* The North Thames Gas Board. *Sanitary fittings:* Dent & Hellyer Ltd. *Domestic boiler unit:* Sidney Flavel & Co. *Floor and wall tiling:* Parkinsons (Wall Tiling) Ltd. *Fencing:* Bayliss, Jones & Bayliss Ltd. *Rolling shutters:* Shutter Contractors Ltd. *Terrazzo:* Marriott & Price Ltd. *Flush doors:* Walter Lawrence & Son. *Wood block flooring:* Hollis Bros. *Fibrous plaster:* C. E. Pinn & Co. *Joinery:* Rippers Ltd. *Metalwork:* Clark Hunt & Co. *Ventilators:* F. H. Biddle Ltd. *Thermoplastic floor tiles:* The Marley Tile Co. *Ironmongery:* W. N. Froy & Sons. *External drinking fountains:* Shanks & Co. *Lighting fittings:* Hume Atkins & Co.; Troughton & Young; The Merchant Adventurers Ltd. *Garden layout and planting:* Grassphalte Ltd. *Door numbers and titles:* The Lettering Centre. *Concrete flower tubs:* The Mono Concrete Co. *Cloakroom number discs:* Millett Levens (Engravers) Ltd. *Plastering:* Plastering Ltd. *Painting and decorating:* F. Labbett & Sons. *Electric clocks:* Gent & Co. *Wall paper:* Arthur Sanderson & Sons. *Glazing:* Aygee Ltd. *Extract fans:* Brooks Air & Heat Systems Ltd. *Tarpaving:* Home Counties Tarmacadam Contracting Co.

Pithead Baths at Binley, Warwick. *Architects:* John Dudding & Partners. *General contractors:* E. K. Youell & Son. *Sub-contractors: facing bricks:* The National Coal Board. *Steel reinforcement:* Matthews & Mumby Ltd. *Metal windows:* Aygee Ltd. *Dome lights:* T. & W. Ide Ltd. *Steel framed roof lights:* The Puttyless Glazing Co. *Precast concrete roof light:* J. A. King & Co. *Heating and hot water supply:* Young, Austen & Young Ltd. *Sewage pumps:* Pulsometer Engineering Co. *Ironmongery, poison safe:* James Gibbons Ltd. *Booster pump and by-pass:* Rhodes, Brydon & Youatt Ltd. *Spiral staircase, cat ladders:* W. Durose & Sons. *Collapsible gate:* Bostwick Gate & Shutter Co. *Boot cleaning and greasing equipment:* Bell & Smart Ltd. *Attendants' cupboards, cubicle mirrors and lockers:* Speedwell Gear Case Co. *Attendants' furniture, etc.:* James Farquharson & Sons. *Waste paper baskets:* Milners Safe Co. *Thermometers:* C. F. Casella & Co. *Fire extinguishers:* Pyrene Co. *Boot scraper mats:* Steelway Ltd. *Toilet paper holders:* British Patent Perforated Paper Co. *Bottle filling valves and hose reels:* Charles Winn & Co. *Swilling down valves:* Barber Wilsons & Co. *Cycle racks and attendants' folding workbench:* A. A. Odoni Ltd. *Vacuum cleaners:* Sturtevant Co. *Air purifiers:* Field Spring Co. *Clocks:* Grimshaw, Baxter and J. J. Elliott Ltd. *Electrical installations:* Barnett & Soans Ltd. *Indicating lettering:* Arrow Plasties Ltd. *Standard notices:* Best-Burkle Products Ltd. *Sanitary fittings:* A. D. Foulkes Ltd. *Water softening plant:* William Boby & Co. *Tanking of pumping chamber:* William Briggs Ltd. *Floor tiling:* A. Wood & Co. *Cork tile flooring:* Cork Insulation & Asbestos Co. *Cellar sump drainer:* Joseph Evans & Son (Walthamstow), Ltd. *Terrazzo and rubber flooring:* Coventry Tile Co. *Curtains:* Hopewell Ltd. *Towel rails:* Parker, Winder & Achurch Ltd. *Garden works:* Garden Development Ltd. *Shower partitions and tiling:* S.G.B. (Dudley), Ltd. *Painting:* Harris & Sheldon Ltd. *Paint supplied by:* Lewis Berger (G.B.), Ltd. and Joseph Mason & Co.

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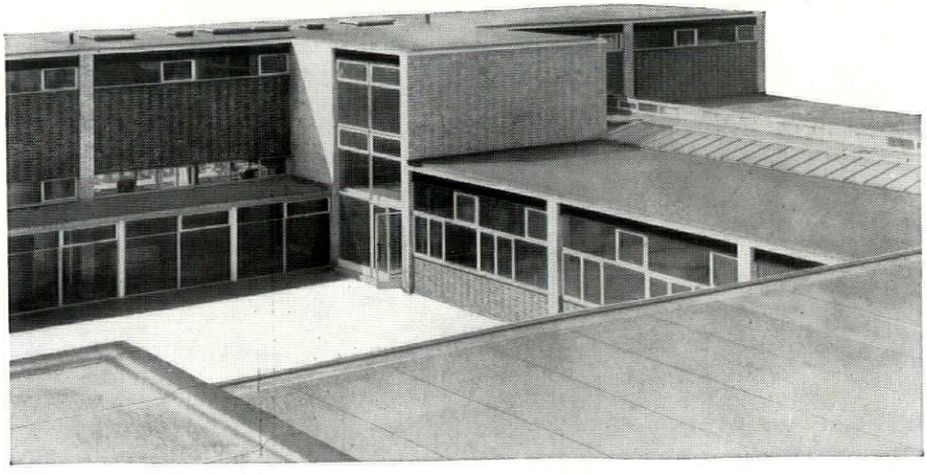

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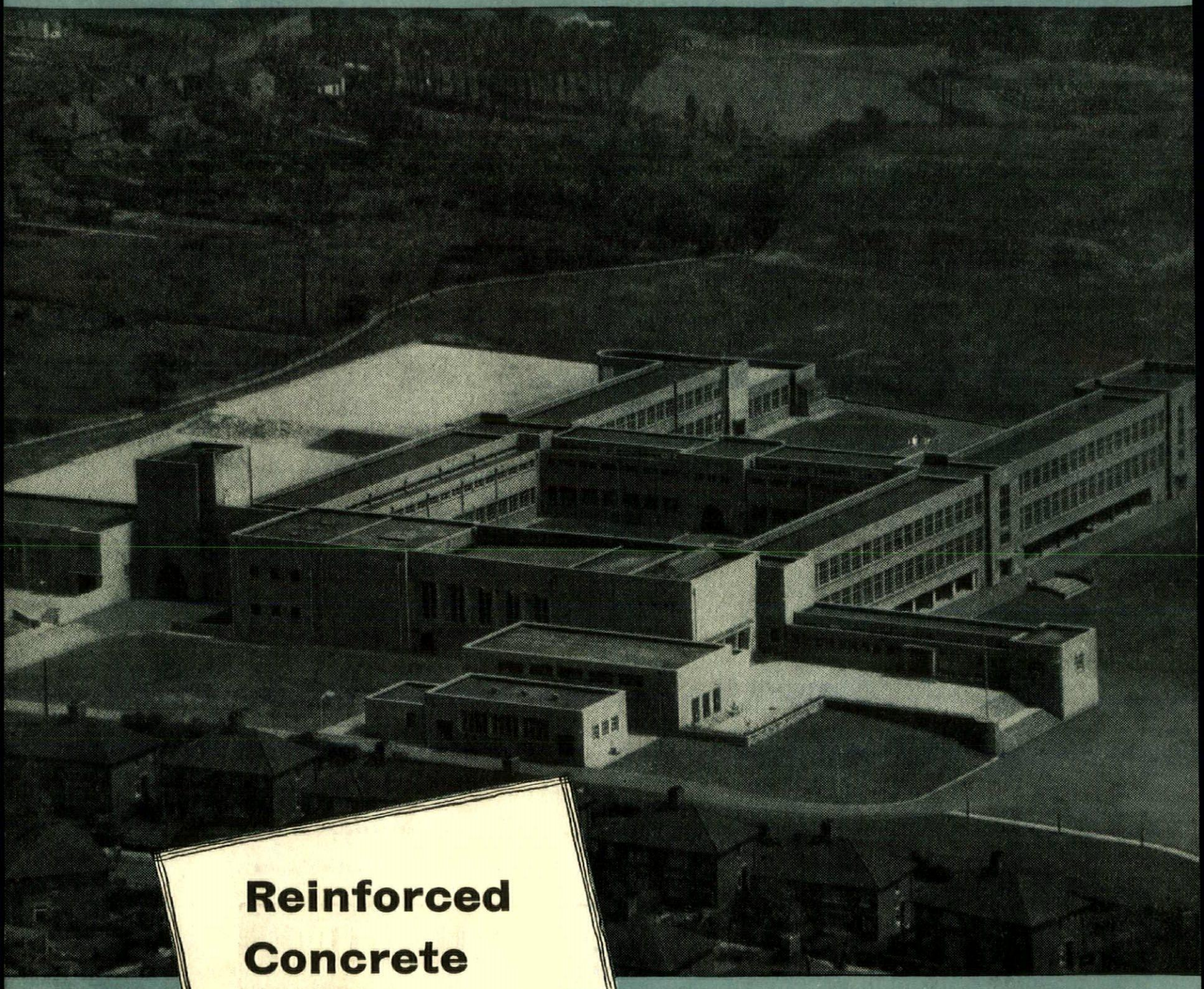

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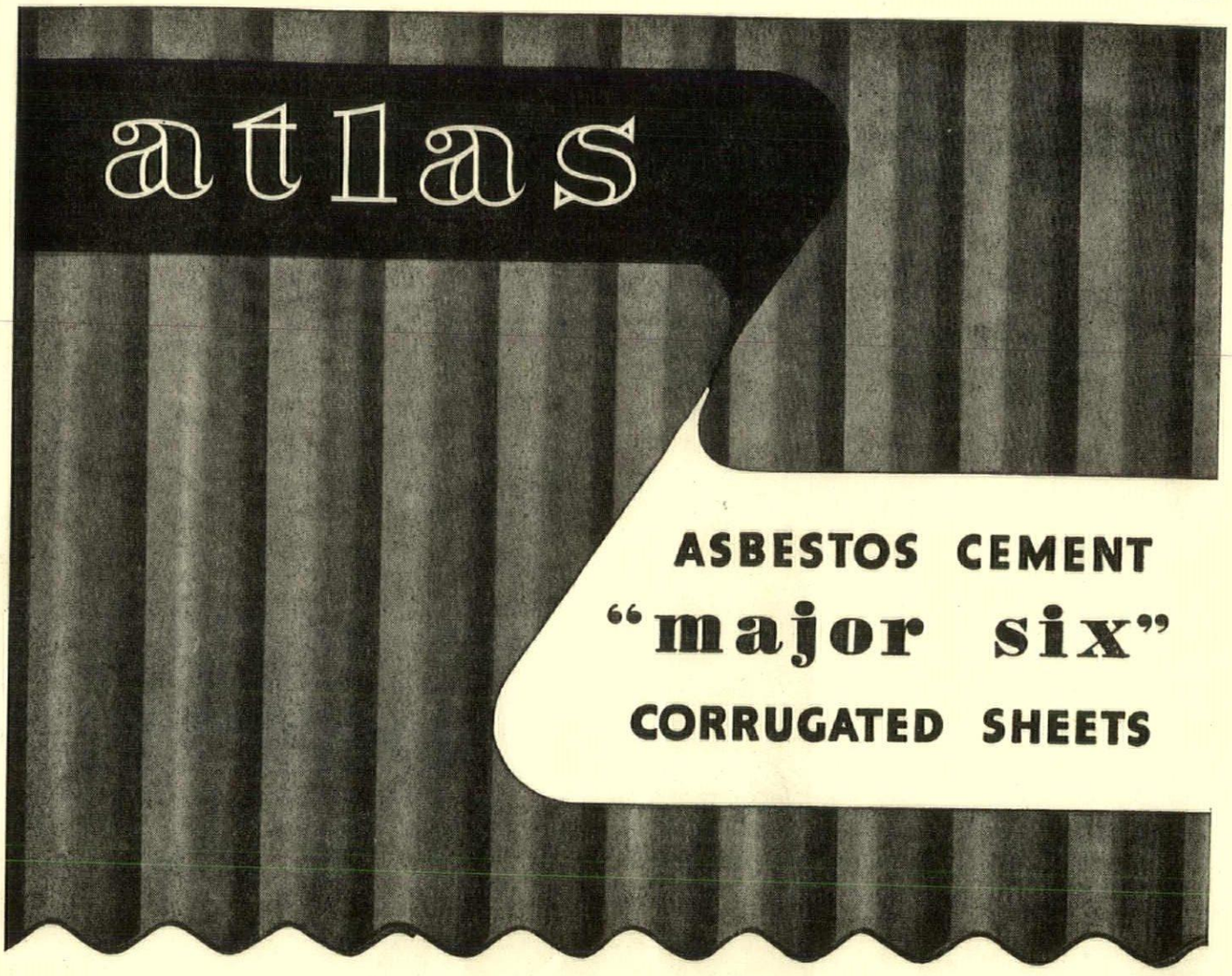

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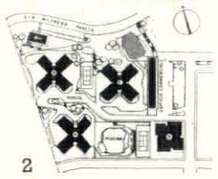
MARGINALIA

SGI VERNACULAR. Though less publicized than INA-Casa, the *Società Generale Immobiliare* (SGI) and its numerous *ad hoc* dependencies, is at present the busiest semi-public finance company in Italian building, and is responsible for much of the apartment house construction that goes to build up the picture of a new Italian vernacular that the visitor carries away from cities such as Rome. The quality of SGI-financed architecture is inevitably variable, but the average of recently completed work, as illustrated in the *Società's* 1956 report, is remarkable. Fair examples are the *Piazzale della Balduina* development, 3, and flats in the *Via Trionfale*, 4, both in Rome; flats in the *Viale Campania*, 5, Milan; and, in the subsistence-rental bracket, the *Via Valsesia* development in Rome, 6. The showpieces of SGI's recent work are undoubtedly the *Balduina* development, and the spectacular star-block scheme at *Vigna Clara*, 1. Now more than three-quarters completed, this latter will comprise, as the plan, 2, shows, three star-blocks, one point-block, a chapel, a commercial block with shops under, swimming pool and sports facilities, set in a luxurious and spectacular garden, and enjoying equally spectacular views of Rome.



1





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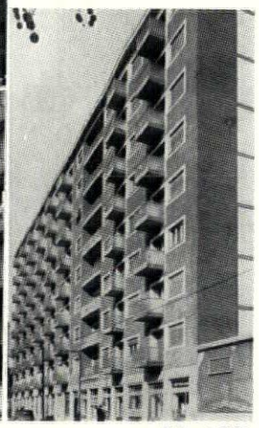
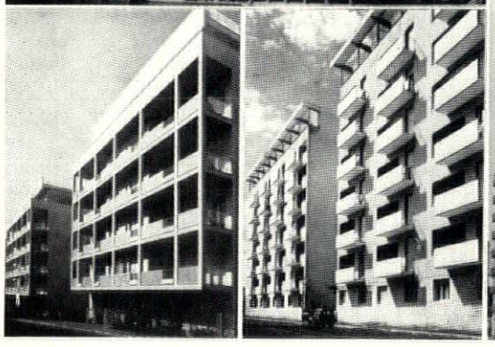
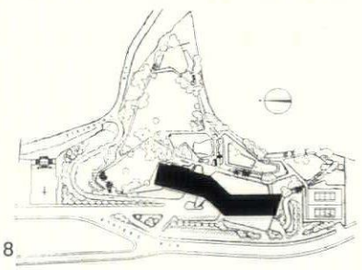




4, 5, 6

Bilancio 1955

CAVALIERI-HILTON, ROME. Few Hilton Hotel projects can have had so stormy a reception as that for Rome, where anti-American political sentiment combined with urbanistic alarm at the choice of site to produce strong resistance to the whole scheme. After some hard bargaining, however, between IANA (the sponsoring company, a co-dependency of SGI and Hilton Hotels International) the necessary waivers to the Rome master-plan were conceded by the City's town-planning commission on a majority vote. There, however, the scheme appears to have run aground again, a sub-committee having temporarily reversed the decision and there has been no further action—except that SGI (Società Generale Immobiliare) have at last published drawings of the project. The present state of the design (the unpublished first state was abandoned in the face of urbanistic opposition) is the work of Luccichenti, Piffera and Ressa, and is an indented ten-storey block, following the contour of the site, 7, with the fashionable 'missing' floor at the sixth. The plan of the site on the Monte Mario, 8, shows that the original town-planning objection still stands—the hotel is still too close to the church of the *Madonna della Rosaria*, but its new form is felt, apparently, to be less self-assertive than the first project.



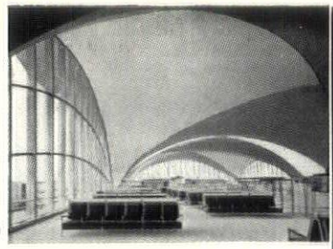
8



7

Bilancio 1955

U.S. CHANCERY IN LONDON. The modified version of Eero Saarinen's prize-winning design for the new U.S. Chancery building in Grosvenor Square, 11, is thought to represent closely the design which will be built. With all its external structural elements faced in Portland stone, the new design is still symmetrical in plan, but the main floor has been recessed and increased in height, thus giving a clearer architectural division between the public rooms and the offices which occupy the four floors above. The parapet of the highest floor has now been set back from the façade line, and has become, in fact, simply a screen wall to hide the lift machinery and other roof-top impedimenta. Estimated cost is now outside $4,000,000, work is expected to begin this autumn, and may take more than five years to complete.



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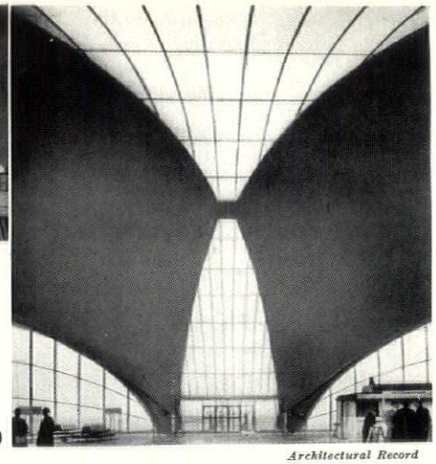


10

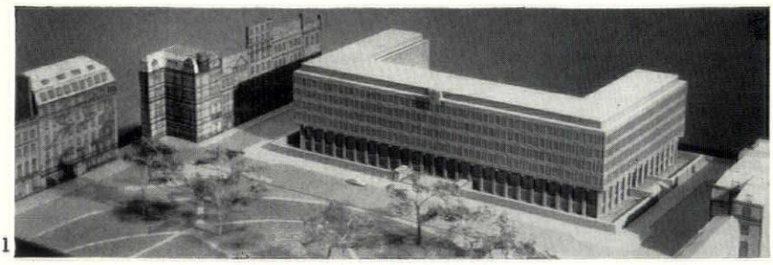
Architectural Record

AIRPORT CONCOURSE. Unlike most contemporary airports, whose dominating architectural features stem from the multi-level circulation by which bags and travellers are processed (AR, July, 1955) the new buildings at St. Louis emphasize the covering rather than the circulation. The architects, Hellmuth, Yamasaki and Leinweber, have housed all handling facilities under three giant concrete cross-vaults, 9, which shelter the upper, land-side concourse. Passengers go out to the apron by a covered walkway (finger), which starts a floor lower than the concourse, and baggage trucks circulate a floor lower again, at apron level, 10. The architectural effects under the great vaults are almost without parallel in recent American architecture, and it is not surprising to learn that they have earned Yamasaki a First Honor Award from the AIA.

Soane Drawings at Kenwood

For the first time in the history of the Sir John Soane's Museum drawings of the master have been allowed, by special Act of Parliament, to leave their home in Lincoln's Inn Fields. Since Soane's house, which must by his wish be left unaltered, is too full to allow any display of its multitude of drawings this emigration has given the public a rare opportunity of seeing them. At Kenwood one can now walk through the whole landscape of Soane's *œuvre*, as it were, and enjoy his buildings singly and together, for far from being highly technical plans, sections and elevations, the drawings on exhibition are large watercolours, giving a three-dimensional view of the intended building in such a way that at first glance they look like records of a building rather than designs for one. By this method Soane's æsthetic and artistic intention becomes much clearer: each building is set into its context: i.e., town or garden, with the light and shade distributed according to the architect's ideas. Although these designs were mostly not by Soane's hand but done by his assistants, no doubt they expressed his wishes.

A most revealing feature of the exhibition is the way it illustrates Soane's manner of lighting: the sources of interior lighting are, wherever possible, concealed or in diverse and unexpected places, transforming the seemingly cold and hard neo-classical architecture into



11



picturesque mellowness. To give a few examples: the '3 per cent Consols Office' windows behind a screen of columns, as though in a Gothic cathedral behind the triforium; the complex ceiling in the new Law Courts; the cellar-like appearance of the vestibule in Bentley Priory lit by stained glass windows; the lack of any visible light source in rooms in Aynho Park; the deep shadows on the façade of his own house, brought about by the double skin.

The drawings fall into two parts: Soane's own buildings and London buildings of the seventeenth and eighteenth centuries, many now destroyed, drawn by his workshop; e.g., Adam's *British Coffee House* in Cockspur Street, *The Courier* Office in the Strand, an 'early' Egyptian example, Burlington House and Carlton House. Soane must also have been the first architect interested in street furniture; there is a sheet with six different lamp-posts, and two with a pump-cum-lamp-post.

The exhibition, which is explained in a detailed and most excellent catalogue by Dorothy Stroud, will remain open until September.

Homes of the Academy

Several proud owners of eighteenth-century houses in London have of late brought out well produced pamphlets to tell and illustrate the story of their houses (Boulton & Paul, 41, Stanhope Gate; Royal Worcester China, 30, Curzon Street; Pilkington Brothers, Selwyn House; Consolidated Zinc Corporation, Ely House, Dover Street). The Royal Academy has joined them and its librarian, Mr. S. C. Hutchison, has indeed much to say and much to show.

The Royal Academy started life in 1768 in Pall Mall. The schools and administration then moved to Old Somerset House, and when Somerset House was rebuilt by Sir William Chambers, whose share in the creation of the academy had been great, the academy was given new and much enlarged quarters in the Strand range. The rooms are still there, although deprived of their former glamour. Access is from the gateway, by turning right. In 1836 the academy moved into Wilkins's building for the National Gallery, occupying its east half. But the gallery soon needed all the space and so, finally, in 1868, the academy entered its present home, Lord Burlington's house, built for him about 1715-16 by Colen Campbell, and the first purely Palladian house in London. By the time Sydney Smirke had finished with the exterior, it was no longer so pure, but more of the original building survives in the present façade than most people realize. One of Mr. Hutchison's illustrations shows the old front, another Smirke's drawing for the new.

The text of the pamphlet also takes in the development of the north side of the building and the Burlington Arcade. The history of the interior of Burlington House is extremely complicated; and Mr. Hutchison unravels it admirably. The pamphlet is called *The Homes of the Royal Academy* and can be bought for 2s. 6d.

St. Paul's

The Holford scheme for the precincts of St. Paul's Cathedral has been approved in principle by the City of London Court of Common Council, the London County Council and the Royal Fine Art Commission.

CORRESPONDENCE

Et Tu, Brute?

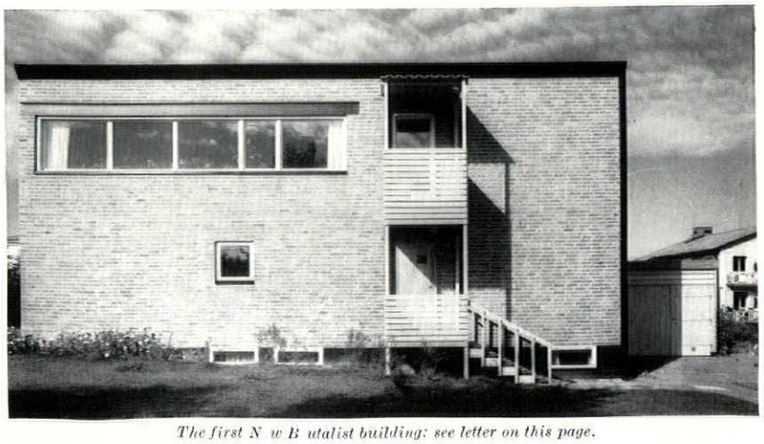
To the Editors,

SIRS,—The origin of the New Brutalism (see your article of last December) has become a subject for academic research, and you may be interested in the following letter which I have received from Hans Asplund, son of the late Gunnar Asplund: 'In January, 1950, I shared offices with my esteemed colleagues Bengt Edman and Lennart Holm. These architects were at the time designing a house in Uppsala. Judging from their drawings I called them, in a mildly sarcastic way, "Neo-Brutalists" (the Swedish word for New Brutalists). The following summer, at a jollification together with some English friends, among whom were Michael Ventris, Oliver Cox and Graeme Shankland, the term was mentioned again in a jocular fashion. When I visited the same friends in London last year they told me that they had brought the word back with them to England, and that it had spread like wildfire, and that it had, somewhat astoundingly, been adopted by a certain faction of young English architects. . .

'The situation seemed to me rather amusing, but I did not think more about it until the number of articles in THE ARCHITECTURAL REVIEW abounded, and the question of the movement's origin arose. Therefore I write this letter. I include a photograph (foot of page) of the first New Brutalist building by the architects Bengt Edman and Lennart Holm, even if they were not at the time conscious of the honour of being the founders of a new architectural movement. I personally think that it is still one of the very best buildings within this movement. I take no special pride in being the inventor of the word New Brutalism, being a Paleo-Sentimentalist myself. Yours affectionately, Hans Asplund.'

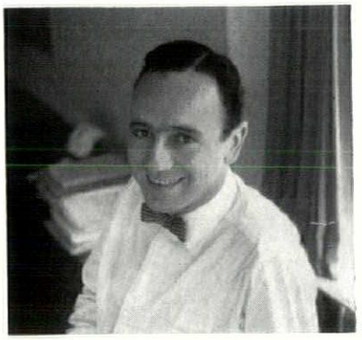
Yours, etc.

ERIC DE MARÉ.



The first N w B utalist building: see letter on this page.

Harry Seidler, architect of the five buildings in Australia, illustrated on pages 84–92; born in Vienna in 1923, remembers as a boy watching the workmen on the housing projects then being built by Vienna City Council. At 15 went to school in England and in 1940 was interned



and sent to Canada. After release, studied at the University of Manitoba and obtained his B.Arch. in 1944; won a scholarship for a post-graduate course at Harvard under Gropius, and received his master's degree in 1946. After a spell with Josef Albers at Black Mountain College, N.C., he became Breuer's assistant in New York, and then went to work with Niemeyer in Rio, before joining his parents who had emigrated to Australia. There he has come to be labelled a revolutionary, particularly by local government authorities with whom he has constant arguments over out-dated regulations and policies. These fights usually end up in court, but he has never lost a case yet and proceeds to build his houses. A bachelor, he lives and works in a house on the edge of Sydney Harbour.

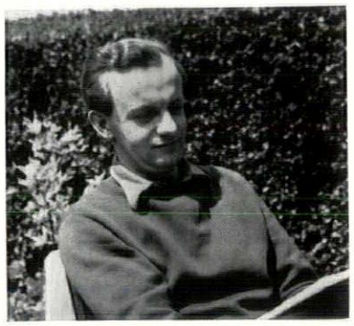
Architects of the house in Tynemouth, illustrated on pages 105-107: **Gordon Ryder,** born 1919. King's College School of Architecture, qualified 1944, Diploma in Town Planning 1945. Lecturer in the School of Architecture until commencement of work with Lubetkin at Peterlee, where he met **Peter Yates,** born 1920. Regent Polytechnic Diploma 1942. 1944 with SHAEF Advanced Field Headquarters. Worked with Clive Entwistle and Ove Arup on pyramid scheme for Crystal Palace. Assistant Chief Designer for Unité d'Informations Visuelles, Paris, an international





group designing exhibitions. Started joint practice 1950 at Newcastle-on-Tyne. Their work includes industrial buildings for British Ropes and British Plaster Board, two new gypsum and anhydrite mines, and two sailing clubs on the Northumberland coast.

Herbert Morel, architect of the house at Scarborough, illustrated on pages



107-108, is 31 years old and married to a physiotherapist. Educated in England and Canada, and served in the Royal Canadian Navy from 1943 to 1946; started his own practice in 1954. Last year joined R. Mountford Pigott and Michael Pigott in partnership.

ACKNOWLEDGMENTS

COVER, Galwey, Arphot. MARGINALIA: page 72, lamp standards, by permission of Curator of Sir John Soane's Museum; Brutalist House, Sundahl. FRONTISPIECE, page 74: Dell & Wainwright. ATELIERS D'ARTISTES, pages 77–83: P. R. Banham. BUILDINGS IN AUSTRALIA, pages 84–92: 1–4, Associated General Publications; 5, Max Dupain. TELFORD AND THE GÖTA CANAL, pages 93–9: 8, Akta; rest, E. de Maré. BINGHAM'S MELCOMBE, pages 100–4; Galwey. HOUSES AT TYNEMOUTH AND SCARBOROUGH, pages 105–8: Galwey. ALPHABET, pages 109–114: 1, 7, British Museum; 4, Galwey; 5, 6, Anderson, Rome; 10, Pickard of Leeds, Ltd.; 11, 12, Mrs. R. Ettinghausen. CURRENT ARCHITECTURE, pages 155–7: Cattle Market at Gloucester, Galwey; Factory at Poole, Toomey, Arphot; Assembly Hall at Offley, J. R. Pantlin. MISCELLANY, pages 118–124: Cannon Street Station, Nairn, Arphot. Piper window, Galwey. Exhibitions: 1, R. B. Fleming; 5, Butt. Doncaster Civic Centre, Wainwright. SKILL, Design Review, Victoria and Albert Museum. Techniques: 1–4, Charbonnages de France; 5, 6, S. Lambert.

THE ARCHITECTURAL REVIEW

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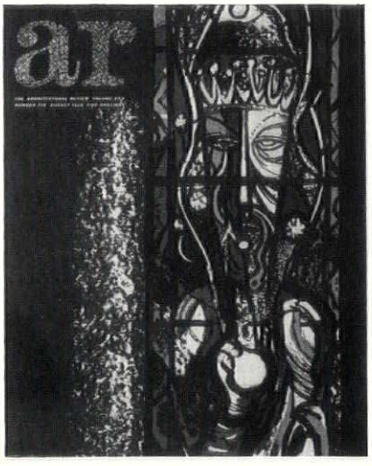

The cover is based on a drawing, made specially for this purpose, by John Piper; it depicts part of one of the three stained glass windows that he has designed for the school chapel at Oundle—see pages 118-119. They were executed by Patrick Reyntiens, and consist of nine lights, each with a symbolic figure of Christ. The figure shown symbolizes the Living Bread and occupies the central light of the middle window.

71 **Marginalia**

72 **Correspondence**

74 **Frontispiece**

75 **Ateliers d'Artistes** *by Reyner Banham* Oversize windows are a commonplace of Modern Movement building practice, but though they may be regarded in the abstract as a good thing, there are very sound practical reasons for avoiding them—unless one has an overriding functional justification. One class of client alone had such a justification in the early 'twenties, the artist, and Mr. Banham's article studies and surveys the part played by the need for ample north-lighting in the early work of the masters of the school of Paris. Mallet-Stevens, Andre Lurçat, Le Corbusier inherited, along with the studio-house as a building-type, a variety of vernacular practices which they re-used and re-grouped according to their own new aesthetic principles. They thus created a new vernacular which, by the beginning of the 'thirties, was able to continue under its own momentum without the impetus of major designers. But at the same time they created, in their compact artist-quarter developments, the first characteristic street-scapes of the Modern Movement, and the ranks of giant north-light windows passed into the popular imagination as proper to the movement as a whole.

84 **Five Buildings in Australia:** *Architect, Harry Seidler*

93 **Telford and the Göta Canal** *by Eric de Maré* The Göta Canal, a term which now describes a chain of navigable lakes and rivers, as well as the man-made cuts that join them, was the dream and life-work of a Swedish nobleman, Admiral Count Baltzar von Platen. The earliest project for such a canal had been devised as early as 1780, by two Swedish engineers following the principles of English canal builders, but the Count did his own research, published in 1806, and state support was voted for his project in 1809. The scheme was carried out under the supervision of a staff of English and Scottish engineers, following a master-plan drawn up by Thomas Telford, who laid down the line to be followed in a mere twenty days in the August of 1808. Between Telford and the Count there then ensued a correspondence that lasted until the year of the Count's death, 1829, three years before the canal was completed. The Count's letters have been preserved in England; Telford's, long thought to be lost, have been largely recovered by Mr. de Maré, and enable him to give a serial and sympathetic picture of the reciprocity of two determined and energetic minds.

100 **Bingham's Melcombe** *by Gordon Cullen* England's growing body of absentee landlords, the public authorities, who control large areas of countryside they do not live on, have evolved a number of rule-of-thumb compromises for dealing with landscape problems, rules of thumb that arise from a conception of landscape not as something seen, but as the battle-ground of warring pressure groups. How disastrous such rules may be in their effects can be demonstrated by the case of Bingham's Melcombe, a scheduled house in a valley that has also been recommended for scheduling. Here the rule of thumb that power lines should be taken through valleys in order to avoid conspicuous siting of pylons on hill-tops has resulted in a serious threat to a landscape of recognized value. The new owner of the house managed to get the Local Planning Authority and the Central Electricity Authority to agree to a modification in the routing of the power-line, but the Local Authority have subsequently changed their minds. Mr. Cullen shows with photographs and drawings what is at stake, and proposes a more radical re-routing of the wires.

105 **House at Tynemouth:** *Architects, Ryder and Yates*

107 **House at Scarborough:** *Architect, Herbert Morel*

109 **Alphabet** *by Nicolete Gray* If Trajan is not the be-all and end-all of lettering, and if it is admitted that the classical theory that goes with it covers only a small part of the possibilities of lettering as an art, what then is the nature and extent of that art? Mrs. Gray scouts the idea that legibility is all, any more than function is the whole of architecture as an art, and she sets out to survey the range of possibility, the qualities of meaning, the sense of geometry, of material, and setting that are covered by the heritage of non-Trajanic, and non-European lettering that we possess. She finds the meaning of the words, the intentions of the artist and his response to the mode in which the message is to be presented to be among the most vital factors in determining the quality of any piece of lettering, architectural or otherwise, and shows that even legibility is not dependent on any rigid canon of letter-form.

115 **Current Architecture**

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119 **Exhibitions**

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120 **Project**

123 **Books**

Skill

125 **Doctors' Room at Colchester:** *Architect, R. D. Russell*

126 **Design Review: A Calendar of English Furnishing Textiles: 1775-1905,** *by Peter Floud* While preparing a recent historical exhibition of English chintzes, Mr. Floud was able to study more than 30,000 unpublished but dated patterns in manufacturers' books. His article provides a systematic pictorial sampling of the material covered, and shows that far from there being a single traditional English style there was a very rapid turnover of styles and fashions for almost a century and a half.

134 **Techniques: How Should We Use Plastics ?:** *by Bruce Martin*

140 **Contractors, etc.**

Author: *Peter Floud*, born in 1911, and at the Victoria & Albert Museum since 1935. Organised the V. & A. Centenary exhibition, 1952; especially interested in the textiles and prints, and decorative arts generally of the last hundred years.

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FIVE SHILLINGS



The massive abutment arches of Cannon Street Station, opposite  *, are among the solid triumphs of the Functional Tradition in the Nineteenth Century, just as the flanking towers of its riverward gable are a rare instance of a successful architectural flourish on a building of this kind. Such architecture begins to be valued at its true worth these days, but a sense of its value is still lacking in some quarters—so lacking indeed that a series of alterations, amounting to mutilations (detailed on pages 118-119) of a sort that no-one would dare to suggest for an eighteenth-century building, including lowering the roof and removing the towers, has been proposed by British Railways.*

Reyner Banham

ATELIERS D'ARTISTES

PARIS STUDIO HOUSES AND THE MODERN MOVEMENT

Though the concept of the all-glass façade has been an article of faith in Modern Architecture ever since it became conscious of itself in the early 'twenties, the popular idea of contemporary fenestration is apt to be a solid wall with large windows punched in it. This indeed is often the layman's total conception of modern architecture, apart from the flat roof, and out of the variety of historical accidents which have combined to build up the popular idea of the New Architecture those connected with the large window are among the most important, and the most closely connected with the facts of history rather than the pious hopes of Modern Movement hagiography.

As an architectural element the large window is recognized as an expensive luxury, and a winter-time heat-waster which in summer can turn the room behind it into a furnace. Whatever the aesthetic attractions of large areas of glass, these practical disadvantages are likely to have been insuperable when building, as most modern architects have had to, against a very tight budget—except where a client had valid functional reasons to insist on it. A brief survey of the work of the masters of the 'twenties will show at once who that client was—the artist.

In Paris, the artist's studio-house had become by 1900 a recognized building type, and Le Corbusier, for instance, distinguishes between *villas* and *ateliers d'artistes* throughout the period covered by Vol. I of his *Oeuvre Complète*, even where an examination of the plans would hardly reveal any difference. The distinction existed in the mind of the Paris estate agent long before Lurçat was talking of designing every house *selon son programme particulier*, just as the studio-house (and the studio apartment-block) had existed since

the turn of the century and had become a profitable speculative venture as Paris became the irresistible magnet of painters from all over the world.

The functional and structural problems of this wide-glazed building type were not readily soluble within the range of precepts which could be acquired in a *Beaux-Arts* training, and the studio-builders of the *Art-Nouveau* epoch had begun to look elsewhere. Twenty years before the pseudonymous contributors to *l'Esprit Nouveau* had begun to sing the praises of industrial buildings, the studio-house vernacular had taken up the flush window and vertical glazing-bars, not to mention the combination of window and hauling-up hatch, which were established in warehouse and workshop building practice all over northern Europe (this device appears to be of Hanse gothic derivation, even) and they had also taken up from the Paris workshop tradition a form of frame-and-fill construction, equally usable in wood or concrete, which visitors to Le Corbusier's *Palais du Peuple* will have noticed in factories in the area between the Avenue des Gobelins and the Rue des Cordeliers.

Thus the architects of the 'twenties took over an existing problem and with it some existing solutions—their peculiar contribution was to devise an architectural idiom into which they could be incorporated without strain. They examined the existing vernacular elements in the studio-house tradition, they took over new ones, and subsumed them in a new aesthetic whose formal discipline drew on the experimental painting of the post-Cubist epoch. The result of these labours, and of the peculiar economic situation in which they took place, was the evolution of the first truly contemporary vernacular.

The part played by the economic situation was specific and unprecedented. Possibly under the influence of the Wiener Werkstätte, the idea of an artist-colony designed largely or exclusively by a single architect had some currency in Paris in the early 'twenties, and was regarded as a proper field of speculative activity for the young designer. Thus, Mallat-Stevens built the *rue* which bears his name, though it is fast disappearing under a tidal wave of high-rental apartment-blocks, André Lurçat built most of the Villa Seurat, and Le Corbusier launched developments in Boulogne-Billancourt, and Vaucresson, the former moderately successful, the latter emphatically not so.

The consequence of this colony-building activity, which accounts for a very large part of the output of these three architects, was that when the visitor to Paris went to look at the New Architecture he was liable to find himself in a street lined on at least one side with giant windows punched into white-rendered façades. This would be the visitor's first impression of the new architecture, and therefore the best remembered.

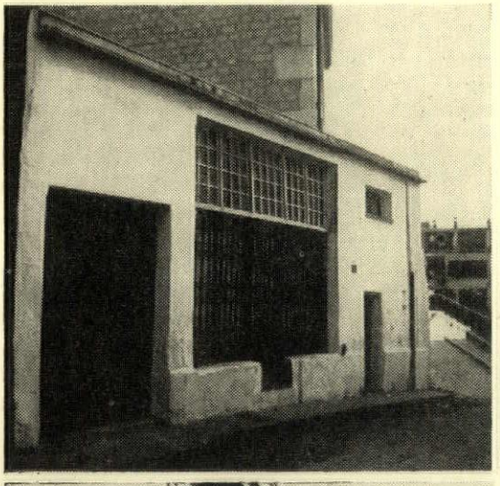
But, further, the parasite classes who make the Paris art-world economically workable —the critics, dealers and collectors—were soon moving into these artist colonies as well, and finding that the standard two-storey studio with its double-height window made an uncommonly exciting living room. But at least one great modern architect, a studio-house builder himself, had discovered this as early as his *Maison Citrohan* of 1922, and from then on, throughout Le Corbusier's career, the standard studio-house section, deep in plan, windows across the narrow ends, high living-room with bedroom-balcony at the back, persists like a *leit-motif*. It appears in the *Pavillon de l'Esprit Nouveau*, in the single house at Wiessenhof, in the *Maison Guiette*, in the *Clarté* flats, and reaches its apotheosis at Marseilles. Even if we can't all become artists, Le Corbusier has helped a lot of people to live like them.



1

the problem

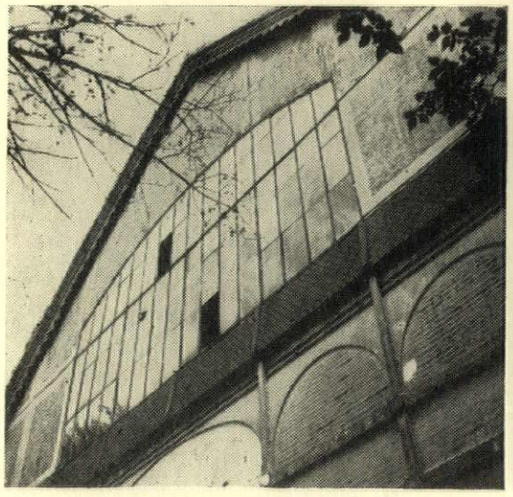
The basic problem of studio-house design is clearly established, 1, by this pre-Modern Movement example at 12, Rue des Artistes. To create, within the limits of a Parisian house plot, even within the limitations of a standard Parisian house structure, a room large enough to serve as a studio is not difficult. To give that room the fenestration it needs is not structurally difficult either, but to bring that fenestration within the normal disciplines of façade-composition was another problem, not to be solved by Beaux-Arts rules of thumb.



2

vernacular exemplars

Though the asymmetrical freedoms necessary to solve the problem of the studio-house façade were ultimately to come from painting, there were powerful hints to be gleaned from the vernacular architecture of old Paris. Sanctioned as interesting by the art of Utrillo, buildings like 2, a saddler's shop near the Place du Tertre, offered not only a functional-traditional suavity of untutored composition, but also a window-type whose square form with a central step-down for a door often reappears in studio-houses. The characteristic glazing of studio windows, with tall narrow panes, also derives from a local industrial vernacular, and can be found all over Paris. The particular example seen in 3 is the street-front gable of a garage, dating back to the first years of the century, in the Boulevard St. Jacques. Through industrial needs this window type broke through into the realm of 'fine' architecture independently of studio building, and appears on the characteristic type of Paris electricity sub-station, built in the early 'twenties. 4 is an example from near the Gare St. Lazare.



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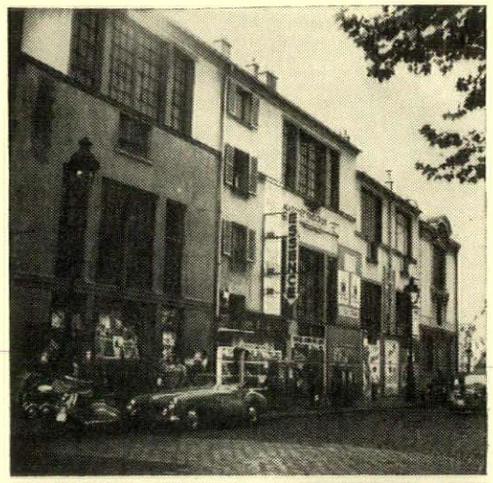

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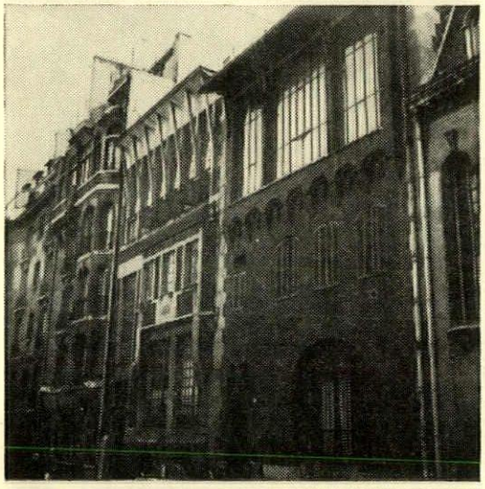

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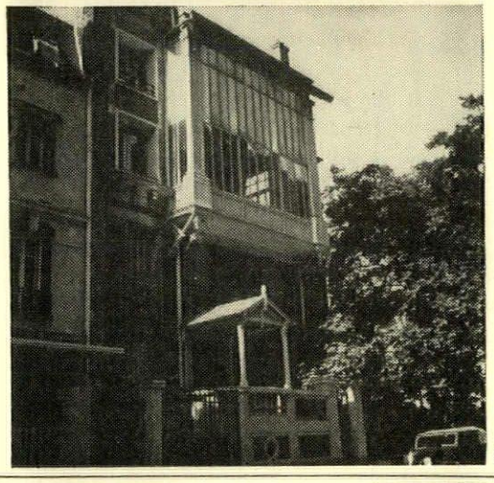

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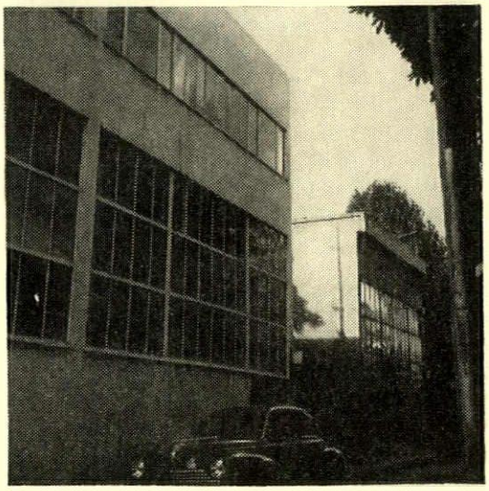


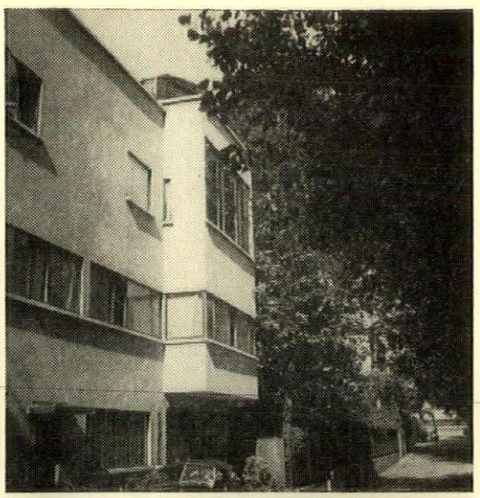
8

pre-modern

As a building type, the studio-house was already well established in the first decade of the century. In 5 are seen early spec.-builders' studio-apartment houses in the Boulevard Rochechouart at the foot of Montmartre. The use of the central step-down in the cill of the main window appears to be merely formal in the nearest example, or else this is a vision window provided because the main spread of illuminating glazing is above the occupant's eye level. In architect-designed examples, the compositional difficulties presented by the oversize window were sometimes avoided by spreading the studio window right across the top floor, as in these two in the Rue Cassini, 6, of which the further one, by Henri Guérin, is dated 1906. Only occasionally are the compositional difficulties exploited for picturesque effect, and 7, which has the rare advantage of a corner site, is a fine omnium-gatherum of vernacular usages (such as the boxed-out window), arts-and-crafts woodwork, industrial glazing, and a portico that must surely have come from Giotto's frescoes in Padua.

vernacular in use

The use that the pioneer moderns could make of these various vernacular elements is well shown in the earlier studio-houses of Le Corbusier. Nowhere among the studios of the 'twenties does one find the oversize window and the tall narrow glazing used with more ease and conviction than in his Meistchaninoff and Lipchitz houses, 8, where the vernacular elements have been fully digested, but have not become arty, as did some other parts of these houses (see 34, below). The boxed-out window is also used by Le Corbusier, but usually



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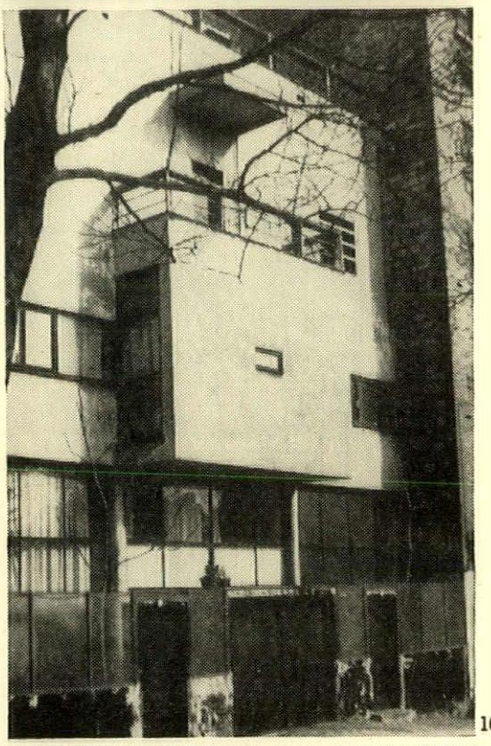

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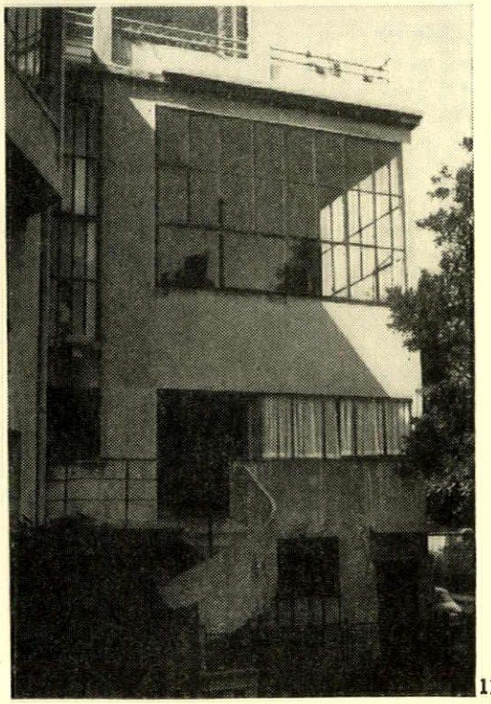
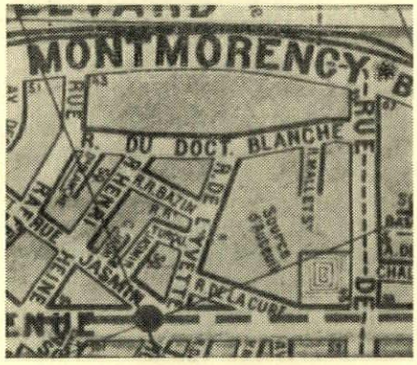
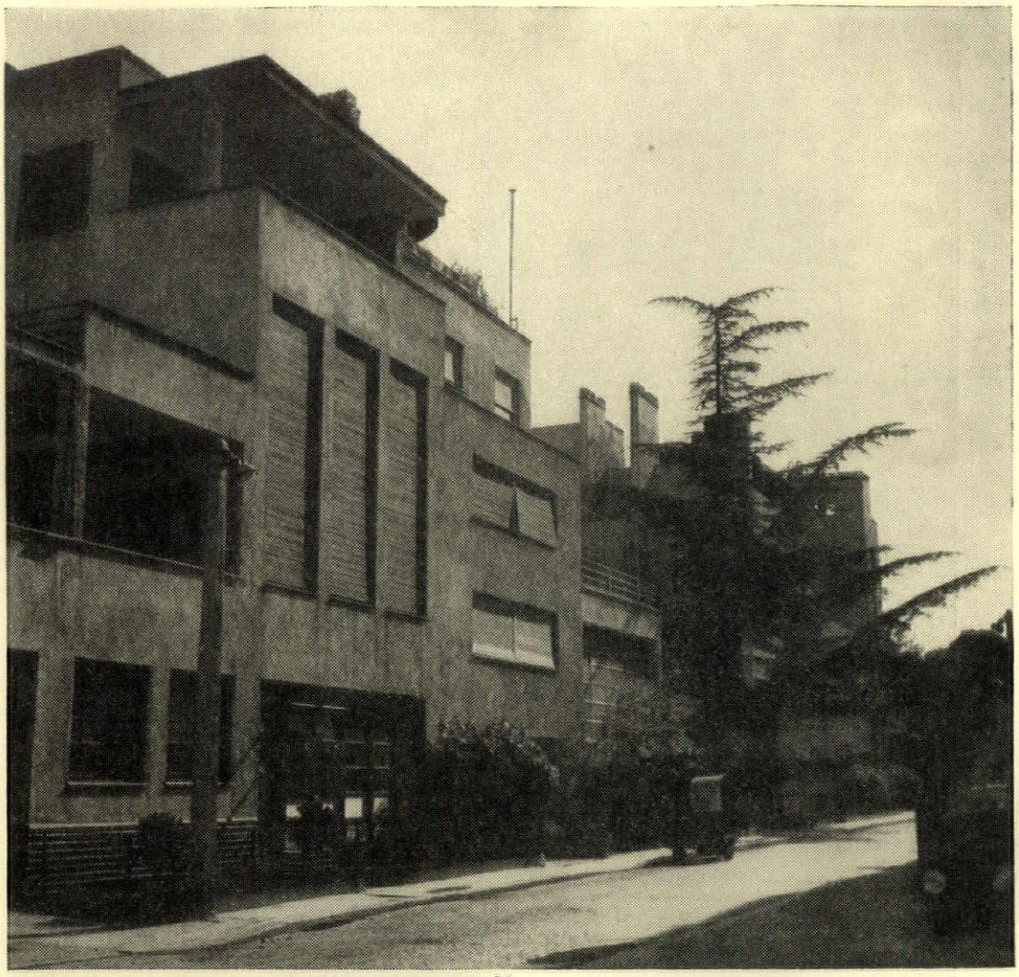


11

in a rather skittish way—on the Jeanneret house in the Square du Docteur Blanche, 9, it boxes two separate storeys together and on Maisons Plainex, 10, notoriously one of his most 'mannerist' compositions, the whole idea of the box-out as a means of providing a giant window is wittily contradicted. Neither witticisms nor mannerisms affect the Maison Ozenfant, 11, at the end of the Square du Parc Montsouris. Now deprived of its saw-tooth northlights, the house reveals more clearly than ever how Le Corbusier, faced with the same problem as the architect of 7, has solved the corner-studio problem with ease and elegance —ease and elegance that owe more than a little to the art of Mondriaan and van Doesburg.

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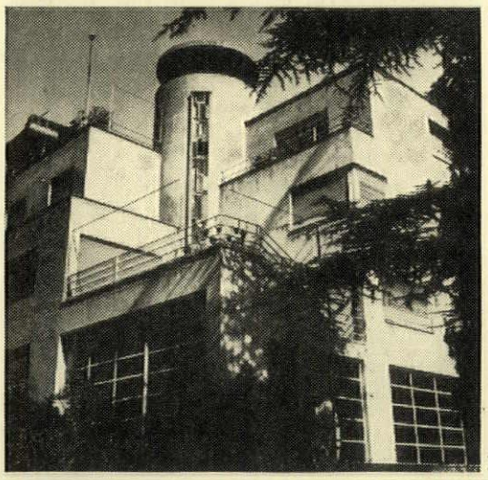

13

mallet-stevens

Much studio building of the 'twenties was concentrated in compact developments, of which the most opulent was the Rue Mallet-Stevens, 12. The sites allow elbow-room for experiments in massing, and the pyramidal composition of 13 is fairly typical. The area is being rapidly redeveloped, but half the Rue Mallet-Stevens still survives, and quite near at hand the visitor will find 9 and 7.


14

montsouris

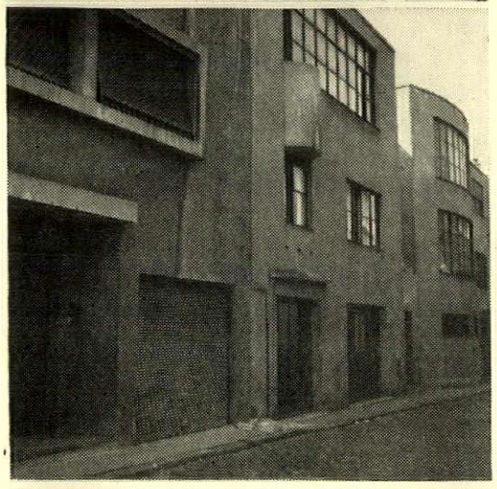
The happiest hunting-ground for the studio-house fancier is the triangle of land between the Parc Montsouris and the Rue de la Tombe-Issoire, a north-facing slope that edges off toward the greenery of the park on the east. Handy for the Cité Universitaire, served by the Ligne de Sceaux, cooled in summer by the Reservoir de Vannes, it is an admirable, if over-crowded, site for an artist quarter. Here one will find 1 and 11; the mysterious Rue Gauguet (see 38, 39, 40) as well as the buildings that are about to be dealt with in the



15



16



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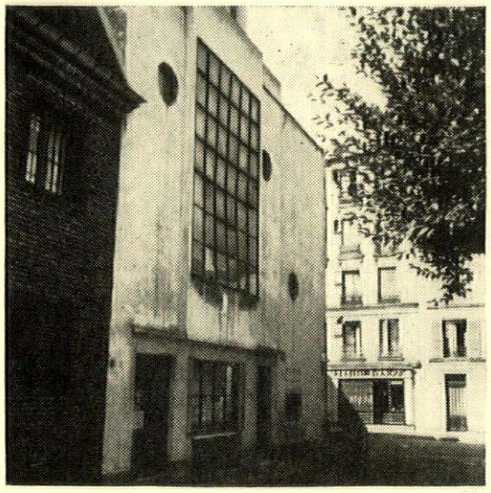
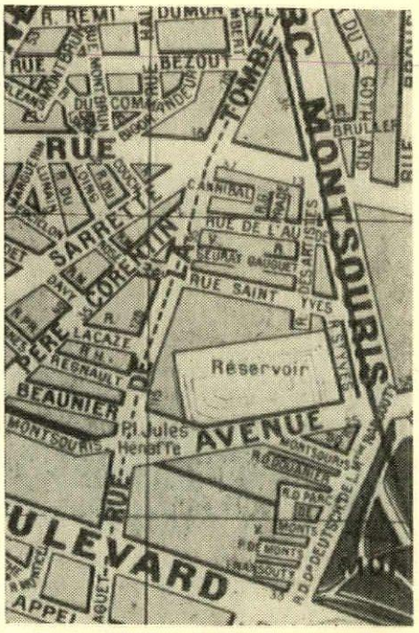


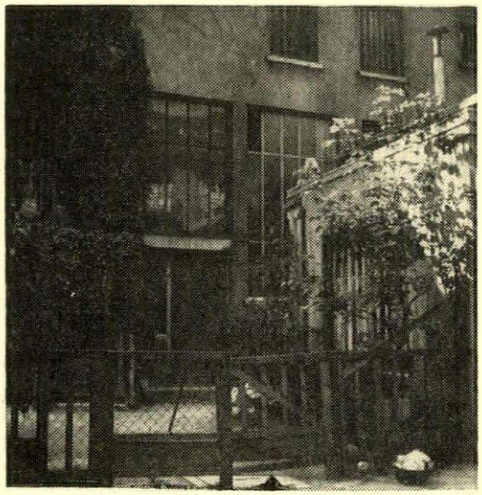
18

Villa Seurat and the Rue du Douanier. (Both Georges Seurat and the *douanier* Rousseau lived in this area and gave their names to streets. By this token the Rue Gauguet ought by rights shortly to be renamed *Impasse Nicolas de Staël.*) The most important single development within this area is the Villa Seurat, of which André Lurçat was the leading promoter, and designed



eight of the houses in it. Like the Rue Gauguet, on to which it backs, it is an *impasse* and although its development was not consistent, the buildings are nearer 1930 as one approaches the closed end.

In 14 (preceding page) one sees practically the whole south side of the *Villa*, and this shows the variety of styles with which 'modern' had to compete. Closer inspection reveals, 15, a tiny house by Lurçat with his characteristic symmetrical pattern of glazing bars



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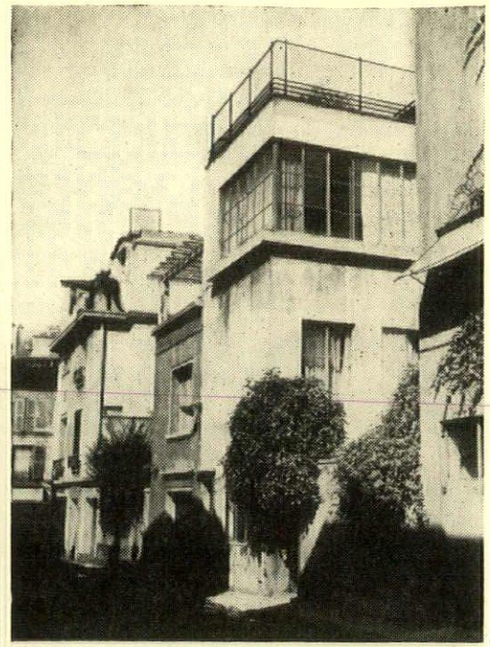

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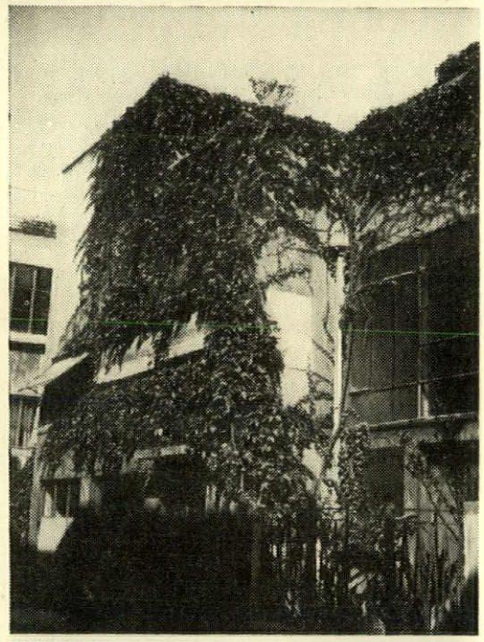

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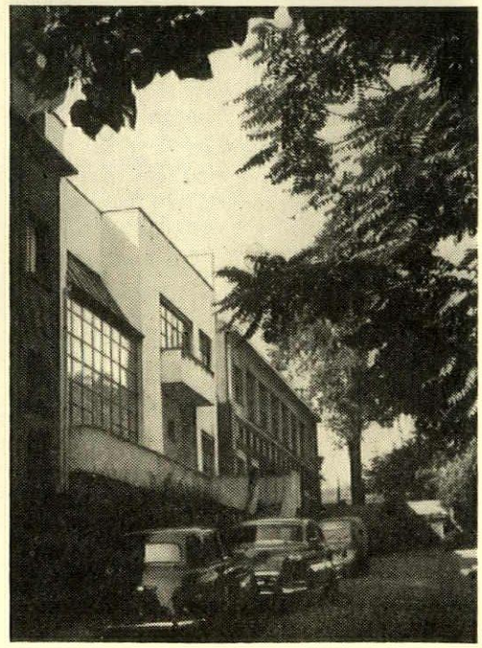
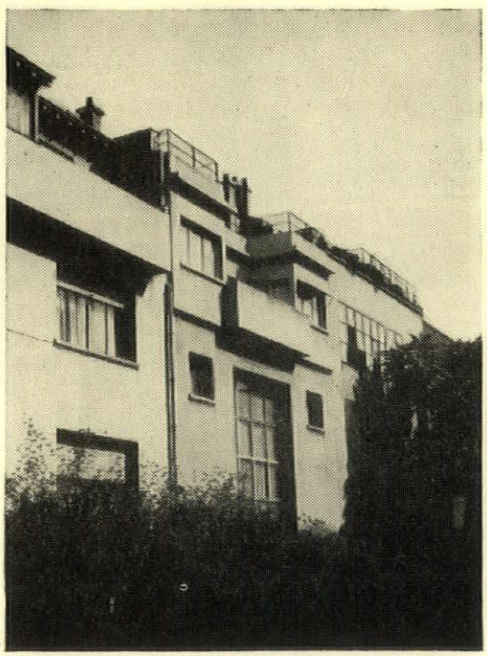


22

and a roof terrace, and in 16, cheek by jowl with a rare piece of French Expressionism, Chana Orloff's house by Auguste Perret, perhaps the most distinguished piece of architecture in the district. Nearer yet to the open end of the street are two more excellent houses by Lurçat, 17, still inhabited by their original owners of the post-Cubist generation, such as André Gromaire, and Lurçat's famous brother, the *tapissier*. The house actually on the corner, Lurçat again, is not one of his happiest designs, 18, and is in a poor state of repair, but right back at the other end of the street, 19, a cluster of apparently architectless studios contrive to look well, and have weathered well.

On the north side of the street, where the houses have their northlight windows on the side away from the thoroughfare and there is no need to build up solidly to the pavement, designs are free and varied. Here, 20, 21, on a small scale, Lurçat has room to achieve almost the freedom and picturesque silhouette of the Rue Mallet-Stevens. But it is only on the side toward the park that this area really affords much opportunity for adventure in design, and the steep fall of a street like the Rue du Douanier, where Braque lives, makes even relatively dull buildings, 22 and 23, look attractive among their trees.



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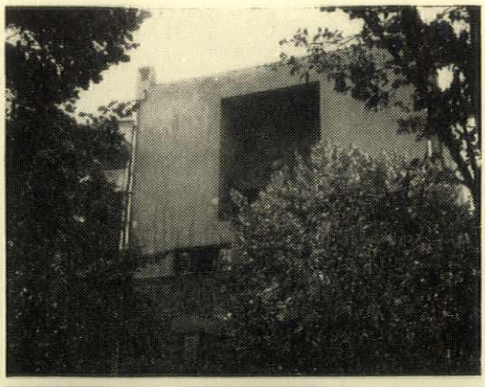

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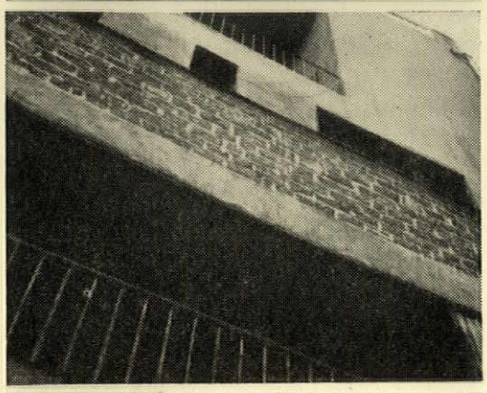


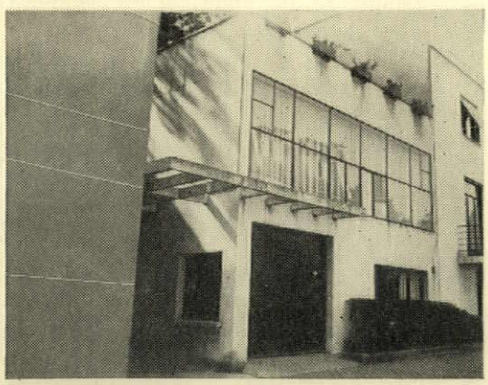
25



26

montmartre

Curiously enough, Montmartre has practically nothing of interest to offer from the 'twenties, apart from some humorous examples of late Art Nouveau —and the house which Adolf Loos built for Tristan Tzara in the Avenue Junot. Although it is hardly correct to call this a studio-house, its originality and its site seem to justify its inclusion among the studio class of building. Trees now mask its façade, so that one tends to see its extraordinary management of the upper storeys, rising out of a mass of foliage, 24, a setting that enhances the strangeness of illuminating two whole floors from windows boxed back into a re-entrant like Maison Plainex (see 10, above) inside out. However, a view up the façade from close quarters, 25, emphasises that this is a glyptic exercise in cutting holes in a flat wall. The back, accessible from an alley called L'Hameau des Artistes, is quite different in feeling, 26, and makes a much stronger show of structure, fenestration and grillage.



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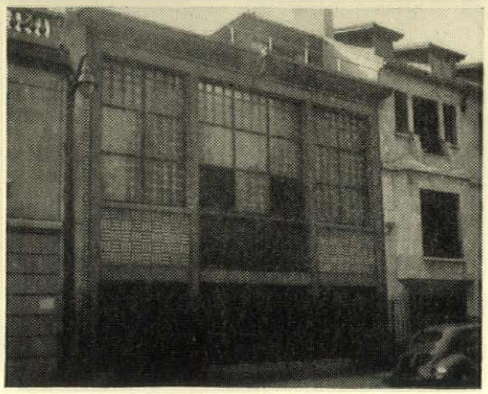
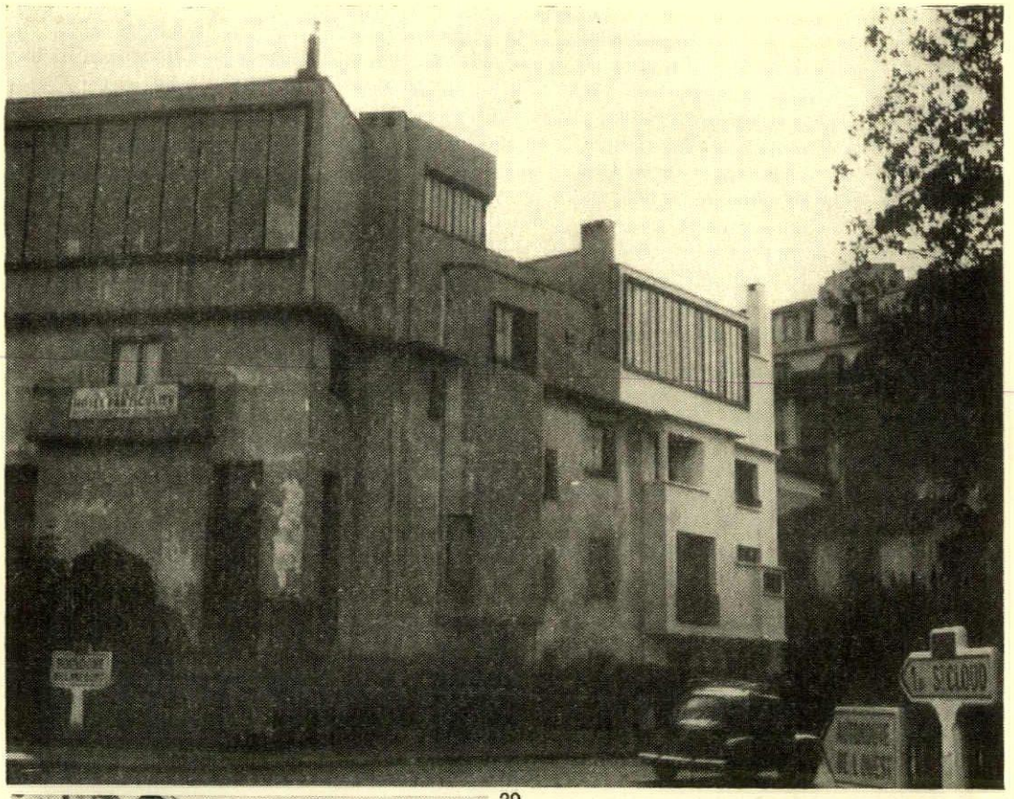


28

rue du belvedere

The studio-house is a suburban, as well as a central-area, building type. Just beyond the circuit of the boulevards, in the Rue du Belvedere in the southerly part of the Bois, one finds this nicely contrasted pair: a Lurçat of 1927, and an exercise (by an unknown hand) in the style of Perret's Orloff house (see 16, above). The Lurçat, 27, exploits the site and the functional programme to create an asymmetrical frontage to the street, while the Perret-follower, 28, emphasises his frame in order to pull the same unbalanced elements (small front door, large garage door) into a balanced composition. But one observes that in the glazing of the studio window itself Lurçat (as in 15, above) has contrived a symmetrical pattern like a pair of Mondriaans backed up on one another.



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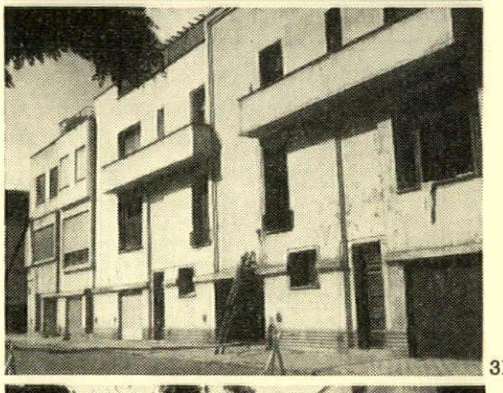
30



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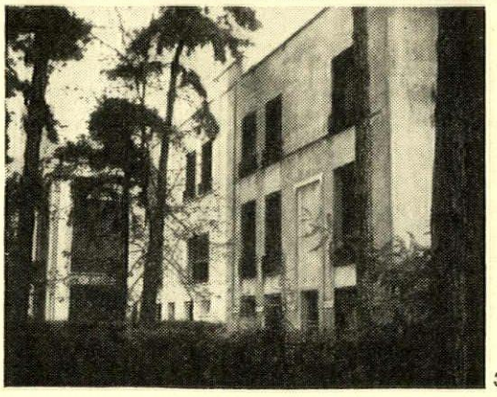
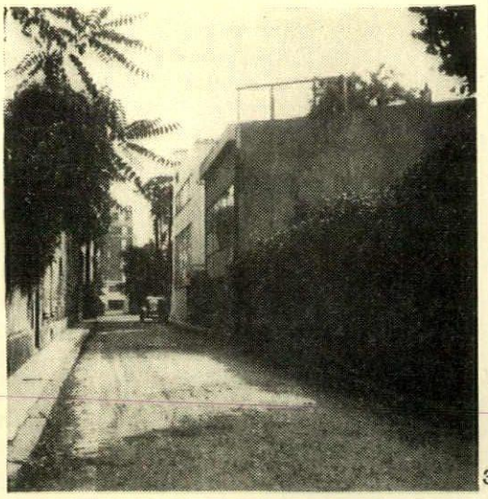


32

chaos in the bois

Beyond the Rue du Belvedere, deeper into the pines and gravel of the Bois, one comes on one of the strangest areas of stylistic confusion in the whole of the Paris suburbs. It announces itself at the first kilometre-post of the Autoroute de l'Ouest with this mad, though obviously deliberate jumble of studios, 29, known locally as *le Kasbah*.

Quite near at hand (just out of this picture to the right) is the sampling of façade treatments seen in 30. As far as can be ascertained the centre house is the oldest, presumably by the same hand as the *Kasbah*; the neo-Classic affair (which appears to have a studio behind the pedimented window) is next, and the most distant house, as might be guessed from its pre-cast cladding, is the most recent. The mental superficiality that accounts for this outward confusion is well shown by another neighbouring group of houses whose fronts, 31, are *très moderne*, but whose backs, 32 could have been designed almost any time over the last two centuries.



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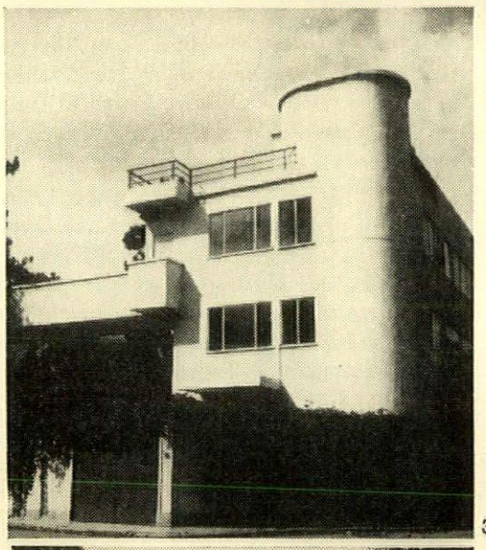

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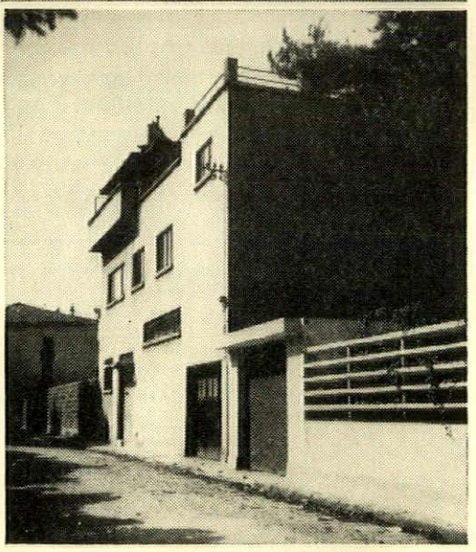

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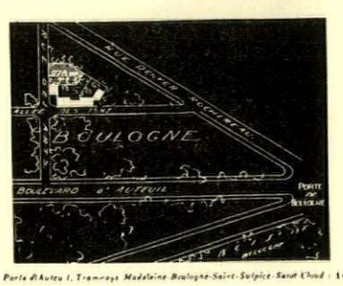


BOULOGNE Porte d'Auteuil, Tramways Madeleine Boulogne-Saint-Sulpice-Saint Cloud : 145 fr. le m²

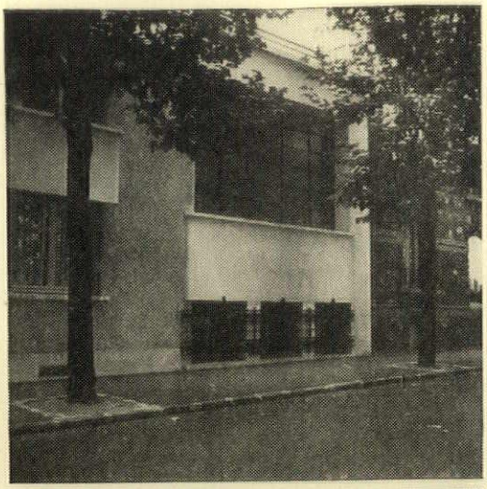
LOTISSEMENTS POUR VILLAS ou ATELIERS D'ARTISTES, terrains disponibles, sur esquisses de LE CORBUSIER

Prendre rendez-vous par écrit chez M. Pierre JEANNERET, Architecte à Paris, 35, Rue de Sèvres

36

le corbusier

But within the triangles of roads that meet in 29 this fuss and ostentation is forgotten; one enters a world of ideal Paris suburbia where exotic trees peer over garden walls and gravelled roads glisten in the impressionist sunlight of the Seine Valley. It is here, 33, that one finds Le Corbusier's documented, but rarely visited, Boulogne development, at the crossing of the appropriately named Rue des Arts and Allée des Pins. The Lipchitz and Meistchaninoff houses, which are here, found Le Corbusier in his most machine-æsthetic frame of mind. This, undoubtedly, accounts for the excellent handling of the studio windows (see 8, above) but it also accounts for the game of ships which he plays with the Meistchaninoff house, 34, with its smoke-stack-shaped stairhead, the busy display of nautical handrails and look-out posts—and the bridge at second-storey level which can be seen running out of the picture to the left. For some time after the house was completed (1924) this bridge stopped in space, supported on the party-wall of a building that had still to be erected. When that building was completed, 35, it did not look much like a work of Le Corbusier, nor has he ever admitted authorship of it, yet the site was one which he had advertised in 1923 in *L'Esprit Nouveau*, 36, for development *sur esquisses de le Corbusier*. Conceivably this was one of his speculative ventures that went astray, as at Vaucresson where the same advertisement showed eight plots for development at the back of his ill-fated villa of 1923, though not one of these plots has a house by Le Corbusier on it now.



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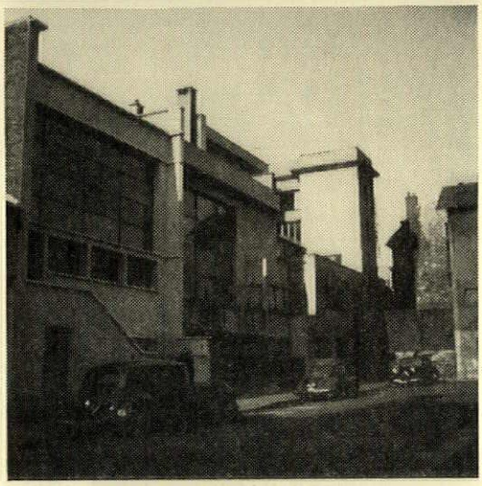

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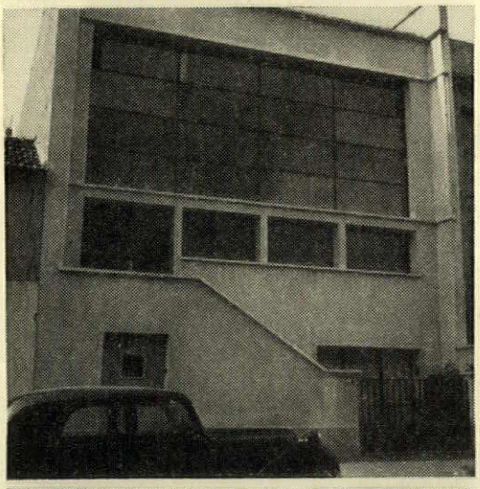

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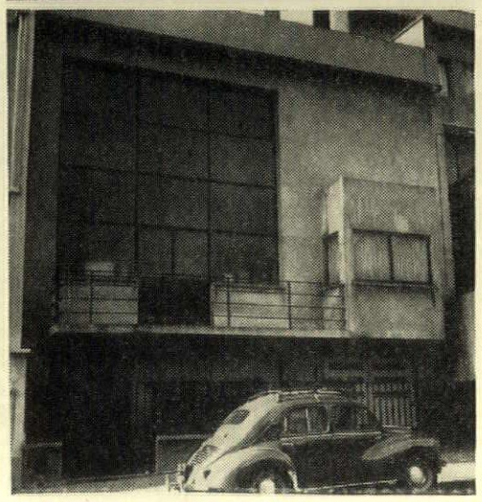
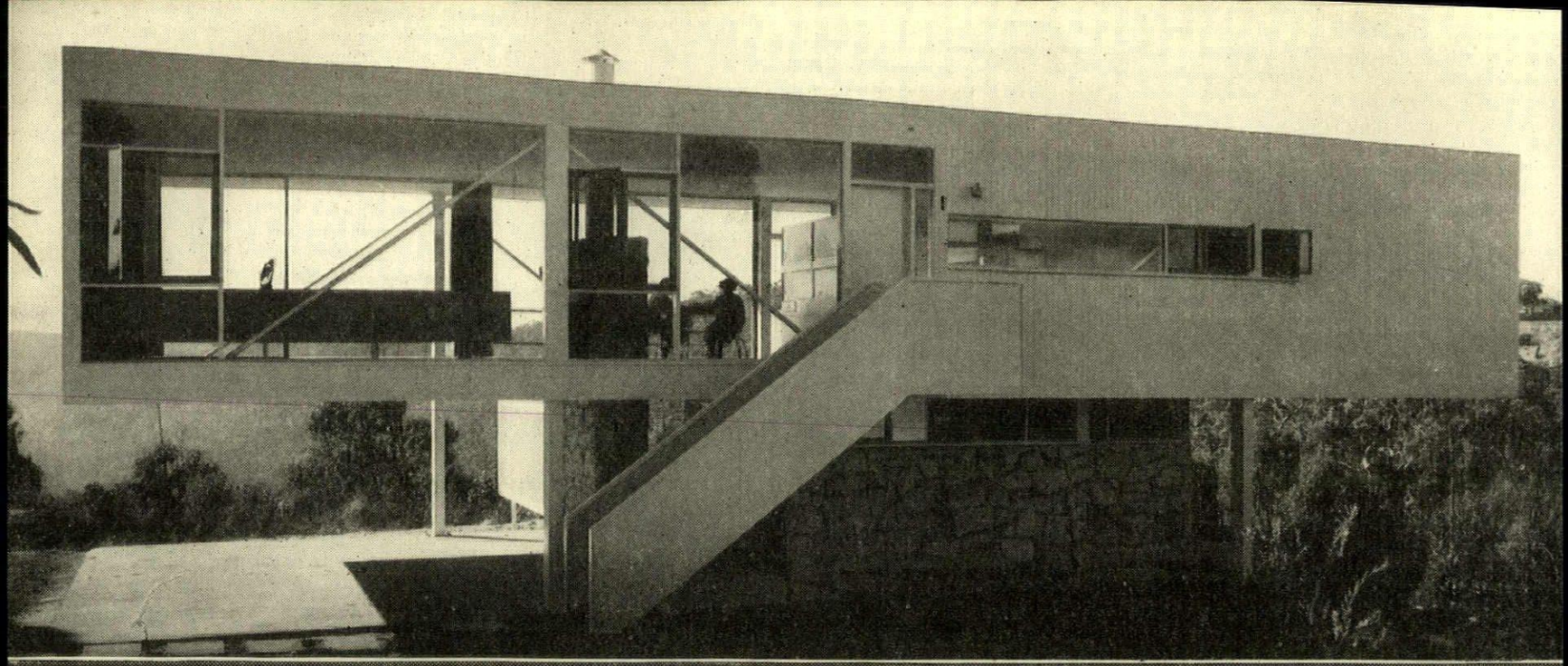


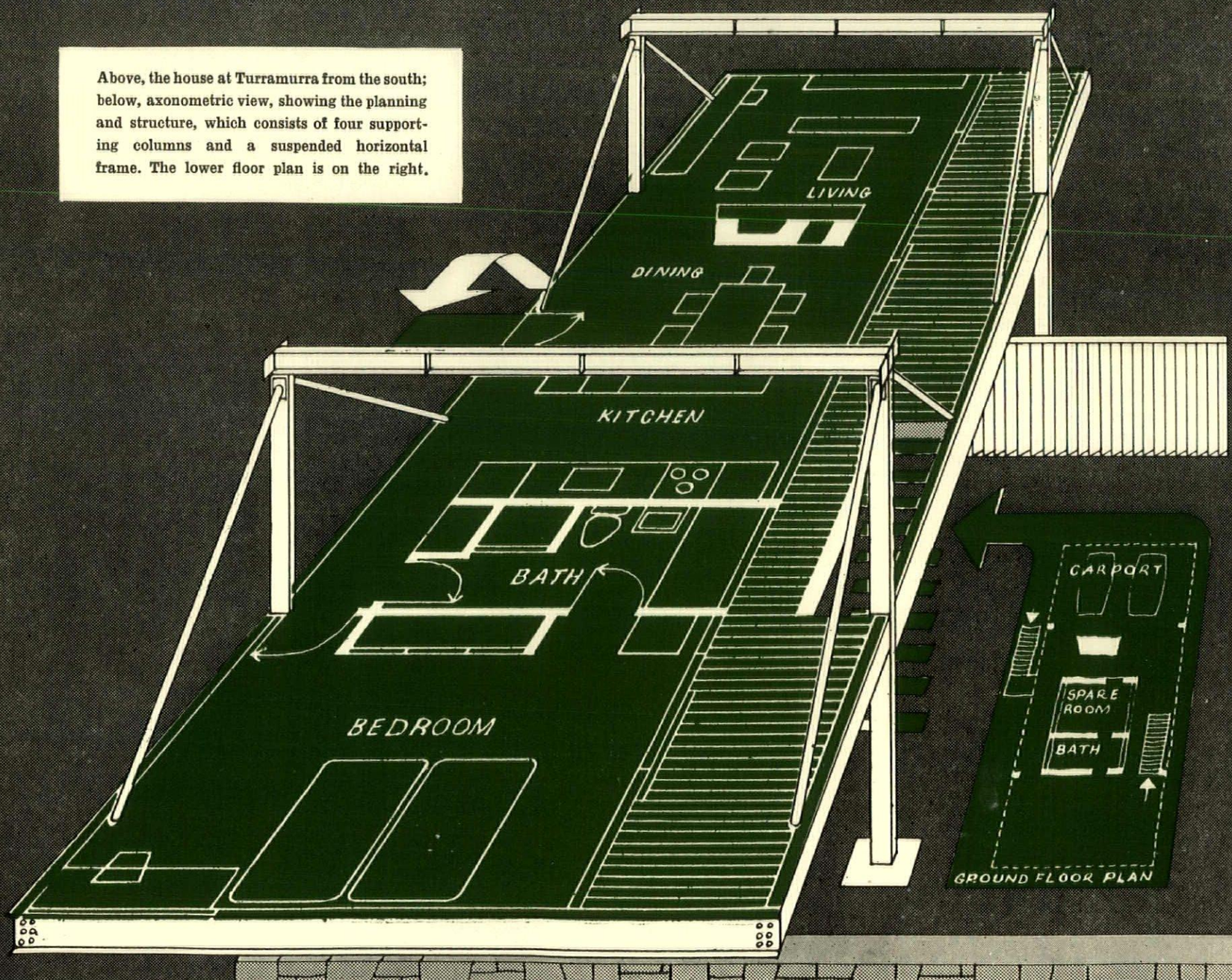
40

a new vernacular

Vernacular in their ancestry, the Modern Movement's contributions to studio-house building practice passed back into vernacular usage, and established the norms of what little studio-building continued after the slump. In a small studio-house on the market-place at Montrouge, 37, they are seen in combination with elements of vernacular modernistic detailing, of super-cinema extraction, and the rough-cast rendering that goes with inexpensive construction. The actual point at which they were passed back into the vernacular can probably be fixed in the three baffling eclectic houses in the Rue Gauguet. They occupy one side of a short *impasse* that all but joins up with the Villa Seurat, which can be seen in the background of 38. The house at the end of the Rue Gauguet, with the staircase tower, is of no great architectural interest, though as the home of the late Nicolas de Staël it may have some interest to amateurs of painting. The other two houses are more suggestive of a moment of eclecticism at the end of the 'twenties, when an architect of talent, but not so much so that his name would be recorded, could bring together a number of his predecessors' inventions and make of them the clichés of a manner. Thus 39 has a Lurçat cross-stair in front and deep square-edged window reveals *à la* Roux-spitz, while 40 has essentially the square window with central step-down of Le Corbusier's *Immeuble Villas* project, and an almost literal quotation of the boxed-out window of his villa at Vaucresson. Local folk-memory, as embodied in the block of flats on the opposite side of the street, insists that the architect was 'Un Russe qui est déjà mort,' and a name like Zylinsky has been remembered vaguely. But no traceable architect with a name of this kind will admit to paternity. The author, who has neither the years nor the money to spare to worry his way through the town-planning files of the Préfecture de la Seine in search of this missing eclectic, would be grateful if any reader could shed any light on this designer who so clearly closes the inventive phase of Modern Movement studio-house design.

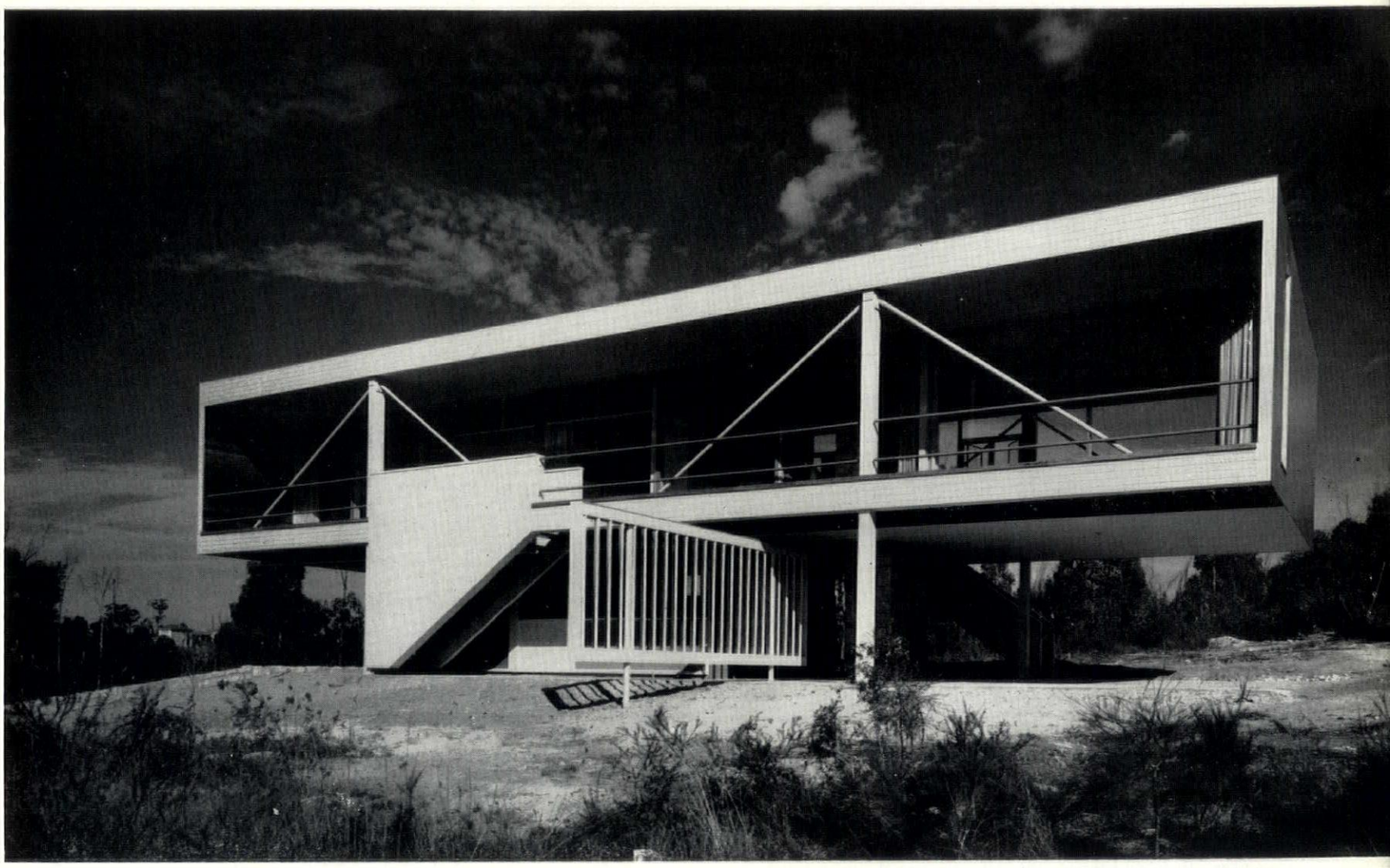


Above, the house at Turramurra from the south; below, axonometric view, showing the planning and structure, which consists of four supporting columns and a suspended horizontal frame. The lower floor plan is on the right.



FIVE BUILDINGS IN AUSTRALIA

ARCHITECT | **HARRY SEIDLER**



2

2, from the north, showing the steel tie-rods from which the floor is suspended. The carport is separated from the garden by a louvred screen.

1. HOUSE AT TURRAMURRA, N.S.W.

This house,* on the edge of Ku-ring-gai Chase public bushland reserve, is for a couple and their grown-up daughter, who wanted self-contained accommodation for occasional visits. The house is raised off the ground to benefit from the splendid views; all rooms face north, towards the valley reserve. The terrace roof affords sun protection to the glazing in sliding doors which completely fills the north side. The kitchen and bath, which are back to back, separate living and sleeping quarters. The daughter's bedroom is on the ground floor with a second shower room serving also for laundry.

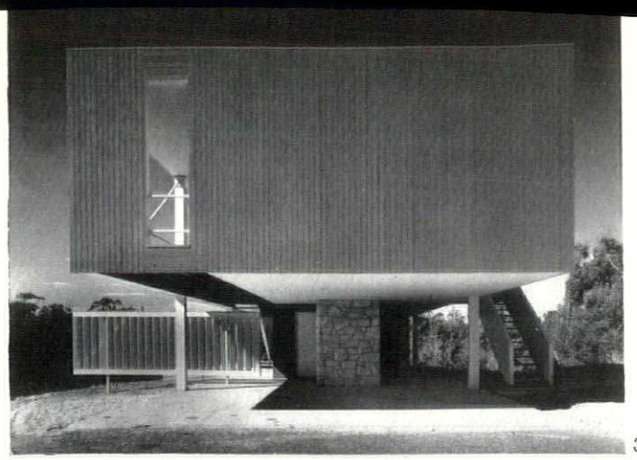
The structure consists of only four supporting columns with a horizontal frame supported by diagonal steel-pipe hangers (see opposite). The infill is brick below and timber for the upper level. All structural elements are exposed. Under the houses on the west is a double carport, with a louvre screen giving privacy to the garden from the access road.

The walls consist of 4-in. by 2-in. Oregon studs at 18-in. centres with sisal-reinforced waterproof building paper

*Illustrated, among others in a recent book on the architect's work: "Houses, Interiors, Projects 1949-54", Sydney Associated General Publications, 1954. £3 8s. 6d.

HOUSE AT TURRAMURRA, N.S.W.

filling, and 4-in. by 1-in. tongued and grooved V-jointed vertical boarding. The interior end walls have horizontal cedar boarding. The windows have 6-in. by 2-in. rebated Oregon framing, with steel sliding doors and standard steel casements, with fixed fly screens. The floor has Oregon joists at 18-in. centres and hardwood flooring: the terrace decking is 4-in. by 2-in. tallowwood with ¼-in. open joints. The roof joists are at 2-ft. centres, with rough boarding and aerated concrete insulation sloping from 4 ins. to 2 ins. to the interior roof drain, and asbestos finish with two layers of pure aluminium foil. The entrance stairs have 12-in. by 2-in. hardwood treads and the solid rails have a ⅞-in. waterproof plywood core.



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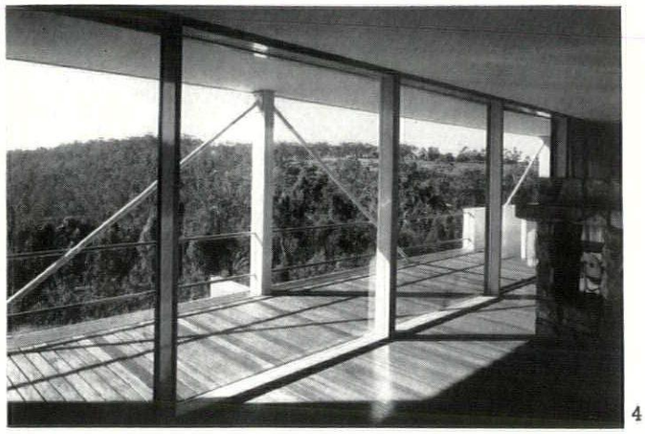


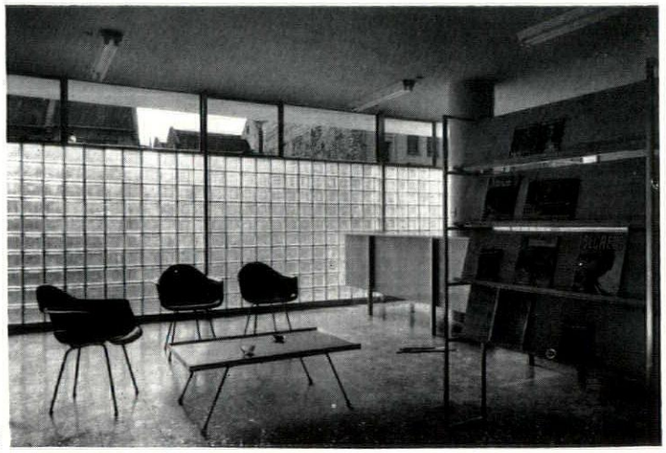
4

3, from the west, showing the open ground floor. The aperture in the boarded wall gives views to the west from the terrace. 4, looking across the terrace from the living-room.

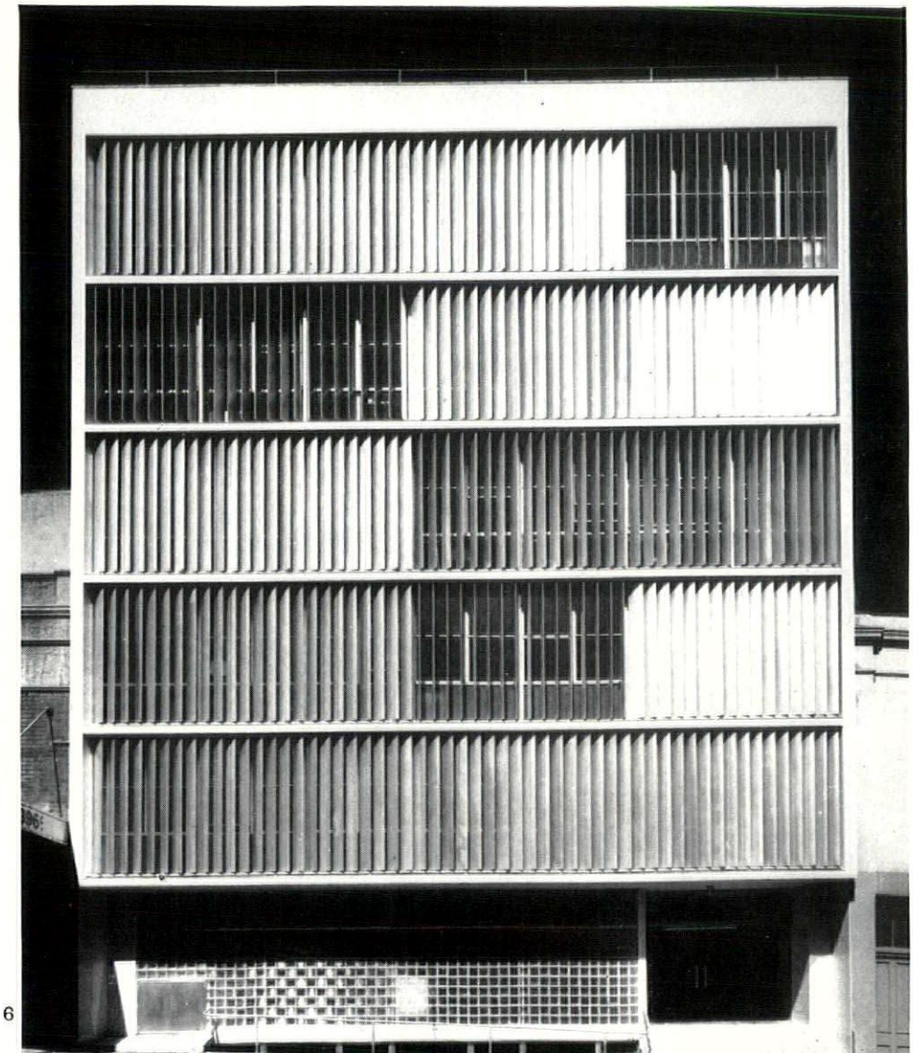
2. OFFICE BUILDING IN SYDNEY

This office building is for a publishing company and occupies a wedge-shaped site. Since the site faces due west an efficient system of sun control was needed, and this was achieved by movable vertical aluminium louvres, which completely stop radiant heat and produce pleasant combinations of diffused daylight inside. They are approximately 12 in. wide and 9 ft. high, and swivel on grease-packed ball-bearings which are permanently sealed from the weather by individual caps.

The side walls of the building formerly standing on the site were left up to the third floor, only the

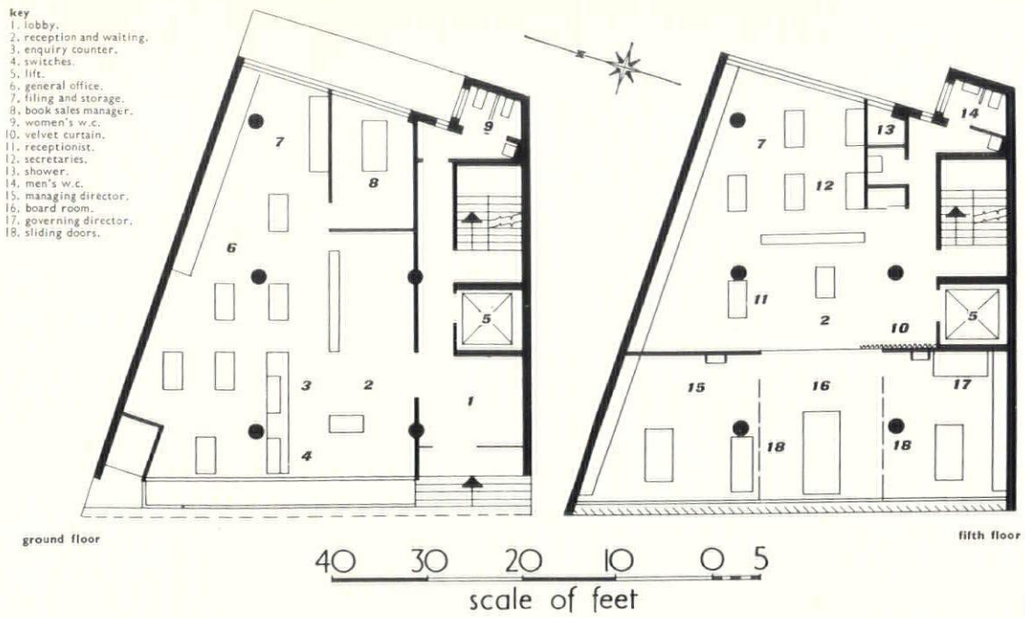


5

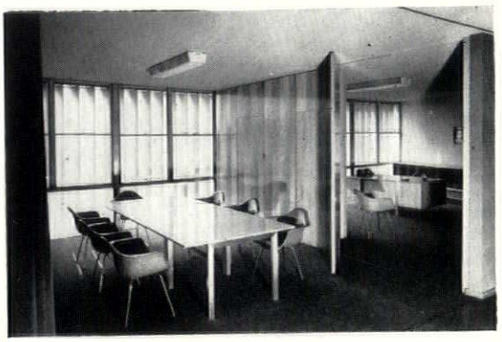


6

5, inside the ground-floor reception area. 6, the street façade. The sun screen is of movable vertical aluminium louvres. The recessed ground-floor windows are of glass bricks.



7. an interior on the directors' floor, showing the use of folding screens to allow the offices to be thrown together. The screens are of silver ash.



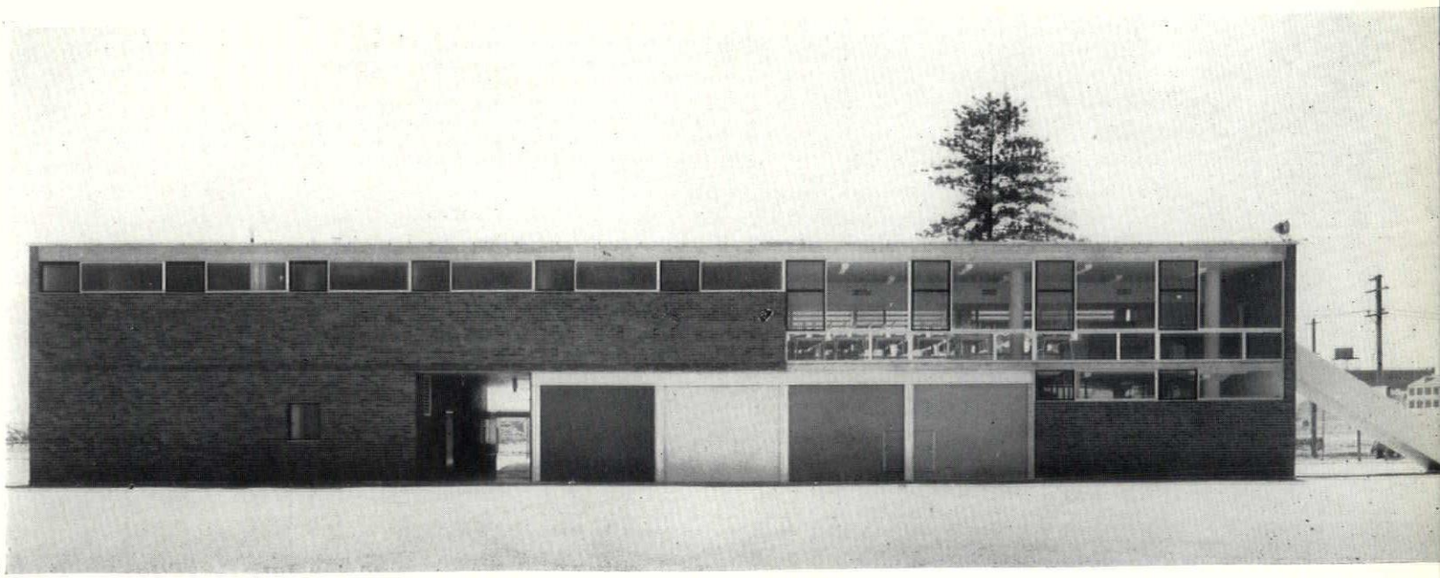
7

internal structure of six steel columns being new. The floors are of flat slab, high-strength reinforced concrete and the side walls above the third floor are all vertically poured reinforced concrete. The columns are recessed 10 ft. behind the frontage, and the floor slabs cantilevered outwards from them.

The interior finishes are designed to require as little maintenance as possible. The exposed external faces of concrete are covered with light grey glazed ceramic tiles; all windows and louvres are in anodized aluminium. The entrance doors are frameless armour-plate glass. The lighting of the ground floor and half-basement floors is achieved with glass blocks for the ground reception floor, to give privacy from the street, and a glazed light area for the basement. A bridge and aluminium doors give access to a goods chute into the basement storage area. The intermediate floors contain office space which can be divided as necessary.

The top floor comprises directors' suites, designed to be opened up, if necessary, for entertaining by means of opening sliding-folding full height silver ash doors, which open the entire front of the floor. All furniture is of silver ash, with aluminium box sections or tubes used for supports, and contrast is provided by primary-colour Eames fibre-glass chairs and by black glass sliding doors on storage cabinets.

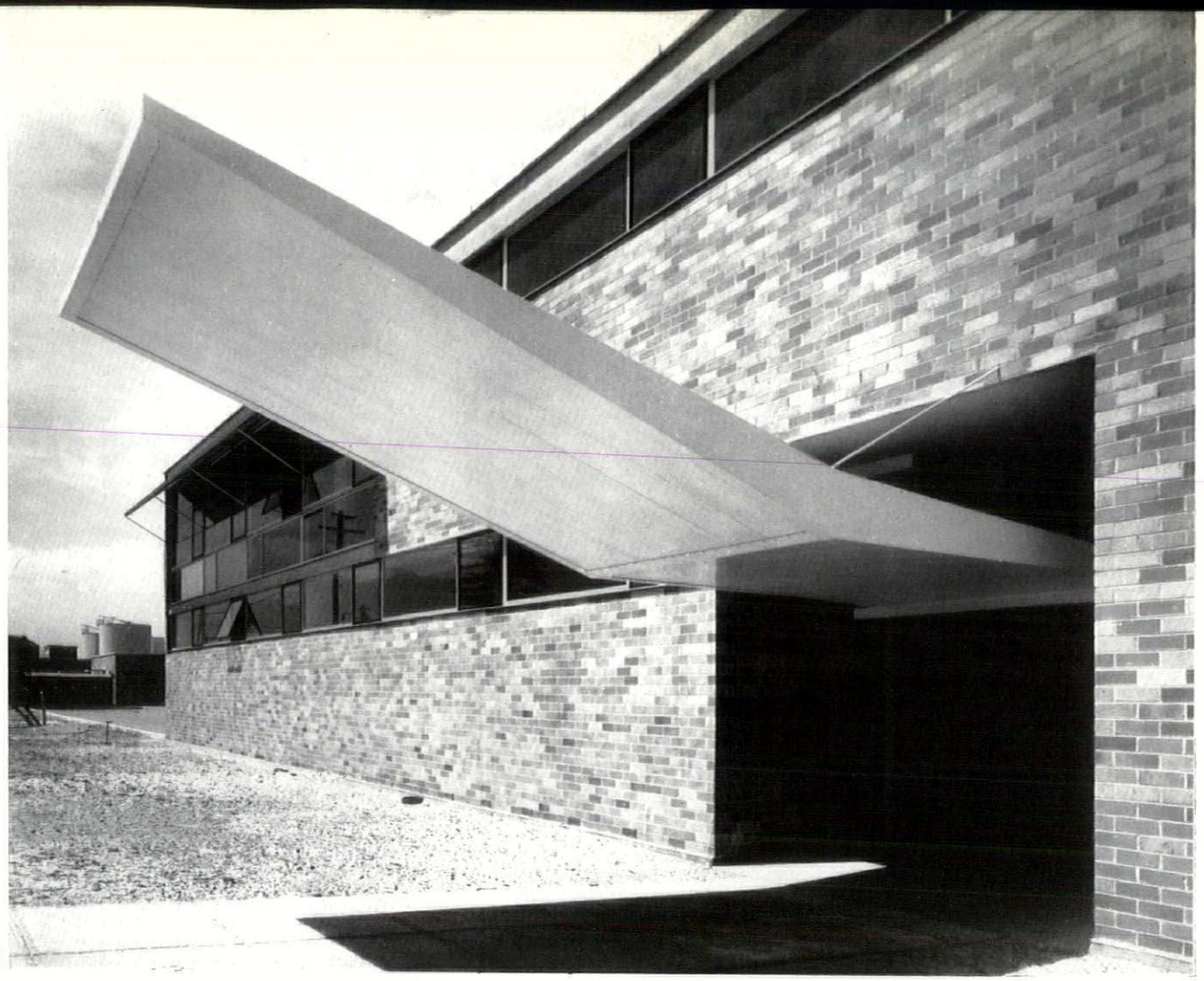
3. WELFARE BUILDING, BANKSMEADOW, N.S.W.



8

8, side elevation. The workshop area lies behind the steel doors on the right of the passage through.

At the Australian Oil Refinery's distribution centre. The problem was to provide facilities jointly for two oil companies at the distribution centre at Banksmeadow. The upper floor contains lockers, w.c.s and showers, and a common dining-room for 120 with servery for ready-cooked meals, together with dish-washing and tea pre-



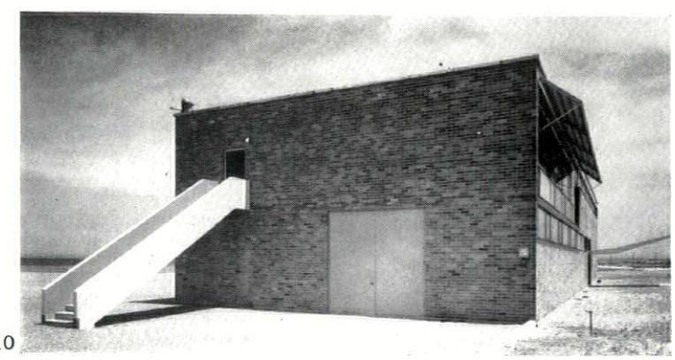
9

9, entrance to the passage through the ground floor, with cantilevered reinforced concrete canopy. 10, end view showing external stair leading straight to dining-room.

paration sinks for men bringing their own lunches. The lower floor accommodates greasing, repair and workshop areas separated from the rear trucking area by steel roller shutters with separate toilet facilities accessible from the yard.

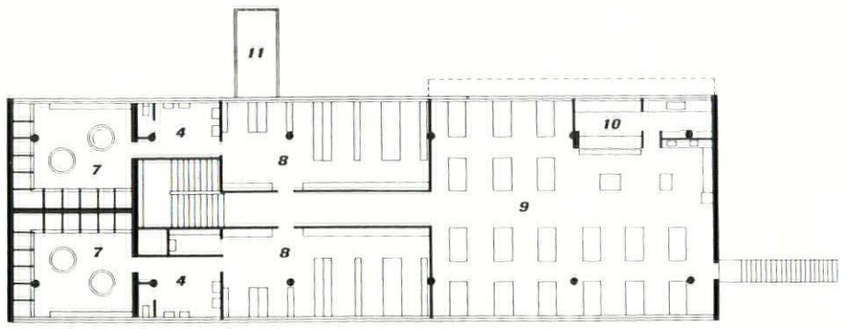
The floors and roof are of flat-slab reinforced concrete, cantilevered out from circular columns within the building. Exterior walls are of 11-in. cavity facing brick. All glazing is in zinc sprayed steel hopper-type opening sashes, and door panels and doors are steel.

The locker and toilet rooms have ribbon windows above eye level for privacy and the dining-room is fully glazed on both south and north sides, with the northern glass wall protected by a sloping pressed steel sun protection awning. Some of the exterior glass walls have solid steel panels with enamelled primary co'ours on the outside. Interior finishes are designed for hard wear and no upkeep. The main stairway (lit by an overhead sky light), the main corridor and one wall of the dining-



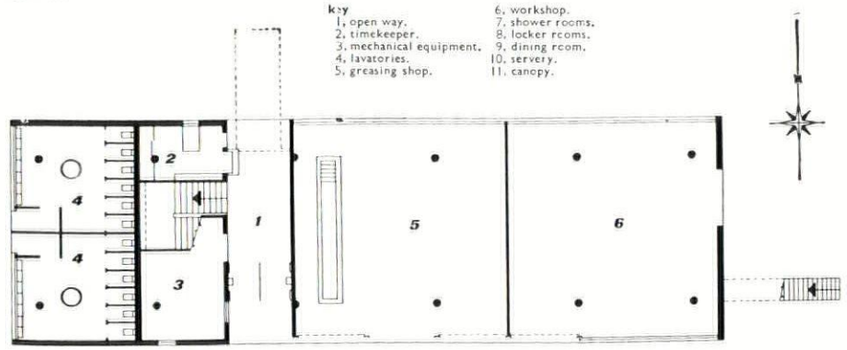
10

WELFARE BUILDING, BANKSMEADOW, N.S.W.



upper floor

key
1, open way.
2, timekeeper.
3, mechanical equipment.
4, lavatories.
5, greasing shop.
6, workshop.
7, shower rooms.
8, locker rooms.
9, dining room.
10, servery.
11, canopy.



ground floor

40 30 20 10 0 10
scale of feet

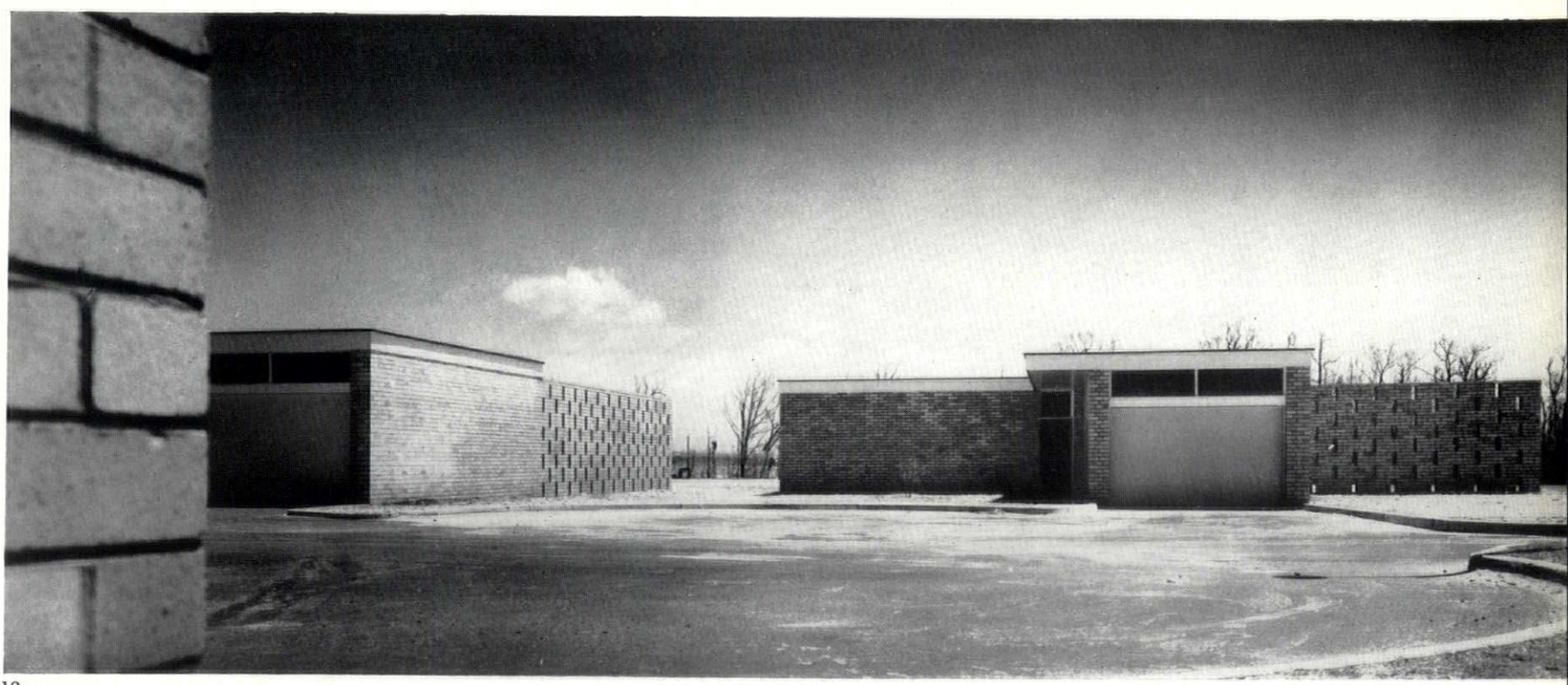


11

11, inside the first-floor dining-room. On the left is the servery; the door on the right leads to the outside stair.

room have facing brick exposed on the inside. All floors are covered with ceramic tiles. A hot air forced heating system serves the entire top floor. The low ceiling in the centre corridor masks the main heating duct which is extended through the centre of the dining and shower rooms. The system can be used for ventilation in the summer. The building is designed for future extension to the east: the reinforced concrete stair on that end can be lifted off by crane and reused. The final total capacity will be for 200 men.

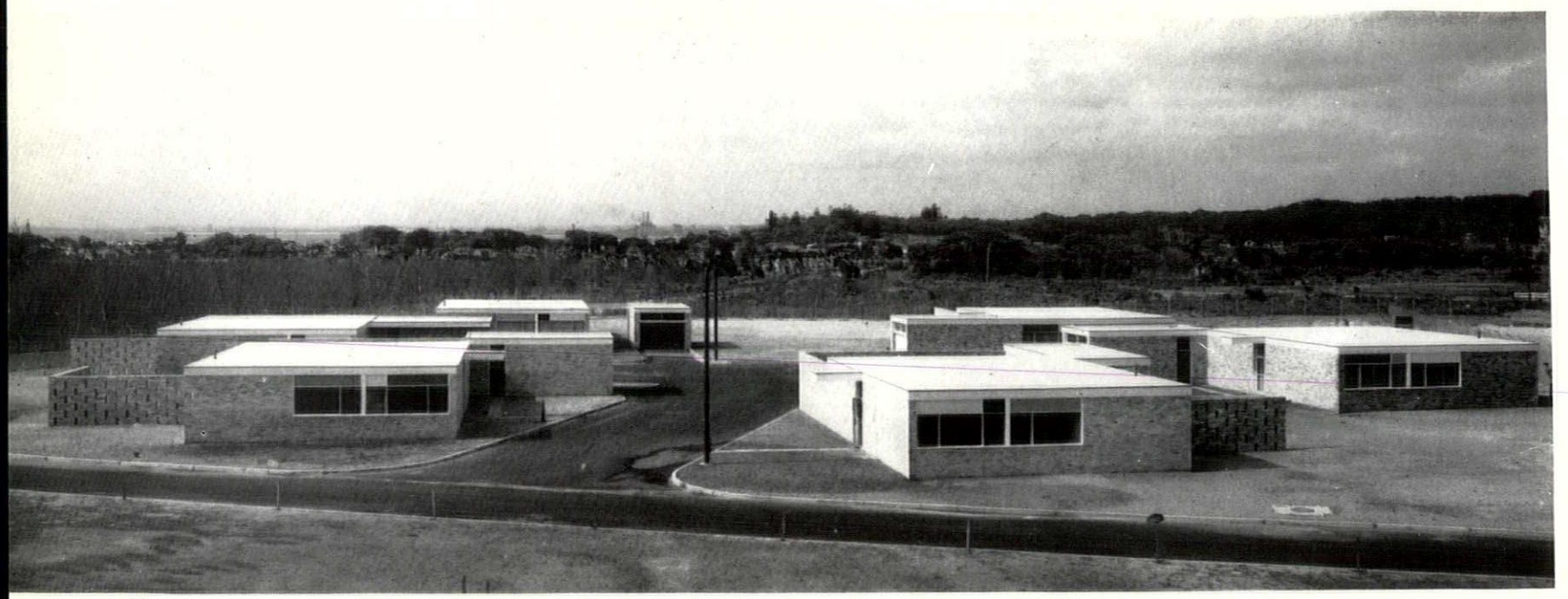
4. STAFF HOUSING, KURNELL, N.S.W.



12

These houses for superintendents of the Australian Oil Refinery at Kurnell are built in a reclaimed swamp area filled to seven or eight feet with pumped-up sea sand. The surface is level and the sand was found to have good bearing capacity. The foundations consist of 'floating' reinforced concrete rafts with edge beams and subsidiary beams stiffening a 4-in. thick slab.

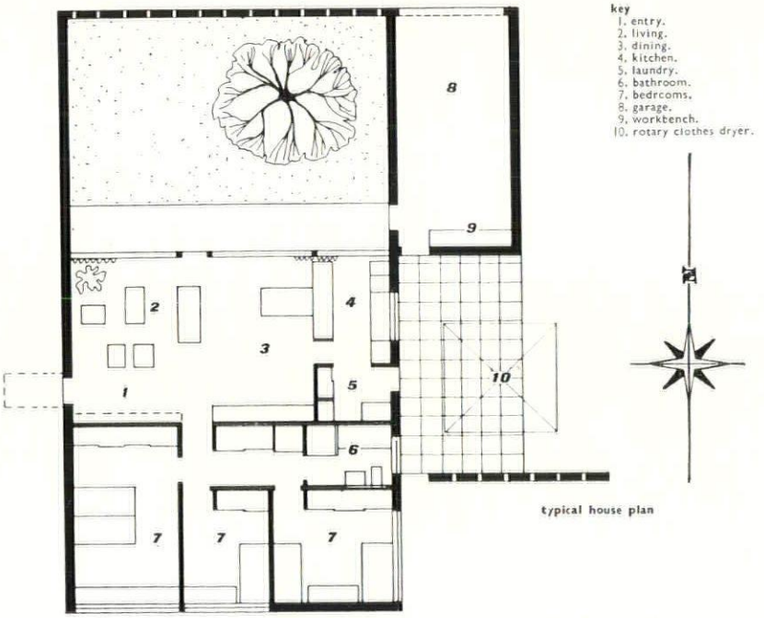
Access to the group is from the south into a cul-de-sac with the houses arranged around. The units are essentially the same in layout. The living space in each faces due north with a plate-glass wall looking into a private outdoor living area. Screen walls, solid and pierced, produce privacy between units; one house has a completely enclosed courtyard because of the traffic around its north side. Laundry drying areas are also sheltered by screen walls. To create variety of views and avoid repetitive housing atmosphere, plan layouts were reversed and varied, while essential elements remain



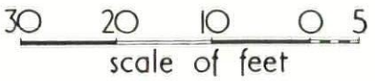
13

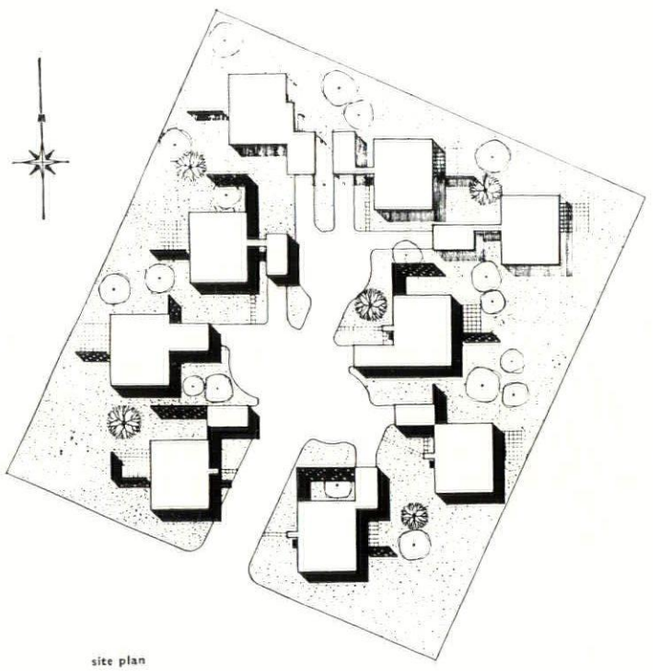
STAFF HOUSING, KURNELL, N.S.W.

identical, making for economy in the production of identical windows, structural framing, built-in cupboards and kitchens, etc. Walls are biscuit-coloured facing bricks, and exterior walls are 11-in. cavity construction. One end wall of the living space is exposed on the inside: other interior walls are 4½in. common bricks, plastered. Roofs are of Oregon timber joists with two open web steel beams spanning the living space and producing an overhang on the north side. Spaces above the bedroom windows are filled with asbestos cement sheets insulated with a backing of insul wool; these eliminate the need for brick courses over wide openings and provide areas for external colour. Interior door frames are pressed steel; all floors are covered with grey asphalt tiles. Heating is by electric resistance cables on 3-in. aerated concrete insulation all over the floors of each house, thermostatically controlled.



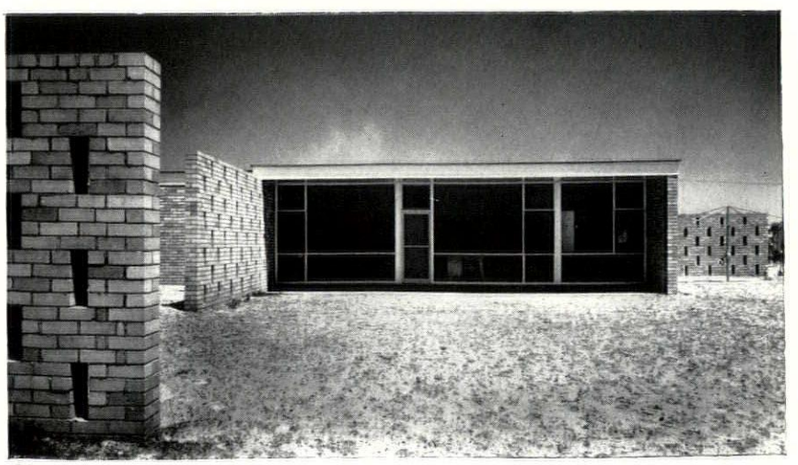
typical house plan





site plan

13, the six houses so far built. The scheme is to be completed by three more to the north—see site-plan. 14 (and 12 on preceding page), the houses from the central space showing the system of screen walls to ensure privacy



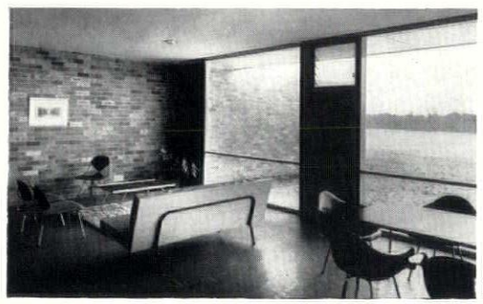
14

15

15, looking between two houses into the central space, showing the end of one of the pierced screen walls. 16, a typical kitchen. 17, a typical living-room, looking into a not yet completed patio.



16



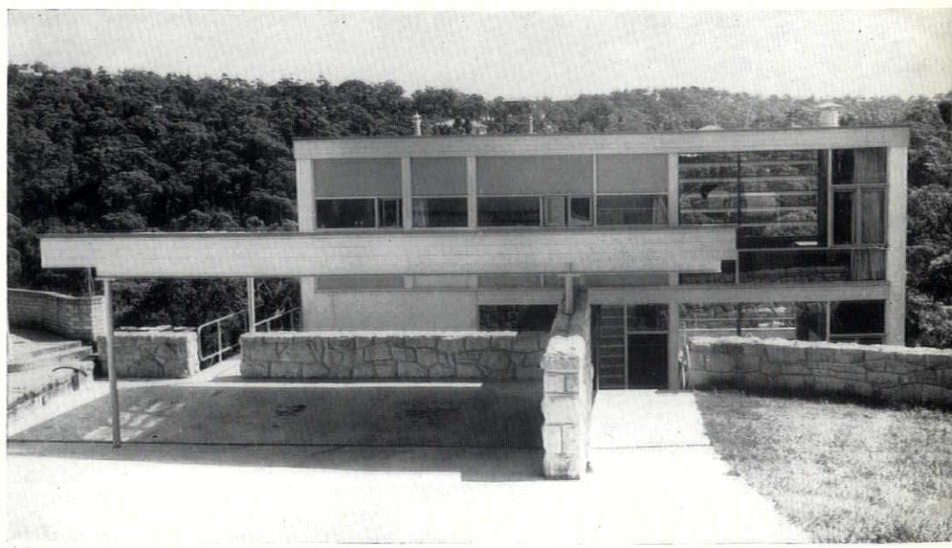
17

5. HOUSE AT NORTHBRIDGE, SYDNEY

This house is between existing buildings on a narrow site, sloping towards a harbour inlet. A high rock ledge cutting across the site remains untouched, with the house placed below and approached by a bridge. The open carport remains on the upper part off the road.

To gain privacy, sun-exposure and view, all main rooms face north. The living area (entrance, dining, living, music) is entirely open, with the stair and furniture freely placed. This horizontal openness is continued vertically with part of the living space carrying up into the second floor study, which becomes a balcony. A mobile wire sculpture hangs in this high portion of the living-room.

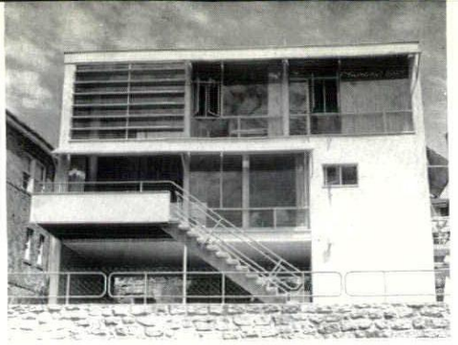
Sun protection is provided by fixed sloping awning-type projections on all north-facing glass areas, with horizontal louvres in the upper part of the living-room. Construction is of brick painted off-white, light steel



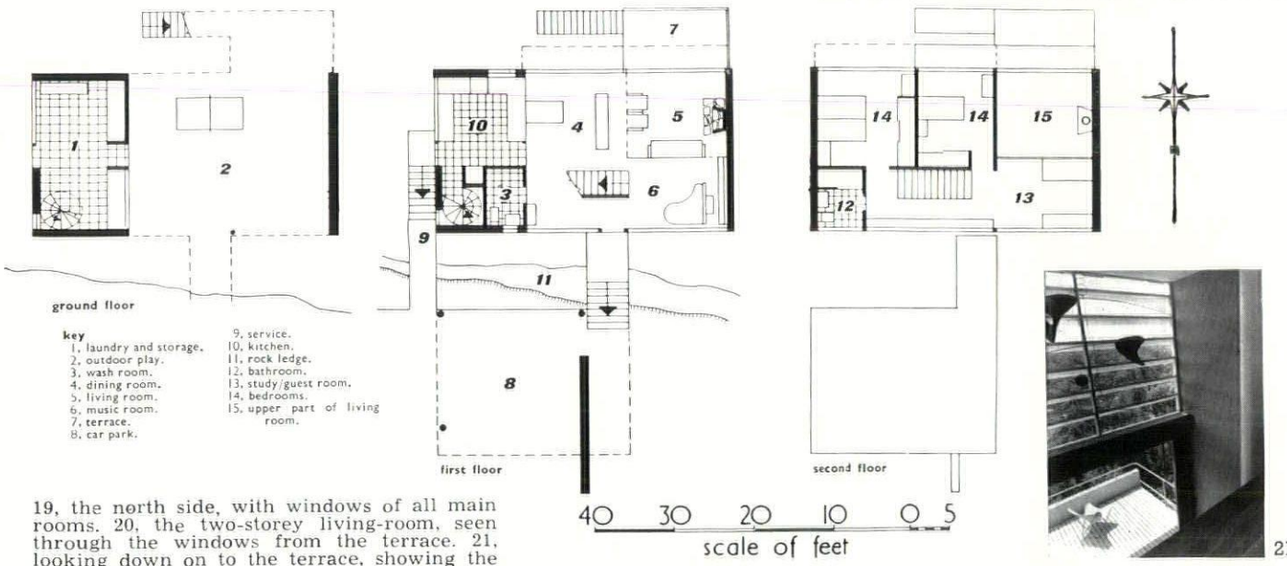
18

18, the entrance front, looking across the carport and showing the bridges by which the house is approached at first-floor level.

beams and columns, and wood floors. Glass is in fixed wood frames with opening steel casements. Some areas in these wood frames are solid, using bright colours on the exterior.



19



21

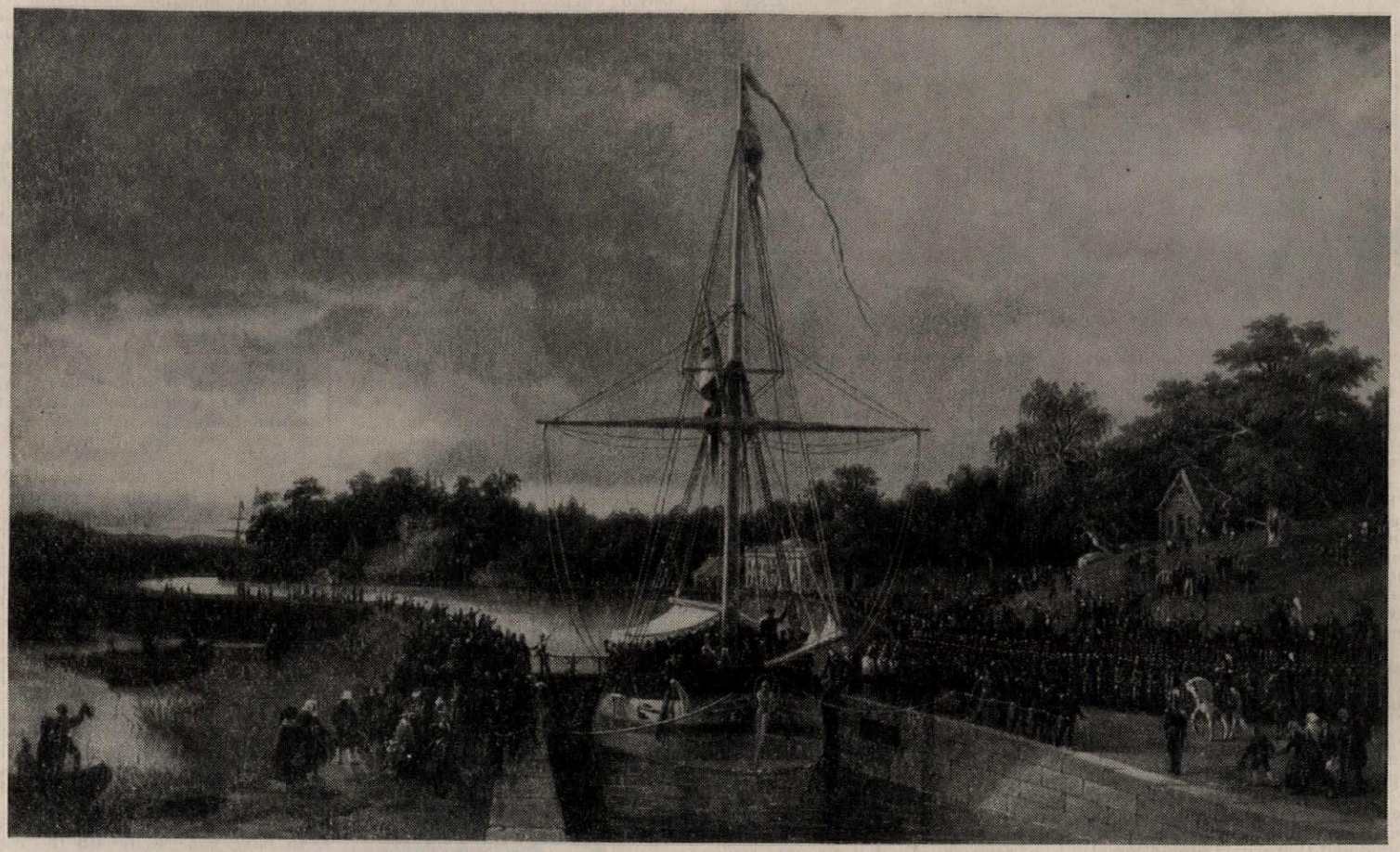
19, the north side, with windows of all main rooms. 20, the two-storey living-room, seen through the windows from the terrace. 21, looking down on to the terrace, showing the mobile in the upper part of the living-room.



20

Eric de Maré

TELFORD AND THE GÖTA CANAL



1, *the final opening ceremony on the Göta Canal on September* 26, 1832. *It took place at Mem. The ship is the royal yacht,* Esplendian, *and aboard were King Karl XIV Johan (Bernadotte), his Queen and the Crown Prince (from a painting by J. Berger,* 1855, *in Linköping museum).*

The Count

Admiral Count Baltzar Bogislaus von Platen (1766–1829), Knight of the Sword and Member of the Swedish House of Nobles, was an outstanding figure of his generation. Though he was a competent naval officer in his youth (when he was captured and interned in Russia for two years) and later both an important Minister and a leading member of the Riksdag, his national fame rests mainly on his realization of a project which had been a Swedish dream since the sixteenth century—the uniting of the North Sea and the Baltic by an inland navigation right across the country. Platen was not a Swede by blood for he was born on the island of Rügen in Pomerania, then a Swedish province, but he was a fervent Swedish patriot, not least in doggedly propounding his scheme of defensive strategy in which the building of the Göta Canal formed an essential element.

The building of that canal was the Count's life work. One of his peers declared him to be 'a liberal despot and a despotic liberal,' probably because, although his views were far-sighted, progressive and disinterested, opposition to any line of action he had decided was right and proper was liable to produce in him an explosion of irascible but effective rhetoric. At the same time he was an amiable character of spontaneity, simplicity and integrity, who owned something of that cosmopolitan charm which is common to all naval officers. His energy was tremendous.

Yet the Göta Canal needed more than the drive of a Platen to become a reality. It needed the skill and experience of a group of British craftsmen and overseers to control and instruct the regiments of Swedish infantrymen who were employed on the canal in their thousands during the years between 1810 and 1832 when the canal was building. It also needed the knowledge and advice of the foremost engineer in the world at that time—Thomas Telford (1757–1834).

During those twenty years of building Telford and Platen were writing to each other fairly regularly about the affairs of the canal and about many other things too. It is an interesting correspondence, especially so the letters of Platen, which are far more outspoken and far longer and more numerous than the terse, factual, impersonal, though always courteous, letters of Telford, who never wasted his energy, not even on a needless word. The whole correspondence throws the vivid and fascinating light of reality upon the daily scenes, problems and human relationship which occurred during the building of one of the major works of the early engineering period.

The Platen letters have been preserved in the library of the Institution of Civil Engineers in London since the death of Telford, who was the first ICE President. The Telford letters, according to Sir Alexander Gibb's biography of Telford, were said to have been missing, but, when exploring the Göta Canal in the summer of 1954, I found most of them scattered about the basement archives of the Göta Canal Company at Motala—twenty-seven in all.* Before quoting from them I must fill in the background.

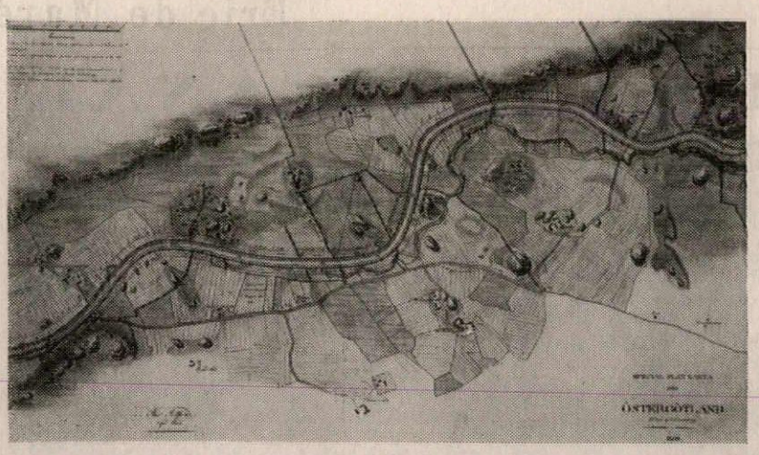
The Göta Canal

Today the whole of the inland navigation between Gothenburg on the west and Stockholm on the east is often called the Göta Canal, but strictly speaking the Göta Canal is only that part of the navigation which lies between Vänern, Europe's third largest lake, and the Baltic. It is divided into two parts: the Western Line between Lakes Vänern and Vättern and the Eastern Line between Vättern and Mem, the village which lies at the end of an arm of the Baltic called Slätbaken. It is this part of the whole navigation —between Sjötorp on the eastern shore of Vänern and Mem on the Baltic inlet—which Platen and Telford created. The total navigation between Sweden's main port and her capital is completed on the west by the Trollhätte Canal, which is mainly composed of the Göta River, and on the east, first by the waters of the Södermanland archipelago, and then by the old, short Hjälmare Canal running north into Lake Mälaren to the east of which lies the capital. The whole navigation between Gothenburg and the Baltic is mainly composed of rivers and lakes, the man-made cuts being only 59 miles in the aggregate; along the navigation 64 locks raise ships 278 ft. above sea-level to the summit at Lake Viken in Västergötland and down again to the sea.

Though an attempt had been made by the first Swedish engineer, Christoffer Polhem, to bypass the great falls at Trollhätta early in the eighteenth century, the attempt was abortive and Vänern did not acquire a navigable outlet to the sea until the year 1800 by means of a scheme in which Platen was involved. That was encouraging and, after considerable research, Platen published in 1806 a work on canals in which he enthusiastically advocated the joining of Vänern with the Baltic so that the two seas might at last be united.

In 1809 came the bloodless revolution when the Frankophobe, Gustavus IV Adolphus, was deposed in favour of his frail and childless uncle, Carl XIII. A new constitution giving greater power to the Riksdag was adopted at the Diet of that year, and Platen had a good deal to say in its framing. At the same Diet, an important one in several ways for the country, State support for the proposed Göta Canal was voted. In 1810 Bernadotte, one of Napoleon's marshals, was elected as Crown Prince of Sweden as a result of one of the more curious events in history, becoming King Carl XIV Johan at the old king's death in 1818. Though he never learned to speak Swedish adequately, he made a good ruler and fully supported Platen's canal scheme and defensive strategy; he regarded him, indeed, as an indispensable adviser. Even while Crown Prince, Bernadotte was the virtual

* Extracts are quoted by kind permission of Göta Kanalbolaget.



2, *one of the coloured maps of the Göta Canal project drawn according to Telford's scheme in* 1809.

leader of the country, and his support was therefore vital to the Count.

The basis of Platen's scheme was the line proposed and surveyed by Daniel av Thunberg and Elias Schveder in the 1780s, the principles being those of the English canal builders, notably Brindley, who believed, first, that rivers did not make good navigations in themselves but existed to supply canals with water and, secondly, that locks should be grouped together in the canals as far as possible. As Platen saw it, apart from its military importance and the independence it would give ships from the tolls charged in the Sound between Sweden and Denmark, the canal would be valuable for the transport of such materials as timber, grain, copper, herring and salt and would greatly increase foreign trade, especially with England. The canal, he thought, would be able to obtain at least 5 per cent. of the merchant shipping which went through the Sound and that would provide ample profit. In spite of Platen's acquired knowledge about canal construction and because of the size of the project, it was decided that advice should be obtained from the country most renowned for canal building at that time and the King therefore issued the following instruction in February, 1808:

'His Majesty graciously requests that any of the most experienced Canal Engineers in England, and particularly amongst them Mr. Telford, to whom the execution of the Caledonian Canal is said to be entrusted, may be prevailed upon on proper terms to take a view of this undertaking and give his opinions and council thereupon."

On August 8th, 1808, Telford arrived in Sweden with two assistants and within the remarkably short period of twenty days the line was marked out and lock positions were fixed with, as a contemporary remarks, 'absolutely incomparable diligence, perseverence and drive.' No doubt Telford was anxious to return home to his many jobs as soon as possible and he was, in any case, a man dedicated to the God of Work. His fee was five guineas a day—a high rate in Sweden at that time. In September Telford and Platen visited a number of existing Swedish canals to see how they were weathering and then Telford settled down for a few days at Platen's manor of *Frugården* to write his report. He accepted Thunberg's scheme to a large extent, though he altered the line in many places and recommended locks of greater size and number. He also recommended that the depth of the canal should be 10 ft., the width at bottom 42 ft. and at top about 82 ft.; also that the width of locks should be 24 ft. 3 ins.

In 1809 a set of very beautiful coloured maps of the canal, drawn to a large scale, were prepared by four of Platen's assistants, all bearing the copied signature, 'Thos. Telford, September, 1808.' On these maps new towns were drawn in at four places—towns which Platen was certain would grow up as a result of the canal's existence; in the end only Motala achieved the status of a town. The maps together with a translation of Telford's report were presented to the Riksdag and in 1810 the Canal Company was formed, four days after men of the Östgöta Grenadiers had already begun digging at Motala. Shares were oversubscribed by 100 per cent. Everything looked promising in that brief period of boom.

In spite of several reminders from Platen, Telford never seems to have sent a full sheet of costs, but eventually he gave a rough estimate of £400,000. Another estimate made by Samuel Bagge, the engineer of the Trollhätte Canal and a friend of Telford's who became chief engineer for the Göta Canal, came to slightly less; in the end the cost was more than five times the estimate. The time the canal would take to build was estimated at ten years at the outside; in the end the time taken was 22 years.

Because of the extra cost and the slowness of the work, Platen was compelled to fight many long and bitter battles in the Diets, as his letters reveal; at one point, indeed, he nearly gave up the struggle in despair. But at long last the canal was completed, three years after Platen's death. It had been a tremendous undertaking for so small and poor a country; it had been initiated at a time of revolution, and built during one of the most stringent periods in Swedish history—a period of rapid inflation and financial instability—and in earlier years a period of international tension and war as well.

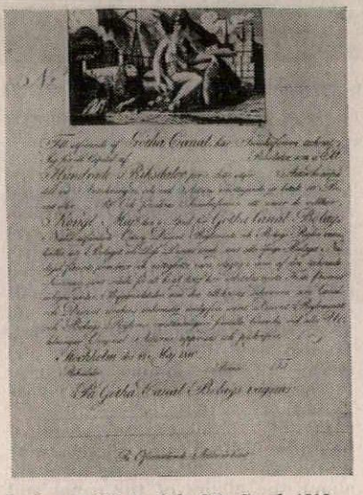
The building of the canal was not merely a matter of digging the ditch itself, but of blasting through many a granite escarpment (rock blowing, as Platen called it), and of constructing 35 bridges, three dry docks, 58 large locks, many of them in long flights, of erecting demountable timber barracks for the thousands of soldiers and their officers who were employed on the works, as well as of building houses for administrative staff, hospitals, stores, cook-houses, bakeries, stables, barges, bridges, pumps, cranes and so on.

And in the end the Blue Ribbon of Sweden was not the financial success that had been expected. The tolls at the Sound were removed in 1857, the railways came as serious competitors in the 'sixties, and, finally, the Platen defence scheme was out of date. Nevertheless, the canal has acted since its completion as a useful alternative means of communication across the country, not least as a popular route for summer tourists. The Canal Company belongs now to Stockholms Enskilda Bank who maintain the canal in good condition, and in recent years have been content to lose money on it because they receive adequate compensation from the forest concessions owned by the Company. Regarded in realistic terms, however, the Göta Canal has always been and remains a national asset—one might almost say a national monument. Since a Royal Commission sat in Sweden between 1916–22, there has been some talk about increasing the size of the Canal and of decreasing the number of its locks and bridges, but so far nothing has been done.

The Telford–Platen letters reveal that the building of the canal was something of a nordic saga of endeavour, tribulation and final achievement. Its hero was Baltzar von Platen.

The Letters

Platen invites Telford to visit Sweden and give his advice on the proposed canal. On June 2, 1808, Telford replies from Inverness: 'I am particularly desirous of affording every assistance in my power to the accomplishing so noble and useful a work and no trifling obstacles or inconveniences shall stand in the way.' Telford then travels to Sweden in a British man-of-war, the northern seas being infested at that time with Danish and French privateers.



3, *share certificate of the Göta Canal,* 1810.

Having accomplished his survey and made friends for life of the Count and his wife, he boards a ship at the beginning of October at Gothenburg for the journey home. From Gothenburg, October 3, 1808, the Count sends a letter to the ship which reveals something of the ever-growing respect and affection Platen feels towards the Scottish crofter's son:

'Sir! A few hours after your departure I found how well it would have been to see You once more tho' this has had no influence on the bad wind I understand keeps you nearly in the Road. . . . As looking at the levelling instrument I found I had bettre take a lesson of You about it, than standing talking nonsens last evening up stairs; but as this was not the case Selfinterest should bring me even for this reason to wish You back for a little while.

'Lastly You see mankind are always so foolish either to run away from or run after each other now as in the beginning running away would not do for our business we soon found since that it would not do neither for our affections; and that the reason why I now find myself always in the habitude of running or looking after You.

'Well make of it what you can but I tink if to morrow morning there is a fresh westerly wind You may as well come a shore once more for to fetch a bettre wind, seamans always do this and find it answer very well.'

January 12, 1809, Platen writes to ask for the tools which Telford has promised to send over as examples to be copied in Sweden, and on March 2 he writes again about obtaining a first engineer from England in place of Samuel Bagge, who seems disinclined to come home from Norway:

'My dear Friend! . . . I wish to speak about a little more at long; wiz the way of getting a first Super intender as well as the other Capital workmans for the Canal business . . . I have absolutely done with Mr. Bagge!'

In fact he has not done with Mr. Bagge who takes up his position as Chief Engineer in April, 1809.

An account to the Swedish Government from Telford dated May, 1810, shows expenses for his two assistants during the visit to Sweden; also a charge of £105 for six drawings of a canal lock, stop gates and swing and draw bridges; also £52 for sample tools sent, viz., three rail road waggons, three wheelbarrows, three picks, three shovels, six pieces of cast-iron rails. There is a great deal of trouble about shipping the tools to Sweden, for the situation between the two countries is now strained owing to the new Swedish overtures to France.*

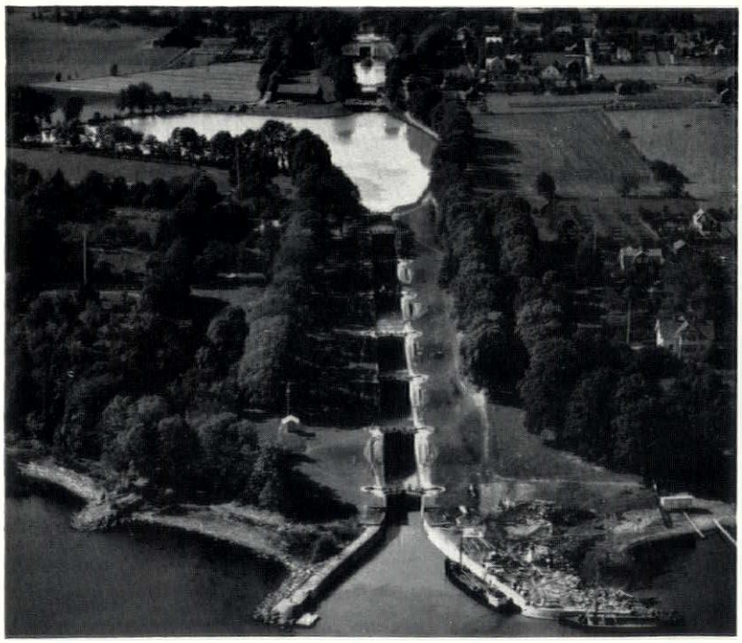
For the first four years all seems to have gone well with the canal operations in spite of lack of British overseers and workmen, because the work then consisted mainly in digging. In 1811 5,000 men were employed, the bulk being Swedish infantrymen working a twelve-hour day; there were also a few hundred lay workers and some 150 Russian captives, 'that have deserted on the road home being tired of their despotic government,' as Bagge writes. Most of the work had to be suspended during the frozen winter months, of course.

In 1813 Telford paid his second and last visit to Sweden to inspect work in progress. He recommended that the job should henceforth be concentrated at certain points so that some lengths of canal could be opened to navigation as soon as possible. That year the first two British workmen were sent over by Telford, namely James Simpson and John Wilson. The following year five more were sent over—James Smith, David Lyon, William Urquhart, Alexander McKenzie and Alexander Fraser. At the same time

* The situation in Sweden was thus: At the Revolution, with France's bitter enemy deposed, the Swedish government tried to invoke Napoleon's goodwill as a support against Russia. But Napoleon would give no help and in the end Sweden was compelled to accept Russia's peace terms by which the last remnants of Sweden's Baltic Empire —Finland and the Åland Islands—were handed over to Russia. Sweden was then forced to obey the behests of France, officially broke off connections with England, and took part in the Continental blockade. But Bernadotte was an astute man; trade with England went on in a quiet way. Then in 1811 Napoleon forced the Swedish government to declare war on England—a strange war in which not a shot was fired by either side. In 1812 Napoleon occupied Swedish Pomerania at a time when war was developing between France and Russia. The outcome is well known; open friendship between England and Sweden became possible again.



4



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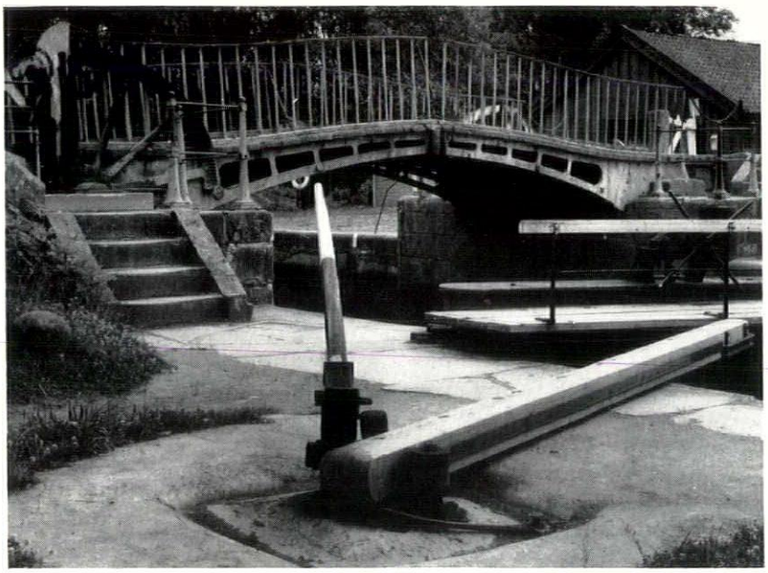
4, the headquarters of the Göta Canal Company at Motala in central Sweden. 5, locks at Berg, on the eastern line of the canal. They climb down to Lake Roxen. 6, the canal at Söderköping, near the Baltic.



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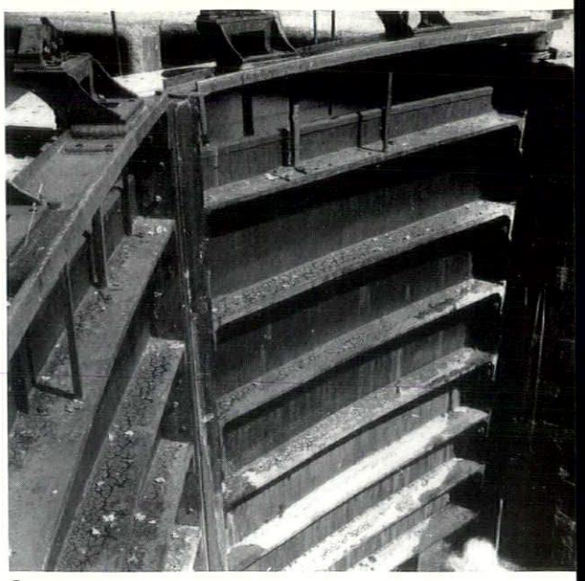

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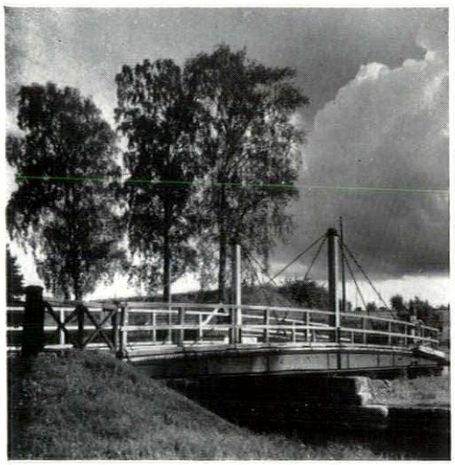

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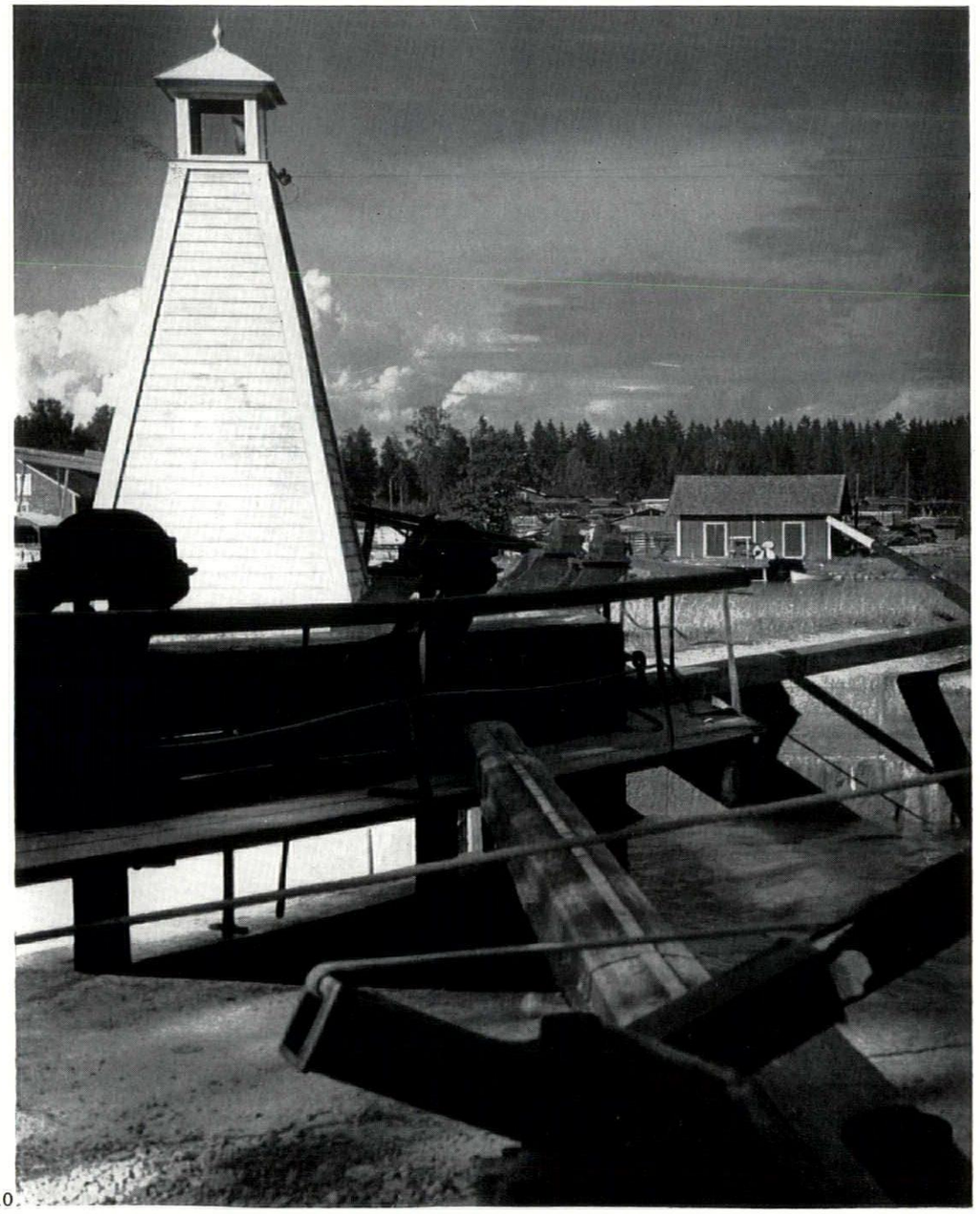

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7, *the English bascule bridge built about* 1812 *across the Göta Canal at Forsvik, where the first lock was completed—'as English as an iron bedstead,' as a modern Swedish writer describes it. It is now threatened with demolition.* 8, *iron lock-gates, based on an English prototype and imported in* 1820. 9, *rolling bridge near Borensberg, on the eastern line of the canal.* 10, *lighthouse and lock-gates at Sjötorp, where the canal leaves the eastern edge of Lake Vänern.*

two promising young Swedish lieutenants, J. Edström and G. Lagerheim, were sent to England at the Canal Company's expense, to gain experience for nine months under Telford. In later years other British masons and craftsmen were to go to Sweden; in 1817, for example, 13 were being employed. Their wages varied from £70 a year to more than £200, plus travelling and living expenses—good pay in those days. Many of these men were Scottish, and Platen preferred them to others, for, as he wrote to Telford on one occasion, he found them 'easier conforming to the people and country.' But whoever they were, Platen seems to have treated all of them well, acting towards them, as one employee wrote home, 'as a father and friend.'

1814 was a year of sporadic but not violent war with Norway and this affected the canal works in that the troops employed on them had to be withdrawn. After 1814 no further warring occurred; in fact, Sweden has avoided war from that year up to the present time. The troubles on the canal henceforth were financial. However, a worse calamity than war happened to the canal in 1814—at least so it seemed to Platen who wrote from Pomerania, August 11:

'The very worst Canal news that possibly could happen have reached me here! viz that Major Bagge in the middle of the Wattern has oversett in a gale of wind in that small boat in which you went together to the Freestone Quarrie, and has been drowned with all his company! . . . Poor Bagge . . . so he thought himself a seaman and realy he was one for fine weather; but as for the Canal business he was more to me in all respects than ever can be filled up by any boddy in Sweden, even particularly in some respects the Young people (i.e., Edström and Lagerheim.—E.M.) will be of great use to me, and I feel more than ever how much I am indebted to You. . . .'

Telford is consoling in a letter from Stonehave, October 31, 1814:

'I can readily conceive your distress at the loss of Major Bagge; in the language of our Shakespeare "*You could have better spared a better man.*" But you must make men for your purposes, as I have done; Messrs. Lagerheim and Edström have been fairly initiated into Engineering and by attending to practical operations, and studying the disposition of Workmen, I have no doubt they will be valuable assistants; others, in the subordinate branches, will gradually make their appearance and, until your native talents are unfolded, our British workmen will prove singularly useful. . . . I shall be glad to learn how they are employed, and have a short account of each of their conducts.

'I am fully convinced that the check given the Canal Operations by the War has been, on the whole, advantageous; This Year was required for the gradual introduction of Masonry operations, to which your people not having been much accustomed, require some time to get familiar with, that is to say, with work carried on by means of machinery, and in forms which to them are unavoidably new. . . . A practical School, once established, requires only employment to spread its scholars over the Kingdom. . . .'

Platen is now in Christiania (Oslo) working for the Scandinavian Union. This is ratified on October 20, 1814. 1815 is the critical year in which Platen nearly resigns from the Canal Company. He writes on August 27:

'Peace and the union of Norway performed, a Diet was the consequence of this; and having found by the calculations made at the end of the last year that the funds of the Company by no means were adequate to the work as yet to be performed. . . . I published the bad news in the middle of March, the Diet having been assembled a fortnight! What a damned noise! What an outcry! All the sence and nonsence of the whole Country at once in motion. . . . All sort of reproaches from all sides, were mercyless thrown out and till beginning of August I have mostly alone been standing in Butt in the House of Nobles! A fine and pleasing occupation when we think ourself actuatet only by zeale for common welfar! but there were two Devil of things wich people never could get rid, or account for! viz, my imperturbable calmness and tranquility, and the danger and improbability of stopping so large an undertaking in so many ways connected with General wellfar, after it was so far advanced!! it's shocking! it's odd! but it's unavoidable! that the Diet has, after all this struggle, been obliged to give a yearly supply of 300,000 RD (Riksdahler.—E.M.) in Six Years to the Company besides the conformation of the loan Banque and doubled its fund of Credit in the Banque! . . . Dam them all they have embittered a whole Summer to me . . .

'Meanwhile the work has gone on pretty well tho' we would have made a fine banquerupt if the supply had failed; and newer was a Year more propicious to the execution. Mr. Wilson has two locks nearly finished, the sealock at Berg founded and advanced above the invert and the next above will be founded these days. Wilson is exceidingly well pleased as well as his two workman, as the Crown Prince was there newly founded the Sealock, shook hands with him and gave him a golden box, his inferiors getting some ducats. He has been an excellent man all the time, but now his is nearly ower spirited! The whole Regiment and he are equaly satisfied with each other, as he frequently tells that newer he had better workmen in his life as those he has trained bewixt them. His only objection is that we sometimes should as he thinks give them a little more pay and that he fears he will not have the same regiment next year again! I hope we will settle both. . . .'

This year Platen asks the King to institute a survey of the work accomplished and in progress, in order that unjust criticisms may be stilled. The surveyors report that so far as the quality and efficiency of the work is concerned there can be no complaints.

There is more human comment on the British workmen in a letter from Platen of September 19, 1815, especially about Simpson, who is getting the highest pay, but whom Platen seems increasingly to dislike:

'Your countrymen are all well and have acted to the general satisfaction, as I hope they are satisfied; there may be an exception on both sides as to Mr. Simpson . . . a man not much to be depended on in his business, as he allways will make more for a shining appearance than for true solidity; he has a deal of pride, thinks himself superior to his Countrymen and endavours by no means to sustain this superiority by a strict conduct, but drinks heartyly along with them at their expence as he is a good econome of his own, whilst his turn of day passes very soberly. This was the case in the beginning but his Countrymen being sober and quiet people separated from him after a fighting or two . . . Mr. Wilson continues to give general Contentment . . . if some times a little whim appears it is always the produce of zeal. . . . As for Mr. Ashworth he continues in his old way to the great contentment of every body, his religious zeal keeping within doors; certainly he tells me sometimes with a plentifull portion of Yorkshire-talking that he thinks he should have a little more pay, but as yet we are only about talking, certain it is that we will be badly of without either him or Wilson or any of your Countrymen, and perhaps will we be obliged to augment their numbers . . . Mr. Urquarth has had a little dealing with some Soldiers in which he may be glad at the strickt-ness of Swedish dicipline as well as the docility of the *Swedish man* as he was terribly wrong. All is well over without loss of neither ear nor eyes. Fraser, Carllile, Mackenzie, Lion and Smith are all well, beloved and apreciated by all who have to do with them; and as far as I know contented with us. I finish with to confess to you that never did I expect in getting over such a number of strangers to settle so easely and quitly as I have done with them wich certainly and only is to be ascribed to your penetration and good choice. . . .

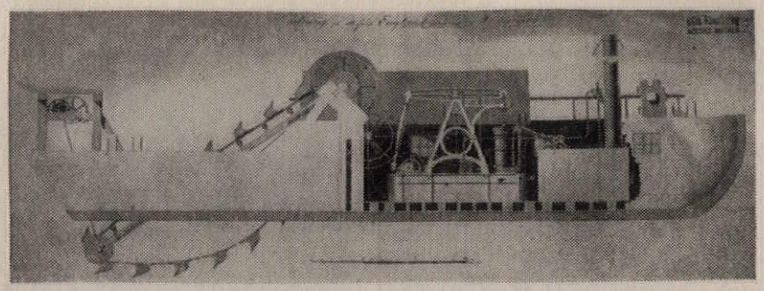
'Carlille and Fraser differ a little in opinion with me about the water edge of the Canal they wish to turf it as the cheapest way to preserve against the washing of the water, but I have an idea to cower the water edge all along with small stones whereof we have such a quantity in some places and they may be brought along the Canal by boats after the water is in; certainly this will be more expensive but I should think it will in future prevent the coarser Water grass to grow wich I think very troublesome in Canals and forming for the future a continual expence for removing it, I should thank you for your opinion on this point . . .' (Platen got his way).

In the winter of 1815 some of the British workmen return to England for Christmas, including Simpson who returns for good. But there is some personal trouble, for Wilson seems to be in his most trying and whimsical mood. From Linköping on Christmas Eve 1815 Platen writes in some perturbation:

'I hope your Countrymen are saffely arrived before this and have delivered my letters; I am sorry to be under the nescessity of giving you some informations regarding the very last week of their stay in this Country . . . I sent a Young man who speaks English along with them, I ordered a tour to be taken in the way to Trollhätta as they wished to see the place, and at the express desire of Wilson already expressed to me when at Berg I desired my brother in law to endeavour to get a passage for all four by a good Merchant Wessel straight to Scotland as the passage upon the paquet would be more circuitous to them and consequently of no use tho more expensive. Mr. Ekman had found out a fine brig whose Capten in all respects seamed to be a clever man, and as very often in a transport even a General should be glad to find an accomodation like this, I should think their Excellenceys Wilson, Simpson, Ashworth and Carlile, particularly as the Cabin was to their disposal, could form no just objection against it; but . . . in Gothenburg . . . Wilson in the name of the whole company who was present, tho' he the only speaker, not only declared to my brother in law that they preferred not only the passage in the paquet, but the first places, probably for to keep company with a Russian Princess, for this time the only passenger of that rate; upon Mr. Ekmans remark that this was contrary to my instruction and a full doubbled unnescessary expence to the Company, Mr. Wilson fell out in insolent expressions and several reflexions of the kind wich he desired my brother in law to communicat to me, all in presence of the other his Countrymen who were silent hearers, tho' some seemed to disaprove his behaviour, even the Young men I sent along with them was present; betwixt number of fine things unnescessary to repeat here Wilson declared contrary to what we had agreed that he was determined under no condition to return to this Country; If you did not know my brother in law to be a moderate and cool man you will find it by his only telling them that for to cut short he would pay them nescessary money and they might take their passage where they pleased; even on this suggestion impertinent reflexions did not fail, but Ekman, as he tells me, only acted by the supposition that their return was of absolute nescessity kept his temper; the three other gentlemen absolutely silent uttered not a word of disapprobation to the conduct of Wilson tho some discontent apeared in the countenance of the two; and of the event for to take their station aboard the paquet I suppose to the great comfort of the Russian Mylady particularily as our gentleman were engaged in a warm quarrel and nearly boxing between them on boarding the paquet. And there is the end of my foolish story. But as for all that I wish if possible to see tree of the company back again . . . as certainly they can be of great use to us, but rather than be imposed upon by them I prefer to be without them . . . I always learned and lastly of you never to be in dependance of any man I never patiently suffered any injustice of a king consequently not of Mr. Wilson, but I forgive him easely considering what opinion I have of him . . .'

Once more Telford is soothing, and writes from Ellesmere, January 27, 1816:

'You are well aware that much trouble attends governing mankind,



11, *contemporary drawing of the dredging machine imported from England in* 1822 *for use on the canal. The vessel was made to measure in Sweden.*

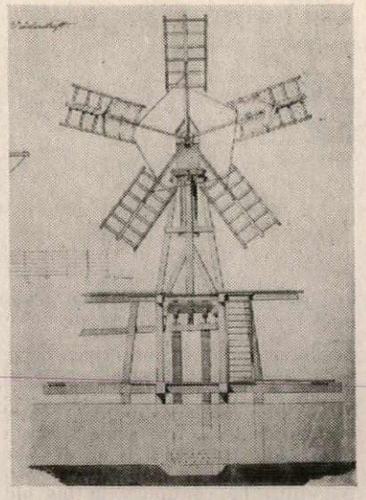
I have my share of it in managing Overseers. And altho' when matters are unfortunately brought forward, I never give way, yet I am often glad to seem not to know lesser improprieties unless they are forced upon me. You are also aware that there is a tendency in the manners of Englishmen, and more especially Artisans, in the northern parts of the Island who affect independency. You also have a just conception of Wilson's character which neither *you nor I, nor himself* can now change. You are much better than I capable of judging how far your future operations will be promoted or retarded by his presence or absence . . .' (The letter goes on to suggest rises in the British workmen's pay and gives various pieces of advice about digging of earth, seasoning of timber, the working of quoins and copings, the use of horse runs, the use of Parker's Cement to cure the leaking of hollow lock quoins at Forswick Lock, and the regulation of the division of labour 'so that the same men may as much as possible be always employed on the same sort of work.')

In a letter of January 26, 1816, Platen considers the use of steam vessels on the canal, and declares how much he wants to hear 'some thing from your immense undertakings as the Caledonian Canal, the Bridge by Iron Chains, the Bridge over the Mersey, etc.' On May 11, 1816, he writes that Ashworth, Wilson and Carlisle have arrived safely back in Sweden and remarks: 'It seems to me as if a turn in England is a good physik to our friends for mor than one reason!'

There is more trouble at the Diet assembled late in 1817 and from Stockholm, February 22, 1818, Platen writes:

'I have very unpleasing occupations here at the Diet after having thought every thing to be settled and over. The failure of our loan banks and the general disturbance occasioned by this in the general finances of the Country, brings the whole thing back to the former state of uncertainty where it was last Diet, we are once more debatting if the whole thing is to be continued or not . . .'

But the necessary new loans were forthcoming in the end and the job went on, though its speed and the number of men employed had to be reduced. A pair of iron gates were ordered from England through Telford's agency and after two years' delay arrived in Sweden, were fitted to a lock and proved their worth. Thereafter iron lock gates were made in Sweden on the English pattern. A dredging engine fitted into a craft made specially in Sweden was also ordered from England and eventually worked well. At about this time, too, Platen decided, in order to save the great expense of importing foreign products, to establish an iron works that would make iron bridges, lock gates and so on for his canal in preference to more temporary works of timber; later on he hoped also to make steam engines there. Telford obtained the services of an English iron worker who stayed a season in Sweden; that first attempt, however, came to nothing. Eventually the Canal Company did build an iron works at Motala under the direction of an able Scot, Daniel Fraser, who now lies buried in Motala churchyard. The works proved their value, but financial difficulties arose, and in 1840 they were sold to a private company. Today those works, known as Motala Verkstad, are among the most important industrial concerns



12, *wind pump, as used in constructing the canal.*

in the country; the little, trim white passenger steamers, which ply along the canal in summertime and take two and a half days to make their delectable journey between Gothenburg and Stockholm, have been made there.

In March, 1822, Platen visits Telford in England and makes a tour with him. He writes, May 11, while waiting at Harwich for a fair wind home:

'Yes, my dear friend I shall leave this shore perhaps for ever but certainly these last 5 weeks of stay in England will be remembered for ever by me as an immense augmentation on the considerable debt I already stood in with You, to whom I own all the Success of latter years; nay more, the strength of fighting the obstacles thrown in my way; but You are no Friend of words and so no more of the subject. . . .'

The same month Fate is kind to Platen in its paradoxical fashion, for he writes from Gothenburg, May 22, in a postscript:

'A man who always was a strong opponist to the Canal with considerable talents in the house of nobles; probably often a tool to some *high* people, and who last Diet nearly had carried the question of my arraignment has cut his throat. So we will have no more fihgt' [sic].

1822 is a big year for the canal because the western line between Vänern and Vättern is opened in the autumn with great ceremony. Platen describes it in a letter from Mariestad, September 29:

'Dear Friend! The 23 of this Month the Great Ceremonie of the kings passage from the Wenner to the Wiken on the Gota Canal took place with full success a particular Wessel was fitted out for this purpose and was accompanied by to large Gunboats schooner rigged and several other Wessels the Water in the Canal was between 8 and 9 feet and under an immense crowd of people parading Regements with their bands and firing of diferent batteries the Scene was realy grand. The only thing missed not only by me but by many other was the presence of You dear Friend; but I know You are not found of Ceremonys. The king was delighted by the Scene and extended his tour to the new forteresse* at the Shore of the Wettern, every body seemed now convinced of the goodness of the plan who long enough was threatened a speculating folly and I deemed those two days to have a full victory. The two uppermost Locks on the West end of the Level were given your name and the king paid particular attention to the perfectability of the work as the result of your aid. I was happy to see this justice done and am sure you rejoice with me at the Success.'

* Karlsborg.

Another Diet took place in 1823 and Platen was in the wars again. This time he had an easy win. From Stockholm, March 18:

'The 1st of March our Sir Francis gave me a good opportunity by an incendiary production to exert my small oratory talents in a full house of about 700 members and I was successfull beyond all expectation of me and others! Roaring acclamations and individual praise poured on Your Friend from all sides to a degree never heard before, and the inimical party was quiet interdicted . . . my spirit was flowing that day and my tongue unfettered. . . .'

On October 17, 1823, he writes:

'I have had a hard stand as usual but the 15 of this month I carried the question in the House of Nobles with a Majority of 138 against 26, tho with a fighting for all the different questions of a whole day! I remember pretty well when I was glad for a Majority of 7 voices but the opened navigation has made an effectual impression. . . . The Navigation on the west line has been far beyond expectation . . . the inner parts of the Country are already vivified to a visible degree. . . .'

There were delays during 1823, and 1824 was the worst year in the history of the canal's building, mainly on account of costly troubles in Lake Viken where dangerous under-water rocks in the fairway had to be blasted away and where the dam had to be entirely rebuilt. But Platen pressed on. He wrote from Gothenburg, November 22, 1824:

'The performances of the year at an end at all other places except Forsvik, where very nearly I was in a scrape with the whole business retarded by the failing of the cofferdam, and the bad season advancing fast upon us with ice and snow and the water in the upper part of the Lake rising hourly; happily I had one of the hardiest Regements of the Country tho' a very stubborn one. As Commander I declared them in front; some individuals having uttered a wish to see their home, that neither they nor I would see our home before we had finished the task! and after this open declaration, with some dexterity, daily and hourly attendence of mine and some brandy and ale I never heard a murmure of 517 men quartered on the Rocks of Wiken in almost open sheds and often working in water to the knees tho' the ice in other places was strongh to bear a man! happily I was in good health tho' I was with them every hour and at the 25 of Octobre the bataillon left the place without a single sick under laughing and singing. . . .'

In England Telford has a bout of illness and tries to reduce his responsibilities, but with the death of Rennie in 1821 work pours in. He writes from London, April 11, 1824:

'My dear Count, . . . In regard to my Avocations they are so numerous and extensive, I scarcely know how to proceed to describe them. I shall therefore only amuse you with slight notice of a few of the most important. Beginning at the North End of the Island.

'1.—The Caledonian Canal, has been much frequented since the Regulating Weirs ensured 13 feet water in the shallowest parts. . . . From Gothenberg, and the Baltic, Timber Vessels may now pass direct through the Caled. Canal and the Clyde, to Ireland, or Liverpool. By this means, the detentions and shipwrecks in the passage by the Orkneys will also be avoided—and much time saved in foggy, dark and Stormy Weather. It may be important to let this be generally known in all the Swedish Ports, as well as the Norwegian. Vessels cross between the East and West Coasts in 3 or 4 days with perfect safety.

'2.—The Highland Roads and Bridges remain in a perfect and useful state.

'3.—The Dundee Harbour, nearly compleated. . . .

'4.—The Edinburgh Water Works nearly compleated. Wilson superintending the great Reservoir Works.'

Telford goes on for another eighteen points, including roads, canals and harbours, the masonry of the Menai Bridge nearly completed and the iron work prepared, the Conway Bridge in a forward state, a plan for New London Docks prepared and presented to Parliament. He concludes: I think you will admit I have not been idle. . . .'

What a man! He even has time to ask Platen about the cask of pine seed requested to be sent to England for planting on the estates of Lord Colchester, former Speaker of the House of Commons. Telford has been asking for these seeds with polite but dogged insistence since 1816.

Another letter from Telford of July 11, 1824, shows that canals are booming in England. In spite of the boom, there was more opposition to the completing of the Göta Canal in the Diet of 1828 to 1830, but now the battle was finally won. Since the beginning, all the arguments had, of course, been about money and bank loans, but the time had long since passed when abandonment of the project was possible.

In 1829, before the Diet had adjourned, Platen was sent to Christiania as Viceroy with the commission of trying to save the Union. Like Telford, he was now tired and aging. Both men had driven themselves hard; as Telford wrote on one occasion to Platen: 'I keep talking of avoiding employment, but when undertakings of



13, *the Count von Platen, from a contemporary portrait.*

magnitude and Novelty are forced upon me, the temptation is too great to resist'—and on another occasion, when urging Platen to visit England: 'If you do not come this Year or next there is a risk of the Game being over with us both. We play with so much eagerness—we cannot last long, but we are too far committed to recede.'

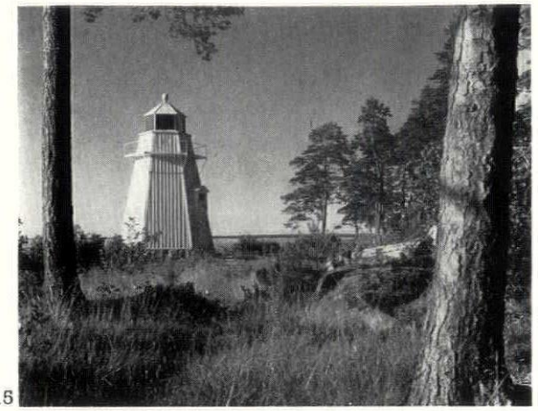
After a fortnight's illness Platen died of cancer in Christiania in December, 1829. An extract from his last letter to Telford reads with the pathos of a rather weary old man:

'I have done my duty, tho' with little gratitude. . . .'

But he achieved his object.



14

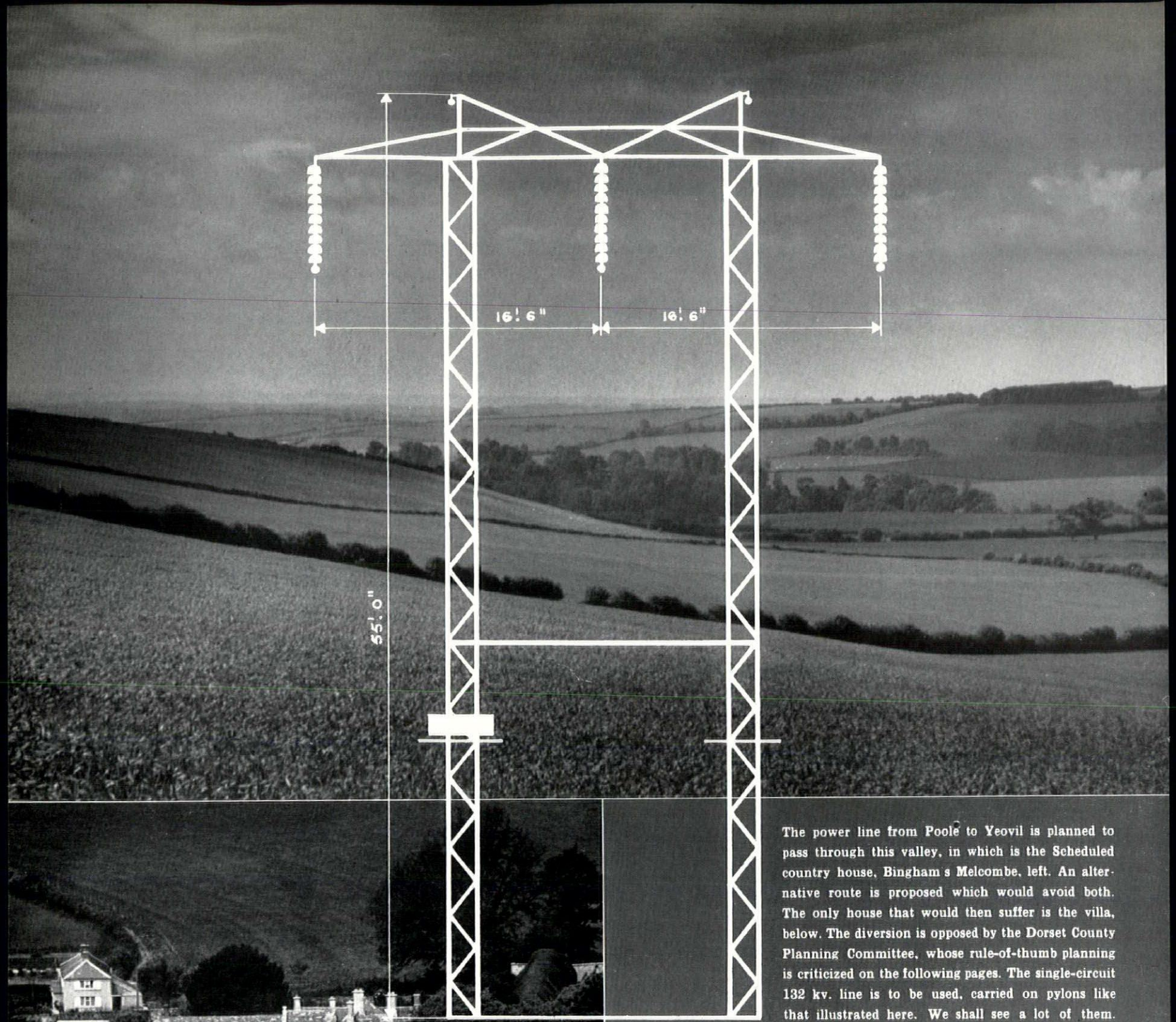


15

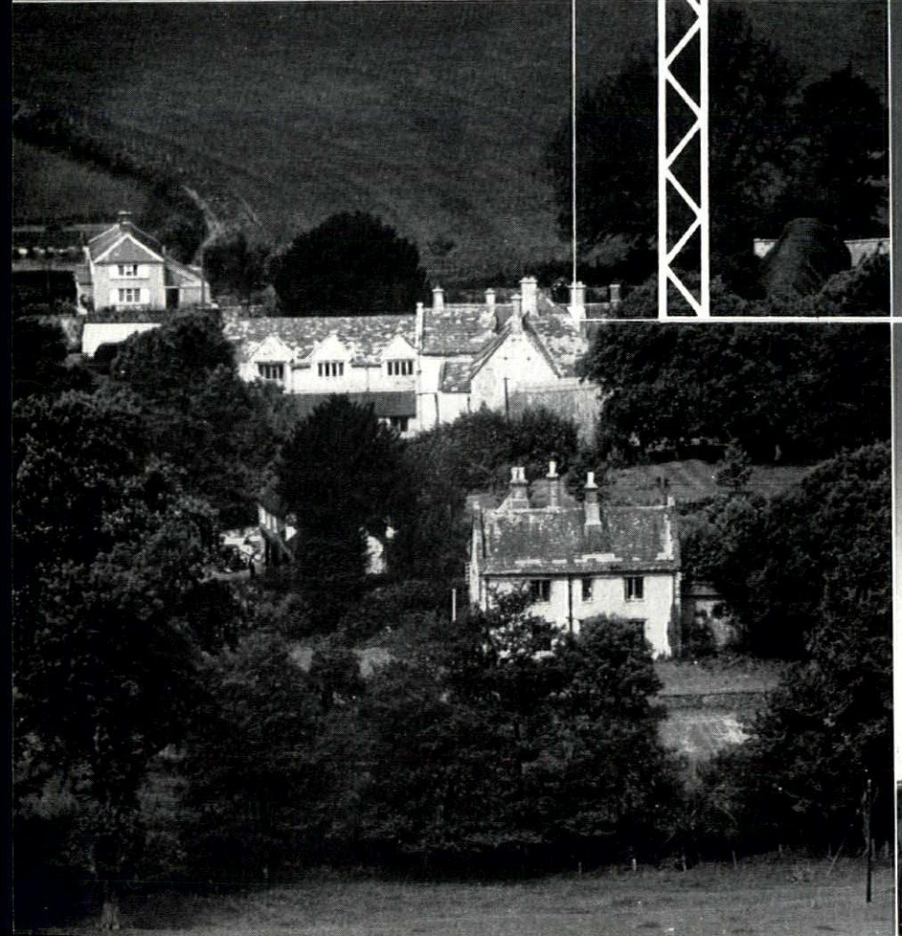
14, *the first lock, at Sjötorp, on the stretch of the Göta Canal east of Lake Vänern. The locks are still worked by hand.* **15,** *a timber lighthouse on the shore of Lake Vänern.* **16,** *a passenger steamboat approaching a bend in the canal near Borensberg.*



16



The power line from Poole to Yeovil is planned to pass through this valley, in which is the Scheduled country house, Bingham's Melcombe, left. An alternative route is proposed which would avoid both. The only house that would then suffer is the villa, below. The diversion is opposed by the Dorset County Planning Committee, whose rule-of-thumb planning is criticized on the following pages. The single-circuit 132 kv. line is to be used, carried on pylons like that illustrated here. We shall see a lot of them.





Gordon Cullen

BINGHAM'S MELCOMBE

OR THE RULE OF TOM THUMB

The curse of the English landscape is the absentee landlord. The old landlord, the man who created it, has been taxed out of existence and the new landlord, local and national authority, lives in town or suburb. Consequently that sense of personal responsibility arising from a knowledge and love of a particular piece of countryside is missing and is replaced by a generally beneficent but remote control: the difference between a parent and a foster parent. (How often do we come across some village which at once stands out from the general run of untidy, outraged and decaying hamlets by its trim and homogeneous air only to discover that it is still the responsibility of a family.)

Add to this the fact that authority, almost by definition, is more interested in the art of government than the art of landscape, then what happens to the landscape will be the political resultant of the various pressure groups involved. On the one hand there are the pressures arising from the necessity for new housing, power stations, power lines, railway electrification, military installations, airfields, car parks and roads, radio transmitters, mining and quarrying, etc. And on the other hand are the pressures exerted by the preservation groups such as the C.P.R.E.

It is not surprising therefore that authority, in its attempt to resolve these pressures into a single resultant, will evolve certain broad principles which, by and large, work or make the best of a bad job: rule-of-thumb planning. This, however, cannot be more than an alibi for imaginative design. It is carried out by absentee landlords who have only a marginal knowledge of the art of landscape. In the nature of things it is bound to lead to abuse and outrage. Perhaps this can be clarified by a homely simile. Generally speaking the Smith family have a roast of lamb on Sunday. Mrs. Smith, however, is a good shopper and if the quality of the lamb on a particular day is poor she buys something else. Mrs. Smith falls ill and Mr. Smith does the shopping. He knows next to nothing about shopping but he does know that they generally have roast lamb on Sunday. Hence he insists on buying a leg of lamb that turns out to be a disaster. Rule-of-thumb shopping is no substitute for skilful shopping; neither is rule-of-thumb planning an effective substitute for the practice of the art of landscape. Fortunately the countryside has not yet been entirely abandoned. There are still those 'village Hampdens' who

have humbly studied their own bit of countryside and are prepared to defend it against the steamroller let loose by rule-of-thumb planning. Here is such a case.

Upon the death of its owner, Bingham's Melcombe, the Dorset country house, was purchased by Sir Francis Hopwood. The house, a comfortable and snug manor house, has great charm in itself and nestles informally in a spacious valley. The fact that it is a scheduled building is an indication of its recognised worth. The valley itself is of great beauty and it also, according to our information, has been recommended for scheduling as being of 'the highest landscape value'. But these are not two separate things, building and valley. If you destroy the setting you lessen the building, and by the same token if you replace the building by a gasworks you devalue the valley. Upon taking over the property Sir Francis Hopwood found that he was engaged in the battle against outrage from the start. For just as damp and the death-watch beetle had put the actual fabric of the house in jeopardy, so the agents of outrage were creeping through the valley. On his own land, and closing the view of the valley, a completely incongruous row of villas was clearly visible. He has planted a clump of chestnuts to screen them and so preserve the sense of unity. Battle was joined with corrugated iron. Later it transpired that a hill flanking the valley was up for sale, but the standing timber, deciduous, had already been sold separately to a timber merchant. The owner thereupon purchased the land and, before the trees could be felled, bought them back from the timber merchant.

The next threat, and it is with this that we are here concerned, arose when it was learnt that the Central Electricity Authority proposed to bring a new 132 kV. line through the valley since it happened to be on the route between Poole and Yeovil. A meeting was held on the site between the owner, a representative of the County Planning Officer and of the C.E.A. and it was agreed to adopt an alternative line which avoided the valley and passed through more elevated arable country with little habitation. Except for one or two pylons this line would be invisible from any public road or place. This alternative route was then agreed in principle by the County Planning Committee and the C.E.A. Some months later the owner learnt, indirectly, that the County Planning Committee had rescinded their agreement to the diversion and recommended a return to the original line through the valley, although there was no change of heart on the part of the C.E.A. At this point and subsequently the owner found himself treated like K in Kafka's *Castle*. He could get no information concerning the decision and those to whom he wrote replied evasively. That is how the position rests today.

It doesn't make sense. At least, it doesn't make sense until you realise that the local authority is trying to preserve the amenities of Dorset, and all the indications are that the particular rule of thumb applied here is that since pylons are offensive they must be hidden. Consequently they must avoid the skyline and at all costs pass through valleys. You've got to have roast lamb on Sunday even if it poisons you. Quite clearly the power line should avoid the valley and pass along the alternative route. If this is done it will be established that no longer is the uncritical enforcement of rule of thumb to be tolerated even though it is undertaken with the best will in the world. We all now know that Bingham's Melcombe lies on a line between Poole and Yeovil; what may not be realised is that it is five miles from Tolpuddle and thirteen from Crichel Down. Planning has gone a long way since Tolpuddle; it must be kept alive, vigorous and imaginative, and not allowed to end up a casualty to bureaucracy.



THE COCKPIT

A relief map of the area, in which ***1*** *indicates Bingham's Melcombe, from which it can be seen clearly that the suggested diversion (dotted line), simply takes advantage of the contours to protect the house and valley from the outrage of wires. The alternative to a valley route is not necessarily a route which clings to the highest ground; it is the alternative to rule of thumb, which is to exploit the contours and natural features with skill and ingenuity.*

Key to map:
1*, Bingham's Melcombe.*
2*, Bramblecombe Farm, a charming nineteenth-century building, whose owner is also opposed to the proposed route of the power line.*
3*, the villa, the only building directly affected by the suggested diversion.*

Proposed power line.

Suggested diversion to avoid valley.

Public roads.

Main valley bottoms.

THE BATTLE AGAINST OUTRAGE (below)

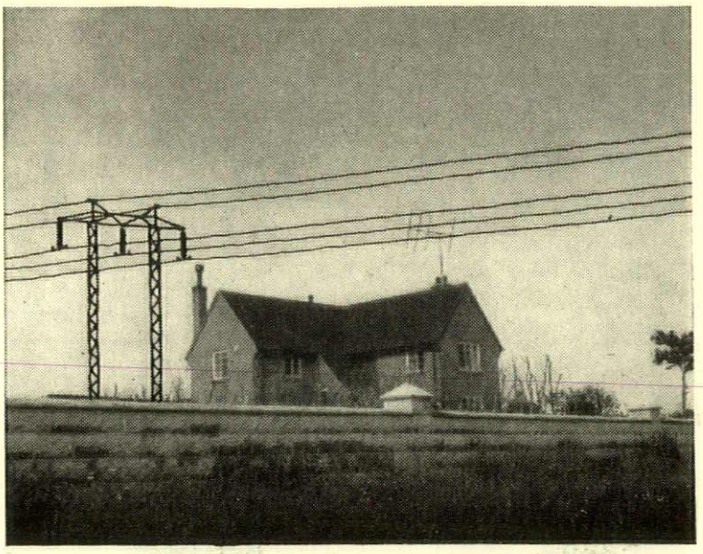
Left, the scene today. In the foreground is Bingham's Melcombe. We are looking in the direction of its main prospect which is marred by distant villas and farm buildings. Centre, the owner has planted chestnuts which, in time, will screen these buildings and preserve the unity. But all would be confounded if the proposed power line were to be erected, right.



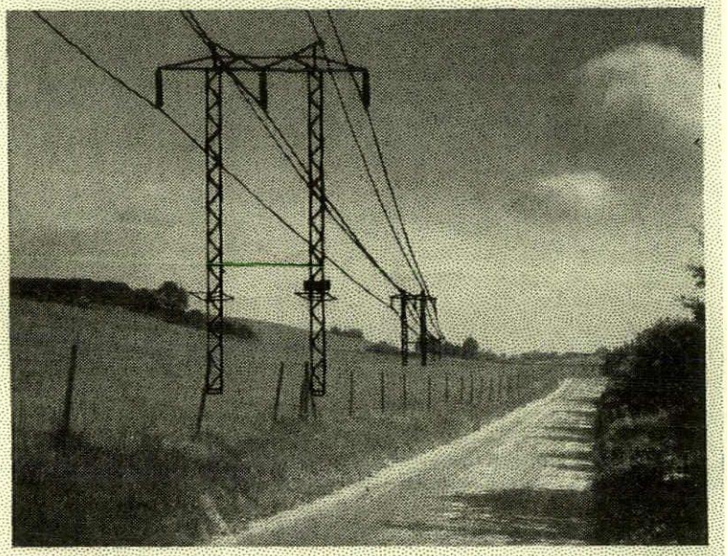
THE ROUTES COMPARED: **the valley route** **the suggested diversion**



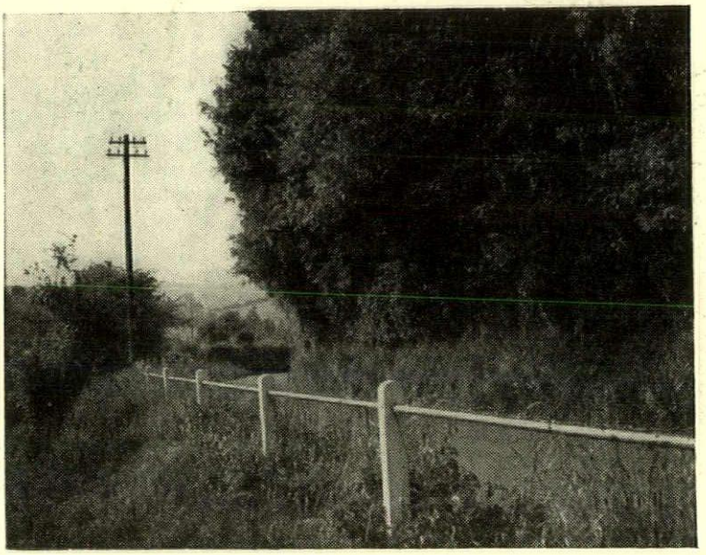
View from the garden of Bingham's Melcombe, showing how pylons would mar the setting of an important and scheduled country house.



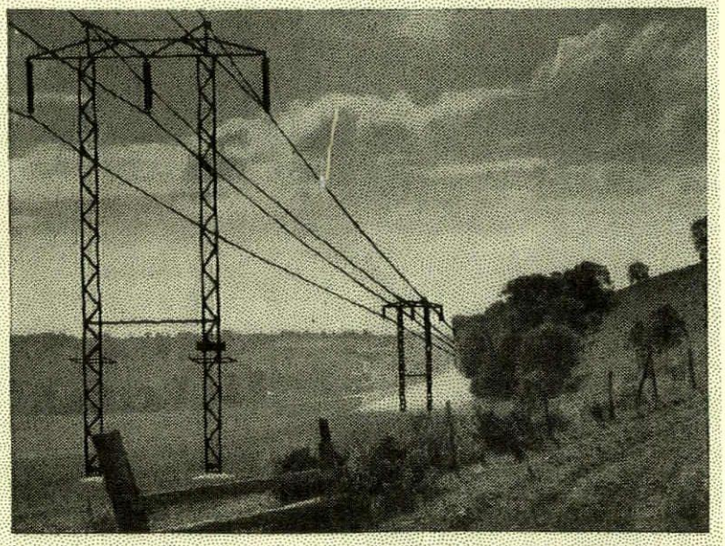
The pylons would affect this one house, but if it is a choice of evils there are few who could seriously maintain that this is the greater.



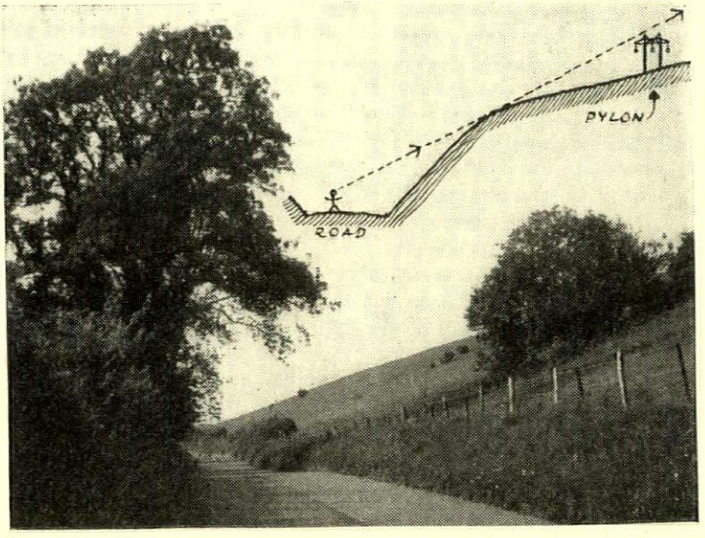
The pylons accompanying the valley road. Rule of thumb planning ensures that they will be seen by most of the people most of the time.



The road for a great part of its route is heavily screened by a tall hedge, thus cutting out any view of the pylon behind.



View in the valley showing how the pastoral scene would be shattered by the pylons which, incidentally, due to the desirability for straight runs, would clip corners and necessitate the felling of trees.



Where the hedge stops the line of pylons would be hidden by the slope of the hill, as illustrated in the diagram. It is this sort of careful landscaping we need in place of rule of thumb.

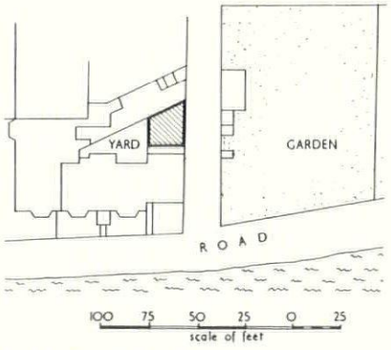
HOUSE AT TYNEMOUTH

ARCHITECTS,

RYDER AND YATES



1, north-west elevation of the house. The screen at ground-floor level is of precast concrete units. The panels between the first- and second-storey windows are of dark-green plyglass.

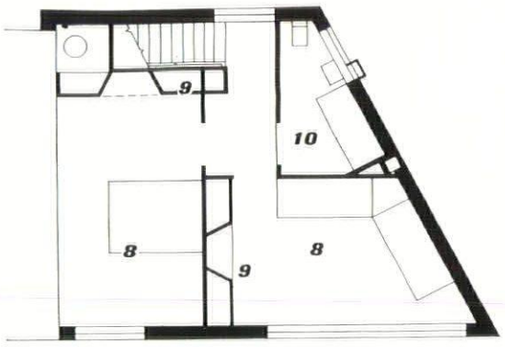


site plan, the house shaded)

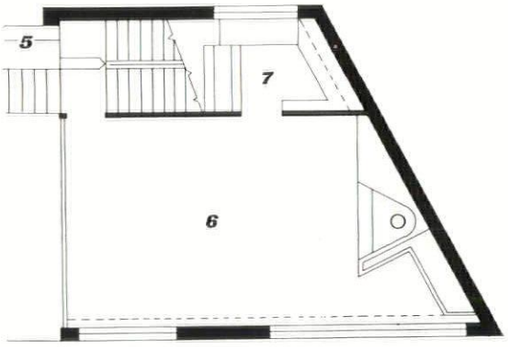
1

The site is a triangular backyard behind a four-storey Victorian terrace. It is shut in on all sides except the north-west. However, this aspect is remarkable in that it faces along the coastline and commands an excellent view of St. George's Bay and the headland at Cullercoats.

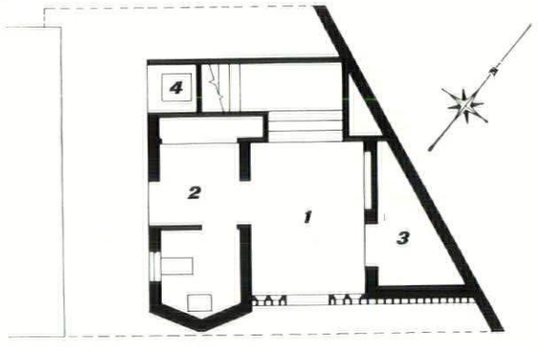
It was necessary to provide a small house linked to a flat on the first floor of the existing terrace. The new house, however, had to be complete in itself, and the design was severely restricted by the shape of the site, by rights of light of the surrounding property, and by



second floor



first floor



ground floor

20 15 10 5 0 5

scale of feet

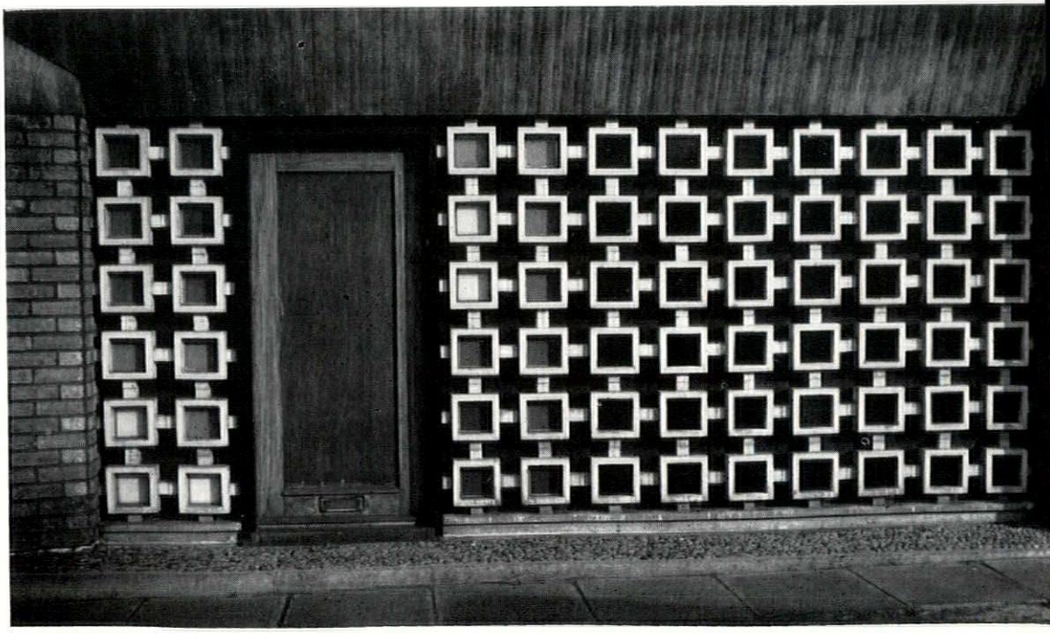
key

1. entrance hall.
2. cloaks.
3. store.
4. gas boiler.
5. adjoining house.
6. living room.
7. kitchen.
8. bedrooms.
9. dressing table-wardrobe unit.
10. bathroom.

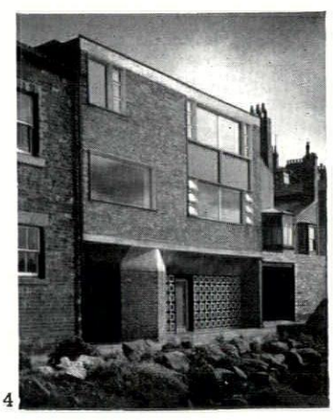


2

2, the entrance hall, with its ceiling of interpenetrating fibrous plaster units and tiled floor. The mural on the facing wall is largely in black and white, the hibiscus flowers in the foreground being red. 3, the concrete screen wall on the ground floor. 4, the north-west front of the house, seen across the edge of the garden.



3



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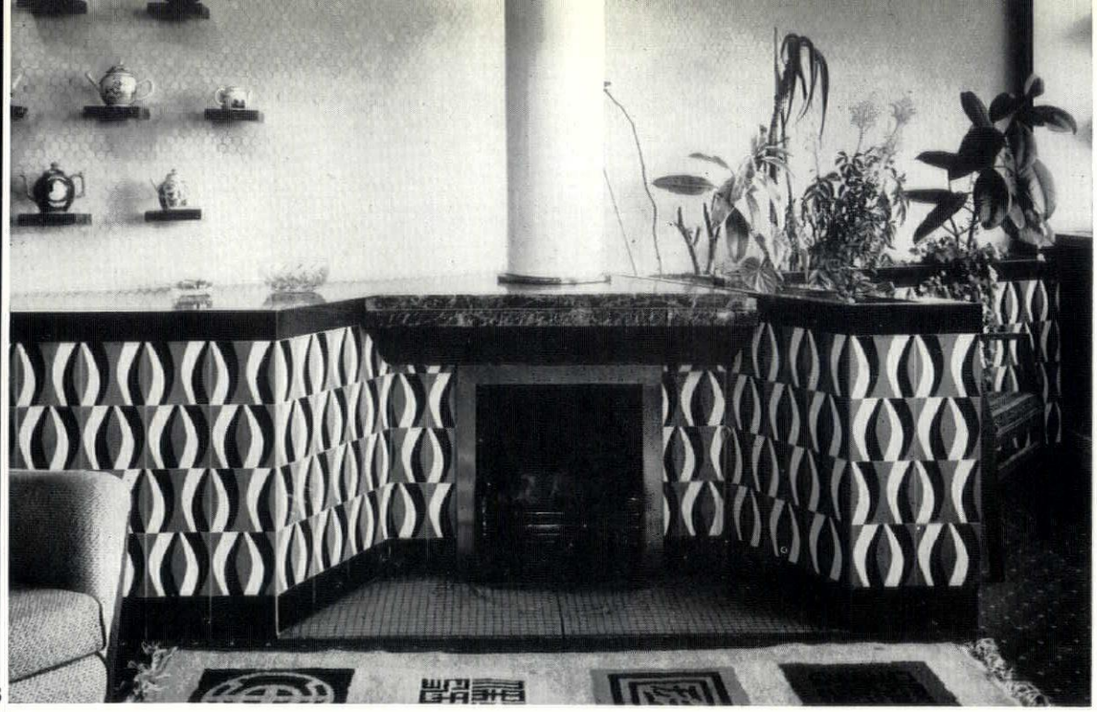


5 and 6, the living-room, first floor. Green marble is used both in the fireplace slab and for carrying the teapots; the wall behind is mosaic.



6

the necessity for high-level access from the adjacent flat. The living-room is raised to first-floor level so as to make best use of the view, and the ground floor is taken up by cloakroom, stores and a large entrance hall.

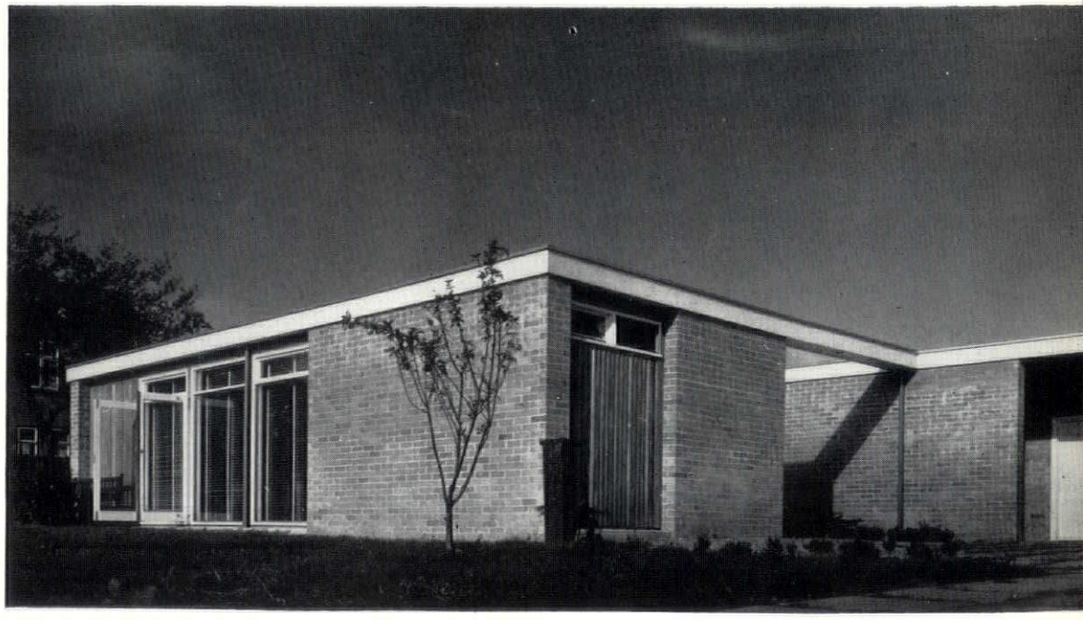
The ground-floor screen of precast units of white concrete, is designed to create, even in diffused light a strong effect of contained shadow. Where the grille units act as a wall facing, they are filled with black tiles, while those lighting the entrance hall are set with squares of red, blue, yellow and green glass. The hall is entirely white, with a tiled chequerboard floor. The ceiling has interpenetrating units of fibrous plaster. The two side doors are of mirror with handles of Carrara marble.

In the living-room the fireplace slab is green marble with the flue finished in white vitreous enamel. The rear wall surface of matt hexagonal mosaic forms a neutral background to a group of green marble slabs on which are arranged the client's collection of teapots, and to a tropical garden. This is accommodated in two plant boxes containing soil-less compost and fitted with aluminium sub-irrigation units fed through funnels. The opposite end of the room is clad in Oregon pine boarding with coloured separators which can easily be fed out and replaced, changing the colour scheme of the wall. Construction is brick upon a first floor of reinforced concrete. The window panels are of dark-green plyglass, and the chimney of precast units of white artificial stone with black rusticated joints.

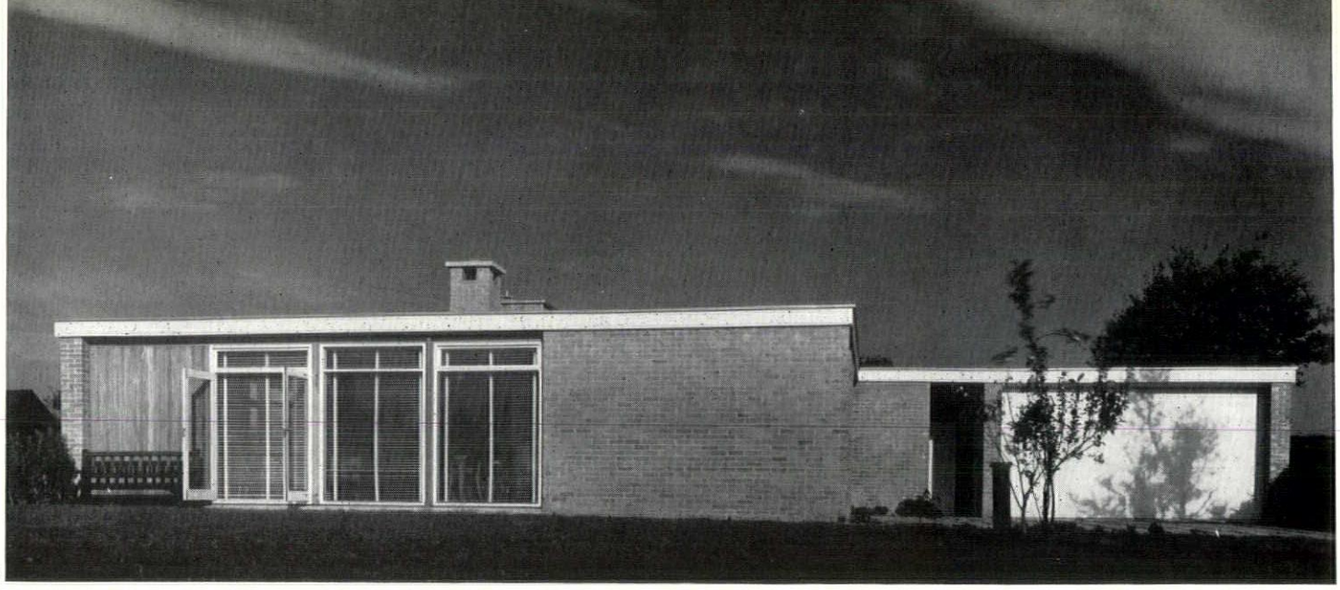
HOUSE AT SCARBOROUGH

ARCHITECT,
HERBERT MOREL

associate architects,
J. M. Austin-Smith
and Partners



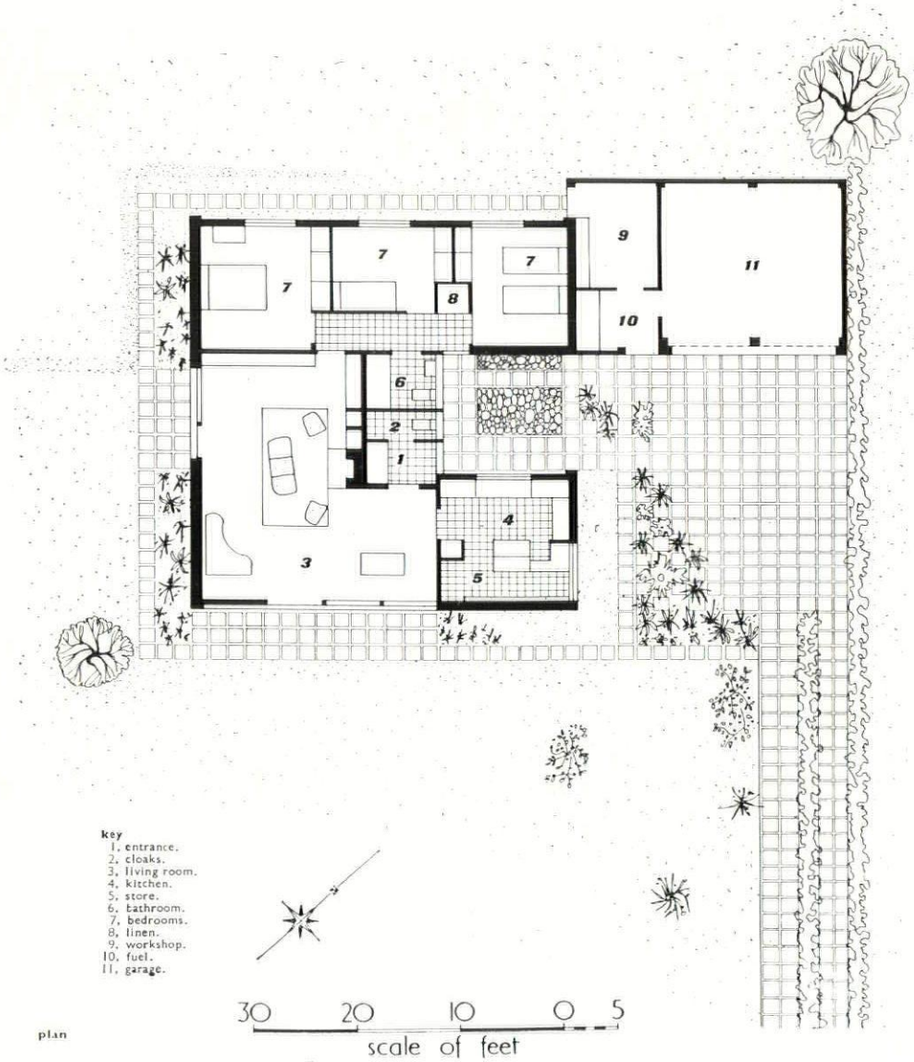
7, the house from the east, with the living-room on the left, the kitchen in the centre and the entrance beyond it.



8

The house is based on the architect's winning design in the 1953 *News Chronicle* 1,000 sq. ft. house competition, but the area is larger and the finishes different from the competition design. It is in North Park Road, Scalby, near Scarborough.

The structure is in Leicester buff-brown facing bricks and 4-in. concrete block, contrasted against vertical secret-nailed Lagos mahogany boarding, on one layer of building paper on timber studding, lined with 1-in. glass silk insulation and $\frac{3}{8}$-in. aluminium foil-backed plasterboard. All fixed lights are double glazed and opening windows are purpose-made galvanized steel in timber sub-frames. External softwood trim around the mahogany boarding and front door are painted olive green; window frames, fascias and garage doors broken white. The living-room, bedrooms and bedroom passage have 1-in. sapele mahogany block floors; the kitchen, cloakroom and bathroom, terracotta-coloured synthetic tiles. The bathroom has oyster grey tiles. Heating and hot-water services are by a gas-fired system, having concrete ducts in the floor, with register outlets, and a double solid fuel stove.

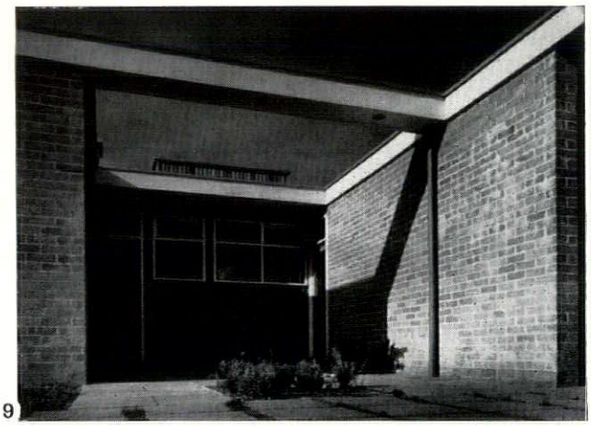


key
1, entrance.
2, cloaks.
3, living room.
4, kitchen.
5, store.
6, bathroom.
7, bedrooms.
8, linen.
9, workshop.
10, fuel.
11, garage.

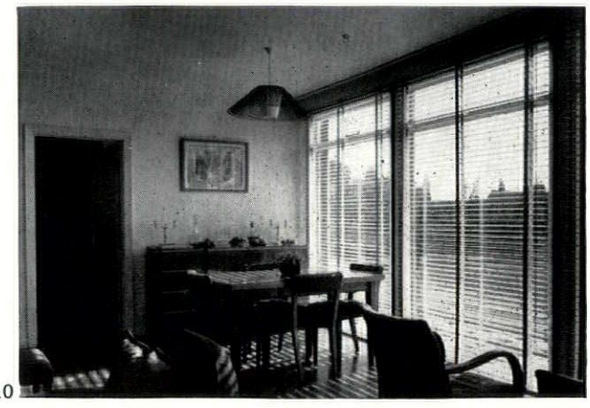
30 20 10 0 5
scale of feet

plan

HOUSE AT SCARBOROUGH



9



10

8 (top of page) south-east view of the house. 9, the entrance court, cobbled in the centre. The entrance wall is mahogany boarded. 10, interior of living-room, with door into kitchen, left.

Nicolete Gray

ALPHABET*

If we have rejected the theory that an alphabet based on the Trajan column lettering is the end-all of monumental lettering, if beyond that we have decided that the theory of classical lettering formulated at the Renaissance covers a part only of the possibilities of lettering as an art, what then is the nature of that art? By what other criteria can we judge it? How can we tell what is good and what bad, what legitimate and what, if anything, illegitimate, or when indeed a letter is a letter?

It has been usual in modern theories to start with the idea that the essential element in lettering is legibility. I would like to suggest that this element bears very much the same relation to the art of lettering as the function of building does to the art of architecture. Indeed the nature of the two arts seems to me very similar. When the intention of the writer or builder is purely utilitarian, his work has virtually no artistic element, though it may be quite adequate to its purpose. Elements of treatment and relation which, for some reason or other, are pleasing to the mind and the eye can be incorporated into this utilitarian purpose, and the result is a work of art; as well as being an efficient building, or a legible notice. But finally the artistic element may completely overshadow the utilitarian. That it seems to me is a question both of the purpose of the artist and of his view of the function of his work. After all a building may have a function which is not utilitarian, for instance a triumphal arch, or a cenotaph, or indeed a cathedral. They are built surely not for material ends but primarily to embody and convey ideas. In the same way lettering, I think, at its highest, can embody the connotations of the words it transcribes in purely aesthetic terms, ideas entirely beyond the meaning which may be conveyed by the habitual action of reading.

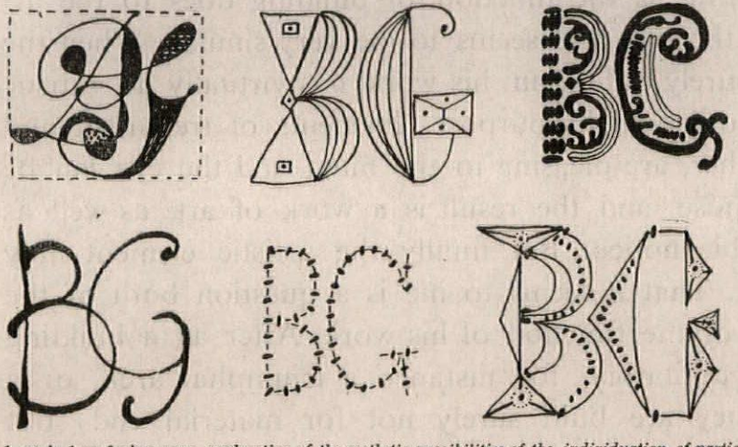
I want to make this clearer by taking some examples, but first I would like to point out another similarity between lettering and architecture. Both, in so far as they are arts and not utilities, are abstract arts. In both there is an unescapable basis of geometry,

* In her series of Miscellany articles (A.R., December, 1953; April, June, August and October, 1954, and April and December, 1955) Mrs. Gray dealt with the alphabet as such. Here she moves on to consider more particularly its relationship to architecture, from the point of view of character as well as function.

which we have surely discovered recently to be one of the poles of all abstract art, providing the ultimate symbols of stability and objective knowledge; and which we have seen to be the basis of the classical theory of lettering. The baroque antithesis, the range of abstract expressionism, which we have also rediscovered, has of course long been exploited in Chinese calligraphy. These poles represent to my mind the possible aesthetic range of lettering.

There is something else which we have learnt about abstract art in the last decades, not for obvious reasons in architecture, but in painting and sculpture; that is the physical entity of a work of art. We have only painfully, through collages and constructions, and through the destruction of the frame, come to see pictures as what they physically are, become conscious of them as something known only through the senses, not read like a book, or looked through, like a window. Clearly this is an acute difficulty in the case of lettering. I have tried in previous articles to stress the importance of the physical circumstances of lettering, its size, colour, light, position, material. These are attributes in virtue of which lettering, outside the printed book, may be architectural detail and ornament, quite apart from any message it conveys. If beyond that it is also, as it may occasionally be, a higher sort of work of art, this can only be through its own particularity, through the making, siting, and charging of a particular combination of strokes and curves. It is in order to bring out this particularity that even in these articles which have been concerned with types of lettering I have always shown particular examples and never alphabets. For an alphabet is only a beginning; the way in which it is used is as important, at least, as the type which is chosen.

I have illustrated in preceding articles many examples, widening perhaps the current idea of



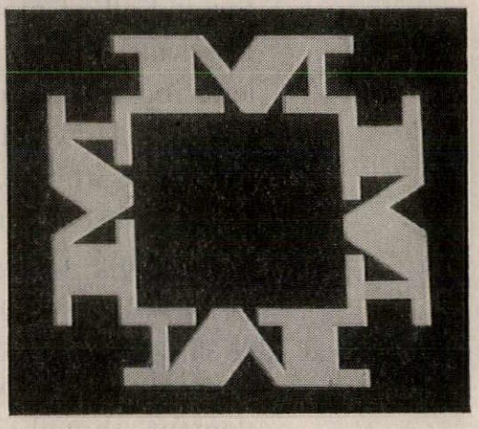
1, *as in* 1 *on facing page, exploration of the aesthetic possibilities of the individuation of particular letters—only in a different mood. These are drawn by Imre Reiner.*

possible intentions and uses of lettering, but on the whole they have been examples of modest and everyday usage. I want in this article to explore the limits of achievement, and for this purpose we need to think of the subject as a whole. It is a subject which includes various highly technical subjects, typography, calligraphy, paleography, epigraphy, which are usually studied in water-tight compartments and only surveyed, as far as I know, by the mind of Mr. Stanley

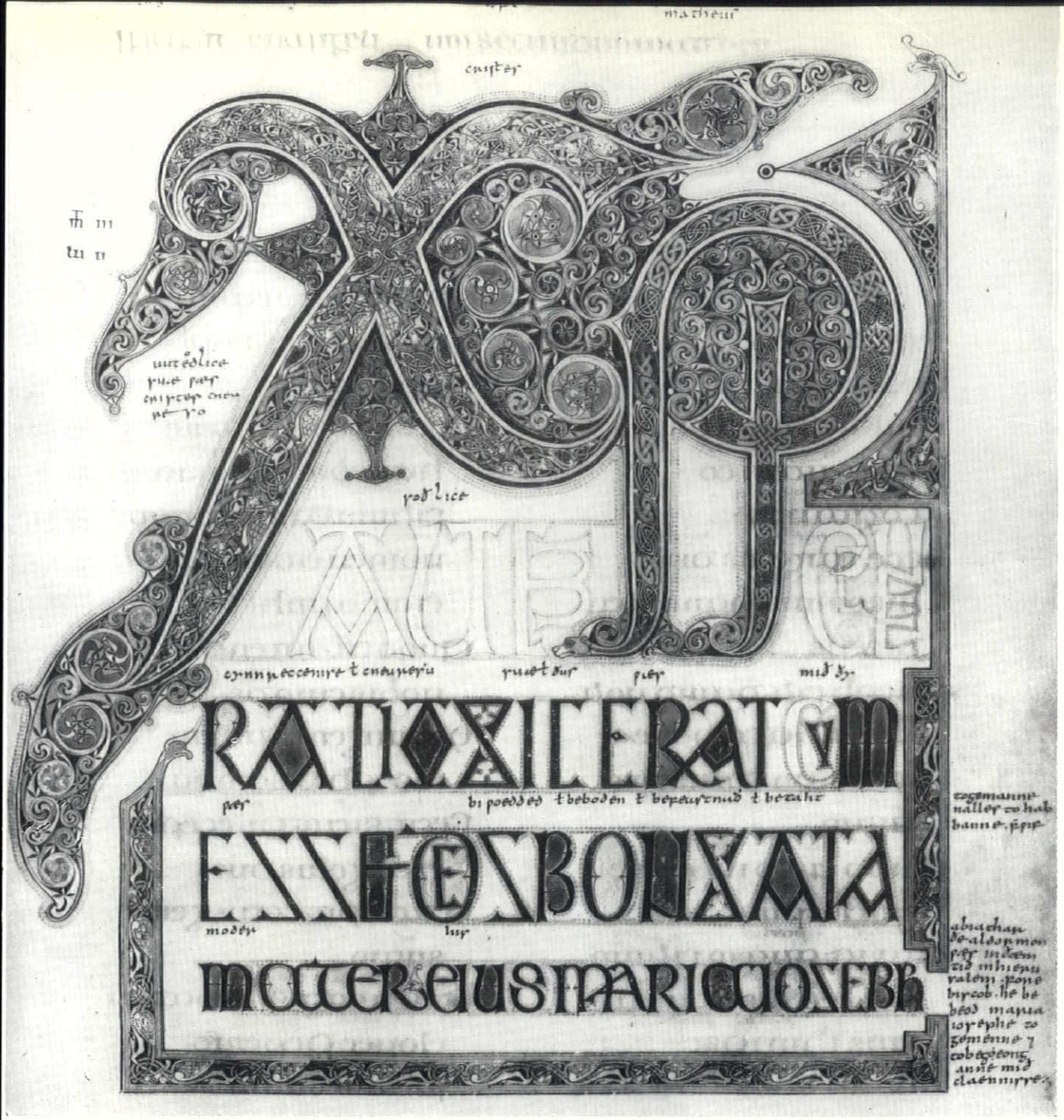


2, *left, page from a Carolingian gospel: a geometrical pattern of lettering, but also a dramatic conception in a three-dimensional setting.*

3, *right, a brilliant modern example of purer geometrical design: from a greengrocer's shop in Bishopsbridge Road.*

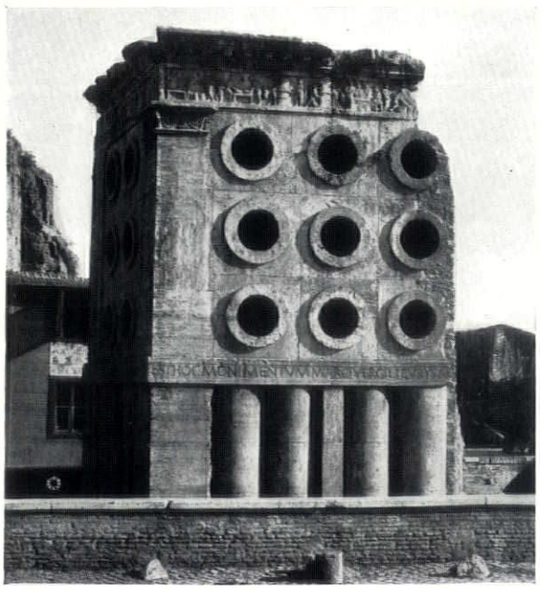


Morison. There are also the highly developed arts using Chinese and Arabic characters. Out of my own ranging and erratic experience I have chosen some examples which seem to represent the highest points of my experience. In the West, at least, the richest field is the manuscript book. I went the other day to look again at the Lindisfarne Gospels, 4, to try to discover why through periods of entrenched representational art-theory this example of pure abstract art should have been valued so highly (for no one has ever suggested that its value lies in the Evangelist pictures). The conclusions I came to were not quite what I expected. I was struck first by the relevance of the text. Mr. Ruari McLean in a recent book says that 'beauty in lettering has nothing to do with the meaning of the words.' I do not agree. Normally it is the meaning of the words which is the letterer's starting point, and if he should be an artist it surely determines his mood and the intensity of his work. The high seriousness of the great series of Insular Gospel opening-pages seems to me due entirely to the



4, *a page from the Lindisfarne Gospels. Immense aesthetic scale and power is achieved through an intensification of the formal nature of a particular letter.*

5, *The Roman invention; the monumental procession of the Latin alphabet; used as architectural ornament. The tomb of Eurisaces, Rome.*
6, *The Pantheon. The letters were releaded* 1892-3.



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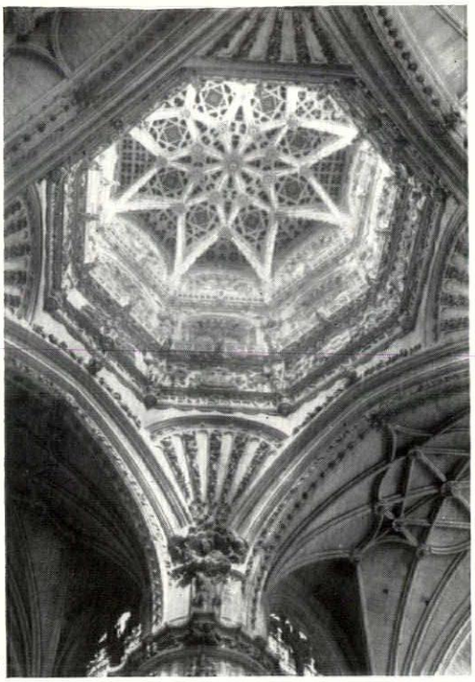



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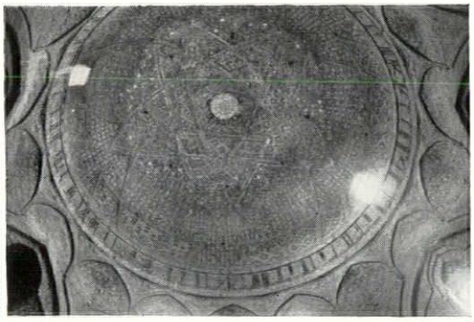
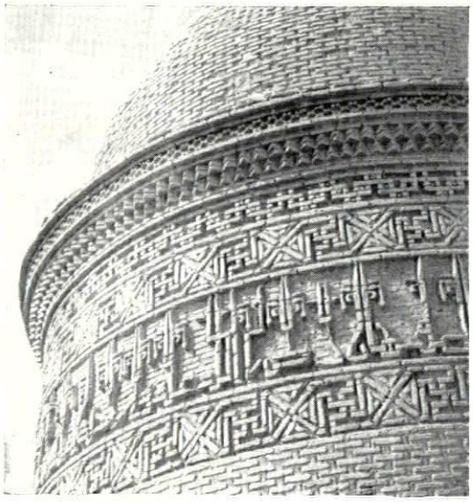
7, *imaginative incorporation of lettering into architectural design: the lantern of Burgos Cathedral seen from below.* 8, *detail of relief lettering within the lantern.*



9

9, *Kufic relief lettering round one of the domes of the great mosque at Isfahan: a positive, formally integrated element in a highly serious design.* 10, *lettering round the tomb-tower at Damghan, North Persia: the focus of the pattern of surface textures.* 11, *a European example comparable to* 9 *and* 10, *the façade of Burgos Cathedral. Was the influence here Islamic?*



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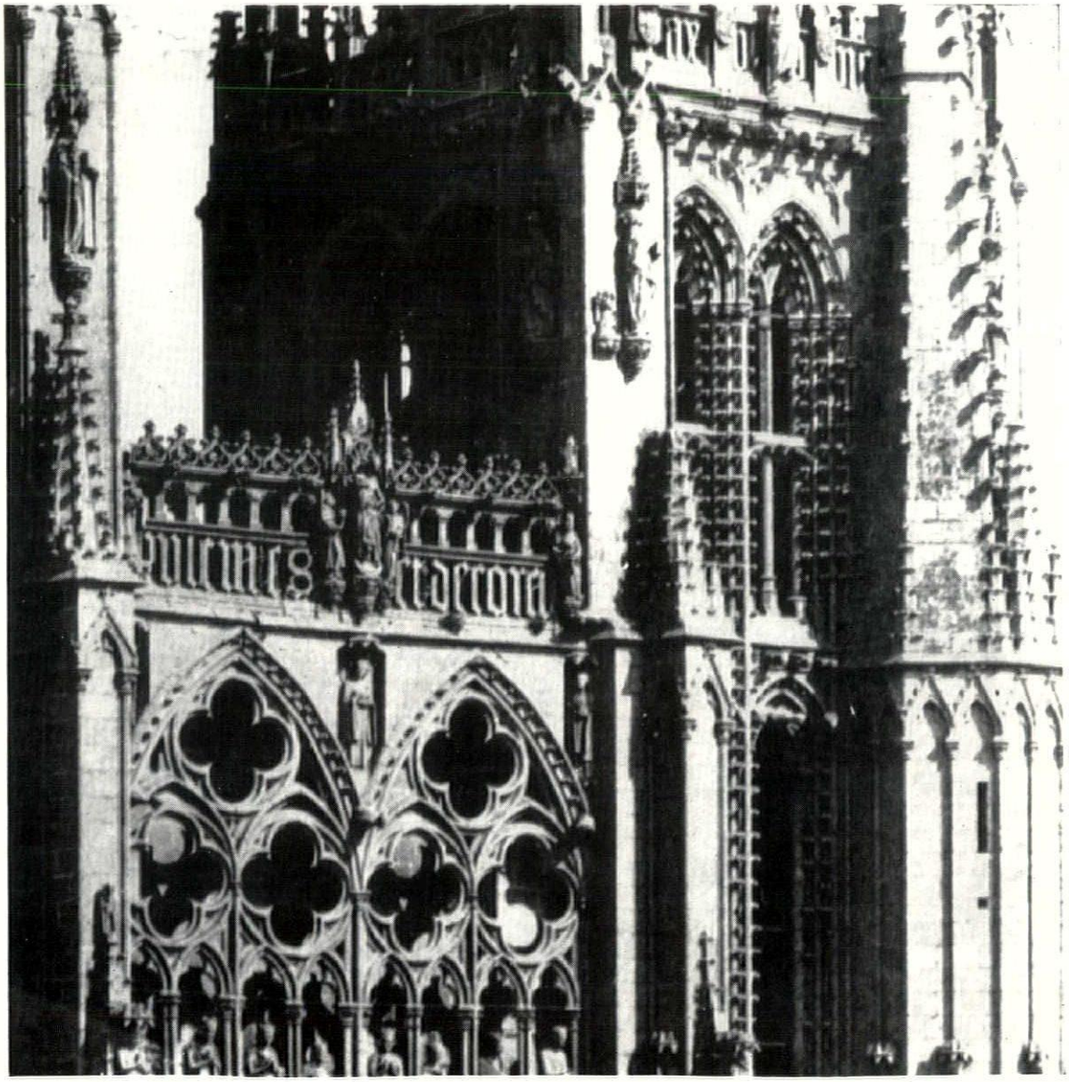


artist's attitude to his text, which he regarded of transcendent importance. Secondly, looking through those pages in the Lindisfarne Gospels it seemed to me that the way which he had chosen of making lettering significant was that of enhancing, intensifying, extending the character of the key letters in each page, Q, N, L. The page reproduced is dominated by X which contains surely all meaning which the human mind recognizes in curves and diagonals; moving, pregnant with growing life, dynamic, dramatic, and yet controlled, balanced by other forms, conditioned to a rhythmic order, like the divine plan which the words announce.

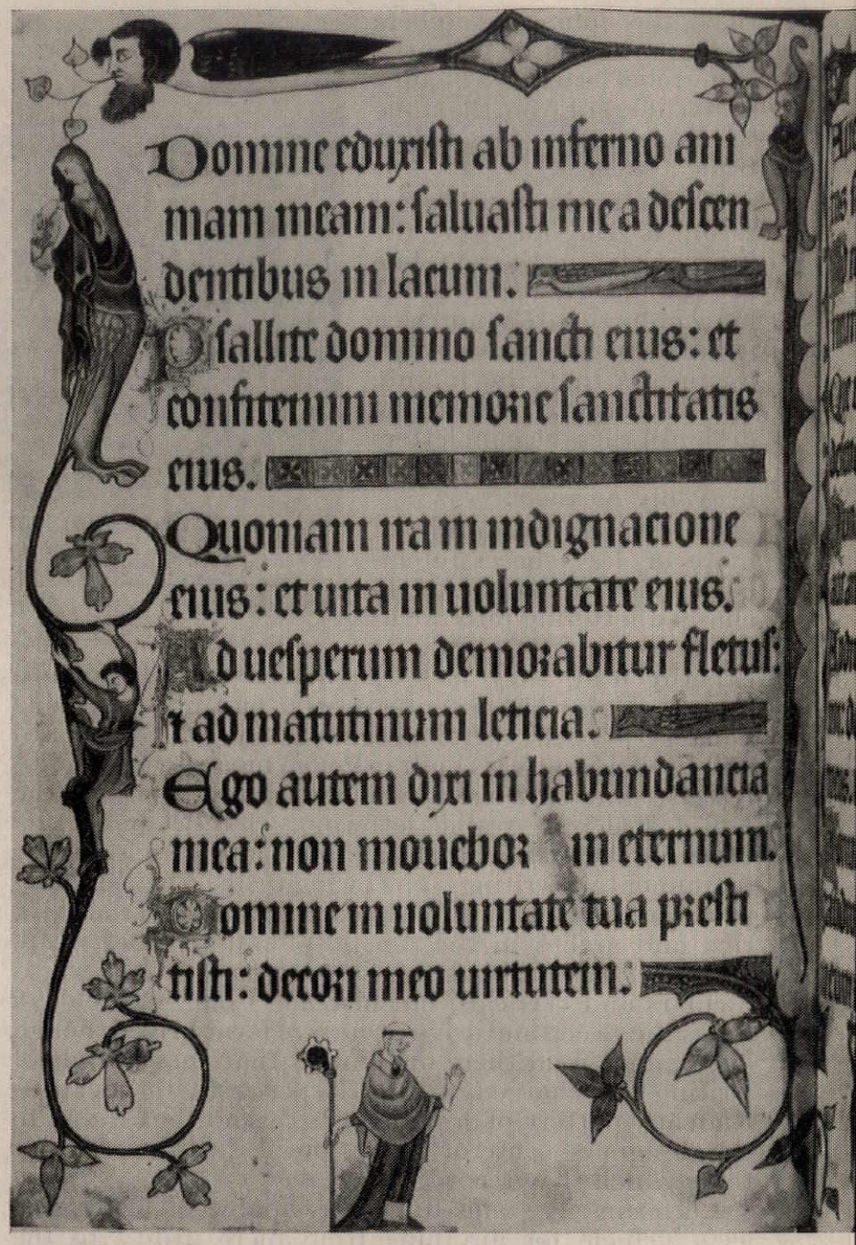
This concentration on the character of the letter is revived today in the work of Imre Reiner, 1. Can one deny that his letters are imaginative creations? Less obviously one sees the same treatment in some of the magnificent Regency inscriptions (e.g., 'Fat-face,' AR, April, 1955, page 273) where the character of the whole is dominated by the treatment of letters such as G, R, M and the tone, as befits the use, is purely worldly.

2 is also a Gospel opening-page, from the early ninth century (Carolingian Gospels of Saint Médard). Again it embodies a sense of the immense import of the words transcribed, but by quite different means. The page is dominated by the beauty of the unadorned uprights and curves and repeating diagonals, and by the drama and mystery of the individualization of this non-representational N.PRIN into a setting of column and arcade which repeat its motives in another dimension. Here it is the geometrical basis which is the starting point, out of which a significant particularization has been made—something more than a pattern—and this is conceived in a setting.

Of such particularizations and patterns one knows of course infinite examples from the monogram upwards, though few outside MSS. of great interest. Again one notes that the intention of the artist, conditioned by his word matter, must count. There are many stages of seriousness and importance, though not necessarily of success in design, beginning with an example such as 3, where the starting point is commercial advertising.

This treatment of lettering primarily as design, and in particular also the combination of such a design into an exterior setting, is, of course, of particular importance in considering architectural lettering. And here I think we might consider Roman lettering. One forgets that the Latin alphabet was not to them as to us a taken-for-granted inheritance. It was their creation. That is why I think a simple procession of Roman letters on a great monument has such power, 5 and 6. It derives from the letterer's immediate sense of the common basis of geometrical forms in architecture and letter, of the stability, permanence, and objectivity of that basis. One might note the difference between the effect of these examples and those, such as the Ponte Fabricio, or the Pyramid of C. Cestius in Rome, where the lack of symmetry creates an impression of relativity and of vitality which another age—such as the Carolingian—might have expressed by variation of letter form or size.

These are juxtapositions in which the formal element is predominant. At the other end of the



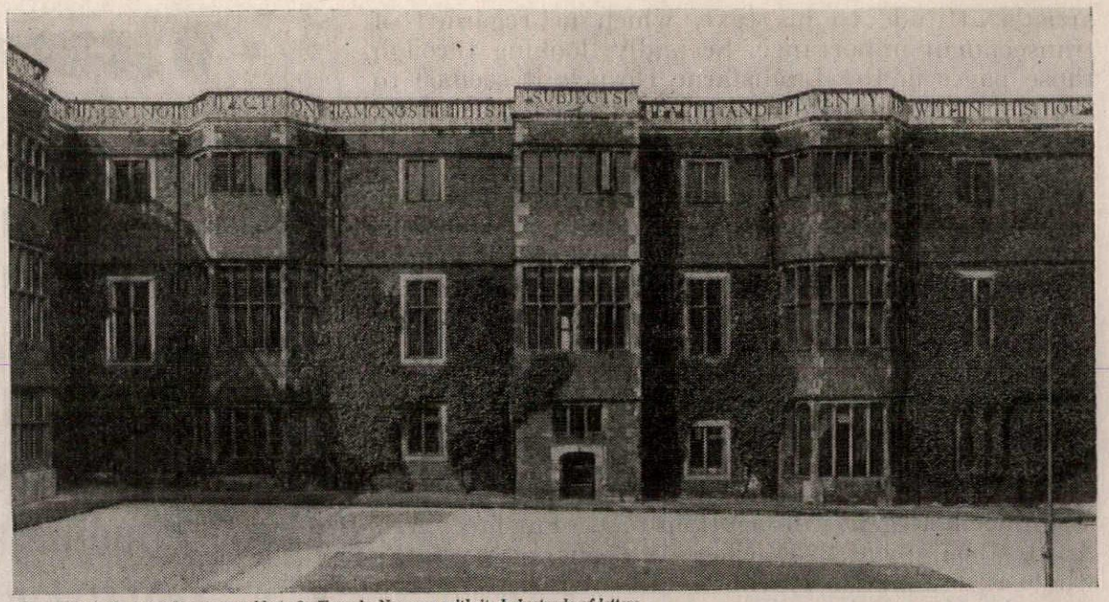
12, *from the Luttrell Psalter: lettering as an expressive element in the Gothic world. The page is an imaginative as well as a formal unity.*

scale I reproduce, 12, a page from the Luttrell Psalter (English about 1340) where the imaginative, if not the surrealist element, is predominant. It has been said that the illumination of this book has nothing to do with the text. Again I disagree, particularly in relation to the artists who executed the first part of the book. There are three characters in the Psalms: God, the Psalmist, and the enemy, who are legion. The great black verticals of the text which form the pattern of the book, page after page, constant and yet each one different, are a symbol surely of the Psalmist's and the artist's belief in God, stable as a vertical, mysterious as black, infinite variety in sameness, a belief without which he would not have dared to fill his margins with the strange and Protean figures of his imagination, and the humble and defenceless human beings who meet them there.

On an architectural scale we find a similar (though not so masterly) imaginative juxtaposition in the incorporation of an inscription in the design of the lantern of Burgos Cathedral, 7 and 8, where the fact

that the immense ciphers have a meaning gives to the stone relief lettering a quality quite different from the stone components of the balustrade above.

Similar again, in a classical form, is the idea of the inscription on the sky-line at Temple Newsam, 13. I have unfortunately not seen it but from the photograph it appears that the infinite air is incorporated into the design of these elegant letters in order to convey their heavenly message.



13, *a classical example comparable to* 8: *Temple Newsam with its balustrade of letters.*

These are examples of more or less successful incorporation of imaginatively charged lettering into architectural design. They are mostly, one feels, experimental; they lack the mastery of the manuscript artists. The architects who had a comparable mastery were the Seljuk architects who in the eleventh and twelfth centuries built in Persia mosques and tomb-towers, and enriched them with inscriptions in the Kufic style of Arabic lettering. Here is a version of an alphabet purposely adapted and developed for monumental writing; one which fits the building material: how beautiful it looks in relation to the brick ribs and arches in the Masjid-i-Jami at Isfahan, 9. Like the Latin alphabet it is concerned with perpendiculars and verticals, but instead of our great curves it has the sweep and drive of cursive forms. Even though one cannot read them one knows that these bands of writing are charged with a deeper æsthetic meaning than any pattern of ornament. Is this not again due to the designers' sense of the seriousness of the religious texts which they record?

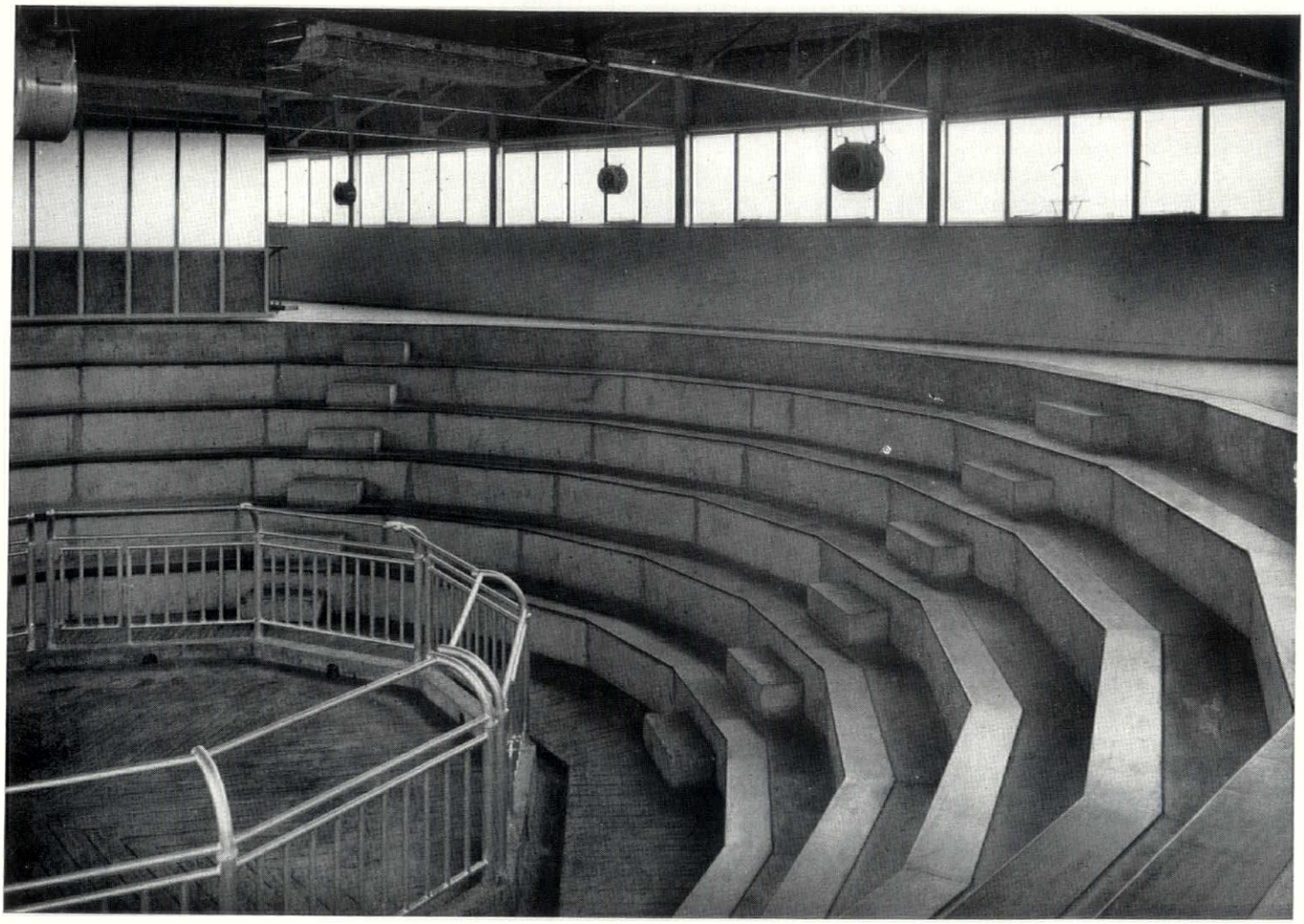
Lettering, it seems to me, is capable of being used as a vehicle for anything from mere utility to the highest forms of abstract art. In between lies a great range of more modest usage, with which from a practical point of view we are more immediately concerned. But, as I see it, the illuminating ways of thinking about all these other uses and possibilities is derived from a consideration of the potentialities of the whole art of lettering. The considerations we have been discussing connect up with the qualities and characteristics which we have noted in previous articles. The meaning of the words is not only always relevant; if they deserve it we may have a work of high art, or on a less spiritual level something grandiose, or something gay and lighthearted, at the lowest let us have something suitable to the purpose in hand. It is the key also to another criterion, the artist's intention; it is by recognizing that, surely, that one judges for instance, quite easily, the difference between a piece which is exuberant and one which is merely showy?

From highest to lowest, inescapably, lettering has the quality of mood, and is always to some extent expressionist. From the complementary visual point of view, lettering is always design, a design worked out in each letter, in combinations of letters, in lettering as part of some other design; design with a predominantly imaginative, or formal, or utilitarian intention.

And in every case there is the particularizing element of the material, which transforms the letter out of an abstract idea in the mind—where it has so often been thought to have its chief existence—into something which is, or might be, a work of art. Today, in architecture, the immense variety of materials and processes makes this a consideration which it is at last impossible to ignore.

And finally we return to that first consideration of function, which in architectural lettering at least is likely always to be present; though the idea that function is to be equated with legibility is a simplification which I hope I have disproved both in my first article (AR, November, 1953, page 294) and by some of the examples in this. One might indeed draw one further conclusion from the latter. The idea of legibility as the primary function of lettering has led us to the bare bones, lowest common denominator idea of a letter. If on the other hand we think of a letter as having a certain character, derived from both its form and its sound and usage, that character can be intensified, extended, exaggerated. In so doing the shape of the letter may even be violently distorted, and yet we can recognize that this is meaningful, whereas a much slighter distortion can make the same letter unrecognizable and meaningless. We have an explanation and a criterion for distinguishing, instead of condemning.

In succeeding articles I wish to discuss examples of this art under these headings of mood, design, material, and purpose, which, multiplied together in varying ratios, seem to me the significant factors in the idea of lettering.



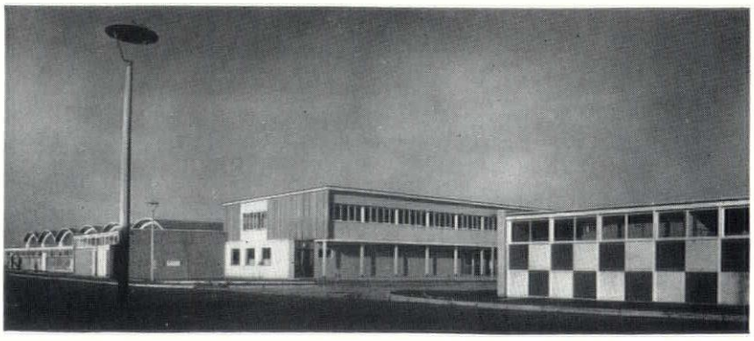
1, sale rings interior. The seats consist of precast concrete units capped with wood planks. 2, general view from entrance road, with vaulted cattle standings left, sale rings centre and public lavatory block right.

CATTLE MARKET AT GLOUCESTER

GLOUCESTER CITY ARCHITECT, J. V. WALL

ARCHITECT-IN-CHARGE, A. J. AULT in succession to J. H. PROSSER

The site of the market, at St. Oswald Road, Gloucester, has been reclaimed from flooding by tipping, and is adjacent to the Gloucester by-pass about one mile from the city centre. Provision had to be made for display of livestock (650 dairy and store cattle to be accommodated), administration and commercial activities, and catering and social amenities for dealers. The twin cattle standings are covered by reinforced concrete barrel vaults on columns and give in each case clear floor areas of 158ft. by 63ft. They give good light reflection and

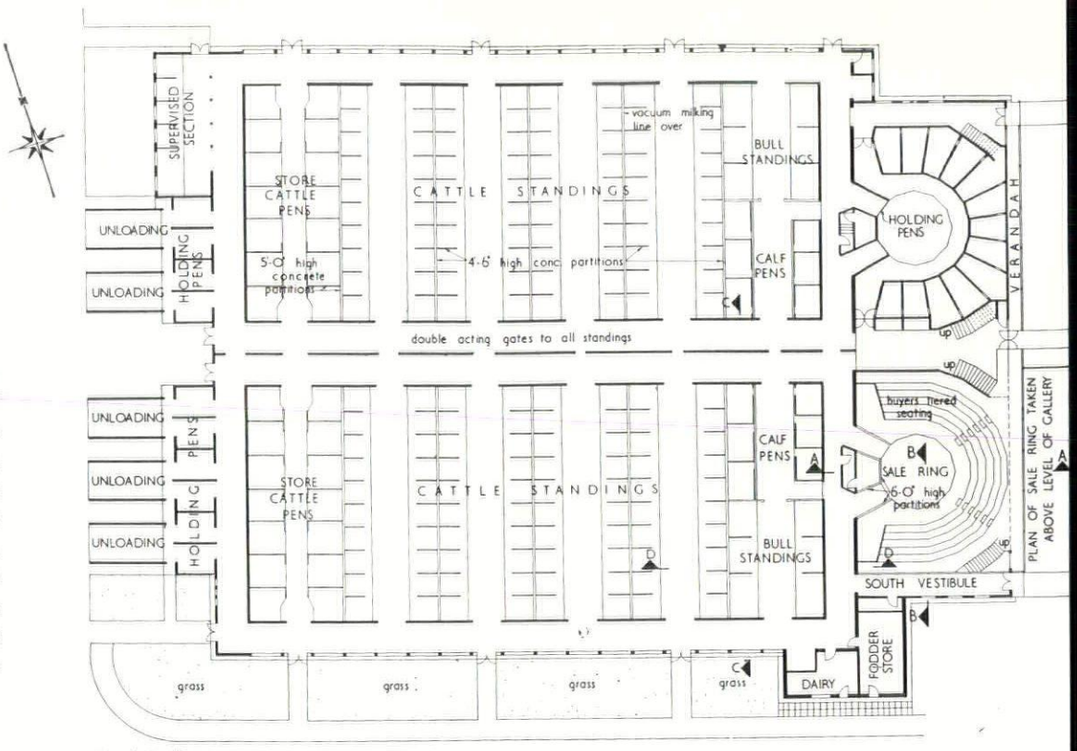


2

Cattle Market at Gloucester

natural cross ventilation. The sale hall block is steel framed. The concrete tiered seating is supported on reinforced concrete walls over raft foundations. Unloading bays and external corridors have mass concrete walls. The entrance serving the sale ring is finished with purpose-made precast concrete facing blocks, and untreated vertical cedar boarding.

The soffit of the roof overhang is painted red and that of the first storey overhang yellow. The line of windows to the first storey, defining the contours gallery running behind the sale rings, has wood-wool slabs above and hollow clay blocks below, all with grey cement rendering. The latter conceal a lattice perimeter beam, and are unrendered on the inside, providing sound absorption in the rings. A public convenience to the east has brick-faced cavity walls as gable ends and along the two long sides softwood framed plywood frames, in a chequer pattern of grey and yellow, below steel windows.



plan of standings



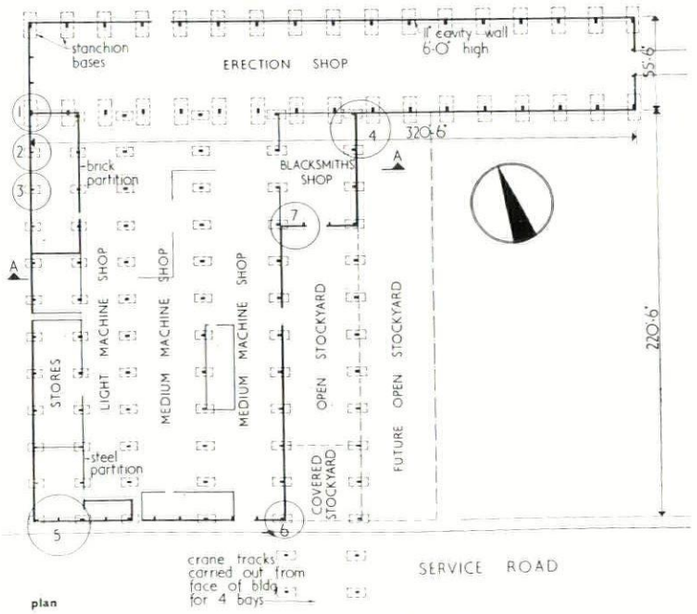
3, *the factory from the south.*

FACTORY AT POOLE, DORSET

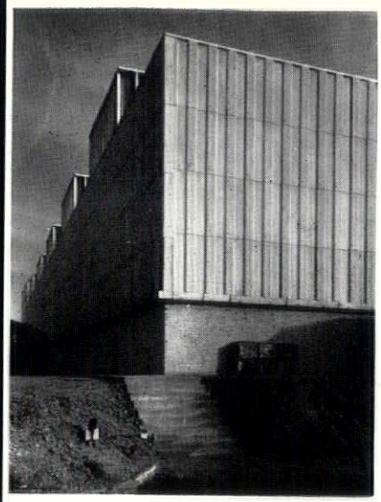
ARCHITECTS, FARMER AND DARK

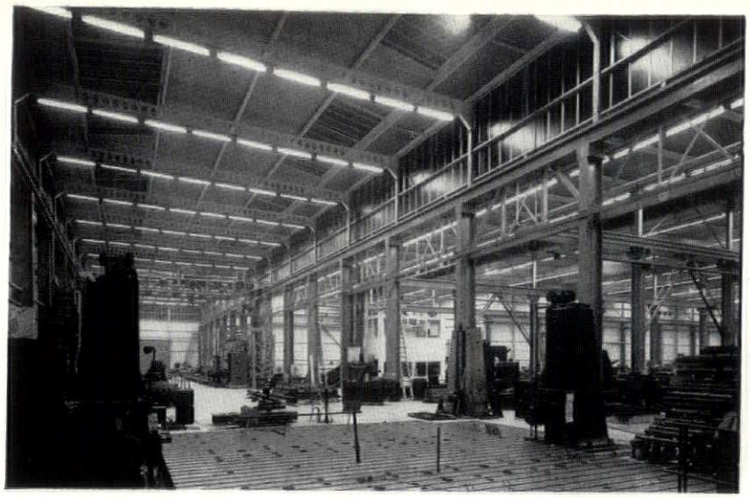
This factory, for the Loewy Engineering Co. Ltd., is off Wallisdown Road, Poole, Dorset, in a new industrial area. The firm's administrative offices and canteen (by the same architects) are on the same site but separate. Quick completion and adaptability for future extension were both necessary; good natural lighting was another important requirement. The site consists of sloping heathland, with a subsoil of sandy gravel with patches of clay.

The machine shop bays and stores run north-south at right-angles to the large erection shop. The employees and all goods enter at the south end from the service road; finished products leave by the east end of the machine shops by a large roller-shuttered door. The open stockyard to the east of the main machine shops is convertible into an additional machine shop. The construction is reinforced concrete slab, and steel frame on mass concrete footings. The walls are 11-in. cavity brickwork up to 7-ft. level, with asbestos cement corrugated sheet cladding above, lined with ½-in.



plan





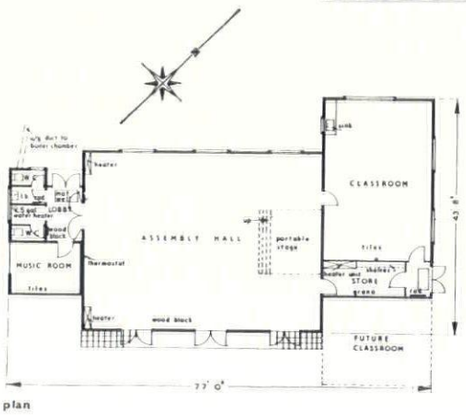
4, left, south-west corner of factory. The external walling is based on the need to minimize accidents from swinging loads carried by cranes, and damage to the structure at low level. A continuous rainwater gutter runs at the junction between the asbestos cladding and brickwork. 5, right, erection and testing shop interior, looking east.

Factory at Poole, Dorset

insulation board. Patent glazed monitor rooflights are used, and insulated aluminium roof deck, with two layers of bitumen felt. In the erection shop, the roof level is higher than elsewhere and there is continuous patent glazing on all four sides above the crane rails. The overall floor finish is 2-in. granolithic screed, grey except in the gangways which are red. Warm air is circulated by fans through directional grilles from free-standing oil-fired heaters. The method avoids the need for a boiler house. Remotely controlled opening lights in the patent glazing provide natural ventilation.



6, the hall from the east.

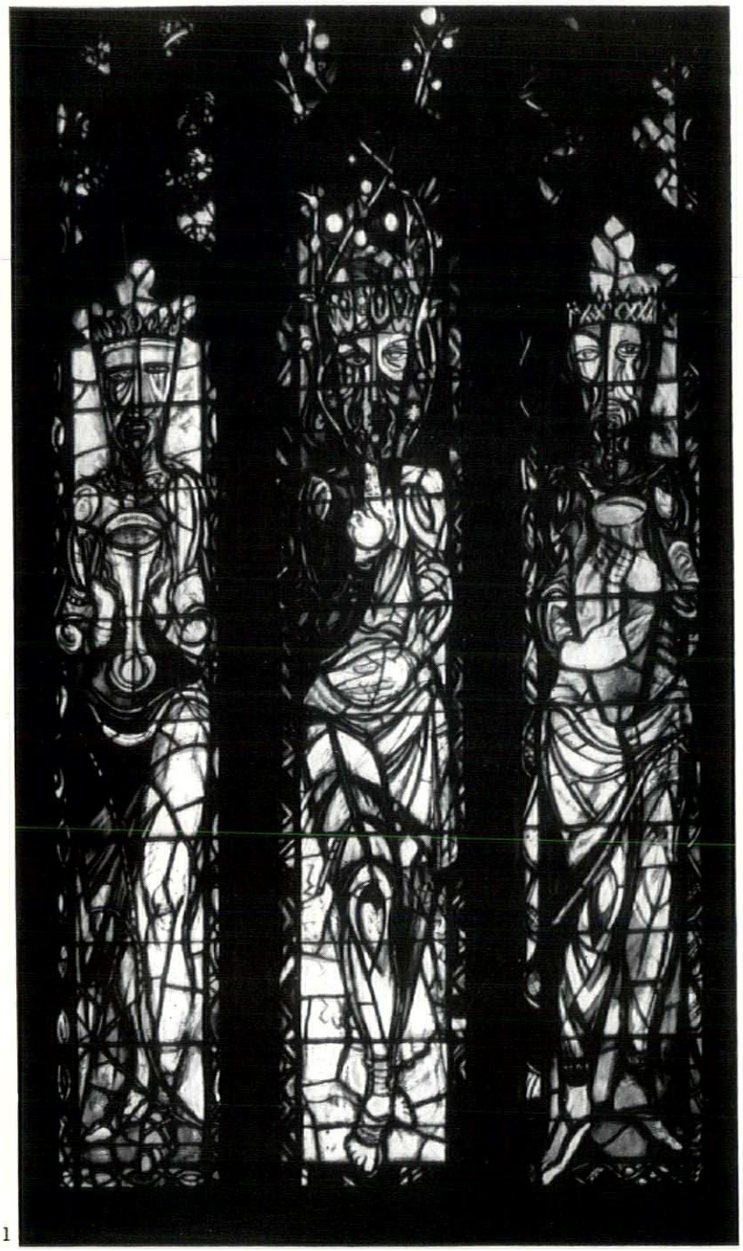


plan

ASSEMBLY HALL AT OFFLEY, HERTS

ARCHITECTS, WOODROFFE, BUCHANAN AND COULTER

The assembly hall stands in the mature garden of Offley Place, an early nineteenth-century building by Smirke, which houses a teachers' training college. The walls are interlocking solid hardwood timbers, 5 in. by 3 in. thick, and forming a single strip. The roof is flat and consists of built-up softwood timber beams, finished with boarding and two-layer roofing felt. The ceiling is of 40-in. squares of insulation board with the centre dropped to accommodate the wide-span trusses. The load of the beams is taken on the walling. All windows and doors are framed in red meranti hardwood, the internal doors being flush plywood painted white. Heating is by an oil-fired automatic boiler. The floor finishes are hardwood block in the hall and entrance and thermoplastic tiles in the classrooms.



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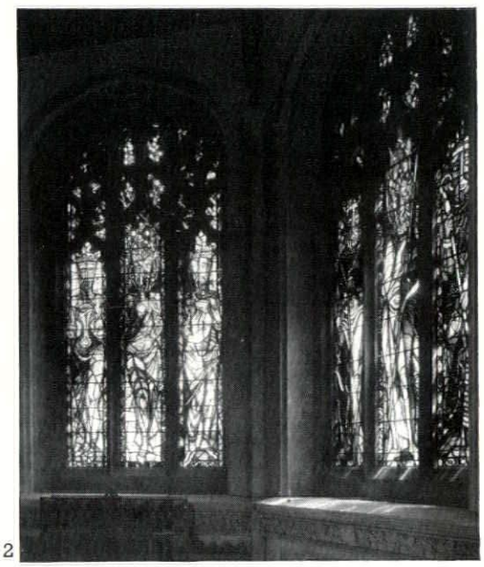
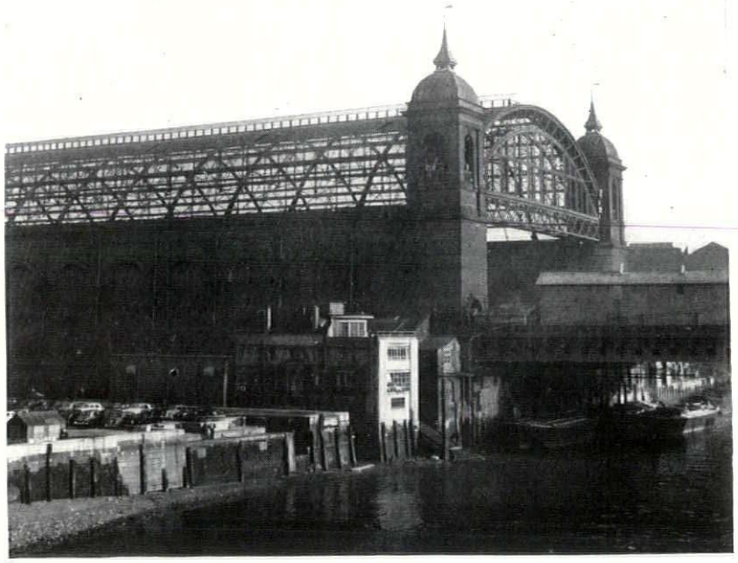


2

Stained glass windows in Oundle School chapel, designed by John Piper and executed by Patrick Reyntiens — see note opposite. 1, the main lights of the central window, in which the three figures of Christ symbolize respectively the Vine, the Bread and the Water of Life. There are three windows, each of three lights, at the east end of the chapel. 2, the left-hand and the central windows.



1



2

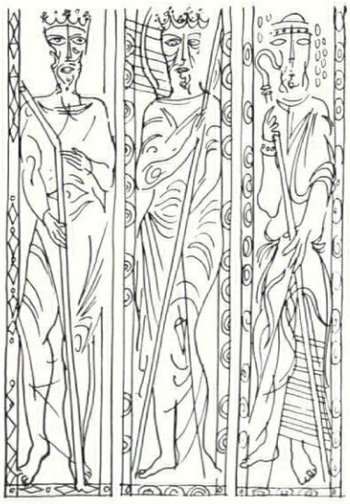
Cannon Street station, a noble Thames landmark threatened with mutilation—see note opposite. 1, from the river; 2, close-up of corner turret.

APPLIED ART

STAINED GLASS AT OUNDLE

John Piper's talents are so clearly suited to the art of stained glass that it is surprising that he has not worked in this medium long ago. He has recently, however, completed his first commission as a stained-glass designer, working closely with the stained-glass craftsman Patrick Reyntiens: a group of three windows at the east end of Oundle School chapel. Piper's powerful but sensitive use of strong colour, and Reyntiens's skill in the combination of various etching and staining techniques, have together produced a notable contribution to the revival of the art of stained glass which is also exemplified in the windows for Coventry cathedral, designed in the Royal College of Art and placed on exhibition, as these pages go to press, at the Victoria and Albert Museum.

The Oundle windows, which have the



difficult architectural role of enlivening a dull building by Arthur Blomfield, contain nine figures of Christ, symbolizing the Way, the Life and the Truth; the Vine, the Living Bread and the Water of Life (see photograph 1, opposite, and the cover of this issue), and the Judge, the Teacher and the Shepherd (see John Piper's own sketch herewith).

S.O.S.

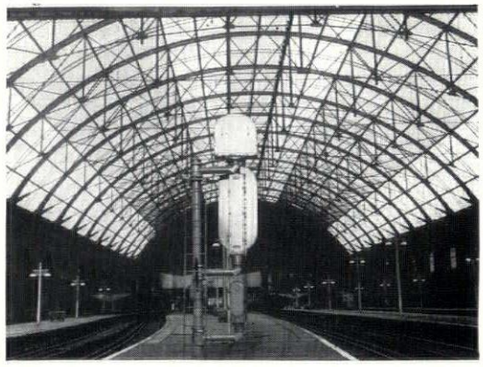
CANNON STREET STATION

One of the brighter sides of living in a utilitarian age has been the way in which Georgian houses like Antony and Knowsley have been shorn of unwanted elephantine Victorian additions since the war. But removing the bounty of the 1850's and 1860's is not always praiseworthy; and certainly not in the case of British Railways' modernization of Cannon Street station, which has just started.

Congestion on the North Kent suburban lines leading to Cannon Street means longer trains (10-coach instead of 8-coach); longer trains need longer platforms—so far, so good. The platforms are to be lengthened and 'a certain amount' of Southern House (the ex Station Hotel) will be demolished—which would in itself be a loss, because it is the best thoroughgoing station building that is left in London—of higher quality than Paddington or Euston, and not compromised in a grimly humorous way like Charing Cross. In the final stage of the reconstruction, however, 'opportunity will be taken to lengthen platforms Nos. 7 and 8, and a start will be made on the removal of the towers and famous high arched roof which will be replaced by a new roof at a lower level,' to quote from an official statement.

Now this would be a tragedy. Of all the big termini, Cannon Street is the only one where the train shed received adequate expression outside as well as inside. It has no 'back' that can be conveniently lost among marshalling yards, because the end of the shed is almost on the bank of the Thames, and the designers, apparently Hawkshaw and J. W. Barry, the engineers, felt obliged to give something more than a utilitarian end elevation. They equipped the huge roof with a pair of simplified Baroque towers in a sort of Versailles Cathedral style, 1, that exactly match both the London stockbrick and the scale of the shed. The combination is one of the few accents along the whole Thames waterline that is circumstantial, but not pompous, and the style is so unaffected that it has not the lightest period revival overtones, 2. They made the side walls into a superbly expressive job too—see frontispiece to this issue. The roof lost almost an acre of glass in the blitz, but remains as impressive as ever, 3, and the towers are as finely scaled from inside as they appear from the sidewalk of Southwark Bridge.

To demolish this and replace it with a lower roof would be a loss which the waterfront can ill afford, already depressed by buildings like Shell Mex House and Adelaide House: an accent which does the same for its surroundings as the Imperial Institute tower—recently in danger—does for South Kensington. If reglazing is impossible, why not build the new lower roof inside the old without demolishing it? —which would keep the view from the Thames intact, if not the interior. Better still, why not provide light platform aprons like those which perform so well at Potters Bar? In either case, the saving might be quite an item in the $1\frac{1}{4}$ million pound programme: even taking into account the increased maintenance of the



3

old roof, But perhaps the rebuilding is just being carried out for 'prestige' reasons or because British Railways thinks that Cannon Street looks shabby or is in some way beneath its dignity. In that case, a good hard bit of rethinking is needed on the difference between surface grime on a noble building and a cut-rate remodel which might well show a fundamental lack of architectural conviction or emotive power.

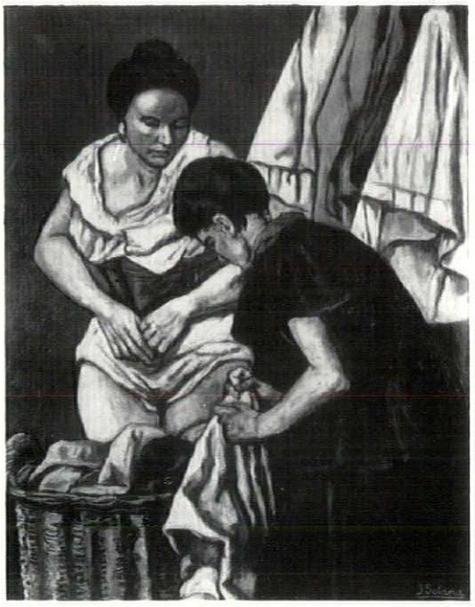
Ian Nairn

EXHIBITIONS

PAINTING AND SCULPTURE

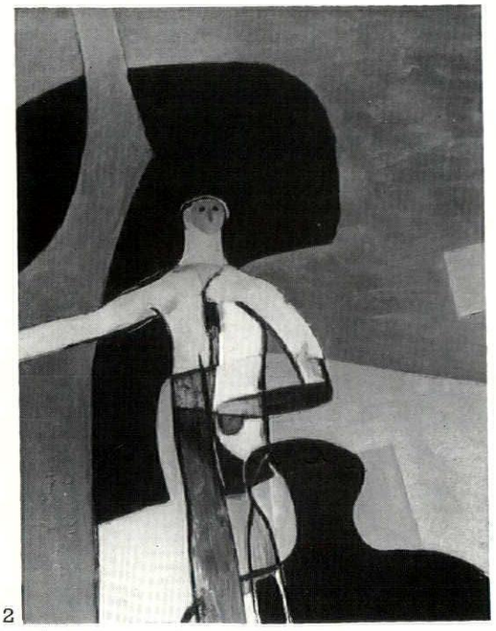
The Arts Council has been exhibiting paintings by Spanish artists who stayed at home, and the I.C.A. has been showing a group of works by Venetians who live in Venice, but neither exhibition is distinguished enough to prove that the painters have gained anything by remaining where they belong. The most interesting of the Spanish painters were born in the nineteenth century: Nonell's portraits of gypsies have a melancholy elegance and Cossio's studies of figures and objects losing definition in a failing light are even more muted and refined, but Gutierrez Solana is the only painter in the exhibition whose art is not in some way repressed or tentative. He is a robust decadent. His huge and somewhat Belgian set-piece of skeletons rounding up the naked for the final reckoning is more concerned with the juxtaposition of cold bone and warm flesh than with gleeful visions of retri-

bution, and his picture of Washerwomen, 1, with its massing of soiled clothes and its disclosures of sumptuous flesh is a sensual masterpiece. His eroticism and his feeling for the macabre relate him to Beckmann and Balthus. Some younger



1

men are trying with a notable lack of success to involve borrowings from Picasso and Miró in their studies of Spanish life and landscape, and a painter who has reached the age of thirty-three even tries to hispanicize an otherwise non-figurative picture by casting across it the melodramatic shadow of a priest holding a cross. The Venetian pictures are all post-cubist, and on the whole the exhibition looks less provincial than the Spanish one, although it is evident that its contribution to the Italian 'revival' is weaker than that of Milan or Rome. Pizzinato is a sober representative of the neo-realist school, Santomaso is a serious abstractionist,



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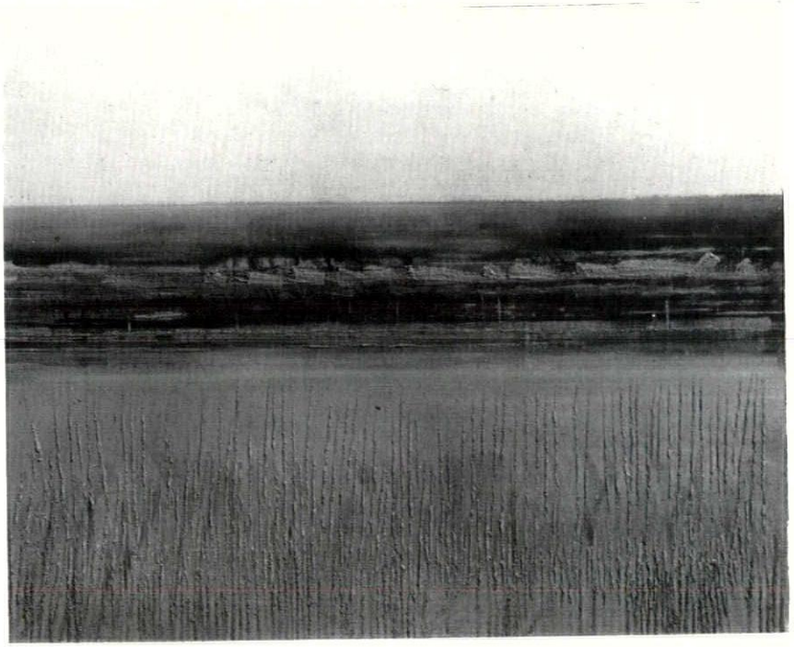


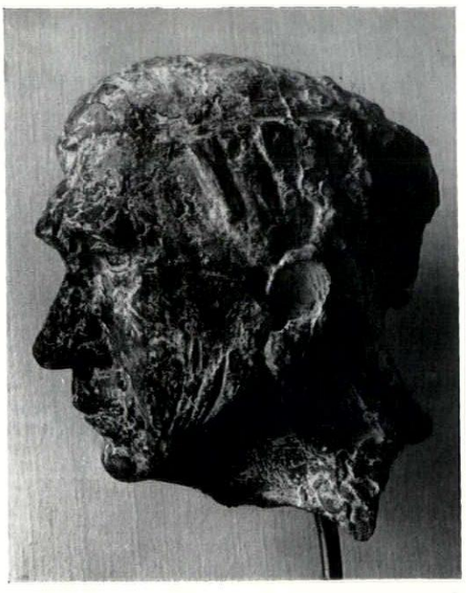
3

and Vedova reflects the uneasiness of the times by jumping from one metallic style to another like a cat on a hot tin roof.

Keith Vaughan has been showing new figure compositions and landscapes at the Leicester Galleries. The figure compositions contain so many eccentricities that they verge on the farcical. The tall cretinous figure in 'Winter Landscape with Figures,' 2, which greets a fugitive from an early Chirico with all the verve of a lump of plasticine, is modernistic distortion on its beam ends; the dark silhouette in the background is a flat, dead, space-filling caricature of Sutherland's animistic tree-forms, and the rectangular colour patches, like a picture-restorer's sample cleanings, add a final touch of irrelevance to a very tired conception. Fortunately, some of the smaller landscapes in the show are among Vaughan's best work. 'Wallingford Churchyard,' in which the scattered tomb-stones have been used very discreetly as space-indicators, is particularly successful.

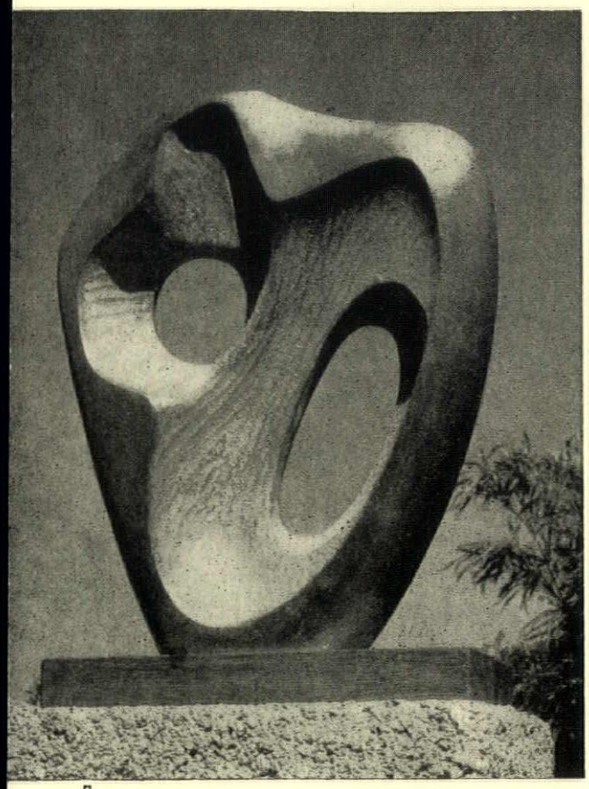
Denis Wirth-Miller has been holding his second exhibition at the Beaux Arts Gallery, and, as in his first show, which was devoted to a series of variations on the theme of a semi-transparent dog taking a leap in the dark, a rather modish air of obsessiveness is obtained by restricting the exhibits to the evocation of a flat, melancholy, water-logged landscape, 3. The effect is striking enough to make one wish to believe that the painter is a single-minded visionary, capable of spending a lifetime watching grasses ruffled by the wind, but at the same time one cannot avoid seeing that ends and means have somehow become reversed and that the landscapes are only pretexts for demonstrating a pictorial system which is a cold and clever travesty of the physical make-up of the paintings of Francis Bacon.

I know only a few of the people who have sat for portraits to Louise Hutchinson, and cannot say how many of the bronzes in her recent show at the same gallery are successful likenesses. All I can say with certainty is that she has made a fine, objective likeness of Herbert Read, 4, and that her portraits of Mrs. Lessore, Peter Gregory, David Sylvester, Philip James, Patrick Heron and J. P. Hodin leave me with the impression that she has



4

thought of the sitters a little too arrogantly as clay in her hands. Their portraits have been pinched and pulled out of countenance, and although I faintly recognize the remains as having some relationship to this or that familiar face, the vital resemblance has been replaced by a subjective presence conjured up by the sculptor's zest for self-expression. I would like to know what psychological factors



5

came into play to protect the likeness of Herbert Read from this dybbuk-like invasion of another personality, but I am not likely to find out and must be content to record the fact that the pleasure which Mrs. Hutchinson derives from ploughing and excavating the human head has in this case come to terms with her powers of observation, and the result is a work of a kind rarely found in contemporary art; an almost veristic portrait which is an interesting sculptural object.

Barbara Hepworth has taken up once more an aspect of her interest in abstract forms which has always had fruitful results, and has recently exhibited at Gimpel's some wood carvings, pierced or strung, which are among her happiest achievements. They have a monumental delicacy and a kind of smiling remoteness which make them almost abstract equivalents of some of the Buddha images. The exhibition included her first experiments with bronze castings. In the example illustrated, 5, the polished outer surface is a delightful pale golden colour, and the plaster residue has been left on the rough inner surface; this contrast of textures and colours imparts a lively sensuousness to a gracious little object.



6

Fred Uhlman has celebrated his first visit to New York with a group of nocturnes, exhibited at Zwemmers, dedicated to the fabulous skyline. In some of these oils, the skyscrapers are lit up, which means that the artist has patiently filled his tall rectangles with thousands of yellow dots; in others, the lights are out, 6, and the buildings become solid monoliths which turn New York into an abstract Easter Island.

Robert Melville

TOWNSCAPE

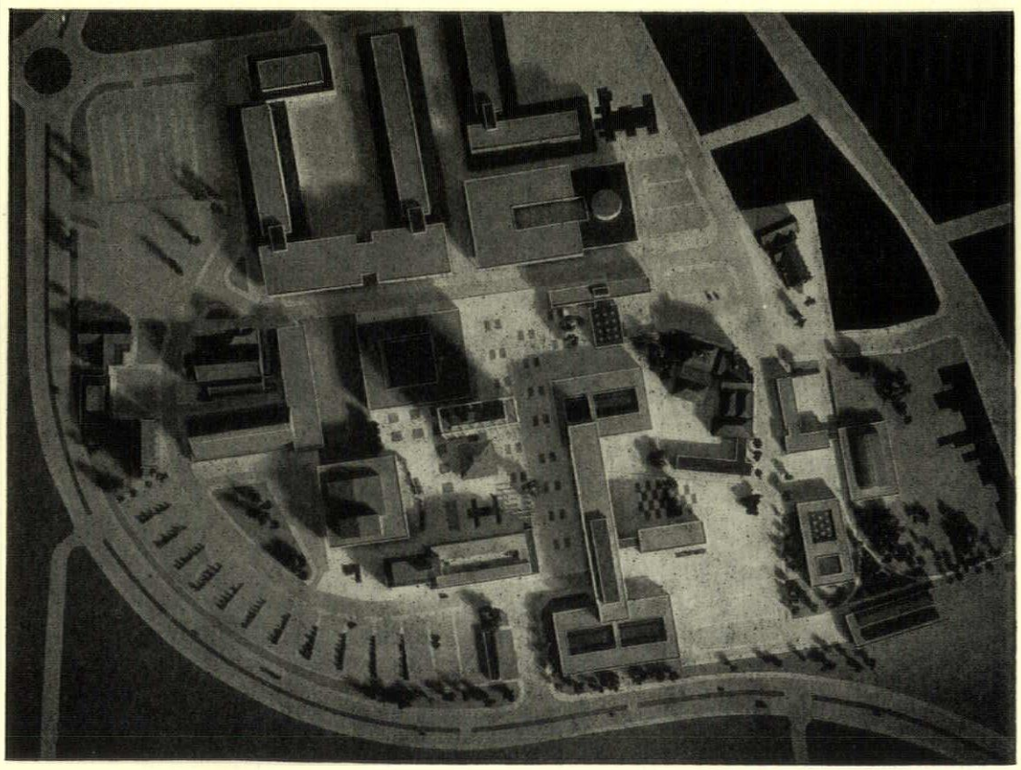
DONCASTER CIVIC CENTRE

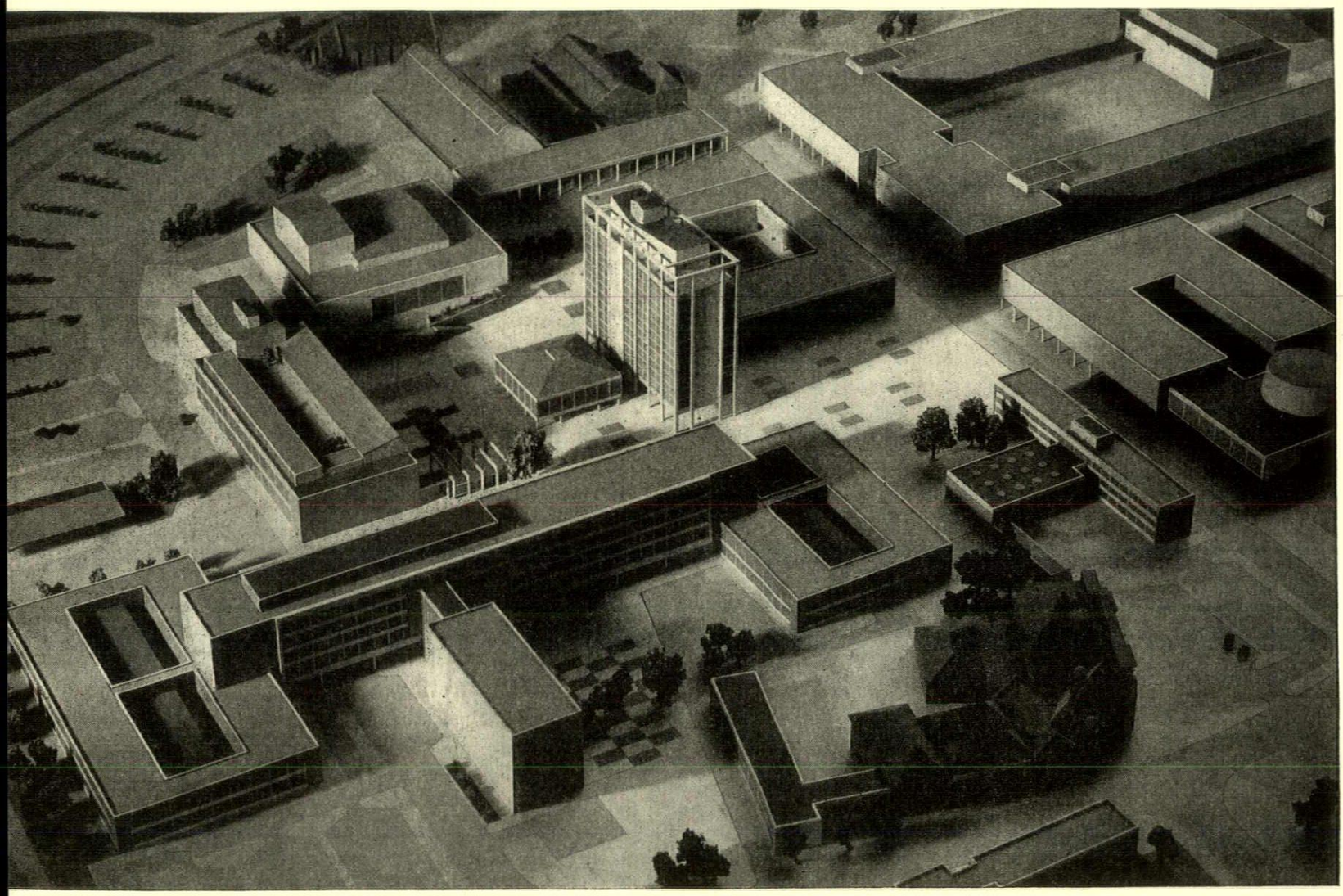
We are all too familiar with the way new civic building in town centres either disrupts the organic shape of the town or, at best, fails to bring any positive improvement to the town as a whole. Development plans for town centres take the form of a road and use-zoning map, and the rest (including the type of environment eventually to be created) is left to chance and expediency.

Something more far-sighted is needed, and in Doncaster it has been provided. The replanning of the central area has been regarded by the city as a problem of town-design, and the plan, with its system of periphery car-parking and inner pedestrian piazzas, tackles, as few other cities besides the well-known example of Coventry have done, the problem of the impact of the motor-car on the inner core. The plan, which was approved by the Council last November, is the work of Frederick Gibberd, in collaboration with Martin Cawley, the borough engineer and town-planning officer, and L. J. Tucker, the borough architect.

At present Doncaster has a lively and prosperous shopping centre, but no civic focus; furthermore, the social and entertainment buildings are either scattered or inadequate for their purpose. The development plan defined a civic centre of some thirty-seven acres adjacent to, and south of, the existing shopping centre. The site is bounded by a new inner ring, or loop road, on the south and west, by a pleasant road lined with trees and distinguished houses, South Parade, on the east and by Waterdale and the shopping centre on the north. The core of the site is now largely open space.

The plan provides an over-all master design for the centre, and meets the urgent need for sites for a new technical college and a health centre. It defines the civic space and car parking, the methods of circulation, and the broad mass and silhouettes of the buildings. Except for the technical college, which has been designed by the borough architect, and on which work has already started, the proposals for the individual buildings are tentative and will be modified when the detailed requirements are known.





Doncaster serves a regional population of at least 150,000 people and, in consequence, its central area attracts a great deal of motor traffic. The principles put forward in the design to solve the motor-car-pedestrian conflict are as follows. The buildings are grouped together to look inwards on to a series of civic closes or precincts from which vehicular traffic is excluded. They thus turn their backs on the main traffic route, the ring road. An inner peripheral road runs outside the building groups and follows the line of the ring road. Belts of car parks are situated between the inner periphery road and the inner ring road. Additional parking areas are provided on the north at each end of Waterdale. The inner periphery road is connected at each end to Waterdale; there is thus a circular route around the whole of the civic centre. Spur roads are provided to each building from the periphery road.

The effect of this plan pattern will be that casual motor traffic to the centre will always find a car park close to its point of entry; that visitors to a particular building will be able to circulate round the centre to their destination, where they will again find a car park reasonably close, and that service vehicles can circulate round the area, where there will be a yard or lay-by adjacent to the service area of each building. In the core of the area there is no wheeled traffic at all. Pedestrian circulation links all the civic spaces together, and is connected through South Parade to the commercial hub of Doncaster.

The core of the civic centre is a civic place, of which the town hall occupies the south and west sides. The technical college and new Government offices form the east side and the north is formed by Waterdale and the shopping centre. The office section of the town hall is planned as a tall building to contrast with the technical college, and to form the focal point of the whole area; the tower is placed across the space subdividing it into a north square and a south square. But the plan is such that these two spaces extend into each other. The council chamber projects into the south civic space and the committee and other important rooms are grouped round a courtyard on the north. The south place is closed on the west by a theatre, and on the south by the proposed art school. The theatre has a terrace overlooking the civic square.

A theatre precinct is formed on the west. It extends from Waterdale, with the entrance façade of the theatre as its focus. One side is formed by an extension to the public baths and the other by the town hall. The theatre precinct is also designed to form an extension of the south civic square. The technical college is such a large and important building that it was thought worth forming a small educational precinct or *place* adjacent to the south civic place. It has a connection at ground level between the civic space and the educational precinct, thereby fusing the two spaces into one and linking the college with the proposed art school. The precinct is left open on the east side to give a pedestrian way and a visual connection to the buildings and trees of the Parade. The area to the north of the civic centre is being redesigned as a new shopping centre by the borough surveyor and planning officer. The main shopping street or precinct will lead straight into the main civic place, thereby linking business with civic and entertainment functions.

BOOKS

NEO-CLASSICAL MASTER

BENJAMIN HENRY LATROBE. *By Talbot Hamlin. New York: Oxford University Press.* $15.00.

Benjamin Henry Latrobe was born at Fulneck, Yorkshire, in 1764, son of the head of the Moravian school there—himself a remarkable man, who after his removal to London was to include people like Dr. Burney, the musicologist, and Dr. Johnson, the lexicographer, in his circle of friends. Having received most of his general education abroad (as was the Moravian way) and his architectural education in the office of Samuel Pepys Cockerell, he set up in private practice in London in 1791; in 1795, the death of his first wife two years before having come as a stunning blow to a spirit already depressed by money troubles and the climate of the times, he sailed for America. Within two years of his arrival there he received his first commission from the Federal government, and in 1803 he was appointed by Thomas Jefferson to the most important post the country offered to an architect, that of Surveyor of the Public Buildings. He died in New Orleans, of yellow fever, in 1820—a discharged bankrupt and all but penniless.

Such is the barest possible outline of the story that Talbot Hamlin tells in detail in this book. It is a story of the most varied interest: many of the famous (and some of the infamous) of the early days of the American republic had a part in Latrobe's life, while canals, waterworks and river-steamers, as well as buildings, engaged his powers of invention. Two themes run through it: Latrobe's unending search for financial security for himself and his family—a search continually bedevilled by over-optimistic estimates of the chances of speculative ventures and of the honesty of his associates in them—and his passionate addiction to architecture.

What is Latrobe's place in the history of architecture? There are some easy answers. He was, one can say, the first fully trained professional architect to work in the United States. He was the first American architect to take pupils (Strickland and Mills). He was the first American who (in his own words) 'endevored and partly succeeded, to place the profession of architect and civil engineer on that footing of responsibility which it occupies in Europe.' There can be no questioning the debt of gratitude that architecture as a profession in the new world owed to him, and Professor Hamlin's biography shows nothing if not how hard-earned that debt was.

When we turn from Latrobe the professional man to Latrobe the artist, we may remember Mr. Summerson's assessment, in *Architecture in Britain, 1530 to 1830*, which is the more remarkable as coming from the familiar of the ghost of Soane: 'a Neo-classical master of a higher order than most, if not all of his generation in Britain.' (The architect himself wrote: '. . . in England the crowd of those whose talents are superior to mine is so great, that I should never perhaps have elbowed through them.') Alas! the difficulty of judging is much increased by the destruction of so many of Latrobe's finest buildings, including the prison at Richmond, the Bank of Pennsylvania at Philadephia, and the Exchange at Baltimore.* Nor does Professor Hamlin's book help here as much as one had hoped it might. The illustrations are rather small (and lack references in the text); there is no catalogue of Latrobe's works. Although Professor Hamlin can be very much to the point in his critiques of individual buildings—as for instance of Hammerwood Lodge, Sussex, Latrobe's first independent commission—he is rather too free for my taste with such phrases as 'perfectly studied proportion,' 'thoughtful and reticent detail,' 'a compelling sense of quiet monumentality.' (All those from one sentence on page 466.) And something more than an expanded paraphrase of the Vitruviano-Wottonian 'firmness, commodity and delight' is surely needed as a summing-up of the qualities of the work of an architect of Latrobe's individuality.

But to make such criticisms as these is by no means to deny that Professor Hamlin's biography is a most distinguished, scholarly and civilized book, written with a feeling for the English language that is not too common among his countrymen and with a breadth of outlook that in this age of specialization is rare anywhere.

Marcus Whiffen.

* At the time of writing, there is much reason to fear that the only part of the exterior of the United States Capitol at Washington that still stands as designed by Latrobe—the east, or entrance, front of the central portion—will shortly be destroyed for a new addition. **M.W.**

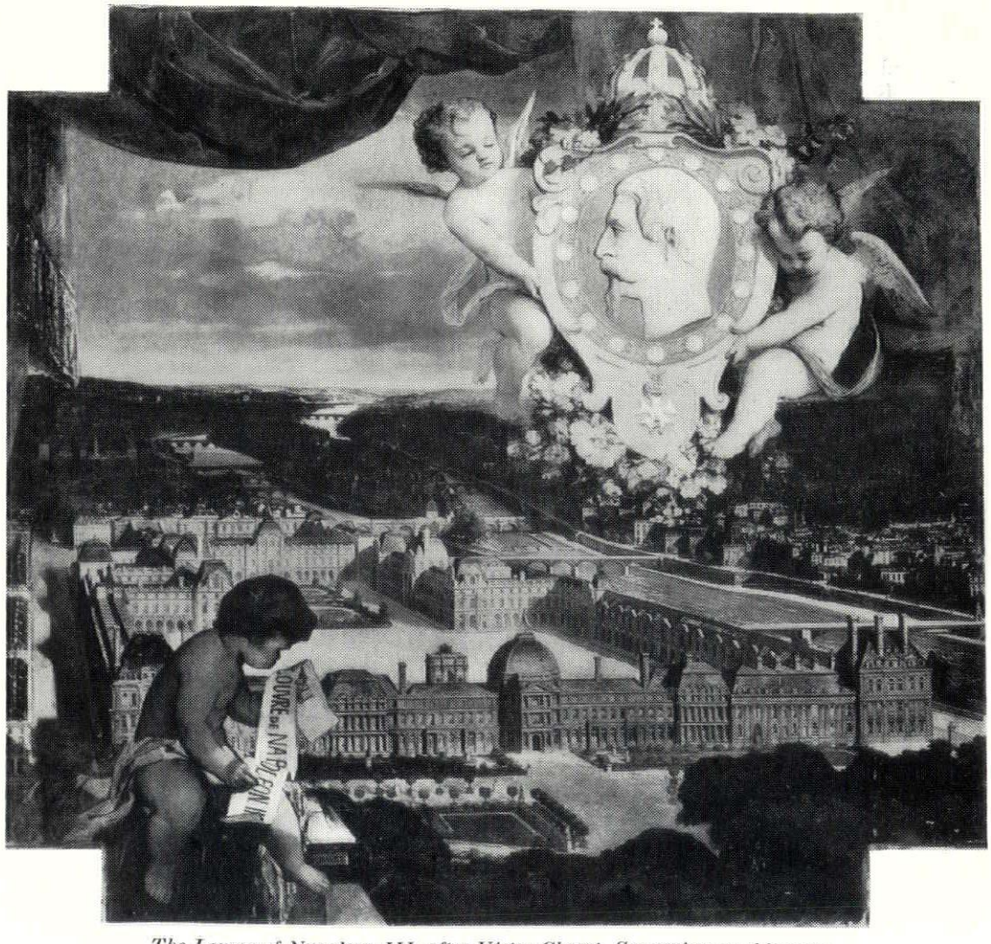
THE LOUVRE

LES TROIS SALLES DES ETATS *and* LE NOUVEAU LOUVRE DE NAPOLEON III. *By Christiane Aulanier. Editions des Musées Nationaux Paris.*

These continue the series of publications on the history of the Louvre. The 'Salle Royale,' the oldest of the three 'Salles des Etats' and the first Renaissance structure of the ancient castle, was built under François I by the architect Pierre Lescaut (begun 1527), Jean Goujon adding the sculptural décor in 1552-53. The author gives a vivid and colourful account of the many functions for which it served and of the spectacular ballets enacted within its walls. After 1678 when Louis XIV moved to Versailles the Salle Royale became successively the residence of the Royal Academies, the home of the court artists and craftsmen, and the meeting place of the Institut National before it was finally adapted as an exhibition gallery.

It was Napoleon who first conceived the idea of turning the Louvre into the greatest museum in the world. During his lifetime and under the Empire very little practical progress was made but under Napoleon III one of the most ambitious building programmes for the aggrandisement of the Louvre was carried out.

In the second volume, *Le Nouveau Louvre de Napoleon III*, the author gives a detailed description of the inception and progress of these plans. To Napoleon III and his architects Visconti and Lefuel goes



The Louvre of Napoleon III, after Victor Chavet. See review on this page.

the credit for having realized the long-cherished project of the French kings, the junction of the Louvre with the Tuileries, achieved by the building of a long gallery on the north side along the Rue de Rivoli and parallel to the Grande Galérie, joining the Pavillon Marsan to the old Louvre. But the triumph was short lived for in 1871, only 14 years after the junction had been effected, the Tuileries were burnt to the ground. However, the new buildings of Napoleon III remained, and in following their progress step by step down to the present day we witness the gradual accomplishment of Napoleon I's great aim. They comprise on the ground floor, which was to house the sculpture, the 'vestibule Denon,' today the main entrance, and the two adjoining galleries Daru and Mollien, the three transverse wings joining the new gallery to the Grande Galérie, known as Salles des 'Sept Metres,' 'Manege' and 'Mollien' respectively. Finally, the transformation of the two large staircases was begun, but not completed until 1914 and 1934.

Marguerite Kay

ORIENTAL PELICANS

THE ART AND ARCHITECTURE OF CHINA. *By Laurence Sickman and Alexander Soper*; THE ART AND ARCHITECTURE OF JAPAN. *By Robert Treat Paine and Alexander Soper. Both Pelican History of Art.* 45*s*.

The consequences of the fundamental decisions concerning the importance to be allowed to various aspects of world art that were taken when the Pelican Histories were first conceived (ARCHITECTURAL REVIEW, November, 1953) could hardly be more apparent than in the coverage awarded to China and Japan. In the teeth, one suspects, of growing body of oriental specialists, who are bound to declare the result disproportionately small, the editors have stuck to their opinion that Chinese and Japanese art are marginal interests for the English-speaking student, and have packed the East Asian art of practically three millenia into the six-hundred-odd pages of two of their standard volumes. The compression and high selectivity of facts that has ensued has taken its toll in readability (particularly in the case of Mr. Paine's text) in the sections dealing with the figurative arts, but has stirred Alexander Soper to produce two of the most agreeable and stimulating historical surveys of national architectures that have appeared for some time.

His view of East Asian architecture is an off-shore one—he tends to see China through Japan, rather as an American writer might equally easily see Europe through Britain. His manner of writing is easy, even—at times—colloquial, and sparked with patches of mundane humour. The reader soon finds that his viewpoint has been unconsciously shifted far enough to accept the very different meanings which such words as 'monumentality' must carry in an alien culture, and even to accommodate himself to the idea that a structure that has been rebuilt perhaps once every century can still be discussed as a work of a dynasty that perished before the Plantagenets. The importance of bracketing, the relative unimportance of the overpraised Japanese *sukiya* tradition, the niceties of the Chinese attitude to symmetry, the subtleties of pagoda-design—all these are brought out in a manner which cannot fail to awake in the architect-reader a sympathetic understanding of something that must seem, superficially, inaccessible to the western mind. For this reason it is, in a sense, disappointing that the reference to the *Chin p'ing mei* should belong to Mr. Sickman's, rather than Mr. Soper's, section of the Chinese volume, for that masterpiece of upper-class bawdy (available in a respectable English translation) gives so vivid a picture of the layout and functions of a great Ming household that one could almost draw its circulation-diagram.

P.R.B.

STYLES AND TASTE

THE VICTORIAN HOME. *By Ralph Dutton, Batsford*, 30*s*.
THE TASTE-MAKERS. *By Russell Lynes, Hamish Hamilton*, 30*s*.

Two interesting and well-illustrated books, one concerned with Victorian Britain, the other with the United States in the same period—and after. There is, perhaps, too much stress on the modes-and-manners aspect in each. For example, the open-air pastimes of the century's later years, referred to at some length by Mr. Dutton, while relevant to 'the home' in a general and social sense, take us some distance away from the house and its furnishings. To Mr. Lynes all is fashion and fun—'taste' it is true has an element of both. Architects or designers of deeply considered convictions, like Pugin or Morris, were not the only 'taste-makers.' There were the popularizers—Eastlake's *Hints on Household Taste* was influential on both sides of the Atlantic—the commercial exploiters of the middle-class desire for magnificence—while the public, prompted by various social pressures, played its own part in creating a vogue.

Of the results, between the triumph of Gothic and the advent of Art Nouveau, Mr. Dutton gives a thoughtful and useful description. The Victorian interior that assimilated many differently inspired objects into its styleless core of crowded comfort, is a rare survival nowadays and particular value attaches to some excellent photographic examples. With more than insular exuberance, though much influenced by insular efforts, America, on the way from log cabin to Wright house, wandered through Gothic, Rococo, 'Queen Anne' and other phases. The story told in lively fashion by Mr. Lynes has its own drama. A Pugin of the backwoods, Andrew Jackson Downing, popularized the 'Gothic' house as a social remedy for the barbarism of the log hut and the law of the bowie-knife. The Gothic Revival was launched on the waters of the Mississippi, with the scroll-saw tracery of its paddle-steamers ('floating wedding cakes'). Rococo, transmitted from Europe via the Illustrated Catalogue of 1851, gives a wicked splendour to the Gem Saloon of New York in the 1850s (it may be compared with the Rococo of the Steamship *Atlantic* illustrated in *The Victorian Home*). 'Biltmore,' Chateau of Blois in Indiana limestone, set down in the midst of George W. Vanderbilt II's 130,000 North Carolina acres, was a millionaire's dream of Seigniorage. In due course came aestheticism (though Mr. Lynes does not mention Wilde). The peacock-feather, a design motif traceable to Rossetti, made its appearance in Mr. Tiffany's 'artistic' interior (the author traces its survival later on the front of a juke-box). Some less catholic enquirer is left to distinguish between the ugly and the fantastic, and to apply standards of good design; of which 'taste' is the rival and often the enemy.

William Gaunt

Shorter Notices

BURIED LONDON. *By William Thomson Hill. Phoenix House.* 25*s*.

A comprehensive account of the material remains of London 'from Mithras to the Middle Ages,' as revealed by chance or by systematic excavation. The author is the archaeological correspondent of *The Times*, so it is not surprising that the task has been performed with a keen eye for those piquant details that give actuality to what might otherwise have been a mere catalogue of broken brick and shattered masonry. The value of the book is further enhanced by plenty of clear diagrams, maps and photographs. The excitement engendered by the recent discovery of the Mithraic Temple has perhaps induced the writer to give this particular building a little more emphasis than it actually deserves. It is also curious that Mr. Thomson Hill should pay no tribute, either in the text or in the bibliography, to Gordon Home's *Roman London*, a work which his own volume does not entirely supersede.

Jon Manchip White

THE HALESOWEN STORY. *By Hans & Lena Schwarz. H. Parker Ltd., Halesowen.*

A local labour of love, and the opposite of what that normally implies. Locally written, drawn, printed and published: neat typography, a charming book jacket, crisp writing and thirty-eight line drawings, which, in their range and consistently high quality, make up the best set descriptive of one town that I have seen.

Halesowen is an angular, hilly nail-making town, of the Black Country, but not quite in it; and, as the book shows, in the nineteenth century it had incredible vitality. Now it tries hard to avoid being swamped by Birmingham—permanently, in the way of urban sprawl; temporarily, by the ebb and flow of the country-bound Brummies at week-ends. The genius loci also has to fight municipal rustic which has replaced pre-industrial cottages, and deplorable new estates, dumped on a John Martin industrial landscape which would be one of the sights of the country in less muddle-headed times.

In fact, whether the patient will live or die is anybody's guess. Meanwhile, in 146 pages, here *is* Halesowen, from the setts on Mucklow Hill to the golf clubs propped up against Shenstone's Leasowes—a brilliant piece of work.

Ian Nairn

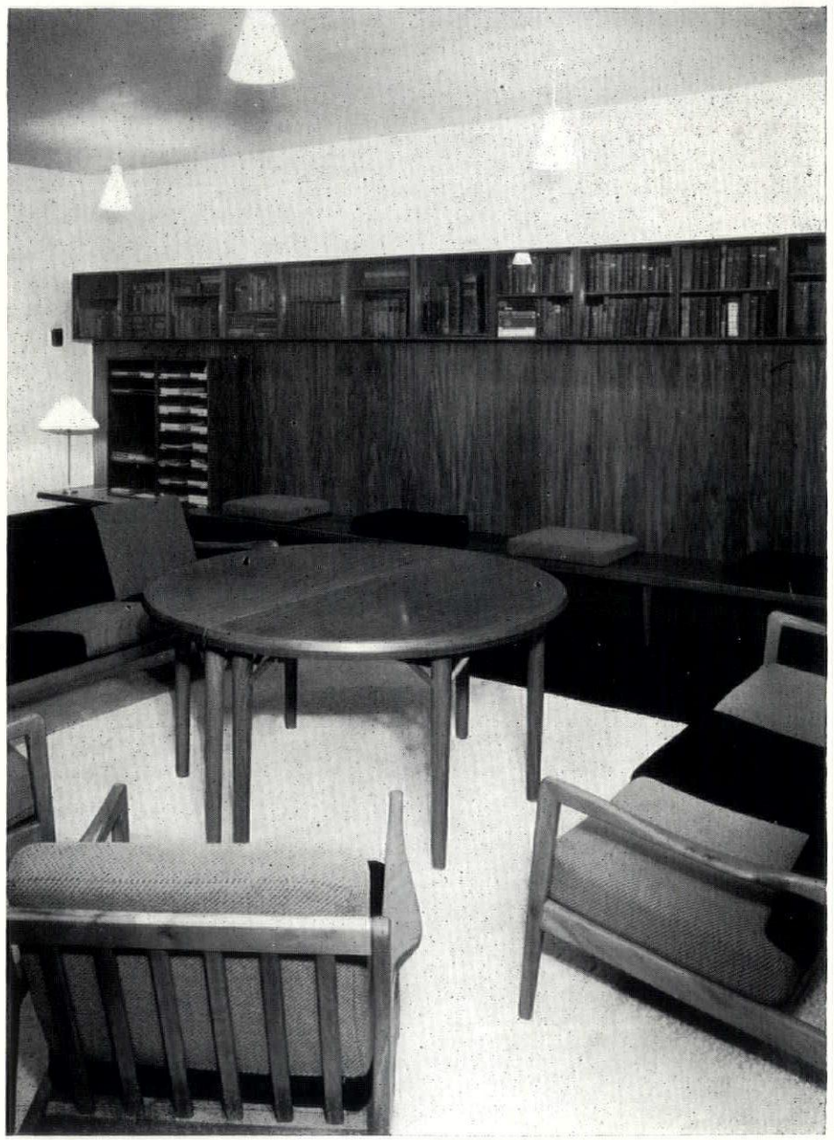
Books Received

DENMARK. Sacheverell Sitwell. Batsford. 21s.
SCHOOL FOR THE NEW NEEDS. Architectural Record. F. W. Dodge. $9.75.
LOOKING AT CHINA. Paul Hogarth. Lawrence & Wishart. 12/6.
THE STEEL SKELETON. J. F. Baker, M. R. Home, and J. Hegman. Cambridge University Press. 63s.
DER TURM ALS SYMBOL UND ERLEBNIS. M. Revesz-Alexander. Martinus Nijhoff.
RUMANIAN ARCHITECTURE. W. Heffer (distributors). 15/-.

SKILL

A MONTHLY REVIEW
OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

1 interiors
2 design review
3 techniques
4 the industry



1, *looking towards the glazed bookcases containing the hospital's collection of books, occupying the only blank wall. The furniture, in afrormosia, was specially designed by the architect.*

1 INTERIORS

DOCTORS' COMMON ROOM, COLCHESTER

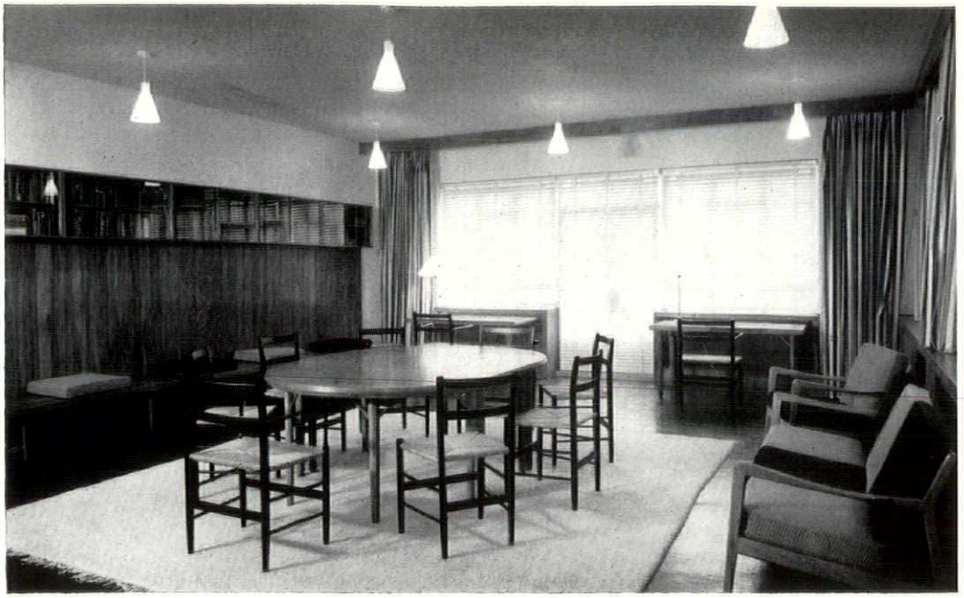
Architect: R. D. Russell

Though mainly intended for a doctors' common room this was also required to house committee meetings of up to twelve people. The room itself is part of a prefabricated hutment extension to the offices of Colchester hospital, and as the prospect from its windows is no more than the detail of the windows themselves these are masked more or less permanently by Venetian blinds.

High-level glazed bookcases at the top

of dado units of moulded boarding contain the hospital's collection of books and are carried across the one blank wall. A continuous line of benches with loose cushions for occasional seating stands in front of the boarded dado, and on one of these benches is a case for magazines. Usually the circular table stands in the centre of the room with settees and easy chairs around it. In front of two windows are writing tables with a third similar side table on the wall opposite. For a committee the circular table divides into two halves and the three small tables are put in to form a single D-ended table.

The floor is covered with black thermoplastic tiling, the ceiling with paper in cool sand colour with a white pattern; the walls are white. The large rug is in natural white and the curtains pale grey and white stripe. The furniture and joinery are of afrormosia (a wood very similar to teak in colour and quality), except for the small chairs which are black, with rush seats. The loose cushions on the benches, settees and easy chairs are covered alternately with black and red material. Most of the furniture and all of the joinery was made by Aldous Successors Ltd., a local firm of yacht builders in Brightlingsea.



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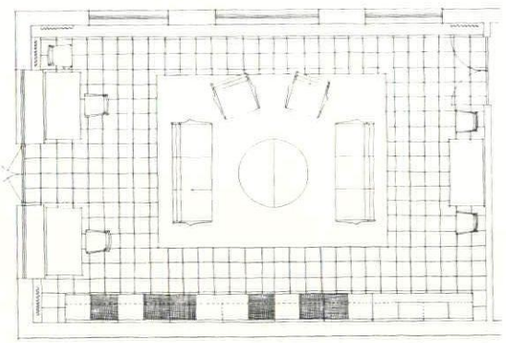
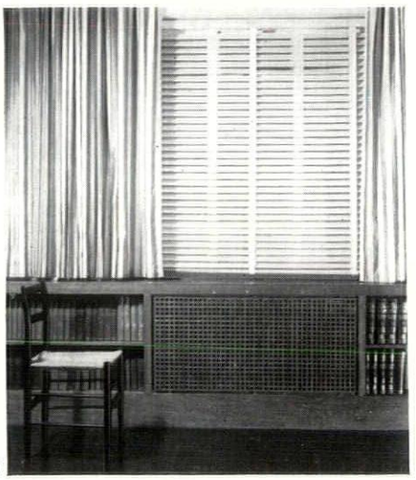


plan scale: approximately 1/12 in. = 1 ft.



3

2, looking towards French windows that open on to a balcony facing south. The furniture is rearranged for committee purposes. 3, one of the three windows facing west.

2 DESIGN REVIEW

Peter Floud

A CALENDAR OF ENGLISH FURNISHING TEXTILES: 1775-1905

This month Design Review *takes an historical form: in the course of preparing the Victoria and Albert Museum's exhibition, 'English Chintz: Two Centuries of Changing Taste,' shown at the Cotton Board Design Centre, Manchester, last December, Peter Floud was able to examine a large number of previously unknown textile-printers' pattern-books, containing between them over* 30,000 *dated patterns, running continuously from the late eighteenth century onwards. They provide a visual calendar of English taste in furnishings of a quite unexpected precision.*

It has always been obvious that detailed research on the interior decoration of the late eighteenth and nineteenth century would show the need for a far more refined chronology than that implied by 'Regency,' 'High Victorian,' etc. Nevertheless it is surprising to find that since at least 1775—the date from which adequate records survive—fashions in printed furnishing textiles have changed so rapidly that almost any English printed furnishing can confidently be dated within a margin of five years. Similar research on surviving records for woven fabrics and wallpapers would almost certainly tell the same story.

These changes are plotted on the following pages by means of 60 illustrations of printed textiles chosen as good representative examples of each of the main successive fashions in floral design for the period 1775 to 1905. The series has been deliberately limited to floral patterns in order to sharpen the comparisons, but as these have always accounted for the great bulk of English furnishing

fabrics, no serious distortion results. Although 1775 has been taken as the starting date it must be admitted that gaps in the earliest records justify some hesitation in datings for the period up to 1790. Thereafter, however, the supply of fully documented patterns is copious enough to guarantee the dates within very narrow limits. 1905 has been taken as a more suitable terminal date than the end of the century, as it marks the end—at least as a living fashion—of those 'Art Nouveau' tendencies which were already implicit in the developments of the 1890's.

The illustrations should dispose of the myth, fostered by twentieth-century interior decorators, that there is a single 'traditional' English style of floral design which has proved its worth through successive generations. There has never been any such stable fashion, and the stylistic mannerisms of the furnishing fabrics which are now turned out as 'traditional' usually owe more to the copying of Jacobean embroideries or French silks than to any study of real English chintzes.

A proper interpretation of these rapid changes in fashion, and in particular of their genesis and diffusion, will require a great deal more research. Some, such as changes in the scale and delicacy of draughtsmanship, can be directly related to technical improvements in printing processes. A few of the changes in colouring—but by no means the majority—are the evident consequence of new dye-stuffs. Some of the sudden switches in the predominant subject-matter of prints have been occasioned by the publication of influential illustrated books, such as Audubon's 'Birds of America.' Many of the changes after 1875 can only be understood if account is taken of the influence of the personal styles of the leading artist-designers. These factors throw light, however, on only a fraction of the changes, and those which express themselves in more subtle forms, such as the constant fluctuations in the balance and organization of patterns, so far remain entirely unexplained.

All the textiles are in the Victoria and Albert Museum except the following: Messrs. G. P. and J. Baker, Ltd., 9, 10, 30. Miss Josephine Howell, New York, 11, 13, 22. Messrs. Turnbull & Stockdale, 54, 58. Messrs. W. H. Haynes, Ltd., 34. Museum für Kunst und Gewerbe, Hamburg, 55, 56. Musée de l'Impression, Mulhouse, 29. Patent Office, 36-38, 40-49. The photographs are the copyright of the Museum.

The numbers in brackets at the end of the captions refer to the fuller details given under the entries in the catalogue of the Manchester exhibition. (H.M.S.O. 2s. 6d.)

1775-1790

This period is characterised by meandering patterns, very loosely organized, and in the best examples giving a remarkable feeling of natural growth. Backgrounds are usually white, and repeats very large (often more than a yard square). In the case of the more expensive copperplate prints (almost always monochrome) the engraving was often detailed and delicate, while the cheaper wood-block polychrome prints were bolder and coarser. Colours were all vegetable and limited to indigo blue, weld yellow, and madder reds, purples and olives. In the absence of adequate documentation it is difficult to date individual examples at this period within a margin of less than 10 *years.*

1, 2, 3



c.1775. Paper-impression of copperplate from Robert Jones's Old Ford factory. The apparently haphazard disposition and delicate naturalistic detail are typical of the 1770's.



c.1780. Wood-block in reds, purples, black and blues. Peonies (see also No. 3), inspired by Chinese wallpapers, were popular in the 1780's. [50]



c.1780. Wood-block in reds, drabs and blue. The gnarled arborescent stem of this and No. 2 was a popular convention between 1775 and 1785. Coarsely drawn birds appear in the 1780's. [49]

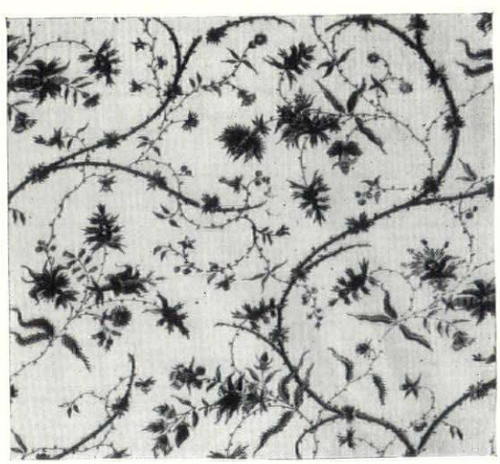
4, 5, 6



c.1785. Paper-impression of copperplate from Bromley Hall printworks, showing only a small part of the total repeat.



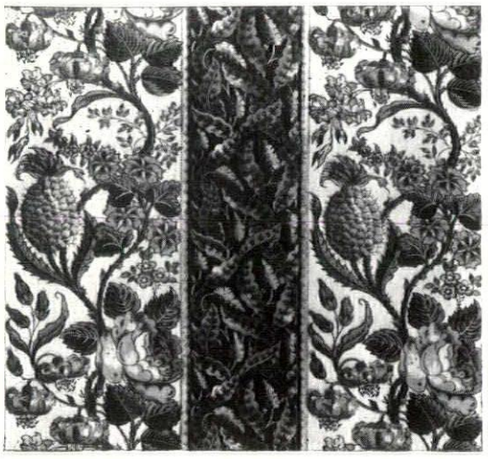
c.1785. Detail of another Bromley Hall paper-impression showing the taste for exotic plants. Precise naturalism remains, but no longer with the delicate drawing of the 1770's. [10]



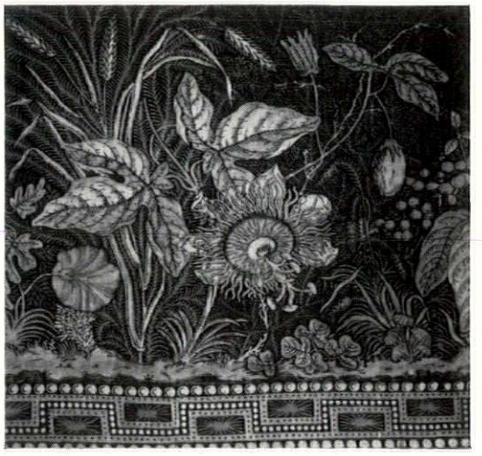
c.1785. Wood-block in red, black and blue. The very thin stems and spiky 'Indian' flowers are characteristic of a whole group of furnishing and dress fabrics of the 1780's. [52]

1790-1802

Copperplate monochrome florals have almost disappeared; roller-printing (though invented in 1783) has not yet affected furnishing fabrics; and the field is therefore dominated by wood-block prints. London still produces the best work, but Lancashire is rapidly gaining ground. Designs continue to be loosely organized, but thin patterns on white grounds are now replaced by dense and opulent polychrome bouquets on dark purple or yellow or red grounds. Readily identifiable garden flowers (roses, poppies, tiger-lilies) are excellently drawn with three-dimensional naturalism. This can be regarded as the high-water mark of the English floral chintz.





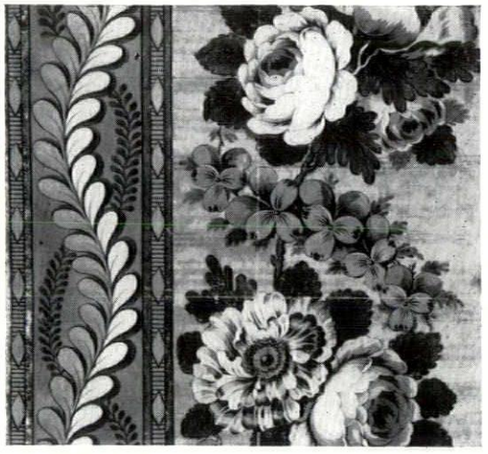


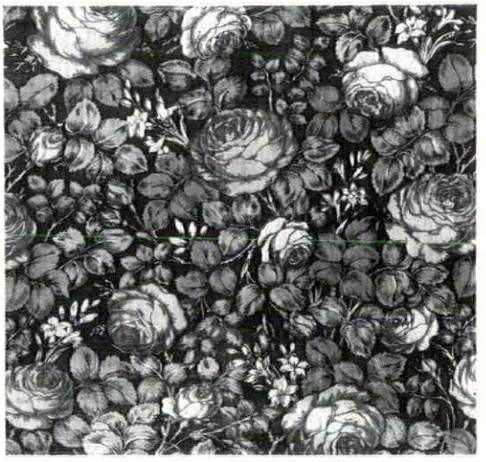
7, 8, 9

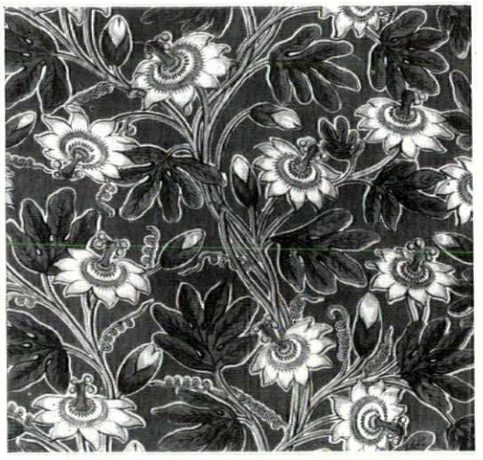
c.1790. Polychrome wood-block. The tiger-lilies, the alternating stripes, and the multi-coloured leaves are typical. [53]

c.1790. Polychrome wood-block. Decorative ribbons often occur at this date. Striped designs such as this and Nos. 7 and 10, were often cut up for use as borders. [55]

c.1795. Polychrome wood-block. Exceptionally finely drawn. The fern background reserved in a lighter purple against an almost black madder ground is characteristic of 1795 to 1800. [60]







10, 11, 12

1796. Original design by J. Edwards, noted as the best chintz-designer of his generation (the nineteenth-century rule of anonymity for designers was not yet operative). [56b]

c.1800. Polychrome wood-block on dark purple ground. The rich dark colours, the boldly modelled flowers, and the skilfully masked repeats, are all typical of the very end of the century. [62]

1802. Polychrome wood-block on red ground. Commissioned by Richard Ovey, a London merchant whose furnishing designs dominated the trade from 1798 to 1810. [68]

1802-1815

Wood-block prints still hold the field. After 1799, and particularly from 1802 to 1807, the rich palette of the preceding decade is replaced by drab colours (grey, beige, olive and yellow, sometimes with green added) for almost all indigenous floral designs, though there was a simultaneous fashion, especially from 1804 to 1806, for brightly coloured exotic designs, both floral and figural, in the Indian, Chinese and Pompeian taste. Draughtsmanship deteriorates noticeably, and careful modelling gives way to a broad slap-dash treatment. The best designs still retain, however, a bold decorative vitality. Printing becomes coarser (London is now completely overshadowed by Lancashire), though there is as yet no decline in the standard of the vegetable dyes used.

c.1805. Polychrome wood-block. The formalization of the flowers, derived from eighteenth-century Indian chintz palampores, is typical of the bright exotic designs of around 1805. [74]

1805. Drab wood-block. The summary draughtsmanship and the emphasis on leaves rather than blossoms is typical for these drab prints. [82]

c.1805. Drab wood-block. Note the lack of detail in the flowers by comparison with the previous decade. Pillar-designs were an English speciality, intermittently popular from 1800 to 1835. [86]

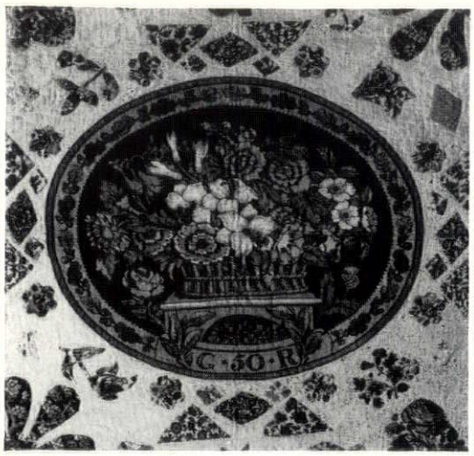






13, 14, 15

16, 17, 18



1810. Polychrome wood-block. These panels first occur as chair-seats in about 1800; by 1810 they were being produced for use in patchwork quilts. The inscription refers to George III's jubilee. [101]



1812. Polychrome wood-block. Printed in the reds, dark greens and oranges which replaced the drab style after 1807. The growing tree and architectural motifs are typical for 1810 to 1816. [91]



1815. Polychrome wood-block. Printed in the same colours as No. 17. There was a fashion for game-birds under formalized palm-trees for a few years around 1815. [94]

1815-1827

By 1815 *furnishings printed by machine from engraved metal rollers had begun to compete with the traditional wood-block prints. The new technique led at first to a renewed attention to finely-engraved detail, and indirectly produced an improvement in the draughtsmanship of woodblock prints also, with a conspicuous emphasis on sharply defined outlines. Flowers predominate once more. Newly discovered chemical discharges and mineral colours (antimony-orange,* 1817 ; *manganese-bronze,* 1823) *begin to change the traditional madder-style palette.*

19, 20, 21



1818. Two-colour roller-print. Neatly differentiated vertical stems and honeycomb backgrounds were much used for both dress and furnishing fabrics between 1815 and 1820. [145]



c.1820. Polychrome wood-block in bright reds and blues. The cross-hatched shading on the petals in this and No. 21 illustrates a sudden fashion from 1820 to 1824. [123]



1823. Polychrome wood-block. The floral scroll motif, reminiscent of wrought-iron work, was popular between 1815 and 1824.

22, 23, 24



c.1824. Polychrome wood-block. Typical of its date, both in the neater draughtsmanship resulting from the competitive stimulus of machine-engraving, and in the alternating stripes. [124]



1824. Monochrome roller-print. A particularly well engraved example. [148]



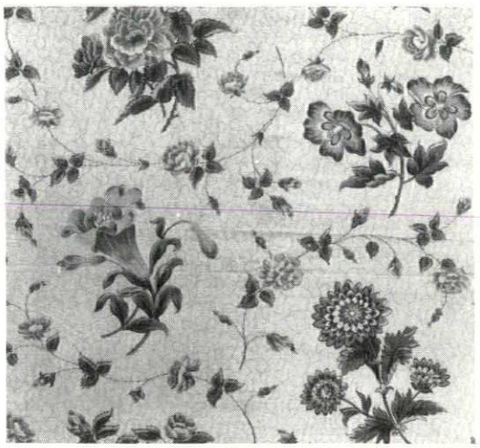
1827. Polychrome wood-block. A good example of the floral designs with lightly printed fern-like attachments which dominated chintzes from 1826 to 1830. [126]

1827-1835

With further technical improvements in roller-printing, fine engraving reached its highest point of excellence during these years. There was a return to more sparsely disposed patterns, often with very thin stems, and to precisely delineated flowers copied from botanical plates, (both trends reminiscent of the 1780's). *The year* 1829 *saw a sudden fashion for birds (usually exotic) and butterflies, which lasted until about* 1835 *and was probably inspired by the publication in* 1827 *of Audubon's first plates. Colour standards begin to deteriorate under the influence of the new mineral dyes. (It was these new dyes of the* 1820's *that ruined textile colouring, not the aniline dyes of the* 1850's *and* '60's *as often supposed.)*



1829. Polychrome wood-block. Isolated plants such as this, taken straight from botanical plates, and often 1 ft. or more high, were in vogue from 1828 to 1835.



c.1830. Machine and block print. A variant on No. 25, with the outlines and the typical fancy background printed by roller and the additional colours printed by block. [133]

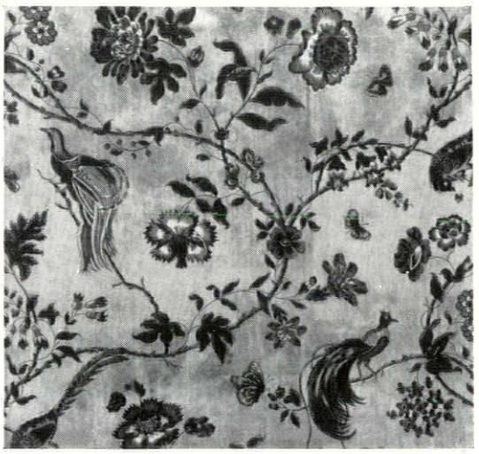


1830. Polychrome roller-print. An excellent example of the best Lancashire engraving. The stippled shading of the petals is typical of the 1830's. [169]

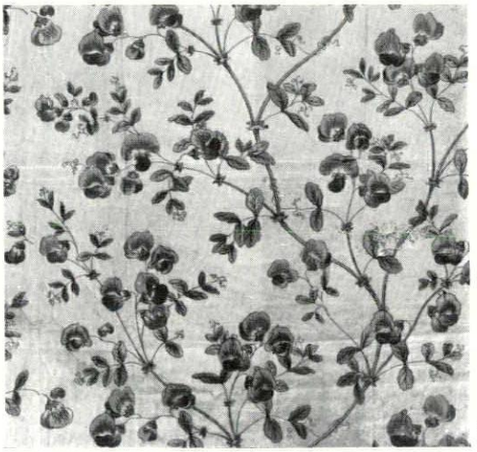
25, 26, 27



1831. Polychrome roller-print. The birds and some of the flowers are copied exactly from plates in Audubon. Printed in brilliant orange on a dark manganese-bronze ground. [167]



c.1832. Polychrome wood-block. The birds and butterflies of No. 28 translated into the coarser wood-block technique. This has the typical blotchy 'tea'-ground of 1825 to 1835. [136]



1835. Polychrome wood-block. The final stage of the traditional floral chintz before the onset of Victorianism. The thin stems and tendrils are very characteristic. [139]

28, 29, 30

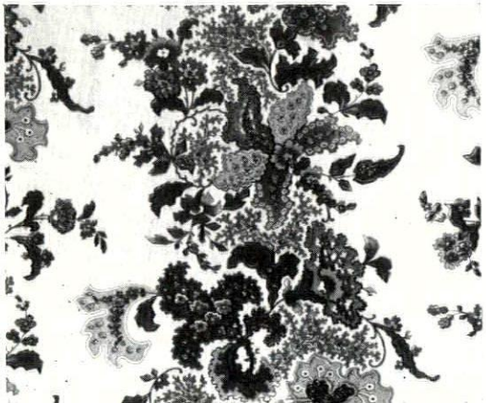
1835-1846

A period of disorientation and deteriorating standards. Many well-drawn prints are still produced, but there is a rapid increase in ill-organized designs, unhappy combinations of naturalism and formalism, juxtapositions of incongruous motifs, and a lack of consistency in scale. The regular use after 1835 *of a harsh acid-toned 'solid-green,' in place of the traditional soft bluish-green produced by the over-printing of yellow over Indigo blue, finally disrupted the balance of the old vegetable-dye palette, and simultaneously transformed the drawing of stems and leaves by eliminating the need for a dark outline to conceal misregistration in the overprinting.*

1835. Polychrome roller-print. An as yet restrained example of approaching Victorian eclecticism. The picotée dots are typical of designs from 1835 to 1840. [175]

1836. Polychrome wood-block. The drawing marks the transition from the botanical-plate precision of the 1820's to the typically sketchy over-blown blossoms of the 1840's. [142]

1837. Machine and block print. This clearly shows how the drawing of stems and petals without outlines transformed the appearance of the floral chintz. The fancy ground is typical.







31, 32, 33

34, 35, 36



c.1840. Machine and block print. The picotée dots, the clumsy drawing of the cartouche and the blend of naturalism and formalism are typical of this period. [201]



1842. Machine and block print. A hangover from the pre-Victorian thin floral trail, but with a tight stippling on the petals much used at this date.



1846. Polychrome wood-block. The sprawling disorganised design, and the building up of the modelling by the overprinting of light tones without outlines is characteristic. [178]

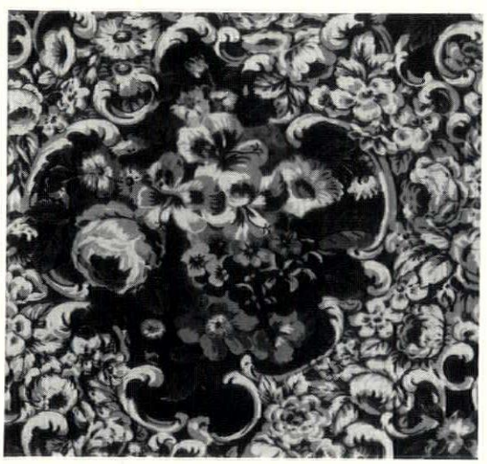
1846-1856

Although the general standard continues to decline, the floral prints of this decade achieve a certain consistency of style missing in the previous period. Large flowers are drawn with an eye to an opulent effect rather than to any authentic naturalism. A spurious three-dimensionalism is obtained by the superimposition of tonal washes rather than by precise modelling. This style later provided the prototype for the typical twentieth century 'traditional' chintz. The fine engraving of the earlier roller-prints has disappeared, and the drawing of the wood-blocks is much coarser. All restraint on the use of colour is abandoned and harsh greens and maroons predominate.

37, 38, 39



1846. Polychrome wood-block. A characteristic floral cascade in rich oranges and purples of a type which won the highest awards at the Great Exhibition. [179]



1848. Polychrome wood-block. Overall florals with no visible ground, like this and No. 40, were in vogue in the late 1840's. The muddle of rococo scrolls and flowers is typical. [180]

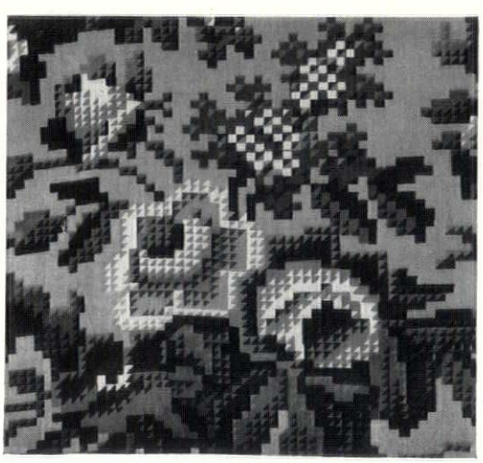


c.1850. Polychrome wood-block. Chosen by Sir Henry Cole as an example of 'False Principles in Design: Direct Imitation of Nature,' in a didactic exhibition in 1852. [183]

40, 41, 42



1850. Polychrome wood-block. A good example of the most expensive style of mid-Victorian wood-block chintz, printed only by Stead, McAlpin of Carlisle, and Clarkson of Bannister Hall. [182]



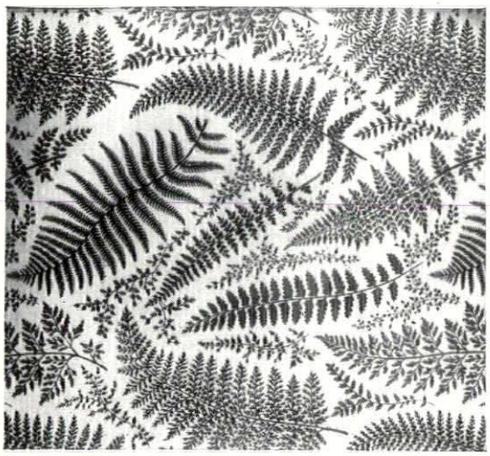
1856. Polychrome roller-print. A fair example of the cheaper style of mid-Victorian machine-printed chintz, imitating Berlin-woolwork. Backgrounds were usually green or salmon pink [213]



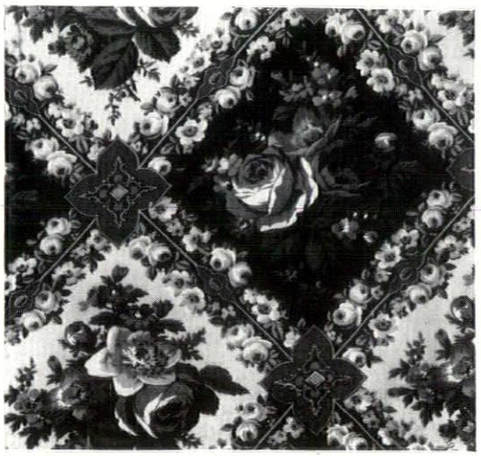
1856. Polychrome wood-block. One of the few new fashions of the 1850's was for border prints with trellis fillings, which were popular from 1856 to 1862. [188]

1856-1875

By this time the vast majority of English printed furnishings had sunk to a uniform level of vulgar and eclectic mediocrity, with little variation from year to year. A few original designs were remotely influenced by the anti-naturalistic and anti-three-dimensional teachings of Pugin and Owen Jones, but far fewer than in the case of woven fabrics and wallpapers. From 1865 onwards the English market for high-class chintzes came increasingly under the influence of sophisticated Parisian fashions, and even the most enterprising English manufacturers copied the latest stylistic mannerisms of their French and Alsatian competitors.



1858. Polychrome wood-block. An example of a now forgotten fashion for fern designs which lasted from 1856 to 1860—the last spark of originality before the Morris revival of the 1870's. [190]



1860. Polychrome roller-print. A type which won awards at the 1862 Exhibition. More exaggerated versions incorporated not only the jewel effects but Paisley and tartan motifs as well. [214]



43, 44, 45

1863. Machine and block print. An unusually good example of a short-lived fashion at this period for chintzes in reds and browns, excluding all blues and greens. [192]



1867. Polychrome wood-block. A rare example of a chintz indirectly and belatedly influenced by the designs and teaching of Pugin and Owen Jones. [194]



1869. Polychrome wood-block. A typical Stead, McAlpin chintz under strong French influence, printed in brilliant colours on a dark green ground. [196]



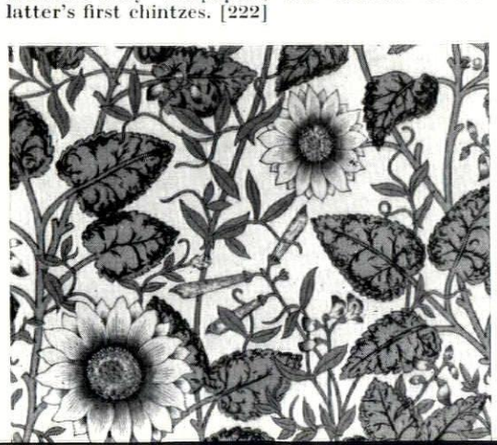
46, 47, 48

1871. Machine and block print. Another Stead, McAlpin print under even stronger French influence. The thin red line round the white petals is a standard mannerism between 1868 and 1875. [200]

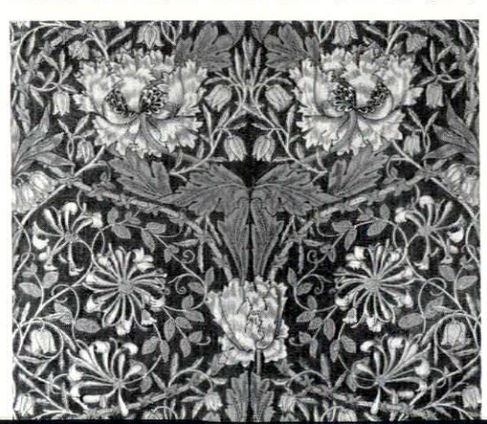
1875-1890

In the mid-1870's an entirely new element was introduced into textile-design by the emergence of the artist-designers, led by Morris. Their designs were at first ignored by the trade, but later copied with minor alterations as soon as their popularity was apparent. Not until the late 1880's, however, did the trade-studios make any attempt to assimilate the new principles or to adapt their own designs in the light of them. This period also saw the rapid supersession, after about 1875, of the standard garishly coloured and heavily glazed chintz of the mid-Victorian period by the typical late-Victorian cretonne printed in pale shades on a heavy cotton twill.

1875. Bruce J. Talbert (1838–1881). An example of his pseudo-Japanese style. Influenced by Morris's early wallpapers, but anterior to the latter's first chintzes. [222]



1876. William Morris (1834–1896). The 'Honeysuckle.' The best-known of his early chintzes. Less of a break with the English tradition than either Talbert (No. 49) or Mackmurdo (No. 52). [230]



1883. Polychrome roller-print. An example of the best trade-studio work of this period, printed in pale biscuit and beige tones on a thick unglazed cretonne.



49, 50, 51

52, 53, 54



1884. A. H. Mackmurdo (1851–1942). The 'Cromer Bird.' Produced for the Century Guild, and clearly demonstrating his characteristic anticipation of 'Art Nouveau' and influence on Voysey. [241]



1887. William Morris (1834–1896). The 'Trent.' Typical of his later designs in its diagonal disposition and emphasis on formalised floral symbols.



1888. Lewis F. Day (1845–1910). An example of Day's influential reinterpretation of the traditional English chintz in the light of his knowledge of Renaissance pattern. [244]

1890-1905

By 1890 *the influence of Morris, Mackmurdo and Lewis Day (and after* 1895 *of Voysey) on sophisticated taste was sufficiently pervasive to force the leading trade-studios to employ a new type of art-school trained professional designer. The best of these, such as Lindsay Butterfield and Sydney Mawson, though basing their styles on an eclectic amalgam of Morris and Voysey, were gifted enough to raise the best trade designs to the highest level of technical competence reached in this country. From* 1897, *and particularly between* 1900 *and* 1905, *they turned their talents to adapting the extreme Parisian brand of 'Art Nouveau' to English tastes.*

55, 56, 57



1891. Lindsay P. Butterfield. Characteristic of the fresh treatment of floral conventions inspired by the general liberating influence of Morris and the Arts and Crafts movement.



1893. C. F. A. Voysey (1857–1941). An example of his earliest and simpler style, influenced by Mackmurdo, but not yet showing the interaction with continental influences. [256]

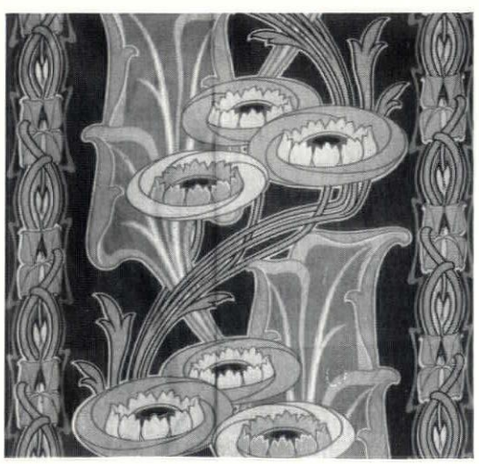


1895. C. F. A. Voysey (1857–1941). An example showing his characteristic papery treatment of leaves, which was much copied around the turn of the century. [257]

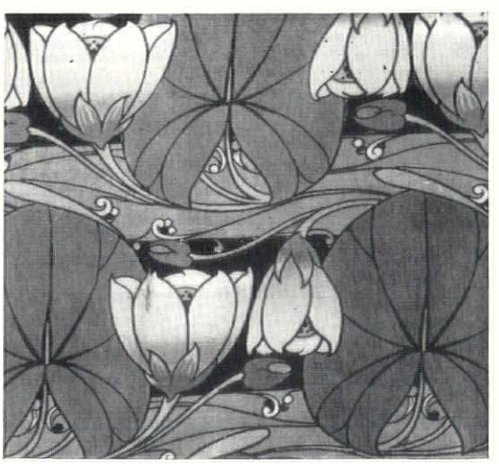
58, 59, 60



1901. Lindsay P. Butterfield. The papery flowers are inspired by Voysey, but the exaggerated twisting and the emphasis on odd details shows the influence of Paris. [260]



1903. Christopher Dresser (1834–1904). The full impact of French 'Art Nouveau' interpreted by Dresser—the eccentric mid-Victorian designer and writer—at the very end of his life. [265]



1905. Harry Napper (d.1930). French 'Art Nouveau' as assimilated to English tastes by one of the most skilful of the professional eclectics. [264]

3 TECHNIQUES

HOW SHOULD WE USE PLASTICS?

The 'all plastic' house at this year's Salon des Arts Ménagers in Paris did not draw so much informed comment from architects and from the building industry as it deserved. For whatever we may say about the house as a house, its production forms a convenient record of the penetration of building by this revolution in chemistry. Here Bruce Martin describes and sets down his thoughts on the house.

The house exhibited at the Salon des Arts Ménagers held in Paris in February and March this year was described as the first all-plastic house. It was sponsored by the journal *Elle*, the Salon, the Charbonnages de France and the Houillères du Nord with the collaboration of the Gaz de France and the French Chemical Industry.

The decision to design and construct the house was taken in April, 1955, following a proposal made to the sponsors by a young architect, Lionel Schein, to make use of the complete range of plastics materials now available for building. The work was carried out by a design team of ten, including architects, engineers, contractors and artists, who were supported by the leading firms and associations in the French plastics industry and a number of specialist sub-contractors. Other organizations contributed to the furnishing and equipment of the house. Sketch plans were prepared during July and August and working drawings in the following two months. Construction started in November in a special workshop set up in one of the Exhibition Halls, where forty workmen were employed to fabricate the elements and components of the building. In the early stages it was decided to plan to a human scale, to make the most of the technical possibilities of the materials and to bear in mind mass production. The house was therefore designed to be split up into as few and as large elements as possible. In a sense this determined the plan form: a central rotunda was divided into eight equal segments each capable of being made in the same mould; an eighth of a wall frame and an eighth of a floor frame forming one unit cast in a single piece. To this central rotunda could be added one, two or three bedrooms (the plan shows three) and the main wall unit for each of these rooms was cast in the same mould. Each of these bedrooms was connected to one-eighth of the perimeter of the rotunda. The eight structural frame elements, made of polyester reinforced with glass fabric, were assembled around a central hollow post which served as the main rain-water pipe. The roof units were connected by eight long cover jointing strips which also served as beams. The moulds for these units were, in the case of this prototype, made of wood and were coated with suitable separation agents to allow of removal of the casts, which were made by adding the polyester resins to the glass fabric. Polymerization of the resin solidified the whole unit. The partitions were of sandwich construction 3 cm. thick containing a central filling of insulating wadding. The floor panels consisted of stratified layers on either side of honeycomb plastic filling about 4 cm. thick, the total floor consisting of two such panels of a total thickness of 8 cm. Window walls were of Perspex acrylic sheet formed to a curve on plan and bolted by means of a plastic cover strip to a joggle in the main structural frame units. Perspex was also used for benches and for the desk in the living room. All interior equipment, including furniture, decoration and furnishing fabrics, was carried out in a number of different plastics as shown in the attached table.

The area of the house was about 1,000 sq. ft. and contained the accommodation as shown on the plan opposite. In describing their design the architects refer to the possibility of continuity of structure made possible by employing materials of this kind, and to the curvilinear surfaces which tend to be suited to certain of the materials. They claim that the insulation in the plastic panels has good thermal capacity and sound absorption and brings about additional comfort in the rooms. They also point out that the washable surfaces lead to little maintenance both inside and outside, and that the continuous surfaces prevent the collection of dirt and the formation of moisture and mould.

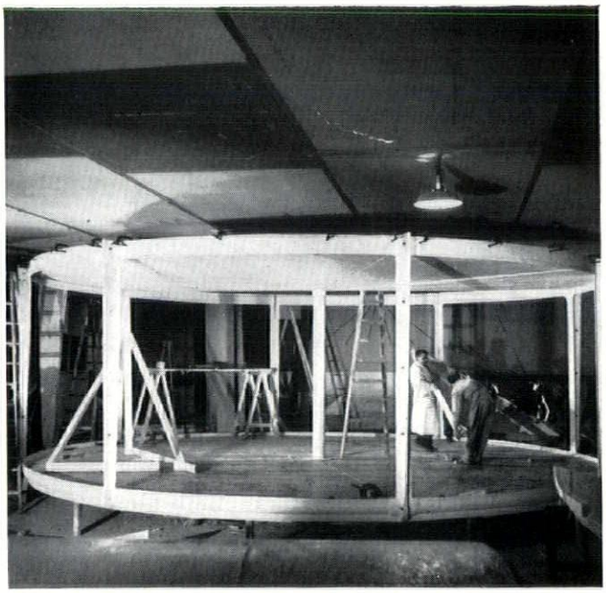
This design undoubtedly achieves the first objective, which was to demonstrate the use in a single house of a wide range of plastic materials in order to show that plastics are no longer limited to toys, household objects and similar small articles. In recent years the range of plastics has widened considerably so that the requirements of a particular building component may be satisfied by using the most suitable plastic material. But the concept of 'components' is itself relatively new, and it is clear that with new materials the form of a traditional component may change radically. It will take time and experiment to discover the forms needed to link the new material with its particular application as part of a building.

In this house, the shapes of the floor panels and of some of the walling are very doubtful. They are designed, of course, to fit the plan, which in turn results from the structural system, but the plan in fact is rigid and determinate because of the form of the panel components and the way they have been fixed to the structural units. Their shape has very largely determined the plan. Furthermore they could not be used to take up other positions in this plan or in another. Similarly the cupboards are built right into the walling system, giving inflexible storage arrangements: the position and amount of storage are governed by the initial decision of the architects. The beds are also fixed in space and time and the shape of rooms is such that alternative furniture arrangements are almost impossible. The living room sofa is another example of this rigid planning suitable for a waiting room but out of character with the domestic lounge, where it is unfortunate if the members of the family are obliged to sit in a long line with their backs to the acrylic glass sheet.

The plan is said to be free and open, but in fact it provides the same inflexible accommodation as normal little house plans associated with

[continued on page 136

1, *the main structure of the rotunda.* 2, *placing the floor panels of the rotunda.* 3, *fabricating the screen wall of the entrance vestibule.* 4, *removing one of the bedrooms from its mould; note the inconvenience of handling units of this size and shape.*









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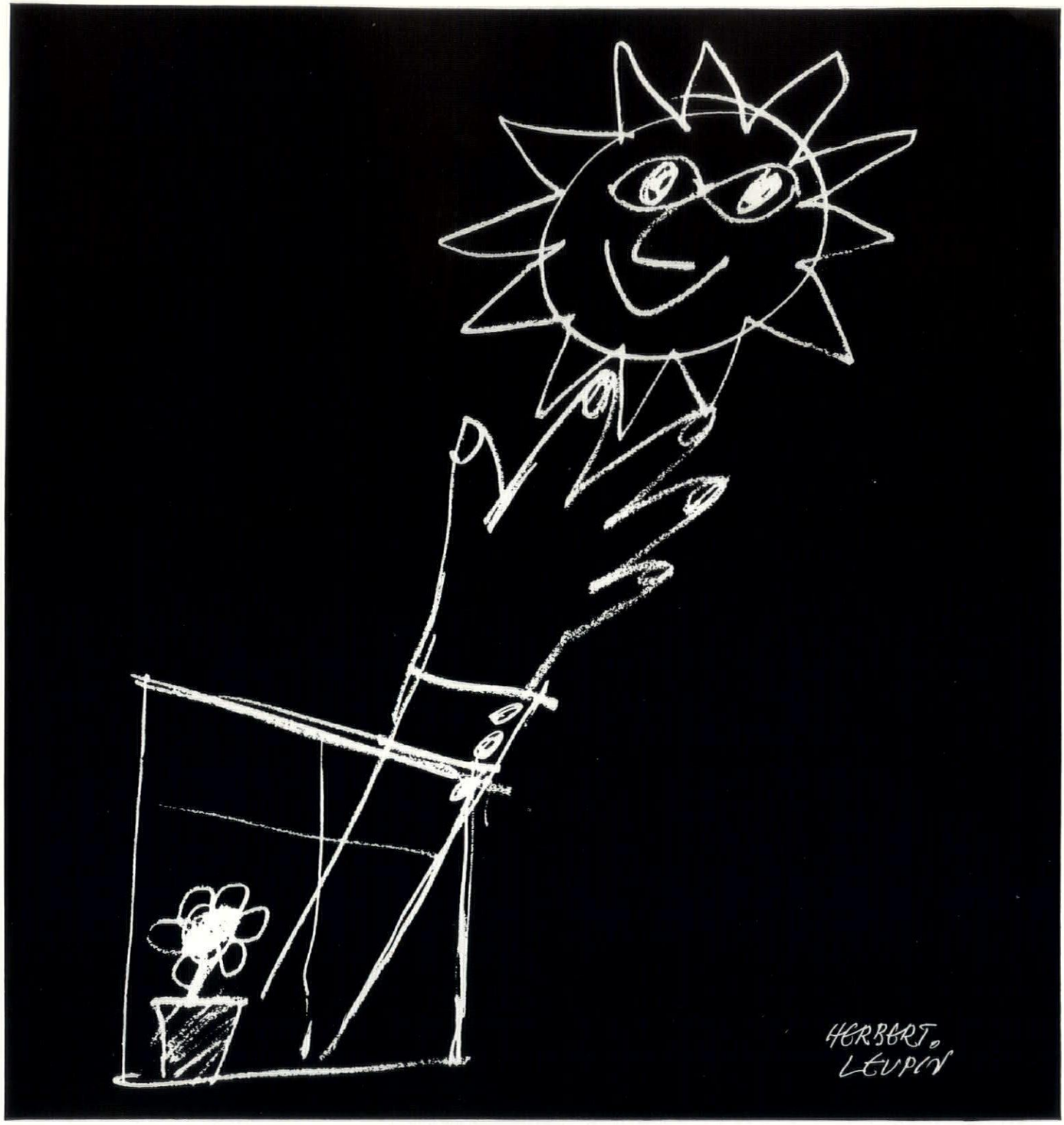

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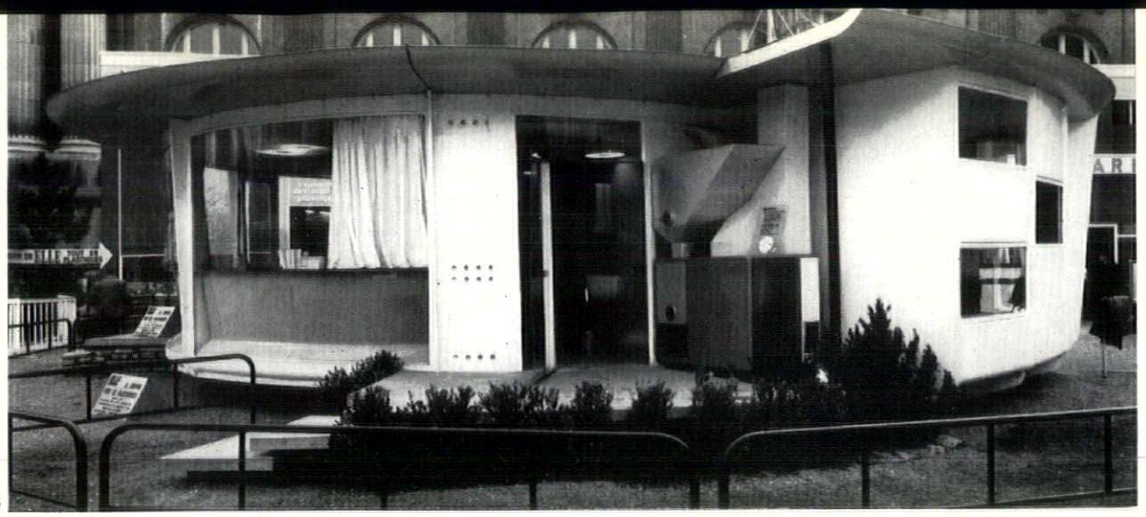
continued from page 134]

load-bearing construction and semi-detached development.

In addition, the plan is a 'type plan' on the lines of a motor car or an aeroplane. It is the 'prefab' house—a complete object designed for production as a complete unit in which all parts contribute to a single fixed and unalterable pattern. Yet, for purposes of fabrication, of handling and of design, it is broken down into component parts. Why then is it necessary for these parts to be designed to go together always in the same way for every family, for every site and every mode of life?

There is, without doubt, a great future for plastic components in building, but they must be designed and used to bring about new and varied plans, which are possible just because of the material's particular virtues. It is light structural frames that allow of light walling, and it is light walling that allows of alternative plans and a flexible use of space.

Finally, a world of plastics alone is too much of a good thing. The all-plastic house is a valuable experiment, but could bring about an unbalanced environment. Plastic components must be treated as valuable additions to our stock of building parts, but not as replacements and substitutes for all of them. Their qualities and colours are determinate and characteristic. For some environments, they may still be quite inappropriate.



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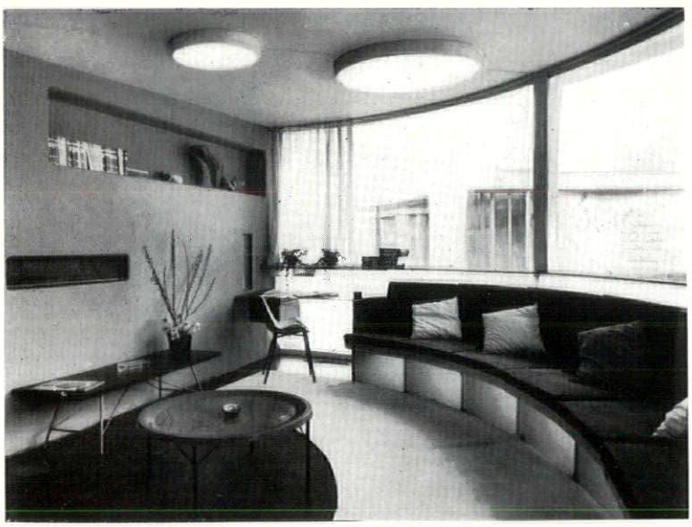

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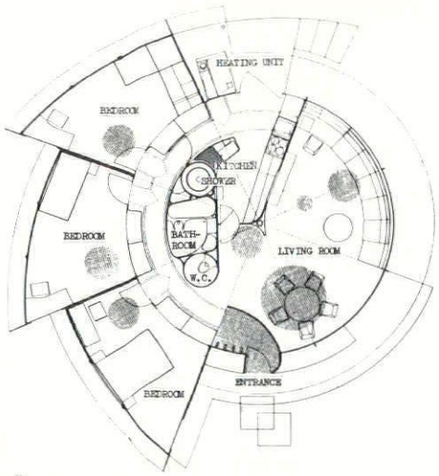

7

5, general view; note position of the solid fuel heating unit. 6, living room interior. 7, plan. (Circular hatched areas represent ceiling lights.)

***On page* 138** *is a chart showing the derivation and uses of the plastics used in the house.*



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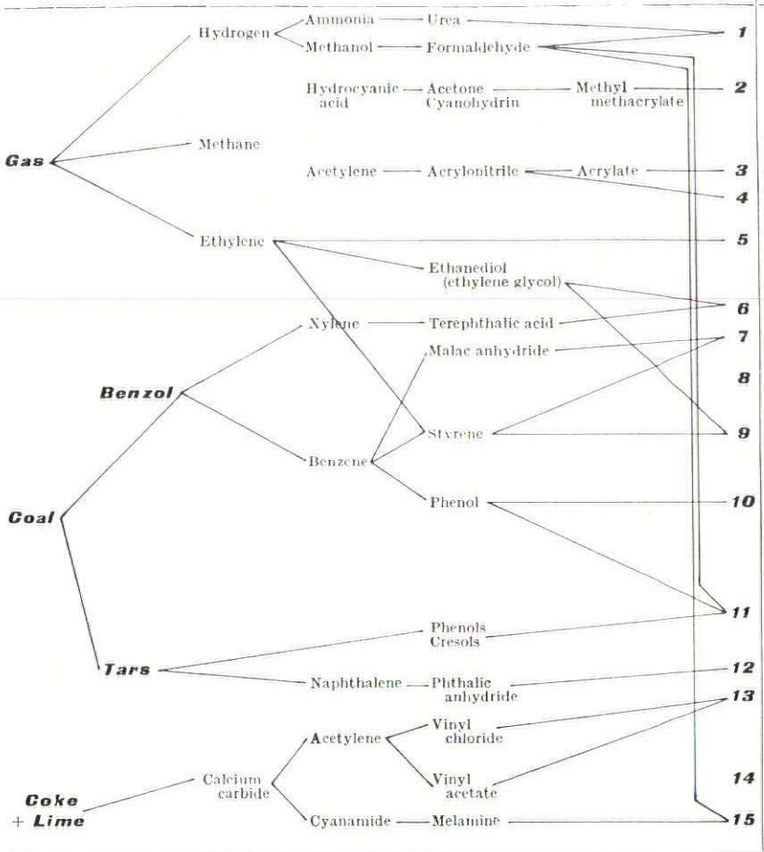
continued from page 136]

This chart shows, on the left, the derivation of the plastics used in the house discussed on the preceding pages and, on the right, the uses to which they have been put in the house, and in the building industry generally. In the extreme right hand column are some of the more familiar English trade names in the field, placed opposite the plastics products they represent.



Derivation	Plastic Materials.	Use in the Plastics House.	Other Uses in Building.	Trade Names.
1	Aminoplastics	Small electrical equipment	Household accessories and utensils, radio sets and seat tops	
2	Polymethyl methacrylate	Transparent and translucent surfaces, shaped benches with back, desk, table and toilet objects etc.		Perspex
3	Acrylic resins	Seat coverings	Floor coverings, paint	
4	Polyacrylic resins	Lingerie, clothes and furnishings		
5	Polythene	Household utensils (buckets, boxes) toilet flasks, pipes, electrical insulators		
6	Glycol	Clothing		
7	Polyesters	Lingerie, clothes and furnishings		
8	Polyesters (reinforced with glass fabric)	Shell floors, roofing, partitions, sanitary units and furniture	Translucent and opaque panels and elements	
9	Polystyrenes	Telephonic apparatus accessories and household utensils	Radio and television sets, lighting apparatus, tiles (for wall coverings), wadding for insulation	
10	Superpolyanides	As cloth: lingerie, curtains, clothes As coarse cloth: cushions, carpets, bed covers As moulded objects: electrical equipment, brushes, etc.	Pipe work, door handles, etc.	Nylon
11	Phenolic plastics	Radio and television apparatus	Telephone apparatus, seat and table tops, household accessories	Bakelite Holoplast
12	Glycerophthalics	Paints		
13	Vinyl resins	Carpets, mackintoshes, gramophone records, pipes, electrical insulators, household accessories	Gutters, continuous flooring (vinyl and cement), paint	
14	Vinyl textiles	Curtains, cushions, furnishings, lingerie, clothing		
15	Melamine resins	Door panels, sink	Panels (for walls and furniture)	Warerite

[Contractors for buildings in this issue on page 140

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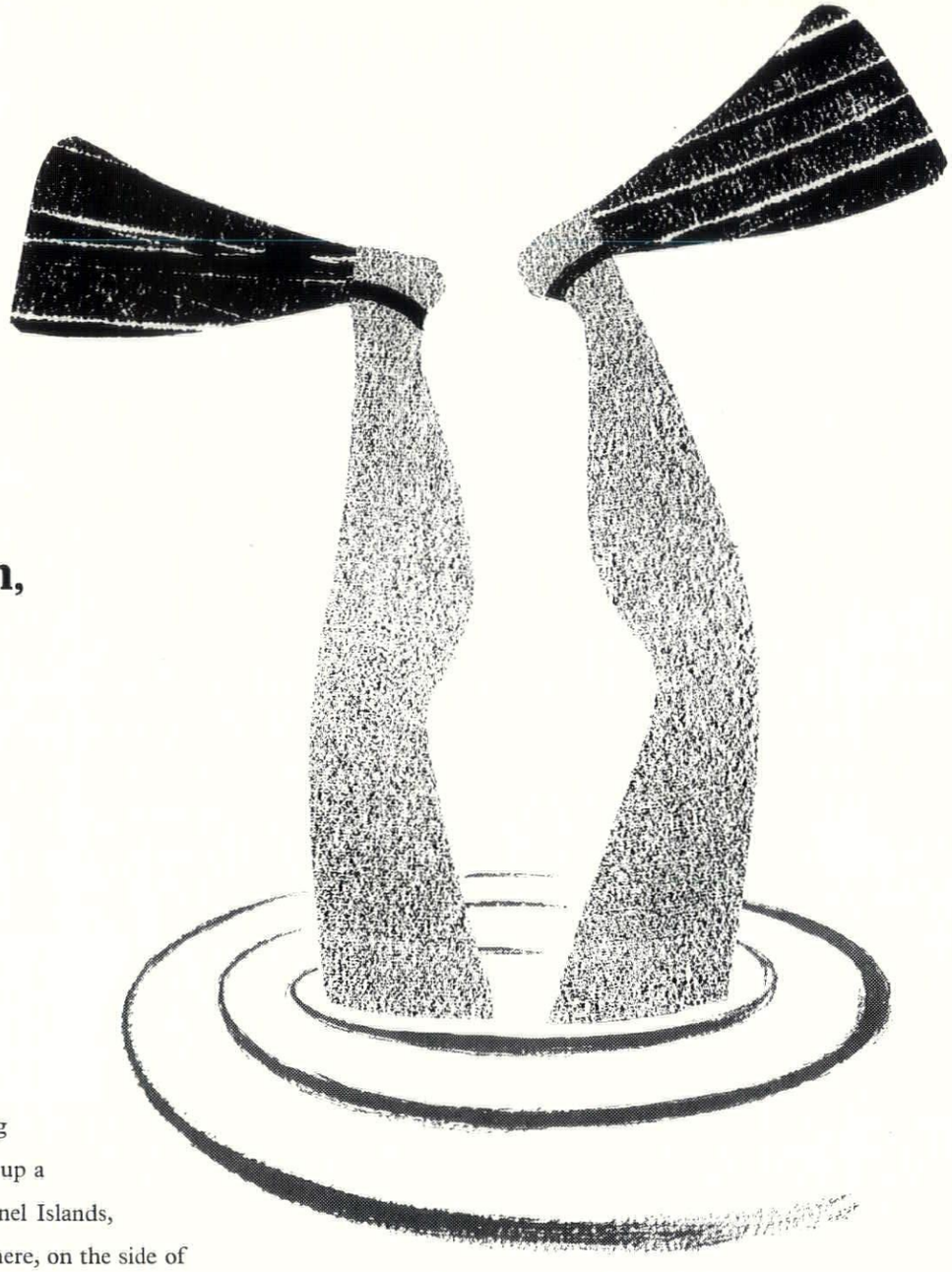

There are more ways of inspecting a wall surface than that of climbing up a ladder. At a place in the Channel Islands, you dive into 12 feet of water. There, on the side of a certain swimming pool, and very much against our wishes, you will find Pammastic—doing fine. It is not, of course, designed for life underwater. But this happy misuse provides a dramatic demonstration of a point that deserves publicity—*Pammastic is the plastic emulsion paint that can be used outside a building as well as inside.* Suitable for most surfaces, it needs no primer or undercoating, and dries in an hour. Its fine matt surface can be washed down and *scrubbed* clean repeatedly. Further information about the remarkable properties of Pammastic—and its notable complementaries, Pammel (the luxury gloss enamel), Pammelette (the superfine eggshell enamel) and Pammatt (the superfine flat enamel)—is available on request.

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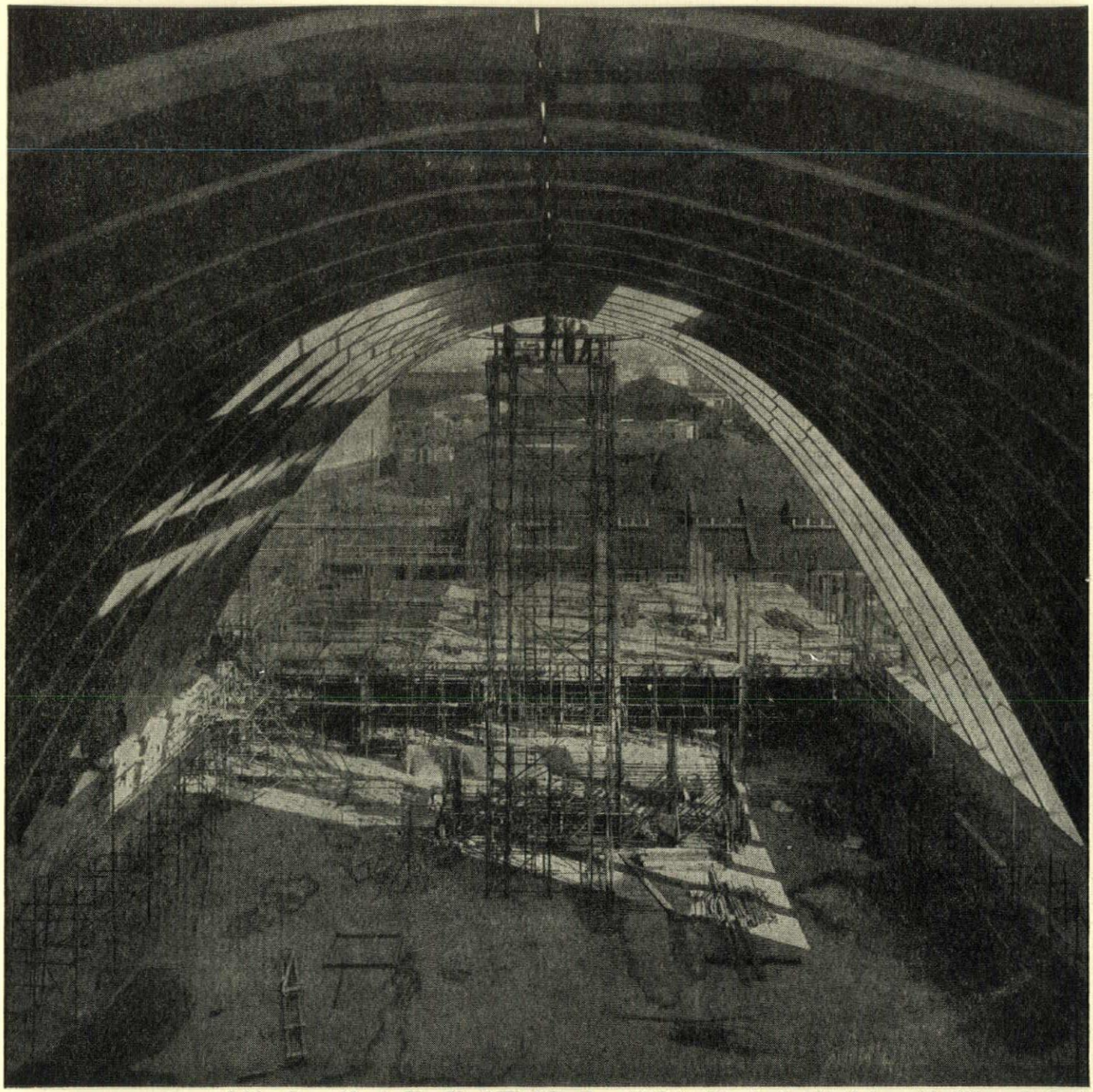

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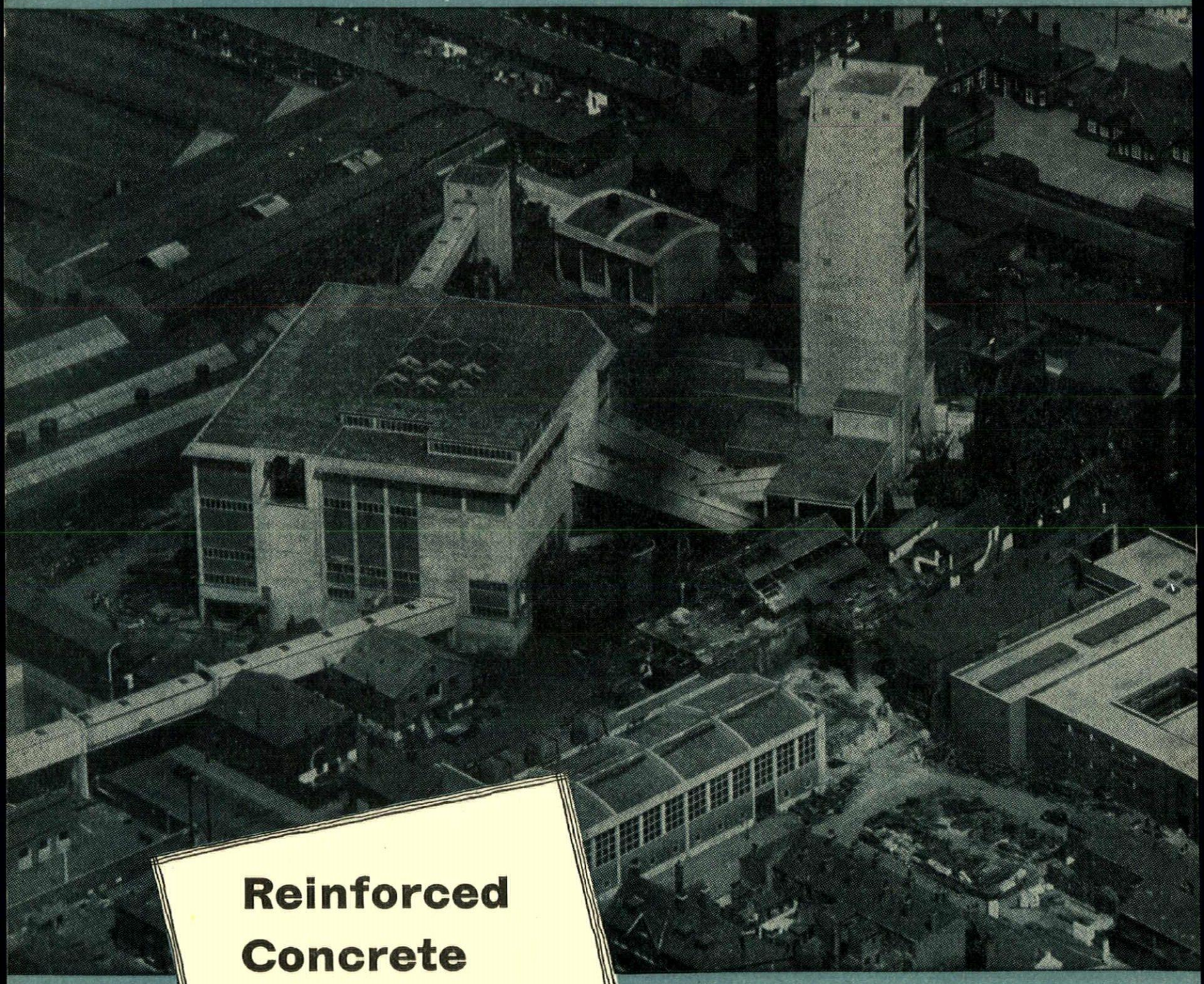

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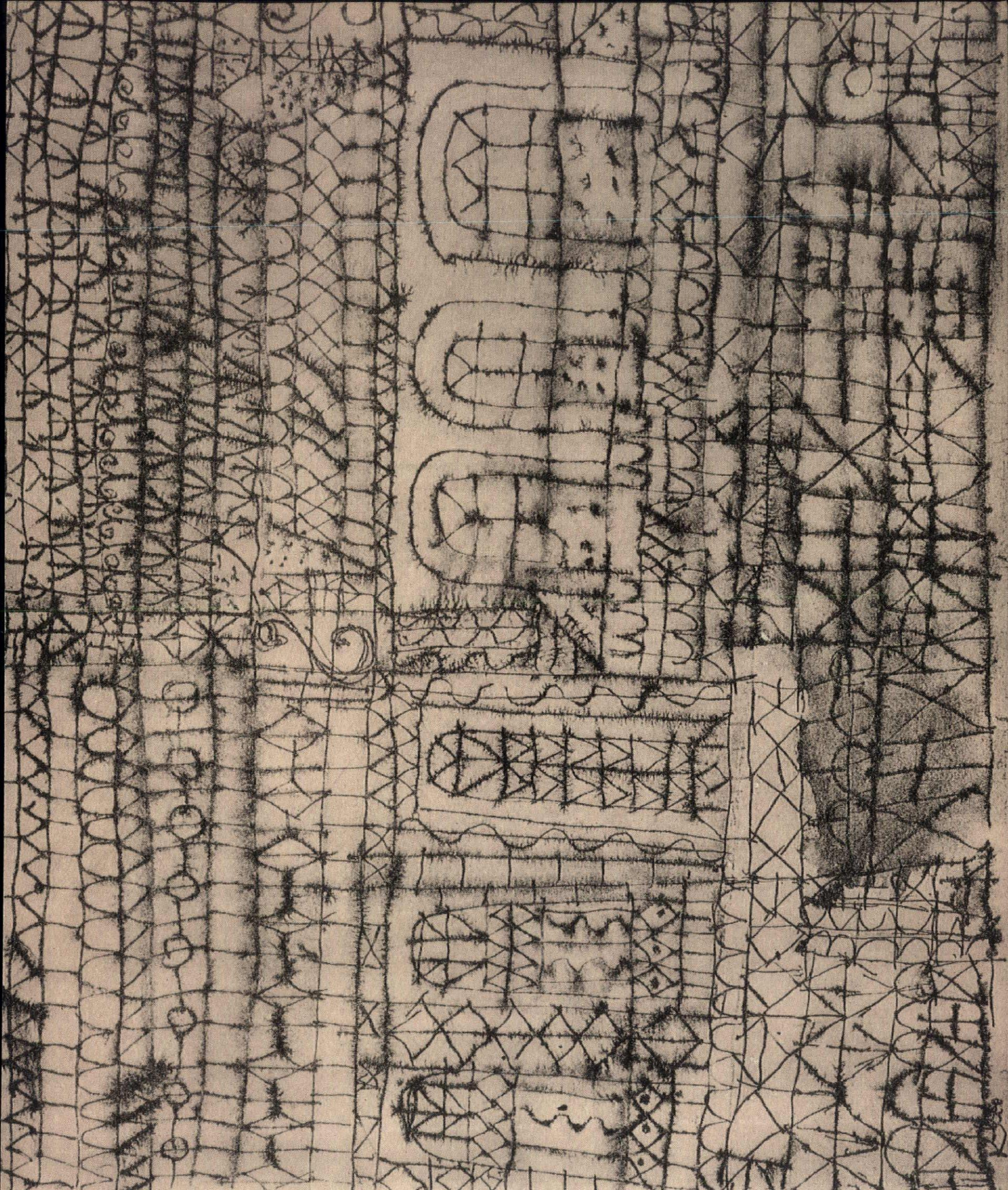

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MARGINALIA

LOG CHURCH. A spirited mixture of ancient and modern, natural and manufactured materials has been employed by Francisco Bolonha for the Accioly chapel in Petropolis, Brazil. Only the chancel walls are solidly built, and carry frescoes by Emeric Marcier, 1. The entrance wall is of untrimmed logs, with doors of the same material, as are the beams and rafters of the ceiling, whose structure is left exposed, revealing the underside of the tiled roof. The side walls, however, make sophisticated use of glass and louvred jalousies, whose precision is in strong contrast to the irregularities of the log-work, but is reflected by



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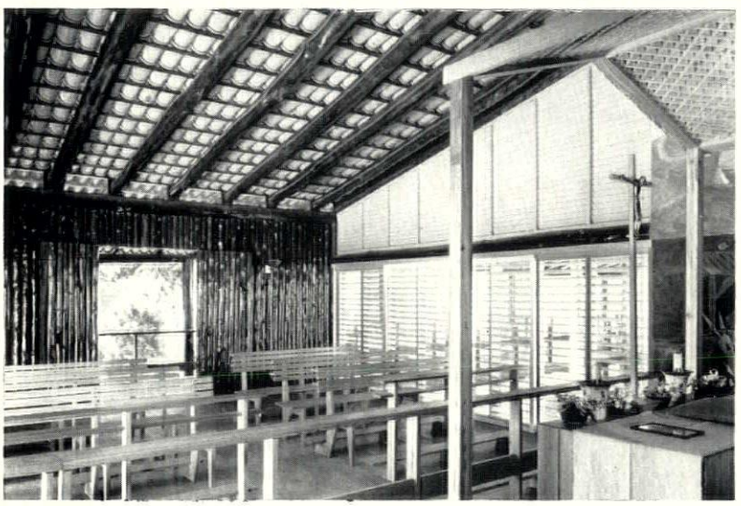

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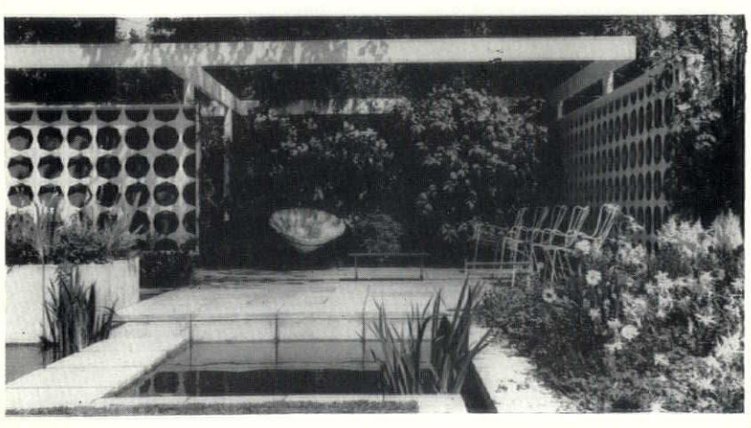
the pews (and other furnishings) which, indeed, set a standard of unaffected elegance that could well be emulated elsewhere, 2.

FLOWER - SHOW CONTEMPORARY. The Chelsea Flower Show has so long been the breeding-ground of that species of debased, fake-rustic, godwot-gardenesque that furnishes the agents of subtopia with some of their most cherished clichés, that the irruption of an alternative idiom of garden design is more than welcome, 3. When that alternative idiom is unabashedly contemporary and exhibits an air of professional accomplishment (to put it no higher) then the event must be chronicled for its value as a precedent, as well as for its inherent merits. Cheal's, of Crawley, are to be congratulated for having commissioned a contemporary exhibit for the 1956 Chelsea show, and Derek Lovejoy for having responded with a design that uses the resources of the contemporary idiom in a manner that is unmistakably garden-like without concession to the accepted routines of formal and informal planning—routines that have altered in nothing but an increasing flabbiness of design since the time of Gertrude Jekyll. Among the more interesting innovations of the Cheal-Lovejoy exhibit is the use of coloured panels that can be hung behind the pierced screens at seasons such as the winter when the average English garden is deficient in plant colours.



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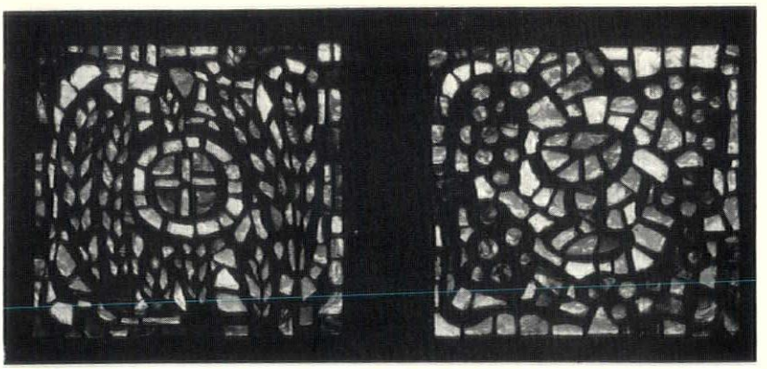

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STAINED GLASS. The altar-windows of St. Peter's, Doversgreen, near Reigate, symbolizing the bread and wine of the Eucharist, have been executed in a new technique, using thick glass set in concrete. This new technique, which has been pioneered in this country by Whitefriars Studios, employs a faceted chipping of the glass surface to give more brilliant light effects and—partly owing to the thickness of the glass—painting is not used, the pieces being self-coloured and carefully selected for tone and hue, 4.

CONTRACTOR-DESIGNED OFFICES. The new office-block for the Commissioners of Inland Revenue which is to be erected in Newington Causeway, 5, adjoining the LCC's



5

Elephant and Castle redevelopment, is an encouraging sign of improving standards in contractor-designed buildings. The contractors in question are Wates, and the building is the work of their chief staff architect, K. W. Bland. Construction is concrete-framed, the external cladding mainly glass, and completion is expected for early in 1957.

MANITOBA PERSPECTIVE. Another addition to the growing list of student publications that are too good to be brushed off as student publications is *perspective* 55, the fifth *perspective* to be published by the Students' Architectural Society of the University of Manitoba. The celebrity contributions are refreshingly off-the-beaten-track, featuring Yamasaki on *Visual Delight*, and Carl Koch on *Tomorrow's House*. The inevitable student contribution on thesis-passing is considerably more cynical than is the custom, the illustrations of student work—particularly in basic design—reveal a standard that is well up with Yale or North Carolina, and domes, hyperbolic paraboloids and sea-urchin structures abound.

LIVERPOOL OUTRAGE EXHIBITION. The Outrage issue of the REVIEW was kept deliberately non-architectural. But there is obviously a subtopian architecture to match the subtopian environment, and it was in this sense that the Liverpool School of Architecture students attacked Liverpool's rebuilding in a recent exhibition which they also called 'Outrage.' It was held in the blitzed nave of St. Luke's church (itself due for a choice bit of subtopian rebuilding) under a steel-framed canopy designed by one of the students, Peter Foggo; and it was laid out and erected by the students without any help from the staff of the School. This left them free to say what they wanted: and they did this with such sincerity, and freedom from the traditional students-rag stupidity, that press and public alike were impressed. There was also the expected response-pattern of 'disgusting impertinence—immature group of adolescents' from the architects whose work was displayed. It is doubtful whether it has come in time to do much to improve the quality of rebuilding in Liverpool, which is the worst in the country and was justly called 'Livermuddlian' at the opening of the exhibition, but it has at least sown doubts in a lot of Merseyside minds.

CORRESPONDENCE

Subtopia

To the Editors,

SIRS,—You might be interested to have positive evidence that the anti-subtopia campaign launched in your now famous 'Outrage' number has captured the imagination of the younger generation at school and university. The boys of the 'Architectural Hobby' here mounted their own exhibition under the title 'Local Subtopia' which is to be enlarged to a more comprehensive scale at local request. The new periodical *Oxford Opinion*, in its first issue, published an article on the theme under the heading 'The First Blast of the Trumpet' from its Oxford and Cambridge representatives. In a lighter mood—though what more effective than satire—the Midnight Howlers of St. Catharine's College, Cambridge, produced a number in a recent revue entitled 'Outrage' in which your Subtopia and Betjeman's suburbia shout at each other in counterpoint.

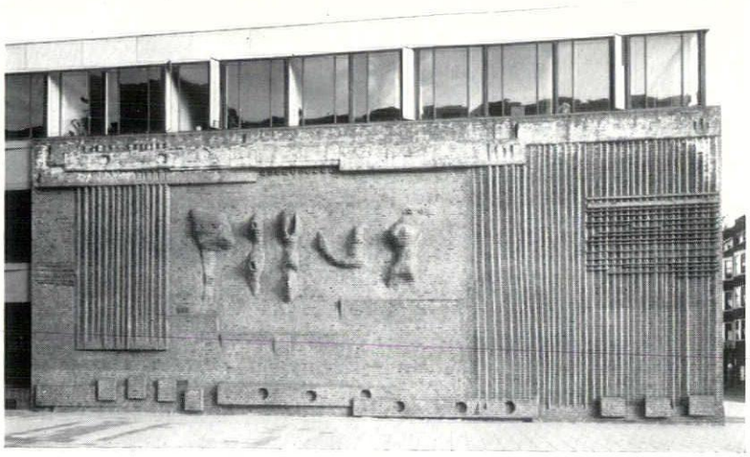
Yours, etc.,
W. J. STRACHAN.

[*Editors' note: Mr. Strachan is the Headmaster of Bishop's Stortford College. In this issue we are publishing a Townscape Miscellany note by one of his pupils, Christopher Hewett.*]

Henry Moore Relief

To the Editors,

SIRS,—I was happy to see a photograph of the wall-sized relief by Henry Moore in the March issue of the REVIEW, but would like to correct your statement that the wall appears different from the accepted model. The wall was executed by two bricklayers under my direct



Relief in carved brick at the Bouwcentrum, Rotterdam. See letter 'Henry Moore Relief'.

supervision, and is made exactly following the forms of the accepted project, which was seen at Henry Moore's last exhibition in London. We did not miss by half an inch! The photograph you published was taken at night; this one (above) will probably make the matter clearer.

Yours, etc.,

Rotterdam. J. W. C. Boks.

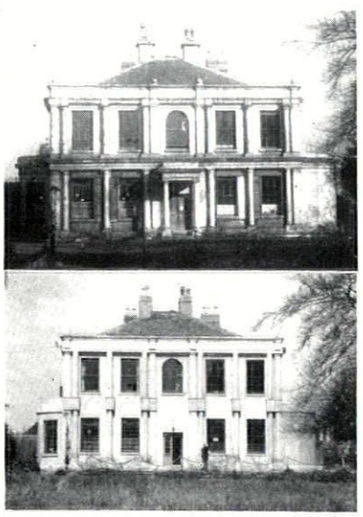
Progress at Park Hill

To the Editors,

Sirs,—In the first quarter of the last century it was the practice of those Black Countrymen whom the Napoleonic wars had adequately enriched to move a few miles from their furnaces and settle in some more genial part of Staffordshire or Worcestershire. Subsequent wars and trade booms provided a succession of owners for their houses, owners usually with less taste than their predecessors, but who nevertheless embellished them with finer gardens and greenhouses, and, meantime, the lime trees and acacias matured.

After the greatest of all our wars there has followed a better peace than any that had preceded it. For there are now no profiteers (as there had been since the days of Elizabeth I and earlier) to make a display of elegance as well as riches. Instead, there are estate companies and public authorities.

The first picture shows a house of



this kind as it was during a period of some hundred and thirty years when it was known as Park Hill. A few years ago it was acquired under a compulsory purchase order and a government department moved in. Coronation year was celebrated by the lopping of the avenue. Last year it spent enshrouded in scaffolding. The second picture shows it as it now is, known far and wide as 'The Insurance' and 'reconditioned' accordingly. In the last few weeks a further improvement has been made; a shiny black asphalt roadway now replaces the old drive under the avenue.

Yours, etc.,

Birmingham. Miles Hadfield.

Oxford Relieved

To the Editors,

Sirs,—It comes as no surprise that the REVIEW plan for Oxford is based primarily on Dr. Thomas Sharp's 'triumph of logic in town planning.' What is rather strange is the somewhat sketchy manner in which the plan is presented; there is a lack of sufficient detail which makes it difficult to form a true appraisal of its qualities. For example—what form is it proposed that the roundabout at St. Ebbe's should take? The small plan provided gives no real indication. There are also no suggestions made for the continuation westwards of the central road system, or siting of important new public buildings. Are we to assume that the plan follows Dr. Sharp's proposals in these matters? How, moreover, is it proposed that the High will reconcile its functions as 'Linear Forum' and 'Oxford's High Street'? It furthermore appears that one of the essential features of Dr. Sharp's plan—the relief road for Cornmarket Street—has no parallel in the REVIEW scheme. In spite of the relief of the High from arterial traffic, the Carfax bottleneck will still remain, at least, as far as north-south traffic is concerned. Cornmarket Street is twenty-five feet wide at its narrowest point: must it continue to function as a principal traffic road? In addition, the opportunity to develop a first-class shopping centre immediately behind Cornmarket Street, instead of in the less central St. Ebbe's district, will be lost unless a road similar to Dr. Sharp's Frewin Street is planned.

It is interesting to note that the Christ Church Meadow road follows the line of Dr. Sharp's alternative route, although he gave good reasons for preferring the northern Merton Field line. I rather doubt whether a road running fifty yards from Meadow Buildings will cause any great disturbance to their occupants, though the subterranean rumblings of the proposed tunnel might. However, the tunnel proposal has much in its favour, although, rightly or wrongly, we seem to be prejudiced against tunnels in this country.

On one point all who care for Oxford must be agreed; your statement 'absolutely no compromise in planning terms is possible: better by far a continuance of the status quo and no solution at all.' In that way, at least, the dreadful botches recently contemplated by the Oxford City Council will be avoided.

Yours, etc.,

Geoffrey Newman.

Bournemouth.

[The Editors reply: *We do not see that north-south through traffic passing through Cornmarket is an evil, as long as the entrance to the High at Carfax could be completely and permanently shut off. Congestion mostly occurs when cars turn right out of a road, or, naturally, where there is a crossing. There is not even any need then to have traffic lights at Carfax: pedestrians could cross by a bridge. It would seem logical enough to make the Corn the western boundary of the University precinct, as Worcester, the only college to the west of it, could not be included in a precinct anyway. Pembroke, which is also excluded, has an indestructible precinct of its own, together with St. Aldate's Church. We suggested in the article roughly swapping over the Union and the Market sites, to bring the Union into the centre. We agree with Mr. Newman, it is important to site the new shopping centre not about St. Ebbe's only but close to the Corn on the west. Why not a pedestrian market in the area at present occupied by the Union, and in the chaotic area on both sides of Queen Street (the street between Carfax and the County prison)? Must Sharp's Frewin Street, which is ruthless to an area which has plenty of charm, necessarily accompany such a scheme? And as for a road 50 yards from Meadow building, surely it would cause plenty of beastly disturbance; does a tunnel rumble quite as Mr. Newman says? Anyhow, the tunnel saves St. Aldate's and half the Meadow, and the entrance to it in the Meadow could be very nice.*

It is true the AR plan is sketchy; it was meant to be a counterblast to the Oxford City Council's most recent piece of projected folly. We, and Sharp before us, tried to make a point that it was unnecessary to eviscerate Oxford with two roads, one north and one south, but that given the Meadow road on the south one could dispense with any road at all on the north. The retention of a north-south artery in the Corn makes it all the less necessary to fool about with northern relief roads.]

Litter

To the Editors,

Sirs,—I thought that you might like to see the enclosed photograph taken recently. My week-end hobby is walking, and I have been noticing the considerable increase in dumping of 'heavy' litter all over the countryside. A friend and I set off in his van to round up some of the fruitier specimens, and put them on record before taking them to our local council's refuse centre: with the exception of the meat safe, the milk crates and the oil stove, everything was found on National Trust ground; the bulk of it within fifteen yards of the signboard in the picture.

Twenty yards from the spot shown is an enormous pile of filth of every description; less than a quarter of a mile away (and still on Trust land) is another mound of refuse. What can be done? There is little hope of catching these vandals. Manifestly the stuff is brought down by car and while young Ernie keeps 'cave,' the



guv'nor heaves it overboard. Kent is rapidly becoming the dustbin of the suburbs even in winter time. God knows what will happen when the motoring season starts.

(The meat safe, lamps and milk crates were found in a by-lane near Hosey Hill, Westerham.)

Yours, etc.,

Gordon Catling.

Sevenoaks, Kent.

Intelligence

The new architect to the LCC, in succession to Dr. Leslie Martin, is Mr. Hubert Bennett, hitherto county architect of the West Riding of Yorkshire.

Mr. Reynolds Stone has been appointed Royal Designer for Industry by the Council of the Royal Society of Arts.

The *Daily Mail* is organizing a competition for a £5,500 house, to be built at the Ideal Home Exhibition next year. Prizes are £500, £250 and £100. Further details of the competition from the *Daily Mail*.

The Fourth Biennial of the Sao Paolo Museum of Modern Art will take place from September to December, 1957, and will include an International Architectural Exhibition and International Contest for Schools of Architecture. Details of entry, etc., should be obtained from: Secretaria da Bienal do Museu de Arte de Sao Paolo, Rua 7 de Abril, 230, Sao Paolo, Brazil.

Corrigenda

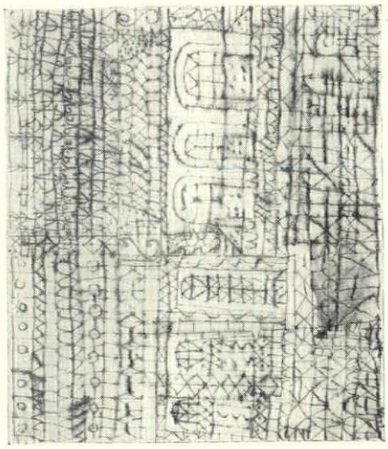
The Principal of Princeton school of architecture, Mr. Joseph Brown, wishes us to mention that the play equipment illustrated in Marginalia, December, 1955, was designed by himself and not by his students.

ACKNOWLEDGMENTS

Marginalia, pages 141–142: 1–2, A. Michel; 5, S. W. Newbery; Park Hill, M. Hadfield; litter, G. Catling. School in South Kensington, pages 150–157: Galwey, Arphot. Dereliction: 3, pages 158–163: 8, Galwey; rest, Browne, Arphot. Rock-cut Temples, pages 164–167: Julian Huxley. Flats in Rio de Janeiro, pages 168–171: Aertsens Michel. Great Open Spaces, pages 172–176: Camera Press. Polar Shelters: page 178, top, Jacques Masson. Current Architecture, pages 181–184: Offices in Chiswell Street: J. R. Pantlin; House in Reigate: Norman Gold. Miscellany, pages 185–194: Exhibitions, 1, Ward Hunt; 2, Courtauld Inst.; 4, Gauvin; 6, P. E. C. Smith. This Is Tomorrow, all from exhibition catalogue, except 7, Richard Hamilton. Townscape, C. Hewett; Photography, J. Deakin. Islington Gardens, Galwey. Time Made Visible, 1, McCallum, Arphot; 2, John Piper. Topography, A. C. Cooper. Popular Art, Australian Dept. of the Interior. Skill, Interiors, pages 195–196: Galwey. Design Review, pages 197–200: Glassware, Toomey, Arphot. Techniques, pages 201–208: 28, Bristol Aeroplane Co.; 32, Photographic News Agency.

THE ARCHITECTURAL REVIEW

Volume 120 Number 716 September 1956



The Cover is a drawing executed by Paul Klee in 1924, during his Bauhaus period. Its title is *Facade*, and although it clearly refers, in its capacity of a graphic sign, to an elevation of Victorian solidity, its spiderweb quality as a visual image, its sense of mobility of the parts and transparency to light, render it comparable to a class of architectural experience that only the most recent technical advances have made available in structural fact. It is one of the most prophetic, as well as witty, of the fantasies of Klee that are discussed by Robert Melville in the essay which opens this issue.

141 **Marginalia**

142 **Correspondence**

144 **Frontispiece: Preview: Southampton University Engineering Building:** *Architect, Basil Spence.*

145 **Klee** *by Robert Melville* Marked by discretion, economy and coolness, the architectural drawings of Paul Klee are—in his own words—built in a region beyond this world 'which can be all affirmation.' They are pure creations of the human will that attain decorative sumptuousness or define complex events by means of a thinking and dreaming line. They draw the affection of architects because they record and explore day dreams and ambiguous visualisations too fleeting to achieve tectonic permanence by other means; they are temporary houses for the spirit that adumbrate the mystery of entrances, the shifting and changing of facades. Though they are so small that they must be read, rather than viewed, they are still capable of enlargement without loss of quality, and Mr. Melville suggests that they might even be used, in the form of giant sky-signs, to re-assert architectural values in defiance of urban squalor.

150 **School in South Kensington:** *Architects, Chamberlin, Powell and Bon.*

158 **Dereliction: 3** *by Kenneth Browne* The growing demand for sand and gravel to employ in concrete construction has led to the gathering of rings of pits and other workings close to our major centres of population. The closeness is a result of the economics of transporting such a cheap but bulky material, and the pits contribute much to the squalor of suburban blight. Some measure of control over such workings now exists, and there are codes of procedure for back-filling and making good when they have been worked out, but, as Mr. Browne points out in his article, though there are economic pressures, as well as amenity interests, that reinforce the rule of thumb tendency to put things back as they were, there are very good reasons also for leaving them open, simply because they are so close to congested central areas. This is particularly the case with water-logged pits which, with suitable grading of the banks and sympathetic planting, could (indeed, already do) provide a type of waterside amenity that is often hard to find in such areas.

164 **Rock-cut Temples** *by Julian Huxley* Though the transference of wood-working forms to stone structures is a normal development in the history of most architectures, India appears to have had an unusual intermediate phase when such forms were carved into the living rock, rather than built up from the ground. Dr. Huxley describes a tour of some of India's most spectacular rock-cut sites, distinguishing those, like Ajanta, which are really verandahs excavated into cliff-faces, from those like the Seven Pagodas at Mahabalipuram and the Kailasha Temple at Ellora, which are monoliths left upstanding after a small hill or part of a ridge had been cut away from round them. The Kailasha temple, Dr. Huxley points out, bulks half as large again as the Parthenon, and is therefore probably the largest free-standing sculpture made by man.

168 **Flats in Rio de Janeiro:** *Architect, Jorge Moreira*

172 **Great Open Spaces** *by Roger Johnson* Sprawling new mushroom townships are not peculiar to the Western Hemisphere, and many of them have grown up lately on the scrublands and prairies of the British Commonwealth. There they tend to exhibit one of the besetting vices of post-war town planning in the Home Country—prairie planning—and yet the factor which makes this possible—an open, empty countryside—is also the one that renders it noxious. With the vast emptiness outside, there is even more need for a close-textured urbanity within. Yet the air photographs of Nairobi, one of the newest Commonwealth capitals, on which Mr. Johnson comments in his article, show empty acres of scrub locked up within the city limits by abstract, Beaux-Arts, paper-planning. But these half-developed areas do offer one hope, in that they still leave room to create a more humane urban landscape as they are filled up.

177 **Polar Shelters** The polar shelter units designed by ATBAT constitute a valuable contribution to radical thinking about problems of house structure. Intended for the French antarctic research party in World Geophysical Year, 1956-7 (though they will not now be used) they employed aircraft design and assembly techniques (see also pp. 177-180) to provide accommodation in which all members of the party would have been able to work at maximum efficiency, and relax in complete security.

181 **Current Architecture**

Miscellany

185 **Exhibitions**

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189 **Outrage**

190 **History**

191 **Topography**

192 **Popular Art**

193 **Books**

Skill

195 **Interiors: Showroom in Mount Street, W.1:** *Designer, Nigel Walters.*

197 **Design Review**

201 **Techniques: Aircraft and Building** *by Christopher Dawson* Over the last decade the building industry at large, as well as the architectural profession, has become increasingly interested in methods and materials developed by other industries, and many new techniques of design and erection (as with the ATBAT project, pp. 177-180) have been taken over from industries where scientific research is accepted as of fundamental importance. The aircraft industry is one of these, and Mr. Dawson, by examining contracting, designing, testing and assembly procedures employed in aircraft construction, is able to show those areas of methodology which lie closest to those of building, and those which, though remote, may still have lessons to teach.

208 **The Industry** 210 **Contractors, etc.**

Author: *Roger Johnson.* Born 1922, trained as architect, Liverpool, interrupted by 4 years' war service as F.A.A. Pilot; P.O.W. Last 5 years in Kenya, Uganda and the Cape. E. African work included a residence for the Aga Khan at Dar-es-Salaam. At present lecturing at Cape Town University. Recently held first one-man show of paintings —mainly abstract.

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THE ARCHITECTURAL REVIEW

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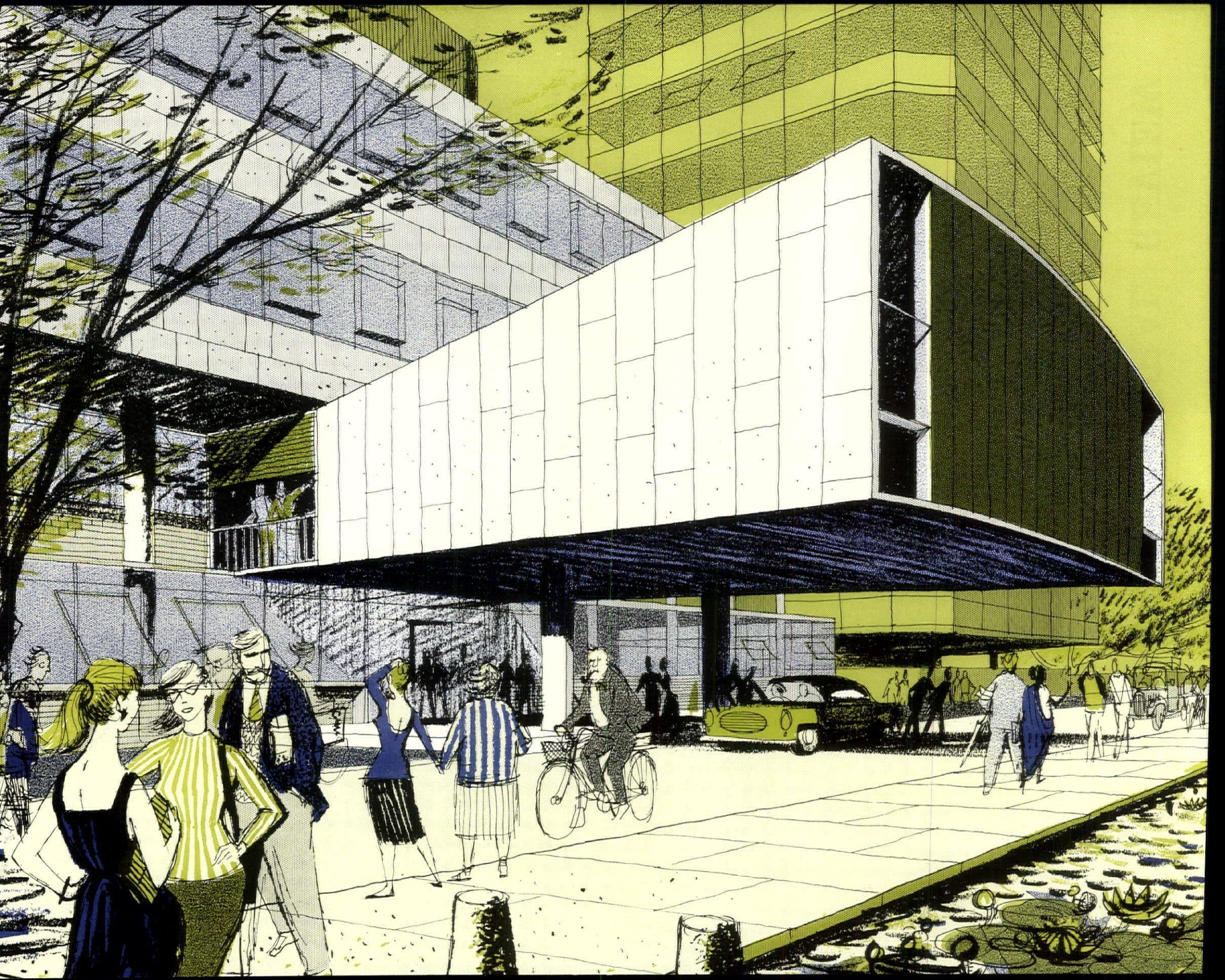
FIVE SHILLINGS



While so much recent University Architecture in Britain has failed to answer to our traditional standards of design for such work, the new Engineering building for Southampton is true to the standards of both Engineering practice and the University ideal. Designed by Basil Spence and Partners, it will house lecture rooms, studies and laboratories, and the main lecture hall—as will be seen in Kenneth Browne's impression, opposite  *—cantilevers dramatically forward to form a porte-cochère over the entrance. The tall building beyond is a possible extension for the Engineering Department and has its floor-slabs cantilevered out from a central core which also houses services.*

Robert Melville

KLEE

PAUL KLEE'S ARCHITECTURAL MIRAGES

The architectural fantasies of Paul Klee must surely hold a very special place in the affection of architects, for they can be read as intimate and precise records of the day-dreams and ambiguous visualizations which arise unbidden when the mind plays with the potentialities of the new architectural concepts. Caroline Giedion-Welcker, in her eloquent study of Klee's development, remarks that 'his interpretation of architectural motifs is not tied down by static masses but moves freely in all directions. His domes and cathedrals, his round and pointed arches, his window-frames and crossbars are tissues which impart to the composition a geometric yet alive-and-growing appearance'. Movement and transparency are its ruling principles. (See cover of this issue.)

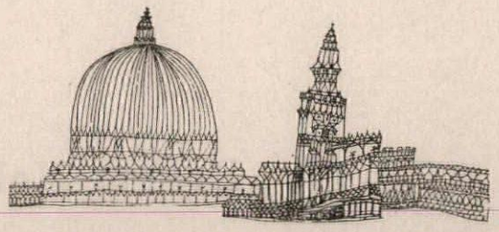
The economy, discretion and coolness of his romantic vision make one wonder if it is right to call his drawings fantasies, but they conform to an approved definition in that they are a 'making visible', and, in an age which is very properly suspicious of embellishment yet distressed by its absence, the frugality with which he obtains decorative sumptuousness or defines complex events is a highly acceptable magic. In 'Flood Swamps Cities', 2, the force of the flood is established by the waver, the Northern meander, in the line of palaces; and it is impossible to imagine a more succinct rendering of the coming on of a catastrophic event than his drawing of a steamboat approaching a waterfall, 9. The lifting lines behind the boat push it inexorably to its doom, and one cannot doubt that Klee's concision, gravity and wit prepared the way for the dispassionateness that characterizes the graphic humour of the present day.

It is appropriate that 'another world' should be witnessing—with the trace of a frown and a slight pursing of the mouth—the impending fate of the little boat, for Klee thought in terms of forces and cosmic play, and an entry in his diary explains his point of view. 'The heart that beat for this world,' he wrote—in 1915—'has been almost extinguished in me. It is as though my only bond with "these" things were memory. . . One relinquishes this world and builds into a region beyond, which can be all affirmation.' It is probably no accident that two years before Klee made this entry in his diary

[*continued on page* 149

PAUL KLEE'S ARCHITECTURAL MIRAGES

Klee wrote in his Pedagogical Sketchbook: '*In the world of physical reality every ascent must be followed by a descent. . . . The physical curve thus ends as a perpendicular line. . . . In contrast, a cosmic curve frees itself more and more from the earth in infinite motion, to fulfil itself freely in a circle or at least an ellipse.*' *Klee really preferred straight, articulated lines to circles and ellipses, but he wanted to 'return to earth' with cosmic freedom. He sought infinite movement with a maximum of variety; an angular art with a serpentine progression.* 1, The Big Dome, 1927. 2, Flood Swamps Cities, 1927. 3, Room Perspective with Inhabitants, 1921; *a room making straight for the horizon. To quote from the*



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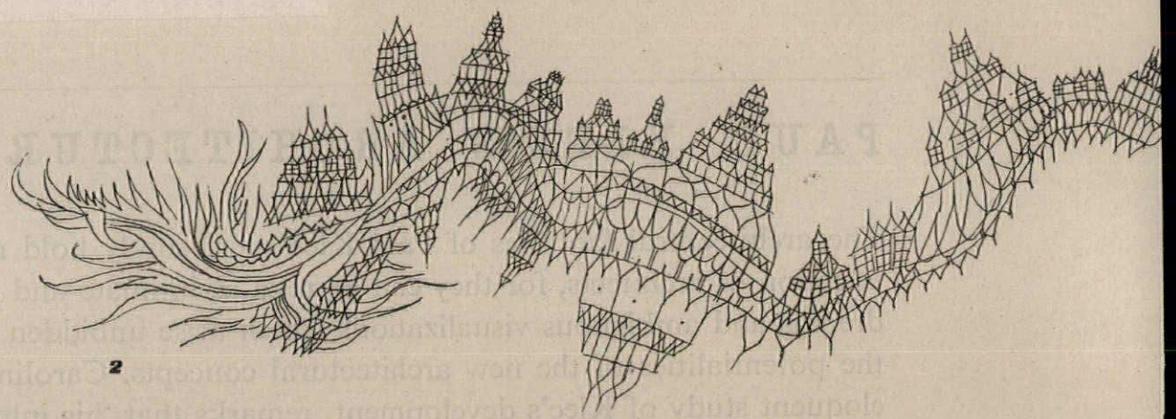

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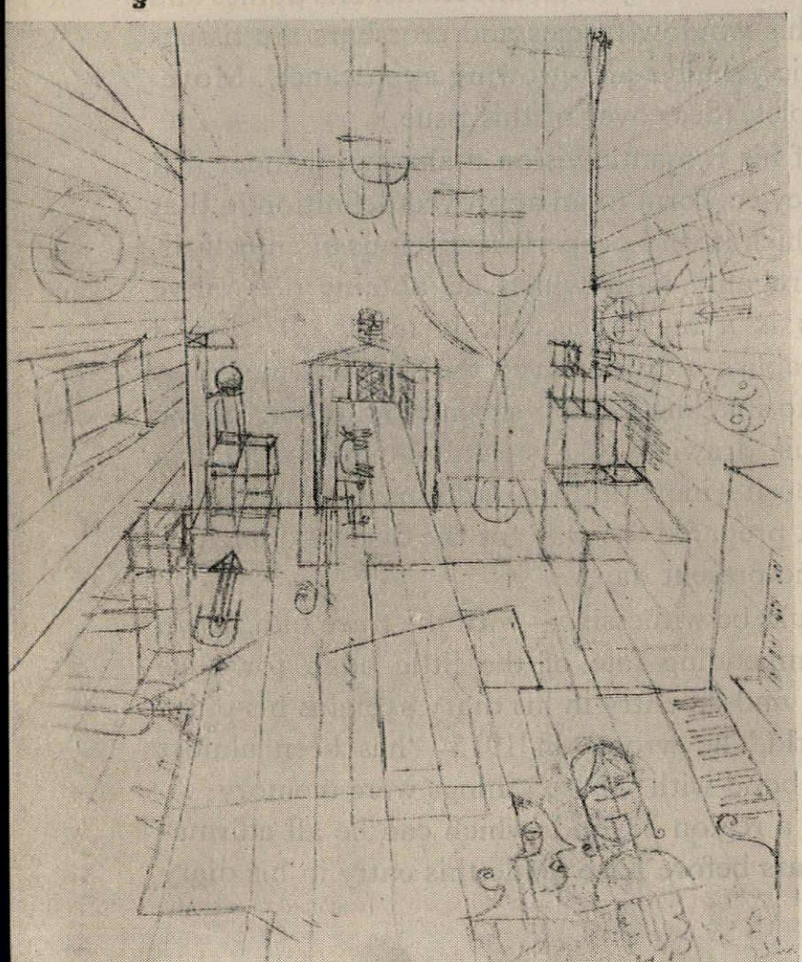

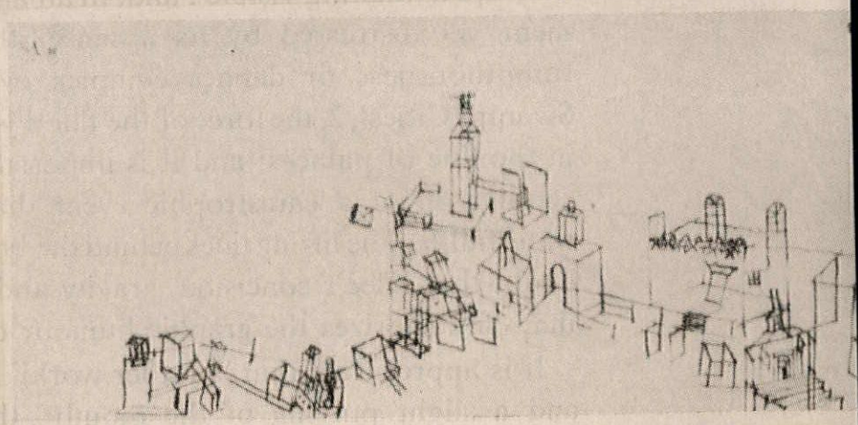

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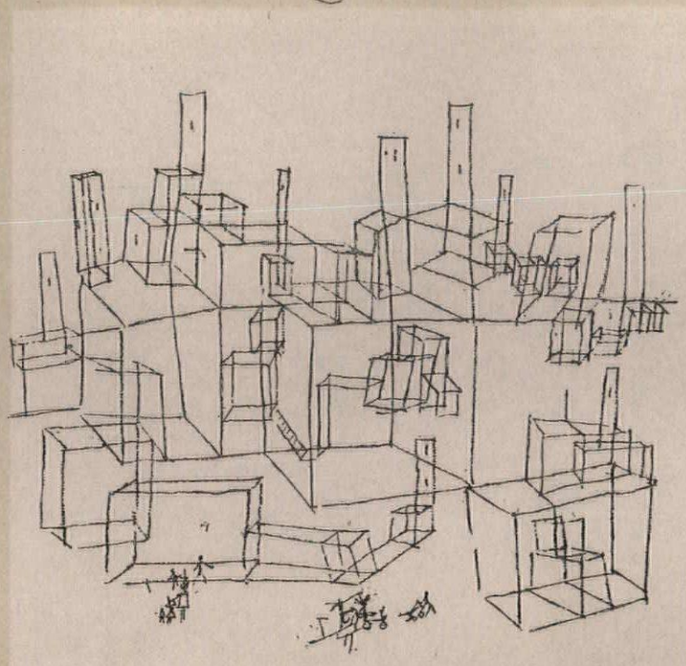
Pedagogical Sketchbook *again, 'the direction of the movement manifests itself so forcefully that the ambiguous symbol (arrow) may be eliminated.'* 4, View of an Ancient City, 1927; *in contrast to* 3, *this is tentative movement; a city feels its way cautiously into space.* 5, Dutch Cathedral, 1927. 6, City with Watch-Towers, 1929. 7, City in Sunlight, 1927. *Klee said: 'The legend of the childishness of my drawing must have originated in those linear compositions... where I have tried to combine a concrete image with its representation through the use of the pure linear element.' The pure linear element is the line in action, pursuing its own course, moving along a thousand new angles of approach, arriving at a thousand unexpected destinations.*



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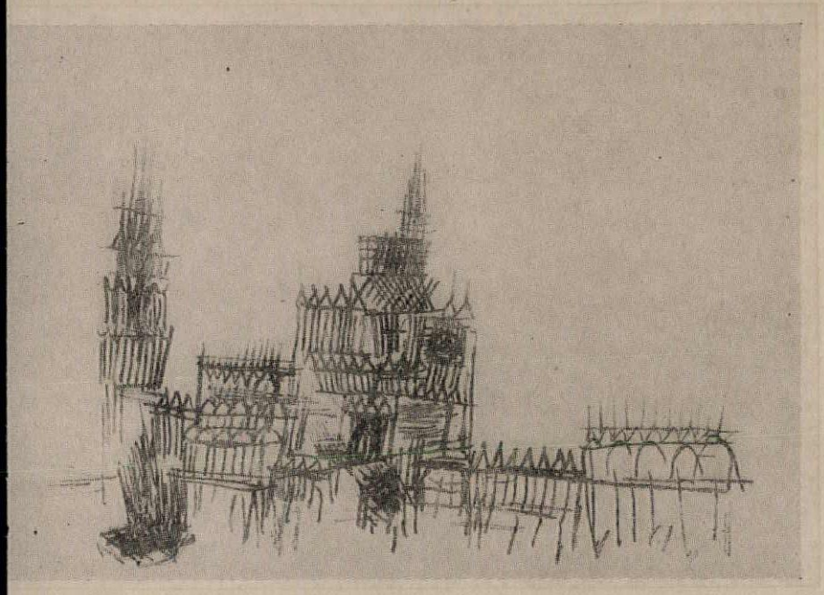

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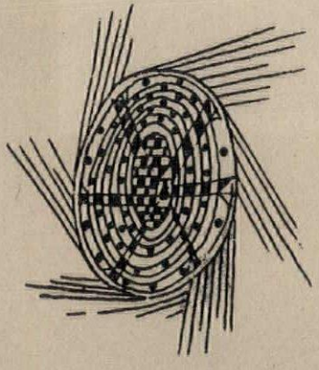



7

PAUL KLEE'S ARCHITECTURAL MIRAGES

8, Building the Monument, 1929. *Fortunately, the monument was never completed, and the beautiful ladders climb its visage to this day.* 9, Waterfall and Full Moon, 1928. 10, Before and Behind the Bridge, 1928. 11, Site for a Theatre, 1928. 12, Town of Cathedrals, 1927. *The line that Klee took for a walk is like a moody arrow, always changing the lengths and angle-degrees of its head and its tail-feathers: rising, falling, wavering, swerving, it somehow manages to get 'a bit farther than customary.'*



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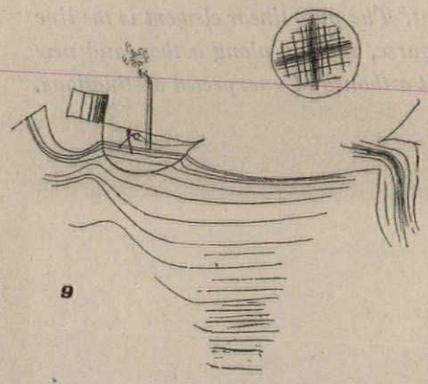

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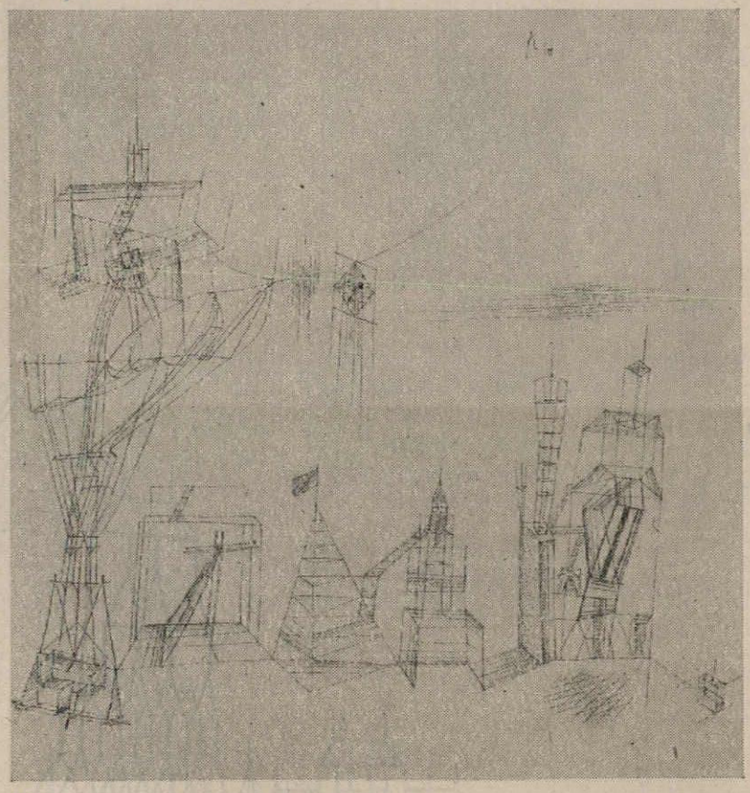

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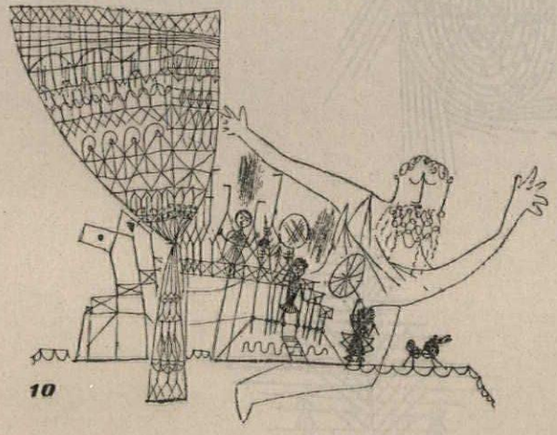

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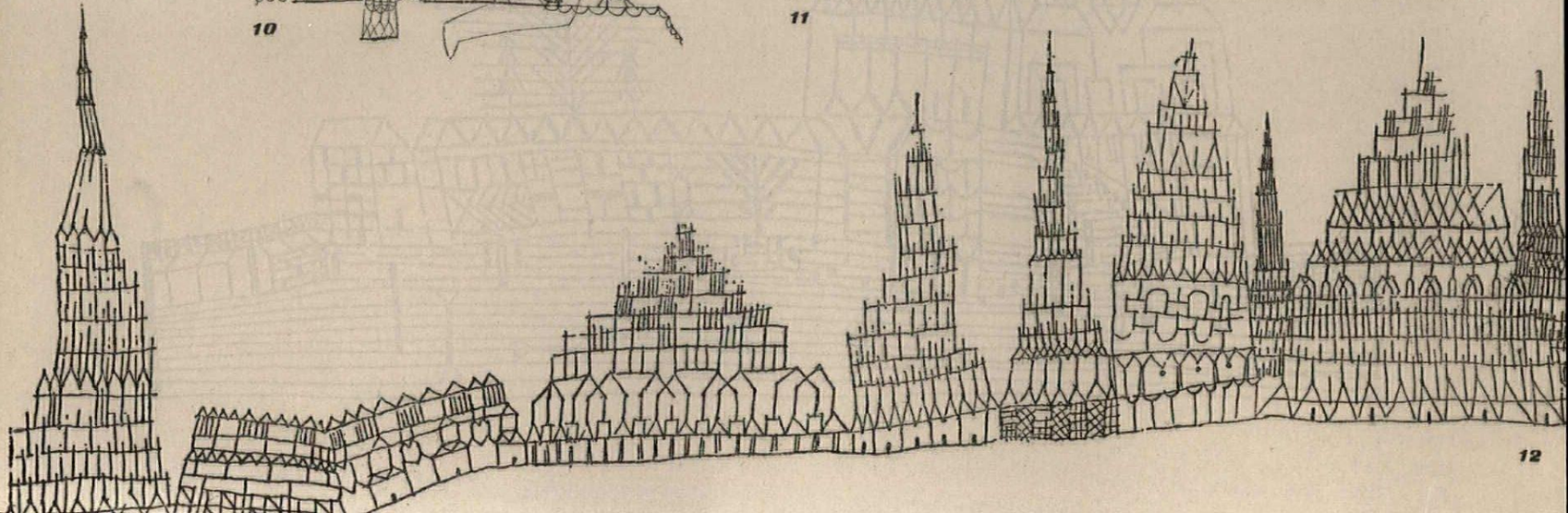


12

[*continued from page* 145]

Giorgio de Chirico, whose early paintings have an equally poetic and magical content, was apostrophizing an art 'without love' in which 'the creation appeared more extraordinary than the creators', and with this attitude of Klee and Chirico in mind it occurs to me that we do not mean what we say when we appeal for some sign of human warmth in contemporary architecture, but that we seek something that remains 'pure' yet contains more than a hint of the Palace of Illusion.

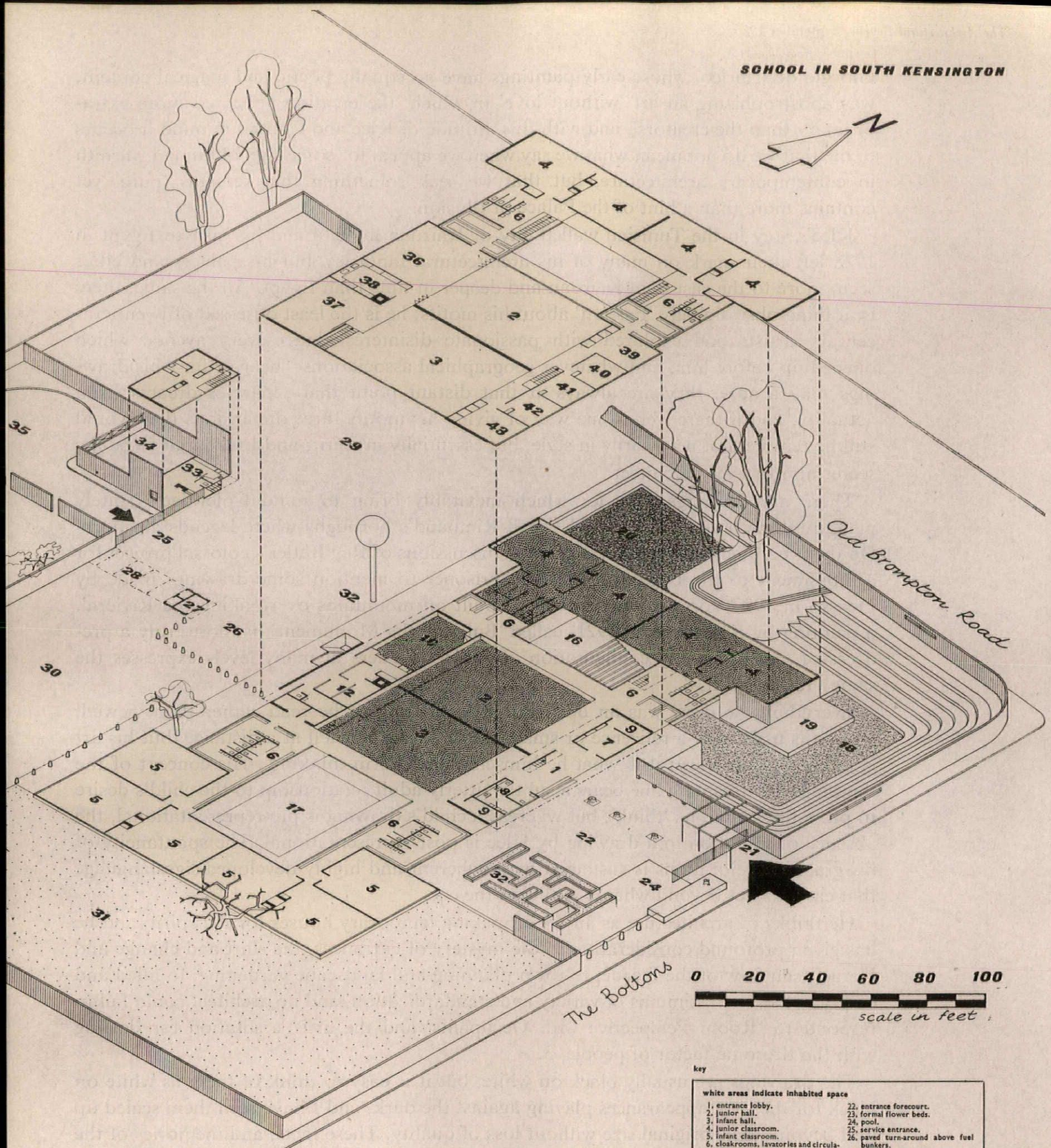
Klee's stay in the Tunisian walled city of Kairuan in 1914 and his visit to Egypt in 1928 left their mark on many of his architectural fantasies, but his palaces and cities seem more to the east than Kairuan and deeper in time than Egypt. All the same, there is nothing obsessionally 'Eastern' about his motifs; he is the least obsessed of twentieth-century artists and explored with passionate disinterestedness every avenue which opened up before him, and whatever geographical associations—near or far—his drawings may arouse, they are always at that distant point that separates dreams from actuality, and if there were some way of giving his motifs three dimensions they would still be remote, not necessarily in style, but essentially in spirit; and I take that to be the secret aim of every architect.

There are drawings by Klee which inevitably bring to mind Coleridge's stately pleasure domes, and others which recall Rimbaud's boroughs where legends are born. On the other hand, although it is usual in discussions of Reg Butler's colossal project for a monument to the Unknown Political Prisoner to mention some drawings made by Picasso in 1927, for a monument 'to be built on mountains overlooking the Riviera', a painting by Klee made in 1921, called 'Building the Monument', is more truly a predecessor, and its lovely configuration of spidery ladders at many levels expresses the same Gothic spirit, 8.

Everything he drew was an open book demanding to be read rather than viewed, since it is usually of a reticence or smallness that does not tell at a distance, but his art is in no sense literary: it is what he himself called 'form-thinking'. His concept of the thinking and dreaming line bears a subtle, utterly adult relationship to the child's desire to put a line round its 'think', but whereas a child's drawing is pre-representational, the absence of imitation in a drawing by Klee is post-representational. The spontaneity of his graphic explorations is sustained by a coherent and highly developed sign-language that casts its net beyond what is visible to the eye.

He thinks of architecture as an art of making temporary houses for the spirit, and he has given profound consideration to the mystery of entrances, the shift and change and Heraclitean flow of the façade, to town planning and landscape gardening, to filled and empty space, to maximums of variety and standardization, and no architect could fail to respond to 'Room Perspective with Occupants' and the artist's solution for dealing with the tiresome factor of people, 3.

The drawings are usually black on white, but it is easy to think of them as white on black for they are appearances playing against the dark, and I have seen them scaled up well beyond their original size without loss of quality. These facts, and memories of the fantasy that burst upon the London scene in the never-to-be-forgotten year of the Festival of Britain, lead me to propose that a neon sign rendering a vastly magnified image of the drawing called 'Town of Cathedrals', 12, should be fixed to some Thames-side buildings : it would provide a night spectacle of unearthly loveliness and humour, and be our silent, hopeless protest as the office blocks in the City cast longer and darker shadows.



key

white areas indicate inhabited space

1, entrance lobby.
2, junior hall.
3, infant hall.
4, junior classroom.
5, infant classroom.
6, cloakrooms, lavatories and circulation.
7, medical inspection room.
8, staff lavatories.
9, store.
10, kitchen.
11, kitchen supervisor.
12, kitchen stores.
13, kitchen staff-room.
14, schoolkeeper's office.
15, stairs down to boiler room.
16, junior enclosed court with stairs down to link with amphitheatre
17, enclosed infant courtyard.
18, amphitheatre.
19, amphitheatre stage.
20, sunken court.
21, main entrance gate.
22, entrance forecourt.
23, formal flower beds.
24, pool.
25, service entrance.
26, paved turn-around above fuel bunkers.
27, store for refuse bins, etc.
28, playground shelter.
29, junior playground.
30, infant playground.
31, garden.
32, spherical water tank.
33, schoolkeeper's house.
34, schoolkeeper's garden.
35, turn-around.
36, junior dining.
37, infant dining.
38, servery.
39, junior staff-room.
40, junior head teacher.
41, secretary.
42, infant head teacher.
43, infant staff-room.

SCHOOL IN SOUTH KENSINGTON

ARCHITECTS | **CHAMBERLIN, POWELL AND BON**

Assistant-in-Charge | **George Agabeg**

1, main entrance, with staff rooms over, seen from amphitheatre.



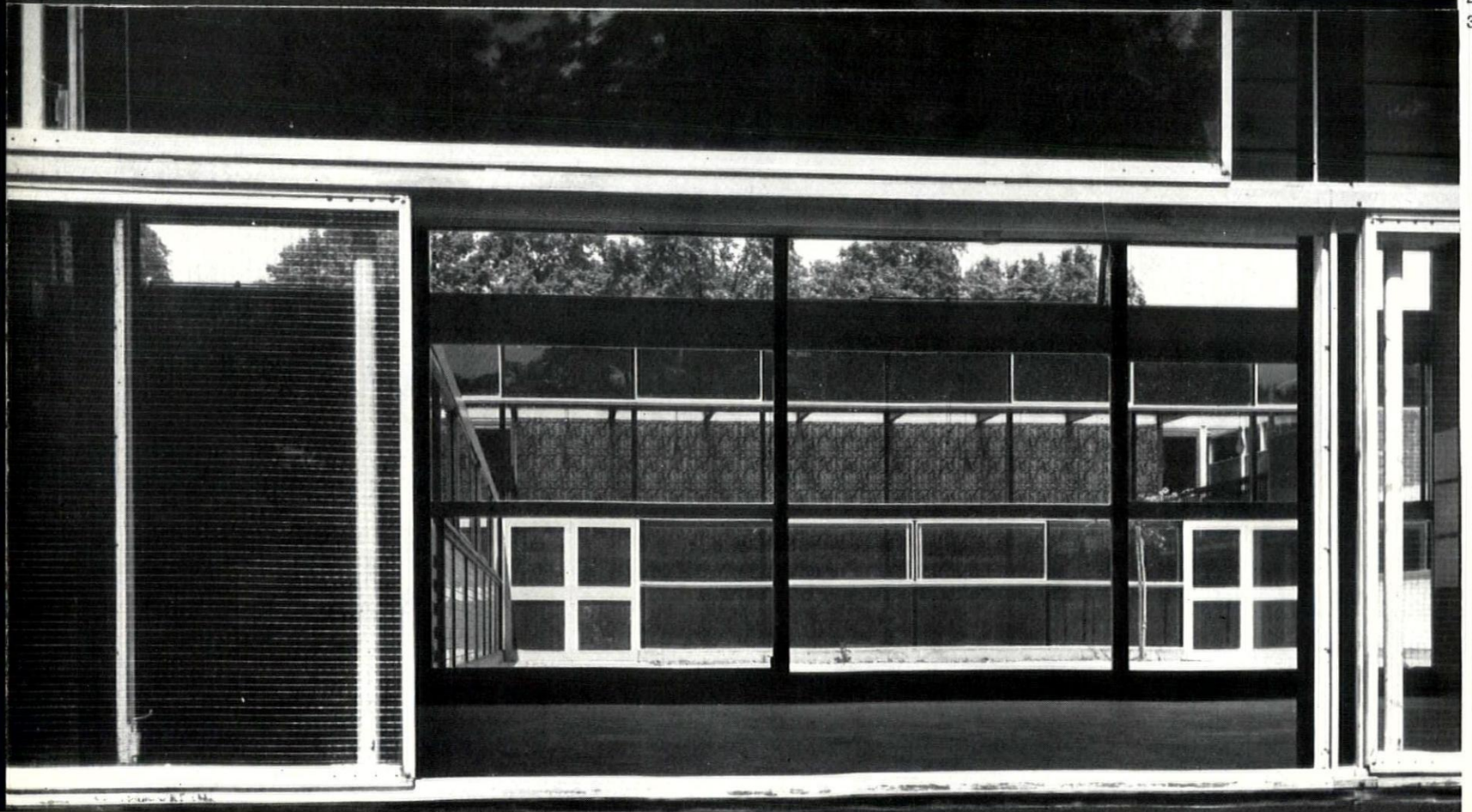
1

Bousfield School* has three features of particular interest: firstly, it is designed on a modular basis; secondly, the building is largely prefabricated; and thirdly, the structural frame and the external cladding are closely integrated. Furthermore, the structural steel frame is left exposed, a departure from the normal

[*continued on page* 153

*Situated on the corner (west side) of Old Brompton Road and The Boltons.





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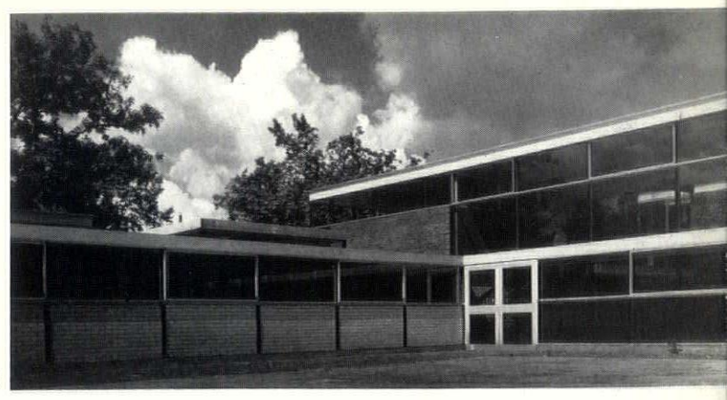
practice in London which is dictated by fire regulations. As an educational building, this did not have to comply with local authority bye-laws and when the design came before the LCC, this feature was allowed on the grounds that it was experimental.

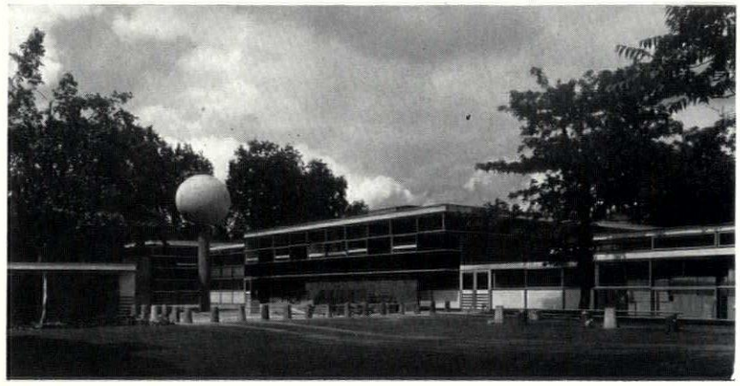
The module adopted is 40in.; all the rooms are laid out as multiples of the module, usually measured to centre lines of partition walls or of the frame; on the perimeter of the building, structural mullions are set out at a distance of two modules between centres. In elevation the major divisions reading vertically occur at distances apart of one module, two modules and half a module. These divisions conveniently fit in with the internal floor-ceiling heights (classrooms being about 9ft. high and circulation areas, etc., about 7ft. high). Other dimensional divisions of the module employed in the design are limited to multiples of 5in., i.e., one-eighth of a module.



4

SCHOOL IN SOUTH KENSINGTON

Apart from the concrete substructure, brickwork and plastering of brick walls, nearly all the construction is dry. The steel frame, aluminium and glass cladding, wood-wool roof panels and all joinery were prefabricated, thus only requiring assembly on the site. Instead of making the structural frame largely independent of the window frames or curtain walling, very close integration of the structural frame with the external cladding has been achieved.

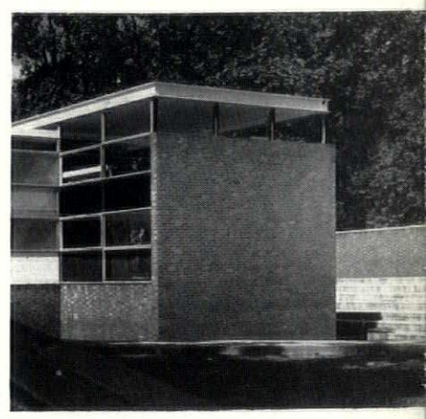


5

4, N.W. corner of infants' enclosed courtyard. 5, west side of central core and spherical water tank, painted bright yellow. 6, east end of junior classroom block, forming backcloth

The houses that formerly stood on the site facing Old Brompton Road and those south of South Bolton Gardens (a minor road that used to bisect the school site which has now been closed and built over) were bombed during the war. In general the site is open and many trees have remained in the gardens of the destroyed houses. The building was conceived as a pavilion in a garden. The main entrance from The Boltons is approached through a forecourt in which the main entrance gates, flanking walls, decorative pool and flower beds are grouped in a formal composition; in contrast to the rest of the site which is enclosed by boundary walls, the entrance forecourt is only separated from the street by the low entrance gates and the moat formed by the decorative pool. To the south is the garden which the infants' classrooms overlook. To the west are the playgrounds, and an amphitheatre has been formed in an old static water tank at the north-east corner of the junior block. As many trees as possible have been preserved and their relationship to the buildings and the paved areas has been carefully considered.

Opposite, the pool of water 2, provides an entrance hazard making possible a light, low railing and giving reflections which are echoed in the school's glass walls. 3, the infants' assembly hall seen across a courtyard, shows the sense of ambiguity provided by varying the intensities of light from garden to courtyard to the darker sky-lit back wall of the assembly hall.



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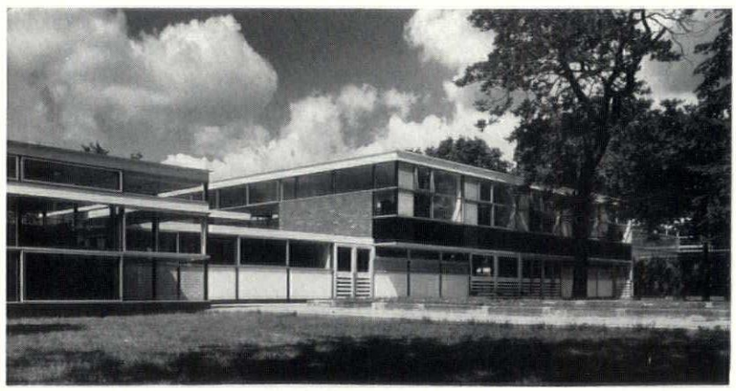


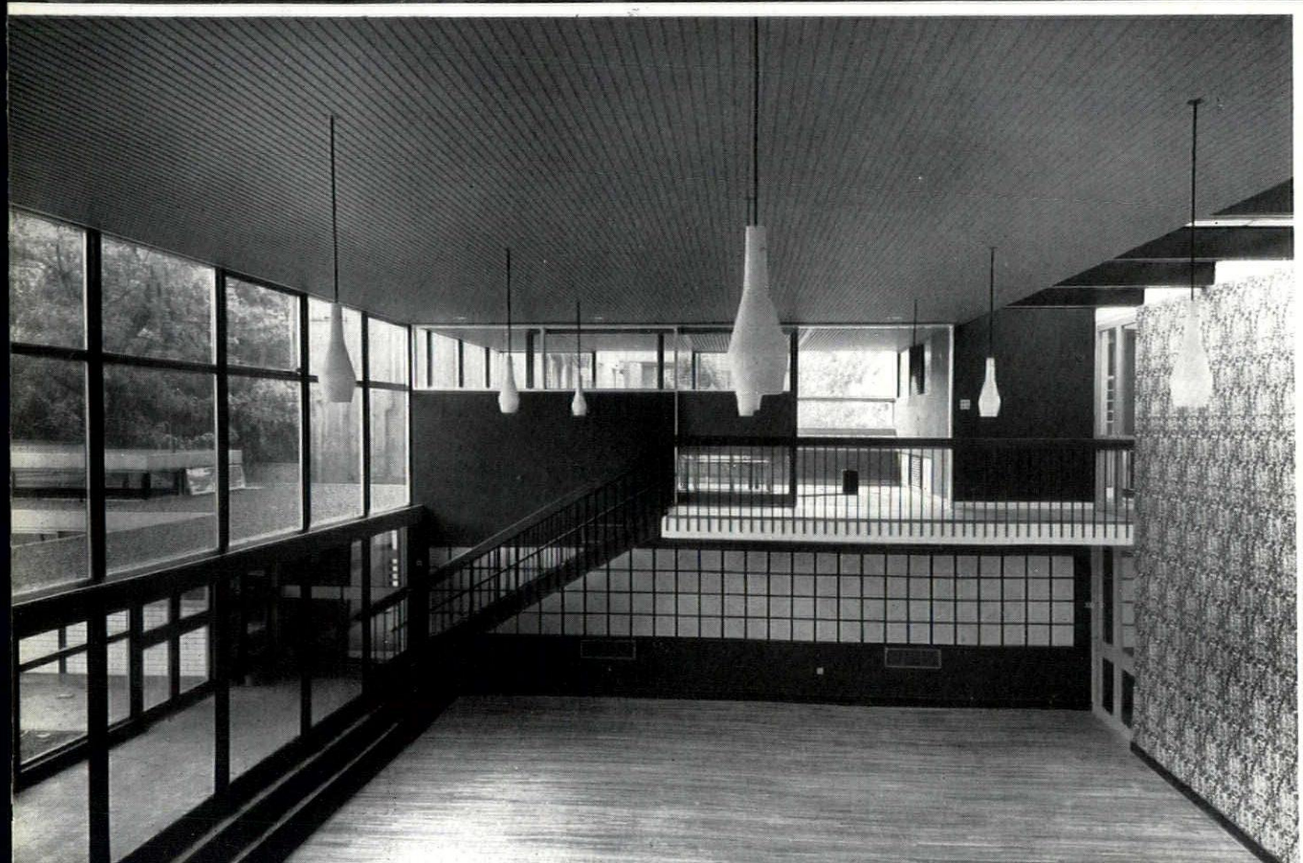
7

to amphitheatre stage, as seen through the eye-level viewing slit in the outer wall. 7, main entrance from the south-east.

The school is designed to accommodate 560 children in two departments, one for juniors and one for infants. The large communal elements are grouped in the middle: the two assembly halls are side by side; a gallery for dining is planned above the kitchens at the west end: the staff rooms are grouped on another gallery overlooking the halls at the east end. The eight junior classrooms are planned in a two-storey block linked to the junior hall by two wings containing lavatory and cloakroom accommodation, thus enclosing a small court from which steps lead down to a way through linking with the amphitheatre. Similarly, the six infant classrooms

[*continued on page 157*

8



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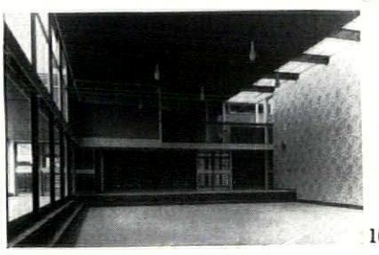
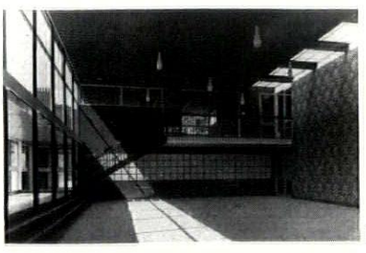


10

8 and 9, infants' assembly hall from opposite ends: wallpaper black with white flecks, ceiling of corridor green. 10 and 12, a similar pair of

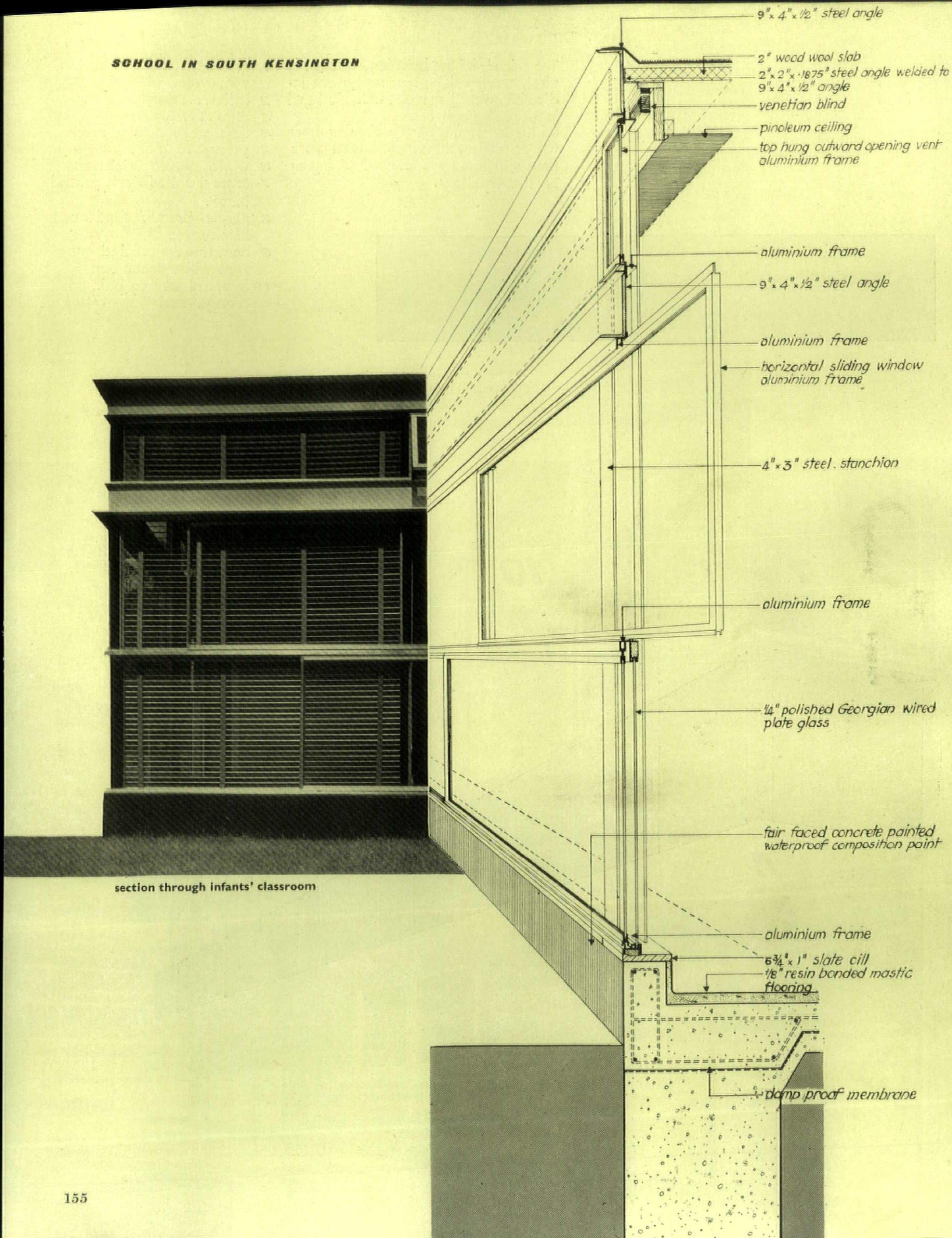


11

views of the junior hall; wallpaper white with black flecks. 11, as 9, but taken from ground-floor level.

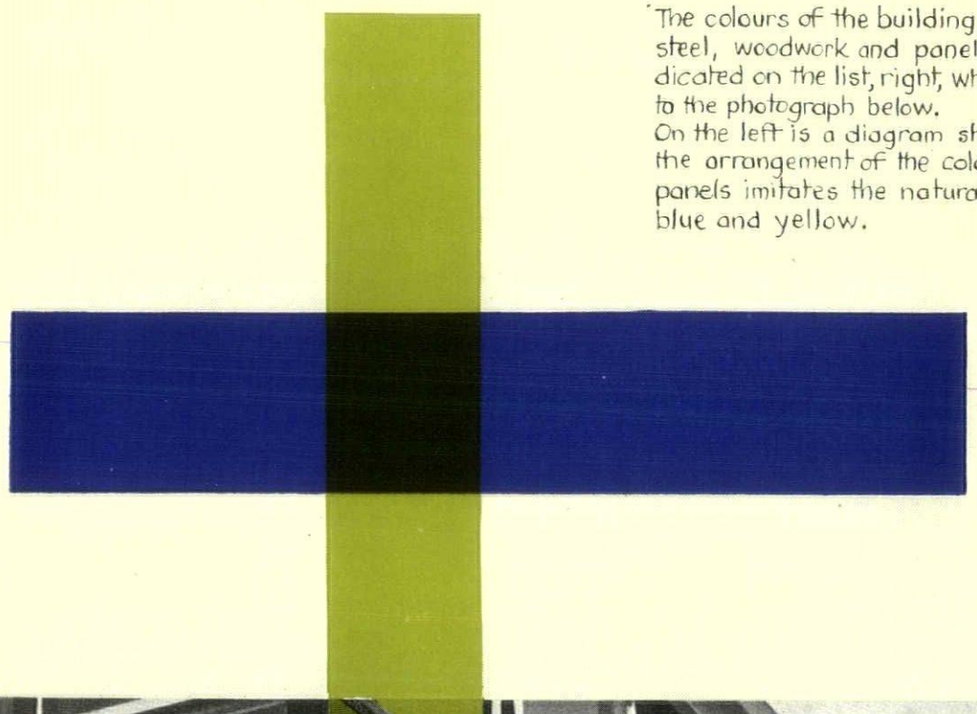


12

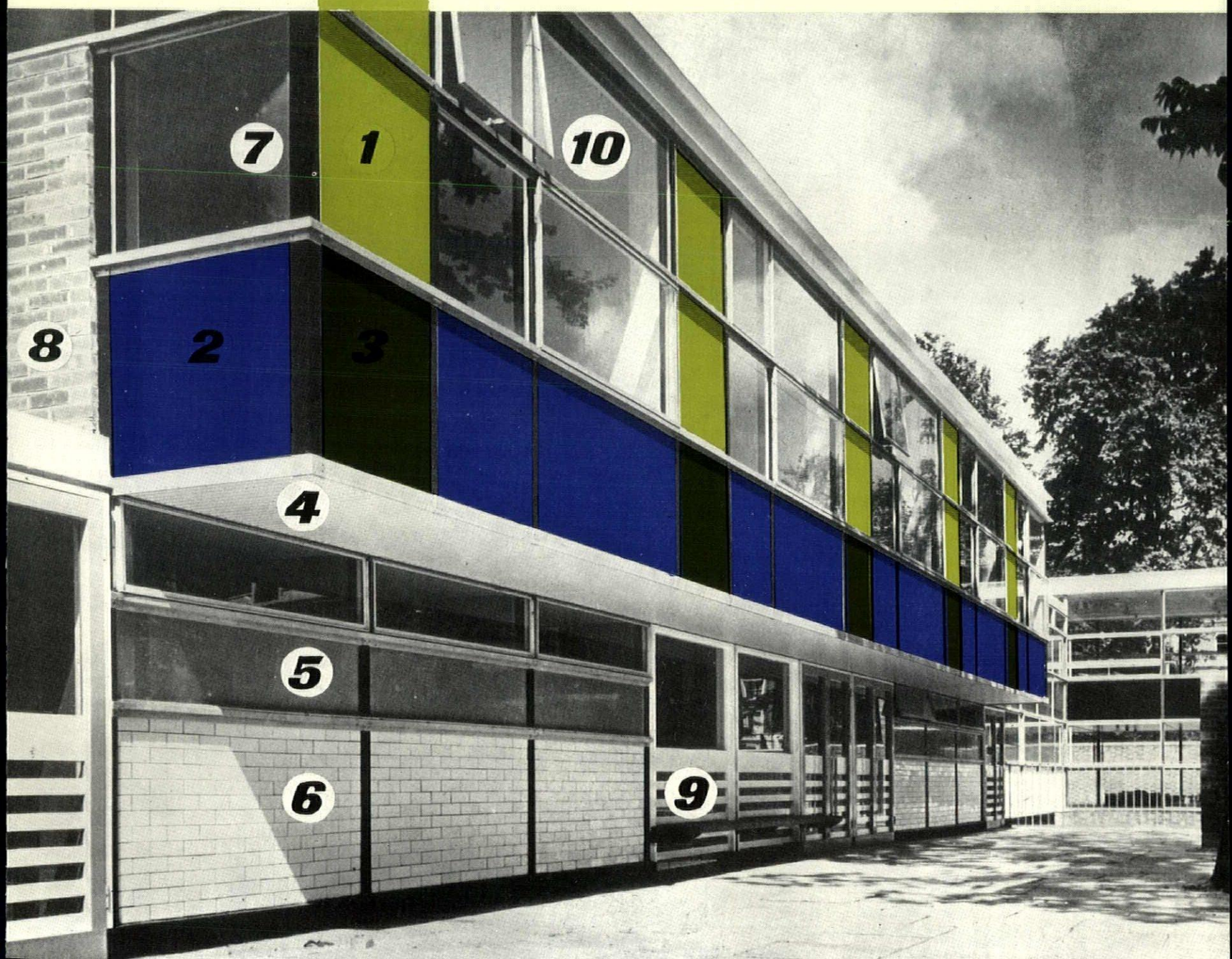


section through infants' classroom

The colours of the building, brickwork, steel, woodwork and panelling are indicated on the list, right, which is keyed to the photograph below.
On the left is a diagram showing how the arrangement of the coloured glass panels imitates the natural mixing of blue and yellow.



1 1/4" textured glass backed with yellow pigment
2 ditto .... deep blue
3 ditto .... green
4 lime green painted soffit
5 prismatic glass panels
6 white glazed brickwork
7 exposed steelwork painted black
8 purple-brown sand faced brickwork
9 door frames painted grey with white cross bars
10 internal ceiling painted orange-red





13

continued from page 153]

are planned in a block to the south of the infant hall to which they are linked by two wings containing cloakrooms and lavatories, thus again enclosing a small courtyard. This form of planning allows the cloakroom and lavatory accommodation to be dispersed and grouped with the classrooms, so that circulation within the building is reduced to a minimum. All classrooms have windows on at least two sides, which make it possible to ensure good day-lighting while limiting the room heights to nine feet.

The structure is supported principally by a steel frame; where dividing walls are required, these are usually load-bearing or employed to brace the frame. Up to about 6in. above ground level all the building work is carried out in concrete or brickwork, above which the steel frame rises. The upper floors are supported on timber joists, resting on the steel structural beams.

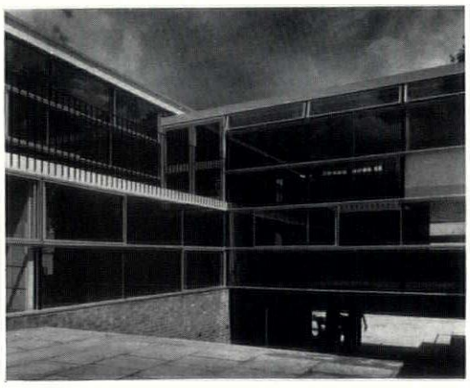
The steel frame is exposed, protected from corrosion by shot-blasting and zinc spraying, and finished with paint. The jointing of the steelwork is partly bolted and partly welded; the aluminium members are left in their natural state. The concrete and brick plinth round the building on which the steel frame rests is capped with a slate cill cut to fit round the steelwork and at door openings in external walls, slate 'gaiters' are provided to protect the stanchion bases and the bottom of the door linings from corrosion and rot: door linings, frames and doors are timber throughout. The coloured glass panels at first-floor level are backed with plywood: internal brick walls are finished with plaster and the partitioning of the staff rooms is formed with dry hollow core plaster board panel finished with a setting coat and painted. The circulation area at ground level is defined by blue quarry tiles; the classroom floors downstairs have a resin-bonded mastic finish and the sunken floors of the two assembly halls are finished with East African olive strip flooring; the boarded first floor is covered with p.v.c sheeting throughout. The glass used in the cladding includes clear sheet, polished plate, wired plate, prismatic, and rough cast backed with a vitreous enamel colouring. Outside, the forecourt, the internal courtyards, and the base of the amphitheatre are paved with second-hand York stone obtained from Kensington Borough Council. The amphitheatre steps are of concrete cast in situ.

Assistant architects were John Connaughton, Ross Chisholm and Michael Neylan; the consultant structural engineers were D. Lax and W. H. Willatts, and the consultant heating engineer was H. J. Knox. Quantity surveyors were Davis, Bellfield and Everest.

SCHOOL IN SOUTH KENSINGTON



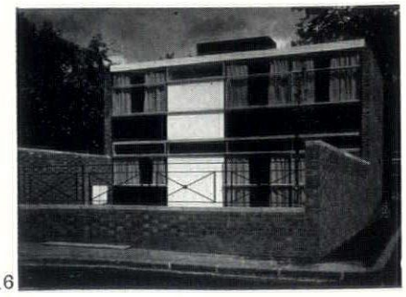
14



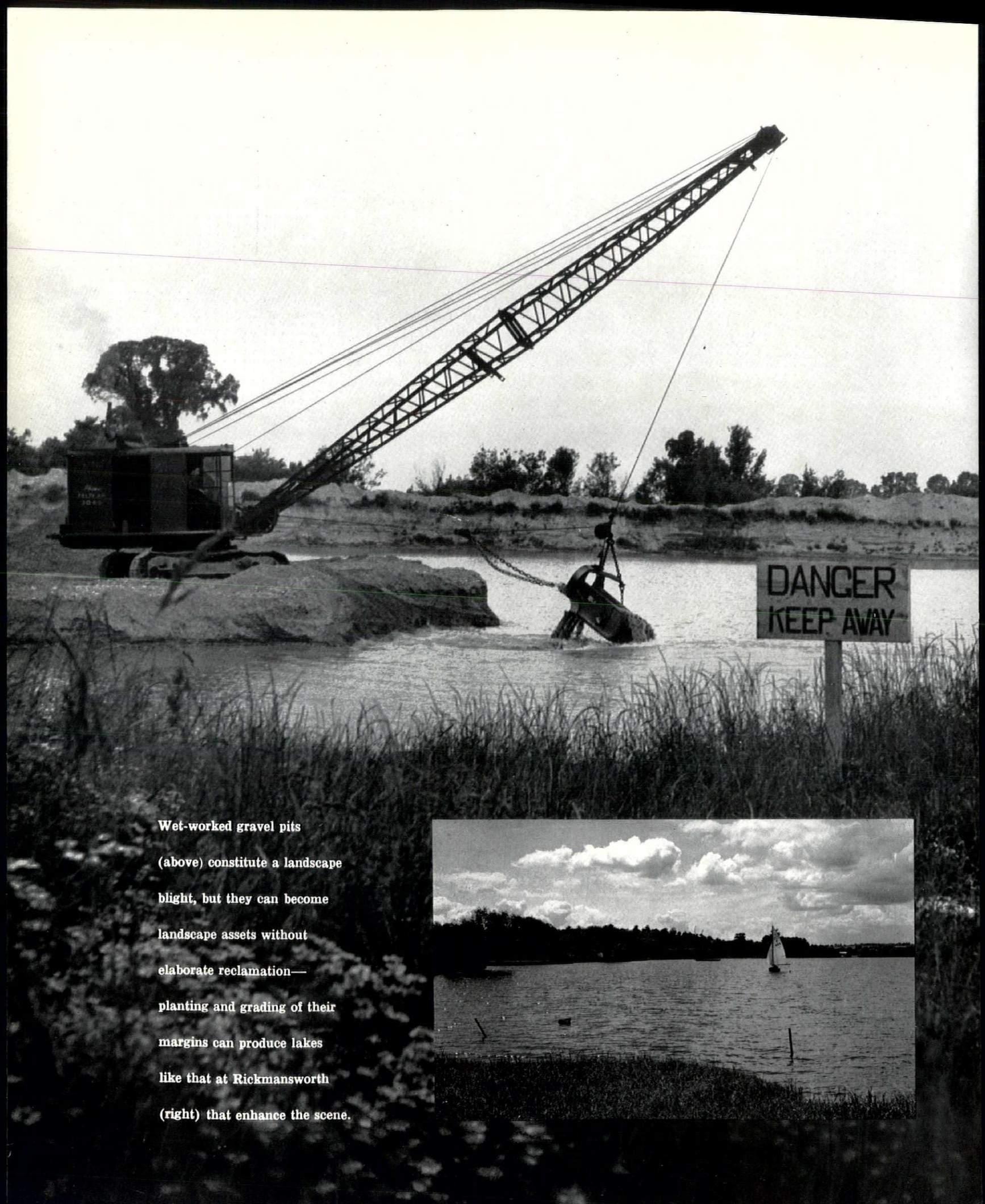
15

13, west staircase to gallery above junior enclosed court. 14, looking east along this gallery; classrooms on left.

15, inside junior court, looking down steps to amphitheatre. 16, schoolkeeper's house.



16



Wet-worked gravel pits (above) constitute a landscape blight, but they can become landscape assets without elaborate reclamation—planting and grading of their margins can produce lakes like that at Rickmansworth (right) that enhance the scene.

Kenneth Browne

High transport costs of a product that has low intrinsic value for its bulk cause sand and gravel workings to concentrate closely around major centres of population. Although there are therefore the usual suburban economic pressures for their total reclamation when they have been worked out, there is also a case for their retention—particularly in the case of wet pits—as landscape amenities, located, as they are, close to urban concentrations.

Dereliction: 3

One result of the ever growing use of concrete for buildings and road construction is a parallel increase in the demand for sand and gravel to use as aggregate. Since the first world war the demand in this country has multiplied by 14 until it is now about 27 million cubic yards a year. As most of the material is surface-worked in comparatively shallow pits this represents a considerable acreage of land laid waste; indeed, it is estimated that at the present rate of working approximately 1,500 acres of land each year are eaten up in this way.

Though sand and gravel are found widespread all over the British Isles, the problem of large scale dereliction caused by their extraction only arises in the vicinity of the heavily built up areas, for being bulky and of low intrinsic value (in contrast to, say, china clay or coal) the cost of transporting sand and gravel is a very important item and determines the area in which they can be produced economically. The exception is where a special quality of material occurs, as for instance the lower greensand belt between Maidstone and Dorking which supplies most of Greater London's 'soft' sand. In view of the transport factor, it has become common practice to establish ready-mix concrete and precast unit construction facilities at the gravel pit and these, together with the larger and more efficient machinery used for extracting the gravel, increase the likelihood of dereliction considerably. The kind of dereliction left when a pit has been worked out depends on whether it has been worked 'dry' or 'wet', as in the case of low-lying river gravel, where the excavation immediately fills to the water-table level, leaving a permanent lake.

The 'dry' pits do not usually present much of a reclamation problem unless the operator has used his excavator merely to grab out the best pockets of gravel, leaving the rest, when he can make a pretty untidy mess. On the whole, nature quickly heals the scars and agriculture re-established at a lower level has actually been known to benefit from being brought closer to the water-table. It is the wet pits which in the past have aroused such strong public feeling against gravel working generally, and nowhere

more strongly than in West Middlesex, where large areas of intensively cultivated market-garden land have been replaced by a dreary and haphazard collection of waterlogged pits. This area contains the most important concentration of gravel workings in the country, supplying about half of all gravel required by the Greater London area and, not surprisingly, also contains the greatest areas of dereliction (approximately 1,000 acres at the present time). One unfortunate aspect of gravel working is the almost invariable conflict of land use, the best gravels being nearly always found under the best agricultural land, and this is further complicated by the fact that both intensive market gardening and gravel production, if they are to pay, need to be close to their market.

In the past, the irresponsible activities of some gravel extractors, with financial gain as their only object and an attitude of 'damn you Jack,' have wrecked large stretches of this country by scooping out the best material and then moving on, leaving behind rubbish, broken machinery and derelict buildings. It is true that there were instances where, owing to their position and the demand for places to dump rubbish, derelict pits became filled and the land was used for building or playing fields; and others, where the exceptional contractor took trouble to clean up used workings, grade banks and plant trees to hide the scars, but generally speaking the whole thing was left to chance. In some cases, as in the Colne Valley at Rickmansworth, wet pits, more or less left to nature, have formed attractive lakes which are used for boating, fishing and swimming, but generally gravel workings have only added to an unkempt subtopian squalor. Where the bottom is clay, 'wet' pits become stagnant and mosquito-breeding, and are the natural dump for tin cans and old bedsteads.

Since the last war the position has greatly improved, for as a result of public protest and the recommendations of the Waters Committee of 1948*, the planning authorities are now empowered to keep a very tight control on sand and gravel digging, refusing permission to excavate in certain protected areas, and in nearly every case making restoration of the land by the extractor a condition of consent. No longer can he blunder about ripping up the countryside at will. In this matter of control and in the experiments being carried out in the best methods of restoration, the planners are doing a good job of work. All gravel extraction is phased to a prearranged plan, topsoil is stacked and reclamation by filling with waste material takes place whilst the digging proceeds. By this means full use can be made of available transport, and the cost of restoration is spread out over the working life of the pit.

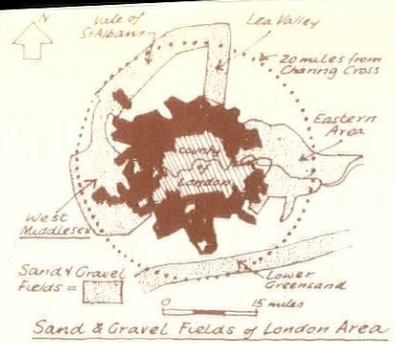
The industry itself has issued two booklets on the subject of land reclamation† as a guide to its members, and besides appealing to their better selves and pointing out their responsibility to the public, they show that it is in the contractors' interest anyway to restore the land, both because of its increased value when resold and because any contractor failing to keep up to scratch would find himself black-listed by the planning authority when he next applied to dig elsewhere. One way and another a fair degree of co-operation is ensured.

In addition to ensuring the eventual reinstatement of new workings the planning authorities have plotted the position of all the old derelict pits and made a start on their reclamation by directing filling material to them whenever possible. In West Middlesex the obstacle to a more rapid reclamation of the flooded pits, old and new, is shortage of filling material, for while dry pits can be filled with household refuse, which rapidly supports plant growth, under the present health regulations only inert material such as builders' rubble, fuel ash, etc., may be used to fill wet pits. This is because the dumping of household refuse in water results in a fouling of the atmosphere strong enough to blister paintwork. Experiments are being carried out by local authorities at Twickenham and elsewhere to find ways of overcoming this.

In country districts, the filling of wet pits is an almost insuperable problem, and a lake is inevitable. An example of such a situation is at Dunton Green near Sevenoaks, where gravel and sand are being pumped by barges from a large waterlogged excavation. The pit is already used by a sailing club and the limits of working and eventual shape have been decided. The company has a tree nursery by the pit and planting, together with grading and shaping of the banks made possible by the modern machinery available on the site, proceeds along with the excavating. However, it is close in to the built-up areas that lidos and boating lakes, etc., would be most welcome, and this is just where, by rule of thumb, they are most likely to get filled in, as filling material becomes available. Therefore, it is in such cases that planning powers should be used with visual imagination so that automatic filling is not insisted upon, and that some of the lagoons and spoil heaps provided gratis are incorporated into the urban landscape. It is just in this aspect of their work that the planning authorities fail. An automatic reflex insisting on the return of the site to as near as possible its original appearance is in many cases a good thing—a landscape of lagoons would be ridiculous; but the planners should be always on the look out for the chance to make use of dereliction, for with the earth-moving machinery now used in excavation there are tremendous possibilities for sculpting the landscape.

* Report of the Advisory Committee on Sand and Gravel to the Minister of Town and Country Planning.

† *Preparing the After-Use of Gravel Pits* and *The Use of Wet Pits for Fishing.* Published by Ballast, Sand & Allied Trades' Association.

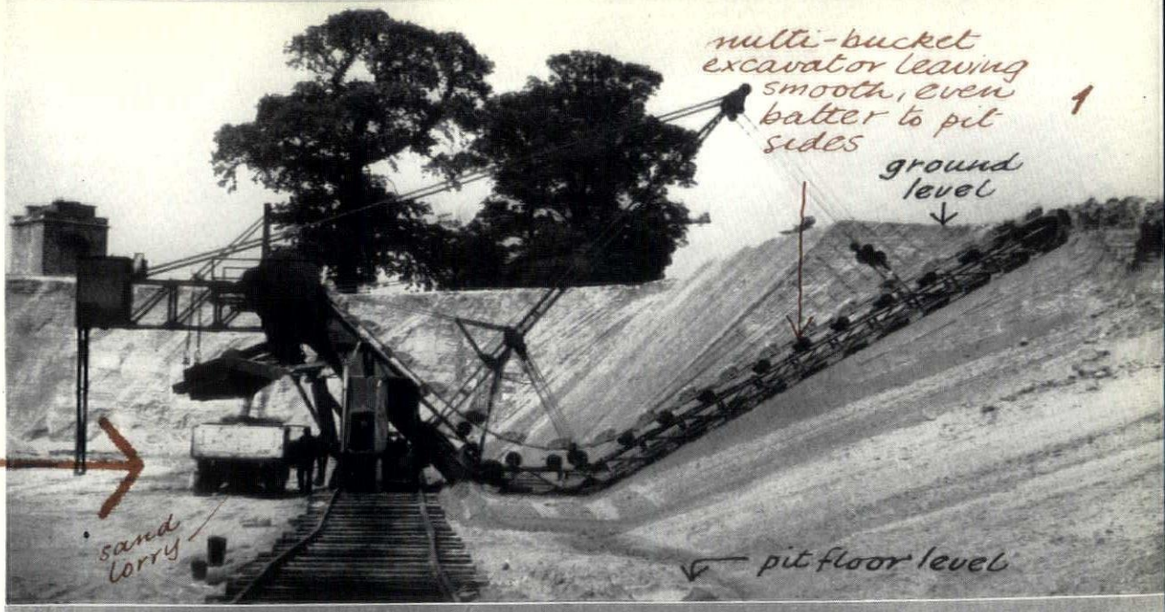


Sand & Gravel Fields of London Area

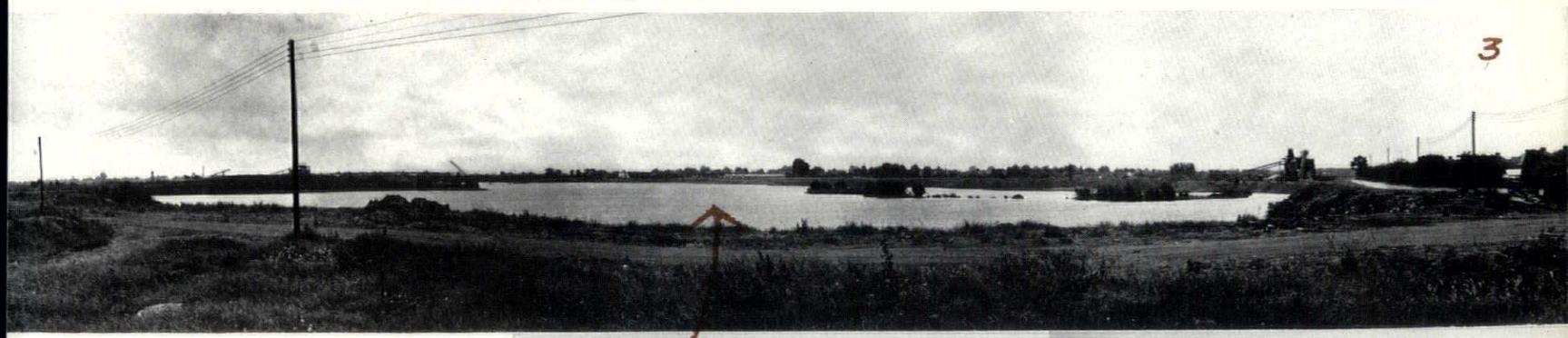
EXTRACTION of Sand and Gravel

may be Dry (where the land is well above the water table). Excavations are usually shallow, merely lowering the level of the ground and by using multi-bucket excavators an even batter can be left to the pit sides.

. . or Wet where the land is low lying and the pit rapidly fills with water.



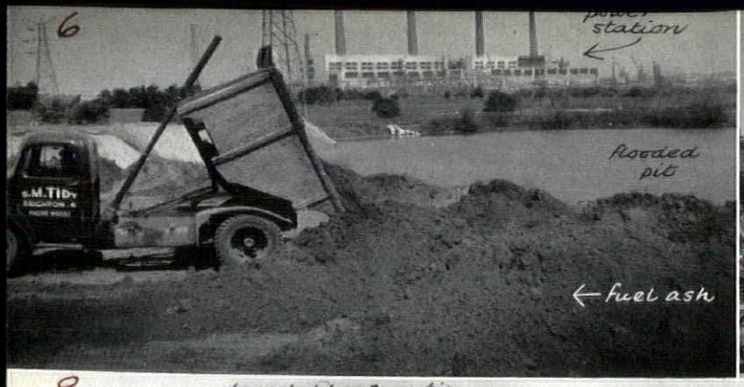


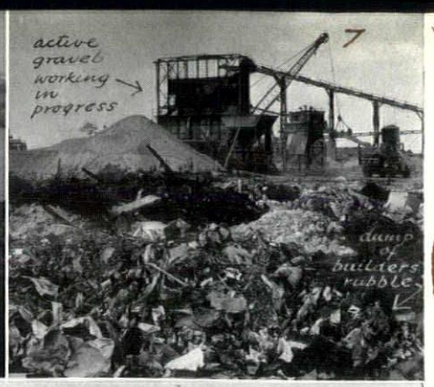


DERELICTION results mainly from wet pits, as at Feltham, Middx. where 1st class market garden land is being replaced rapidly by waterlogged excavations. Failure to clean up sites after use (4, 5) is another cause.









RECLAMATION of wet pits, by filling, is carried out wherever inert material (eg power station ash 6. or builders rubble 7.) is available and, by isolating

non acceptance of conditions

small lagoons (**A** in 8) with inert material, Twickenham Boro. Engineer has reclaimed land with household refuse.

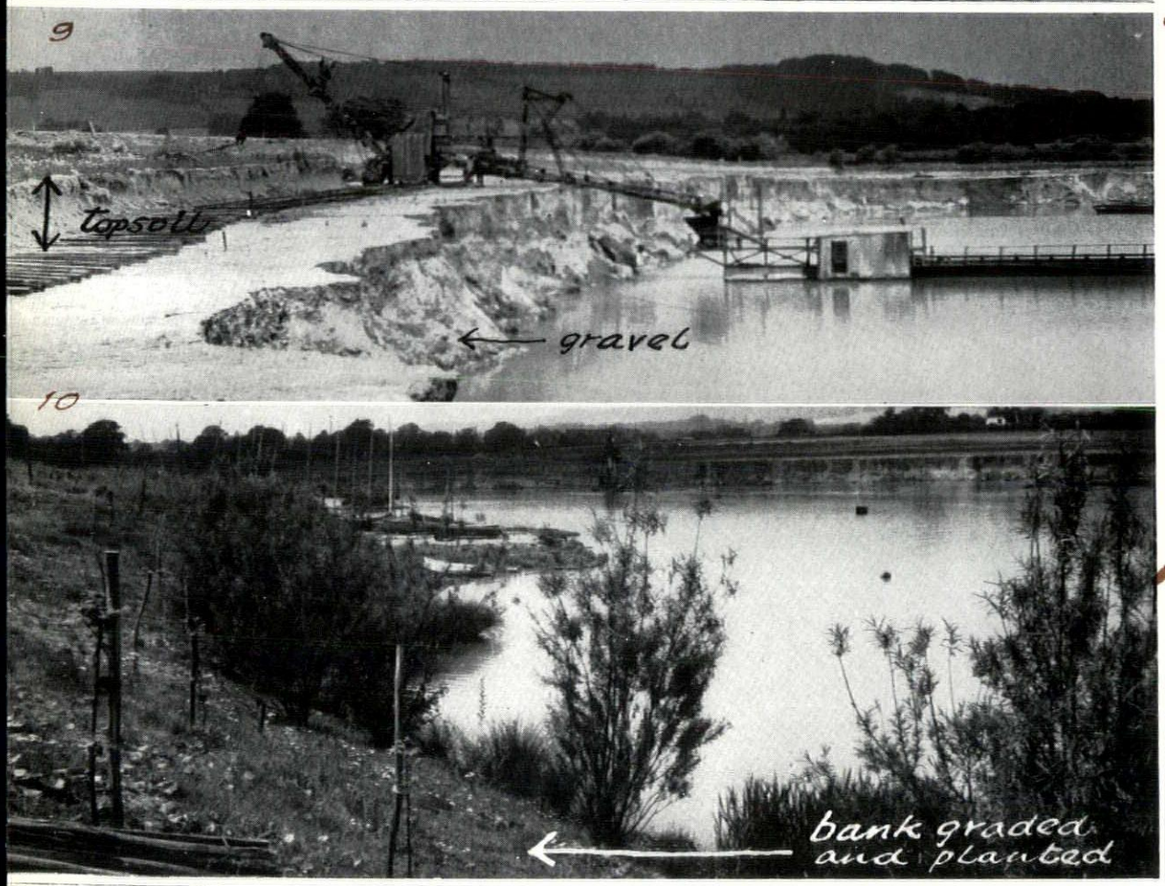


In country districts, enough filling cannot be found and a lake is inevitable. However, if top soil is stripped 9.

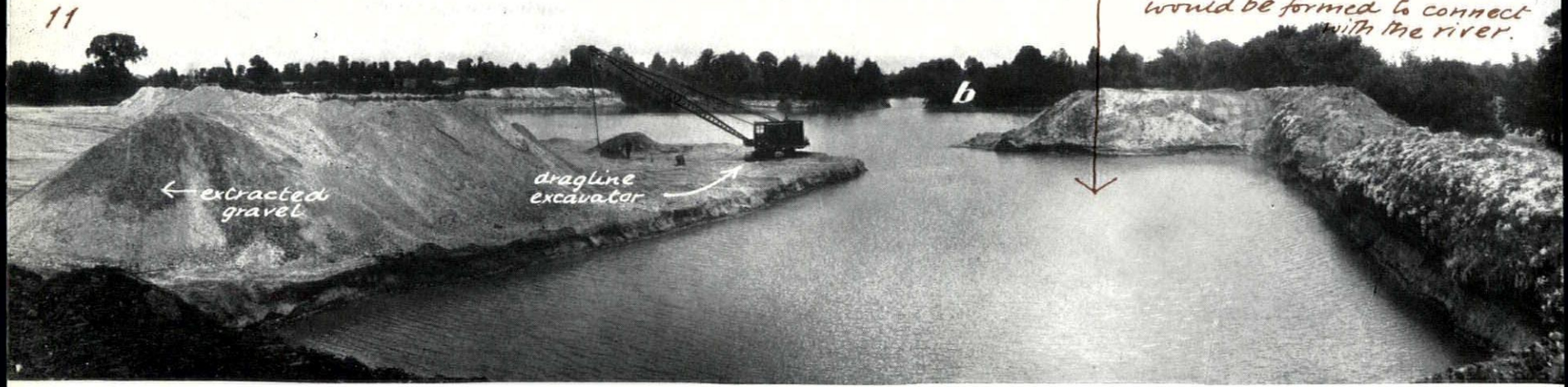
acceptance of conditions

and dangerous banks graded & planted 10, the final result can be a landscape asset as at Rickmansworth 14.

Even near cities, it is a mistake always to fill and a scheme at Sunbury to use wet pits 11 as a yacht basin 15. shows the right approach.



before . . . . . .



b is channel connecting pits. A further channel would be formed to connect with the river.



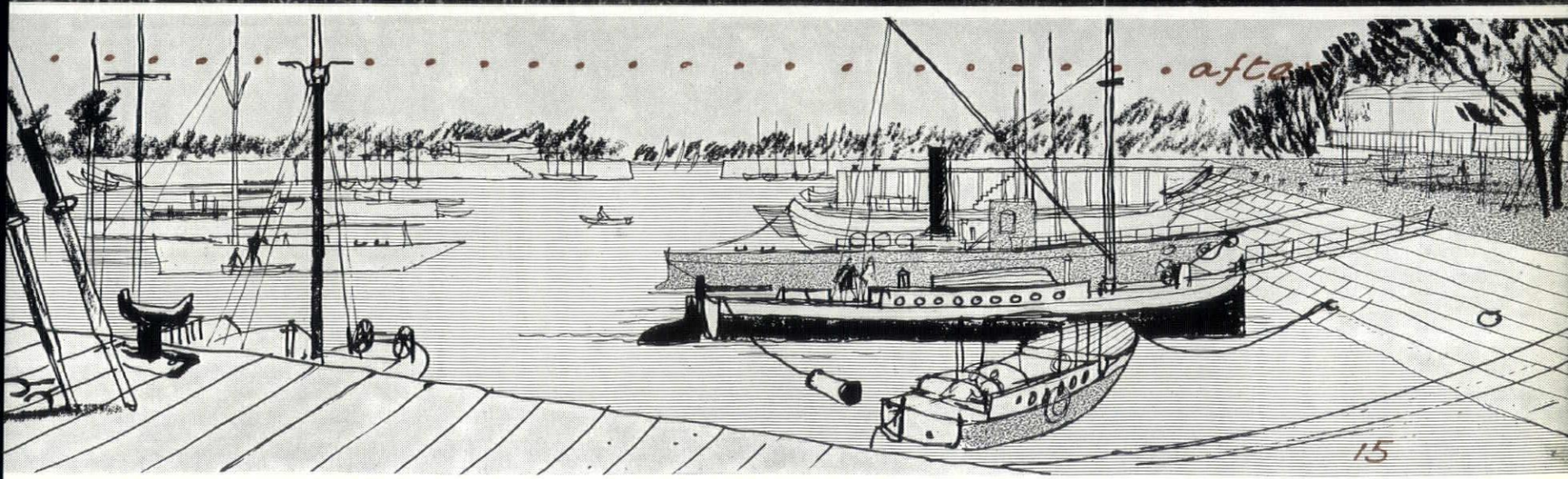
12 Polytechnic sports ground Chiswick (wet gravel pits 25 years ago)



13 Orleans Gardens, Twickenham (land reclaimed 7 years ago)

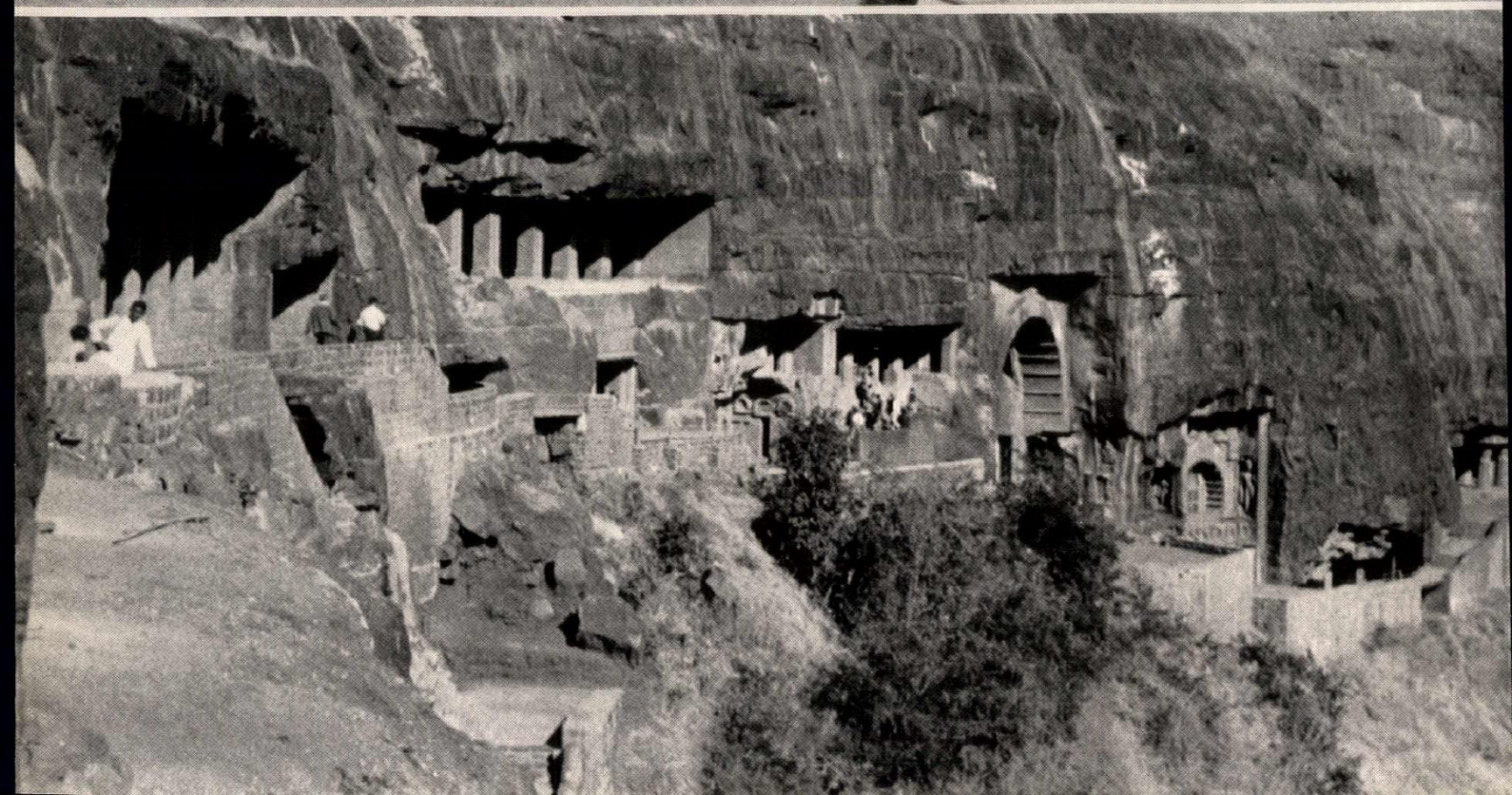


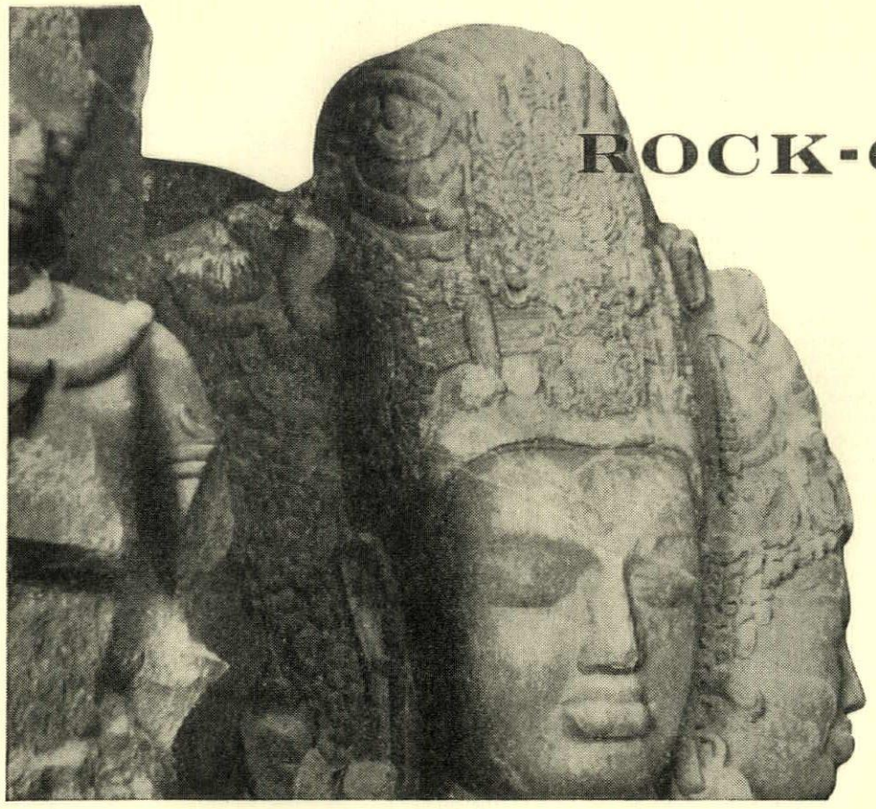
14 Rickmansworth Lido (originally a wet gravel pit)



15







3

ROCK-CUT TEMPLES

Julian Huxley

In India, rock-cut stone architecture preceded stone building, and in the article that follows Julian Huxley gives his impressions of the major monuments of Indian rock-cut architecture. 1, on the facing page, is the two storey temple at Bhuraneshwar, the capital of Orissa, and below it, 2, are some of the twenty-nine cave-temples of Ajanta, carved into a vertical cliff-face. The three-headed figure of Sira above, 3, is one of the ranking masterpieces of Indian sculpture, and the glory of the Elephanta caves, near Bombay.

In 1819, a young British officer, when on a shooting party in the hilly country of the Western Ghats north of Aurungabad, came to the rim of a deep ravine; looking down, he saw a row of openings with carved façades all along the curve of the vertical cliff across the gorge; he descended and found that the black openings were the entrances to a series of twenty-nine temples excavated in the solid rock, all richly carved, and some covered with splendid paintings. He had rediscovered the Ajanta cave-temples, built or rather excavated by Buddhists between the end of the third century B.C. and the early part of the seventh century A.D., and long faded from public memory. The story has often been told; but it bears re-telling, partly because the discovery was so dramatic and also so important, and partly because it is a reminder of the fact that it was the British who rediscovered India's huge forgotten past.

There is rock-cut architecture in other parts of the world—the fantastic tombs and façades of Petra and some of the great tomb-temples of Upper Egypt leap to mind, and along the Seine there are chalk-cut cave-dwellings and the cave-church near Les Andelys. But nowhere else than in India is there such a wealth or variety of rock-cut temples, spread over so long a period of time. For long, indeed, India preferred solid rock to hewn stone as the material to confer permanence on religious buildings, whether to provide enduring embodiments of belief or house-room to a continuing succession of dedicated believers.

In all countries, woody material has preceded stone in architecture. But whereas in ancient Egypt, for instance, the vegetable prototype was transposed directly into a stone construction, in India, it seems, it was first translated into a rock-cut religious edifice, not a building in the strict sense, but a carving. Only later were free-standing stone temples attempted.[1] And, as in many other countries, stone was not used for dwellings, even for palaces, until long after it was employed for temples and shrines.

This last statement needs a little qualification, for stone seems to have been used for fortifications and ramparts at least by the sixth century B.C., and there were megalithic constructions in Vedic times. Furthermore, the free-standing railings round the *stupas* or holy mounds of earth that represent enlarged tumuli, were translated directly from wood to stone before the second century B.C., and of course Asoka's pillars of the third century were free-standing. But the first stone chambered edifices seem to have been rock-cut, not built.

They are of two distinct kinds—caves and monoliths, the former excavated, the latter carved out of the living rock as a sculptor carves a statue out of a block of marble. At their highest peak, both types may become large many-roomed constructions, sometimes two-storeyed, or in the case of the monoliths, even with several storeys. Both caves and monoliths may be embellished with splendid sculpture, it too of course executed in the rock-mass.

1 Eventually the adaptation of technique might be reversed. Thus the monolithic temples of Mahabalipuram, which I describe later, seem to be miniature representations of free-standing buildings.

The two monolithic sites I visited—the Seven Pagodas of Mahabalipuram on the coast south of Madras and the Kailasha Temple at Ellora—are both remarkable, though in very different ways. At Mahabalipuram (sometimes spelt Mamallapuram) an entire section of a low granulitic ridge has been cut away to leave five monolithic temples or Raths, with attendant sculptures, while close by the face of the ridge has been converted into a huge sculptured panel, as impressive in its way as Michelangelo's Last Judgment in the Sistine Chapel.

The entire complex was carried out in the seventh century by the rulers of the Pallava dynasty. The Raths can be described as architectural sculptures—miniature rock-cut representations of contemporary structural buildings. Very interestingly, they are of three distinct styles, 5 and 6. The smallest and doubtless the most primitive is a simple cell, only 11 ft. square, surmounted by a roof imitated from thatch, such as can still be seen in some modern Indian huts.

Two other Raths represent temples of the so-called *Vesara* type. These are modifications of the early Buddhist form of shrine known as a chaitya-hall,[2] which we shall see more characteristically at Ajanta and Ellora. These are rectangular, with a barrel roof imitating wood construction, a carved façade, and an apsidal inner end.

Two others represent Hindu adaptations of *Viharas* or Buddhist monasteries. They are square buildings, the larger 35 ft. high, with open verandahs below, and then a series of three recessed terraces, lined with small-scale representations of the monks' cells (and, in one Rath, of the monks themselves looking out). The whole is surmounted by a bulbous *stupika*, which is a miniature representation of a Buddhist *stupa* (*tope*) or burial mound: smaller stupikas appear at the corners of the terraces. The ascending terraces symbolize different aspects of divinity: (in original Buddhist constructions, as in the stupendous Javanese sanctuary of Borobodur, they symbolize the spiritual ascent towards Nirvana).

In Indian sacred art, as in Gothic, sculpture plays an essential role. Usually the sculpture is an integral part of the architecture. Thus the Raths have some fine figures carved out of their substance, 8. The style somewhat resembles that which we shall see at Ellora, but the figures are here more slender, less mobile, and colder in feeling. Sometimes, however, we get free-standing sculpture. Here, alongside the Raths, portions of the rock-ridge have been carved into the likeness of the animal 'vehicles' of three divinities—Indra's elephant, Durga's lion, and Siva's Nandi bull, all of them of a massive grandeur: the elephant in particular shows a striking simplification of form.

But the most remarkable work of pure sculpture at Mahabalipuram, and perhaps in the whole of India, is the gigantic composition, carved

2 For my architectural and historical facts I am chiefly indebted to Benjamin Rowland's admirable *The Art and Architecture of India* (Penguin Books, 1953), but also to *Ancient India and Indian Civilization*, by Paul Masson-Ouisel and others (Routledge, 1934), and Murray's excellent *Handbook to India, Pakistan, Burma and Ceylon* (16th Ed., 1948); Percy Brown's *Indian Architecture* (Bombay, 1942) is a mine of information.

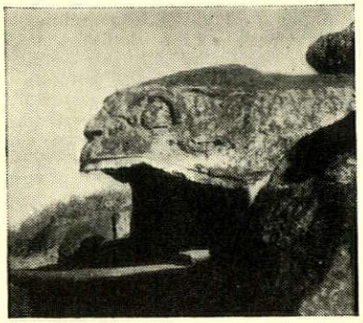
on the face of the rock-ridge, known as the Descent of the Ganges. It represents the descent of the sacred river from its Himalayan source, through a multitude of living creatures—animals, holy men and supernatural beings—all rendering praise or obeisance to Siva. Down the central cleft originally flowed a stream of water representing the river, supplied from a basin above and behind the rock. The multitudinous figures of men and animals, including the magnificent elephants, are all life-size.

The stylistic conception is characteristically Indian: the animals and the men (including the wonderful sage in penitential meditation, 9) are robustly naturalistic, while the supernatural inhabitants of water and air, the *nagas* and *devas*, partake of some supernatural essence. The realism, in fact, is so comprehensive that it can include both the material and the spiritual aspects of reality. Apparently the work was never finished, for at its base there are indications of blocking-out for a further array of figures. On the hill behind, close to the modern lighthouse, is another unfinished work, a Rath left unachieved when the Mamalla dynasty came to its end. It shows how (as apparently in all rock-cut constructions) the work was begun at the highest point.

Not far away are some rock-cut cave-temples, I think of later date. Actually they are not caves in the ordinary sense of the word, but excavated verandahs, long and shallow, with segments of rock left along their outer edge and carved into supporting pillars. The inner walls have some fine sculptured panels. One represents Vishnu in his boar-headed avatar or incarnation carrying his goddess-wife in his arms. Another, in a different shrine, shows Vishnu asleep—a wonderful portrayal of repose.

In the eighth century, a later dynasty erected a superb temple of slender *vihara* type on the seashore nearby, but as this is a built construction, it does not come into our present story. However, close below it is a hermit's cell excavated in a rock actually washed by the waves, 7.

Such rock-cut cells are not uncommon. There are several in the



4, a rock-cut cell in the hills behind Bhuraneshwar, the opening carved to resemble a savage animal.

hills behind Bhuraneshwar, the capital of Orissa, including one with its overhanging entrance fantastically carved into the likeness of the head of a gigantic and ferocious animal, 4—whether a serpent or a stylized tiger it is hard to say. The carved caves on this site total 63. Besides cells they include some large temples of the shallow 'verandah' type, with sculptured panels on their walls. One is two-storeyed, with a fenestrated ground floor, and a first floor in the shape of a balcony, supported by square pillars. These are of varying height, but it is not clear whether this is an adaptation to the natural rock overhang, or whether the excavation was never fully finished.

Leaving the east coast, we now go to Western India. The Elephanta caves on an island close to Bombay are the most widely known of all Indian cave-temples, but this is because they are so easily accessible from the great city. To me at least they do not compare in strangeness with Mahabulipuram or in grandeur and beauty with Ajanta and Ellora, though they do contain some splendid sculpture, including one supreme work of art, in the shape of the gigantic figure of the Siva Trinity, with one of the three heads, august and serene, representing Siva as supreme power, the second angry and destructive, and the third a strange embodiment of youthful but pouting masculine beauty, 3.

From Bombay, first by train through the romantic gorges of the scarp of the Western Ghats, and then by car over the dissected plateau, we reach Ajanta. No fewer than twenty-nine sacred caves were excavated in the trap-rock of the gorge, during a period of eight or nine hundred years before the decline and supersession of Buddhism in India. These may be treated together with the twelve Buddhist caves at Ellora, which date from the closing period of Indian Buddhism, from 350 to nearly 700 A.D. These Buddhist caves are of two types—the more numerous *viharas* or monasteries for Buddhist monks, and the *chaityas* or sacred halls for assembled worship or meditation. The *viharas* are generally square in plan, with cells round a central space. In the more elaborate ones, the flat roof is supported by rows of pillars, and there is a sanctuary or chapel at the inner end. They are usually entered through a verandah supported by pillars. One, at Ellora, seems to have been designed as a refectory or a place of secular assembly.

The *chaityas*, on the other hand, are long rectangular halls, with an apsidal end and a upcurved vaulted roof, copied from timber construction. There is a prominent shrine of *dagoba* type (i.e., a miniature modified *stupa*) in the apse, and the central space is surrounded by a continuous aisle, access to which is had between a row of high pillars, 11. The exterior generally presents a richly-carved façade. This often included a window with horseshoe opening and double ogee moulding—a characteristic but not very attractive feature of this period of Indian architecture.

The carved pillars of the later *viharas* are of a wonderful variety and richness. Sometimes, fluted circular columns emerge from a square rock-base: the capitals of some are double cushions or 'turbans,' of others single cushions surmounted by a laterally spreading member supporting the roof; still others are rectangular in section, with slightly tapering sides and carvings reminiscent of Renaissance design on their face, and surmounted by a carved horizontal slab.

The verandahs of the *viharas* are sometimes simple, but the later ones frequently elaborate, with abundance of carving. In some cases they are two-storeyed, with a balcony above the verandah. At Ellora, where the cave-temples are cut into a rock-slope instead of into a vertical cliff-face as at Ajanta, the verandah forms the back wall of a spacious open court. In one such case, the verandah has enormous projecting eaves imitating timber construction, a remarkable piece of rock-carving!

Ajanta is above all famed for its paintings—the greatest treasure of early Indian pictorial art. They have been described and reproduced in a number of publications,[3] so I shall not attempt to discuss them here *qua* paintings. However, painting was also employed at Ajanta as decoration for architecture. In particular, the roofs of some caves are carved to imitate coffering, and the square coffers are occupied by painted designs of—to me at least—surprising type. Some are in black and white, with rich floral patterns, while in others animals or female figures emerge from the flowery background, 10.

Finally we come to the sacred site of Ellora, which was doubtless developed in imitation or emulation of Ajanta. I shall not try to describe in detail the sixteen Hindu (Brahman) and the five Jain cave-temples which were excavated at the same time as or later than the twelve late Buddhist ones. In general they have the same general plan as their prototypes, though all of course have Hindu instead of Buddhist iconography as the basis for their sculptures and paintings, and some have little rock-cut chapels in their fore-courts. I shall concentrate on the stupendous monolith of the Kailasha temple. This, dating from the second half of the eighth century, is one of the most extraordinary man-made structures that I have been privileged to see; and certainly the most impressive monument of ancient Hinduism. It is dedicated to Siva, and is intended as an architectural representation of the god's home, the sacred Mount Kailasha. The representation is not merely a symbolic one: the profile elevation of the building is stated to resemble that of the actual mountain in the Himalayas. According to Rowland, it and other architectural representations of sacred Himalayan mountains were originally painted white to symbolize the snowcapped summits.

The great temple, as large as the Parthenon in ground-plan but one-and-a-half times as high, has been hewn out of the side of a mountain ridge. Three enormous trenches were cut down from the sloping upper surface of the ridge, producing a huge quarry with three vertical walls, but open to the lower ground on the fourth side, and with the hundred-foot-high monolithic mass in its centre. To obviate the impression of the temple being sunk in a dark pit, the lower 25 ft. of the central monolith was left as a podium on which the temple proper is elevated. The podium is carved in full relief with figures of animals: the frieze of the fore-parts of elephants emerging from the rock on the innermost face of the podium and seeming to support the great mass above on their backs is especially impressive.

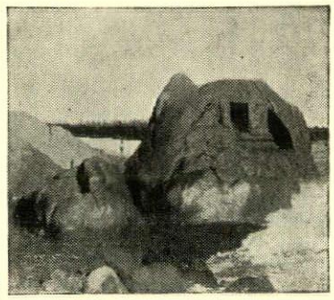
The temple is flanked by two enormous free-standing columns, elaborately carved, 14, and on one side by a life-sized elephant on the quarry floor. Further, it is connected by stone bridges with subsidiary halls and verandahs cut in the side walls, so that the quarry constitutes a courtyard for the shrine. The temple itself is very elaborate. It is roughly cruciform in shape, with an asymmetrical pair of pillared 'porches' or *mandapas*, corresponding to the transepts of a Christian church, forming the short arms of the cross. Along its main axis, there is a series of *mandapas* with an ambulatory outside them, leading to the dark and massive-walled cella, the holy of holies

[3] The latest is *India: paintings from the Ajanta Caves*, in the Unesco World Art Series (New York Graphic Society, 1954), with some fine folio-size reproductions of colour photographs.



5

Mahabalipuram *5 and 6, monolithic temples or Raths, which are miniature representations of contemporary structural buildings, with attendant sculptures.* 7, *hermit's cell excavated on the sea-shore near Mahabalipuram.* 8, *carving on the sides of Raths.* 9, *figure of sage in meditation, part of the composition carved on the face of a rock-top, known as the Descent of the Ganges.*

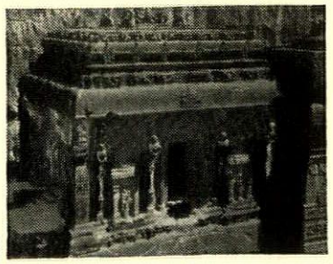


7



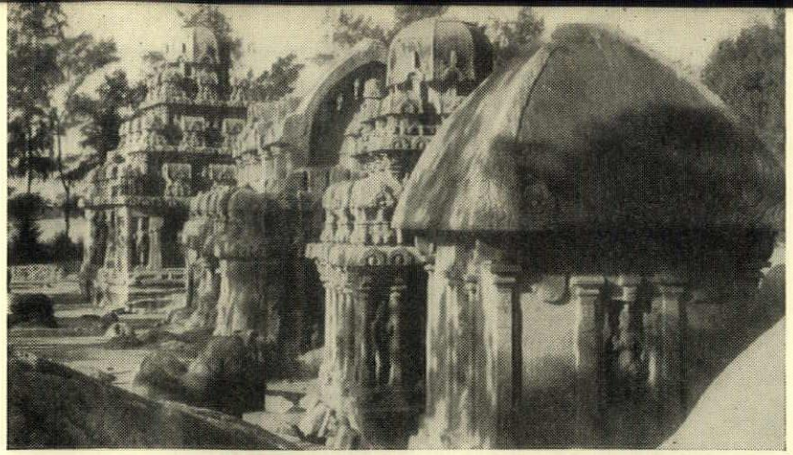
10

Ajanta 10, *roof-painting of female figure emerging from flowery background.* 11, chaitya *with apse and vaulted roof, copied from timber construction.*



12

Ellora *The Kailasha temple (second half of 8th century A.D.).* 12, *a shrine.* 13, *central monolith.* 14, *one of two free-standing columns flanking the temple. On the left an Atlas-like dwarf appears to support the cornice.*



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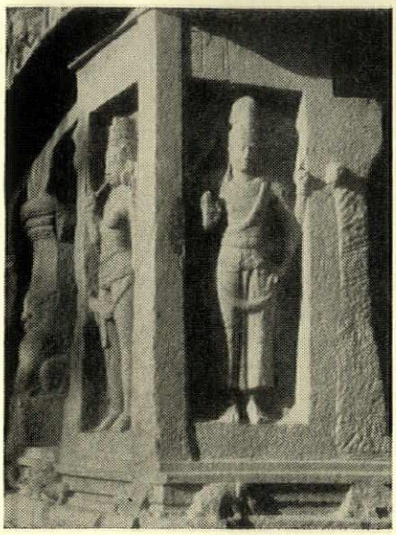
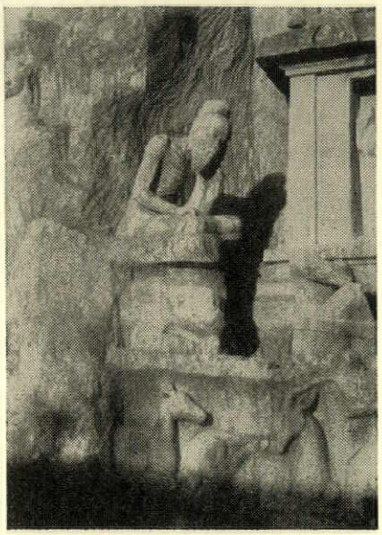




8,9



11





13, 14

where a huge *lingam* of Siva is still worshipped, and round which five lesser shrines are placed, 12. Over this holiest area, at the innermost end of the mass, rises the spire with its four recessed terraces and its crowning *stupika*, a much enlarged version of the spires of the *vihara* Raths at Mahabalipuram.

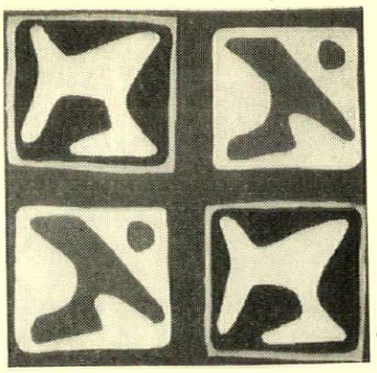
Never shall I forget the view of this from above, 13. I had climbed up the stony flank of the ridge in the oven-like heat of an Indian April mid-day. From the lip of the quarry I looked down on the great pyramidal spire, standing out boldly in bright sunshine against the black-shadowed wall of the quarry. On the topmost terrace was a white speck, which my field-glasses revealed as an Egyptian Vulture (Neophron) on its nest.

The next section of the roof had at its centre a circular drum, surmounted by four stone animals (all, be it remembered, carved out of the single mass), and bordered with little stone templicules. Beyond this again was a rectangular structure of very satisfying proportions, topped by carved cornices, and with beautifully spaced figures flanking its plain entrance doorway on its longer side, 12.

Wandering through the halls and shrines, up and down flights of stone steps, and round the ambulatories, my admiration of the grandiose design of the building and of the lovely detail of its figure sculptures was interrupted by constant shocks of surprise and wonder that the whole was one single piece of sculpture—surely the largest and most elaborate the world has ever seen. The figure sculpture is noteworthy in itself. The flying figures on the walls, though wingless, convey the sense of airborne flight more convincingly than any winged angel; and the Atlas dwarf supporting one corner of a cornice is a delightful grotesquerie, 14. The finest of all the sculptures, 'The shaking of Kailasha,' I was unfortunately unable to photograph. It is embedded so deeply in its stone frame (symbolizing in a moving way the idea of daimonic forces in the interior core of things) that it is illuminated only at certain times of day, which were not those of our visit; and I must refer my readers to Rowland's plate 119.

It represents an incident in the Ramayana. The giant demon Ravana, having penetrated the bowels of Mount Kailasha, is attempting to uproot it so as to use its store of sacred energy as a weapon against his enemy Rama. Multi-headed and multi-armed, in the cave of a deeply-cut recess, he is exerting all his force to break the rock-mass asunder. But Siva, high in air on the summit of the much-stylized peak, shows the effortless superiority of his power; relaxed and serene, he frustrates the demon's violence by a light pressure of one foot on the surface of the mountain. His goddess-wife Parvati shrinks against him as she feels the trembling of the solid rock beneath, while her maid-servant runs towards her in fear. The whole is like a superb stage-setting of a cosmic drama. This theatral (but not theatrical) style of sculpture, which was continued in the sculptures at Elephanta, is so far as I know a purely Hindu invention.

Reluctantly leaving Ellora, we drove to Aurungabad, to find there a reminder of the amazing variety of Indian architecture—one of the southernmost specimens of Moghul building, a domed tomb very like the Taj Mahal on a reduced scale. But that is another and very different story.



Right, the hydraulically pressed tile, designed by Roberto Burle Marx, for the external facing to the west wall, ground floor. See illustration 4.

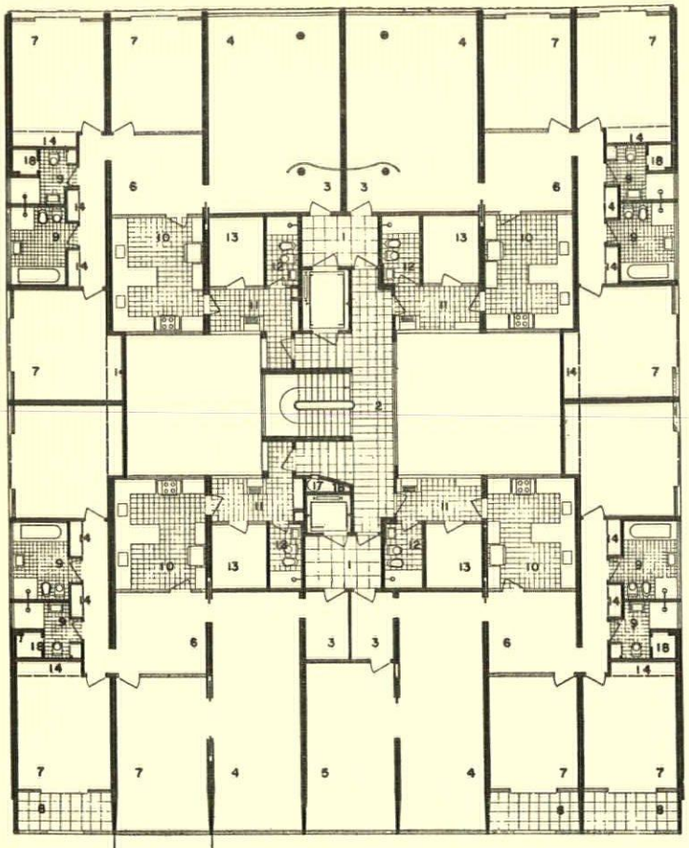
FLATS IN RIO DE JANEIRO

key to plans

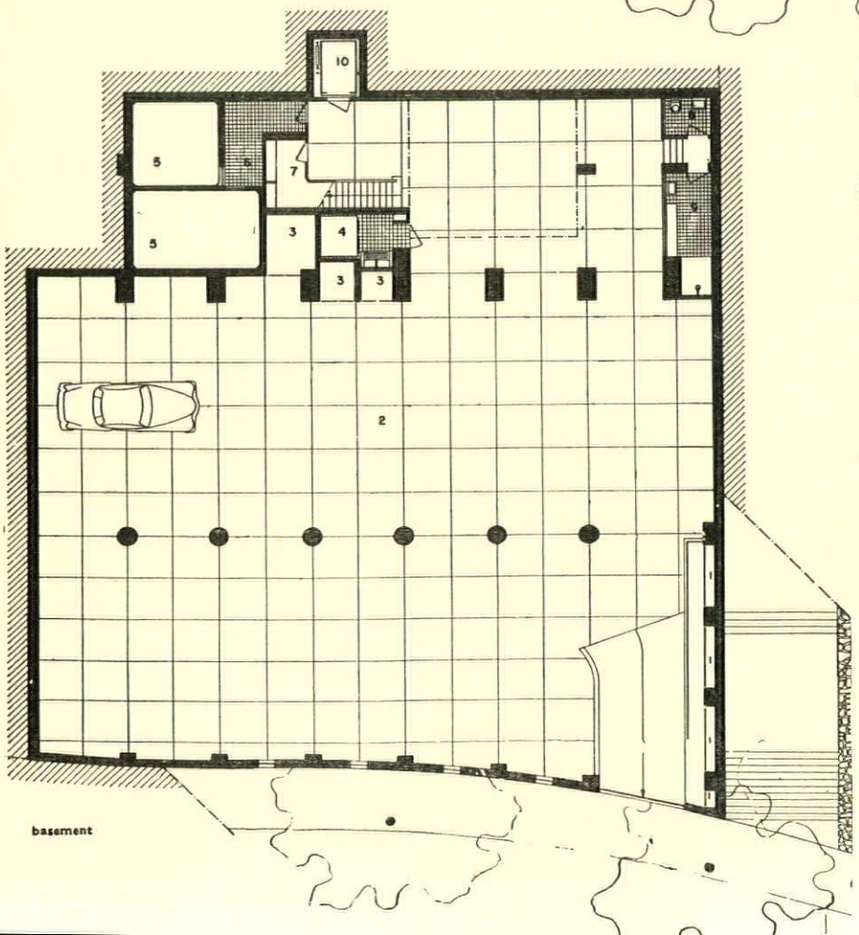
basement
1, gas meters.
2, garage.
3, store room.
4, garbage incinerator
5, water tank.
6, pumps.
7, electricity.
8, washroom and w.c.
9, cloakroom.
10, passenger and freight lift.

ground floor
1, main entrance.
2, service.
3, garden.
4, pool.
5, playground.
6, main hall.
7, service hall.
8, electric meters.
9, porter's living room.
10, porter's bathroom.
11, porter's bedroom.
12, porter's kitchen.
13, service balcony.
14, built-in service cupboards.
15, passenger lift.
16, passenger and freight lift.
17, garbage chute.
18, pipes.

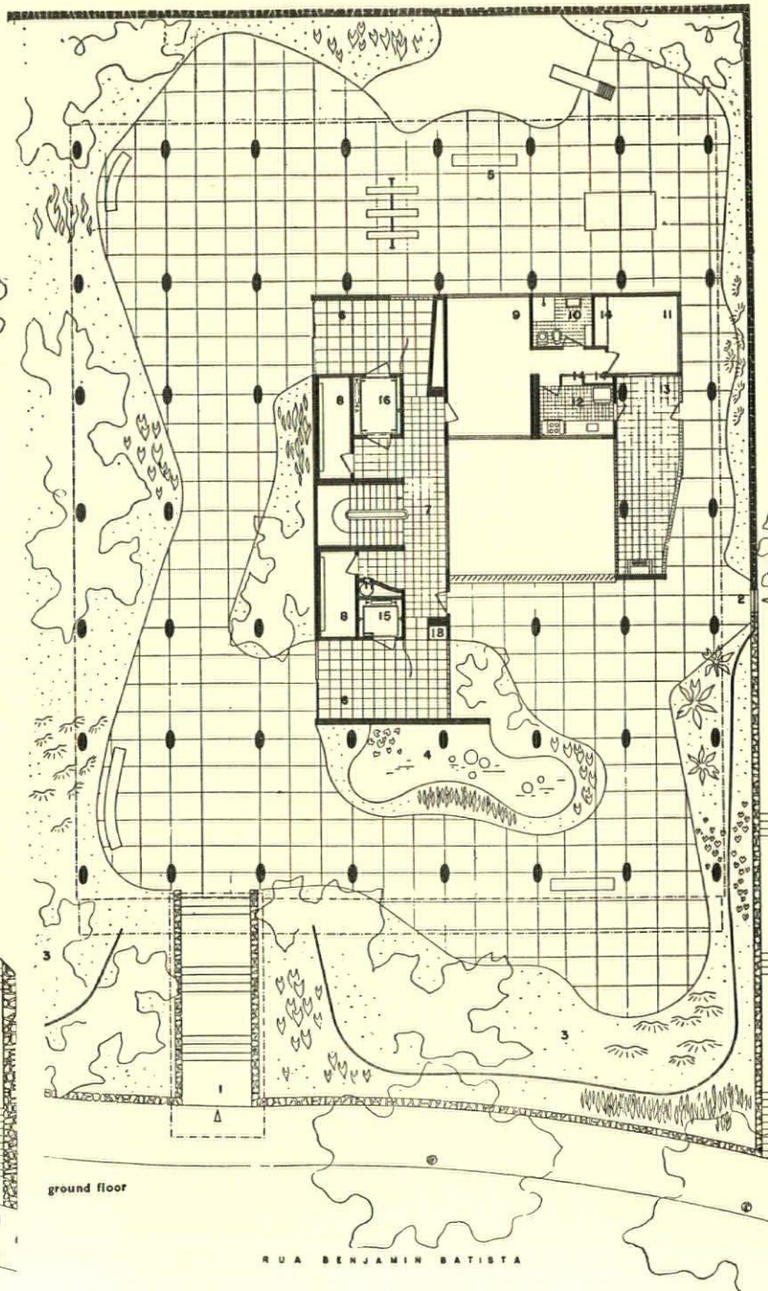
1st to 6th floors
1, main hall.
2, service hall.
3, vestibule.
4, living room.
5, study.
6, dining room.
7, bedroom.
8, verandah.
9, bathroom.
10, kitchen.
11, service terrace.
12, servants' bathroom.
13, servants' bedroom.
14, built-in cupboards.
15, passenger lift.
16, passenger and freight lift.
17, garbage chute.
18, pipes.



1st to 6th floors



basement



ground floor

RUA BENJAMIN BATISTA

FLATS IN RIO DE JANEIRO

ARCHITECT | **JORGE MACHADO MOREIRA**



1, window of living-room looking south towards Rodrigo de Freitas lagoon. At the top, on the inner side of the trellis, are pivoting slats ; in the centre, sliding frames, together with venetian blinds, and at the bottom horizontal pivoting slats, forming a *brise-soleil*.

The Antonio Ceppas Building, an eight-storey block of flats, was built in 1952, and is one of the architect's two buildings premiated at the Sao Paulo Biennale in 1954 (see AR, June, 1954).

The block is reinforced-concrete framed, and infill walls are mostly of artificial stone, a few of fair-faced brickwork. It stands in a residential street with a steep gradient ; the ground floor is considerably above street level, and a 24-car garage is in the basement. Access to the ground floor from the street is by a wide flight of granite-faced steps protected by a canopy which is independent of the main structure. The enclosed area on the ground floor is relatively small ; a much larger area is laid out, by Roberto Burle Marx, partly as a garden and



2

FLATS IN RIO DE JANEIRO

2, the south-east corner. 3, typical living-room facing south. 4, one of the halls at ground-floor level seen from garden and playground area ; the wall tiles and the glass mosaic in 5, which shows the same area seen from the opposite direction, are by Roberto Burle Marx. The large hall window is of glass bricks, and the outside floor paving of Portuguese stone mosaic.

partly as a playground, which forms a single entity with the garden surrounding the building. Burle Marx also designed the tile facing for the wall between the two main entrances and the glass mosaic mural on the wall above the small pool.

The paths are of white, black and red Portuguese stone mosaic, and the pilotis are faced with light-grey marmorite. The variety of external wall facings is considerable : for the ground-floor walls, either mosaic or random stone, the hall windows being of glass bricks ; the exposed framework and sides of the boxed-out balconies on the south façade in blue mosaic, which is also used for the top of the entrance canopy and the concrete frames of the sliding windows on the rear (north) façade ; and the whole bedroom verandahs and the upper sections of those in the living-room are fronted with traditional wooden trellis-work painted yellow. The inside walls and ceilings of the bedroom



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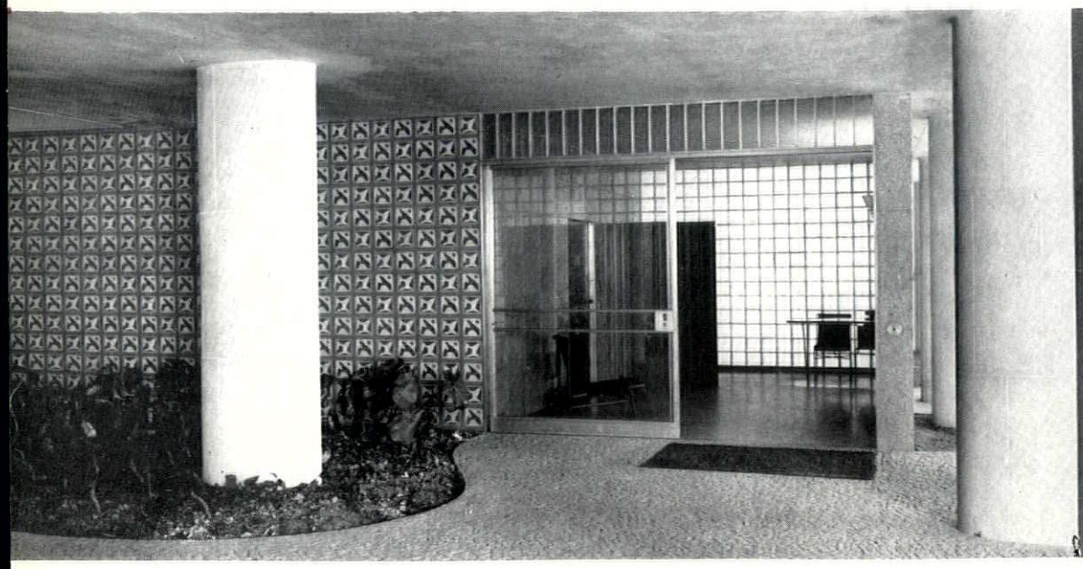

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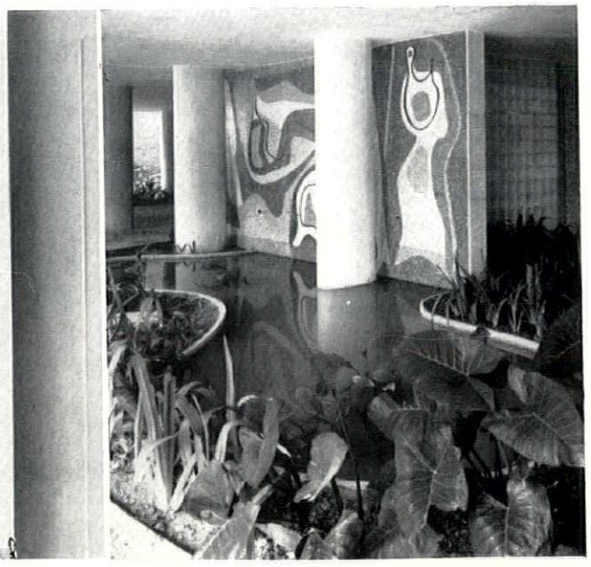

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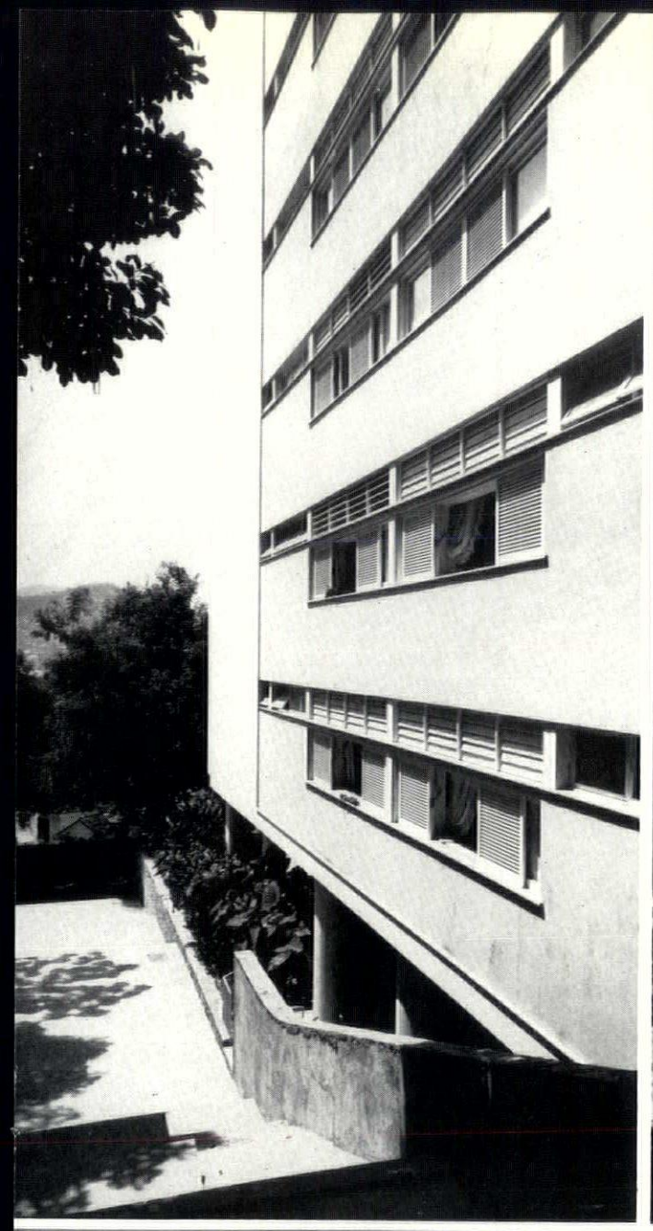



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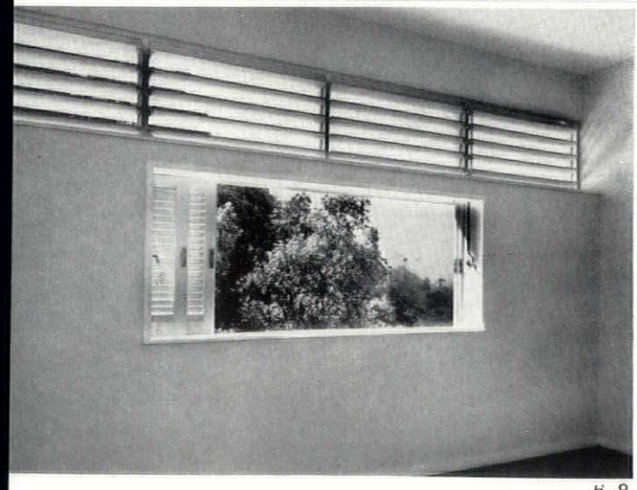
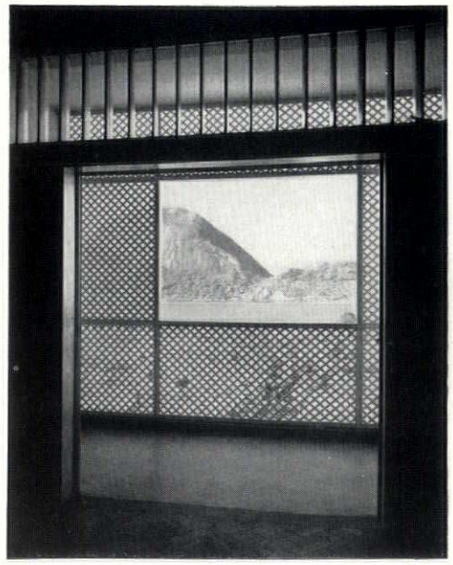


6, 8

6, the east and 7, the south façades of the building. On the south, trellis work across the upper part of windows indicates living-rooms; trellis alone with windows set back indicates bedrooms. Bedrooms on the lateral façades are as in 8, with lever-operated *brise-soleils*, top, for additional light and ventilation, and sliding windows and shutters under. 9, a verandah seen from one of the bedrooms on the south, with pivoting louvres over the inner opening.



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FLATS IN RIO DE JANEIRO

verandahs and the wall panels along the east and west façades between the rows of windows are painted the blue of the mosaic. The window frames are white.

The sitting-room windows on the south are in three parts: the upper, behind the trellis, consists of pivoting slats ; the centre of sliding frames, with venetian blinds, and the lower of horizontal pivoting slats, forming a *brise-soleil ;* this arrangement makes it possible to open up the entire window space and enjoy the view. The bedrooms on the east and west sides have both sliding windows and sliding shutters, and in the upper sections horizontal pivoting slats running the whole width of the rooms, ensuring good lighting and ventilation.



Given a wide-open plain, and an airport, the scene in the upper picture is probably inevitable and technically excusable. But given a point where plains and hills meet, and a town, the scene in the lower picture is beyond excuse. That the townscape of Nairobi should be almost as empty as the landscape of its airfield, that the wide-open spaces which surround the town should be allowed to penetrate inside it—these typify all-too-common faults of Commonwealth urbanism, discussed in the article by Roger Johnson on the pages which follow.

GREAT OPEN SPACES

PRAIRIE PLANNING IN NAIROBI

Fast-grown towns, sprawling overgrown towns, gappily developed, dominated by the motor-car, towns less than a century old, are no prerogative of the Americas. A fair proportion of them are in the British Commonwealth, their growth watched over, their plans drawn up by men with British training, or offices in the Home country. We are quick enough to criticize transatlantic failings, but how are we making out, how are we dealing with the problem of new cities in the outback?

On the pages that follow will be found some revealing photographs of Nairobi, and a commentary on them by Roger Johnson, who has experience of the life and character of more than one city in the bustling half-continent we are learning to call *Africa South of the Sahara*. Pictures and text combine to emphasize the emergence of a virulent strain of urban blight—not restricted to Nairobi, nor to Africa even—that might be called Subtopia from Scratch, the sprawl of towns that never had an urban pattern to spoil, that never had a heart to destroy.

The legislative pattern behind these sprawling towns depends on water-tight zoning laws, and the available empty space in which to realize them, sufficient empty space to leave dead strips as *cordons sanitaires* between one zone and another. This tendency to prairie-planning that leaves acres of real prairie, scrub, or jungle within the city limits is aided and abetted by grandiose Beaux-Arts paper plans that paralyse central area development within an inert abstract geometry of scaleless vistas and park-sized civic centres. Laid down, inevitably, across areas not yet built over, these paper diagrams tie up further areas of outback within the city, depriving it of the contrast that such a new town needs between the unreclaimed wilderness without and the man-made urbanity that should exist within. It is a fallacy to suppose that wide-open spaces demand wide-open towns. Along boulevards driven across the scrub, Government buildings and office-blocks begin to appear almost at random, each accompanied by

its own dead acres of parking lots, or lines of vehicles sweltering in the sun along the kerb, effectively isolating one side of the road from the other. Yet in this randomness of development lies the seed of hope. Not only do the unbuilt lots provide room to think again, to provide pedestrian preserves or out-of-sight parking facilities, but the haphazard siting of the buildings may provide clues to a more natural circulation for men and vehicles. Roger Johnson suggests one possibility at the end of his commentary.

COMMENTARY ON NAIROBI BY ROGER JOHNSON

The revealing eye of the aerial photograph seldom shows up a city to æsthetic advantage, but it does offer a clear picture of the pattern of growth. This is exceptionally true of the photographs of Nairobi shown here.

Nairobi's age would make a Mid-Western city seem very well established. From 1899, *when the Uganda railway had reached the point where the long stretch of plains gives way to the Highland country and made its headquarters there, Nairobi has grown to a city of over* 100,000 *persons.*

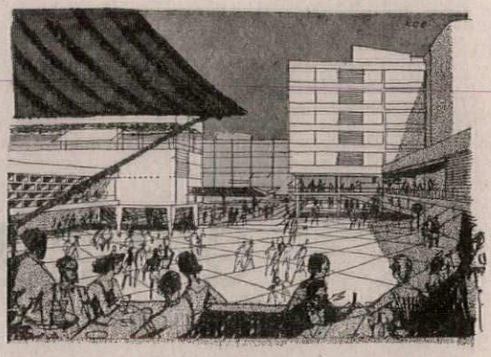
The original town street, Government Road, can be seen in **5**, *p.* 176, *running across the foreground with some of the original buildings on the right, and on the left an example of the new scale of the buildings which are taking their place. This one example gives a very clear impression of the change in character which is so rapidly taking place. This illustration also shows what might, rather hopefully, be termed the 'heart' or 'core' of the city, for in and around the two hotels facing each other across the roundabout, the Europeans congregate to meet and talk.*

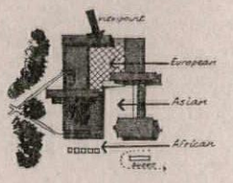
To the south of this existing centre it is possible to see in **2**, *p.* 172, **3** *and* **4** *on the facing page, and* **6** *on p.* 176, *the new City Square, with the Law Courts in the centre, flanked by new Government buildings and the Town Hall and faced by the new Parliament building. The basic pattern is in the Beaux-Arts tradition, with a central axial way and parallel roads at the edge of the open space, each with further official buildings and a car parking strip under trees, crossed near the centre by the Princess Elizabeth Highway and terminated by a dominant Government building on the hill.*

For those of us who have accepted the principles of a centre reserved for pedestrians, of multiple-use rather than rigid zoning, of Goethe's 'Man the measure of all things' against the tyranny of an imposed monumentality, it is a little discouraging to realize that these principles are far from being widely held. In the Commonwealth, and certainly in Africa south of the Sahara, there is a strong belief that the application of these ground patterns on a large scale is what town planning consists of. Here also the attitude is at work that as Africa is a vast continent, so then must the city be reflective of those spaces in the area it covers, with the consequent result of emptiness at the centre.

Responsibility should not be laid entirely at the door of the town planners. So long as decisions continue to be made by committees of men who, admirable as they may be in their own line of business, lack the necessary visual education and vision, and only on the happy occasion listen to their advisers, so will the people get 'not the sort of town they want but the sort they deserve.'

For instance, what an opportunity has been offered by this open area, practically all of which is under public ownership, to graft a new heart into Nairobi before it fails as a city through lack of this vital organ! Here is a suggestion for that part of the City Square adjoining the commercial area showing how it could be developed as a group of small paved piazzas, with ramped access to first floor shopping arcades with cafés (this last may be realized on a small scale in one City Square project), and, rising from this two-storey base, the high slabs of offices, with places of entertainment under and on the roof which would be open at night. Unfortunately, the 'cultural centre' with the National Theatre has already been set up in the north-west corner of the city, for this should be here too. The only addition that this 'core' would contribute to what, after all, is a well-developed theory, would be to accept the challenge put forward by the emergence of the idea of the multi-racial state, and all the difficulties that this is bringing with it. With a population of Europeans, Asians and Africans in roughly the proportion 1 : 3 : 6 *the suggestion is to have three interlocking spaces, each with a character given by the predominant racial group. Thus one piazza would be a predominantly European shopping area, another for Asians, and a more open space with eating stalls for Africans, since the last could not afford the rents for anything more substantial at the moment.*



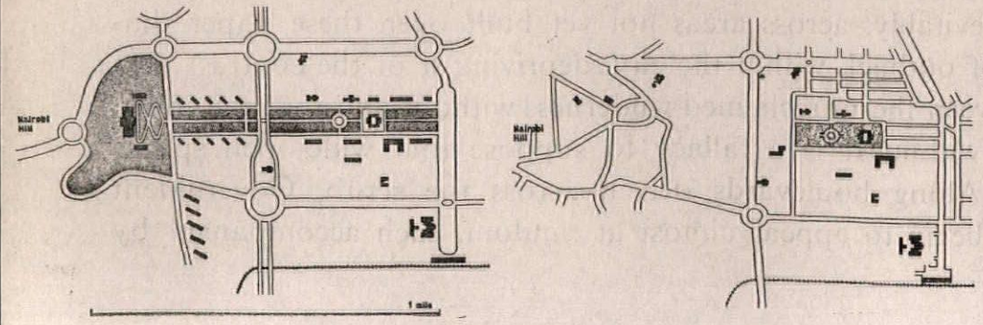


The author's proposals for a humane townscape in Nairobi are shown in sketch form here; to fill up the empty acres between the City Square and the commercial area with interlocking pedestrian spaces for the various racial groups, with adequate built-in shelter from the sun.

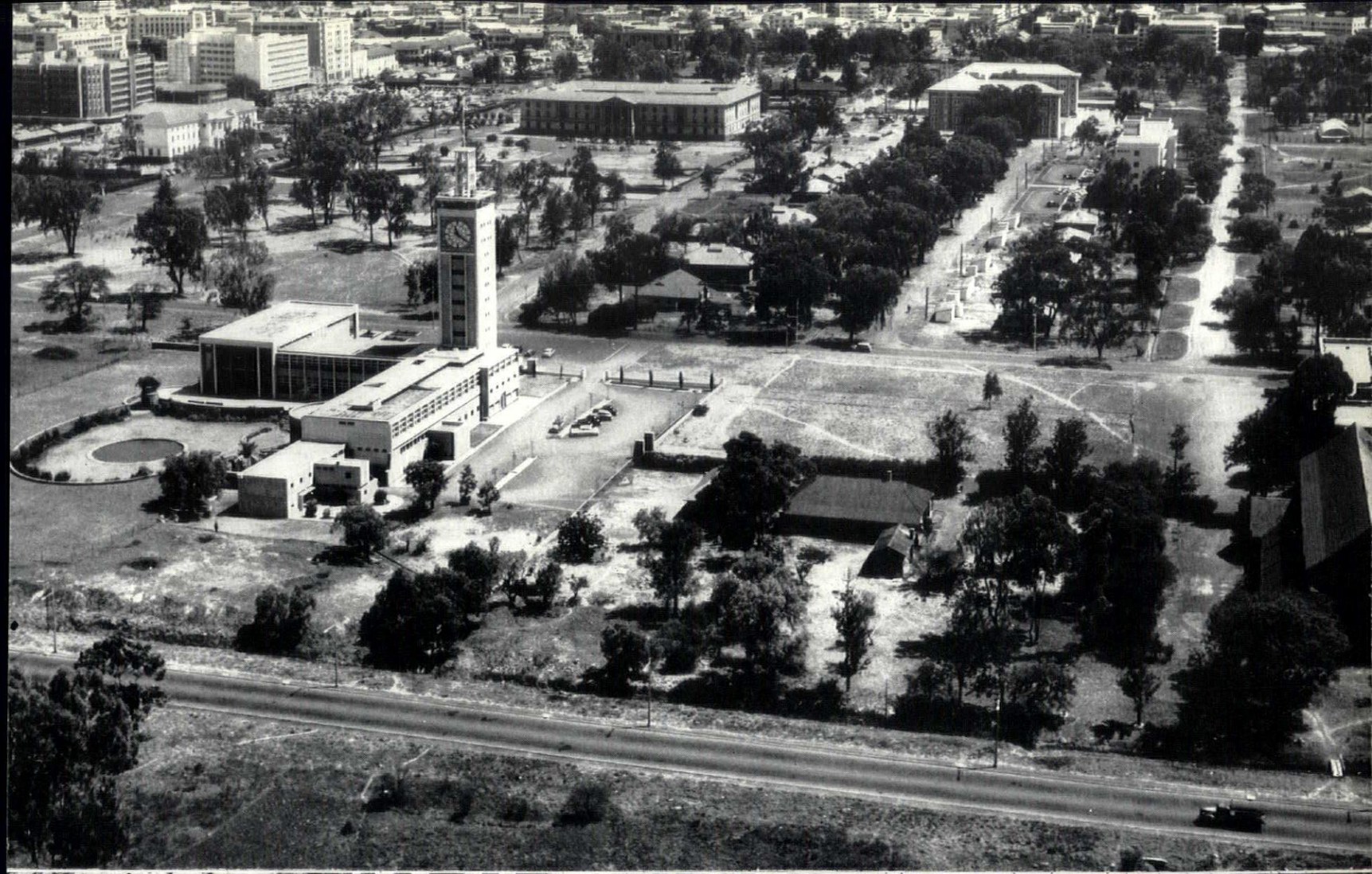
The whole theatre of life would then be enacted within this nucleus: a lunch-time scene could envisage the African clerks and messengers eating and sleeping in the shade, their womenfolk with their vivid coloured dress, the smell of spices from the Indian quarter and ideally (and this would be anathema to the 'zone-planner') with their furniture, tinsmith and shoe workshops opening on to the piazza. Finally the mainly European cafés under shade and overlooking the strolling people.

This complex would include Government offices which would lead out into other groups of Government buildings, grouped according to their functions, set in a really closely planted park with the car parks set entirely separately on the perimeter. In this way a true park and not a shaded car park would be brought into the city.

As it is, it is difficult to get enthusiastic about the development that is likely to take place. The complete lack of enclosure and an interesting space definition, combined with the deadening effect of a vast group of Government buildings in their car parks is hardly likely to add anything to the happiness of the individual citizen, whatever his colour.



The grandiose 1948 master-plan proposals for Nairobi city centre, shown shaded, left, have already been cut down to a more modest City Square, shaded, right, but buildings are still far too thinly scattered on the land.





In the foreground of 5 can be seen the junction of Government Street, Nairobi's oldest thoroughfare, with the newer Delamere Avenue, whose trees, as can be seen, are both ineffective and inadequate as shelter for parked cars. This road junction has become the natural centre of Nairobi life, and—whatever its drawbacks—it is clearly preferable to 6, City Square, the sprawling shadeless centre proposed by the 1948 master plan.



5



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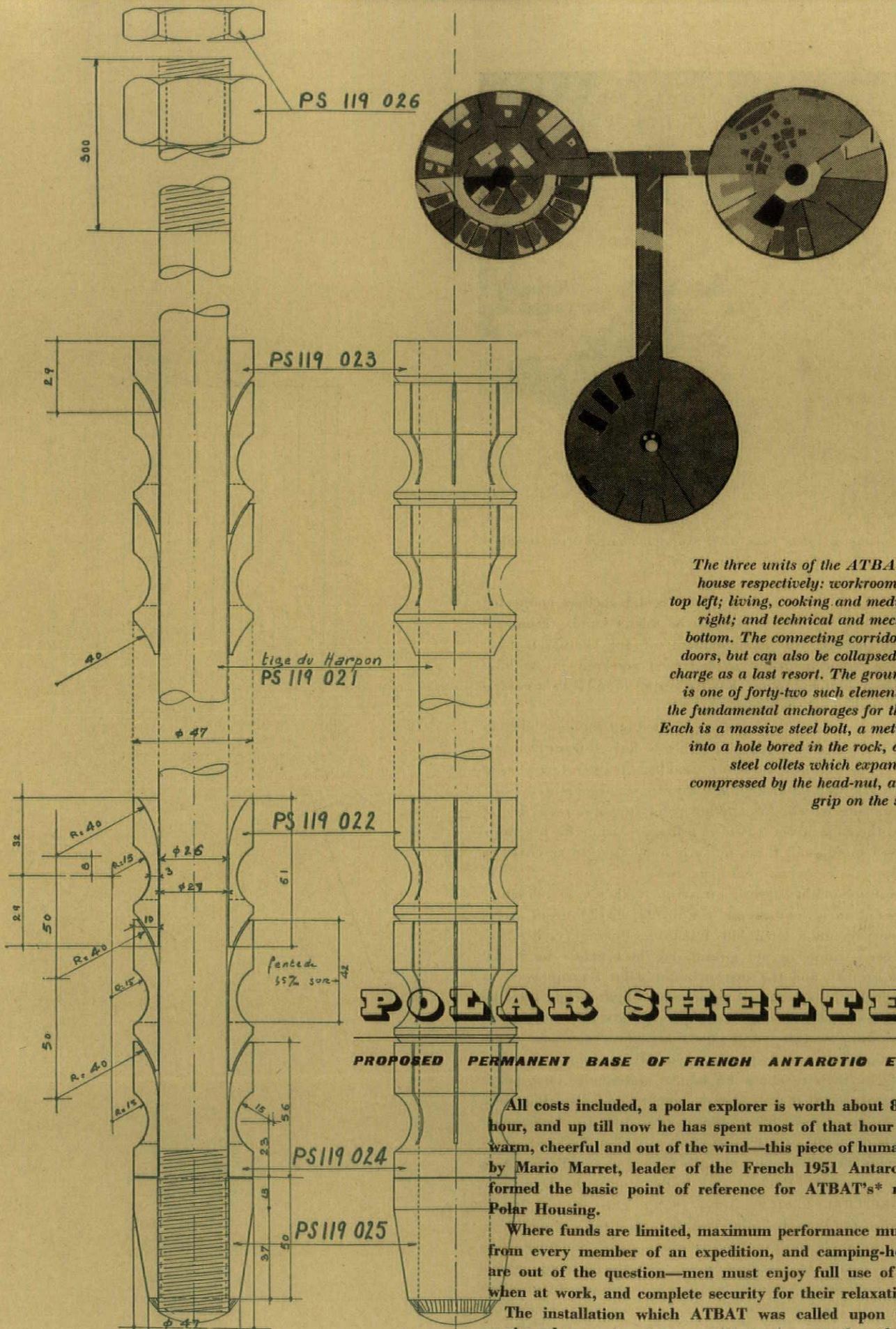


The three units of the ATBAT shelter, above, house respectively: workrooms and bedrooms, top left; living, cooking and medical services, top right; and technical and mechanical services, bottom. The connecting corridors have fire-trap doors, but can also be collapsed by an explosive charge as a last resort. The ground-harpoon, left, is one of forty-two such elements which provide the fundamental anchorages for the whole project. Each is a massive steel bolt, a metre long, dropped into a hole bored in the rock, and carrying ten steel collets which expand laterally when compressed by the head-nut, and take a secure grip on the sides of the hole.

POLAR SHELTERS

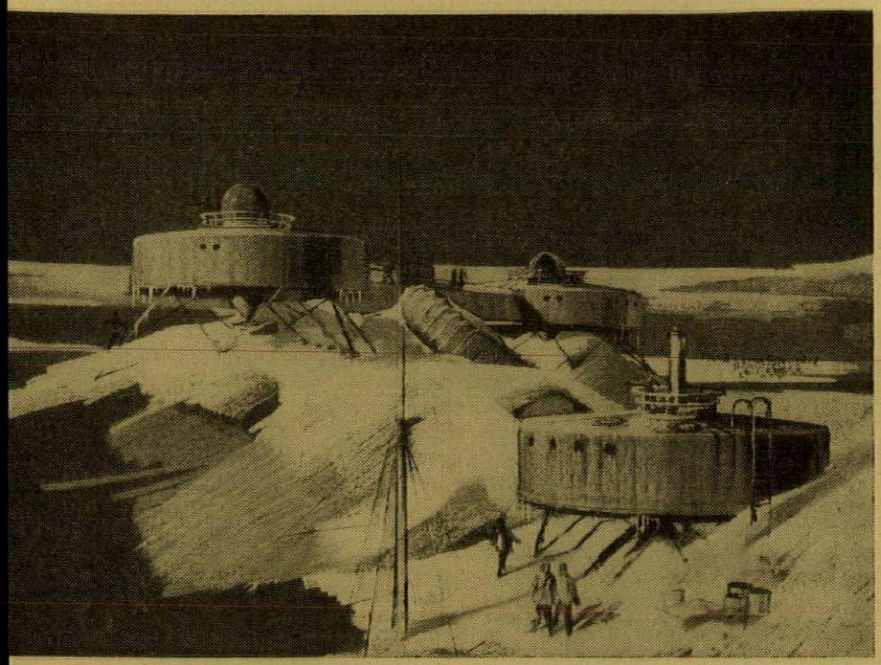
PROPOSED PERMANENT BASE OF FRENCH ANTARCTIC EXPEDITIONS

All costs included, a polar explorer is worth about 8,000 francs an hour, and up till now he has spent most of that hour trying to keep warm, cheerful and out of the wind—this piece of human accountancy by Mario Marret, leader of the French 1951 Antarctic expedition, formed the basic point of reference for ATBAT's* researches into Polar Housing.

Where funds are limited, maximum performance must be delivered from every member of an expedition, and camping-holiday routines are out of the question—men must enjoy full use of their faculties when at work, and complete security for their relaxation.

The installation which ATBAT was called upon to design was envisaged as permanent on-site equipment for three successive seasons of polar research, of which the middle one, 1956-7, was to count as the French contribution to World Geo-Physical Year. A team of about a dozen men, with equipment sufficiently comprehensive to

* ATBAT; Atelier des Bâtisseurs; international group of architects and engineers, based on Paris, headed by Wladimir Bodiansky.



An impression of the complete base, as it would have appeared, installed on a typical site at Point Geology, Adelie Land.

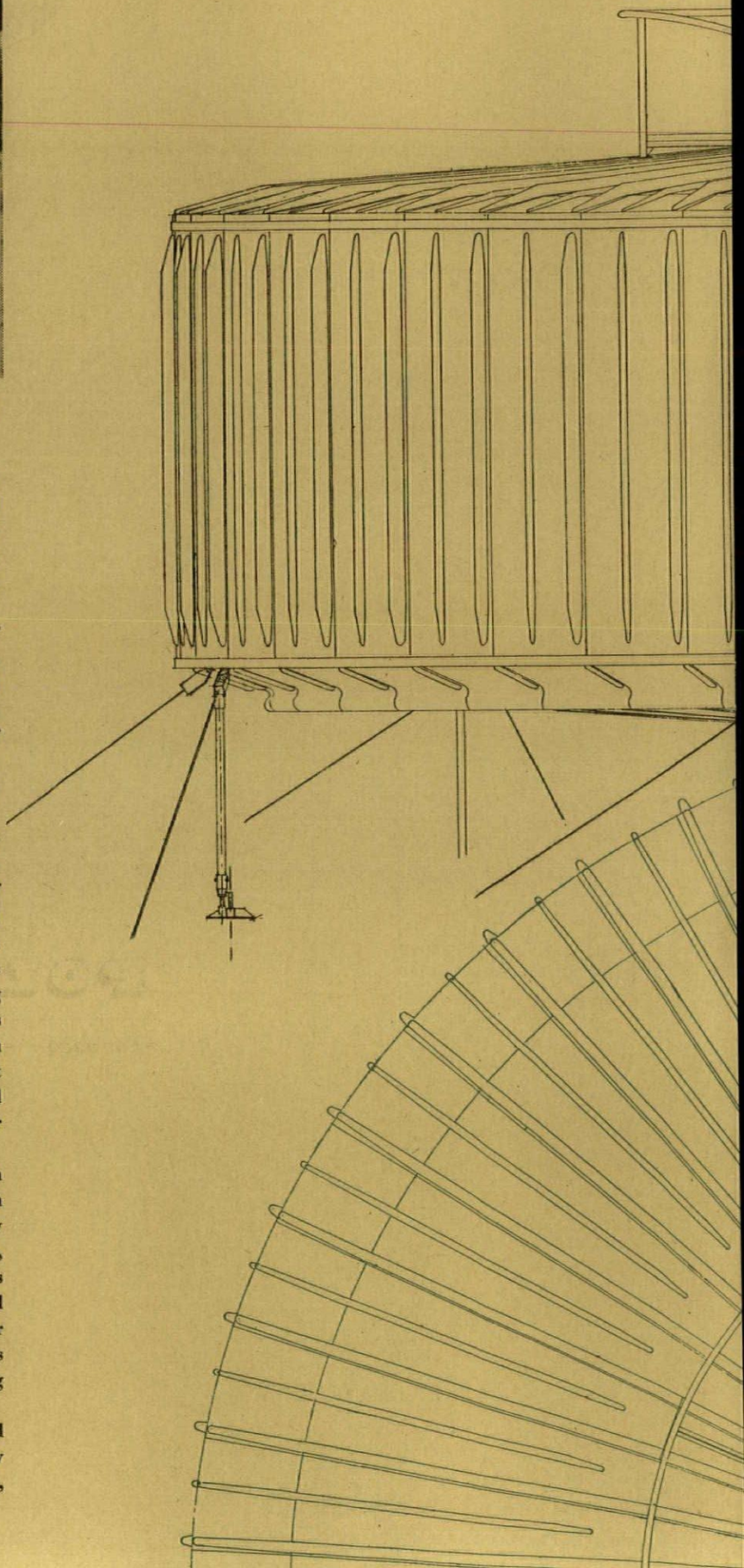
include radar, were to be housed in three circular shelters connected by covered corridors, on a rocky terrain in Adelie Land. Financial cut-backs have caused the abandonment of this comprehensive project, and its replacement by a shortened research programme housed in conventional hutments, but the value of ATBAT's contribution to basic shelter research remains.

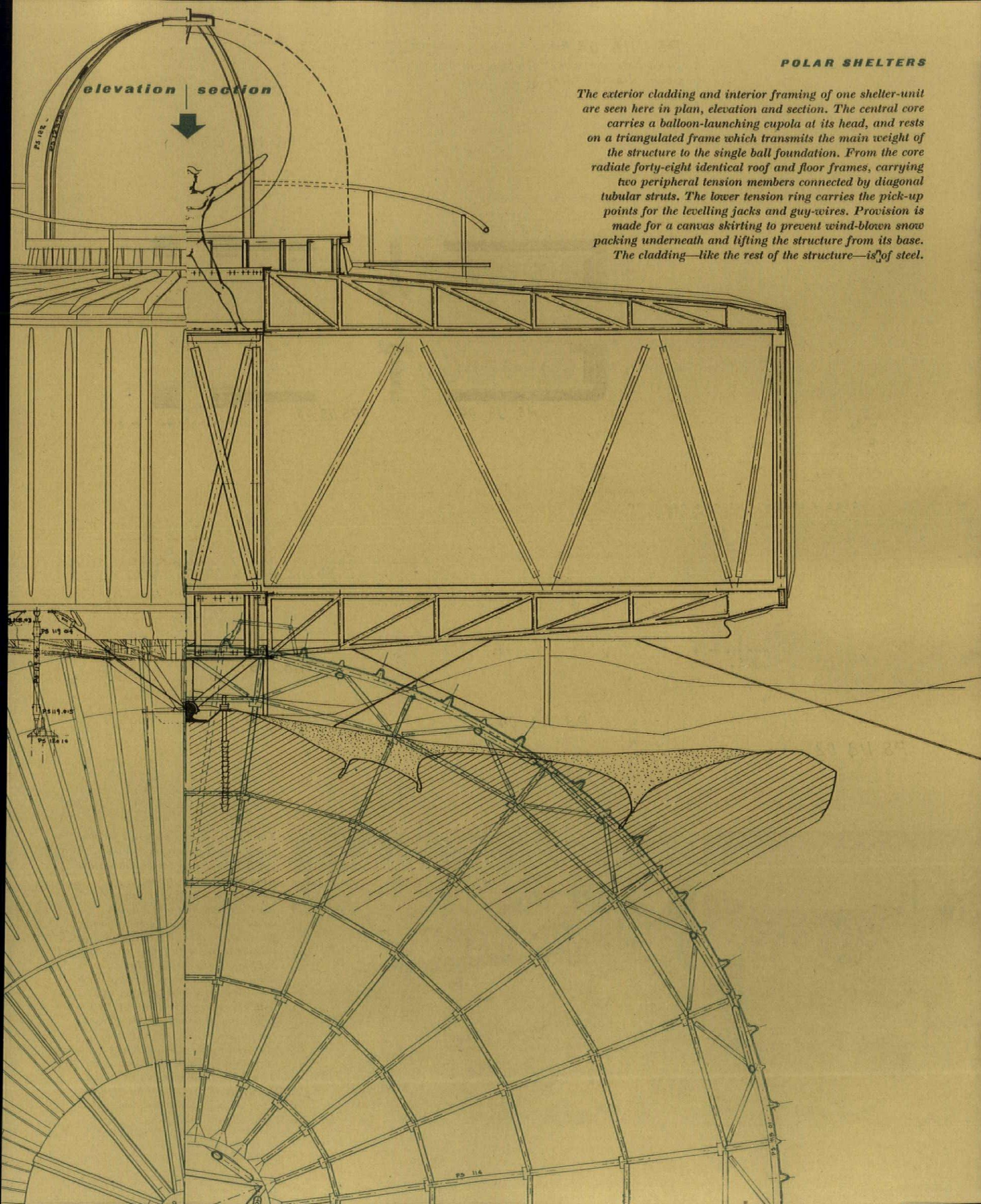
The given climatic and geological factors ruled out the possibility of carrying any sentimental or aesthetic overheads derived from concepts such as 'house' or 'home.' Sub-zero ambient temperatures, wind velocities up to 120 m.p.h., risk of fire due to wind-generated static charges, unpromising terrain for any but point-supports, reduction of all elements to the capacity of a two-man lift, provision for assembly with fully gloved hands—all these made it imperative to re-envisage shelter as equipment, as operational apparatus.

Such a programme might appear an unsympathetic one to a designer whose training did not extend beyond the mental disciplines of architecture as normally understood, but Wladimir Bodiansky, head of ATBAT, had been trained as an aircraft engineer before he joined Le Corbusier's *atelier*, and the exigencies of polar housing were a challenge to redeploy his specialized knowledge of light-weight metallic structure and its associated erection techniques in the service of building design. The resulting working drawings that appear on these pages will have an unfamiliar aspect, with their use of thin sections, precision machined surfaces, their emphasis on joiners and connections, but it should be remembered that they derive from mental disciplines and analytical techniques resembling those discussed in Christopher Dawson's article on p. 201.

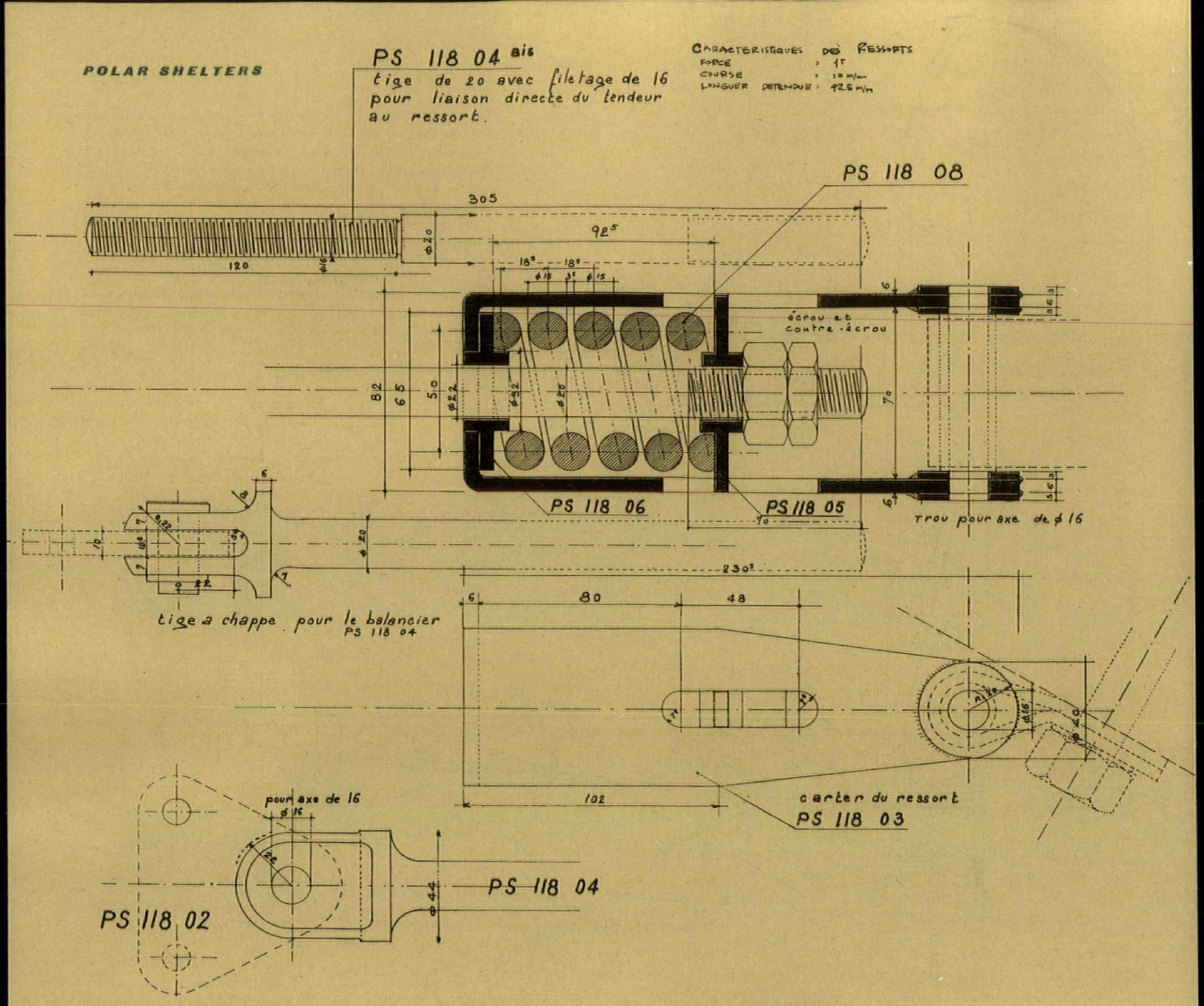
As complete building-envelopes, also, they have clear affinities with the structures devised by Buckminster Fuller under the Dymaxion label (ARCHITECTURAL REVIEW, July, 1956). This should hardly occasion surprise, for though Fuller was designing for a generalized, abstract optimum, with world-around relevance, and Bodiansky was aiming to beat a specific, localized minimum, with precise topographical characteristics, both are demanding maximum performance from their buildings, and both take their stand on aircraft structural techniques (Fuller's *Wichita* House is nearest to the ATBAT solution) as offering the highest efficiency, weight for weight and bulk for bulk.

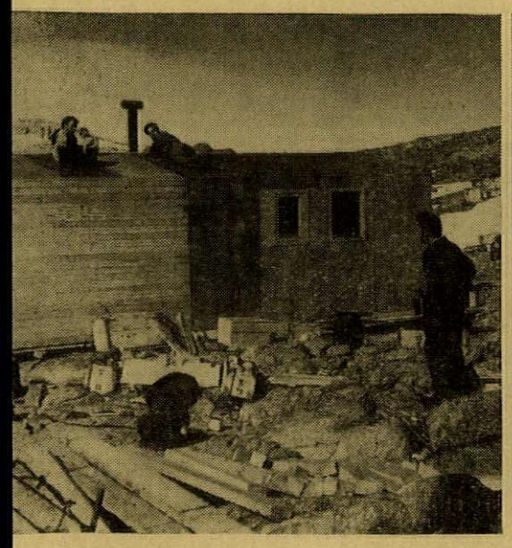
At the point where shelter is stripped of all cultural loading, and refined to the condition of pure equipment, it appears that currently available technique does, therefore, enforce a single acceptable solution, a metal-framed, metal-clad, cylindrical, point-supported norm.

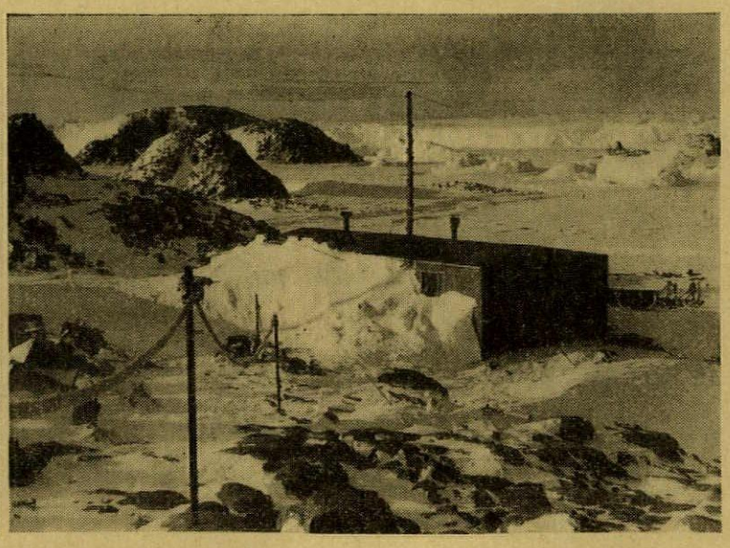




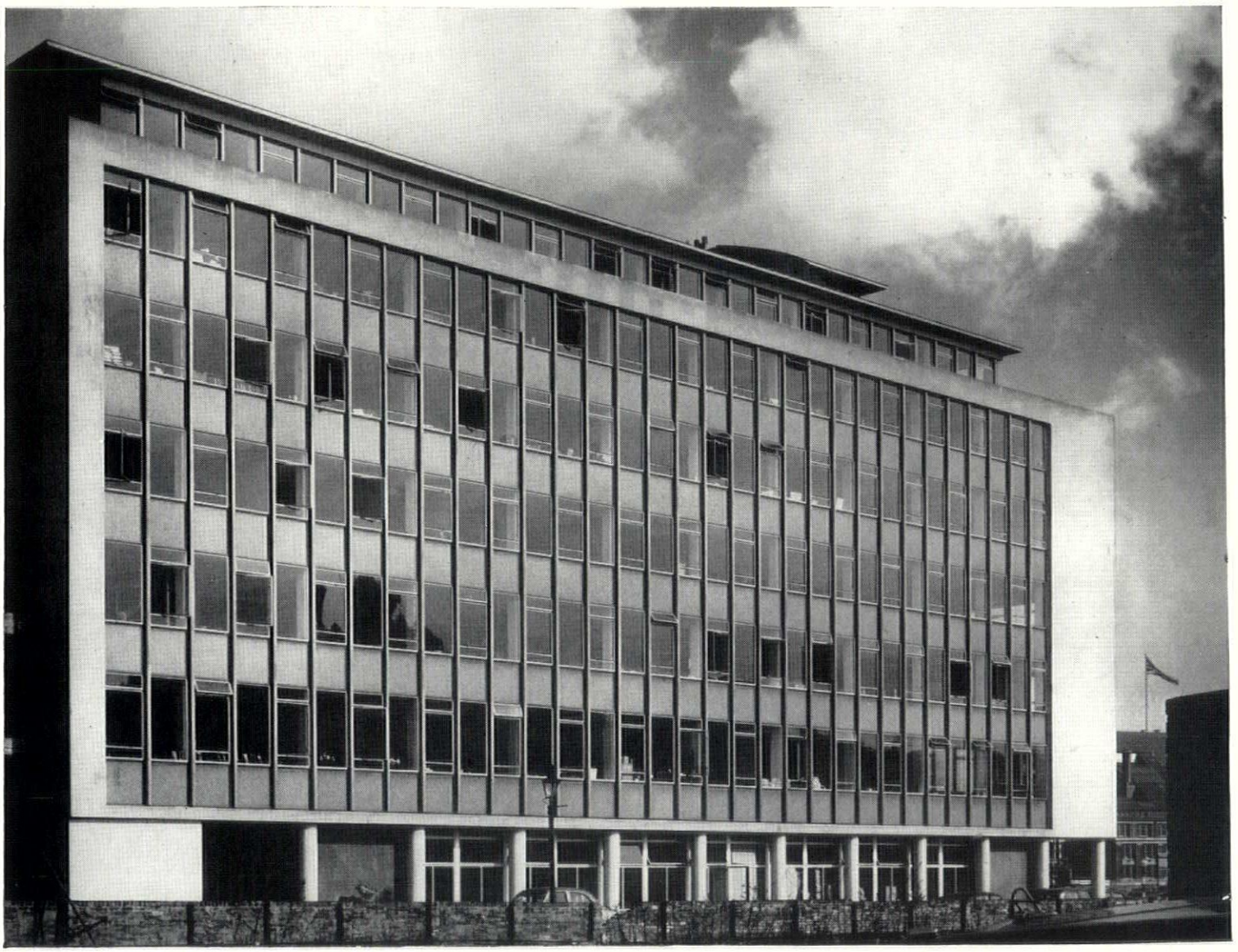
The exterior cladding and interior framing of one shelter-unit are seen here in plan, elevation and section. The central core carries a balloon-launching cupola at its head, and rests on a triangulated frame which transmits the main weight of the structure to the single ball foundation. From the core radiate forty-eight identical roof and floor frames, carrying two peripheral tension members connected by diagonal tubular struts. The lower tension ring carries the pick-up points for the levelling jacks and guy-wires. Provision is made for a canvas skirting to prevent wind-blown snow packing underneath and lifting the structure from its base. The cladding—like the rest of the structure—is of steel.







The spring-loaded pick-ups for the guy-wires, above, represent the ATBAT shelter's farthest departure from regular architectural procedures, allowing the structure to move slightly and take up both sustained loads and sudden shocks from the weather. Where the pick-up accepts a single guy, the double-ended bolt, top, unites it directly with a turnbuckle, but where it accepts two wires, the yoke and balancer at bottom are used. With the ATBAT programme abandoned, the French Geophysical Year expedition to Antarctica will presumably be housed in traditional huts like those at left. The difficult terrain and laborious construction methods are clearly seen, as is the substantial menace of wind and snow.



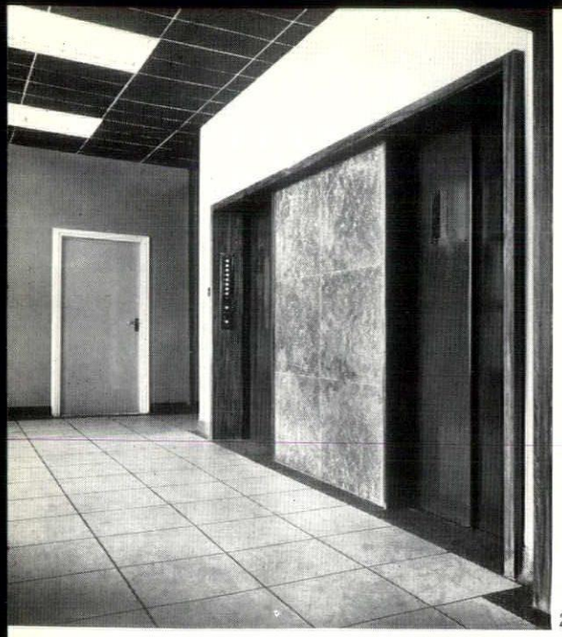
1, *west elevation of offices, fronting Bunhill Row.*

OFFICES IN CHISWELL STREET, LONDON, E.C.1

ARCHITECTS, HANDISYDE AND TAYLOR
in association with HAMMETT AND NORTON
ASSISTANT ARCHITECTS, ERIC MAYNE AND B. P. WARD

Maximum lettable floor space within the limits imposed by the site was the client's requirement for this office building, which is in effect an extension to an existing office building, Friendly House. Since the two buildings could be considered as one for fire escape purposes it was necessary to have only one staircase in the new building; floor levels and the sills and heads of windows in the extension conform to those of the older building. The entrance is at present through Friendly House, although provision for a separate one has been made at the corner of Bunhill Row and Chiswell Street.

Foundations were not permitted under pavements, and therefore a heavily reinforced basement slab thickened under the stanchions forms the entire foundation. The structure is of rolled steel members, cased in concrete, with bays generally 11 ft. 3 ins. wide, and a line of central



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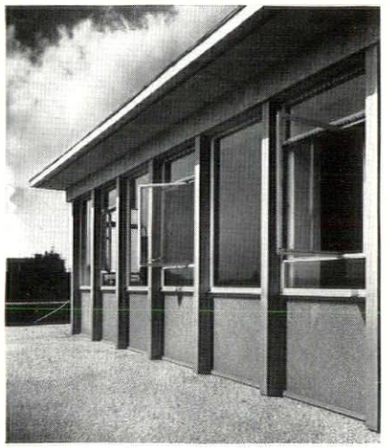

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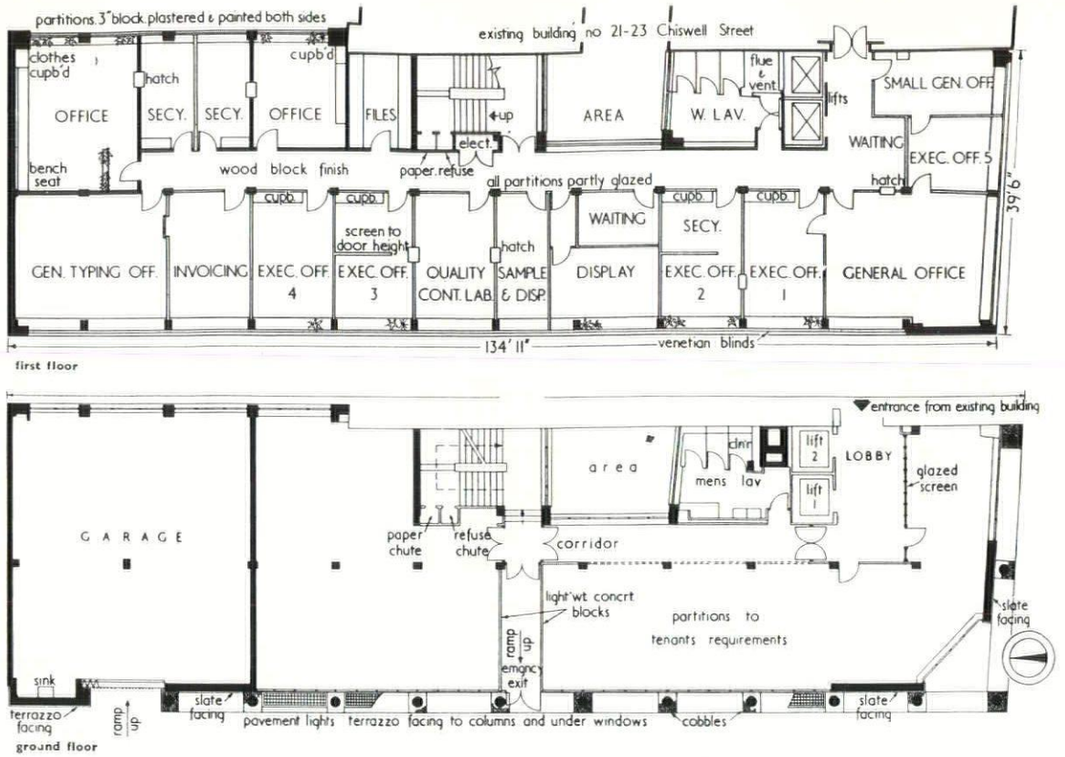
2, main vestibule and lift doors, ground floor. 3, south side, sixth floor.



stanchions; flooring is hollow pot. The curtain walls are pressed steel mullions with infilling panels of turquoise-coloured glass; facing to the solid walls is in Portland stone on the upper floors, and terrazzo and Westmorland slate on the ground floor. The internal partitions between offices are aluminium, stove enamelled in various colours, and demountable; those round lavatories, lifts and stairs consist of 3-in. lightweight concrete blocks, plastered on both sides; these are also used for office partitions when more than one tenant is occupying a floor.

Offices in Chiswell Street, E.C.1

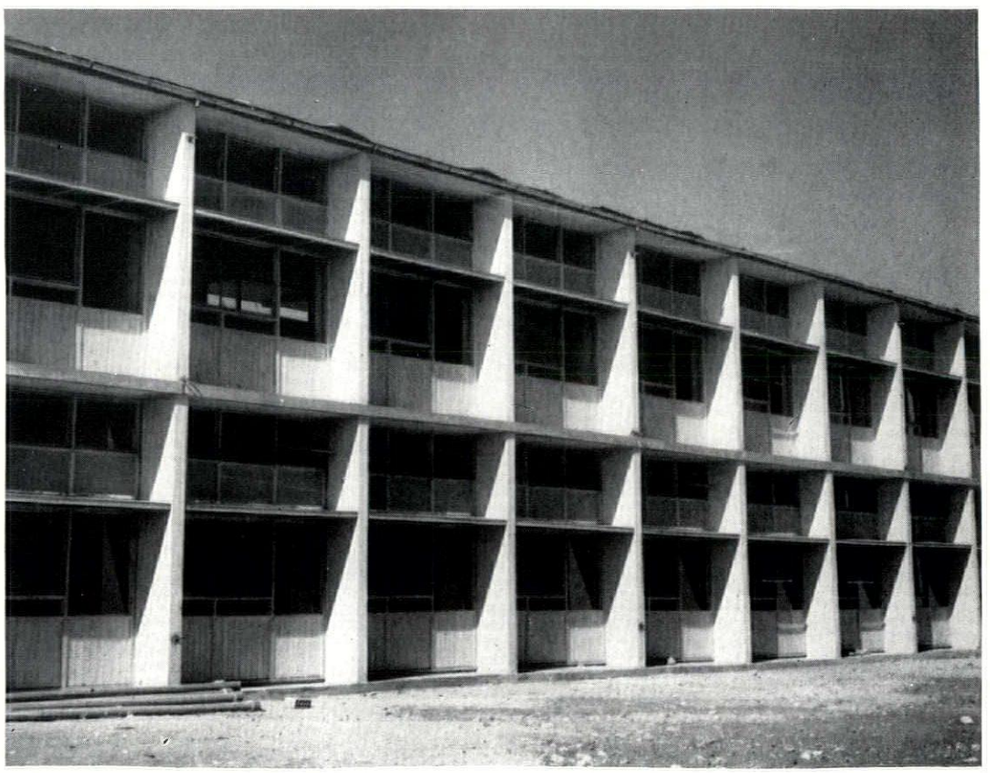
TWO SCHOOLS IN CYPRUS

ARCHITECT, ALISTER MACDONALD

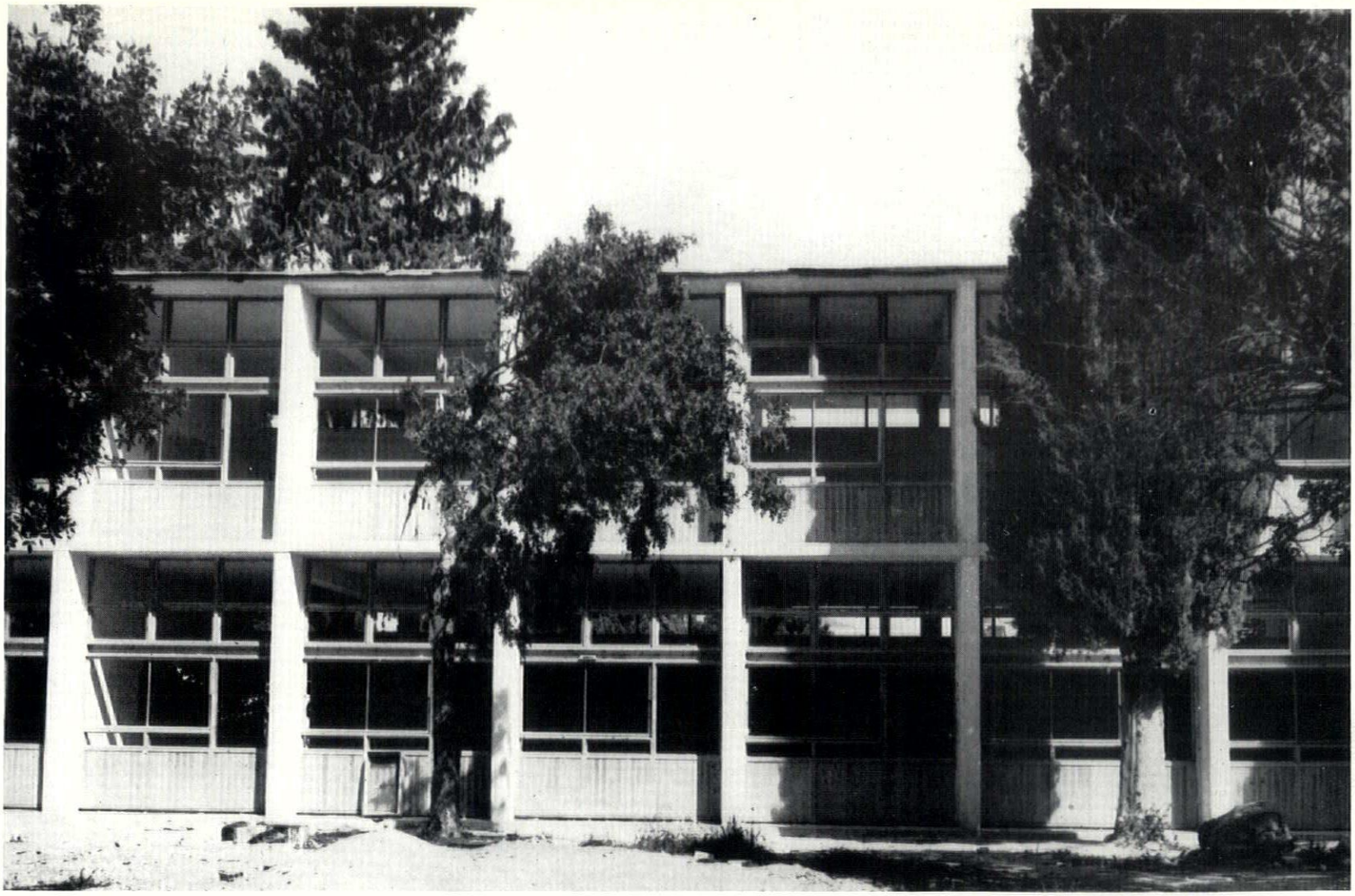
As a result of the Cyprus earthquake of 1953, centred in the Paphos District, an urgent need arose for a new Turkish schools group in Ktima, near Paphos, which had to be designed and built as quickly and, owing to financial losses, as economically as possible. At the same time, an almost exactly similar requirement arose in Limassol and the two schools groups were designed on similar lines, making allowance only for minor variations in the use of local materials and for site differences.

The Limassol Group is a fairly level and barren site at the rear of an existing school and municipal housing; trees are being planted and the site generally improved. The Ktima Schools are placed right in the centre of the town; the site was sloping and well wooded.

Each group consists of a secondary and an elementary school, and a combined block for use by both, and by adults for community



4, the Limassol elementary school from the south. A classroom occupies three structural bays.

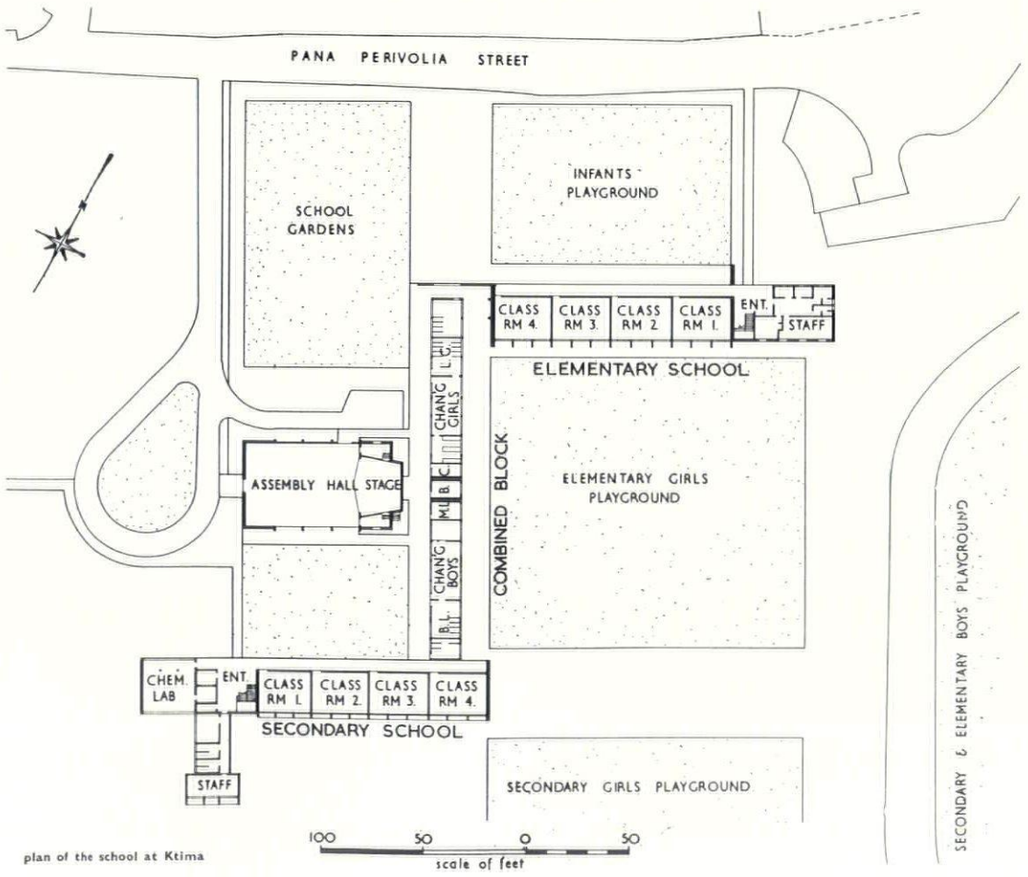


5, Ktima secondary school—progress view of classroom wing showing standard timber infill panels before insertion of horizontal shade hoods.

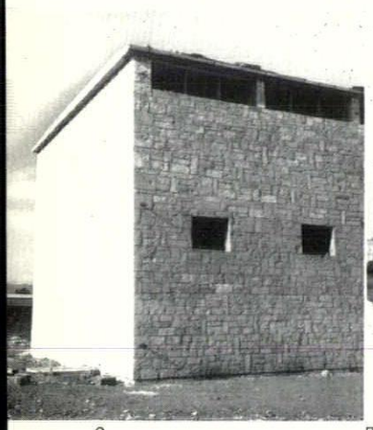
purposes, comprising an assembly hall-cum-gymnasium, and with a small stage, projection balcony, electricians' gallery, stores connected by covered ways with changing rooms, showers and lavatories. The teaching blocks are two-storied, with access verandahs and practical rooms facing north and main classroom windows facing south, shielded by vertical fin walls and horizontal canopies projecting approximately 3 ft. from the face of the glass.

The secondary and elementary blocks are reinforced-concrete framed, and access galleries and roof overhangs are cantilevered from the main frame. Infill panels to the south elevation were prefabricated and consist of timber framing faced externally with vertical boarding beneath windows, flat asbestos sheeting above windows.

The combined block has load-bearing hollow concrete block walls rendered externally, carrying reinforced concrete and hollow tile flat roofs. The assembly hall is the only unit with a pitched roof, which consists of half-round burnt clay tiles laid on felt and boarding over purlins and welded steel tubular trusses; the boarding is exposed on the under side. Flat roofs are screeded and finished with three-ply built-up roofing felt and white marble chippings for



plan of the school at Ktima



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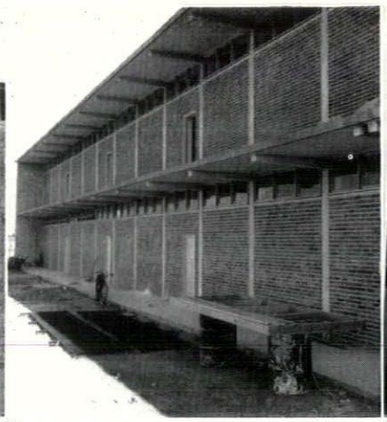

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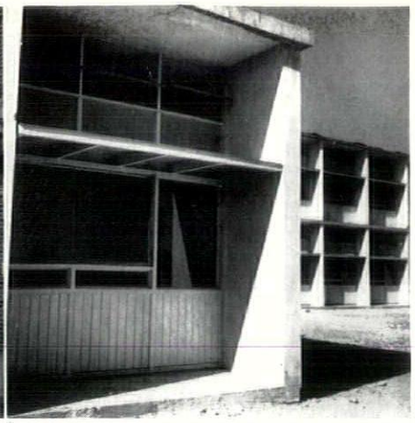
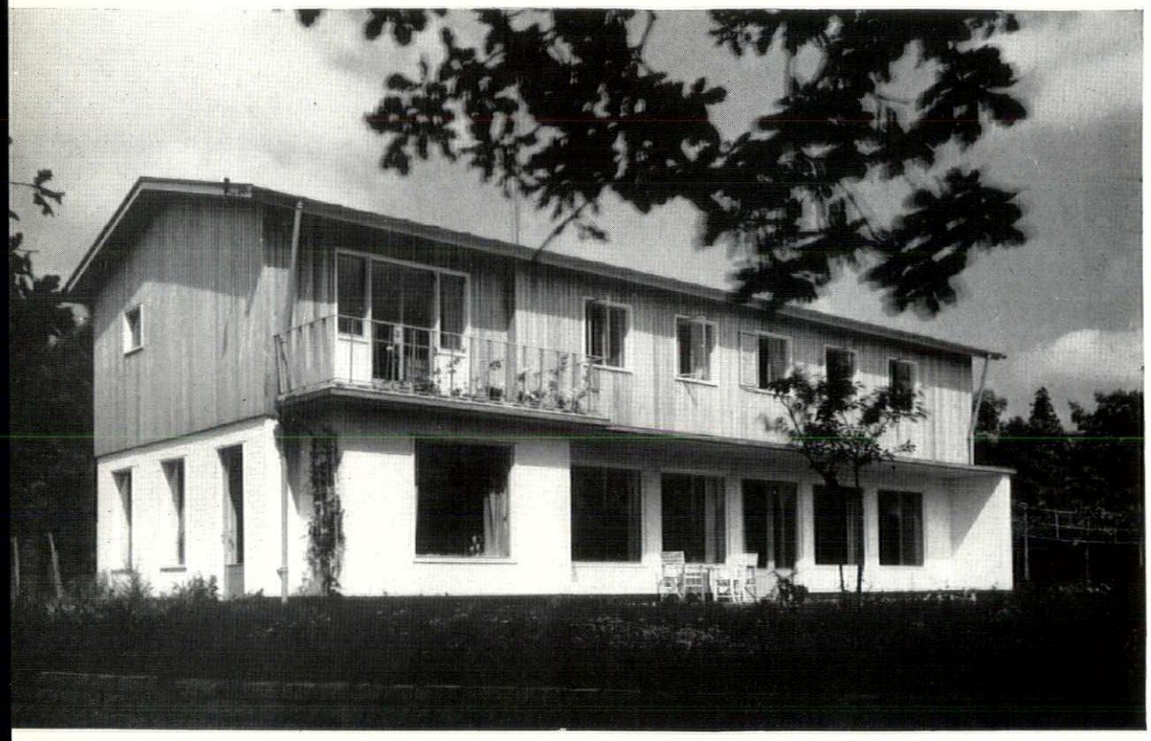


8

reflection. Walls and ceilings are finished in gypsum plaster; floors are of precast terrazzo tiles in a variety of textures and colours.

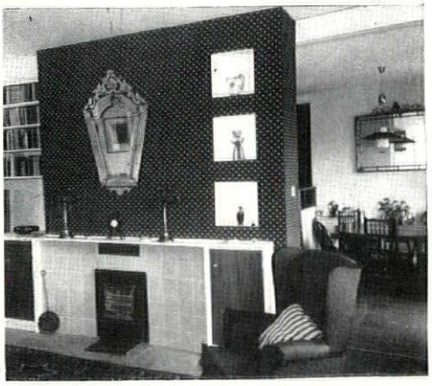
The low costs, approximately £31,500, for each school, are due largely to the standardization of design elements.

6, 7, 8, all illustrate Ktima secondary school. 6, south wall of squared limestone to practical rooms. Small windows provide cross-ventilation only, the main windows being to the north. 7, north elevation, cantilevered access verandah before fixing of balustrading. Infill panels are of grooved hollow clay partition blocks, left unplastered. 8, staff room, with south elevation behind.



9

9, south front of the house from oak tree. 10, the living room, which is the only ground floor room with an open fire, and not using electric floor heating system. The carpet is laid directly on to the screed.

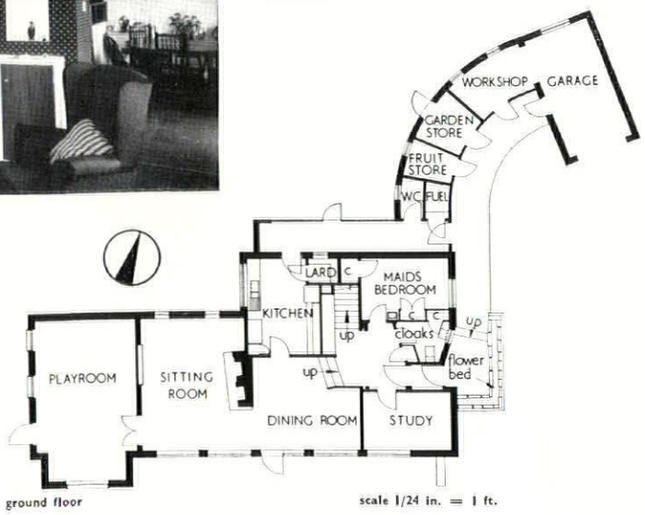


10

HOUSE IN REIGATE

ARCHITECT, JOHN R. STAMMERS

This house, in Alders Road, Reigate, was required to give accommodation for a family of six (four children) and a maid. It is sited on a former tennis court which, together with a large oak tree, was the chief feature of the rectangular one-acre site. To face south, the house is at an angle to the site boundary; but the garage is parallel with the (east) boundary and is linked to the house by a curving set of outbuildings. Ground floor external walls are cavity brickwork, painted white externally and with a black plinth and first floor walls have two skins of clinker blocks with external facing of red cedar boarding. The ground floor is concrete with a waterproof membrane and screed. Heating is by cables embedded in the screed with access panels and thermostat control in each room, except in the living room, where there is an open fire; expanded metal fixed over the conduits before screeding spreads the heat evenly.



ground floor

scale 1/24 in. = 1 ft.

EXHIBITIONS

PAINTING

The Parisian action painter Georges Mathieu, working somewhere in Kensington, 1, *produced several large paintings in two days so that he could hold a one-man show at the ICA Gallery without importing works from France.* This does not mean that the pictures were painted in a hurry or were below Mathieu's usual elegant standard: the largest picture in the exhibition 'The Battle of Hastings,' (right) was an unusually considered work, for whereas in Paris his time for a picture 36 ft. by 12 ft. is twenty minutes, he was engaged on his English battlepiece, which was only 15 ft. by 6 ft., for the best part of two hours. The crisis in its conception came at four minutes past six on June 23rd when Mathieu was heard to say: 'Now is the difficult part,' and spent three minutes working on a red calligraphy with a brush, but everything came out all right, and the picture was completed at 6.53 with a big fat squirt of white, straight from the tube. The ICA entered into the spirit of the game by referring to 'The Battle of Hastings' as a work in which Mathieu's 'audacious and controversial mixture of action painting and feudal history converge,' and no doubt hoped to provoke angry comment from the friends of The Bayeux Tapestry.

If I am less interested in the paintings than the fascinating documents connected with them, it is because the paintings seem to go cold and passionless immediately the painter has finished with them, and by the time they reach a gallery appear to be no more than the melancholy mementoes of a calculated bout of hysteria. Mr. del Renzio, in a lofty introduction to the catalogue which was probably written in an aeroplane, since the words 'Turin, Rome, London' are printed under his name, remarks that Mathieu paints without the aids or 'props' needed by such men as Raphael, Cézanne and Picasso, and adds that 'his style resides in a convulsive lyricism.' But Mathieu's prop is Chinese calligraphy, and if he needs nothing more it is because he considers that his autograph, extravagantly elaborated and magnified, is enough. What Mr. del Renzio calls his 'convulsive lyricism' is in the act of painting rather than the result, and he can therefore be more correctly described as an action painter than any member of the New York school.



1

Among the photographs of Mathieu at work, dressed in his 'painter's set,' there is one in which he is just a blur because he is twirling round at great speed before taking aim at the canvas, and I think that if he could be persuaded to give public performances he would make a great name for himself in the field of popular entertainment. The symbolic nature of his actions would be quickly understood, and Sir Herbert Read's description of his 'signature' as a 'sepiaceous ejaculation' would no longer sound difficult and high flown, although the greatest applause would inevitably be reserved for the climactic squeeze from the big tube of white.

Picasso, with his immense facility, knows the temptations of this world of graphic exhibitionism, and has not infrequently yielded to them. The film in which he draws on the air with a pencil of light is thrilling and unforgettable, but when such an act is over and only the outline it has left behind is with us, it can be unmistakably and inimitably the line of Picasso, and, at the same time, a spiritual blank. There were a number of sheets in the retrospective exhibition of his prints at the Arts Council Gallery, in which the subject was merely a pretext for a display of virtuosity, and put in an appearance only as something emptied of meaning; but there were many others in which his brilliant and arbitrary linear inventiveness seized upon a living presence with protective magic, as in the marvellous lithograph of his daughter Paloma holding a doll, 2.

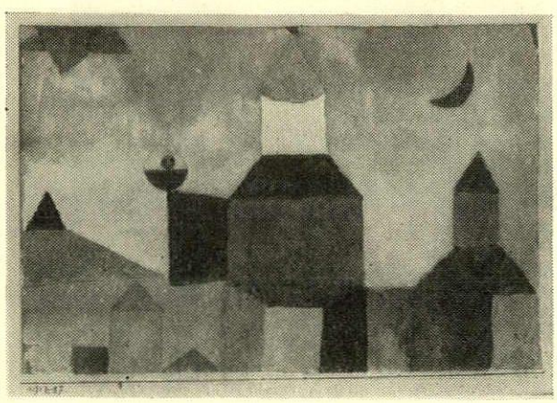
After looking at first-rate Picassos, one can find Paul Klee* a bit too oblique and fanciful and off the main course, but the exhibition of his work recently held at the Hanover Gallery was powerful enough to dictate its own terms of reference

* See the article on Paul Klee by Robert Melville on pages 145-149 of this issue.



2

to the visitor. There was no trace of virtuosity for its own sake, but everywhere a smiling yet desperately serious intention to lay before us the haunting evidence of a thousand unknown worlds that his sharp eyes first detected under the point of his pencil, and which he coaxed right out into the light in some



3

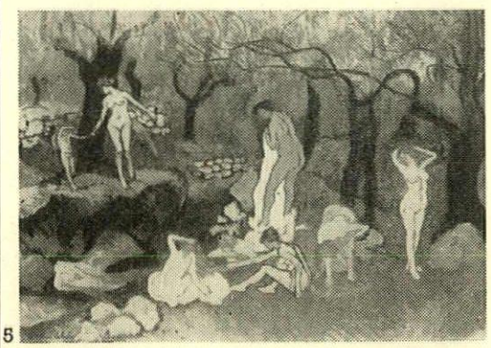
of the most beautiful watercolours ever achieved outside the Orient, 3.

Paul Rebeyrolle, the erstwhile realist, has re-emerged in an exhibition at the RWS Gallery, organized by Marlborough Fine Arts, as one of the most accomplished decorative painters of our time. In his panels of espaliered walls he brilliantly exploits the current feeling for *art nouveau;* in his delectable paintings of trout hovering in light-stained water he uses tachist techniques with a consummate professionalism; in the series devoted to peasant children grieving over sick or dead animals, 4, he alludes to the ugliness and misery, but without pity, and the mannered draughtsmanship and tasteful colour preserve the decorative intention. Lovers of the art of Frank Brangwyn will, I hope, be pleased to know that his flair for keeping reality at arm's length has, if anything, passed into even more capable hands.



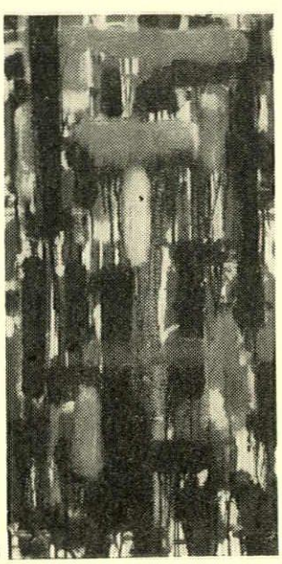
4

Utrillo's mother, Suzanne Valadon (1867–1938) was a crude and heavy-handed painter, but the group of paintings and drawings recently exhibited at the Lefevre Gallery was nevertheless full of friendly vitality, and her tough, proletarian little picture of bathers, 5, which is evidently painted in a spirit of homage to Puvis de Chavannes, unintentionally takes the micky out of him in a way that would have delighted Toulouse-Lautrec.



5

Patrick Heron is rather unexpectedly trying to become an action painter of the 'abstract impressionist' variety, and the first results, 6, recently shown at the Redfern Gallery, are so much more charming and decorative than anything he has exhibited before that one cannot but applaud his decision. But the paint is so bodiless and the paint-strokes so lacking in fervour or thrust that he would be well advised to study Mathieu's assault tactics and take an occasional running jump at the canvas.



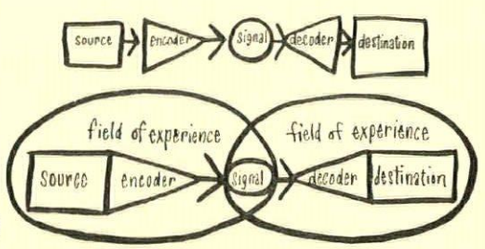
6

Robert Melville

THIS IS TOMORROW

The synthesis of the major arts is a consecrated theme in the Modern Movement, one of the shining abstractions that gather, halo-wise, about the heads of its Masters, though it has been left mostly to their followers to thrash out the practicalities that stand between wish and achievement. The most used threshing-floor so far has been CIAM, but a new and most instructive one has been provided lately by the exhibition, unfortunately labelled *This is Tomorrow*, which continues at the Whitechapel Gallery until September 9.

Collaboration between practitioners of the different arts was its only set programme; its æsthetics were entirely permissive, and anything could, in theory, have been done. The results were inevitably diverse, but so were the premises from which different groups of collaborators worked. Even the idea of synthesis was interpreted, at one extreme, simply as a requirement to house or decorate one another's work, and at the other extreme, as an invitation to smash all boundaries between the arts, to treat them all as modes of communicating experience from



1

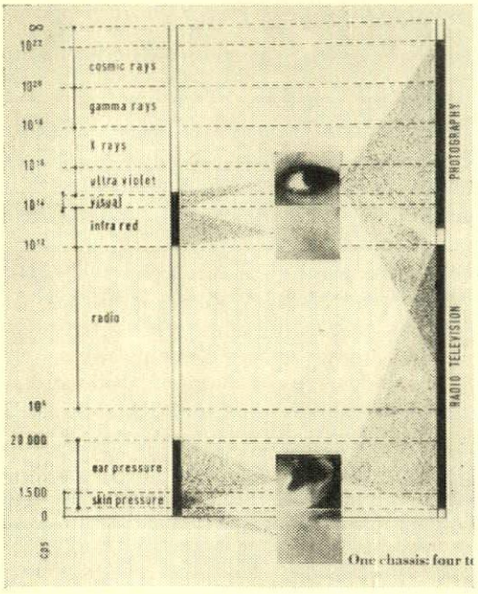
person to person, 1, as the Holroyd-Alloway-del Renzio* group did—modes that could embrace all the available channels of human perception, as set out in a table, 2, which appeared in the catalogue entry for the Voelcker-Hamilton-McHale section.

But even if the concept is as wide and fluid as this, practical considerations tend

* The names of the architects are given first for each group.

to reduce the means employed to a set of recognizable elements, classifiable under the heads of Structure, Plasticity, Symbol and Sign, even if pictures were merely hung on a wall these four elements were all employed, if only accidentally.

Some concept of structure—geometry clothed in substance—proved to be the basic, or unifying postulate of most groups' offerings, and in one case, the partnership of John Weeks and Adrian Heath, structure was the totality of the exhibit, a wall of standard bricks



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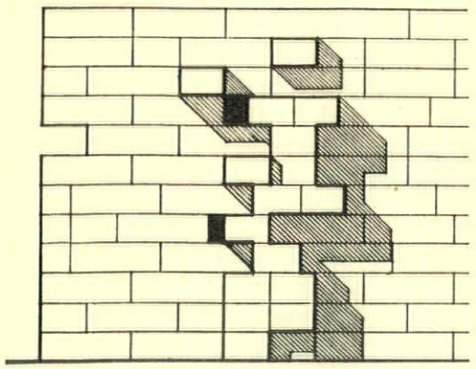
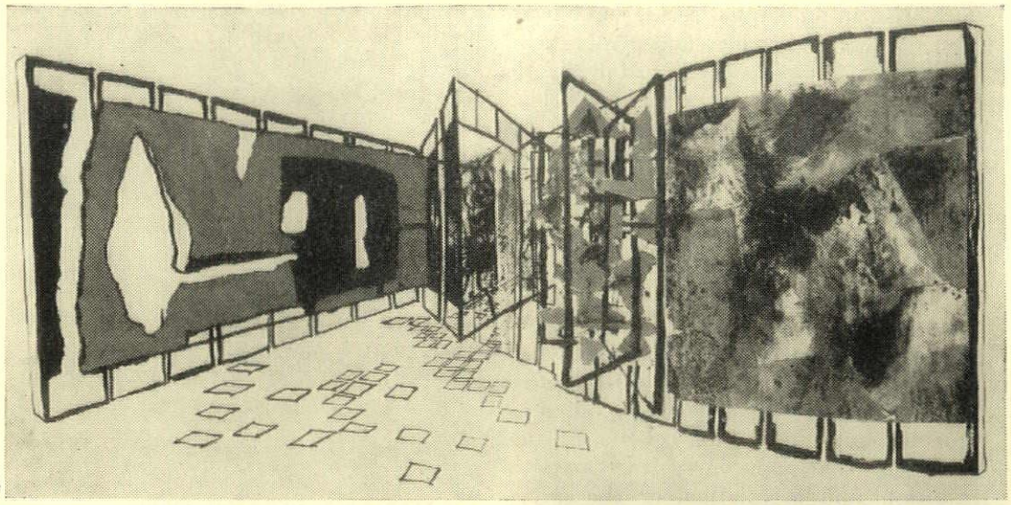

3

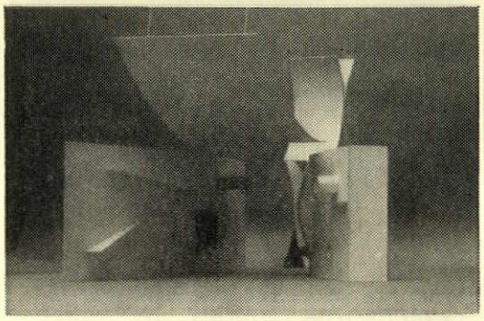
which were displaced or omitted, 3, to give it the plasticity and symbolic significance of an abstract sculpture.

More complex structure-sculptures were seen in the Catleugh-Thornton-Hull screen, 4, but a note of ambiguity, more consciously exploited in other sections, appears in the composition of curved planes on which Peter Carter, Colin St. J. Wilson and Robert Adams collaborated. Normal scale-effects are reversed, and that part which is large enough to admit a standing man, 5, is clearly sculptural in feeling, while the manifestly structural element beyond is sited and displayed like a free-standing statue.

This ambiguity was part of a general feeling of broken barriers and questioned categories that constituted the most


4

stimulating aspect of the whole exhibition. And yet the technique of category-smashing could not be used as a basis for forming value-judgments about the exhibits. Thus, the Smithson-Henderson-Paolozzi contribution showed the New Brutalists at their most submissive to traditional values. They erected a pavilion within a patio, 6, and stocked it with sculptures signifying the most time-honoured of man's activities and needs.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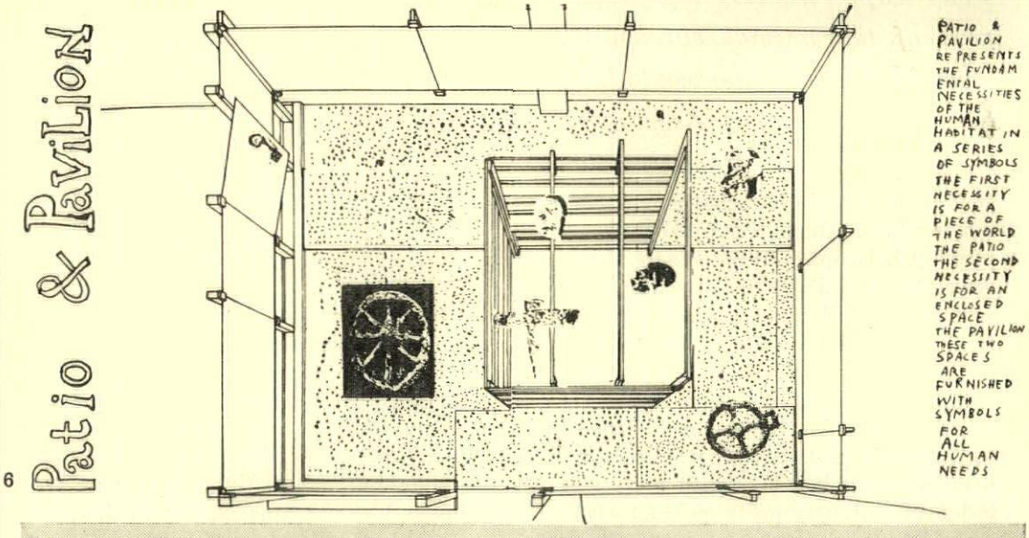

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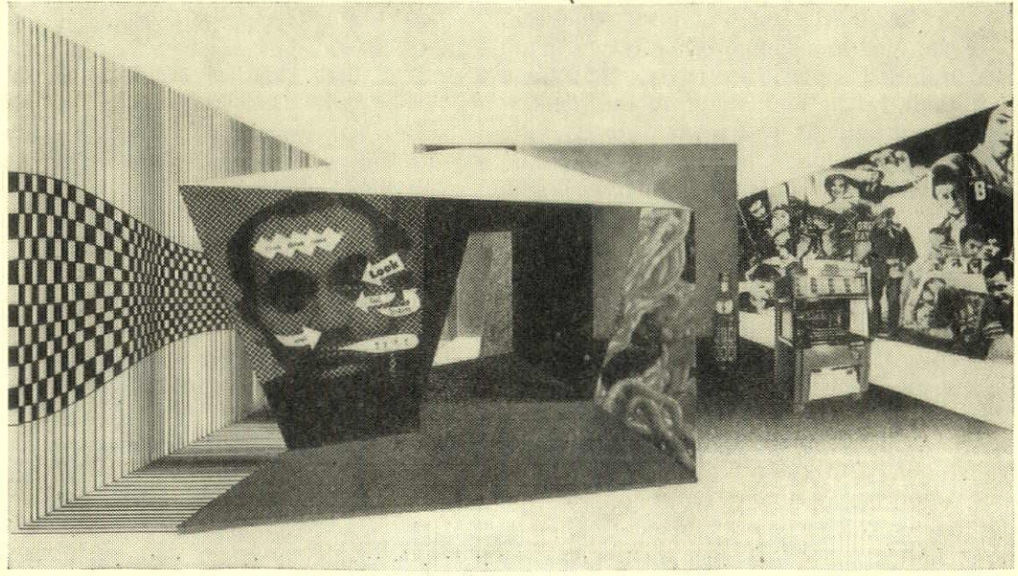


7

This was, in an exalted sense, a confirmation of accepted values and symbols.

Voelcker, Hamilton and McHale, on the other hand, employed optical illusions, scale reversions, oblique structures and fragmented images, 7, to disrupt stock responses, and put the viewer back on a *tabula rasa* of individual responsibility for his own atomized sensory awareness of images of only local and contemporary significance. Yet, curiously, their section seemed to have more in common with that of the New Brutalists than any other, and the clue to this kinship would appear to lie in the fact that neither relied on abstract concepts, but on concrete images —images that can carry the mass of tradition and association, or the energy of novelty and technology, but resist classification by the geometrical disciplines by which most other exhibits were dominated.

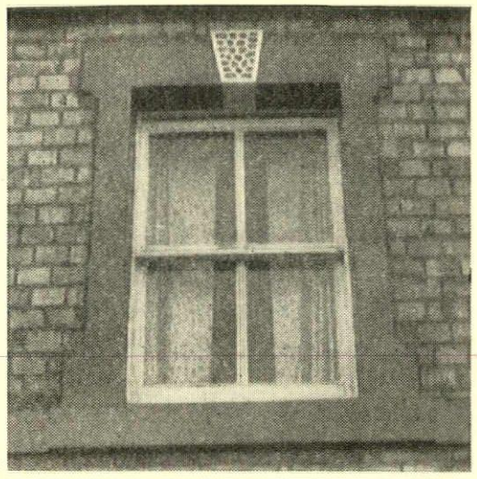
Reyner Banham

TOWNSCAPE

TOWNSCAPE IN SCHOOLS

Townscape studies are, alas, not part of the normal curriculum of secondary schools, nor would Bishops Stortford be on anyone's short list of England's most promising towns. It is an unusual concerted achievement of master (at Bishops Stortford College) and pupil (Christopher Hewett), to have produced two studies of Bishops Stortford from which the following extracts are taken. Both contain food for thought: the first is a study of a tangle of nineteenth-century speculative workers' housing, the sort of thing that John Betjeman brought back to people's notice but which has since been discarded in favour of more incense-laden or patently nostalgic Victorian:—

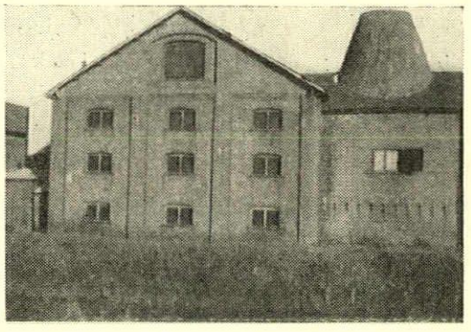
> 'Inside the rules of proportion that the Victorians imposed or rather found imposed upon themselves, they used their bricks and colour to the greatest advantage. It is a mistake to consider them lacking in imagination and audacity. One house in Jervis Road, for instance, has "1891" sprawling across its façade in bright red. They would paint the Georgian camber arch in the brightest of colours, or press patterns into them. Not content with this, they would occasionally introduce a moulded pseudo-mediæval head into their keystones.
>
> 'There is a wealth of detail to be found in every street of the area. It might be a Victorian post box, street lettering, an interesting window surround, 1, or a carving. No buildings, not even the very latest ones, are completely devoid of detail, for if there is no carving, red bricks look well arranged in patterns against the pink flettons.'



1

The other is a study of what any borough surveyor, and most town planners, would throw away without a second look—the industrial jungle along the river Stort—

> 'Those who go about condemning nineteenth-century architecture should be careful, for in this simple, non-commital building lie the roots of *modern* architecture. Once our forefathers let slip the mask of pretentiousness, and concentrated on producing buildings that did not pretend to be anything more than they were, the results were buildings like this one, 2, dignified, efficient and beautifully proportioned.'



2

and also . . .

> 'A little further down is another gasometer. The water and the wide stretch of ground afford a fine setting for this group which is given scale by the allotment shacks'

. . . which is further than most REVIEW readers would be prepared to go. Yet it is a just observation, more relevant to the landscape problem of, say, the Lea valley than an artful lake with yachts on: the sort of observation that only seems to come from primitive or newly-awakened vision. It is certainly vital to the English landscape that as many people as possible should go into their careers with their eyes wide open in a sense quite different from the normal admonitary one.

G. Moncur

PHOTOGRAPHY

JOHN DEAKIN'S PARIS

Advertising has become a kind of universal solvent, that can carry sacred and profane as easily as art and non-art, and John Deakin's Paris, *a recent exhibition of the work of an English photographer in Paris, provided some striking images of the solvent at work transmuting and inverting values.* The giant aperitif advertisement is a Paris constant (AR, December, 1952), and in Deakin's viewfinder it dominates the scene with the crumbling permanence of an ancient monument, 3, while three priests pass below, transient elements in a scene where *l'Eglise passe, Suze reste.*

Or a sacred iconography—if not an edifying one—may emerge from the 'accidents' (AR, February, 1956) of commercial strategy. The coy bust in the hairdresser's window must turn at least full profile to the passing world outside to show the coiffeur's art, 2, but in doing so she confronts two pop-eyed messieurs, whose expressions would not look half so appreciative if they did not find themselves in this Susannah-and-the-Elders tableau—staged, rather appropriately, within a glove's drop of Colette's old flat. But the solution of art in advertising does not wait on accident; the entrance to the old *Enfer* night club, 1, is a kind of salmagundi of world art. Whoever cooked it up has helped himself liberally and deliberately to Michelangelo and Rodin, Bomarzo (AR, September, 1954) and the Palazzo Zuccaro, Daumier, Doré, Notre-Dame, Chartres—a complete demonology, and to the size of life.

Michel Santiago

OUTRAGE

LANDSCAPING AT CANONBURY

Commerce and the demands of domesticity nibble at the countryside: in the Canonbury district of Islington nature hits back. The astounded visitor to this urbane neighbourhood sees the formal Georgian terraces across what appears to be a volcanic outcrop of Westmorland limestone. The bizarre effect is increased by the whiteness of the stone, proof that unspoiled nature rather than the Georgian builder is the newcomer. What on earth has happened here?

1

John Deakin's Paris *Three visions of the Sacred and the Profane in Paris advertising.* 1, *the Gate of Hell, the old* Enfer *nightclub in Montmartre;* 2, *Susannah and the Elders in a hairdresser's window in the Palais Royale:* 3, *piety passes while aperitif persists, a wallscape near Montparnasse.*

2



3



The two pieces of open space 'landscaped' in this way are the triangle between Canonbury Road and Astley Row, and the site of what used to be the New River.* When the Metropolitan Water Board deflected this stream three years ago the Borough decided to keep a serpentine stretch of water on its course behind Alwyne Villas, and lay out its banks as a small park. Elsewhere it was necessary to make decisions about the layout of the odd spaces humped over air raid shelters and squares whose railings, an integral part of their design, had gone for scrap. Islington set about this task with zest and imagination, though unfortunately without sufficiently mature æsthetic advice.

This Borough has to battle with a formidable blanket of dirt as well as social decline. It is not in the least surprising that the landscape most desirable to Islington eyes is the one most foreign to Islington. What is deplorable is that everyone concerned should have been blind to the quality of the surrounding architecture. This is hardly excusable, since at the very time when Mr. Frederick Vanstone was transforming the triangle by Canonbury Road a wholesale change of ownership was taking place in the Square just round the corner. Even those blind to architecture must have pondered on the reason for the Square's rehabilitation.

One salutes the audacity of treating a single acre deep in London in the manner of the wildest fells. The idea has the boldness and its treatment the simplicity of art. One essential ingredient of art is lacking, a sensitive eye for detail. To carry an outrageous idea like this through to success would demand a great capacity for dealing firmly with detail. Without this inconspicuous talent such boldness is simply outrage. The rocks themselves do not insult the dignified houses in the



1

background, 1. It is the small brick structure housing goodness knows what in the foreground that gives the game away. This is not treated either in the late Georgian or in the Westmorland manner. It is not treated at all. The designer of the landscape, lacking the skill to work such inconvenient necessities into his scheme, has assumed that they are invisible. Such an attitude relegates the scheme to the status of a 'contract'; it is not a design at all. Anyone may think up grandiose ideas. When local authorities assign large sums to the improvement of valuable open spaces they should entrust the work to someone with eyes to see both beauties and eyesores.

The layout on the New River site confirms this view. The suspicion of in-



2

competence raised by that tell-tale brick box is here amply justified. The idea of the rock-strewn turf, 2, has a simplicity that commands respect, even from its opponents—those people who would prefer a layout in keeping with the surrounding houses. The trouble started as soon as the designer came up against the realities of urban design, necessary walls, gates and buildings. Even the problem of a gate into the park had not been taken into account. Logically there should be rough-hewn posts and a field gate. Or it would have been reasonable to do the necessary walling in the Canonbury style. The landscaper was too proud to adopt this course. Unfamiliar perhaps with the contemporary urban style, he was not able to call this to his aid. Of all the possibilities the one adopted is the most uninformed, the most vulgar, and alas the most usual; it is the eighteenth-century Cotswold style, 3. Too desperate to take a cue from the meander-



3

ing lines of the waterway the director of this curious enterprise has conjured round the gateway an arbitrary axis built up of nothing and leading nowhere, or to be more precise made up of garden seats and leading to the gardener's shed. It is doubtful whether the people who come to enjoy the freshness of the pool and turf will relish sitting in a tight line and looking at each other.

In Canonbury Square the layout has taken rather a different turn. The result, not so near a miss, is not so obvious an outrage. The outrage only consists in comparison with the original simplicity of Georgian squares, tall trees and smooth turf outlined by a plain railing. Here in a quiet way, almost everything possible has been tried. The Canonbury Square, from which the railings were taken, was an area in social decline. When the time came for a post-war layout it was restored to something like its original quiet prosperity. The new residents were extremely articulate, some embarrassingly influential. In spite of a general fondness for Georgian architecture there was a widespread consciousness that something more creative was expected of them than dogged restoration. The proper person to reconcile these conflicting views is an architect, aware of the historical implications but trained to see the over-all picture. Highly educated people, however, do not allow that in æsthetics also education is essential. Canonbury Square is a monument to the Committee principle. Every detail has been considered, *and included.*



4

Those wanting eighteenth-century formality have an imposing build-up of flower beds, 4. The no-nonsense school has triumphed by keeping the fence of concrete and chicken-wire, 5. The preservationists have their elegant keeper's hut; the realists have a little gate to keep the dogs off the flower beds, 6. The only section not to be consulted were the Georgian houses themselves: and as soon as they are considered the problem moves from interesting farce to minor tragedy. Islington is the last coherent piece of this sort of urbanity in London, not a carefully

* And Colebrooke Row is receiving the same treatment.





preserved fragment but a sequence of squares and streets; enough for a day's walk if you wish it. The houses are probably better kept up than at any time in this century; it is a sad irony that in the same decade that has seen the preservation of the parts the effect of the whole has been thrown away with the best of intentions.

Diana Rowntree

TOPOGRAPHY

FRITH AND THE IRREGULAR

If William Frith is coming into his own again, the reason is not only Victorian Revival, in its gratifying and irritating implications, but also the fact that we begin to see him as considerably more than a meticulous recorder. The best proof of his accurate sense of atmosphere, mood, character is the architectural parade at the back of *Ramsgate Sands*, often overlooked by those caught in the many incidents in the foreground. This procession of modest buildings is curiously English, in its total absence of uniformity, even of level, and its emphasis instead on a general sympathy of a building with its neighbours, and of groups of buildings with each other. *Ramsgate Sands* was painted in 1853. Ramsgate had been developed as a seaside resort chiefly during the first half of the century. The key to the buildings is this:* The Clock-House in Pier Yard on the extreme left dates from 1815. The engineer in charge of work on the pier was Rennie. To the left of the Obelisk is the Royal Hotel, built in 1844–45. The Obelisk commemorates the visit of George IV to Ramsgate, September 21, 1821, to embark for Calais and Hanover, and his return during the following November. It was designed by John Shaw, architect of St. Dunstan's, Fleet Street. To the right of the Obelisk is the Harbour Master's and Customs House of 1800–1815. The castellated building dates from shortly after 1823 and is known as Pier Castle. At its feet are the offices and cells of the harbour police. Kent Terrace, in the centre of the picture, was built in 1833–37, the scheme being no doubt encouraged by what was being done in other seaside places at the same time. Towering above Kent Terrace is Albion Square (now Albion Place), begun in 1789. Albion was especially popular for street names, etc., at that time (compare for instance with Albion Hotel, Brighton, built in the twenties). To the right of Albion Square follow East Cliff House, c. 1823, and Well Crescent, 1819–22. The designs seem to be by Pilcher Longley, a carpenter, and one Smith, a builder.

Today of these buildings the following no longer exist: the Royal Hotel, which was pulled down in 1938 and set back some twenty feet; and the Harbour Master's house and office, the Customs House, and the offices and cells of the Harbour Police, which were all demolished in 1895 to widen the road leading to the London, Chatham and Dover Railway.

Nikolaus Pevsner

* The information which follows was kindly checked and augmented by B. C. Darbey, the Borough Librarian.

HISTORY

TIME MADE VISIBLE

If there is one thing that distinguishes our age from all previous ages it is surely the acuteness with which we are aware of our relationship with the past, of our precise position in the stream of time. In short, we possess an unprecedentedly well-developed historical sense.

Now there are people who deplore the effect of this possession on the practice and appreciation of the arts. So far as the practice of the arts is concerned, they are demonstrably wrong: revivalism and eclecticism are not products of the historical sense, but of knowledge of the past in the hands of those in whom the historical sense is not fully developed. When it comes to the appreciation of

A detail from William Frith's Ramsgate Sands *which was painted in* 1853 *and is commented on under 'Topography'.*







works of art, it is easier to make out a case against the historical sense; for in those in whom another sense, the visual, is undeveloped, it breeds that kind of pedantry which sees works of art solely as pieces of evidence relating to other forms of human activity, and never as objects with a life of their own. Nevertheless, the historical sense is by no means necessarily an enemy of the visual; the two can, and often do, combine to enrich our total experience. What is our appreciation of the quality of pleasing decay if not the result of their so combining?

The standing stone at Avebury, in the first photograph, is a monument which moves us as deeply as it does because its great age is so clearly expressed in its weathered surfaces. Imagine it 'restored'; how much would it move us then? The answer is not at all, however much the antiquaries talked about its age and 'importance.' But it is unthinkable that it should be restored. Yes, we can see that when a single stone, or a circle of stones, is in question: when a building is concerned we are sometimes rather less willing to accept time's contribution as the enhancement it so often is. Yet there need be nothing exclusive about a feeling for pleasing decay: an appreciation of the weather-worn grandeur of the Avebury stone need not blind us to the other kind of grandeur, the grandeur of geometrical precision, belonging to the sea-mark on Portland Bill in the second photograph. There is a place in the scheme of things for precision as well as for decay—though not for the lifeless precision of the surfaces and mouldings of the old building which has suffered at the hands of those for whom neatness is all.

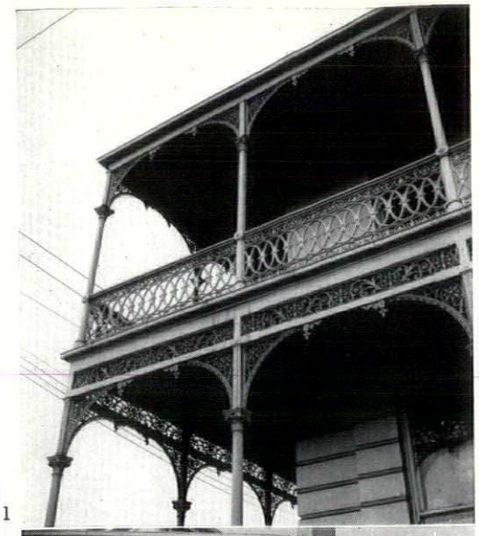
Andrew Hammer

POPULAR ART

MELBOURNE IRONWORK

Melbourne put on most of her ironwork in those madly gilded years between the gold-rush and the land-boom. A generation of builders riding the crests of successive economic waves had to provide for a population which grew after 1851 from just over a handful of dusty pioneers to just under a million desperate sophisticates. Iron fitted into this second half of the nineteenth century in many forms. On the upper crust, big buildings for the Government and the commercial barons were extravagantly hand-wrought on the surface in nobler materials—marble, mosaic and parquetry—but occasionally they made daring use of iron stanchions and framing in the concealed structure. The frankly decorative iron appeared mostly in the pie-filling between these classes, in the rows of two-storey terrace houses, the single-storey 'gentlemen's residences' and the suburban residential shops.

These buildings were simply planned and



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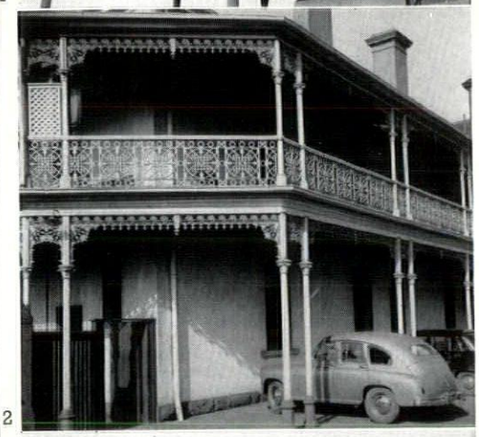

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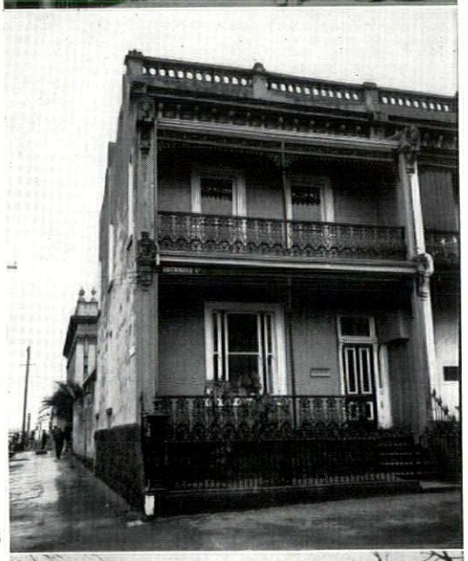

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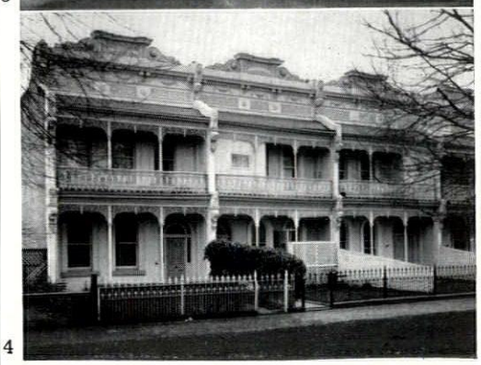

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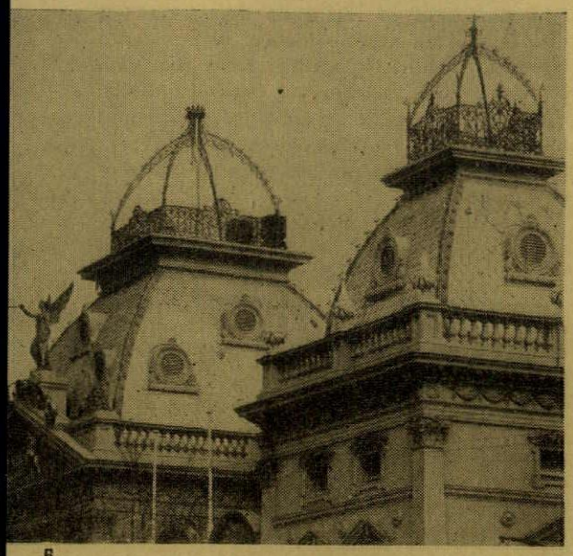
Four cast-iron Melbourne balconies; 1, *offices in Victoria Parade;* 2, *St. Patrick's Boys' College;* 3, *house in Drummond Street, now painted mustard, black and white; and* 4, *a terrace at Carlton.*



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mostly well built of bricks and the dark blue basalt from beneath the town. They were essentially plain buildings more or less in the tradition of the half-century-older colonial Georgian of New South Wales and Tasmania. After they were constructed and finished with smooth stucco and neat double-hung windows, the cast-iron ornamentation was drawn over the front like a veil hanging from the brim of the hipped slate hat, 1–4.

Decorative cast-iron appeared in other places of course, around mantelshelves and mirrors, as applied balconies, memorials. in hallway openings and on towers and domes, 5. But this facial veil was most characteristic of Melbourne. It stood clear of the building at the front edge of a shallow verandah, the whole thing an almost independent structure under its own little skillion roof. The iron lacework was frankly two-dimensional, frivolously non-structural, a stage drop-curtain in front



6

of the real solid building. The iron of older Sydney was often heavier, more solid, or curved; the verandah was integral with the building; the columns were of considered and conventional proportions—today you must tap them to discover whether stone, wood or iron hides behind the paint. Melbourne's columns were unquestionably iron: thin, fluted cast-iron pipes one storey high, with a slight taper finishing about three and a half inches thick beneath the grotesque cast capitals. These were some ten inches across and vaguely Composite or Ionic, the overgrown volutes staring like a possum's eyes across the narrow garden to the street.

The columns were closely spaced and the main decoration sprouted above the capitals, lacy cast-iron doyleys fanning out from each side to meet in a transparent impression of an arch. On two-storey buildings a filmy arcade was thus formed at first floor and roof levels, and the posts were linked again by a wide lace ribbon that was the balustrade to the first-floor balcony. The pieces of the lace were small and easily handled: triangular for the angles between posts and beams, straight frilly rails to be draped from the beams, square panels to make up the balustrade, all cast with screwholes at the edge for simple connection to the timber bresummers. At the beginning most of the flat pieces came packed in straw from England as convenient ballast deep in the holds of the light sailing ships. Two Melbourne foundries, Fulton Bros. and the Langland Foundry Co., were apparently producing numbers of cast-iron columns in the late 1850's. Then flat pieces were also cast in Melbourne, at first from impressions of the English models, mostly Acanthus and wheel patterns, and then from less restrained local designs. By far the most productive period was between 1880 and 1891. The motifs then were usually stiffly and confusedly geometric, with many floral offshoots and, rarely, touches of local colour in small panels. The Victorian and Melbourne coats-of-arms, the tree-fern and wattle, the wallaby, lyre-bird, kookaburra and other local inhabitants made obscure appearances in the rough castings.

An extraordinary thing is the apparent lack of repetition. You may drive for miles round Melbourne's inner suburbs and not be conscious of seeing any lace design twice. The details, however, could hardly have interested anyone at the time except the bosses of rival foundries. Surely no-one else was enchanted enough to peer into the tangled veil. All that mattered was the outline which stood in perforated silhouette against the plain wall behind. Coarse edges and minor breakages would never be noticed. Only an intricate division of solid and void in equal measure was important, and this cast its fragile shadow over all the city.

The era finished with the slump in the grey 'nineties. At the end of the century a brief epilogue was added in the form of some Art Nouveau wrought-iron entwined round columns and balustrades where the cast-iron used to go, 6. Then iron of any sort gave way to wooden fretwork and for nearly half a century cast-iron was ostracised from popular decoration. About 1938 people began to discover how simply the iron could be detached from verandahs and how unnecessary were the verandahs anyway. The standard way to renovate an old building was to unhitch the whole veil and expose the bland face behind.

The pendulum today is swinging back again. The plain 'Colonial Georgian' is now lower in the decorator's esteem than the Victorian Look. Sometimes now an old house will buy cast-iron back from the wrecker's yard and use it in unlikely positions with ludicrous effect. On the other hand, increased painting and heightened colour on the terrace-houses in the inner suburbs where the cast-iron veils abound indicate that more and more people now are intelligently accepting this amiable adornment in the spirit in which it was originally offered.

Robin Boyd

BOOKS

CONTRARIWISE

THE ENGLISHNESS OF ENGLISH ART. *By Nikolaus Pevsner. The Architectural Press, 16s.*

'Rome or France or Bolshevist Russia or Republican America,' Chesterton once observed, 'each in its own way, is a principle; but England is a person.' This is as true as anything that has ever been said on the subject, and we have only to suggest that there is no such thing as 'a' person to see how impossible it is to generalize effectively about such a country. A person may be an introvert or an extravert, and if we multiply distinctions in the Jungian manner, we arrive at least sixteen, possibly thirty-two, even sixty-four, distinct types of personality, each with a characteristic mode of expression, each English. This may explain why the English traits of English art, as described by Dr. Pevsner, are so apparently contradictory—'eccentricity' cancelling out 'distrust of the extreme,' 'the picturesque' at war with 'compartmentalism,' the 'undulating line' defying the 'emphasis on verticals,' 'small scale' in conflict with 'excessive length and height,' and 'illogicality' triumphant over 'reasonableness and good sense.' A timid scholar would not attempt to reconcile the Lion of our strength and fortitude with the

Unicorn of our imagination and fantasy. But it is a mark of the perfection of the process of assimilation achieved in twenty years by this Saxon born *Kunsthistoriker* that he can not only accept our illogicality: he can himself be as illogical as any true-born Englishman—taking, for example, a Scot like Robert Adam to illustrate the 'tender curves' of our eighteenth century elegance. The book is, in fact, a glorious jumble of conflicting observations, and a conspicuous defeat for the imported pedantry that threatened for a time to overwhelm our native nonsense.

Among the many virtues of Dr. Pevsner's approach to the subject may be mentioned his easy command of technicalities, especially in the subject of architecture; indeed, there he is in danger of confusing structural solutions with æsthetic virtues, as in his undue devotion to the Perpendicular style of architecture. It is true that he regards this style as the triumph of the rational or the reasonable over the idealism of the Middle Ages, and then denounces rationalism as a middle-class ideal. But he might, with equal justice, have described Perpendicular as the beginning of Puritanism, and Puritanism as the temporary extinction and all-time depreciation of art in England. Indeed, Dr. Pevsner is all too tolerant of that devastating episode in the history of English taste, a veritable visitation of the Huns and Vandals from which our artistic life has not yet recovered.

The outstanding characteristic of the British (a term any true-born Englishman resents, though it is not so objectionable as 'Briton') is that they are, as Ruskin said, of all northern races, 'the one which has the deepest love of external nature.' This love is probably induced by climate and landscape, and on these strictly materialistic grounds, and only on these, we may safely generalize. Ruskin also remarked that British art was never *sublime*, which would be consistent with our extravert tendencies. English Gothic, at Durham, Lincoln and York, is perhaps a contradiction of this observation, but Ruskin was not considering architecture. Even Blake, who as Dr. Pevsner recognizes, is in total contrast to all other English painters, is not sublime, in the sense that Tintoretto or Michelangelo were sublime. His mysticism is domesticated. But Blake 'knew of the importance of polarities,' which he called Contraries. And it is to the contrariness of English art that we finally come; and 'The Contrariness of English Art' would really have been a better title for this delightful book. Dr. Pevsner loves our contrariness, and explicates its exasperating quirks with cool knowledge and lively sensibility, and with a tact that would become an ambassador to the Court of St. James. A special word of praise should be added for the 130 exceptionally well-printed half-tone illustrations.

Herbert Read

PROBLEMATIC GIBBS

THE LIFE AND WORKS OF JAMES GIBBS. *By Brian Little. Batsford*, 25*s*.

Reading Mr. Little's book on Gibbs, one can well understand why this eminent architect had to wait 200 years for a record of his life and work. After Wren, Gibbs was certainly the architect who left the strongest mark on English architecture: many of his buildings stand on prominent sites, several of their features were widely imitated and his architectural publications served as pattern books for many decades on both sides of the Atlantic. Yet his life story, at least as far as it is known, lacks the intellectual interest of Wren's or the romantic touch of Vanbrugh's; in fact the story of his life makes dull reading, although Mr. Little has considerably added to our knowledge and taken great pains to clear up many dark points. Thus his explanation of Gibbs's interest in Portuguese history as rooted in his Roman days is completely convincing. The same, unfortunately, cannot be said of the building histories of Gibbs's works.

Here Mr. Little has left us much where we were; in fact he has not even assembled all that is known. Yet it is not mere pedantry to ask for more precise accounts, especially where he superseded another architect. Here one can only appreciate the master's contribution if one knows accurately what happened at the moment of the change-over.

Again, it is only when the authorship of what must have been an early site plan for St. Mary-le-Strand has been established that Gibbs's role in siting the church can be estimated. That Mr. Little has fought shy of the vexed problem of the plasterers Artari and Bagutti—whether they themselves were the designers or whether they only acted as craftsmen—is quite understandable, however sorry one may be for it; it can only be hoped that one day somebody will try to clear this question up. The same is true of Gibbs's collection of drawings and prints now in the Ashmoleum Museum, a large number of which are not by his hand; an investigation here might well yield surprises.

It is only after all such questions have been answered that a catalogue of Gibbs's *œuvre* could be compiled. Mr. Little for all these reasons has not attempted one. Perhaps he can not be blamed for that, but he should surely have given his readers a valuation of Gibbs's style, in comparison with the styles of contemporary architects at home and abroad.

S. Lang

FRENCH CANADIAN

CHURCH ARCHITECTURE IN NEW FRANCE. *By Alan Gowans. University of Toronto Press*, $8.00

Mr. Gowans has given us a most comprehensive and fully-documented study of the chapels and parish churches of what was, between Champlain's foundation of Quebec in 1608 and Wolfe's victory in 1759, New France; that part of the present Province of Quebec along the St. Lawrence river colonized from France and based on the three cities of Quebec, Trois-Rivières and Montreal.

As the author points out, there are very few extant buildings in the Province dating from before 1760; and of these few hardly any remain unaltered. The combined effects of the Seven Years' War, of nineteenth-century rebuilding and of recurrent fires have left little but documentary evidence. Such evidence however, is fairly plentiful, from the *Plan générale . . . des missions du Canada* of 1688; through the admirable drawings of Richard Short, one of Wolfe's officers in 1759; to nineteenth-century photographs of churches now demolished.

Mr. Gowans's extensive and scholarly research has resulted in a clear exposition of a very complicated series of relationships, both between the French hierarchy and the missions, and between the parish priests and the religious orders, especially the Jesuits and the Sulpicians.

The author traces the development of church-building in New Quebec, from the pioneer Heroic Period in the early seventeenth century, with the tiny mission chapels built of bark and branches, through the absolutist rule of the great Bishop Laval under Louis XIV, down to the age of Louis XV, when New France had become *canadien* and was producing its own version of the Norman-Breton traditions of its ancestors. From that tradition come the impressive twin-towered churches that are such a marked feature in the Province of Quebec today.

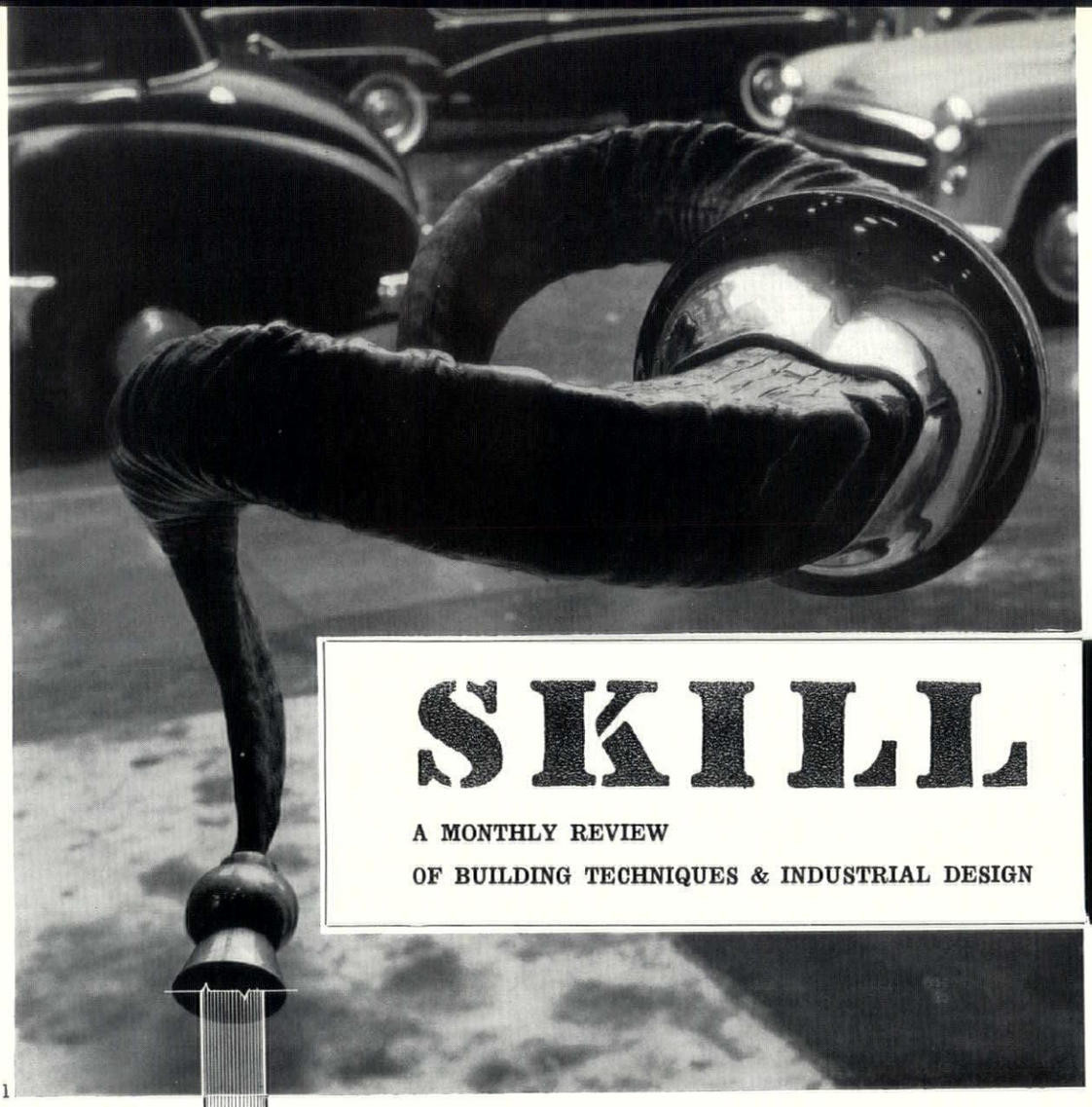
Remarkable evidence of applied learning is provided by Mr. Gowans's chronological catalogue of churches built in New France between 1615 and 1756. This, compiled from many sources, must long remain the standard reference for explorers in this very limited field. This is primarily a specialist's book. At the same time, it is quite an illuminating contribution to French-Canadian history in general. Although French-Canadian scholars have done so much research on the subject, it has been left to a British-Canadian to produce this timely and comprehensive study of the story as a whole.

John Steegman

Shorter Notices

YORKSHIRE REVEALED. *By G. Douglas Bolton. Oliver and Boyd, Edinburgh*, 25*s*.

Mr. Douglas Bolton's book is a brave attempt to present the whole of this very large and varied county within the covers of a single and not-too-bulky topographical guide book. In his introduction he says: 'My aim is to try to *reveal* Yorkshire and give just enough information about the scenery, architecture and history to encourage a series of tours covering not only the principal tourist attractions but also the interesting features of the lesser-known districts.' The book is well arranged, the chapters being devoted to the natural geographical divisions of the main river valleys and the coast. Each chapter thus forms a brief introduction to a compact and logically defined area. While sustained reading of the book leaves one feeling rather breathless, it also leaves one stimulated to explore the county on the spot, chapter by chapter, in a more thorough and leisurely way. Mr. Bolton is a photographer with an eye for pictorial effect, and the book is beautifully illustrated with sixty-eight of his own photographs. His interest in buildings is pictorial and literary rather than architectural, though, with scrupulous fairness, he tells us of the founding of Bradford Technical College as well as of Fountains Abbey. Fifteen pages are devoted to York, but the attractions of the industrial areas are also given their place. **M.L.**

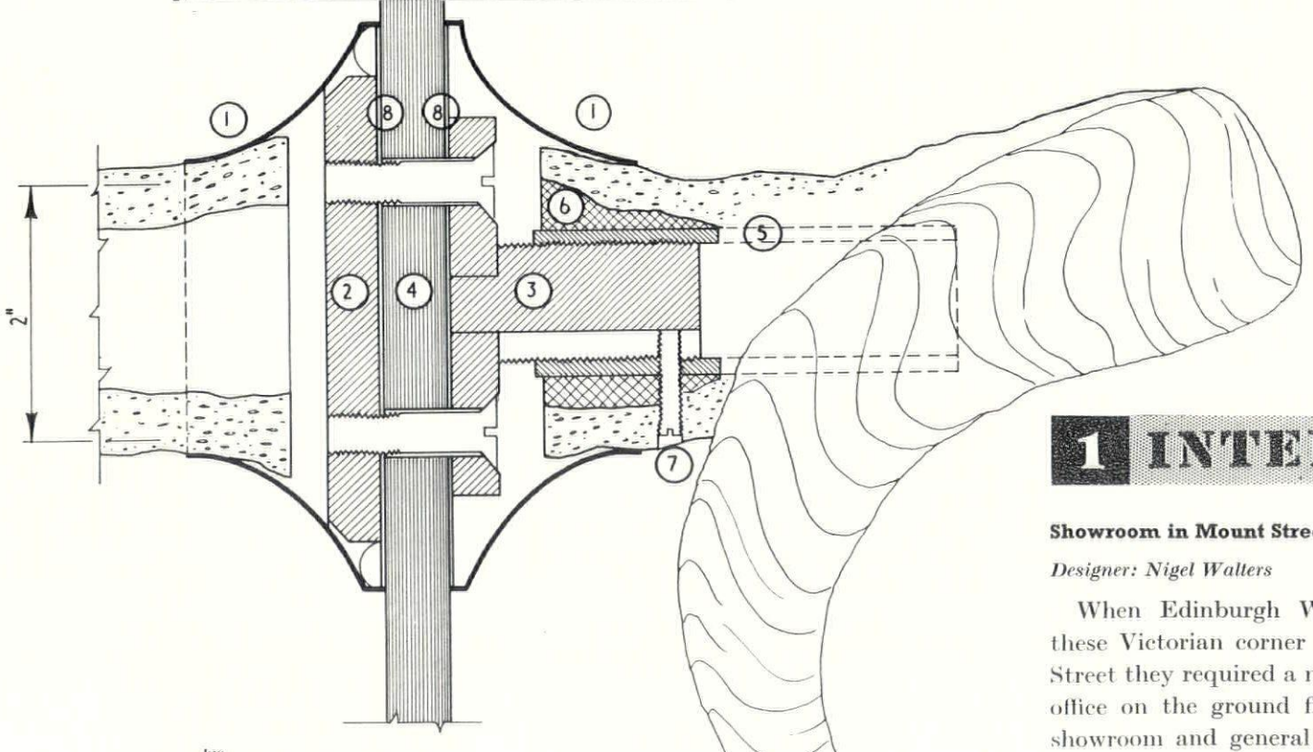


SKILL

A MONTHLY REVIEW
OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

1 interiors
2 design review
3 techniques
4 the industry

1



key
The door handles in the street door are ram's horns, with a brass thistle on each tip, engraved with the firm's initials 'E.W.' The key to the section is: 1, brass spinning secured to horn; 2, plate brazed to brass spinning; 3, plate and spigot; 4, ½-in. armour-plate glass door; 5, brass tube set into horn; 6, lead filling; 7, grub screw; 8, rubber adhesive.

1 INTERIORS

Showroom in Mount Street, W.1.

Designer: Nigel Walters

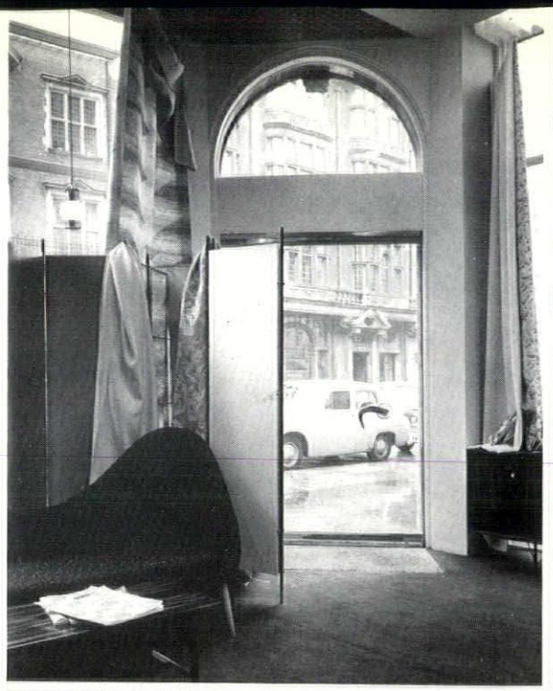
When Edinburgh Weavers took over these Victorian corner premises in Mount Street they required a main showroom and office on the ground floor and a smaller showroom and general office in the basement. The existing matchboard walls,

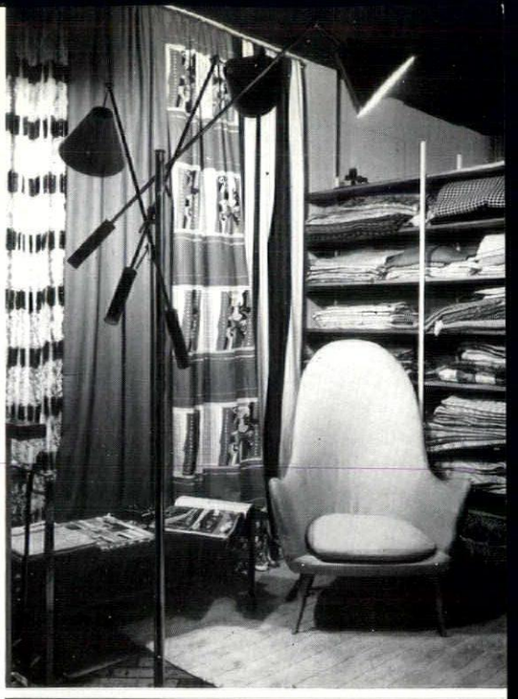


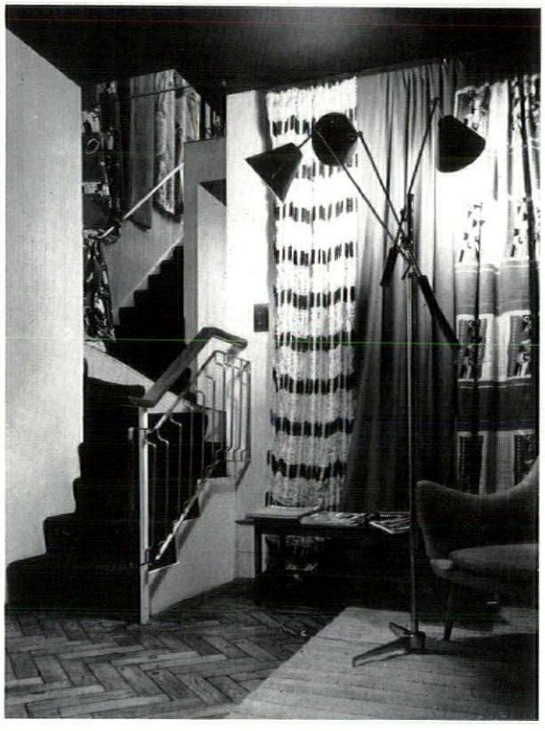
2, *the designer's sketch of the exterior.*

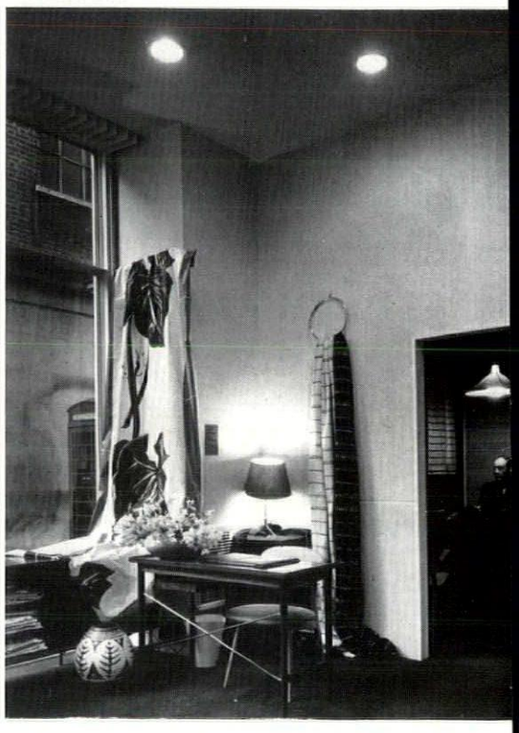
narrow staircase and haphazard arrangement of mouldings, recesses, pilasters and electrical conduits made many rearrangements necessary. The area in front, serving as fire-escape and repository for dustbins, which was visible from the showroom when the window-cill was lowered to floor level, was covered over by a tightly spaced grille and the railings were removed.

In the ground-floor rooms a false ceiling has been installed which accommodates strip lighting over the windows and spot lighting in the showroom. There is a steel mesh over the front window to which a bar can be hooked and draped with materials for display. The matchboarding has been replaced either by plain plastered walls or by striated pine plywood. On the ground floor, existing recessed cupboards have been refronted flush with the walls, with touch-latches. The walls and doorways are different shades of white, the ground floor ceiling is lavender and the basement ceiling dark green. The staircase is backed with mirrors and there are a teak handrail, white stove-enamelled uprights and decorative brass balusters. In the front window there is a movable screen of steel display ladders to which panels, faced with mirrors or painted, are attached. In the side window the emphasis is on the horizontal lines of a long storage chest which, together with all the furniture, is specially designed and of teak. The small tables and desk on the ground floor are topped with Macassar ebony. The carpet is charcoal grey Wilton.



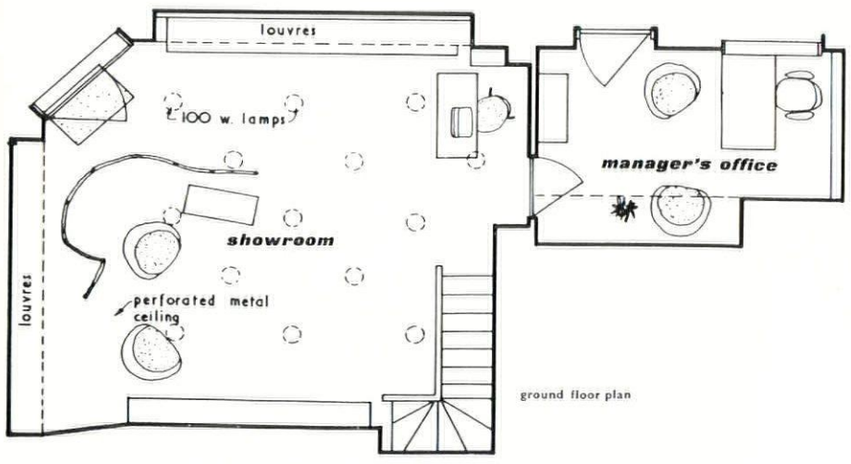


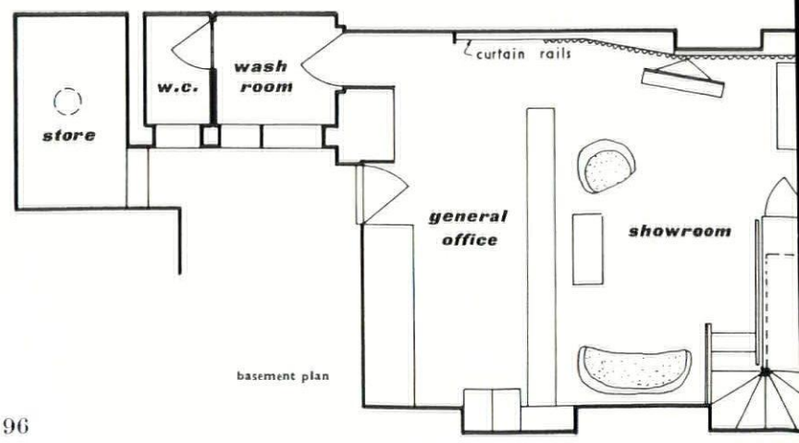




3 | 4
5 | 6

3, *entrance to showroom through wide armour-plate door, with ram's horn handles (see* 1*). Above entrance is wire mesh from which displays, draped over hooked rods, are suspended. The movable screen panels are wooden, with mirror on one side.* 4, *basement showroom; the high storage rack conceals a small general office.* 5, *basement with narrow stairway leading to ground floor, which is backed with mirrors; the wall surface on the left is striated plywood.* 6, *ground floor showroom, with manager's office beyond. The spotlights shine through a lowered ceiling, and the low storage cabinet in the window provides a horizontal emphasis, in contrast to the vertical one in the front window.*





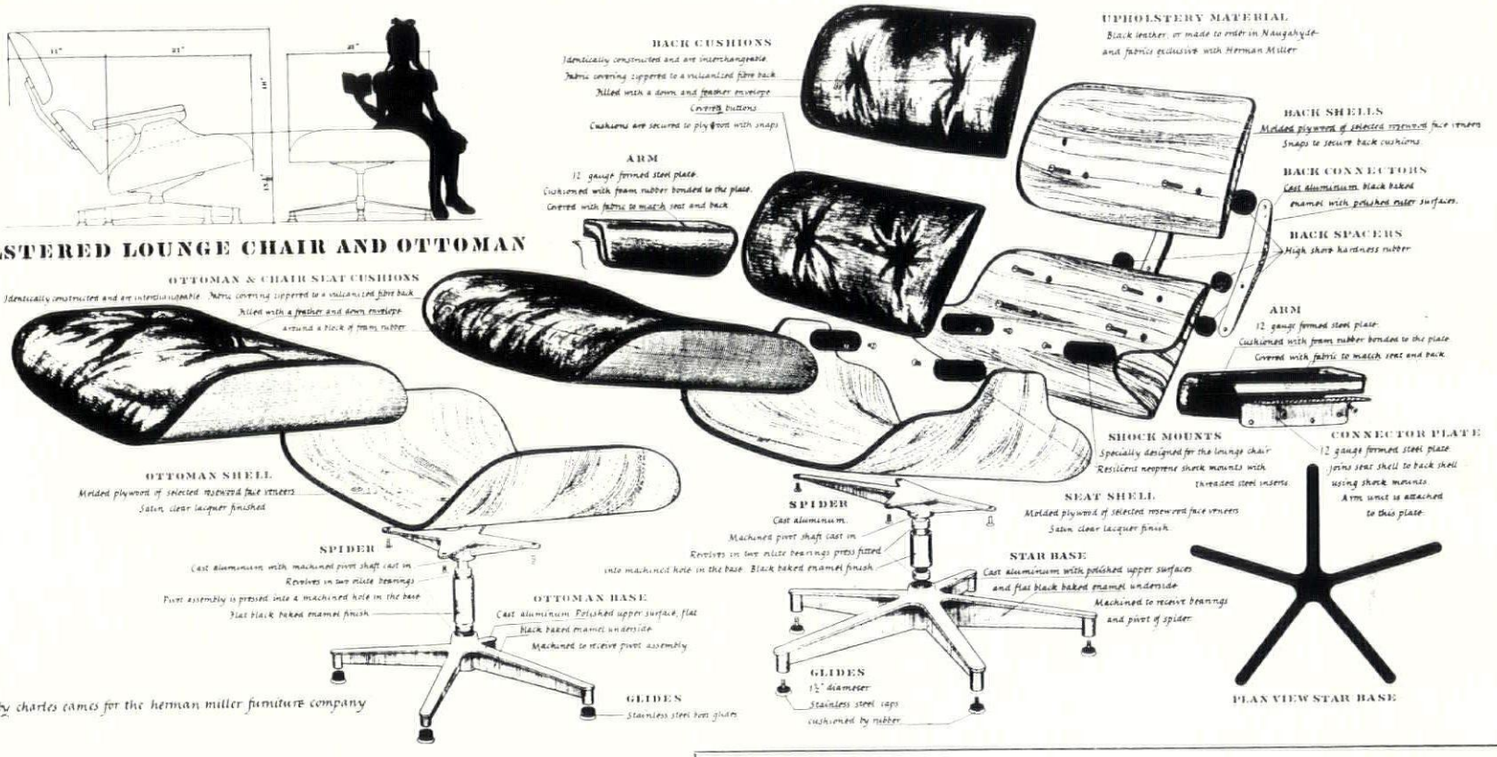
2 DESIGN REVIEW

Lounge Chair by Eames

The new lounge chair and ottoman designed by Charles Eames for the Herman Miller Furniture Company, is one of the first pieces of twentieth-century furniture that aims to provide the standard of comfort considered a necessity by the average London club man. It is interesting that in his search for this kind of comfort the designer has returned to the use of feathers and down for stuffing; like few other materials, he says, 'they give one the feeling of settling in and when you get up feathers and down do not instantly pop back into place as if you'd never been there.' The leather cushions have built-in wrinkles 'a clue that spells comfort to come,' and as a further contribution to relaxation, 'all of the parts are allowed a bit of movement in relation to each other.'

1 and 3 show the chair in position; 2, names the parts and materials. The wooden shells are moulded rosewood ply; the cushions have a core of foam rubber, topped by feathers and down; and can be covered in whatever material the customer wishes, leather being shown in 1 and 3. 1





UPHOLSTERED LOUNGE CHAIR AND OTTOMAN

2

designed by charles eames for the herman miller furniture company

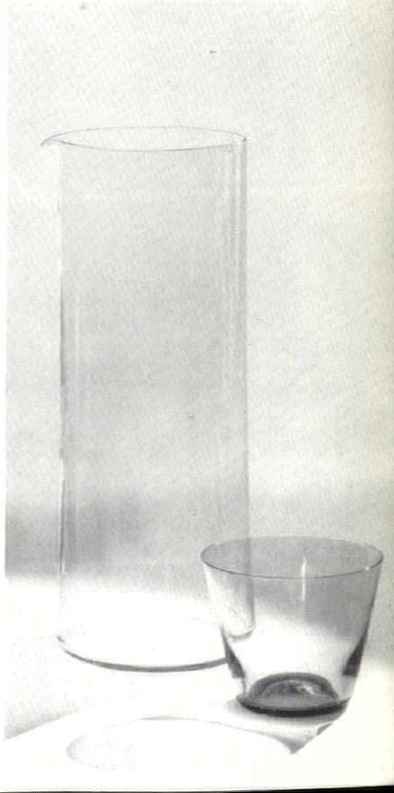


3

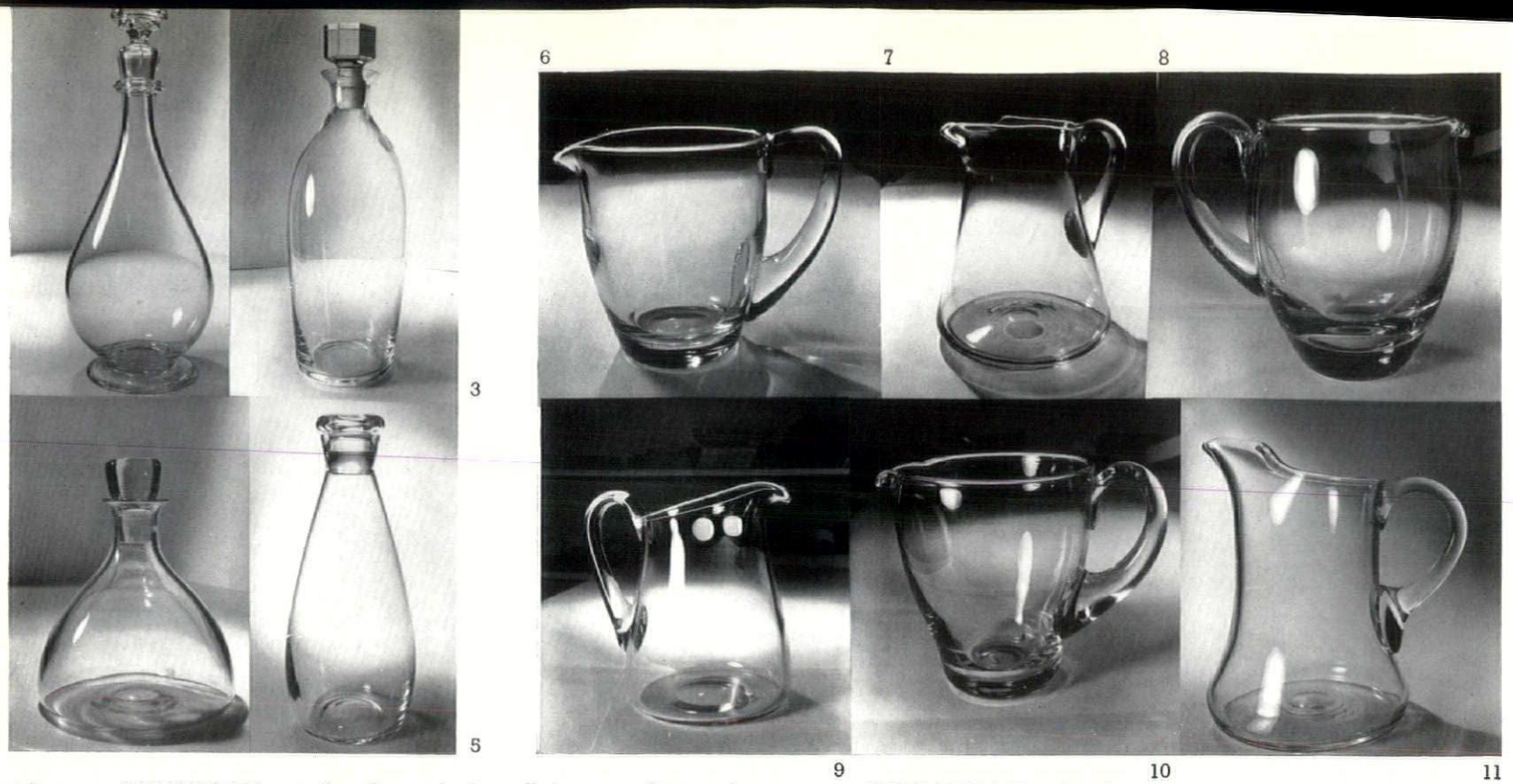
GLASS TABLE WARE

The examples shown here and on the three following pages are almost entirely without surface decoration. This is because the creative contribution to glass design in this century is the idea of setting off the form of the object simply by its own transparency. The glass designer's problem is to exploit transparency. The traditional method has been to define the transparent surface by faceting it to create a glitter. This method asserts the glass substance. The contemporary method emphasizes its apparent unsubstantiality. In doing so it conveys something of the fluid nature of the material. The light on the glass changes, but only at the speed of the viewer's eye. And so the impact of the design is gentle, suggesting the flow of water rather than the glitter of light. To illustrate this pleasing idea conveys no slight to the beauties and inimitable techniques of glass cutting.

Diana Rowntree



FINNISH 1, *cocktail mixer and glass (sets of ten) in clear and coloured blown glass by Kay Franck, Finmar.* 1



decanters SWEDISH 2, *Orrefors sodaglass, Primavera*, £3 0*s*. 0*d*.

DUTCH 3, *Leerdam bottle, Primavera*, £2 15*s*. 6*d*.

ENGLISH 4, *Whitefriars crystal, Primavera*, £2 3*s*. 6*d*.

DUTCH 5, *Leerdam bottle*, £1 10*s*. 0*d*.

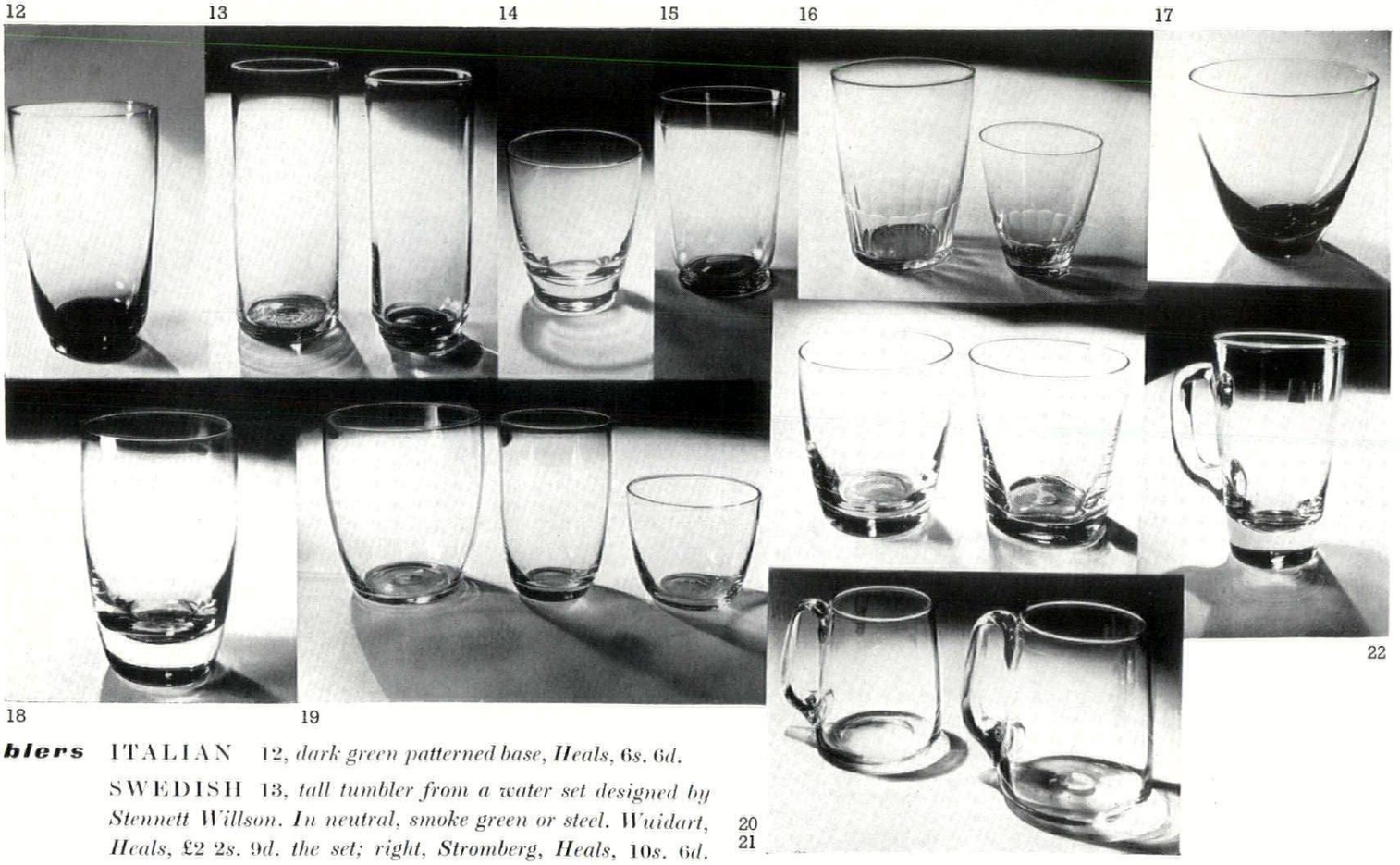
jugs SWEDISH 6, *Orrefors jug from Harrods*, £2 8*s*. 0*d*.

YUGOSLAV 7, *ice jug, Harrods*, £1 2*s*. 0*d*.

DUTCH 8 *and* 9, *Leerdam crystal jugs from Primavera*, £3 18*s*. 0*d*. *and* £2 17*s*. 9*d*. *respectively*.

ENGLISH 10, *Whitefriars crystal, Primavera*, £1 15*s*. 6*d*.

SWEDISH 11, *ice jug from Harrods*, 13*s*. 0*d*.



tumblers ITALIAN 12, *dark green patterned base, Heals*, 6*s*. 6*d*.

SWEDISH 13, *tall tumbler from a water set designed by Stennett Willson. In neutral, smoke green or steel. Wuidart, Heals*, £2 2*s*. 9*d*. *the set; right, Stromberg, Heals*, 10*s*. 6*d*. 14, *Orrefors, Heals*, 9*s*. 6*d*. 15, *Stromberg amber, Heals*, 8*s*. 6*d*. 16, *Orrefors, Harrods*, ½ *pint* 8*s*.; ½ *pint* 12*s*.

DANISH 17, *Holmegaard in steel, Heals*, 5*s*. 9*d*.

DUTCH 18, *Leerdam crystal tumbler at Primavera*, £1 1*s*. 6*d*. 19, *Leerdam at Primavera, half crystal. Tumbler* 5*s*. 8*d*.; *wine glass* 4*s*. 3*d*.; *fruit juice glass* 3*s*. 9*d*.

tankards

ENGLISH 20, *Whitefriars crystal, Primavera, both* 4*s*. 2*d*. 21, *Whitefriars crystal, Primavera*, ½ *pint* 14*s*. 10*d*.; ¼ *pint* 11*s*. 9*d*. 22, *Kosta, Heals, blue or crystal*, 12*s*. 6*d*.

miscellaneous (right)

DUTCH 23, *Leerdam crystal pipe bowl at Primavera*, £1 11*s.* 6*d.*

SWEDISH 24, *Orrefors butter dishes at Primavera*, £2 5*s.* 6*d.*, £2 14*s.* 6*d.*

ENGLISH 25, *Whitefriars finger bowl at Primavera*, 7*s.* 11*d.*

SWEDISH 26, *Stromberg pressed glass jar, Heals*, 19*s.* 6*d.* 27, *Orrefors butter dishes, Primavera*, £2 5*s.* 6*d.*, £2 14*s.* 6*d.*

wine glasses (below)

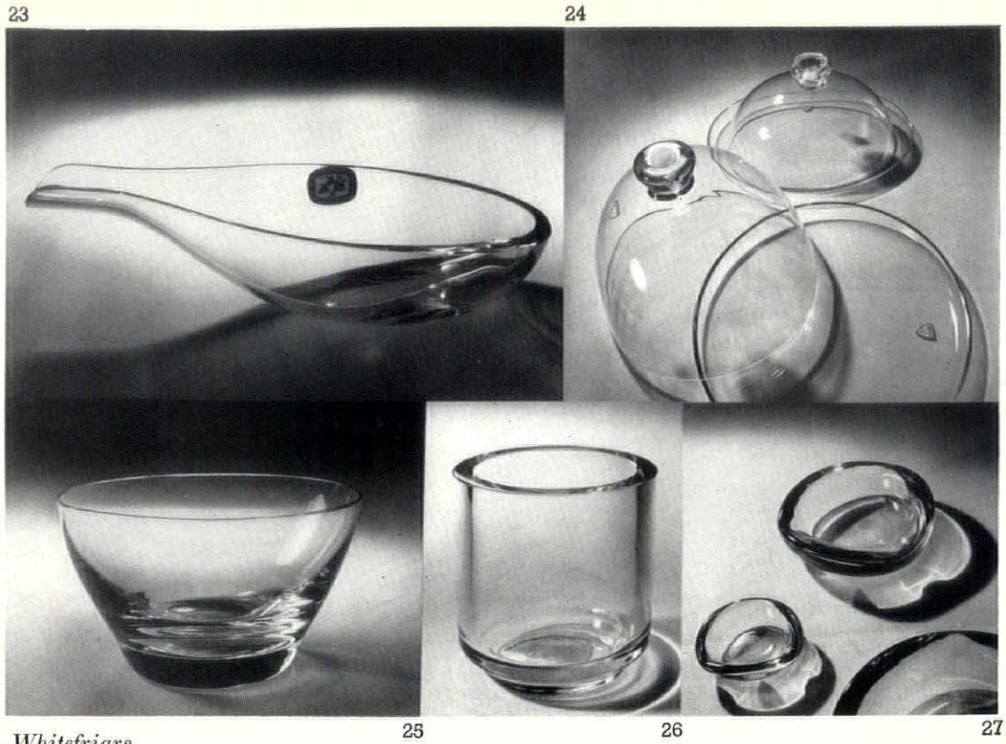
SWEDISH 28, *Stromberg heavy sherry, Heals*, 14*s.* 6*d.* 29, *Orrefors sodaglass, Primavera*, 6*s.* 9*d.*, 5*s.* 6*d.*, 4*s.* 3*d.*

DUTCH 30, *Leerdam crystal, Primavera. A similar design: large water*, 14*s.* 3*d.*; *small water*, 12*s.* 9*d.*; *claret*, 11*s.* 3*d.*, 10*s.* 6*d.*; *sherry*, 9*s.*; *liqueur*, 7*s.* 6*d.*

ENGLISH 31, *Brierly claret glass, Heals.* 32, *Whitefriars crystal fruit juice glass at Primavera*, 3*s.* 8*d.*

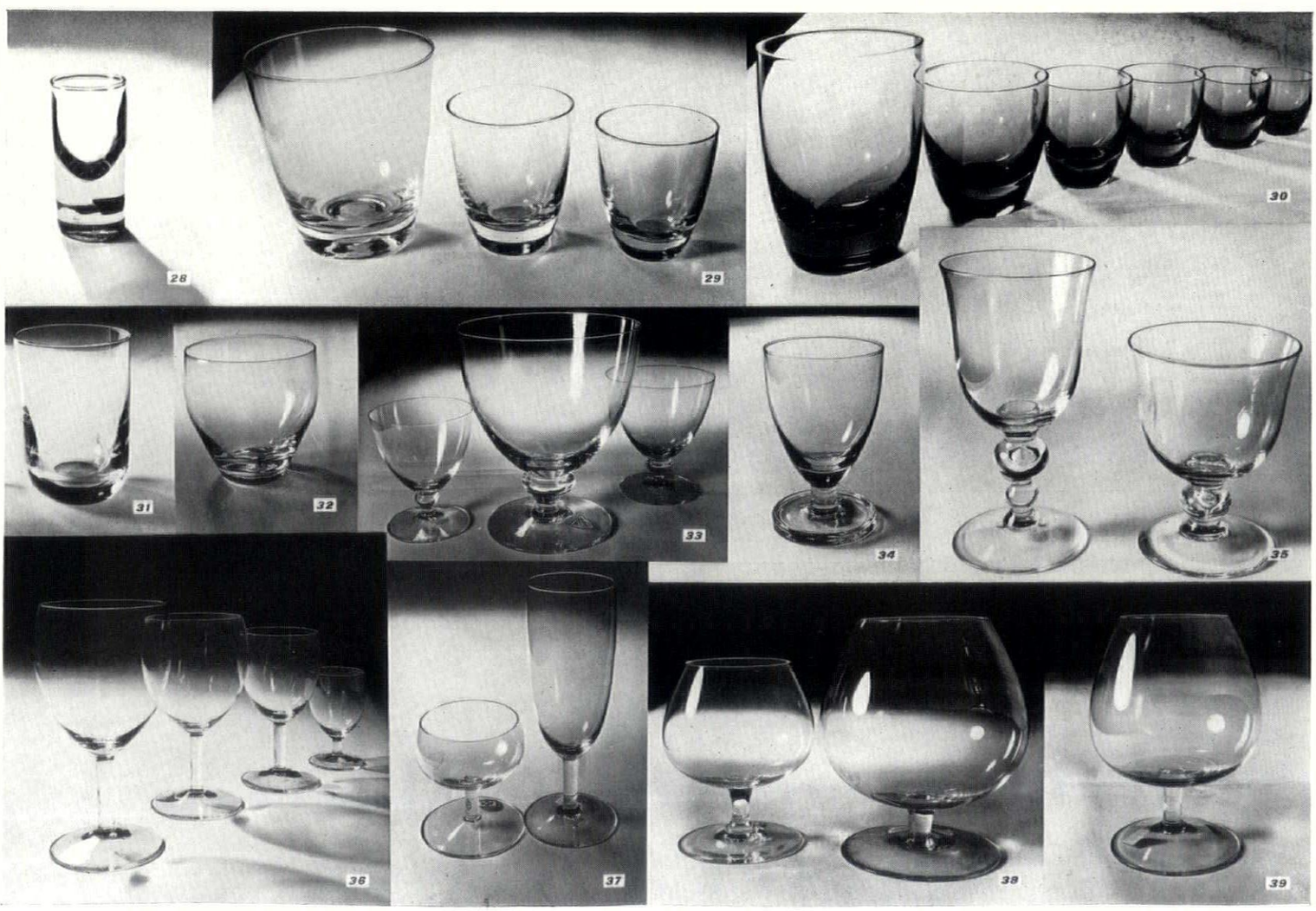
SWEDISH 33, *Orrefors sodaglass, Primavera*, 6*s.*, 5*s.*, 4*s.* 3*d.* 34, *Orrefors claret glass, Harrods*, 3*s.* 9*d.*

ENGLISH 35, *Whitefriars crystal at Primavera. Goblet*, £1 6*s.* 3*d.*; *whisky glass*, 17*s.* 8*d.*



DUTCH 36, *Leerdam crystal set at Primavera. Goblet*, 12*s.* 6*d.*; *wine*, 8*s.* 9*d.*; *sherry*, 7*s.*; *liqueur*, 5*s.* 9*d.* 37, *Leerdam crystal at Primavera. Cocktail*, 8*s.* 3*d.*; *champagne*, 9*s.* 6*d.* 38, *Leerdam crystal at Primavera. Large and small balloons*, 13*s.* 6*d.* and 21*s.* 9*d.*

BELGIAN 39, *Belgian balloon at Primavera*, 10*s.* 6*d.*





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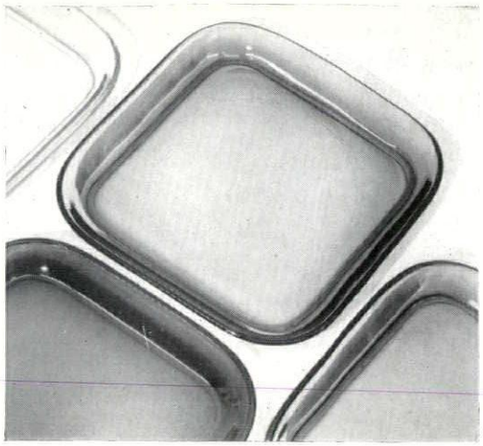

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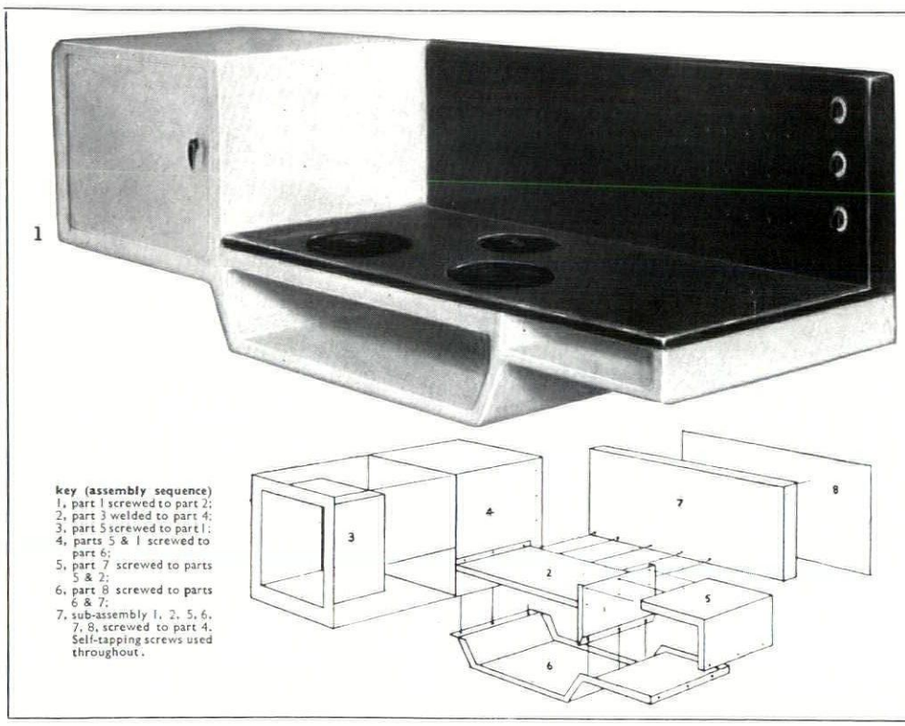
miscellaneous

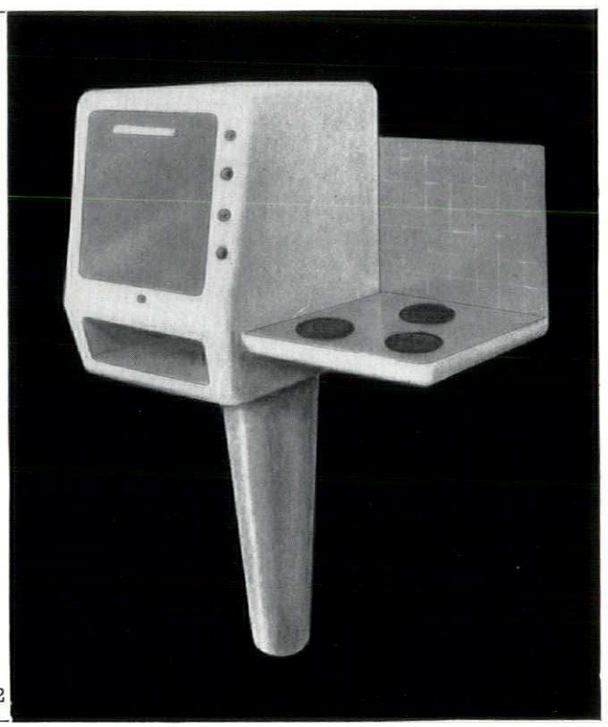
FINNISH 40, *pressed glass in colours designed by Kay Franck for Wartsils-Koncernen. Marketed by Finmar Limited. Plates* 10*s.* 8*d. and* 5*s.* 2*d.; jug,* 19*s.* 2*d.; glasses,* 4*s.* 8*d.; bowl,* 5*s.* 2*d.* 41, *square plates in pressed glass from the same factory. In assorted colours,* 13*s.* 3*d.*

Cookers: Designing versus Styling

In proportion to the immense turnover in kitchen equipment, and the heavy-weight advertising necessary to draw attention to its labour-saving qualities, the amount of serious designing in this field is infinitesimal. Though the fashion points of cooker design change rapidly, and smartness would demand an annual change of all kitchen fitments from cream to white, and back again, the basic cooker design for the mass market has hardly altered in a lifetime. It is therefore encouraging to find the Royal Society of Arts' Industrial Bursaries Competition producing an idea for a real improvement in domestic design, not simply a stylistic variation. Two students from the Central School of Arts and Crafts have tackled the problem of a wall cooker. W. D. Harbour's design brings the cooker off the floor altogether. P. J. Collins' reduces floor support to a single column. The piece of floor under the cooker needs more frequent washing than any other in a house. Many of the available cookers have four legs raising them a few inches off the floor, though the recent trend is to take the casing right to the floor. This does away with the awkward space under the cooker but does not solve the problem of spilling down the sides. It is hardly possible to make a perfect joint between a burner surface and the adjoining fitment. The wall cooker offers a real improvement by making this piece of floor accessible to light and cleaning, and removing the need to crouch and stoop over the oven. It is to be hoped that cooker manufacturers will ponder over Mr. Harbour's and Mr. Collins' ideas.

D.R.

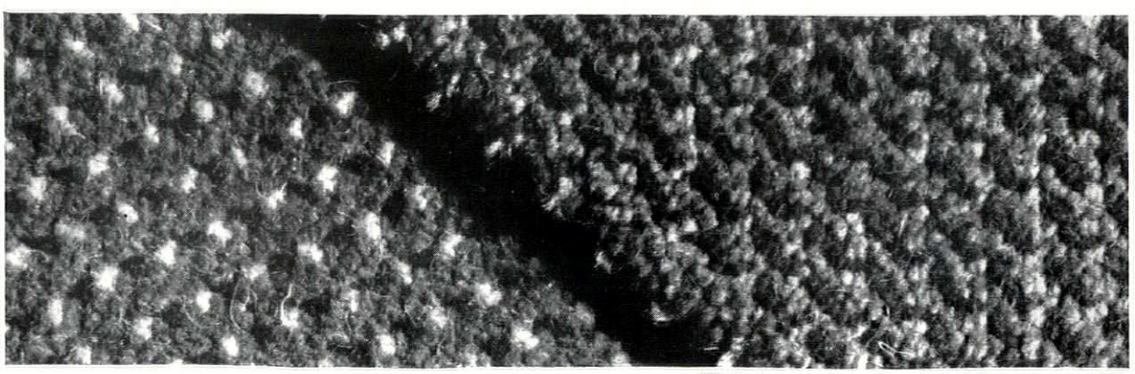




1, *design for a wall-mounted electric cooker, by W. D. Harbour.* 2, *design for an electric cooker with adjustable base, by P. J. Collins.*

Tweed Wilton

Tweed here is not a technical description nor an aesthetic falsity, simply a rough description of what this carpet pattern looks like. The pattern is in fact produced by using four colours in a pointilliste manner, and looks warm, rich, masculine and extremely useful. There are three colour schemes offered. No purpose is served by listing the component colours as the effects are subtle, and all in the green-brown category. The carpet is 27 in. wide and the price, 57s. 3d. per yard, includes tax. Right are two of the Tweed Wiltons on sale at Heals. D.R.



[Techniques: *Aircraft and Building* on page 201

3 TECHNIQUES

AIRCRAFT AND BUILDING

by Christopher Dawson

The most marked characteristic of the building industry (and of architects) over the last ten years is an awakening to developments in other technologies. While other (younger) manufacturing industries have made fruitful application of scientific knowledge, building, until the early 'thirties, continued to employ pre-industrial hand-craft methods—revealing a vulnerable self-sufficiency that was paralleled in the training of architects. But once scientific method made an entry, it only needed a period of austerity coupled with excessive demand—such as the post-war years—for the innate appropriateness of that method to our times to be realised. Hence the marked change in architectural style, the rapid increase in manufactured components, and, lagging a little behind, the rationalization of site methods.

But the sources *of many of the detailed changes are to be found outside the building industry or the architectural profession: hence we thought it worth while to invite an engineer with extensive knowledge of the aircraft industry, Christopher Dawson, to tell us something about design and production methods and the administrative framework within which the aircraft industry operates. As the author points out, architects can probably learn more from aircraft manufacture than from any other manufacturing industry. Each aeroplane is 'custom built' in much the same sense that each building is specific to a particular client's needs. The proportion of hand craft to mass production in building probably approximates more to aircraft manufacture than to other engineering products such as motor cars. There is the third parallel that government agencies play a large part both as clients and as the promoters of research.*

Where other interesting analogies with building occur in the story, an italic paragraph is inserted.

It may seem strange to describe for the benefit of architects, and so in a sense to hold up as an example, an industry which has been severely criticized in recent months. However, the aircraft industry is technically the most advanced of the engineering industries, for all its faults, and if there is anything which an architect can usefully learn from engineering, an aircraft firm is probably the one from which he can learn most.

The typical aircraft manufacturing firm is quite a large organization: some 20 aircraft constructors and about 6 aero-engine manufacturers between them employ a quarter of a million people. This does not include accessory or component manufacturers. It has been suggested that even so some of our smaller firms are not large enough to be able efficiently to initiate and complete the design and production of a modern aircraft. In the U.S.A. at least one firm has a payroll of over 60,000.

By contrast, the building industry numbers some 100,000 *firms employing* 1¼ *million men, but over three-quarters of the firms employ less than five men. This may reflect the low rate of capital investment, but it also reflects the wide dispersion of building works—as distinct from the immense capital and concentrated location of aircraft manufacture.*

In relation to the size, the output from one firm looks very small, rarely (in peace time) more than a few score aircraft in one year. Against this the product, if a military aircraft, is judged essential to the country's safety, and if civil has immense earning capacity.

The first step in the conception of a particular aircraft type is the framing of the specification. For a military aircraft this is done by the Ministry of Supply to the requirements of the Air Ministry, or Admiralty in the case of naval aircraft. It is a very delicate process, as a balance has to be struck between the performance the service wants, and the best that the state of technical knowledge at the time can produce. It is largely because of failures to achieve this balance that so many recent military aircraft have been disappointments. The Ministry must be in close touch with the thought of the leading designers so as to be able to advise the service as to what is possible. In the aircraft industry, more than anywhere else, the customer is always asking for performance or delivery dates just beyond the possible, and too often in recent years firms also have set their sights too high for their own capacity.

The drawing up of a civil aircraft specification is usually done by the principal operators, i.e., BOAC and BEA, the Ministry of Transport and Civil Aviation, with the Ministry of Supply, sitting as a committee. The machinery has been criticized in Parliament, and it does seem that better co-ordination of transport requirements is necessary.

The other main way of initiating a design is the launching of a 'private venture' aircraft. This simply means that the normal practice of manufacturing industry is followed: the manufacturers study a particular market, and get out a design for which they think there will be a demand, raising the necessary capital themselves. In the other cases the projects are financed by Government contracts. As firm orders are not usually placed at least until a prototype has flown, the investment needed can be very heavy, and private ventures are usually comparatively small aircraft.

Apart from the specification, requirements for military aircraft are laid down in general terms in Air Publication 970, *Design Requirements for Aeroplanes for the Royal Air Force and Royal Navy*. The equivalent for civil aircraft is the Air Registration Board's *British Civil Airworthiness Requirements*. The ARB is responsible for advising the Minister of Transport and Civil Aviation on the granting of Certificates of Airworthiness, without which no civil aircraft may fly, and the *B.C.A.R.* are a guide to the considerations which govern such advice.

Once an aircraft specification has been drawn up it is issued to the firms likely to be interested, who submit designs in competition. One or more may be chosen, and a contract for further design work, and the construction of a prototype, awarded. Unless economy in production is specifically called for the successful design will be the most technically promising rather than the cheapest, and in any case firms will not normally quote a price until much later on in the development. Often two, or possibly more, designs are proceeded with as an insurance against unforeseen trouble with any one; the prediction of performance of high performance aircraft before lengthy evaluation in the air is often unreliable.

When a firm is presented with a specification it has probably already been making project studies of similar types for some time; most firms have teams working on such studies aside from whatever design work they may be doing. One of these may be suitable for adjusting to the specification. One of the main deciding factors in any design is the type of engine that is to be used. Engines are developed independently, and normally some time ahead of the aircraft which they will power. An engine is selected which will give the desired performance, and an assessment made of the space needed for it and the necessary fuel. This is most critical in the case of fighter aircraft, where the frontal area has to be reduced to a minimum, and the fuselage is usually closely moulded about the engine. An estimate is also made of the various weights: payload—the weight of passengers, freight, or military load it is required to carry—crew, engines, fuel, essential equipment, while their volume has also to be taken into account.

The influence of the engine in aircraft design seems analogous to the influence of a proprietary structural system in building.

It is usually wise to allow a weight growth factor, to allow for increases during developments as new equipment is called for. From these weights and volumes a beginning can be made on the design: knowing the weights, and allowing a percentage for the structure from experience, it is possible to settle the wing area. Wing loading, that is the weight supported by every square foot of projected area of the wing plan form, is chosen as a compromise between considerations of drag at high speeds, and performance at low speeds for landing and take-off. The external profile is then drawn out as a lines development plan in the same way as for ships: curves or contours are drawn which correspond to the intersection with the external surface of three sets of parallel planes in mutually perpendicular directions. Scale models can then be made and tested in wind tunnels to check and refine the aerodynamic design. Firms usually have their own small wind tunnels, but for larger models, which are desirable because they involve smaller corrections for scale effect (i.e., the fact that the flow of air over a small model is not exactly similar to that over the full-sized aircraft), and for performance ranges outside the capacity of their own tunnels they have to go to the Government establishments, or to the newly opened facilities of the Aircraft Research Association, a body owned co-operatively by fourteen firms in the industry.

Meanwhile structural design can begin. The aerodynamicists evaluate the loads involved in the most extreme manœuvres the aircraft is likely to need to perform, and from these data the structural engineers can lay out the structure, and assess the sections and materials needed for the various members.

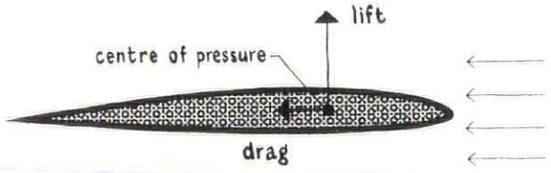
In straight and level flight the structure has only to redistribute the air loads so that they balance the aircraft's weight, 1 to 5. As soon as accelerations are imposed, as by manœuvres, 8, or gusts, 9, the weight is in effect altered, and in some cases redistributed. The effect of this is to make it necessary to provide a structure which will withstand loads which are equivalent to the weight being multiplied by a factor n. A graph known as a flight envelope, 8 and 9, defines the limits of n at different air speeds. The values of n will be in the specification for military aircraft, and are laid down in *B.C.A.R.* for civil machines. The gust requirements are based on statistical surveys of the severity and frequency of gusts along operational routes.

The structural problem in aircraft is to provide the lightest possible structure which will withstand the imposed forces, while keeping within the geometrical limits of the airswept contour. Stiffness is also very important as upon it depends suppression of the aeroelastic phenomena of flutter, divergence and control reversal. Reversal of control takes place when the loads set up by the operation of a control surface, such as an aileron, cause such distortion of the wing or other surface that the effect is to apply control in the opposite sense, 10. Flutter is an aerodynamically induced structural oscillation of a surface, either a main surface or a control, which may cause total failure in a very short space of time. It is similar to the oscillations of flexible structures such as suspension bridges in high

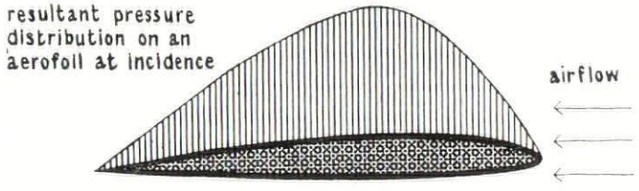
loads on an aircraft structure



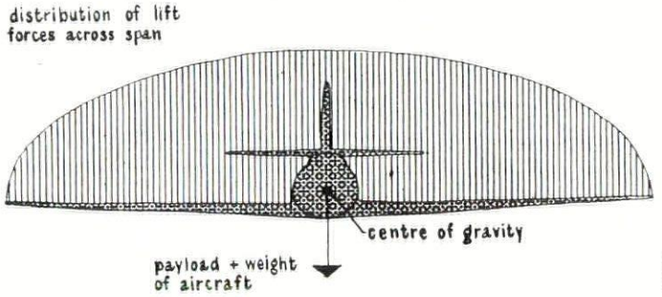
1, *the aeroplane is a means of transport, a way of carrying things which inevitably have weight, from place to place.*



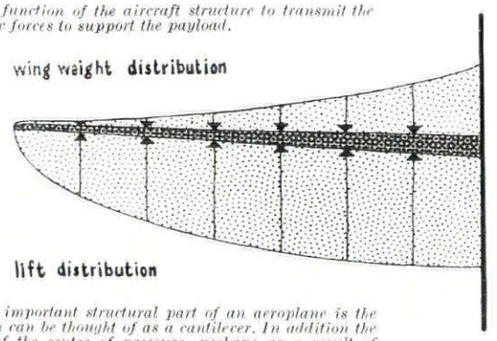
2, *aerodynamics provides the force of lift by means of the pressure distribution on an aerofoil section.*



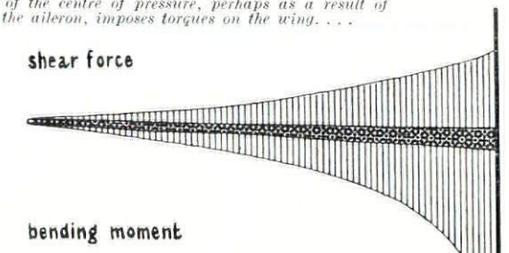
3, *this pressure distribution can be considered as the two resultant forces normal and parallel to the airflow.*



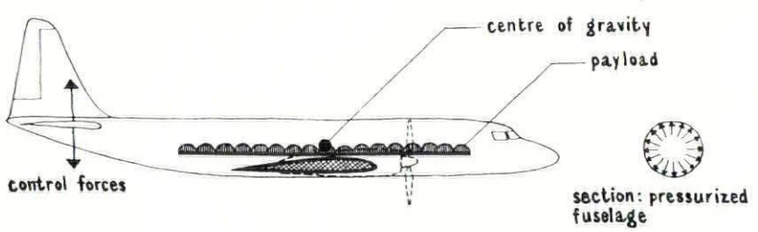
4, *it is the function of the aircraft structure to transmit the aerodynamic forces to support the payload.*



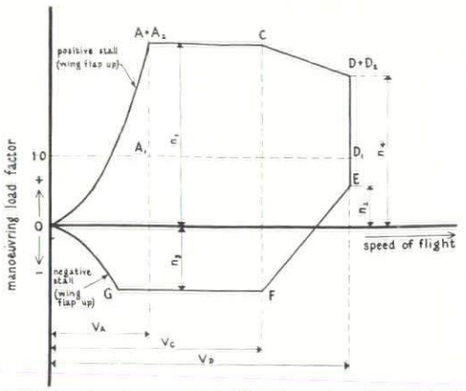
5, *the most important structural part of an aeroplane is the wing, which can be thought of as a cantilever. In addition the movement of the centre of pressure, perhaps as a result of operating the aileron, imposes torques on the wing. . . .*



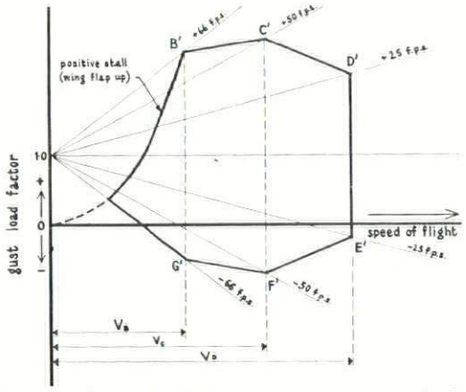
. . . In inverted flight the forces are of course reversed. The structure is designed to allow of this, but the maximum loading is taken to be less—see flight envelope.



6, *the fuselage also acts as a beam, with the payload distributed along it, and control and trim forces applied at the tail in vertical and lateral directions. The fuselage structure weight acts in the same direction as the payload, i.e., downwards, so the more weight, such as fuel and engines, can be carried in the wing the less both wing and fuselage are loaded. 7, most fuselages are pressurized wholly or in part and so have to be designed as pressure vessels as well as beams.*

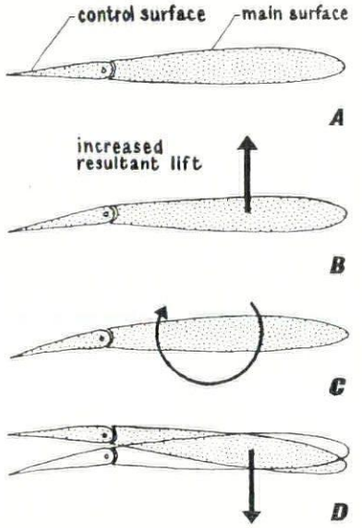


8, *flight envelope (manoeuvring). This diagram lays down the loads which the aircraft must be able to withstand at various speeds. The origin gives the unloaded case (aircraft on the ground) and n = 1, the steady level flight case. Maximum loads are defined by the upper boundary (A, A_2, C, D, D_2) and minimum (inverted flight, etc.) by the lower boundary (G, F).*

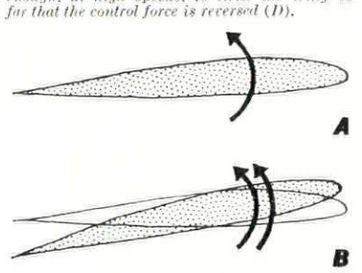


9, *gust envelope. The diagram defining gust loads which the aircraft must withstand. The radiating broken lines correspond to different velocities of vertical gusts (from BCAR Section D).*

aeroelastic phenomena



10, *reversal of control. Deflexion of the control normally alters the lift on the wing (B). However it also imposes a torque (C). This may be enough, at high speeds, to twist the wing so far that the control force is reversed (D).*



11, *wing divergence. If a wing deflects under aerodynamic torque the change incidence may result in an increased torque (A). Again at high speeds this effect may become unstable (B).*

winds, and to the vibration which can be felt if a tape is held stretched in a breeze. Divergence is a deflexion of a wing or other surface which is unstable, i.e., the deflexion increases the force which initiated it, and in this way a wing can be twisted off, 11.

The main structural elements are the wings and fuselage, with the tail surfaces treated as smaller, and usually easier, cases of the wings. The wings are cantilevers, 5, which have to carry most of the weight of the aircraft, including the effective increase in weight in manœuvres. Wings, particularly if swept back, also have to withstand large torsional moments, and so the most usual structure is a tapered box beam, 12, of which the upper and lower faces form part of the wing skin. Fuel, and often the engines, are carried in the wing: this weight distribution will reduce the wing root bending moment. See also 13 and 14.

The fuselage structure will normally consist of stiff frames, located on transverse sections, covered with skin which carries stiffeners, and probably a few heavier longitudinal members. In military aircraft some, and in passenger transports most, of the fuselage will form a pressure cabin, except for the few types which do not need to go to high altitude. This part of the structure has to be treated as a pressure vessel, 7, as well as a beam subject to varied loadings, 6, often difficult to predict, and is usually cylindrical in form.

Many of the structural elements in aircraft have to carry compression, and the selection of materials and forms which will remain stable and yet be as light as possible often involves complex designs, with a multiplicity of close-spaced stiffeners on a thin skin, 15-17. Light alloys

TABLE I

***comparison of steel and aluminium alloy I-sections in bending,*[1]**

	Steel[2]	Aluminium Alloy[3]
Section	$4'' \times 1\frac{3}{4}''$	$5'' \times 2\frac{1}{2}''$
I_x in.^{4}	3.66	12
E lb./in.^{2}	30×10^6	10×10^6
EI lb./in.^{2}	11×10^7	12×10^7
Weight per foot, lb...	5	3.56
Cost pence, per foot...	3.54[4]	117.4[5]
Extreme fibre stress	$.547M$	$.208M$

[1] The ordinary engineer's theory of bending is assumed to apply.

[2] Data for steel from *Steel Construction Handbook No.* 22 (2nd edition, 1941), R. A. Skelton & Co. Ltd.

[3] Data for aluminium alloy from *Structural Design in Aluminium* (1st edition, 1953), T. I. Aluminium Ltd.

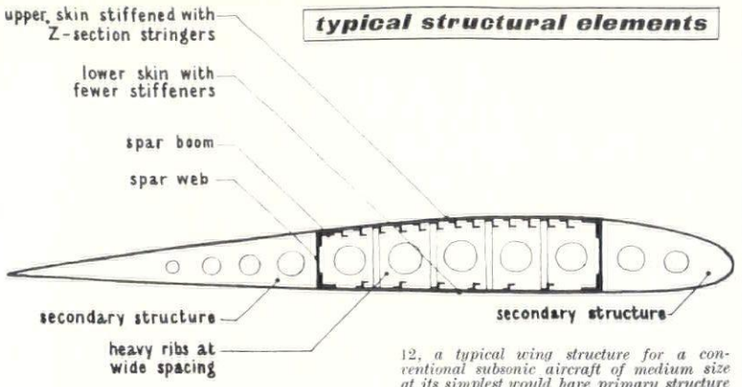
[4] At £33 per ton.

[5] At 2s. 9d. per lb., representative of ordinary structural alloys; aircraft alloys would be more expensive than this.

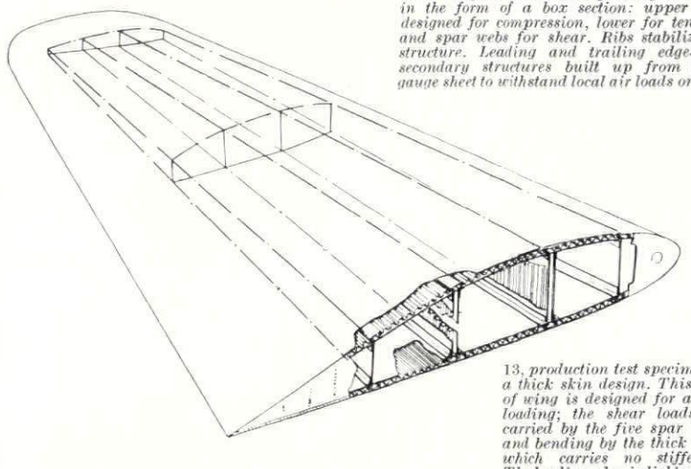
are the conventional material: these have been developed to high tensile strengths (UTS considerably greater than that of mild steel for about one-third of the density). Although the elastic modulus of light alloy is about a third of that of steel a member designed to a given stiffness requirement will be lighter, although considerably more expensive, than an equivalent steel member. As an example Table I compares for approximately equal bending stiffness EI, steel and aluminium alloy I sections. The steel beam is 40 per cent heavier, but about three per cent of the cost of the aluminium. It will be seen that the strength of the aluminium beam is much greater than that of the steel; i.e., if the beams had been designed on a strength basis, as would be the case for many aircraft components, the aluminium one would have been much lighter still in comparison with

[continued on page 203

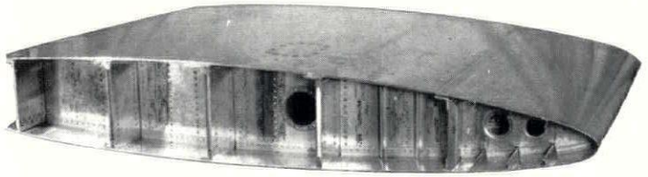
typical structural elements



12, *a typical wing structure for a conventional subsonic aircraft of medium size at its simplest would have primary structure in the form of a box section: upper skin designed for compression, lower for tension, and spar webs for shear. Ribs stabilize the structure. Leading and trailing edges are secondary structures built up from light-gauge sheet to withstand local air loads only.*

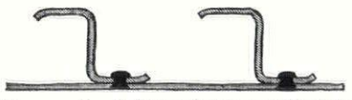


13, *production test specimen of a thick skin design. This type of wing is designed for a high loading; the shear loads are carried by the five spar webs, and bending by the thick skin, which carries no stiffeners. The leading edge is lighter, and here thin gauge skin with bulb-angle stiffeners is used.*



14, *a sandwich skin wing of Handley Page design. Stiffness is obtained by the corrugated-core sandwich skins and webs. The multiple spars provide a measure of reserve strength in the event of a failure in flight. This type is analogous to 13 but is for lighter loading, as in transport aircraft. Fuel would be carried between the webs.*

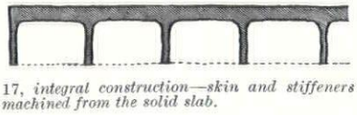
panel designs for compression



15, *conventional sheet and stringer with rivets. Spot welding can also be used.*



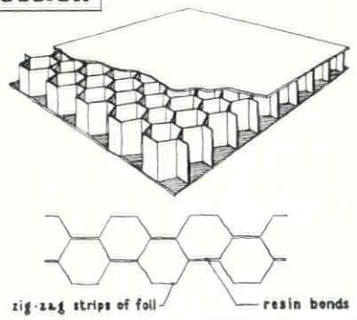
16, *similar construction with stringers bonded with a synthetic resin adhesive (e.g., Redux) reduces stress-concentrations at rivets and reduces wrinkling between fastenings.*



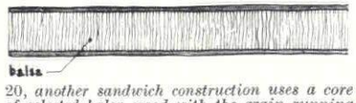
17, *integral construction—skin and stiffeners machined from the solid slab.*



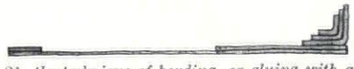
18, *corrugated-core sandwich construction. Bonding, spot welding and riveting, including blind riveting, i.e., from one side only, can be used for building it up.*



19, *honeycomb-core sandwich. The honeycomb is made up from strips of aluminium foil a few thousandths thick bonded together with synthetic resin. The cover plates are also bonded on. Similar panels in stainless steel are built up by brazing.*



20, *another sandwich construction uses a core of selected balsa wood with the grain running perpendicular to the faces, which may be of light alloy or laminated plastic.*



21, *the technique of bonding, or gluing with a synthetic resin adhesive, makes possible the local reinforcement of sheet without recourse to integral machining.*

steel for similar working stresses. Apart from considerations of temperature, and possibly fatigue, steel is only likely to be used for wing skins when the aerodynamic requirement is for a wing so thin and so highly loaded that an aluminium skin would be so thick in relation to the depth of the section that much of its metal would be too near the neutral axis to be effective in bending.

The lower density of light alloys is especially advantageous for compression members in that a thicker, lighter skin of equivalent tensile strength is more stable under compression than one made from denser material. This trend is carried further by the development of panel structures which are essentially cellular, 18-21. These constructions are also valuable in bending, particularly where rigidity is important.

On modern aircraft heating by the friction of the air at high speeds, and by proximity to the engines, makes necessary the development of materials which are both light and resistant to high temperatures. Stainless steel has been used, as it has high strength, but its high density makes compression members difficult to design. Titanium and its alloys are now being used in rapidly increasing quantities as they give strength at high temperatures similar to that of stainless steel for half the density. Its drawbacks are that it is not easy to machine, although much is being learnt about the working properties, and it is still expensive—raw titanium at present costs 21s. per lb. in this country, and alloys may cost much more. It is however a good example of a material for which the aircraft industry's need was such that it was produced, and methods of producing it developed, almost regardless of cost: ten years ago titanium metal was a laboratory curiosity of which only a few pounds existed, but it is now produced in thousands of tons annually.

Other materials being increasingly used in the aircraft industry are laminated plastics, phenolic, polyester and epoxy resins reinforced with glass fibre or long-fibre asbestos, but their low elastic modulus and slightly variable properties limit their use at present to secondary structure, that is structure which does not transmit the main loading but only has to stand up to the local forces.

In a modern transport aircraft the structure may represent as little as 25 per cent of the all-up weight. Taken in conjunction with the minimum value of n laid down by the ARB (2.5) this would mean that the structure is designed to carry 2.5/0.25, or 10 times its own weight, i.e., a dead/live ratio of 1/10. However the dead/live ratio as used in building design is perhaps not a strictly comparable quantity. The low structure weight is achieved by the use of the best possible materials, which are manufactured to strict specifications solely for aircraft use, and under rigid control; by structural analysis much more detailed than is common for any other types of engineering structure, and which does not accept the simplifying assumptions such as those which lead to the ordinary engineer's theory of bending; and by a severe programme of structural testing of components and complete aircraft. The factors of safety are also lower than is usual in general engineering work. Normal design factors as laid down by the ARB and in AP 970 are 1.5 on the ultimate tensile stress and 1.0 on the proof stress, the latter being the proportional limit of the material as determined by finding the stress which produces a permanent extension of 0.1 per cent: it corresponds to the yield point for steel.

Despite the complexity of shape, and the very high degree of redundancy, methods have been developed for the analysis of aircraft structures which provide, at best, a knowledge of the actual load to failure within limits as close as the normal variation in material strength, itself strictly controlled by specification. These involve lengthy mathematical analysis, and it is becoming common, and will soon be essential, for electronic digital computers to be used in order to get out answers in a reasonable time.

The calculated strength of major aircraft components is checked by structural testing, often to destruction, and modifications are incorporated where necessary to bring the part up to the required strength, or to lighten it if this proves possible. There is a considerable body of opinion which favours the deliberate pruning of strength margins of ignorance, leaving it to tests to find weaknesses, in the interest of efficient structures.

This 'body of opinion' may be compared with criticism among some structural engineers of our use of working stress as the criterion in design. A committee of the ISE issued a report in May last year suggesting the use of an 'ultimate load factor'—a factor determined by reference not to yield point, but to the conditions and circumstances of the building's use.

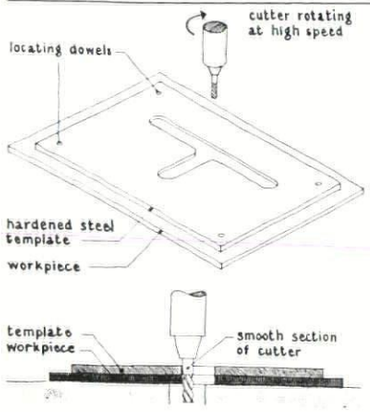
In detail design use can be made of data sheets published by the Royal Aeronautical Society, giving the stresses in the various parts of standard forms of structure, such as sheet stiffened by z-sections, for different loadings. Detail parts such as rivets and bolts are specified by the British Standards Institution, the Air Ministry, or in standard designs agreed by the Society of British Aircraft Constructors.

Structure is only one aspect of design. While it is being laid out a separate section will be assessing its suitability from the point of view of fatigue. Its weight will be accurately estimated by another section, while on completion further teams will calculate its vibration characteristics, and susceptibility to divergence, control reversal, and flutter. Other design operations are the detailing of engine installations, electrical, hydraulic, pneumatic air conditioning and pressurization systems. It is difficult to give any useful list of the number of different specialists in a design team as practice varies widely according to the size of the firm: a small firm will subcontract out some of the more specialized work. All firms will, however, have teams dealing with aerodynamics, structures, performance, aeroelasticity, weight analysis, systems and installations, production breakdown, flight testing and development work. A majority of the people in these teams will be engineers with some apprenticeship experience in the shops, and academic qualifications ranging from national certificates to first-class honours engineering degrees. A number of specialists, particularly aerodynamicists, mathematicians and physicists would come into the industry straight from their academic training, or from posts in other industries which employ the same specialists.

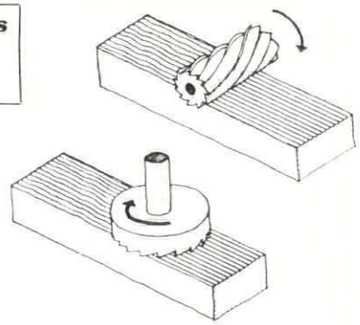
Organization within the firm again varies, but is generally in the form of a number of teams, more or less specialized, under leaders who meet at intervals at design conferences. These leaders are normally responsible to a chief designer, who is nowadays usually on the firm's

basic production methods

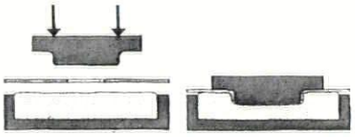
22, 23, machining
24-27, sheet-metal forming



22, *Router. (For irregular cut-out and profiles. A similar technique is applied to the manufacture of integrally stiffened slabs, cf.* 15.)



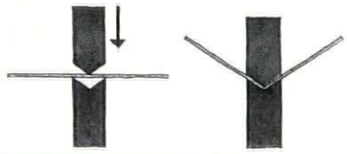
23, *milling—the removal of metal by rotating cutters having a number of cutting edges.*



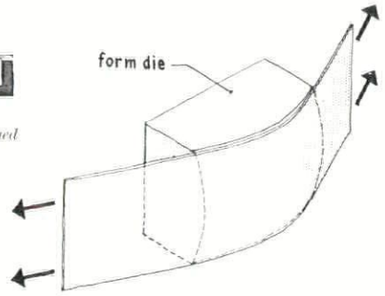
24, *rubber bolster press (for making flanged holes and depressions in sheet).*



25, *guillotine shears (for cutting).*

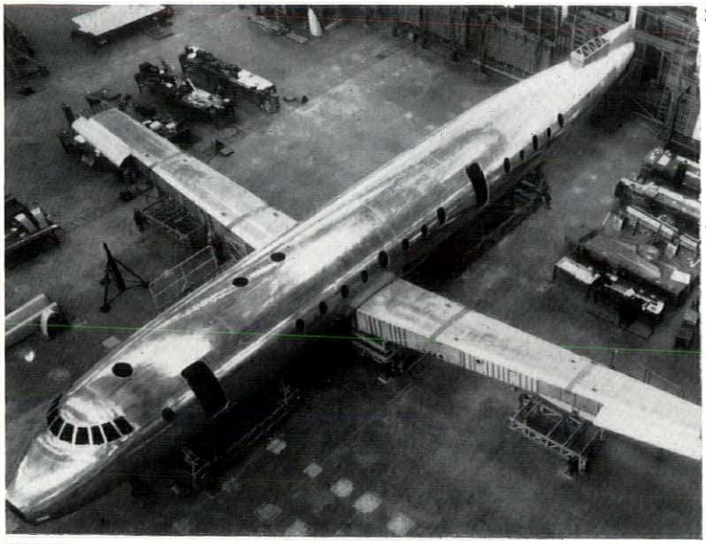


26, *brake press (for bending).*



27, *stretch-press (Hufford). (For producing compound curvatures and various curved, jogged and twisted forms.)*

28



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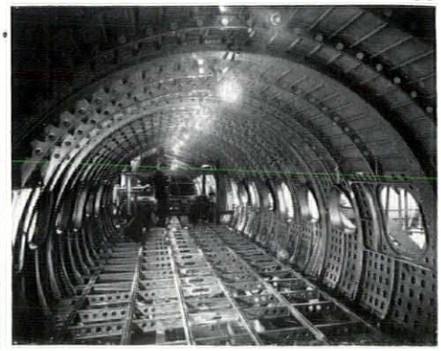

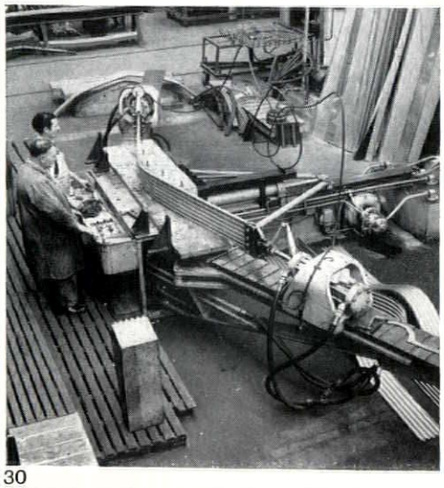

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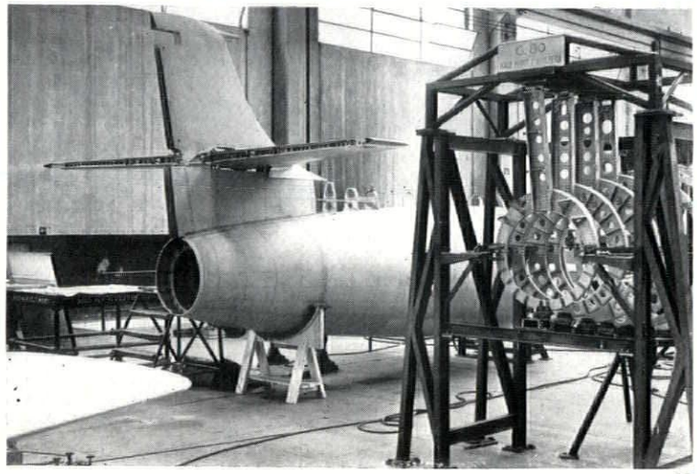

31

28, *primary structure of the first prototype Bristol Britannia during construction. The inner wing spar bores have two sections of leading edge attached at the ends.* 29, *the internal structure of a modern airliner's fuselage. The frames and skin stiffeners are in this case spot-welded. The heavy frames for the wing attachments can be seen in the foreground. The aircraft is the French S.N.c.A.S.E. Caravelle.* 30, *a small Hufford stretch-press at Handley Page Ltd. In this case corrugated honeycomb core is being formed round a die. A similar die on end can be seen in the foreground. The arms can be swung about a point under the die, and controlled tension applied to the workpiece by the hydraulic jacks on the arms.* 31, *a simple fuselage jig, with on the left the corresponding part of a nearly complete rear fuselage (Fiat, Italy).*

board of directors. A complete design team will be quite large—at least 100 on one aircraft unless it is small and simple. The design organization of a firm may be (and in practice those of the main firms are) approved by the ARB 'to furnish reports that the design of an aircraft complies with the Board's published Requirements. . . . A firm may be approved for this purpose subject to compliance with the [following] conditions . . .' (*B.C.A.R.* Section A). These conditions are that the Board satisfies itself that there is 'full and efficient co-ordination between the design office, the inspection department, the construction and the experimental shop,' that the qualifications of the staff are such that they are 'adequate to conduct the work involved in establishing compliance with the Requirements, and shall be such as to ensure that good judgment is exercised with a full appreciation of current aeronautical practice.' It is also laid down that 'the staff shall include specialists qualified in all branches of aeronautics, in particular aerodynamics, strength and stiffness, engine and other installations,' that 'the design office be so organized that all calculations on which the airworthiness of an aircraft depends are independently checked,' that 'the firm shall be able to call upon the services of a test pilot whose experience and qualifications are acceptable to the Board,' that 'the firm shall have facilities for making such tests as are necessary to establish compliance with the requirements, including facilities for structural and mechanical testing, flight testing, weighing, and determining the position of the centre of gravity of an aircraft,' that 'design records shall be such that proper correlation of drawings and amendments with the design records is ensured.' These requirements of course only cover civil aircraft, but there are more or less parallel provisions under the Air Inspection Directorate (MOS) for military machines. Both bodies reserve to themselves powers of inspection of all stages in design and production, and in practice there is a constant interchange of information, and copies of all drawings and calculations affecting airworthiness go to the Board for approval.

As early as possible the production development teams will be brought into the design to help decide on materials and manufacturing methods. As production approaches the design is broken down into production assemblies. Production drawings will number from 10,000 to 20,000 for a modern aircraft, according to size, and leaving out engines. Where sheet metal work is involved, and this still forms the greater part of an aircraft's structure, there is an increasing tendency to do final drawings full size on aluminium alloy sheets by a special technique which makes possible lithographic printing from these plates on to the production sheets, so avoiding laborious marking out by hand. As an alternative the full-sized plates may be reproduced by photographic enlarging from scaled-down drawings. The process of marking out the sheets so that when formed they will provide the required shape is known as lofting.

As soon as the design is far enough advanced the production people will start on jig and tool design, or this may be subcontracted.

The immense amount of work required to ensure structural suitability and safety of aircraft has brought about specialization—in the number of teams within the design group. Architecture seems to be on a similar path—at a less advanced stage—but with the marked difference that the separate specialist designers do not share a common basic training. It is interesting to note the distinction between the design team and the production development team; consultation between the two being 'often not as early as it should be'—this has a familiar ring!

The 'breaking down of design into production assemblies' also has its counterpart in recent experiments by individual architects to produce working drawings adapted to the sequence of operations on the site.

How full a set of tools and fixtures will actually be made depends on the number of aircraft it is immediately proposed to build. About this time a decision has to be made as to whether the aircraft is to be ordered into quantity production or not. The timing of this decision is very important. If it is too early the aircraft may prove unsatisfactory in development, and a large expenditure on production facilities wasted. If it is too late, valuable time may be lost in getting the aircraft into

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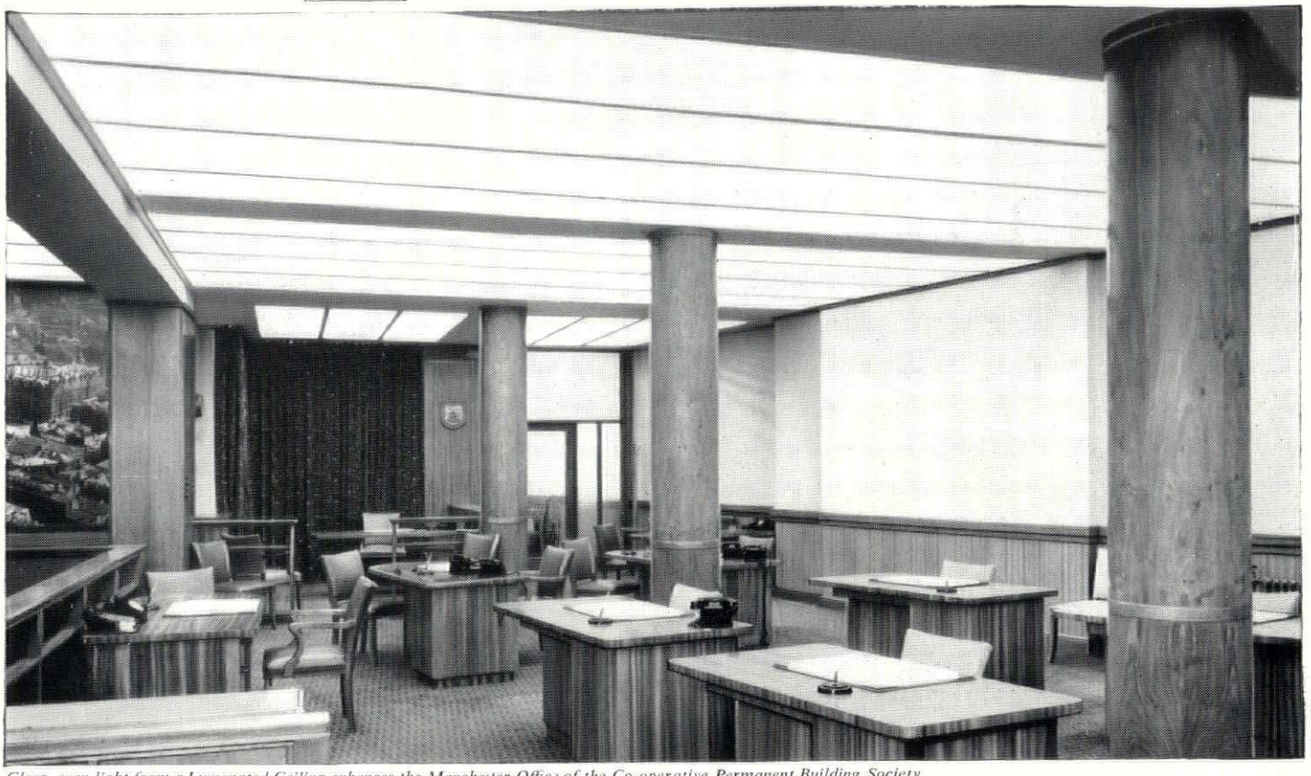
IN OFFICES  THEY **SEE** THE ADVANTAGES



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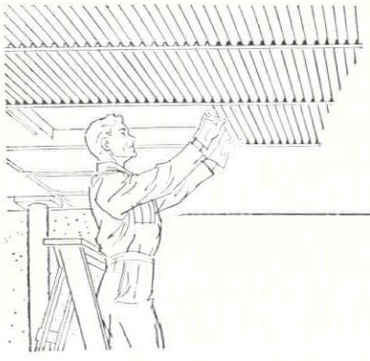

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production when the decision is made in its favour. Probably a conventional civil aircraft will be ordered about the time its prototype first flies, or earlier; advanced military aircraft may well need fuller evaluation in flight before a firm order can wisely be given.

The timing of the decision about quantity production suggests a parallel in the development of systems of construction by architect and manufacturer jointly. For example the Herts CC, in evolving the Hills system for schools, found that many of the difficulties and possibilities were only revealed in the course of putting up several buildings. Contractual arrangements and the terms of orders to the manufacturer allowed periodic modification. The great difference between the two cases is that while technical capabilities dominate in aircraft, economy dominates in building.

In any case aircraft production does not usually run to very large numbers: 100 a year for two or three years would be quite a substantial order for a modern fighter, and larger than would be likely for large aircraft, in this country. However, these numbers are sufficient to justify extensive tooling, whereas a prototype or research aircraft would be built with the minimum of tooling. This minimum is determined by the overriding importance of producing a job up to the very exacting standards of aircraft work: in general aircraft are designed to fulfil their function, a task difficult enough in itself, and only in comparatively minor matters can ease of production be allowed to dominate design. This is no reason, however, to reject production methods which are favourable to considerations of both manufacture and function.

Meanwhile work will have been going ahead on the prototype. Much depends upon the development work which is done on this aircraft and the sooner it is available the better. Some of the tools needed for quantity production may well be made ready at the prototype stage, but in general the prototype will be largely hand built. The extent to which this is so will depend on how far the tooling is essential to the processes involved, and not economy of production. Often a second prototype will be put in hand soon after the beginning of the first, and it is now the policy of the MOS to order a development batch of up to twenty aircraft to reduce delays by making it possible to carry on different parts of the flight development work in parallel. A military prototype will be built to the MOS contract and be their property.

As the prototype nears completion the tempo of work increases. All departments are anxious to see the proof of the pudding. A heavy programme of testing on the ground and in flight is necessary, while a prototype in the air gives the public relations department something to write about; it is a tangible fruit of, probably, several years' work, but it means the job is no more than half completed.

The calculations of the vibration section must be checked by vibrating the aircraft in a number of resonant modes. This is usually done by supporting the airframe on vibrators which work on the same principle as a moving coil loudspeaker, and can be supplied from a variable frequency oscillator. The results have to be incorporated in the flutter calculations before flight at high speed is permitted. Here again the electronic computer is a powerful tool to speed up lengthy calculations.

The functioning of engines, all controls, systems and instruments will be subject to thorough testing on the ground before flight is allowed. The ARB will have to grant a certificate of airworthiness if it is a civil aircraft, and this will be for the prototype only.

After many delays and setbacks the first flight will take place. The company's chief test pilot will be in charge, and the flight will probably consist of a few circuits of the airfield at low speed, trying controls and checking performance. Intensive testing and development follow. The various design sections, particularly aerodynamics and aeroelasticity, will be following the results of the measurements of vibration response and performance, and clearing the aircraft for various increases in speed and loading. The flight test crew are required to fly at specified speeds, or through specified ranges of speed, while carrying out manœuvres or setting test recording gear in operation. Instruments will be reading the various quantities representing performance, and these will be recorded by an automatic observer, which is essentially a cine-camera. Other quantities may be converted into electrical impulses and telemetered back to base by radio. Apart from such quantities as speed, engine r.p.m., control angles, rates of roll, etc., there will be vibration pick-ups at various points, and strain gauges attached to the main structural members. Large quantities of film record and other data will be analysed, as much as possible overnight, so that flying can proceed the next day. Computers and automatic readers are used wherever possible. It is during this period that the value of a development batch shows its advantage over one or two prototypes. The time from the flight of the first prototype to the putting of production aircraft into service is not likely to be less than three years, because of the amount of development work, and because all firms in this country suffer a chronic shortage of staff for this work; there is a tendency for this period to increase as aircraft become more complex. The time from the first steps of design is likely to be twice this.

Assuming that the type has been ordered into production much has to be done before aircraft appear ready for service. Materials are ordered, and may be subject to delays in delivery. Tooling has to be subcontracted, or built within the firm, depending on the production methods chosen. Tools needed will include punch dies for the rubber bolster press, 22, router templates, 23, form dies for the Hufford or other stretch-press, 21. If new production processes are involved special-purpose machines may have to be ordered, or again made within the firm, as the machine tool industry is nowadays working to capacity. Techniques such as bonding, that is metal gluing, call for presses which can apply heat and pressure, both closely controlled, to the parts to be joined. Production techniques are illustrated in 22-31.

The firm will have a production planning department which will lay out the production line, with the flow of parts from one operation to the next. Time study and rate-fixing departments have to work out rates for piecework. Control of material and inspection of parts to see that they conform to the drawings is the responsibility of the ARB or AID approved inspection departments, whose staff will amount to about 12 to 15 per cent of the whole

[continued on page 208

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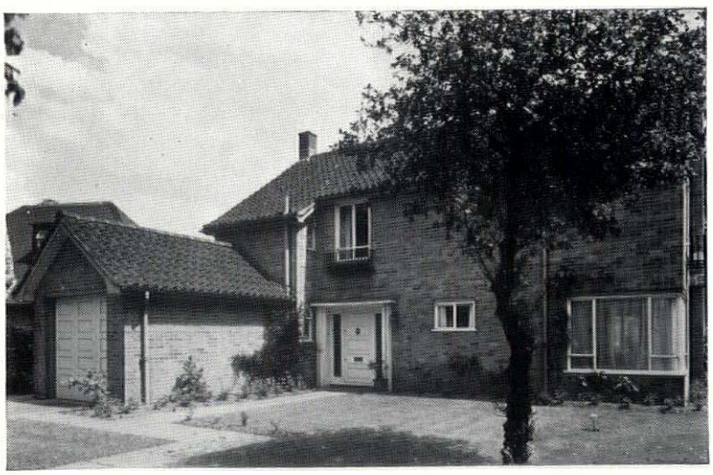

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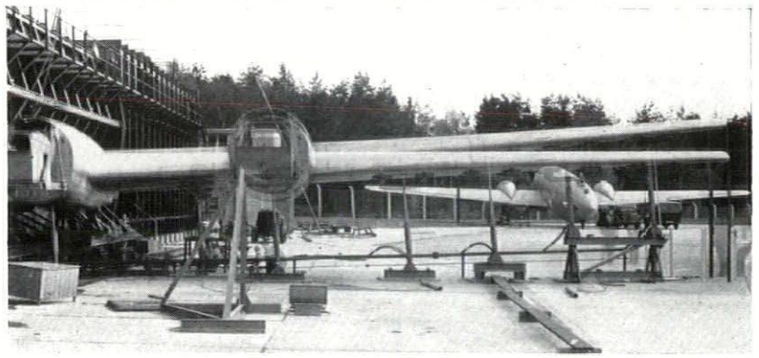
continued from page 206]

production team. The ARB requires all material to be colour coded to specification, and kept in bonded stores until required. Also the chief inspector must be responsible directly to the board of directors.

Most of the firms have limited production capacity, and a large production order may mean separate production lines being set up elsewhere, very likely at the works of a competitor, or the subcontracting of airframe parts to outside sheet metal workers. Specialized equipment such as the undercarriage, air conditioning and electrical equipment is also likely to be subcontracted, particularly by the smaller firms, but close consultation is maintained at all stages of the design and manufacture of such items. The assembly of the complete airframe, the installation of equipment, and the running of cables and pipe systems is usually done by the main firm, or at any rate by another aircraft constructor.

As the first production aircraft near completion final details of equipment will be settled with the operator, such as seating and interior trim of civil aircraft, radio equipment and crew accommodation. The operators of civil aircraft will have had opportunities to study and fly in the prototypes, and military prototypes are evaluated for the services by the Air and Armament Experimental Establishment at Boscombe Down.

When in full production aircraft are tested by the constructor, 32, and handed over to the operators, who will carry out their own tests before putting the machine into service. As no design ever reaches finality modifications are constantly being incorporated. These may be minor, such as an alteration to the mounting of some piece of equipment necessitated by the change to a more up-to-date type, or major, such as the increasing of the size of some structural member which has been found in service to develop fatigue cracks. These modifications upset the production schedule, and may be considered important enough to be retrospective, so that aircraft completed earlier have to be modified, either in the operators' workshops, or by the manufacturer.



32. structural testing of the Bristol Britannia at Farnborough. The double exposure shows the amplitude of the working deflexion. This particular test applies fluctuating wing loads to simulate the effect of gusts, while the fuselage pressure cabin is pressurized and released under water in the tank on the left, to represent the once-per-flight pressure loads. These tests are necessary because of the impossibilty of predicting fatigue life reliably from theoretical considerations. (Crown copyright reserved.)

British aircraft are normally conceived in the first instance for the British operators, the services or civil corporations, but any successful aircraft is likely also to be sold abroad, and indeed production quantities would often be too small to be economic if this were not done. Generally the firm reaps the reward from these sales, although licence fees are paid to the Government for the use of work carried out under Ministry contract.

It may be asked what happens if an aircraft is found unsatisfactory and not put into production. In this case the contract is cancelled and the firm compensated for its work on a 'cost plus' basis, the margin allowed being 10 per cent, and the cost being that properly incurred in the fulfilment of the contract. The MOS has members of its staff in each factory doing work to Ministry contract, and they help to assess what work can fairly be charged to the contract if it is cancelled; they should be aware of time sheets and other costing apparatus involved. It is this procedure which enables firms to show a substantial profit even when they have had a failure with their current aircraft. It has been criticized on the grounds that it does nothing to encourage efficiency or economy, but some method of ensuring continuity of work in the industry, and of preventing dissipation of the talents of technical staff, is essential if the best use is to be made of the facilities. Also few industrial concerns can take the financial risks involved in developing a large modern aircraft without outside aid.

The inherently uneconomic nature of experimental development of new products is a problem that aircraft and building probably share with all other industries. Individual manufacturers or the few builders who initiate new methods have to be quite sure they will recoup development costs on later sales. Individual clients—whether bodies such as the MOE or private people (and their architects)—are generally compelled to make sure that the 'prototype' is itself an economic proposition. But it should be remembered that the 'profitable failure' of the aircraft industry takes place in an environment sheltered from ordinary rigours of supply and demand.

The aircraft industry shares with the rest of engineering industry the practice of uniting the activities of conception, design, manufacture and sales under one board, and often under one roof, with the staff for each of these activities drawn from broadly the same sources, but differs from it in its immense reliance on Government research, and the extent to which the Government is its main customer. It is an industry which has become accustomed to the attitude that it is difficult enough to make an adequate product at any price, and that economy is a secondary consideration. However, as a result it has shown that the application of the results of fundamental research, in administration and production as well as in design, is of great value. It has also proved to be a great forcing house of ideas. But for pressure from the aircraft industry development of very high strength alloy steels, aluminium alloys, structural plastics,

[continued on page 210



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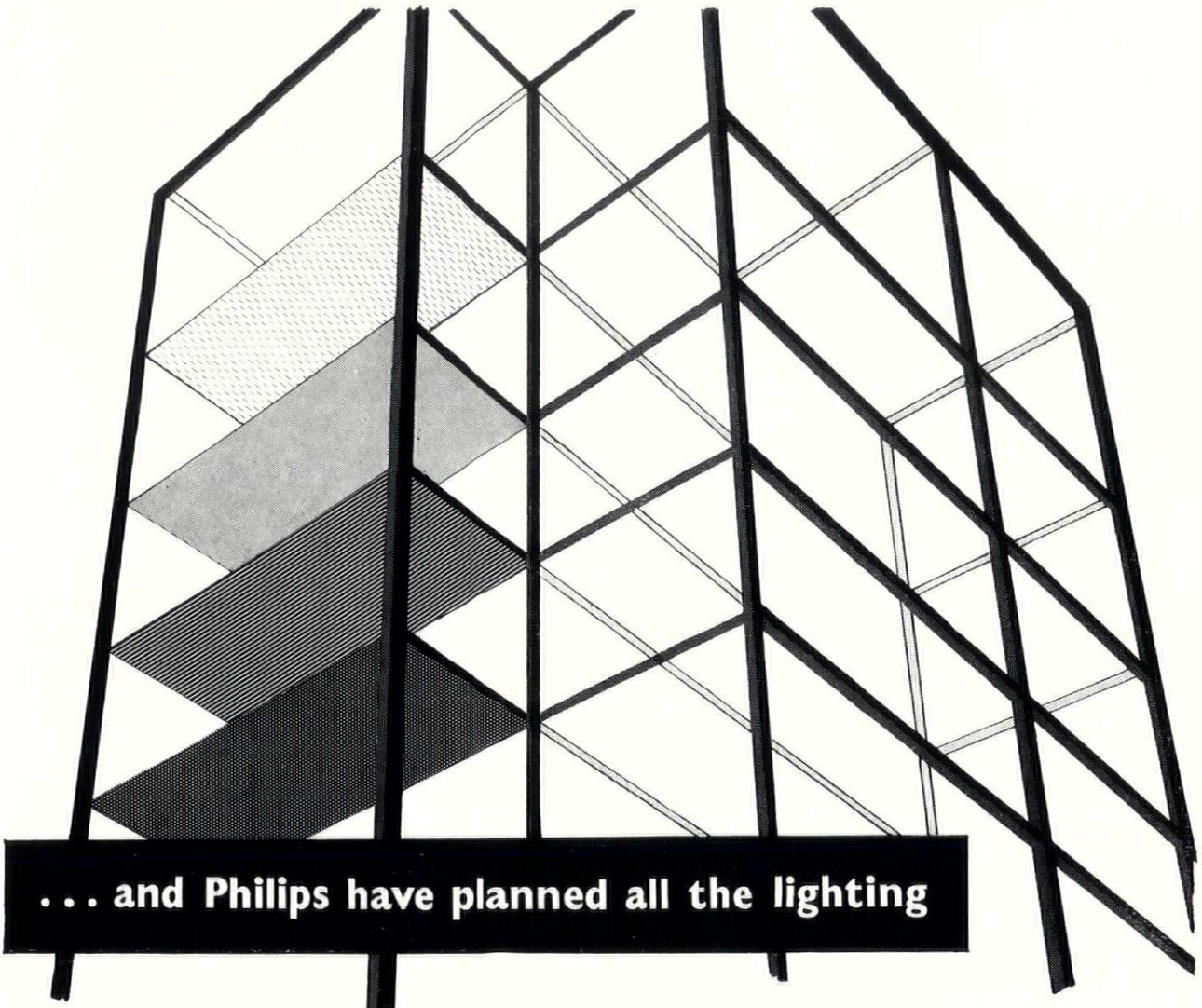

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continued from page 208]

synthetic glues, and many other materials and techniques would have been much slower.

The 'uniting of all activities under one roof' is a possibility that has only just appeared on the building horizon. The need for it is a direct consequence of increasing technical complexity. There is a parallel too in the extension of Government interest in building—as the major research body and, through the local authorities, as a major customer, setting space, performance and equipment standards which inevitably influence all building design.

CONTRACTORS etc

School in South Kensington. *Architects:* Chamberlin, Powell & Bon. *General contractors:* W. J. Marston & Son. *Sub-contractors: steel frame:* Redpath Brown & Co. *Aluminium windows and transomes:* Quicktho (1928) Ltd. *Glass* Pilkington Bros. Ltd. *Glaziers:* Faulkner-Greene & Co. *Roofing:* Wm. Briggs & Sons. *Paints:* W. & J. Leigh, Ltd. *Flooring (Resinoid and Crestaline):* Haskel Robertson & Co. *Tiles:* Wiggins Sankey & Co. *Ceiling (Pinoleum):* Tidmarsh & Sons. *Kitchen lift:* George Johnson, Ltd. *Slate cills:* Bow Slate & Enamel Co. *Ironmongery:* Alfred G. Roberts, Ltd. *Glazed partition bricks:* Leeds Fireclay Company. *Electrical contractors:* John Hearson & Co. *Electric light fittings:* Frederick Thomas & Co. Atlas School Fittings. Forest Modern. Hume Atkins & Co. *Bricks (suppliers):* R. Passmore & Co. *Sanitary ware:* Adamsez, Ltd. Stitsons Sanitary Fittings, Ltd. *Sliding door gear:* P. C. Henderson, Ltd. *Heating:* Norris Warming Co. *Heaters:* C. A. Dunham & Co. *Hardwood floor:* Vigers Brothers Ltd. *Wallpaper:* Cole & Sons (Wallpapers) Ltd. *Turfing:* James Monk. *Dry partitions:* British Plasterboard Co. *Gates, railings and balustrading:* St. Peter's Metal Works. *Tarmacadam:* The Wainwright Paving & Contracting Co. *Trees:* Hillier & Sons. *Acoustic tiles:* Merchant Trading Co. *Spherical concrete water tank:* Cement Gun Co. (Gunite). *External finish on tank:* Gunac Co.

Offices in Chiswell Street, E.C.1. *Architects:* Handisyde & Taylor, in association with Hammett and Norton. *Clerk of works:* M. Carding. *General contractor:* Bovis Ltd. *Sub-contractors (structure): Asphalt tanking:* Limmer & Trinidad Lake Asphalte Co. *Asphalt roofs:* H. V. Smith & Co. *Leca blocks:* Lightweight Precast Concrete Co. *Reinforced concrete:* Bovis Ltd.; Phillips Floors Ltd. *Stone and stonework:* J. Bysouth Ltd. *Slate panels:* Setchell & Sons. *Partitions:* Internal Constructions Ltd. *Lavatory partitions:* Compactum Ltd. *Glass fixer:* James Clark & Eaton Ltd. *Glass supplier:* Pilkington Bros. *Wood block flooring:* Hollis Bros. *Artificial stone:* Girlings' Ferro-concrete Co. *Structural steel erectors:* Browns Erectors Ltd. *Structural steel supplier:* United Steel Structural Ltd. *Waterproofing material:* R. I. W. Products Ltd. *Sub-contractors (equipment): Central heating:* Regional Heating Co. *Gas fixtures:* William Sugg & Co. *Gas fitting:* North Thames Gas Board. *Electric wiring and bells:* City Electrical Co. *Electric light fixtures:* Courtney Pope (Elec.) Ltd.; Troughton & Young Ltd.; G.E.C.; Merchant Adventurers of London, Ltd.; Falk Stadelmann & Co. *Boilers:* Ideal Boilers & Radiators Ltd. *Stairtreads:* R. Cattle Ltd. *Metal staircases:* Haskins Ltd. *Plumbing:* Subtrades Ltd.; F. Braby & Co. *Lightning conductors:* J. W. Gray & Son. *Door furniture:* G. & S. Allgood. *Pavement lights:* Lenscrete Ltd. *Fire defence equipment:* Merryweather & Sons. *Telephones:* G.P.O. *Metal windows:* W. E. Coffey & Sons. *Window furniture:* Teleflex Products, Ltd. *Folding gates:* Bolton Gate Co. *Fireproof doors:* Fireproof Shutter & Door Co. *Sanitary fittings:* Broads Manufacturing Co.; John Bolding & Sons. *Staircase balustrate, railings, etc.:* Haskins, Ltd. *Linoleum flooring:* Cellulin Flooring Co. *Plaster and granolithic:* Sydney F. Smith. *Joinery:* R. Cattle, Ltd.; Bovis, Ltd. *Marble:* Hopton-Wood Stone Firms, Ltd.; A. & F. Manuelle, Ltd.; Summers & Co. *Textiles and furniture:* Heal's Contracts, Ltd. *Wallpaper:* Cole & Son (Wallpapers) Ltd. *Cement glaze:* Robbs Cement Enamel Finishes, Ltd. *Sun blinds:* J. Avery & Co. *Office fittings:* Cooke's (Finsbury) Ltd. *Lifts:* J. & E. Hall, Ltd. *Signs:* The Lettering Centre. *Paints:* Leyland Paint & Varnish Co.; Inertol Co. *False ceilings:* Thermal & Acoustic Installations, Ltd.; Bovis, Ltd. *Terrazzo:* Art Pavements & Decorations, Ltd.; Alan Milne, Ltd.; St. James Tile Co.

House at Reigate. *Architect:* John R. Stammers. *Quantity surveyor:* Frederic Saunders. *General contractors:* H. Bacon & Son. *Sub-contractors and suppliers: copper roofing:* Frederick Braby & Co. *Felt roofing:* D. Anderson & Son. *Electrical installation:* W. G. Neale & Son. *Wood block and cork tile flooring:* Hollis Bros. *Thermoplastic tiles:* Marley Tile Co. *Second-hand stock bricks:* Willment Bros. *Foundation bricks:* Uxbridge Flint Brick Co. *Sliding windows:* P. G. Allday & Co. *Metal door frames:* Henry Hope & Sons. *Standard windows:* Mellowes & Co. *Weatherboarding:* Joseph Sandell & Co. *Sanitary fittings:* John Bolding & Sons; Stainless Steel Sink Co. *Electrical heating:* Panelec Ltd. *Flush doors and kitchen cabinets:* Jayanbee Joinery Ltd. *Garage door:* Westland Engineers Ltd. *Special tiles:* Purbeck Decorative Tile Co. *Wallpapers:* Cole & Son (Wallpapers); Arthur Sanderson & Sons; John Line & Sons. *Paint:* The Walpamur Co.; Imperial Chemical Industries Ltd.; Cement Marketing Co. *Lighting fittings:* Merchant Adventurers of London Ltd.; Troughton & Young Ltd. and General Electric Co. *Garden:* Mechanised Gardening Ltd.

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Corrigendum

We regret that, through a setting error, one of the half-tone illustrations in the display advertisement of A. Davies & Co. (Shopfitters) Ltd., was printed upside down.
The same advertisement appears, corrected on page ix of this issue.

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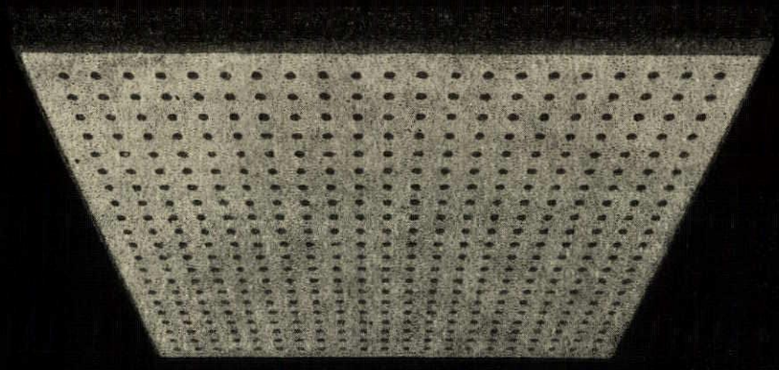

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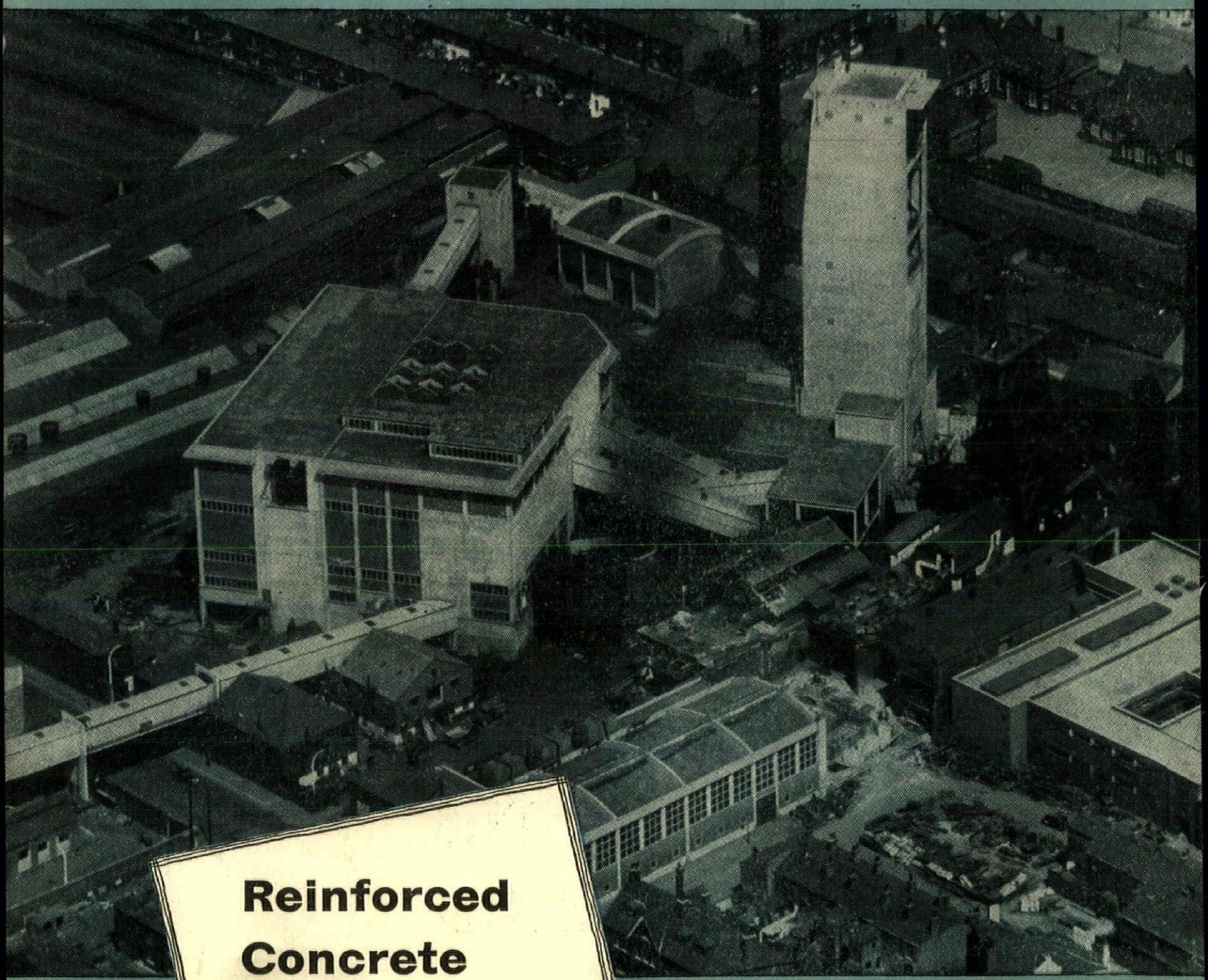

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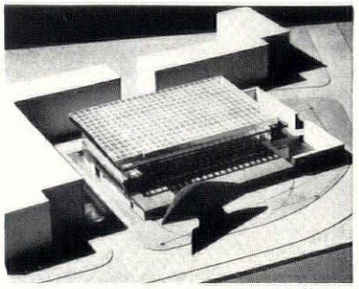
MARGINALIA

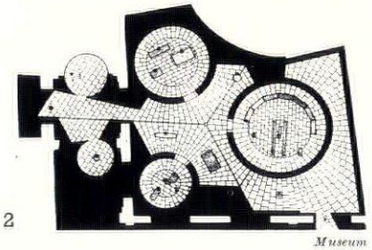
New Museums

UNESCO's quarterly *Museum* (Vol. IX, No. 2, 1956)* provides a useful survey of the most forward-looking museum buildings currently building or recently projected. Apart from those that have been dealt with in THE ARCHITECTURAL REVIEW already—the *Arts et Traditions Populaires*, Paris (AR, July, 1956), Museum of Modern Art, Rio de Janeiro (May, 1954) and Yale (December, 1955)—this issue also describes or illustrates the rehabilitation of the Villa Giulia, Rome, the proposed new museum at Le Havre, by Lagneau and Audigier, with its giant sunscreen overhead, 1, and



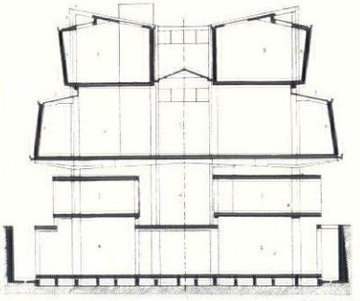
1 *Museum*

two of the most exciting new Italian projects. One is exciting for its plan, the other for its sections. Plan-wise, the *Tesorio* of San Lorenzo, Genoa, has been organized by Franco Albini as a series of cylindrical *coffre-forts*, 2, in a crypt below the courtyard of the Archbishop's Palace



2 *Museum*

—the only piece of free ground that could effectively be linked to the sacristy in such a way that the treasures could conveniently be taken up to the Cathedral for ceremonial use. In the sections of the new Gallery of Modern Art, Turin, the architects, Bassi and Boschetti, have exploited the difficulties of top-lighting superimposed galleries to give a profile, 3, that one might well



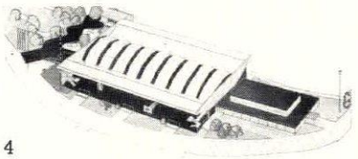
3 *Museum*

be tempted to dismiss as Neo-expressionist did it not manifestly promise excellent performance under difficult conditions. Their design, crammed diagonally into a site that is barely large enough to accept it, is a masterpiece of ingenuity and was the product of a competition held in 1951.

* HMSO price 5s.

Brussels Exhibition

Though nothing has yet been announced about the design of the British Government Pavilion at the Brussels International Exhibition, 1958, the FBI have published sketch-plans, etc., of the Industrial Pavilion. This will, in fact, be a group of buildings, 4, the main block consisting of pavilion proper, designed by Edward D. Mills, a three-storey steel framed structure with tubular lattice-truss roof, walled in patent glazing and light cladding. Annexed to this at one end will be a cinema, and at

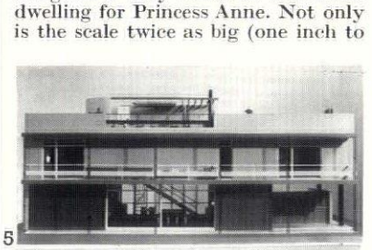


4

the other end a part-covered piazza with shops and—apparently—a reproduction of a council-estate type pub ('contemporary in style but employing traditional materials,' etc., according to one source). One hopes that this particular piece of half-heartedness will be reconsidered before the design proceeds too far. The English penchant for compromise is not an exportable commodity, and in the context of the first International Exhibition since New York, 1939, this piece of brewers' timidity is unlikely to look anything but second-rate. If we must have a pastiche there might be a case for a piece of all-out half-timbering, oak-beaming and copper-bottoming, but there is an even better case for an all-out exercise in the true gin-palace vernacular, with all its glitter and excitement re-phrased in a manner as forthrightly and unashamedly contemporary as the main pavilion.

Royal Dolls' House

Following in a tradition which is also adorned by Sir Edwin Lutyens' famous Royal Dolls' house, James Cubitt and Partners have recently designed a very different miniature dwelling for Princess Anne. Not only is the scale twice as big (one inch to the foot) but the style is straightforward contemporary, based upon one of the same office's houses in West Africa, 5. Not only does the larger scale permit the model furniture to be made robust enough to be played with, but the double height hallway/living-room facilitates the entry of the hand, and the contemporary idiom, in which the interior economy of the house shows through the screen-like outer walls, permits the removal of one wall for access, 6, without drastically altering the feeling of the elevation.



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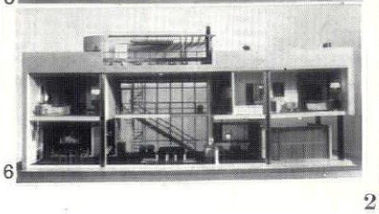

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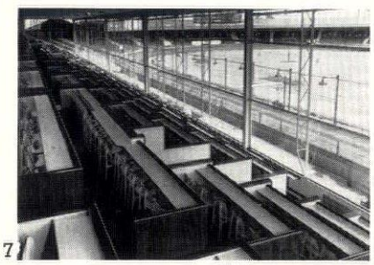
Glassed-in Stand

Encounters between architecture and sport have not always been happy in England in recent years but to the noble exception of East Molesey cricket pavilion (AR October 1955) can be added now the re-designed stands at Wimbledon Stadium, by Guy Morgan and Partners, 7. The nature of the pro-



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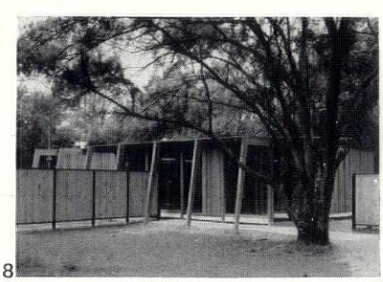
gramme, involving three-hundred feet of glazing with the minimum of visual obstruction, invited boldness of handling and the paring-down of structure to the minimum. As will be seen, the view from the terraced seating is interrupted only by six major stanchions in the entire length, and by the light lattice wind-braces.

Adelaide Exhibition

The Australian Architectural Convention has been held, this year, in Adelaide, South Australia, and has been the occasion of an extremely successful exhibition presenting architecture and building techniques to the general public—of whom 100,000 visited it in the three weeks it was open. Its success seems to have been largely due to its presentation in a number of well-designed temporary pavilions in the famous Botanic Park. If the presentation was thus of *Triennale* type, the stands were also capable of comparison with Milan on quality of design. They were, mostly, of the portal-frame type—as in the Timber House, 8—or tension structures of various kinds, such as tents—the International Pavilion, 9, with sculpture by Dutkiewicz in the foreground — suspended canopies — like the entrance feature, 10, with its glittering weave of aluminium foil—or unclassifiable—like the Steel Pavilion, 11. Ten architects worked together on a voluntary basis to produce this exhibition, with three sculptors and a mural painter, a remarkably successful example of large-scale teamwork.



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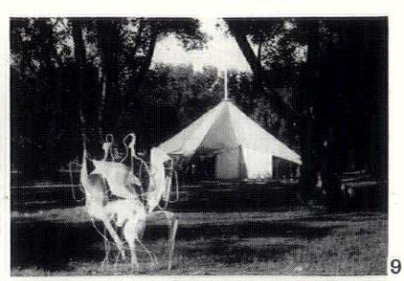

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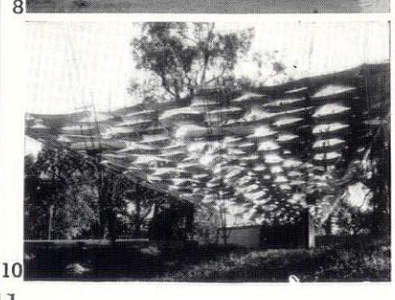


10



11

CORRESPONDENCE

Historic Churches

To the Editors,

SIRS,—It seems to me that Mr. John Betjeman has said the last word on the at present vexed subject of preserving ancient churches: broadly (to summarize his recent remarks in *The Spectator*) that a building put up to the glory of God continues to glorify Him by its very existence; and this, I would add, is especially so if it is architecturally distinguished and even more if its place in the townscape (or the landscape; but rural parishes do not grow 'redundant' so readily) is such as to attract, involuntarily and unconsciously, the eyes of all. This is not to say that a tin chapel in the shadow of a gas-works is not emotive as well; but it is so in a different way, namely, as a proof that God can be glorified as well through the medium of rusty corrugated iron and peeling green paint as by graceful steeples and marble monuments.

What is certain is that one never thinks of churches as built by man for his own glorification; they bear witness to some forgotten man's gratitude to his creator. One man can only bear such witness during his own life-time; the church he builds can do so until it ceases to exist. Furthermore, a man's devotion fluctuates; a building is always there, day after day and year after year, a reminder that God also is always there. Therefore, it seems that the Church of England is taking a dangerous step, weakening its heritage and gratuitously increasing its own burden, by destroying such monuments. If the beauty, grandeur, simplicity or silence of a church has ever permanently won a soul to God, then any number of 'redundant' ministries is worth having.

Yours, etc.

THOMAS BRADBURY.

London, W.C.2.

St. Mary's Sandwich

To the Editors,

SIRS,—As many of your readers will know already, the Sandwich P.C.C. has applied for a faculty to demolish the medieval church of St. Mary's, Sandwich. This is in spite of Mr. Ivor Bulmer-Thomas' offer to provide £3,000 towards the cost of preserving it. An Association of Friends of St. Mary's has been formed by local residents with the objects of opposing the P.C.C.'s application and raising the additional funds necessary, and it is now possible that St. Mary's will, therefore, be saved.

The historical and architectural interest of this church alone makes its preservation essential, and from the pastoral point of view it would be improvident of the Church to do away with a building of such antiquity merely because at the moment it can find no use for it. However, attention has already been drawn to these aspects elsewhere. But there are two points in the case



for St. Mary's which need special emphasis.

(1) Whatever St. Mary's merits as an individual building, it forms a prominent part of the Sandwich 'townscape'—its Norman west wall ends the vista down the sixteenth- and seventeenth-century houses of Church Street., St. Mary's—and, if removed, it would leave an ineradicable scar on the face of the town. This would be tragedy, as Sandwich—once England's first port—is not only an historic town, but one of considerable architectural importance. Few towns can boast so representative and unspoilt a collection of ancient buildings.

(2) In 1913 a Joint Select Committee recommended that ecclesiastical buildings of architectural or historical interest should be made subject to the provisions of the Ancient Monuments Acts. This would have meant (among other things) that preservation orders could have been issued for any buildings which the Church wished to demolish. The recommendation was, however, rejected upon the undertaking of the then Archbishop of Canterbury, that he would find out what precautions the Church took 'to secure that no harm shall arise to the ecclesiastical buildings whose value is so great,' and, if necessary, to see that extra precautions were taken. This undertaking was taken as a pledge that the Church would look after its ancient buildings.

Since 1913, in fact, few ancient churches have been demolished, and during the last four years, while the policy of the Historic Churches Preservation Trust was to provide funds for the preservation of *any* church of sufficient interest, irrespective of whether it was, or was not, supposed for the time being to be 'redundant,' *no* such church has been lost.

But if the faculty to demolish St. Mary's is granted, the Church will very likely feel free to demolish other fine churches (like Holy Trinity, Leeds, and St. Mary-le-Quay, Ipswich), which are temporarily 'redundant.' These losses none of us can afford. To put it simply, it looks as though St. Mary's may be the 'thin end of the wedge,' and for this reason alone every effort must be made to prevent its demolition.

Yours, etc.,
ARTHUR PERCIVAL

Sandwich, Kent.

Blackheath then and now

To the Editors,

SIRS,—Blackheath, S.E.3, has, since the war, suffered considerably from the hands of improvers. Most of the large depressions known as 'the pits,' features which gave character to the flat open space and where the bank holiday fairs used to be situated, have been filled in and replaced with level grass. [*See the two photographs below.*] Incursions of housing which are reputed temporary only have despoiled opposite ends of the heath. A veritable forest of poles now mars every road across the heath (of which there are too many in any case). Various types of lighting are the principal offenders. The innocent original gas lamps, once quite adequate, have been heightened with curly extensions (artistic?); road names on the Lewisham side have appeared on the end of seven-foot poles, various kinds of notices in addition to crossing signs 'improve' the amenities and, in another vein, rustic benches add their flavour to this welter of industrial objects.

In Blackheath Village, now heavy with traffic, crude iron barriers restrict the pedestrian and destroy the original character—assisted by preservation societies who ensure that buildings in the Vale under reconstruction are made into a polite Georgian as opposed to the original nondescript but honest buildings that were damaged.

Antique shops have appeared in numbers, a phenomenon which like a preservation society is generally associated with the destruction of a townscape in good faith and under the banner of private or municipal improvement.

Yours, etc.,
TREVOR DANNATT.

Neo-Egyptian

To the Editors

SIRS,—The learned article by Messrs. Pevsner and Lang was most interesting to this fancier who never traced the Egyptian Revival back any further than Bonaparte's expedition.

I enclose a photo of what must be the most Americanized Egyptian Revival building to be found on land or sea. It is the Whalers Presbyterian Church at Sag Harbor on Long



Island (N.Y.), designed by the self-taught architect Minard Lafever and built by shipwrights in the eighteen-forties. I was holding the camera straight, those really are Battered Walls in Frame and Clapboard!

Yours, etc.,
JOHN MAASS.

Philadelphia.

[*The photograph above will appear in a book by Mr. Maass on Victorian architecture in the U.S. shortly to be published.*]

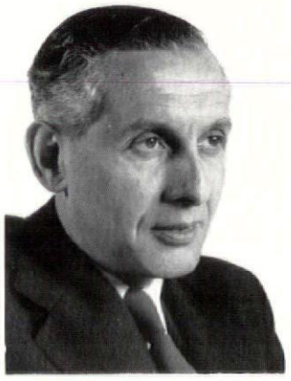
Intelligence

The regulations and programme of the eleventh *Triennale di Milano*, which will take place in 1957, have been issued by the Triennale office. The exhibition is to have three main themes; the relationship of the arts, contemporary architecture, art-production (handicrafts) and industrial design. Copies of the regulations and other information may be had from: Centro Studi Triennale, Palazzo dell'Arte al Parco, Milan. The British Council and C.O.I.D. have been trying to persuade the Government to participate officially, but it is understood that once again the idea has been rejected.

Messrs. Richard Sheppard and Partners have been appointed architects for the Imperial College expansion scheme in Princes Gardens, Kensington.

Ickworth House, Suffolk, an English eccentric's equivalent of a Ledoux fantasy, has been acquired by the National Trust from the Hervey family.

The Public Relations Committee of the RIBA is organizing a touring exhibition on the problem of Subtopia, based on the ARCHITECTURAL REVIEW's 'Outrage' issue, and arranged by Gordon Bowyer. The exhibition is expected to be on the road early in the New Year.



Cecil H. Elsom, architect of the offices in Bruton Street, W.1. (see pages 227-8) was born in 1912, went to Northern Polytechnic Evening School of Architecture, and qualified in 1939. Started practice in 1934, after winning competition for Town Hall, Welwyn Garden City; partner in firm of Lyons, Israel and Elsom 1935–1939. Royal Engineers, England and India, 1940–1946. Recommenced practice 1946. Post-war work includes London office blocks, chain stores, television studios, agricultural housing, factories and cinemas.

ACKNOWLEDGMENTS

The colour block on page 252 (the Library at Rangoon) appears by courtesy of Raglan Squire and Partners.

MARGINALIA, pages 211–212: 7, Studio Cole; 8–11, Arnold Ltd. FISCHER VON ERLACH, pages 215–217: 3, Warburg Inst. (H. Gernsheim). WEST END OFFICES, pages 218–226: 1–4, 6–10, McCallum, Arphot; 11, 12, L. Collier and Partners; 13, 14, 16, Galwey, Arphot; 15, Colin Westwood; 18, John McCann; 19, 20, 24, Marcus Sharratt; 21, S. W. Newbery; 23, John Maltby; 28, Colin Tait. Pages 227–233: Albert Embankment, 1–3, 6, Wainwright; 4, 5, Galwey. Bruton Street and New Cavendish Street, C. Westwood. REPORT FROM CALIFORNIA, pages 237–239: 1, 2, Walter Horn; 3, 6, John B. Vincent; 4, Ernest Braun; 5, Rondal Partridge; 8, 9, 10, Morley Baer; 11, Eddie Hoff. ALPHABET AND IMAGE, pages 240–7: 3, Fedn. Nationale des Fabricants de Chaux et Ciments; 7, McCallum; 18, I. de Wolfe, Arphot; 19, Reece Winstone; 21, Div. of Highways, California. STORE AT SOUTHAMPTON, pages 249–251: Galwey. LIBRARY AT RANGOON, colour photo, page 252: Michael Boys. CURRENT ARCHITECTURE, pages 255–258: Turnhouse Airport, Toomey, Arphot; House at Mereworth, Norman Gold. MISCELLANY, pages 259–264: Piece Hall, Town Clerk's Office, Halifax; Exhibitions, 5, R. B. Fleming; Outrage, Nairn, Arphot; Books, G. E. Kidder-Smith. SKILL, pages 265–end: Restaurant in Helsinki, Kolmio; Restaurant in Old Brompton Road, 3, 4, Galwey; rest, R. A. Morton. Design Review: 1, Fyns; 2, Hiller & Swatton; 3, Larkin Bros.; 6, Collier Ltd.; 7, Thorn Electrical.

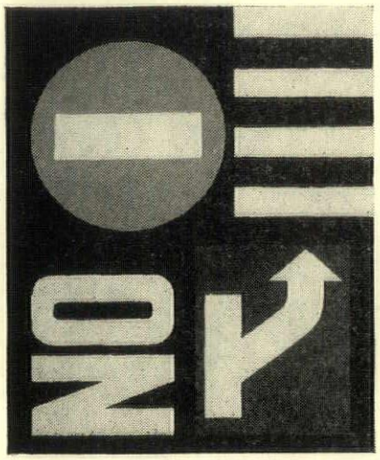
Below left, Blackheath Fair (on August Bank Holiday) before the undulations were filled in; right, close to the same site today. See letter 'Blackheath then and now.'





THE ARCHITECTURAL REVIEW

Volume 120 Number 717 October 1956



This Month's Cover assembles some of the elements of a proposed code of clear and comprehensible visual symbols, that could replace the present muddle of variously-lettered, insensitively-designed notices that distract the traveller from the pleasure and business of travelling without always communicating to him the intended warning or information. The subject is further discussed on pp. 240-247, where Gordon Cullen extends the possible range of non-alphabetical signals for an automotive age to include plastic and topographical symbols as well.

211 **Marginalia**

211 **Correspondence**

214 **Frontispiece**

215 **Fischer von Erlach** *by Nikolaus Pevsner* The influence of Fischer von Erlach, the tercentenary of whose birth falls this year, depended very little upon his buildings, very much upon his book *Historische Architektur*. Published in Vienna in five volumes in 1721, it was the first general and pictorial history of architecture to appear, not restricted to the buildings of a particular locality nor to the propagation of a particular style, but intended to show the variety of world architecture from Stonehenge to China, from Solomon to von Erlach. In this commemorative article Professor Pevsner considers the historical importance of the book and its illustrations, its translation into English, its reception and curiously scattered influence in the world of eighteenth century English architecture.

218 **West End Offices** *by Ian McCallum* The rebuilding of the City of London is already the subject of extensive discussion and polemic, but the piecemeal reconstruction of the rest of the Central London area has so far gone without comment. This is in part due to the fact that it has only recently got under way, and partly to the scattered nature of the developments. Nevertheless, office developments in the West End now constitute a large part of the building work in hand in London, and the situation requires some study. Mr. McCallum draws attention to the special problems of design that separate the architect working in the City from one working in the West End. The buildings in the West End have usually to be fitted into narrow and isolated sites, and there are few opportunities at present for large-scale designs. As façades, these buildings will either be seen at close range from pavement level—that is, as ground floors only—or in raking views from the opposite side of the street with their ground-floors masked by traffic. Very few designs seem even to recognize the existence of this problem, any more than most of them have really made an attempt to grapple with the visual problems arising from window and office-planning modules. In taking his discussion of these points from the general to the particular, Mr. McCallum is able to cite the cases of no fewer than 24 recently-designed buildings, but these represent only the most interesting examples out of a much larger field of activity, as may be judged from the map which forms the frontispiece to the article.

227 **Offices on Albert Embankment:** *Architect, Frederick Gibberd*

229 **Offices in Bruton Street:** *Architect, Cecil H. Elsom*

230 **Offices in Victoria Street:** *Architects, Sir John Burnet, Tait and Partners*

232 **Offices in New Cavendish Street:** *Architects, Gollins, Melvin and Ward*

234 **Choisy** *by Julius Posener* Among the important, but already half-forgotten, books that helped to form the climate of opinion in which Modern Architecture grew up, the *History of Architecture* of Auguste Choisy holds a special place. It remains only half-forgotten because it is still used as a work of reference, and because succeeding generations have pillaged its splendid illustrations for their own ends, but even those who accept its major premises as almost maxims, rarely read it nowadays. Choisy was one of the last and greatest of the French nineteenth-century Rationalists, for whom logic and technique were the guiding lights of architectural development throughout history, for whom a question, once posed, indicated its own solution. Neither the value, nor the historical importance of this attitude—nor, indeed, of Choisy's book—have been fully discussed before, and Dr. Posener's study of Choisy as theorist and teacher is a pioneer investigation into the French antecedents of the Modern Movement.

237 **Californian News-letter** *by James Ackerman* Known to outsiders chiefly as the home of the Bay Region Style and of Charles Eames, California is a rich and varied province of American architecture with its own splendours and miseries—deriving chiefly from newness, vast distances contrasted with an insistence on domestic scale, technology and the automobile. Dr. Ackerman, now resident in California, reports on its architectural appearance and the recent work of local and outside architects in the State, finding that the results of two warring traditions—local for domestic work, European for larger buildings—have been an unhealthy battle of opinions and an architecture that is uncommonly vital.

240 **Alphabet or Image** *by Gordon Cullen* Whereas other modes of transport have their own codes of signals, symbols, equipment and trim, that give them unity as serial experiences and are proper to the speed of locomotion, the motorized highway presents only visual disorder, discontinuity, obscurity in signalling and a failure to realize that automotive speeds make road travel into an experience that is different in kind, rather than degree, from the experiences of the horse-and-cart epoch. Mr. Cullen presents, by means of both photographs and drawings, the inadequacy of the present code and the modes of thought on which it is based, and suggests ways by which a code of symbolic forms could be evolved that would enhance the efficiency and the safety, the business and the pleasure of travelling by road.

248 **Store at Southampton:** *Architects, Yorke, Rosenberg and Mardall*

252 **Preview: Library at Rangoon:** *Architects, Raglan Squire and Partners*

255 **Current Architecture**

Miscellany

259 **History**

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Skill

265 **Interiors: Restaurant in Helsinki:** *Architect, Aarne Ervi*

Restaurant in Old Brompton Road, S.W.7: *Designer, Terence Conran*

271 **Design Review**

272 **Techniques: Remote Control Gear for Ventilators** *by Robert Maguire*

274 **The Industry**

276 **Contractors, etc.**

Author: *Julius Posener*, born Berlin 1904, father a painter. Studied architecture Charlottenburg under Pölzig; practised Paris and Berlin, went to France 1933 (editorial office *L'Architecture d'Aujourd'hui*) and Jerusalem 1935, office of Erich Mendelsohn. Volunteered H.M. Forces 1941, in army till 1947. Came to England 1947, taught LCC school of architecture, Brixton, till 1956, when he took charge of new department of architecture, Kuala Lumpur. Recreations: Mozart and gliding.

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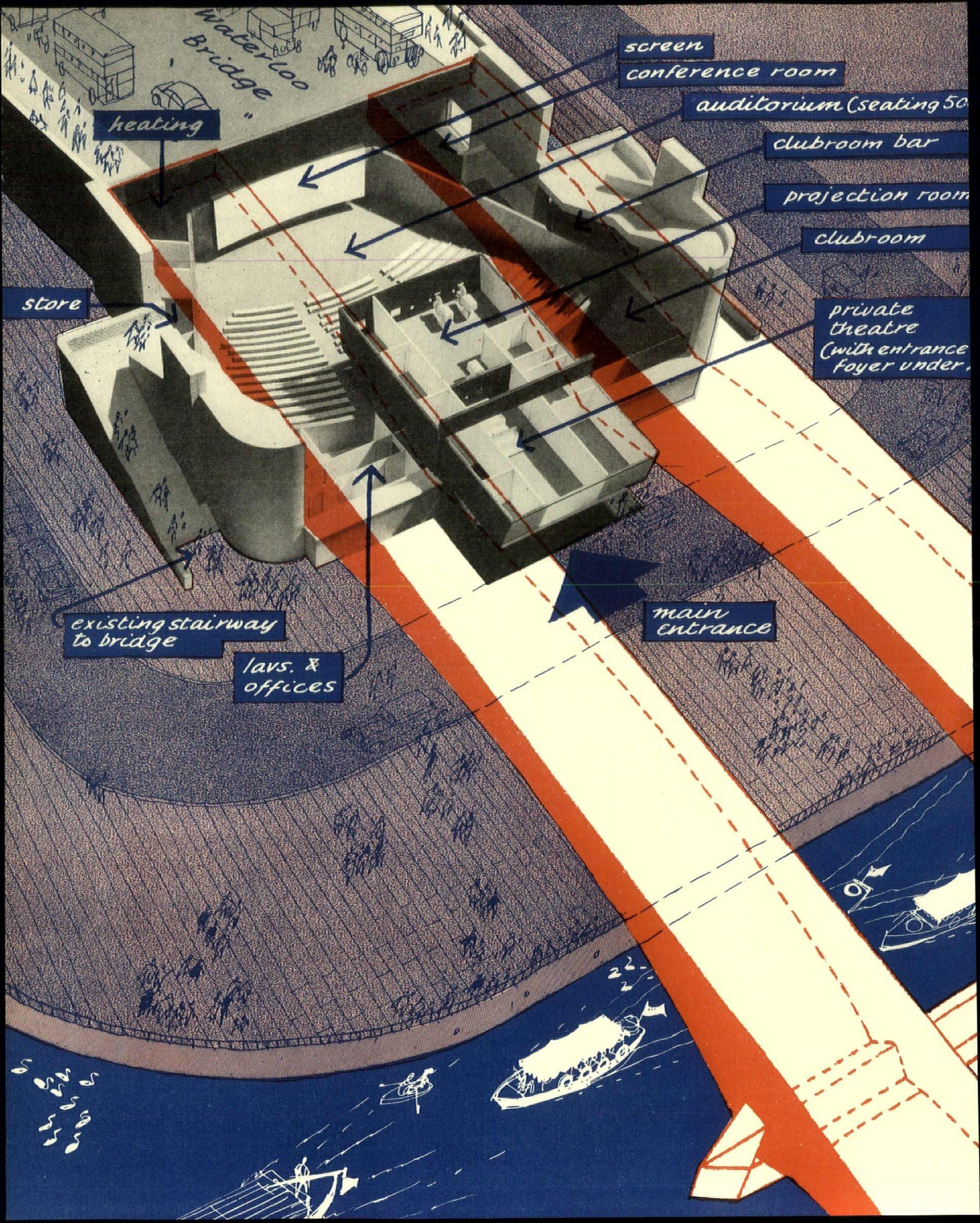
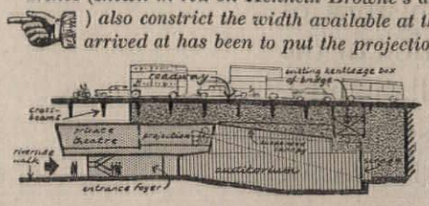
FIVE SHILLINGS


Waterloo Bridge
screen
conference room
auditorium (seating 5c
clubroom bar
projection room
clubroom
heating
store
private theatre (with entrance foyer under
existing stairway to bridge
lavs. & offices
main entrance



The London County Council's proposal to locate the new National Film Theatre under one of the arch-abutments of Waterloo Bridge involved their Architect's Department, under Dr. J. L. Martin, in a problem calling for considerable ingenuity. Not only do the cross-beams supporting the roadway limit the headroom, as this section shows, but the main box-members of the arches (shown in red on Kenneth Browne's diagram on the facing page) also constrict the width available at the riverward end. The solution arrived at has been to put the projection box and entrance in this constriction, to allow the auditorium to go almost the full width available under the flights of steps that flank the abutment, and to ceil in the auditorium with a suspended canopy.

Nikolaus Pevsner

FISCHER VON ERLACH

1656-1723

Johann Bernhard Fischer von Erlach was born three hundred years ago at Graz, where his father was a sculptor of no special distinction. The son studied architecture in Rome and in Naples under an Austrian, Schor, who was not a man of special distinction either. He was back in Austria in 1687, settled down in Vienna, taught architecture to the future Emperor Josef I, and seems at once to have been given the title Royal Engineer and Architect. He visited Prague in 1691 and probably again later, and in 1704 he visited Berlin; but he never seems to have been in Paris. In 1705 he was made Surveyor-General of the Emperor's Buildings. He died in 1723.

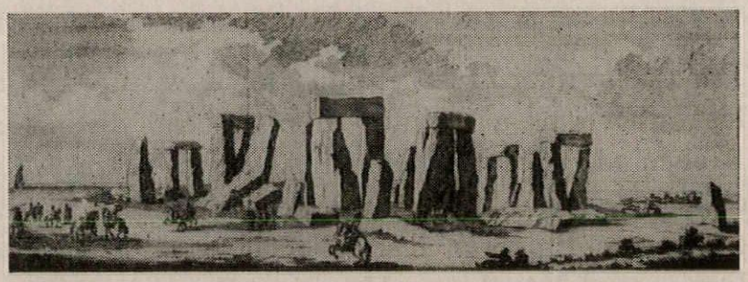
His principal buildings are familiar, the church of St. Charles with its two Trajan's columns or minarets, the churches at Salzburg, one with a deeply concave, one with a boldly convex façade, the town house of Prince Eugene and the Imperial Library at Vienna, and perhaps also some of the other Viennese palaces. They are all Baroque in the Italo-German sense, but possess an elegance and a discretion absent as a rule in Germany and often in Italy. As against Paris on the other hand Fischer's Vienna seems sprightly and capricious.

How far his buildings, confined to Vienna, Prague and the Austrian countryside, can have affected foreign architects it is hard to guess. At first sight influence on so distant a country as England seems improbable. But Fischer's fame did not depend on his buildings exclusively; if as an architect he was little known abroad, as an author he certainly enjoyed a considerable reputation. He had begun to work on his *Historische Architektur* about 1705. The manuscript was, it is said, complete by 1712. The first edition came out in Vienna in 1721, the second in Leipzig in 1725. In 1730 Thomas Lediard brought out an English edition of which a second edition was needed in 1737. Lediard was quite a remarkable man. He was secretary to the British envoy at Hamburg, attached for a time to the staff of the Duke of Marlborough and in 1738 'agent and surveyor' of Westminster Bridge. For this he made a design which was not accepted. At Hamburg he managed the opera. He wrote a life of Marlborough, a Naval History of England, an English opera which was performed at the Haymarket Theatre in 1732,

an English grammar in German, and he translated Terrasson's *Sethos*, that oddly Egyptianizing novel, from the French.

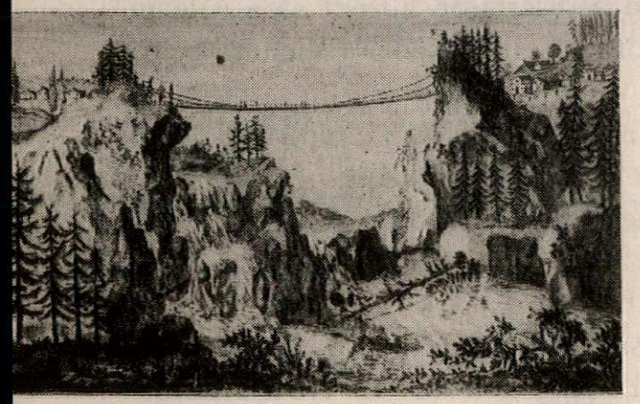
A Plan of Civil and Historical Architecture, as Lediard had called his translation, is the earliest general history of architecture; it is also the earliest pictorial history of architecture. It consists of five books and begins with a map showing the location of the buildings illustrated. The buildings start with the Temple of Solomon (after Villalpandi), move on to the Hanging Gardens of Semiramis, the Pyramids, the Mausoleum of Halicarnassus, the temple of Diana at Ephesus, the Colossus of Rhodes, the Pharos of Alexandria and so on to Books Four and Five, which are of buildings and fantasies by Fischer himself. Prince Eugene, the most famous Viennese of the time, had a statue of himself, crushing an enemy and in vain trying to prevent Fame from trumpeting his glories, made and set up in his own palace. So why should Fischer not have made his own work the crowning achievement of two millennia of architecture ?

Fischer must have put much study into the book. He developed his illustrations from many sources, written and pictorial, and mentions a number of them. As an indication of what was known of distant monuments in the early eighteenth century the book is invaluable to the scholar. But its interest is wider than that. He illustrates, though without detail and not reliably, the Parthenon long before Le Roy and Athenian Stuart, Palmyra long before Robert Wood, and Spalato long before Robert Adam. But he also devoted eight plates to Turkey and showed Aia Sophia as well as the Suleimaniye and the Mosque of Sultan Achmed, and he presented to surprised Austrians and Germans Stonehenge, 1, (from Camden's *Britannia*), and a suspension bridge with chains at Kintung in China, 2.



1, *Stonehenge; a plate from Book II of Fischer von Erlach's* Historische Architektur

All this no doubt was stimulating as well as entertaining. But its deeper significance lies in the fact that Fischer's is the first book of architectural engravings of a new type, a type which was to flourish in the later eighteenth and the early nineteenth centuries: the pattern book offering a variety of patterns to please a variety of tastes. Until then there had been three types of architectural books: the picture book of the buildings of a town, such as Domenico de' Rossi's 'Monuments of Rome', or the picture book of the buildings of a country such as Ducerceau's *Plus excellents Bastiments de France*, and the architectural treatise which is implicitly a plea for one particular style or type of style. In this category are the famous compendia of Serlio, Vignola, Palladio, and even, with some reservations, Ducerceau, and so on to Fischer's own day, that is to such books as Paul Decker's *Fürstlicher Baumeister* of 1711 on the Baroque side and to *Vitruvius Britannicus* of 1715 on the classical. Fischer (in Lediard's translation) calls his book an 'Essay in diversify'd Architecture' and says: 'Artists will here see, that Nations dissent no less in their Taste for Architecture, than in Food & Raiment, and, by comparing one with the other, they themselves may make a judicious choice.' It is true that



2, *the chain bridge of Kintung, China; Book III of Fischer's book.*



3, *monument to John, 2nd Duke of Argyll. By Roubiliac, in the south transept of Westminster Abbey. Made in 1748.*



4, *tomb of Count Mitrovitz in Prague Cathedral; a plate from Book IV of Fischer's book.*

Fischer after this revolutionary statement hastens to add disparaging remarks on 'the trivial and superfluous Ornaments of carving in the Gothick Buildings'—indeed not represented in his plates—and laudatory remarks on symmetry and other 'general Principles, which can by no means be laid aside'—but the fact that his book did 'furnish admirers of architecture with Designs in sundry Species of Architecture' must all the same have appealed to the country which could appreciate Wren's assorted church plans, the Vanbrugh of Blenheim and of Vanbrugh Castle, the Chambers of Somerset House and of Kew, and, of course, the country of Alison's theory of aesthetics.

Yet the book, in its topical, Viennese parts, had apparently little influence on England. There is no outcrop of Fischeresque architecture. One of the rare façades with a marked Austrian flavour, the west façade of Wentworth Woodhouse, built just about 1725-30, has yet no direct relations at all to the *Historische Architektur*. Some of the illustrations to the *Historische Architektur* were copied, probably by Antonio Jolli, in the Entrance Hall of T. J. Heidegger's house in Maids of Honour Row at Richmond, probably in 1745.* They are all of Chinese subjects, the *dernier cri* in England at that moment. It may well be that Lediard's connexion with the Haymarket Theatre and Heidegger's managership of the King's Theatre in the Haymarket had brought the two men together, and indeed drawn Heidegger's attention to Fischer von Erlach's book.

As no further effects of the book on England have so far been shown, it may be permissible to end these commemorative notes with another minor case of a reflection of Fischer on eighteenth-century art in England, in this case on a very major work, Roubiliac's Argyll Monument of 1748 in Westminster Abbey, 3. The key motif here, of a winged genius inscribing on an obelisk the name of the deceased and breaking off in mid-writing is in all probability taken over from Fischer's Mitrovitz Monument in the Cathedral of Prague, 4, designed in 1714 and illustrated in the English as well as the German editions of Fischer's book. The source is especially probable, because Roubiliac, though a Frenchman, had worked as an apprentice under the Austrian sculptor Permoser in Germany before going to the Academy in Paris. Roubiliac was born about 1705. We can assume that he was with Permoser some time between 1720 and 1725. Permoser lived in Dresden in Saxony, but visited Vienna in 1721, the very year when Fischer's *Historische Architektur* was first published.

* *See* E. Croft Murray, *Burlington Magazine*, Vol. 78, 1941.


REGENTS PARK
OXFORD STREET
REGENT STREET
SHAFTESBURY AVENUE
ST. LAND
HYDE PARK
PICCADILLY
GREEN PARK
ST. JAMES'S
PARK

The map opposite shows sites of office buildings in the West End of London for which planning permission has been granted, as well as sites on which buildings are being or have been erected since 1949; the letters show the position of the buildings listed below and illustrated in the following article.

key

a, *Agriculture House, Knightsbridge* (page 221).
b, *Sackville Street rebuilding* (page 221).
c, *Haymarket House* (page 221).
d, *Airwork House, Piccadilly* (page 221).
e, *Wigmore Street Development* (page 222).
f, *block adjoining Hyde Park Hotel* (page 222).
g, 484-504, *Oxford Street* (page 223).
h, *Bowmaker House, St. James's Street* (page 222).
i, 95, *Wigmore Street* (page 222).
j, *Tattersalls site, Brompton Road* (page 223).
k, *Locomotive House, Buckingham Gate* (page 223).
l, *Electrin House, New Cavendish Street* (pages 224 and 232).
m, 6-10, *Bruton Street* (pages 224 and 229).
n, *Monsanto House, Victoria Street* (pages 224 and 230).
p, *National Dock Labour Board* (pages 225 and 227).
q, 20, *Albert Embankment* (page 225).
r, *Sentinel House, Southampton Row* (page 225).
s, 45-6, *Albemarle Street* (page 225).
t, *Wingate House, Shaftesbury Avenue* (page 226).
u, *Atomic Energy Commission, Lower Regent Street* (page 226).
v, *Dunhill House, Jermyn Street* (page 226).
w, *Finland House, Haymarket* (page 226).

CRITICISM

Ian McCallum

WEST END OFFICES

I suppose it was to be expected that central London would be rebuilt piecemeal. War-time dreams of a shining metropolis rising from the ruins were clearly over-optimistic, if not positively naïve. After all, the capital was not destroyed. Expenditure on road construction that radical replanning presupposes held, and still holds, a very low place on the list of post-war priorities and, given our place in history, it was unlikely that agreement could be reached on a consistent aesthetic. Apart from the exceptional case of the South Bank, it was only in the City that 'super-block' planning seemed to stand a chance, and the possibility of stating a twentieth-century ideal of a metropolis not just a war-time dream. But even here, ten years afterwards, there is but one area, the Barbican, where comprehensive reconstruction to a consistent and unified visual theme seems not altogether hopeless, and this is prey to continual argument, to the battledore and shuttlecock of committees and ministries and authorities and commissions and councils and all the paraphernalia which is no doubt vital to the kind of democracy we have chosen to make for ourselves.

To me, as an architect, it seems that scope for committees and speculators is given a much higher priority in the scheme of things than scope for good architecture. The result of this in the City of London has already been considered in these pages.[1] The situation in the West End[2] is an altogether different one. First, the area was not so

[1] *Rebuilding in the City: the City of London on the brink of disaster.* J. M. Richards, A.R., June, 1954. For comment on the architectural implications behind the economics of City and West End building, see *The New Patrons*, J. M. Richards, A.R., October, 1955.

[2] The term 'West End' is used here for reasons of brevity, though some of the buildings illustrated come just outside its vaguely defined boundaries.

heavily damaged, slices were removed rather than whole sections, and, second, it did not have priority as the City did and rebuilding has only got under way since the abolition of licensing (though in the event the latter control proved of doubtful value so far as architectural quality was concerned).

If, therefore, there was no clear vision of a new City of London, it was hardly to be expected that there would be one for the West End. Piccadilly and its Circus, Upper and Lower Regent Street, Oxford Street, Charing Cross Road, Shaftesbury Avenue, Coventry Street, Haymarket, the Strand; these are the main thoroughfares, the metropolitan face we show to the world, and a very raddled and seedy face it is.[3] Though their familiarity and associations may claim our affections, few could honestly say that their streetscape does. What was always the chief glory of this area were the eighteenth-century squares (like Berkeley and St. James's) and streets (like Grosvenor and Conduit-Bruton) in between the main thoroughfares: these we have, in the last fifty years, gradually but inexorably destroyed, not replacing them with our own ideal of a city, but leaving sufficient of the past to show up our own contribution to its maximum disadvantage as the coarse, scaleless, anarchic thing it is.

The rebuilding of the West End after the last war was inevitably a problem of street architecture; economic conditions alone made any departure from the *rue corridor* unlikely. Now there are certain precedents to follow in solving the aesthetic problems of such an urban pattern. Unity of design along both sides of each street is not necessarily essential, though an absence of it along all streets, especially in a period not marked for consistency of architectural character, can prove more tedious than the most banal uniformity. Since we find it so very hard to agree, perhaps some streets might have been left to anarchy modified by zoning, daylight and various bye-law restrictions, in the very English hope that happy accidents might ensue. But recent experience and London precedent suggest that a degree of uniformity is necessary in the successful urban scene. This is not to say that a number of architects, even ones with widely divergent architectural philosophies, cannot be employed in one street; nor that wall planes, bay and window rhythms and even roof heights cannot be varied;[4] but if they are there must be at least an outline, master-scheme, which recognizes the way in which we use streets as well as the *directional* emphasis they impose.

Had the foresight and the will-power been there, one can imagine an architectural master-scheme for the whole West End area, if only in sketch form and only as an ideal, but which might have looked a little farther than just beyond our noses: a plan that might have given at least some three-dimensional shape to traffic solutions, roads, car parks, garages, pedestrian and access ways, shopping, commerce, recreation and advertising, that might, with the disappearing precedent of Bloomsbury before us, have indicated the relationship of streets and squares to one another. Its chief value would have been to give those architects now filling in gaps an *idea* for the street they are altering and for the buildings around them, many of which will be rebuilt long before theirs is; something they don't singly have the time, or the backing, to consider. No doubt it could only have been advisory, 'a pious hope' some newspapers would have

[3] The only exceptions are Regent Street, Kingsway, Northumberland Avenue and Victoria Street; these, whatever one's opinion of their architecture, do register as streets, and it is interesting to note that, when they were built, with many different architects contributing, they were considered as entities.

[4] Centralized compositions are not suitable to the *rue corridor:* they should be reserved for spaces such as squares, set-backs and large, isolated buildings.

called it, 'a waste of public money' others, unless the money was private, when it would have been a 'wild dream of impractical visionaries'.

But we have no such vision and the West End is, one would almost say, the *victim* of a building boom. It is only within the last few months that the passer-by has been able to get any impression of the scope of activity. It is still too early for him to get an impression of its character. The frontispiece map shows the number of sites already developed, being developed or cleared for action, and it shows at once that in the years 1956-7-8 London's West End and environs will be radically altered. I propose to illustrate by drawings and photographs what the character[5] of the new development will be and to consider its quality.

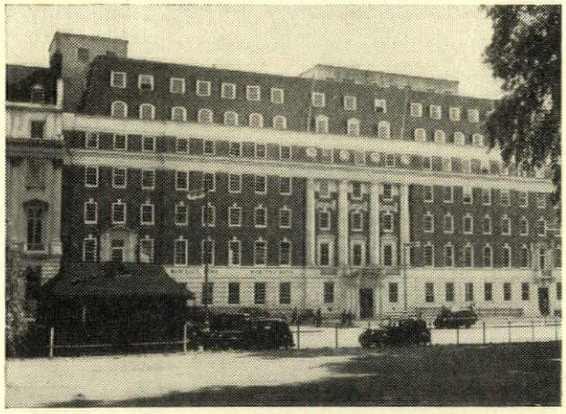
It is at once evident that the general standard of design in West End office buildings is higher than in the City of London, especially in comparison with the first post-war buildings in the City. There are only two major examples of fancy dress architecture (steel frames concealed behind apparently weight-bearing walls, corniced, stringed, pedimented and columned), these are Agriculture House, Knightsbridge, designed for the Farmers Union by Ronald Ward & Partners and the Sackville Street reconstruction[6] by Skipper & Partners of Norwich, whose design by the late G. J. Skipper was won in competition in 1920 and is now getting under way again.[7] In neither of them is there evident any desire to express contemporary standards of office planning and daylighting in architectural terms.

Two other blocks avoid direct expression of it on their façades to main thoroughfares, while changing to a utilitarian theme on their side or back façades: these are Haymarket House, Coventry Street and Haymarket, by Stone, Toms & Partners, and Airwork House, Piccadilly, by Norman & Dawbarn. Both of these buildings group some or all of their windows into twos and threes, presumably owing to a desire

[5] It must be emphasized that this is not a complete survey but an analysis of character based on a selection of buildings.

[6] The development is being undertaken by the Norwich Union Life Insurance Society in association with Sir Richard Sutton Estates Ltd.

[7] This, with the pre-war Grosvenor Square scheme, is the only example I know of in the West End where a whole street or square is being considered as a visual entity.



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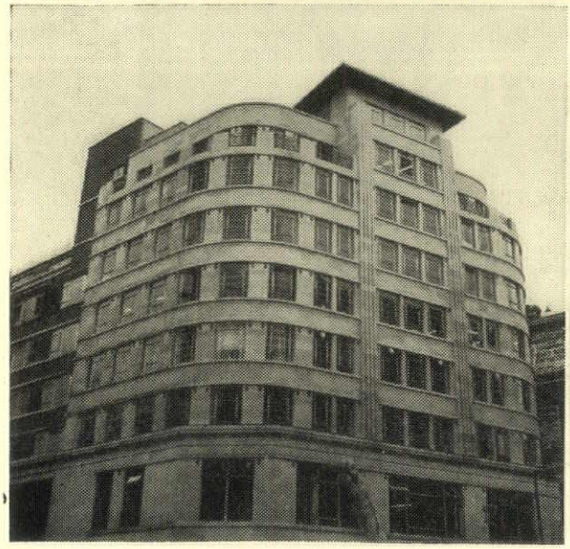
This space would have contained the illustration of the Sackville Street reconstruction scheme, but the copyright of the drawing is owned by Sir Richard Sutton Estates Ltd. (see footnote 6) who objected to the author's comment on the designs and refused permission to publish them after a delay during which the block was made and the pages went to press.

2

Unabashed Neo-Georgian only occurs twice in new West End office buildings: 1, *Agriculture House, Knightsbridge, by Ronald Ward and Partners, and* 2, *the reconstruction of the west side of Sackville Street by Skipper and Partners (unfortunately omitted for the reason given above). The next stage, where period detail has gone but nothing positive has replaced it, is unhappily represented in the West End by Haymarket House,* 3 *and* 4. *Airwork House,* 5, *by Norman and Dawbarn, does at least realize that two perpendicular streets meet in a right angle and not a flaccid space-blurring curve.*



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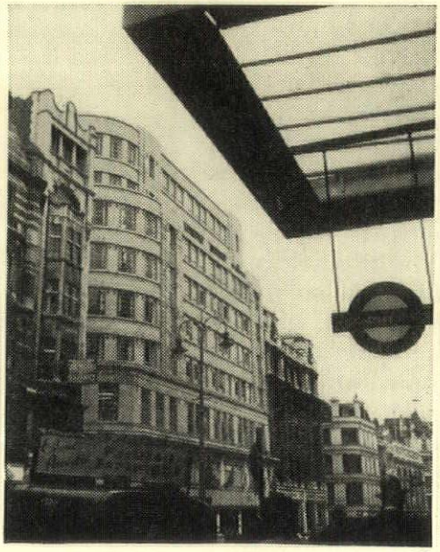

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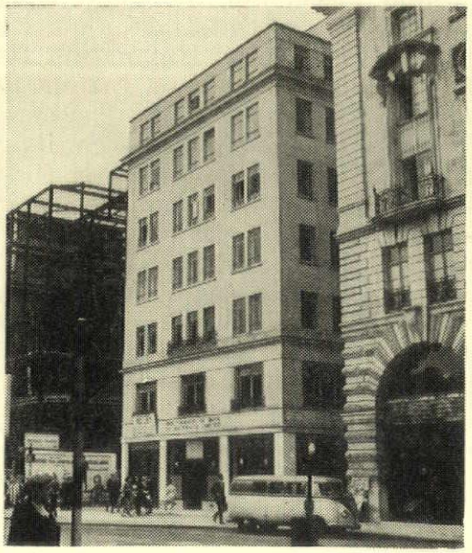

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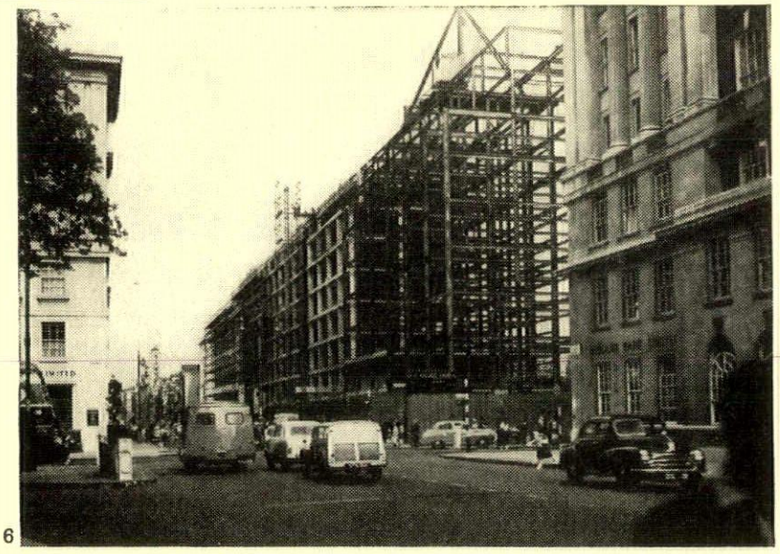

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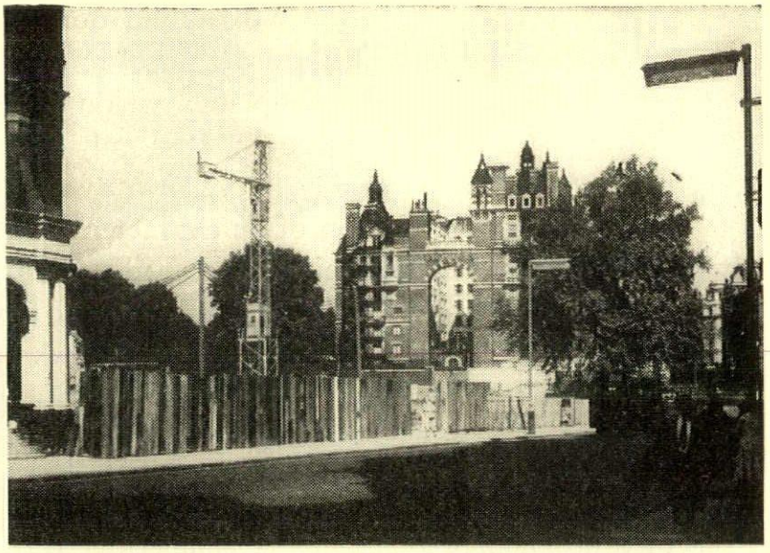

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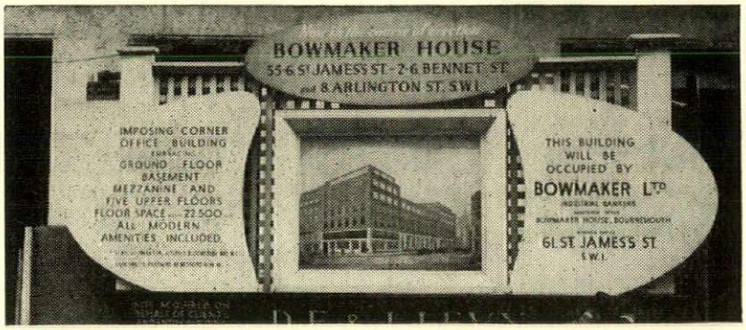
The sum of the rebuilding of all the separate sites shown in the map on page 218 will be a complete remodelling of the West End, even though it has been piecemeal and unplanned. This article is an interim report, now that the pattern of this leaderless revolution is clear, and on several of the most prominent sites buildings are still in construction. Here are three of them: 6, the Wigmore Street Development by Cecil Elsom; 7, the site adjoining

for a broken rather than a regular rhythm. The virtues of such an effect are hard to uncover, indeed the chief virtues of many of the more distinguished office buildings lie in precisely the opposite—in avoiding such broken rhythms. Haymarket House, 3, were it not right at the centre of our capital city, and lying along two of its main thoroughfares, would not be worthy of comment in an architectural magazine. The intentions behind its design are, for me, impossible to unravel. I cannot explain the cornice above the first floor window, the only intrusion of history into the design, nor the way the change-over is handled from stone facing to brick on the side street, nor the vertical change from chamfered corner at ground level to curved above. What is hardest of all to understand is how this building could have gone up right in the centre of London in 1955-6; I can think of no other capital city in Western Europe that would have been capable of it, and find it hard to believe that London has so little pride and faith in itself.

Airwork House, 5, presents no such complexities. Its 'scraped' classicism and modernistical windows are, to say the least, disappointing, considering their time and place, but the building is small and does respect the line of the street, a point rudely ignored by the curved corners of Haymarket House.

The building going up on Tattersalls' site at Knightsbridge by Stone, Toms & Partners, 11, though the awkward relationship between its various wings is clearly the result of paralleling the streets, manages at the same time, by setting the main wings back and projecting minor ones at right angles from them, entirely to break up the street line. The unwieldiness of this block, or series of blocks, is due not so much to size in itself as to the formal relationships, or lack of them, between the building and the spaces around it.[8] It seems to be a prime example of what happens when an extensive site is rebuilt without benefit of a master-scheme and in a district of distinct character. One can imagine successful solutions which either followed the existing scale and street lines or radically departed from them in, say, a tall tower block. Unfortunately this one does neither, though it does incorporate, unsuccessfully, something of each. The best parts of the building are the standardized office façades which have a pleasing regularity and lack of pretentiousness with which one is well content in an



9, Bowmaker House, St. James' Street, by Lewis Solomon, Sons and Joseph: the character of this design may prove an unhappy addition to a street whose character comes from a diversity of deeply felt styles respecting one consistent scale.



10, 95, Wigmore Street, by Stone, Toms and Partners; like Airwork House, a cornice sprouts unexpectedly out of a design without other classical trimmings.

[8] These are partly determined by day-light codes, density regulations and site coverage ratios; but, with it all, the architect is still left a fairly wide margin of choice.



8

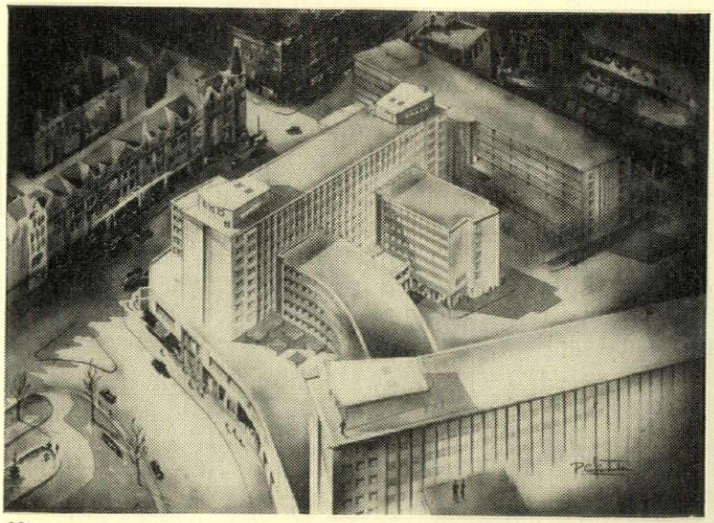
the Hyde Park Hotel by Guy Morgan and Partners, and 8, 484-504, *Oxford Street, near Marble Arch, by Fitzroy Robinson and Hubert H. Bull.*

age of architectural mediocrity. Unfortunately, entrances and staircases are made the excuse for a heavily monumental treatment which only serves to emphasize all the weaker points of the design.

Since this article is mainly a consideration of new office buildings in so far as their external architectural appearance affects the passer-by and the character of a part of the London scene, and since there is sufficient to be said about that in one article, I cannot delve deeply into problems of structure, planning, lighting, heating and so on. The majority of London office blocks are anyway rather primitive in the way they incorporate, or fail to incorporate, heating, artificial lighting and other mechanical services into the fabric of the building. However, the question of planning for flexibility of use, and the question of the best width for single and paired minimum offices is of direct relevance to external character, as will soon be clear from the buildings and projects I shall consider.

It is surprising how little detailed study has been given in England to office planning. At the RIBA symposium on office buildings held last April, it became evident that no agreement had been reached on the best width for minimum offices (nor for that matter on depth). Generally a 4 ft.–4 ft. 6 in. module centre to centre of window mullions was considered the best. This provides minimum offices with two windows of 8 ft.–9 ft. width, and offices with two desks by three windows of 12 ft.–13 ft. 6 in.[9] Naturally, this module is likely to bear some relation to the bay spacing. What that will be depends on the placing of the structural members, on whether they are outside the wall (Chase Manhattan Bank, New York), in the wall (National Dock Labour Board, pages 227-228) or inside the building (New Cavendish Street, pages 232-233) and whether just inside or right back in a spine wall with the office space cantilevered from it (the Building Trade Union Centre in Stock-

[9] This does not, of course, apply where large, undivided spaces are called for, though it is not uncommon for a client to want provision made for later subdivision.



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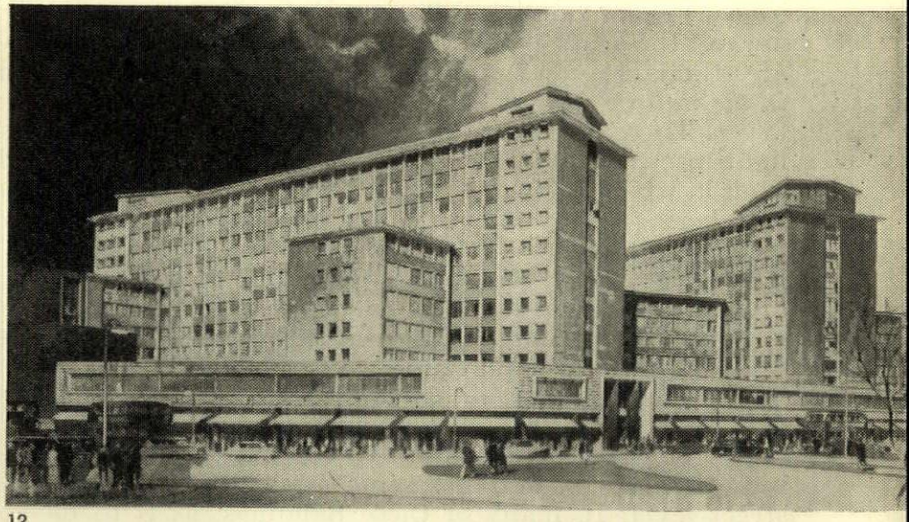

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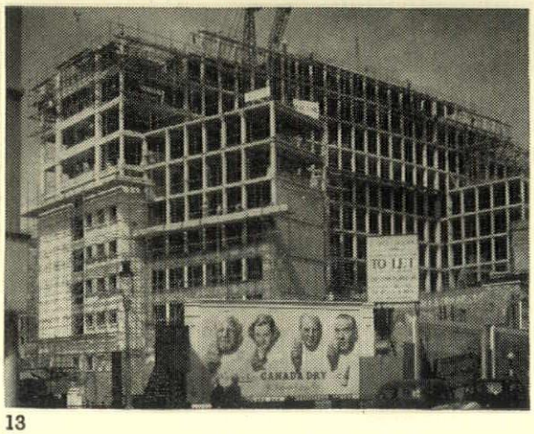

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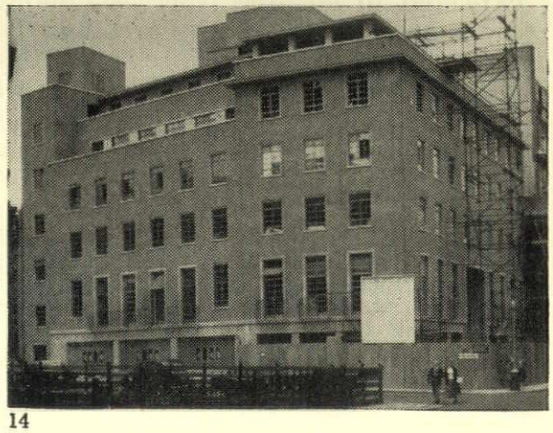

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Two more buildings by Stone, Toms and Partners. 11 *and* 12, *the building on the site of Tattersalls, Brompton Road, as it appears in artist's perspective, with a progress shot as the passer-by actually sees it,* 13. *This is an unhappy mixture of elements from both tower block and perimeter types of development, drawn as though it could be seen as a free-standing building, which is physically impossible.* 14, *Locomotive House in Buckingham Gate: one more proof that keeping in keeping is futile.*

15



16





17

Three of the better West End buildings in three views typical of the way they are actually seen. 15, *Electrin House, New Cavendish Street* (see page 232) *in acute perspective, almost a solid wall of mullions.* 17, *the back of Monsanto House* (see page 230)*: the upper floors of a tall block seen fanwise, with rectilinear proportions having lost all meaning.* 16, 6-10, *Bruton Street—the first white block on the right—*(see page 229) *in a distant street perspective showing how variations in the building line can produce effects of lighting and perspective that have hardly been considered in street design. Here they are accidental, but even so they transform the indifferent buildings beyond.*

holm). It will be seen that there are no examples in the office buildings illustrated here of the first, nor of the last, types.[10] The new West End offices are, therefore, all variants on the *structural members in the wall* or *structural members behind a curtain wall*, types. There are two variants on the former, in one a light pre-cast concrete frame is employed of short span in which the window mullions become structural members (National Dock Labour Board and projected U.S. Embassy, Grosvenor Square, AR, August '56, page 71). In the other the more conventional (average 16 ft.–20 ft.) bay-spacing provides the main rhythm with mullions and transomes emphasized in one way or another, or played down as much as possible.

The horizontal treatment of beam and panel infill can, of course, be endlessly varied, and is perhaps better considered in relation to the individual buildings themselves, and the same applies to design at street level. In many of these buildings, as is to be expected in an area where shopping and recreation are major activities, the architect is presented with radically different requirements to satisfy on the ground floor. Most of the designs, therefore, present an appearance, well justified by function, of slabs floating over free space—an effect much beloved by contemporary architects, though often harder to justify where ground floor activities do not strictly require it. This effect does, in an interesting way, reflect the manner in which one observes buildings in *rues corridors*. For as you walk along the pavement it is only the ground floor that you ever really see, and looking across the street, traffic often blocks ground floors and, unless the street is exceptionally wide, presents you with a sharply oblique view of only the upper part of the façades. It is important to remember this, for it brings home the part played by relief, or the absence of it, in the façade. It suggests that design by drawing board elevations, which one can recognize in all too many street façades, is in direct opposition to the visual requirements of the situation.[11]

The West End offices that remain to be considered I have grouped into two main categories, based on structural systems in so far as they affect the character of street façades.

1. Those with window walls housing the structural framework; these are either (*a*) short-span like the National Dock Labour Board, 18, (*b*) wide-span like the offices in Albemarle Street by Ernö Goldfinger, 22, or (*c*) wide-span appearing as short-span due to intervening mock-structural mullions[12] as thick, or nearly as thick, as the structural members.
2. Buildings in which the window wall is entirely non-structural (in the sense that it does not carry the weight of the floors) and where the architect either conceals it in one way or another, sometimes suggesting another method of construction than the one, in fact, used or expresses it, say, by one of the systems of light metal frames known as curtain walls.

[10] Sentinel House, Southampton Row, 21, combines two types; floors are cantilevered out from inner spine beams for three quarters of their span, the remaining quarter being supported on light structural members in the window wall.

[11] Perspective artists, too, portray most of the buildings from positions in which it is either impossible or unlikely one shall see them; sometimes even the local geography is rearranged to suit the artist.

[12] I do not use this as a term of abuse, since I subscribe to Mr. Ove Arup's criticism of 'the structural fallacy,' which arises from the belief that it is *always* better to reveal externally the structural system employed.

1 window walls housing the structural frame

18, *National Dock Labour Board, Albert Embankment, by Frederick Gibberd.*

This office building employs a system developed by Felix Samuely, of light precast concrete members, bolted together, and making the window wall itself the structural frame. A strong repetitive rhythm is inescapable with this kind of structure, though as the N.D.L.B. and the U.S. Embassy designs* show, it allows for a number of different variations. How far subsidiary rhythms of infill panels and transomes are exploited or played down is a matter for the architect to decide. In the N.D.L.B. building the architect has chosen reconstructed stone facings to infill panels which read as light bands running across the façade, the structural framework appearing, except on the top floor where the windows are set back, as a light vertical grid crossing these and providing the window mullions. In addition to this another rhythm has been introduced of window transomes, staggered three-quarters of the way up or down alternate windows, and these appear to have the same 'weight' when seen from a distance, as the vertical structural members, 19, an effect which might not have been quite so restless seen obliquely on a street than it is from a distance on Lambeth Bridge or seen across the river. The surrounding frame to the façade, the band of recessed windows on the ninth floor and the two projecting balconies are all, presumably, an attempt to pull together a design employing a structural system which, with its brisk rhythm, would otherwise give the *appearance* of going on for ever. Whether to make a virtue out of the latter effect (as in 29), or whether to try to counter it in some way such as this, is a major problem facing architects today and has given rise to lively controversy in America recently as to the relative merits of 'concluded' or 'unconcluded' architecture.

19, 20, *Offices, 20, Albert Embankment, by T. P. Bennett & Son.*

The structure here has prestressed concrete floors supported internally on a spine beam and externally on beams which rest on precast r.c. columns at 6 ft. 8 in. centres. Panel infills are brick-faced and, as with the adjoining National Dock Labour Board, window transomes and here mullions as well, provide a strong and complex rhythm almost as dominant when seen from a distance as the load-bearing members. Another point of interest is that whereas in the National Dock Labour Board the shallow beams which make up the structural grid of the façade are concealed (except at 2nd and 8th floors) behind the infill panels, here beams are partially concealed behind panel walls, and partially revealed below them, adding a further element to the rhythm of horizontals, though it is one that reads from the street, 20, and not from a distance, 19.

21, *Offices, Southampton Row and Theobald's Road, by T. P. Bennett & Son.*

Sentinel House uses a system by which the office floors are cantilevered from a central flush beam. The cantilevers take care of three-quarters of the load of the floors, the remaining quarter being carried by the vertical columns in the window wall, which are at 6 ft. 8 in. centres. The shallow projecting wing with the gentle convex curve on the Southampton Row side is a most unusual device in *rue corridor* architecture, justified, presumably, on the grounds that this is at the junction of the two main roads, and that the curve leads the eye round on the approach from Kingsway, down which the Theobald's Road side faces. It is, for the same reason no doubt, that the latter elevation is given a somewhat monumental treatment, with a colour change in the central and bottom panel infills, which emphasizes the vertical columns, and with recessed flanking balconies on the top floor.

22, *Offices and Shops, Albemarle Street, by Erno Goldfinger* (under construction).

The reinforced concrete frame here provides the dominant rhythm to the façade, though there is a counter-theme of recession and projection resulting from the 'photobolic' clerestories (inset top-lights with a reflecting upper surface to the transomes) and glass bays projecting across the two centre bays on the second and fourth floors: the latter would appear to be another example of an attempt to centralize a composition which would otherwise be unconcluded (see framed balconies in 18, National Dock Labour Board).

23, *Offices, 6-8, Bruton Street, by Cecil Elsom.*

A design which depends for its qualities on a complete absence of relief. Windows and infill panels are brought into the same plane as the outside surface of stanchion and beam casings, junctions being defined merely by light shadow-lines. The asymmetrical window rhythm (1/3-2/3 divisions) emphasizes horizontal continuity, though vertically (owing, possibly, to the 'conclusiveness' of obligatory set-backs) a pause is suggested by a light line above the top row of windows, like a rule at the end of a paragraph.

* The American Embassy Building in Grosvenor Square by Eero Saarinen will also employ this system though here the bay spacing will be varied 3 ft., 3 ft., 6 ft., 3 ft., 3 ft. and so on, the rhythm being staggered from floor to floor.

short span



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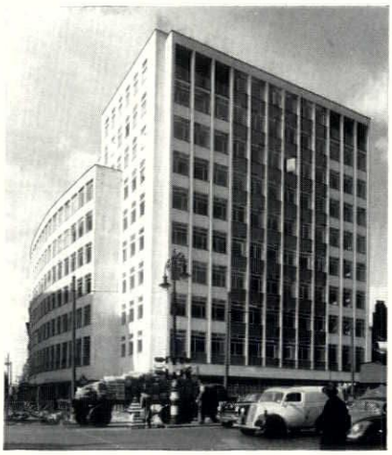

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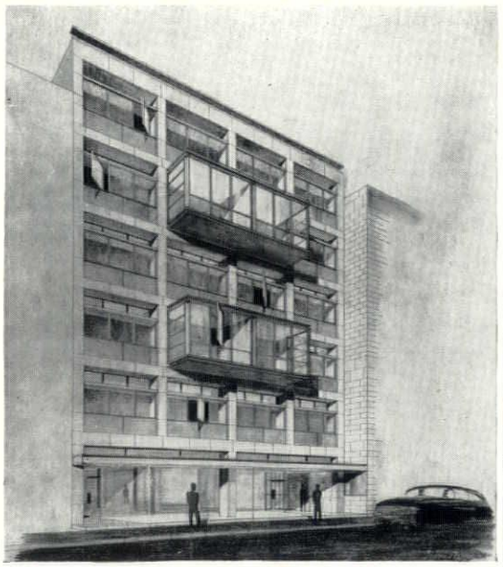
long span



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24. *Offices, Cinema and Shops, Shaftesbury Avenue, by Sir John Burnet, Tait & Partners* (under construction).

The structure of Wingate House is a steel frame with stanchions at 18 ft. centres, and two mock-structural mullions at 6 ft. centres in each bay; these mullions are 4 in. narrower overall than the stanchions and are terminated on a shallow beam at the first-floor clerestory so that it is possible to distinguish their non-structural character. Nevertheless, the important part they play in the general appearance of the building by their width, 9 in., and by their vertical continuation through the panel walls justifies, I consider, the term 'mock-structural.' Panel infills will be faced with silver-grey brick; stanchions, mullions, beams and blank walls will be faced with stone. The single-pane windows give a calm and authoritative rhythm and the façades are terminated by blank stone panels in the horizontal direction and in the vertical by a void at the ground floor and a glazed canopy at the top (another solution, see 23, to the problem of set-backs).

25. *Offices, Lower Regent Street and Charles II Street, by Trehearne & Norman, Preston & Partners* (under construction).

Here, in a building for the Atomic Energy Commission, the architects have framed all the windows into panels, though without any of the complex subtlety of the Dunhill building, 26. Stanchions are at 24 ft. centres with intervening mullions housing air-conditioning ducts; these are not differentiated as strongly as they are in another recent example of external ducting—the Mile High Centre, Denver, Colorado, by I. M. Pei and Associates (*Architects Journal*, August 16, page 232), and, indeed, are evidence of a very rare piece of equipment in English office buildings.

26. *Shops & Offices, Jermyn Street, by T. P. Bennett & Son.*

In the Dunhill building (as the photograph shows, it is only partially completed and will be continued along both façades), the structural frame is set behind the window walls, and instead of expressing their 'weightlessness' by a light metal and glass grid as in 29, the architects have banked the windows into panels which are under-cut and float over a solid stone backing on one façade and over a deep recess on the other; in addition, rebates provide recessed shadow lines of varying widths. The way these details are handled has a nearly Italian sophistication about it, accentuated by the curious detail at the corner whereby a mass of stone (in fact only a facing) appears to float a couple of feet above the pavement. The whole complex system of projection and recession is strongly, almost brutally, framed by wide stone bands and a deep glazed recess on the top floor.

27. *Finland House, Haymarket, by Kenneth Wakeford, Jerram & Harris* (projected).

The offices for Finnish timber and woodworking companies in Haymarket have a structural frame set behind the window wall, which itself is an austere stone-faced grid of mullions and beams, the panel-infills reading as one with the windows. It does not attempt to give direct expression to its non-structural character but suggests rather the system of construction used in the National Dock Labour Board. The ground floor and mezzanine reveal the recessed structural columns and, being almost entirely glazed, do here indicate the construction which, if it had been of the short-span type, would have needed a deep beam to carry the load of the upper façade. The disconcerting effect of the shallow concave corner panel is doubtless due to the fact that one expects a convex rather than a concave form here.

28. *Offices, Victoria Street, by Sir John Burnet, Tait & Partners.*

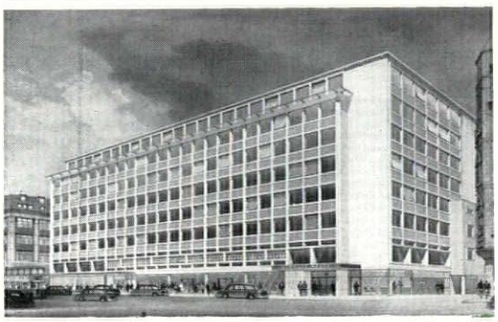
The structural frame of Monsanto House is of precast concrete with stanchions at 13 ft. 8 in. centres; this is immediately behind the curtain wall and contiguous to every third mullion; the latter are of a hollow U-shape to house vertical runs of pipe and electrical conduit, and this accounts for their width and appearance of being load-bearing. An attempt to lighten this effect has been made by fluting the mullion surface from window cill to transome and by shallow recesses framing the windows (see also 14, page 232). To indicate the concealed rhythm of structural bays, small tongue-like projections appear where the junctions of beam and stanchion take place behind the curtain wall: a curious device inexplicable except to the initiated, like the origin of the triglyph. Since this building does not 'float' above its ground floor but appears to stand on a solid stone base, the architects have given this an effect of arcading by recessing the wall over the windows and giving them gabled heads, the angle of which is echoed in the entrance canopy. The general appearance of the building is extremely successful when seen obliquely down the street, as all of these buildings, but for 18-21, are. The brisk, even rhythm fits well into its Victoria Street setting, and is not disturbed by the rather fussy striping of the facing to the panel infill. Also, since these architects apparently feel the need, in common with a number of the others under discussion, to accent the gridded façade by the projection and recession of canopies and balconies, it is much more satisfactory, given the directional emphasis of streets, to place these asymmetrically rather than to centralize the composition.

29. *Offices, New Cavendish Street, by Gollins, Melvin & Ward.*

It is surprising that this building should be the only one in the West End, so far, to employ a standard curtain-wall consistently over all of its street façades. There is much to be said for and against curtain-walls of this kind. Briefly, one can list, in favour of the curtain wall: dry construction and therefore quick erection, a pre-determined module, a light, graceful repetitive rhythm well-suited to *rues corridors*, and with wider use, presumably, cheapness resulting from mass-production. Against it are its relatively recent development, maintenance costs, for, particularly where the infill is all-glass, cleanliness is vital and, possibly, monotony, though this should be no more marked than it is in many a regular Georgian street where the effect is often restful rather than monotonous.

So far as the original design of such walls is concerned a great deal of very careful attention needs to be paid to the profile of the metal sections and to the design of fixings, beads and overall surrounds. In such architecture all attention is focused on these, and the whole quality of the design rests in them. The colour and texture of infill panels is important but subsidiary. The relationship between mullion, cill, window head and transome, the ways in which panel-infills are divided, if at all, can be endlessly varied by thickness, projection, recession and colour values. Since these walls are becoming a standard product, it is of the utmost importance that the best architectural talents should be recruited to solve the problems of scale and proportion they raise. This has not yet occurred and the façades of the building illustrated here and on pages 232-3 lack the refinement of scale, proportion and detail that, for example, the Lever Building has shown to be possible.

long span with intervening mullions



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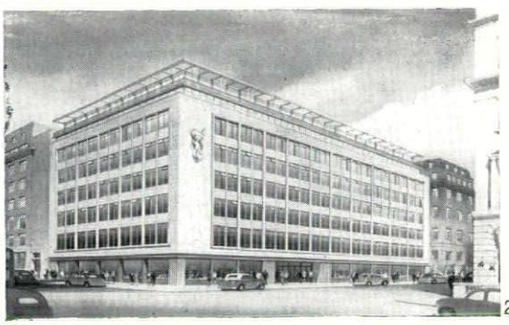
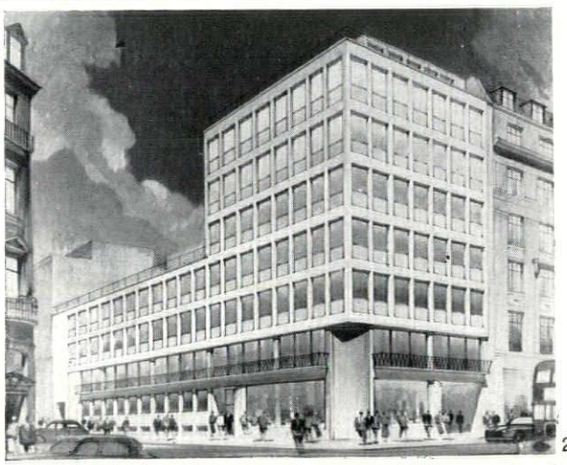


25

2 *non-structural window walls*



26



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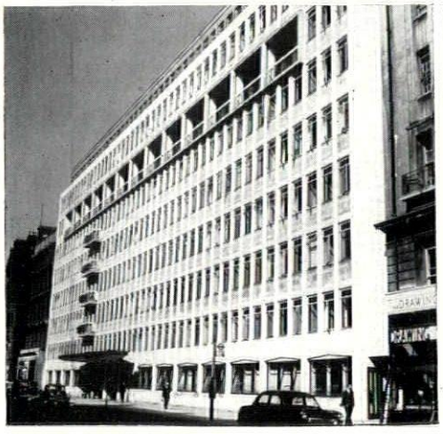

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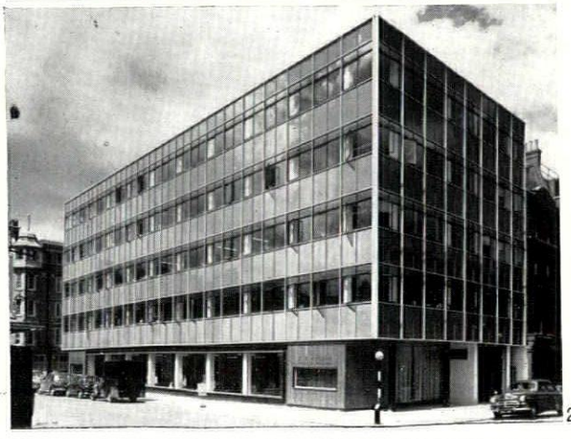


29

OFFICES ON

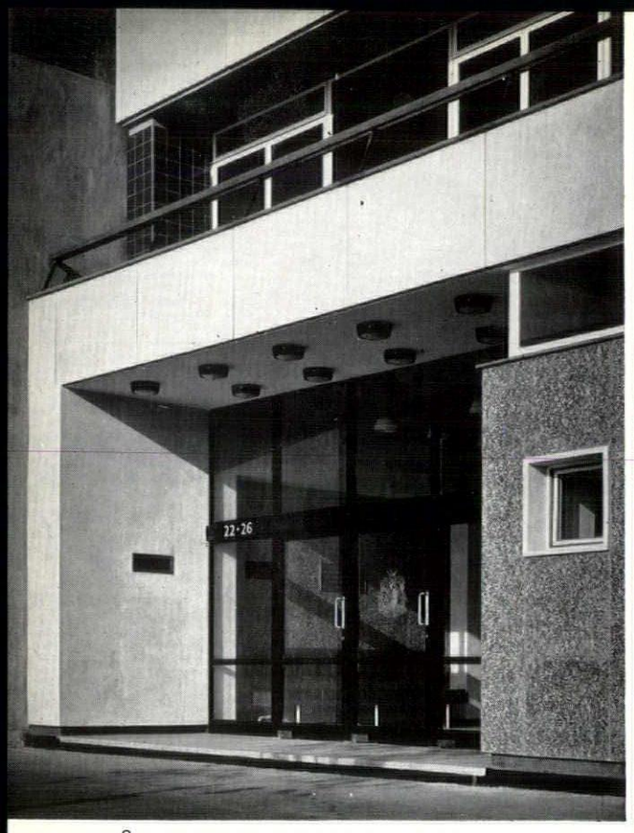
ALBERT EMBANKMENT

ARCHITECT	FREDERICK GIBBERD
associate architect	F. Darnell



1, the National Dock Labour Board building from the south-west. The entrance for cars to the parking area at the rear is seen in the right of the picture, passing through the structure of the building. On the ninth floor, with the windows set back, is the canteen; the projecting balconies belong to the offices of chief executives.

The function of the headquarters of the National Dock Labour Board naturally make it very different from an ordinary office building. Instead of large floor spaces, generally for an unspecified use, the requirements were exactly known and they varied considerably. The site itself, being on the river frontage, with splendid views, was another major influence on the character. The frontage is quite narrow (70 ft.) and so that as much of the views as possible could be enjoyed by the occupants the full frontage is built on and the building is to the



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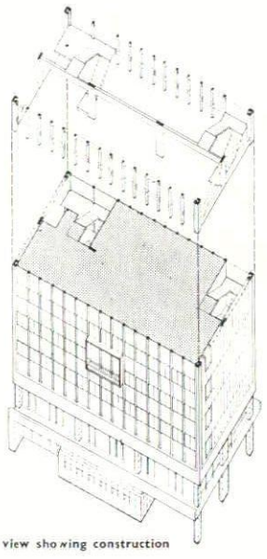
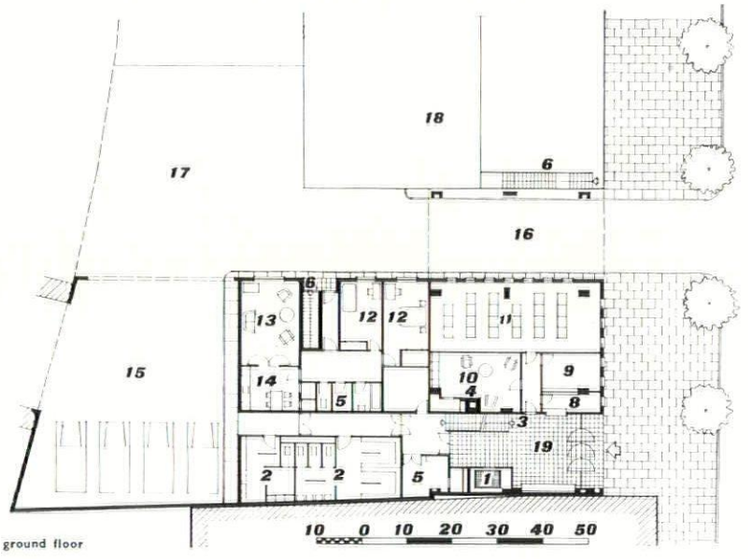
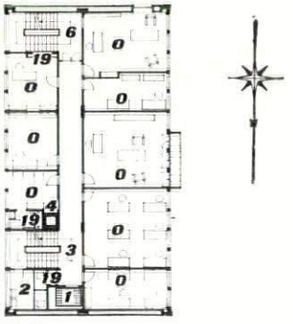


axonometric view showing construction



ground floor

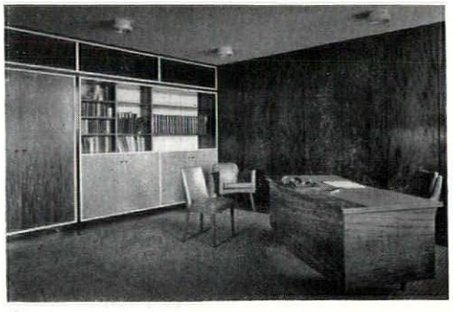
key
0, offices.
1, lift.
2, lavatories.
3, main stair.
4, boiler flue.
5, store.
6, escape stair.
7, main entrance hall.
8, porter.
9, switchboard.
10, waiting room.
11, punch room.
12, bedroom.
13, caretaker's living room.
14, caretaker's dining-kitchen.
15, garage.
16, way through.
17, service yard.
18, carter's proposed building.
19, ducts.



4th floor

OFFICES ON ALBERT EMBANKMENT

2, the entrance from Albert Embankment. 3, tenth-floor roof terrace. 4, office of one of the senior officers of the Board. 5, main entrance hall. 6, the canteen.



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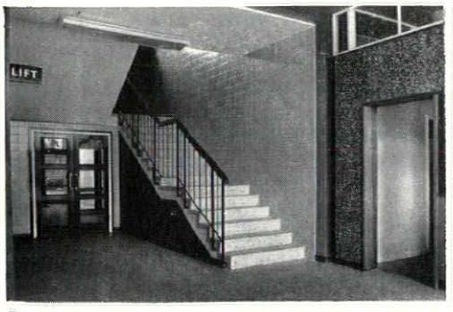


5



6

maximum possible height permitted by the L.C.C.

The resulting basic form is a ten-storey, narrow vertical block parallel to the river front, with the main stairs and lifts at one end and an escape stair at the other. Large areas were required on the ground floor for machine rooms, lavatories and garaging cars, so the building extends over the rear of the site with top lighting. Access to the rear portion is by a drive which passes through the building.

The proximity of the river suggested a riverside terrace but since the building is cut off from the Embankment by a busy traffic road, a terrace is formed at first-floor level by setting back the upper floors. It is hoped that this first-floor terrace will one day extend over the adjacent site on the south, where another tower-like office building is proposed; the service drive would provide vehicular access for both buildings and the common first floor would make a fine terrace overlook-

ing the river for the occupants of the buildings.

In planning the accommodation it was decided that the communal and more important rooms should be near the top of the building where the views are best. The canteen is on the tenth floor and occupies the whole river frontage, with the kitchens behind. Below this are the dining rooms and below this again the Board and Committee rooms. The office floors underneath are planned so that the whole river frontage is occupied by staff, the lift, lavatories and other services being at the rear. Two of the more important individual offices are provided with projecting balconies. The splendid river views led to the roof being designed as a roof garden, screened from the wind and easily accessible from the communal rooms below. The basement contains storerooms and boiler rooms, and in part has been specially reinforced to serve as a potential air-raid shelter.

The building is of reinforced concrete construction which was found the most suitable for this particular structure. In the interests of precision and speed of construction, it is largely of precast concrete units. Because rooms were required of a variety of sizes the building was designed to a module of 4 ft. 5 in.; all the window mullions are on this centre, enabling partitions and, therefore, room frontages, to be multiples of this dimension. Out of this need for close-spaced window mullions the structural engineer, Felix Samuely, designed the external walls as a thin reinforced concrete grid, which acts both as a structural frame and as the window mullions.

In each storey in-situ columns placed down the length of the building 22 ft. apart support a concrete spine beam. A composite concrete floor slab spans from the spine beam to external portal frames on either side of the building—distances of 19 ft. and 16 ft. 6 in. The floor slabs consist of precast prestressed T-section concrete planks with an in-situ topping and the roof slab is also constructed in this way. The 2-in. thick topping is cast on permanent asbestos cement formwork, carried on metal clips which are sprung over the webs of the prestressed planks. The castellations formed by the tops of the planks are bonded with the in-situ concrete. Suspended ceilings are used.

The external frames each consist of two uprights and two horizontal members. The uprights act as mullions and windows span between them, and the horizontal members act as cill and head beams. The frames are bolted together vertically and joined horizontally by the cill and head beams of windows between the frames. For the greater part of the building continuous horizontal rows of windows alternate with rows of storey-height precast concrete exposed aggregate slabs.

The end walls are composed of precast corner columns and triangular precast concrete frames (each with an in-situ vertical member), which are designed to act with the floor slabs in providing wind bracing. Behind these columns and frames is an inner skin of concrete breeze blocks, and in front of them precast concrete facing slabs of storey height.

The internal finishes follow the general practice for buildings of this character, except for rooms with special functions. For example, the canteen has a sound absorbent slotted fibrous plaster ceiling ; the board room an opepe wood block floor, golden laurel wall panels and a fibrous plaster ceiling. Opepe wood block floors and walnut, sycamore and mahogany panels have also been used in the rooms for the senior officers of the Board.

OFFICES IN BRUTON STREET

ARCHITECT | **CECIL H. ELSOM**



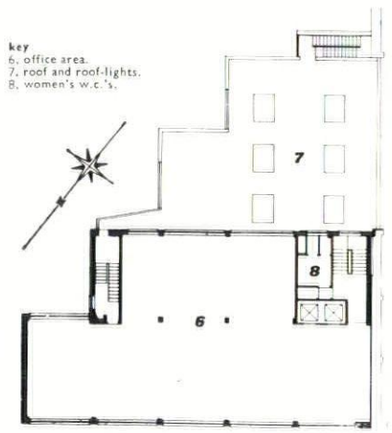
7. Bruton Street frontage. The outer cladding is Portland stone over an inner skin of brickwork.

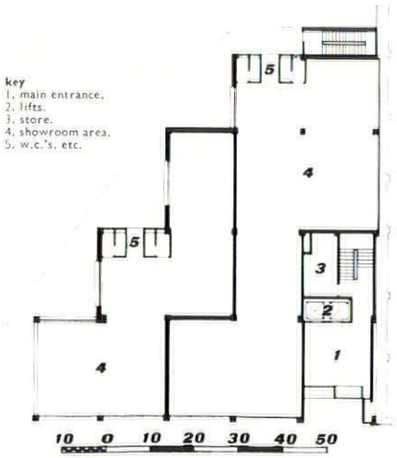
This office building, for which the clients were an investment company, filled a gap left by enemy bombs during the war ; the site, which is between Bruton Street and Bruton Lane, is triangular. The ground floor, which is for showroom accommodation, covers most of the site, while the seven upper floors, lettable as offices, are rectangular, thus leaving a large area at first-floor level which has been arranged as a roof garden.

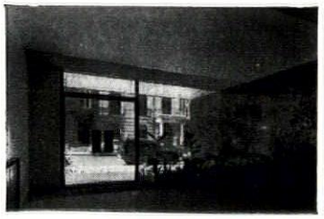
The structure is a steel frame, on pile foundations. The front to Bruton Street, which is clad in natural Portland stone over an inner skin of 9-in. brickwork, conceals the frame entirely ; but with the rear elevation the frame is left visible, and faced with terrazzo, and there are infill panels of 11-in. cavity brickwork.

In the entrance hall one wall is faced in Levanto marble and the floor is Pumadi marble. The main stairs are paved with terrazzo, the escape stairs with grano. Office floors are mahogany wood block, laid on a 3-in. screed which contains ducting for power points and telephones. Walls and ceilings throughout are plastered and painted. Lavatories have terrazzo floors and tiled walls. The roof is finished in asphalt on a reinforced screed, on glass silk quilts, with cement paving laid on bitumen for certain areas. Parapets are finished with aluminium coping.

There are two high-speed automatic lifts, and heating and hot water are obtained from gas-fired boilers.







8, the entrance hall opening on to Bruton Street. The right-hand wall is of Levanto marble, and the floor of Pumadi marble.

OFFICES IN VICTORIA STREET

ARCHITECTS | **SIR JOHN BURNET, TAIT AND PARTNERS**

Monsanto House is near the Westminster Abbey end of Victoria Street and faces south. Of the twelve floors, two are below Victoria Street and directly accessible from a private service road on the north side. The building is planned on a system of bays at 13-ft. 8-in. centres, each bay being subdivided into three parts to give a maximum flexibility of office layouts. The subdivisions are formed of movable honeycomb plastic partitioning. The directors' offices on the sixth floor have double-skin lightweight partitions.

The structural frame and the basement are of reinforced concrete. Most beams, floor and wall panels and stair flights are precast in large units ; structural columns were cast in-situ for structural continuity. The floor panels are of ribbed construction 13 ft. by 4 ft. 6 in. by $4\frac{3}{4}$ in. over-all thickness, the panels between the ribs being only $1\frac{1}{2}$ in. thick. Wall panels were 12 ft. 9 in. by 3 ft. 3 in. high by 5 in. thick with two window mullions projecting to carry window frames and stone cladding.

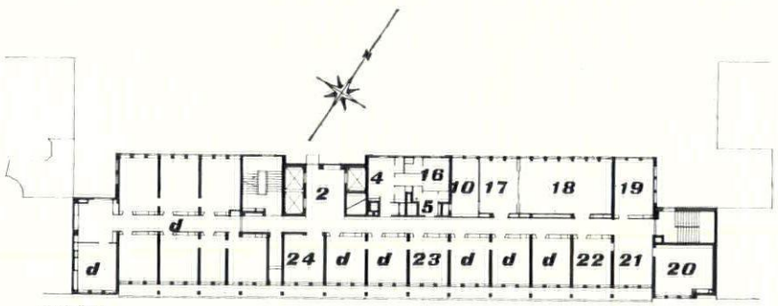
The elevation to Victoria Street is faced in Portland stone to eighth-floor level and lavender grey brick on the floors above to reduce the apparent height of this façade. Windows are steel framed, except on the ground floor, where they are polished bronze, with painted softwood sub-frames and quartzite aprons below. The balcony on the sixth-floor level which marks the directors' floor is lined in Portland stone and white acid-stippled opaque glass and its floor is finished in heather quarry tiles precast into units of four. Rainwater runs away in an asphalt tray below the tiles, which are therefore laid without falls or gutter. Balcony and canopy fronts and name panels are faced in Pretoria black granite. The balustrades and the balconies are of wrought iron and teak, with white stove enamel panels set into the timber. The rear (north) elevations are faced in Uxbridge flint bricks with precast copings and cills. Flat roofs are finished with asbestos tiles bedded on asphalt. On an upper roof an experimental area of foamed slag asphalt has been laid.



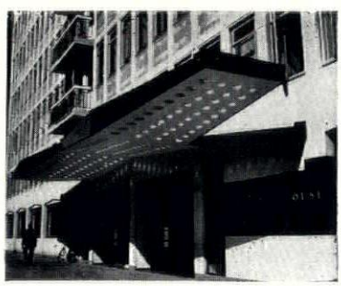
9



10



sixth floor

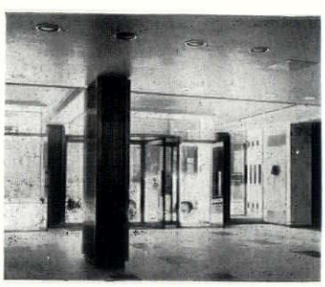


11

9, the south-facing Victoria Street frontage, which is faced in Portland stone, with quartzite aprons below the windows. The balcony along the sixth floor marks the directors' offices. 10, interior of the balcony, which is paved with quarry tiles. 11, the canopy over the entrance

OFFICES IN VICTORIA STREET

key
1, entrance hall.
2, lift hall.
3, plenum ducts.
4, men's w.c.'s.
5, women's w.c.'s.
6, mailing.
7, service yard.
8, light areas.
9, areas.
10, servery.
11, cloakrooms.
12, visitor's cloakroom.
13, firemen's lobby.
14, private offices.
15, junior staff and typists.
16, dressing room.
17, dining room.
18, board room.
20, chairman.
21, anteroom and secretary.
22, vice-chairman.
23, conference room.
24, waiting room.
d, directors and secretaries.



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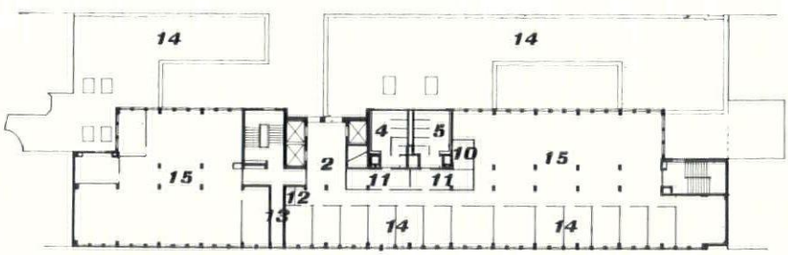
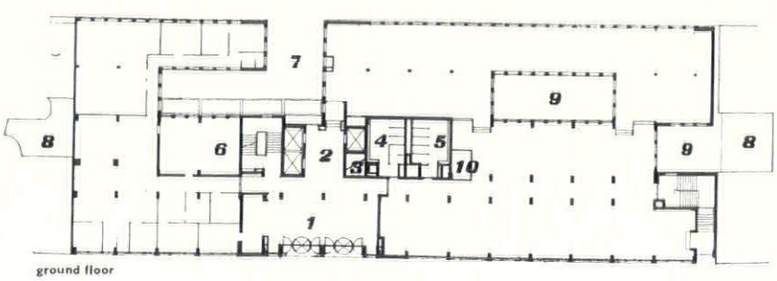
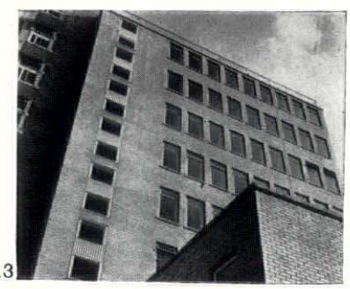


first floor



ground floor



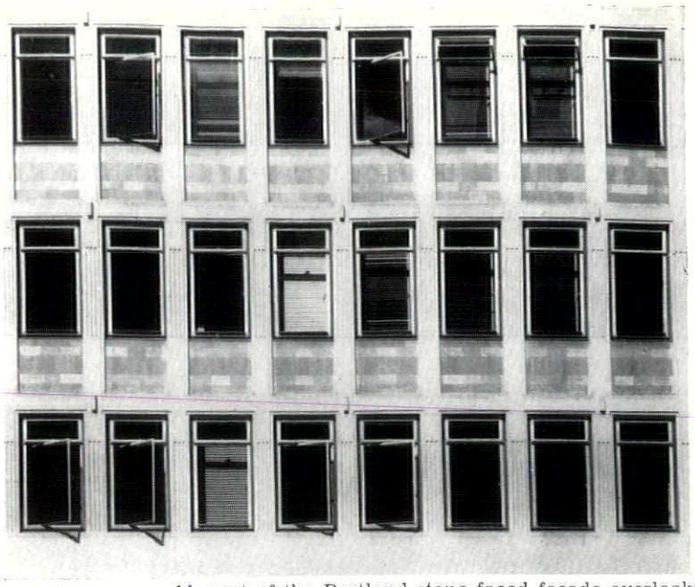
13

which, with the name panels seen to the right and left of entrance, is faced in Pretoria black granite. 12, inside the main entrance hall; the walls and floors are faced with white marble. 13, part of the north façade: the bricks are Uxbridge flints.

10 0 10 20 30 40 50

In the entrance hall the walls and floors are faced with veined white statuary marble, and door frames, revolving door casings and lift door linings have bright polished lacquered bronze finishes. Beam casings and lighting baffle fittings are in fibrous plaster. The main stairways are walled in terrazzo up to dado height. In most of the offices, the floors are of sapele wood block on a lightweight screed ; beams, columns and structural walls are plastered. The plastic partitions are finished light grey and pale green on alternate floors, and the doors, lift-lobby ceilings and stair soffits in a series of five strong colours. Walls are kept light in tone to aid light penetration ; ceilings are suspended, and lined with acoustic sheeting.

Heating throughout is by low pressure hot water, and the whole building is ventilated by a partly recirculated plenum system. The boilers for these services are oil fired. All electrical services are by underfloor ducting. Three passenger lifts serve all floors, and a service lift connects the tea serveries on each floor, and the directors' dining-room on the sixth floor, to the kitchen.



14. part of the Portland stone-faced façade overlooking Victoria Street; panel infills are faced with quartzite. See also page 226.

OFFICES IN

NEW CAVENDISH STREET

ARCHITECTS | **COLLINS, MELVIN AND WARD**

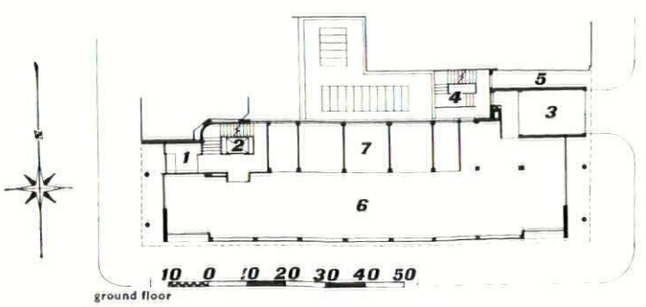
This office building, Electrin House, is on the north side of New Cavendish Street, between Bolsover Street and Great Titchfield Street. It was designed to give the maximum area of divisible office space on the upper floors and showroom space on the ground floor. The basement was designed for storage only. The structure is reinforced concrete carried on multiple pile caps on bored piles. Floors and the upstands under the windows were cast integrally with the frame. The building is faced with curtain walls on a 2-ft. 10-in. module. The curtain wall is constructed of extruded aluminium sections with steel opening lights, painted black, the infilling panels being of blue-green glass slabs. Due to the London County Council fire regulations, there is a 4-in. thick reinforced concrete inner skin up to window-cill level, behind the curtain walling. Internal partitions are of lightweight concrete blocks.

The main entrance in Bolsover Street has armour plate glass doors and fanlight, a black and white terrazzo tiled floor and one wall of *bleu belge* marble, which extends the width of the arcade externally. The free-standing columns in the arcades at each end of the building are finished with black terrazzo. The main staircase and floors to landings are white terrazzo, and offices and showrooms throughout have sapele wood block. Walls and ceilings are plaster, painted. The building is heated by an oil-fired boiler serving radiators with low-pressure hot-water circulation, with the exception of the main entrance hall which is heated by a ceiling heating panel. Summer hot water is supplied from a gas-fired boiler.

W. V. Zinn was consultant structural engineer.

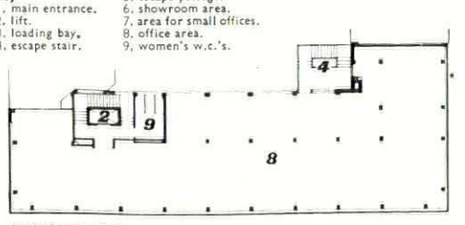


15. the curtain wall facing on the New Cavendish Street front. Infill panels are blue-green glass; the opening lights of the windows are painted black. Facing page, 16. the corner of New Cavendish Street and Bolsover Street. The columns in front of the entrance are faced in black terrazzo. See also page 226.



ground floor

key
1, main entrance.
2, lift.
3, loading bay.
4, escape stair.
5, escape passage.
6, showroom area.
7, area for small offices.
8, office area.
9, women's w.c.'s.



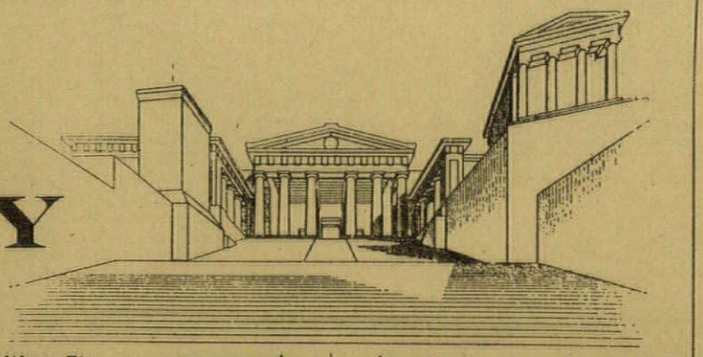
typical upper floor

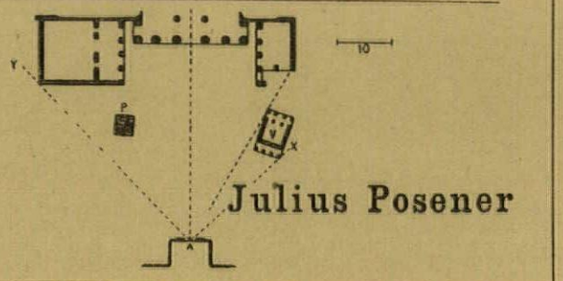




Auguste Choisy's *History of Architecture* may prove to be the most influential work of its kind ever published. It documents the growth of the art from pre-history to the beginning of the modern movement, but it also affected the growth of the modern movement itself. Its discussions of Ponderation of Masses, such as this study of the Propylea, right, introduced a generation of French architects to asymmetrical, picturesque composition. Its brilliant isometric analyses of the buildings of the past—Gordon Cullen's dark capriccio, opposite, superimposes Clermont on Perigueux—taught them to think simultaneously of structure, plan and volume. Above all, it taught them to believe in a logical connection between form and technique, and it is mainly this aspect of Choisy's thought that Julius Posener discusses in his pioneer historical assessment of the *History of Architecture* which appears below.

CHOISY





Julius Posener

'*The seductive lucidity of the excellent Choisy.*' (Hans Sedlmayr.)

Sometimes, it is the opponent's eye which most clearly perceives the qualities of a great man. I find Professor Sedlmayr's short reference to Choisy which forms the motto to this article much to the point. The good antagonist, of course, is always an admirer.

It is due to scholars like Sedlmayr that we no longer fully admit the validity of Choisy's point of view. We have become more modest—and also more involved—than the protagonists of the French rationalist school had been: they thought that they held the key to understanding all history in their theory that it was, in the last instance, the development of technique.

By technique, Choisy understands not merely the arsenal of lifting machines and cutting edges available at any given moment, but the labour at hand, its organization, the material available, the means of transport, the structure of society itself: in short, the whole geographical and social background of any period of architecture.

Given this background, not only the structure, but the shapes themselves were supposed to have emerged with a kind of automatism:

'The principle of Gothic architecture—like most discoveries—can hardly be ascribed to one actual inventor; the germs mature in the shade; then, suddenly, we witness a number of developments which are brought about by the logic of circumstances. Everywhere, the need was felt to escape from the difficulties inherent in the masonry of the groined vault; and, naturally, builders introduced the rib; again, they noticed that the piers of the high naves were buckling under the impact of thrust, and the only remedy was the flying buttress.'

Once the question was posed, the solution was indicated. Development, according to this thesis, is the gradual liberation of the builder not so much from the fetters of technique, but from his ignorance of its conditions. Once these were recognized, the technique was mastered and the classical moment—Choisy's 'correct' moment—was reached. Later, the builder took liberties with his material, he began to play with it; and decadence set in.

Choisy's architect of the past at all times resembles a French engineer, an Auguste Choisy, in fact, projected back from the boulevards of nineteenth century Paris to the lanes of Egypt, the streets of Rome and the Parvis Notre Dame. And Choisy himself, a magician of logic, seems to produce the solutions of those former Choisys from his top hat with a dry, professorial 'Et voilà'.

The influence of his work was immense. He is the father of Perret's and even of Le Corbusier's doctrines. The majority of histories, general and special, which appeared since he wrote, bear witness to this influence; although they refrain from actually deriving shapes from material premises, as Choisy tends to do. While this may be called commendable caution, it at the same time weakens the link between premises and results which renders possible the mathematical beauty of Choisy's demonstrations.

Choisy's architect of the past works under a twofold impulse: he tries to solve the problem in hand, and he receives solutions from his forbears. The stream of history, with all its tributaries and ramifications, is shown in Choisy's work as issuing from a limited number of sources. But this passing on of inventions is relegated to a secondary plane. 'The logic of circumstances' may even promote simultaneous invention in different places. Choisy does not, like Rivoira or Strzygowski, derive the whole sequence of architectural development from the efforts of one particular race or nation: Lombardy or the Aryan East. As a guiding principle, this kind of racialism in art history has proved too narrow.

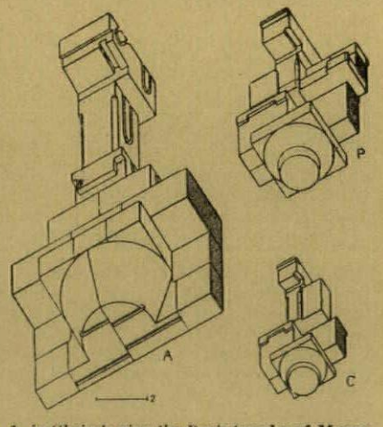
By and large, however, even these scholars are still sailing in the wake of the rationalist school, and their digression is no more than a shifting of emphasis. But in recent years an entirely different view has gained ascendency: the view which denies the dependence of form on technique. This school, which has a long tradition in Germany, maintains that, in every case, it has been the spirit which embodied itself in works of art. As we are turning our backs upon functionalism, the offspring of the French rationalist school, we are more and more inclined to accept the tenets of this school.

Two difficulties arise here: that of the so-called primitive stages and that, related to it, of development. If the artist is free, at all times, to realize his vision, one can no longer speak of primitive stages, nor of development in the sense that richer or more perfect works follow upon simpler beginnings. As a reaction against the doctrine of progress in art, this theory must be called welcome. No one, at present, would assert that the Doric of Athens is superior to that of Paestum. It is different; and the word development cedes place to the word change. But if all development is denied, the obvious faults of masons who were not yet in full possession of the adequate technique of cutting stone must be seen as perfect realizations of a certain state of mind. Interpretation is given a great amount of freedom. (See 1.)

Interpretation is the essence of history, and technique also has to be interpreted by the historian. But once the palpable facts of building have been left behind as irrelevant to the consideration of form, a fairly severe doctrine is bound to take their place as an ordering principle, and the danger is always near that the evidence is made to fit the doctrine. A subtle change of meaning tends to occur: the play is no longer the thing, but the critique, and the work of art has to serve as a paradigm for an historical concept. In matters of art, the evidence is liable to look different in the eyes of each beholder. Sedlmayr and Summerson, two scholars, professing the same views, yet see different things when describing the portals of Amiens. To Sedlmayr, its heaviness appears refractory to his theory of a hovering Gothic architecture, and he chooses to consider it as a remnant, as yet unassimilated, of the Romanesque period, while Summerson selects it as an example to prove that very theory and calls light and airy what Sedlmayr describes as heavy and earthy. Viollet-le-Duc had to adduce theory of structures to prove his theory of Gothic forms. The writer of aesthetics need not be so explicit. It is always possible to discover in a work of art the things one wishes to find there.

While it was mainly German scholars who rejected the rationalist approach as unspiritual, it was left to a Frenchman, Pol Abraham, to carry the attack into the enemy's camp by demolishing Viollet's theory of Gothic structure. Viollet had taught that Gothic ribs 'canalize' the thrusts acting in the vault and conduct them towards its corners; and Choisy was fully committed to this view. Abraham, on the contrary, has shown that a rib vault of a certain span, thickness and weight acts in no way differently from a groined vault answering the same conditions. He drew the conclusion that the rib had no structural meaning. (See 2.)

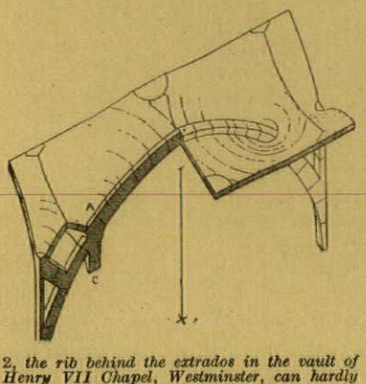
No attack could have been more devastating. The Gothic rib and its structural significance had been the very starting point of Viollet's doctrine, the sanctum in the rationalist chapel—sit venia verbo. Now the conclusion was widely drawn that the rationalist approach was not only wrong, but that it was not even rational: that shapes, in architecture, could not be derived from structure. Developing Worringer's ideas, Professor Pevsner maintains that the ribs, at Durham, represent that stage in mediaeval development when the emphasis shifts from surfaces to lines: that the rib vault was, in fact, a symbolic skeleton rather than an actual one.[1]



1, in Choisy's view the Doric temples of Magna Graecia did not attain the Parthenon's technical perfection. He finds fault with the cutting and placing of the stones in the metopes and triglyphs in the giant temple at Agrigentum A, the great temple at Paestum P, and another temple at Agrigentum C.

[1] These remarks refer to Professor Pevsner's statements in 'European Architecture.' In the more recent volume on County Durham ('The Buildings of England') Professor Pevsner shows that the ribs at Durham were erected prior to the webs and calls the architect a technical inventor.

However, the fact that the rib does not play any part in the finished vault does not prove that it may not play a part in its erection. It certainly simplifies the building of the vault. It permits a differentiation between the precise cut of the rib and the easier masonry of the web; and, by



2, the rib behind the extrados in the vault of Henry VII Chapel, Westminster, can hardly have a load-bearing function; Choisy, who firmly believed in such a function in the Gothic rib, calls this and similar late examples decadent.

means of this differentiation, it renders possible thinner vaults.[2]

Mediaeval masons could not check their proceedings by means of structural analysis. Abraham could show that the rib vault did not work in the way Choisy supposed it to work; yet, for all we know, the cathedral builders may have laboured under Choisy's misconception. One is inclined to apply present-day distinctions to the attitude of men of earlier times. If a mediaeval mason would have been asked if he considered himself an engineer or an artist, he would not have understood the question.

These considerations modify, to some extent, Abraham's conclusions. All that can safely be said is that the rib did not play the part Choisy had assigned to it. That it had no structural meaning cannot be affirmed.

The rib, as an auxiliary structure for the erection of the vault was, of course, no invention of the eleventh century. It had been in current use in Rome. But the Romans, as a rule, did not show this auxiliary structure. In the Baths of Caracalla, coffers are placed across the groin, affirming the surface of the vault as a continuous whole. The Gothic rib, once adopted for its practical advantages, would have been more difficult to hide; but had the masons of 1140 continued to look at the vault with Roman eyes, they might never have adopted the rib. The masons of Aquitaine might well have continued to cover their naves with Byzantine domes; yet here also the rib made its appearance. The vaults of Angers are still near-domes; but they are domes with ribs; and Choisy himself considers their presence there '*peu justifiable*.' Their meaning, here, can only be called symbolic.

One cannot deny that whatever is done in architecture has symbolic meaning. Not only may a rib or a column occasionally assume such meaning: it is always present. Architecture shares this symbolic character with all art and, beyond, with every activity of the mind, not excluding science nor, indeed, technique.[3] But in architecture symbolic form invariably manifests itself as structural form.

This may happen in different ways: A structural member may clearly and vigorously affirm the service it is rendering. This is Choisy's thesis. The rationalist school does not, by any means, deny the presence of art in architecture. Its contention is that shaping tends to proceed in the direction of structure. This does not necessarily mean that every serving member has to be expressed, or even shown. The Roman vaulting rib is a case in point. The architect is not bound, as Perret puts it, to show the muscles and the nerves. He is given a great latitude of choice.

But there is also, in architecture, indirect or symbolic expression of structure. Sedlmayr regards the thin shafts and ribs in a Gothic nave as a symbolic structure masking the stronger members which actually support the building. In the Palazzo Strozzi, the rusticated whose strength and grading so clearly express the character of the load-bearing wall are in fact a comparatively thin cladding applied to a brick wall. In both cases, the symbolic structure has made the meaning of the real structure clearer: the thinner members of the Gothic nave, and the heavier ones of the Renaissance façade achieve a higher degree of 'truth' than is possessed by the structures themselves.

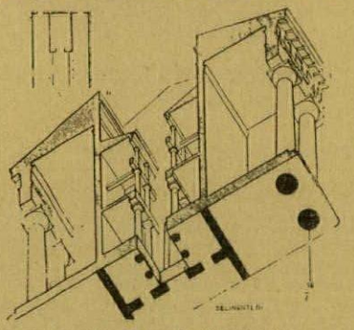
Finally, an architectural member may assume the shape of structure without taking any part in the task of supporting loads. Geoffrey Scott tries to invest engaged columns and entablatures in Renaissance architecture with an indirect structural meaning. They represent, he says, vertical and horizontal forces acting in a load-bearing wall. I find it difficult to accept this explanation. Engaged columns and entablatures in Renaissance architecture are structural symbols in their own right, without any relation to the building to which they are applied. The point is that even where such architectural trappings are used merely to divide surface, they appear in the guise of structural members.[4]

Perhaps architecture may be seen as structure in love with itself. A work of architecture may be interpreted under any aspect: one may understand it in terms of lines, of movement, of space. But instead of assigning a linear function to a rib, or a sculptural meaning to a column, I should prefer to look at architecture in the opposite way: that a line or a sculptural idea has been made architecture by being changed into structure, real or symbolic.[5]

It is here, I feel, that the school most strongly opposed to Choisy has failed: it does not consider technique as an integral part of architecture. This school has opened our eyes to Choisy's shortcomings; but until a writer appears who unites Choisy's feeling for structure with the philosophical and aesthetic understanding of a Woelfflin—for no less would be required to write the history of architecture as a symbolic form—the only comprehensive history we possess is Choisy's.

Choisy approaches each period in architecture with an introductory note setting out the conditions which have informed its works and then, immediately, deals with current techniques: les procédés. He seems to take into his hand the individual stone, or piece of timber, and from them builds up the wall, the pier, the column, the vault, the roof, following their vicissitudes throughout the period.

The drawings which illustrate his observations are of didactic simplicity: he never indulges in an

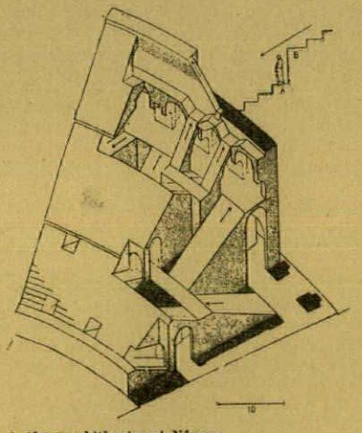


3, axonometric of a temple at Selinunte.

'artist's impression' knowing it to be the opposite to the architect's approach. Not a line too many is shown. The half capital, the quarter plan must and do suffice to make his meaning clear. He prefers axonometric figures, showing plan, section, interior and elevation in one drawing, 3.

His next chapter, in each section, is inscribed 'forms,' and here the formal development of the period is subjected to the same terse scrutiny which before was applied to the methods of building.

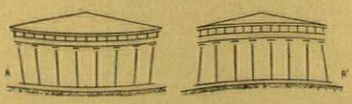
Finally, the development of the significant building itself is shown: the temple in Greece and the church



4, the amphitheatre at Nimes.

in mediaeval France; and he concludes by showing peripheral types, like the erections of military architecture and engineering, 4.

The sections end with notes on the organization of building crafts, geographical distribution and related matters. Nor are questions of proportion, spatial composition and urbanism neglected, and those final chapters are particularly rich in happy observations. He demonstrates the so-called optical corrections in Greek architecture, 5, but adds a warning not to consider those swelling columns, convex stylobates and column contractions as means of



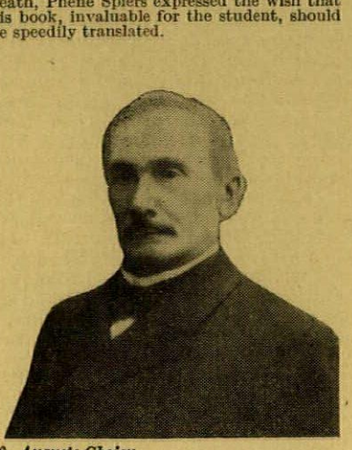
5, Choisy deals with visual as well as purely technical problems; here he demonstrates the effect of diverging verticals.

optical correction only. They are, Choisy says, more pronounced than would have been required for the corrective effect, and this more was meant to be perceived: *Que l'on en ait ou non conscience, il résulte de cette allure inusitée des ligne une impression étrange et neuve. Non averti, le spectateur sent quelque chose d'insolite; averti, il reconnaît une attention délicate qui le charme: les contours prennent, grâce à cette recherche, un air de distinction auquel le goût ne saurait demeurer indifférent: l'édifice échappe à l'aspect vulgaire des constructions à lignes rigides, il s'empreint d'un caractère imprévu et neuf qui se soustrait peutêtre à l'analyse mais nous saisit alors même que nous en ignorons le vrai sens et la cause.*

I have quoted this passage in extenso, because it gives a fair insight into the working of Choisy's mind. He tries desperately to explain something which he clearly feels to transcend analysis; and he arrives at the compromise to say that the artists who devised these refinements wished to draw attention to their research into the secrets of optical illusion; but in the end he abandons even this precariously balanced piece of rationalism and admits, with a shrug, that here he finds himself in front of an aesthetic effect 'qui nous saisit alors meme que nous en ignorons le vrai sens et la cause.'

To represent him as a dry technician would be very wrong indeed. Neither he, nor Viollet-le-Duc should be considered in this light; but one must not forget that French romanticism is not incompatible with logic. Choisy has the sense for the dramatic, for the grand historical survey in which his chapters culminate, when a final *quod erat demonstrandum* assumes a character of dynamic beauty.

The language in which his comments are couched is in keeping with his figures: again, not a word too many is said. His utterance is reduced to an eloquent laconism. It is terse, latin, professorial. Compared with him, even his compatriot Viollet is found verbose. His language is so French, in fact, that it may prove refractory to translation. Even so, one wonders how a didactic masterpiece of this order should still remain, after more than half a century, inaccessible to most English students.[6]



6, Auguste Choisy.

[2] Pol Abraham denies that the rib played any important part in the erection of the vault and that it led to the construction of lighter vaults. It is true that the extrados of Gothic vaults is covered with a thick layer of rubble and mortar, which is particularly heavy over the springings of the vault. But this covering was placed after the comparatively thin shell had been built, and the heavy load over the springing, that is to say over the tas de charge mainly, may have been put there with the intention of deflecting the outward thrust of the vault.

That the separate erection of ribs and webs should not have rendered easier the erection of nave vaults I find difficult to believe. Groined vaults over the main span of mediaeval churches are rare; and those which have been built did not, on the whole, prove particularly successful (Vézelay, Mainz).

[3] cf. Ernst Cassirer: *An Essay on Man*. Yale University Press, 1949.

[4] We may mention here the translation of structural form into a different medium, as in the Doric temple. Choisy shows examples of faulty masonry in early triglyph friezes. The form was given, he insists; the masons tried to realize it as well they could.

[5] I am by no means certain if there is any difference other than in grade of 'directness' between a real structure expressing its service and a symbolic structure superimposed upon it, as in the palazzo and the cathedral. There is a difference, though, between both and columns used as decoration.

[6] In 1909, on the occasion of Choisy's death, Phené Spiers expressed the wish that his book, invaluable for the student, should be speedily translated.

Report on CALIFORNIA

from James Ackerman



1, *miner's cabin, Sierra Nevada Mountains.*



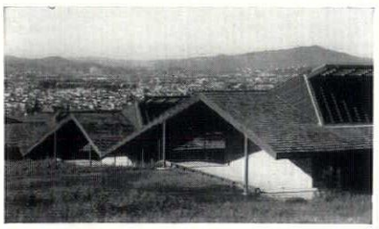
2, *late nineteenth-century houses, San Francisco.*



3, *Therson House, Berkeley, by Greene and Greene.*



4, *house in Marin County by Roger Lee.*



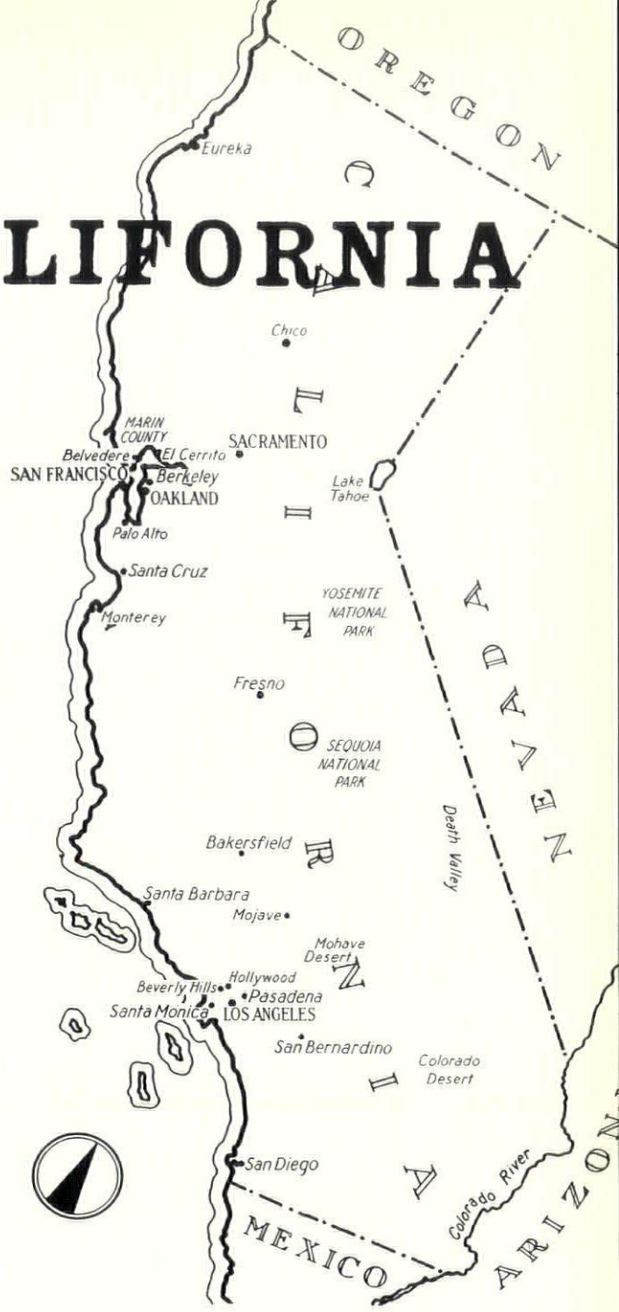
5, *school at El Cerrito by John Warnecke.*

Nowadays anyone who comes to this part of America to look at architecture expects to see 'Bay Region Style,' an art-historical term which Lewis Mumford self-consciously coined a while ago, and which somehow stuck, so that while we don't use the words around here we are haunted by the idea. It really does represent something, I think, though it is an awkward misnomer, because what it represents can be seen from Seattle to Santa Barbara—a distance nearing 2,000 miles. The Bay Region, which includes San Francisco and all its satellites, is not so much the centre as the point of greatest concentration. The 'style' is peculiar to the coastal region probably because of the special conditions of history here: a Spanish Colonial ancestry, which we share with Texas and the South-western States, is blended with the oriental flavour that hangs around our ports, where not only the goods but the people of Asia have played their part. To these exotic components one must add a Yankee inventiveness in the use of wood that produced the simple farmhouses and barns of the Gold Rush country, **1,** and later the fantasies of San Francisco row housing, **2,**

But a factor that is less often taken into account is the character of more recent history. The West produced no architects before this century, though many came here to take advantage of the conditions caused by rapid growth. The first to arrive came not from the Chicago 'frontier' but from the Atlantic seaboard, and when they wanted to escape from the Beaux-Arts tradition they had to look all the way back to the early work of McKim, Mead and White (Vincent Scully's 'Shingle style') or further. The heroes (from the point of view of modern Bay Region architects) of that generation, particularly Maybeck and Greene and Greene, **3,** are direct offspring of William Morris (William Sumner Greene designed not only the chairs and tables of the Gamble house in Pasadena but the light switches and rugs as well).

When you concoct a recipe out of casual Spanish adobe construction, Japanese tea houses, and latter-day arts-and-crafts, you cannot hope to serve a dinner that Mies, Corbu, or even Wright, will be able to digest easily: and this is why when you run through anything published by the Museum of Modern Art in New York you don't see much of what has happened in this idiom. Philip Johnson is on a strict International diet.

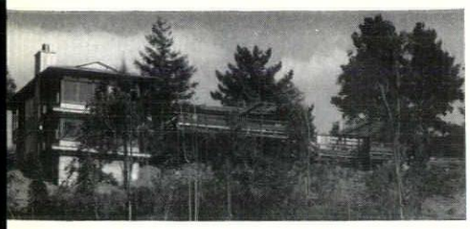
I do not mean to imply that all of this work looks backward in one way or another. When you think of the best published things of Belluschi and Harwell Harris (leaders in the style, though both far from the actual Bay Region) you get an idea of vitality, not regressiveness. The two I just mentioned have been drawn away from the coast now, to the M.I.T. Architecture department and to Austin, Texas, and it will be interesting to see what effect they have outside of their natural habitat. Younger men, in the San Francisco area particularly, have turned occasionally to more literal orientalism than their seniors did, in the same way that their contemporaries in Los Angeles or in Texas tend to embrace International doctrine more wholeheartedly than anyone did a few years ago. The Sino-Japanese school includes the designer Henry Hill, whose work looks a good deal better in photographs than it does in life, and, not unnaturally, two able architects of Asian parenthood (the first as far as I know to make a success professionally here)—Worly



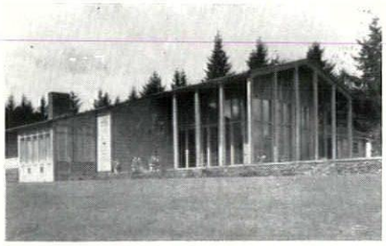
Wong (Campbell & Wong) and Roger Lee, **4.** They are both mainly house designers (Lee is a specialist in maximum space for minimum cost in redwood and glass construction), though both have done churches.

The mention of house architects prompts a digression at this point to emphasize the fact that the great preponderance of private residential commissions received by the architects here from Wurster's work of the '30s onward has affected the whole character of design. There is a housiness about nearly everything one sees: I mean to say, an intimacy, familiarity of scale, fussiness of texture, colour, until it seems doubtful whether we are any better prepared to take on a large civic commission in the event that it should come than a miniaturist would be to execute a fresco in the dome of St. Paul's. I cannot much blame the architects for this because outside of Southern California the right people have seldom captured large commissions. Yet many schools have been commissioned to advanced designers; partly because the bureaucrats of education at this moment want to make the children feel at home, so there is no call for monumentality. The example illustrated, **5,** by John Warnecke spreads single classroom units over a hillside and is assertively domestic.

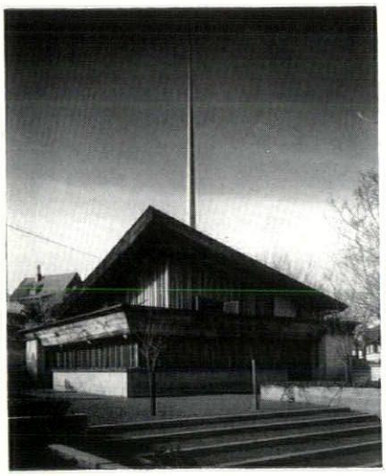
On the other hand, there are some small house designers, such as Joseph Esherick, whose work is impressive in scale. In houses such as the one I show



6, *house at Berkeley by Joseph Esherick.*



7, *house at Portland, Oregon, by John Yeon.*



8, *Christian Scientist church at Belvedere by C. W. Callister.*



9, *centre for the behavioral sciences, Palo Alto, by Wurster, Bernardi and Emmons.*

here, **6,** or even in his cottages at Lake Tahoe on the Nevada border, there is a force that comes from quietly affirming the traditions and wealth of wood construction. I would say the same of John Yeon, who practices in Portland, Oregon, and has used a strong carpenter's tradition in North-west architecture, that is like nothing else one sees in America. **7,**

Nobody seems to appreciate the virtues of anonymity, as may be seen in any of the great tract-developments that are absorbing the 2,000 people who enter California daily. Row houses (even in the rare instances when they are designed by our best architects) are differentiated as much as the budget will bear: in materials, in colour, in setbacks, in plan—until you have a kind of synthetic variety that reminds me a little of the cast-iron whatnot dear to Prince Albert. Another tendency that ought to be causing some worry is the outcome of the unexpected popularity of 'modern' architecture in residential areas. Strange effects are produced by entire neighbourhoods filled with houses and supermarkets designed by young men brought up in the new school. Because unlimited materials and techniques are at hand the confusion of visual effects in such places is unparalleled by any past age. Technology alone cannot explain it: there is an excessive expression of personality that destroys any urban quality of harmony and gives a total impression something like an interminable broadcast from a psychoanalyst's couch. I can say in defence of this sort of thing that the western architect, while he has certain traditions to refer to such as those I mentioned, does not have them immediately at hand to exercise their sobering control. He builds in an environment devoid of history. Most houses are being designed for lots far out from the city in communities where the oldest building is of the present century, often of the last decade.

A few individualists are necessary to a healthy culture, however, and one would like to preserve the sensitive and imaginative ones for the instances when it is important to assert ideals. I think of C. Warren Callister, whose Belvedere Christian Science Church is the most convincing religious structure I have seen lately, **8,** and his former partner, Jack Hillmer, whose houses have a finesse reminiscent of the Greenes.

Returning to the present day, I should like to mention Wurster, Bernardi, and Emmons' Centre for the Behavioral Sciences on the grounds of Stanford University in Palo Alto, California, which is a curiosity as an institution, **9.** The Ford Foundation, which must get rid of a specified number of millions annually, established this Centre as a place where practitioners of the quasi sciences—particularly psychology and sociology—might confer with each other, work on projects, and do research with the aid of the Library of the nearby university. The architecture is residential in character and nestles comfortably into the surroundings. It is a remarkable job, particularly in view of the fact that it had to be built entirely within the span of six months. It is a building perhaps unique in function, because its main purpose is to provide thinking space. This is of two kinds: public and private. The public, including offices, a cafeteria, seminar and lecture halls, and a small library, is arranged on the crown of the hill in a Greek cross plan that provides good circulation and separation of functions. Private space is provided by units of four to eight studies with broad balconies, arranged on the slopes so that every scholar has an unimpeded view through oak trees to distant fields and towns. The architecture is simple, and unadorned except by the luxury of its natural setting. In form and in concept the Centre recalls those ample Carthusian monasteries of the Renaissance which, with their garden-cells, must have been far more comfortable than the princely palaces of the time. But nobody lives there; the appointees find lodging in the many suburban communities of the area, and use the Centre chiefly during the day.

Another important structure of recent vintage is also an academic institution, and it is almost as unorthodox in its purpose: a Graduate School for the U.S. Navy, intended to provide advanced technical training to officers who have had several years of experience after graduation from the Naval Academy, **10.** The novelty of the idea permitted some enlightened brass to sneak an uncompromisingly modern design past government officials not noted for their architectural open-mindedness. (Since then the same firm was chosen to do the Air Force Academy in Colorado and has already been successfully attacked in Congress.) The architects are Skidmore, Owings, and Merrill, but in this case the leviathan firm gave a free hand to the designers in their San Francisco office, and parts of the concept may properly be regarded as a local product. The result is a freedom from the elegant mediocrity of their usual work as well as an originality that is surprising to find these days even in small offices. The job has some obviously Miesian passages, but the best of it is a domesticated ferroconcrete style that successfully fits the area in a way that Belluschi, for example, was not able to do when he turned away from wood.

Now the initial unit is in use, the School of Engineering. Another portion, the School of the Line, is to be added at an indefinite later date. There are five buildings in the first campaign. One, a boiler house, is at a distance, among the older (pseudo Spanish) structures of the hotel that the Navy occupied there about 13 years ago. The remainder are well grouped about a paved court amid tall pine trees and other evergreens that enrich the site. The largest, of five-plus storeys of 30,000 square feet per floor, is for laboratory sciences. It is reinforced concrete designed to eliminate girders and beams—a plate design which is cantilevered out several feet on each floor for sun control and window-cleaning. The other buildings are all two-storey and are less interesting. One is an Electrical Engineering Laboratory, another a Mechanical-Aeronautical Engineering Laboratory, and the last is a classroom and office building 56 ft. × 655 ft. on an axis perpendicular to the main structure. The whole programme was carried out for less than $15 a square foot. This is phenomenally low for this kind of work nowadays.

The site planning is the most appealing of any I have seen lately, and if I am misled by the handsomeness of the site itself I would credit that to the designers also. The boiler house is a variation of the building of the



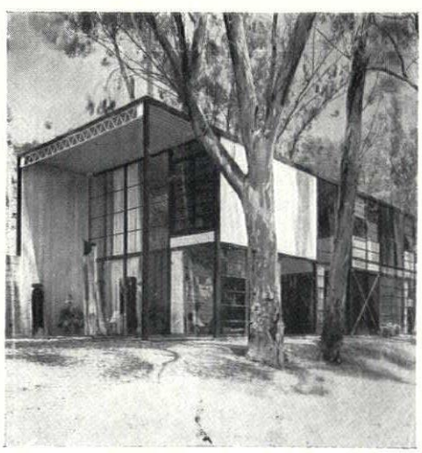
10, *naval research station at Monterey by Skidmore, Owings and Merrill.*



11, *Beverly Hilton hotel by Welton Becket.*



12, *C.B.S. television studios, Los Angeles, by Pereira and Luckman.*



13, *Charles Eames' house, Los Angeles, designed by himself.*



14, *the Farmers' Market, Los Angeles.*

same purpose at the Illinois Institute of Technology and could not have been done without that inspiration. The two-storey buildings are familiar, too; the possible variations of concrete and glass rectangles being limited. But the big building, with its sunken court, its cantilevered plates, is worth some enthusiasm.

I have also something to report on a short tour of the area around Los Angeles. Contrary to my expectations I was fascinated with the development there, which cannot be praised so much as architecture, but which is perhaps making that area the most purely mid-20th-century spot in the world. The one thing that immediately strikes the visitor is not the buildings but the transportation system. It is almost impossible to get anywhere by public conveyance. The area is now much greater than London, but on top of this it is unspecialized, so that one cannot 'go downtown' since there are many shopping areas and a visit to the tailor and the butcher might take one to two places 15 miles apart. Without a car of one's own nothing can be done, and the casual visitor is forced to rent one the moment he steps off the train or plane. Once in his car he has his choice between wide arterial boulevards with automatic traffic signals set for speeds of 35 miles per hour or more, or overhead freeways which get him over great distances at much higher speeds. In our architectural touring we easily accomplished over 100 miles of driving within the city limits each day. This system is continually being improved, with consequent increase in decentralization, and one wonders what will become of the city core, which now seems to be held together only by the fact that they are stubbornly building new structures for the city government there. The whole pattern of city living is affected by the fact that it is possible to live over 30 miles from the place where one works, and it is often necessary. For example, colleagues of mine at the university there cannot live near their work because the campus is in an elegant, high-rent neighbourhood, and while some of them are nearby in terms of time the distance is never calculable in terms of blocks. Attempts to halt this spread outwards seem to fail. The Metropolitan Life Insurance Company has built some flats of about 12-14 storeys in a central position, and they cannot rent them because people are willing to go any distance to have their own house, no matter how small or close to the neighbours.

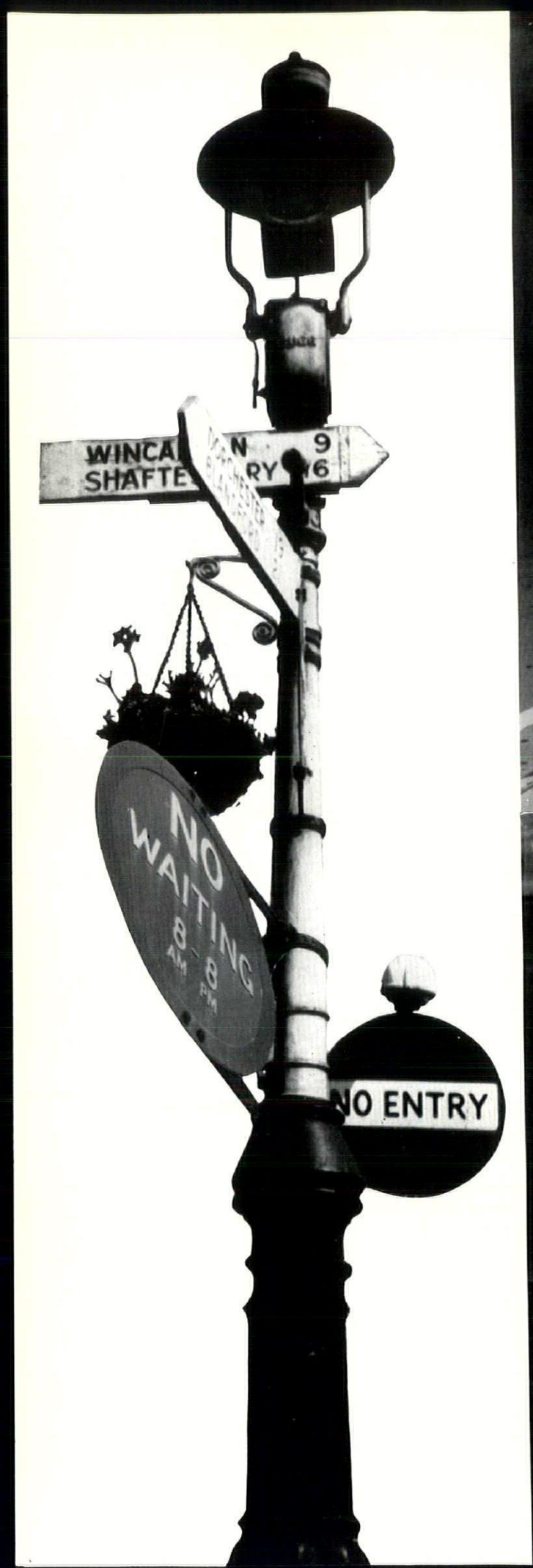
This situation cannot help affecting the character of the architecture. Everyone is in a car; nobody walks anywhere; most streets are deserted except for vehicles. One sees buildings either in passing by at high speeds or from the inside. Every large commercial establishment or group of small ones has to have parking space for almost one car to a customer. This means that all large buildings are isolated in the centre of large parking areas, which would be quite advantageous for certain qualities of design. ***11, 12.*** But mostly the designers appear to believe that since one is going to pass by their work so fast it need not be done with care.

So much for the vehicular aspect of their architecture. But perhaps this aspect affects another characteristic: the necessity to make all commercial architecture extreme in character. Every shopfront is an advertisement—an eye-catcher, a trick of some sort. The day of the hamburger stand in the form of a hamburger is gone, but we now have exploitation of the most extreme clichés of the magazines. Decorative louvres, Olivetti constructions, pseudo-Mies rectangular hopscotch. Not all bad, though. While it is a shock to encounter those areas I suppose the all-over quality of design is superior to any stretch of street of equal length in America of the last 50 years. The novelty of it is increased by the fact that the façades are like posters; they come off when they are a little old, to be replaced by something that came into vogue in the past few months. A block of shops in Beverly Hills (high income section) will be as new as a film set from end to end, and will stay that way.

What about buildings? Here my enthusiasm dampens. The thrilling vitality of the city itself is perhaps antithetical to good design. In order for this area to expand at the rate of the last decade a new attitude toward architecture has had to grow up. Architecture is now mass-produced. The offices themselves are factories. Welton Becket is Hero-Architect of the new civilization. He has a five-storey office building in downtown Beverly Hills with several hundred employees. I didn't visit it, being afraid that I would discover a pneumatic tube system rushing sketches about among the Rendering Department, Cost Accountants, Engineers, and Public Relations Counsels. The buildings suggest this: they are technically acceptable and aesthetically as dismembered as such an organization must be. This high-powered approach to the problems of the profession has won the firm many of the huge commissions in that area. What they fail to capture seems to go to Pereira and Luckman, relative newcomers to the West, who brought to architecture the sales experience of the great soap manufacturing corporation of which Luckman was formerly an executive, ***12.***

Among things of quality that I found in that area there was little of recent vintage. The work of the better architects seems to be weakened by the need to be fashionable or photogenic and it shows a strong tendency to imitation. I should say that this is true of Neutra, too, though he is legitimized by the fact that he imitates himself (as of the '30s). Though not new, Charles Eames' house seems to me the most worthwhile sight in the area, ***13.*** It is much better than the photographs indicate, because of a human warmth that doesn't get through the camera lens. Eames himself is doing some wonderful work with films, which he distributes through the Museum of Modern Art and the University there. The latest one is on German Baroque Architecture. He steered us to the most appealing site in the area, the Farmer's Market. This is not what it sounds, but a high-price retail market made of stalls scattered about illogically over a large area which is partly covered, partly open. One can buy hot food at several stalls to eat at umbrella'd tables, in the fashion of the Italian *rosticceria*, and other places sell infinite varieties of cheese, or condiments, or baked goods, made before one's eyes. It is very colourful, and oddly European for this most American of all cities.

I hope it has emerged from my observations that the architecture of California in its quantity and variety is uncommonly vital. It also is a dialectic curiosity because here a well conceived, small-scale regional architecture grows alongside buildings whose ultimate sources are in Europe. Unfortunately this makes nearly everybody battle about it as if principles were more important than quality. The battle is unhealthy because it is self-perpetuating and delays a possible fusion of traditions that could make this expanding area the locus of a fully matured twentieth-century expression.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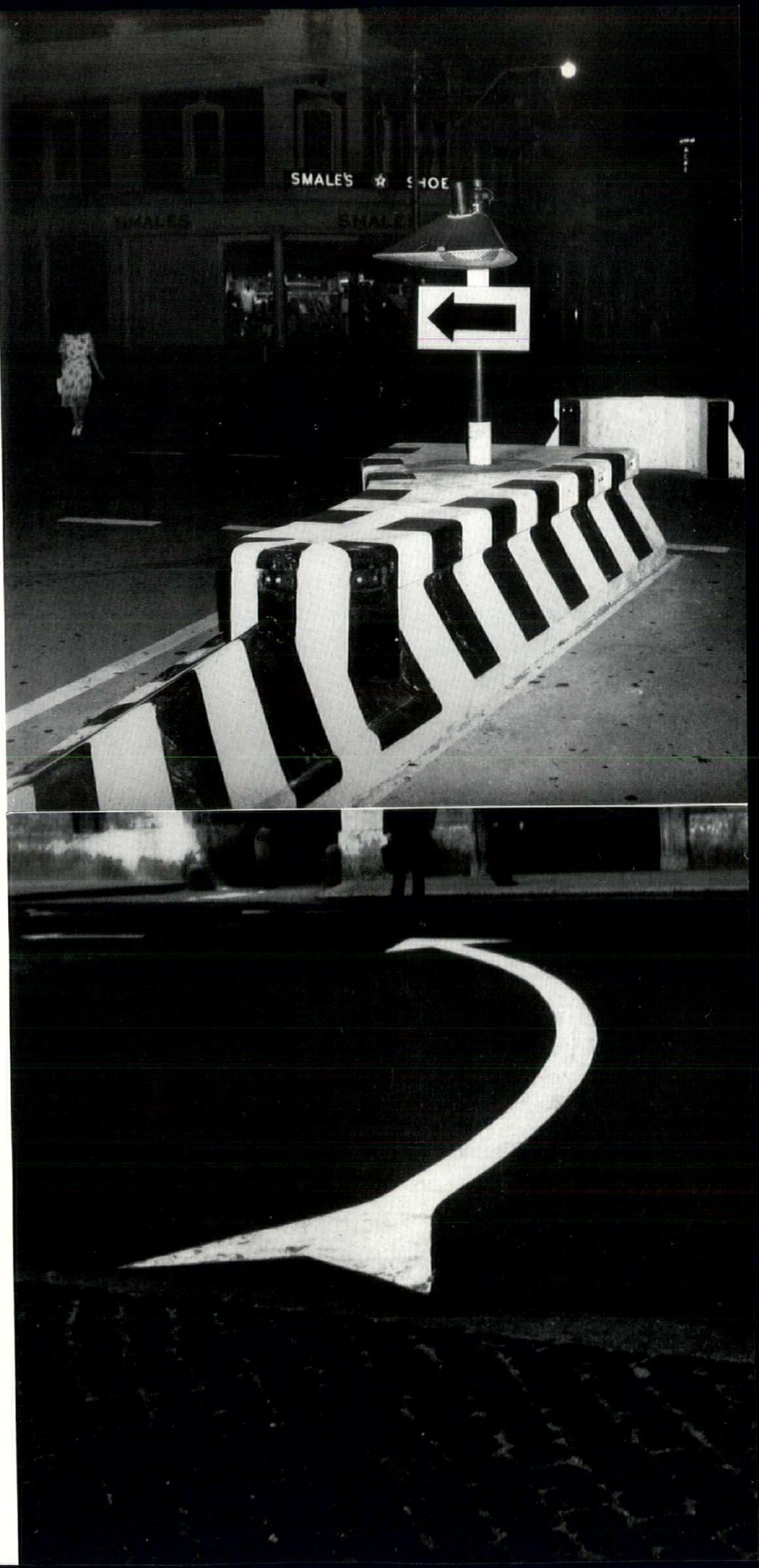

SMALE'S ☆ SHOE



The festooned lamp-post sums up that attitude of mind towards traffic control and management which adds written instruction to an existing traffic situation, left. There is another attitude however, top and bottom right, which sees in the road itself a blank sheet on to which can be inscribed by means of paint, texture and structure a more vivid and organic method of traffic control. It implies the acceptance of conventions which, once agreed upon, will cancel out the growing complexity and confusion of the written word.

Gordon Cullen

Alphabet or Image

A COMPARISON BETWEEN VISUAL AND LITERARY CODES FOR ROAD TRAFFIC

Imagine the road, with all its ancillary structures, junctions, signs, planting, service stations etc. as a linear town with a character as individual as any of the towns it passes through. In a town the buildings and objects which compose it are all around the observer and are thus seen in juxtaposition, but on the road they are stretched out and attenuated. Nevertheless, this is partially cancelled out by speed, which coalesces the road into a single typical character. Or should do. There exists a well-defined traditional vernacular for sea, river and canal transport but one would be hard put to it to define the characteristic pattern of road transport. It varies from the functional to the quaint, from austerity to vulgarity and from clarity to chaos. The reason for this is that the motor-car took over the road network and vernacular of the horse-drawn vehicle and is still desperately trying to shake off this incubus, this old, tight snake skin. There is still the horse-and-cart mentality in the approach to highway design, the subconscious assumption that a man in charge of a lethal weapon can read involved notices, can stop his car on a sixpence, can anticipate hazards as easily at 60 m.p.h. as he could at 3 m.p.h. on his two feet.

In place of this mentality we need a new vocabulary: a visual code in place of a literary code.

In attempting to establish the proper character the first consideration ought to be the understanding of vision when the mind is preoccupied by driving, whether at speed

on the open road or slowly in built-up areas. Just as the shape of the earth's undulations is revealed in a plastic way to the swiftly moving motor cyclist (the pressure as he ascends the slope and the release of gravity on descending) as opposed to the constant pull of gravity on the pedestrian, so surfaces and objects connected with the road take on a quite different meaning at speed. Structures and landscape which to the pedestrian are isolated, are brought into relationship by speed and become a part of the continuum. The designer is working in a new dimension, a plastic, snaking dimension in which the serial presentation of objects to the eye must be manipulated so as to produce clarity. Similarly the driver in town, preoccupied with pedestrians and other hazards, demands the simplest and most obvious clues as to his progress. Clarity is the objective and its pursuit will establish a proper code. The technique for achieving this is to invest ordinary objects with a limited and defined significance which will be universally accepted. Thus, for instance, that part of the road set aside for parking will be surfaced with a particular texture or colour. Once established it will be immediately recognizable and down will come the signs, the confusing clutter of instruction that bedevil town and country. Instead, we can anticipate a new functional clarity based on bold colour, texture and symbol that will be integral with the visual receptiveness of the driver it serves.

These two pictures, at opposite ends of the scale, show the commonly accepted alternatives. The first attitude is to tell you in detail what to do even though the attempt, by the motorist, to assimilate this knowledge may lead to disaster, 1. *The second attitude is to simplify the road system by elaborate construction to such an extent that no instruction is necessary. Flow becomes a god whose service is an elaborate land-grabbing ritual,* 2. *But with roads as they are, part of the countryside, the problem is to make them work by integrating instruction into the road itself by means of accepted visual conventions.*



1



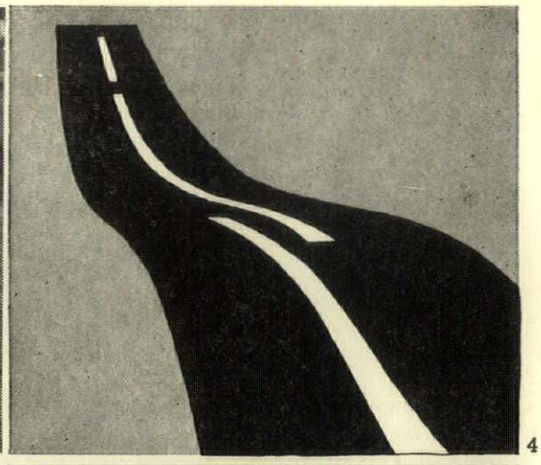
2

TRUNK ROADS AND OPEN COUNTRY

vision in motion *Lying at the heart of any visual code is the ability to plan in the dimension of speed. The lay-by shown here,* 3, *is immensely long from the pedestrian point of view, yet at speed it drops naturally into place as an element in the continuum that you may use or not use as you think fit. The point is that visually you are given the choice. Another example, the splitting of the central white line at the crest of a blind hill,* 4, *tends to separate the driver from his invisible enemy.*

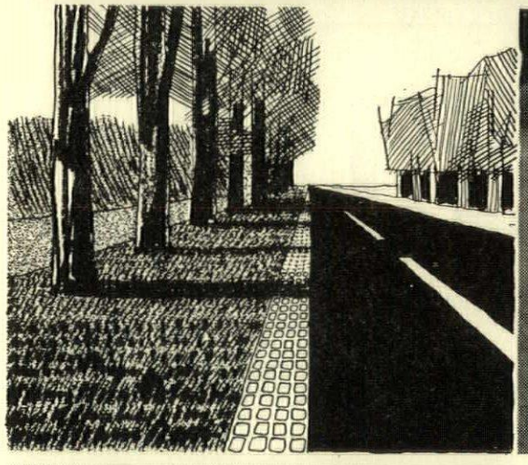


3



4

trim *The edge of the road should be clearly defined, both visually and in a tactile way. The kerb not only divorces the road from the landscape but is inflexible whereas a flush margin of different texture and colour from those of the road makes the essential distinction visually (and also by vibration) whilst preserving the unity between road and countryside,* 5. *It also provides a 'margin' of safety. The whitewashed stones shown in the more rustic example,* 6, *exemplify the direct approach to the problem of demarcation.*



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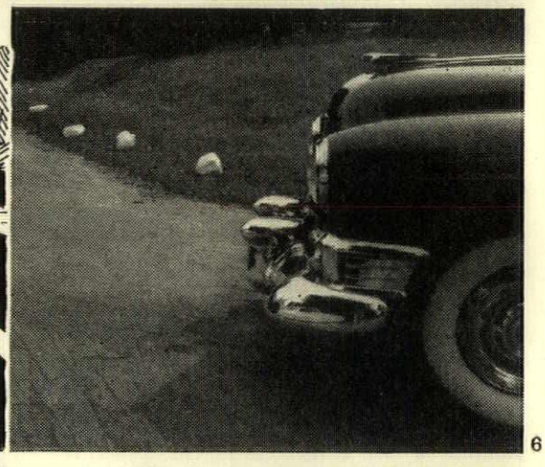
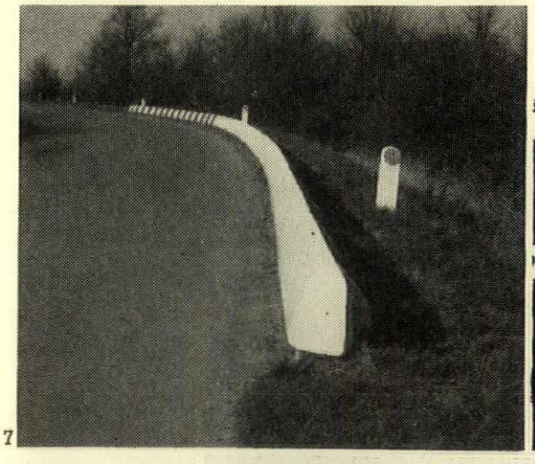


6

curves *By demonstrating the degree and extent of the curve in the vertical dimension the motorist is presented with the problem in a clear and lucid way,* 7. *On the right is shown a modification in which the red reflectors are incorporated into the structure,* 8, *thus reducing the number of objects to be looked at. Here we see how road conditions have produced a typical highway object. It is not just a makeshift arrangement of posts and whitewashed boards, a glorified garden fence, but an object unique to the problem.*



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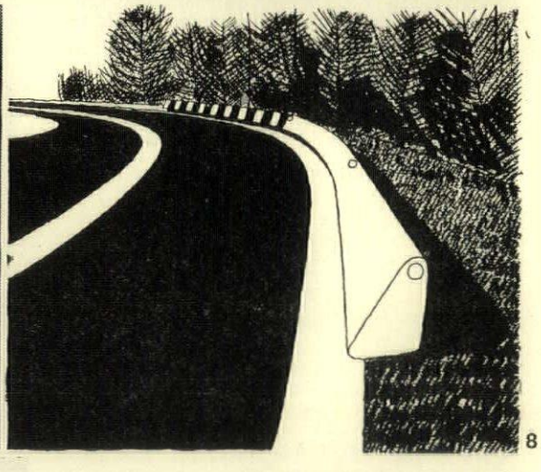
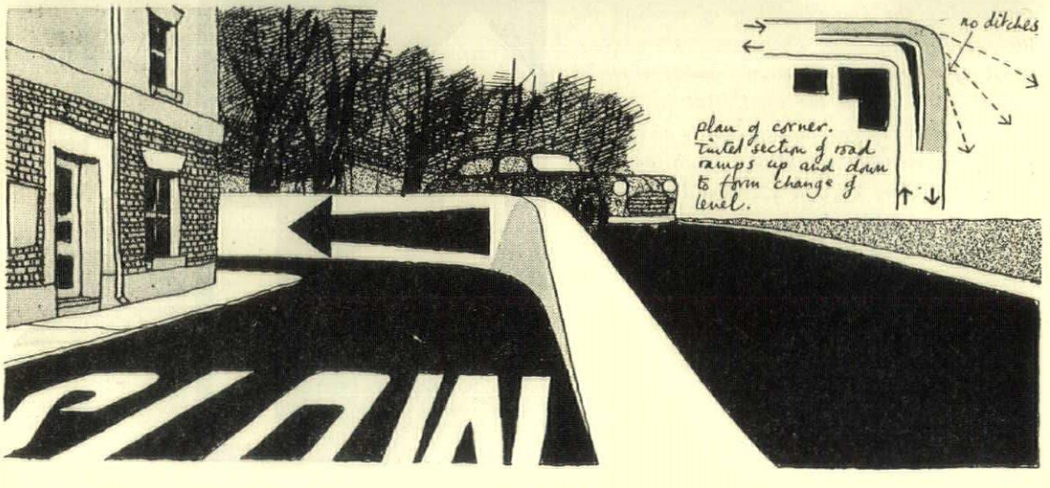


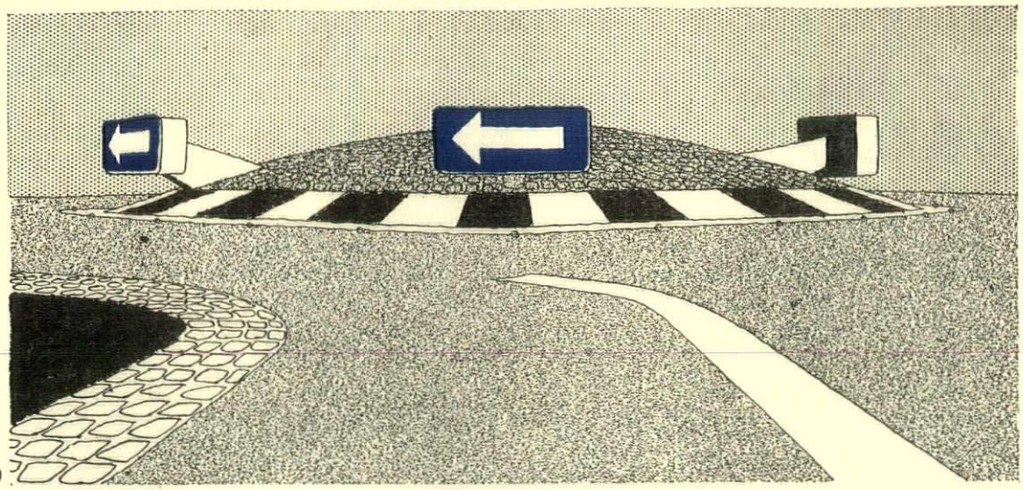
8

sharp curves *It is often difficult to believe that some corners are as sharp as they turn out to be no matter how many or how ingenious the warning signs. The danger inherent in this hazard is that the inside driver will take the corner too wide and risk a collision with traffic approaching in the opposite direction. By a slight change of level whereby the outside lane is raised and a parapet built both routes could be effectively separated and the difference of level used to provide a large directional arrow,* 9.



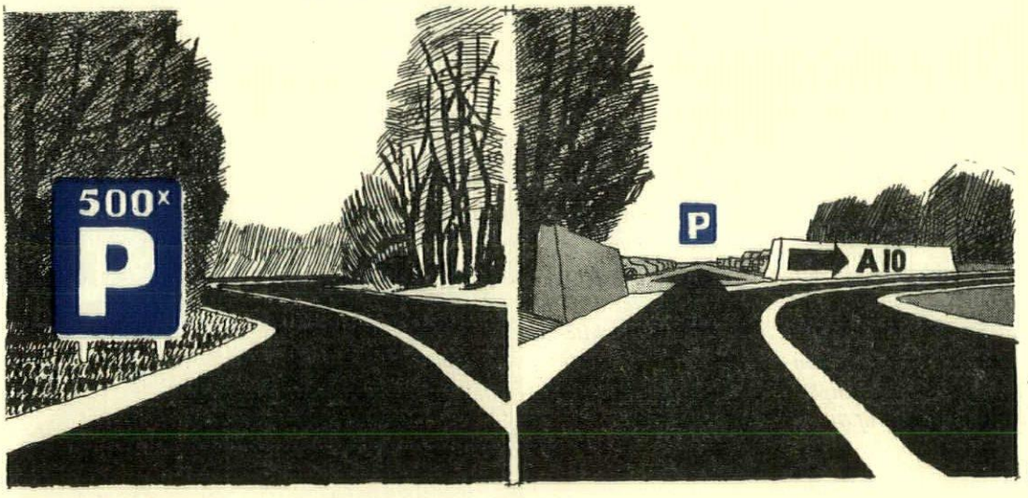
9

roundabouts *The object of a roundabout is to make traffic weave at a crossroads. It is a large bollard, a function of the road, and as such should be immediately recognizable. To plant it with trees and shrubs, the usual practice, is to camouflage the function, thus producing uncertainty and hesitation. The glare of oncoming headlights is masked by the contour of the roundabout, which gives it its typical and recognizable shape,* 10, *which should be as standard as traffic lights.*



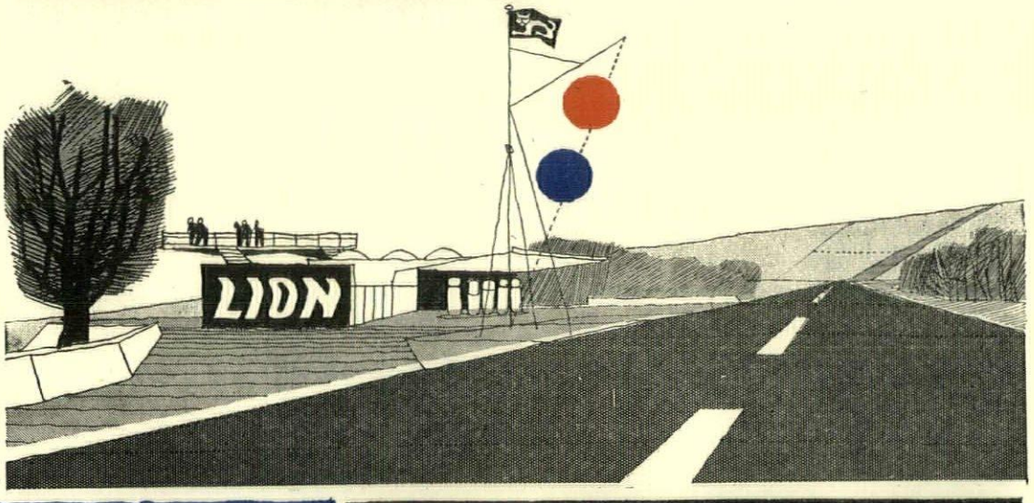
10

parking *The preoccupation of driving demands the very simplest and most obvious arrangement if the various manoeuvres the motorist wishes to make can be carried out smoothly. In the case of parking (in common with other road services) an informative sign should be placed well ahead to give proper notice,* 11. *When the moment for action comes the situation is revealed in great simplicity; the road surface is continued in the form of an arrow pointing to the parking sign and the main road re-emphasized with its route number boldly painted,* 12.



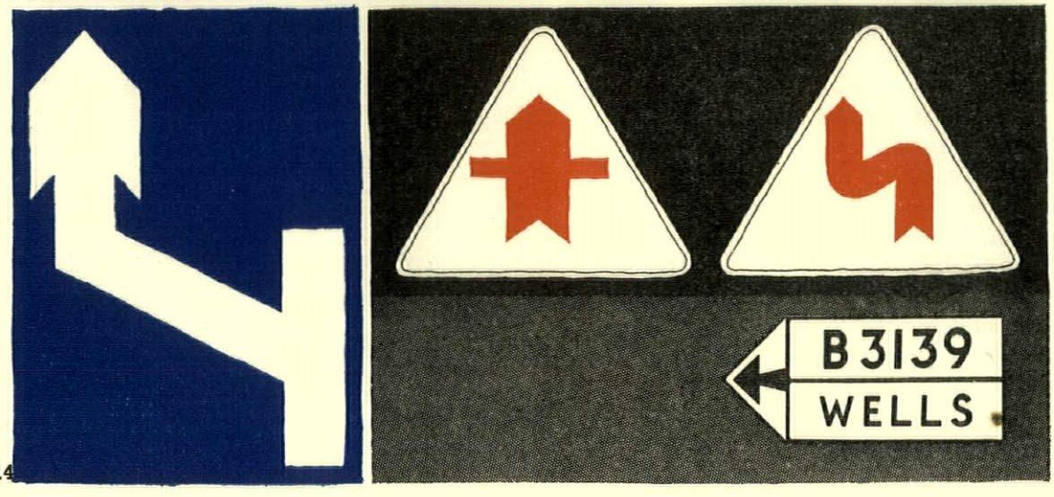
11 12

structures *Roadside amenities, petrol stations, service stations, cafés, etc., should be clearly distinguishable from private buildings which happen to be near the road. The convention proposed here is of coloured spheres erected on a mast denoting the kind of amenity offered,* 13. *Thus a red ball would mean petrol, oil, etc., and a blue ball food.*



13

signs *The point has already been made concerning the inadvisability of writing the message in longhand. There are cases where a word of warning is also a symbol such as SLOW painted on the road. But in general the acceptance of graphic symbols to give warning of particular situations, such as those illustrated here,* 14 *and* 15, *would relieve the driver of a great burden.*



14 15

scale *The lettering here,* **16**, *announces the name of the town in about the same size as that at the railway station. Why should it be thought vulgar on the road, but accepted by all who travel at the same speed by rail as being correct? Visibility from a distance is a prerequisite of comfortable driving, and the variations in scale which this necessitates must be accepted as one of the items contributing to a distinctive and unique road vernacular.*



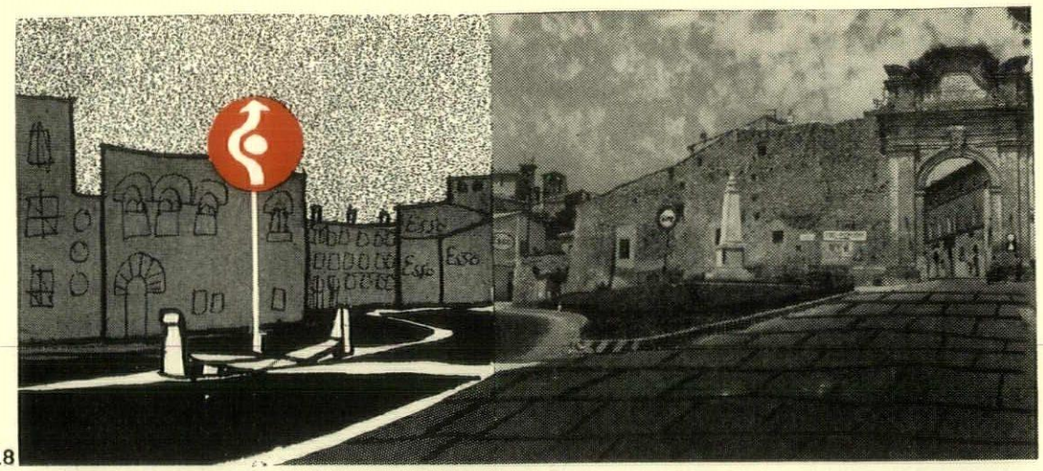
16

TOWN CENTRES **present the problem of clarity in an acute form as the preoccupation with speed gives way to preoccupation with pedestrians, display lettering and traffic congestion, 17.**



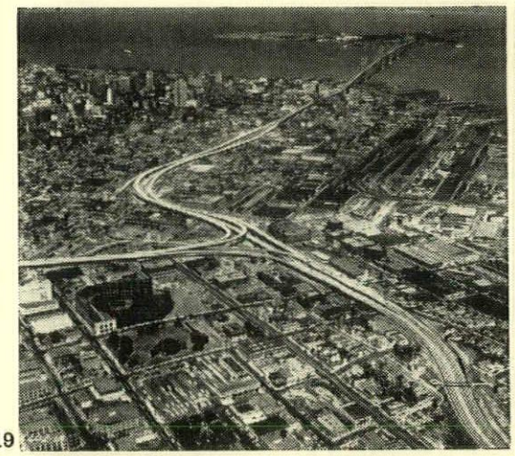
17

by-pass *The first essential is to relieve those parts of the town where people congregate: the High Street and town centre. But the by-pass should not be confused with a ring road. The central by-pass has only to outflank a relatively small area and should be as close to it as possible in order that it can act as a workable alternative. The illustration shows this clearly,* 18*—the arched entrance to the town centre is avoided by through traffic only at the very last moment and the by-pass skirts the town walls.*



18

throughroads and enclaves *In the case of larger towns the adoption of a precinctual system served by main roads would have the effect of splitting up the present anarchy of speed into two distinct parts. The main roads would be fast and inside the precinct there would be a speed restriction of* 8 *or* 10 *m.p.h., thus allowing the pedestrian to move freely. The illustrations show, first, a bird's-eye view of the sort of traffic pattern this would entail,* 19*, and, second, a view inside the precinct in which the road surface is deliberately rough and uneven to help reduce the speed of vehicles,* 20*. Below, the beginning of a visual urban convention for the regulation of traffic and pedestrians,* 21*. Without any written instruction it is clear that the rough and smooth textures of the road surface have a concise meaning. This part of the road is vehicular priority, that part is pedestrian priority.*



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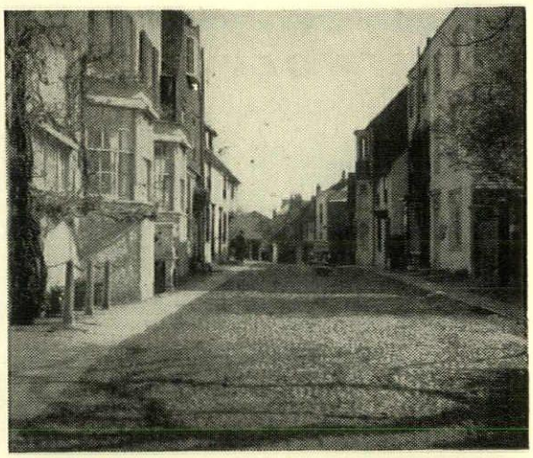

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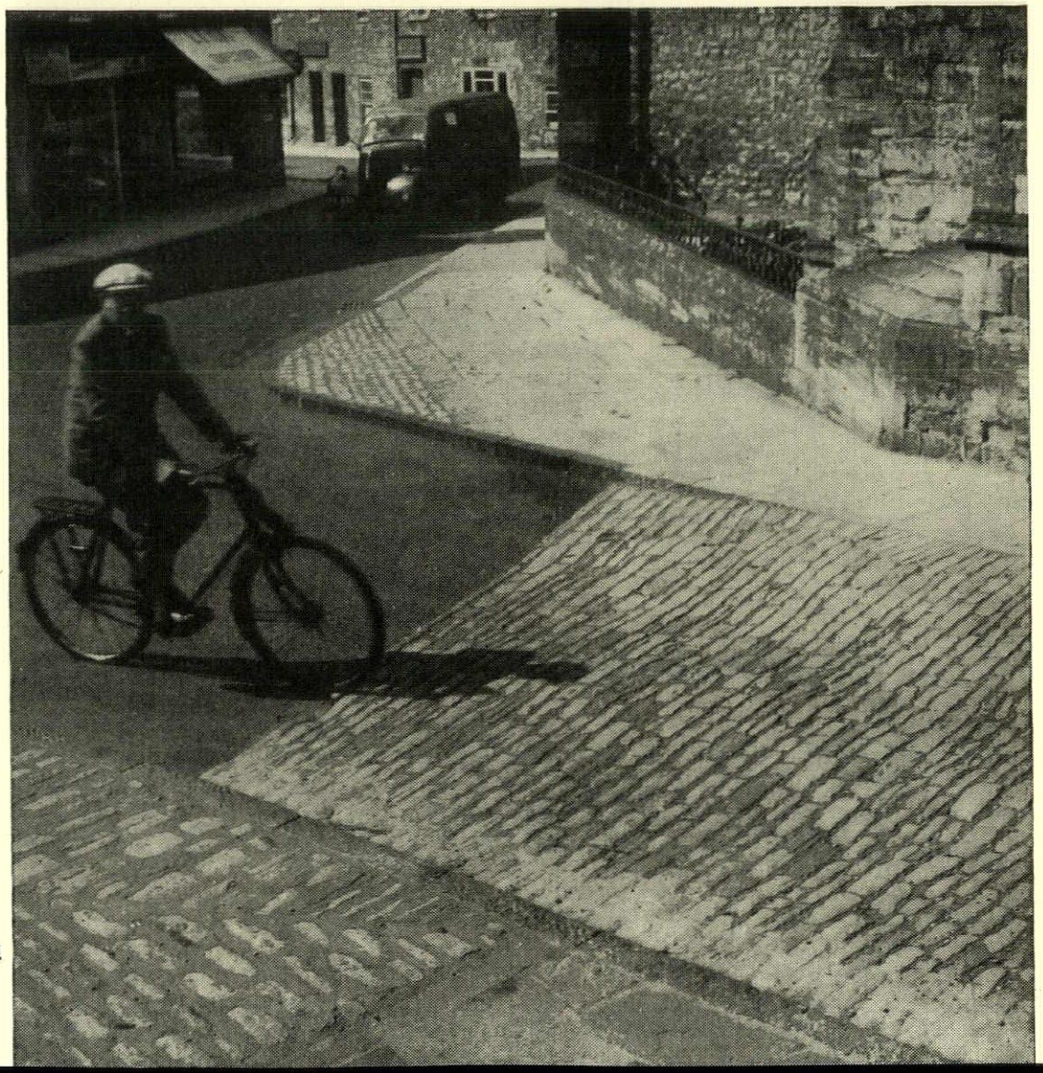
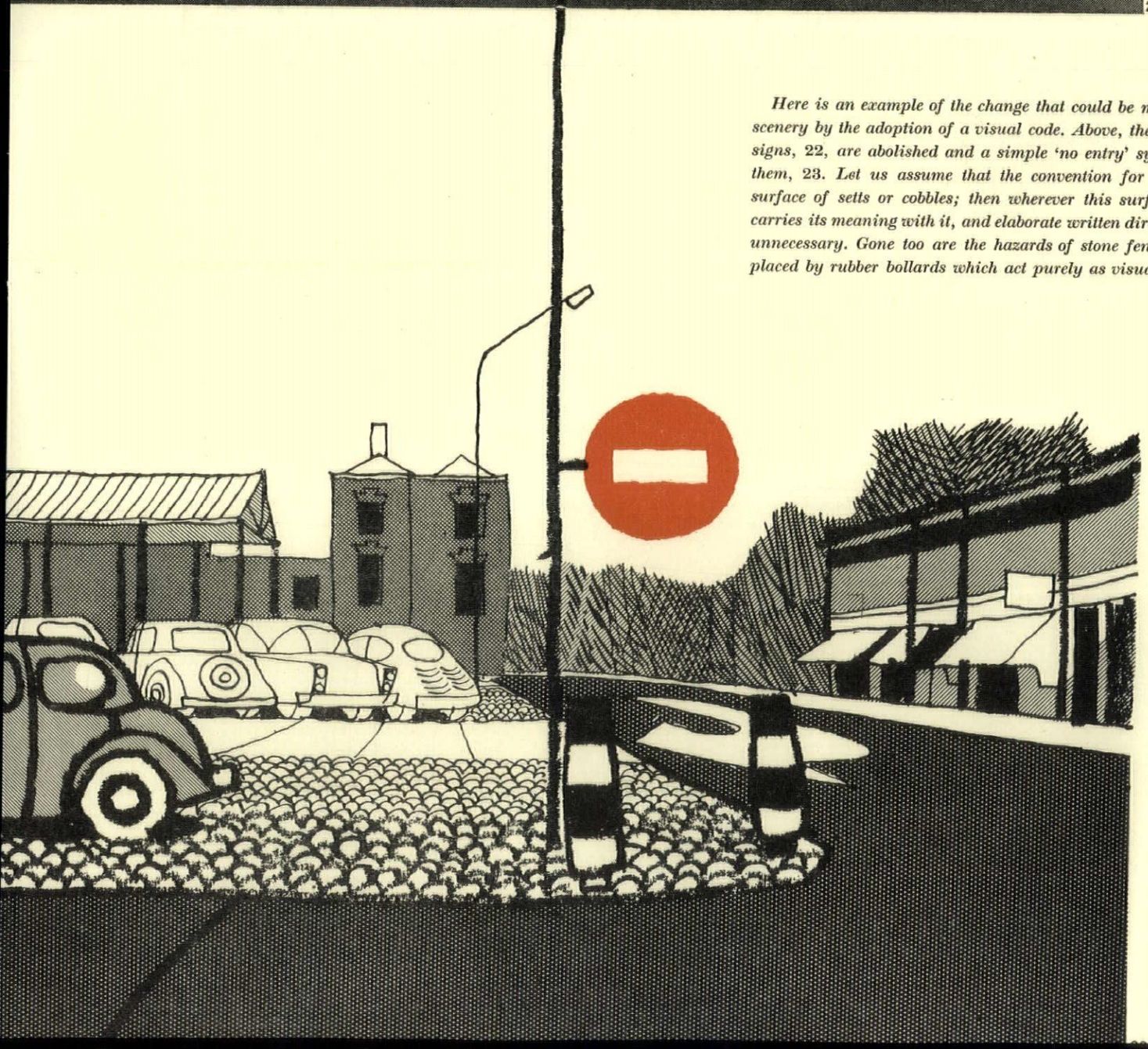


21



22

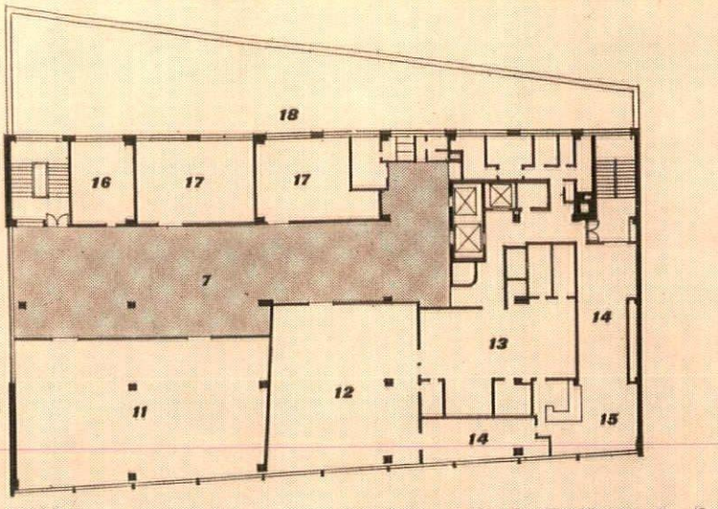
Here is an example of the change that could be made in urban scenery by the adoption of a visual code. Above, the contradictory signs, 22, are abolished and a simple 'no entry' symbol replaces them, 23. Let us assume that the convention for parking is a surface of setts or cobbles; then wherever this surface is met, it carries its meaning with it, and elaborate written directions become unnecessary. Gone too are the hazards of stone fencing to be replaced by rubber bollards which act purely as visual boundaries.



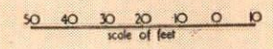
STORE AT SOUTHAMPTON

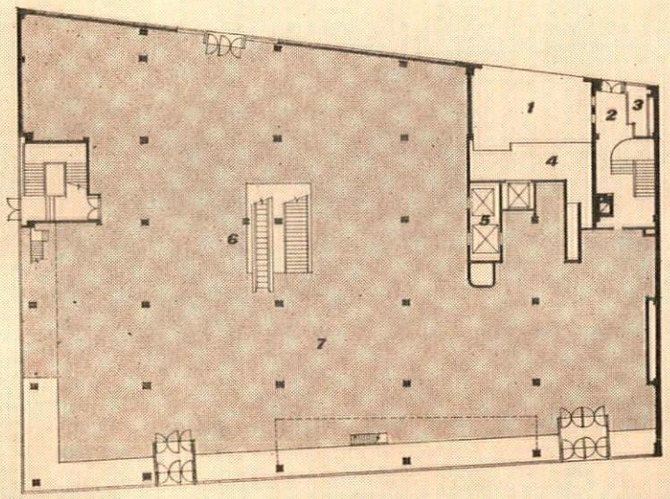
key
1, delivery.
2, staff entrance.
3, watchman.
4, loading platform.
5, lifts.
6, escalator.
7, sales areas.
8, fashion workroom.
9, hairdressing.
10, void.
11, counting house and other light-partitioned offices.
12, restaurant.
13, kitchen.
14, staff rest-rooms.
15, staff dining room.
16, managerial offices.
17, workrooms.
18, terrace.

At the bottom of this page is shown the layout of the buildings and streets surrounding Tyrrell and Green's store (dark shading). Across Above Bar Street from the store frontage is a pedestrian piazza beyond which is the Civic Centre (pillared front). The buildings indicated by broken lines are existing but due for demolition; the shaded line crossing their site indicates the future building line.

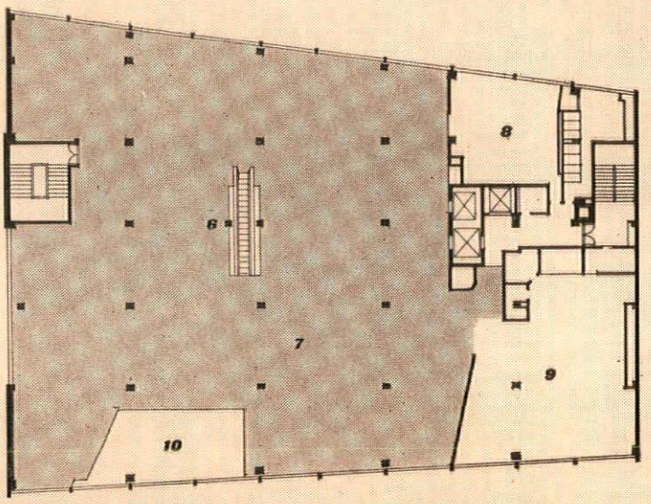


second floor

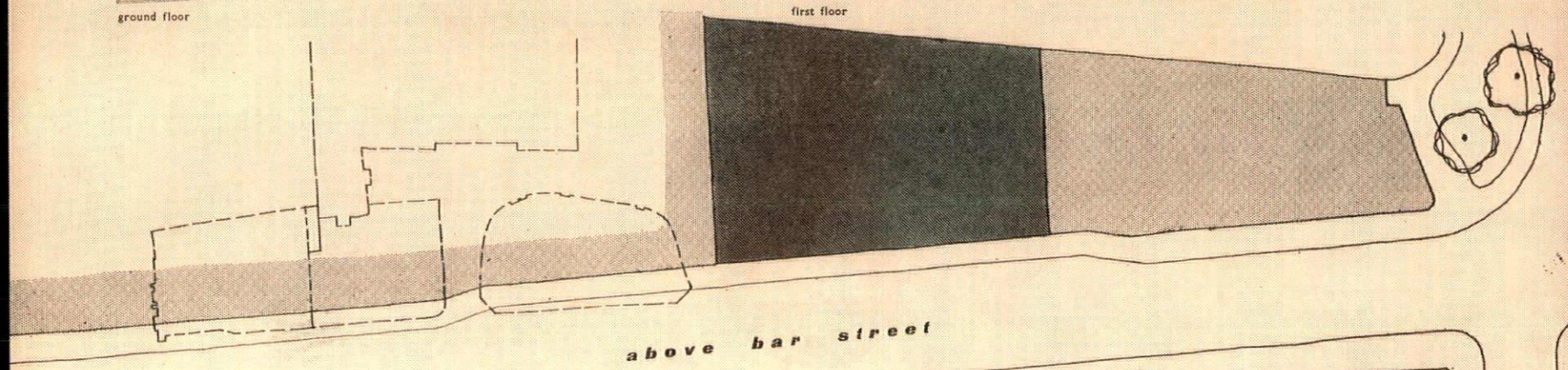


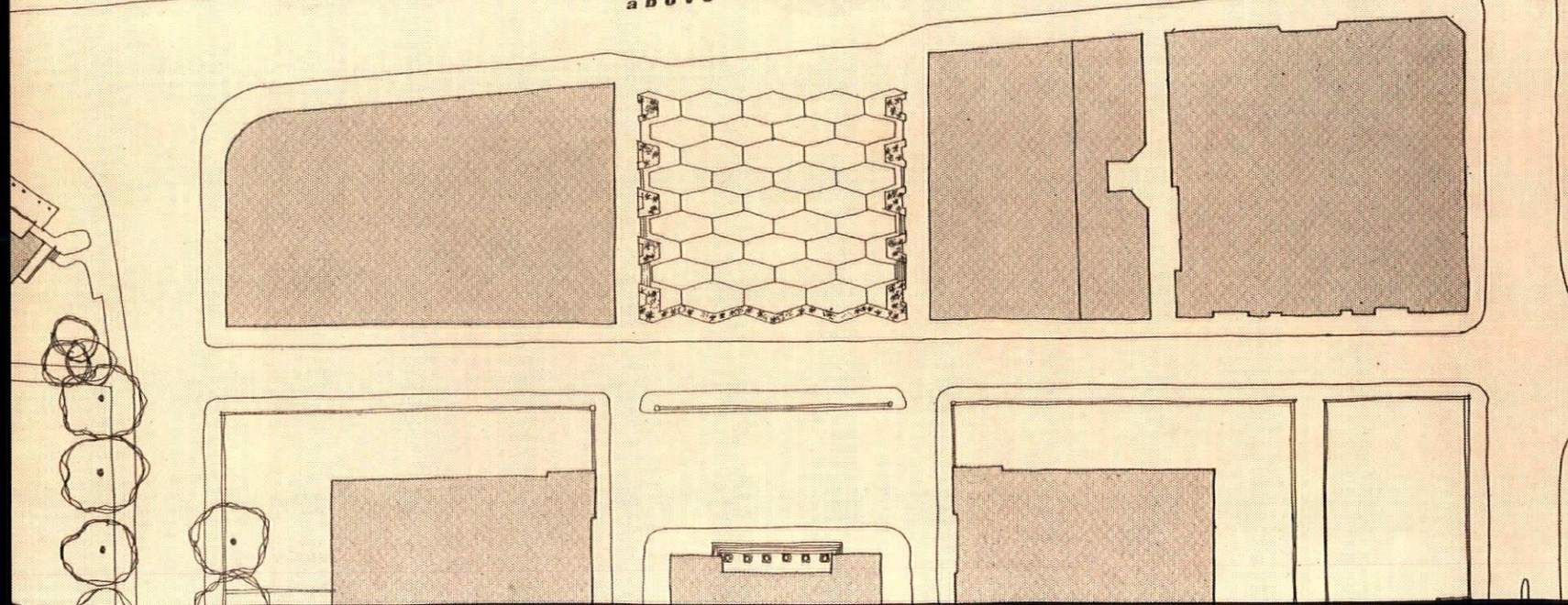


ground floor



first floor

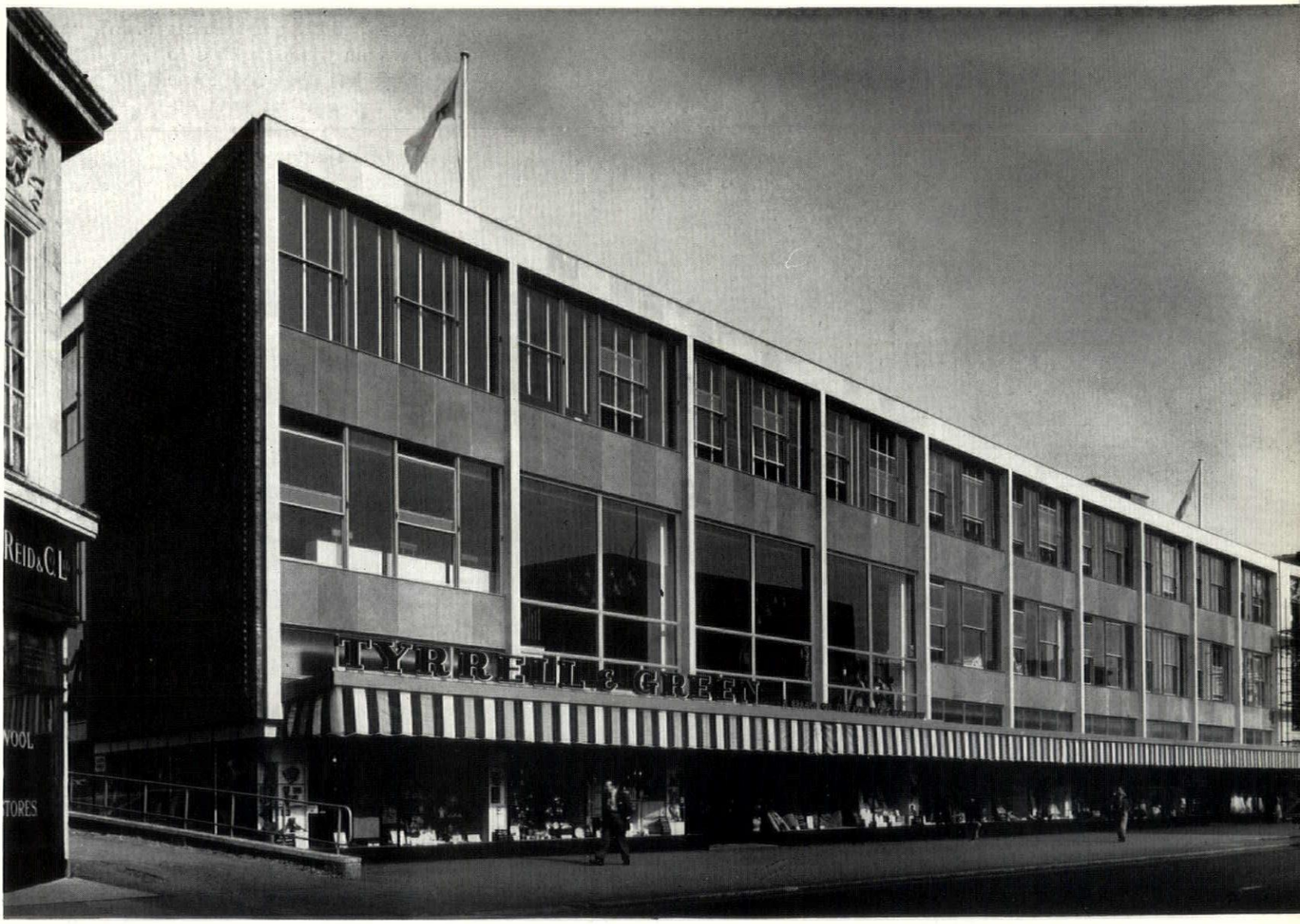




STORE AT SOUTHAMPTON

ARCHITECTS	***YORKE, ROSENBERG AND MARDALL***
associate architect	***John R. Penoyre***
architect-in-charge	***Jack S. Snell***

1, frontage to Above Bar Street, facing west.



The site of this store for Messrs. Tyrrell and Green is in an important position on Above Bar Street, with a frontage of about 175 ft., and it will form part of the east side of the new Guildhall Square to be created in front of the Civic Centre. The original buildings on the site were destroyed by bombing in 1940 and a temporary store was erected. The building has been completed in two stages: the first, on the part of the site not occupied by the temporary store, which had to remain in operation until the completion of Stage 1, and the second, the demolition of the temporary store and completion of the new store. Each stage took about



2

2, detail of west front. Mullions and cornice are Portland stone, panels between windows Westmorland slate. 3, East Park elevation (east); infill panels are of exposed aggregate concrete. The second floor, yet to be built on this side, will continue the treatment of the first. 4, stair from ground floor to basement with open risers and treads hung from steel strings. 5, the restaurant, walled in Columbian pine.

3



a year, the second being completed in May this year. Provision has been made to extend the second floor over the terrace on the East Park side and to add one more floor over the whole site. All the services, the lifts and mechanical plant, and the depot for receiving and despatch of goods are concentrated in the south-east corner. The rest of each floor is thus left clear for sales areas, storage of stock, the public restaurant, hairdressing department, etc.

The construction consists of a steel frame, with hollow tile floors. The elevation to Above Bar Street has Portland stone mullions and cornices with Westmorland slate slabs between windows. That to East Park has Portland stone mullions and cornices with exposed aggregate concrete slabs, which will be extended to the second floor when it is built, and tiling at street level. The elevation to Prospect Place, of panels of patterned brickwork and exposed aggregate concrete slabs, is mostly a party wall, but it is unlikely that the adjoining building will be rebuilt in the near future. The main windows on all elevations on the upper floors are aluminium vertically-hung sliding sashes in steel frames; the system of wires and weights which operates the sashes is so arranged as to ensure that the breaking of a wire will not result in sudden closing of the sashes.

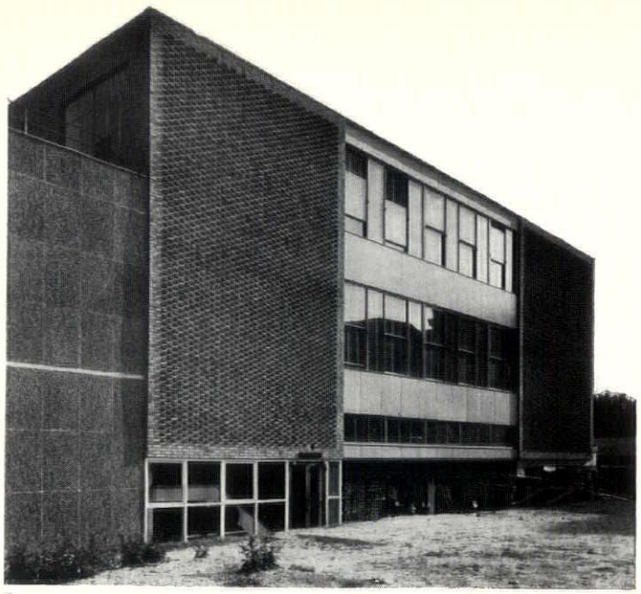


4



5

There are three staircases. The central stair from the ground floor to the basement sales area has open risers and an open well allowing views of the basement from above, and is constructed on steel strings with teak treads suspended from their underside. A main staircase to the sales areas of each floor on the north side of the building, which also acts as a means of escape, is in

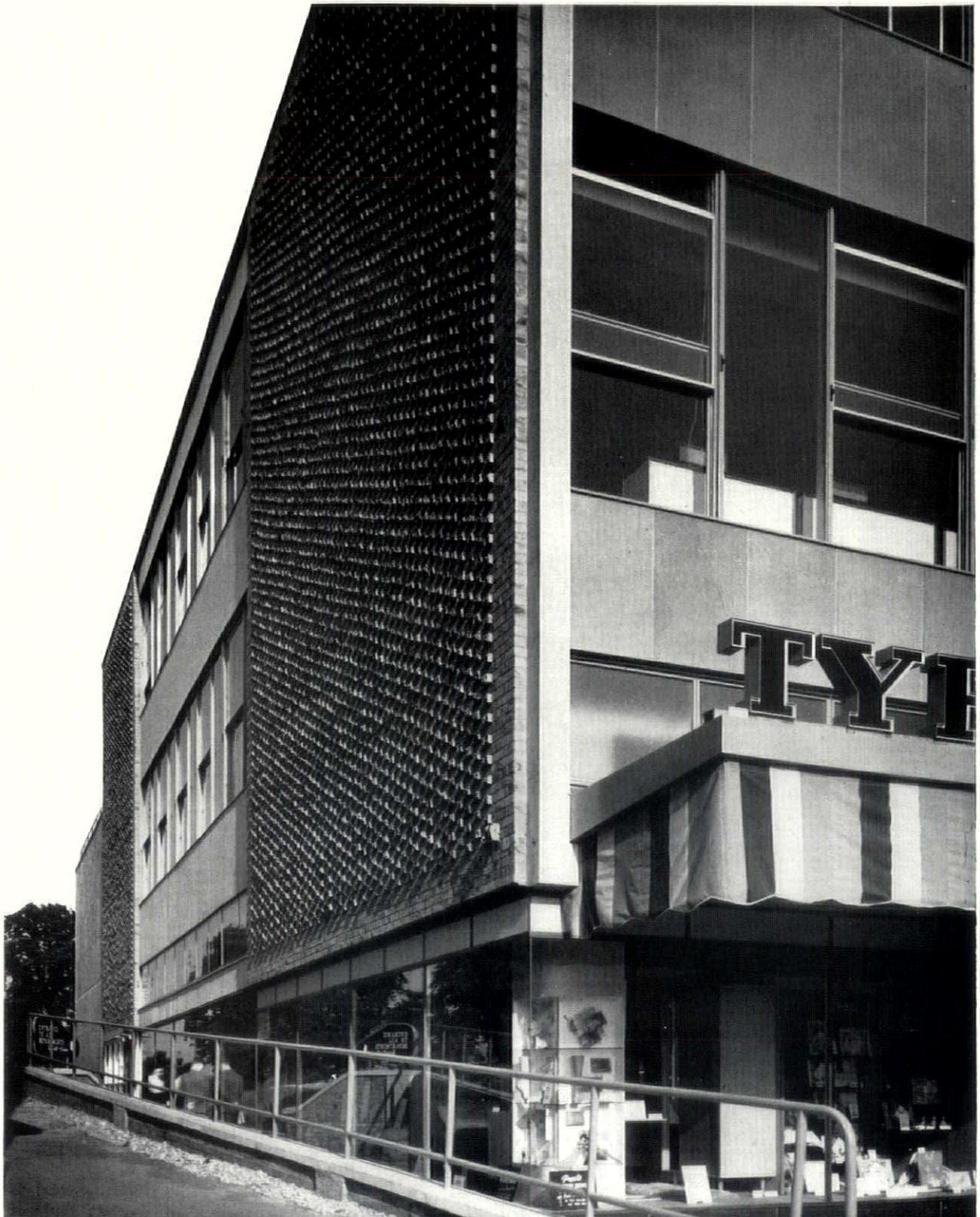


6

terrazzo with terrazzo slab treads. The balustrade to both these stairs is in simple vertical, bright drawn, steel members painted eggshell black with alternate members having stainless steel sleeves; the handrails are teak. The third staircase, for the use of staff only, is in grano', with quarry tiles on landings and with simple mild steel balustrade and handrail. Interior furnishings and colour schemes were designed by the John Lewis Partnership.

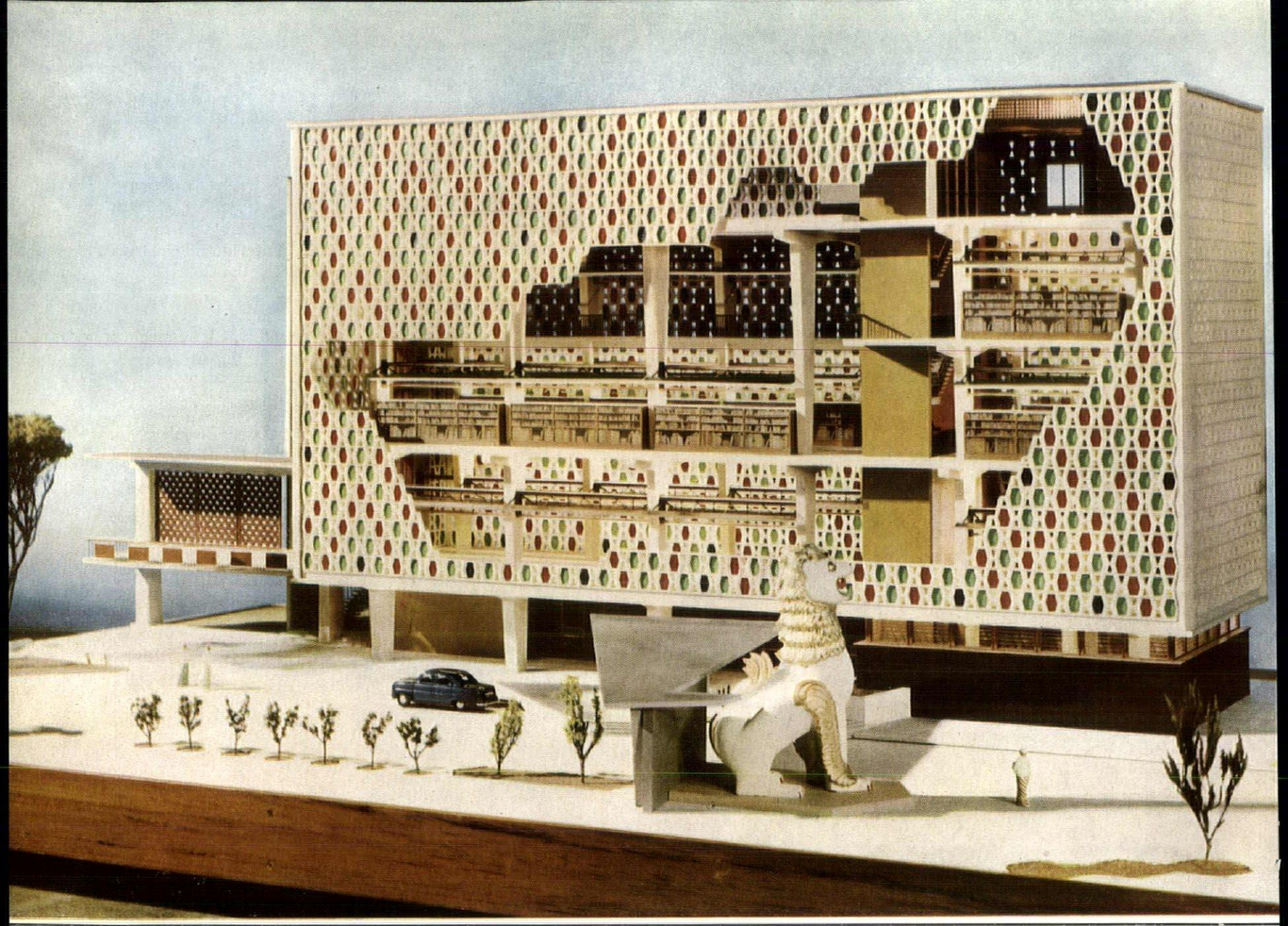
Heating is by embedded ceiling panels. There is complete air conditioning in the basement and kitchen and extract ventilation in other parts including the restaurant and hairdressing departments.

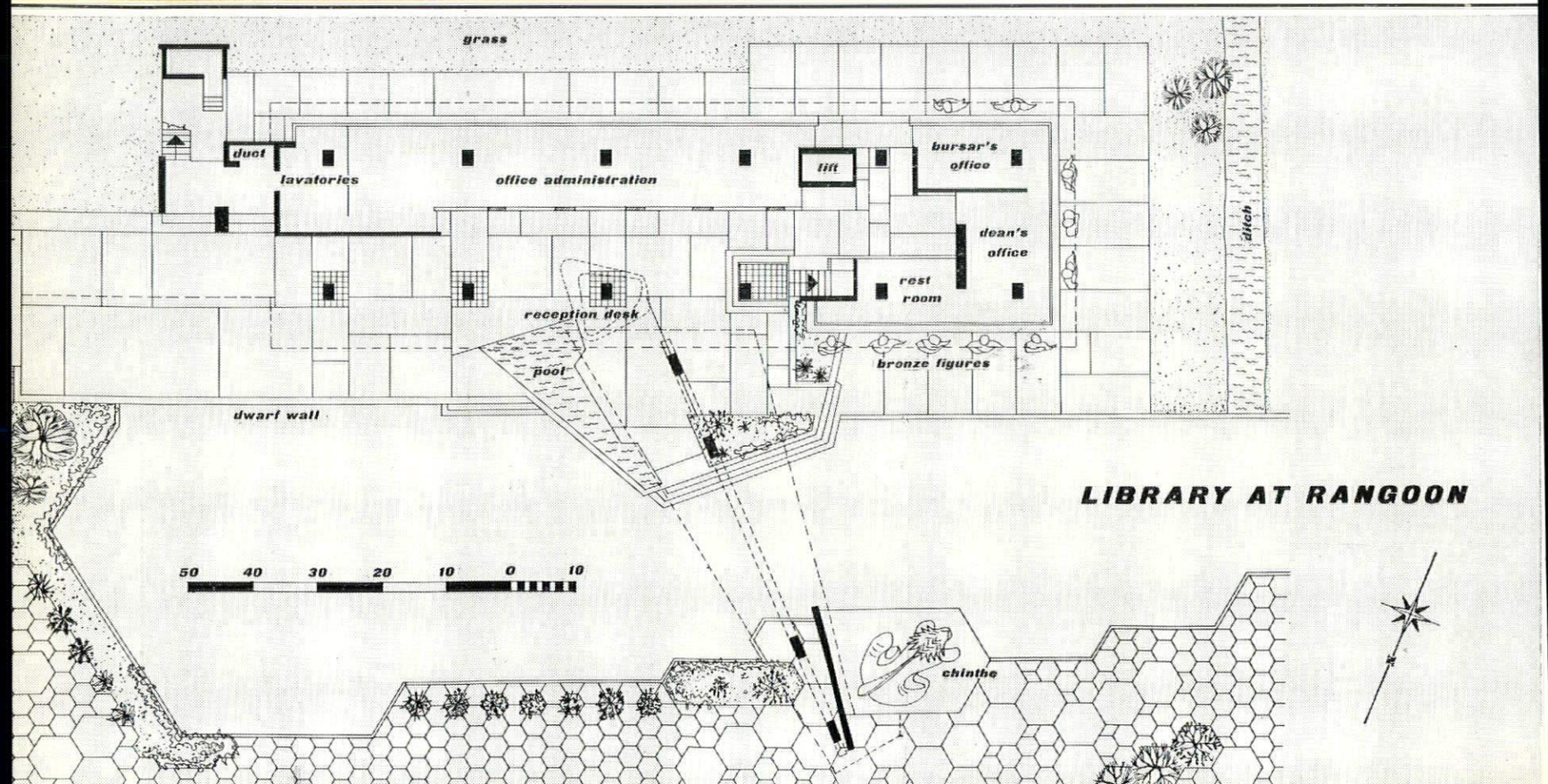
STORE AT SOUTHAMPTON



6 and 7, the north side, containing emergency exit and customers' entrance. Plans for rebuilding the facing site have not yet been made; one or both of the patterned brick walls may become a party wall.

7





LIBRARY AT RANGOON

Facing page, a model of the library building, and below it a plan of the ground floor. The library itself is in the centre, occupying the second and third floors; the students' common room occupies the same space in the first floor. In the screen, the large coffin-shaped openings are glazed; the pairs of smaller openings are unglazed. The plans of the other floors are overleaf.

LIBRARY AT RANGOON

ARCHITECTS	***RAGLAN SQUIRE AND PARTNERS***
Assistant Architect	***R. B. Roberts***
Site Architect	***B. C. Adams***

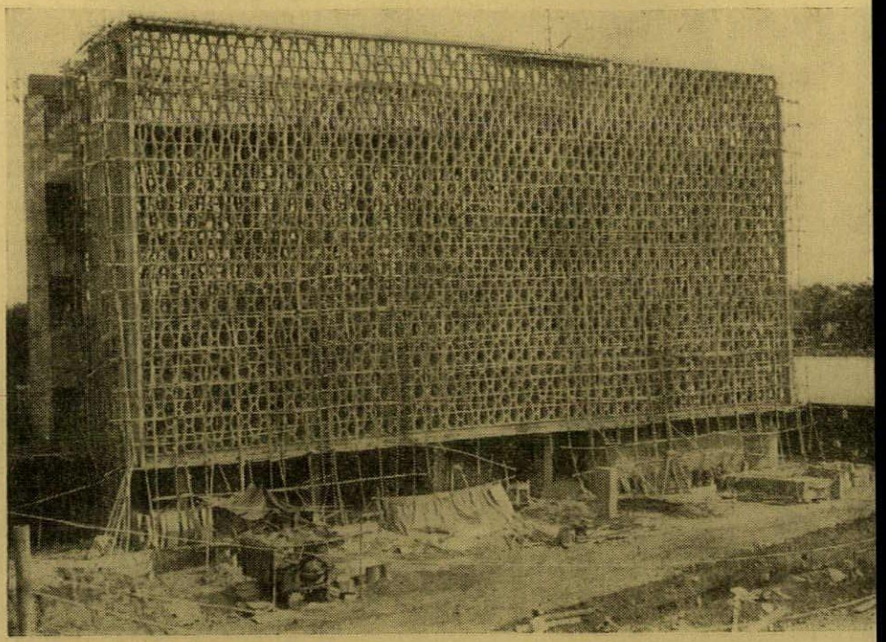
The library will bring the buildings of the college of architecture and engineering at the University of Rangoon a step nearer completion. The project for the college assembly hall was illustrated in the November, 1955, issue of the REVIEW.

The plan for the building (which will contain besides the library certain administrative offices) follows that of a traditional tropical bungalow, which comprises an inner central living area surrounded on all sides by a deep verandah as protection from sun and rain. Sometimes these verandahs are partly enclosed by grilles which tend to disperse the sun's rays, thus making the verandah an extension of the internal living space. The library building is derived from this simple prototype: a rectangular area sealed off by glass screens and surrounded by an open grille, an arrangement which, except for the ground floor office accommodation, will be common to all four floors, a reticulated grille being stretched over the entire superstructure.

A decision to abolish the enclosing glass screens protecting the inner areas and rely for sun and rain protection on the grilles led to the final grille form of the deep coffin-shaped unit with a central hexagon glazed and the two small fan-shaped openings unglazed. Permanent cross ventilation was permitted by the unglazed openings. The pattern of the glass in-fill panels is based on the traditional folk patterns of the Shan States in Northern Burma, and has been designed to emphasize the essentially diagonal character of the grille. The Library itself is provided with teak book-stacks with slatted shelves to permit the free passage of air circulated by heaters in the bottom of the stack.

The structure consists of multi-storey reinforced-concrete portal frames with cantilever arms, and flat slabs spanning 21 ft. 8½ ins. from frame to frame. Grille walls consist of precast coffin-shaped concrete

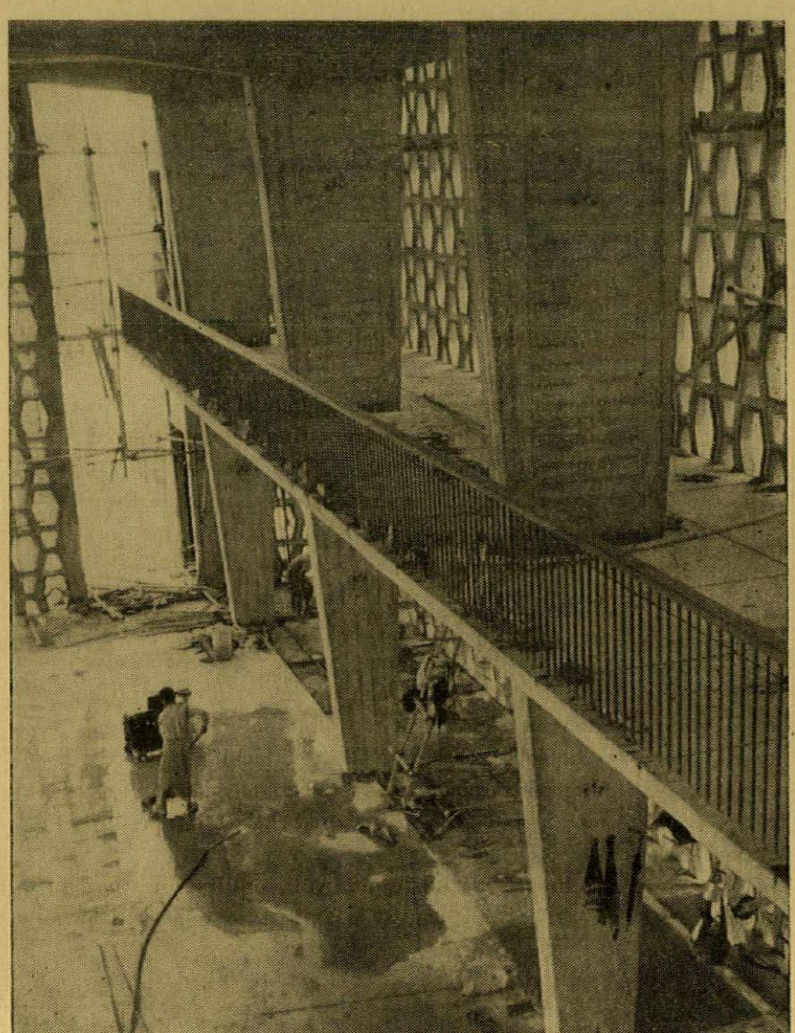
1, a progress photo of the north (entrance) face, with the screen in position covering the four upper floors; it runs round all four elevations, excepting where the external stairway occurs on the east. 2, interior of the library; on the right is the reading balcony, situated at third floor level.

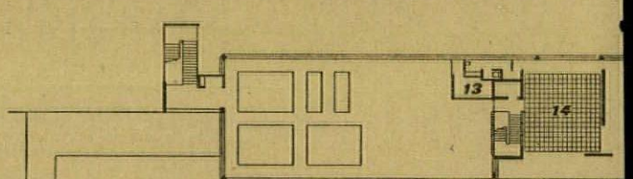


LIBRARY AT RANGOON

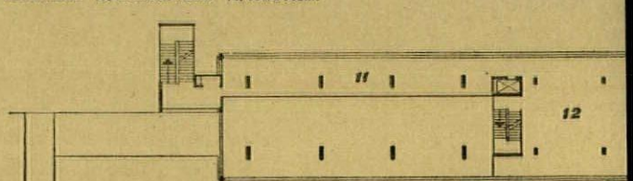
units, 5 ft. high and 10 ins. deep, resting on a continuous edge beam at first-floor level. Coffin units are provided with holes at intermediate bar levels through which rods are passed for fixing to corner posts. The grille is held back at floor levels by metal fixing devices which hook over rods threaded through the coffins. All structural concrete work, including coffins, is to be left exposed, shuttering to columns and slabs having been designed to form simple patterns on the concrete. The lift shaft and internal division walls are plastered and painted. The circumscribing wall on ground floor is of black granite, and the floor and walls of the board room are marble.

A series of five portraits of eminent Burmans designed by Burmese artists and executed in coloured glass is to be contained in a black glass teak screen on the ground floor. The Chinthe, a mythological beast, is to be constructed in the traditional Burmese manner in brickwork plastered and painted.

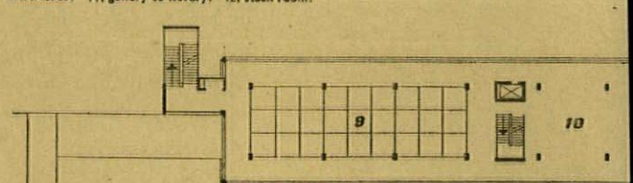




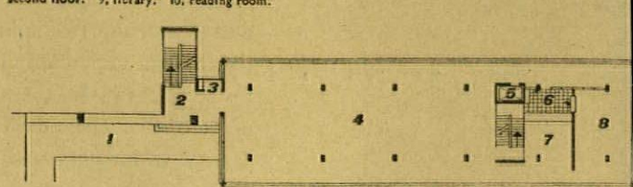
fourth floor. 13, lift motor room. 14, board room.



third floor. 11, gallery to library. 12, stack room.



second floor. 9, library. 10, reading room.



first floor. 1, covered way. 2, landing. 3, duct. 4, students' common room. 5, lift. 6, canteen. 7, students' service. 8, staff common room.

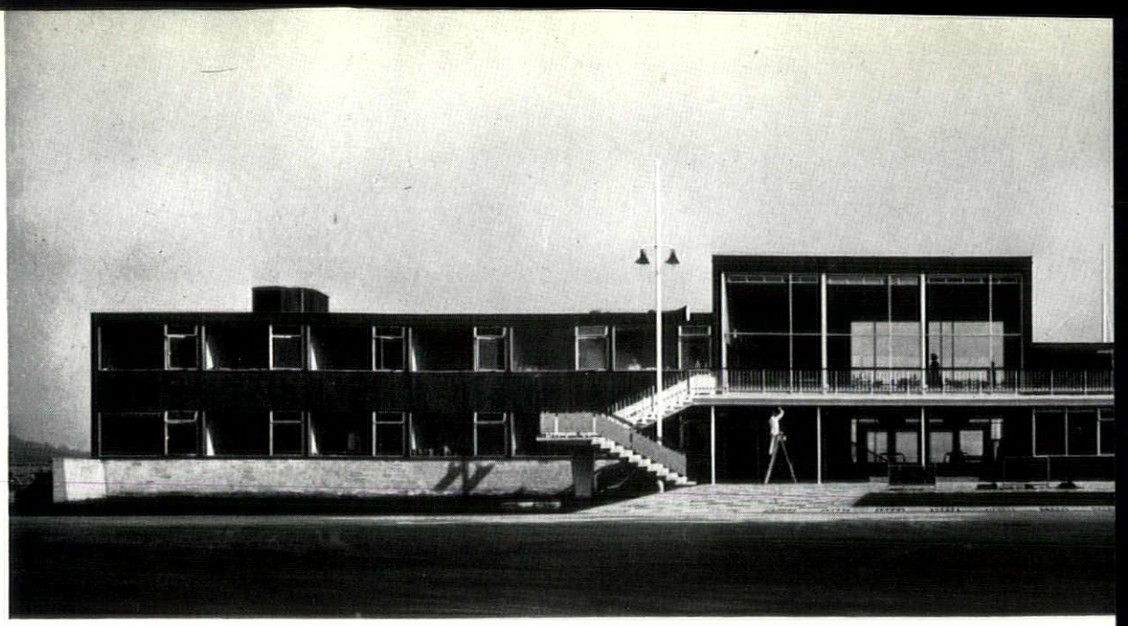


1, *concourse and exit doors from the west. The recessed tungsten lighting gives a brilliant effect at night.*

TURNHOUSE AIRPORT, EDINBURGH

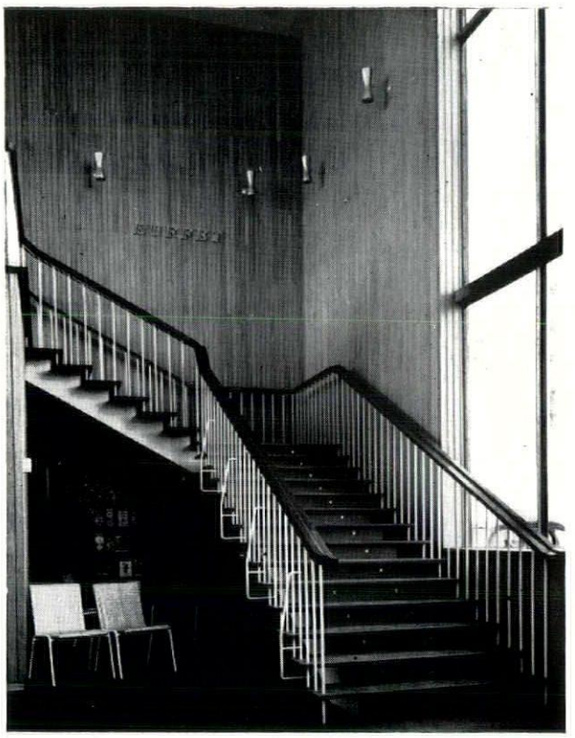
ARCHITECT, ROBERT H. MATTHEW
CHIEF ASSISTANT ARCHITECT, T. R. SPAVEN
ASSISTANT ARCHITECTS, J. D. DUNBAR-NASMITH, MARGARET BROWN

Turnhouse became the civil airport for Edinburgh in 1947, having previously been an RAF station. In 1955 it handled 70,000 passengers; as this figure is on the increase, the new terminal has been designed for easy extension in future. The site is alongside the main Edinburgh-Stirling road. The structure is steel-framed, for purposes of both economy and flexibility; for the same reason timber is the main cladding material. The roof, which has a 5° pitch, is of aluminium laid on roofing felt and boarding fixed to timber rafters on reinforced steel purlins. Generally, from the foundations to 3 ft. above ground



2, a general view of the terminal from the airfield side.

Turnhouse Airport, Edinburgh



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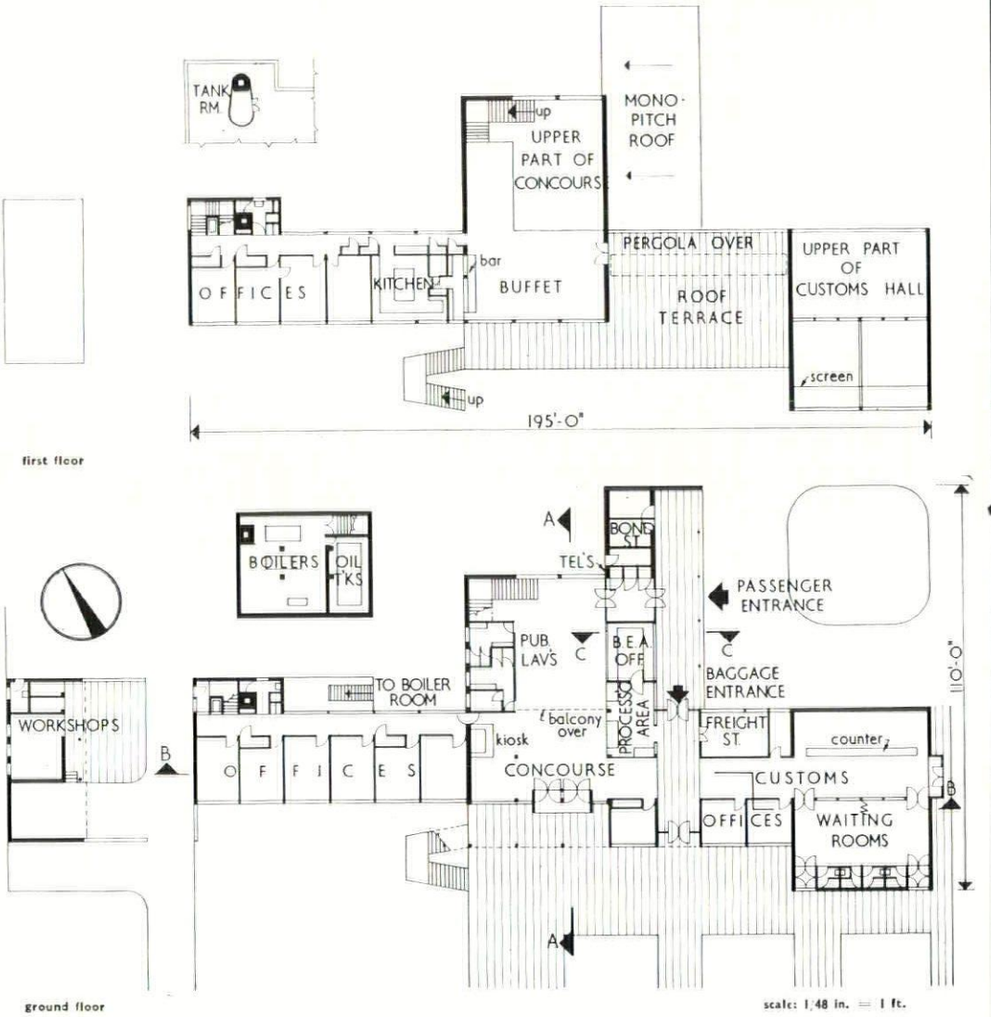
4

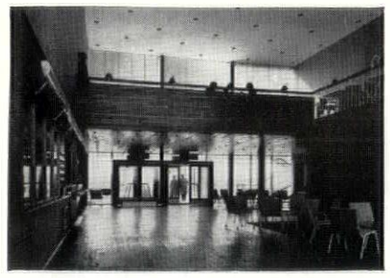
3, the staircase from the concourse to the buffet and bar. 4, the entrance doors on the east side, with loudspeaker housing over.



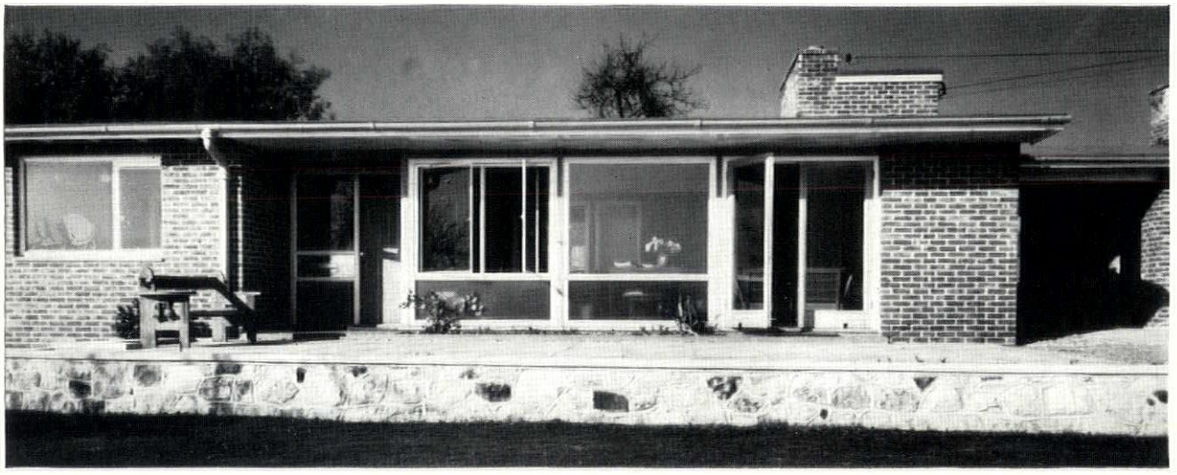
there are walls of natural sandstone or pulverized fuel ash with brick facing. The area between the concourse and the apron is paved with granite setts (obtained from Edinburgh Corporation, who are pulling them up from the city streets) laid in alternate panels with pre-cast concrete slabs. The external staircase, ascending from this area to the terrace, has a reinforced concrete spine and hardwood treads; that in the concourse is of the same construction. The windows in offices and corridors are treated as panel infilling between stanchions; this simplifies construction and gives glare-free lighting. The large window walls have pressed aluminium surrounds; smaller windows have hardwood surrounds; all are in aluminium sections. South-facing windows



have Venetian blinds. Internal partition walls are 3-in. lightweight concrete, finished with hardwood in the concourse, glazed tiles in the lavatories and plaster painted elsewhere. In the concourse and customs are timber-framed inner skins of 1-in. tongued and grooved beech or mahogany boarding on softwood framing. The concourse ceiling is of acoustic tiles secret-fixed to aluminium T-sections; elsewhere ceilings are insulation board similarly fixed. Little coloured paintwork has been used. All built-in furniture and layouts for GPO letter-boxes and 'phone booths, newspaper kiosk, etc., were designed, and furnishings and loose furniture were selected by the architect.



5, the concourse from the entrance doors. The ceiling is of acoustic panels painted white.



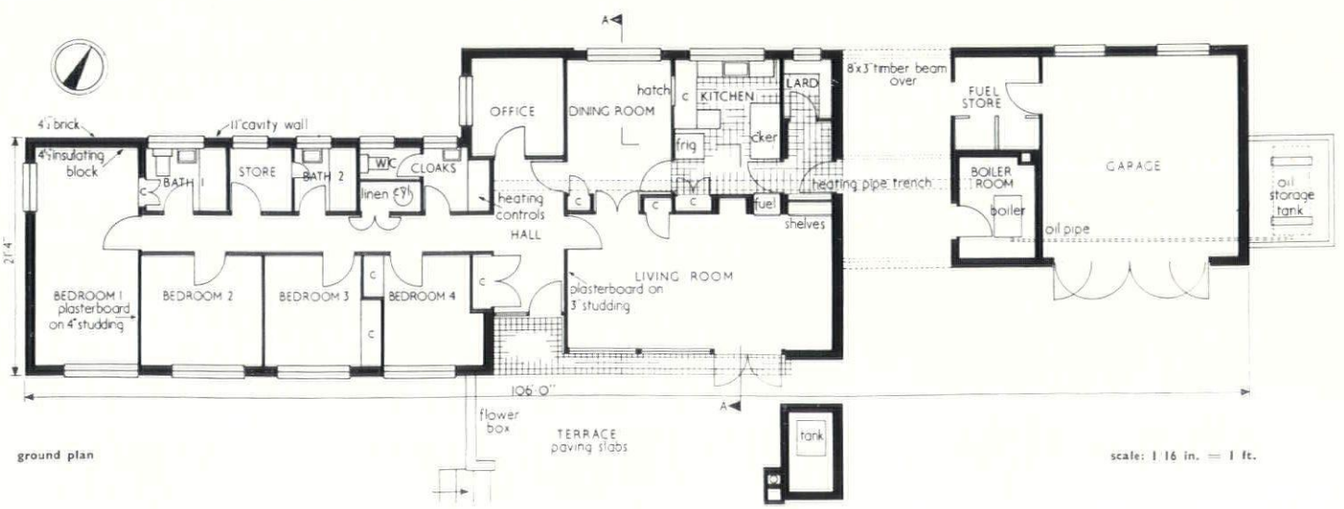
6, part of the south front with the main entrance, living-room windows and covered way leading to the garage.

HOUSE AT MEREWORTH, KENT

DESIGNED BY JEREMY B. LOWE

EXECUTIVE ARCHITECTS, RAMSEY, MURRAY, WHITE AND WARD

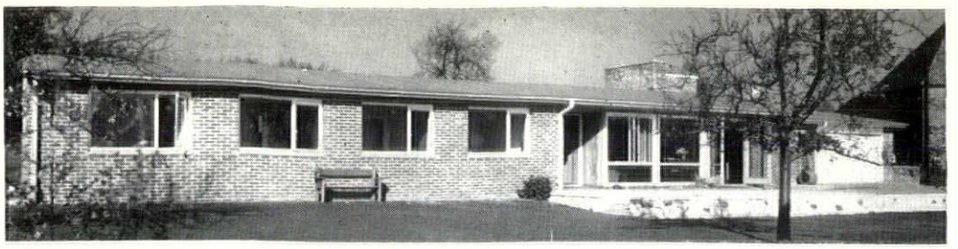
The house, at Baron's Place Farm, Mereworth, had to contain as few steps as possible and give the minimum of housework. It was also planned so that from the living-room and all the bedrooms the good view of the Weald could be enjoyed. The roof is low pitched and is covered in 3-ply bituminous felt. The ceilings are low, but some follow the roof slope. Heating is by ½-in. bore pipes encased



House at Mereworth, Kent

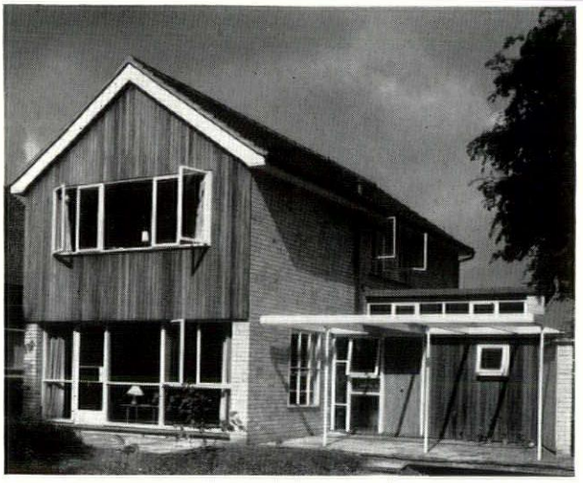
in a composition sheathing and embedded in a 3-in.-thick floor screed, served by an oil-fired boiler. The 600-gallon storage tank is placed east of the garage, with the feed line buried under the garage floor; the oil burner has a clock control.

7, general view from the south.



HOUSE AT HAYES, KENT

ARCHITECT, D. R. HICKMAN



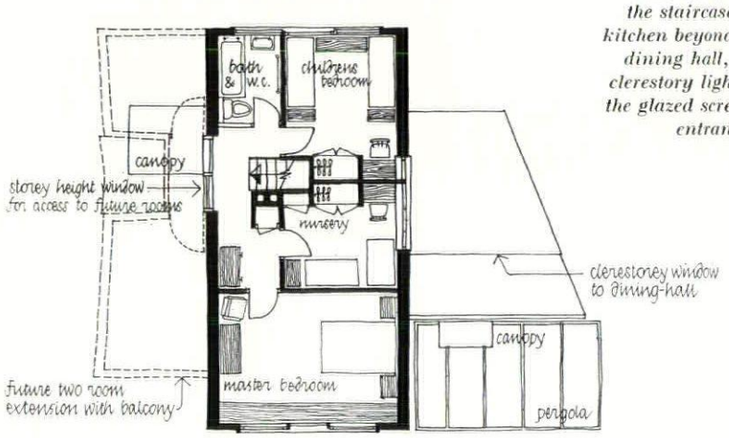
8



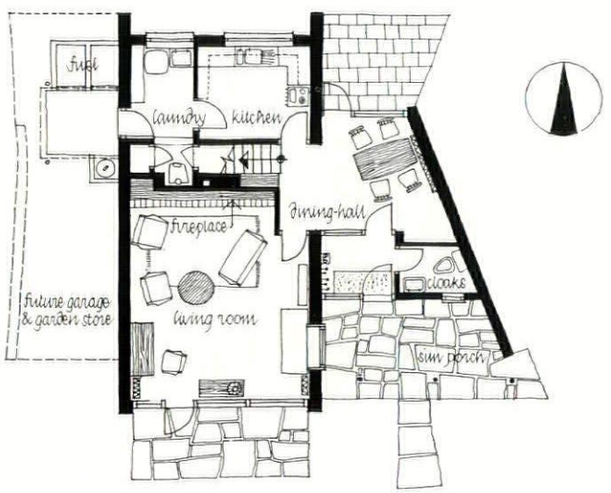
9

Although this house, in Warren Road, Hayes Common, is designed by the architect for his own occupation, it is looked upon by the contractors, Heals, as a prototype for further ventures in domestic building; Heals also hope it will arouse interest in good design and be economical in structure so as to leave more money for equipment and finishes. The site is one-fifth of an acre. The foundations consist of three straight strips; the two flank walls carry all the loads of the main block, the other walls being non-load-bearing and so requiring no foundations. The first-floor gable-ends are designed as trusses, spanning from wall to wall so that the 15 ft. 6 in. wide living-room window needs no lintel. Much dry construction has been used: for example, hardboard and insulating board ceilings, the first-floor partitions and the timber gable end walls. For insulation, the inner skin of cavity walls are of load-bearing insulating blocks and the living-room windows are double-glazed. The first floor is of secret-nailed deal strip; the staircase treads are Japanese oak.

8, the house from the south-east; 9, from the north-east. 10, the staircase and the kitchen beyond. 11, the dining hall, showing clerestory lighting and the glazed screen to the entrance lobby.

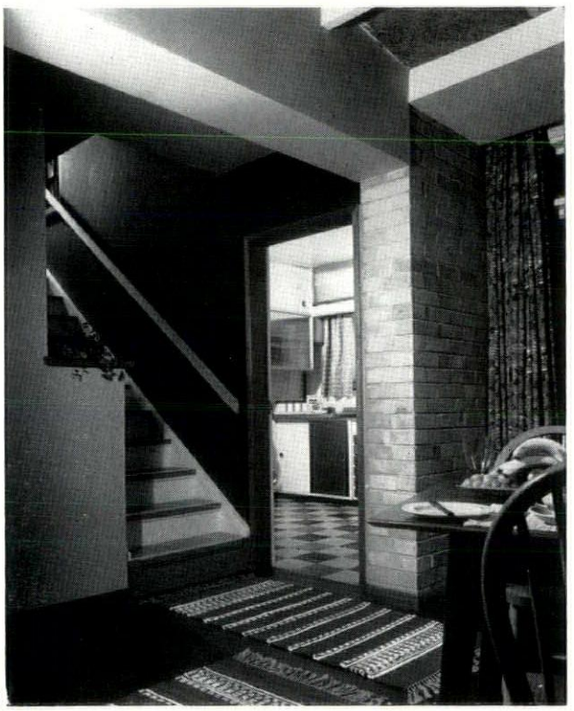


first floor



ground floor

scale: 1 16 in. = 1 ft.



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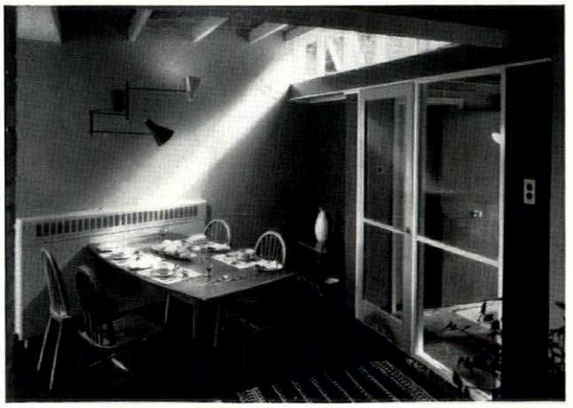


11

HISTORY

PIECE HALL, HALIFAX

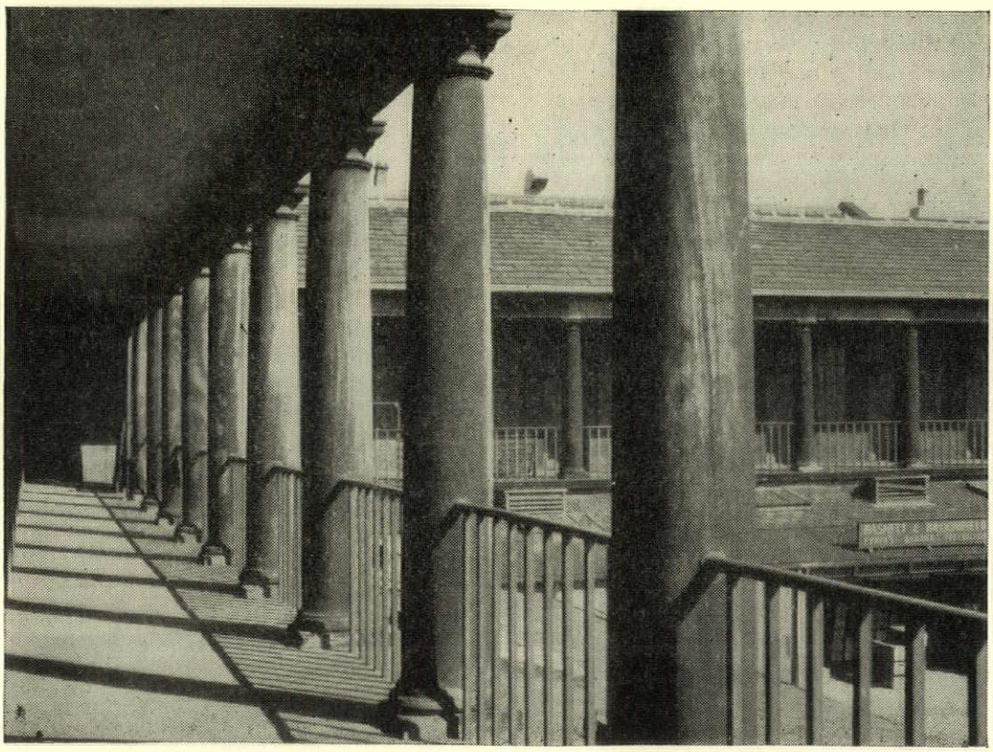
'Contented with ornamenting the inside, they have left the outside without the least bit of pillar, pilaster, window-ornament or break of anything except the front and entrance of the building. Think how queer one hundred yards of stone wall presented to the eye'—these words, which might suggest a neo-Classic fantasy of Ledoux or Boullée, in fact describe a building in Halifax quite un-fantastic in intention, though remarkable in form, the Piece Hall.

The remarkable form consists of a plan



1

in the shape of a hollow rectangle 330 ft. by 273, surrounded by loggias three storeys high for half its perimeter, and two storeys high for the rest, 1. The full order is Roman Doric columns over rustic piers, and the loggias, 2, serve as access galleries to 315 'closets' or small rooms, in which as many clothmakers could display their piece goods. The building was begun in 1774 to the designs of Thomas Bradley, of whom little else is known beyond the facts that he designed Crownest House in 1788 and was engineer to the Calder and Hebble Navigation.



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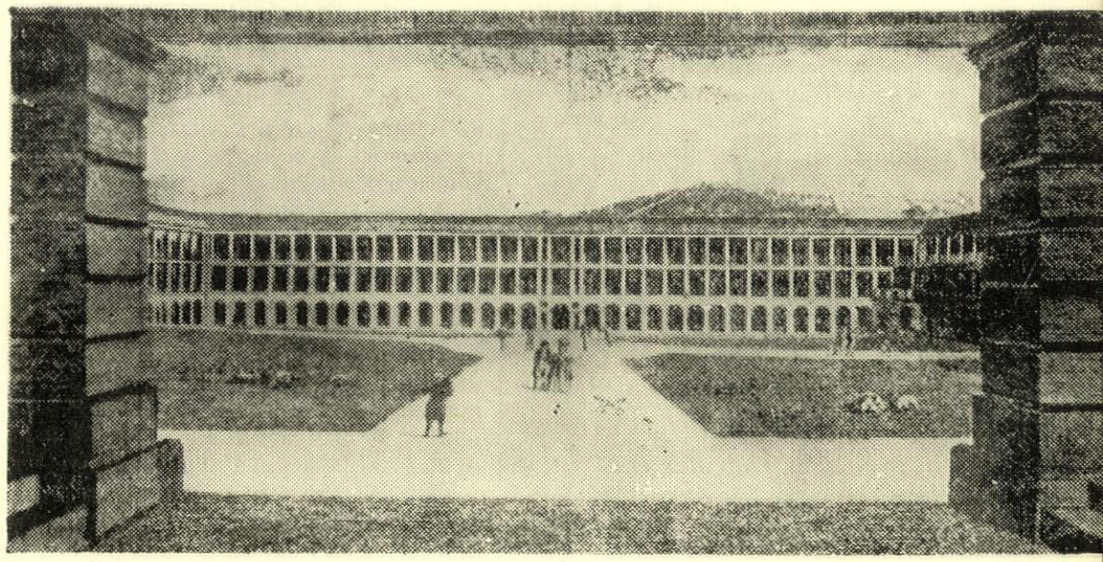


3

The Piece Hall as a building type is a product of the needs of one particular corner of the West Riding, where the prevalence of small domestic manufactures of high quality cloths produced a need for a special type of marketing facility. Halifax pioneered the type as early as 1700, Wakefield followed in 1710 and Leeds soon after. The first Leeds Piece Hall was thus described by Thoresby: "Tis built upon pillars and arches in the form of an exchange with a triangular court within; both the higher and lower stories are replenished with that sort of goods that till this juncture the clothiers had to carry samples of to each of the merchants' houses.' This Leeds 'White Cloth Hall,' so called after the colour of the cloth, was replaced in 1755.

In 1768 Huddersfield received its Piece Hall, and this was not rectangular but oval. It was enlarged in 1780 and, in spite of the fact that it was easily the most interesting building in Huddersfield, pulled down in 1930 to make way for a cinema. Fragments have been re-erected in a public park. On the pattern no doubt of Huddersfield, Halifax intended at first a circular Piece Hall. But the scheme was rejected by the subscribers because it would have wasted part of the available ground.

In 1773 Bradford followed Huddersfield; but their Piece Hall was a simple oblong house with a large room downstairs and another upstairs.

To the year 1774, apart from Halifax, belongs the third Piece Hall, at Leeds. This, whose commencement was the immediate cause for Halifax to make a start, still survives in parts. It was also built like an exchange round a quadrangle; but it was of one storey only and goods were displayed on stalls arranged in five long streets in the quadrangle.

Finally, after Leeds III and Halifax, Colne built a Piece Hall in 1775, and Wakefield replaced its old building in 1776. Of all these halls none was so striking as Bradley's at Halifax, and none survives so completely to this day—though the wide lawn of the quadrangle has been asphalted over, the lower colonnade blocked-in and the whole reduced to a fish and vegetable

market. Nevertheless, from some views, and under certain special conditions (as when the quadrangle is cleared for the great choir-festivals or 'Sings') the hypnotic rhythm of the repetitive colonnades can still be appreciated as much as it can in early prints of Piece Hall when it was new, 3.

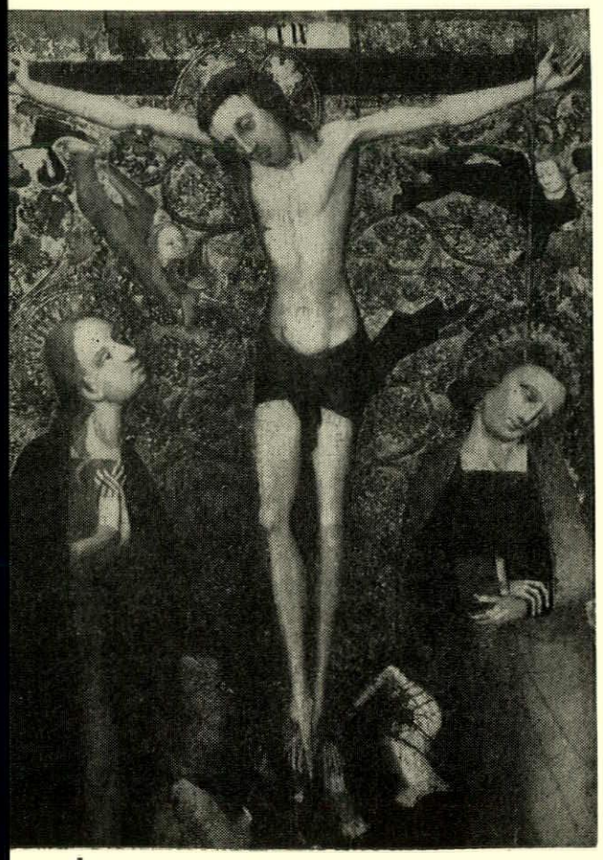
S. Lang

EXHIBITIONS

PAINTING, SCULPTURE AND STAINED GLASS

Eight small medieval paintings which have long been suffering from neglect in the darkness of St. Michael-at-Plea, Norwich, are enjoying a period of convalescence in a well-lighted corner of a gallery in the Victoria & Albert Museum, after drastic operations carried out in the Courtauld Institute, and before returning to their religious duties at St. Michael's, where some of them will be used as a reredos for the altar.

They are the remains of three large groups of paintings—two altarpieces and a chancel screen—which once adorned this small East Anglian church, and they provide a haunting glimpse of the vanished splendours of our fourteenth- and fifteenth-century ecclesiastical interiors.



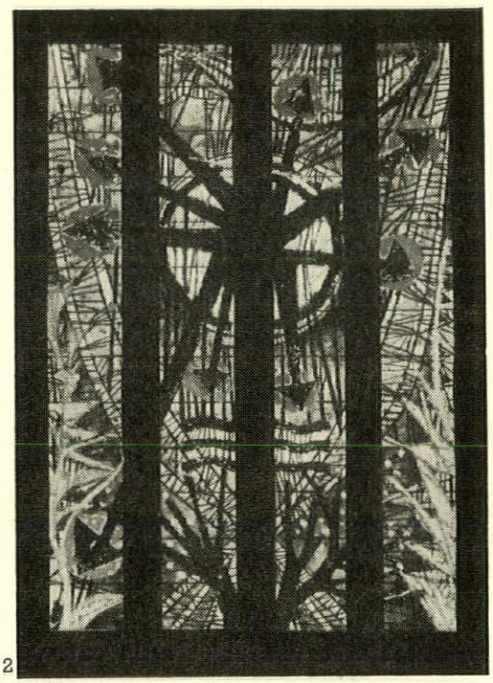
1

Pamela Tudor-Craig, who contributes a scholarly introduction to the catalogue, argues that the panels cover the period c. 1385–c. 1440, and that each group yields evidence of a different phase of foreign influence. In the last of the panels, a Resurrection, the conventional gold background is replaced by a dawn sky which reflects Flemish influence, and the prototypes for the soldiers have been found in German panels painted in the same decade. (Much the same kind of eclectic picture-making goes on today: obvious examples were to be seen in a show of English abstracts reviewed in my last article, where broad oblongs of paint applied in the manner of Soulages were allowed to drip at the ends in the manner of Jackson Pollock.) The Crucifixion panel reproduced here, 1, is from the earliest group at St. Michael's, and shows Italian and Bohemian influences. The Italianate St. John seems more alien to the general conception than the Northern Gothic Virgin; he brings about a sharp drop in the emotional temperature which, if I may be forgiven for admiring the picture in its present state, is stepped up again by the fervent iconoclastic scratchings on the mourners at the foot of the cross. The raised plant stems, tearing like tipsy snakes round the haloes and the angels catching Christ's blood in goblets, and squeezing themselves between the main figures, add a special note of animation to a kind of gilded relief background which more often than not is a deadening display of craftwork.

Six of the 70 ft.-high stained glass windows that are being made at the Royal College of Art for the nave of Coventry Cathedral have been exhibited at the Victoria and Albert in a darkened gallery, accompanied by the sound of religious music. They were cunningly arranged in a confined space to emphasize their Gothic verticality and convey through physical sensation the idea of the human spirit soaring to glowing heights. The effect was impressive, and the showmanship would have misfired if the windows themselves had failed to come up to expectations.

The artists responsible for the windows —Lawrence Lee, Geoffrey Clarke and Keith New—seem to have re-discovered the vitality and expressiveness of stained glass by separating the functions of line and colour. Each window has a predominant hue, a molten gold or red, a rich viridian or a sultry purple; and the complex linear design is like a mass of black, wet twigs thrown on to a fiercely burning fire. By operating as an obstruction for the colour to smoulder under and lick round and jet through, the nets of black line cause the colour to look as active as flame.

The nets of black line also serve a complicated symbolism, and pile up the emblems with fantastic prodigality. One's eye detects shapes like bishops' croziers, sting-rays and sun-bursts, corals and plants, window-cleaners' ladders and ships' rigging; there are crowns and sceptres in quantity, shoals of eyes, a profusion of arrows, and, every so often, a small human figure, which emerges for a moment like a pygmy in the jungle before dodging back into the tangle. Part of one of Keith New's green windows, 2, gives some idea of the clotted linear texture, but the most beautiful and mysterious windows in the exhibition were the two by Geoffrey Clarke, probably because they are the least transparent: their dark purples and purplish blues and bluish greens obscure the emblems and bruise the light, and, as Clarke himself hoped they would, 'create a deep, pulsating atmosphere,' filled with vast, vague implications. Mention should be made of the broad mullion which runs dead through the middle of each window. It may be a structural necessity, but in relation to the *width* of the windows it looks arbitrary and ugly, and if the RCA team had been thinking in anthropomorphic terms their problems would have been insoluble.



2

Geoffrey Clarke's colour prints, by the way, were outstanding contributions to the exhibition at Zwemmer's called 'New Editions,' where some of our best printmakers were showing recent works. His large aquatint of a quaint, moon-faced *personnage*, armed with black arrows, 3, called to mind one of Klee's gnomic utterances: 'The Father of the arrow is the thought: how do I extend my reach?' Clarke, almost too obviously, extends his

reach by means of colour, and his rhetorical use of blues, blacks and greens gives his aquatint an air of sombre gravity which is not even faintly anticipated in the quaint linear figure.

The exhibition of stained glass and working drawings at the Building Centre, by members of the British Society of Master Glass-Painters and liverymen of the Glaziers' Company, contained many notable examples of craftwork in several nineteenth-century idioms, such as mock-medieval, pre-Raphaelite, sub-baroque and what might be called Victorian Dantesque, and it is evident that, if they are not too set in their ways to learn a new but fairly simple language, we have here a group of fine craftsmen capable of spreading the twentieth-century style inaugurated by the Coventry windows to every corner of the land where stained glass is needed.

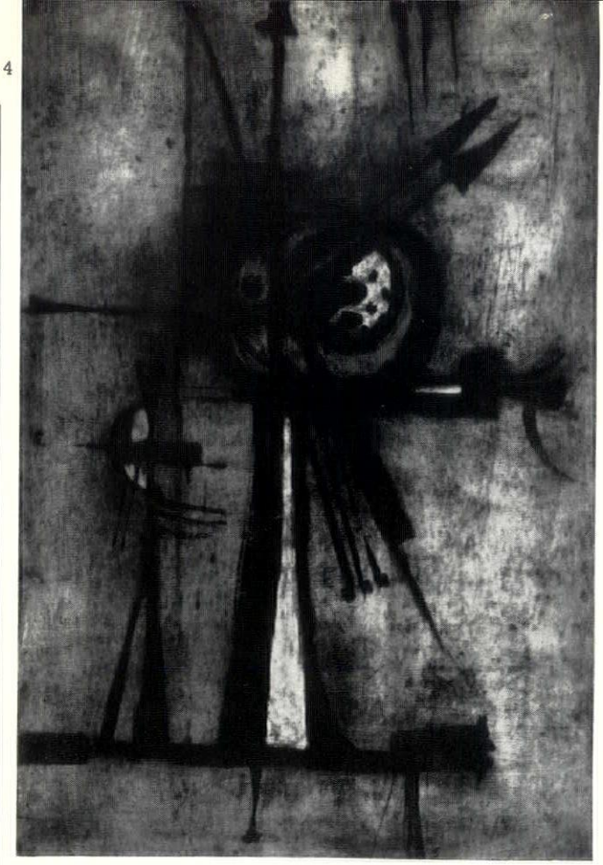
To continue the discussion of the dissociation of line and colour, Wyndham Lewis is the kind of artist for whom the linear emblem has to do everything. His drawings are elegant, exact and as cold as ice: his oils are drawings with colour added as an afterthought, and because he favoured warm colours yet used them without warmth, they are an adornment that fails to adorn. Vorticism, in spite of its influence on various minor painters, was a one-man movement, and Lewis rightly claims, in his introduction to 'Wyndham Lewis and Vorticism'—the large well-documented exhibition organized by the Tate Gallery—that vorticism is what he, personally, did and said at a certain period. The exhibition makes it clear that he is a remarkable eccentric rather than a great artist, but the experiments in geometrics which he made at the outset of his career can still set one dreaming of the important part he might have played in the international abstract movement if he could have disciplined his cranky intellectualism; and for me, the first number of 'Blast,' with its reproductions of untraceable works, and the brilliant attempt in the manifesto to state the case for abstract art in concrete language, was the most exciting of the exhibits. His early abstracts, 4, are suggestive of aerial views of factory buildings disposed like military formations for a complicated manoeuvre, and a sense of impending attack, of imponderable forces on the move, is conveyed by the diagonal thrust of long, narrow box-like forms, which, incidentally, pre-date the remarkably similar use of such forms by Chirico.

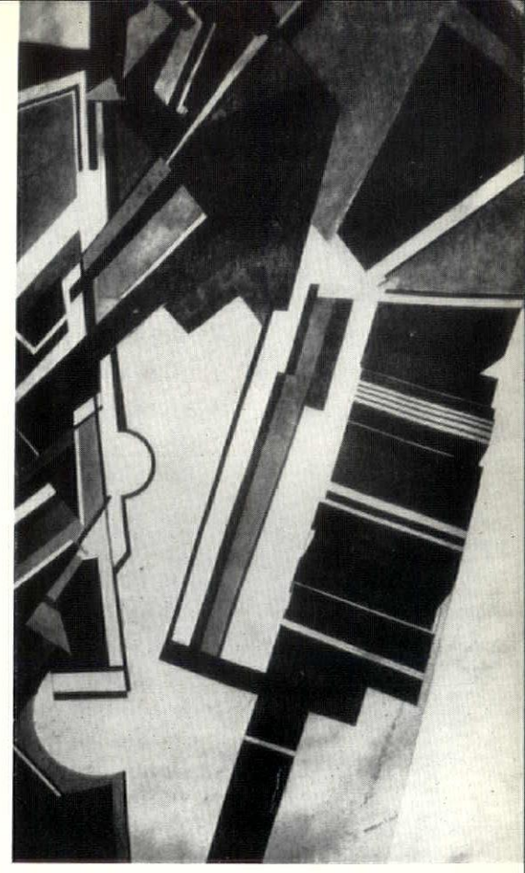
The rather crazy little anthology of paintings called 'Autour du Cubisme' lent to the Arts Council by the Musée d'Art Moderne, Paris, and exhibited at the Tate, reminds one of Wyndham Lewis's reference long ago to 'ponderous painters cubing away in Paris,' but it contains none of the great cubist pictures, and tells us very little about the movement except that here and there a minor painter managed to produce charmingly decorative works in the manner of the cubist masters. The exhibition included, for instance, a handsome brown and green landscape painted by Gleizes in 1911 in the style of a 1908 Picasso, and a 1912 still life by Marcoussis, 'Nature Morte au Damier,' 5, in which he indulged in the pleasant pretence of analysing his subject-matter.

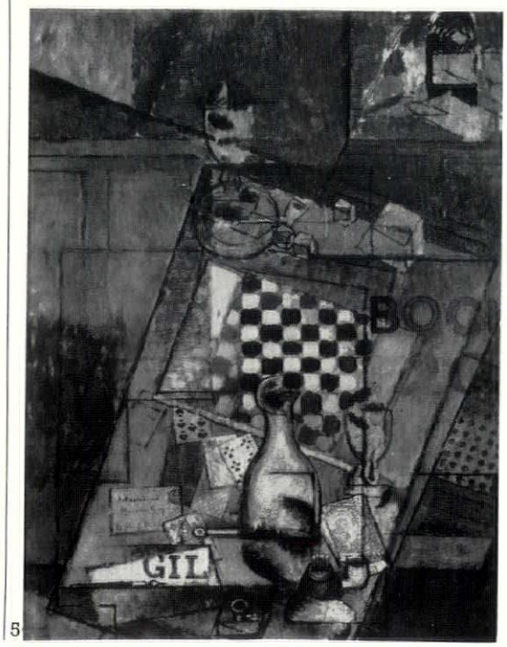
A miscellany of sculpture at the Hanover Gallery included interesting new works by Paolozzi and Turnbull, and introduced the iron sculpture of César Baldacchini, a thirty-five-year-old Frenchman, whose sensuous use of iron and delight in macabre organisms, 6, seem to owe something to the English school.

Robert Melville

3, 4







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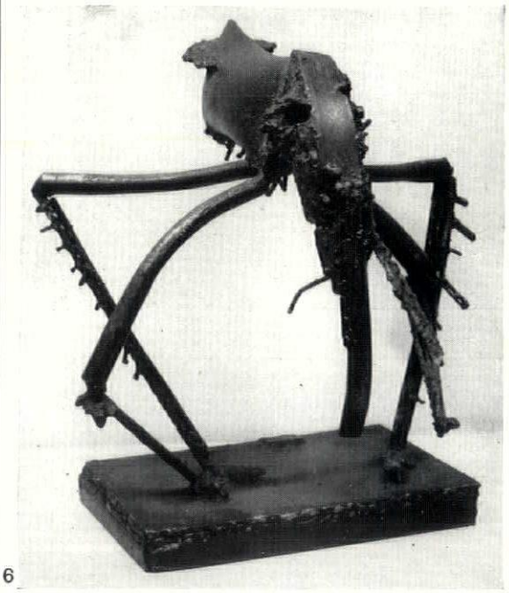


6

OUTRAGE

COMMON GROUND

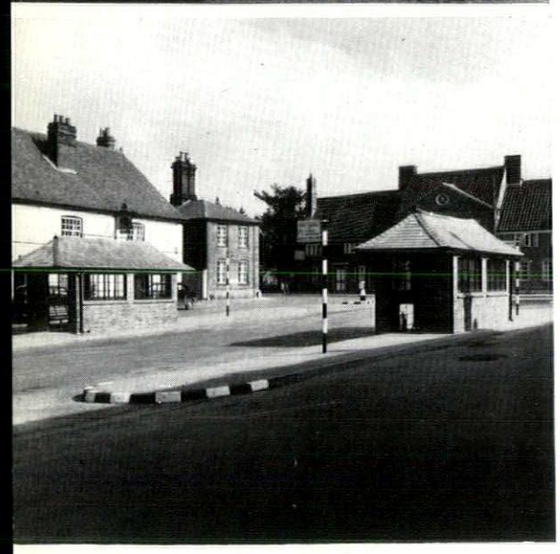
Common ground is always under attack. If the market has gone from the market place, the fact that it is an indispensable focus brings no relief for the rates. It doesn't even contain the recognizable

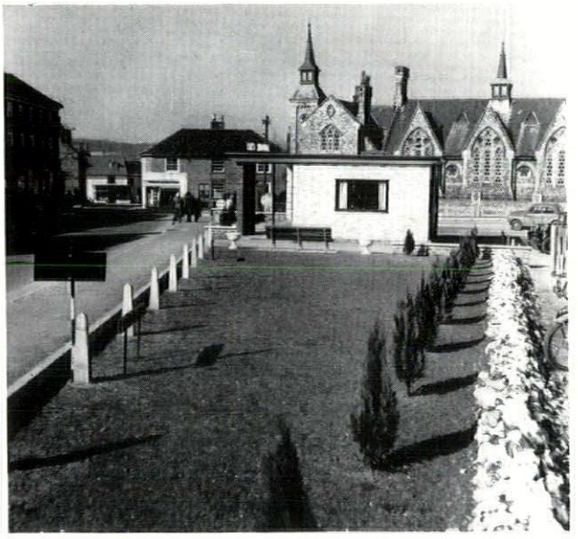












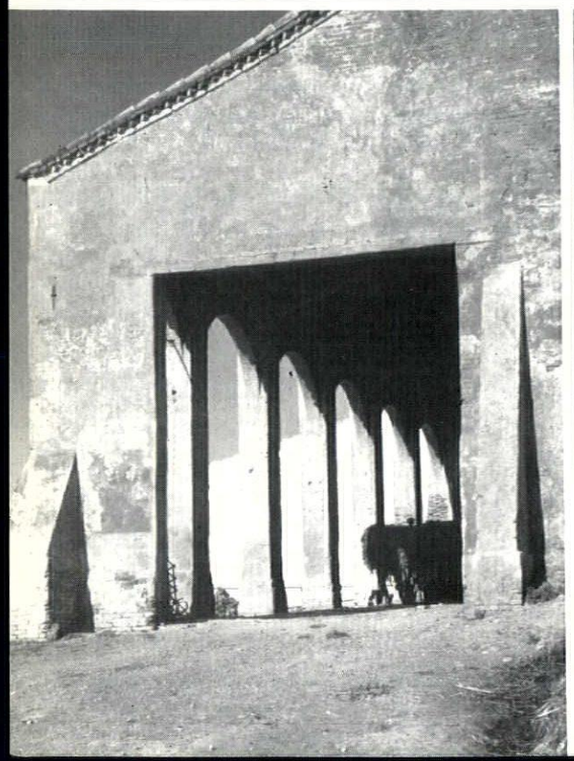
1 2
3 4
5 6

gymnastic apparatus and careful gardening of an 'amenity.' Without such venerated symbols its value must be almost unintelligible to the average council: 'it must be put to some good use at once.'

That is fair enough, if the use to which it is put doesn't affect the more important purpose of being the centre of the town. The use is nearly always parking for vehicles: and that it can be done without fuss is shown at Pontoise in the Île de France, 1, where the simple raised kerb makes signs or wire unnecessary. When the cars go away, the space comes back—a fair compromise. But once buildings or some shrubs or a few redundant signs squat in the square, the space has gone for good, and here are two East Anglian examples to prove it. Whether the buildings are chirpily 'modern' like Loddon, Norfolk, 2 and 3, or gruesomely 'traditional' like Beccles, Suffolk, 4, the result is the same: if they are stuck in the middle instead of being dovetailed into a corner, the result is inevitable and irrevocable erosion. You can't see that Loddon has a centre and you can hardly even walk across Beccles Old Market without running under the wheels of the 5.30 to Harleston via Bungay. The photographs prove once again that it doesn't matter if the trim is dreary asphalt, like Beccles, 5, or 'improvement' shrubbery, 6, like Loddon; it will still accentuate the mess and not alleviate it. If we were town-proud it would be self-evident that a town's central space is its most important corporate possession, and it is natural to keep it clear of refuse. But our towns have become vast public conveniences, a set of services to be used and then shunned in a headlong flight—which, by a metaphorical paradox, has led us into befouling the countryside as well.

Ian Nairn

common ground





BOOKS

CASA, PIAZZA—BELLA FIGURA

ITALY BUILDS. *By G. E. Kidder Smith. Architectural Press.* £2 16*s*.

Mr. Kidder Smith set out to achieve what seemed to be the impossible—an analysis of Italy's architectural heritage and her amazing post-war renaissance in the compass of 264 pages; in fact he has achieved a brilliant success. After a brief analysis, beautifully photographed and selected, which brings home to the reader the extraordinary variety of the Italian landscape and climate, and their influence upon the indigenous architecture, Mr. Kidder Smith goes straight to the heart of the matter in his descriptions of the historic piazzas of Italy—Siena, Venice, Orvieto, St. Peter's, and of the smaller but no less notable ones of Portofino and Capri. He points out that Italians have the smallest bedrooms in Europe because they have the largest parlours, in the original latin sense of the verb to speak.

The street, and especially the piazza, have from time immemorial performed this function for the people who inhabit the Italian peninsula, and have been the central motif of their pattern of life. They are the setting of the *passeggiata* in the cool of the evening, their bars are the meeting places for diversion and the discussion of politics—they were as notable a feature of Pompeii and Ostia Antica as their brilliantly vivacious counterparts are of the post-war architectural renaissance—housewives sit out in the street to mend and prepare the vegetables, and in the hot summer evenings they gather for a gossip round the fountains, just as in winter they seek the shelter of one of those beautiful sunlit street staircases for giving the children an airing.

In his commentary on this way of life and the superlative use of space, changing levels, sculpture, fountains and other street furniture which it has produced in Italy in the past, and in his admiration of contemporary architectural brilliance, Mr. Kidder Smith has not failed to point out how woefully, by comparison, Italian urban planning has failed in this respect today. He states flatly that 'there are no qualified planners as such,' nor does he mince his words when he describes the new suburbs of Italian cities as 'a godless, soulless, series of residential slums, devouring the countryside as they advance like a phalanx on the nature about them. They are a disgrace to the country, its planners, its architects, and its people' and he might have added that in Rome this applies to the so-called luxury districts as well.

It is a relief to turn from this uncompromising, but truthful, description of the worst aspects of Italy's really magnificent work of reconstruction, to the superb achievements of her best contemporary architects. This, in contrast to Sweden's general level of 'collective excellence' Mr. Kidder Smith describes as 'studded with stars in a morass of the mediocre.'

Their love of the visual aspect of things has created in the Italian mind an admiration for external beauty in people and buildings which is largely foreign to the modern protestant mentality. It has also produced that Italian characteristic which is at the same time a virtue and a vice—the desire for *Bella Figura* (literally a beautiful face, but which is interpreted in a thousand different ways).

Mr. Kidder Smith has observed with great clarity the results of the Italian preoccupation with *Bella Figura*: wha the calls 'Façadism and the Palazzo Complex' in architecture, and the poor interior planning, the ravishing and stimulating exhibitions—no one in Italy thinks that it is a waste to spend large sums of money on these ephemeral constructions any more than they did in the past for elaborate settings for festas and firework displays—and the complete lack of that basic but not very inspiring necessity—good school buildings. None of this has escaped his perspicacious eye, nor the unwillingness of the majority of even the best contemporary Italian architects to make use of the wonderful traditional country and farm house means of construction, which is due to the fact that the Italian ideal is definitely urban and anything which smacks of the countrified and rustic is labelled '*campagnolo*' and as such is regarded as rough and old-fashioned and therefore emphatically not *Bella Figura*. For once the writer has noticed all the external manifestations of a national characteristic without going to the root of the instinct which lies behind it—*Bella Figura*—the preoccupation with the external and the beautiful which are more important to the Italian than the practical considerations of usefulness and comfort.

Given this national characteristic, it is not surprising to find that in contrast to Sweden, where Mr. Kidder Smith noted that modern 'architecture is almost always subordinated to nature and impenetrated by it,' and Switzerland where 'the ideal is the free standing house,' and even low income group terrace houses are 'attractive and well planned for out-of-door living,' the superlative creations of Italian contemporary architecture are of a predominantly urban character—shops, bars, offices, blocks of flats, exhibitions, exhibition halls, factories, stations, and the like. One of the most cheering facts, however, that emerge from Mr. Kidder Smith's comprehensive survey of these high lights of Italy's renaissance is the excellent work in low income group housing which is being carried out in some distressed areas of the south; there are some notable examples of this on the outskirts of Naples and Palermo.

The influence of tradition in a country which contains the painted tombs of Tarquinia and the great mausoleums of Augustus and Hadrian, is also evident in the dignity and beauty of many of Italy's war memorials, that of the Fosse Ardeatine is perhaps the most moving. The lack of inspiring modern churches provides a strange contrast, especially in a country which is the centre of Catholicism, when compared with the work in this field which has been carried out in France, Sweden and Switzerland—perhaps this is due to the lack of that stimulus which is provided by an effective opposition.

The section which deals with exhibitions and shops is one of the most stimulating in the whole book. It could scarcely be otherwise, as it is in this field that the originality, grace, and daring of Italian contemporary design finds its full expression. The outstanding example of exhibition technique is undoubtedly Ernesto Rogers' 'Architecture is the Measure of Man' at the eighth Triennale. Here the use of that simple, but usually overwhelmingly monotonous, exhibition medium—the photographic panel—is employed with tremendous effect. The same vitality and exuberant gaiety are to be found in many Milanese shop designs, and in a private swimming pool at Monza. According to Mr. Kidder Smith, northern interior decoration is superlative, but he has apparently failed to note how woefully upper crust, in both senses, is good taste in household interiors further south.

The English text of the book is accompanied by an excellent Italian translation, and there is an interesting introduction by Ernesto Rogers. *Italy Builds* should make a stimulating contribution to the enjoyment and understanding of Italy's historic and modern architecture for architects and laymen alike.

Georgina Masson

SHELTER IN SMALL

ENGLISH DOLLS' HOUSES OF THE EIGHTEENTH AND NINETEENTH CENTURIES. *By Vivien Greene. Batsford.* 63*s*.

The strange thing about the houses made for dolls is that these ideal clients, requiring neither plumbing, pampering, nor, indeed, material consideration of any kind, should inspire so little fantasy and surprise. One would expect the second half of the eighteenth century to show us a long series of Gothic, Chinese, rococo, singerie, and rustic dolls' houses; conceits that either rivalled the follies and pavilions already in the park, or allowed people who could not afford such embellishments an opportunity at least to have them in little.

Instead, most of the dolls' houses are extremely severe, echoing only the starkest mansions and the simplest cottages. The reason for this can hardly be that the always conservative tastes of the children were studied, for few people studied children's taste in the eighteenth century, and in any case few dolls' houses were made for children.

The architects, carpenters, and men of taste who were concerned with the making of dolls' houses allowed one magnificent opportunity after another to escape them, both outside the houses and within, for the lack of invention in plan and in the ways of opening the houses is most curious. Curious for the eighteenth century that delighted in, for instance, dressing tables that opened and extruded a dozen different trays, drawers, boxes and mirrors at the touch of a hand;

books: casa, piazza—bella figura *facing page, left, the spirit of Roman structure continued in a vernacular farm-building near Ferrara; right, the spirit of mediaeval urbanism preserved in the Campo of Siena —both examplars of design that could well be followed today, within Italy as well as out.*

and still more curious for the nineteenth century, when patent furniture of all kinds was so fashionable, elaboration and ingenuity were the breath of life to many people, and both furniture and houses were designed in an infinite number of styles.

When no other book on this enchanting subject exists, it is ungrateful to quibble at Mrs. Greene's large book full of pictures, but so many of the photographs are dull and not sharp enough—the lighting is too flat, and too few of them take one right inside the rooms.

Nos. 127 and 129 have the right quality, so that we can see clearly the terrifying errors in scale of all good dolls' house furniture—a giant's egg cup on a dwarf's table, and the curtains that never hang normally. But it is shocking that there is not even one good photograph in colour; Mrs. Greene evokes admirably in the text the pale, clear emeralds and vermilions, the white and gold interiors, and the heavily painted cream, ochre, or brown fronts, but a colour photograph or two would have helped her a lot.

Clearly many of Mrs. Greene's dates have been established from family records, but some of them seem questionable; if the 'House and Garden' of No. 87 is really late eighteenth century, its designer anticipated normal domestic architecture by some forty or fifty years. But so he may have done; the daring exception to the dull rule of dolls' house designers. **Barbara Jones**

WRIGHT ANTHOLOGY

AN AMERICAN ARCHITECTURE. *By Frank Lloyd Wright. Edited by Edgar Kaufmann. New York, Horizon Press.* $10.

In spite of his having called Le Corbusier a journalist, because his writings out-bulked his buildings, Frank Lloyd Wright must occasionally feel that the cap would fit himself as well. No other master of the modern movement has talked and written so voluminously, nor for so long, nor—on occasions—so well, about the nature and problems of architecture, and the resultant mass of material (much of it now inaccessible) has long needed sifting and anthologizing. Over the sixty years from 1894 to 1954 covered by the bibliography of this new book, Mr. Wright has wrought the philosophy of his organic architecture, sometimes as an explanation of what he had in mind when executing particular buildings, sometimes in terms of generalized speculation about the relation of the architect to society, structure to materials, man to nature, function to form. His writings are therefore diffuse, variable and self-contradictory when viewed in bulk, but organically related when seen in chronological sequence, the biography of a growing idea.

But Mr. Kaufmann, in editing this anthology has not opted for the sequential and organic approach—as one might have expected from so well-known an admirer of Mr. Wright—but has decided instead to try and reshape the Master's writings into a consistent system, into an orderly and tidy-minded exposition of a theory of Organic Architecture. To achieve this, paragraphs have been removed from their context, and even from their time-sequence. Thus, on page 47, successive paragraphs—one of only eighteen words—are from 1931, 1894 and 1951, and although the dates are given in the margin, the fact that the quotations are from two lectures given to very different audiences and an article in *Forum*, which obviously slants the tone of voice in which the words were conceived—this information is only to be found at the back of the book. Where large slabs of writing are left intact, as with the five rousing pages on *The Destruction of the Box* of 1914, then Mr. Kaufmann must have our gratitude, but the general effect of compressing together passages of peroration, dark aphorisms and splinters of autobiography is windbaggy and self-congratulatory, a caricature of the quality of Wright when read, or heard, at his own speed and pressure. **Reyner Banham**

DECENT RETIREMENT

THE ENGLISH ALMSHOUSE. *By W. H. Godfrey. Faber & Faber Ltd.* 36*s*.

An admirable book, and apparently the first historical study of English almshouses: a bit too highly priced for its content, though not for the standard of production. On the whole, the post-Reformation almshouses are pretty buildings with stereotyped plans; the medieval ones are dull buildings with very interesting plans. At one end of the scale there is the simple infirmary-and-chapel, arranged just like a small parish church; at the other the elaborately Renaissance plan of the Savoy, a cross of four wards (three of six bays, the fourth of twelve) with the chapel in the centre visible from each—all carried out in Vertue-perpendicular! All this is recorded with the clarity and sureness that can only have come from the careful pruning-away of many times more facts than appear in the present volume.

Particular reflections—(*a*) the eloquent and beautifully articulated downhill plan of fifteenth century Ewelme, as complex and subtle as any present-day comprehensive school; (*b*) the extraordinary circular plan of Beamsley Hospital, Yorks, 1593 (alas, no photograph: what on earth must it look like?) 'planned like a miniature Templar's church with a round chapel in the centre, lit by clerestory windows . . .'; (*c*) that Kirkleatham Hospital chapel is one of the best Gibbs-style buildings in the country.

General reflection: almshouses are not now regarded as an important building type. In view of our age-and-population figures, that seems short-sighted. Old People's Homes form a poor substitute for those who can look after themselves, and here is one sphere where each-little-house-with-a-garden need not mean architectural chaos. **Ian Nairn**

DESIGNER-OWNERS

DAS HAUS DES ARCHITEKTEN. *By Robert Winkler. Girsberger, Zurich.*

A Swiss publication that introduces us to 44 architects' own houses from 13 countries. In his foreword the author recounts the anecdote told about Professor Saarinen who, when asked which one of his buildings he liked best, retorted—'the next one.' This curt answer puts the matter in a nutshell and highlights the interesting dilemma of the architect's position as his own client.

Most of the houses chosen suggest that architects are, on the whole, cautious, if not timid, people, which explains why one is disappointed in the results shown. But this should not detract from the value of the publication, as it is worth studying as a document of the last twenty years. In this context it is interesting to observe the dates of birth of the authors and the dates of the buildings.

We are left to wonder whether the exciting impetus given us in the late twenties and the thirties has been lost in the frightening events and consequences of the last war, and we are inevitably drawn to look again at the works of the pre-1910 generation; here we find greater daring and clarity of form. It would therefore have been most instructive to find in the accompanying text the aspirations of the designers stated and their reasons for their solutions.

The book is excellently produced, with four to six pages of text, plans and photographs devoted to each project. The photographs on the whole are of a good standard, but the absence of people is strongly felt and the glimpses of the owners in some of the houses make one immediately feel at home. The book is prefaced by an interesting portrait gallery of the designer-owners, which charmingly omits the birthdate of the only lady represented. **Stefan Buzas**

Shorter Notices

FRENCH ARCHITECTURE. *By Pierre Lavedan. Pelican.* 5*s*.

This admirable book came out in French in 1944. It has served several generations of students and many an architectural traveller, and Penguins, by making it available to those among these two categories who cannot cope with the French text, have done a highly welcome job. Professor Lavedan's is the best existing summing up of the history of French architecture, concise, competent and not at all hackneyed. He is as good on building materials and historic styles as on such neglected subjects as monastic buildings of the eighteenth century. That his treatment of town and garden planning is masterly need hardly be said. The last pages are a list of brief biographies of all the architects mentioned in the text, complete with references to literature. If only such a book handled in such a way existed for the history of English architecture. **N.P.**

Books Received

BURKE STREET. By George Scott Moncrieff. Richard Paterson. 8s. 6d.
ATMOSPHERIC POLLUTION. By A. R. Meetham. Pergamon. 63s.
THE SCOPE OF TOTAL ARCHITECTURE. By Walter Gropius. George Allen & Unwin. 15s.
THE MEDIAEVAL FLOOR TILES OF LEICESTERSHIRE. By Norma R. Whitcomb. Leicestershire Archaeological and Historical Society. 25s.
PEACEFUL USES OF ATOMIC ENERGY, Vol. 13. United Nations. 50s.
RECORD HOUSES OF 1956. Architectural Record.
PICTURE BOOK OF LONDON, PICTURE BOOK OF BRITAIN. Photos by G. F. Allen. Country Life. 15s. each.
LANDSCAPE INTO ART. By Kenneth Clark. Pelican. 5s.
ARCHITECTURAL CONSTRUCTION. By Theodore Crane. Wiley. $10.00.
SCULPTURE IN EUROPE TODAY. By Henry Schaefer-Simmern. University of California Press. 64s.

SKILL

A MONTHLY REVIEW
OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

1 interiors
2 design review
3 techniques
4 the industry



1, *part of the first floor of the restaurant at Helsinki* (*see page* 267); *the design is based on a Karelian farm kitchen.*

1 INTERIORS

Good food, well-cooked, say some, is all that should be asked of any restaurant. Given that, no customer should care, or even notice, whether the floor is covered with sawdust or with carpet, whether he sits upon scrubbed wood or upon satin. This is not even a half-truth. Bad food and bad cooking are, it is true, never tolerable, but in eating—as in working or playing, listening to music or making love—the mood is all. A setting that may be alluring one day can be repellent the next when circumstances, climate or the company is different. A wise restaurateur therefore will decide what character his

establishment is to aim at, what class of customer he is trying to attract and how, once attracted, he is to keep his custom. In all this his food, his cooking and his prices must be considered . . . but none of it will bring him success if his designer has failed him. Certain principles are paramount. First, spotless cleanliness in the table appointments —whether damask napery or deal boards—in the glass and crockery, the knives and forks. Ditto in the personal clothing of the serving staff. (Given this, a certain sluttishness is perhaps permissible elsewhere. Cooking is an art, and the best art is never, it seems, produced under impeccably hygienic conditions.) Secondly, lighting that is flattering to food and customer alike—sometimes dim, unobtrusive and intimate, sometimes glittering, festive and spectacular. Thirdly, good background materials, plain or luxurious as appropriate, simply used with touches of richness or brilliance to catch and intrigue the eye.

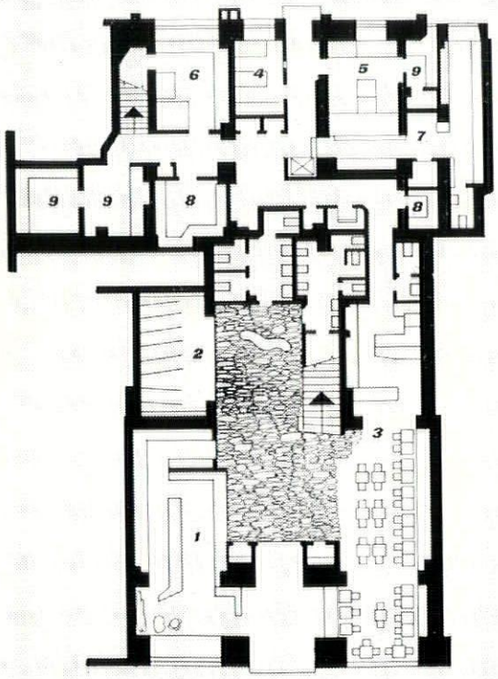
In both the restaurants illustrated on these pages, these principles of interior design have been properly considered and, although widely differing in scale and in luxury, imaginatively interpreted. In both cases unpainted wood is the principal material used—warm, lively, attractive both to see and to touch, easily maintained and perpetually sophisticated. Simple furniture, pull-down table lights, a few pictures, rugs or flowers for points of interest and the setting—unambitious in one case, frankly theatrical in the other—is achieved.

Money has clearly been short in the British example where simplicity dangerously approaches, but stops short of, poverty. In the Finnish restaurant no expense seems to have been spared—even to the rather self-conscious hand-adzing of the beams—in order to recreate in contemporary terms the traditional culture and building methods of eastern Finland. In its superb imaginative control of lighting, and its lively yet sturdy detailing and fittings this restaurant must be counted among the most successful interiors of recent years—as smart, attractive and welcoming today as it was yesterday and will be again tomorrow.

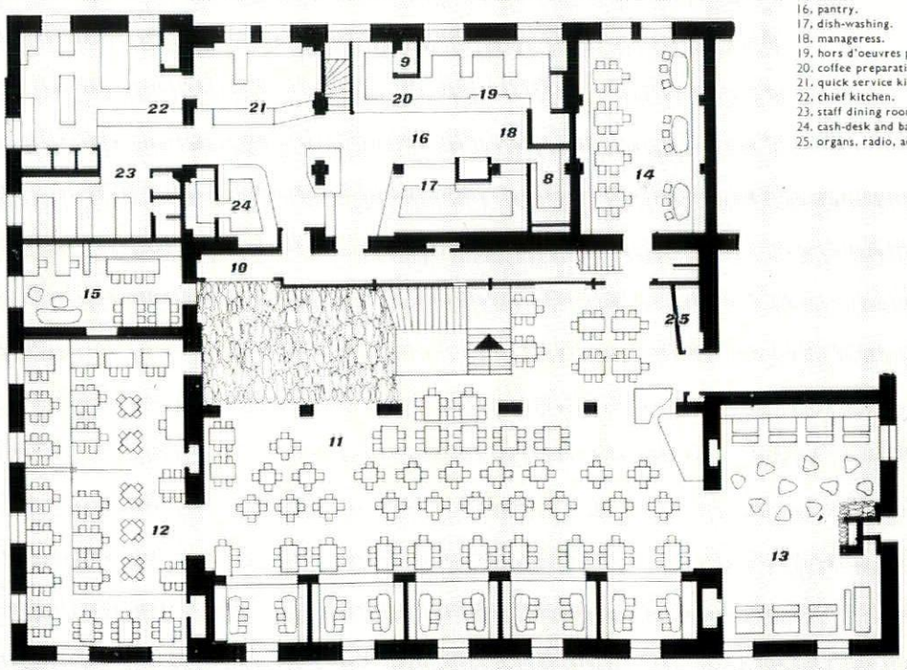
HUGH CASSON

restaurant at Helsinki

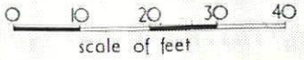
key
1. Kalevala shop.
2. cloakroom.
3. lower restaurant.
4. trade entrance and telephones.
5. laverie.
6. bakery.
7. staff cloakroom.
8. store.
9. refrigerators.
10. 'Court of Louhi.'
11. 'Pohjola room.'
12. 'Marriage room.'
13. farm kitchen.
14. room adjacent to courtyard.
15. office.
16. pantry.
17. dish-washing.
18. manageress.
19. hors d'oeuvres preparation.
20. coffee preparation.
21. quick service kitchen.
22. chief kitchen.
23. staff dining room.
24. cash-desk and bar.
25. organs, radio, accounts.



ground floor



first floor



RESTAURANT IN HELSINKI

Architect: Aarne Ervi

In the early part of 1946 the Kalevala Women's Association opened a restaurant in the centre of Helsinki entirely redecorated with the object of reviving certain forms of historic Finnish culture, particularly those derived from the Kalevala (the sagas of the ancient Finnish gods and heroes), survivals of which are still to be found amongst the inhabitants of eastern Finland. A typical example of what the Association wanted to express in the restaurant is the rich wooden architecture, which is preserved, although incompletely, in eastern Finland. The splendid red pines which grow there have a much greater durability than the fir. From this region also come the enormous tree trunks used for the construction of walls, ceilings and furniture.

On the ground floor is a quick-service restaurant. A wide staircase in red wood leads from the entrance hall up to the first (main) floor, where the walls are given the appearance of the outside of a building. The ceiling, painted by G. A. Jysky, shows a starry sky, the stars being represented by symbols from Kalevalan mythology. In the larger upstairs room, a corner is set aside for music and it contains an old wooden organ. At one end of the room is the 'Marriage Room,' which is lighted by chandeliers which symbolize the bridal veil and the snow crystals of Pohjola (the kingdom opposed to that of Kaleva) which slowly melt from the heat given off by the lamps. The 'Marriage Room' is divided in two by sliding doors covered in a fabric composed of plaited straw. The other side of the large room is in the form of a Karelian farm kitchen with its tall 'piirakka' stove for making pastries; the pastries are prepared before the public. On the wall hangs the skin of a fine grizzly bear. The furniture is kept low and on the tables are no cloths, only plaited straw coverings. The light fittings are mainly brass, some being copper. The textiles are plain, in bright red, blues or in dark brown with white stripes. In the lower restaurant is a mottled carpet mural, woven from the white and grey bark of a birch.

The furniture was designed by Maija Taimi, the light-fittings by Paavo Tynell and the textiles by Greta Skogster-Lehtinen. The dresses of the waitresses are copied from eleventh-century models.



2



3

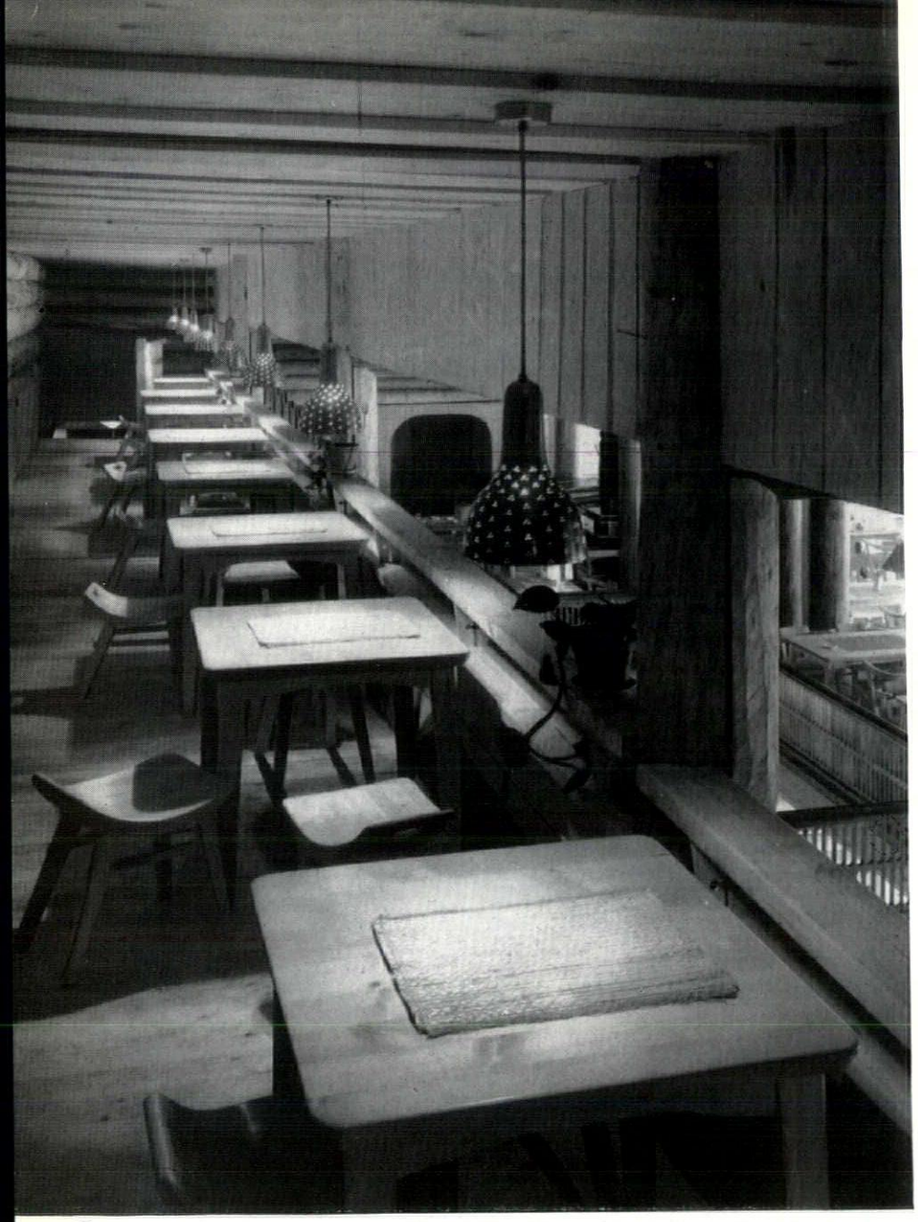
2, the quick-service restaurant on the ground floor and the staircase to the left. On the back wall hangs a carpet mural. The textile coverings to the seats are red, blue or brown and striped in white. 3, the 'farm kitchen' on the first floor. 4, a corner of the same, with the skin of a grizzly bear on the wall. 5, a niche in the Pohjola room. The wall treatment throughout is meant to suggest the outside of a building.





4, 5

6, *gallery overlooking the 'court of Louhi.'* 7, *hangers in the cloakroom.* 8, *the cloakroom. Lighting,* 9, *in the Pohjola room;* 10, *in the farm kitchen*



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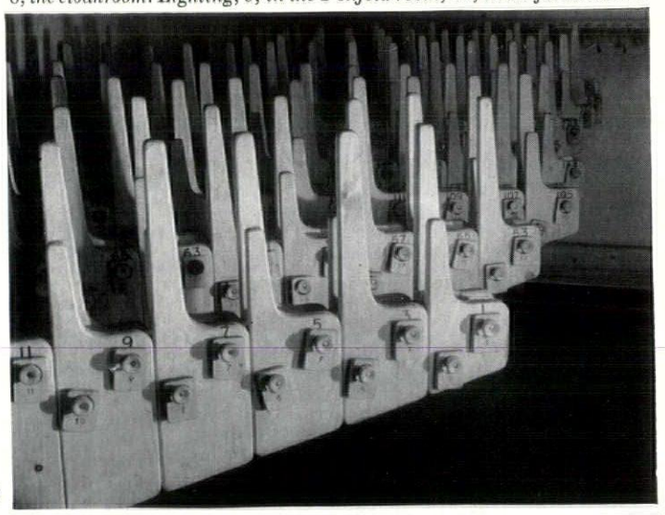

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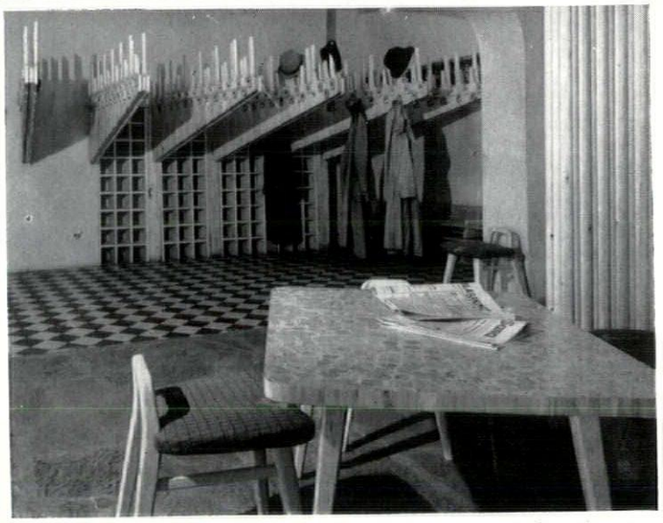

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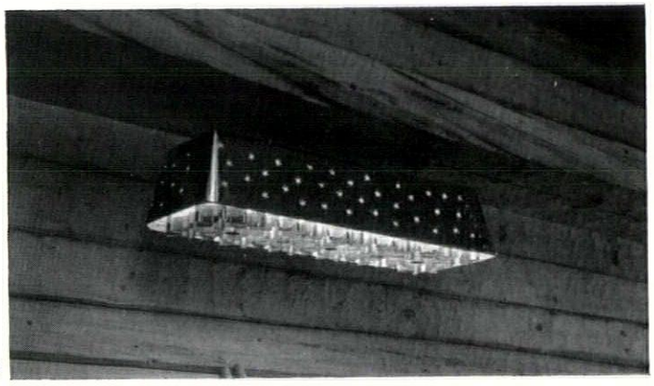
and, 11, *in the Marriage room, the intended effect being that of snowflakes, symbolizing the bridal veil and the snows of Pohjola.*



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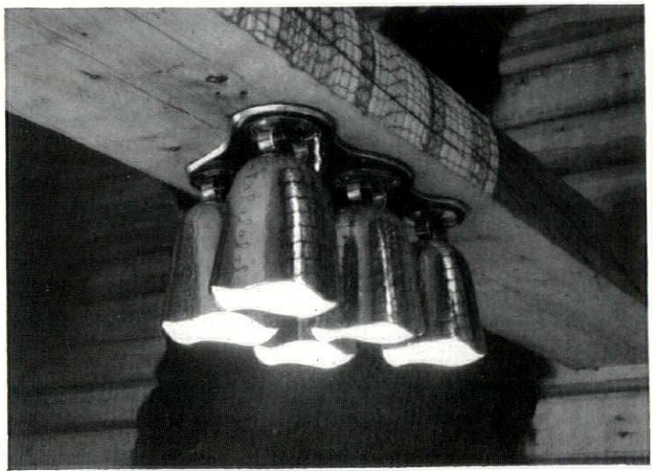

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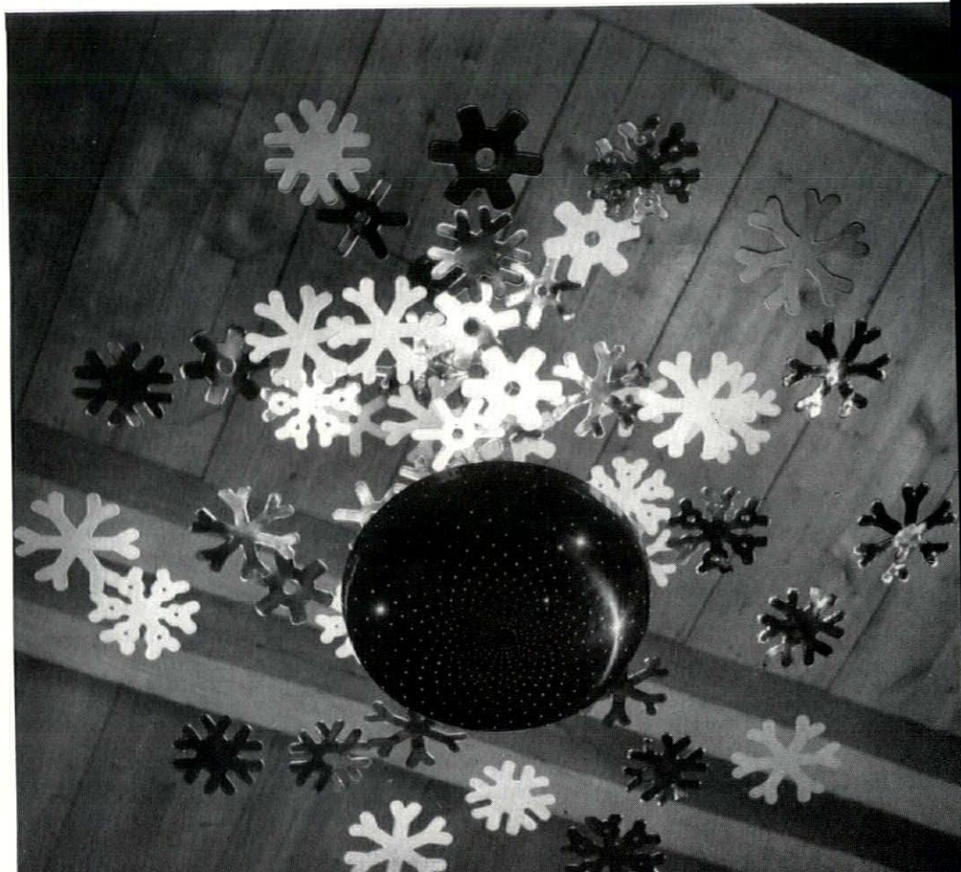

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12, *looking from the street entrance. The wall surfaces and partitions between the irregularly shaped booths are tongued and grooved matchboarding; the photostat panels hang 2 ft. from the original ceiling.*

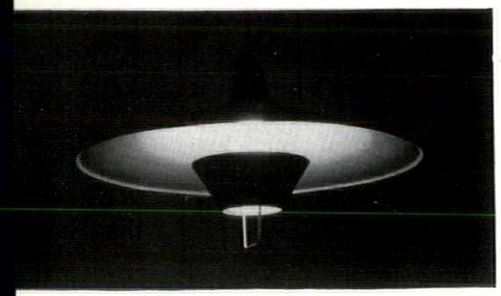
RESTAURANT IN OLD BROMPTON ROAD, S.W.7

Designer: Terence Conran

The exterior of the Chanterelle Restaurant has been left unaltered (its style is Kensington Victorian Gothic) apart from a new door of tongued and grooved mahogany. All external paintwork is black, white and grey. The client wanted the restaurant to give an instant impression



13



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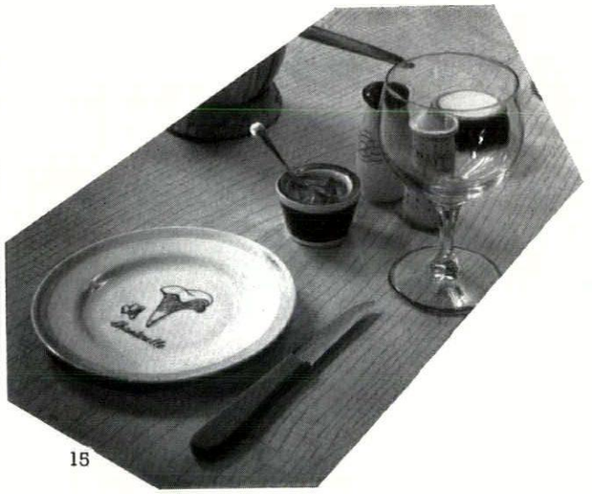
RESTAURANT IN OLD BROMPTON ROAD



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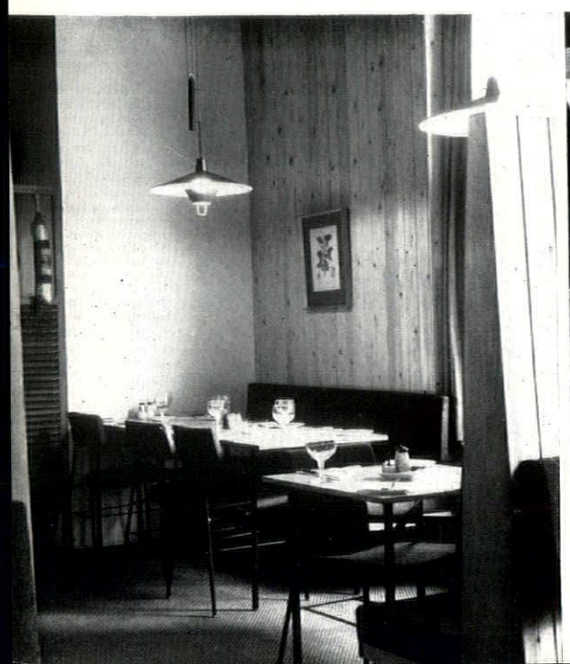
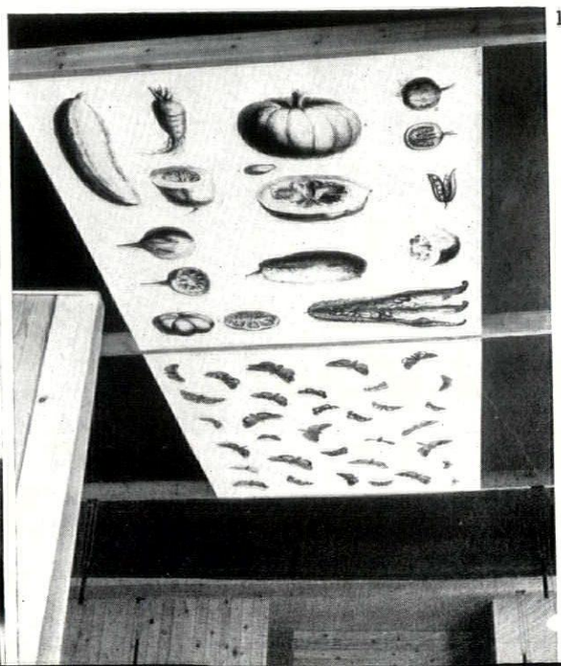
13, one of the dining booths, containing banquettes and metal-framed chairs, covered in blue, green, and red tweed. 14, one of the adjustable metal light fittings, common to each booth. 15, typical table service. The specially designed china is decorated with drawings of different fungi. 16, large booth near the servery. 17, the suspended photostat panels of vegetable sections and butterflies.

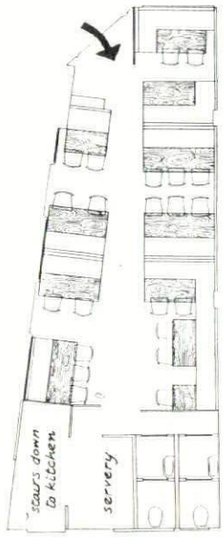




16, 17

of sophistication and solid comfort. This has been achieved by the use of natural woods and finishes combined with a warm but subdued colour scheme.

To disguise the proportions of the long, high, narrow room the ceiling was painted dark grey. Two feet below, wooden beams were thrown across the restaurant from wall to wall and the adjustable lighting fixtures and the false ceiling, which consists of two photostated engravings of moths and vegetable sections mounted on panels, suspended from them. The wall surface, which was in very bad condition, is covered with t. and g. matchboarding except for a small area



to the right of the entrance, which was painted olive, and the part of the end wall containing the cloakroom doors, which was painted light blue. Most of this wall is hidden by a t. and g. screen carrying coat-hooks. A shelf for the display of kitchen utensils is fixed on the t. and g. wall which surrounds the service area, in front of which is a slatted wooden screen. The floor is covered with dull blue coconut matting and the curtains are orange velvet. On either side of a centre aisle are irregularly spaced booths of t. and g. boarding, lined with banquette seating upholstered on 4 in. foam rubber and covered with blue, green and red tweed. A handle is incorporated in the metal framework of the chairs. The tables, of veneered ash, mounted on metal frames are of varying sizes, but all are of the same basic design and are finished in heat-resistant glaze.

Carefully chosen nineteenth-century engravings mounted on olive, light blue, dark grey and scarlet are framed in dull, white wood. The pattern of the china, also specially designed, is based on different fungi, which are a feature of the restaurant, as its name implies.

2 DESIGN REVIEW

Wood-Burning Stove

Finmar Limited is marketing a cast-iron stove made by H. Rasmussen & Co., of Odense, Denmark. Because wood is not the staple fuel here we have no standard modern design for a wood-burning stove or log basket. In the past, people who wanted to burn wood were content to hark back to the middle ages with blacksmith's basket and fire dogs. Now that the log fire is a popular feature of modern living rooms architects are continually designing individual fireplaces and log-holders for their clients. Those who have to improvise modern interiors in old houses may find this design, where basket and hood have been incorporated into a single unit, pleasing. Price, approximately, £28, including tax.



1, *wood-burning stove by H. Rasmussen & Co., Denmark.*

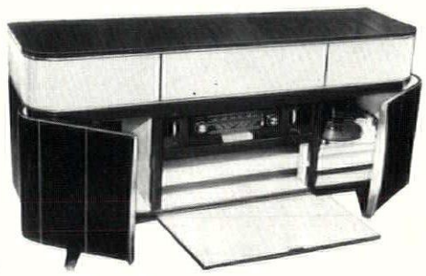
Radio as Furniture

Ideally, radio equipment should be built-in, or at least incorporated in standard unit furniture of the type pioneered by George Nelson for the Herman Miller Company. But at average levels of practicability this can rarely be so, and sound and vision receivers, playing-desks and hi-fi speakers, will have to be dealt with usually as pieces of free-standing furniture. Assimilation into possible furnishing schemes has been blocked hitherto by a tendency to pack large units into predominantly vertical cabinets, which, whether of wardrobe format or kind of *Britain-can-make-it* styling merely swore at contemporary furniture with its usually horizontal emphasis.

However, the cabinet-work of standard commercial sets has now taken a less bulky and more horizontal turn that makes assimilation easier. This trend seems to have two foreign sources, outside our native contemporary tradition—'Continental Styling,' mostly from Germany and Italy, and the 'Non-Mechanical Look' from the USA. The former may cause raised eyebrows by virtue of its radiussed corners and lavish gold trim, but as Englished in Regentone's giant ARG 150, it can produce conceivable room-furniture, 2. This has in any case a lavish technical specification that justifies its price—over £170—and takes it out of the normal domestic category. The same is true of the chief representatives of the Non-Mechanical Look at the 1956 Radio Show, 3, hi-fi radiograms by RCA. These technically superlative instruments will now be available in England at a price just short of £200. Their exteriors reveal the dependence of the Non-Mechanical Look on current furnishing norms, and assimilation to other furniture is assisted by the fact that the player desk is available either on legs, as a lowboy, or on a cabinet base that brings it up to the same dimensions as the speaker-box, thus making symmetrical wall-compositions possible.

Equipment of this kind is not likely to feature in many interiors, but TV—even with the 21 in. tube—probably will. The sheer size of these tubes has caused some drastic rethinking among cabinet-stylists, who have almost unanimously opted for an asymmetrical lowboy with a pronounced horizontal emphasis, and tops that level up, near enough, with the thirty-inch datum so often found on today's storage-units, etc. Pye's LB17NF is fairly typical, 4, though it has only a 17 in. tube, while Philco's Model 2160, with the larger screen, is helped in settling down with other furniture by the wooden door that covers the tube face when not in use, 5. On both these models alternative vertical legs would be welcome, though the fact that splay-legs help to sell contemporary furniture on the hire-purchase mass market must be faced, even in the £100 bracket.

This tendency to get equipment well up off the floor on legs affects some smaller sets as well. In the case of small radiograms, like Philco's *Trio* hi-fi unit, 6, which would normally be ranged alongside chairs, and would probably serve as a kind of surrogate coffee-table for much of its life, assimilation presents no



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2, *Regentone ARG* 150. 3, *hi-fi RCA radiograms at the* 1956 *Radio Show.* 4, *Pye* 17-*in. Lowboy TV receiver.* 5, *Philco* 2160. 6, *Philco Trio hi-fi record player.* 7, *Ferguson* 306*T*, 17-*in. TV receiver.*





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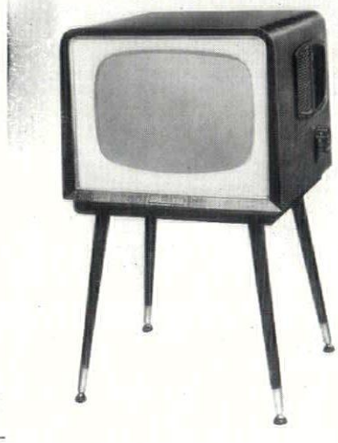

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serious problem, but with TV units, which must stand away from chairs, etc., when in use, the matter is otherwise. The Ferguson 306T, for instance, answers closely to what has often been advanced as an ideal visual specification, consisting of little beyond the screen and legs, 7, but its vertical format is inevitably assertive, and it might need to be sited and treated as if it were a piece of sculpture, or the singleton out-of-series chair that is often a focal feature of contemporary interiors.

Hugh Wykeham

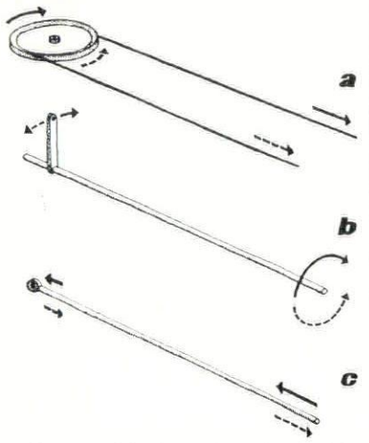
3 TECHNIQUES

REMOTE CONTROL GEAR FOR VENTILATORS

by Robert Maguire

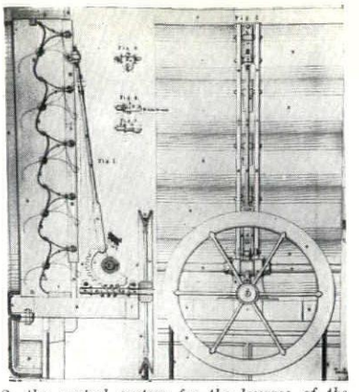
The Bowden cable for transmitting relative motion, which revolutionized the design of bicycle brakes, was invented in the eighteen-nineties. It is said that its inventor was a bed-ridden solicitor who wished to open his front door to friends by remote control. Significantly, despite this first application the cable and its subsequently improved versions were developed exclusively for use in industries other than building: cycles, motorcars and aircraft. Remote control systems for windows and ventilators remained cumbersome combinations of push-rods and cranks—a method essentially unimproved since its early perfection in the actions of mediaval organs—for another three decades.

To open and close orthodox opening lights and louvred ventilators, a positive drive in both directions is required. There are three different ways, 1, in which this type of movement may be transmitted mechanically over distances; the twin cable, which produces either straight-line or rotary motion and is subject only to tension; the torque shaft, which produces rotary motion; and the push-pull rod which produces a straight-line motion but must be designed to take both tension and compression. The conversion of rotary to straight-line motion and back again was the principle on which the early control systems relied for the turning of corners. The Crystal Palace louvre controls, 2, show all three transmission methods in sequence. The invention of flexible control cables eliminated the need for converting motion at corners; a smooth and uninterrupted run could be achieved between the operating point and receiving end.



1, *diagrams of the three methods of transmitting motion mechanically over distances. a, twin cable, b, torque shaft, c, push-pull rod.*

The Bowden cable consists of a multi-strand steel inner cable contained within a flexible steel conduit. Movement of the cable *relative to the conduit* is transmitted irrespective of either the fixing of the conduit or changes of direction. The limitation of the Bowden type of cable is that the inner cable will work only in tension, tending to buckle and bind in the conduit when subjected to compression. Two methods of producing a cable which will transmit both tension and compression have been invented, and these have been made the basis of push-pull systems for the remote control of ventilators.



2, *the control system for the louvres of the Crystal Palace shows in sequence the three methods of transmitting motion.*

By using a Bowden-type cable in twin-cable form, however, a positive drive in both directions can be obtained, and a system using twin-cable gear has recently been developed.

Push-Pull Cable Gear

Arens. The cable invented by the American, Charles Arens, for transmitting compression as well as tension consists of a high-tensile multi-strand steel cable running down the centre of a close-coiled steel spring, 3. This assembly is fitted into a brass or aluminium conduit which is rigid but may be shaped round bends as required, after which the inner cable is tensioned against the spring until

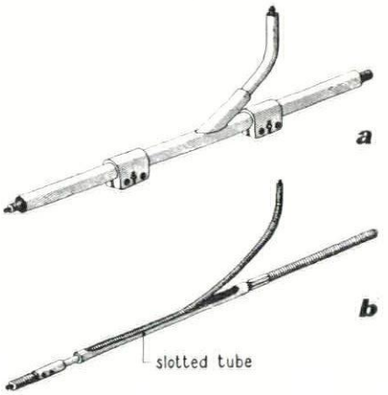
the Arens system



3, *the Arens cable, consisting of a multi-strand steel cable running down the centre of a helical spring.*



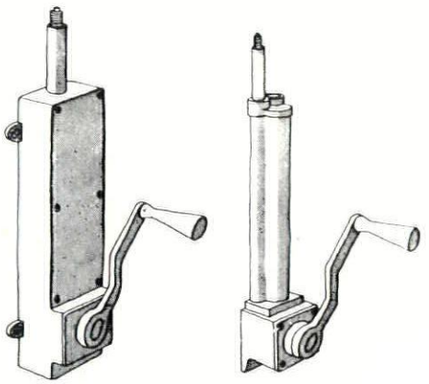
4, *the Arens cable and conduit. a, after placing in the conduit, the inner cable is tensioned against the helical spring and the latter is compressed upon itself. This inner assembly then becomes rigid on straight runs but semi-flexible on bends, where it is restrained by the curve of the conduit. b, the conduit is available in square section (⅛ in.), and two sizes of circular section (⅛ in. and ¼ in.). Inner cable sizes can also be varied for each conduit type according to the load to be taken.*



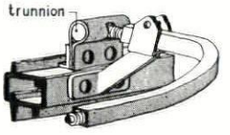
5, *junction between main and branch Arens cables. a, the conduit, b, the junction of the inner assemblies. The branch cable emerges from a slotted tube.*



6, *slide and handle control for small Arens installations.*



7, *medium and light duty geared regulators for Arens installations.*

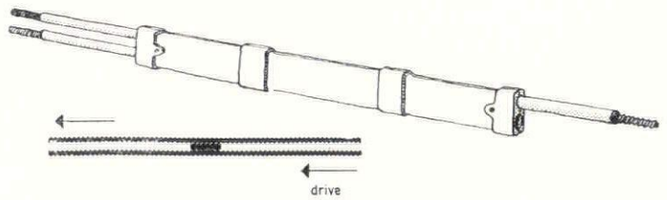


8, *method of applying the thrust of the cable to an opening light. The conduit is bent in a swan-neck and the cable attached to the opening frame by means of a trunnion.*

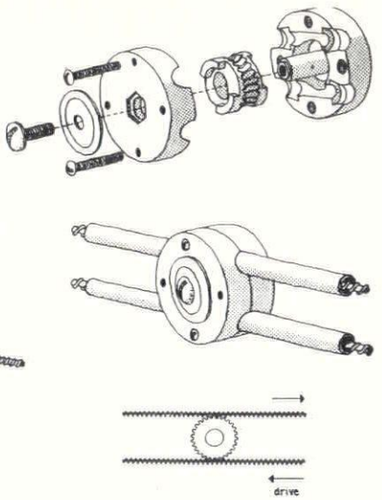
the Teleflex system



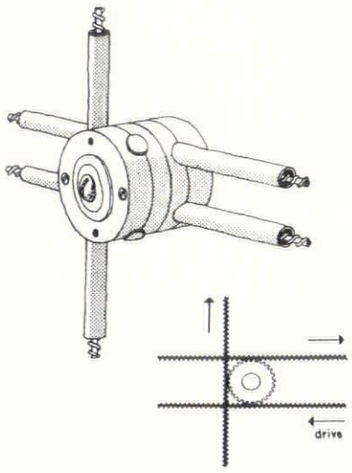
9, *the Teleflex cable, consisting of a multi-strand steel cable wound with steel wires of opposing pitch. The larger wire in the outer layer forms a continuous helical 'rack' which is used to engage with special gear wheels.*



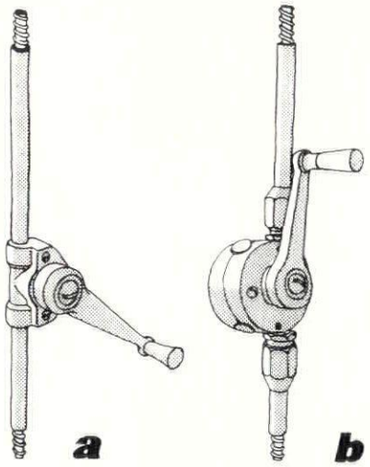
12, *the sliding junction for moving a secondary Teleflex cable in the same direction as the driving cable.*



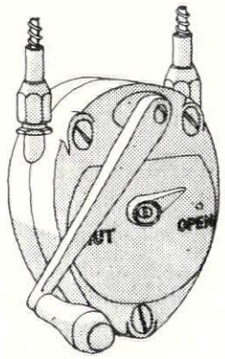
10, *the double-lead box, one of the intermediate units of the Teleflex system. The driving cable transmits motion via the gear wheel to the secondary cable.*

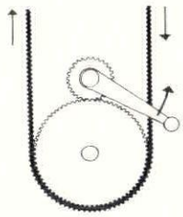


11, *the quadruple-lead box, consisting in effect of two double-lead boxes. Two or three secondary cables may be operated by the driving cable. Unused lead holes are filled by rubber plugs.*

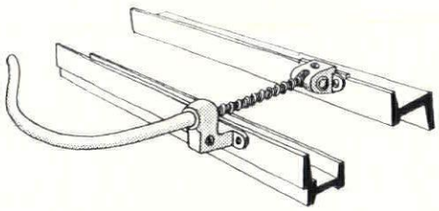


13, *two direct-drive operating units for use with small Teleflex installations. a, single-lead unit, b, single- or double-lead unit consisting of a modified double-lead box.*

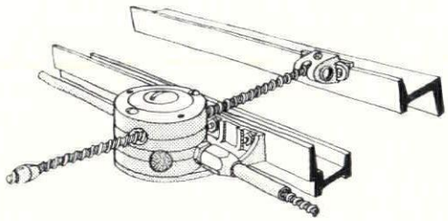




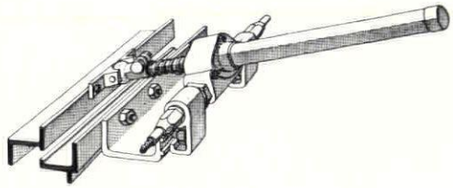
14, *a geared operating unit for larger Teleflex installations.*



15, *swan-neck method of opening ventilators.*



16, *method of opening ventilators used when several are connected for simultaneous operation. A double-lead box takes off a branch drive to each ventilator from the main driving cable. An installation of this kind is extremely neat in appearance.*



17, *a screw jack for opening heavy ventilators. The reduction gear ratio is very high; 7 ft. of cable travel are necessary for 10 in. of opening.*

the one is in slight tension and the other in slight compression. When the ends are secured to maintain this condition, the cable and spring together form a push-pull rod which is rigid on straight lengths (being, in effect, a prestressed strut) but sufficiently flexible on bends to allow free movement, 4. The cable is supplied in a range of sizes to suit various loading conditions.

In order to operate several vents from one main cable, provision must be made for transferring thrust to branch cables. This is done by replacing a portion of the inner assembly by a slotted tube, 5, into which the end of the branch inner assembly is fixed. At the operating end, the driving force is given to the cable either directly, by means of a slide and handle, or through worm gears operated by a crank handle. The slide and handle, 6, is of course suitable only for single vents up to medium size; for larger installations geared operation is essential and regulators are made in a number of sizes, 7.

At the receiving end, the straight-line motion of the inner assembly can be used without conversion to do the work of opening the vent. On leaving the conduit the cable assembly is sufficiently rigid not to buckle, and flexible enough to take up the arc required by the swing of an opening light. All that is necessary is to form the conduit into a swan-neck, its end pointing in the direction of opening, 8.

Teleflex. The Teleflex cable consists of a core of high-tensile multi-strand steel cable around which a number of steel wires are wound in layers in such a way that the cable remains flexible, 9. One of the wires in the top layer is of larger diameter than the rest, forming a continuous helical thread. With this construction the cable will not only transmit both compression and tension when housed in a conduit, but can be intercepted at any point to take off a branch drive in the manner of a rack and pinion—the cable being in effect a continuous rack.

There are two sizes of cable, $\frac{5}{16}$ in. and $\frac{1}{2}$ in. in diameter; the smaller has been made the basis of an extremely versatile system which will cope with most complicated requirements and all but very heavy installations; for these, the larger cable has been developed.

There are three types of accessories for use with the $\frac{5}{16}$ in. diameter cable; operating units, intermediate units, and receiving units. Intermediate units are for the purpose of transferring drive from one cable to another, but sometimes also form the basis of operating and receiving units. The double lead box, 10, serves one branch cable; the same sections are used to build up the quadruple lead box, 11, which serves three or four branch cables. To produce motion in the same direction as the main cable requires a sliding junction, 12.

If the installation is a small one, the operating unit may be a single-lead direct drive unit or a double-lead box fitted with a handle, 13. For larger installations a geared operator is available, 14, and this is designed to give a better grip on the cable by wrapping it round a large driving wheel.

At the receiving end the ventilator may be operated directly by the cable by means of a swan-neck, 15, but sometimes it may be more convenient to use a double-lead box, 16, an arrangement which has the advantage of reduced cable friction.

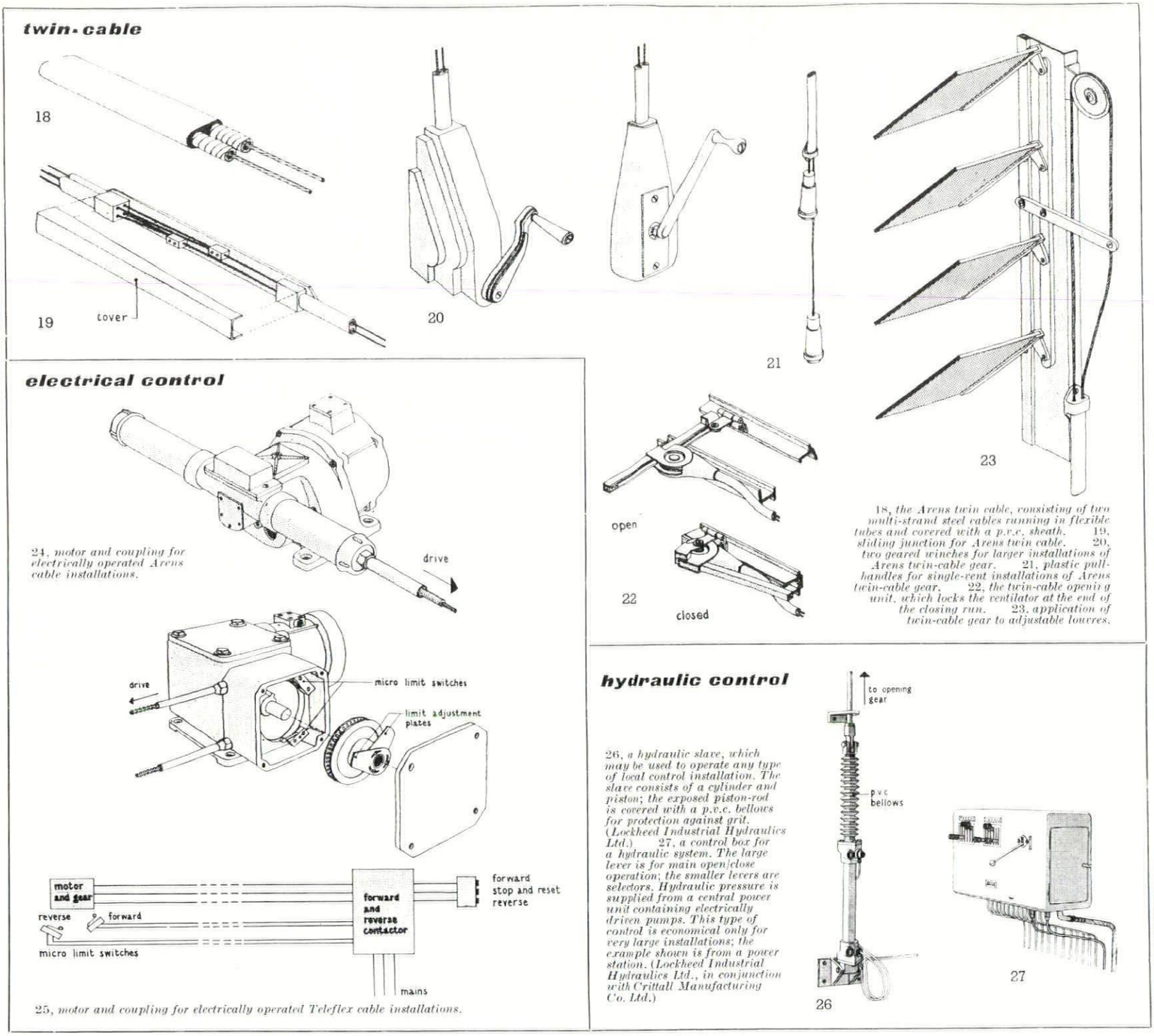
The $\frac{1}{2}$ in. diameter cable gear is intended for serving long runs of industrial vents. It consists largely of units similar to those of the $\frac{5}{16}$ in. cable gear though designed for heavier duty. One departure, however, is a recently introduced receiving unit; a screw-jack for heavy north-light vents, 17. The large gear ratio of these jacks puts less strain on the operating cable.

Twin Cable Gear

The twin cable used in this gear consists of two flexible metal conduits covered with a p.v.c. sheath, down the centre of which run high-tensile steel cables, 18. The conduit may be bent to the extremely small radius of 1 in. Branches to secondary cables are achieved by a simple sliding junction, 19.

At the operating end direct operation (for small installations) is provided by two pull-handles, 21; there are also two types of geared winches, 20, for larger installations.

For the receiving end a most



ingenious unit has been designed, 22, which not only opens and closes the vent but automatically locks it at the end of the closing run. The gear is also simple to attach to adjustable louvres, 23.

Electrical Control

In large buildings where control of ventilation from one central point is desirable, the transmission of the controlling thrust by purely mechanical means over very long distances becomes impracticable. Electrical or hydraulic systems must then be used; these are uneconomical for smaller installations.

For electrical control a motor is installed at the receiving end, which may drive a local installation of cable gear, 24 and 25, or be coupled direct to a torsion shaft. The main push-button control is situated in any convenient central position, and is coupled to a forward and reverse contactor. The switching off of the current in both directions is accomplished by micro-limit switches at the receiving end.

Hydraulic Control

Hydraulic pressure may be used to operate large banks of ganged ventilators by means of the 'hydraulic slave', 26, a cylinder and piston arrangement, coupled either to cable gear or orthodox push-rods. The slaves are connected to control boxes, 27, situated at convenient points, by small-bore tubing. The control boxes accommodate selector valves and a main control valve by which power is applied after selection is made. Power is supplied from a central cabinet containing electrically driven hydraulic pumps.

Correction

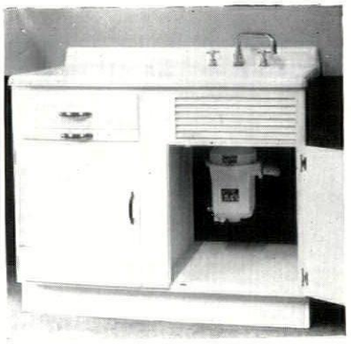
In 'Recirculated Warm-Air Heating,' (*Techniques:* A.R., July 1956) the captions to illustrations 6 and 7, page 64, were reversed, '6' should read '7,' and vice versa. We apologize to readers and to the author for this error.

4 THE INDUSTRY

A Food Waste Disposer

One result of the move towards the use of more efficient heat sources is that we are depriving ourselves of a ready means of getting rid of damp household refuse. The old, inefficient stove was in this respect omnivorous. Though the newer slow-combustion stoves will not necessarily go out under a deluge of tea leaves and potato peelings they may well, in digesting them, cause serious condensation and thence damage by sulphates in the flue.

For this reason the case for some sink attachment which will demolish this kind of refuse and make it suit-



Right, the Haigh 'Tweenie.'

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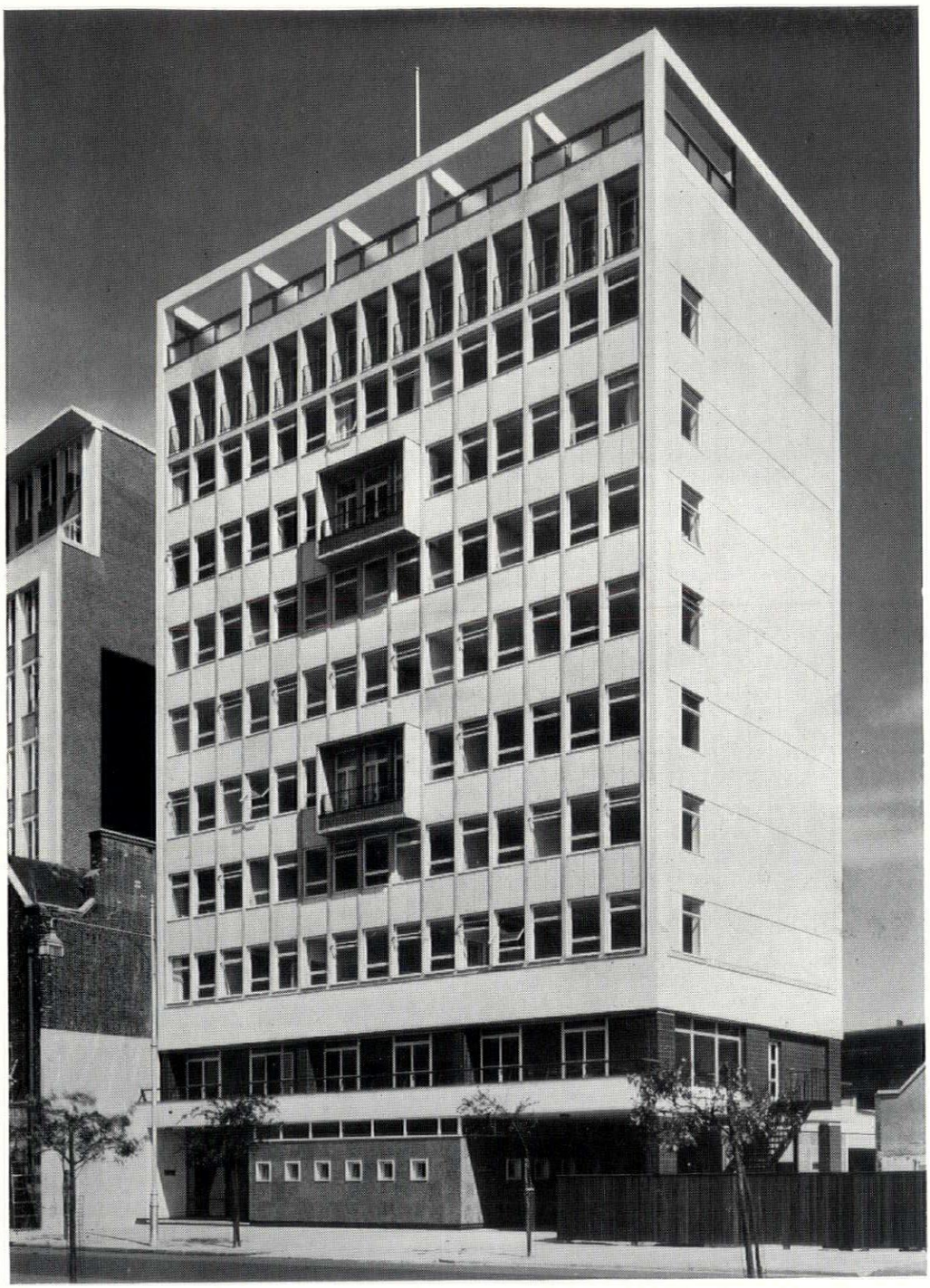
HEAD OFFICES FOR NATIONAL DOCK LABOUR BOARD



Architect:
Frederick Gibberd,
C.B.E., F.R.I.B.A. M.T.P.I.

Contractors:
Wates Limited

SPECIFICATION INCLUDES
FLOOR TILES BY MARLEY

EX 8

The Marley Tile Company Ltd., Sevenoaks, Kent. *Sevenoaks 55255*

continued from page 274]

able for water borne drainage is strong. A new version of this is the Haigh 'Tweeny,' a disposer which can be attached to any sink unit and which sells for £48 4s. (including purchase tax). The motor is fully enclosed, as can be seen in the photograph, and operates from a 13 amp. power supply. The running cost is negligible and the fitting has passed the Good Housekeeping Institute's test for reliability.

The Haigh Engineering Co. Ltd., Ross-on-Wye, Herefordshire.

A Lift Planning Rule

The firm of Marryat and Scott have just issued a very useful little book for architects. It is an up-to-date version of their lift planning rule which was first published twenty years ago. Starting with the population of the building to be served you can find out the different combinations of lift size and speed which will do the job together with the dimensions and loads the architect must allow for. In fact just what he wants to know at the design stage. Obtainable from *Marryat and Scott Ltd., Wellington Works, Hounslow, Middlesex.*

Painting Specifications I

Some architects learnt at school that paint was always composed of a filler, a medium, a vehicle, a base and a pigment; and that the recommended treatment was 9 coats, sandpapered down between each coat. But for *real* quality, it was rubbed down with the palm of the hand. Since then, painting technique has become both brisker and more complicated; architects are less 'at home' in the subject and more in need of guidance. Two firms* have recently attempted to provide this in the form of thumb-index handbooks giving recommended treatments on metal, plaster, concrete, woodwork, building boards and old paintwork. Blundell Spence's handbook is more cryptic than Pilchers'—but more up-to-date typographically. Both books put the emphasis on *what* you do, rather than *why* you do it. Neither book is a substitute for a full technical exposition of the subject (Text and Reference Books Committee please note) but they form a useful guide.

* *Painting Specifications. Pilchers Ltd., 6 Chesterfield Gardens, Curzon Street, W.1. Blundell Spence & Co., Ltd., York House, 37 Queen Square, W.C.1.*

Painting Specifications II

Joseph Mason & Co., who (as we reported in July, 1955) made a quick start with the 101 colours, have now produced a book giving architects advice on painting specifications. To be exact it gives actual specifications (related, of course, to the various Mason products) for painting on the different kinds of plaster, cement, metal, wallboard, wood and a rich and terrifying collection of previously treated surfaces. It also gives some good terse general paint specification clauses and notes on the why and the wherefore of paint failures. It should save a lot of anxiety in the office.

Joseph Mason & Co. Ltd., Nottingham Road, Derby.

Clean Air

Architects will soon be much bothered by the Clean Air Bill. Foreseeing this, Radiation Ltd. have published a small booklet entitled 'The Clean Air Act and You,' which describes the workings of the Act and what householders and other burners of fuel must do to conform to it. The purpose of the Act is to ensure that all fuel users in designated smoke control areas go over to smokeless burning. To make this feasible, local authorities will pay at least 70 per cent of the cost both of new equipment and of consequent builders' work. This grant does not apply to portable equipment and it seems probable that it does not apply to electrical equipment. Normally the changeover will be to some appliance which can burn so-called 'smokeless fuels'; but, as the booklet points out, the ultimate criterion is whether an appliance can burn without making 'any smoke or a substantial quantity of smoke' and this may reasonably include appliances which are able to burn *ordinary* bituminous coal *smokelessly.* The booklet can be obtained free from *Radiation, Ltd., Stratford Place, London, W.1.*

CONTRACTORS etc

National Dock Labour Board Office, Albert Embankment, London, S.E.1. *Architect:* Frederick Gibberd. *General contractors:* Wates, Ltd. *Nominated sub-contractors: Automatic telephone alarm:* Burgot Rentals, Ltd. *Lightning conductor installation:* R. C. Cutting & Co. *Ventilation and heating engineering:* Earley & Noon Heating Co. *Plumbing:* W. H. Earley, Ltd. *Partitions:* Esavian, Ltd. *Rolling shutters:* Haskins, Ltd. *White glazed tiling:* A. H. Herbert & Co. *Lettering:* The Lettering Centre. *Electrical installation and alarm:* London Electricity Board. *Balustrading externally:* Light Steelwork (1925) Ltd. *Bronze tablet and plaque:* H. H. Martyn & Co. *Lifts:* Marryat & Scott, Ltd. *Terrazzo paving:* Standard Pavements Co. *Canteen equipment:* Summerling & Co. *Metal windows:* Williams & Williams, Ltd. *Own subcontractors: Painting works:* J. W. Alder & Son. *Doors, screens and panels:* D. Burkle & Son. *Colterro lath suspended ceilings:* W. H. Colt (London) Ltd. *Asphalt work tanking, etc.:* Excel Asphalte Co. *Glazing:* Faulkner Greene & Co. *Paropa flat roofing:* Frazzi, Ltd. *Hardwood handrail:* E. H. Higginson & Co. *Staircase balustrade:* Light Steelwork (1925) Ltd. *Tiling to floors:* Marley Tile Co. *Hardwood flooring:* Philip Flooring Co. *Granolithic work, plastering, etc.:* W. A. Telling, Ltd. *Fibrous plaster work:* Veronese, Ltd. *Main entrance doors:* C. E. Welstead, Ltd. *Joinery:* Humphreys, Ltd. *Doors:* J. Gliksten & Son. *Nominated suppliers: Industrial steel shelving:* Acrow (Engineers) Ltd. *Grilles:* F. H. Biddle, Ltd. *Prestressed units:* Costain Concrete Co. *Sanitary fittings:* Dent & Hellyer, Ltd. *Safe door:* Milners Safe Co. *Ironmongery:* Parker, Winder & Achurch, Ltd. *Precast cladding and structural members:* Wates, Ltd.

Offices in Bruton Street, London, W.1. *Architect:* Cecil H. Elsom. *General contractors:* J. A. Tyler & Sons. *Subcontractors: Piling:* Franki Compressed Pile Co. *Plumbing:* Matthew Hall, Ltd. *Steel:* Somerville Barnard Construction Co. *Hollow pot floors, reinforced concrete, staircases:* Helical Bar & Engineering Co. *Asphalt:* F. J. Prater Asphalte Co. *Hot water and heating:* J. H. Nicholson & Co. *Lightning conductor:* R. C. Cutting &

[continued on page 278



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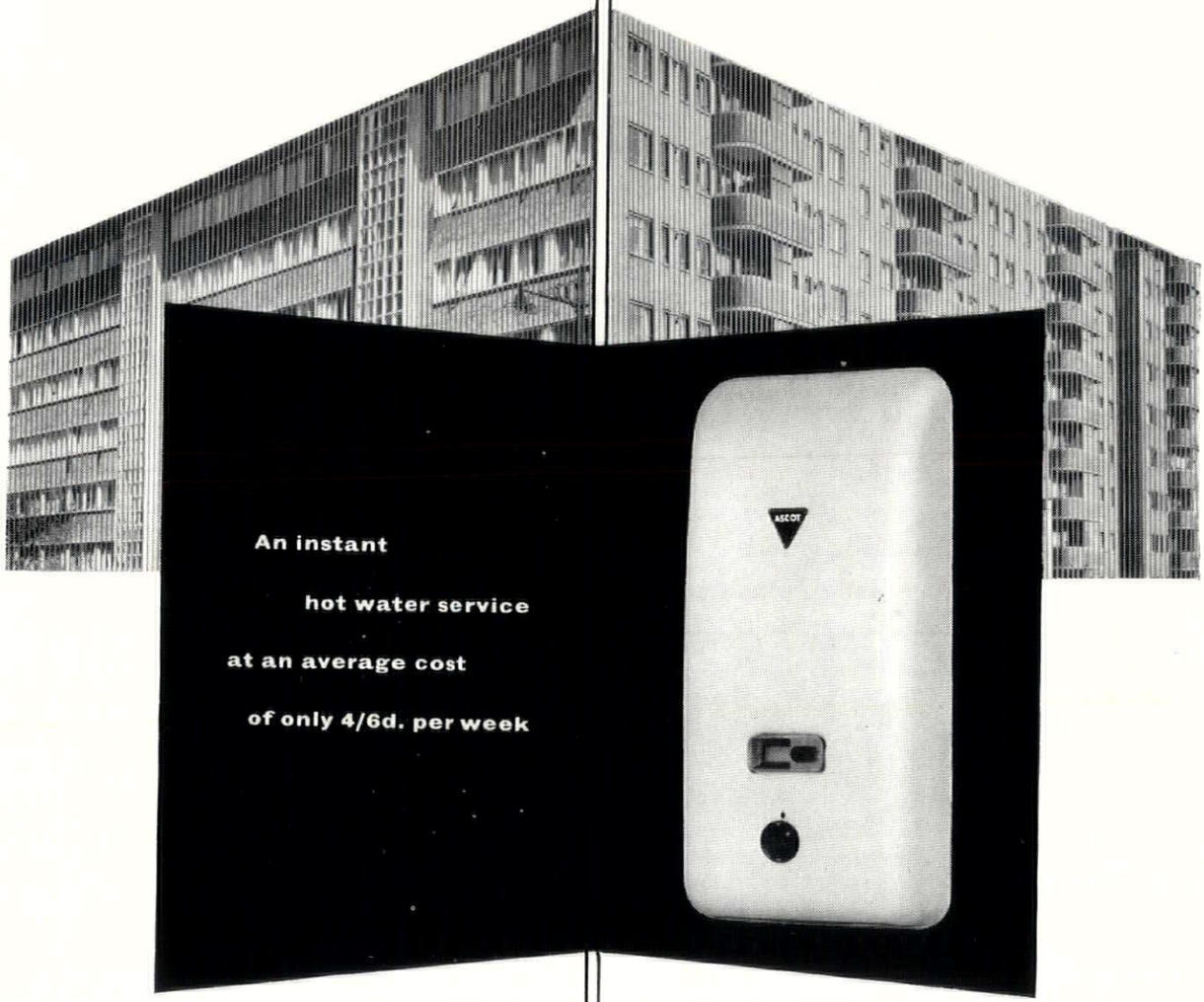

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Offices in Victoria Street, London, S.W.1. *Architect:* Sir John Burnet, Tait & Partners. *General contractor:* Holland, Hannen & Cubitts, Ltd. *Sub-contractors: Heating, ventilation and electrical installations:* Engineering Service Installations, Ltd. *Plumbing and drainage:* Matthew Hall, Ltd. *Lifts:* J. & E. Hall, Ltd. *Acoustic ceilings:* Tentest Fibre Board Co. *Asphalt tanking:* Rock Asphalte Co. *Asphalt roofing:* Highways Construction, Ltd. *Bronze work in entrance hall:* G. Johnson Brothers, Ltd. *Fireproof shutters:* Shutter Contractors, Ltd. *Glazed cement finishes:* Robbs Cement Enamel Finishes, Ltd. *Granolithic:* G. T. Bird, Ltd. *Glazing:* Aygee, Ltd. *Kitchen equipment:* Benham & Sons. *Lettering and notices:* The Lettering Centre. *Marble, granite and quartzite:* Fenning & Co. *Metal work and balustrades:* H. & C. Davis, Ltd.; Kingsmill Metal Co. *Partitions:* Holoplast, Ltd. *Pavement and roof lights:* Haywards, Ltd. *Portland stone:* Damer Bros. *Plastering and fibrous work:* G. J. Green, Ltd. *Roller grilles:* Haskins, Ltd. *Sprinklers:* The Automatic Sprinkler Co. *Sprayed asbestos ceilings:* Turners Asbestos Co. *Special furnishings and decorations:* Colourpoint Decorators. *Steel and bronze windows:* Crittall Manufacturing Co. *Terrazzo:* Diespeker & Co. *Telephones (internal):* Reliance Telephones, Ltd. *Vitrolite:* J. M. Newton & Sons. *Wood block flooring:* The National Flooring Co. *Wall and floor tiling:* Allan & Cairns, Ltd. *Suppliers: Bricks:* R. Y. Ames, Ltd. *Clocks:* The Synchronome Co. *Dome lights:* T. & W. Ide, Ltd. *Door furniture:* Dennis Waring & Co. *Fire fighting equipment:* Merryweather & Co. *Garage turntable:* Francis Theakston (1933) Ltd. *Light fittings:* Courtney Pope, Ltd.; Troughton & Young, Ltd. *Sanitary fittings:* John Bolding & Co.; Shanks & Co.

Offices in New Cavendish Street, London, W.1. *Architects:* Collins, Melvin Ward & Partners. *General contractors:* Griggs & Sons. *Sub-contractors: Piling:* Cementation Co. *Pavement lights:* Lenscrete, Ltd. *Asphalt roofing and paving:* Asphaltic Ltd. *Granolithic paving and terrazzo paving:* Marriott & Price, Ltd. *Adamantine paving:* Harradine & Rouse, Ltd. *Marble wall linings:* Fenning & Co. *Wood block flooring:* Hollis Bros. Ltd. *Ironmongery:* G. & S. Allgood, Ltd. *Entrance hall finishings:* Frederick Sage & Co. *Metal windows, cills and curtain walling:* Williams & Williams, Ltd. *Steel door frames:* Henry Hope & Sons. *W.C. cubicles:* Venesta, Ltd. *Handrails to staircase:* Grundy Arnatt, Ltd. *Roller shutters:* Shutter Contractors, Ltd. *Fibrous plaster pipe casings:* Claridge's (Putney) Ltd. *Colterro suspended lathing:* Scaffolding G.B. Ltd. *Heating installation, hot and cold water services:* Hopes Heating & Engineering. *Sanitary fittings:* John Bolding & Sons. *Electrical installation:* A. H. Cornwall & Sons. *Lift installation:* Express Lift Co. *Lightning conductors:* R. C. Cutting & Co. *Roof lights:* T. & W. Ide, Ltd. *Plastic surfacing:* Plastic Surfaces, Ltd.

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20, Albert Embankment, London, S.E.1. *Architect:* Sir T. P. Bennett & Son. *General contractors:* Taylor Woodrow Construction, Ltd. *Precast columns:* Girlingstone, Ltd. *Prestressed floor planks:* Dow-Mac (Products) Ltd. *Portland stone facing:* Bath & Portland Stone Firms, Ltd. *Steel windows:* Williams & Williams, Ltd. *Artificial stone (externally):* Girlingstone, Ltd. *Terrazzo flooring:* Zanelli (London) Ltd. *Marley tile flooring:* Marley Tile Co. *Marble flooring:* J. Whitehead & Sons. *Plumbing:* Structural Services, Ltd. *Electrical installation:* Troughton & Young, Ltd. *Heating, ventilation and hot water installations:* Rosser & Russell, Ltd. *Sanitary fittings:* W. N. Froy & Sons. *Cement glaze and paints:* Quickset Water Sealers, Ltd. *Lifts:* Waygood Otis, Ltd. *Gas installation:* North Thames Gas Board. *Gas incinerators:* Wm. Sugg & Co. *Metal railings:* Clark, Hunt & Co. *Ironmongery:* Yannedis & Co. *Roller shutters:* Shutter Contractors, Ltd. *Clocks:* The Synchronome Co. *Acoustic ceiling:* Clark & Fenn, Ltd. *Lightning conductors:* W. J. Furse & Co.

Sentinel House, Southampton Row, London, W.C.1. *Architects:* Sir T. P. Bennett & Son. *General contractors:* Sir Robert McAlpine & Sons. *Sub-contractors: Asphalt roofing:* Ragusa Asphalt Paving Co. *Facing bricks:* W. T. Lamb & Sons. *Artificial stone:* The Empire Stone Co. *Portland stone:* Bath & Portland Stone Firms

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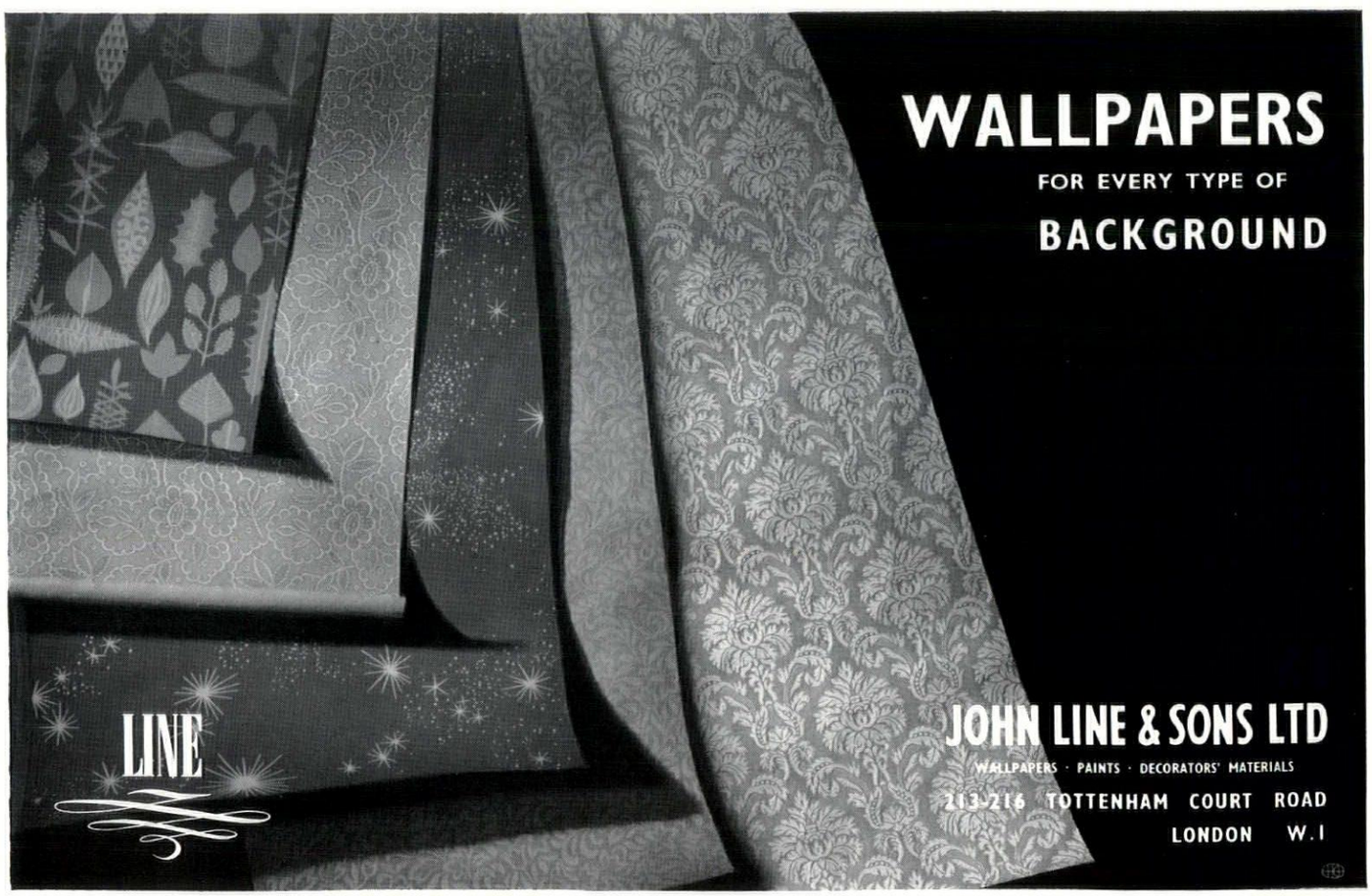

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Store at Southampton. *Architect:* Yorke, Rosenberg & Mardall. *General contractors:* Richard Costain, Ltd. *Sub-contractors: Piling:* The Cementation Co. *Asphalt:* The Neuchatel Asphalte Co. *Metal windows:* Williams & Williams, Ltd. *Rolling shutter:* Haskins, Ltd. *Stone:* The Bath & Portland Stone Firms, Ltd. *Doors:* F. Hills & Sons. *Slate:* Setchell & Sons. *Terrazzo:* Diespeker & Co. *Concrete slabbing:* Costain Concrete Co. *Lifts and escalator:* Waygood-Otis, Ltd. *Illuminated signs:* Signcrafts, Ltd. *Ironmongery:* Alfred G. Roberts, Ltd. *Plumbing, drainage and cold water supply:* Richard J. Audrey, Ltd. *Strongroom door:* Chubb & Sons. *Electrical installation:* F. H. Wheeler (Southern) Ltd. *Tiling:* Wiggins Sankey, Ltd. *Sanitary fittings:* Shanks & Co.; Stitsons Sanitary Fittings, Ltd. *Wood strip floors:* R. W. Brooke & Co.; The Acme Flooring & Paving Co. *Heating and ventilating and hot water supply:* Arthur Scull & Son. *Telephone booths:* Burgess Products, Ltd. *Roofing:* William Briggs & Sons. *Metal balustrades, staircase:* Clarke, Hunt & Co. *Spiral chute:* Sovex, Ltd. *Suspended ceilings, etc.:* Bracketing, Centering & Lathing, Ltd. *Dome lights:* T. & W. Ide, Ltd. *Fire alarm system:* Associated Fire Alarms, Ltd. *Office partitions:* Compactom, Ltd. *Structural steelwork:* Power's & Deane, Ransome's, Ltd. *Display windows and canopy finishes:* H. N. Barnes, Ltd. *Hairdressing department:* Henry Serventi, Ltd. *Kitchen equipment:* Benham & Sons. *Light steel cladding to escalator:* W. T. Allen & Co. *Rubber flooring:* Cellulin Flooring Co. *Rubber link matting:* Nuway Manufacturing Co. *Painting:* A. Sharrocks, Ltd. *Glazing:* E. A. Hetherington, Ltd. *Joinery:* Golding & Ensell, Ltd.

Library at Rangoon *Architects:* Raglan Squire & Partners. *General contractors:* Taylor Woodrow Construction, Ltd. *Sub-contractors:* Plyglass, Ltd.; Thorne & Hoddle, Ltd.; General Electric Co.; Goodlass Wall & Co.; Marryat & Scott, Ltd.; Anselm Odling & Sons.

Airport at Turnhouse, Edinburgh. *Architect:* Robert H. Matthew. *General contractors:* Nathaniel Grieve. *Sub-contractors: excavations, damp courses, concrete blocks, bricks, stone:* Russell & Swanton. *Foundations and reinforced concrete:* Stuart's Cranolithic Co. *Structural steel:* Fleming Bros. *Special roofings:* Aluminium fixed by Patrick Knox & Son. *Roofing felt and roof terrace finish:* Wm. Briggs & Sons. *Partitions (aluminium) and casements:* Williams & Williams Ltd. *Glass:* Cunningham, Dickson & Walker Ltd. *Woodstrip flooring:* A. M. MacDougall & Son. *Patent flooring (Accotile):* Neuchatel Asphalte Co. *Central heating:* Underhill Heating Engineers Ltd. *Boilers:* Ideal Boilers & Radiators Ltd. *Electric wiring:* James Scott & Co. *Electric light fixtures:* Merchant Adventurers Ltd.; Frederick Thomas & Co. *Special door furniture:* Bell Donaldson & Co. *Door furniture:* Alfred C. Roberts Ltd. *Roller shutters:* Arthur L. Gibson & Co. *Ventilation:* Greenwoods & Airvac Ltd. *Plumbing:* Patrick Knox & Son. *Sanitary fittings:* Adamsez Ltd. *Plaster:* Farish & Birnie. *Metal work:* Kingston Brass Co. '*Porcellanite*' *mosaic to bar:* Supplied by Dennis M. Williams. *Tiling:* R. Campbell & Sons. *Rugs:* R. MacDonald Scott. *Garden furniture:* Metal Developments Ltd.; Conran Furniture. *Furniture (customs seating and garden seating):* Ernest Race Ltd. *(Cane chairs in concourse and customs):* Scottish National Institutions for war-blinded. *(General):* Hille & Co. *Carpets:* James Templeton & Co. *Shrubs and trees:* Edinburgh Corporation Parks Department. *Planting and seeding:* Air Ministry Works Directorate. *Hand hoists:* Douglas & Bryden Ltd. *Clocks:* E. Baume & Co. *Paints:* T. W. Scott.

House at Mereworth, Kent. *Consulting architects:* Ramsey, Murray, White and Ward. *General contractors:* J. A. Davison & Son (Builders). *Sub-contractors: Space heating and domestic hot water:* Benham & Sons Ltd. *Electrical installation:* H. T. Barden. *Sliding door gear:* E. Hill Aldam & Co. *Electric light fittings:* The Merchant Adventurers of London Ltd. *Fireplace tiles (living room):* Carter & Co. (London). *Sanitary fittings:* Adamsez Ltd. *Door furniture:* A. G. Roberts Ltd. *Roof covering:* D. Anderson & Son. *Drive works:* Chittenden & Simmons Ltd. *Metal parts for septic tank:* Burn Brothers (London) Ltd. *Cooker:* Aga Ltd. *Windows:* George Jeenings-Hamer (Windows) Ltd. *Accotile floors:* Armstrong Cork Co.

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Restaurant in Old Brompton Road, S.W.7. *Architect:* Terence Conran. *Contractors: All paintwork:* K. & G. Builders. *Electrical installation:* Beaufort Electrical & Engineering Co. *Banquette seating, built-in fitments, wall panelling, etc.:* Conran Contracts. *Furniture:* Conran Furniture. *Light fittings:* Troughton & Young, Ltd. and George Forrest & Son. *China:* Crown Staffordshire China.

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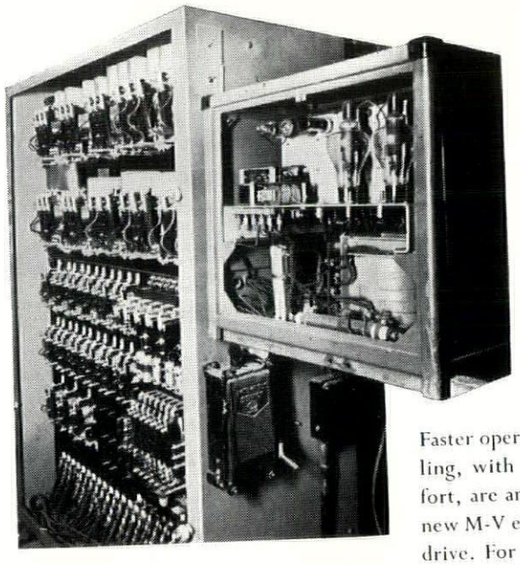

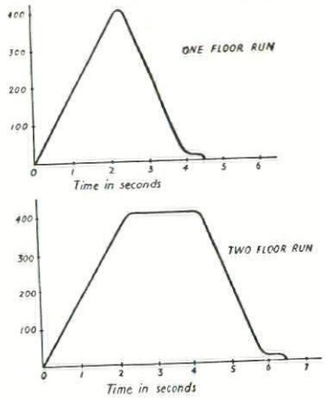

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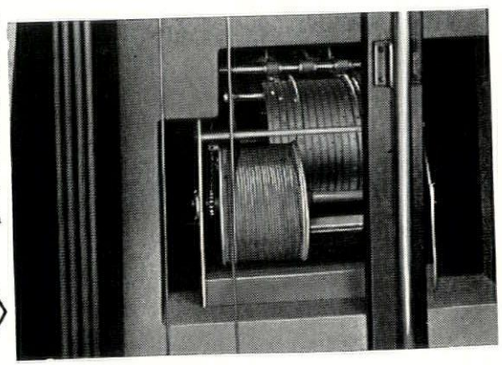

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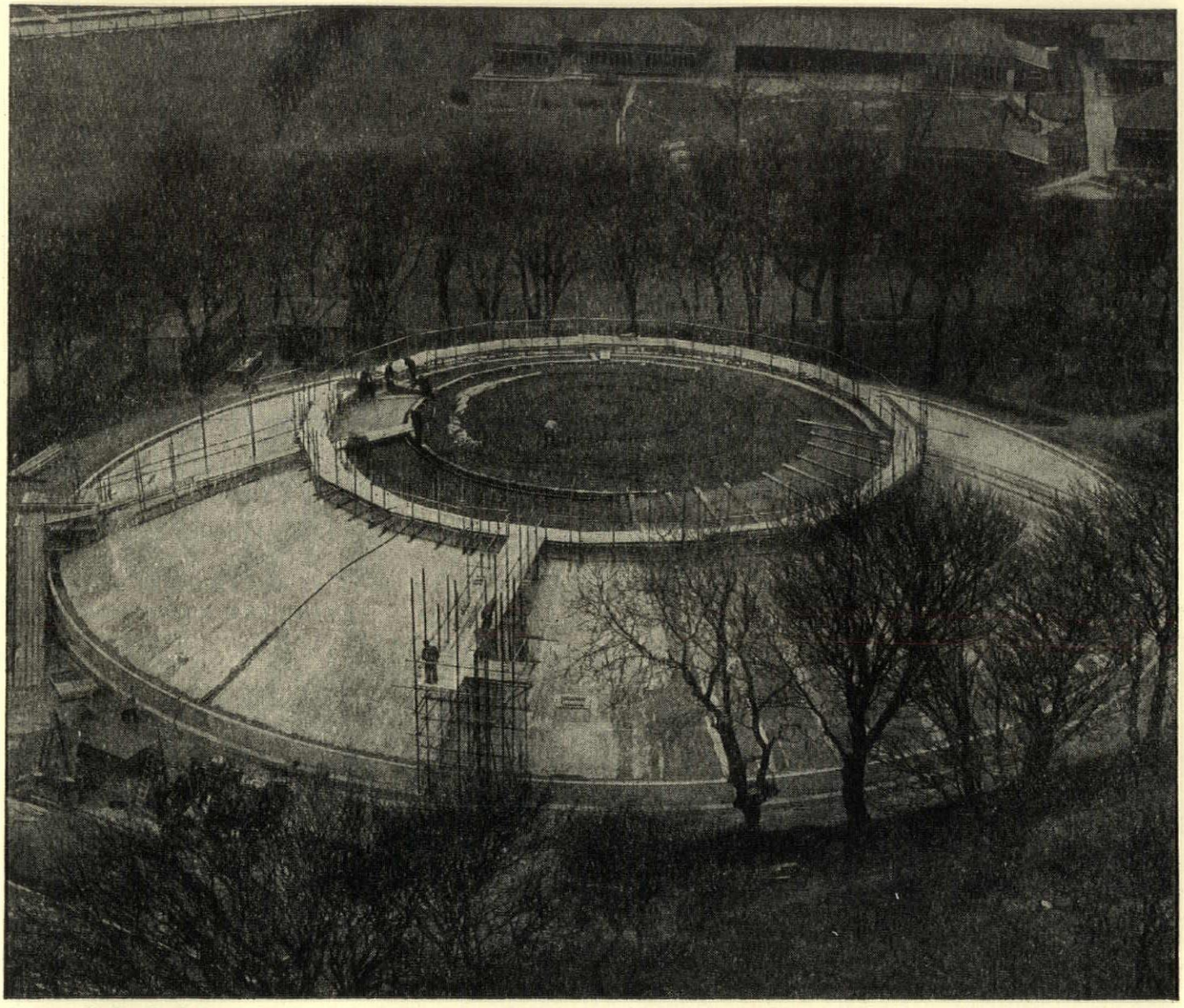

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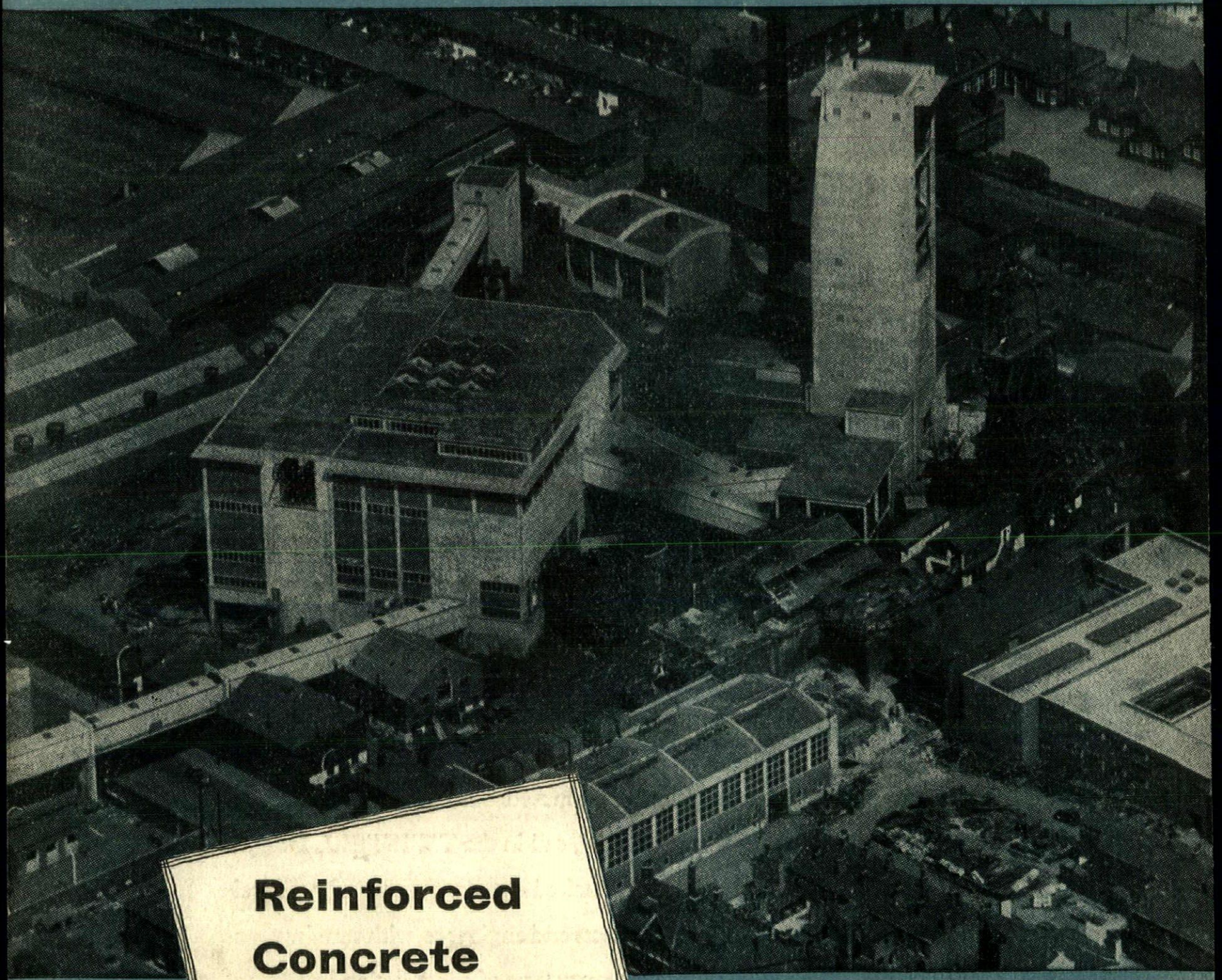

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To mark the centenary of the birth of Louis Sullivan the Art Institute of Chicago has assembled a major showing of his work. This image of the Auditorium Building, the first fruit of his association with Adler, is taken from the material assembled for the exhibition. THE ARCHITECTURAL REVIEW celebrates the event with a reassessment by Colin Rowe (pages 285-289) of Chicago's contribution to the modern movement.

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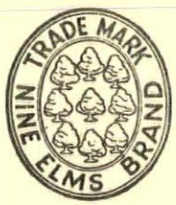

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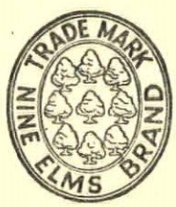

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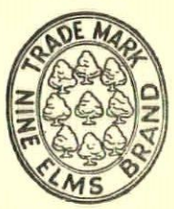

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MARGINALIA

Significant Americana

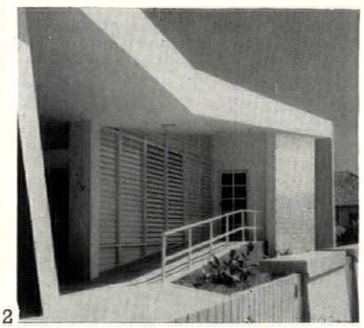
In connection with the Centenary of the American Institute of Architects, the New York *Architectural Record* has asked an expert panel (consisting of practically everybody who is anybody in US architecture) to name 'about twenty' buildings that have been significant in the development of the art in America. Seven buildings out of the first eleven were tall city office blocks (the aberrant four were Richardson's Trinity Church, GM Technical Centre, Lakeshore Apartments and the Johnson Wax buildings) and of these seven three were in New York, viz., the Rockefeller Centre, Lever House and the Daily News Building (voted third, fourth and eleventh respectively), one in Philadelphia, viz., Howe and Lescaze's Savings Fund tower, two in Chicago and one in St. Louis. It need hardly be added that these last were the Monadnock Block, by Burnham and Root, which only rated a surprising tenth place, and Louis Sullivan's Carson Pirie Scott store (illustrated on page 332, q.v.), and Wainright Building, which tied for first place. It is clear that Louis Sullivan is still the preferred native genius, and the choice of these two buildings suggests that American opinion in architecture is still performing its (apparently constituent) two-way stretch between classicism and empiricism, for the Wainright building is Beaux-Arts stretched to breaking, and held together by the will of a Master, while the dead-regular flat-face grids of Carson Pirie Scott are the same Master's prevision of the architecture of a statistical rentable democracy.

Pioneer Swiss Motel

Though the motel is, of course, a new building type in Britain (AR, February, 1956) it is surprising that Switzerland, through which a torrent of motorized tourists pours every year, should have had no motels until 1955. The first, at Interlaken, is of straightforward courtyard plan, with the twenty-one guest rooms flanking two sides of the court, and common services, administration, restaurant, etc., in the centre, 1. The architects, Eduard Helfer and Franz Füeg, have enjoyed the initial advantage of an admirable site by the river Aar, on which the rear windows of the rooms at the left of the illustration command a fine view. As will be seen also, planting is lavish, but has not yet grown up sufficiently to form an effective screen between one parking-space and another. Even so, this scheme gives a good idea of how much a well-designed and unstinted planting programme can contribute to the visual amenity of motel design.

Split-level Butterfly

The adaptability of the Brazilian *mariposa* silhouette seems unlimited, and if this form needs further functional justifications they are always forthcoming. Thus a recent house by Francisco Bolonha employs the butterfly outline as a logical envelope for a split-level house with bedrooms and study at a higher level than the living room, patio and garage. Externally, 2, a ramp rises from entrance-level to the door of the vestibule that serves the study—but rises parallel to the rise of the roof-slab. Internally, 3, the split manifests itself as a raised gallery at the back of the living room, leading to an internal ramp at the other side of the house (not seen in this picture), also parallel to the fall of the roof. A noteworthy feature of this house is the use of uncommonly rich textures and materials for a Brazilian interior.



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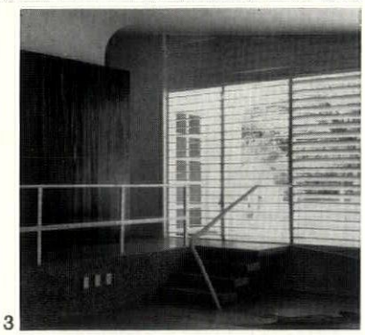


3

Demountable Studio

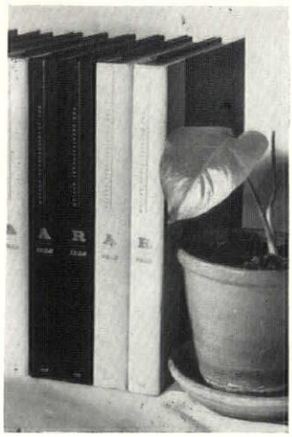
For a site near Sydney that will eventually be obliterated by an express highway, Gordon Andrews's studio had perforce to be a recoverable and transportable structure, capable of being re-erected elsewhere. Essentially, the studio consists of four parabolic arches of plywood, carried by the ends of four main cross-beams, 4, two deep side plates that act as the lower parts of the walls, as well as carrying the cantilevered front and back sections of the floor-platform, and sheets of plywood screwed down to the arches to form the roof. On one side at the rear, the roofing is continued down to the cill line to form a small photographic dark-cupboard, but elsewhere the zone between the six-foot datum and the cill is entirely glazed.



4

NEW A.R. BINDING

5, The Architectural Review's new standard binding, with alternate years bound in black and white, and alternate volumes initialled *A* and *R*, will provide not only a handsomer bookscape in the library, but also make easier the identification of individual volumes, and their proper replacement on the shelf. The binding is buckram, and the price of binding per volume is 25/-, the same as before. Copies to be bound should be addressed, with the appropriate index, direct to the Architectural Press warehouse, Abbey House, 8 Victoria St., London, S.W.1. Right, the spine in full size.



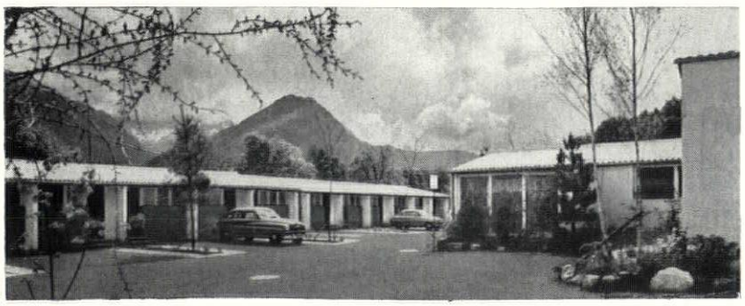
5

CIAM X

The tenth congress of CIAM was held in August at Dubrovnik, Yugoslavia. Jacqueline Tyrwhitt writes:

'The theme was the interrelationship of elements of the human habitat—such as the relation of the automobile to the household (US examples), the relation of family composition to the form of a housing group (Dutch groups and others), etc. Four of the congress working parties concentrated upon extracting material of a general nature from the information presented in nearly 40 grilles from over 20 CIAM Groups, representing almost as many countries. The other three commissions devoted themselves to the study of different aspects of a book to be brought out by CIAM called, in French, *La Charte de l'Habitat* and in English, The Human Habitat: First Propositions.

'Apart from the study of the grilles and the preparation of the book, CIAM X had yet another task which was to decide upon the future organization of CIAM in view of the retirement from active participation of its founder members, which include the president, J. L. Sert, vice-presidents, Le Corbusier, Gropius and



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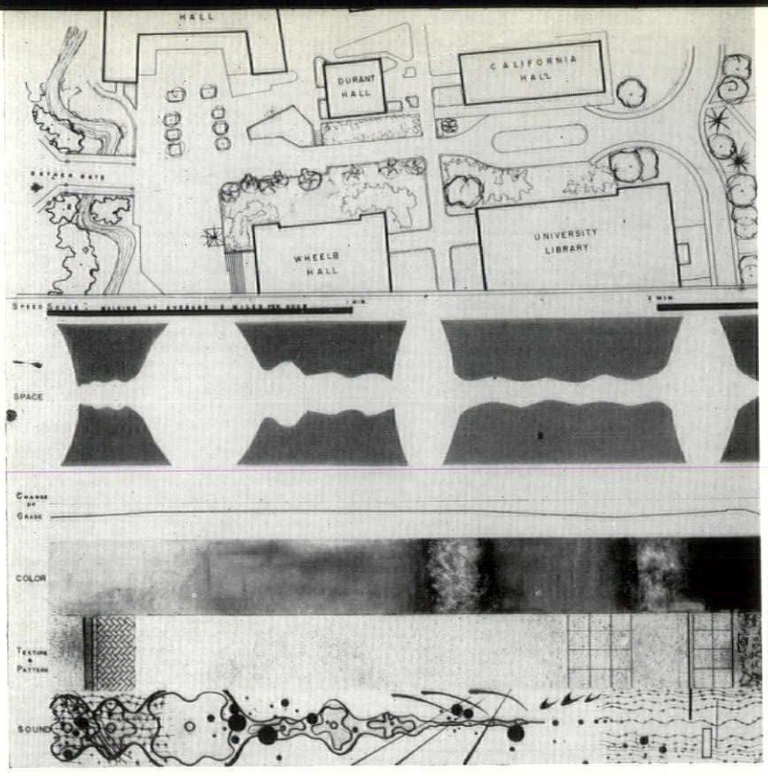


6, *graphic analysis of a walk through the campus at Berkeley, California: see* '*Sequence Studies*'.

van Eesteren, and the secretary-general, Giedion. Their impending retirement had been announced in 1953 and, since that date, an active group of younger members, under the general leadership of J. Bakema of the Netherlands, has been operating under the name of Team X. After a full day of discussion, during which all working parties were suspended, it was decided in effect that the work of CIAM should be taken over by an enlarged version of this younger group, and a committee of reorganization was set up consisting of four of its members plus three others who have worked closely with CIAM for many years, who will report to a general meeting of group delegates early in the New Year.

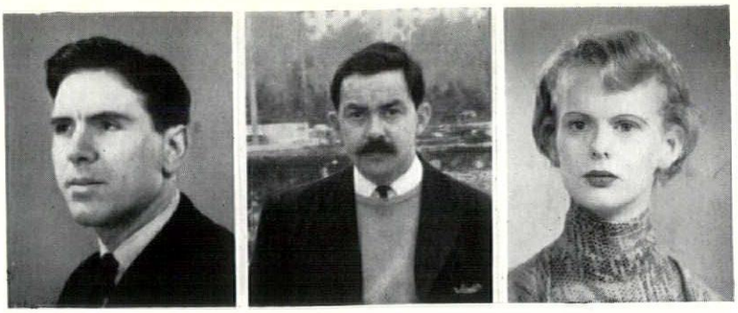
'Everyone considered this to have been a very fruitful congress, but the conditions under which this result was achieved were fantastic. Yugoslavia is a country of dramatic landscapes and friendly faces. The long training of its peoples in retaining personal independence under the rules of various foreign powers has resulted in a very casual acceptance of its present form of political dictatorship, which is characterized by a tremendous amount of detailed paper work upon matters of small concern and sudden arbitrary changes of decision upon matters of greater moment. After months of preparation the Congress, which had been invited by the Yugoslav government in the first place, found upon arrival at Dubrovnik that the hotel in which a large number of its members had been scheduled to stay had been suddenly commandeered for some other purpose, as had also the congress meeting place, the Palazzo Sorgo. This news came on top of two days spent in a boat with under 100 berths that had picked up some 1,000 passengers during its journey from Venice to Dubrovnik. Members of the Congress found that, far from being able to hold preliminary organizational meetings and friendly discussions, they were obliged to remain glued to their bunk, or their deck chair. Any movement entailed tripping over babies asleep upon suitcases and huddled groups of older people.

'Luckily the retiring president, J. L. Sert, knows how to laugh, and he set the tone of the Congress. Laughter was needed for it was decided to hold all Congress meetings at the Modern Art Gallery, some 5 miles away, on the far side of Dubrovnik from the hotels: but all meals had to be taken in the hotels. As a result transportation—one way and another—consumed at least three hours a day, and the most vivid recollection of the Congress in the minds of many members will be tantalizing glimpses from the bus of the fabulous walled city of Dubrovnik and the blue Adriatic coastline; and of long periods of waiting for the bus seated on the hot stone wall outside the Gallery.

'Everyone snatched some hours to visit Dubrovnik: a perfect Renaissance City still living in the twentieth century: the paintings of Piero della Francesca come to life: a city from which all vehicles are excluded, where people walk with a proud freedom between great stone walls of exquisite masonry and the dignified reticence of the town houses of wealthy merchants. Dubrovnik is more "perfect" than Venice could ever be for it had the fortune to be rebuilt almost completely at one moment, after a devastating earthquake, at a time of great wealth and power—and of high civilization.'

Sequence Studies

Sir Hugh Casson's study of the Temple of Heaven, Peking (AR, December, 1955) as a serial experience of levels and textures, spaces and closures, stopped and open vistas, has recently been used as a demonstration exhibit to introduce an interesting programme of student work at Berkeley, California. Taking the Cassonian method of Townscape analysis as a model, students were invited to prepare similar studies of, e.g., the Berkeley campus itself, certain well-documented ancient buildings, or other accessible serial experiences such as local arterial routes, and to render as full as possible a record of the total experience of passing through them. Not the least interesting of the results were the different methods of notation employed in logging the simultaneous evolution of the different sensory records—a typical example, 6, recording a walk through the campus, employs not only the almost obligatory 'sound-track' image for the spatial experience, but also draws heavily on Bauhaus material, such as Moholy's and Kandinsky's painting, to record its tactile and aural qualities.



Above, left, Stanley Amis; centre, William Howell; right, Gillian Howell.

CORRESPONDENCE

The Leine Schloss

To the Editors,

SIRS,—Referring to the Leine Schloss at Hanover, and particularly to the Gothic style employed by Laves in the remodelling of its chapel, the idea that 'English influence' was at work can be advanced more positively than in Mr. Rosenau's note.

I was recently in Hanover, and there saw the gutted shell of the Leine Schloss, including the windows through whose frames the relics of Bandel's stucco decoration are still visible. I was also fortunate in meeting Prof. Georg Schnaht, the Archivist of the *Land* of Lower Saxony, whose book *Die Geschichte des Leineschlosses* is a full and recent treatment of the subject. From information which he kindly gave me, and from page 130 of his book, it appears that the nineteenth-century Gothic of the chapel was not merely a matter of respect for the pre-existing (and retained) vaults of the Franciscans' church, nor a sudden burst of romance by Laves who was not, like his friend Nash, an architect 'bilingual' in Greek and Gothic. The style used in the chapel, with its somewhat sparse 'fan' panelling applied to the earlier vaults of a thirteenth or fourteenth century pitch, was the result of William IV's insistence on Gothic as the appropriate style for a religious interior; Prof. Schnaht refers to *Wunsch seiner hohen Auftraggeber* as a possible explanation of Laves' Gothic deviation on this occasion. Prof. Schnaht is still more positive in attributing the choice of the Tudor period, with its fan vaulting, as the model for much of the decoration, to the preferences of a king who had got accustomed to the productions of the early sixteenth-century English court designers.

Yours, etc.,

Bristol. BRYAN LITTLE.

Architects of the Houses in Hampstead (pages 290-295).

Stanley Amis was educated at Merchant Taylors', served as an observer in the Fleet Air Arm, was at the AA School, 1946–50, and in the LCC Housing Division 1950–54. Joined Easton and Robertson, 1955. He likes lying in bed and flying. **William Howell** took a double first in Architecture at Cambridge, was in LCC Housing Division 1950–56, and is now in practice with his wife and John Killick. His favourite summer sport is listening to cricket on the radio; favourite winter sport is watching rugby on television. His ambitions are to meet Marilyn Monroe and to be the first man to climb Mount Everest. **Gillian Howell** was at the Royal School, Bath, and then at the AA School; in the LCC Housing Division, 1950–53, she married William Howell in 1951 and has two sons. Member of the group which designed the CIAM project illustrated in AR, July, 1956. She is a confirmed Simple Lifer—i.e., she believes in having refrigerators, washing machines, sliced bread, central heating—all the little simple things without which life is so complicated.

Intelligence

The Chicago Joint Civic Committee of Italian Americans, and the Chicago Junior Association of Commerce and Industry have announced a competition for a memorial building with auditorium and exhibition space in honour of the late Enrico Fermi, the Italian atomic scientist who, at the University of Chicago, achieved the first chain reaction. The competition which has a distinguished jury, including Mies van der Rohe, Sert, Nervi, Gordon Bunschaft and L. L. Whyte, closes on Feb. 1, 1957; all details may be had from: John O. Merrill, 100 West Monroe Street, Chicago 3, Illinois, USA.

ACKNOWLEDGMENTS

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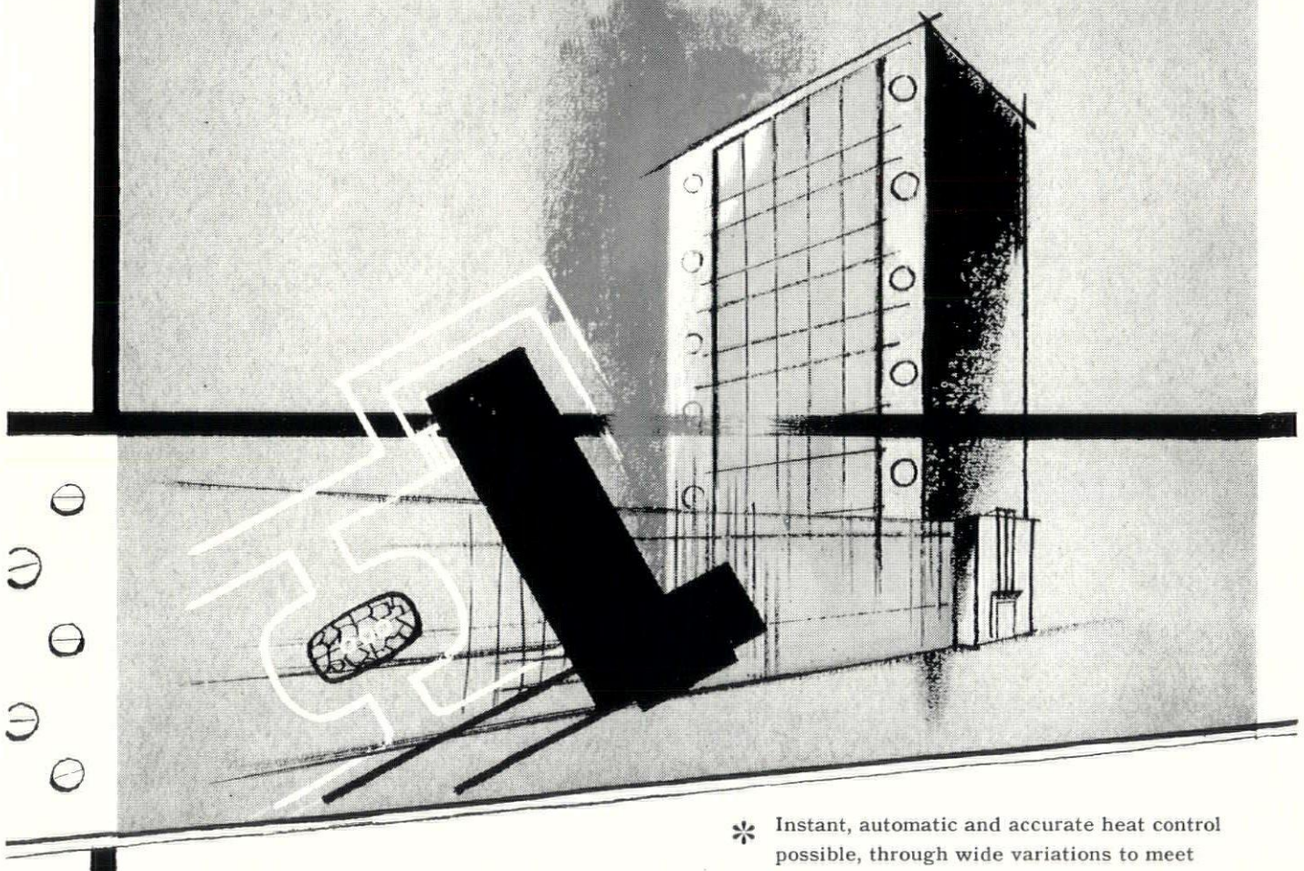

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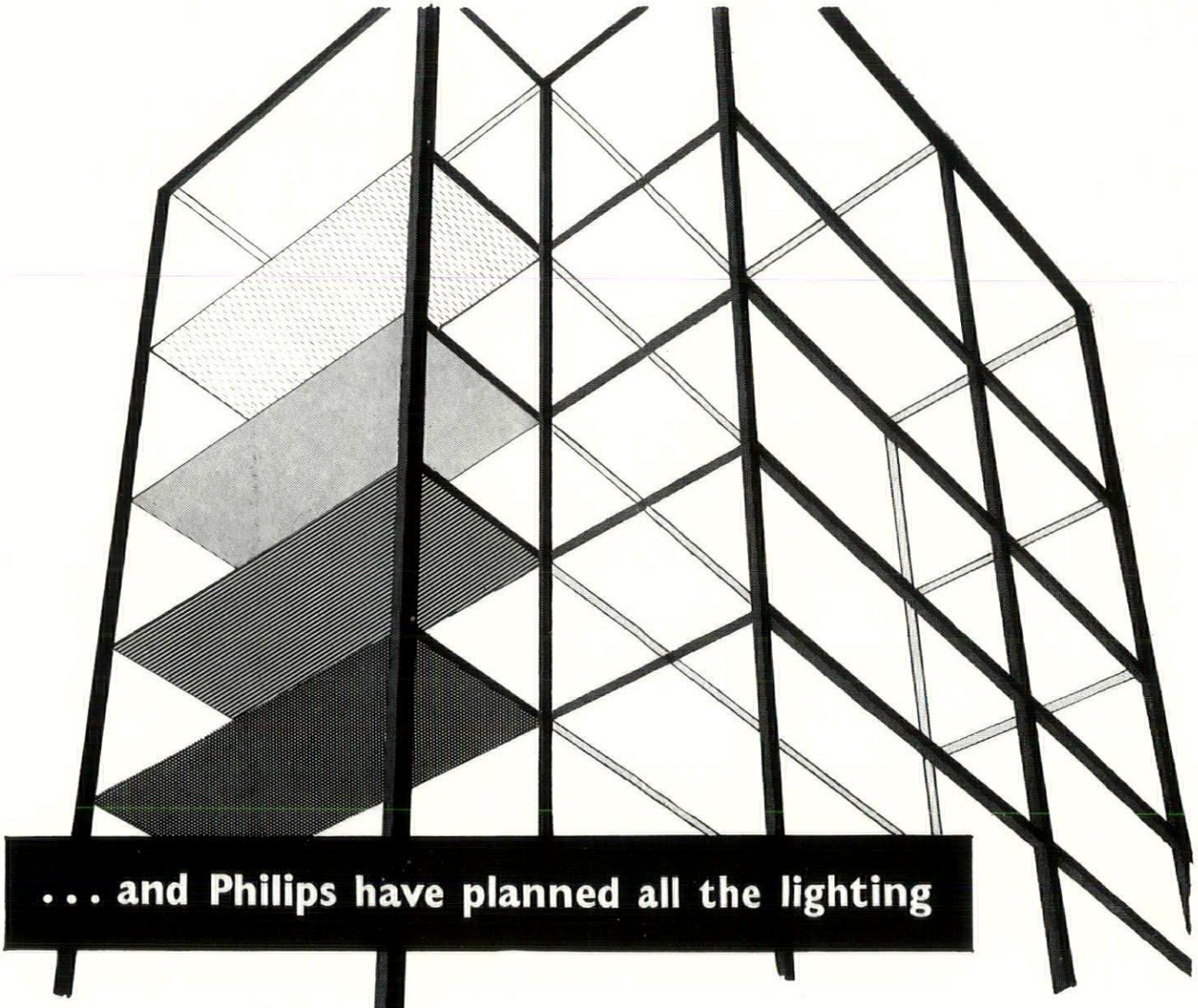

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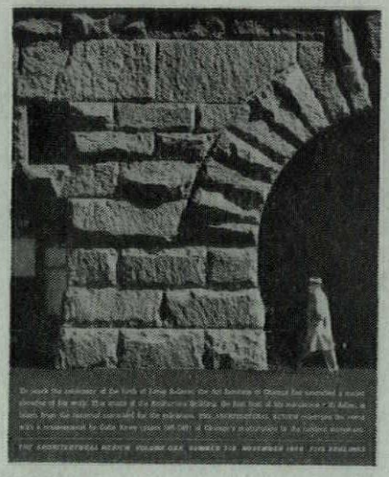
THE ARCHITECTURAL REVIEW

Volume 120 Number 718 / November 1956



This Month's Cover draws timely attention to the rough, rhetorical rustication of Louis Sullivan's Auditorium Building in Chicago. This massive masonry appears to deny the existence of a framed structure behind it, and thus focuses attention on two aspects of Chicago architecture which are discussed in this issue. On pp. 285-289 Colin Rowe weighs the aesthetic, as against the economic justifications of framed structure in Chicago, and suggests that for mid-western architects and their patrons of the 'nineties, unlike their equivalents in Europe in the 'twenties, the aesthetic ones were secondary. And on pp. 331-332 a note on the centenary exhibition of Sullivan's work in Chicago draws attention to a little-studied aspect of his architecture; the decoration, which was normally more prolific at ground level than elsewhere.

281 **Marginalia**

282 **Correspondence**

284 **Frontispiece**

285 **Chicago Frame** *by Colin Rowe* The frame structure has become one of the most prized aesthetic elements of modern architecture, and its origins are commonly referred back to the Chicago School. Yet, to a European mind, there must always be some mystery that Frank Lloyd Wright, the prime Chicago aesthete, hardly ever availed himself of this potent mode of expression, and avoided it in his skyscraper designs. In a pioneer re-appraisal of the great Chicago skyscrapers of the 'eighties and 'nineties, against the background of local building economics, and in contrast to contemporary work in Europe, Mr. Rowe uncovers a series of circumstances that seem to take Chicago out of the mainstream of Modern Movement development. For what he proposes is that the frame, whatever value may later have been placed upon it by Europeans, was not for Chicagoans of any great aesthetic interest, but simply a business convenience, suitable for business, but not for public monuments or private houses. Hence the entirely different approach to architecture manifested in the Prairie Houses of Wright, and in the buildings for the Centennial exhibition. On the score of intention, at least, Jenney, Burnham and Sullivan may have to relinquish their positions among the pioneers of the Modern Movement.

290 **Terrace Houses in Hampstead:** *Architects, Stanley Amis and William and Gillian Howell.*

296 **Trees in the Street** *by H. F. Clark and Kenneth Browne* Much of the prevailing confusion about the proper use of trees in urban settings can be traced, as this article points out, to legacies from the nineteenth century—a legacy of forest trees in positions that are now inappropriate, accompanied, not by a legacy of skill in arboriculture, but by the Avenue Complex, a compulsive tendency to place trees in rows along the sides of streets. The illustrations which follow show some of the many ways in which trees can be used to obtain a desired effect in streets and along roads.

302 **L.C.C.** *by R. Furneaux Jordan* Though not quite the largest architectural design-office in the world, the London County Council's Architects' Department must be rated one of the most successful, in spite of the much-discussed damage that bureaucratic organization is supposed to wreak upon creative ability. However, the LCC's design department was formed—in the late nineteenth century—and transformed—after the second World War—by men of outstanding ability and devotion to the concept of an architectural service that had the common man, and not the private client, as its patron. Mr. Jordan traces the history and social philosophy of this concept of service, and its relationship to the idea of comprehensive planning on a metropolitan scale. He discusses the advantages it enjoys from its integral connection with the planning and technical services of the LCC, and outlines the departmental and organizational procedures that enable this giant concern to make full use of the talents of reasonable men, reasonably organized, and of specialist research teams investigating special problems in a manner that would be impossible in a competitive commercial office. At a time when the tide of opinion seems to be running against the concept of planning, it is necessary and salutary to make a sane appraisal of the achievements of the department and of the responsibilities of its head, for no man's actions, except those of Cabinet ministers, affect the lives of so many citizens of the British Isles.

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FIVE SHILLINGS



Opposite, an impression of La Reservé restaurant (see also pp. 335-338) in Gerrard Street, London, by the architect for the reconstruction, Leonard Manasseh. In contrast to the two restaurants illustrated last month (A.R. October 1956, pp. 265-270) both of which exploited the qualities of natural materials left in a natural state, this one aims specifically at a sense of luxury, achieved by velvets, plush and thick carpets, with carefully disposed and subdued lighting. Colours (seaweed, moss and bottle green, crimson, gold and grape-bloom) are used with restraint and the kind of sophistication that Mr. Manasseh displayed in his Executives' dining room for the Time and Life Building in Bond Street (A.R. March, 1953).

Colin Rowe

CHICAGO FRAME

CHICAGO'S PLACE IN THE MODERN MOVEMENT

The skeleton of the steel or concrete frame is almost certainly the most recurrent motif in contemporary architecture, and is among the most ubiquitous of what Dr. Giedion would describe as its *constituent elements*. Perhaps the role of the frame is most aptly summarized in the drawing by which Le Corbusier illustrated the structural system of his experimental Domino houses, but while its primary function is evident, apart from this practical value, the frame has obviously acquired a significance which is less recognized.

Apparently the neutral grid of space which is enclosed by the skeleton structure supplies us with some particularly cogent and convincing symbol, and—for this reason—the frame has established relationships, defined a discipline, and generated form. The frame has been the catalyst of an architecture, but one might notice that it has also *become* architecture, that contemporary architecture is almost inconceivable in its absence. One recalls innumerable buildings where the frame puts in an appearance even when not structurally necessary; one has seen buildings where the frame appears to be present when it is not and, since the frame seems to have acquired a value quite beyond itself, one is often prepared to accept these aberrations. Without stretching analogy too far, it would be fair to say that the frame has come to possess a value equivalent to that of the column for classical antiquity and the Renaissance. Like the column, the frame establishes throughout the building a common ratio to which all the parts are related; and like the vaulting bay in the Gothic cathedral it prescribes a system to which all parts are subordinate.

It is the universality of the frame and the ease with which it has apparently directed our plastic judgment which has led to the focusing of so much interest upon the Chicago commercial architecture of the 'Eighties and early 'Nineties. In Chicago seemingly our own interests were so directly anticipated that if the frame structure is the

essence of modern architecture then we can only assume a relationship between ourselves and Chicago comparable to that of the High Renaissance architects to Florence, or of the High Gothic architects to the Île-de-France, for although no doubt the steel frame did make occasional undisguised appearances elsewhere, it was in Chicago that its formal results were most rapidly elucidated.

For some ten years the architects of Chicago devoted themselves to the solution of typical problems of the frame, and before the end of this time they had achieved results which are still today unsurpassed for their elegance and economy. But admiring these results and acknowledging this great achievement, one is still disposed to ask whether they are indeed representatives of a 'modern' architecture. Certainly the process of their design was as rational and as direct as that of any contemporary building is supposed to be. Certainly these buildings are lacking in both rhetoric and sentimental excess, but about them there is a quality of rudimentary magnificence, a flavour at once more heroic and more brutal than is to be found in any building of the present day. These structures make no compromise with the observer; neither capricious nor urbane, they display an authenticity so complete that we are disposed to accept them as facts of nature, as geological manifestations rather than architecture. 'In Chicago,' says Louis Sullivan, 'the tall building would seem to have arisen spontaneously in response to favourable physical conditions. . . . The Future looked bright. The flag was in the breeze. . . .'[1] In Chicago we are led to believe that the slate was at last wiped clean, the break with 'the styles' made, and the route of future development defined.

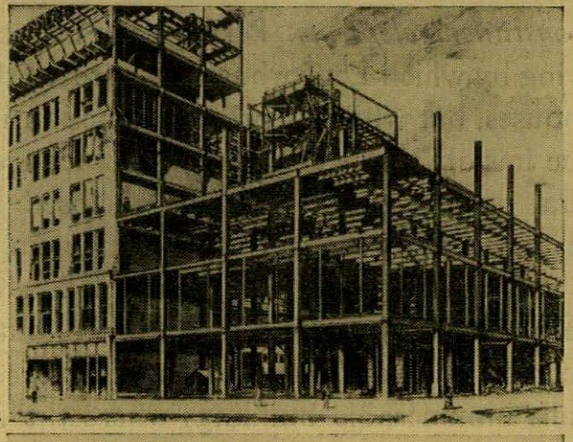
The debacle which overwhelmed the Chicago architects of the 'Eighties is common knowledge. The World's Columbian Exhibition cut short their development; public taste no longer endorsed their decisions; and although for some few their principles remained luminous, it was not until comparatively recently that their figures re-emerged, sanctified, and established in the Pantheon of architectural progress. But the disaster was never quite so complete as our sense of myth requires that it should have been, and as we know, pockets of resistance survived which eclecticism could not obliterate, so that it was again in Chicago itself that a second and equally decisive contribution to present day architecture was made.

One of the most devoted apologists of the Chicago School, Montgomery Schuyler, writing of the city in the 'Nineties, noticed that its architectural expressions were twofold only—'places of business, 1, and places of residence.' The image of Chicago which remained in the mind he found to be 'the sum of innumerable impressions made up exclusively of the skyscraper of the city and the dwellings of the suburbs. Not a church enters into it,' he says. 'Scarcely a public building enters into it, . . . Chicago has no more a Nouvel Opera than it has a Notre Dame.'[2] But with the 'Nineties the spirit of experiment gradually receded from the centre of the city to the suburbs, and, as we know, it was in suburban Oak Park that Frank Lloyd Wright conducted those researches into architectural form whose results seem pre-eminently superior to any other achievement of that day. The much publicised contributions of Van de Velde, of Horta, Olbrich, Hoffmann, Loos, Perret, Mackintosh, Voysey, can only appear as irresolute and undirected when compared with the astonishing finality of these early works of Wright's, which although less implacable than the office buildings of the Loop are every bit as conclusive. To informed observers of the time it was apparent that here a plastic statement of the very highest relevance was in process of delivery, and that here a definite answer had already been given to those questions which many of the most advanced buildings of the day seemed to exist merely to propose.

The international impact of this early phase of Wright's career is now a matter of history, and if the exact influence which the publication of his work exerted in Europe remains a matter of dispute, it can scarcely be denied that in such a building as the Gale House of 1909, 2, Wright had already defined principles of form which closely parallel those enunciated ten years later by Van Doesburg, or by Rietveld, 4, in *De Stijl's* major architectural monument, his house of 1924 at Utrecht. In each case the vision of an architecture as a composition of sliding planes is predominant, and Wright's anticipation of this idea seems to have been as complete as Chicago's earlier anticipation of the formal role which the frame structure was later to play.

This priority of Chicago's contribution need not imply any dependence elsewhere upon it. Obviously both Van Doesburg and Rietveld could have claimed a legitimate descent from the innovations which Cubism had introduced; obviously too, Le Corbusier's pre-occupation with problems of the frame structure, 3, derives not from Chicago but from the reinforced concrete frame of Auguste Perret; but neither of these observations can obscure the assumption that Chicago did seem to experience a pre-vision of two of the major themes of twentieth century architecture—the frame structure and the composition of intersecting planes.

This apparent insight of Chicago's is now widely recognised, but its recognition has created certain acute critical problems. Wright's achievement was scarcely likely to pass into oblivion, but the renewed consciousness of Chicago's earlier contribution stimulated by the later architecture of Mies Van der Rohe, is responsible for a conspicuous embarrassment. We are apt to feel that Mies's campus of the Illinois Institute of Technology is the polished culmination of a rationalism identical with that displayed by Jenney in the Second Leiter Building; but equally we are obliged to believe that at least a partial explanation of the intuitive certainty which so early distinguished Wright's work was provided by his own personal relationship with the older masters of the Chicago School. We can understand that his own audaciousness was re-inforced by their daring, his own sense of order by theirs, his own precocity by those qualities which have led so many observers to see in the commercial buildings of Chicago the most complete adumbration of contemporary forms. But it is at this point that the judgment of the present day discovers its dilemma. We have been encouraged to feel that the architects of the office buildings in the Loop clarified a basic principle of twentieth century architecture, but for the structural skeleton which their achievement exposed, it can only be said that Mr. Wright (who might be considered



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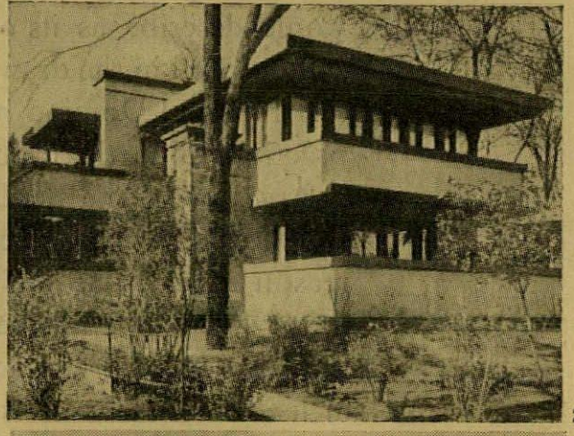

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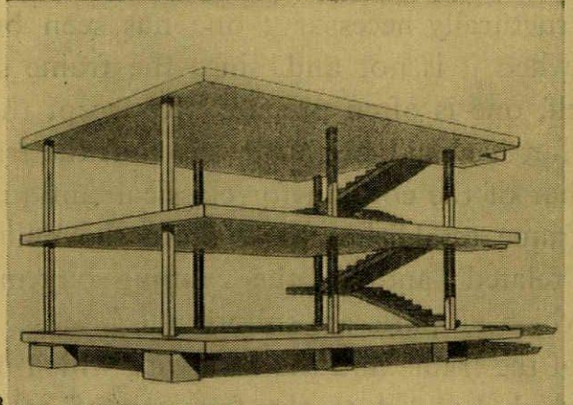

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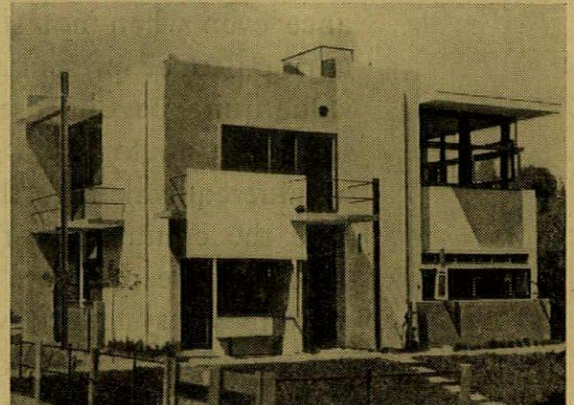

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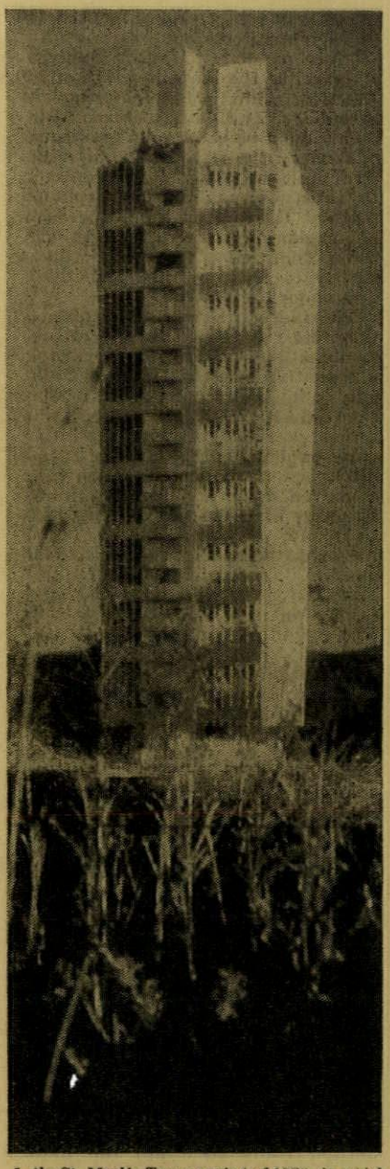
Chicago's pre-vision of two of the major themes of twentieth-century architecture—the frame structure, 1, *Fair Store,* 1891, *by William Le Baron Jenney, and the composition of intersecting planes,* 2, *Gale House,* 1909, *by Frank Lloyd Wright.* 3, *the Domino House, by Le Corbusier, deriving not from Chicago but from the reinforced concrete frame of Auguste Perret, and* 4, *house at Utrecht,* 1924, *by Rietveld and Schröder, in direct line with the innovations of cubism, and also* De Stijl's *major architectural monument.*

[1] *Autobiography of an Idea,* Louis Henri Sullivan. New York.

[2] *A Critique of the Works of Adler and Sullivan,* Montgomery Schuyler, Architectural Record, December 1895.



5, *the St. Mark's Tower project of* 1929, *in which Wright first perfected a fusion of structure and space; the prototype of his later tall buildings.*

their most illustrious pupil), seems to have shown a most marked distaste.

With the exception of the Larkin Building in Buffalo and the S. C. Johnson Company's Administration Building at Racine, Wright has of course built no large office buildings. But even in the Larkin Building the cathedral-like internal space suggested a certain aversion to those conclusions of the Chicago School whose relevance is so enthusiastically acclaimed today; while in the Johnson Administration Building an entirely different conception of structure is entertained. Admittedly a number of early skyscraper projects are for steel frame buildings; or show a concrete frame; but in all of these Sullivanian influence is to be detected, and in none of them are we aware of that inimitable world of Wrightian form which characterises the domestic designs of the same years. We can believe that in all these instances Mr. Wright was struggling with a problem which he found to be intractable and unsympathetic. But the National Life Insurance Company's skyscraper project of 1924 seems to clarify this problem and also seems to reveal very clearly the differences in outlook which identify Wright's development as something apart from that of his predecessors in Chicago.

The classic Chicago office buildings, like the classic palaces of Renaissance Italy, were conceived as single volumes, or single façades. Like Italian palazzi they overwhelm the observer by their economy of motif and consistency of theme, while as architectural expression they present no more than an unmodified block, exhibiting a rationally integrated and well-proportioned structure. But Wright's building is distinguished by the observance of quite contrary principles, and displays a highly developed composition of transparent masses, while rather than the 'static' structural solution of the frame it employs the more 'dynamic' motif of the cantilever which had already been used in the Imperial Hotel.

According to Henry-Russell Hitchcock, 'Wright has likened the special construction used in the (Imperial) Hotel to the balance of a tray on a waiter's fingers,'[3] and the structural members both in that building and the 1924 project do seem to have been conceived in that way—as a series of nuclei generating around themselves intelligible volumes of space. This preference, already presumed by Wright's old preoccupation with the central chimney stack, must explain some of his reluctance to use a regular skeleton—a system which scarcely permits this interpretation of structure; but this indivisible fusion of structure and space is scarcely realised in either the Tokio building or the Chicago project, and it is not until the St. Mark's Tower scheme of 1929 that it first becomes explicit at a major scale, 5.

The spaces created by the St. Mark's Tower structure are now unmistakably Wrightian and the tower has been the prototype for all the tall buildings by Wright which have followed. Aggregations of St. Mark's Towers are the basis for the 1930 apartment house project and again for the Crystal Heights Hotel design of 1940, while the tower appears in condensed form as the laboratory building at Racine, before being finally transcribed as the office building at present under construction at Bartlesville, Oklahoma.

Conceptually all these structures present the nucleus of a gigantic mushroom column supporting a *series* of trays which is systematically extensible by approaching column to column till the circumferences of their trays impinge or even overlap.

As an extension of the domestic theme the St. Mark's Tower is among Wright's most brilliant and ingenious achievements, and the virtuosity with which it is organised can only arouse the greatest admiration. Its vitality and coherence are undeniable, its plastic control little short of awe-inspiring—admitting the basic premises upon which its inspiration depends, the tower is a superbly logical development; but for very many observers both it and its derivatives can only stand as a series of enlarged question marks. Admiring it as an individual achievement, recognizing it as a most suggestive exception, these observers are still disposed to ask whether after all it is not a most elaborate evasion of a normal and standard structural fact. The frame, by so many modern architects, has been received almost as a heaven sent blessing. Why, one enquires, has it been so distinctly rejected by Mr. Wright? Did he consider it to be too great a restriction of his creative freedom? Why has Chicago's greatest architect remained so unbeguiled by Chicago's first great architectural discovery?

The question is so pressing that one may be justified in proceeding with speculation, and a number of immediate answers obviously suggest themselves. But the answer that Wright's career has been largely in domestic architecture only very superficially considers the problem. The use of the steel or concrete frame in domestic architecture may not be necessary, but many conspicuous monuments of the modern movement survive to prove it not abnormal. The answer that America had already discovered an alternative structure in the balloon frame is more convincing, but not completely so. Economy in America recommended the balloon frame, but in Europe economy equally recommended a brick or masonry structure, and by the more significant innovators economy's recommendations were usually disregarded.

A partial answer has been suggested by Wright's highly developed and individual demand for 'organic' space, and here one of the most obvious differences between him and his predecessors in Chicago will be found. Louis Sullivan was by no means typical of the Chicago School in general, but a major unnoticed distinction between Wright and Sullivan, as also between Wright and the Chicago School, may be found to lie in their feelings for the plan.

For Wright the plan has always been a generator of form and already in the Blossom House of 1892 it is quite clear that a disciplined orchestration of spaces had become one of his primary interests. Almost any of his houses of the next thirty years will reveal how intensively this interest was sustained and will also reveal how complete has been his mastery of the major themes, the inflections, and spatial sequence of the plan. Wright's *partis* develop inevitably and without apparent effort; there are few lapses in his plans; few volumes where his basic rhythms are not experienced; and in this he is very definitely to be distinguished from Sullivan whose most ardent admirers have never claimed for him any highly developed interest in the formal possibilities of the plan. Sullivan's buildings are superb assertions of the primacy of structure, but for him the significance of their plans was a negative one. The plans of the Wainwright and Schiller Buildings are hardly those of a master, while such a plan as the National Farmer's Bank will scarcely bear critical analysis.

Sullivan was not primarily a planner. He was primarily an architect of commercial buildings, and the office block is most obviously without the need of any but minimum planning. The unobstructed, evenly lit floor, and the indefinite number of floors which the steel frame permitted, recommended it to the architects of Chicago as the answer to a practical dilemma; but by the nature of this context in which they employed it, they were necessarily inhibited in the exploration of its spatial possibilities.

The Chicago architects projected on to their façades the neutral cellular structure which they felt to be the reality of the frame behind; and if, as was the case with Sullivan's Wainwright Building in St. Louis and his Guaranty Building in Buffalo, it was considered æsthetically desirable that the frame should be modified, this process was rationalized in terms of the need for psychological expressiveness in the façade, rather than internal spatial excitement.

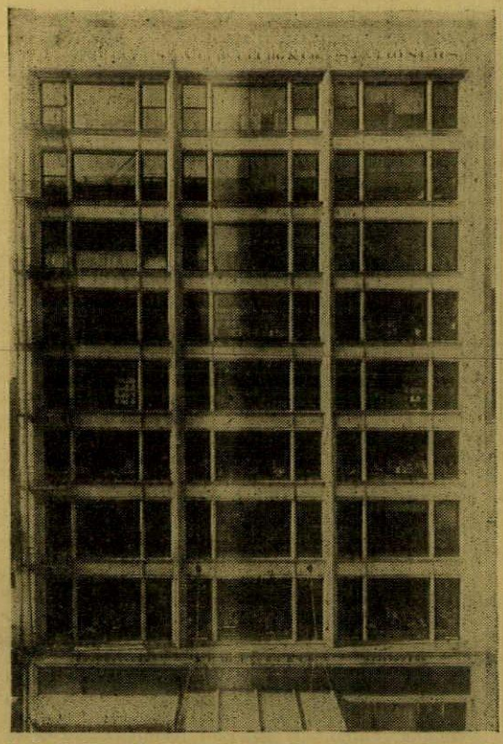
With little occasion to use the frame for any other programme than that of the office building, it is not surprising that the Chicago architects remained unaware of certain of its attributes, so that some explanation of Wright's unwillingness to employ it may possibly be found here. Unlike Sullivan, who had approached architecture primarily with the object of realizing an expressive structure, Wright was from the first abnormally sensitive to certain spatial demands. These (one may surmise) he was compelled to satisfy, and it was only later (one might believe) that his Sullivanian training re-asserted itself to demand a rationalization of this spatial achievement in terms of a generating structure. The monumental construction of the Hillside Home School suggests that a development of this kind was taking place around 1902, and in the Martin House by 1904, this process had already taken on an unmistakable definition; but by then the richness of his space compositions would scarcely permit their accommodation within any system so austere as that of the grid frame. They were already an independent creation.

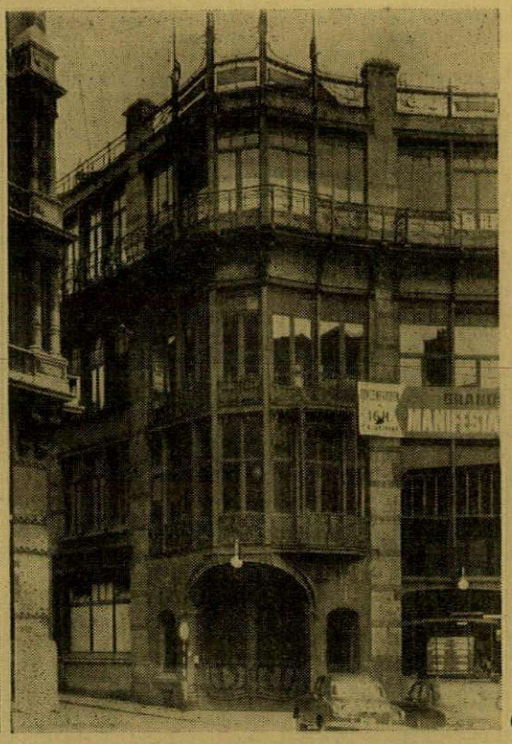
But an answer along these lines, suggesting a cause for Wright's rejection of the frame in the nature of his formal will, can at best provide only a partial explanation of the problem, and a further reason must be offered which may perhaps lie in the frame itself and the significance with which it has been endowed.

Chicago's failure to arrive at any statement of the frame as a vehicle of spatial expression—when we think about it—seems curious. We are now completely accustomed to regard the skeleton structure as a spatial instrument of some power, since after all it is now some thirty years ago that a formula was evolved permitting the simultaneous appearance of both structural grid and considerable spatial complexity. But in order to arrive at an equation of the demands of space and structure Le Corbusier and Mies van der Rohe were led to postulate their functional independence, i.e., the independence of partitions from columns, so that unlike Wright's development which may be said to proceed from a conviction of an 'organic' unity of space and structure, the International Style may be seen to issue from an assumption of the separate existence of both according to distinct laws. In the International Style an autonomous structure *perforates* a freely abstracted space, acting as its punctuation rather than its defining form. There is thus in the International Style no fusion of space and structure, but each in the end remains an identifiable component, and architecture is conceived as a species of debate between them, a dialectical opposition, and the particular tension which emerges from this relationship is now widely accepted as among legitimate architectural pleasures.

That a solution in these terms was possible for European innovators of the twenties must derive, among other reasons, from a particular concept of the frame which they entertained. In Chicago it might be said that the frame was convincing as a fact but not as an idea, whereas in considering the European inno-

[3] *In the Nature of Materials*, Henry-Russell Hitchcock.





6, 7

6, the McGlurg Building, Chicago, of 1899-1900, *by Holabird and Roche, and 7, the Maison du Peuple, Brussels, of* 1897, *by Victor Horta. Both show preoccupation with the steel frame, but the concepts are widely different: in the McGlurg Building the frame is an accepted fact, in the Maison du Peuple it is more a fighting idea.*

vators of the twenties one cannot suppress the supposition that the frame to them was more often necessary as an architectural idea before it was reasonable as a structural fact.

In order to clarify these too general observations Holabird and Roche's McGlurg Building of 1899–1900, 6, might be paralleled with an almost contemporary European building of 1897, Horta's Maison du Peuple in Brussels, 7—both advanced buildings of their day. The contrast between the rather quiet elegance of the first and the frenetic restlessness of the second is immediately obvious: the McGlurg Building is a subtle but an uncomplicated statement, the Maison du Peuple is an oblique and a highly involved reference. In the McGlurg Building certain practical requirements have been accommodated; in the Maison du Peuple certain theoretical desiderata have been stated. In the first, the steel frame presents itself as the solution of a specific problem; while in the second, *a cast iron pre-vision of the steel frame* is exposed apparently as the manifesto of an architectural programme. Holabird and Roche's structure is primarily a building; Horta's a polemic.

There is little doubt that Horta's building cost the greater æsthetic effort, but there is almost complete certainty that Holabird and Roche's is more generally pleasing to the taste of the present day. In Horta's case one can guess at a hyper-awareness of the response which his building was likely to evoke. One can sense anticipation of extended controversy, of critical explanations, avant-garde delight, conservative horror. Horta assumes the participation of an audience—so that for these reasons his design exhibits a certain humanity which is not present in the McGlurg Building. There, rather than a subject for the discussion of a coterie, Holabird and Roche have provided a rational envelope for the activities of a speculator's tenants.

If the methods followed by Holabird and Roche at this time were in any way typical of those followed by the Chicago School in general, one can assume that they were not anxious that the building should involve them in any artistic notoriety—rather the reverse. In the words of the French novelist, Paul Bourget, whose appreciations of the Chicago School have been constantly quoted, the Chicago architects had 'frankly accepted the conditions imposed by the speculator,'[4] in other words, had limited themselves to producing buildings which should be no more than the logical instruments of investment. And for these reasons, while the Maison du Peuple appears to be an idealistic fantasy on the theme of mechanization, the McGlurg Building may be considered a machine.

This distinction between mechanization as an idea and mechanization as a fact would seem to crystallize the basic differences between the two buildings, and it is a distinction which might be extended further.

'I asked one of the successful architects of Chicago what would happen if the designer of a commercial building sacrificed the practical availableness of one of its floors to the assumed exigencies of architecture as has often been done in New York,' writes Schuyler. 'His answer,' he continues, 'was suggestive, "Why the word would be passed around and he would never get another one to do. No, we never try tricks on our business men, they are too wide awake."'[5]

The business men of Chicago then were not prepared to make sacrifices for the idea, did not then require the overt architectural symbolism, did not even require fantasies upon the themes of mechanization; but the Chicago architects (or some of them) were quite aware that a symbolic meaning has always been among the necessary attributes of architecture, and if, as Schuyler infers, they were compelled to be utilitarian, they were conscious of the social significance of their utilitarianism. John Root, for instance, required that the modern office building should by its 'mass and proportion convey in some elemental sense an idea of the great, stable, conserving forces of modern civilization.'[6] But even in this demand one might notice a further difference between Chicago and Brussels. In Belgium, Dr. Giedeon tells us, it had been discovered that architectural *forms* were impure, that the atmosphere was 'infected,' and in consequence that architectural 'progress' was there conceived as a kind of 'moral revolt,'[7] but the Chicago architects had been scarcely allowed to subject *forms* to so detached a scrutiny. 'The great, stable, conserving forces of modern civilization' represented for Root a power which it was desirable to express, but one may doubt if Horta recognized any such imperative. He, one may suspect, had arrived at certain critical conclusions as to the nature of contemporary society and envisaged his work as an architectural manifestation of these conclusions.

In Belgium it is clear that the *art nouveau* was one of those revolutionary movements essentially dependent on an idea; but in Chicago the structural revolution was largely without such theoretical support.

'The Chicago activity in erecting high buildings (of solid masonry) finally attracted the attention of the local sales managers of Eastern rolling mills,' Sullivan tells us. It was *they*, he says, who conceived the idea of a skeleton which would carry the entire weight of the building, and from then on, he continues, the evolution of the steel frame 'was a matter of vision in salesmanship based upon engineering imagination and technique.' In this manner, as a product for sale, 'the idea of the steel frame was tentatively presented to Chicago architects.'

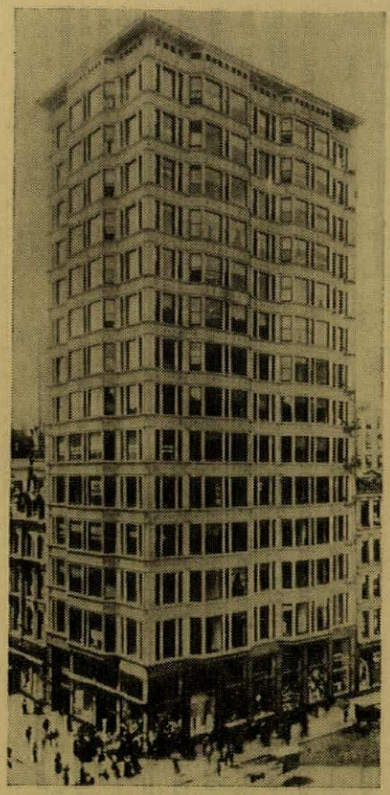
'The passion to sell,' Sullivan asserts, 'is the impelling power of American life. Manufacturing is subsidiary and adventitious. But selling must be based on a semblance of service—the satisfaction of a need. The need was there, the capacity to satisfy was there, but contact was not there. Then came the flash of imagination which saw the single thing. The trick was turned and there swiftly came into being something new under the sun.'[8]

The Chicago structural revolution therefore was the result of a certain combination of open-mindedness and imaginative salesmanship. On Sullivan's admission the architects of Chicago did not *demand* the frame; it was rather *presented* to them; and this may explain both the rapid and dispassionate manner in which they contrived to rationalize the frame structure and also the way in which so many of them (we are told) were able to abandon this method for another. 'The architects of Chicago,' Sullivan adds, 'welcomed the steel frame and did something with it. The architects of the East were appalled by it and could make no contribution to it.' But from Schuyler we learn the opposite—that the architects of Chicago were not very different from architects elsewhere. 'They are,' he writes, 'different on compulsion. They have "frankly accepted the conditions imposed by the speculator" because they really are imposed and there is no getting away from them if one would win and keep the reputation of a "practical" architect.'[9]

These two statements are confusing, but are perhaps not quite so contradictory as at first they appear. They describe a situation. They suggest a lack of conscious theoretical programme. They indicate a responsiveness to the new. They illustrate a willingness to defer to the client. And the clients, Schuyler continues, 'the men who project and finance the utilitarian buildings' are not 'the most private spirited (but) they are the most public spirited body of business men of any commercial city in the world.' They are, he says, 'the same men who are ready to incur expenditures for public purposes with a generosity and a public spirit that are elsewhere unparalleled.' 'They are willing to make the most generous sacrifices for their city to provide it with ornaments and trophies which shall make it more than a centre of pig sticking and grain handling. They are willing to play the part of Maecenas to the fine arts, only they insist that they will not play it during business hours.'

The candour of these contemporary observations goes a long way to dispose of a critical scheme to which nowadays we pay our respects. It disposes of the dichotomy between the virtuous Chicago of the Loop and the depraved Chicago of the Fair. Magnificently undisguised, the office buildings of the Loop owe something of their authenticity to their being no more than the rationalization of business requirements; although they are social documents they are scarcely cultural symbols. They were conceived as instruments, as the means to achievement, but for that achievement itself it is necessary to look elsewhere, both to the suburban residential development, and to 'the ornaments and trophies,' lavished

[4] *Outre Mer*, Paul Bourget.
[5] Schuyler: *ibid.*
[6] *John Root*, Harriet Monroe.
[7] *Space, Time and Architecture*, Siegfried Giedeon, p. 291 (*3rd Ed.*).
[8] Sullivan: *ibid.*
[9] Schuyler: *ibid.*



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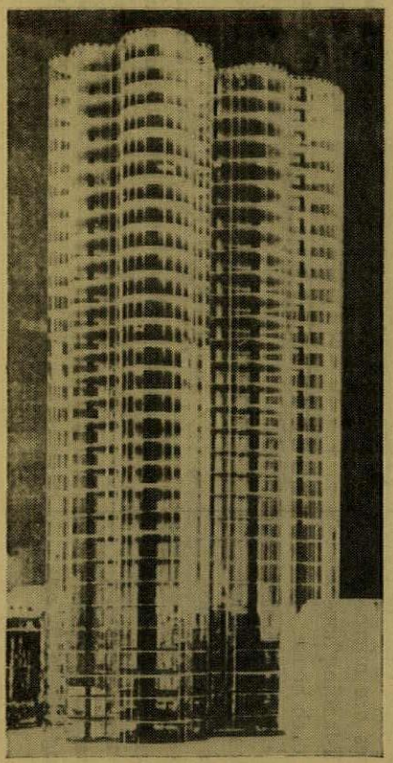


9

8, *the Reliance Building, Chicago,* 1894, *by Daniel Burnham and* 9, *a project of* 1921 *for a glass tower by Mies Van der Rohe.* 8 *answers practical contemporary requirements;* 9 *postulates an ideal answer to possible future ones.*

upon the World's Columbian Exhibition. The buildings of the Loop, and the structures of the Fair, like opposite sides of a coin, come to appear as complementary phenomena. Because the commercial magnates of Chicago were not willing 'to play the part of Maecenas to the fine arts' during business hours, it was possible for the architects of Chicago to proceed with the most audacious innovations. It was indeed required that they should, and in doing so they offended no expressed social or artistic preference. No check was offered to their remorseless evolution of a basic structural logic. This rationalization could not have been effected in New York, nor in Europe. It was possible in Chicago because there business was without inhibition, but as the World's Columbian Exhibition unhappily proves, it was not for this reason irresponsible.

Thus Chicago's success and Chicago's failure were implicit in the same conditions. A primary architectural achievement was determined by a physical need, and by the lack of architectural programme a complete architectural revolution was made possible. But this lack of programme made it impossible in the end for the revolution to be stabilized or even adequately valued. The office buildings of the Loop were undoubtedly admired by contemporaries, but it is hard to represent them as either the answer to a generally expressed intellectual conviction. They were factual rather than idealistic; and for the taste of the time they were equipment rather than architecture.

This distinction might be seen as defining the differences between two buildings which Dr. Giedion compares—Daniel Burnham's Reliance Building of 1894, 8, and Mies Van der Rohe's project of 1921 for a glass tower, 9. Here beyond the obvious difference that one is real and the other imaginary, it may be observed that the Reliance Building is the concrete result of a particular problem, while the Glass Tower is the abstract solution of a general one; that while the Reliance Building arises in relation to an existing demand, the Glass Tower provides the answer to a possible future requirement. The one answers; the other anticipates. The Reliance Building rises above the streets of a commercial capital; the Glass Tower soars against a background of wooded hills and above an agglomeration of Gothic roofs. We can scarcely believe the Glass Tower to be a necessity in this toy city of an older Germany. It is rather, we know, a confession of faith, an elegant rhapsody upon a brave new world; the Reliance Building is devoid of such innuendo, a utilitarian shelter.

From these conceptual differences both building and project derive their weakness and their strength; but Burnham's complicity and Mies's protestation (which are equally respectable) impose upon each a different significance, and it may be seen that while the Reliance Building is above all a most delicately adjusted instrument of the world of business, the Glass Tower, by intention, is a contribution to culture. The Reliance Building provides a direct answer to a technical and functional problem; but the Glass Tower infers the *idea* of mechanization rather than the *fact*.

'The American engineers,' writes Le Corbusier, 'overwhelm with their calculations our expiring architecture,' but they are not, he asserts, 'in pursuit of an architectural idea,' they are 'simply guided by the results of calculations.'[10] But although this may have been so, and may have been as wholly admirable as Le Corbusier believed it to be, it is only too obvious that the skyscrapers of the Ville Radieuse were *not* the results of calculation. Rather they betray a mind preoccupied with the ideal order of things. They exude what Dr. Johnson described as 'the grandeur of generality'; they are rational abstractions upon the theme of the American skyscraper.

These European skyscrapers have therefore an intellectual rather than a practical significance; and just as Mies in the Glass Tower and Le Corbusier in the Ville Radieuse seem to abstract the skyscraper theme, so it might be suggested that the European innovators of the 'Twenties ascribed to the structural frame, an ideal, a general, and an abstract significance.

In America the skeleton structure had been conceived to be of utilitarian value, rationalized by the predominantly utilitarian tone of a Chicago business community; but in Europe it was given logical form only by the sustained volition of an architectural intelligentsia. And to these avowed protagonists of revolution the frame became both more and less than it had been for Chicago. It was soon envisaged to be a formal necessity—an answer not to the particular problem, office block, but to the universal problem, architecture.

Le Corbusier's drawing for the Domino House is precisely such a formulation of the frame's significance. A generalization of structure rather than a structure, it is perhaps the perfect illustration of the meaning of the frame for the International Style. For the International Style the structural functions of the frame are in fact only secondary, and primarily the frame is a guarantee of authenticity, an assurance against lapse into private licence, a discipline by means of which an invertebrate expressionism can be reduced to the appearance of reason.

Disposed to accept the frame as a symbol of order, the International Style has envisaged it as a structural system with which the architect is *obliged* to come to terms, and for these reasons from the first the exponents of the International Style were *obliged* to evolve an equation between the demands of space and the demands of the skeleton structure. But in Chicago the *obligation* to use it did not exist. For the International Style, the frame, imbued with an intellectual significance, becomes a universal of architecture, and for these reasons seems often assumed to be present even when it is not in fact to be found; but for Chicago where the frame possessed a most specific and practical function there was no reason to deduce for it a general and an ideal one; and for these reasons it was around the alternative programme of the residence conceived as a unique problem that idealist sentiment was able to effect a coherent expression.

It is by such inferences that Wright's continuous unwillingness to use the frame may possibly be explained. He was perhaps too close to it, too close to the Loop, and too undetached from Chicago to be able to see the city as the idea which it so nearly is. His career has largely been one of reaction against the city, of protest against the metropolitan order whose problems it has seemed the highest duty for the architect of the International Style to solve. For these architects, the organization of the city has been a constant preoccupation, and it is possible that the International Style discovered the frame's real significance to be that of an urban symbol, a most comprehensive illustration of established order in a technological society. It is possible. But it is also certain that for Wright such an accumulation of symbolism around the steel or concrete frame is without any desirable significance, and he has felt impelled to dissolve the order which the skeleton structure permits.

We can be grateful that this has been so, and we can believe too that it was necessary that Wright should have been led to create another Chicago, to crystallize the suburban image. But we can believe also that only in recent years has Wright's second Chicago become completely significant—as the foil to that third and Miesian city which is at present taking shape. Mies has lifted the old commercial Chicago of the 'Eighties from the empirical to the ideal, and has promulgated as a system something very close to what Chicago discovered by experiment. He has provided for the Loop a moral grandeur, he has built for Oak Park an adequate frame of reference, he has formulated its most worthy antithesis; and the significance of both is now heightened by the contrast, which seems to make of Chicago a type of foyer where, with unmodified drama, the irreconcilable opposites are juxtaposed. Architecture as private experience, and architecture as public order, architecture as radical dissent, and architecture as equally radical orthodoxy: Chicago seems to allow these anti-poles the most unqualified culmination. It would be futile to ask why, but enough to state that it has been so, that in Chicago the principal critical problems of twentieth century architecture will be found to be embodied.

[10] *Towards a New Architecture*, Le Corbusier.

There were four clients, who together with the architects formed a group of six families, each financing its own house. The site had originally contained a terrace of four Victorian houses, but the land cost £20,000 an acre, so a greater degree of sub-division was necessary to make the project economical. The final cost of site for a typical intermediate house was £530, the frontage being 12 ft. 9 ins. Extreme resistance was encountered from building societies who were approached for loans, based partly on the terrace formation, mostly on the frontage, and to a certain extent on the appearance. Eventually some more adventurous spirits offered loans, and the scheme could go ahead.

The site is 8 ft. below pavement level, facing west over Hampstead Heath, with a view of two of the Lower Ponds, and the causeway which separates them. This is densely planted with fine plane and willow trees.

The 12 ft. frontage can give either one room of the whole width, or two 6 ft. single bedrooms, or can be subdivided into 7 ft. 6 ins. for a garage and the remainder for a hall, or, as on the lowest floors, a 2 ft. 10 ins. passage, and the remainder for a bathroom and fuel store. The stair was planned so that it could be separated completely to give privacy to the rooms on either side, or opened up where required to give views right through the plan. The depth of the building was governed by town planning but was made as deep as could be permitted. The position of the staircase was arrived at by giving the maximum possible garage space, without taking too much from the living rooms on the other side. The garages are adequate for most English cars. The basic arrangement of the floors and stair suited all the families, but different people had different requirements in detail. The double-height room is different in every house (one house has the kitchen on the gallery instead of underneath it). The bye-laws required the stair-well to be a ventilated lobby, and although none of the owners had wanted the stairs to be left open, a few houses have glass screens beside the stairs, which can be curtained to allow openness or privacy. The houses are mirrored and the thickening at the back of the half-landing houses two boiler flues with two pipe ducts for each house.

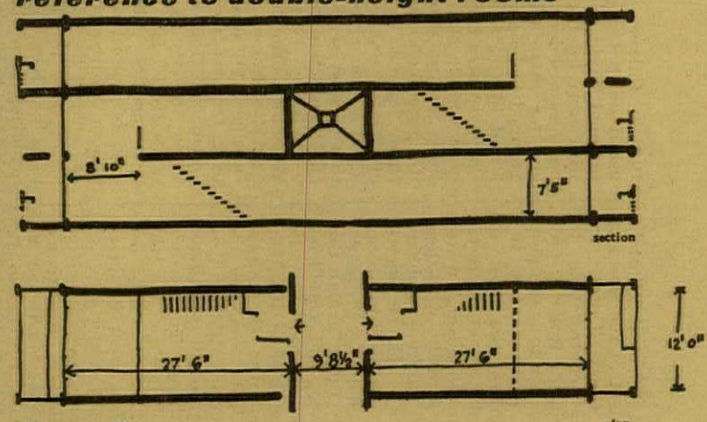
The lower floor is designed so that it can be occupied by a friend or relation until the families have reached sufficient size to need it, and it has its own entrance, bathroom and w.c. It can later become a playroom on garden level, and the lower bathroom will then become cloakroom and children's shower room. The ceiling heights throughout are 7 ft. 6 ins. As far as is known, this is the first time a waiver permitting this in living rooms has been given by the LCC.

The party walls are of 9 in. calculated brickwork (a

12-foot frontage terrace houses in Hampstead

comment by the architects with special reference to double-height rooms

Our exemplar for the use of the double height room was, of course, Marseilles. We had visited the Unité in a semi-finished state before designing these houses (late '52), and when the sub-division of the site landed us with the same frontage, to fractions of an inch, we found we had a wonderful reference point for the choice of room-depths, and indeed of dimensions in general. We were also experimenting with the Modulor at this time, and used it in these houses, so that there are dimensions in some cases identical with those at Marseilles, and in all cases directly related to them. We found the Modulor an extremely useful tool for subdividing a standard bay-width either symmetrically (road side, upper floors) or asymmetrically (garden side and staircase). This of course applies to any pair of Fibonacci series.

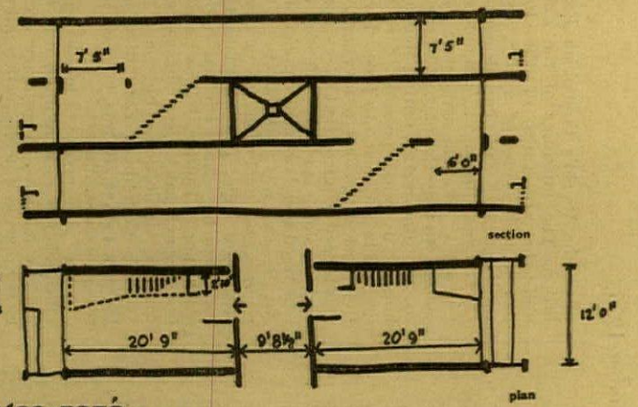


marseilles

The double height at Marseilles is 8 ft. 10 in. in the clear, and the whole 12 ft. width. The rooms, at the centre floor of the three-floor unit, i.e., at the level of the two kitchens and the *rue intérieure*, are 27 ft. 6 in. deep.* The living-room/bedroom tucked underneath the gallery in the lower unit is 19 ft. 5 in. deep, and the gallery bedroom is 13 ft. 1 in.

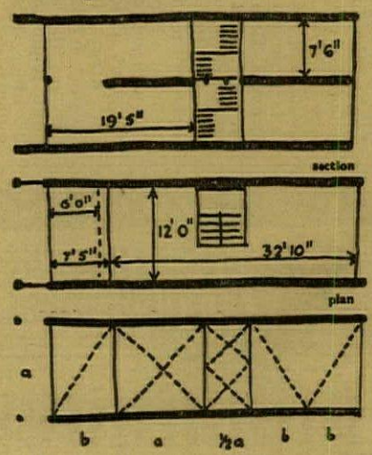
In the Strasbourg competition the depth of the block was considerably reduced, so that the room depths at the kitchen level were 20 ft. 9 in. The double height does not go right across as at Marseilles, but is in the form of a funnel, tapering back to the staircase opening (which is 2 ft. 10 in. wide). There is a tie-beam or landing where the funnel and stairwell meet, and the clear dimension of the funnel is 8 ft. 10 in. in the upper maisonette and 7 ft. 5 in. in the lower. The bedrooms are 14 ft. 3½ in. deep, but this was achieved by narrowing the *rue intérieure* from the 9 ft. 8½ in. of Marseilles to 7 ft. 5 in.

At Nantes the block depth is the same, but the *rue intérieure* has gone back to 9 ft. 8½ in. The effect of this is that the bedrooms become 13 ft. 1 in. deep (the same as the smaller one at Marseilles), and the double height reduces to 7 ft. 5 in. in the upper maisonette, and 6 ft. in the lower.



nantes-rezé

We started by thinking that 7 ft. 5 in. was the minimum useful void, and that it formed the appropriate relationship with the 19 ft. 5 in. depth of the dining-kitchens. However, lack of depth tempted a consideration of a smaller void, and only one house retained the 7 ft. 5 in. size, the others reducing to 6 ft. This certainly pays off at the upper level—the extra 1 ft. 5 in. being a significant addition to a 12 ft. living room—but of course the larger void has its compensations when seen from the lower level. One house has no double height, one has the dining-kitchen *on* the gallery instead of underneath it, and one house has a void only 9 ft. 2 in. wide instead of the whole 12 ft. width, to form a narrow cat-walk out on to the balcony.



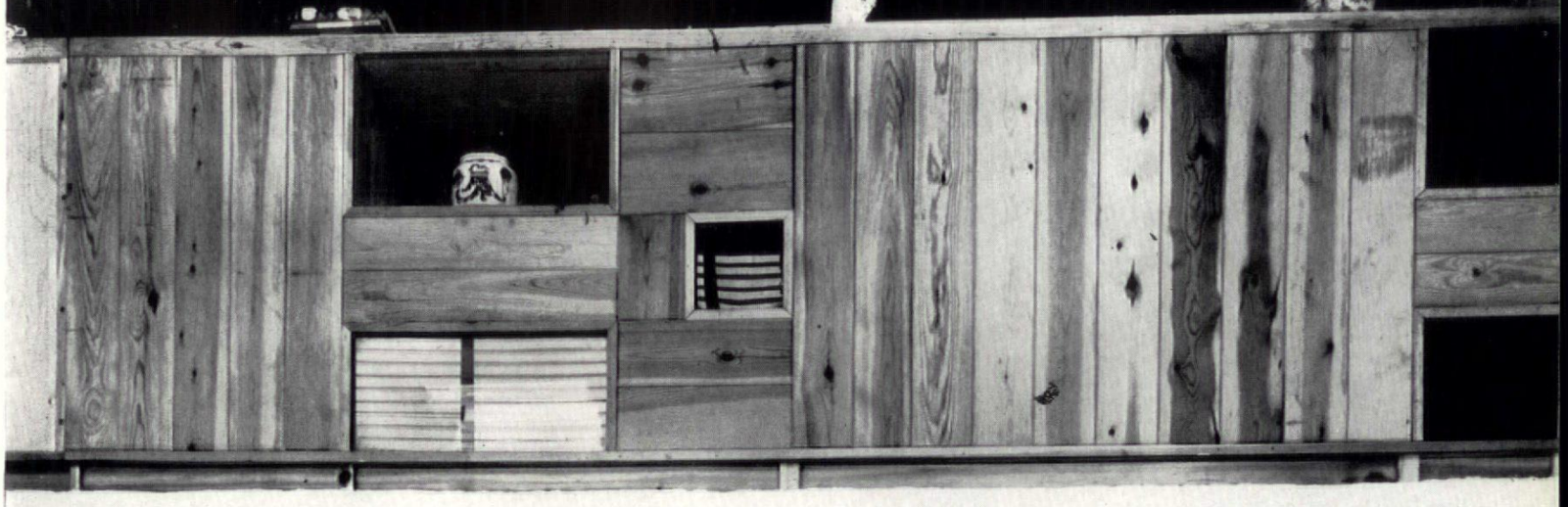
hampstead

* Some of these dimensions are approximate. The plans and sections in the book are often not reproduced exactly the same size, they are sometimes distorted in the block-making, and there is seldom a written dimension and never a scale. Where a dimension scales close to a Modulor dimension, we have assumed that this is correct, but in some cases they are not directly on the scale, and do not seem to be simple additions. It is also unclear at times whether dimensioning has been done from finished surfaces or from centre-lines (of partitions, etc.).

12-ft. frontage

TERRACE HOUSES IN HAMPSTEAD

ARCHITECTS | **STANLEY AMIS AND WILLIAM AND GILLIAN HOWELL**



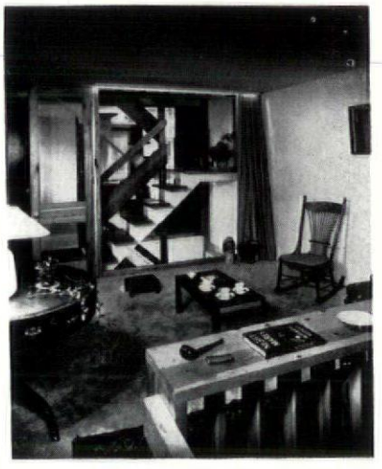




2

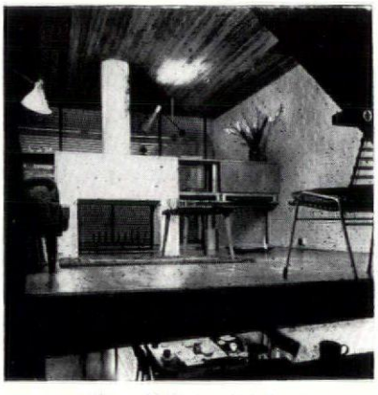
2, No. 82 seen from the garden, which is 8 ft. below pavement level on the street side. The party walls are 9-in. brickwork from top to bottom, and ceiling heights on all floors are 7 ft. 6 in.; both these features required special permission from the LCC. The timber framing is varnished softwood, and exposed concrete is left unpainted and rough from shuttering. 3, the west-facing street front. Beside the front doors are 7 ft. 6 in. wide garages. The separate entrances to the lower ground floors are approached by the areas, behind the railings.

5



No. 80 the sitting-room on the ground floor, with the double-height void linking it with the lower ground floor in the right foreground.

4

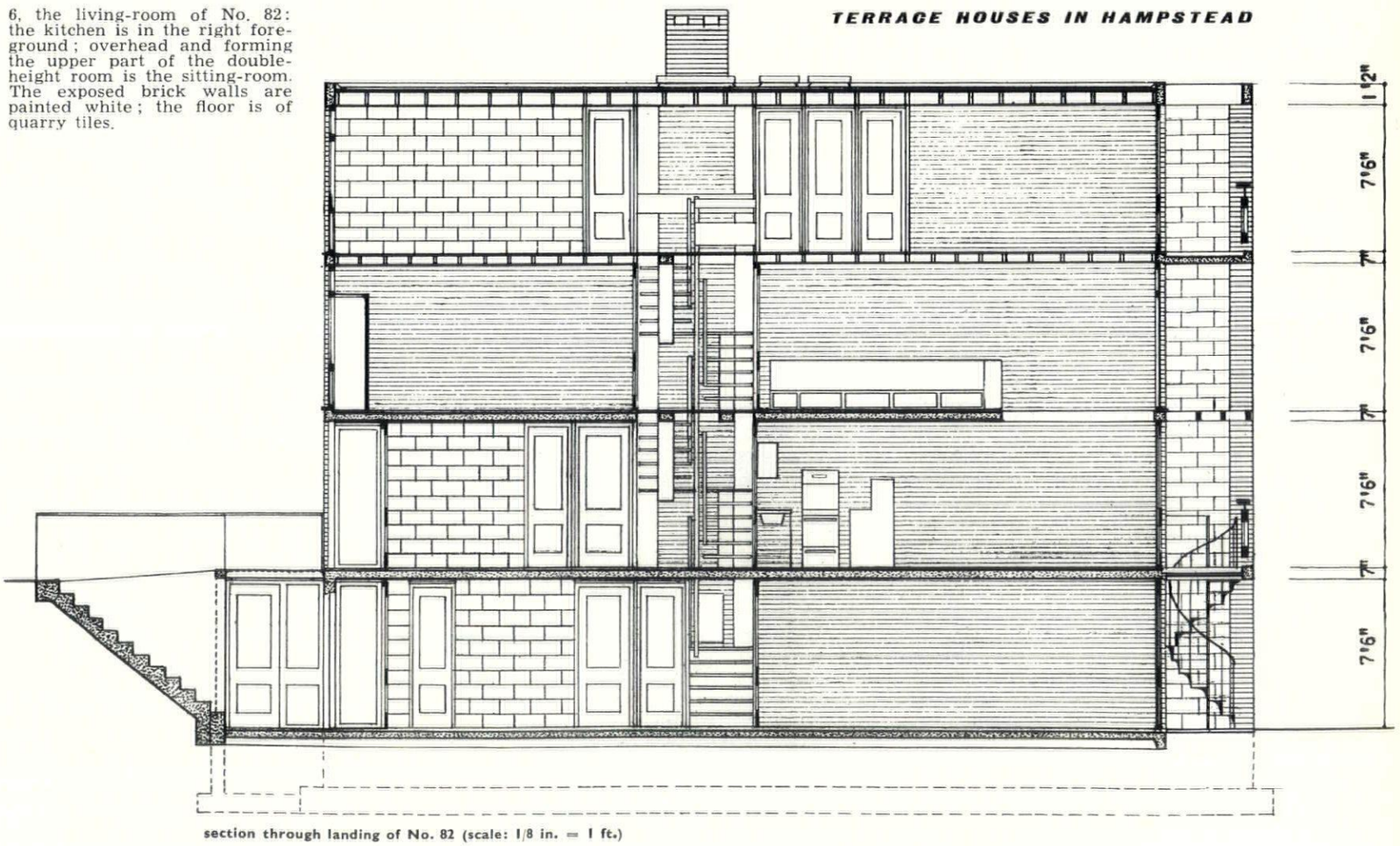


No. 84 the living room on the ground floor and sitting room on the first floor, seen from the stair well, looking towards the back of the house, with a double-height void beyond the sitting-room fireplace. For the similar arrangement in No. 82 see 1, previous page.

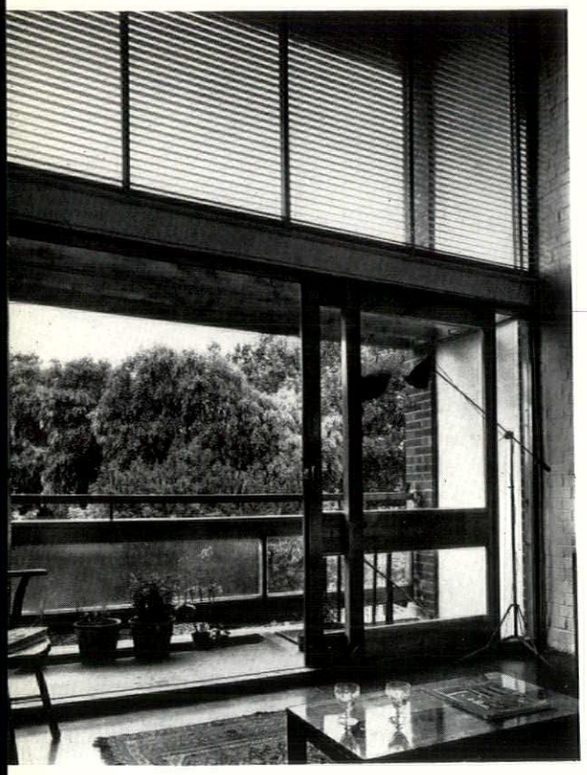


3

6, the living-room of No. 82: the kitchen is in the right foreground; overhead and forming the upper part of the double-height room is the sitting-room. The exposed brick walls are painted white; the floor is of quarry tiles.

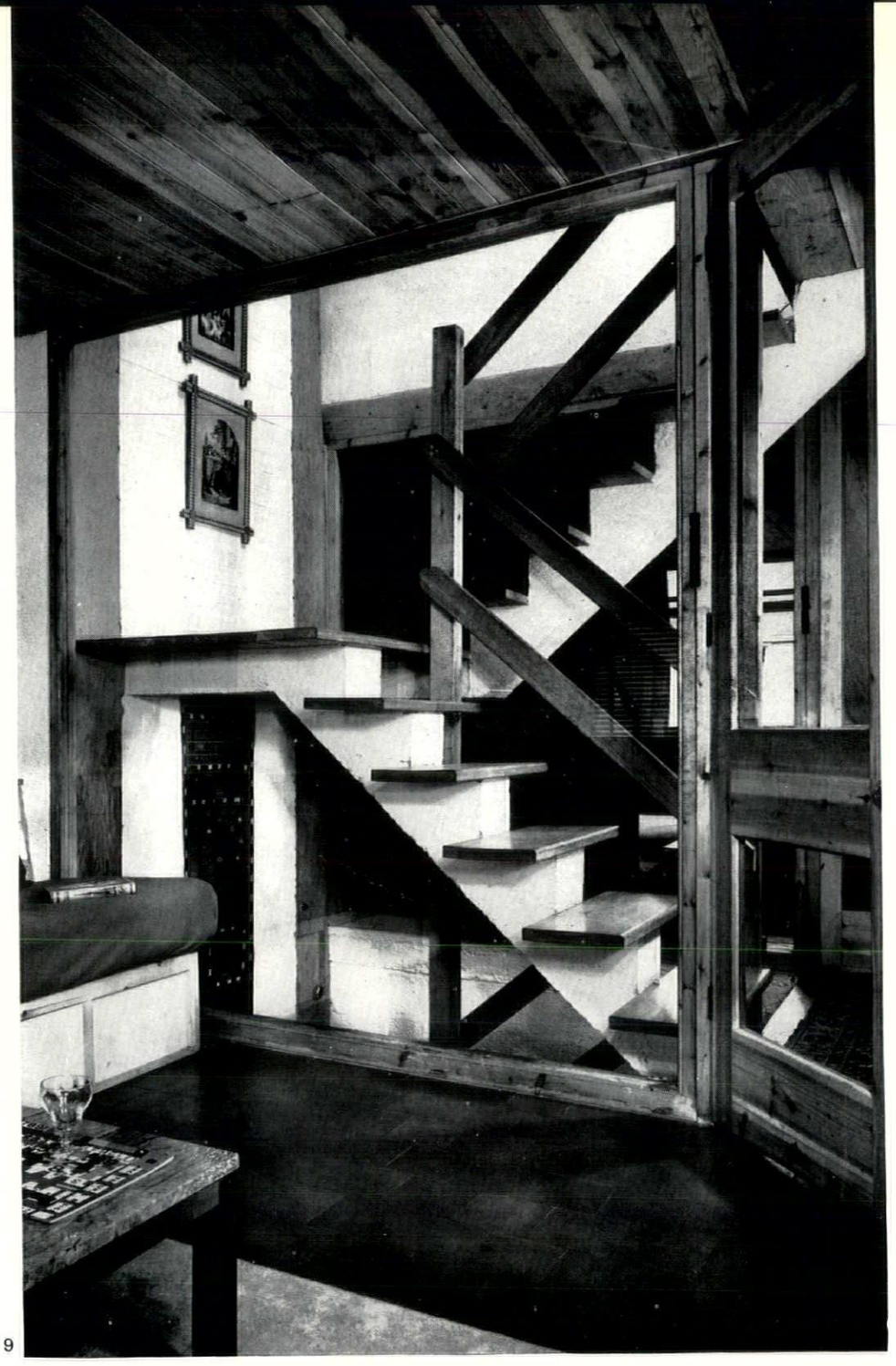


section through landing of No. 82 (scale: 1/8 in. = 1 ft.)



7

7, the double-height section of the living-room of No. 82 ; from the balcony a spiral stair leads down to the garden. 8, the sitting-room. 9, looking from the sitting-room through the glazed screen to the stairs, which are of reinforced concrete ; the cranked beams, which are mirrored in each pair of houses, provide cross-bracing through the length of the terrace. 10, looking from the sitting-room on to the living-room and balcony seen in 7.



9

TERRACE HOUSES IN HAMPSTEAD



8

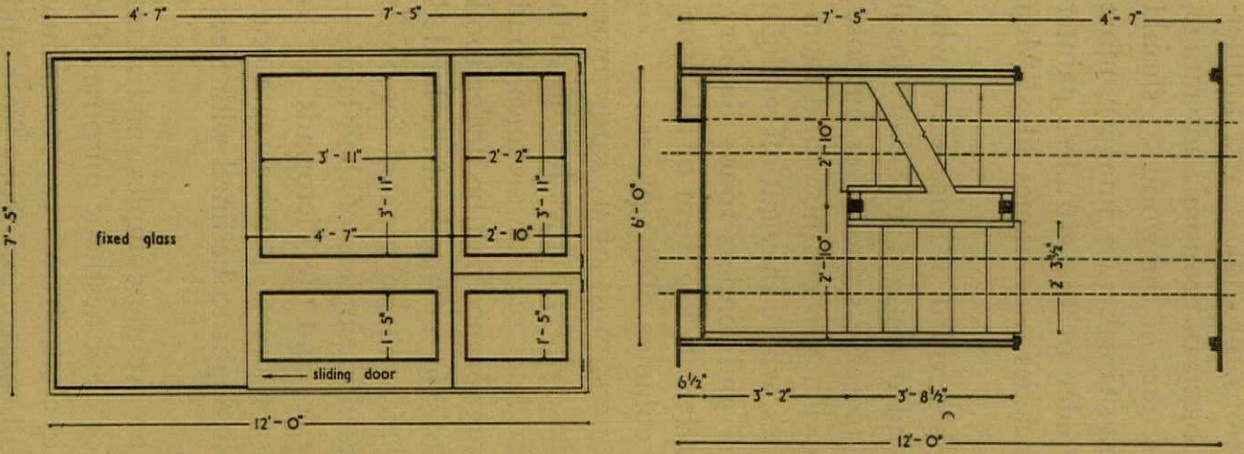


10

waiver was granted to make this possible ; normally they would have had to thicken as they went down, since they are party walls between houses, and not dividing walls between flats). These walls are supported on mass concrete foundations. The end walls have an additional 4½ in. skin built on with a 2 in. cavity. The floors are in situ pot ; the staircase cranked beams give additional stability to the party walls. The roof and second floor are of timber. The in-fill panels are of softwood, with a glass-faced under-window panel of one hour fire resistance where there are no balconies to act as fire-breaks. The internal partitions are of fairfaced 2-in. clinker blocks. The 9 in. walls were even-faced to give the best possible surface on either side, and flettons are sufficiently true to give a very satisfactory result. The bricks, blocks, etc. are painted with two coats of white emulsion paint, and the wood is varnished externally and oiled internally. There are variations in finishes (one house, for instance, has 2 in. solid plaster partitions). The floors are quarry-tiles, wood block or lino on concrete, or boarding on the joisted floors. Nibs to cross walls are of engineering bricks ; end walls are natural colour flint-limes. Exposed concrete is unpainted, and left rough from the shuttering. The end staircase is oiled teak, and the metalwork is black.

Each house has its own anthracite boiler. The idea of a shared one was considered, but the building societies were insistent that each house should be absolutely self-contained, to avoid complications in the event of resale. Heating is by means of pumped low-temperature hot-water panels in the main living rooms, and a large convector at the bottom of the stairs. The single-stack systems discharge into a private drain running along under the area, which has only one connection to the sewer (very deep) and only three manholes. This was a major saving, resulting from building together. The two rainwater pipes connect with this drain, the local drainage being a combined system. These pipes are technically quite redundant—all that was required was a trapped gully to receive rainwater at the head of each stack, to allow the rainwater to join the soil system immediately, and help keep the stacks fresh. The only reason against doing this was the bye-law ; and the drainage bye-laws are administered by the Local Authority, who have no power of waiver (another example of a technically less efficient system of considerably greater cost made necessary by out of date regulations).

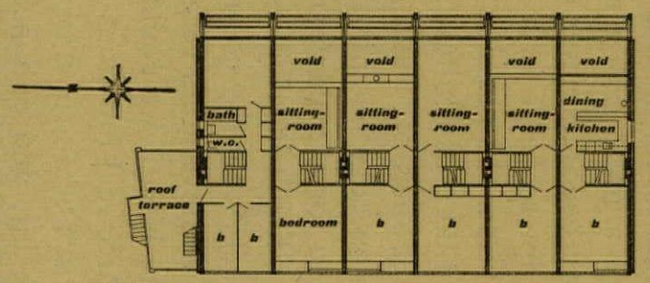
In a typical intermediate house the usable floor area including garage, store and balconies is 2,020 sq. ft. The cost was £4,200, of which about £200 was due to abnormal foundations (the site consists mainly of dredgings from the ponds). The price including land, fees, etc., was £5,300.



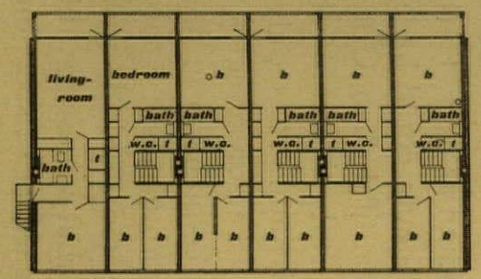
Above left, window units on the west side of the house, facing the road. This arrangement achieves 7 ft. 5 in. of clear opening, the 4 ft. 7 in. of clear glass being covered by the 4 ft. 7 in. sliding unit. The right-hand unit is an outward-opening door, split between the two panes of glass in the manner of a stable door. Right, the staircase, showing the detailed break-down of dimensions.

plans of the six houses (No. 80 on the left, running to No. 90 on the right)

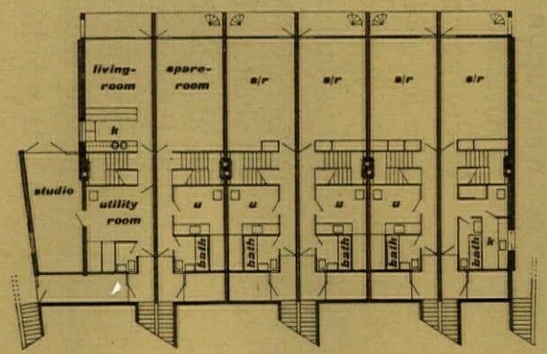
scale: 1/32 in. = 1 ft.



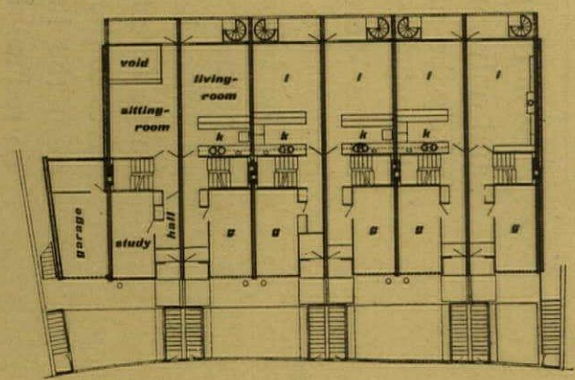
first floor



second floor



lower ground floor



ground floor

TREES IN THE STREET

There is no subject which calls forth such extremes of behaviour, such passions, prejudices and indifference in the Englishman as trees. To the French, trees are objects of economic advantage, and only an Englishman could have written ". . . all the trees of the wood. . . should surely be more beautiful than Gothic tracery, more than Greek vase imagery, more than the daintiest embroiderer of the East could embroider or the artfullest painter of the West could limn." It is only in England that societies with names like "Men of the Trees" could be conceived or supported.

The subject of tree-planting in towns is muddled and bedevilled because those who plant them are often uncertain what they are there for, and because nearly every local authority has inherited roadside trees originally planted to serve some other purpose. Large forest trees that were once the pride of Victorian villa gardens now find themselves in the front gardens of spec.-built estates on by-passes, where they cut off sunlight from the houses, and where their leaf-fall blocks gutters and renders roads slippery. To reduce the demands they make on labour, works departments lop them or fell them, whereupon local 'tree lovers' invade the correspondence columns of the papers.

Although we are a nation of gardeners and tree planters, most of us know more about perennial and bedding plants than about forest trees, whose habits, height, girth and longevity are apt to come as a surprise to those who later see, for instance, road surfaces buckling under the pressure of their roots. This ignorance can be understood if it is remembered that arboriculture was once almost wholly in the hands of the landed gentry, armed with copies of Loudon's *Arboretum Britannicum*, who planted for profit or shelter. Their knowledge has not descended to the present occupiers of their lands—though their passion for avenues paradoxically has done so, and the Victorians' snobbish preference for living in avenues, rather than roads or streets, survives as a conviction among Local Authority committeemen that roads ought to be lined with trees, just as they ought to have grass verges.

It would be refreshing if we could free ourselves of the avenue complex, and plant according to the three real functions of trees in towns—for clear aesthetic purposes, for utilitarian functions, and for climatic control. To climatic control trees can contribute purification of the air, and enhanced fertility to the soil, protection from frost and shelter from the wind. Their utilitarian functions, overlapping somewhat with the aesthetic ones, include visual screening and sound baffling. To these functions might be added the not unimportant factor that they might also form a useful source of revenue as an economic crop, though only one New Town Corporation has so far seen the advantage of such a policy, the basis of forestry practice for centuries.

Their aesthetic function in built-up areas is surely to link the blocks of houses with the existing landscape, and they can serve to enhance the architectural qualities of any given composition by acting as divisions in space, by defining space, by giving vertical or diagonal accents, movement and light and shade, by breaking monotonous seas of roofscape, and providing elements of scale. All these functions, as well as those of climate control and utility, could best be served, I think, by planting woodlands, rather than street trees, and the economic gain of a planned cropping policy, which might provide new estates with trees as an integral part of the design for no extra cost, would also be best realized in this way. Where trees are to be introduced into existing built-up areas the problem is different only in degree, and new tree planting should be limited to bold groups in existing open spaces. And everywhere the less obvious is the spade of the planter the better.

H. F. Clark



1





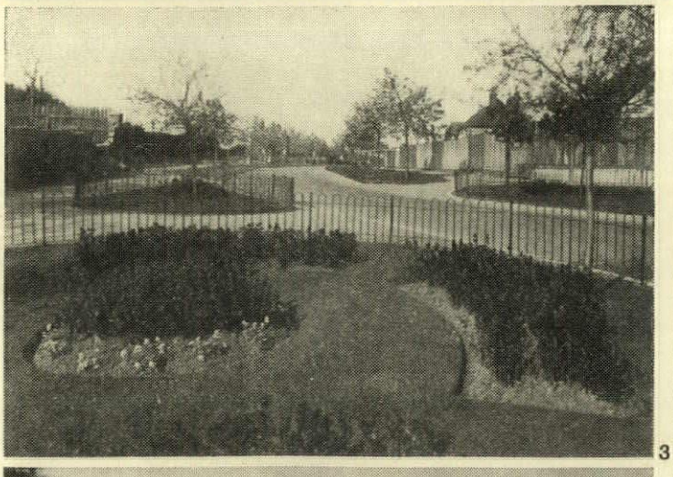
2

Avenue Complex

In England, tree planting in the street has become synonymous with planting in avenues—avenue complex—and it has become an automatic reflex when planning streets to draw in globular trees ranged equally down both sides like soldiers lining the route.

The avenue, originating in France as a grand approach to the palace or great house, became a 'must' in nineteenth-century suburbia—to live in an Avenue had snob value never acquired by Roads or Streets—and local councillors still think like this, 1. *They also reason that trees, being natural, are beautiful whilst buildings, being artificial, are dull, so that if you line your streets with trees they become beautiful too. An Italian piazza, treeless and perfect, shows the limitations of this viewpoint. Anyway, the avenue is an idea that has stuck and, being adopted automatically, inhibits the development of other ways of using trees.*

From the practical viewpoint alone the conflict of tree roots with the maze of underpavement services, drain pipes, conduits and cables, is a strong drawback to linear planting in city streets, 2.

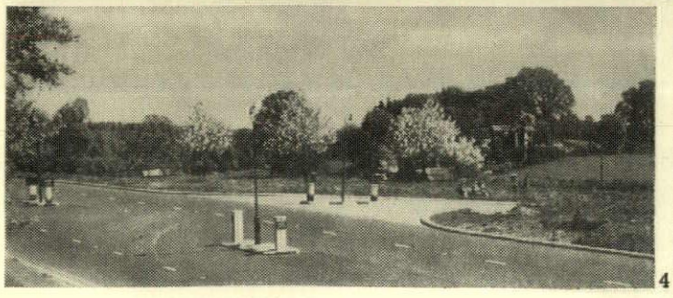


3

Garden Complex

Since we are a nation of backgardeners it is not unnatural that gardens and not forests have become the basis of our treeplanting. However, the reasoning that if a tree is beautiful then a flowering tree is more beautiful—though sometimes valid in the backgarden, the public garden or high suburbia—has sickening results when applied to the arterial road, 3. *This is garden complex, a national complaint. Gardens burst into the street and soak away down the arterial roads until even the 'wild' landscape is prettified,* 4, *creating suburbia where none should be.*

There is a need to reconsider the visual purpose of trees in streets—what can they do? How can they be a useful tool in the townscaper's hand? The following pages show some of the ways.



4

For instance

with



5

without

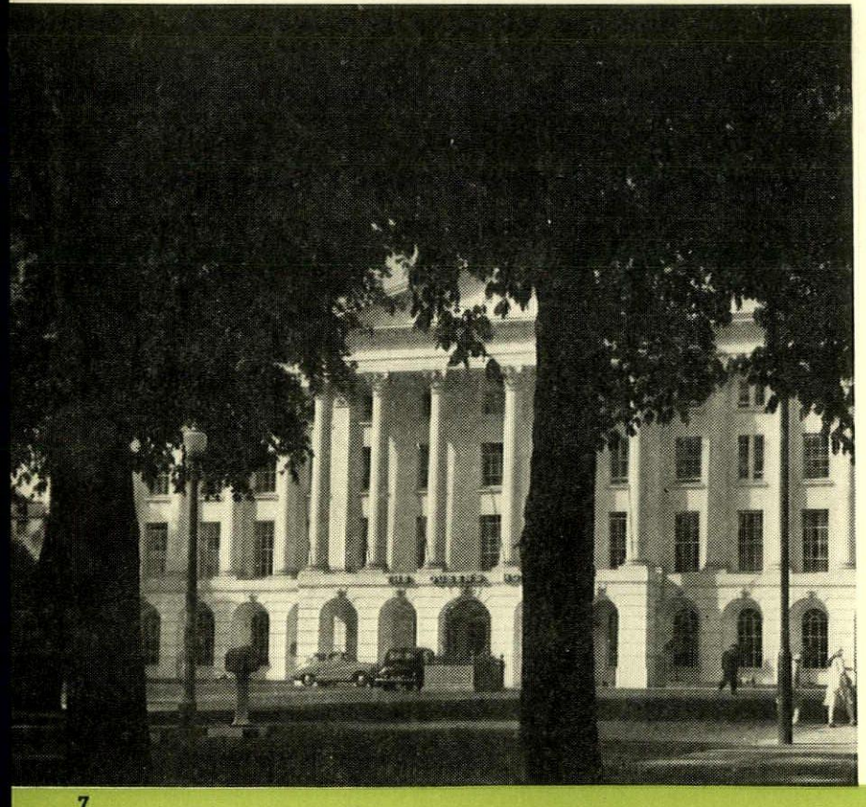


6

TREES CAN BE USED . . . . . to link

individual buildings or groups of buildings together and perform the valuable task of unification at awkward junctions. At Harlow, 5, massed trees are well used to link a point block and a row of houses, a junction which otherwise might have been too abrupt. This effect is exaggerated in 6 to make the point clear.

with



7

without



8

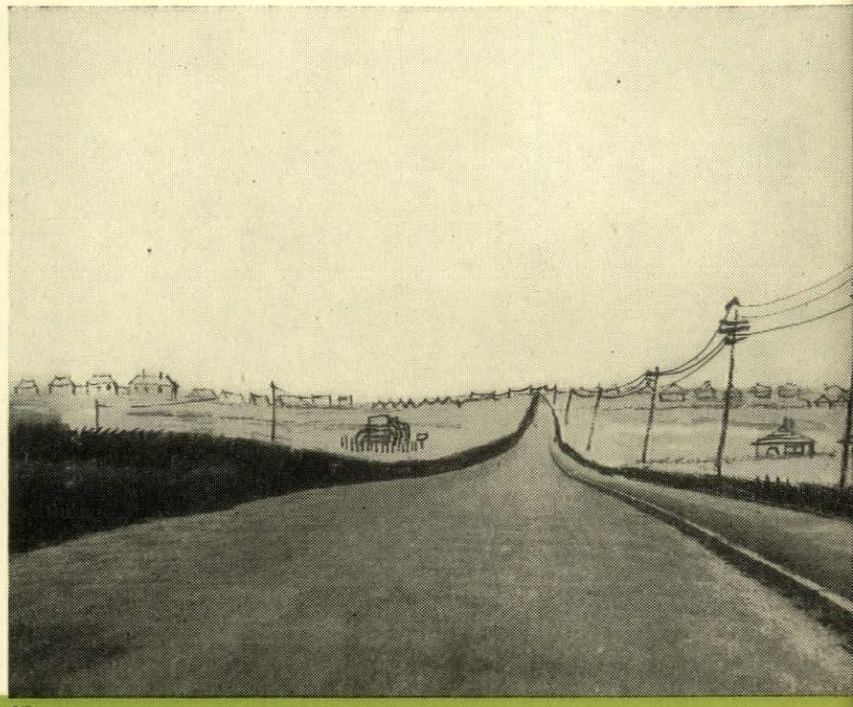
to limit vision

by revealing only a part of the street at a time and so giving an added value to that part by restricting the field of view. By this means, as at Cheltenham, 7, attention can be concentrated on a particular part of a façade whereas without the tree masking, the eye could wander unchecked, 8.

with

without





9

10

to define space

by trunks and spread of branches as do the columns and vaulting of a Gothic cathedral. Amongst other ways, they may form an arched tunnel, 9, *a positive road space which holds the eye and may mask such a wide open subtopian squalor,* 10. *But tree lining should not be universally adopted, even outside the town, for many landscapes such as the moors depend for their attraction on the lack of trees.*

with

without





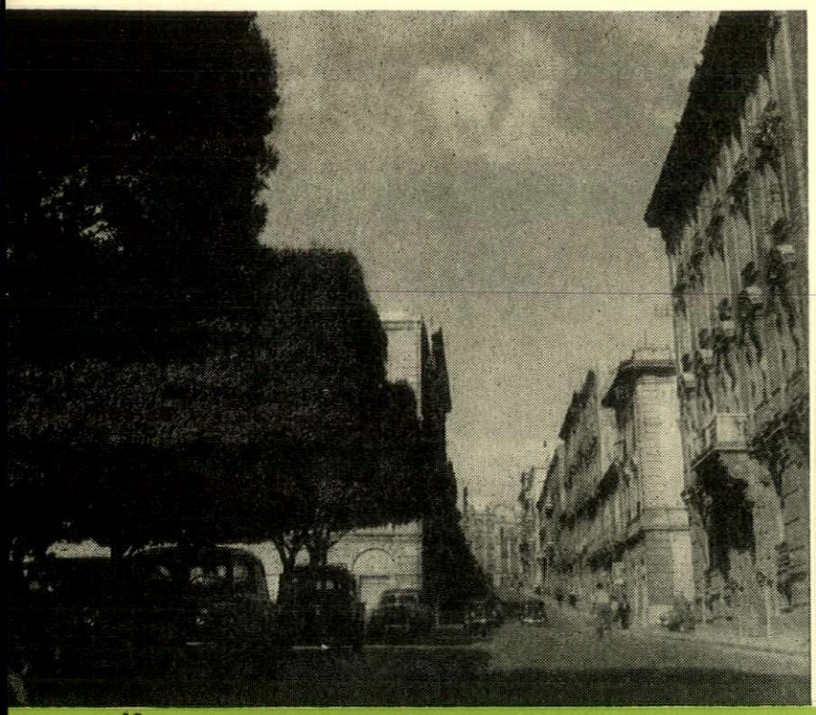
11

12

to break monotony

caused by the repetition of similar houses or an endless sea of roofs. To do this it is important that trees are planted in clumps or groups, 11, *to contrast with the equally spaced dot-dot-dot of the buildings,* 12, *not in rows to conform with it.*

with



13

without



14

as architecture

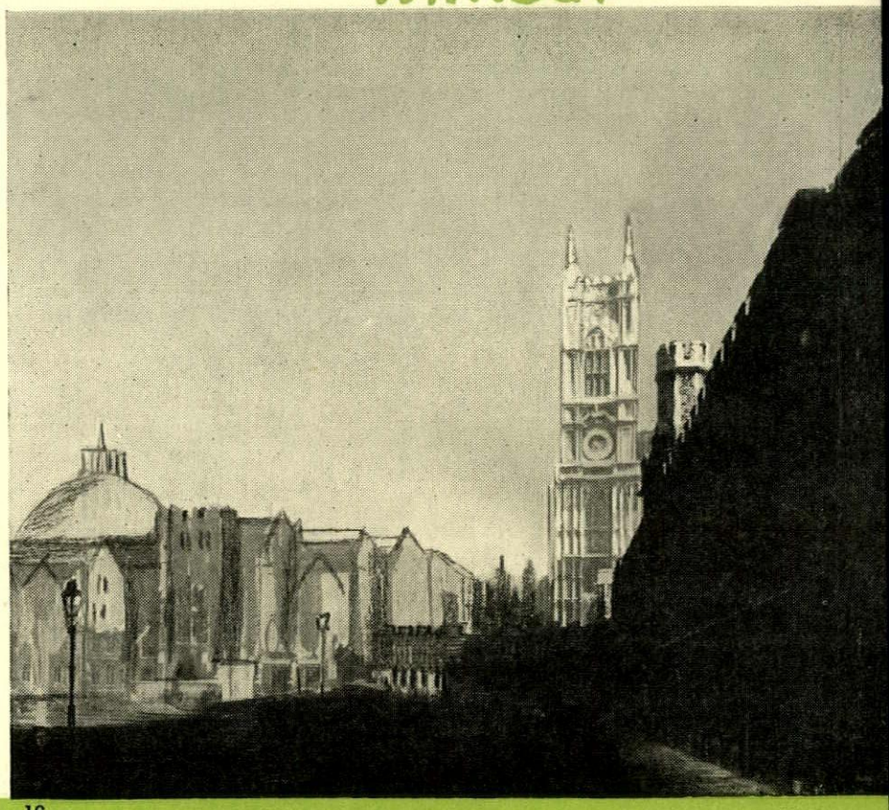
by being sculpted to geometrical forms and so placed as to carry on the line of the buildings in space, enclosing space and yet allowing free movement underneath, 13. *By this means a feeling of formality and largeness of scale can be given to a scene. This vanishes if the trees are removed and small scale, irrelevant detail is revealed,* 14.

with



15

without



16

as foil

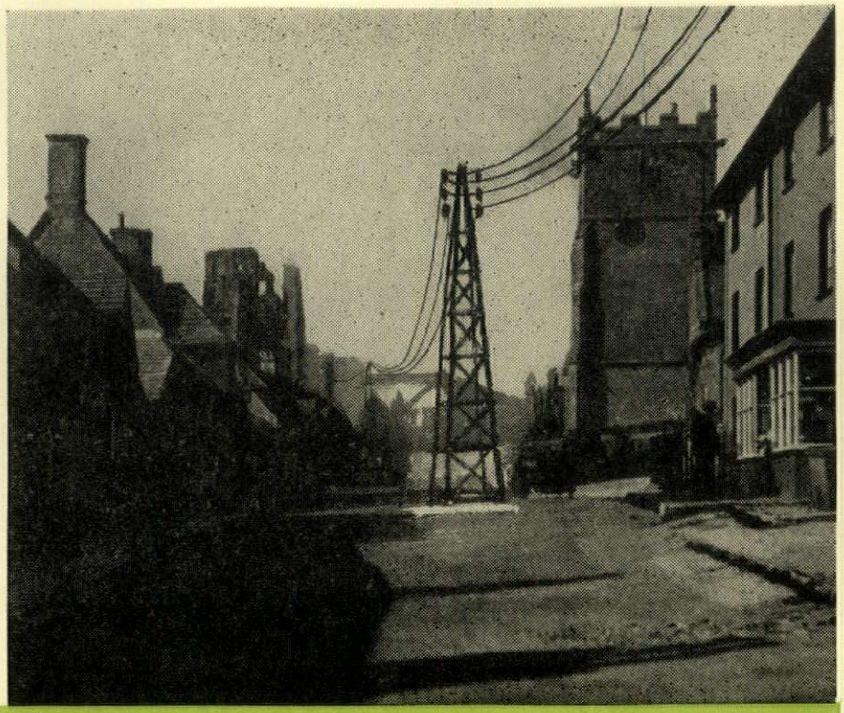
by adding the qualities of movement and seasonal change to static architecture, otherwise altered only by the light. At Westminster, 15, *the tracery of bare plane tree branches on a winter's day gives essential contrast to the buildings, which without them appear bleak,* 16. *The plane tree, a true town lover, is particularly effective in this expression of movement owing to the dramatic gestures of its branches.*

with



17

without

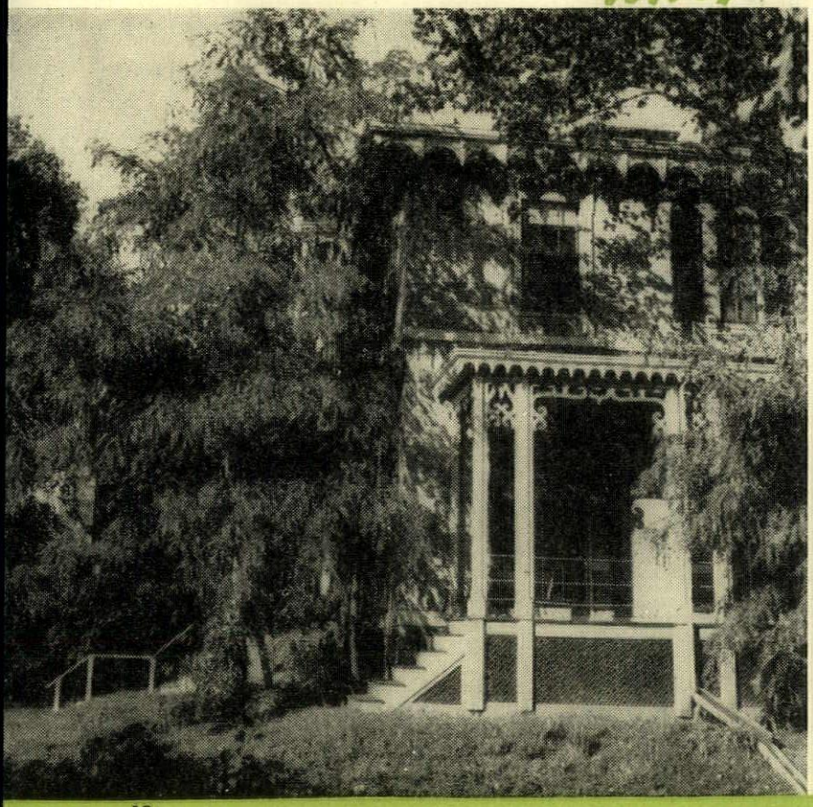


18

as object

in an otherwise treeless street scene as at Corfe, 17, *where natural form of the tree contrasts with its artificial surroundings like a single house in a wooded scene. The single tree, rounded in shape, forms an eye stop and invites one to linger. A good place to meet anyone, unlike the pylon,* 18, *which is the kind of object often found in such a position.*

with



19

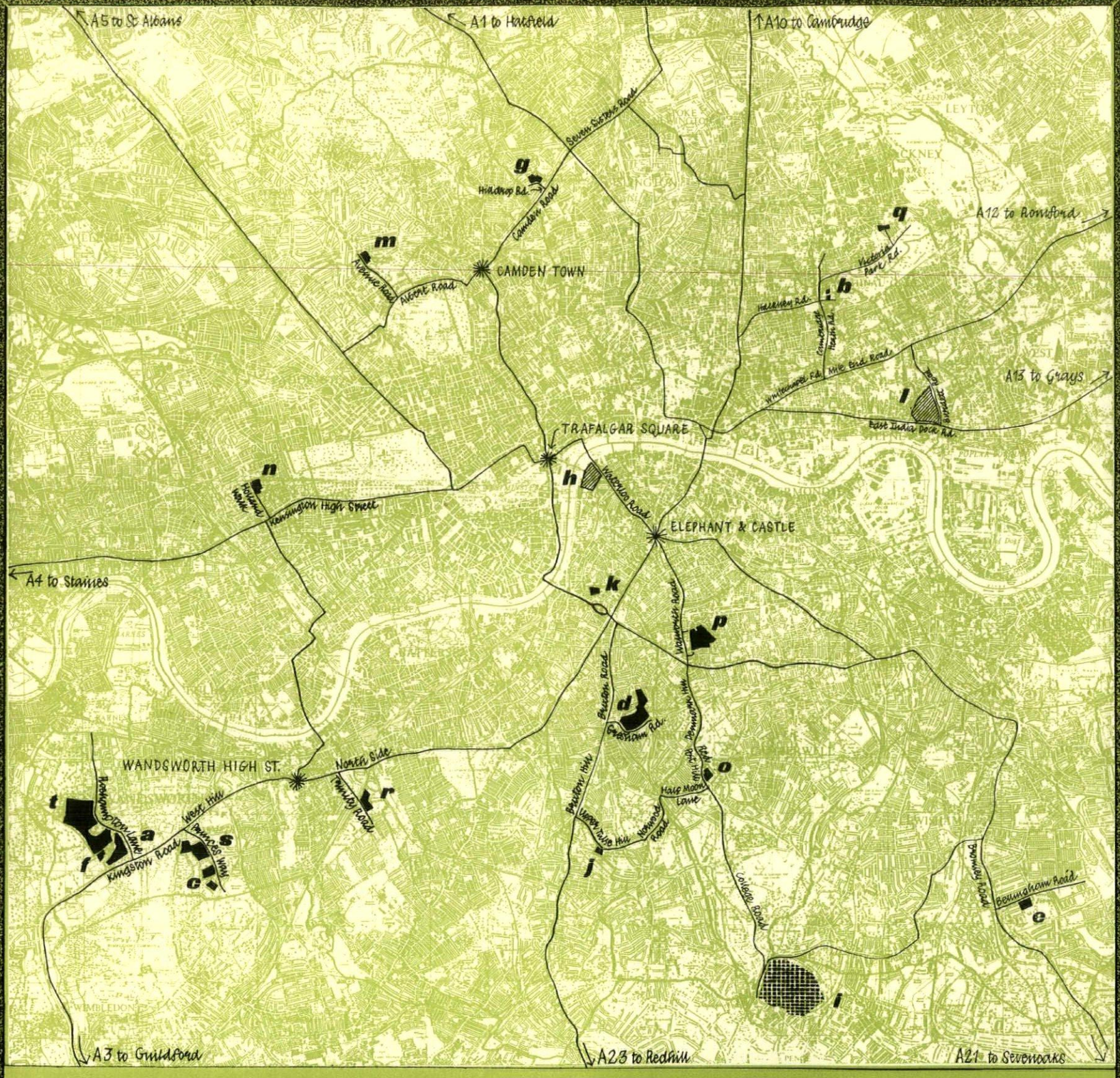
without



20

to add light and shade

like a changing wallpaper to the façade of buildings, 19. *The quality of light and shade is particularly lacking in the blank characterless face of the average housing estate,* 20. *Here trees become essential to provide both interest and concealment.*



The purpose of the map above is to locate the most important recent work of the LCC Architects' Department. Housing estates and schools are solid black; areas of comprehensive planning are shown by diagonal hatching, and the Crystal Palace development by cross-hatching. Four convenient starting-points for perambulations around groups of sites are starred (e.g., Trafalgar Square, Camden Town). Roads leading to each site are named. *key* *a*, **Alton Estate, Portsmouth Road, Roehampton, S.W.15 (6-13, pages 307-309).** *b*, **Wellington Estate, Bishops Way, Bethnal Green, E.2 (14, page 310).** *c*, **Albert Drive Estate, Wimbledon, S.W.19 (16, 17, page 313).** *d*, **Loughborough Road Estate, Brixton, S.W.9 (18, 19, 20, pages 314-315).** *e*, **Prendergast School, Bellingham Road, Catford, S.E.6. (23, 24, page 316).** *f*, **Heathmere School, Alton Road, Roehampton, S.W.15 (26, page 319).** *g*, **Holloway Comprehensive School, Hilldrop Road, N.7 (27-29, pages 319-320).** *h*, **South Bank development, including Royal Festival Hall, South Bank, S.E.1 (30, page 321).** *i*, **Crystal Palace development, Sydenham, S.E.25 (41, page 324).** *j*, **Old People's Home, Tulse Hill, S.W.2 (40, page 324).** *k*, **School Equipment Centre, Vauxhall Street, near Kennington Oval, S.E.11 (39, page 324).** *l*, **St. Anne's Stepney development, Limehouse, E.1 (25, page 318).** *m*, **Avenue Road Delicate School, Primrose Hill, N.W.8 (38, page 323).** *n*, **Holland Park Comprehensive School, Kensington, W.8 (36, page 323).** *o*, **Alleyn's School, Red Post Hill, Dulwich, S.E.24 (37, page 323).** *p*, **Picton Street Estate, Walworth Road, Camberwell, S.E.5 (34, page 322).** *q*, **Bentham Road Estate, Hackney Wick, E.9 (33, page 322).** *r*, **Fitzhugh Estate, Trinity Road, Wandsworth Common, S.W.18 (15, page 310).** *s*, **Ackroydon Estate, Princes Way, Wimbledon, S.W.19 (32, page 322).** *t*, **Roehampton Estate, Roehampton Lane, Wandsworth, S.W.15 (35, page 322).**

R. Furneaux Jordan

L.C.C.

NEW STANDARDS IN OFFICIAL ARCHITECTURE

As a preface to any note upon the work of the LCC it now seems necessary—though it would not have done even five years ago—to state the principles underlying a public authority's assumption of an architect's functions. Inigo Jones, Wren and Vanbrugh were salaried officials of the State; yet there is among some architects today a *crise des nerves* about their status as 'private architects.' Such gentlemen actually equate their status with their art, forgetting that the 'private architect' is virtually a product of the last two centuries. If he had never existed the great things would still be in the history books.

Architects, however, have an odd sense of history. They see the past distorted in glorious monuments. For these they feel a vicarious responsibility. In fact those monuments are no more than relics of tiny civilized elements resting upon a vast substratum of poverty and sweat, maintained by the lash or fear of hell. Thanks to two centuries of radical humanism and a consequent series of technical and social revolutions the end of that is now at least foreseeable. The Common Man may yet enter upon his inheritance, but that also may take two centuries since it involves the true assumption by the State of that responsibility for health, education, sustenance and shelter that charity and piety have never adequately provided. And that, in turn, involves the fact that the architect's employer is no longer his client, as well as the further very difficult problem of how the architect and his employer jointly, i.e. the public authority, can jointly serve the client, i.e. the community; and that again involves the central problem of our era—the rights of the Person within the State, and the validity of the Official as an artist.

The encroachment of the State upon the Person is eternal and continuous—without it there would be no State—but is also variable. It has from time to time assumed such forms as slavery, conscription, censorship and seizure of property either without or with compensation. Planning in England now involves the last—euphemistically 'com-

pulsory purchase.' Good planning sacrifices the person humanely and rarely, and only for the sake of the community of which he is also a part, not as formerly for the aggrandisement of a family.[1] All planning is necessarily an assault upon liberty; good planning is the assault upon a small liberty for the sake of a larger. The problem is to combine the message of John Stuart Mill with that of Karl Marx—a task suited only to a people whose experience is wide and long. In bringing order to the world's largest, most inchoate conurbation, it is the task of the London County Council.

Some years ago Frank Lloyd Wright visited County Hall. Here, he was told, was the largest housing authority in the world. He was not impressed, he was appalled. In introducing the LCC Development Plan in 1951, the Chairman of the Town Planning Committee said that 'architects, technicians and builders have not had such an opportunity to exercise their skill . . . since the beginning of the nineteenth century.' Two views that can never be reconciled? Each presupposes a different function for the artist and even for man himself—the realization of self as against mutual aid. The Christian would add that the second is the only road to the first.

Lloyd Wright—traditionalist, individualist—can dream of a brave new world only with himself as Pantocrator. A brave new London can be born in fact, and not as a dream, only through an organization—technical and administrative—beyond the understanding of the anti-planner who hates what he cannot understand and has indeed never even offered his own solution for the London morass.[2] The dilemma of the LCC is that it deals with the lives of very ordinary men and women to whom it can never fully explain itself, least of all to the people for whom it is designed. Hence for Fleet Street, exploiting today's grumble, planning is fair game: a fictitious bureaucratic present set against an equally fictitious 'good old days,' never against the grim reality of the eighteenth- and nineteenth-century landlord. The tide of opinion is flowing against the planner. Respectable columnists advocate a new *laissez-faire*, a new absolutism of private property that would prevent the simplest street widening. How do these anti-planners—full of self-pity—think that the railways were made, or the docks or even the Augustan squares they love. Those who fume in traffic jams scream first when the street is widened; those who admire the lawns that border American 'parkways' scream first when the tenant is deprived of his front garden to make a lawn. They want everything both ways. Ten years ago the planner was a messiah leading post-war Britain into the promised land. Today he is the bogyman of Crichel Down. Neither view is valid since both are only sublimations of a mood, but at least the first was idealistic as well as necessary, while the second is as ignorant as it is anarchic. The first mood brought into being the Welfare State . . . in a sense, an ethical sense, Gladstone's Christian's State.[3] The 1956 mood could ruin everything.

To note that anti-planning is the mood of the moment is a reminder that the London County Council, though a powerful body, is an elected body. The County of London Development Plan is a statutory document, but also—since it is only a brief—it could only too easily be frozen into a dead letter. It is the daily job of hundreds to keep it spinning. These architects and planners are competent technicians, but not necessarily dedicated men. They work for rather inadequate pay. They have now—more than ten years ago—a market value. If the job is hamstrung they can easily go elsewhere. Recruitment is lagging. The best post-graduate architects, in the starry-eyed post-war years, turned to such enlightened authorities as Hertfordshire and the LCC, where architecture had a social as well as a technical context. Now they think in terms of Volta River, Kuwait or Malaya rather than the even darker jungles of Stepney or Lambeth . . . or else in terms of big City offices where the context is neither social nor architectural.

This is, therefore, a suitable moment to point to the LCC as being in many ways the most successful architectural office in the world. While the LCC has been generous in its use of private architects and wise in choosing them, the mass of its work—including the private architect's brief—could only have been done under the umbrella of the social, technical and administrative services of London's government . . . thus freeing its younger architectural staff solely for architecture. There are two outstanding facts about the LCC: one, a vast organization produces some very good architecture—'good' in the social, technical and economic sense, as well as the æsthetic; and two, the new architecture is very carefully related, not only physically to the Development Plan, but to the social objectives of enlightened and humane government. If the LCC is a success then it must be emphasized that the success is total only because these 'client' departments at County Hall (Housing, Education, etc.) are, equally with the actual building departments, geared to the Plan. That is the main reply to the main attack on planning. The attack assumes that planning is 'soulless'—i.e., ugly to the eye and inhuman in action. It is this that is most easily refuted by a study of LCC work. Whatever may be wrong in central government or in other local

[1] Aggrandisement and enrichment were, in the past, related but not synonymous; high density estates (slums) paid for low density (squares and country houses), but with both in single ownership. This anarchic robbing Peter to pay Paul, this premium upon high density, can be corrected only by public control.

[2] To be fair Lloyd Wright did offer a solution: 'the only solution—an atomic bomb.'

[3] Our brash neo-Christianity, however, is so at odds with this Ethical State that—says a leader in *The Times Literary Supplement* (10.2.56)—to deny, say, the doctrine of original sin is to be suspected of wanting to nationalize the sugar industry.

authorities, the LCC does show that the basic conception of combined social and physical planning really can work in terms both of humanity *and* art. This is as well since clearly—apart altogether from refuting a mischievous opposition—an unplanned London would perish, and in perishing would drag down the Anglo-Saxon peoples in its ruins.

That flash point—that the mere form of a city, like the mere size of Versailles, might produce a bloody revolution—was almost reached in 1848. That the danger was staved off in the years that followed was due—the anti-planners might reflect—to a long story of philanthropy and legislation in which such names as Peabody, Octavia Hill, Charles Booth, Rowton, Shaftesbury, Barnardo, shine like jewels. They held the dark fort until the midwifery of the true municipal socialists could bring to birth, after difficult labour, a single government for all London. Even then two generations had to pass before housing—like education, poverty and sewage—became a statutory responsibility. The LCC in its early days had a mandate to build; it was under no legal obligation to do so. In its birth it was nevertheless fortunate—born after two generations of liberalism, its traditions might not be venerable but were at least those of service and action rather than turtle soup.

In 1888, intrigue and corruption having proved the old Metropolitan Board of Works unfit for its job, the new London County Council took over.[4] The London School Board kept its independence for a few more years, but after 1888 London did at least cease to be a morass of vestries, parishes and pavement boards. The squalor, poverty, disease and vice that had flourished in the compost of both the Industrial and Palladian eras was the challenge; the new municipal socialism was the response. Almost within the lifetime of the founding fathers, within the lifetime of Beatrice Webb and Bernard Shaw, the Abercrombie-Forshaw Plan was complete and the principles laid down for the present Development Plan. 'Gas and water socialism' was a current gibe, but in fact—as any architect knows—there is nothing comparable in the history of cities.

It was inevitable, but also fortunate, that the building work of the new LCC under the 'Housing of the Working Classes Act' should come within the Morris-Webb aura rather than—as it might have done—within the grim traditions of Guardians and Charity Trust building. The problem, however, was not simple. Little was known either about the organization of a very large staff, or about the planning of an extensive programme of work. W. E. Riley, though not in the orthodox sense an architect, had had a fairly big staff under him at the Admiralty and he had the sense to give clever young architects reasonable initiative, thus giving them pride in their job. This did not persist as an LCC tradition; it has had to be revived by Mr. Robert Matthew and Dr. Leslie Martin. Riley tackled with vigour the first large slum clearance scheme[5] on the Boundary Road Estate, Shoreditch. This was necessarily a high density scheme since everyone on the site had to be re-housed within its boundaries, but the planning was skilful and the taller buildings, though only five storeys, were almost what we would call 'point blocks,' with only two flats on each floor. Architecturally the whole scheme, in spite of the freedom given to the individual designers of the blocks, has great cohesion because of the regard they all had for the Webb-Lethaby vernacular—high gables, quoins, chimney stacks and sash windows, plus a smattering of less relevant Norman Shaw details.

The better-known Millbank Estate (behind the Tate Gallery), 1, designed by R. Minton Taylor in 1899, is much purer and gets rid of much of the eclectic detail. Norman Shaw, with his 'snob' practice, was not in any case an abiding influence in the Department; whereas Lethaby, with his social ideals, is known to have had great authority there. The whole estate deserves greater recognition as a monument of its time. Even then the Council was puzzled about the correct relationship of public authority to contractor. Tenders had proved exorbitant—did builders think this new ratepayer's purse was bottomless?—and for certain of the Millbank blocks the Council had to enter the building trade themselves. They have been experimenting ever since; public tendering is still unsatisfactory and the latest and most successful experiment (1956) is with a nominated contractor.

From 1890 to 1906 the LCC was continuously rebuilding bits and pieces of its frightful and macabre Dickensian inheritance. Among these was the Webber Row Estate in the Waterloo Road, 2, with its carefully considered skyline of steep gables, but with no self-conscious escape from the urban nature of the site. Before rebuilding the mortality rate on this site for children under five was 148 per 1,000! The LCC built its first cottage estates at Totterdown, 4, in 1903, and at Old Oak, Hammersmith, in 1912.



1, *Millbank Estate, behind the Tate Gallery, designed in 1899 by R. Minton Taylor.*

[4] For this period I am indebted to D. Gregory Jones's AA Prize Essay on 'Some Early Works of the LCC.' (*AA Journal*, November, 1954).

[5] Was this the first humanitarian slum clearance scheme in history, as distinct from clearance of derelict property for economic or civic improvement—i.e., the first scheme to re-house rather than evict?



2, *Webber Row Estate, Waterloo Road, S.E.*1, 1906.

These are just sound garden city stuff, but they have some significance. First, the date might make the ghost of Ebenezer Howard look to his pioneering laurels; and second, these estates re-housed people on new sites instead of on slum-cleared ground—the first move towards *planning* London as distinct from *ad hoc* rebuilding. Note, too, that the central area estates when contrasted with the cottage estates show an appreciation of urban and rural character respectively that some local authorities lack fifty years later.

Within twenty years of the founding of the LCC the Architects' Department was faced with a complex programme. The Central School of Art in Southampton Row (1908) was only one item. Even more interesting is the Euston Road Fire Station (1902), 5. Mr. Gregory Jones tells us that this fascinating building—owing something to Glasgow Art School—was not (according to Owen Fleming) designed by Owen Fleming to whom it is usually attributed. It was an example of the kind of architecture which should, according to our 1956 anti-planners, be soulless . . . it is bureaucratic, it is designed in a 'department' and it is anonymous. Mr. H. B. Creswell for instance[6] writes that buildings from a public office are not designed at all but 'hatched' by a conglomeration of technicians, a process to be compared with the chaos that would have resulted had, say, Shaw, Street, Lutyens and Colcutt gone into partnership—a false analogy based on a false premise. Such men were brilliant individualists in an age of stylistic anarchy. The LCC Architects' Department itself symbolizes the close of this anarchical era; in its earlier works there is a consistency of style and outlook arising, not from a boss imposing himself, but from a social and architectural ideal—the Morris-Lethaby-Webb ideal that a Shaw or a Lutyens could never more than half understand—but which *was* shared at that time by all the designers in the Department.[7]

This LCC honeymoon ended with the First World War. The pioneers were dispersed. We can pass quickly over the intervening years, the years between the wars. It was a period when considerable slum clearance was carried out and massive blocks of housing were built, compared with which Millbank or Webber Row were small indeed. Such schemes, however, were still only *ad hoc* rebuilding—mainly on sites where the valuer could drive the best bargain—for there was still no plan for London, no plan to

[6] H. B. Creswell: *Architect and Building News* (16.2.56). A statement based on experience at the Ministry of Works sixty years ago.

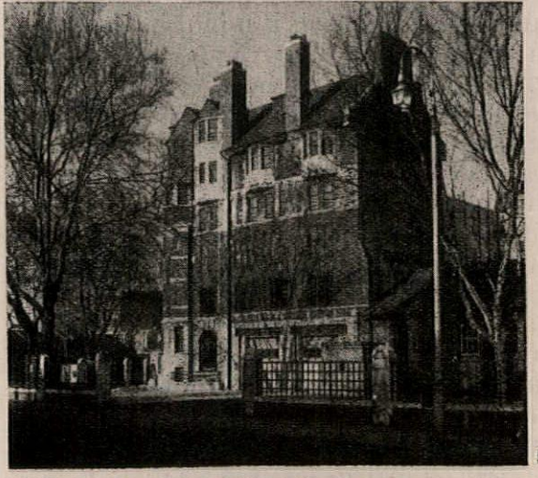
[7] One sees now, though it may have been difficult for Professor Pevsner to do so twenty years ago, that the LCC Architects' Department—not only because of the architecture itself but because that architecture was departmentally designed—might well have been placed upon the roll of 'Pioneers of the Modern Movement.'



3



4

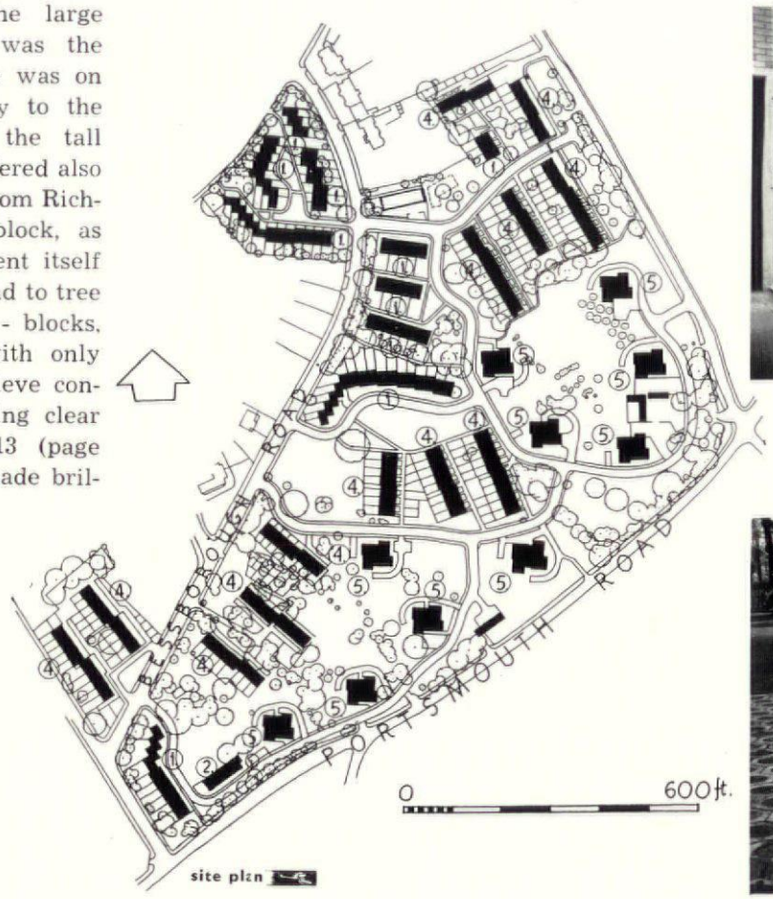


5

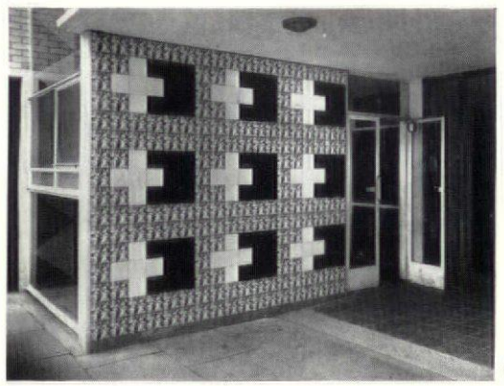
3, *Roehampton Estate*, 1924: *the Pleasaunce, which is about half a mile north-east of the Alton Estate.* 4, *the first of the LCC's cottage estates, at Totterdown, Tooting*, 1903. 5, *the Euston Road Fire Station*, 1902.

Alton Estate, Roehampton, S.W.15

An example of mixed development* on a site that was formerly the gardens of Victorian mansions. The large number of mature trees was the key to the layout. The site was on high ground, falling steeply to the south, which meant that the tall point-blocks had to be considered also as a panoramic group seen from Richmond Park, 8. The point-block, as opposed to the slab-block, lent itself to siting on steep contours and to tree preservation. These point - blocks, eleven storeys high, but with only four flats on each floor, achieve considerable elegance by standing clear of surrounding buildings, 13 (page 309). The entrances, 6, are made brilliant with staccato designs in black, white and stippled tiles. 7, an ingenious use of hollow-centred concrete tiles outside the flats, giving a hard surface but letting grass grow through. The lower buildings form maisonettes, 10 (page 308), terraces and single dwellings. The steep contours, again, give inter-



site plan


6

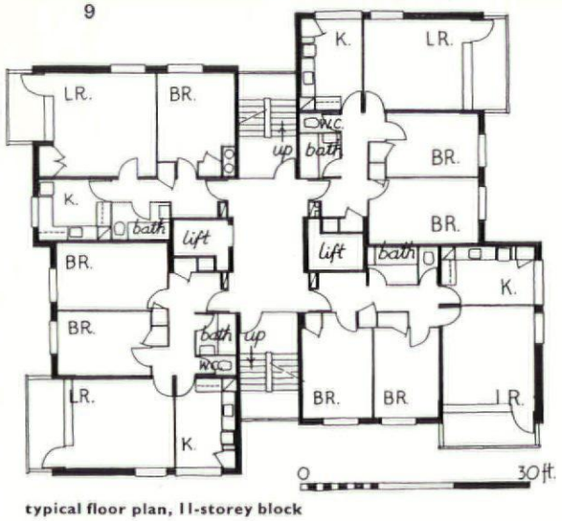

7

744 dwellings (including 424 flats in tall blocks, 224 maisonettes and 75 terrace houses). Area of site: 28 acres. Density: about 29 dwellings per acre.

8

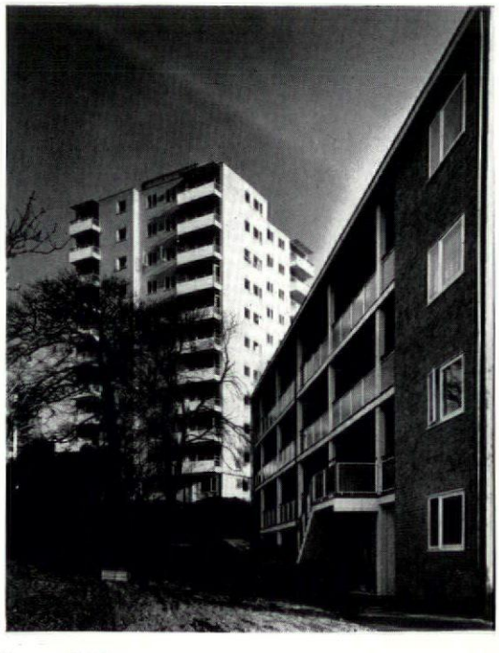


9



typical floor plan, 11-storey block

esting effects as the houses step down the hill, 12. Other groups exploit colour—successive houses being painted all over in emulsion paint, 9, a whole terrace working through a range of greens. The contrast between the open parkland around the point-blocks, 11, and the intimacy of the small streets for the houses is one of the best features of the scheme.



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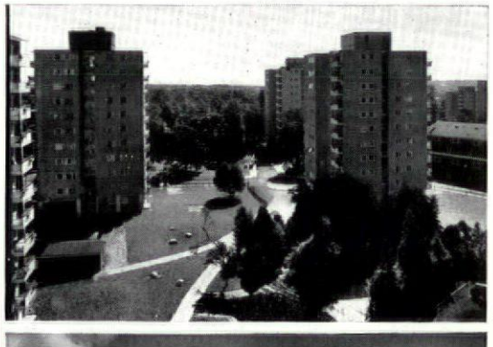


11

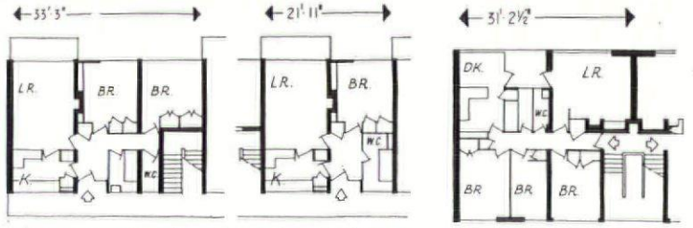


12


Alton Estate, S.W.15



14



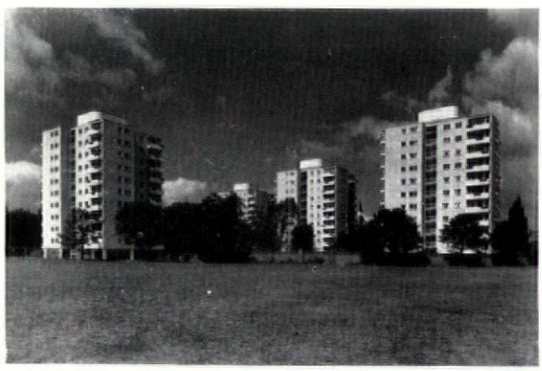
balcony access (type 2 on site plan), typical upper floor: 3-room flat and 2-room flat.

staircase access (type 3 on site plan) 4-room, ground floor

Fitzhugh Estate, Wandsworth, S.W.18

The estate abuts on Wandsworth Common, and permission was only given for the development on condition a sense of space in keeping with the Common was preserved. Hence the five tall blocks*, which comprise the total housing, sited so as to avoid massing, 15, and also any major disturbance of existing trees.

*214 flats. Area of site: about ten acres.

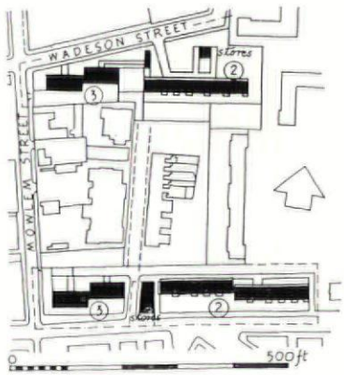


15

Wellington Estate, Bethnal Green, E.2

This estate is thoroughly urban, lacking the park-like character of the Roehampton estates, and having a much higher density*. It depends, therefore, more upon abstract and formal architectural qualities for its effect — in actual fact upon the arrangement of windows and panels between the cross-walls and upon the rhythms of the balconies. Simplification of structure is brought about by regular spacing and repetition of structural units, 14. Two of the four blocks have balcony access; the other two have staircase access. The external walls are non-load-bearing and consist mainly of timber framing with glass-faced under-window panels.

*72 dwellings, in four blocks. Area of site: 2½ acres. Density: 38 dwellings per acre.



site plan

which they could be geared. Architecturally they lacked the conviction of the pre-1914 work, they are no more than the tired, mechanical neo-Georgian of the time, 16, simplified versions of the 'luxury' flats then being spawned over the West End.[8] Better working-class house was being done elsewhere. The sad aspect of this era is that while the architects concerned were competent—in the accepted sense—it is clear that either they were imposing their jejune ideas upon their staff, or that the staff lacked the idealism that had fired their predecessors. Either situation follows the other—the wrong boss attracts the wrong staff.

As the Second World War ended there arose a new spirit that was of deep significance to the form of the city. It was the spirit of socialism, welfare and reconstruction. No one quite dared to use the old slogan—'homes fit for heroes'—but Planning was in the air, not only in the air but on the Statute Book. The Forshaw-Abercrombie Plan (1943), if only an *esquisse*, had laid down principles for the whole County.[9] It was a tangible brief to which both the more specific post-war Development Plan and all future building work could be geared. This, as the second fruitful era of the Department's history began, was the significant change. Now it was all London—not this slum or that—that was the canvas on which the staff could work. It was under this stimulus and under a new sort of chief architect—Robert Matthew—that the Department recruited its post-war staff. They were starry-eyed days and some disillusionment, as well as achievement, lay ahead. There was also a bad 'hang-over' in the Housing Division until—due to much external criticism—the Valuer was in 1950 deprived of his architectural functions, and Whitfield Lewis appointed as head of the Division. Even so, it seems more necessary today than fifty years ago to explain the work of the LCC. It was then taken for granted that if slum clearance work was not done by municipally-employed architects, it would not be done at all. The Norman Shaws and the Lutyens would not have accepted such commissions, and so a special staff was needed. Today a different explanation is needed: an explanation as to how, at County Hall, a man's ability is used, and fully used, inside an organization so large as to intimidate or depress many, while infuriating others.[10]

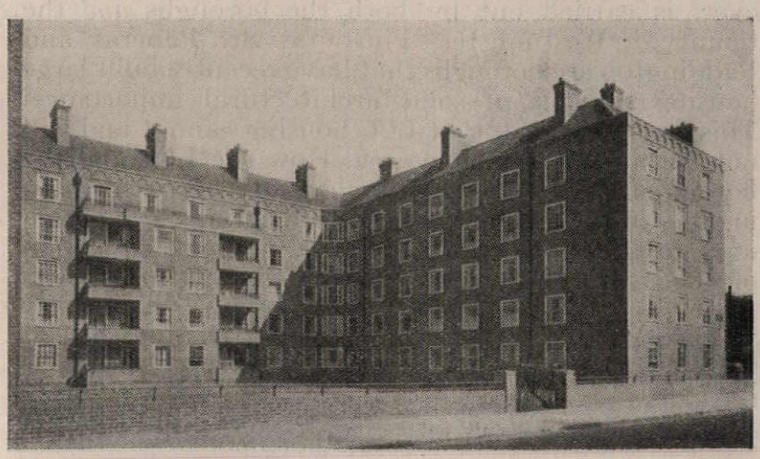
First, then, it is necessary to recall that private architects' technical and economic responsibilities are now such as to prevent them being entrusted with large schemes until they are middle-aged—experience and caution mattering more to their sort of client than brilliance or even reasonable skill. It is the Commercial State, not the Welfare State, that thinks an architect's *architectural* capacity the least part of him.[11]

Today, however, more jobs are big jobs. The younger and more imaginative designer must—for the sake of architecture—be given the protection of the right sort of large office, where administration is cared for by administrators and design by designers. This large office, in our dual society, can be, as in the commercial sector, the large commercial office or, as in the welfare sector, the large public office. In the former the boss will, for réclame, wish to appear as the author, as the architect he so seldom is. He may also reduce to an economic minimum the 'umbrella' of technical and administrative services under which the designer works, and may therefore discourage æsthetic adventurism involving technical effort. He is unable, also, to use one client's job as a pioneering job, or pilot scheme, for the benefit of another client. In the large public office, however, such technical services can serve a large building output, and the principal architect, while not necessarily a very good architect, has no reason to avoid original or even adventurous solutions, provided always they *are* solutions. He has little interest in personal fame.[12]

The small private architect may always exist for the small job; for the big modern development programme—e.g., not *a* school but a county full of schools—good architecture is on balance more likely to come out of the big public office—or the sort of office it chooses to brief in its farming out—than the big commercial office, because it is within the public authority that the designer can be freed to design. Admittedly there are very few good public offices—say half-a-dozen—but then there are very few good architects—say a hundred; but we are not discussing the state of architecture, we are discussing in general how such ability as there is can be used, and why in particular the largest public office of all is one where

[8] Multi-storey flats are, in any case, the very last building type to which Georgian façade motifs can be applied. The essence of the Georgian façade is *differentiation* in the value or heights of storeys—modest ground-floor, piano nobile and so to the attics. In flats, on the contrary, every storey is of *equal* value and height since each has an identical function. Neo-Georgian high buildings, therefore, are not an error of taste but of comprehension. Hence, the period from 1920 to 1940—from the introduction of the steel frame to the recent realization of its æsthetic implications—was in LCC housing, as in 'luxury' flats, the reign of monotony.

[9] London was not unusual in aspiration, only in realization. Dozens of other plans—'Exeter Phoenix,' etc.—have all gone with the wind.



16, *South Lambeth Estate, a pre-*1939 *scheme completed after the war: Corfe House—typical of the mechanical neo-Georgian style produced after* 1918, *in imitation of the 'luxury' West End blocks of the same date.*

[10] Some of the intimidation and depression created by the LCC in sensitive organisms must be directly attributed to that archtype of private architect, the late Ralph Knott.

[11] The average age of architects whose work was shown at The Arts Council Exhibition—'Ten Years of British Architecture' was 44. The inclusion of more big office blocks and large industrial works would have 'rocketed' this figure, but few such works were, on architectural grounds, exhibited. The reckoning in of the more creative younger staff at, say, Hertfordshire or the LCC—much of whose work was shown—instead of their chiefs, would have lowered the figure to about the point where history shows man's creative powers to be at their height.

[12] Technical development groups (e.g., as at City of Coventry, Hertfordshire CC and the LCC) are a sign manual of the advanced authority.

designers are allowed to design. It is a notable fact and a notable achievement.

A further advantage of the large public office is that the old client-architect relationship—which seldom worked well if only because the architect was seldom properly instructed—no longer exists. The architectural or building departments of the authority and the 'client' departments (i.e., Housing Officer, Education Officer, etc.) do not stand to each other as patron and servant; they are colleagues. Consequently, the Education Officer's case for, say, a school on Site X, the Planning Officer's case (on Abercrombie principles) for allocating Site X for educational use, the School Architect's approval of Site X for its purpose, and the Housing Officer's original decision—within the framework of the Development Plan—to allocate population to the area around Site X, do become—*given reasonable men reasonably organized*[13]—a single case crystallized inside a single organization with a common pool of information and a common objective.[14] This monolithic case, being also geared to an investment programme that is, in turn, geared back—as it were—to the needs of the 'client' departments, is accepted by the Council for what it is—the joint advice of appointed experts. There can be no client-architect wrangling. The process is not fast, it is smooth. The building is not 'hatched' by a committee process; the committee process is concerned very little with the building as such; it is concerned to ensure the designer a concise and untrammelled brief. The case may at its worst be faulty, which is possible under any system. At its best it is a conspiracy among experts to produce the right building in the right place at the right time.[15]

It is outside our theme to discuss the 'client' departments of the LCC, but any picture of the building and planning divisions must have in the background, among other things, the Education and Housing Officers, the 'clients' who know their needs both within London as it is and within London as forecast by the Development Plan. In the further background is the Valuer[16] acquiring sites with a precise factual knowledge of the past, present and potential future of each acre of the County. The Housing Architect, for example, will thus ultimately receive a brief leaving to him those matters that are his concern—i.e., the architecture of housing—but a brief bearing some guarantee that he is, in the eye of Housing Officer, Planning Officer and Valuer, being asked to design the right number of dwellings in the right place. He is also working to a brief to which he himself has contributed at an earlier stage by examining the site's housing potential.[17]

[13] A reasonable organization is assumed; there *are* local authorities where County Architect and Education Officer have never met!

[14] In the job farmed out to a private office the argument still applies since only at the end of the process does the brief reach the designer.

[15] Admittedly a highly complex process: the individualist who squirms under it must either go into exile, plot a revolution, or propound an alternative method of governing fifty million people within the ethic of Christianity and Humanism—the dual philosophy upon which our society likes to think it is based.

[16] The LCC Valuer, once he was deprived in 1950 of his architectural functions, became a key figure without whom the Development Plan and the consequent allocation of sites to the designing staff would be paralysed. He is *now* an integral part of a logical process.

[17] One may legitimately compare this process—said to frustrate the designer's soul—with, say, Vanbrugh's experience with the Marlboroughs or Lutyens's with the British Raj.

The Architect's Department of the LCC is responsible for the development of London in accordance with its own statutory plan, and for all the building work directly undertaken by the Council. It is also responsible for the maintenance of its own buildings, for the drafting and administering of the Building Regulations—including means of escape and fire precautions; for the administration of the London Building Act and consequently for the appointment of District Surveyors[18]; for civil defence structures, for street naming and for the care of such historic monuments and parks as do not come under the Crown. It is, therefore, responsible for the approval in terms of planning, structure, safety and, to a lesser extent, æsthetics, of all applications to build within the County. We are concerned here only with the Department's own work but it is to be noted that that work gains in flexibility by its closeness to the Regulations and Building Act officials; a structural experiment can correlate itself to the necessary waivers and revisions of the Act at sketch stage.

Not all public authority in London is by the LCC however. (This paragraph may be skipped by the experienced Londoner.) The administrative area of the County excludes at its heart—save for planning approvals—the built-up but almost uninhabited financial quarter of the City. The County is also rather smaller than the vague 'London area,' and much smaller than the area affected by many of its services. The metropolitan police area and the London Transport area again have their own boundaries. The area of the County of London is 117 square miles, its population is about 3,300,000; that of the Thames Basin or London commuting area is probably nearer 10,000,000. Within the County itself are the much older London boroughs.[19] These boroughs are anomalous products of history, left out of account in the great reorganization of 1888; in practice often justifying their existence even architecturally. Only the real Londoner knows instinctively which are borough services (e.g., street cleaning, lighting, public libraries and rate collecting), which are County services (e.g., education, ambulances, fire brigades and sewage disposal), which are autonomous services (e.g., police, transport, gas, water, electricity and the Port) and which are central government services (e.g., principal museums, galleries and royal parks). Housing, however, is carried out by both the boroughs *and* the County.[20] Westminster, Finsbury, St. Pancras and Paddington are boroughs that have recently built large housing projects of some architectural importance. This does not mean that LCC housing cannot and will not be built in the same area. How the LCC and the boroughs settle housing policy between them is, in spite of the machinery of joint meetings, something of a mystery. Urgent need, the chance acquisition of good sites and a borough council's attitude to its

[18] The District Surveyors formerly lived on fees payable to them by building owners for approval of work done—a most dubious and almost corrupt system stinking of the eighteenth century. They are now directly employed by the LCC.

[19] An interesting, if slightly out-of-date picture of the London maze is to be found in Robert Sinclair's *Metropolitan Man* (1937).

[20] There are sometimes book-keeping adjustments between the boroughs and the LCC, but a rough guide to their relative importance is that they divide the London rate on a fifty-fifty basis.



17

Albert Drive, Wimbledon, S.W.19

Albert Drive,* while one of the Wimbledon and Roehampton group of estates, is different in conception. Like the other estates it enjoys the advantages of mature trees, but it uses its site not as parkland but as a series of linked quadrangles with the old trees grouped in the centre of each, 18. There are no point-blocks here—there would have been no room for them—but rather an arrangement of formalistically designed terrace housing and maisonettes. The 'cottage' atmosphere is also avoided and here it is whole terrace blocks, rather than single dwellings, that are stepped up the contours. The construction is of the cross-walled type with panel and window infilling, 17.

site plan



*343 dwellings. Area of site: 13.86 acres. Density: 24.75 dwellings per acre.

18

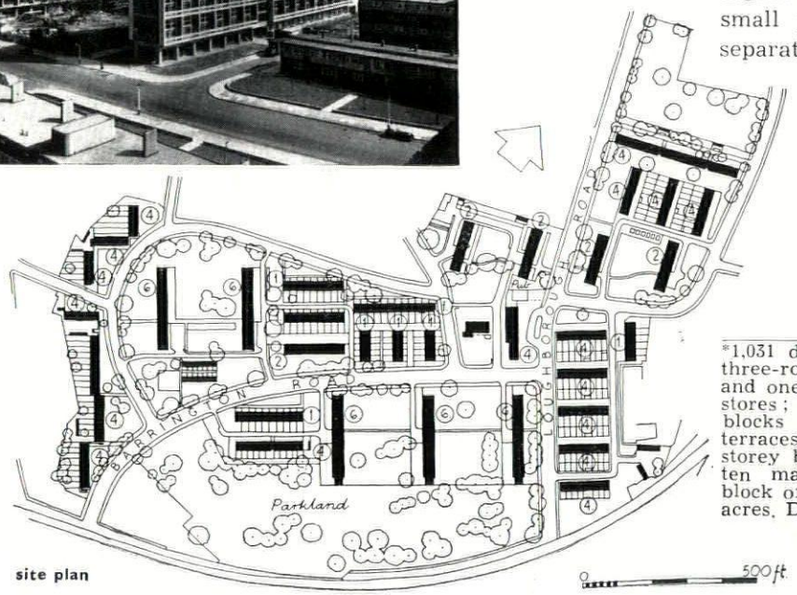


19

Loughborough Estate, Brixton, S.W.9



20

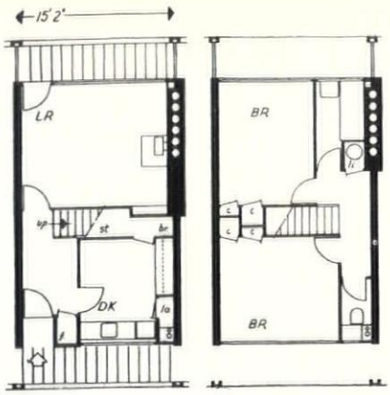


site plan

This is an urban rather than a suburban estate, with a fairly high density.* There were, however, a number of old trees on the site and the preservation of these has made it possible for the higher blocks to look south over a small piece of parkland, 19, which separates the housing from the railway viaduct. A school extension, old people's home and shopping centre (of seven shops with maisonettes over) and laundries are part of the plan. While there is some terrace housing and some one-room flats, 20, the interesting point about the scheme is that it

*1,031 dwellings (nine 11-storey blocks of three-room maisonettes, and three-, two- and one-room flats, laundries and tenants' stores; one six-storey and 15 four-storey blocks of four-room maisonettes; eight terraces of two-storey houses; one three-storey block with seven shops below and ten maisonettes above; one two-storey block of one-room flats. Area of site: 30.86 acres. Density: 38.2 dwellings per acre.





typical maisonette in 11-storey block: left, lower floor; right, upper floor.

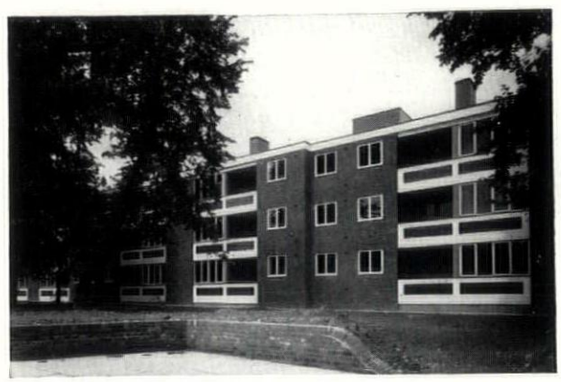
Loughborough Estate

consists largely of maisonettes. The cross-walls in the higher blocks are brought forward to frame in the balconies — forming a slightly aggressive over-all pattern, 21.

Tor Gardens, Kensington, W.8



The estate is divided into two sites, 22, the L-shaped block, adjoining other properties, which is partly four-storeyed, with maisonettes, having private gardens, and partly three-storey with balcony-access flats.



23, the other block is on an island site, is three-storeyed, and contains only staircase-access flats. A large area on the south side (shown above) is grassed and planted and used as a children's playground; it is also intended to serve as a green link between Holland Park and Kensington Gardens.

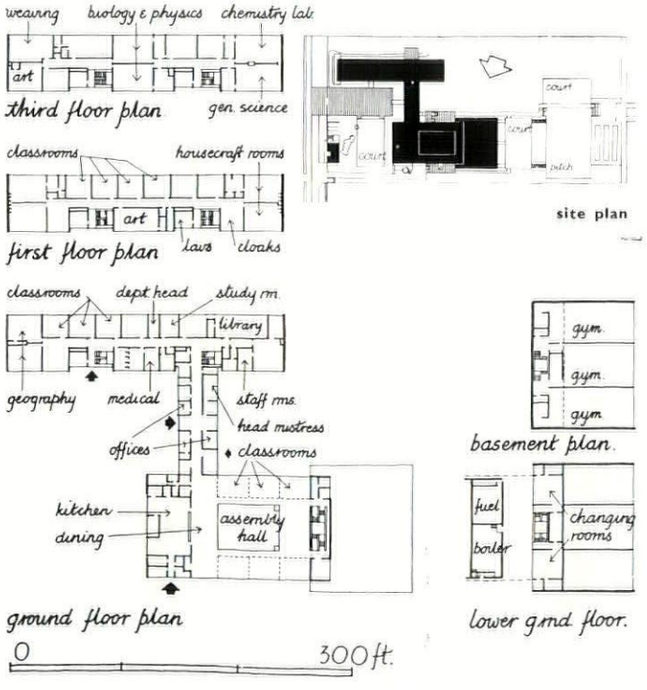
24

25

Catford County School, Lewisham, S.E.6

This is, so far, one of the more interesting LCC schools* designed in the Architects Department—as opposed to those farmed out. It is simple in plan—two main blocks only—and the plan is noteworthy for the way it exploits the steep site. The light construction—a 3 ft. 4 in. modular steel frame with precast concrete cladding and curtain wall glazing—is also reflected in the whole character of the design, 25, as well as in its detail. The flexible design of the assembly hall, 24, for multi-purpose use, is ingenious, and the use of external colour excellent.

*For 1,190 girls.



social problems (i.e., politics) all play their part. An apathetic borough may cause the LCC to move in; desperate housing needs may cause the borough and the LCC to build within half-a-mile of each other.[21] This does not matter in theory, nor in practice except when borough architecture is too far below LCC standard . . . it sometimes is and sometimes isn't. The boroughs, however, are not exempt from LCC planning consent; they are not themselves planning authorities, only corporate but private building owners submitting schemes, like anyone else, to the LCC. In actual fact borough schemes are normally discussed and agreed at County Hall long before formal consent is asked for.

Subject to this reminder that the boroughs tend to confuse the picture, the Architects' Department of the LCC is virtually responsible for all public building in the County of London (except the building done for the Crown by the Ministry of Works), and for planning approval of all building, public and private.[22]

The LCC Architectural Department has today a staff of about 3,000, technical and administrative. After the inter-war doldrums the Department returned to something like the brilliance of its pioneering years, but in a very different context—the context of the Welfare State. The scale was infinitely greater, the problems more complicated and statutory obligations and powers more far-reaching; but once again, after forty years, there was an ideology, an architectural target. In such a vast organization—involving much delegation—there is a lot that is no more than mediocre, but there is also that considerable body of work that ranks so high in the architecture and planning of our time. For the present status of the Department two successive Council Architects, Robert Matthew and Leslie Martin (who succeeded Matthew after coming in as his deputy) must share the responsibility, together with the heads of their Divisions. Last year R. E. West was appointed deputy architect, and now Hubert Bennett—formerly County Architect of the West Riding—is to succeed Leslie Martin, who takes the new Chair of Architecture at Cambridge. In all this it is Matthew and Martin who stand out as the men who could set their sights high, remain calm, attract staff and—while never themselves abdicating as designers—could give their staff an organization within which they could justify themselves.

In particular, Leslie Martin's refusal to abdicate as a designer has not prevented him from allowing more than one school of æsthetic thought to reveal itself in executed work; but this liberalism apart he has himself designed. In the room adjoining his own at County Hall there has nearly always been a small post-graduate group working with him on what might be called a 'prestige job.' The Festival Hall, though large enough to overflow into other rooms, was designed in this way. The proposed extension to the Festival Hall, certain aspects of the South Bank plan, and the Sports Centre and other buildings on the Crystal Palace site all bear Martin's personal stamp as designer.

The whole organization is based, *not* on the 'pyramid' with a master designer at the top, but on a series of almost autonomous teams. The basic unit is usually about twelve men under a Grade One architect for each job, a 'job' being, say, one Comprehensive School and two Primaries, or one medium housing estate. The structure of the Department is functional, not regional. On this basis—apart from some of the lesser or purely statutory functions of the Department, and apart from those Divisions (e.g., Quantities) that serve the architect—the main Divisions, under the Chief Architect, are: 1. Planning; 2. Housing; 3. Schools; 4. General; 5. Maintenance; and 6. Technical Development. A comment must be made about each.

[21] Typical of the London scene is Drake & Lasdun's Bishop's Bridge Road housing scheme in Paddington, with the Hallfield School planned as an integral part of the whole. The Borough of Paddington commissioned the housing; the LCC commissioned the same architects to build the school in the gardens of the flats. M. Le Corbusier found a less satisfactory liaison between the French Republic and the municipality of Marseilles.

[22] The boroughs have in practice delegated all their powers to the LCC, except control of advertising.

the planning division (apart from its statutory functions under the London Building Act and the Building Regulations) deals with the planning aspect of all LCC, borough and private development under the Town and Country Planning Act, 1947. It also administers the County of London Development Plan, both by positive implementation and by assuring that private schemes are geared to it before they receive approval. Under the Senior Planning Officer, L. W. Lane, the Division has a staff of about 200 architects. Until this year, and since 1948, the Development Plan has been administered by four groups: 1. Information and Research; 2. Development Plan Group; 3. Application Group; and 4. Reconstruction Group. As the Plan has moved into action, however, Research has become more realistically linked with policy and its application, while Reconstruction (i.e., reconstruction of derelict areas by the LCC itself) has become more and more important. This year, therefore, there has been fusion into a single Policy Group, while the application of policy is directly administered by the planners—the subdivision being only regional: two areas, NW and NE, to the north of the River, and one area, S, to the south of the River.

In the middle of the war—perhaps mainly as a gesture of faith—the 1943 Forshaw-Abercrombie Plan was produced. This, elaborate and radical though it was, could be only a sketch. Its acceptance by the Council in 1945, however, meant that certain axioms were established: 1. London's lack of open space and recommended standards; 2. The need for a drastic system of ring roads and an ironing out of traffic congestion; 3. Classification of housing as: (*a*) low density, (*b*) obsolete, and (*c*) correctly sited on a community or neighbourhood basis . . . the key to urban development; 4. The need to deal with faulty mixed industry and housing. With a view to implementing these principles the Town Planning Committee of 1945 also made specific recommendations concerning, for instance: 1. The establishment of main density zones of decreasing intensity outwards from the centre; 2. Standards of open space at 4 acres per 1,000 persons, and better distribution thereof; 3. Certain urgent road works; 4. Mixed low and high housing, subject to overall density control; 5. Decentralization of industry; 6. Establishment of Reconstruction areas. A glance at the Development Plan ten years later shows how closely it has been guided by these recommendations, and how, therefore, it is a true growth from the Abercrombie seed.

The Development Plan[23] was also of course a statutory requirement under the 1947 Act and, dealing as it did with thousands of single properties (some 7,000 objections and representations were received and dealt with in public enquiry), was a vast administrative task inside County Hall. A complex series of documents, it was duly submitted to the Minister in December, 1951, and, after over four years, was approved by him with modifications. These modifications, while

[23] 'Administrative County of London Development Plan 1951. Analysis.' (L.C.C. £1.10.0.)

mainly slight or reasonable, were not entirely so. The Minister suggested that the LCC was failing to implement its own policy by inadequate reduction of the industrial acreage and, to ensure that industry should not re-occupy certain areas now industrial, re-zoned these as residential. This may—disastrously—force housing on to bad sites as, for instance, land alongside railway yards. This seems to be not unconnected with the Minister's dislike of the LCC's use of leafy, open but obsolete sites (e.g., gardens of Victorian mansions at Putney or Roehampton) for new low density housing; he excludes such areas as Hampstead, St. John's Wood, Dulwich, etc., from such use. Another Ministerial modification was the demand for a new approach to the problem of the St. Paul's precinct; it was to meet this demand that the present Holford scheme was produced.

Generally, while the Development Plan implements the Abercrombie principles, it is clear that the most intractable problems involved are the reduction of industry within the County and the general control of population movement. The industrial issue in particular is too deeply sunk in a welter of statistics to be discussed here. The Plan did, of course, even before submission to the Minister, drastically reduce the industrial acreage; the issue is rather one of degree, of location, of the new zoning of land from which industry is to be ejected, of the allocation of funds for site purchase and the use of compulsory powers. Apart from such details, however, the Development Plan reduced industrial acreage by 290, while the Minister increased this 'target' figure to 400—an aspiration rather than an estimate. Moreover, as the LCC have pointed out, while they can deal with their domestic problems, the location of industry is a national problem.

As to general population control, it is not always realized that the present population of the County (3,300,000) is 'correct.' It is the distribution within the County and the housing itself that are bad. The present policy, designed to preserve the amenities of lower density suburbs, is to 'leap-frog' the population of the central areas to new housing outside the County. Hence the 'out-county' estates and the 'overspill.' For some reason the out-county estates have not been among the LCC's happier architectural achievements, nor does the overspill, in the present context, raise matters of architectural interest to London. The Development Plan estimated an overspill of about 300,000 and agreements have been concluded with Swindon, Bletchley and Daventry, while the Minister has agreed that a number of other towns south-east of a line from The Solent to The Wash should also be 'expanded towns' for former Londoners. Only thus is there a chance that London's remaining central area population might be ultimately rehoused in either Reconstruction Areas or rehabilitated housing. There are, however, limiting factors: one, the potential of the expanded town to provide employment, and two, the desire of Londoners to make the move . . . so far about 30,000 families or 110,000 people, divided between the expanded towns and the New Towns. This is considered by the LCC to be a good beginning. Is this policy of decentralization defeatist? It is highly controversial and is dependent not only upon such obvious factors as a straight choice between high building in the centre or low building farther out, but rather upon such things as the problems of commuting and the 'exportability' or otherwise of certain central area jobs. There is room for more housing in London, even central London—as well as for open spaces—but the Minister's sterilization of certain areas has created an artificial site shortage. The whole matter has recently (July, 1956) been dealt with in *The Times* by Ruth Glass, and in the ensuing correspondence under the title 'London on the Move.' The whole thing bristles with architectural significance, but clearly decentralization is not the whole answer.

So far, however, the architectural opportunities inherent in the Development Plan have been mainly in new housing (often in low density outer suburbs), in the Reconstruction Areas (mainly in high density central districts), and in the possibilities opened up by the replanning of nodal traffic points on the ring roads.

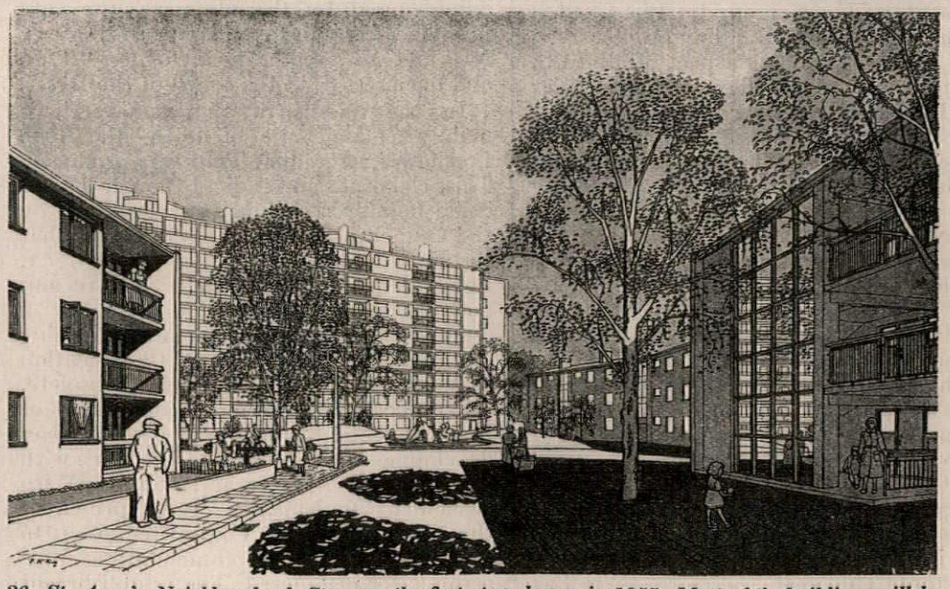
London has one advantage over cities of comparable size elsewhere in the world. Its growth through the centuries has made it a conglomeration of smaller cities and many villages. This, while superficially confusing, has given variety and life to the otherwise amorphous mass and has, moreover, given it some sort of neighbourhood structure with vestiges of local community life. This was seized on by Abercrombie as a key to urban development and the LCC has, in the Plan, not only retained but extended this pattern. It has, for example, made it the basis of its Reconstruction Areas and larger housing projects.

A 'Reconstruction Area' is an area so derelict that the LCC have set it aside for complete reconstruction under their own control. 'Control' implies more than normal statutory planning approval; it implies at the very least a three-dimensional master plan; at its fullest complete rebuilding by the LCC's own architects. It involves the purchase of sufficient sites for this purpose.

One of the largest of such areas is the 1,945 acres of Stepney, Poplar and North Poplar with eleven neighbourhoods, each with 5,500 to 11,000 people. Lansbury—the 'live architecture' exhibit of the 1951 Festival of Britain—was one of these eleven neighbourhoods, and was an instance where the LCC, within the framework of their own plan, allowed the farming out of housing, schools, churches, pub, etc., to a number of good architects.[24] A further neighbourhood unit of 42 acres, St. Anne's, 26, in the same Poplar-Stepney Reconstruction Area, is now being developed and shows the application of LCC principles. Two factories at the heart of the area have been moved and industry generally placed along the bounding canal; 2½ acres of open space have been added to link with the existing and nearby playing fields; a shopping centre is established and two primary schools (C of E and RC). Housing units of various types are in the form of houses and in flats of from 3 to 8 storeys. A further neighbourhood of the Area—Neighbourhood Unit 7, Tidey Street—is now planned. There were serious problems. Here it was not possible to move certain industries—principally a large gas works. Most of the housing, therefore, has been planned to look outwards away from the gas works across new open spaces, and has been kept low. This in turn has meant some concentration of other housing within the neighbourhood to preserve the overall density of 136. Consequently the LCC's highest domestic block so far, a 19-storey point-block, is to be built. This is an extreme example of mixed development, derived, however, from planning requirements and not from any doctrinaire theory.

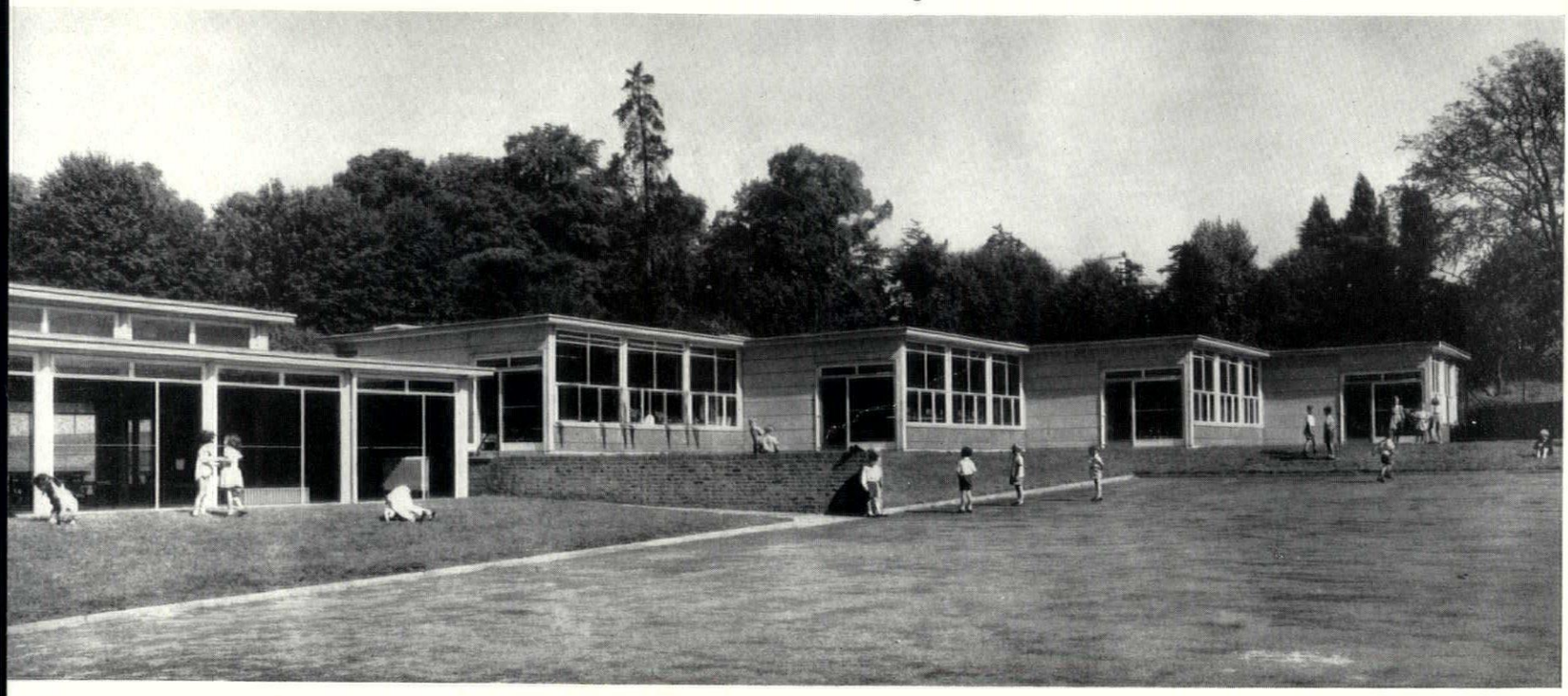
All Reconstruction Areas are not necessarily residential. If, for instance, the Minister approves the LCC scheme for the Barbican area of the City, 32, it will be virtually another Reconstruction Area,

[24] Variety at Lansbury may have been achieved at the price of architectural consistency. On some of the LCC's own housing estates (e.g. Roehampton) the architecture may be open to criticism but the estate itself, created wholly within the Housing Division, undoubtedly has unity.



26, St. Anne's Neighbourhood, Stepney: the first stage began in 1955. Most of the buildings will be low but there will be two 8-storey blocks (one is shown above) and one 15-storey point block.

Heathmere Primary School, Roehampton, S.W.15



27

This is a school* of light construction on a site with varied contours, 27. The infants' classrooms are on the level part of the site and well surrounded by trees. The junior wing is a two-storey block and is more closely related to the slopes. Each teaching wing has its own assembly hall; the infants' hall having Stephen Bone's mural "Battle for Land". There is a common dining-hall serving 600 meals daily. The external colour is exceptionally good.

*720 children: 400 junior mixed; 320 infants' mixed.

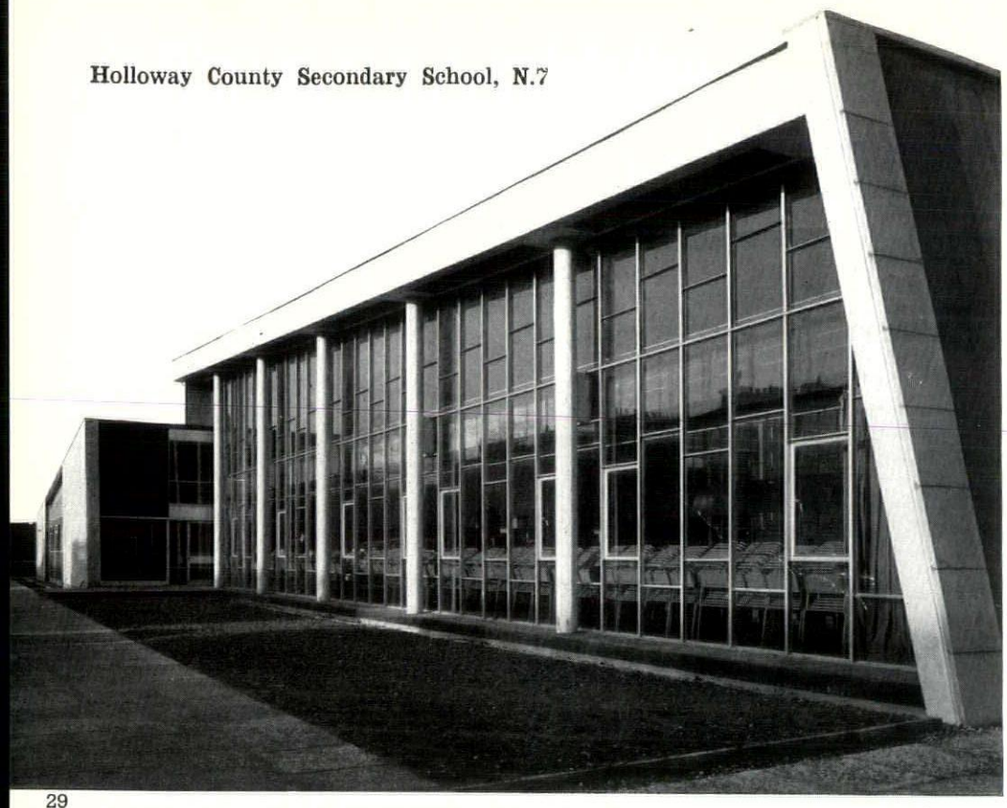
Holloway County Secondary School, N.7



28

The design of the 'comprehensive' school—i.e. the large secondary school—has set a new problem within the age-old one of achieving diversity within unity. Holloway, which is for 1,340 boys, is in this respect an achievement. It has probably gained rather than lost owing to the economic and site necessity for compact planning, 28. There is a fall in the site of about 15 ft. and advantage has been taken of this in placing the boiler-house at the lower edge of the site under the workshop. The main structural material is reinforced concrete on account of a temporay steel shortage. The roof of the assembly hall, 29, is a 'Diagrid' with precast concrete units set parallel to the diagonals of the roof shape and threaded with steel bars. In the main teaching block the large infill panels (top left of 30) are light-grey stonite designed to match the concrete panels below the ground-floor windows. For the panels under the first- and second-

Holloway County Secondary School, N.7



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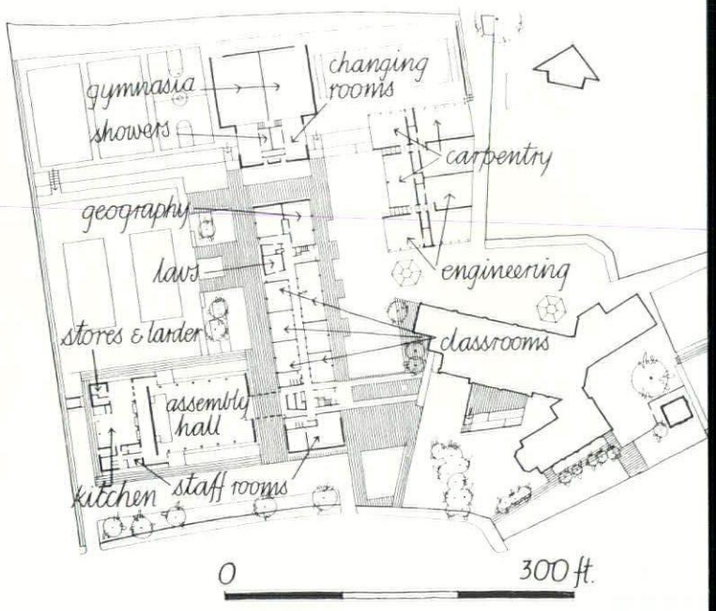
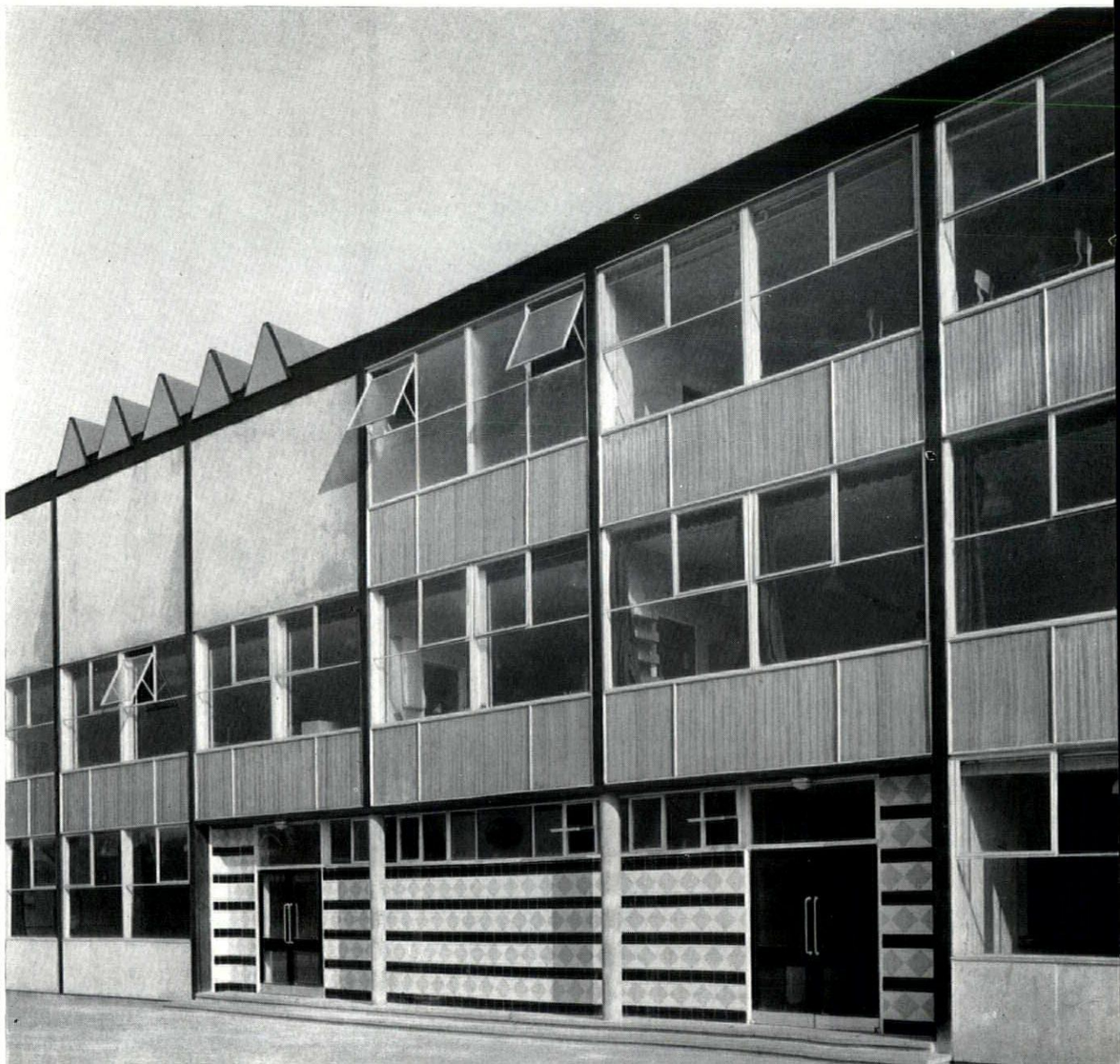


ground floor plan.

floor windows, coloured plyglass was originally intended, as at Catford, but was dropped as the architects feared it would appear too like a factory. Instead plywood was used, faced with zebrano, the most exotic grained wood that could be obtained.



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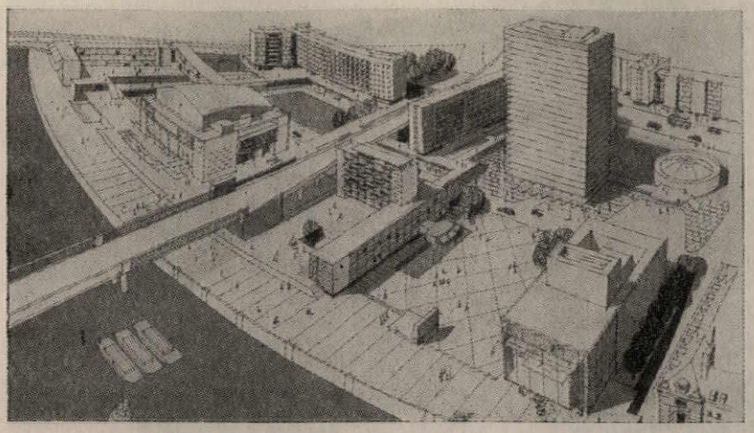
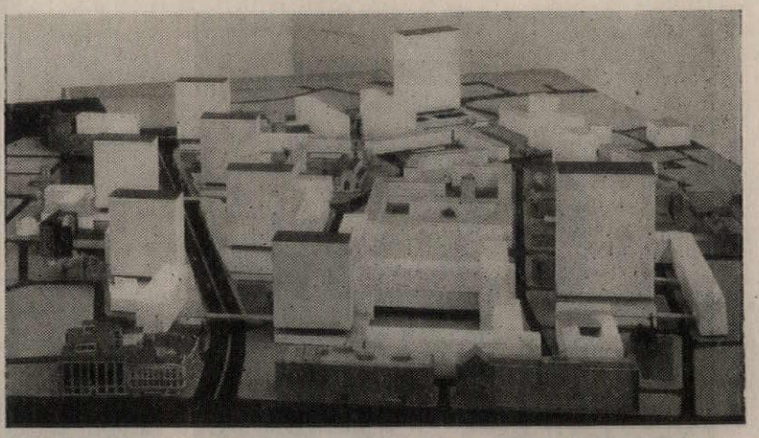


31, *proposed layout of the South Bank of the Thames, showing the system of pedestrian terraces and piazzas.*



32, *model of the scheme proposed jointly by the LCC and the City Corporation for the Barbican area in the City.*

though almost wholly commercial. The South Bank scheme, 31, the start of which is imminent, is also such an area, but one which illustrates yet another approach to the problem of control. This was clearly an area which the LCC could not surrender to anarchic rebuilding. An elegant and practical master-plan was therefore devised incorporating the Festival Hall, National Theatre, etc., while giving to Londoners some 20 acres of riverside gardens and terraces. Full use was made of changing levels and varied skyline—including the 25-storey office tower. Subject to the three-dimensional control implied by this master-plan, possible only when the public authority is also the ground landlord, the lessees—Shell—were allowed their own architect, Sir Howard Robertson. Whether or not the implementation in detail of the LCC master-plan will justify this compromise system now appears doubtful; a year ago the LCC scheme promised an elegance and grace that seems to have got lost in the process of detailing.

The Planning Division's ring-road system is inevitably a very long-term affair, but the wiping out of 'bottlenecks' has begun, and this often involves so much rebuilding as to make such schemes in effect further Reconstruction Areas, although sites have to be acquired ten years ahead. A scheme such as the Elephant and Castle, due to begin next year, has been criticized as too 'peripheral' but does, even so, in solving a single traffic 'node', mean rebuilding some 31 acres. Planning in greater depth on either side of the road is contemplated at Notting Hill, while the Strand widening and the Cromwell Road extension are under way. Traffic-free precincts, as in Westminster and Bloomsbury, are envisaged, but lacking Ministry of Transport grant, are more utopian. Such are a few of the architectural opportunities arising from the work of the Planning Division.

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the housing division is the largest building department. At only one remove from the Architect himself, it is served by the Housing Engineer's Division (roads, sewers, services, site works, etc.), the Structural Division (steel, reinforced concrete, foundations, etc.) and the Quantities Division. The Principal Housing Architect is J. Whitfield Lewis who was appointed in 1950 to take over from the former Valuer whose work is now more properly divided between the Housing Architect, the Director of Housing and a new Valuer with more limited functions. It is under Whitfield Lewis that the Housing Division has been given its present architectural importance. In 1950 the Division had a nucleus staff of 20. It now has a staff of over 400—about 310 architects, 47 administrative and clerical, and 70 clerks of works. Until recently the aim was to build some 8,000 to 10,000 dwelling units each year; owing to shortage of sites this is now reduced to under 7,000. Even so the value of work in the Division at the beginning of this year was £64m., with about £20m., in construction. The shortage of sites and the wish to keep the Division's staff intact has reduced the amount of work given to private architects; nevertheless some ten schemes have been thus dealt with since 1950.

The organization of the Division under Whitfield Lewis and his Assistant is the key to its architectural success, and this in turn involves a full use of technical services and clear briefing; after that, a maximum delegation particularly in design and execution. So far as the brief is concerned the first step is for the Housing Architect to tell the Valuer of suitable sites for housing with a view to purchase—whether by compulsory purchase or agreement—through the Valuer. This recommendation to the Valuer may be accompanied by a 'test' scheme—a sketch plan—and can in any case be made only in full collaboration with the Planning Division[25] to assure conformity with the Development Plan.[26] The brief thus comes back from the Valuer to the Housing Architect as a piece of collective information: (*a*) Planning Division's views on zoning, density, school sites, etc.; (*b*) Director of Housing on number and size of dwellings, shops, playgrounds, club-rooms, etc.; (*c*) Chief Engineer on roads, sewers and services. Note: the building is not being 'hatched' by a conglomeration of technicians; no one, so far, has touched the design, but the designer can now receive full instructions *and* full information to enable him to design and execute a building. The brief is thus ready for the Housing Division's own organization.[27]

It is at this point—the brief having been drawn within the framework of high policy—that delegation of responsibility for design and execution may properly begin. What must be avoided are, one: the 'pyramid' with a supreme designer at the top, and two: a few 'back-room boys' with hack draughtsmen to execute their schemes. What must be done—within the brief—is to exploit such ideas, creative powers and technical knowledge as second line staff may possess. This involves a 'team' or group system.

Under the Principal Housing Architect and his Assistant are four Assistant Senior Architects and their Site Managers. There are then some 22 groups each averaging about 15 architects, the group leaders being normally of the £1,300 maximum salary grade. Each group has about five job architects, a complement of assistants and usually one or two senior architects who may deputize for the group leader or be responsible for one large contract. Subject to normal supervision and ultimate responsibility of the Architect to the Council, *initiative comes from the groups.*

The group leaders, while carefully briefed and technically well served, may of necessity be only a few years post-graduate. Does this mean in practice that LCC work is sometimes immature or brash? Yes. Does it mean that it is alive, progressive, provocative and seldom dull? Yes. Does it mean that it is self-conscious? Yes. Does it mean that the individual schemes bear the hall-mark of individual designers, of particular schools of æsthetic thought, rather than of the Department? Yes. That seems to be a fair balance.

Such balance is not achieved by organization alone. Human judgment, assessment of staff, is the real key. Firmness

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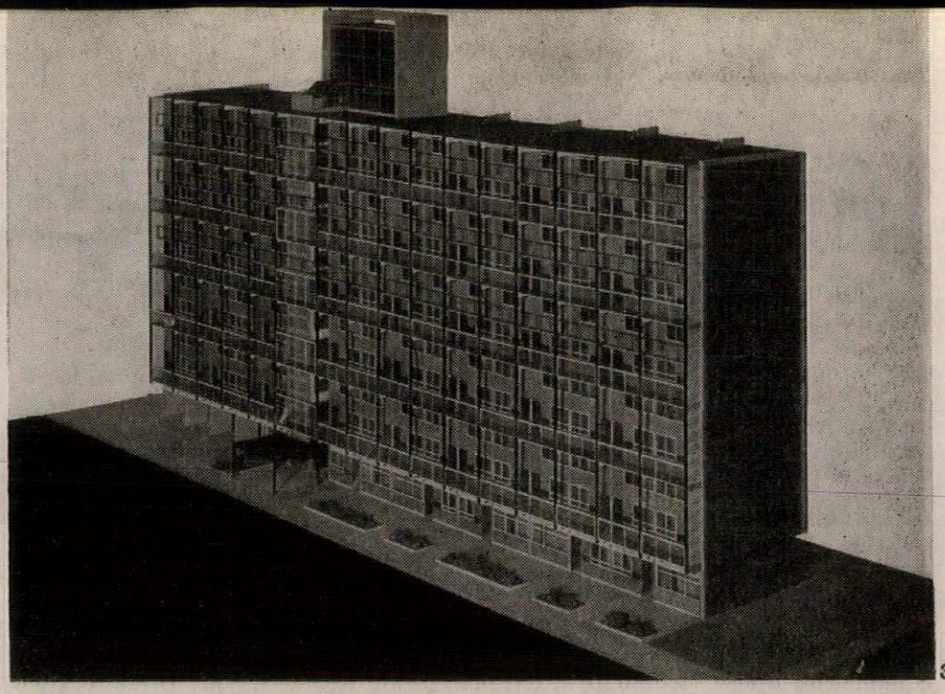
[25] There is in fact a Joint Development Sub-Committee of the Housing and Planning Divisions.

[26] In cases where the Planning Division is developing a site in detail—as in a Reconstruction Area—the Housing Division may in effect have from the Planning Division a sketch block plan, but this degree of development by the Planning Division is limited to such areas.

[27] It will be noted that at this point the embryo of a brief for the Schools Division has also begun.



33



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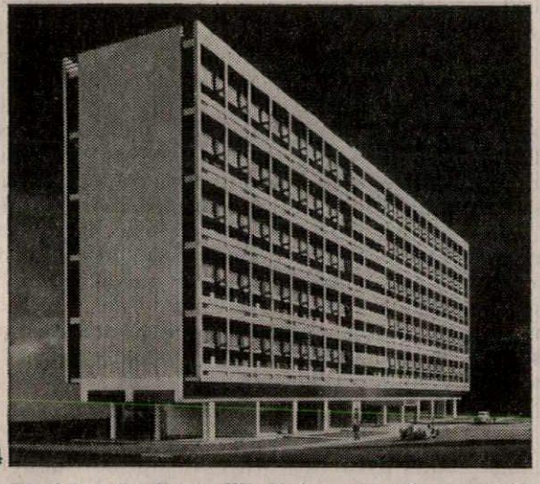

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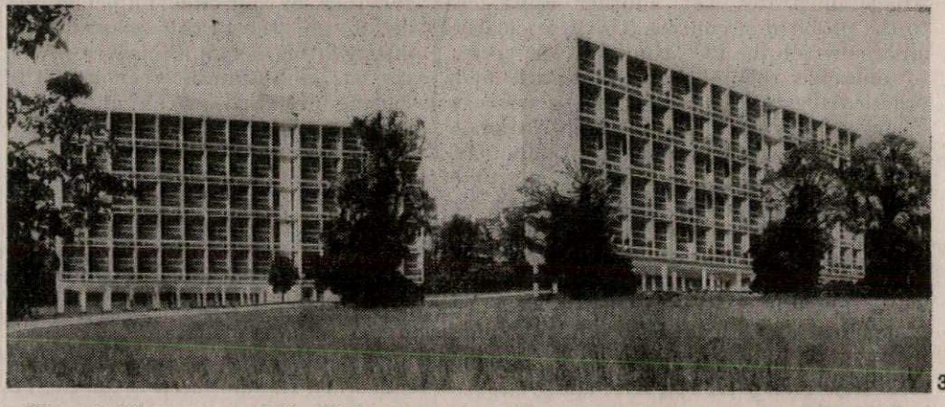

36

33, Ackroydon Estate, Wimbledon: one of three point-blocks. The rest of the housing is contained in lower blocks of flats, maisonettes and houses. 34, *Bentham Road, Hackney: model of an* 11*-storey maisonette block.* 35, *Picton Street, Camberwell: model of one of four* 11*-storey maisonette blocks, which will form part of a mixed estate of* 682 *dwellings. Work began in January,* 1955. 36, *Roehampton Estate: models of two of the five maisonette blocks. This Estate will comprise* 1,875 *dwellings, of which* 660 *flats will be in* 15 *point blocks. Work began in* 1953.

in the senior architects must lie less in dictating design than in appointing and grouping staff. A will never work with B. C is full of creative energy; he must be used, not subdued, but may need D—a hard-headed technician—in his group. E is a 'social-realist,' believing in the revival of a tradition, while F is a strict formalist; they each have their place, but not on the same job.

Even a superficial survey of the group of estates in Wandsworth makes this clear. In the mixed development of Ackroydon, 33, while the point-blocks are beautifully detailed and some of the low blocks (houses and maisonettes) won the London Street Architecture Medal, there is too much evidence of different and differing minds at work. At Albert Drive, 17, 18, the formalist, with his geometric façade infilling between cross-walls is paramount and gives consistency, if even the architecture itself is for the esoteric. At the Alton Estate, 6-13, the point-blocks reach a new degree of excellence and are not divorced in feeling from the low housing which, both in colour and in its grouping on difficult contours, is magnificently handled. At Roehampton Lane, 35, the formalist housing is rather monotonous in its prolonged terrace grouping, but the point-blocks (still in construction) will, when viewed from Richmond Park, give to London a truly dramatic and lovely townscape . . . the real fruit, after thirty years, of *La Ville Radieuse.*

Possibly it is this manner of using staff that the LCC has done its best work. At least it must be clear to Leslie Martin's successor that he must never allow architectural appointments to drift—and it is a danger—into the hands of a non-architectural Establishment Officer . . . that, surely, would be too much like a return of Housing to the hands of a Valuer.

This brief account of the organization may seem—and not least to those within it—an account of the ideal rather than the reality. Sometimes the group may seem more like a miniature 'pyramid' than a true team; sometimes the stronger personality may attract the more able to his group, to the detriment of other groups. It must also be realized that the very validity of a public office would vanish if each group operated as if it were a private office; while, on the other hand, the group would be resentful if the plums—e.g., basic sketch designs—were merely passed to them from a back-room élite. Each team must ideally be a team, but must also be fed not only with its brief but from a common pool of information so that it may function not only in its own right but as a part of the LCC.

In effect this is achieved inside the Housing Division by means of the Technical Development and Research Group[28] under Cleeve Barr—in many ways the key to the Division's success. This Development Group can conduct experiments and investigation (often torpedoing the bye-laws in the process)—examples are timber houses, shunt flues, concrete cladding, under-window panels, single-stack plumbing. It can conduct technical research, including cost investigation—examples are refuse shoots, tank rooms and lift motor rooms, frost precautions, paints, foundation costs, central and district heating. It can design components and make such designs economic by advising on bulk purchase—examples are baths, basins, ball-valves, Bendz plumbing, pivot hinges, metal windows, drying cabinets, etc. The work of the Group is done in collaboration with BRS, manufacturers, contractors and the LCC laboratory. The results are available to all Housing Division groups as actual components, as information sheets and as comparative cost charts . . . hence the overall consistency of schemes which also contain varied æsthetic expressions.

More far-reaching, perhaps, is the work of the Group in the costing of type plans of dwelling units, and in exploring methods of contracting, of designing for

[28] Some of the work of this Group was described in the RIBA Journal for October, 1955.

site erection, degree of component prefabrication relative to site mechanization and plant.[29] This kind of work can bear fruit only when done in fullest collaboration with the contractor—and the right contractor. The LCC, so far, has had only one scheme, Picton Street, 35, built by a nominated contractor.[30] Financial controllers still suffer from the fallacious idea that to spend the smallest sum is the most economic method! Nevertheless the success of the now famous Picton Street contract, plus an ever closer relationship between drawing-board and site plant, must eventually break down the old system of competitive tendering concerning which the LCC had its first doubts nearly sixty years ago.

With an increasing shortage of open sites and a lag in decentralization of population, the balance of Housing Division work may be changing. There is now a marked shift towards more slum clearance and rehabilitation. A scheme like the Reconstruction Area at Clarendon Crescent—in the 'little Venice' district—will involve slum clearance as well as large-scale 'decanting' from cleared slums to new point-blocks planned on the cleared sites—as opposed to the virgin spaces of Roehampton. Even without such new building there is a vast programme of clearance and conversion ahead; the 1956–60 programme for dealing with 21,000 slums has been approved and young architects with a strong feeling for such work will be needed in the next few years at County Hall.

If only a brief word can be given to the remaining Divisions of the Architect's Department—the Schools and the General Divisions—that is no reflection upon their work, it is only that much of the general background and organizational detail already described for Planning and Housing applies also to them. Moreover, owing to the sheer immensity of London, both Planning and Housing create very special problems with their own solutions, as well as being intimately related. The work of the Schools and General Divisions is not, however, very different from that of any other progressive authority.

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the schools division, after a chequered period, has now come under Michael Powell as the new Schools Architect. Under the Architect to the Council it bears the same relationship to the LCC organization as does Housing. The team system, for instance, as opposed to the 'pyramid,' again applies. The Division differs in one respect from smaller authorities in that London's population has involved the design of a number of 'special' schools for handicapped children, and the LCC record in this sphere is as good as any in the world. It has also recently built its first out-county secondary boarding-school—modern additions to Woolverston Hall, a Georgian country house. One other point that distinguishes the Schools Division from the Housing Division is perhaps that the single school building—as opposed to the complex housing estate with tentacles back into planning policy—lends itself rather more to design by private architects, and indeed some of the more interesting LCC schools are 'farmed-out.'[31] This again might not have happened had the LCC, like Hertfordshire, pioneered a single structural system—such as the Hills system—that would have meant keeping all the strings in their own hands. This, however, was not so, and in the immediate post-war years—whatever the future may now hold—the LCC schools, while good, were never positively outstanding.

In general these schools have followed the main stream of advanced design in this country. In the first post-war years they made use of the widespread 'octopus' plan, hugging the contours—with its charms and its drawbacks. It was the type that was so fully exploited by Hertfordshire but which had its starting point in the Impington days. More recently the LCC have in effect—like other schools architects—faced the alternative, the choice between the rather scattered, educationally correct MOE solution—e.g., Belper—and the more rationalized solution of the compressed plan, formalized around an internal court, a type ably designed elsewhere by Clarke Hall. The LCC, with their own modifications, seem to be choosing the second type. The most interesting example—now in construction—is the school for delicate children at Avenue Road, St. John's Wood, 39, where a comparatively small suburban site has produced an elegant courtyard plan, condensed but of great charm and practicality. Another school to watch as it progresses is Alleyn's, Dulwich, 37, with its highly flexible Assembly Hall, capable through moving screens and its varying levels, of serving lectures, concerts, exhibition, drama and social functions.

A major æsthetic problem is the comprehensive school, 37, one to which the LCC has so far made the most important contribution. The political hostility to the comprehensive school has produced, even in the minds of those politically neutral, the feeling that this is likely to prove a most intractable and soulless architectural problem. Hence the first efforts by private architects in the desire to avoid the overpowering have tended, as at Kidbrooke for instance, to disintegration. In fact the comprehensive school is no larger than many university or even collegiate groups. It is new only in State education. By facing this fact and by interpreting the problem in a very direct way, in a modern idiom, the LCC—as at Catford, 24, 25, and Woodberry Down—have taken the first step to a solution.

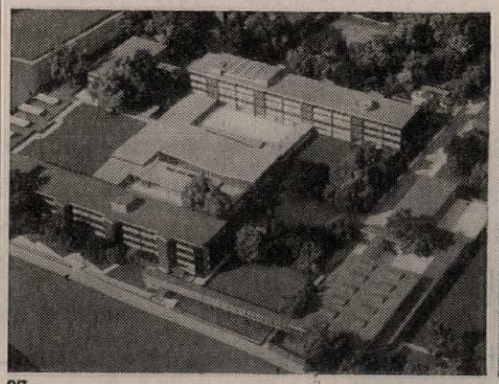
These few comprehensive schools can now be seen as a small part of a big programme—the LCC attempt to cope with the birth rate 'bulge' as it moves upwards into the higher age groups. Ten LCC secondary schools, seven of them comprehensive, opened this summer, with two more almost complete: £5m. worth of building for 18,000 children. Secondary school places for a further 26,000—whether in comprehensive schools or not—will have to be provided in 1961. This is in addition to the 28,000 school places provided as a whole since the war. This may well add up to the biggest school building programme in the world.

Yet, as with housing, the future of the Schools Division may lie more and more in the sphere of rehabilitation. Many of the tall old buildings of the London School Board are structurally sound and even well lit. Correct, if sometimes drastic, internal rearrangement can produce an effective modern school, and work of this sort is in hand. It may become a major part of the work of the Schools Division, since some 50 schools are ripe for this sort of treatment.

[29] For details of site organization and speedy erection of Trinity Road blocks, see *Architects' Journal* 3.2.55.

[30] For details of the Picton Street contract see *Architect & Building News* 10.11.55 and *Architects' Journal* 3.2.55.

[31] Two examples are Mayfield School at Putney (Architects, Powell and Moya: see A.R., March 1956) and Bousfield School in The Boltons, Kensington, S.W.7 (Architects, Chamberlin, Powell and Bon: see A.R., September 1956).



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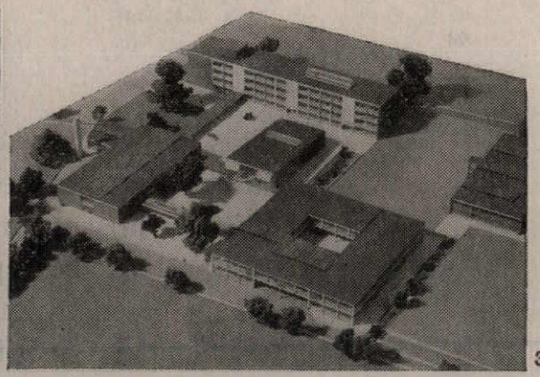

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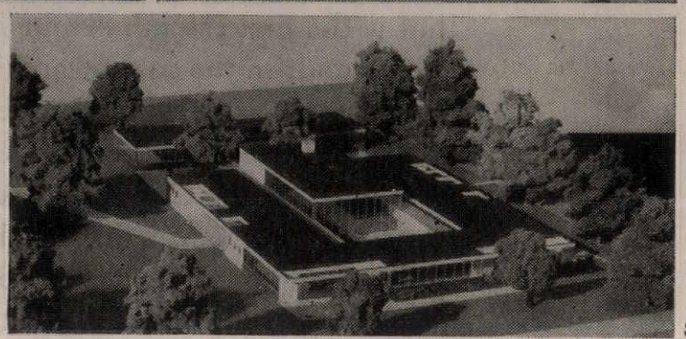
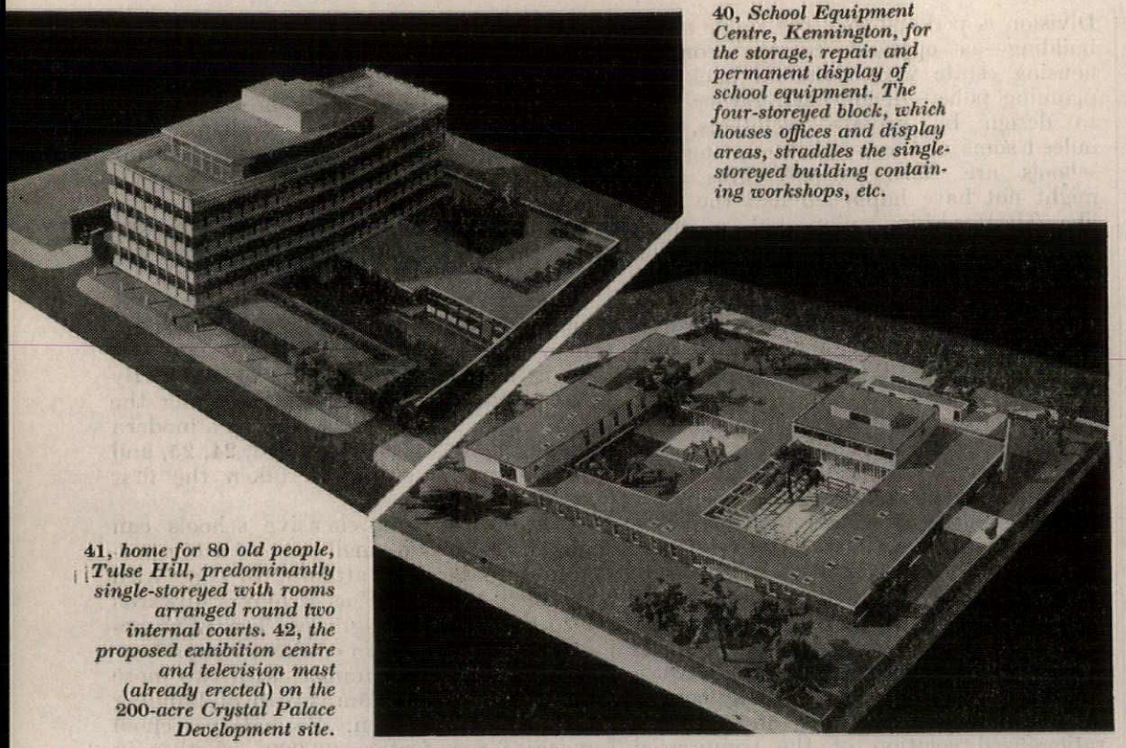


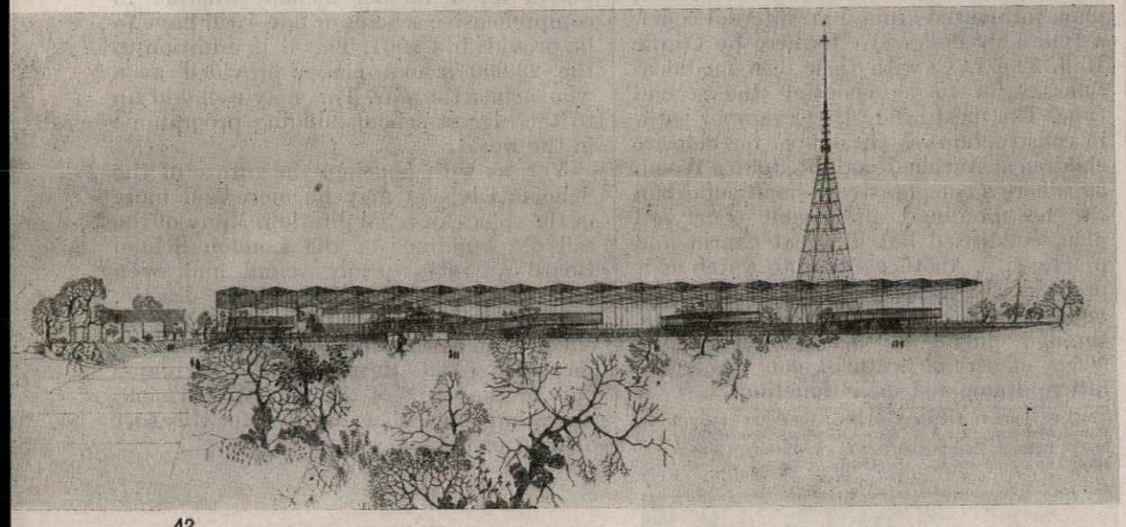
39

37, model of Holland Park Comprehensive School, Kensington: the school's site is divided by a public footpath which is crossed by two bridges. 38, *model of Alleyn's School, Dulwich.* 39, *model of Avenue Road School for delicate children, St. John's Wood: all rooms are on one level and south walls of classrooms are completely glazed. The assembly hall gives on to an enclosed court.*



40, *School Equipment Centre, Kennington, for the storage, repair and permanent display of school equipment. The four-storeyed block, which houses offices and display areas, straddles the single-storeyed building containing workshops, etc.*

41, *home for 80 old people, Tulse Hill, predominantly single-storeyed with rooms arranged round two internal courts.* 42, *the proposed exhibition centre and television mast (already erected) on the 200-acre Crystal Palace Development site.*



42

the general division, now under Kenneth Campbell, has a future. Its function is to design everything that is neither Planning, Housing nor Schools. This in practice has meant that for many years, from the outbreak of war to the end of licensing and priorities, the Division was moribund; even now it means that little of interest can have yet passed from the drawing-board into construction. There is, however, much work in hand that is interesting and some of a very high standard. The General Division, in view of the vast ramifications of the LCC, is responsible for a wide variety of jobs and in some ways resembles a prosperous private office. At present on the drawing-board, for example, are an LCC stores at Lambeth and a School Equipment Depot in Kennington, 40, Old People's Homes at Tulse Hill, 41, and at Wandsworth, a Fire Brigade Station, also considerable domestic and industrial work for the new Northern Outfall Sewage scheme. Day nurseries and ambulance stations are the concern of the Division. It also undertakes a number of 'tidying-up' jobs as, for instance, the boundary and party walls that are emerging in the raw from the Cromwell Road extension. Of high merit are the sections of the Division dealing with furniture design (mainly for schools), exhibitions, memorials and park furniture. The Division also deals with LCC lettering and notices —the 'house style.' It has a fine colour group for redecoration of LCC buildings, specially old schools. Its work goes down to the scale of ash-trays, and up the scale to repainting County Hall or Power Station building. One or two famous prestige jobs, such as the Crystal Palace Site scheme, 42, come under the General Division although, at sketch plan stage, the Architect himself has sometimes made such jobs his own. The most recent (AR, frontispiece, p. 214, October, 1956) is the proposal for a permanent National Film Theatre to replace that built for the Festival of Britain, under an arch of Waterloo Bridge on the South Bank.

This article has been an attempt to describe an organization deserving of a whole volume; it is to be hoped that some day that volume will be written. To the casual visitor the LCC must seem chaos and darkness. This impression quickly vanishes but can never perhaps be replaced by an entirely accurate picture. This article, in spite of all the help given by officials at County Hall, must stand as a personal impression, plus a few facts and, it is hoped, not too many errors. *Reasonable men reasonably organized*—that is the first essential—but in the end the finest organization comes back to human beings and, in the case of architecture, to the artist. To be head of a great organization and also an artist is the hardest of all tasks. Outside the Cabinet there is no job that affects the lives and happiness of so many people as that of Architect of the LCC. The success of the LCC in recent years has been due to many men and women, but above all to Matthew and Martin. To their successor, Hubert Bennett, one can offer congratulations upon his inheritance; one can express high hopes not only for his own future at County Hall, but also for the future of London.

current architecture recent buildings of interest briefly illustrated



1



2

1, *the entrance porch at night with the reinforced concrete barrel vault floodlit; inside is seen Peter Yates' mural of birds.* 2, *the same in daylight.*

HOUSE AT CARLISLE

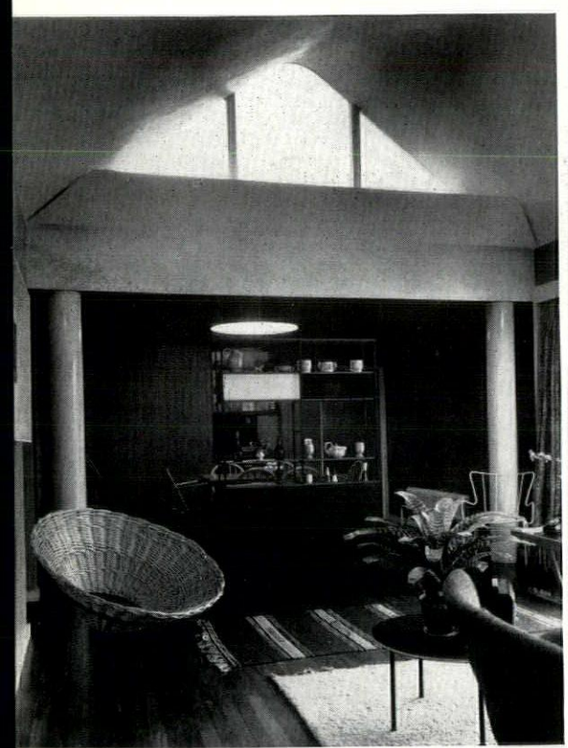
ARCHITECTS, RYDER AND YATES

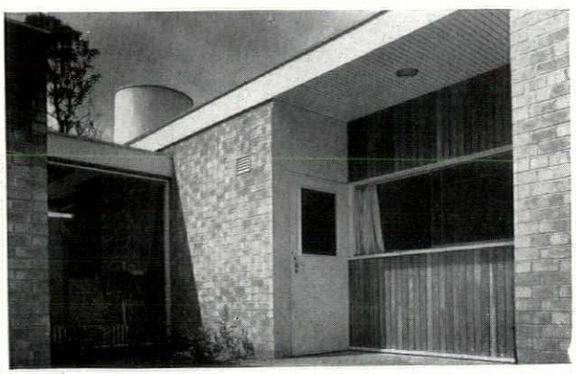
The house is screened from Scotby village by an apple orchard. Only its narrow end is visible from the drive, which rises through sculptural earthworks. The children's wing (playroom, bath and three bunkrooms) is separated from the main building by a glass link through which is seen the external fireplace to the living room and its white concrete funnel. The reinforced concrete barrel-vault over the entrance porch forms a floating cerulean ribbon when floodlit at night. The entrance hall has a granite-like floor of black thermoplastic with white flecks and a mural painting of birds.



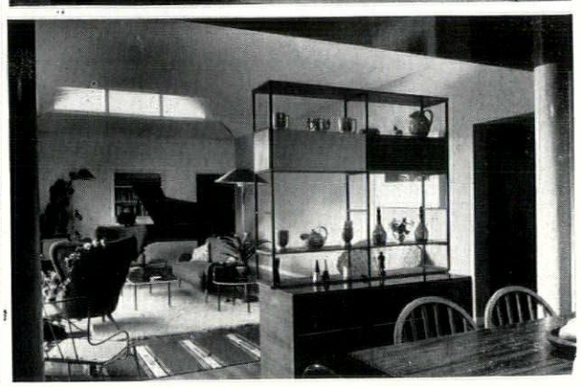
3

3, the north front, with the living room left and children's wing centre.



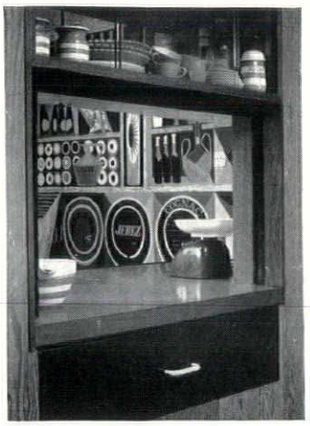


4, 5

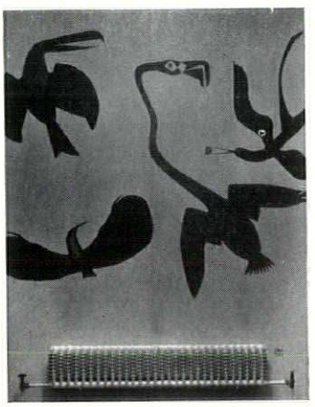


6

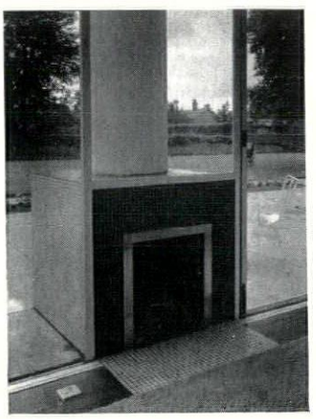
4, immediately above, the living-room with the western clerestory window over the entrance to the dining room. 5, the window of the maid's room on the north, right, and the glazed passage to the children's wing, left. 6, the living-room looking east.



7, Peter Yates' mural in the kitchen, which is in red, yellow, green and black.

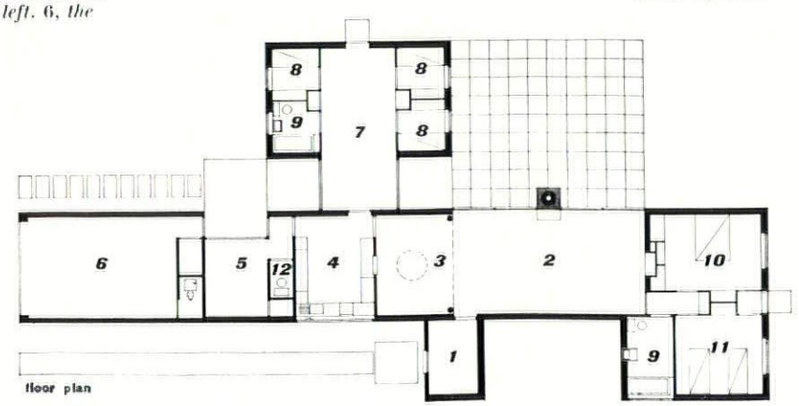


8, the mural facing the front door, in black, green, blue and red. See also 1, *previous page.*



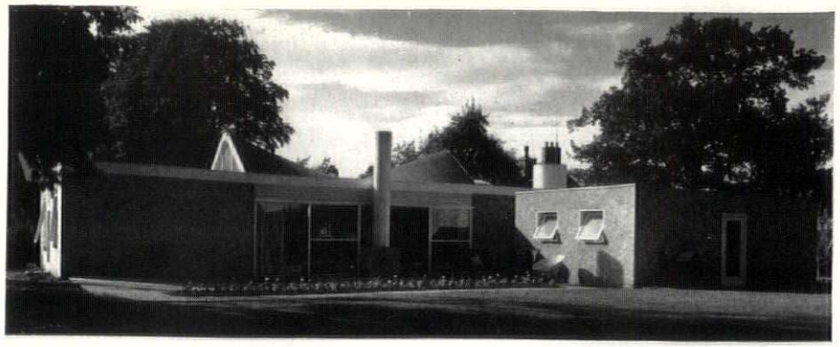
9, the cube-shaped fire-place in the living-room.

key:
1. entrance hall.
2. living room.
3. dining room.
4. kitchen.
5. maid's room.
6. garage.
7. playroom.
8. children's rooms.
9. bathrooms.
10. master bedroom.
11. guest bedroom.
12. w.c.



floor plan

Scale: 1/24 in. = 1 ft.



10, *the house seen from due north.*

House at Carlisle

The south wall of the living room consists of sliding glass windows opening on to a stone terrace at floor level. The double-conoidal roof rises to a parabolic clerestory window at the east and west ends, providing morning and evening light. The joists of this roof are gathered on a central beam supported at one end by the cylindrical concrete chimney. The fireplace, which is external to the room, the inside being flush with the glass wall, is a concrete cube, 3 ft. in each dimension, faced with white, black and mauve Italian *saivo* glass mosaic. The kitchen is equipped with gas cooker, dish-washer, waste disposer, refrigerator and drying cabinet. The boiler is between the maid's bedroom and the double garage. The tank for fuel oil is set among the mounds in the garden.



11, *the auditorium of the cinema. The underside of the curved ceiling is steel blue asbestos spray; the spandrel maroon red.*

CINEMA IN BIRMINGHAM

ARCHITECT, H. WERNER ROSENTHAL

The Cinephone Cinema is the first all-Continental cinema in the Midlands. The building on the site was formerly the 'Broadway' Cinema, and originally little more than a 'face-lifting' was thought necessary. However, the clients' requirements included a complete plenum system fed by an automatic solid fuel stoker, an all-purpose screen for Cinemascope, etc., entailing a new setting out of the sight lines, and the replacement of a modestly planned coffee bar by a café, with a comprehensive kitchen. Hence it was decided to pull down the whole front to a depth of about 20 ft. and rebuild on a new building line 6 ft. farther out. The existing balcony rakers, the main roof and the back stage parts were retained, but the stalls floor was rotted and was rebuilt, being raked in conjunction with the new sight lines. The café was planned on two levels, the lower under the rakers and a higher one over the entrance foyer; where the rakers came down too low for head room, partitions were inserted to form alcoves. Stairs and columns are

Cinema in Birmingham

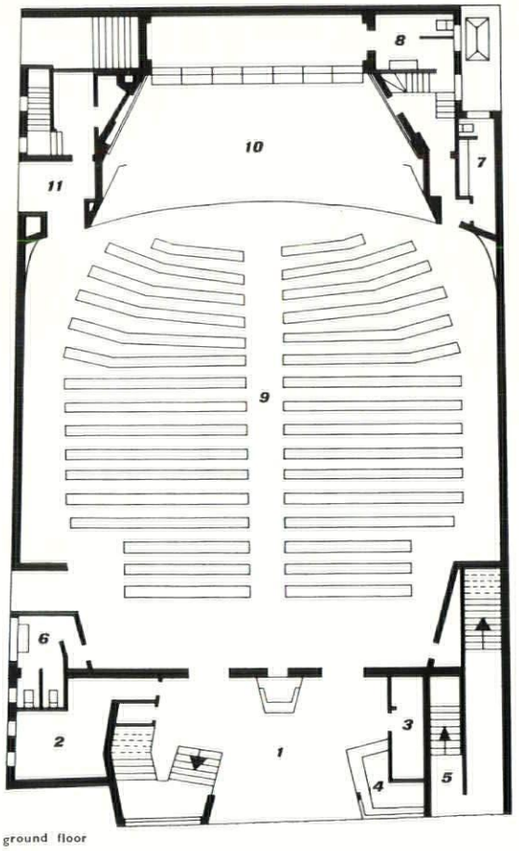


12

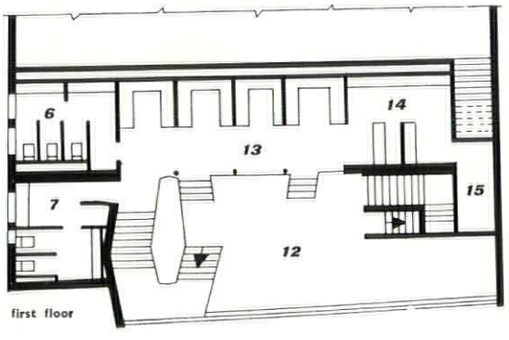


13

12, *the main frontage. The title 'Cinephone' consists of box letters in sheet steel, containing neon tubes.* 13, *the same at night.*



ground floor

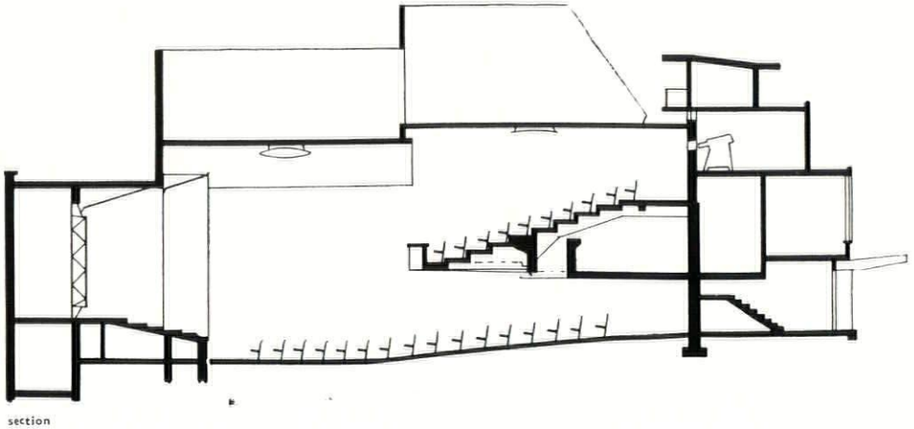


first floor

key:
1, foyer.
2, manager.
3, switchboard.
4, kiosk.
5, escape stairs.
6, ladies.
7, gents.
8, doormen.
9, stalls.
10, screen stage.
11, exit.
12, cafe.
13, dining recess.
14, kitchen.
15, refrigerator.

scale: 1/24 in. = 1 ft.

of in situ reinforced concrete and prestressed planks form most of the floors. Over the auditorium the existing ceiling was partly curved, and flat over the balcony. The deep surround to the screen is white roughcast; this reduces contrast and eyestrain. The window wall on the street front consists of teak mullions; the solid end wall is faced with grey, green and gold mosaic. The ground floor consists mainly of show-cases; the walls flanking the entrance are faced with 'verte des Alpes' marble. The canopy is steel, with timber fascia. The underside of the raised centre part is translucent plastic and stretches back into the foyer; the underside of the remainder is faced with brick-red rendering.



section

HOUSING

EXPERIMENT IN JOHANNESBURG

It was announced in August that a £3 million loan had been advanced by a group of mining companies to the Johannesburg Municipality for native housing. This will provide something in the region of 15,000 *houses. Here the South African correspondent of the AR examines the special problems and opportunities, social and visual, of native housing in South Africa.*

In the South African countryside there are still many Bantu[1] living under much the same conditions as they did when the Europeans landed 300 years ago. The homesteads consist of groups of circular huts, 2, the actual number and detail construction of thatch and mud varying somewhat from tribe to tribe. Low domed or conical roofs linked together by screen walls enclose charming outside living spaces which form an organic growth as natural and beautiful as a bird's nest. All is in harmony, the household belongings, the ample simplicity of the storage jars, the reeded sleeping mats, and the ornamental dress of the inhabitants. Such living demonstrates a culture, on a low level perhaps, but complete and established, at peace with itself.

Today some 25 per cent of the Bantu live in European[2] towns. These people no longer honour their old culture. Their whole aim and object is to assimilate all things European. With this change has come a change of personality. The Bantu of the past was known for his courtesy, staunchness, dignity, honesty and innate good breeding. Today there is a current feeling of dislike for the upstart cheekiness of the contemporary urban Bantu. Although this feeling is doubtless coloured and exaggerated by antagonism it is true that the individual insecurity resulting from a broken civilization does not make for charm of personality.

Africans in the towns live in segregated areas; that is to say the towns proper are occupied by Europeans, and the African townships are removed to some distance. These townships are purely residential with a few schools, churches and general stores to serve the population. They are the complete antithesis of rural settlements, desolate, disintegrated and miserable, a parody of European living without any ameliorating features, 3. In addition a large number of Bantu live in rooms provided by their employers.

About one-sixth of the township houses are built by local authorities, thus ensuring a fair standard. The remaining houses are built by the township dwellers themselves, mostly out of secondhand scrap, mud bricks and thatch.

In Johannesburg, the largest industrial area in the Union with a population of over a million, the old African townships have become engulfed by the rapidly growing city, 1. A new, vast area has now been allocated well into the country where all future native residential development is to take place and where, eventually, it is intended to transfer inhabitants of the older townships.

This residential segregation[3] brings in its wake two major complications. The first, transport, of which the authorities are well aware and are in the process of solving expensively but fairly effectively by a subsidized electric train service; the second, so far not officially recognized, the necessity for developing a cultural, social and service centre which would turn the area into a satellite town. With a population of 200,000 already, there is nothing but a few scattered churches and schools, a minimum of shops, a clinic or so and one community hall built by a European benefactor. This is, at any rate in part, the result of legislation which prohibits any but Africans, who seldom have the necessary capital, to trade in the area.

The population is large enough to support a centre with shops, department stores, cinemas, restaurants, beer halls and a market place as well as such service industries as dry cleaning works, laundry, bakery and so on. Factories producing goods much bought by Africans, such as clothes and furniture, might also be related to the area with advantage.

The Johannesburg municipality has a large native house-building programme in hand at the moment. Houses are produced at the rate of 12 to 15 a day at one-fifth the cost of European houses,[4]. They are constructed by teams of African building workers employed by the Municipal Native Affairs Department and materials are bought in bulk and as cheaply as possible.

The houses now being built are almost all 4-roomed. They have asbestos roofs, stock brick walls bagged inside, concrete floors, steel windows and a front and back door. A flue is provided in one room for the stove, and a water closet and stand tap are built in the back-yard. Plots are 40 ft. by 70 ft. Everything has, in fact, been done to provide what are considered adequate standards for the absolute minimum amount of money .

It is of interest that prefabrication, though tried, has not been found to be economic in what appear to be such very favourable circumstances for its use. The requirements are so vast that overheads should be negligible in proportion, the dwelling units are standardized to three or four types and the building takes place in a single open stretch of country. The system tried was efficient and quick. The cost was only slightly higher than that of the present method, and it must be taken into consideration that the work was done by a building contractor and therefore included two expenses avoided by the present method: contractors' profit and skilled European rates of pay.

Township layout is invariably a modified grid served by 40 ft. roads. A few sites are left for schools, shops and churches which are filled in gradually after the houses are completed, but sites for playing fields and parks and most of the roads remain undeveloped, dusty wastes.

What has happened is that the demand for houses is so great (Johannesburg has only half supplied her estimated requirements) that no thought has been given beyond this crying need. This short-sighted policy is creating a vast area of publicly owned land which, to develop and maintain at a decent standard, would cost an amount quite out of proportion to the cost of the houses. The waste of space is flagrant, particularly since very few Africans possess cars, and only 25 per cent of householders develop their gardens. In addition such a layout is depressing and wasteful of time.

If one accepts the present conventional layout with its attendant disadvantages of land wastage and expensive services, some improvement is possible, as was shown by the winning design in a recent competition for native housing layouts, 5. Here Government standard house plans have been cleverly arranged, linked by courtyards enclosed by low walls. This scheme would seem to represent an ultimate along conventional lines.

In fact something much more drastic is

[1] Bantu is the ethnological term for the African people, African the term by which they prefer to be called, and Native is the official term and the one most commonly employed.

[2] European is the common term in South Africa for the two white races, English and Afrikaans.

[3] Residential segregation is an accomplished fact beyond the orbit of the planners' control.

[4] These were the figures prior to the loan mentioned above. Production along the same lines is to be stepped up.

called for. In the present state of cultural transition of the urban African well planned residential areas might be a very potent force in shaping his future. Housing is usually considered as a purely practical matter, the provision of dwellings for a given number of families. Only gradually is it being realized that it is in fact very much more, that by its workability and the environment it creates it is a major factor in man's happiness. A well-designed residential area will broaden the lives of its inhabitants by introducing them to social activities they have previously been denied, and by its attractive orderliness foster a contented frame of mind.

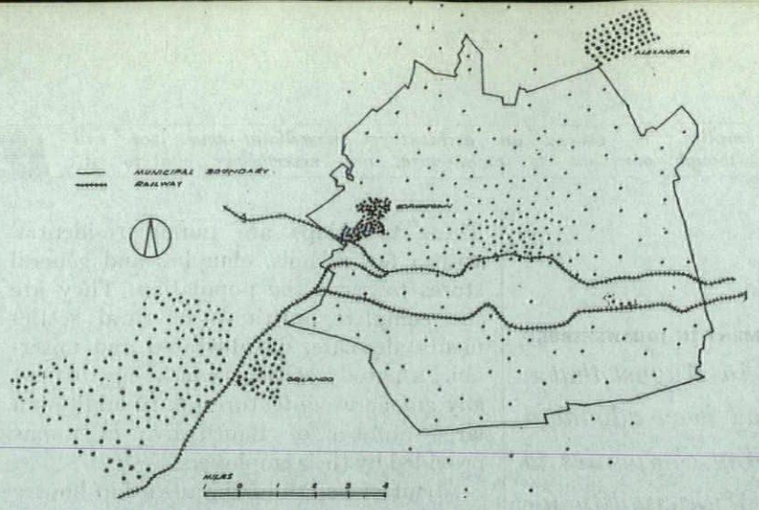
The grouping of dwellings might be arranged to encourage the development of communities both in small residential groups and on the neighbourhood scale. These intended groupings must be very clearly expressed in the planning and arrangement of buildings if they are to be effective socially. The dwellings must be closely grouped, the common areas must be exclusive and intimate, the communal facilities appropriate to the group, and the division between one unit and another closely defined, whether road or park strip.

Next the visual scene must be organized so that it is satisfying to the eye. Here the most important single aspect is the need for growth, particularly trees. In the hot dusty South African landscape pools of shade form the most delightful retreats. It is important, too, that all portions of the land should be put to some definite and healthy use; not left, as at present, zoned but unused. In addition all the usual aesthetic laws apply, the charm of enclosure, the need for contrast and so on.

Nothing which I have to say is new to town planning theory though it is new to apply it to this particular problem. It is apparent that building must be undertaken at a higher density to shorten travelling distances, make more constructive use of the land and economize in the lengths of roads and services.

High-density development could be achieved either by flats or grouped houses. While segregation is practised, flats are not economic as a housing solution for Africans. Land in the African townships is cheap so that economy in its cost is negligible. In addition it would be impossible to build flats without providing them with electricity, proper sanitary equipment and a higher standard of internal finishes than are given in the houses, which would further push up the cost.

Grouped houses, on the other hand, would be less expensive and seem more appropriate to the semi-outdoor life of the Africans. Two possible layouts along these lines are illustrated, 4. Gardens are reduced to the minimum of outdoor space normally used and the majority of roads turned into pedestrian ways. The small residential groups are defined by roads and provided with communal gathering places. Neighbourhood units would be made up of a number of such groups together with the necessary shopping centre, schools and so on. The actual residential areas would be interspersed with such wide open spaces as playing fields and allotments.



1, map showing distribution of Africans in and around Johannesburg. One dot represents 1,000 population.

This type of layout, which is particularly intimate and non-individualistic, might very well suit the African in his progress from the wide tribal group to the single family unit of Western culture. It would help the working mother by providing safe play spaces for her children overlooked by friendly neighbours. If the number of working women in the community were large, creches, nursery schools, laundries and restaurants could be conveniently and easy incorporated in the layout.

Such a layout, while providing opportunities for easy social contact and a better visual scene, presents a small public area for maintenance the cost of which would be more than covered by the reduction in the cost of services. It must be emphasised that for such a high-density layout to be a success proper planting and upkeep of natural growth are of prime importance.

In all housing schemes it is important that the occupants are proud of their new dwellings; for otherwise they will not co-operate in the necessary care and cleanliness which contributes so much to the environment. This is a particularly difficult problem where one race is building for another. The urban African aspires to the local European residential ideal of a single house on a single plot—the current township layout is indeed about as close to this as the African pocket will allow. Unless it is proved to the contrary he is bound to assume that any change, particularly to a socially despised dwelling like a terrace house, is provided for him because it is cheaper, something which a European would never occupy, but which is 'good enough for a native.'

Since housing schemes must be experienced to be judged, experimental neighbourhood units might be built, and since it is important that the inhabitants of these first schemes are not unduly prejudiced, every effort should be made to enlist their co-operation. First an African liaison committee could be elected which would be kept fully informed of the intentions of the experiment, have access to all documents and hold meetings amongst prospective occupants to explain the scheme. Other methods of propaganda would be used—posters, broadcast discussions, models displayed and so on. Occupants of the first scheme should be volunteers who would be encouraged to enter into the experiment and submit reports on their new conditions. These suggestions, though normal practice elsewhere, would be quite revolutionary in South Africa. They, with many similar problems, are the province of the skilled sociologist, perhaps more essential in this field than in any other.

Again, where one race is building for another, it is imperative to make clear that any saving effected in services and land cost will be employed to raise standards in the new dwellings, by providing baths, hot water supply, better finishes, etc. Also schemes must be handled in time as well as in space. It is essential that after building work is completed public land be planted and tended. That this is part of the scheme must be understood from the outset so that its area can be limited to a manageable amount and money set aside.

For the planner African housing presents a most exciting and unplumbed field of experiment. The vast numbers of houses required allow for the development of an idea, tried in one layout and improved in subsequent ones,until satisfactory solutions are determined. It remains an excellent opportunity for trying out new building methods. But, most important, the unsettled cultural condition of the contemporary urban African presents an opportunity for social experiment which might well make the difference between disruptive revolution and peaceful evolution in the future of South Africa.

Betty Spence



2



3

CENTENARY

THE ARCHITECT OF FREE ENTERPRISE

Centenaries are the traditional occasions for reappraisals and revaluations, and the centenary of the birth of Louis Sullivan comes at a time when the revaluation of his own work, and that of the Chicago School, is in full swing. On pages 285-289 of this issue will be found a radical refocusing by Colin Rowe of our view of Chicago's place in the Modern Movement, while the Centenary Exhibition of *Louis Sullivan and the Architecture of Free Enterprise* at the Art Institute of Chicago, by bringing together a great body of photographic documents of the master's work, should precipitate some revisions of his significance as a designer.

Of his status as the first master of the framed skyscraper, there can be no question—the almost perfect neutrality of the façade of the Guaranty Building in Buffalo, 1, with every floor of equal height

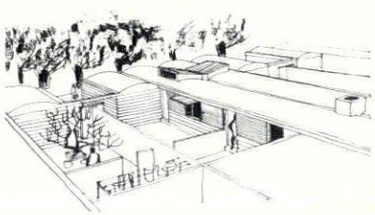


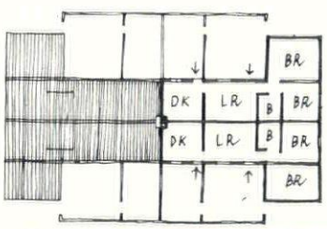
1

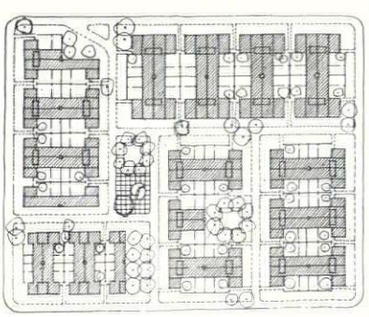
and equally fenestrated, and yet unmistakably a closed composition, shows his complete control of the major components and the gross form of the building. But where Sullivan's genius takes on new aspects is in the new emphasis on, and study of, the decorative work that emerged from the Adler and Sullivan office. Hitherto, neither academic interest nor the camera has been directed much at this subject—which indeed would have gravely embarrassed those who have created Sullivan's international reputation.

experiment in environment

2, above, a Bantu homestead; screen walls enclose the small groups of low domed mud and thatch huts. 3, above, Orlando, one of the non-European suburbs of Johannesburg. 4, left, a design for non-European housing. Top, a sketch of some house courtyards; centre, house plan; bottom, site plan. The houses are 2-, 3- and 4-roomed; approximate area is 3 acres, and total number of houses is 61. 5, below, the winning design in the recent native housing competition, by Peter Cottman. Top left, a typical forecourt; bottom left, house plan; right, site plan.







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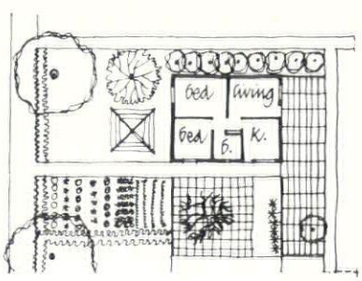

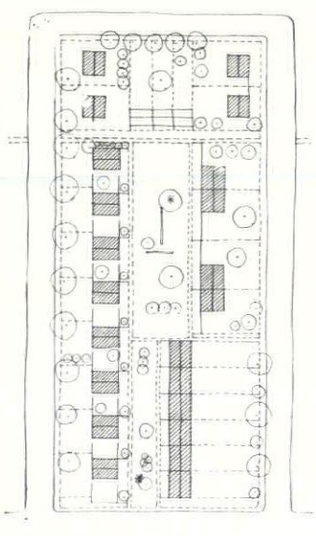

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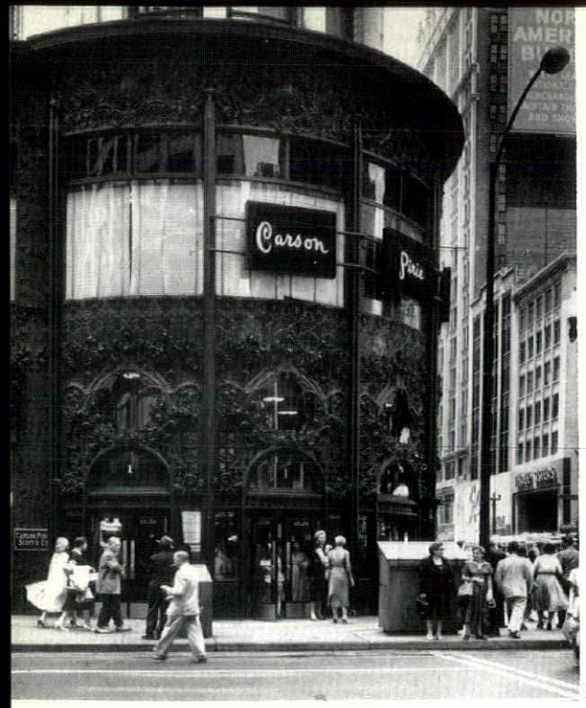
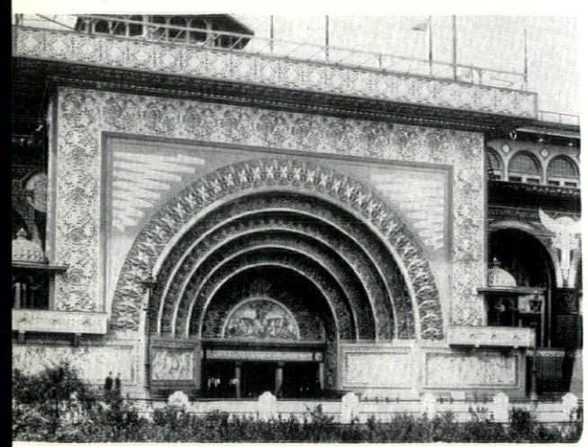


2

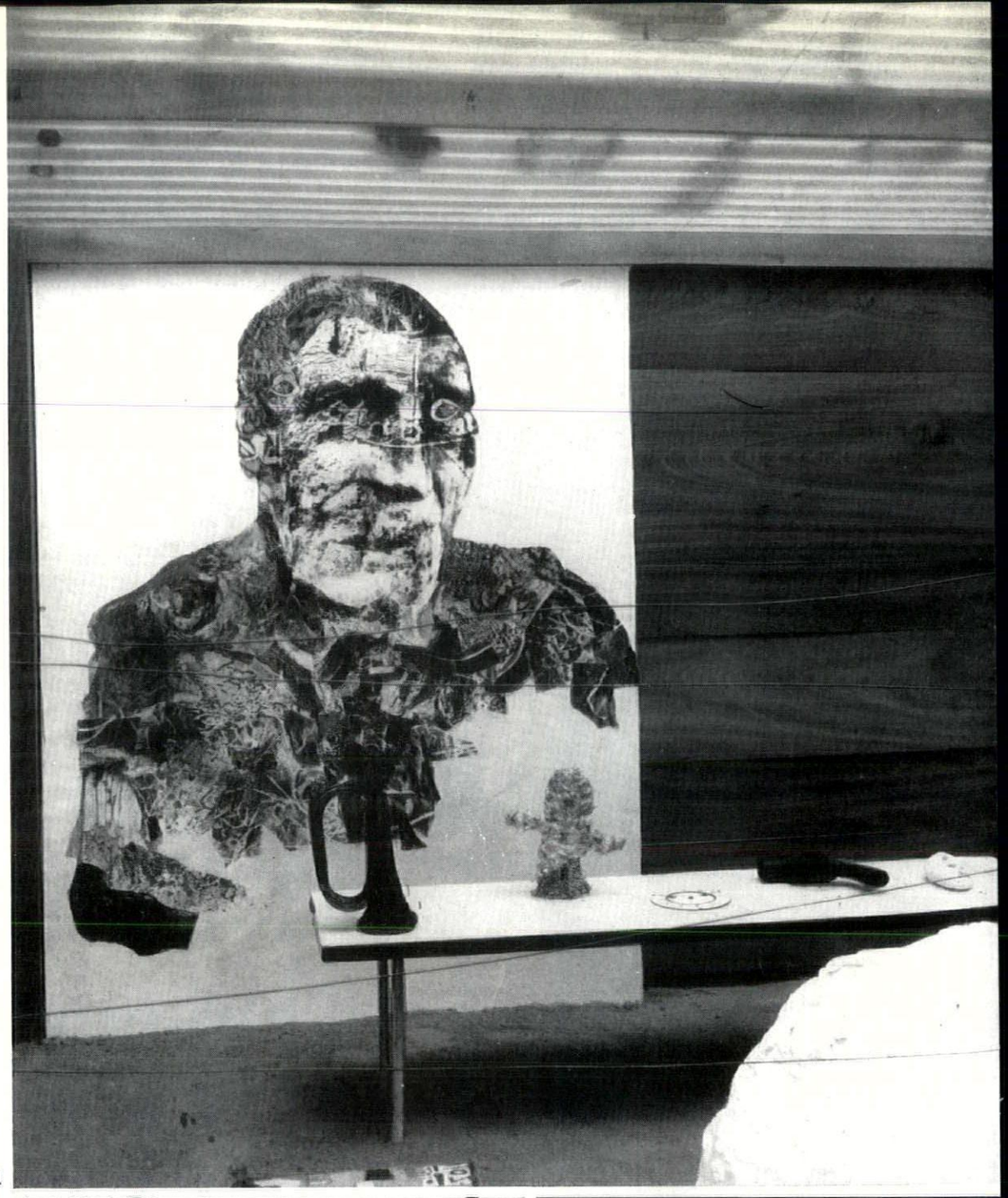
Yet it is integral to his mode of design. In the Guaranty Building it gives texture, and thus scale, to the structure. Around the corner entrance to Carson Pirie Scott, 2, it adds a proper note of commercial fantasy—and also demonstrates that it is possible to be of the period, and of the same mind, as the masters of European Art Nouveau, without ever arriving at the same forms or flourishes.

Yet it is in the management of repeats that Sullivan shows his hand most characteristically. Whoever designed the decorative details, Elmslie or Wright, it was Sullivan himself who ordained their presence and their location. At the Golden



3

Door of the Transportation Pavilion, 3, at the Chicago Exhibition of 1893, he deploys a decorative vocabulary of fantastic richness, yet in key with the structure it adorns, because the repetitions measure and modulate the scale. As is commonly known, the exhibition was a triumph, not for Sullivan, but for the architecture of Beaux-Arts orthodoxy, and yet in the long run his reputation has outlasted that of the apparent victors, and while their buildings appear ever more barren, those of the Architect of Free Enterprise, like all great architecture, grow richer with every reappraisal. **P.R.B.**



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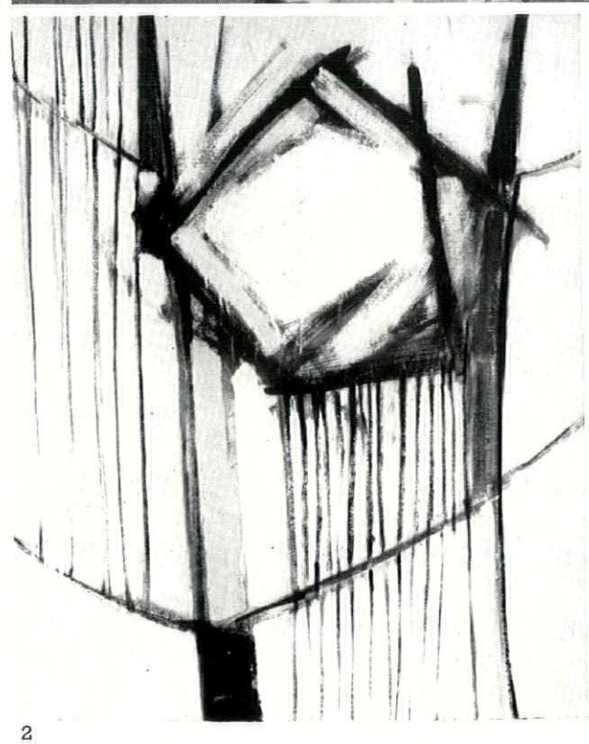

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3

EXHIBITIONS

'Cézanne's aim, rigorously followed, has led step by step with inexorable logic to the kind of painting I have chosen for this exhibition,' wrote Sir Herbert Read, introducing recent works by Ben Nicholson, Victor Pasmore, William Scott, Terry Frost, Patrick Heron, Alan Davie and Peter Kinley assembled at Arthur Tooth & Sons for the second show in the series called 'Critic's Choice.' Without wishing to be portentous about a charming exhibition, I think that when the name of a master is emotionally evoked to give status to the works of others—the emotive words 'rigorous' and 'inexorable' disclose Sir Herbert's intention—we are entitled to ask if this so-called logical development has resulted in an enrichment or impoverishment of the art of painting. As far as Sir Herbert's selection is concerned, the answer, to put it politely, is that there is no sign of enrichment. These works are not, however, important examples of what he himself calls 'that extreme in contemporary art which is known as "abstraction",' so the *kind* of painting is not necessarily invalidated by them.

Ben Nicholson was Sir Herbert's first choice, and his unaffected delight in his work is not a matter for criticism. Someone said recently, in praise of Nicholson's white reliefs, that 'they go further still than the pictures of Mondriaan, which never gave up the relations of colour,' and although renunciation has never seemed to me to be much of a virtue in an artist, the severity of his white reliefs is preferable to the prettiness of the coloured works in 'Critic's Choice.' Both Mondriaan and Nicholson have been overpraised as colourists; by keeping their colours apart on a white ground they have reduced their relationship to a nodding acquaintance: one has only to recall the complex juxtapositions of colour in Cézanne's 'Le Château Noir' to realize that Mondriaan and Nicholson have in fact steered clear of the problems of colour organization. The same Cézanne picture, considered simply as a painted surface, is one of the finest examples of 'tachism' in the history of art, and Patrick Heron might find that he would lose none of his up-to-dateness if he tried to reduce it to a studio formula. The result would only bear a superficial resemblance to Cézanne of course, because 'Le Château Noir' is primarily a work in praise of nature, and the sense of a particular landscape impregnates its formal structure.

The paintings of Heron, Frost, Scott and Kinley are addressed exclusively to praise of their profession. The appeal of their paintings is directly related to the virtuosity with which they use their medium and the sophistication with which they refer to the work of other painters. Scott comes off best on both counts. His paint is a rich substance blandly applied, and his little picture of a black bottle bending over a creamy squarish something on a brown ground whispers its memories of de Staël, middle-period Derain and Morandi as if it were a tale of delicately requited loves. Kinley comes off worst because he still insists on telling us with touching naivety that he is very good at imitating de Staël. Alan Davie, our arch-invoker of creative accidents, did not succeed in rocking this boat-load of æsthetes: his pictures merely looked rather turgid beside the others, but it was faintly amusing to see that one of his favourite shapes, a tilted, out-of-square square, had been rescued, so to speak, from the lower depths of automatism, to lead a blameless life of pure abstraction in a painting by Terry Frost, 2.

'Millet was one of the great draughtsmen of the nineteenth century,' wrote Sir Kenneth Clark in the catalogue of the Millet drawings shown at the Arts Council Gallery. It may be so: if one placed him well below Ingres, Van Gogh, Degas, Seurat and even Toulouse-Lautrec, he would still be not too far from the top of the list. His drawing of women carrying faggots, lent by the Boston Museum of Fine Arts, 4, with its pre-Raphaelite feeling for the magic wood and its sharp sense of the strenuousness of the task, is extremely lovely. But if I may digress a little, I am surprised that Eric Newton thinks that it was shallow and cynical of us in the twenties to find Millet's sentimentalism unacceptable. He must have forgotten that we were absorbed at the time by such pictures as Cézanne's 'Card Players,' in which he was able to represent two working-class men with a resplendent amplitude which almost achieved the integration of art and life. The basis of Millet's rising reputation in the fifties is the avoidance of such comparisons.

The catalogue of the exhibition of American Cartoons held at the Institute of Contemporary Arts—you must have noticed by now that I am a diligent reader of catalogues—contained the 'reminder' that *New Yorker* humour is 'born of a highly moral point of view.' I thought I saw more evidence of an engaging amorality, and I find Malraux's view that the fairy story has taken refuge in the comic, more to the point. An element of the matter-of-factly preposterous seemed to run through them all, from the wolfish glare in the eyes of Peter Arno's amorous males, and Thurber's 'I thought you'd enjoy Miss Perrish, darling—she has a constant ringing in her ears, too,' to George Price's flock of birds alighting on top of a step-trolley at an airport and walking sedately downstairs to the ground. Then there are the obvious sorceries of Charles Addams—gilded coaches dotted about a pumpkin patch, and the gargantuan confirmation of a we-are-being-followed feeling in the drawing reproduced here, 5. The idea exploited in this drawing could have become eerily beautiful in the hands of an artist like Odilon Redon, and I presume that the total absence of refinement in Addams's draughtsmanship and composition is responsible for the instantaneous comic impact, and protects the idea from its commercially valueless undertones.


5

The rather commonplace exhibition of


4

'Children Painted by Dutch Artists, 1550–1820' was given a certain amount of character by the inclusion of some downright ugly little mites. None of them, alas, was among the photographs available for reproduction, and I had to be content with Joannes van Noordt's portrait of a pretty one, 3, painted about 1670. I would have preferred to reproduce the red-nosed, avid little girl holding a golf-club, painted by Pieter de Hooch, or the portrait of a child eight months old, dressed to kill, and looking like a fat, middle-aged, bad-tempered barmaid. Its doting parents obviously thought that nothing was too good for their darling, and ordered the full treatment regardless of expense: Johannes Vollevens made a good luxury job of it, with swags of crimson curtain and a view of ruins beyond.

Much against the grain, I am refraining from quoting some hilarious tit-bits which are to be found in the nicely produced catalogue of 'This is Tomorrow,' because Reyner Banham cleverly unravelled its assorted messages in the September AR. The exhibition was arranged at Whitechapel Art Gallery by a number of architects, sculptors, painters and farceurs, working in teams, to promote the integration of the arts and a more conscious control of environment. At one extreme there was a demand for more erotic and horror posters outdoors and more luxury, at the super-cinema level, indoors; at the other extreme the demand was for cities as white as driven snow; but the Smithson-Henderson-Paolozzi section returned us safely to the bicycle shed at the bottom of the garden in a singular tribute to the Pottering Man, 1. **Robert Melville**

BOOKS

AGAINST AGGLOMERATION

THE NATURE OF CITIES. *By L. Hilberseimer. 286 pp. 252 ill. Paul Theobald & Co., Chicago, 1955. Price* $8.75.

Professor Hilberseimer was trained at Karlsruhe and founded the town planning department in the Bauhaus at Dessau. Since 1938 he has been head of the Department of City Planning at the Illinois Institute of Technology. His latest book is likely to irritate town planners, geographers and administrators in much the same way as H. G. Wells used to irritate historians and scientists: for its vast scope, for too many quotations from Plato, Xenophon and Henry Ford; for odd *obiter dicta* ('Some believe the plough is a phallic symbol' and 'Human beings are the indispensable resources of any country'); for a too rosy belief in huge regional planning schemes based on logic and the co-ordinated work of teams of scientists and technicians; and, perhaps most of all, for being—in the main—quite right.

It is this last that we should cling to. Cities exist by transport, and the great cities of the western world were built up during the steam train and horse and cart period. There is no need now for such close agglomerations and we have the means to end them. We also have two very strong reasons for doing so: the threat of nuclear war, and the need for every country to pay far more attention to agriculture, forestry, water conservation and the like. The foreseeable future suggests a pattern of towns mainly of 50,000—100,000 inhabitants in a countryside that has learnt the lessons of Holland, Israel and T.V.A. Professor Hilberseimer sees all this and his patterns for new cities—mostly arranged like beads on the strings of major highways—are well suited to a nuclear and motor-vehicle age.

He does not tell us how to tackle the vested interests of all kinds that tend to perpetuate the great cities, or who is going to provide the funds for the complete renewals he proposes for Chicago and elsewhere. Why should he? He is one of those who are trying to see the whole problem and point out the right way to go. The broad picture that emerges from his essays—for the book is really a collection of essays on sixteen aspects of architecture and planning—deserves careful study.

There has been so much loose and worthless writing about planning since the war that planners have become very tight-lipped over all large-scale towards-a-better-world books. Professor Hilberseimer's should be noted as one exception. He has read very widely and thought a great deal; and the stories may easily be skipped. **H. Myles Wright**

LOMBARD CARVING

ROMANESQUE SCULPTURE IN ITALY. *By G. H. Crichton. Routledge & Kegan Paul.* 50*s.*

After an earlier book on Nicola Pisano, Mr. Crichton now presents a general account of Italian sculpture of the period roughly between 1100 and 1250. He discusses the material regionally, a method fully justified by historical and stylistic considerations. He gives most of his attention to the sculpture of Northern Italy; for it was unquestionably the most important centre of Italian sculpture and the only one that had a profound influence on artistic development north of the Alps.

The style of Romanesque sculpture in Italy varies from region to region but on the whole it presents a greater uniformity than contemporary sculpture in France. As Mr. Crichton points out, three fundamental reasons account for this fact. The first is the direct influence of classical art on the Romanesque sculpture of the whole peninsula, the other two, the intimate links with Byzantine and Moslem civilizations. The early preoccupation with the problems of volume and three-dimensional modelling that distinguish Italian Romanesque sculpture from that of other countries was the most striking outcome of the classical heritage. These qualities, already present in Italian sculpture in the early twelfth century, bore a promise of great future development, but they also deprived Italy of that stage of development which in all other countries of Western Europe produced the masterpieces of linear, truly Romanesque stylization.

Mr. Crichton's solutions of the problems of chronology or sources are expressed in such general terms that without much more convincing documentation they must remain only tentative, and the value of this publication as a reference-book is severely diminished by the index which is grossly incomplete, foolishly arranged and full of mistakes. Taking as an example p. 42, chosen at random, one finds that five places mentioned there are omitted in the index. Looking in the index for Saint-Denis or Saint-Gilles one discovers them hidden under Denis, S. and Gilles, S. but S. Angelo in Formis is in its correct place under S. The mistakes in spelling both in the book and the index are irritatingly numerous, and cannot all be explained by oversight, like the reference to Liége (under Lüttich; p. 86) as being in Germany.

For an English reader it is a disappointment to find that Mr. Crichton has nothing to say about the links between Italian and English sculpture, although he has a chapter dealing with *The Diffusion of the Lombard Style in Europe.* He seems to be unaware of the suggestion made by Kingsley Porter that the Prior's Doorway of Ely Cathedral is based on Lombard models nor does he know more recent English publications discussing Italian influence on Romanesque sculpture in this country. **Denis Tout**

Shorter Notices

PENROSE ANNUAL VOL. 50, 1956. *Lund Humphries,* 35*s.*

Mr. R. B. Fishenden died on 7th October this year, and the fiftieth volume of *Penrose* also marked the coming of age of his editorship, a memorable editorship indeed. The job he had was much the same every year. Yet he managed to give every volume individuality and character. In addition to the choice of subjects and authors which secures that, he also provided an annual survey of progress in printing, and this was unfailingly urbane as well as learned. That the colour plates make *Penrose* an incomparable thirty-five shillings' worth goes without saying and must rouse the envy of many another publisher who cannot possibly try to compete with so amply subsidized and so justly subsidized a book. This year the most generally interesting articles are Christian Barman's on Harold Curwen, Desmond Flower's on McKnight Kauffer, P. Selz's and R. Kostka's on American Graphic Design, Misha Black's on Post Office Printing, and Alec Davis's called 'The Picture on the Pack.' Mr. Fishenden himself, at the beginning of his survey, illustrated the hideous title-page of *Penrose*, volume one, 1895. The volume was then published by A. W. Penrose & Company. Some years later Lund Humphries acquired an interest in it, and again a little later they became the proprietors. For a short time Stanley Morison handled the typography. Now design and typography are in the hands of a different expert every year. The fiftieth volume is by Graham Johnson, 1955 was by Leslie Unwin, 1954 by Alan Dodson, 1953 by John Denison-Hunt, 1952 by Edward Price, 1951 by Herbert Spencer—choices as enlightened and catholic, and sometimes surprising, as one might have expected of that vessel of wisdom its editor. **N.P.**

NOTE:—An obituary of R. B. Fishenden will appear next month.

SKILL

A MONTHLY REVIEW
OF BUILDING TECHNIQUES & INDUSTRIAL DESIGN

1 interiors
2 design review
3 techniques
4 the industry



1, *corner of the restaurant immediately to the left of the entrance from the foyer. At the edge of the gold papered ceiling are white louvres above which is concealed lighting and ventilation.*

1 INTERIORS

RESTAURANT IN GERRARD STREET, W.1

Architects: Leonard Manasseh & Partners

In changing the old Villa Villa Restaurant into a quite new restaurant called La Reserve, certain structural alterations and a complete renovation of the kitchens and service area were necessary, with a great deal of additional cold storage and all shelving and work tops in stainless steel, to comply with the new health regulations. A new ventilation system was installed throughout.

The decoration was a special problem. The atmosphere was to be rich and yet provide a suitable background to first-class food and wines; at the same time it had to be lasting, and not indulge in exhibitionism. The whole conception was architectural. It is not a stage set, nor

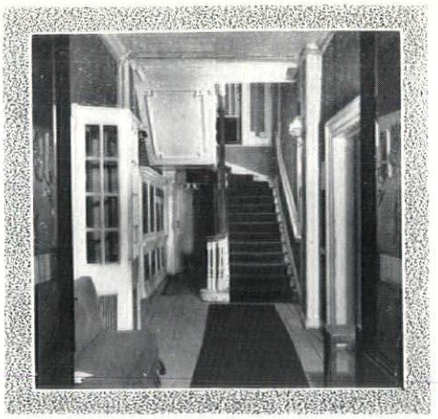
is it a piece of 'interior décor,' self-conscious 'design' being rigorously avoided. Carefully chosen colours and materials speak for themselves, and the whole scheme consists of a clear but subtle contrast of colours and textures, related to the form of the building.

The two main difficulties were first, that the old restaurant shared its main entrance with the offices above, and a new entrance clearly had to be provided; and, secondly, that the ceiling of the main restaurant was covered with a criss-cross of beams and coarse pseudo-classical decoration, which demanded bold measures. A single sweeping curved ceiling was therefore suspended the whole length of the room, papered in gold and thus setting the whole atmosphere; at the far end it recedes into infinity through a wall of black mirrored glass.

The main walls of the restaurant are coloured dark heliotrope, like the bloom on black grapes. The fixed seats are crimson plush topped with white marble and the carpet is seaweed green. White linings and edgings, brass and crystal lights, white louvres over part of the restaurant and at the edges of the suspended ceiling all add glitter to the scene. A folding screen covered in a corded cloth of bright colours can divide the restaurant in two.

In the entrance foyer and bar a lighter and more sparkling atmosphere is provided by strong contrasting colours set off by jet black and pure white. The entrance doors, which are ebonized with brass fittings, are set in white frames. The bar has a matt black top and a white statuary marble front, with a polished brass foot rail. The ceiling lamps are like little Paul Klee boats, some black and some white. An enlarged engraving of a French feasting scene faces the entrance. The colours here are cadmium red on the ceiling, and part of the wall; a very light olive brown on another ceiling; a much reduced tone of burnt umber on the majority of the walls, and on one wall the darkest possible olive green. Two small areas on each side of the bar are an electrical shade of blue-violet. Where joinery is not ebonized it is dark polished mahogany. The carpet is a smoky blue-green.

The only standard furniture and fittings are some Italian chairs for the bar, the light fittings in the bar and on the ceilings. The dining chairs were designed and made by L.M. Furniture Limited. All other furniture, the fixed seating, bar stools and tables, joinery and light fittings were designed by the architects.

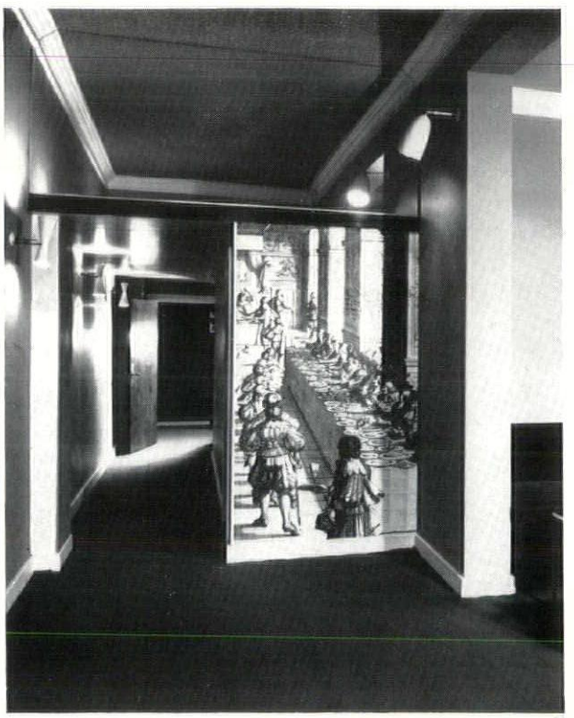


2

BEFORE

2, view from the entrance door before the alterations. To the right was a private dining-room, and the foyer was shared by users of the offices above. Now, 3, the old dining-room is partly taken up by the bar and an extension to the foyer, and partly by a new passage-way leading to the staircase, which is concealed behind the photostat mural. The ceiling is painted cadmium red.

AFTER



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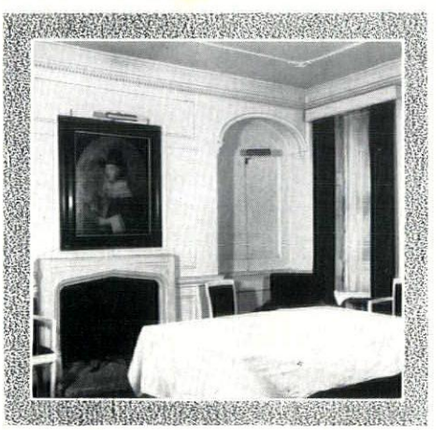


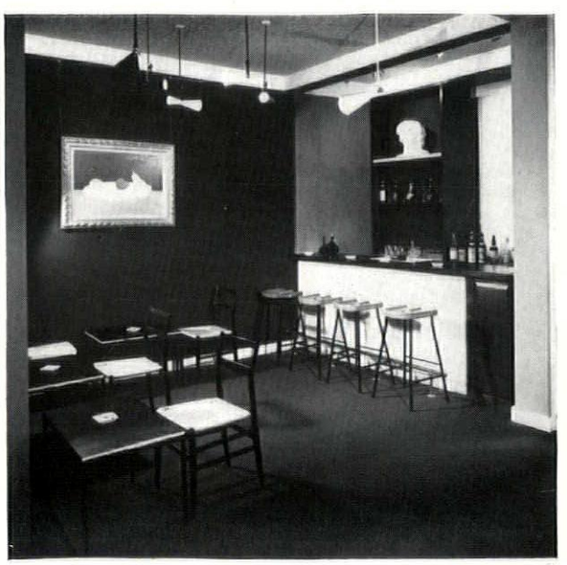
4

BEFORE

4, the private dining-room before alteration. 5, the bar which now partly occupies its position. The ceiling lights are black and white. The entrance to the offices now passes through the former window in the right of 4.

6, the bar. The bar top is black, the front white statuary marble. 7, looking towards the end of the restaurant farthest from the street; the end wall is completely covered with black mirrored glass. 8, looking towards the front of the restaurant. The shallow-curved false ceiling conceals a grid of beams and coarse 'repro.' detail.

AFTER



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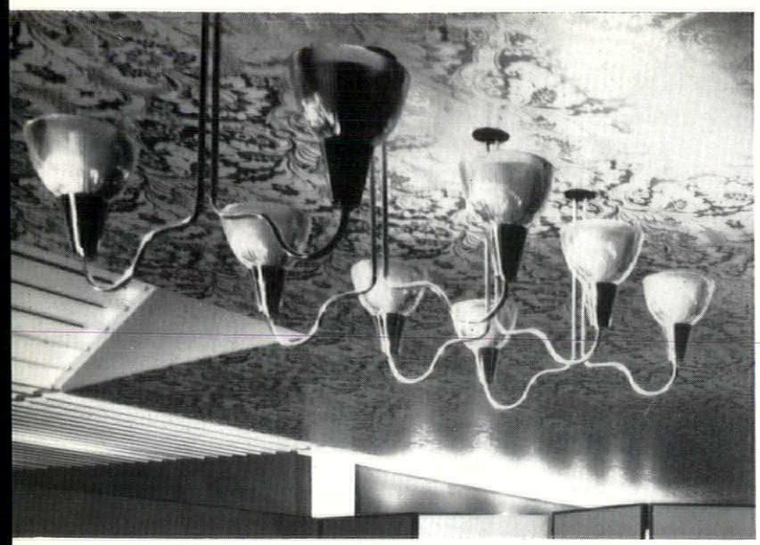

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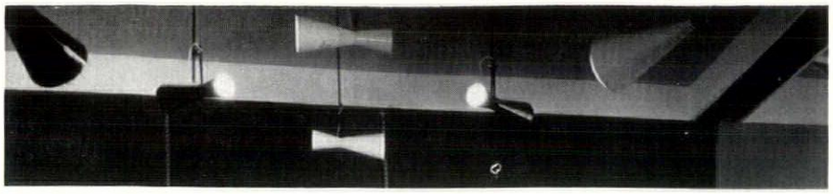

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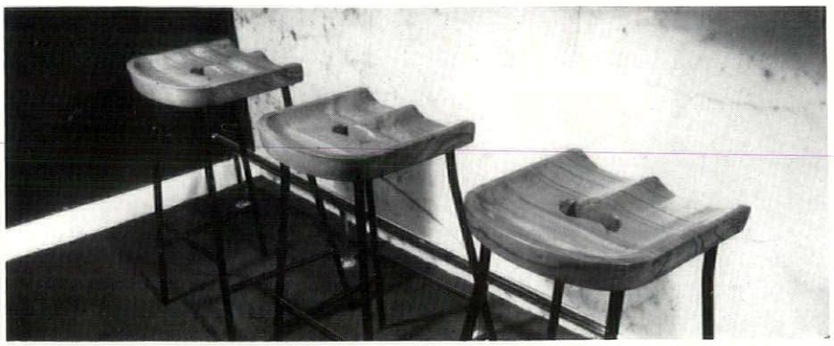
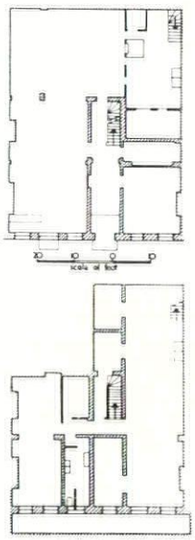
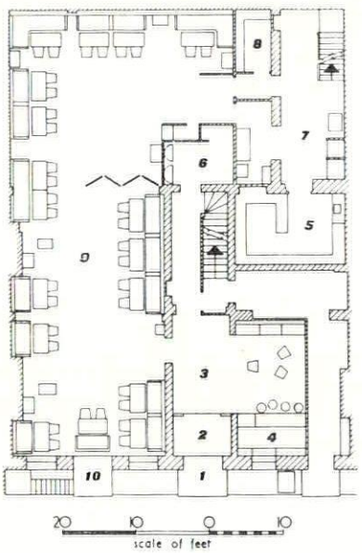


11

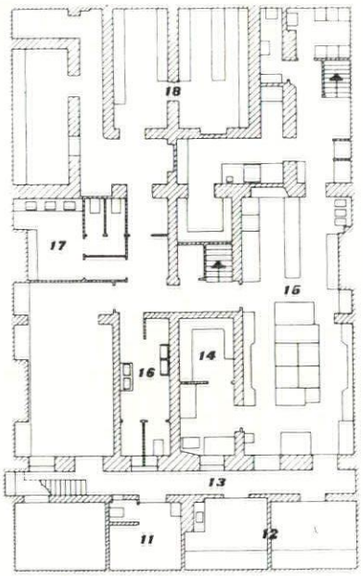
9, brass and crystal lights in the rear part of the restaurant. 10, *black and white lamps in the bar.* 11, *bar stools.*



ground floor (above) and basement before alteration



ground floor after alteration

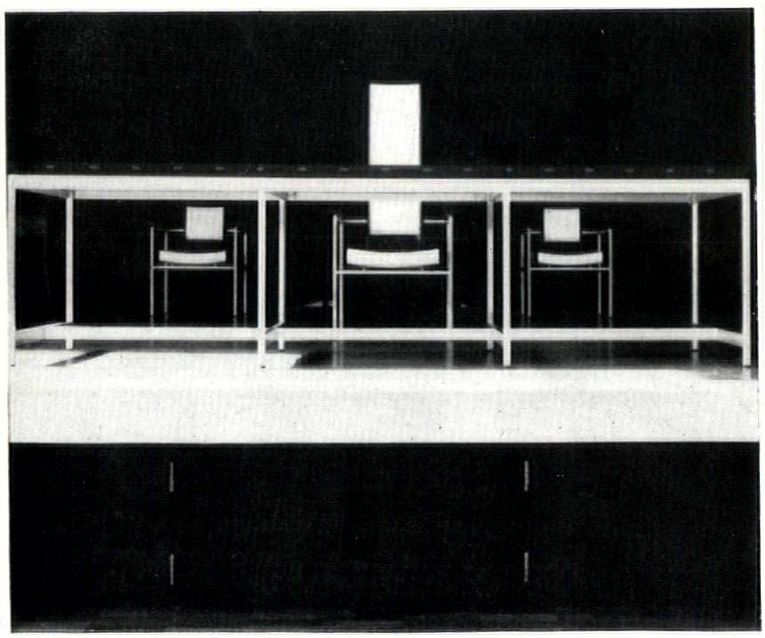


basement after alteration

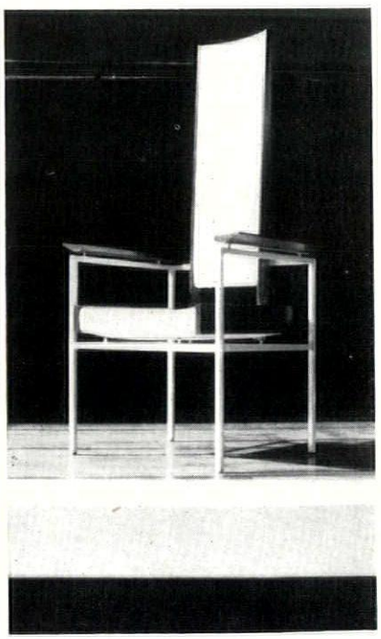
Key: 1, main entrance. 2, lobby. 3, foyer. 4, bar. 5, liquor dispense. 6, cloaks. 7, servery. 8, cigar store. 9, restaurant. 10, escape door. 11, staff. 12, preparation. 13, area. 14, cold room. 15, kitchen. 16, gents. 17, ladies. 18, wine cellar.

2 DESIGN REVIEW

1, headmistress chair, two other chairs and table, Mayfield School, Putney. 2, headmistress chair.



1, 2



Furniture for Mayfield School

Three chairs and a table for the platform of the main assembly hall were commissioned by the Parent Teachers Committee to mark the opening of the new extension to Mayfield School, Putney, 1 and 2. The extension turns this grammar school into a comprehensive school for 2,000 girls. The furniture is designed by Peter Stewart from the office of Powell & Moya, the architects of the building.

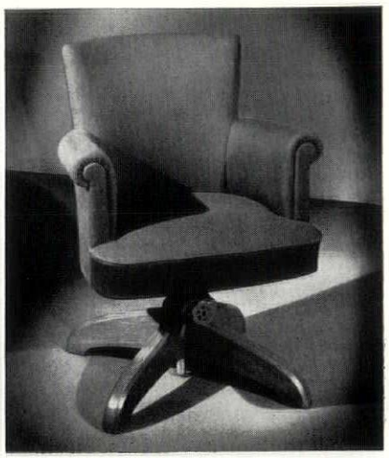
Framing is $\frac{3}{4}$ in. square section aluminium, welded, and anodized the natural colour. Table-top and arms of chairs are in polished black bean, screwed to but clear of the framing. Upholstery is by bandaging white nylon cord over softwood underframing, faced with foam cellulose and white linen, between black bean linings. The cellulose grips and maintains the positions of the cords.

The table is demountable for easy handling and storage. The top is made in three sections, of black bean boards, with glued softwood cross tongues and grooves. Tongues at the junctions slot into the grooves but are not of course glued. End grain to the cross tongues is faced with redwood, which is exposed on the leading edges, and all screwed timber joints are clearly expressed with hardwood pellets.



3





4, 5

3, executive swivel chairs, upholstered in leather or cloth: prices £32 14s. 9d. and £27 8s. 2d. 4, junior executive's or typist's chair in ply upholstered over plastic foam. Price from £9 14s. 0d. These three are designed by Robin Day. 5, a tilting and revolving chair from Heals. Its design brings the drawing-room into the office, and is in painful contrast to the heavy pedestal mechanism.

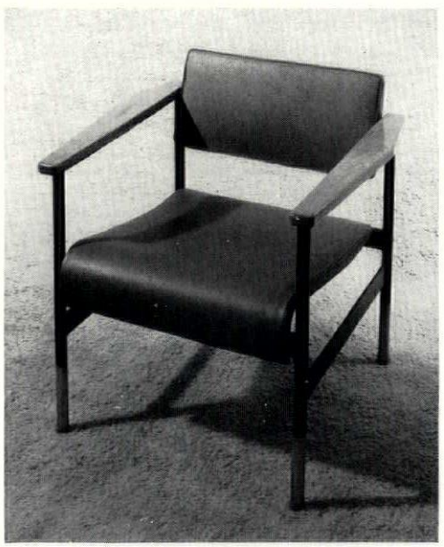
Swivel Chairs for Executives

The main demand upon a swivel chair is strength. Often it is required to tilt as well. Yet for the modern minded executive who happens to weigh over twelve stone, and likes to swivel and tilt all over the place, there is no ready-made chair on the market at all. On one hand is an immense number of uninspired chairs of good revolving and tilting performance, 5. On the other, the three Hille designs in 3 and 4. These are elegant, business-like, and dignified in line, but their light tubular support is for only moderate action, and they do not tilt at all. The challenge of the rugger-playing, high-powered salesman, who likes his feet high and his head low as an aid to thought has yet to be met. It must be faced that the two words 'light' and 'modern' though normally partners, are not inseparable. Surely contemporary designers do not simply refuse to tackle a design where weight is essential? An efficient tilting-swivelling chair is not going to look exactly like a dining chair, but is that any reason why it cannot have its own interesting character? It is clear from the chair illustrated in September AR that Eames could tackle this problem. Surely there are other furniture or engineering designers who could make something of this much overdue exercise? **D.R.**

Waiting Room Furniture

Seating and tables for waiting rooms at the main railway stations in the Eastern Region have been designed by Robin Day to the requirements of the Architect, Eastern Region, and made by Hille of London.

Single armchairs and bench seating in units of 2, 3 and 4, have been made in both hard and upholstered seating, 6–9. Seating and tables are constructed in welded stove enamelled steel frames, with the lower 6 in. of all legs made in stainless steel to take the knocks. Upholstery is in hard rubber on moulded plywood and covered with 'Vynide' leather cloth. The table top is of polished Makore, 10, and the chairs have arms of this hardwood. The hard seating has seats and backs made up of Makore slats. Simplicity



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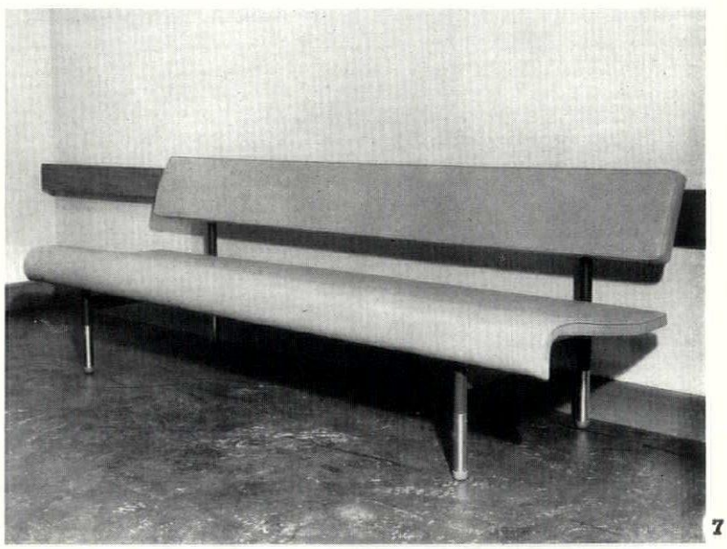

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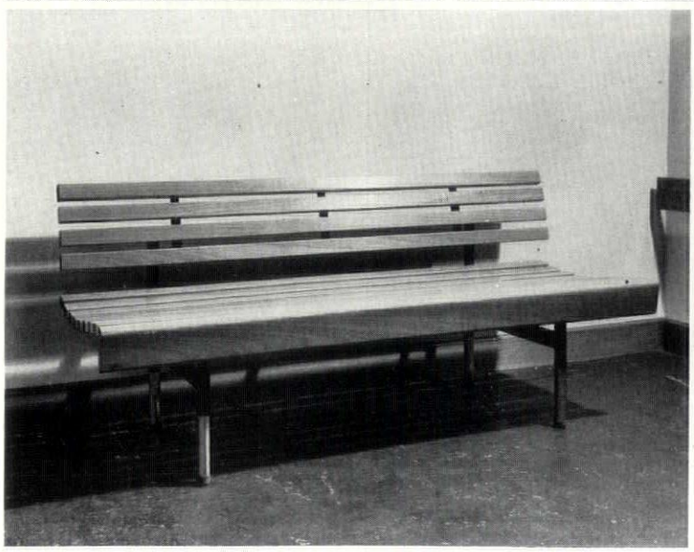
6, upholstered chair. 7, 4-unit upholstered bench seat. The length accentuates the casual height. At King's Cross these are well used, dividing the waiting room into bays. Seats are upholstered in geranium red leather; the walls are light grey. 8, 3-unit bench seat with slatted seat and back. The admirable designing of the slatting on the lines of the traditional park seat does arouse comparison with the flowing curves of the traditional wrought iron frame. 9, hard chair.



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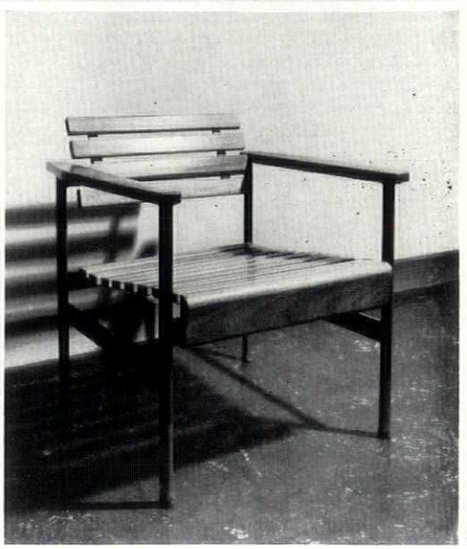

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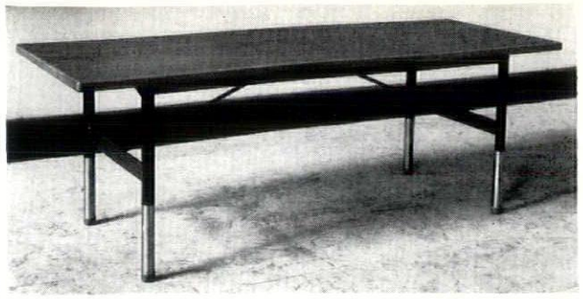
10, *table with polished Makore top. Another example of Eastern Region waiting room furniture:*



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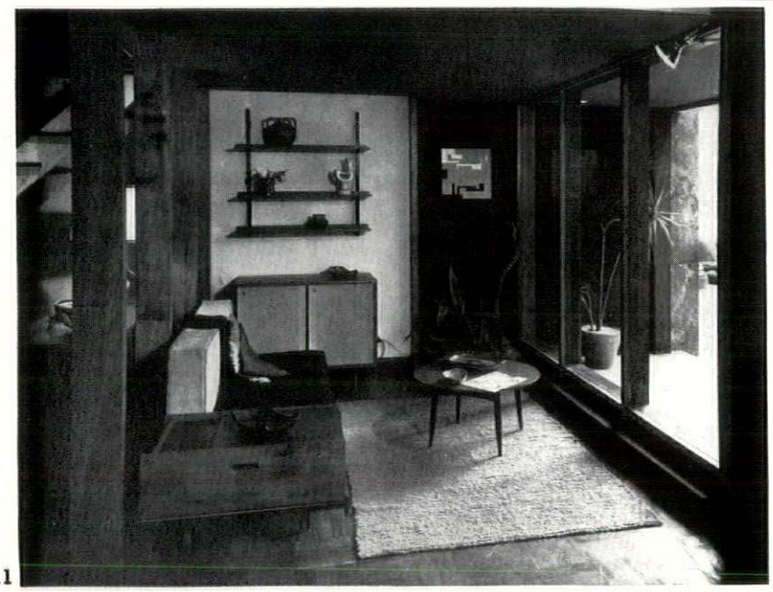
and solidity is are equally well stressed; the result a stylishness with no hint of clumsiness or naiveté. (Robin Day in this mood would make short work of designing the most elephantine swivel chair.) This furniture states uncompromisingly its public ownership, and promises to resist squalor to the bitter end. The only adverse criticism arises from regional sentiment. The connoisseur of British and pre-British Railways might justly complain that this particular furniture was more appropriate to any of the other regions, Eastern Region having always been remarkable for the intricacy of its curves. **D.R.**

Furniture in Brazil



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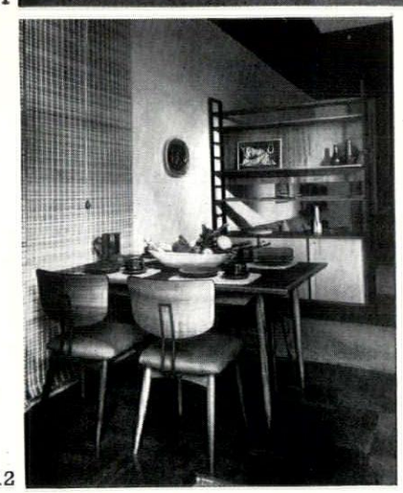

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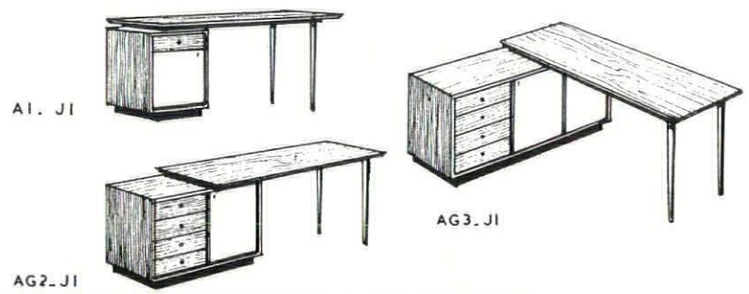
11, *entrance of Sao Paulo Mobilia Contemporanea, with 45-cm. module furniture, by Westwater and Arnoult.* 12, *chairs with a steel spring on the back; table, dresser and cupboard, of Imbria wood, Westwater and Arnoult. The table has screwed-in legs without nails. Coffee cups and plates are Santa Caterina brown glaze peasant ware.* 13, *armchair in Imbria wood by the same designers.*

The modern architecture of Brazil has gained world-wide recognition. Now for the first time the Mobilia Contemporanea Ltda. offers at its shop in Sao Paulo furniture specifically designed to meet modern needs. The designers are Michel Arnoult and Norman Westwater.

In two years of research and prototypes they created a series of thirty-three pieces of medium-priced furniture designed with an eye on rationalized methods of manufacture and good finish. They claim to have adopted the simplest of lines, relying almost entirely on the beauty of the woods found in Brazil.

A module of 45 centimetres was adopted to suit standard building sizes normally used in Brazil. This is applied to all cupboards, shelves, tables, wardrobes, sofas and beds. Any one piece can be purchased separately, even to an extra shelf.

Judging by the photographs the designers seem to have been most successful with the rectilinear pieces of furniture, ladder units and beds. Here their claim to the simplest of lines seems justified. Their touch with chairs seems less happy, possibly because their inspiration is architectural, and their habit of mind wide ranging rather than minute. **D.R.**



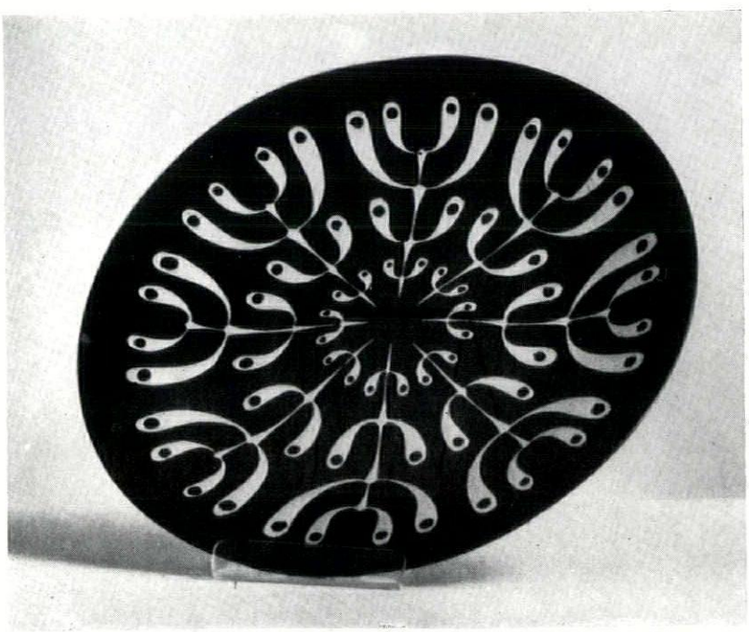
14, *two-legged table and cupboard of one, two or three units.*

Glass and the student designer.

An exhibition of the work of students at the Royal College of Art, the Edinburgh College of Art, and the College of Further Education, Stourbridge.

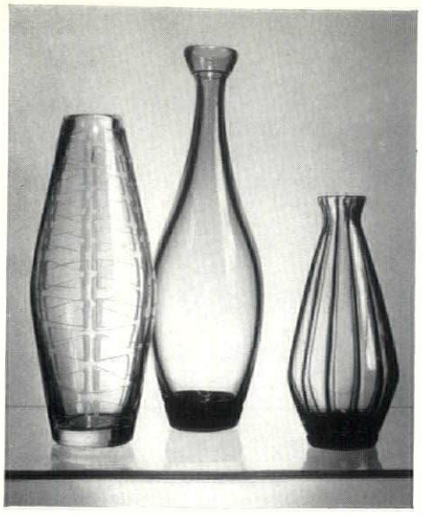
Most glass objects are best seen in contrast to other materials. For this reason, and because, though the objects on show may be of similar size, they vary quite unmanageably in scale, a glass showroom tends to be a depressing sight. This exhibition, skilfully arranged to minimize this difficulty, contained the whole gamut of scales. They must be considered singly.

Edinburgh students experimented usefully in the largest scale, producing bowls in free shapes in very thick glass. At the other end of the scale were technically excellent examples of small tumblers engraved pictorially. This method of decoration, applied after the glass has taken shape, depends entirely upon the engraver's imagination for its interest. It is not well enough understood that this is an artist's medium, requiring far more than an engraver's skill to save it from boredom. Though the same is true of diamond point, this more sensitive and less perfectible method seemed to give more lively results. Of the engravers and decorators Charles Richards seemed to have disciplined the scale of his decorations to that of the objects he was engraving, and to the scale of contemporary interiors. On his red flashed dish he had formalized a natural form of sufficient interest to hold its own against the interest of the decorative technique, 15.



15, *red flashed circular dish with sandblast decoration, by Charles Richards.*

Among some good technical examples of cutting Edna Batham's vase was outstanding, having the largeness and weight that distinguish early eighteenth-century work without any suggestion of pastiche. In the tradition of heavy glass objects was a dark posy bowl and an inkwell in crystal with purple glass inset and cut decoration. Several students produced distinguished designs without recourse to surface decoration. Gillian



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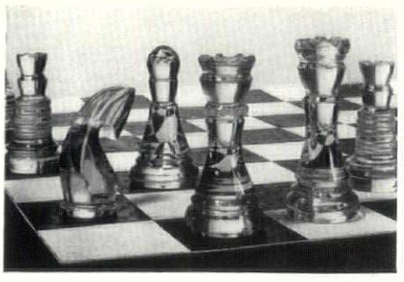

18

16, left to right, crystal vase with sandblast decoration, C. Richards; crystal vase with purple foot and amethyst neck, Robert Welch; crystal vase with vertical green threads and black foot, Jane Webster; 17, cheese dish with combed thread decoration, G. D. Robinson. 18, chess set in crystal glass, Ronald Renton.

glass and the student designer

Crowther's lead crystal water jug compares favourably with the commercial examples illustrated in September's *Design Review*. My prize would go to Robert Welch's crystal vase with purple foot and amethyst neck, 16, reminiscent but original. G. D. Robinson's cheese dish, 17, though it has well handled decoration in combed thread, would be noticed for its shape alone. It could compete with the Orrefors dishes illustrated in September.

Perhaps the most outstanding exhibit was R. Renton's set of chessmen, 18. These were wheel-cut from various blanks, mainly goblet stems. This highly ingenious idea was executed with a blessed economy. The photograph does not do justice to their simplicity, since by chance it exaggerates the element of reflection at the expense of the boldness of the designer's style. **D.R.**

3 TECHNIQUES

WASHING MACHINES AND BOILERS

by Mary Ward

Laundering must be, for many women, one of the complex penalties of married life and in recent years it has certainly received scant attention from home planners. A hundred years ago, Isabella Beeton described a domestic laundry establishment as consisting of a washing house, an ironing and drying room and, ideally, a drying closet heated by furnaces. Today the job is generally relegated to the kitchen and only the ingenuity of the light engineer makes it in any way tolerable.

Clearly, since a return to Mrs. Beeton's standards is unlikely, the kitchen and bathroom are the only parts of a house suited to this demanding exercise by virtue of supplies, drainage and finishes, but the choice between these rooms is not so simple as current practice suggests, particularly in flats. The kitchen is used during many hours of the day for the storage, preparation, cooking and often eating of food; the steamy heat of wash-day does nothing to assist these functions. The bathroom, on the other hand, is dedicated to steam and heat and, furthermore, stands empty for longer periods at a time. The matter is, of course, more complex than just this first consideration suggests. Outside drying will generally be most simply achieved from the kitchen, though a drying cupboard is probably most happily situated in the bathroom. A sink is a facility not generally found in a bathroom, but sometimes a bath is a more than adequate replacement—and so on.

The choice is nicely balanced and decisions are likely to be often made on the basis of Local Authorities' and Electricity Boards' reluctance to accept bathroom laundries. These authorities generally base their rulings on the recommendations of the Institution of Electrical Engineers* who suggest that the connection to electrical supply, all controls and the equipment itself should be out of reach of the bath when the latter is in use and that the connections of equipment to the supply should be permanent.

The decision where to site the laundry will have some bearing on the choice of equipment and this is, perhaps, helpful, as a bewildering range of laundry equipment is now available, from simple wash boilers to fully automatic machines doing the whole job at the push of a button.

There are a great many simple boilers available with capacities ranging from 5 to 10 gallons. The old round galvanized type is cheapest, but is of a form that will be unacceptable to many people. The boilers illustrated are mostly examples from large ranges produced by each manufacturer.

electric boilers

1, Baby Burco, Model 761, made by Burco Ltd., water capacity 5 gallons, 2 kw. boiler, gravity emptying. 19¾ ins. high by 15½ ins. diameter, A.C. or D.C., 200/220 and 230/250 volts. Anodized aluminium body, black stove enamelled base, rubber feet, £6 2s. 6d. Enamelled cream and eau de nil or cream and maroon £6 10s. 0d. This is not large enough for bed linen, but would be useful for a daily boil of nappies or other small articles.

2, G.E.C. model D.E.4759, made by the General Electric Co. Ltd., 9⅝ gallons, 3 kw. boiler, gravity emptying, 16⅝ ins. by 16⅝ ins. by 28 ins. high, A.C. or D.C., 200/220 and 230/250 volts. Tinned copper pan, exterior stove enamelled white or honeysuckle, £15 15s. 0d., including worktop.



1



2

* See Regulations for the Electrical Equipment of Buildings, 1955. Pub. The Institution of Electrical Engineers, Savoy Place, W.C.2. Regulation 405 (C), 405 (B), 314 (B) (iii).

gas boilers

3, Model R5, made by G. L. Howarth & Co., 7½–10½ gallons, gravity emptying, 19½ ins. wide by 22 ins. deep by 27½ ins. high, copper pan coated 80 per cent tin and 20 per cent lead. Galvanized steel case vitreous enamelled grey mottle, £6 8s. 6d., or cream or green or white or honey with black, £6 18s. 6d.

4, Model 927, made by W. H. Dean & Sons, 10 gallons, gravity emptying, 17½ ins. wide by 20½ ins. deep by 30 ins. high. Tinned copper pan, steel case, vitreous enamelled in cream, white, £10 1s. 3d., or grey mottled, £9 5s. 6d.

gas boilers with attached wringers

5, The New 55, an exceptionally neat design, made by Morley Products (Padiham) Ltd., capacity 10 gallons, 15½ ins. wide by 15½ ins. deep by 28 ins. high, steel pan, steel case. Finish cream or grey mottled vitreous enamel, £7 18s. 6d., grey, £8 3s. 6d. cream.

6, Model 101/1, made by W. H. Dean & Sons, capacity 10 gallons, 19 ins. wide by 20½ ins. deep by 30¼ ins. high, tinned copper tub, steel case, cream and green or white vitreous enamel finish, £19 3s. 6d. Hand operated agitator optional, £1 15s. 10d. extra.

7, Model, G.77, made by Bolton Metal Products Ltd., 7½–10¼ gallons capacity, 18½ ins. wide by 21½ ins. deep by 30 ins. high. Tinned copper tub, cream or white vitreous enamelled steel case, approximate prices £20 4s. 2d., hand agitator £1 15s. 10d. extra.

8, The Apex, made by the Economic Gas Boiler Co. Ltd., 8½–10¼-gallon capacity, 17¾ ins. wide by 17¾ ins. deep by 29½ ins. high. Tinned copper tub, white or cream stove enamelled steel case, aluminium cornice. Approximate prices £17 10s. 10d., hand agitator £1 11s. 10d. extra.



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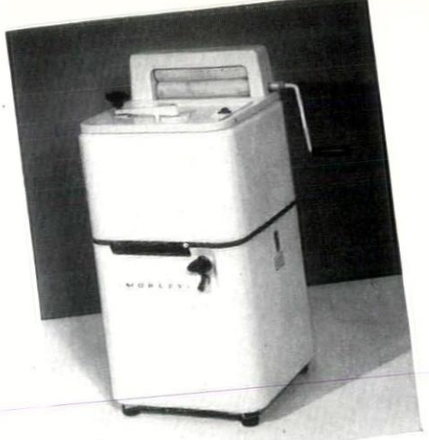

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gas and electric machines with hand wringers

Appliances incorporating powered agitators are either all electric or combined gas and electric, the latter using gas as being the most speedy boiling agent; they are generally equipped with hand or power operated wringers. A number of all-electric machines are fully automatic and utilize spin drying. It is difficult to make factual comparisons between the various agitating processes devised by various manufacturers. The minor time differences are clearly of little importance: capacity, convenience and appearance will weigh more heavily as a basis of selection. Capacity will depend on the household and under the heading of convenience, consideration will be given to the desirability of pump emptying, power wringing, spin drying, control positions, mobility and overall dimensions. Planners will need to notice particularly the working position of controls and hand wringers.

9, Model G.E.51P, made by Morley Products (Padiham) Ltd., wash load 3½ lbs., aluminium impeller, hand wringer folds down at side of case, pump emptying, 24½ ins. wide by 20½ ins. deep by 29½ ins. high.† 200/220, 230/240, 240/250 volts, A.C. Tinned copper pan, sheet steel case, aluminium lid, finished cream or white stove enamel. Rubber wheel feet, £53 9s. 0d. approx. The outward folding wringer seems clumsily contrived and is the more surprising as a product of the same maker as 5 above.

10, The Slaxon, made by Henry Slack & Sons, wash load 6 lbs. aluminium paddle reciprocating agitator, fold-down hand wringer, gravity emptying, 18 in. wide by 21¼ ins. deep by 31¾ ins. high, 200/250 volts, A.C. Anodized aluminium pan, steel case, white or cream vitreous enamelled. Rear castor feet, £51.

11, Model A.L., made by W. H. Dean & Sons, wash load 7 lbs., bakelite reciprocating agitator, hand wringer detaches and stores in back of case, gravity emptying, 20 ins. wide by 22 ins. deep by 29½ ins. high, A.C.; 220/230, 230/250 volts. Anodized aluminium pan, steel case finished green, white or cream vitreous enamel. Two rubber feet and two castors, £54 11s. 11d. D.C. 200/220, 230/250 volts, £66 3s. 11d. Other voltages to special order.

12, The 'Live-Water' washing machine made by the Parkinson Stove Co. Ltd., wash load 4½–5 lbs.,

† Dimensions are given throughout for the closed position of the machines unless otherwise stated.



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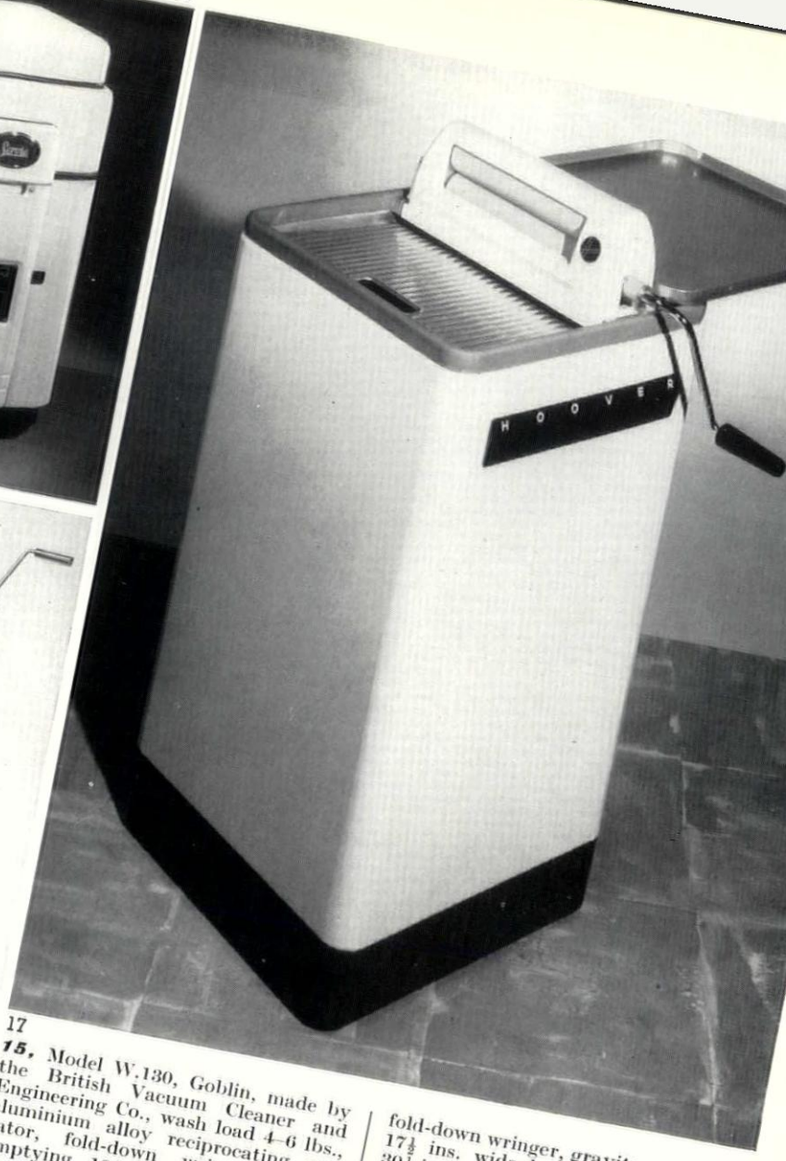

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15



16

is remarkable not only for exceptionally neat appearance, but also for the method of agitation which is performed entirely by jets of water. There is also a filter incorporated, an important asset. In machines without a filtering device lint is interchanged between garments. This can be quite a serious disfigurement if fabrics of very dark and very light colours are washed in the same water. Fold-down hand wringer, pump emptying, 16¾ ins. wide by 18¾ ins. deep by 30¼ ins. high, A.C. 200/210, 220/230, 230/240. Tinned copper pan, zinc coated steel case, finished white or cream stove enamel.

13, Model E.W.4, made by Easiclene Porcelain-Enamel (1938) Ltd., wash load 4½–5 lbs., four vane reciprocating aluminium agitator, fold-down wringer, gravity emptying, 16 ins. by 16 in. by 28 ins. high, 2.7 kw. heater, 200/220 and 230/250 volts, A.C. Vitreous enamel steel pan, porcelain enamelled steel case cream/green, blue/white, cream/red, all cream, all white, two castors, £54. Model E.W.2 with powered wringer also available.

14, Model S.H.P. made by Wilkins & Mitchell Ltd., wash load 4½–6 lbs., alachromed aluminium turbulator, fixed wringer with folding handle, pump emptying, 20 in. by 20 ins. by 32 ins. high, 2 kw. heater, A.C. 200/220 or 230/250, vitreous enamelled steel pan and case, white, £59 12s. 3d.

15, Model W.130, Goblin, made by the British Vacuum Cleaner and Engineering Co., wash load 4–6 lbs., aluminium alloy reciprocating agitator, fold-down wringer, pump emptying, 18¼ ins. wide by 20 ins. deep by 31⅜ ins. high, 2½ kw. heater, A.C. only 200/220, 230/250, vitreous enamelled steel pan, white stove enamelled steel case, two castor feet, £54 12s. 10d.

16, The Scales machine, made by W. & S. Summerscales Ltd., is available in four models, S.1, without heater or time switch, S2 without heater, with time switch, S.H.3, heated, without timer, and S.H.4 heated, with time switch. Wash load 6–8 lbs., aluminium rotator agitator, fold-down wringer, gravity emptying, 17½ ins. wide by 17½ ins. deep by 30¼ ins. high, 3 kw. heater, A.C. 230/250, black and white mottle vitreous enamelled tub, white stove enamelled zinc sheet case, castor feet. Prices are respectively £49 4s. 7d., £55 5s. 6d., £56 15s. 8d., £59 16s. 1d.

17, Mark II, made by Hoover Ltd., a very well detailed design. Wash load 6 lbs., plastic moulded pulsator in tub side (the agitator is situated in the bottom of the tub in the majority of machines), fold-down wringer, pump emptying, 17½ ins. wide by 16½ ins. deep by 30¼ ins. high, A.C. and D.C., all voltages. Anodized aluminium tub and lid, enamelled steel case, wheeled feet, £52 6s. 0d.

gas and electric machines with powered wringers

Many machines which incorporate powered wringers allow radial adjustment of the wringer. This facilitates starching, rinsing and bleaching of clothes whilst others are still washing without the water from the wringer draining back into the agitator. Powered wringers stow away in cabinet unless described as 'fixed' or 'fold-down.'

18, the Ega, made by the Economic Gas Boiler Co., wash load 5 lbs., reciprocating agitator, four position wringer, pump emptying, 18 ins. wide, by 18 ins. deep by 34 ins. high, over wringer 42 ins. high (wringer is fixed). A.C. 200/210, 220/230, 240/250. Tinned copper pan, steel case, white or cream stove enamelled. Black vitreous enamelled cornice, £79 9s. 3d. approx.

19, The Auto, made by the same company, wash load 9 lbs., aluminium agitator, fixed eight-position reversible wringer, gravity emptying, 22 ins. by 22 ins. by 34¾ ins. high, A.C. 200/230, 240/250, corrugated tinned copper pan, steel case stove enamelled white or cream, black vitreous enamelled cornice, castor feet, £79 9s. 3d. It seems a pity that this machine, fitted with a worktop, and too high for under drainer storage, cannot be made 1¼ ins. higher to conform to standard worktop height.





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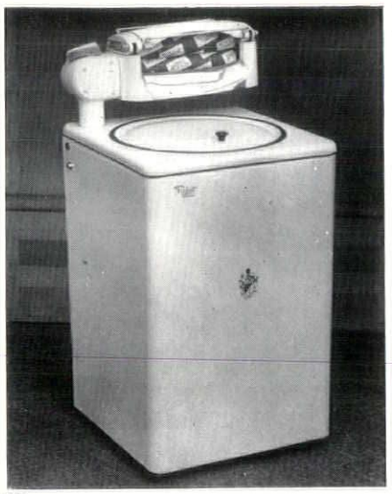

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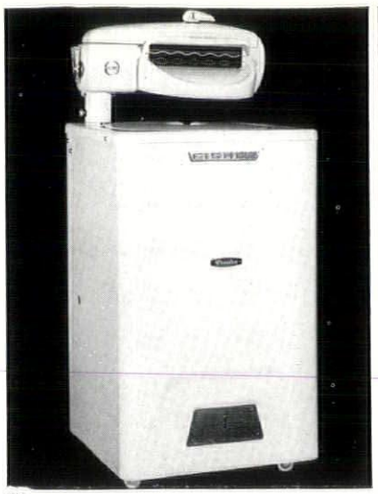

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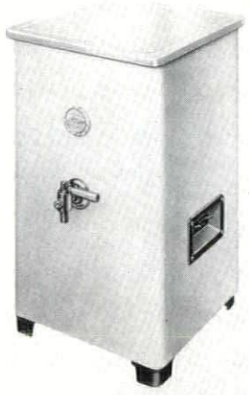

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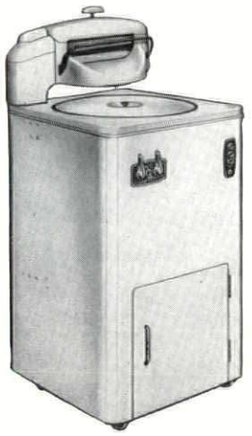

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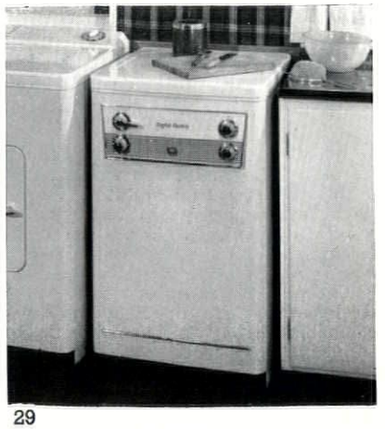

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20, Prefect Princess, made by Clegg & Coupe Ltd., wash load 5½ lbs., four-position wringer, gravity emptying, 2 kw. heater, 19 ins. wide by 19 ins. deep by 31½ ins. high, aluminium tub, steel case, vitreous enamelled. £73 19s. 0d., or £64 11s. 0d. without heater.

21, E.W.50/H, made by Parnall Yate Ltd., wash load 5½ lbs., plastic reciprocating agitator, eight-position wringer, pump emptying, 3 kw. heater, A.C. or D.C. 200/220, 230/250, 20.2 ins. by 20.2 ins. by 36 ins. high. Vitreous enamelled zinc coated steel tub, and stove enamelled cream or white zinc coated steel case, castor feet, £79 14s. 6d. Model E.W.50 without heater also available.

22, The Creston, made by H. Fisher (Oldham) Ltd., wash load 6 lbs., oscillating agitator five-position wringer, pump emptying, 21 ins. by 21 ins. by 34 ins. high, 46 ins. over wringer. A.C. 200/220, 230/250, special voltages and D.C. to order. Vitreous enamelled tub, cream or white stove enamelled case, vitreous enamelled top, castor feet. £68 10s. 3d. for A.C. with cut-out, £76 17s. 9d. for D.C. without cut-out, rotary ironer (A.C. only) and worktop optional extras. In this machine, as in some others, it would seem worth while to make the low-level switch more suitable for foot-operation.

23, Mark III by Hoover Ltd., wash load 6 lbs., plastic pulsator side mounted, power wringer stores in cradle in tub. Pump emptying, 2 kw. heater, A.C. all voltages. 17½ ins. wide by 16½ ins. deep by 30½ ins. high. Stainless steel tub, white stove enamelled steel case, £78 12s. 6d., or £67 15s. 0d. without heater. This design equals the Mark II, expressing and encouraging efficiency.

24, Model CH/P, made by Hotpoint Electric Appliance Co., wash load 7 lbs., six-position wringer interchangeable with rotary ironer (extra), moulded plastic reciprocating gyrator, pump emptying, 3 kw. heater, 200/220, 230/250 A.C. 23 ins. wide by 25¼ ins. deep by 36 ins. high, aluminium pan, cream or white stove enamelled zinc coated steel case, castor feet, £89 18s. 6d., worktop available £2 2s. 9d. extra.

25, Model D.E.200, made by the General Electric Co., wash load 8 lbs., plastic moulded agitator, six-position wringer interchangeable with rotary ironer (extra), gravity emptying, 200/220, 230/250 A.C. 22½ ins. by 22½ ins. by 36 ins. high. Mottled porcelain enamel tinned copper tub, white stove enamelled steel case, castor feet, £79 2s. 8d. Vitreous enamel worktop £2 2s. 8d. extra bought separately. D.C. model D.E.201 £82 14s. 7d.

26, Ada Mark I, made by Ada (Halifax) Ltd., wash load 8½ lbs., plastic agitator, four-position wringer interchangeable with rotary ironer (extra), pump emptying. 22 ins. by 22 ins. by 36 ins. high. A.C. or D.C., 200/220, 230/250. Aluminium chromate treated tub, white or cream stove enamelled zinc coated steel case (other colours to special order) rubber tyred castors, £71 1s. 0d. or £79 15s. 0d. with heater.

27, Model MHP Superheat made by Wilkins & Mitchell Ltd., wash load 9 lbs., plastic reciprocating agitator, detachable five-position wringer, pump emptying, 23 ins. by 23 ins. by 34½ ins. high. 3 kw. heater, A.C. 200/220, 230/250. Vitreous enamelled steel pan and case, white or cream, 4 wheeled feet, £86 5s. 6d. D.C. model £93 15s. 6d. Yellow/green, blue/red door and lid £2 18s. 0d. extra.

28, Model W.140, Goblin, made by the British Vacuum Cleaner & Engineering Co., wash load 8–10 lbs. This machine is remarkable for a unique floating rubber paddle agitator which allows equally efficient washing whether the machine is used at full capacity or not. Four-position wringer, detachable but not stored in machine, pump emptying, 2½ kw. heater, 200/220, 230/250, A.C. only. 22½ ins. wide by 22½ ins. deep by 34½ ins. high, vitreous enamelled steel tub and white stove enamelled steel case, castor feet, £85 17s. 7d., or £77 1s. 5d. without heater.

29, Model 4005, made by English Electric Co., wash load 8–9 lbs., plastic agitator, eight-position wringer interchangeable with rotary ironer (extra), pump emptying, 3 kw. heater, 200/220, 230/250, A.C., also 100/110 with 1.6 kw. heater. 21¼ ins. wide by 23¼ ins. deep by 36 ins. high. Steel tub, vitreous enamelled, alkali resistant, steel case, cream or white stove enamelled, rust-proofed, castor feet, £88 19s. 9d.

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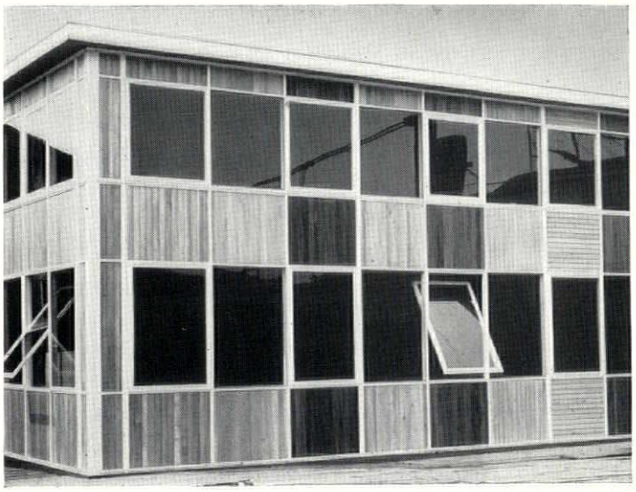

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fully automatic machines

30, Model 244, made by Thor Appliances Ltd., does not require special plumbing or fixing *in situ*. The wash load capacity is 8 lbs. After the clothes have been agitated the soapy water is pumped from the inner to the outer tub and stored whilst the first load is spin-dried. It is then returned to the inner tub for the next load. Rinsing, which must be done at the end of the whole wash if the suds are to be saved, is achieved by the continuous addition of clean water to the inner tub. It is agitated and allowed to overflow into the outer tub, which is pump emptying. Spin-drying considerably reduces the line-drying time as opposed to wringing. There is no heater in this machine. 200/220, 230/250 A.C. (D.C. models available at extra cost). 25 ins. by 25 ins. by 36 ins. high. Vitreous enamelled steel tub, cream or white vitreous enamelled steel case, £98 12s. 0d. A dish washing attachment is available £25 2s. 3d. extra.

31, The Bendix, made by Bendix Home Appliances Ltd., wash load 9 lbs. The operation is rendered automatic by an electric timer and thermostatically controlled water valves. The process is divided into two parts, the first part not always used. The sequence is as follows: soak and drain, rinse and drain, spin extraction, automatic stop. Wash and drain followed by rinse, drain and spin extraction three times, fluffing tumble, automatic stop. The machine can be set for up to 9¾ minutes soaking and 12 minutes washing time, both of which are determined by the operator, who adds the washing powder after the first automatic stop. The rinsing processes follow automatically after the washing period. Water temperature is always warm for soaking and the control setting determines the wash temperature according to the type of wash. During the rinsing the temperature is gradually reduced to 95°F. A water rationer measures the water entering the machine according to the weight of the load, thus economizing in the case of small quantities. The steel tumble cylinder and tub are vitreous enamelled inside and out and the case finished in high-lustre alkali and heat resistant white or cream enamel high-baked on bonderized steel. The adjustable legs allow levelling and the machine is bolted to the floor. Hot and cold water connections are made through flexible hoses to standard couplings ½ B.S.P. to fit special Bendix stop taps. Drain is by pump to drain or sink. Electric connection is to an ordinary three pin power plug, 200/230, 230/250 A.C. 25½ ins. wide by 22½ ins. deep by 36½ ins. high, £109.



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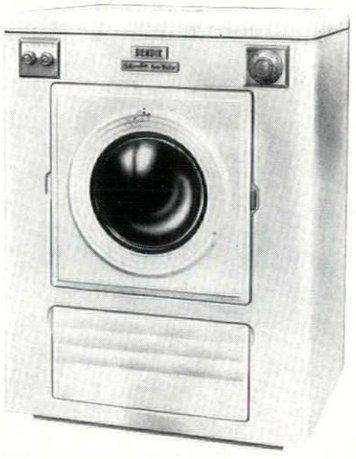


31

sink and washing machines

32 and ***33,*** incorporating the Hoover Mark III machine with stainless steel sink and surrounds and removable stainless steel drainer, £132 18s. 0d. The second incorporates the Prefect washer, £132 0s. 9d., or £157 13s. 1d. with heater. The dimensions for both models are 42 ins. wide by 24⅜ ins. deep by 36 ins. high plus 4-in. backsplash. Both, Ezee Kitchen Ltd.

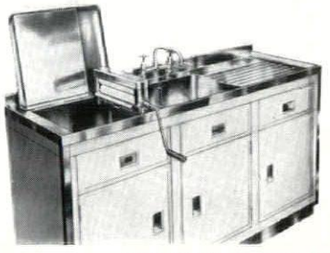
34, a combination of a 3 kw. heated washer with hand operated wringer, wash load 8 lbs. The tub,



32



33



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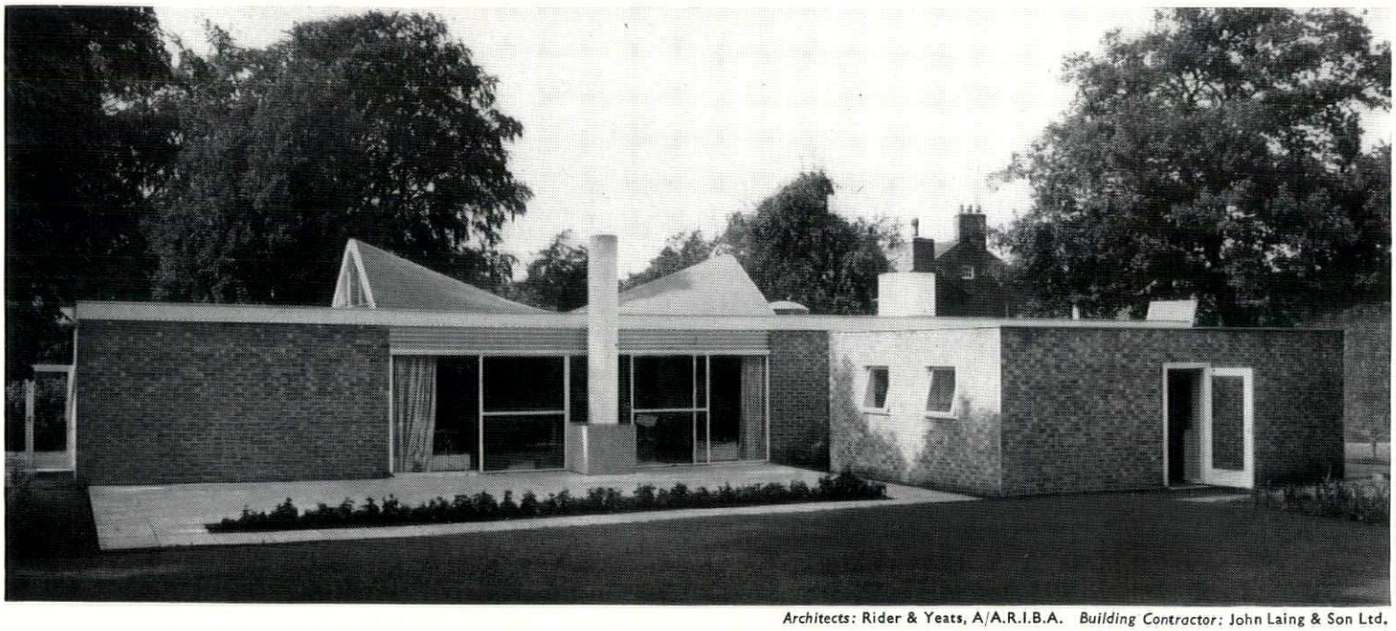

Architects: Rider & Yeats, A/A.R.I.B.A. *Building Contractor:* John Laing & Son Ltd.

ANDERSON FLEXTILE TRIPLEX

was used for the roof of "Harlequins" Mr. D. V. Damarell's Private Residence at Scotby, Carlisle.

Contemporary styling in the roof structure of Mr. Damarell's house demonstrates the suitability and flexibility of Anderson Built-up Roofing Systems.



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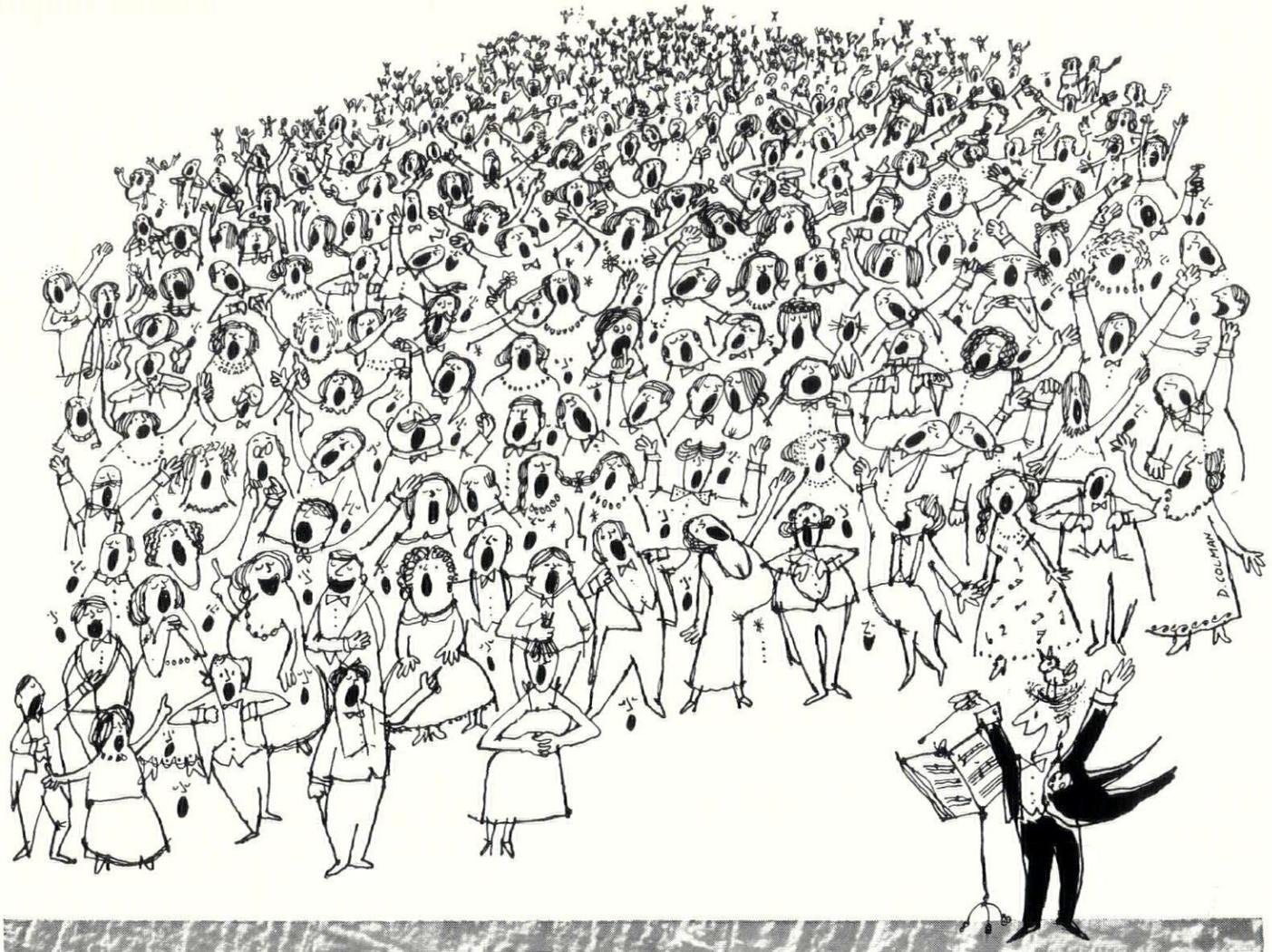

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The Gotham Company Limited, Gotham, Nottingham.
The Carlisle Plaster & Cement Co., Cocklakes, Nr. Carlisle.
Thomas McGhie & Sons Ltd., Kirkby Thore, Westmorland.

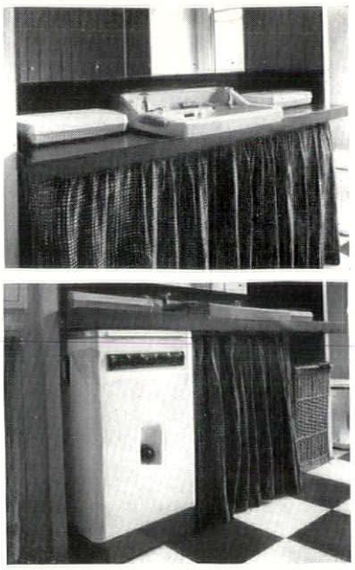
wringer, hinged cover, sink and drainer are all stainless steel. The cabinets are bonderized aluminium. The two-section Dovedale model is 42 ins. wide by 21 ins. deep by 36 ins. high, £110 4s. 9d. The three-section Millersdale with grooved draining board, 63 ins. wide by 21 ins. deep by 36 ins. high, £125 17s. 9d. W. H. Paul Ltd.

vibrosonic machine



35, The Laundmaster, made by the Syndi Manufacturing Co., is a vibrosonic washer, replacing mechanical agitation by sound waves, a device used in the launderer's own container replacing the agitation process only. It does not move the clothes in the water, but 'shakes' the dirt from them. Made in polished aluminium and stainless steel, it must be used with the special transformer for use on A.C. mains 200/230.Total price £22 17s. 6d.

tail-piece



36, a possible arrangement of a Hoover machine and a linen basket stowed away below a toilet bench and washbasin in a small bathroom-laundry.

Unless a fully automatic machine is required these units provide the ideal arrangement in the pre-planned kitchen laundry, although a demand for the under-draining-board models will no doubt be maintained by householders acquiring their machines as a luxury to be added to an already fitted kitchen. In addition to the foregoing there is a British machine of special interest as a departure from the usual methods of agitation.

This departure implies that the development of simple economic washing will continue and that the housewife of the future will fail completely to understand the old-world styling of wash day as Black Monday.

list of firms mentioned

Burco Ltd., Rosegrove, Burnley, Lancs.
G.E.C. Ltd., Magnet House, Kingsway, London, W.C.2.
G. L. Howarth & Co. Ltd., Nelson Square, Burnley, Lancs.
W. H. Dean & Son Ltd., Victoria Works, Burnley, Lancs.
Morley Products (Padiham) Ltd., Padiham, nr. Burnley, Lancs.
Bolton Metal Products Ltd., Bakewell Works, Bolton.
Economic Gas Boiler Co. Ltd., Gas Appliance Works, Junction Mills, Burnley, Lancs.
Henry Slack & Sons Ltd., New Factory, Accrington, Lancs.
Parkinson Gas Stove Co. Ltd., Stechford, Birmingham.
Easiclene Porcelain-Enamel (1938) Ltd., Kent House, Market Place, Oxford Circus, W.1.
Wilkins & Mitchell Ltd., The Green, Darlaston, Staffs.
British Vacuum Cleaner & Engineering Co. Ltd., Goblin Works, Leatherhead, Surrey.
Hoover Ltd., 211 Regent Street, London, W.1.
W. & S. Summerscales Ltd., P.O. Box No. 12, Parkside Works, Keighley, Yorks.
Clegg & Coupe Ltd., Molesworth Street, Rochdale.
Parnall (Yate) Ltd., North Circular Road, London, N.W.10.
H. Fisher (Oldham) Ltd., Oldham, Lancs.
Hotpoint Electrical Appliances Ltd., Crown House, Aldwych, London, W.C.2.
Ada (Halifax) Ltd., West Mount Works, Johnson Street, Halifax.
Thor Appliances Ltd., 64/66 Oxford Street, London, W.1.
Bendix Home Appliances Ltd., Kingsbury Road, Erdington, Birmingham.
Ezee Kitchens Ltd., 46 Davies Street, London, W.1.
W. H. Paul Ltd., Breaston, nr. Derby.
Syndi Manufacturing Co. Ltd., Industrial Estate, Uxbridge, Middx.

4 THE INDUSTRY

The Hille Convertible

The Hille convertible is a comfortable settee of simple and spacious appearance, 1, which can be converted into a bed, 2, by a single movement of the hand. Robin Day seems to have succeeded in eliminating the

[continued on page 350

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Architect: Richard Sheppard & Partners. Main Contractor: Gee Walker & Slater Ltd.

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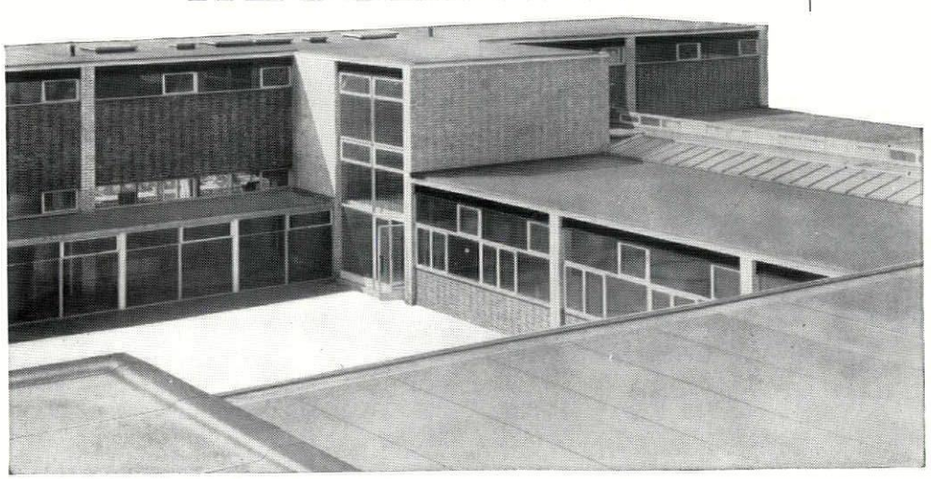

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Architects: Blampied and Biggar, A/A.R.I.B.A. Builder: Peter Hallett & Co. Ltd.

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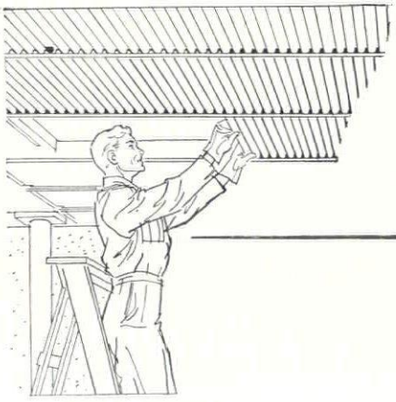

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TGA 112

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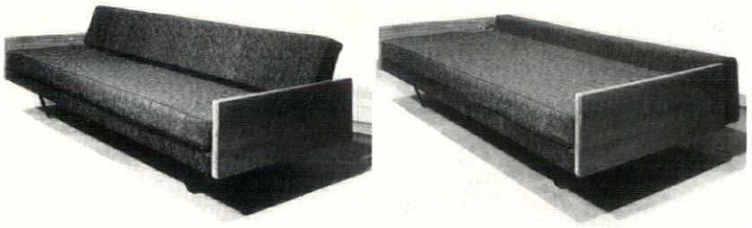

1, 2

tiresome complications of the bed-settee along with the name.

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Retail price is from £55, according to the upholstery material. Loose cover for mattress extra.

CONTRACTORS etc

Terrace Houses in Hampstead, N.W.3. *Architects:* Stanley Amis and William and Gillian Howell. *General contractors:* J. M. Hill & Sons. *Sub-contractors: Electrical installation:* C. H. Pearce & Co. *Spiral staircases:* The Safety Tread Ltd. *Wall and quarry tiling:* A. H. Herbert Ltd. *Wood block flooring:* Horsley Smith & Co. *Linoleum:* Catesbys Ltd. *Suppliers: Metal gratings:* H. & C. Davis & Co. *Boilers:* Trianco Ltd. *Pumps:* Mono Pumps Ltd. *Sanitary fittings:* W. N. Froy & Sons.; Adamsez Ltd. *Kitchen sinks:* W. & G. Sissons Ltd. *Plastic worktops:* C. F. Anderson & Son. *Garage door equipment:* Acrow (Engineers) Ltd. *Door mats:* Tyre Products Ltd. *Light fittings, external:* Revo Electric Co. *Light fittings, recessed:* Troughton & Young. *Venetian blinds:* J. Avery & Co. *Curtain track:* Silent-Gliss Ltd. *Hardware:* Alfred G. Roberts Ltd. *Other hardware:* A. Oakden & Sons; Lockerbie & Wilkinson Ltd.; Agro Electrical Co. *Sliding door gear:* James Gibbons Ltd.; Stedall & Co.; Comyn Ching Co.

House at Carlisle. *Architects:* Ryder & Yates. *Building contractor:* John Laing & Son. *Sub-contractors: heating engineer:* M. Aynsley & Son. *Electrical contractor:* David Thomson & Sons. *Roofing specialist:* D. Anderson & Son. *Plastering:* Carlisle Plaster & Cement Co. *Carlite plaster and bricks:* Cotham Co. *Sliding metal windows:* Williams & Williams Ltd. *Electrical fittings:* Merchant Adventurers Ltd.; General Electric Co. *Domelight:* Wm. Freer Ltd. *Paint:* International Paints Ltd. *Painting contractor:* Reid Bros. *Up-and-over door:* Westland Engineers Ltd. *Hardware:* Dryad Handicrafts Ltd. *Sanitary ware:* Adamsez Ltd.; Shanks & Co. *Reinforced concrete:* Twisteel Reinforcement Ltd. *Diffusing plyglass:* Modern Art Glass Co. *Glaziers:* Reed Millican & Co. '*Savo*' *Vitreous Mosaics:* Commercial Marble & Tiles Ltd.

Cinema in Birmingham. *Architect:* H. Werner Rosenthal. *Main contractors:* Bovis Ltd. *Projection and screen equipment:* Sound Equipment Ltd. *Heating and air conditioning:* H. E. Pritchard & Son. *Lighting and electrical equipment:* Sidney Hare. *Seating, curtains, etc.:* Turner & Co. *Special lighting fittings:* Tucker & Edgar. *Parquet and woodblock flooring:* North Staffs Flooring Co. *Carpets:* Empire Carpet Co. *Canopy illumination:* Lumenated Ceilings Ltd. *Canopy steel:* British Steel Construction (Wednesbury) Ltd. *Shopfitting work:* Gupwell Ltd. *Stair balustrading:* Bigwood Ltd. *Door furniture:* D. A. Thomas & Co. *Plastering:* Plasterers (Liverpool) Ltd. *Suspended ceilings:* Expanded Metal Co. *Screen surround:* Scaffolding (Gt. Britain) Ltd. *Acoustic sprays:* William Kenyon & Son. *Wallpapers:* Coles (Wallpapers) Ltd. *Marble:* W. H. Fraley & Sons. *Kitchen equipment:* W. Page & Co.

Restaurant in Gerrard Street, W.1. *Architect:* Leonard Manasseh & Partners. *General contractors:* Hampton & Sons. *Sub-contractors: All carpets, restaurant tables, fixed banquettes, bar tables and door mat:* J. Langton Roper, Ltd. *Restaurant chairs:* L. M. Furniture, Ltd. *Bar stools:* Conran Furniture, Ltd. *Special brass light fittings and various other fittings:* George Forrest & Son. *Various other light fittings:* Courtney Pope, Ltd. *Ironmongery, certain metal work and brass name plates:* J. D. Beardmore & Co. *Ironmongery:* Dryad, Ltd.; Comyn Ching & Co. *Electric heaters:* A. Dean & Co. *Gold paper on restaurant ceiling:* Coles (Wallpapers) Ltd. *Italian chairs in bar:* Heals Contracts, Ltd. *All paintwork (specially mixed colours):* Murray & Jones, Ltd. *Certain floors and underlays:* Cellulin Flooring Co. *Telephone booths:* Acoustic-Booth. *Marble:* J. Whitehead & Sons. *Enlargement for mural:* Carlton Artists. *Illuminated sign:* L. Bloom. *Special glass with lettering for hanging sign:* James Hetley & Co. *Refrigeration plant and cold store:* Pressed Steel Co. *Stainless steelwork and washing machine:* Dawson Bros. Ltd. *Ventilation:* E. V. Hancock. *Cooker:* Benham & Sons Ltd. *Lifts:* Aldous & Campbell Ltd.



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SPAN PROJECT 15 & 16

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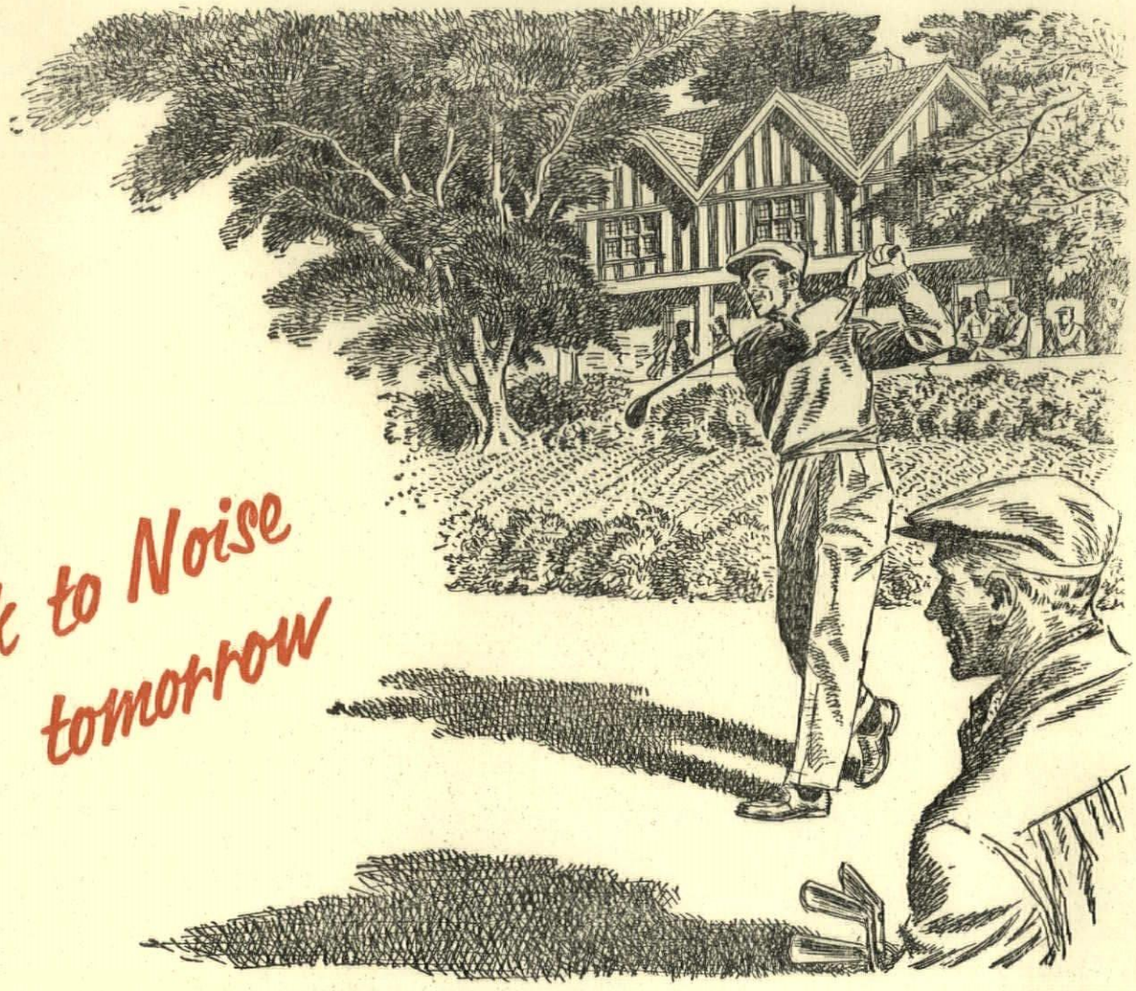

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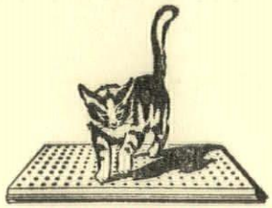

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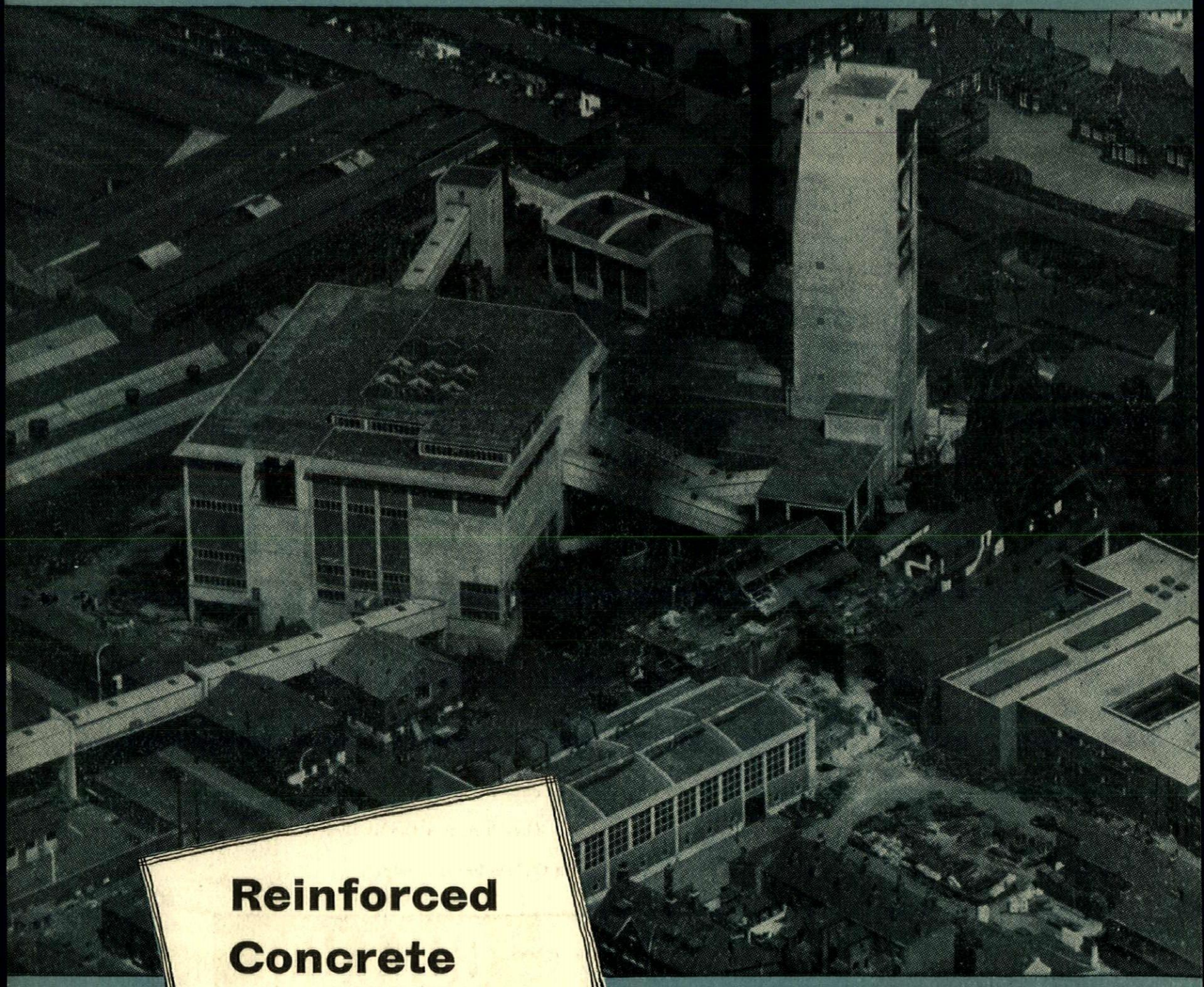

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OUTRAGE

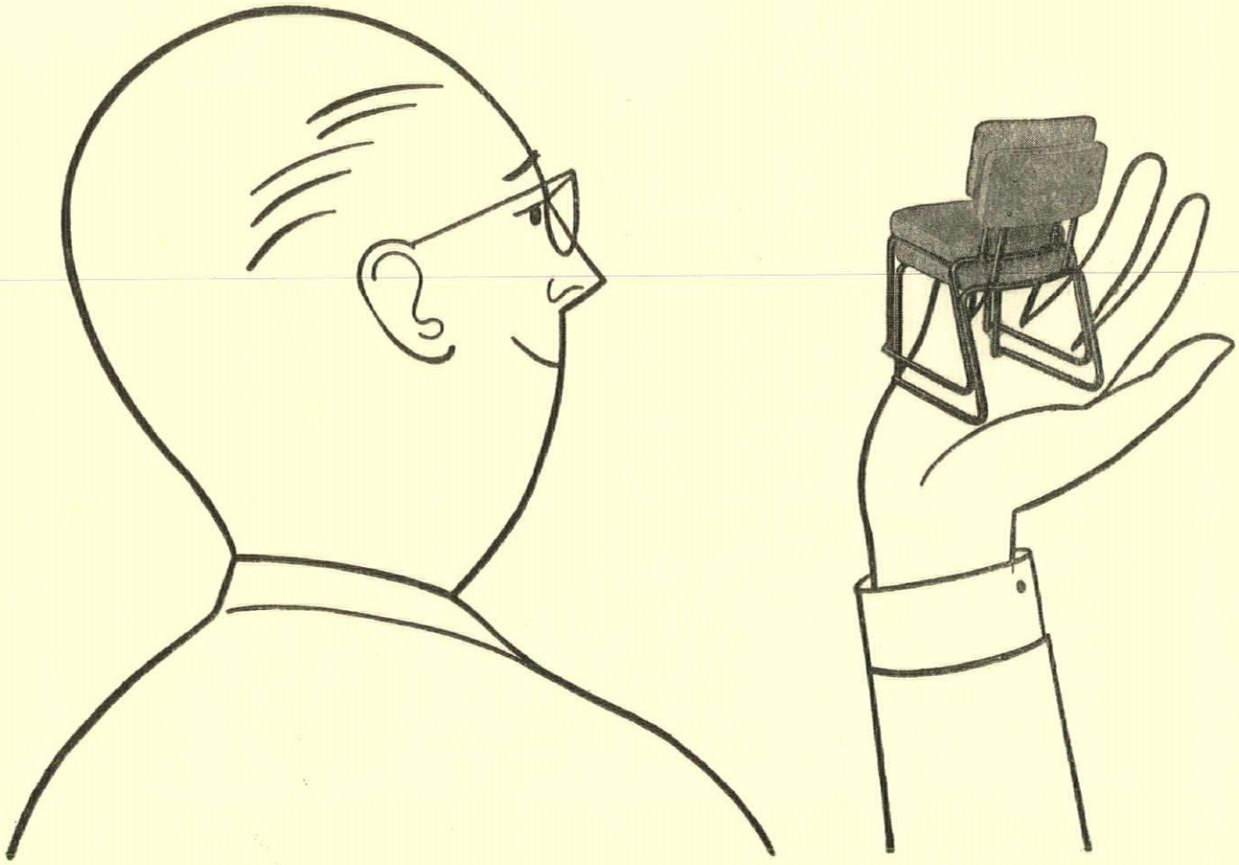
By Ian Nairn

"... Subtopia is inevitable. Modern civilization, mass production and means for sprawl must inevitably lead to the complete disappearance of individual landscape. It's the will of the people, it can't be stopped. ..."

Nonsense. Switzerland has beaten everything but suburban sprawl without having an overall plan. Some of our rural counties just give up the ghost: others make inadequate powers go a long way. It depends entirely on the guts of the individual and his ability to see through official-sounding bunkum. Subtopia is nothing like the will of the people; it is a mindless juggernaut, a mixture of ministerial inertia, the megalomania of public bodies, the petty squabbles of local authorities and the sheeplike acceptance by all of out-of-date theories constructed to apply to nineteenth-century industrialism and now codified into a set of inflexible byelaws. This issue is a counter-attack on the juggernaut, and presents a plan of action which, by allying a sure eye to common sense, could get us out of the mess we are in.



THE ARCHITECTURAL REVIEW VOLUME CXX NUMBER 719 [illegible] FIVE SHILLINGS



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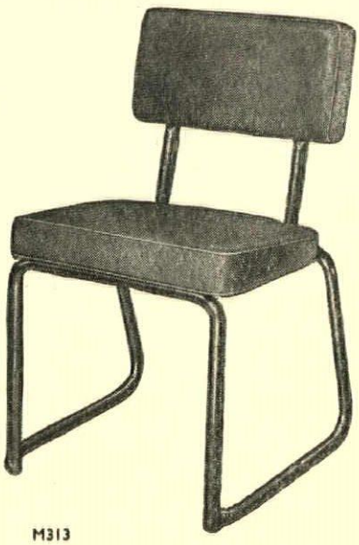

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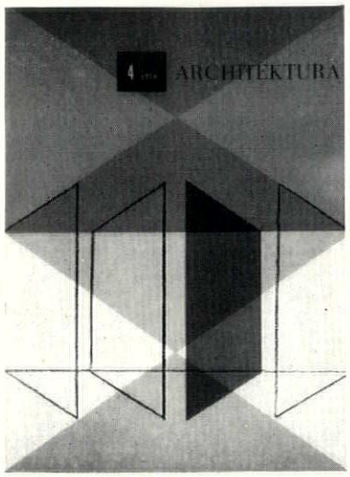
MARGINALIA

The Thaw

Signs of a changing climate in the arts behind the Iron Curtain—The Thaw, in Ehrenburg's celebrated phrase—began to appear in Polish architectural publications from about midsummer of this year. Signs of the times were the appearance of abstract patterns on the outside of *Architektura*, 1, and potted plants, including one or two of Gordon Cullen's



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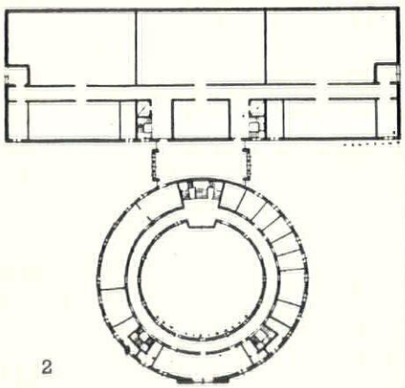
drawings, in its inner pages. These changes, of course, were fairly simply made, but no equivalent and immediate revolution in the design of buildings could be expected. Rather, as Kruschev's original intervention in the Soviet Building Congress two years ago indicated, the road back from Socialist Realism is likely to lie through something like Auguste Perret's prefabricated classicism. Projects illustrated in *Architektura*, how-



2

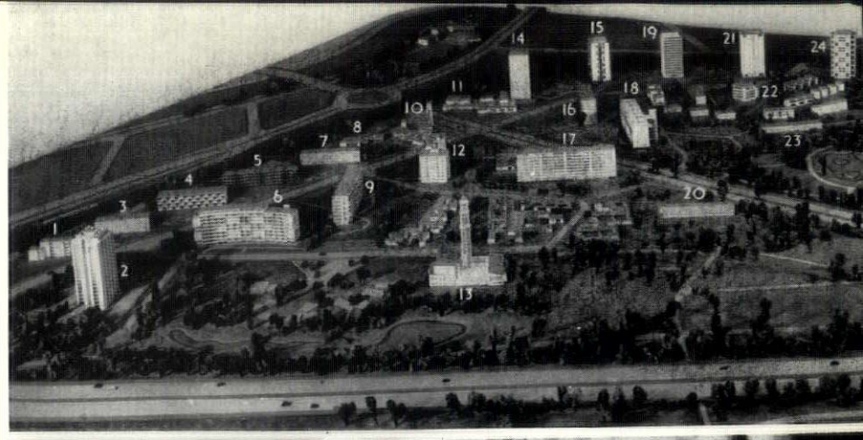
ever, like the new Central Archives in Warsaw, 2, designed by a team under Professor Pniewski, suggest that the stage beyond that might be more like Philip Johnson's Palladianism—which would be bridging a cultural gap with a vengeance.

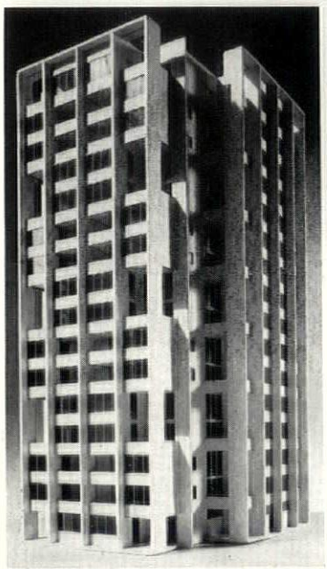
On the other hand, there are signs that classicism, of whatever breed, will not have things all its own way in Polish town-planning, and, it is clear from Adolf Ciborowski's booklet *Town Planning in Poland* (to be had from the Polish Cultural Institute, 81 Portland Place, W.1) that geometrical layouts are under fire. Thus, of the new town of Nowa Huta, the author observes, 'This "purity" of the entire composition led to a situation where the layout of the city does not everywhere accord with the functional requirements. Two arteries which are of equal importance as to their spatial and plastic value radiate star-like from the central square. . . . One of them is the principal route leading to the plant (steelworks), the second gets stuck in the residential district.' It seems that Ciborowski prefers the much freer plan of Nowe Tychy, which, he says, 'is predicated on two basic elements; the electric railway line . . . connecting it with . . . the Upper Silesian industrial region, and the green axis perpendicular to the railway line.' The somewhat inadequate illustrations to the book do not altogether demonstrate either this plan or that of Nowa Huta, but it sounds as if an extended and fully illustrated comparison of the two towns would be of more than local, Polish interest.

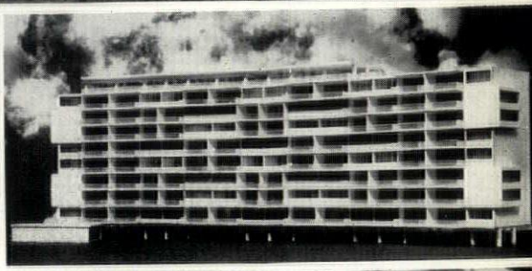
Berlin Interbau '57

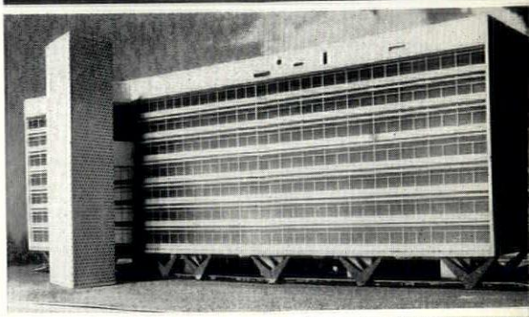
More ambitious in scale and in built volume than any post-war exhibition except the Festival of Britain, INTERBAU '57, to be held in Berlin next year, will serve also as a kind of 'square-mile redevelopment' in that it will convert an area at the western end of the Tiergarten into a new residential quarter. As the general view shows, the development consists mostly of tower and slab blocks freely disposed in extensive greenery. The participating architects are drawn from all over the world, but the first building put in hand was the tower block by the Berlin architects Müller-Rehm and Siegmann (2 in general view). Other distinguished German contributors include Egon Eiermann (flats at 16 in view), Hans Schwippert, with a point block (24), Hans Scharoun (houses, 23), Gustav Hassenpflug (point block, 19) and Wassili Luckhardt (flats, 5). The two churches on the site are also by German architects, the Protestant by Ludwig Lemmer (13 on view) and the Catholic by Willi Kreuer (10).

The International contributions include houses by F. R. S. Yorke (not shown on view), a block of flats by Walter Gropius and TAC (6), another slab block, of recognizably Brazilian form, by Oscar Niemeyer (18), and others by Pierre Vago, Otto Sehn, van den Broek and Bakema, Alvar Aalto and Luciano Baldessari.

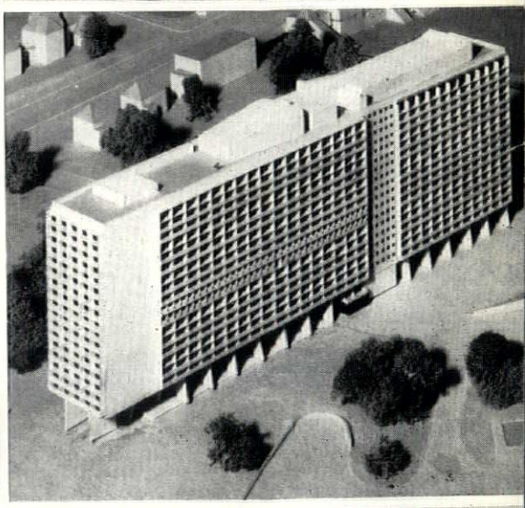














berlin interbau '57: *Top, layout model of the Hansaviertel development for the Berlin Building Exhibition*, 1957; *upper left, point block by Hans Schwippert* (24); *upper right, flats by Walter Gropius and TAC* (6); *centre right, flats by Oscar Niemeyer* (18); *lower left, Catholic Church by Willi Kreuer* (10); *lower right*, Unité Type Berlin, *by Le Corbusier, which will not be situated on the main Hansaviertel site, and is therefore not shown on the layout model; bottom, progress shot of work on the point block by Müller-Rehm and Siegmann* (2) *and the block by Gropius* (6), *seen from the Protestant Church* (13) *by Ludwig Lemmer.*

Le Corbusier's *Unité Type Berlin* is not shown on this general view because it does not lie within the boundary of main site.

Green Belts

It is rare that the culprit blows the gaff. The LCC has. In a booklet called *Green Belt around London* the growth of the idea of a Green Belt for London is traced, culminating in the Green Belt Act of 1938 which safeguarded a lot of specific but unconnected sites, not as a complete ring of true countryside but more like an extended public park (except for the 2,000-acre Enfield Chase which one can guess was saved by the good sense of its owners, the Duchy of Lancaster): in fact in the descriptions 'agricultural land' is described almost grudgingly, as though the author felt that the whole lot would be better off under the control of the LCC parks department.

The idea of a true Green Belt did not appear until the Abercrombie report of 1943 and is now more or less respected—except by the LCC. Appendix II of the booklet deals with the out-county estates, those areas of drearily designed housing which the LCC put down after the war in its own green belt, to everyone's shocked surprise:

'From time to time the LCC has been accused of abandoning its principles by building post-war housing estates in the green belt. It has with equal vehemence denied that it has thus violated the green belt. The origins of this controversy arise from the two senses in which the phrase "green belt" can be used—on the one hand to refer to the lands safeguarded under the LCC Green Belt Scheme and on the other to refer to the Green Belt Ring defined in the Greater London Plan, 1944.'

The out-county estates were not built on land in the first category, so honour is satisfied: by a quibble over definitions the LCC's building in the green belt is made to look almost an illusion. It's no illusion if you want to walk north from Romford or south from Merstham. Thirty-five thousand dwellings were built—which now seems to be all that will actually be built *in* the Green Belt; but the LCC is now building just beyond it—at Slough for instance (5,000 dwellings) which a casual onlooker would think was already joined to London by sprawl in no uncertain way.

At least the LCC is honest about it; and in fact London is probably the best big authority in the country, not the worst. The other cities haven't even thought about green belts, and become pugnacious and politically conscious when their neighbours attempt to do something about it. Here is the Chairman of Birmingham's Overspill Committee:

'Birmingham has one acre of open space for every 335 persons'—naturally, having sprawled right up to its boundaries—'Sutton Coldfield has one acre of open space for every 7 persons; and Solihull has one acre of open space for every 6 persons. In my opinion, it is inequitable that there should be such privileges when land for building houses to relieve congestion is so scarce and the inhabitants of the two other authorities are more or less dependent upon the city for their means of existence. Let us inject a little realism into Green Belt provisions!'

The only way out of this morass of complacency and political short-sightedness is a national Green Belt as advocated on page 431.

Bessemer Grange

1956 is the centenary of Bessemer's discovery of how to make steel. We reprint the following item in commemoration from the SEGAS (South Eastern Gas Board) Sales News for September:

> 'Of all the post-war housing developments in south-east England, one of the most interesting—and one just completed—is that on the site of Bessemer Grange in Camberwell. The name itself has a ring of romance about it—and that's unusual enough on a council estate. Bessemer Grange was once a country house set in 40 acres of fabulous grounds—the home of Sir Henry Bessemer, the engineer and inventor, father of the modern steel industry. It was later converted into a residential hotel. The site was chosen for one of Camberwell's first housing estates after the war, and clearing work began early in 1947. . . . The lake in the grounds, where he had spent one fortune on making artificial caves and another on the construction of a seasick-free ship, was drained and filled with tons of clay. . . . Now it has been completed—590 flats and 100 houses—690 dwellings in all. Now the transformation of Bessemer Grange is complete.'

It is indeed complete, as the before and after photographs show. That it should appear in this particular month's marginalia is especially ironic, enabling us to make a double recommendation. First, to the Camberwell Borough Council, to study Horndean Close on the LCC's Roehampton estate (page 423, and see also page 308 November AR), which was also built in matured Victorian grounds, and which is actually *denser* than this piece of subtopia (70 p.p.a. against—on the figures quoted—58 p.p.a.). Second, to recommend to the SEGAS Sales News, in all humility, a look at the Visual ABC and the Casebook which follows it (pages 355 ff.).

Oxford Roads

By now everyone knows of the Minister of Housing's decision to drive the Oxford relief-road through Christ Church Meadow, and what had looked like becoming another lost cause has been rescued, just as it seemed almost doomed. The Minister has revealed himself as a man of far vision in settling on the plan Dr. Thomas Sharp proposed 8 years ago and which Oxford City Council rejected. Two points of criticism arise, however. First, there is no mention of a tunnel under St. Aldate's, surely the least concession to the considerable lobby of far more ambitious tunnelers that has lately arisen. St. Aldate's as a street is almost as impressive in its steep downhill career past Christ Church and other encrusted old buildings as the High, though it serves an inferior function; and where the road would emerge is between St. Catherine's and the rest of the University; surely a roundabout and a churning mass of traffic just there would be an unnecessary compromise with the principles this plan is supposed to uphold. (See AR, May, 1956.) And as much of the Meadow as possible ought to be saved. Secondly, incorporating Rose Lane into the scheme may have dangers. At least it should not be two-way, nor should it be widened—do they intend to take down the early seventeenth-century classical wall of the Botanic Garden or spill over the forecourt of Merton's new buildings? It should, if anything, lead urban traffic into the High, which could then park in at least two rows on the City side of Magdalen Bridge, where through- and bus-traffic is now fiercest but which the semi-closure of the Bridge will restore to near-peace. The traffic could then find its way out again, wherever its destination, at the Carfax or St. Giles ends of the town.





Above, Bessemer Grange, Camberwell, before its destruction; below, the same spot today. Camberwell Borough Council's Denmark Hill Estate covers the site.

R. B. Fishenden

P.F.R.D. writes:

The Fishenden whom the present generation knew combined to an exceptional degree wisdom, kindliness and tenacity. The combination made him an ideal editor for the *Penrose Annual*. There is, indeed, a case here of a man who for his particular job is irreplaceable. Of young Richard Fishenden not many can speak from personal memories. For he was seventy-six when he died in October. It was certainly a sign of what competence and what reputation he was to acquire in the field of printing, and especially the printing of illustrations, that he became works manager to a firm of blockmakers at the age of twenty. At twenty-two he joined the staff of Manchester College of Technology. He became head of the printing department of the College and remained at Manchester until he was just over forty. Then he went to London, first as Manager of Stephenson Blake, the type founders, later as consultant to Lorilleux & Bolton, the ink-makers. From 1943 to his death he was adviser to Spicers, a job specially created for him. In the field of editorial work he took over Penrose in 1935 and the King Penguin Books (with Dr. Pevsner) in 1942.

Penrose remains his memorial and monument. Its character and qualities, unparalleled in any other country, are entirely his.

Enrico Fermi Competition

An international competition for a building in memory of Enrico Fermi at Chicago was announced in the November issue. The Secretariat of the International Union of Architects has however found the conditions to be not in accordance with the standard regulations for international competitions (RIBA Kalendar, p. 840). Member nations of I.U.A. have been warned not to participate.

Correction

Messrs. Norman and Dawbarn, who were mentioned in the October issue as architects of Airwork House, Piccadilly, inform us that they were engaged to advise only on the detailed planning and treatment of accommodation inside the building and had nothing to do with the planning, structure or external expression.

ACKNOWLEDGMENTS

MARGINALIA, p. 351, Kessler; Wimmer; (bottom) McCallum, Arphot; p. 352, top, Camberwell Borough Council; (bottom), Bell (courtesy SEGAS). FRONTISPIECE, California State Highways Dept. (Los Angeles Div.). CASEBOOK: from *Picture Post:* p. 362, top; p. 369, 2; p. 395, 4. By Robert M. Adam: p. 363, bottom; p. 377, 8. By Kennet: p. 365, 2. By I. de Wolfe, Arphot: p. 365, 1; p. 366, 1; p. 372, 1 and 9; p. 398, 3. By Galwey, Arphot: p. 369, 6. By G. Douglas Bolton: p. 404, 5. TREES: pp. 383–384, Peter Shepheard. THE MACHINERY OF SPRAWL: p. 413, 2; p. 417, 7, 8; p. 421, 31, Toomey, Arphot; p. 417, 10, Westwood; p. 418, 13, Aerofilms; 14, Eagle Aerophotos; 16, Philipson; 17, H. Lewes; 18, Cullen, Arphot. RATIONAL STANDARDS: p. 423, 1, 3, 4, 5, Toomey. All other photos in the issue were taken by Nairn, Arphot.

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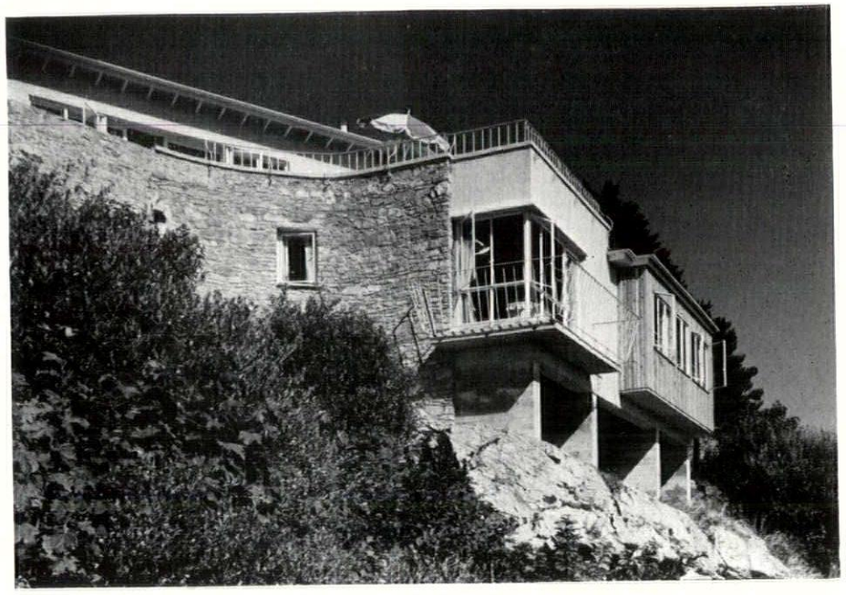

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VOL. 120 No. 719 DECEMBER 1956

COUNTER-ATTACK

This issue is the sequel to the 'Outrage' number of June, 1955. It shows how a few people in Great Britain and many more on the Continent have overcome the problems of bringing modern life to terms with the landscape that are so frequently called insurmountable. It is certainly easier to represent them as insurmountable if you don't want to spend time and energy on overcoming them, and we believe that this is very often what is happening. Inertia and complacency have dulled the efforts of the very people who ought to be thinking and working hardest—not the planning officers, but the committees that control them and the ministries above them. It is easy for them to represent as public apathy what is in fact public helplessness: this issue aims to arm the public with arguments against he wrong way and examples of the right way of doing things. Hence it is called Counter-Attack: and hence—as we believe that the fate of British landscape is in the balance—it is as outspoken and uncompromising as its predecessor.

Edited by Ian Nairn

351 **Marginalia**

354 **Frontispiece**

355 **A Visual ABC** The basic ideas behind sane visual planning are few and simple, forming four stages in a sequence that leads back from mess to order. First: to identify the type of environment in question, and give each its proper classes of equipment and treatment. Second: to remove the clutter, and obtrusive vertical elements. Third: to keep the elements of the scene related to one another, which means close together, by cutting out dead ground and waste land. Fourth: to camouflage improper elements that cannot otherwise be brought to order.

Casebook:

361 **1, The Types of Environment** identified—Wild, Country, Arcadia (not Suburbia), Town and Metropolis, with their visual characters.

365 **2, Standard objects,** the types of equipment and detailing proper to the types of environment, and the adaptation of standard objects and services to local character.

381 **3, Trees.** *by Peter Shepheard.* However and wherever trees are used, they have certain elementary biological needs, such as access of leaves to light and of roots to water and soil, that must be met if the tree is to flourish and not become a sick monster. Inept pruning is not only ugly, but can defeat its own object. They require a planned policy and expert maintenance, not the grudging attention of a Borough Engineer who has too many other things under his care already.

387 **Afforestation** *by Geoffrey S. Kelly.* The status, activities and programme of the Forestry Commission are an example of an arboricultural policy which has now overstepped the bounds of sanity. The Commission's planting programme was laid down in one pre-atomic war and trebled in scope in another; the military and industrial necessities it was intended to serve have already disappeared, but in the meantime it continues to absorb marginal lands that could make a better contribution to the national economy under sheep, it continues to invade landscapes whose value was their openness, replacing them by solid phalanxes of conifers, which deny access and obliterate the landscape.

Casebook cont.

391 **4, Specific Problems,** Such as Industry, Advertising, Wirescape, Street Lighting, Municipal Planting, and Military Installations—where the decision is not only how to design but where to site.

400 **5, Roads,** divided into trunk roads, which are considered as artefacts in their own right, irrespective of the terrain they traverse, and minor roads, which must be assimilated to their landscape.

409 **The Technique of Sprawl** *by Walter Manthorpe.* Wherever Subtopia spreads it enjoys, in the process of spreading, the support—often unintentional—of officialdom and official publications. The main mechanisms of support are 'Informed Opinion' about matters such as density, open spaces, roads, etc., based upon outmoded experiences and thus inhibiting any revision of standards; Economic and Administrative Pressures, which are often self-defeating; Street By-laws, whose cumulative effect is to push buildings apart until the term street becomes a misnomer; and Town Planning Controls, exercised in such a way as to systematically depress densities; building by-laws, whose literal interpretation by local authorities tends again to increase the dead-space around buildings. A few examples of more rational standards in housing layout are given on pages 423-426.

427 **Oversprawl** *by Elizabeth Denby.* Sixteen years after the publication of the Barlow Report, its out-of-date pre-war standards still form the basis of official housing policy, and have become one of the most potent administrative supports of otherwise unjustifiable sprawls of housing. Much of the decentralization and redistribution of population envisaged in the Barlow Report is now accomplished. Demands for overspill are now little more than conditioned-reflex responses to pockets of overcrowding that could be dealt with by central area redevelopment. Beyond this the whole concept of density calculations, and the actions based on them, needs to be reformulated on a humane pattern of family groupings.

431 **A Plan for Planning.** Under present conditions our planning machinery at its best does no more than what ought to be its minimum—it can just about guarantee that an existing environment will not be worsened. The kind of positive planning that is needed today in Britain is impossible because planners are fully occupied in dealing with the negative aspects of the existing planning machinery. The prime need at the moment is to reframe our planning policies so that a guarantee that nothing will get worse becomes the foundation, and erect on it a framework of truly positive planning.

Authors: *Peter Shepheard*, born 1913, Liverpool School of Architecture, then assistant to Derek Bridgwater 1937-40. Ministries of Supply and Town and Country Planning 1940-47, deputy chief architect, Stevenage New Town 1947-48. Since 1948 in private practice (Bridgwater and Shepheard). *Geoffrey S. Kelly*, born 1916 in Dublin. Trained Birmingham School of Architecture. 1939-46 with Royal Engineers in France, Middle and Far East. Now partner in firm of John B. Surnam and Partners, Birmingham. *Walter Manthorpe*, born 1916. Articled pupil, 1934; subsequently at H.M. Office of Works and in Norfolk as senior assistant to architect in private practice. In 1946 went to the Exhibitions Division of the C.O.I., subsequently free-lanced on interiors and exhibitions. For the past eight years in the Planning Division of the L.C.C. and latterly in charge of development plan and development control for South London. Now Assistant Director, City of Toronto Planning Board. *Elizabeth Denby*, brought up in a Yorkshire industrial town, took social science at the London School of Economics; has collaborated in planning housing estates, and undertaken surveys on housing conditions, the location of industry, the redevelopment of central areas, etc. Founded the Watergate Theatre Club, is an F.S.A. and Hon. A.R.I.B.A.

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FIVE SHILLINGS


Brewed with Famous
Deep Well Water
0
1
2
3
Scale of miles
Total 75

This is the sequel to 'Outrage,' first published in the REVIEW for June 1955, which showed what we are doing to our environment in the name of progress. Opposite ☞ is a reminder of it which could also stand as a visual equivalent of the 'prophecy of doom' we made there—for this is Los Angeles, the 'most up-to-date city in the world,' the 'pattern for twentieth century living,' and hence a likely forecast of England in the 1970's or 1980's. Its area is approximately seventy miles square—the equivalent of East Anglia. In the U.S. this may be all right; in Britain it would mean obliteration. In fact we doubt whether it is even a Californian ideal; already a morning's shopping may require a fifty-mile journey, and families are chained to their superbly-equipped houses in the evenings as nobody is prepared to come and sit-in because of the distances involved: St. Simeon Stylites got a similar result with rather less complex organization. Is there a way out? We believe that there is and have tried to outline it in this issue. The article which follows sets down the basic principles simply and the Casebook (pages 361-407) illustrates them. The two articles succeeding (pages 408-430) deal with land-waste and the final article, 'A Plan for Planning,' translates these visual principles into workable administrative terms.

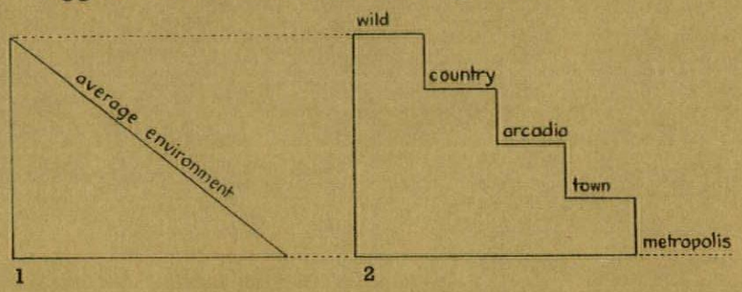
A VISUAL A.B.C.

'The root of the trouble,' sighed the administrator, wailed the designer, 'is that the public is apathetic.' Maybe, but the response called up by Outrage has made us think that at least some of what looks like apathy is in fact a feeling of helplessness. We believe that the man in the street would be genuinely eager to master the principles of visual planning if he thought that there was a chance of understanding what the thing was about.

There is. The basic ideas behind sane visual planning are few, simple and easily comprehended. This article sets them out as a layman's visual ABC—it is literally almost as simple as A.B.C. for there are just four items. They can't be called strictly principles or precepts or rules of thumb, for all the points combine something of each: they are really elements in a four-point sequence which are always meant to be used together as a continuous process—applied both to any existing scene and to any proposed change in it. The examples on pages 359 *and* 360 *show how the sequence works when applied to two typical bits of subtopia, one urban and one rural.*

The crime of subtopia is that it blurs the distinction between places. It does so by smoothing down the difference between types of environment—town and country, country and suburb, suburb and wild—rather than directly between one town and another. It doesn't deliberately set out to make Glen Shiel look like Helvellyn: it does so in fact by introducing the same overpowering alien elements—in this case blanket

afforestation and the wire that surrounds it—into both. The job of this issue is to get straight the basic divisions between types of environment, and to suggest a framework for keeping each true to itself and distinct from its neighbours. When that is done the problem of differentiating between places will solve itself: if, for example, two towns only contain truly urban things, and are without a common mass overprint, differences in topography, climate, size and use will take care of the rest. There are in fact hundreds of categories into which Britain could be divided, from total wild (the top of Suilven) to total metropolis (Piccadilly Circus). As a practical working minimum we have reduced these to five:[1] wild, country, arcadia, town and metropolis. We have used 'arcadia' rather than 'suburb' because of the way 'suburb' is used to describe any town's penumbra of low density housing, when in fact most of this is subtopia and as far from the true idea of a suburb as is Woodberry Down from proper urban redevelopment. The aim of this sequence and the casebook that follows is to re-establish the integrity and separateness of these five basic divisions, and to suggest means of channelling the existing mess back into these legitimate environments. Put visually, this is the difference between an 'average environment'—subtopia—as the lowest common denominator of all the categories mixed up indiscriminately, 1, and a stratified environment with each category differentiated, 2.



1 The first step in applying the sequence to a particular place is to decide what type of environment (wild, country and so on) it is. That sounds obvious, only subtopia has in some cases blurred the divisions so far that the category itself may not be clear. The housing estate at New Addington near Croydon is an example of this: it is such an ambiguous botched-up mess that it could as easily become either town or suburb. Having fixed the category, track down the elements from other categories that have strayed into it. There is a 'town' way and a 'country' way and a 'wild' way of doing everything, and to confuse them is to ruin any hope of integrity from the beginning.[2] There are also some combinations of object and environment—like advertising in the wild—which are bad in themselves as well as being capable of appropriate or inappropriate treatment. The whole of the casebook (pages 361–407) is an explanation of how these two statements work out in practice (i.e. what is the 'town' and the 'country' way of doing things) and is designed to make clear the first point of the sequence, which is, put simply, to maintain—or regain—the unity of the place: to classify it as town or country or wild, remove the alien elements, replace the alien treatments, and resist any attempts to reintroduce them, and thus blur the categories once again.

2 When that is done, and the unities are re-established, there are still so many vertical objects in view that the eye is disoriented. It can't see straight: at its simplest, it sees not the street itself, but the 25-ft. lamp standards stalking down it; not

[1] And two special cases: first, that where big industry is unavoidably set in the countryside, it makes its own landscape—the industrial area—with its own rules (see page 398); second, that the trunk road has its own values as a horizontal strip crossing all the categories (see pages 401-2).

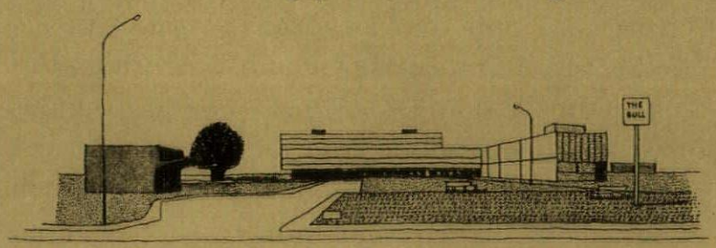
[2] For many visitors to Britain, quite literally from the beginning: the trim and furniture at London Airport, though all of it is 'modern' and most of it is well designed, has so hopelessly mixed up the categories that it is as incoherent as the Hounslow By-Pass which leads from it into London.

the reservoir but the poles of the wire fence in front of it. This is due quite simply to the fact that horizontal objects flow with and blend into the landscape, while vertical objects punctuate it: erecting a vertical automatically means that man is interrupting the landscape to say something.[3] In a town, men need to say a lot—'I am a church, a corn exchange, a market hall, an art gallery.' In the country, which is a compact with nature, much less—little more than 'I am a church representing a village community'; in the wild, nothing at all: the only man-made vertical should be man himself, puny and dwarfed, creeping across an immense moor. In no case is there ever, in any category, licence to mouth platitudes such as 'I am Ministry of Transport standard No. 39201.'

To reset the visual compass, the need is therefore to reduce the clutter; to cut out useless verticals, and minimize others; to tidy up. That has long been axiomatic with big verticals like factory chimneys in the countryside—though, of course, it applies just as much to the towns as well; but in fact it also applies down to as simple a thing as a wire fence. A wire fence in the landscape reads as a line of poles (i.e. verticals) senselessly punctuating a field—re-establish a horizontal by making it into a post and rail fence, and the fence is at the same time *more* obvious but *less* obtrusive. The most obvious example of this need for horizontality is the road and everything connected with it—the road itself being a horizontal strip, the trim, structures and signs cry out to be treated horizontally, and the casebook shows how, on pages 400-405.

Point two in the sequence is therefore to cut out useless verticals: to re-create as far as possible a horizontal world with verticals in their proper place as man's way of expressing things that are worth saying.

3 The scene may now have unity and be free from mess, but may still look like an agglomeration rather than a place. A handful of well-designed elements can't in themselves make up a landscape or townscape: they have to be related to one another. Two sketches can show this better than words (as can the comparative photographs of Old Hatfield and Stevenage on page 414). Pleasant things separated and isolated look like this, 3, a familiar scene, as you can see it in any of the New Towns. Simply bringing them together, and stopping the waste of space (by being ruthlessly economical *not* with the living standards but with the dead ground in between houses) produces something like this, 4—a living place, not a 'neighbourhood unit.'



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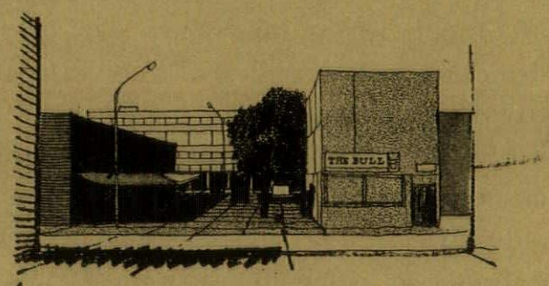


4

This is a particular case of a general principle which is the third point in the sequence—the Principle of Economy: that is, of never wasting a square inch of ground, whether the waste is a vacant lot, a plot of ground too tricky to fit into a standardized layout, or simply the result of making things twice as wide as they need to be. Dead ground

[3] The thicker the vertical the louder it says 'I am': if it appears on the skyline (i.e. breaking out of the scene altogether) the damage it can do is multiplied. Once above the skyline attaching horizontals thereto no longer makes it blend but sets up a parody of the land surface below: that is why overhead wires in towns (or hulking lamp standards with hulking horizontal fitments) are such fundamental crimes.

means a dead town (or village, or hamlet): each square inch should earn its keep.[4]

In a country as crowded as England, this serves a double purpose. Half an acre saved from waste in a town and put to good use means half an acre of countryside left untouched somewhere else: it is the saviour not only of one environment but two. Page 415 shows the saving that could have come about—2,600 acres per fifty thousand inhabitants—in each of the New Towns if this principle had been followed: Adeyfield could have stayed green and at the same time Hemel Hempstead New Town would have ceased to be a set of housing estates casting around desperately for a town centre. In practice much of the difficulty of introducing less wasteful standards lies in the byelaws, the false assumptions and muddled thinking by 'informed opinion' and the timidity of local authorities: the articles on byelaws ('The Machinery of Sprawl,' page 409) and housing policy ('Oversprawl,' page 427) indicate the obstacles, and how they can be overcome.

4 Finally, if, having applied these three points as far as practicable, there are still solecisms or interruptions (and inevitably there will be in an island as crowded and multiform as this) the residue must be camouflaged, and made one with the surrounding landscape. This can sometimes be done with neat design like the Swiss airstrip on page 399: more often it means planting as well. The fourth point in the sequence is, therefore, to camouflage what's left over. The aim of integration into the landscape puts the traditional Water Board camouflage—a screen of conifers—out of court for many localities because the conifers themselves would be an interruption as great as the thing they are intended to screen. Some examples of camouflage are given on page 375, but the principles are easy enough. What is more difficult is to force the bodies erecting the interruptions to make even the smallest effort to show that they care for the countryside—our suggestions are on page 432.

That is the sequence: it might be summed up as unity, economy and freedom from clutter. We have tried to translate it into administrative terms in the article 'A Plan for Planning' on page 431. There we have indicated the changes in the planning system which might ensure that—given the right men for the job—some sort of coherence might come naturally and not have to be fought for. What the sequence provides is not a magic wand which will transform subtopia overnight, but the conditions for the basic fitness of objects in the landscape. The capital crime is to blur the categories—whether this is done by uniform housing at so many to the acre dumped down indistinguishably in town, suburb or country, or from the city engineer doing over metropolitan roundabouts with rustic flower gardens and Cotswold stone walling. And the first duty of the citizen who wants to avoid being an accessory after the fact is to establish which category he lives in, and then to grow adamant in his determination to cherish it: to enhance it when he can, and to protect it when it needs protecting.

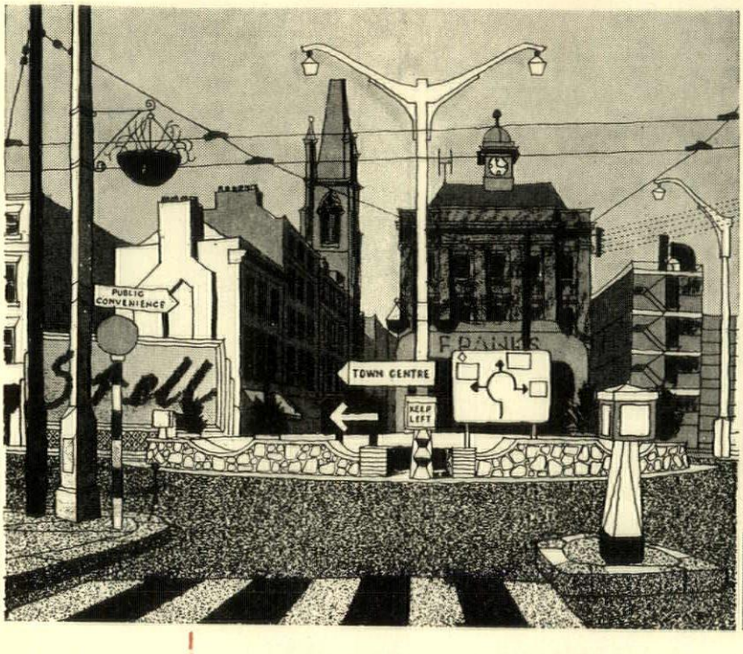
[4] Remembering that any space can earn its keep expressively as well as functionally. Everyone ought to deplore the wasted acres of gardening in Hull's City Centre, because they do nothing to make Hull into a city; nobody would object to Yarm having the biggest market place in England because it is a country town space well treated in a country town way: it makes the town, it is not dead ground.

how the sequence works: two scenes rescued from subtopia and restored to town and country.

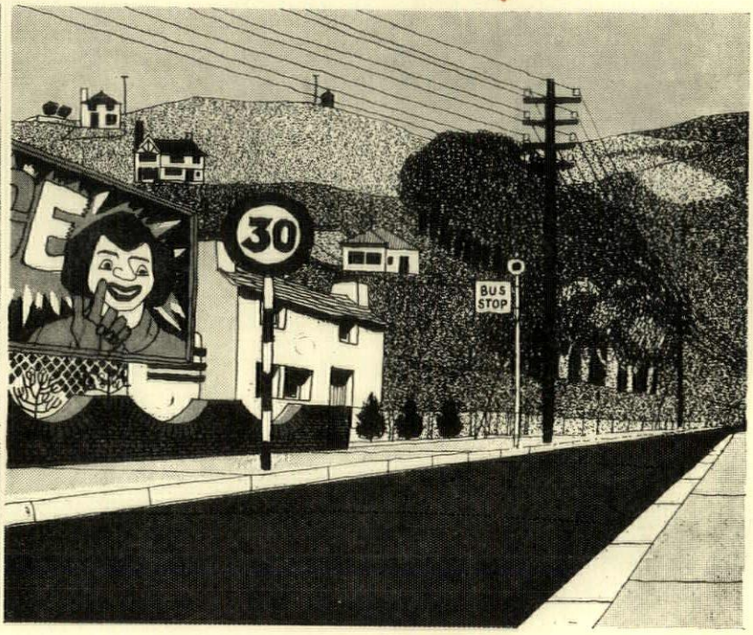
rock-bottom subtopia

The two views below, although imaginary, are all too familiar. Wildernesses that in 1956 pass for town and country. How did they get like this? How can they be reclaimed? The TECHNIQUE of reclaiming the wilderness and creating true urbanity and rurality is demonstrated in the following sequence of drawings.

TOWN

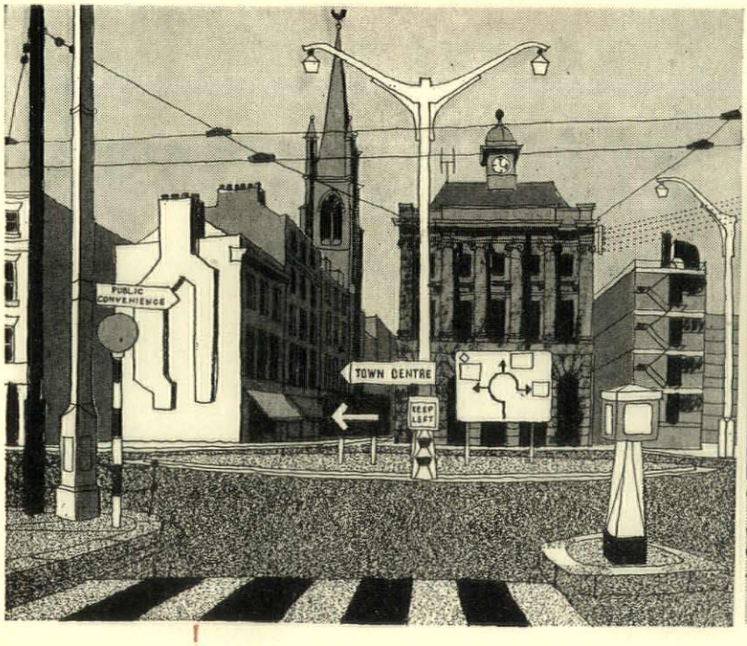


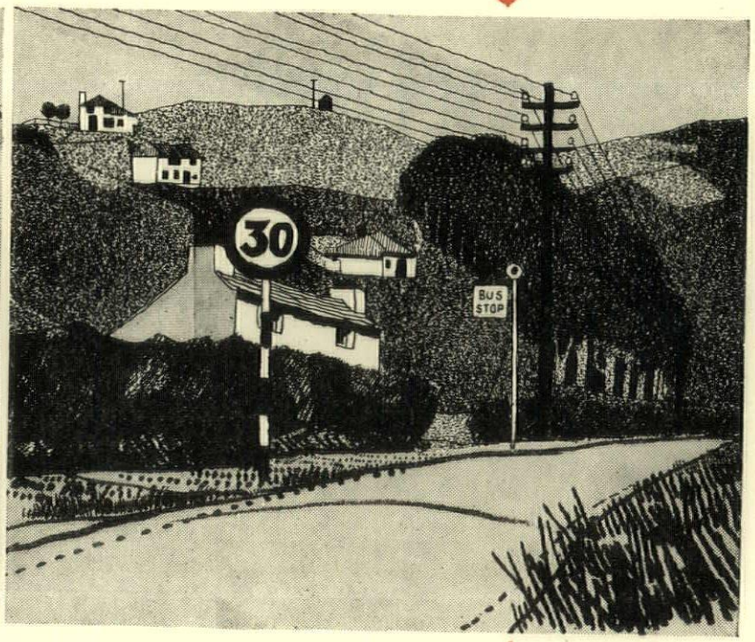
COUNTRY



1 restore the unities

The first principle is respect for the category. Ask the question: What am I dealing with? Wild, country, arcadia, town or metropolis? Having decided, stick to the category and augment its proper character. Town: remove suburban rockery roundabout and hoarding decoration; respect architectural integrity in shopfronts. Country: informal road and footpath are adequate: replace suburban rockery and planting by mixed hedge, remove urban advertising.





(over)

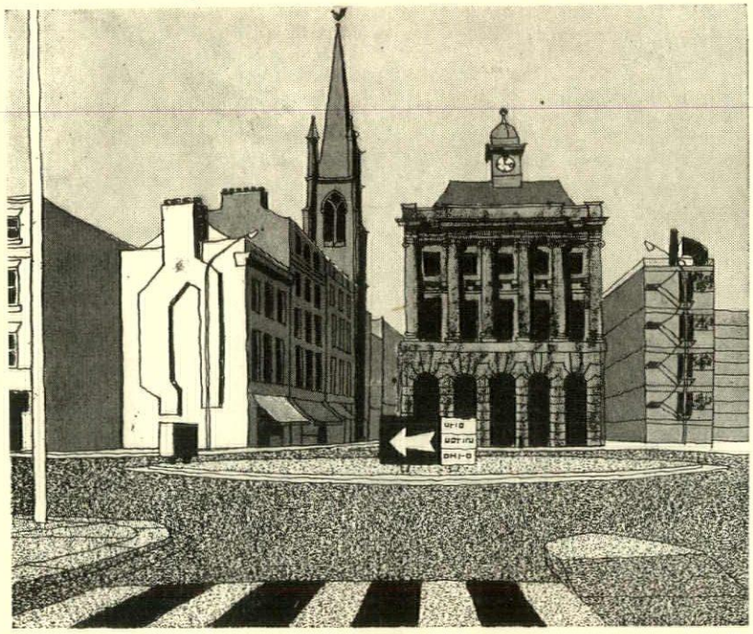
(over)

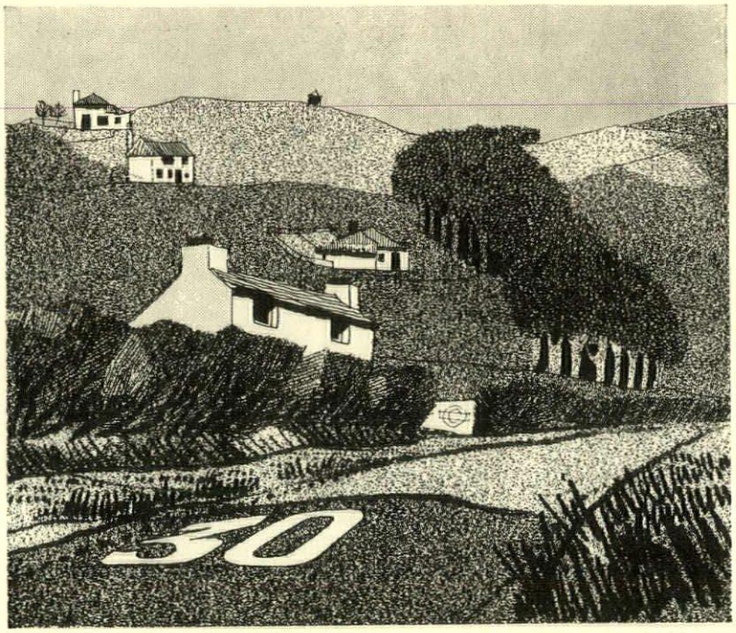
TOWN

2
remove the clutter

Secondly, make sure that every single item that is seen by the eye is essential. Town and country are not dumping grounds for reiterated instructions, most of which are unnecessary. Above all avoid the use of verticals. Town: keep light fittings slender and site unobtrusive, keep road signs to minimum. Country: where possible bury wires; use road surface and walls for road signs and bus stops.

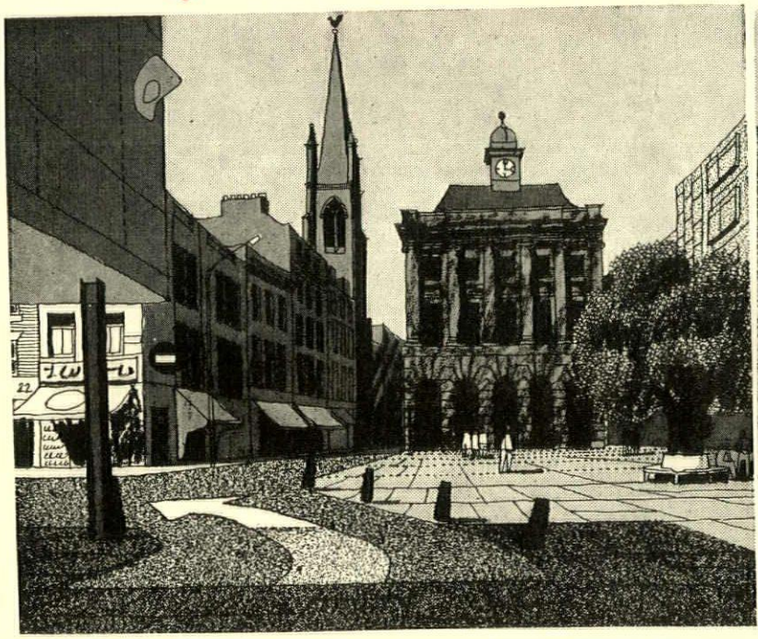
COUNTRY

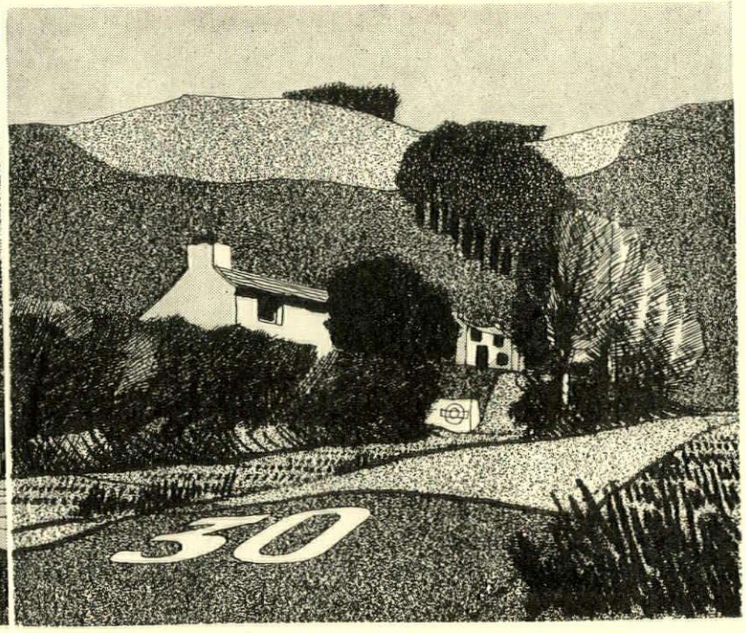




3
camouflage and bring together

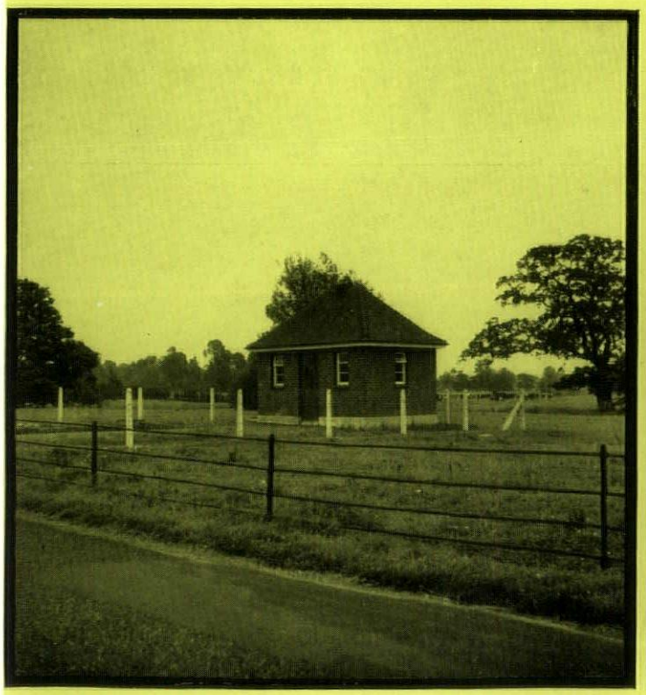
Thirdly, don't waste space. Town: fill in vacant corners with buildings, not gardens: bring back enclosure as opposed to impersonal emptiness. Reorganize traffic so that the dead space in the system is returned to pedestrian use. Country: gather up the scattered buildings, thus extending the area of visible countryside, and at the same time creating a recognizable place, instead of a piece of sprawl. Finally, camouflage the interruptions that can't be moved.





CASEBOOK

This casebook is an attempt to show in the simplest possible way the difference between the main categories of landscape—metropolis, town, arcadia, country and wild—and the right way to design objects in each. It is in five parts. First, this introduction, ending on page 364, in which the categories are defined and an example is given of that almost extinct British animal, a clean break between town and country. Second (pages 365-380) is a collection of objects that are components of every scene—seats, railings, shelters—where the only decision to make is how their design should reflect each category. Third is an article on the care of trees by Peter Shepheard (pages 381-386) with which is linked an article on the folly of afforestation in the wrong place and in the wrong way, by Geoffrey Kelly (pages 387-390). Fourth (pages 391-399) is a section dealing with problems which, like advertising, ornamental planting and military installations, need two decisions—both how they are to be done and where they should go. Finally, the fifth section (pages 400-407) deals with trunk and local roads. Each page in sections two, four and five has a standard layout in which similar objects from different categories are juxtaposed (see, for example, 'seats' on page 365) with a short caption for quick reference above them and an extended caption, including cautionary examples, on the left-hand side; throughout the rest of the book these cautionary examples are indicated by black borders The little thumbnail sketches under the title on each page are also cautionary—a sort of pattern book of the all-too-typical style for 'municipal improvements'. The principles underlying the casebook are those which have just been enumerated on pages 355-360. Disregarding them will, at its simplest, lead to the two archetypes of Outrage shown below, which are repeated county by county from Penzance to Wick: left, the brick box with a wire surround dumped down in the middle of the countryside (Shillingstone, Dorset): right, the urban and ugly bus stop sign put into the rural scene with the maximum of interruption (near Wateringbury, Kent). The first is by discourtesy of one of the local utilities (it is impossible to tell which), the second by discourtesy of London Transport. Neither needed planning permission—a state of affairs for which we give a remedy on page 434.





METROPOLIS—*bustle, teaming with people, everything larger than life. It is the heart of things so you must expect to be bandied about and harassed by the traffic, overawed by the buildings. It needs monumental scale and crowds—but not false monumentality and empty open spaces, a; the metropolitan examples in the casebook show how one needn't automatically mean the other.*



a

not this . . . .

key:
a, the 'Third Rome.'
1, Oxford Street, London.



1

TOWN—*human scale; full of life, not an underpopulated waste land; perpetually changing enclosure, not endless avenues. A town is a complex and compact pattern like the inside of a watch, and every change should aim to make the pattern richer and not to blow it apart. It lives by enclosure—the space bounded by walls and floor; 2 is a perfect example—and the enclosure should never be naïve, inconclusive or broken open without good reason: this means a complex street pattern, rapid changes in width, maintaining of a continuous building line, and unobtrusive street furniture. In 2, the foreground enhances the Royal Palace; in b, through badly placed and designed furniture, the foreground almost obliterates the Clarendon building. Country towns are smaller and simpler, but have the same need for enclosure and compactness: the key is whether you can see the country at the end of the main street. It is still possible, for example, in Ludlow and Bridport—but in how many other British towns?*



b

not this . . . .

key:
b, Oxford.
2, Amsterdam.



2

ARCADIA—*a compromise for housing people near a town and still giving the effect of being rural: hence small scale, dainty, always keeping an illusion of being either in fairyland, 3, or in the country, 4 and 5. The illusion and the miniature scale are vital: anything which explodes them must be rigidly excluded. Hence fairyland, which has a lot of houses in it, needs broken lines, thick lush planting, tiny winding roads, 3: never a set of house-carcases jammed along a straight main road, c. For mock-countryside universal park-like planting, extreme camouflage for the houses and extreme neatness . . . .*



c

not this . . . .

key:
c, anywhere; we think it is Warrington.
3, Welwyn Garden City.



3

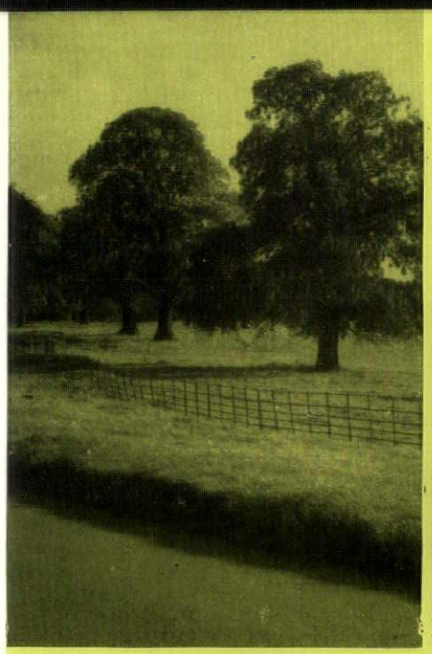
Arcadia cont. .... *in the trim; never a bare-faced spatter over the landscape, d. Arcadia is obviously related to a town, but it should never become a choking ring of sprawl. It should be sited near the parent where the landscape is most likely to aid the illusion — near Woking, for example, not beside Barking Creek. 'Municipal rustic', though suburban in origin, is the last thing to be used in arcadia—it's dowdy, not dainty. The casebook examples show a true vocabulary for arcadian design.*

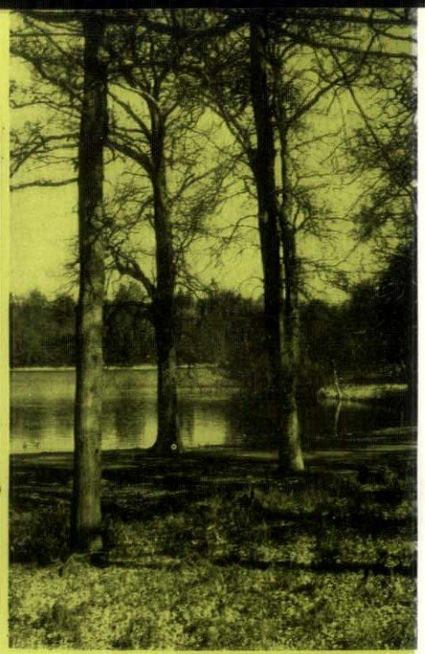


d

not this ....

Key
d, Stirling.
4, *Luton Hoo.*
5, *Sunningdale.*





4, 5

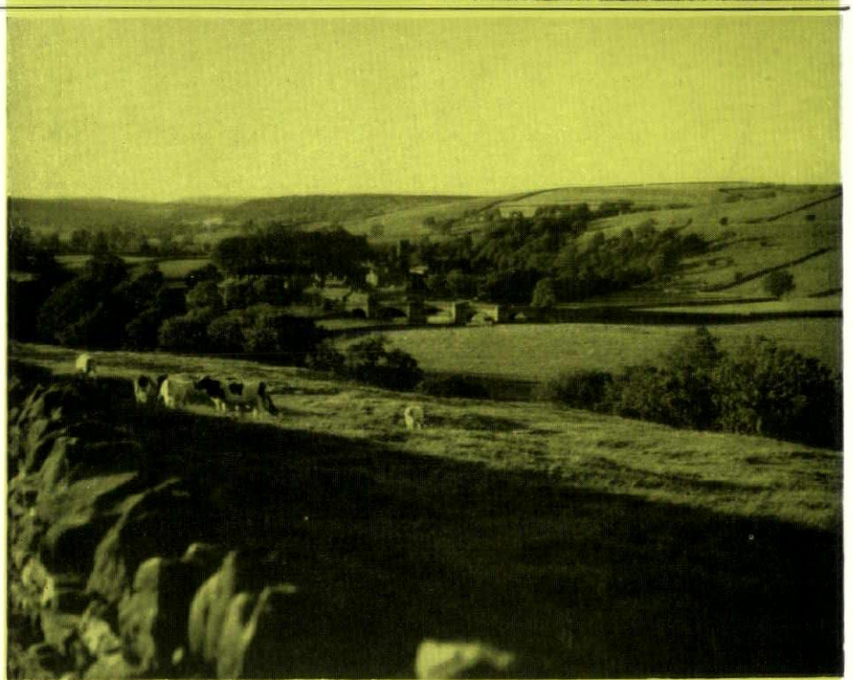
COUNTRY—*genuinely countryside things need no illusion or affectation—they can be as bold and brutal as possible. The vital thing in a rural landscape is continuity—freedom from unnecessary non-rural interruptions. These interruptions should really not be in the countryside at all: if they have to be they must be effaced from the view with all the skill of camouflage that we possess. The human additions in* 6 *inflect the view and preserve the continuity—the walls, the bridge, and the compact village beyond it; the human additions in e shatter the view with alien imports: poles, wire, notices and huts full of guns.*



e

not this ....

Key
e, Bicester Garrison.
6, *Burnsall, Yorks, W.R.*



6

WILD—*nature must win. If a landscape contains* any *man-made activity that isn't cringeing in subservience it ceases to be wild. Throughout the casebook there are categorical negatives in our suggestions for the wild—no wire, no huts, no industry: they are quite deliberate. Introduce even the simplest interruption into the view and you change it from being nature dominating man,* 7, *to man bawling at nature, f: both are, in fact, views of the same place. There can be no intermediate stages between wild and not-wild.*



f

not this ....

Key
f and 7, *the Three Paps of Glencoe.*



7

CLEAN EDGES: It is little use keeping the categories intact if you allow the areas where they join to become a no-man's-land. The break—between town and country, for example—must be sharp, without mediation. That, for Britain, sounds like locking the stable door some decades after the horse has bolted, but in fact there are still one or two places where it is possible to walk straight out of the town into the country, and this page is a sequence from one of them—at Chichester. This is a lobe of *real* countryside stretching behind the cathedral to within a quarter-mile of the market cross; it starts as a slit in one of the main shopping streets, 1 . . . which reveals itself to be a long walled alley, 2 . . . at the end of which is an urban gate like a boundary beyond which are big trees and green fields, 3 . . . the path—a genuine country path—wanders beside a stream, 4 . . . then through another gate and out across the open fields, 5 . . . On turning round, the image of the town almost knocks the viewer over . . . the cathedral, unblurred, rising up above its wall, 6.





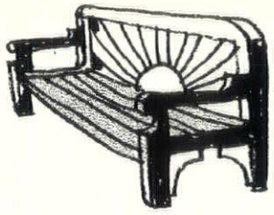








seats



Caution: not rustic

Metropolis	monumental, ***1.***
Town	neat, mass-produced, ***2, 3.***
Arcadia	sophisticated and dainty, ***4, 5.***
Country	rough and workmanlike, ***6, 7.***
Wild	none: sit on the landscape.

Here in their simplest forms are the distinctions we are trying to make between the categories of landscape as applied to designing an ordinary seat. Being metropolitan is largely a matter of scale and of making each space do

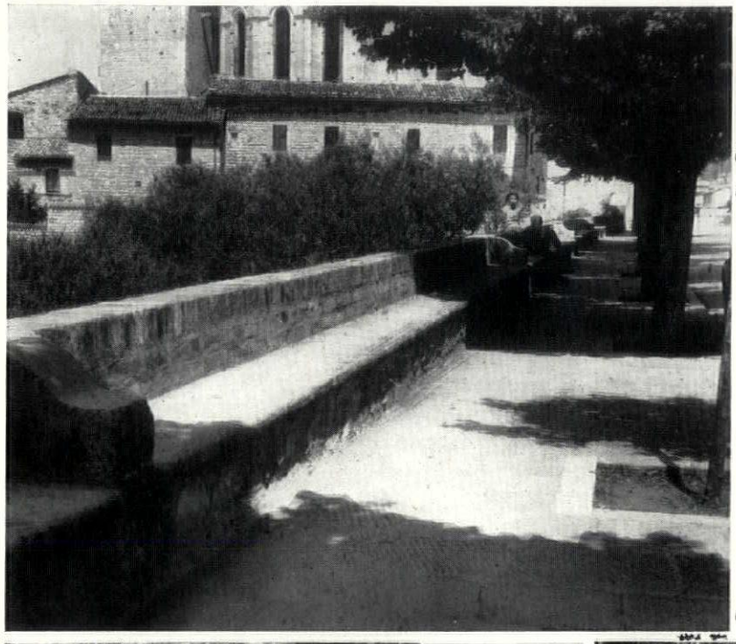


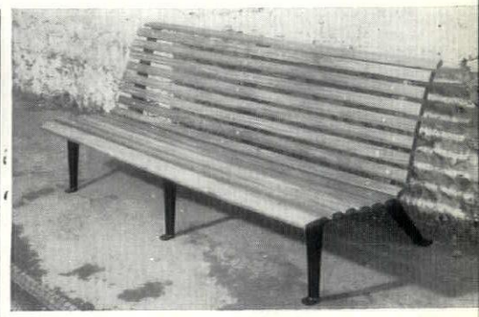
a

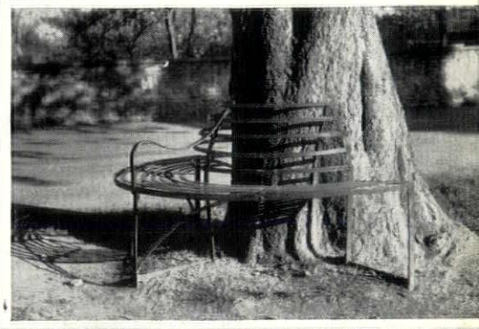
more than one job—so keep the seat, monumental, 1 (but not fake monumental, a), and make the seat back serve as a guard-wall. Town seats should reflect town life and help to make alive the space between buildings; light and serviceable—almost portable—2, or deftly fitted into a corner or round a tree, 3, urbane as well as urban. Arcadia is the place for daintiness and delicacy and deliberate small scale. The bench in 4 is delicate spruced-up rural, but not fake rustic, and the seat in 5 is dainty without being in the least coy. The countryside is a compromise with nature—and village seats can reflect it by being down-to-earth honest jobs of work, 6 and 7—the key qualities being simplicity and roughness, not intricacy, sophistication or machine-smooth finish. The scale is brought back to man-size from the fairy-size of 4 and 5. In the wild—no seats. We really mean this. If you want to experience raw nature, that means accepting the discomforts—no car parks, no tea bar, no w.c.—along with the air and the views.

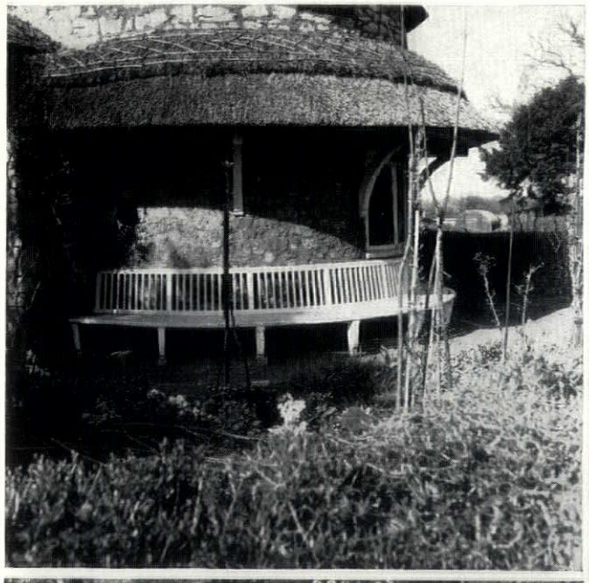
1 | ***2*** / ***3***

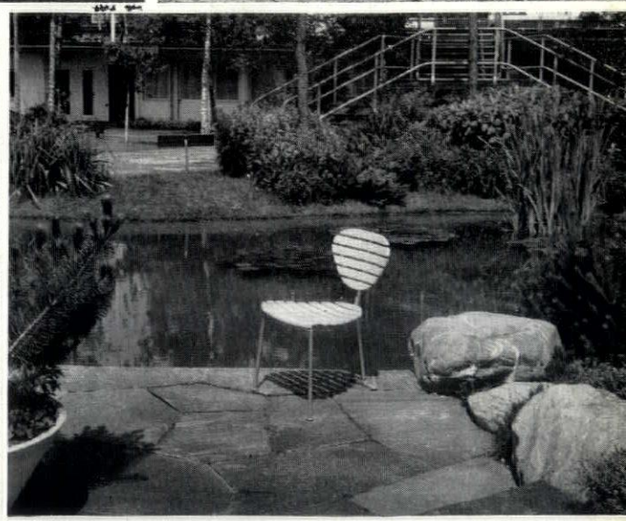
4, 5













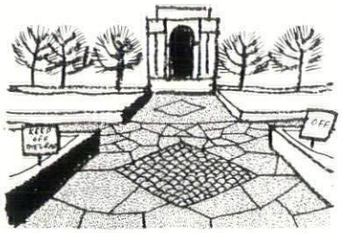


key:

1, *Assisi.*
2, *Wallingford.*
3, *Stratton Audley, Oxon.*
4, *Blaise Hamlet.*
5, *Strandbad Tiefenbrunnen, Zürich.*
6, *Godstone, Surrey.*
7, *Low Row, Yorks, N.R.*

6, 7

footpaths

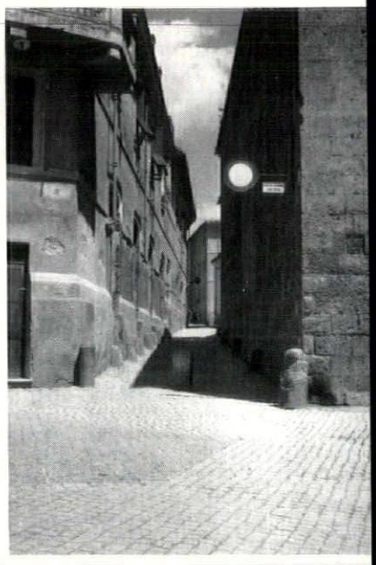


Caution: not segregated.

Metropolis	concourse, ***1.***
Town	system of pedestrian ways, ***2.***
Arcadia	network of paths, ***3;*** never straight-jacketed, ***a.***
Country	simple unfenced field path, ***4;*** camouflaged into countryside, ***5;*** free from the road system, ***6.***
Wild	barely defined tracks, ***7.***

A concourse is natural for a metropolis, 1, *being big enough to contain the multiform ebb and flow of city life. There is no simple pattern of flow, everyone's job is different: a mass of independent diagonals. A town needs more than sidewalks for its pedestrian lines of flow—it needs a completely separate system,* 2. *This needn't be cut off from the town, railed off and compartmented: here the pedestrian way is indicated only by bollards. The one thing that a footpath must never be is straight-jacketed. The path below,* a, *is worse than no path at all because you are cut off from the landscape altogether in a tube of concrete and wire.*
1, 2

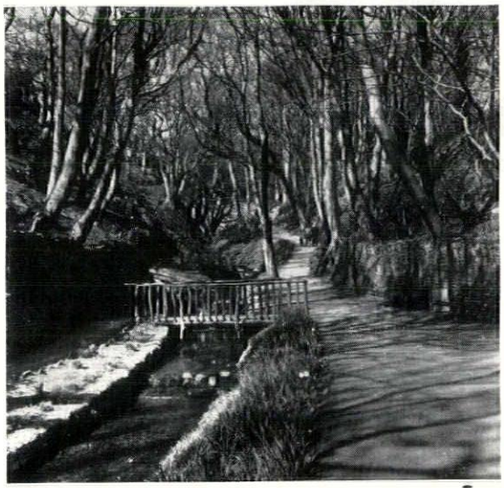




By contrast, all of 3-7 *are part of the environment. In* 3 *it is a twisty intricate path for a twisty*

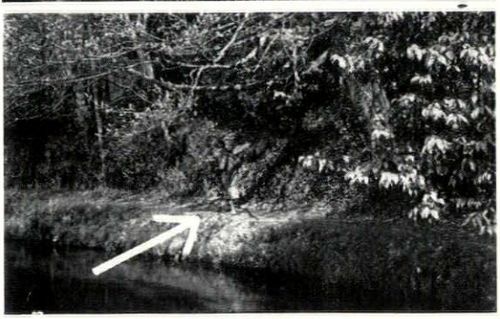


a





intricate arcadian landscape; in 4 *an honest-to-god English field with an honest-to-god path across it, in* 5 *a country wood with a footpath which conceals not only itself but the walker as well (see arrow). A path can be straight-jacketed by following a rigid road line. Why should it? By simply moving it three feet up the bank you can make it into the focus of the village,* 6 *(and try deducing that solution from the byelaws).*
3, 4



5

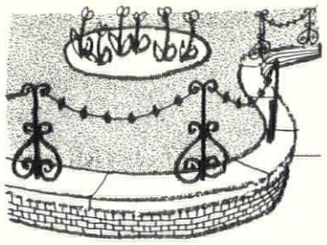
In the wild, you go where you can scramble, 7, *no easy pathways and no carefully lettered indicators. Nature's the boss, not the rambling party.*





key: 1, *Vicenza.* 2, *Tarquinia.* 3, *Douglas, I.O.M.* 4, *Potter Street, Essex.* 5, *near Ottery St. Mary, Devon.* 6, *Tissington, Derbys.* 7, *Grimspound, Dartmoor.* a, *Borehan Wood, Herts.*
6, 7

railings



Caution: not ornamental.

Metropolis	an extension of the wall, ***1;*** or monumental, ***2.***
Town	light and deft, never shouting, ***3*** and ***4.***
Arcadia	simple but subtle, ***5;*** or neat, parklike, ***6.***
Country	horizontal; rough and firm, ***7*** and ***8*** overleaf; but not messy or heavy, ***a*** and ***b.***
Wild	none.

Railings are the key item of street furniture because of the damage they can do. They define space but don't enclose it; and if the definition is botched, a and b, the result is not just one more bad thing in the view but obliteration: complete walling-off would do less harm than this. The railings shown not only preserve their environment but intensify the character of each. The metropolitan examples, 1 and 2, are large scale but not heavy; in many places in a city there is no room for a railing, and a handrail doubles with the wall, again one thing doing two jobs. 3 returns to a town rail, accentuating the corner but not blocking the view, ***1, 2***



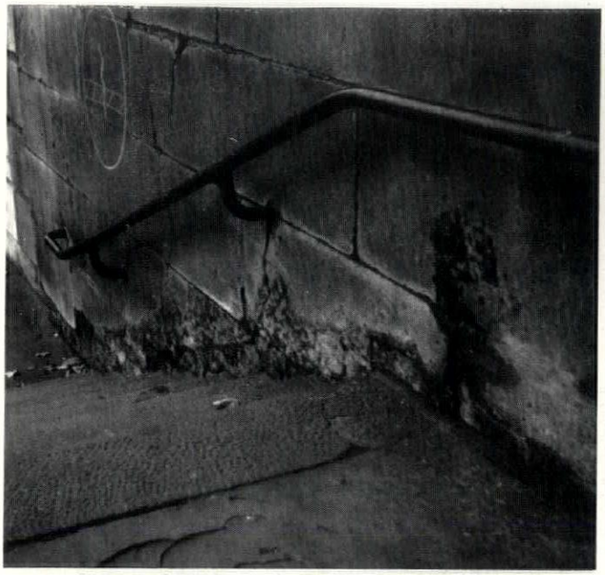
a

and serving as a bicycle rack as well; 4 offers an urban solution for high railings. 5 in its sophisticated curve and sophisticated contrast of materials is the perfect partner to the arcadian jungle—yet what could be further from the olde worlde ***3, 4***

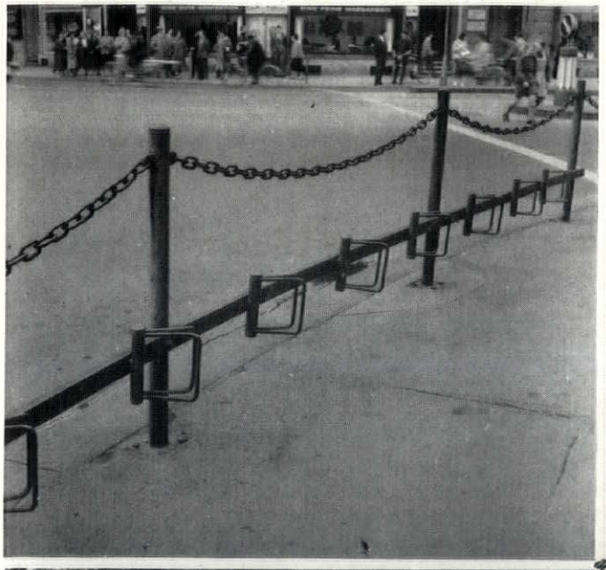


b

designs usually dished up as suburban. 6 shows the other side of arcadia: the trim parkland with a house ***5, 6***













[continued overleaf

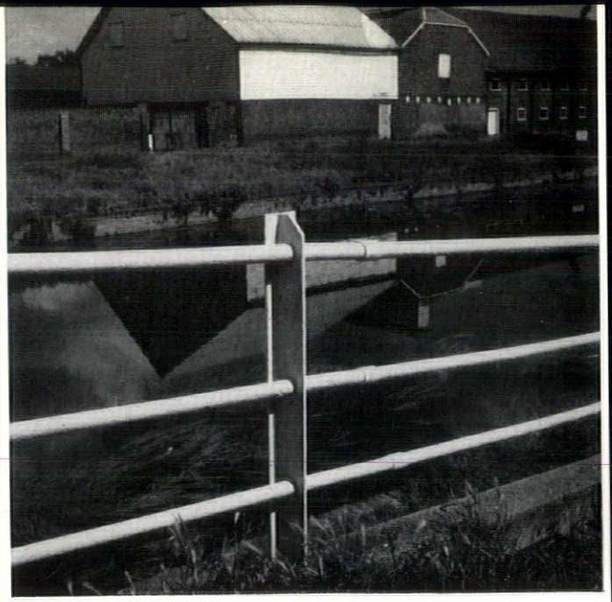
railings cont.

continued from previous page]

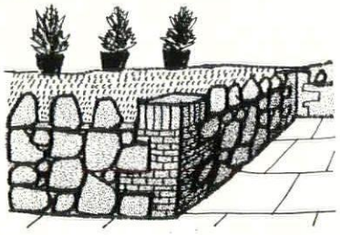
in every copse, an invisible city. It is an illusion, so everything—including the railing—is on its best behaviour. In the country, the criterion is not 'best behaviour': it is true behaviour, i.e. an honest job done honestly—whether in wood, 7, or metal, 8. All eight examples have one moral—keep the line of flow horizontal: the rail, not the post, is the important thing. **7, 8**

key: 1, Duke of York's steps, London. 2, Shrewsbury. 3, Zürich. 4, Seaton, Devon. 5, Strandbad Tiefenbrunnen, Zürich. 6, Luton Hoo, Beds. 7, near Egerton, Kent. 8, Stanstead Abbotts, Herts. a, Solway Firth near Bowness. b, reservoir at Aldenham, Herts.





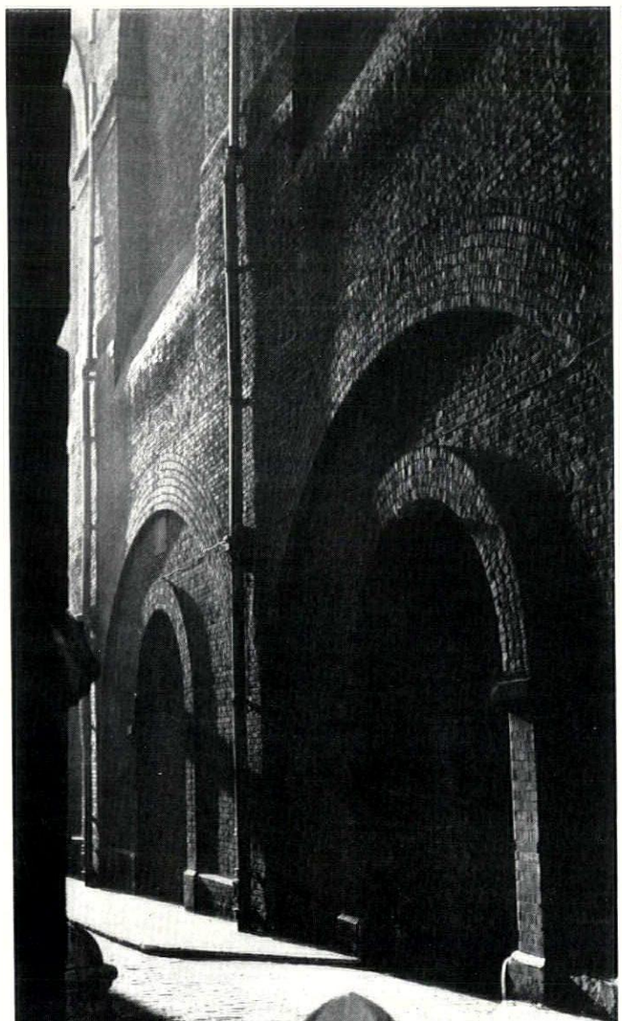
walls and hedges

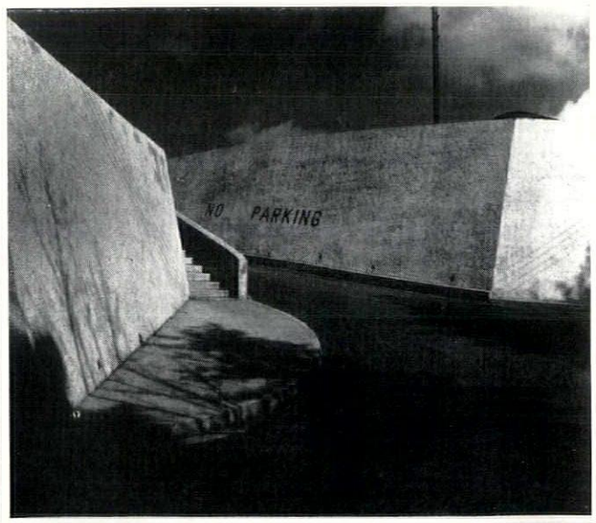


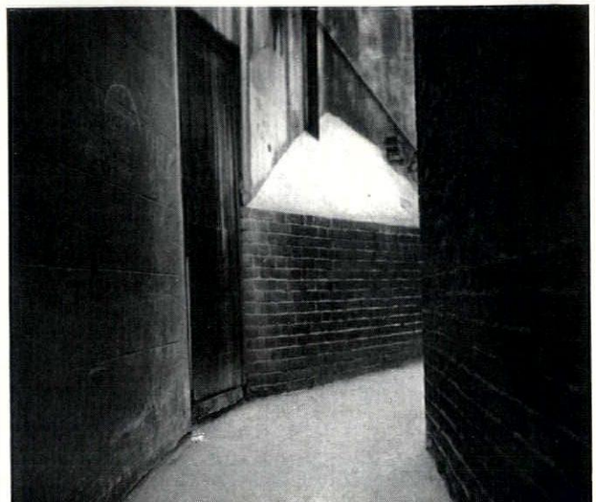
Caution: not rustic

Metropolis	huge scale, ***1*** and ***2***.
Town	creating enclosure, ***3***.
Arcadia	hedges trimmed and regular, ***4***.
Country	hedges bushy and rough, ***5***. Walls rough-textured, ***6***; well kept-up, ***7*** and ***8***; not derelict, ***b***.
Wild	boulders thrown together as a boundary, ***9***.

This page shows walls as enclosure: in a metropolis, use metropolitan scale, 1 and 2: if you want a town environment, bring the scale down, whilst keeping the enclosure firm, 3. 1 and 3 are within a mile of each other in London, each appropriate to the particular locality: for 'London' is not automatically metropolitan from Trafalgar Square to Hampstead. One of its great charms is that it isn't: but each section is true to itself—Soho a town, Highgate arcadian. Never put suburban walls into the town: for one thing they break the unity of place irrevocably: for another the town has no need of a superimposed defining pattern—the buildings provide that automatically: town space is a matter of buildings and the floor between them, and needs as few extra interruptions as possible. Arcadian hedge, 4, and country hedge, 5, point the basic difference between arcadia and country: that arcadia is trim and country rough. What applies to the hedges in these photographs applies also to the verges—mowed **1 | 2 | 3**







and tidy in 4, *rough in* 5, *and even to the road surface—though it's a hard job to find an unsurfaced chalk road on the downs today. Similarly country walls are rough,* 6–9, *but not ramshackle,* a. *If there is nobody to keep up dry-stone walling, cap it with cement,* 7, *but don't just let it collapse. Never mind the lack of craftsmen: do the next best thing—modern methods aren't either bad or good in themselves, its what's done with them that is bad or good.* 8, *regionalism at its best: a dry stone wall capped with turf and made into a sod hedge as is done in the Isle of Man and part of Cornwall. Just as modern materials should be welcomed, so regionalism like this—which is a common-sense thing to do when the banks are deep and soft—should be preserved. We are so proud of all the stone dead 'traditions' which we have embalmed into tourist attractions; why don't we care for some of our living ones? Best of all, translate the old idea into the new materials. If the wild is enclosed it ceases to be wild; but there is no better way of indicating its*

4, 5

6 / 7 | 8

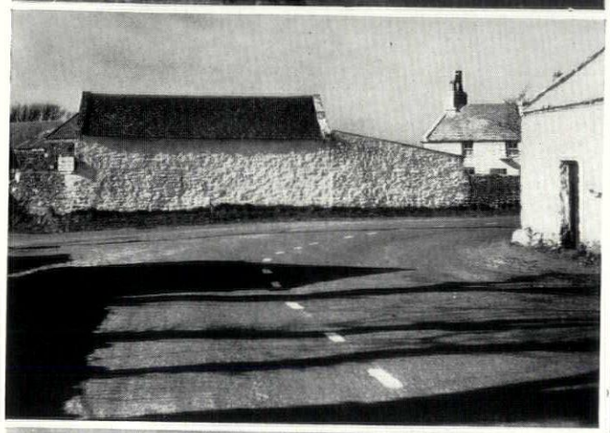


a

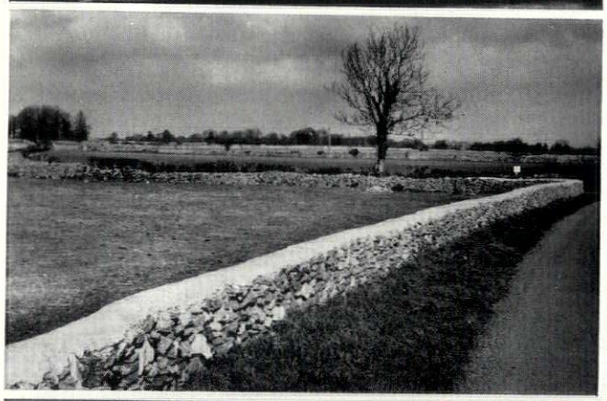
boundary than a stone wall of piled up boulders gathered up from the moor, 9. *This is a frontier: the others were divisions.*

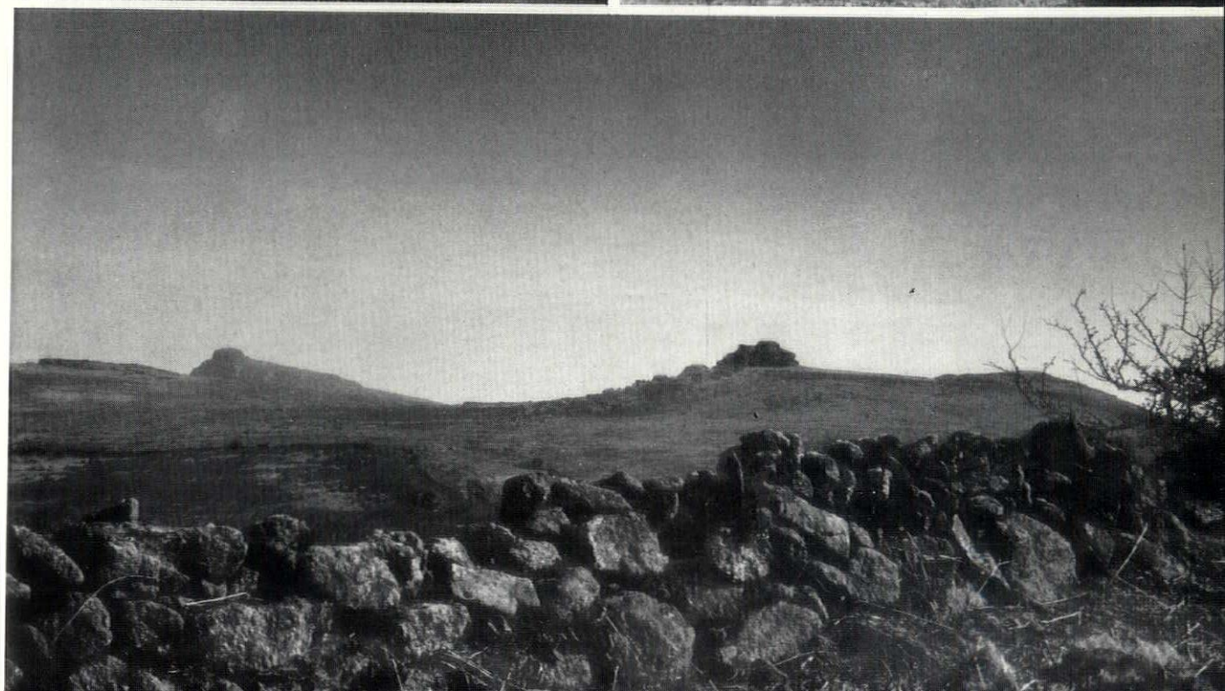












9

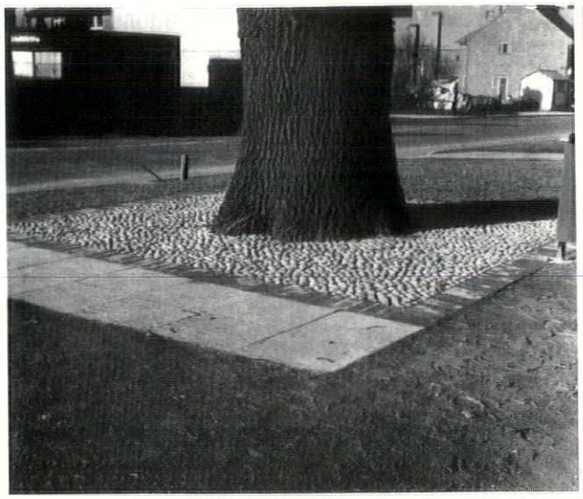
key
1, *Cannon Street Station, London.*
2, *Launceston.*
3, *Long Acre, London.*
4, *Camilla Lacey, Surrey.*
5, *near Itchen Stoke, Hants.*
6, *The Cronk, I.O.M.*
7, *A.38 near Cheuton Mendip, Som.*
8, *near Launceston.*
9, *Hay Tor, Dartmoor.*
a, *near Duntisbourne Rous, Gloucs.*

street furniture

Besides seats and railings there are many more items of street furniture which can make or break an urban street view. Here are examples of some of them to show that the things that are normally botched can be done well.

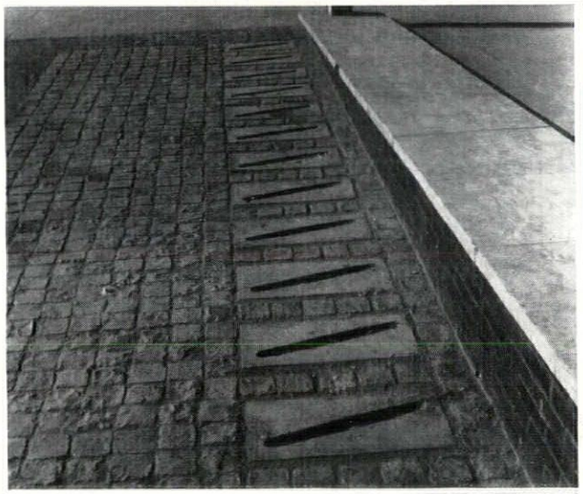
The job of street furniture is to articulate the space between buildings: all it usually does today is to browbeat everything else in the view. Making the space speak means either extreme lightness, like the Dutch kiosk, 8, (deliver us from the G.P.O.'s) or integration with the floor and walls. The first three examples do the latter perfectly and in a perfectly urban way —two methods of ensuring that tree roots can breathe without having a scabby patch of soil in the pavement, 1 *and* 2, *and a cycle rack,* 3. *All three are at Crawley New Town —would that the town were worthy of its furniture. Monumental steps need not be fussy,* 4*—compare them with the messy indecision around the George VI memorial in the Mall.* 5, *bollards and* 6, *bollasters show non-literary trim at its best: no signs are needed, there is no break while the eye has to digest an ill-lettered (and usually ill-phrased) message; the message is implicit in the street scene. Similarly, the eye reads the litter box in* 7 *as part of the wall— something added to the existing pattern, not imposing its own rule of messy and inert detailing.*

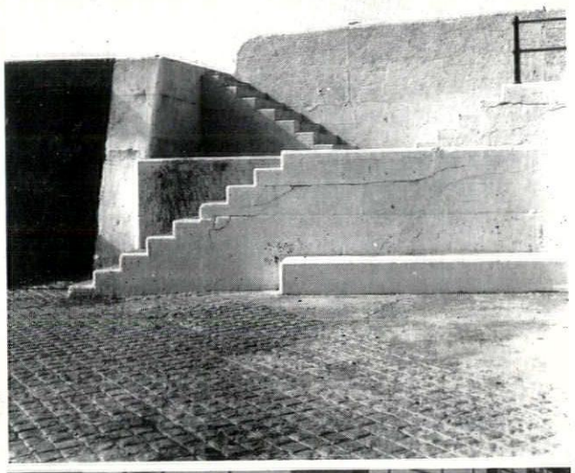
1, 2



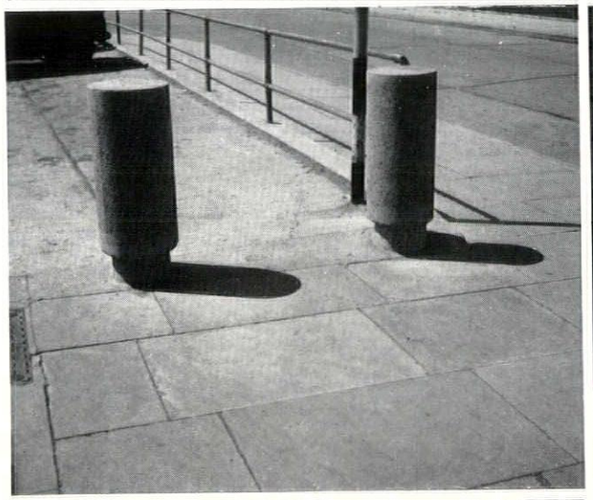


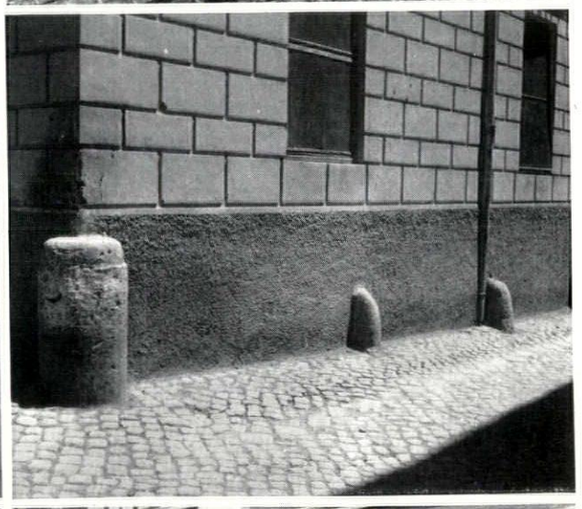
3, 4





5, 6





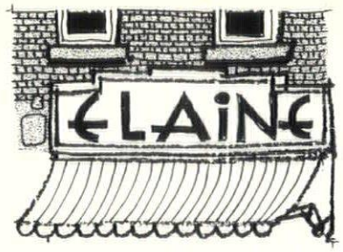
7, 8





key:
1-3, *Northgate, Crawley New Town.*
4, *Peel, I.O.M.*
5, *Harlow New Town.*
6, *Tarquinia.*
7, *Seaton, Devon.*
8, *Alkmaar.*

lettering



Caution: not coy.

Metropolis	bold and simple, ***1***.
Town	crisp and punchy, ***2-4;*** not anaemic, ***a***.
Arcadia	dainty, ***5*** and ***6***.
Country	individual and roughly cut, ***7-9***.
Wild	as little as possible & as primitive as possible.

Taking a weak sans alphabet and using it indiscriminately in town, suburb and country is a copybook subtopian technique. Here are some alternatives starting with good *sans used in the right way,* 1, *to give metropolitan scale. Town* ***1***



a

lettering doesn't need the scale but it must have guts. If it has, it can even transform such a sleazy shape as a keep left sign, 4. *Most of the well-lettered street names,* 2, *are now being replaced by feeble shadows,* ***a****. Why?—when they can be reused like this example at Stafford,* 3.

2 / ***3*** | ***4***

To keep the intricacy and small scale of a suburb there's no need to be coy: genuine refinement—as against 'refeenment'—will do it without affectation, 5 *and* 6. *And a notice in the country is almost a personal communication (and the last place for bureaucratic jargon)—the lettering used can justifiably carry an individual stamp,* 7–9*; but one breath of self-consciousness and the effect floats away to leave behind an arty nonsense saying in effect—'ooh, look at me.'*

5 / ***6*** / ***7*** | ***8*** / ***9***













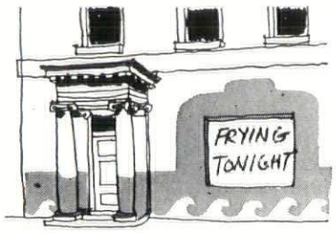






key
1, *Canterbury.*
2, *Ripon.*
3, *Stafford.*
4, *Mansfield.*
5, *Santon, I.O.M.*
6, *Cranborne, Berks.*
7, *near Ashbury, Berks.*
8, *Charborough, Dorset.*
9, *near Soriano, Italy.*

paint



caution: never arch and pointless

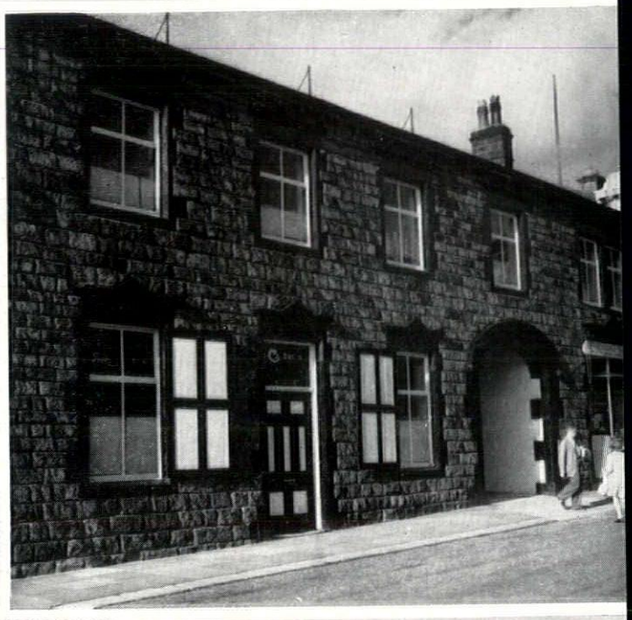
Metropolis	Simple use of paint, particularly black and white, makes a common-sense pattern that can fit any landscape; Metropolitan, ***1;*** Town, ***2, 3;*** Country, ***4, 5;*** Wild, ***6.*** Introduce whimsey and the result is absurd, ***a.*** Arcadia is the place for sophisticated paintwork.
Town	
Arcadia	
Country	
Wild	

The point here is to show how paint, when applied as a simple trim to objects which already fit in the landscape, intensifies the original effect of each. The metropolitan warehouse, 1, *gains in scale: the town street,* 2, *grows crisper; the space enclosed in the market place,* 3, *is heightened because its edge is defined by quoins. The country cottage,* 4, *is tied more firmly to the landscape: the houses of* 5 *and* 6 *are tighter, more drawn in (i.e.* in *the landscape, not* on *it) because of the trim around windows and doors (as can be compared directly in* 6 *with the other cottage). But the garages,* a, *remain a piece of pointless pattern-making for its own sake: the paint must correspond to a common-sense pattern—doors, windows or simple structural divisions.*

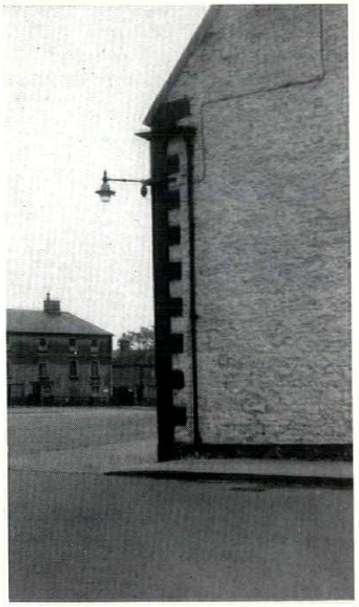


a



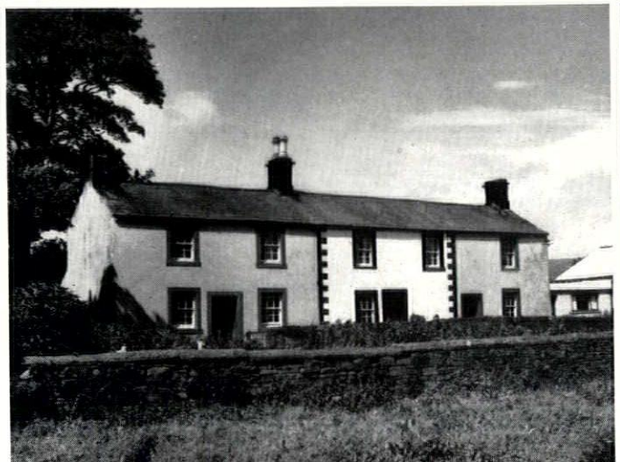


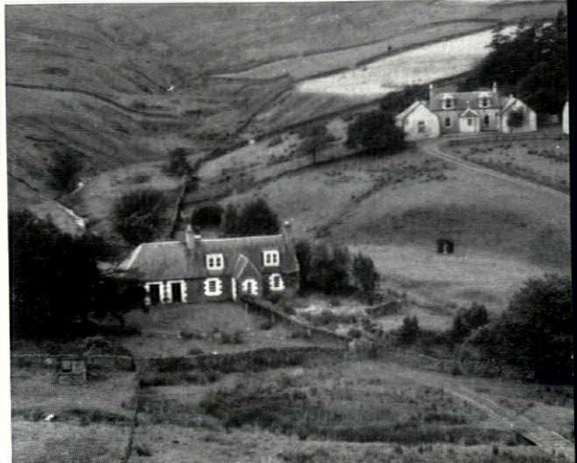
1,2





3, 4





5, 6

key:
1, *Amsterdam.*
2, *Ilkley.*
3, *Folkingham, Lincs.*
4, *near Kentraugh, I.O.M.*
5, *Newton, Cumberland.*
6, *Mountbengerhope, Peebles.*
a, Zurich.

the shelter



Caution: not dowdy

Metropolis	take shelter in the buildings around
Town	part of the pattern, ***1;*** or portable, ***2;*** in both cases simple and light.
Arcadia	dainty: urban derived, ***3;*** or mock-rural, ***4;*** but never dowdy.
Country	part of the pattern, ***5;*** or portable, ***6;*** in both cases simple and unaffected. Never suburban, ***a.***
Wild	go prepared for the weather.

No shelters in the wild because the point of going there is to submit to nature: physical discomfort is as much a part of that as 'mental liberation.' No shelters in a metropolis because porches and doorways are always near at hand and the buses are frequent: there is anyway no room on a metropolitan street for even the simplest shelter.

In the other categories, shelters can either fit into the pattern (town, 1, and country, 5) or be so light that they sit on the pattern without interruption (town, 2, and country, 6). A fair criterion is that if they are portable—i.e., if the eye can imagine them being carried away—they aren't an interruption. Never, ever, have a shelter which looks as though it is transplanted from a corporation park in the Black Country, a: in fact, a and 5 are in consecutive Dorset villages on the road from Blandford to Shaftesbury. 5 would have been even better without the bus-stop pole and with the sign actually attached to the shelter, as in 4.

1, 2

An arcadian shelter must be dainty: it can play at being a little house, 3, or at being a little farm building, 4, corresponding to the 'urban' and 'rural' parts of arcadia; what it must never do is to look a frump.

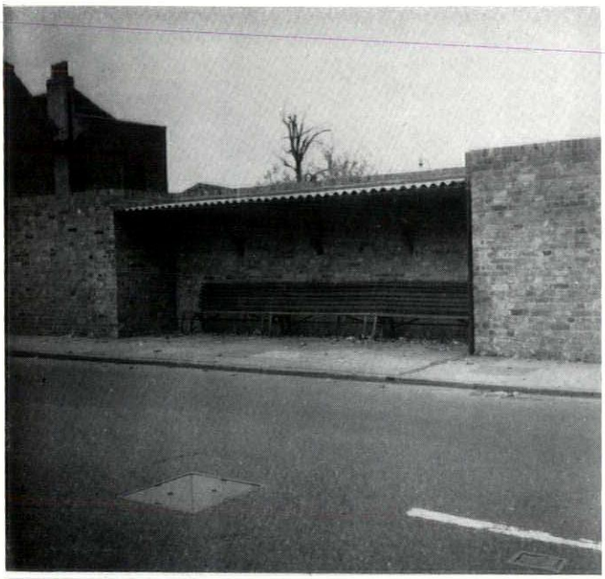


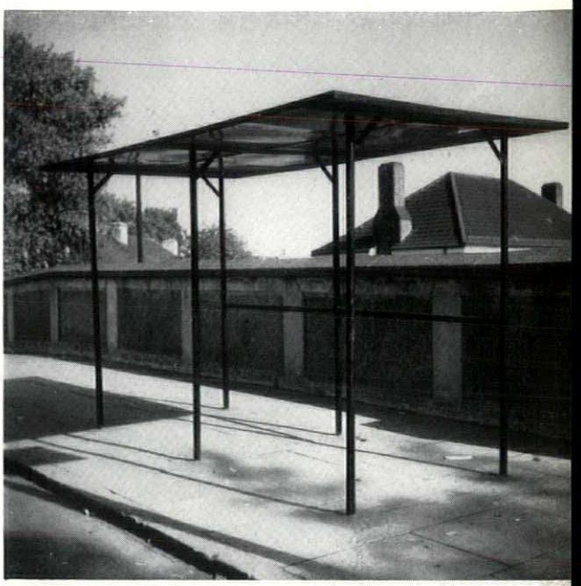
3, 4

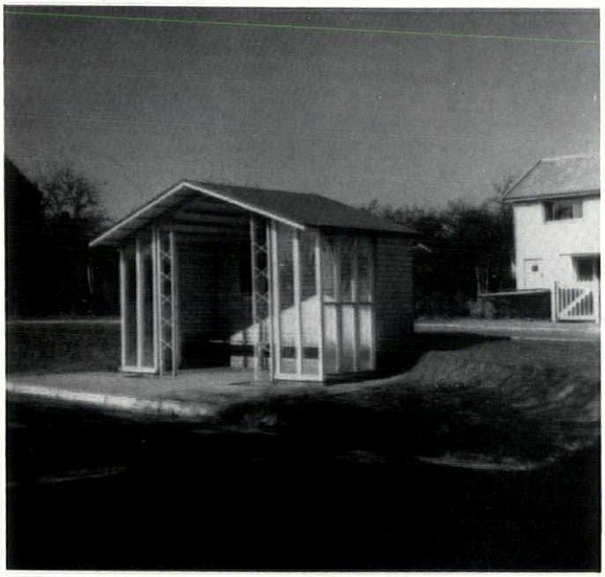
a

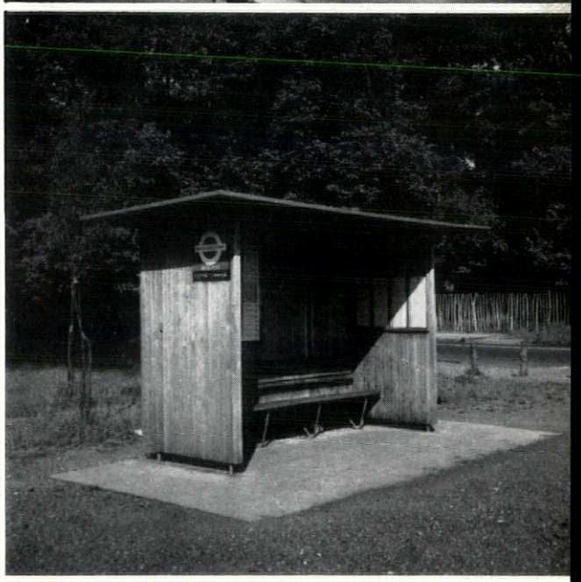
key:
1, *Mortlake, Surrey.*
2, *Carshalton, Surrey (standard London Transport design).*
3, *Hales, Norfolk.*
4, *Keston Common, Kent (standard London Transport design).*
5, *Iwerne Minster, Dorset.*
6, *near Preston Bissett, Bucks.*
a, *Sutton Waldron, Dorset*

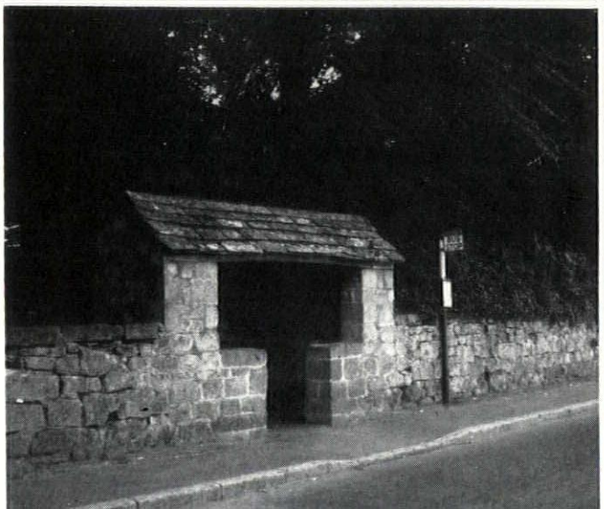
5, 6

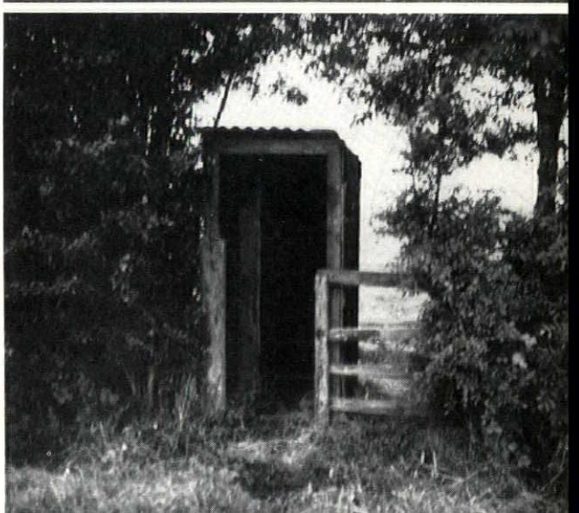




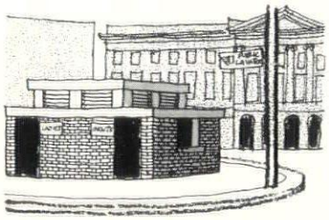








the 'amenity' and the 'utility'



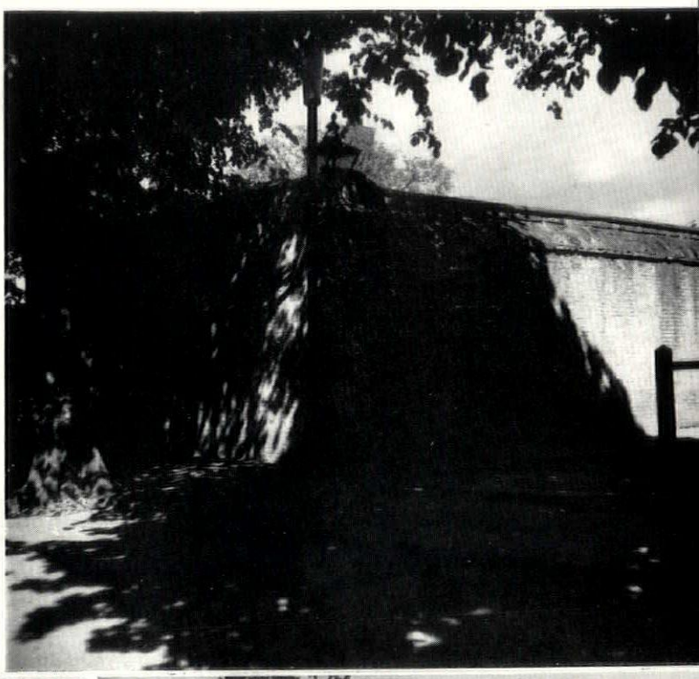
Caution: not sticking up in the view.

Metropolis	inside the building line, ***1;*** or underground, ***2.***
Town	unobtrusively part of the urban pattern, ***3.***
Arcadia	camouflaged as much as possible, ***4*** and ***5.***
Country	done with minimum of fuss, ***6*** and ***7*** (when the 'amenity' isn't itself an interruption); fitted into the countryside pattern, ***8*** and ***9,*** not sticking out of it like ***a;*** or camouflaged, ***12.*** Siting out-of-the-way, ***b,*** is no good without camouflage, ***10.***
Wild	as few as possible. If at all, screwed into the landscape, ***11.***

Little brick-built boxes—lavatories, transformer stations, gasworks extensions, automatic telephone exchanges. They are nearly all outside planning control and very few people bother about them, yet they can make or mar any view. In any urban landscape they only need to fit in to the particular pattern; in open country or to preserve the illusion of arcadia they may need camouflage as well. In a metropolis there's no room to spare for freestanding 'utilities': they should all be out of the way, either underground, 2 *(this example has no other virtue), or fitted into the buildings themselves,* 1 *(actually inside a pier of one of the shops in the new precinct at Coventry: a splendid bit of space-saving).* ***1/2 3***

In a town there is more space to play with, and the utility can be tucked behind a wall, 3. *This one—a lavatory—is in the cathedral close at Ely and is almost invisible from* 100 *yards. In arcadia the need for unobtrusiveness is extreme. A gasworks is the last thing to encourage rustic illusions: so camouflage it,* 5. *Careful siting made a lavatory in* 4 *almost invisible behind the wall and then ruined the effect by adding outrageously fake wrought-iron signs for 'Ladies' and 'Gentlemen'. It is the countryside which bears the brunt of ill-sited utilities—even the relatively innocuous country recreation ground is rarely as good as that at Cerne Abbas, with the entrance carefully sited,* 6 *(just beyond the speed limit sign) and the objects inside treated country-fashion,* 7, *standing on simple turf without reach-me-down municipal trim. The archetype of the bad utility is the little brick box with its little concrete fences, a, stuck down in the countryside without a thought of how it is going to look-* ***4, 5*** ***6, 7***







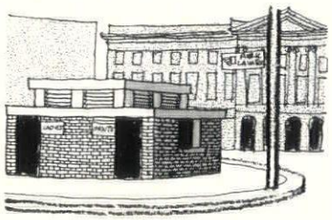








the 'amenity' and the 'utility'



Caution: not sticking up in the view.

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Country	done with minimum of fuss, ***6*** and ***7*** (when the 'amenity' isn't itself an interruption); fitted into the countryside pattern, ***8*** and ***9,*** not sticking out of it like ***a;*** or camouflaged, ***12.*** Siting out-of-the-way, ***b,*** is no good without camouflage, ***10.***
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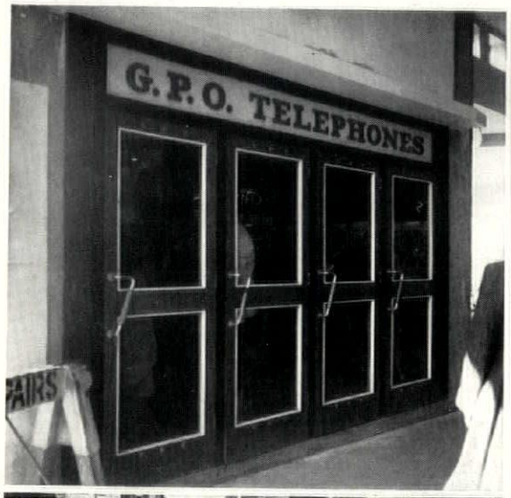
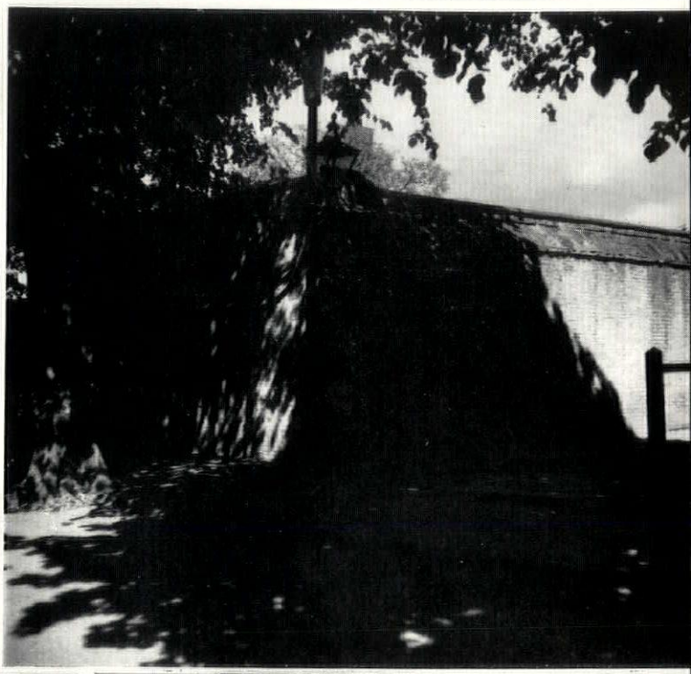














the shelter



Caution: not dowdy

Metropolis	take shelter in the buildings around
Town	part of the pattern, ***1;*** or portable, ***2;*** in both cases simple and light.
Arcadia	dainty: urban derived, ***3;*** or mock-rural, ***4;*** but never dowdy.
Country	part of the pattern, ***5;*** or portable, ***6;*** in both cases simple and unaffected. Never suburban, ***a.***
Wild	go prepared for the weather.

No shelters in the wild because the point of going there is to submit to nature: physical discomfort is as much a part of that as 'mental liberation.' No shelters in a metropolis because porches and doorways are always near at hand and the buses are frequent: there is anyway no room on a metropolitan street for even the simplest shelter.

In the other categories, shelters can either fit into the pattern (town, 1, and country, 5) or be so light that they sit on the pattern without interruption (town, 2, and country, 6). A fair criterion is that if they are portable—i.e., if the eye can imagine them being carried away—they aren't an interruption. Never, ever, have a shelter which looks as though it is transplanted from a corporation park in the Black Country, a: in fact, a and 5 are in consecutive Dorset villages on the road from Blandford to Shaftesbury. 5 would have been even better without the bus-stop pole and with the sign actually attached to the shelter, as in 4.

1, 2

An arcadian shelter must be dainty: it can play at being a little house, 3, or at being a little farm building, 4, corresponding to the 'urban' and 'rural' parts of arcadia; what it must never do is to look a frump.

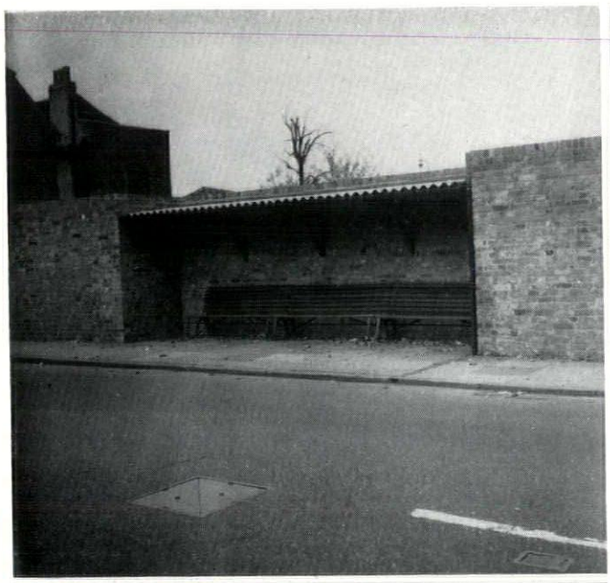


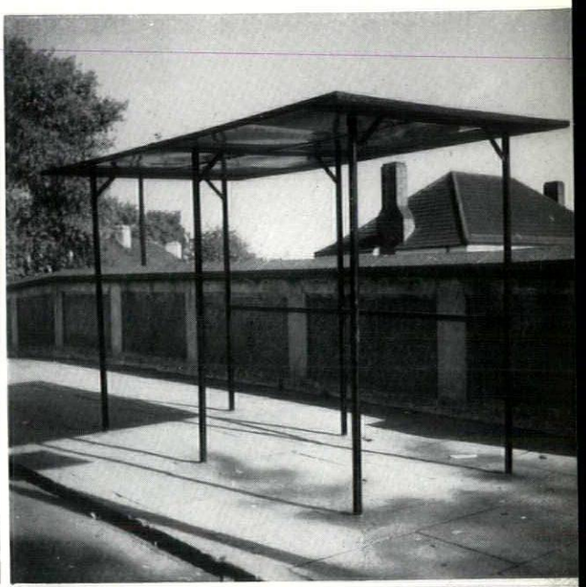
3, 4

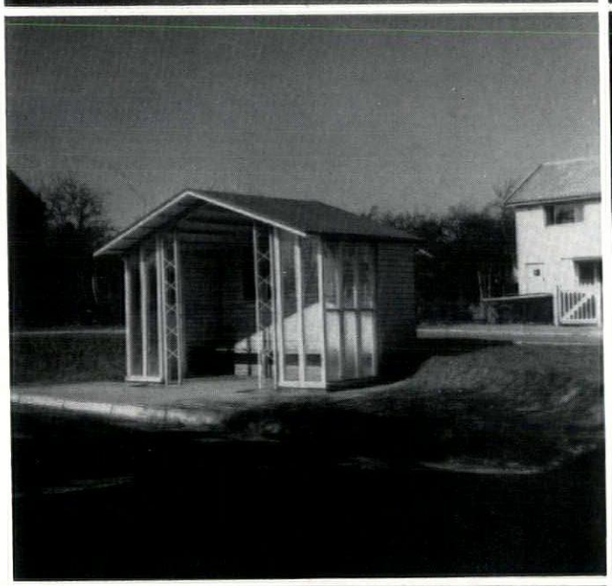
a

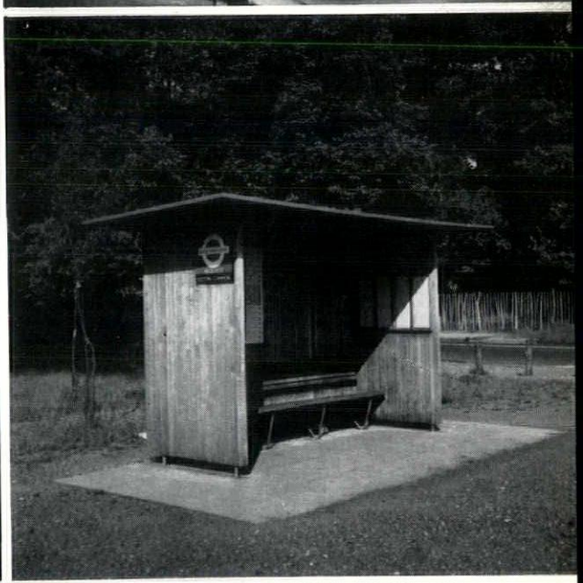
key:
1, *Mortlake, Surrey.*
2, *Carshalton, Surrey (standard London Transport design).*
3, *Hales, Norfolk.*
4, *Keston Common, Kent (standard London Transport design).*
5, *Iwerne Minster, Dorset.*
6, *near Preston Bissett, Bucks.*
a, *Sutton Waldron, Dorset*

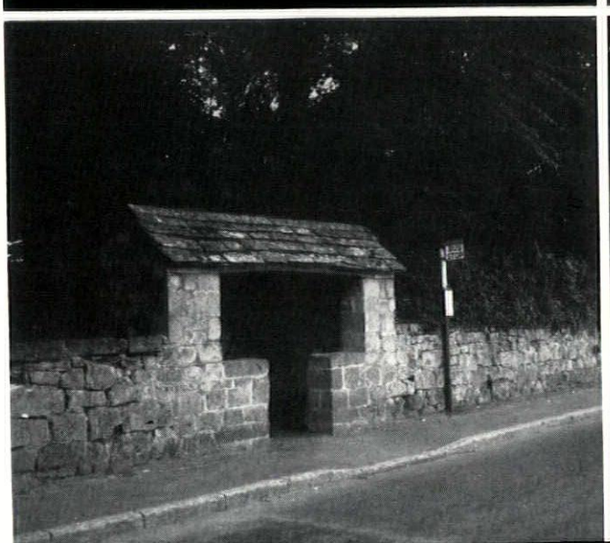
5, 6

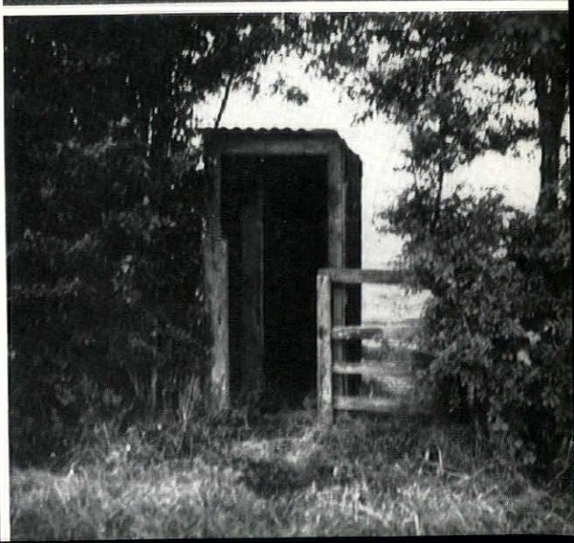












the 'amenity' and the 'utility' cont.



a

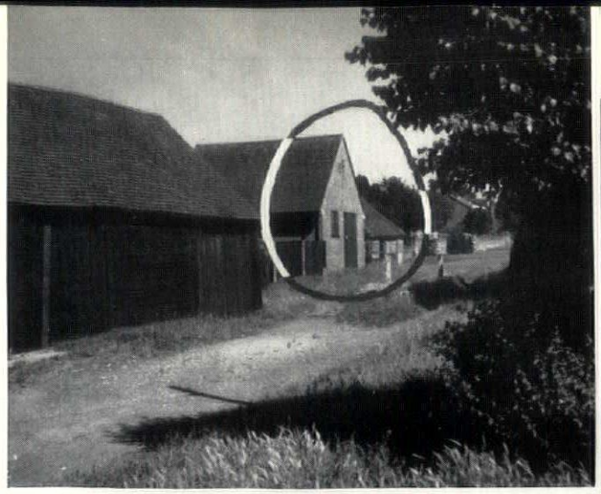
On this page is a set of variations on the theme of making the little brick box fit into the landscape. It can be fitted into the rural pattern—the ringed building, 8, *is an automatic telephone exchange;* **8, 9**



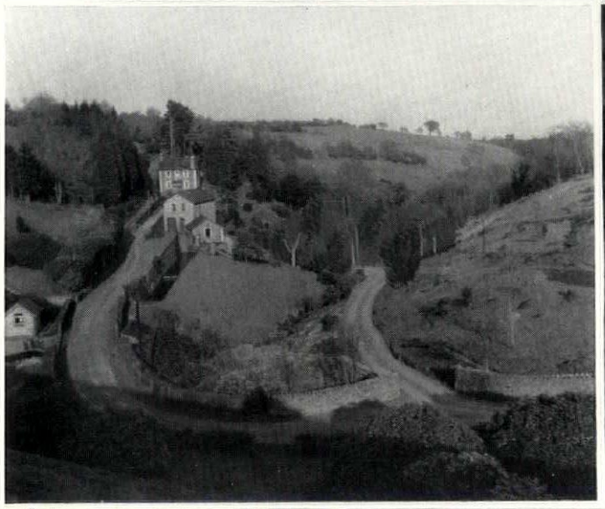
b

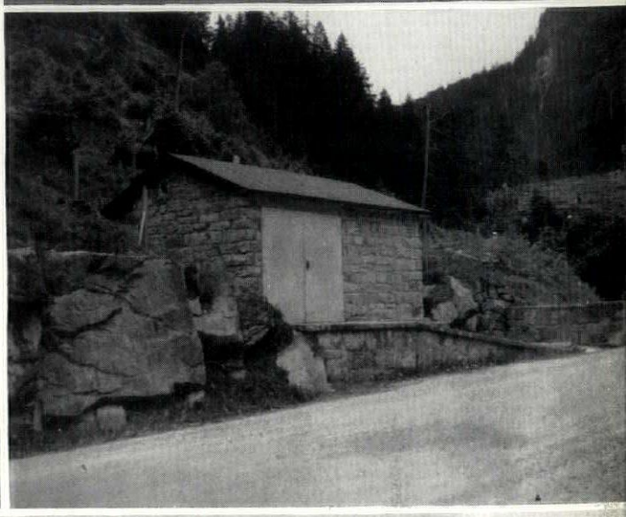
the annexe in 9 *is a public lavatory—it can even fit the pattern of a wild landscape, if it has to, with unobtrusive design and an appearance of having grown out of the ground;* 11 *is a small Swiss hydro-electric station. In almost every case it simply means doing without the surround of wire, and butting up the box to a wall or another building: a combined effort for the common good instead of 'damn your view, Jack, my regulations are satisfied.' In open country even that isn't enough. Siting can help, but even putting plant out of the way,* b *(this pumping station is sited in a steep combe out of the way of any general view) is useless if the building isn't camouflaged: and—worse still—if the unities are broken by suburban planting in front of it. What should have happened is shown in* 10. *If camouflage is allied to a natural feeling for landscape the result can be magnificent.* 12 *is a planted knoll by a Swiss roadside which provides punctuation, not interruption. Inside it (inset) is just the sort of squat amorphous box which in England would have been set smugly in the middle of a field to crack open the view.* **10, 11**

Key: 1, *Coventry.* 2, *Cambridge Circus, London.* 3, *Ely.* 4, *Chalfont St. Giles, Bucks.* 5, *near Zurich.* 6 *and* 7, *Cerne Abbas, Dorset.* 8, *Shamley Green, Surrey.* 9, *Muker, Yorks. N.R.* 10 *and* b, *near Hennock, Devon.* 11, *near Anders, Switzerland.* 12, *near Winterthur.* a, *Blackrod, Lancs.* **12**



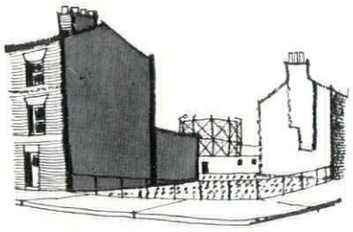








building lines and sight-lines



caution: don't leave corner sites empty.

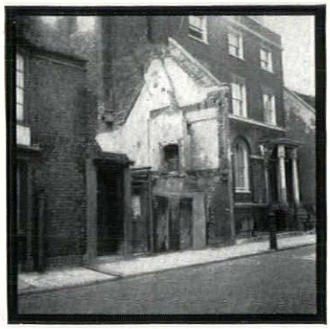
Metropolis	economy forces full use of sites anyway.
Town	keep corners intact, ***1*** and ***2;*** rebuild to existing street line, ***3.*** Don't blow open, ***a;*** or leave vacant, ***b.***
Arcadia	keep the building line varied, ***4;*** break it up with planting, ***5;*** or camouflage completely, ***6.***
Country	conversion, ***7;*** not demolition, ***c.*** Augment pattern, ***8*** and ***9;*** or camouflage by careful siting, ***10*** and ***11.*** Make sight lines fit pattern in villages, ***12;*** and in open country, ***13.***
Wild	if at all, build in subservience to the landscape, ***14.***

In town and metropolis man is building on nature: in arcadia he is trying to hide himself in it; in the country he is building in harmony with nature, and in the wild, if he has to build at all, he builds under nature's orders. These may be truisms, but they express a roomful of theory. Add to them the further truism that whatever is being built ought to augment the existing pattern, and they summarize the moral of this sequence of photographs.



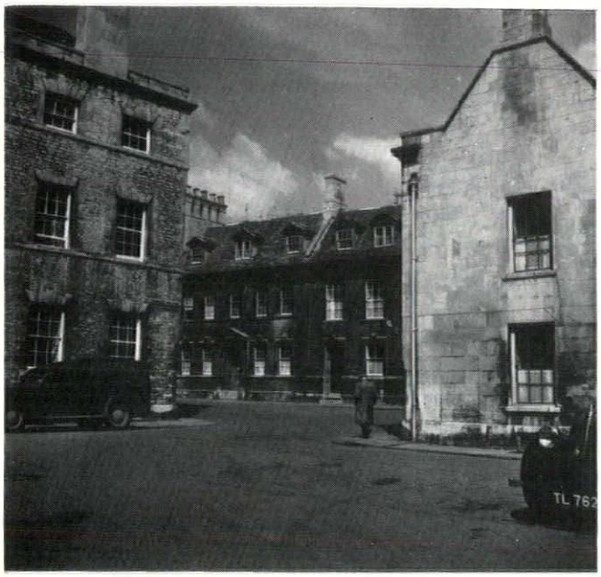
1, 2

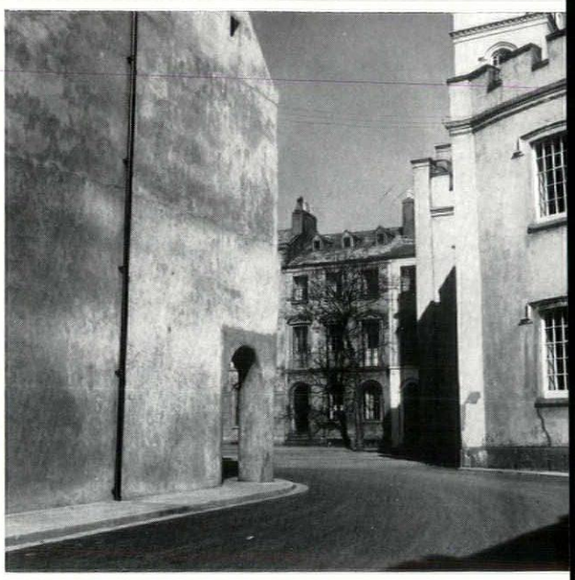
a

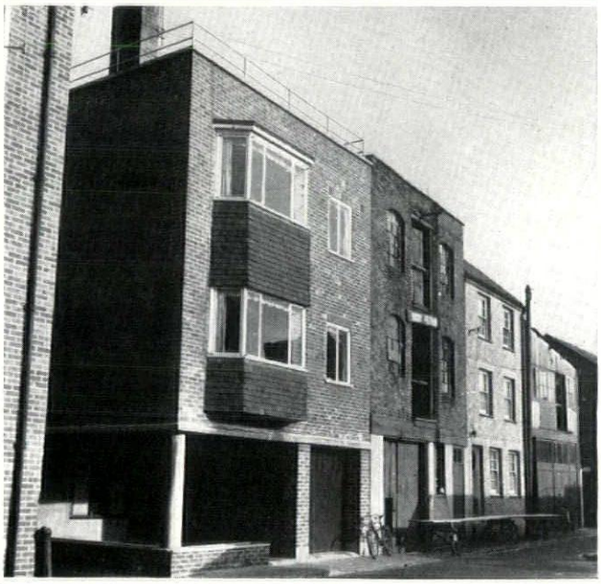


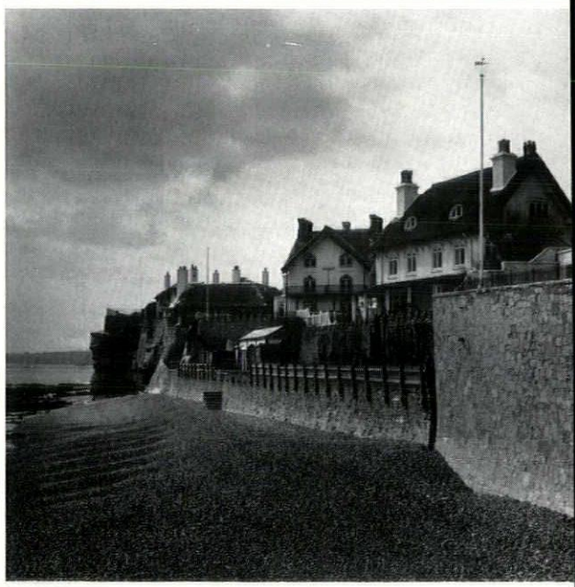
b

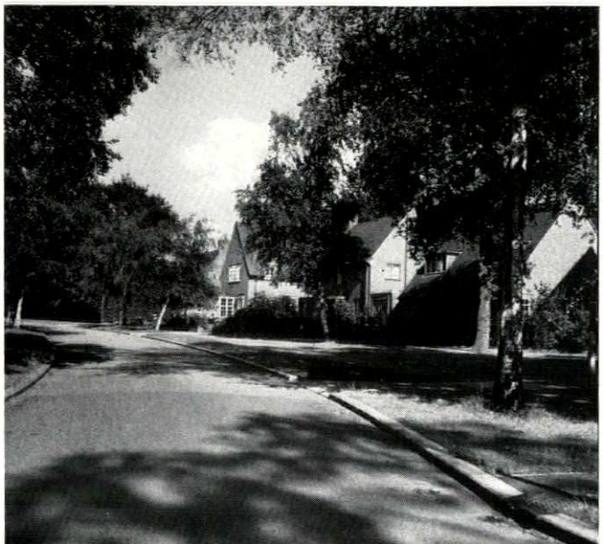
The problem hardly arises in a metropolis, being solved automatically by the cost of land: in a town, which depends on crisp enclosure, carrying building lines right up to the corners is of first importance, 1. *If you round off the corner or leave it vacant,* a, *the whole space disintegrates. Often enough this is done to provide a sight line for traffic: both traffic and town would be better served by a halt or traffic lights. To avoid having pedestrians squeezed between road and wall, tunnel through the corner,* 2, *but leave the enclosure intact. Rebuild to the old street line,* 3, *not to some far-fetched and never-to-be-fulfilled improvement line, and if you have slum cleared,* ***3, 4*** ***5, 6***

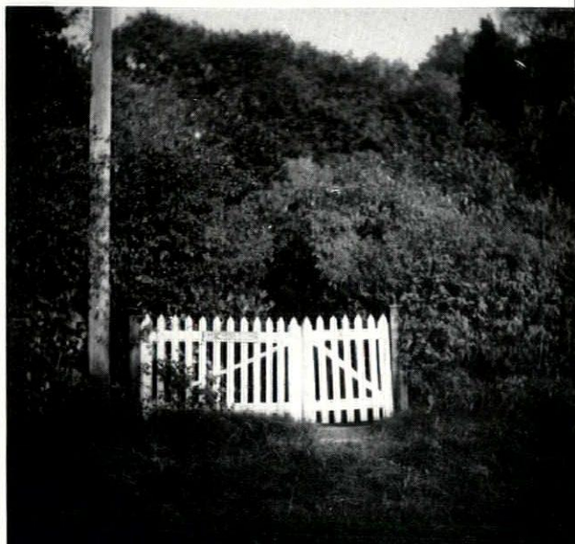












put truly urban houses back on the site instead of making a hole in the street, b. Arcadia abhors straight lines; the building-line should be as varied as possible to keep the scale down, 4. The same result can be achieved with planting, 5, or by complete camouflage, 6. In the country, don't demolish, c, where you can recondition, 7 at far less than the cost of a new house. New housing is usually a cut rate reflection of the council estate in the nearest town: well treated it will augment the village pattern, 8: something to be welcomed, not feared. **7,8**



c

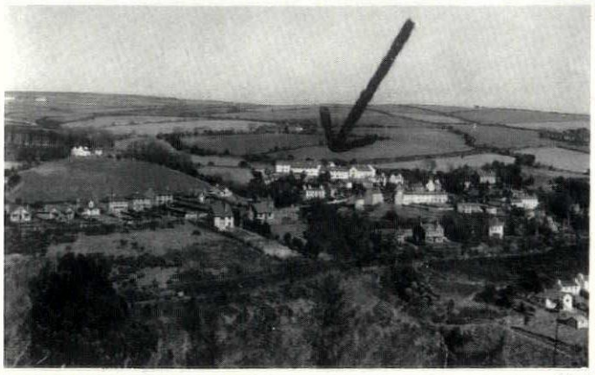
It can even set about creating a compact village centre where there was only sprawl before, 9—the arrow indicates the new houses. Isolated houses in the countryside are often unwelcome: careful siting down a track, 10, can make them invisible from the road, 11. To break open a village to provide a sight line is criminal: one road junction may be the only focus it has got. The traffic can halt—ten seconds won't kill it. One way round this, almost entirely neglected, is to use mirrors, 12; as the photograph shows, it enriches the village besides easing the traffic problem. In the countryside, the stock solution at a junction is to rip apart the corners and put up either a roundabout or a mess of wire and concrete posts. Two counties—Cheshire and Herefordshire—do it properly with neat railings neatly painted, 13. Finally, if you must build in the wild you have an obligation to obey the site implicitly. These Highland crofts may lack every sort of modern convenience, but they are a model of how to build in the wild: low, soft textured, screwed into the landscape like an extra set of boulders.

9 10 11 12 13

key: 1, Stamford. 2, Castletown, I.O.M. 3, Portsmouth. 4, Sidmouth. 5, Welwyn Garden City. 6, Biggin Hill, Kent. 7, Beaminster, Dorset. 8, Hales, Norfolk. 9, Laxey, I.O.M. 10 and 11, near Santon, I.O.M. 12, Winster, Derbys. 13, near Skenfrith, Mon. (site actually in Herefordshire). 14, Cliff, Isle of Lewis. a, Stone, Staffs. b, Poole. c, Godington, Oxon. **14**



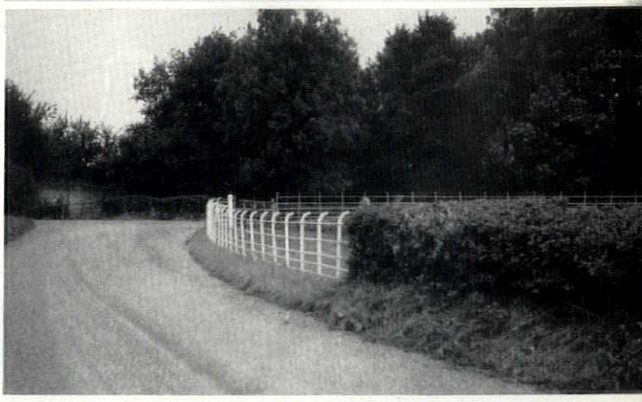














monuments



caution: not cluttered up.

Metropolis	preserve them, but their environment must take its chance, ***1.***
Town	re-use in today's pattern, ***2;*** keep them free from fencing, ***3;*** not obliterated by it, ***a.***
Arcadia	keep trim, ***4,*** but not genteel.
Country	unaffected trim, ***5;*** treat naturally, not artificially, ***6*** and ***7.***
Wild	leave them entirely alone, ***8.***

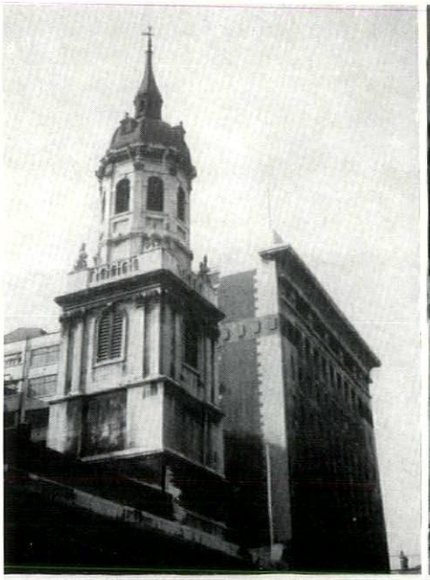
A monument can either be just simply the sum of its scarcity and historical importance, or a living part of the environment, the past-in-the-present. If a monument is to live it mustn't be railed off, fenced around, beautified or even pampered. It must stay in the view on its own merits: otherwise 'preservation' means obliteration, a. In a metropolis there is no question of preserving the environment intact: buildings must fend for themselves like the Wren City churches, thereby creating new extremes of scale which are valuable in themselves, 1. *To re-use a palace as the town's post office is better than turning it into a museum,* 2*—if the con-* ***1, 2***



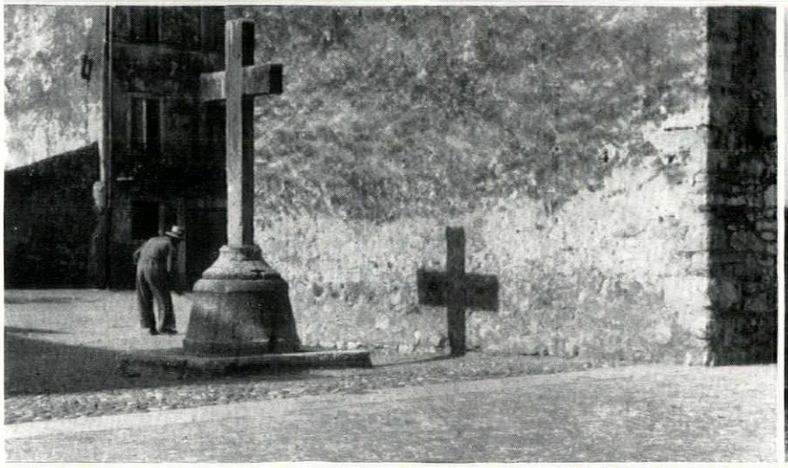
a

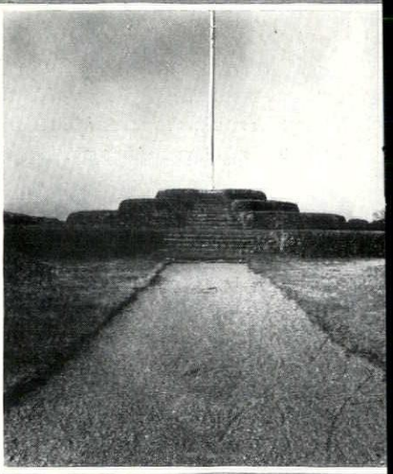
version is done sympathetically, as it is here. Similarly a cross can't ***3, 4***
convey its message through a screen of fencing and shrubs: it must be brought right into the pattern of town, 3, *or country,* 5. *(Warning to goggle-eyed parks superintendents:* 5 *is rubble Cotswold limestone in a Cotswold village, i.e., the one place where it* isn't *out of place.) Arcadia needs mown grass and trim detail—*4, *the Manx Tynwald hill—not for its own sake but to fit into the arcadian pattern. Impose trim lawns, as the Ministry of Works do, on a ruined abbey in the middle of the countryside and you put the whole building in parentheses. To keep a chancel arch as a garden gate,* 6 *. . . or to make hay among*

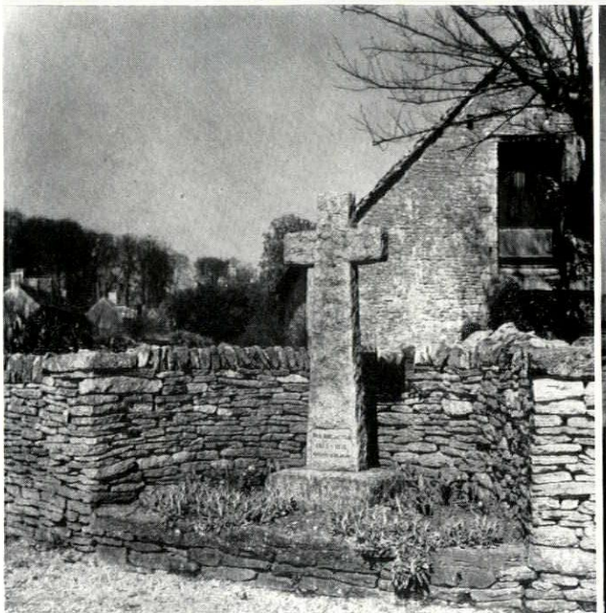
5, 6

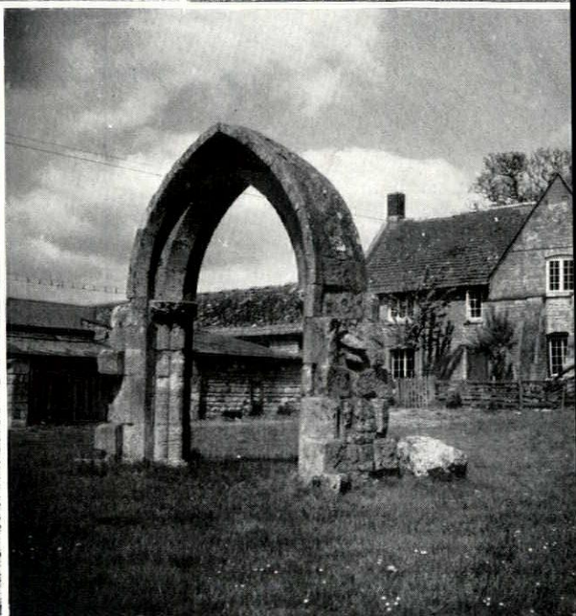










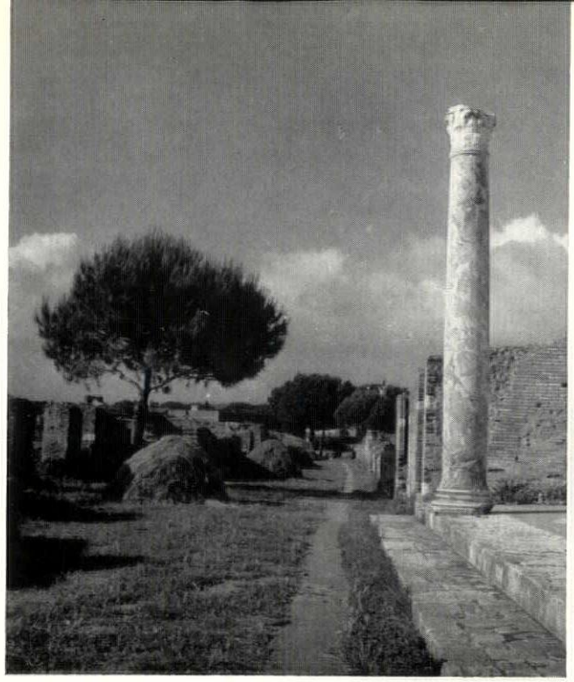


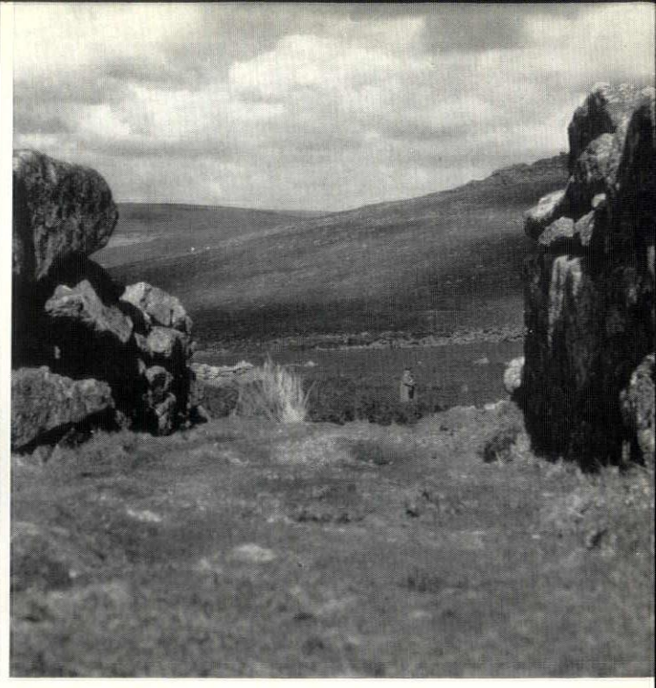
monuments cont.

Roman ruins, 7, doesn't 'debase' them, it heightens their value; it is the equivalent of accepting old people into your own home instead of sending them, respected but unloved, into an institution. With the monuments that our ancestors have left in the wild there should be no interference whatsoever—no signs, no footpaths, no car parks, no curator-in-kiosk, Grimspound on Dartmoor, a monument as important as Stonehenge, is just a circle of stones on an enormous moor, 8.

key
1, *St. Magnus Martyr, London.*
2, *Tarquinia.*
3, *Lazise, near Verona.*
4, *St. John's, I.O.M.*
5, *Barnsley, Gloucs.*
6, *Pickworth, Rutland.*
7, *Ostia Antica, near Rome.*
8, *Grimspound, Dartmoor.*
a, *Rollright Stones, Oxen.*

7, 8





summing up: 1. *This section of the casebook may have seemed to deal entirely with small things, unimportant in themselves. By itself one seat may not mean much; when added to all the other things in this section—walls, railings, a bus shelter, a war memorial—the result becomes very important, because together they make up almost the whole environment. Good architecture helps tremendously, but it isn't vital; certainly good architecture on either side of a windswept boulevard is far less use than indifferent architecture built to a pattern. Here, below, is the centre of Sheepstor, at the end of a valley on the very edge of Dartmoor. It is, magnificently, a place, with incipient wildness expressed in every inch of it, yet the elements which make it so are entirely 'commonplaces'—the seat, the walls, the cross rough-hewn on a rough base, the rocky floor itself, without benefit of asphalt; the farm gate on the left and the churchyard gate beyond. Well-intentioned councils might spend thousands of pounds on trying to import 'character' into their towns and villages (a civic centre? a vast garden?) while all the time the answer is under their noses, buried in the little things like this that nobody bothers about.*

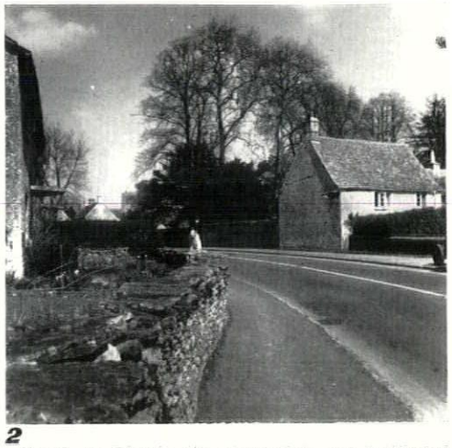


summing up: 2—Barnsley, Glos.

Here is a village which has made itself into one of the most memorable places in Britain, simply by doing everything in a country way and by resisting all efforts to import alien elements. Yet there are no set-pieces, no outstanding buildings or features. It is just an ordinary village on an ordinary A-class road, a situation similar to hundreds of others. They could all be as genuine and as compact as this.



1



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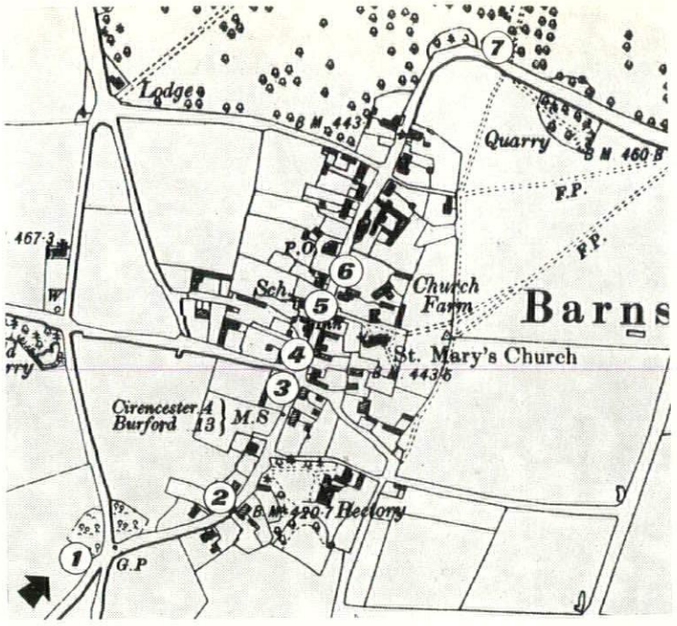
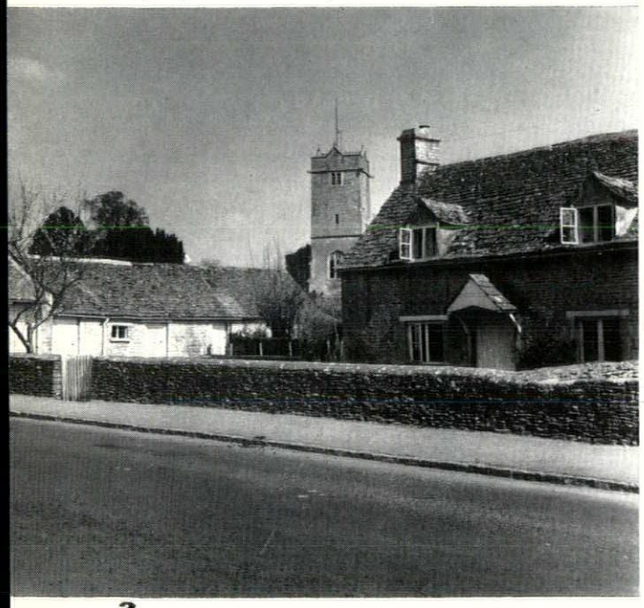


Sequence: through the village from South to North; the viewpoints are indicated on the plan. 1, entry, straight from true countryside—low wolds NE of Cirencester. A sixty-degree bend, 2, takes you into the village street, where everything is in the right place with the right treatment.



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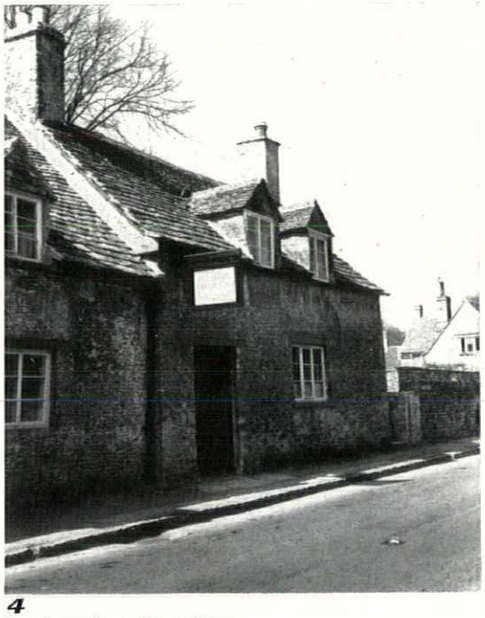

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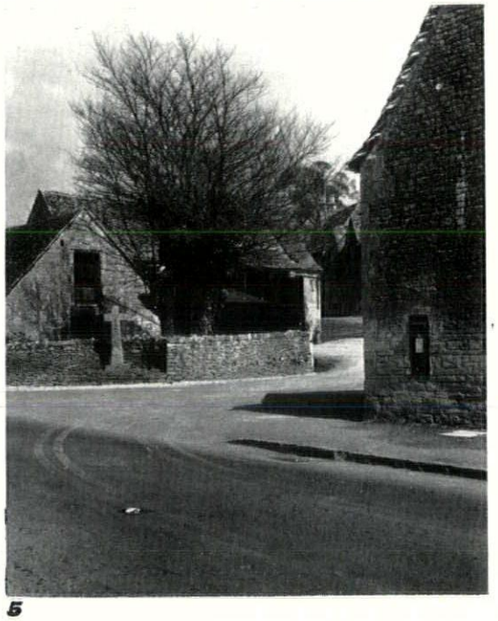
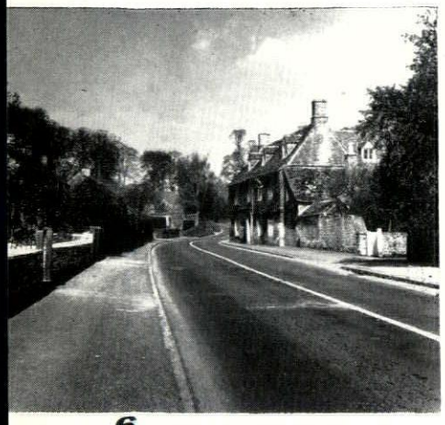


5

The church, 3, appears over farms, not at the end of a floral garden: the cottages are well kept up, the village pub has village-scale trim, 4, and so has the post office and—acid test—the war memorial, 5.



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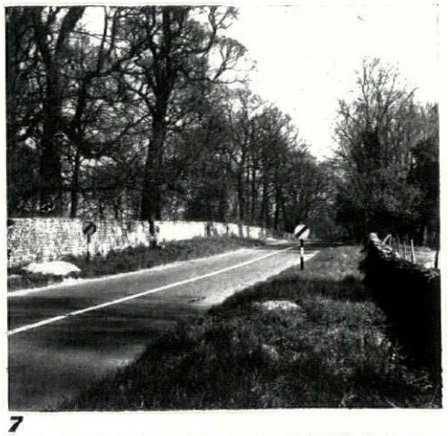


7

6, down the village street to a right angle bend, followed by a sharp break into true countryside, 7. Simple?—yes, if you follow the common-sense rule of keeping in the village only the things that belong there. (See how the bends into and out of the street, which would be nonsense to a road engineer, give the village ready-made limits which it has respected. Cranked lines like this are a vital part of building-in rhythms, how many are there in the New Towns?)

How it was done: by one of the present owners, Mr. David Verey

'The reason why Barnsley appears as it does is because it has always had landlords who cared for it. The feudal picture continued till the 1930s, when the squire sold the estate, but the bulk of the village was bought back by various members of the family in order to prevent it falling into the hands of speculators. Nearly all the cottages have been or are in the process of being modernized under the improvement grant system, and every cottage is listed under section 30 of the 1947 Town and Country Planning Act as being of architectural or historic interest to preserve the group value.

'During the last five years the village has twice been runner-up in the Bledisloe Cup Competition and last year actually won the cup for the best kept smaller village in Gloucestershire. The only sign I can ever remember was a recruiting poster stuck on the village hall. After the Bledisloe Cup judges had commented unfavourably on it we pulled it down and a respectful army sergeant came later and asked for the board on which it had been stuck.

'The absence of electric wires is because the late Sir Philip Stott of Stanton, near Broadway, paid for them to be put underground. The Electricity authorities have recently put cables across fields near the village but they tried to site the poles carefully and the G.P.O. has also been most co-operative in trying to hide the wires and keep them at the backs of the houses.

'Owing to the improvements to the existing cottages the demand for council houses with their high rents seems to have waned, and I do not now think council houses are required as we do not wish to become a dormitory for Cirencester. The chief difficulty in preserving the appearance of a Cotswold village nowadays is the fact that stone slates for the roofs are only to be got by stripping off some other building. Not one man is employed full time in quarrying stone slates in the county.'

TREES

Peter Shepheard

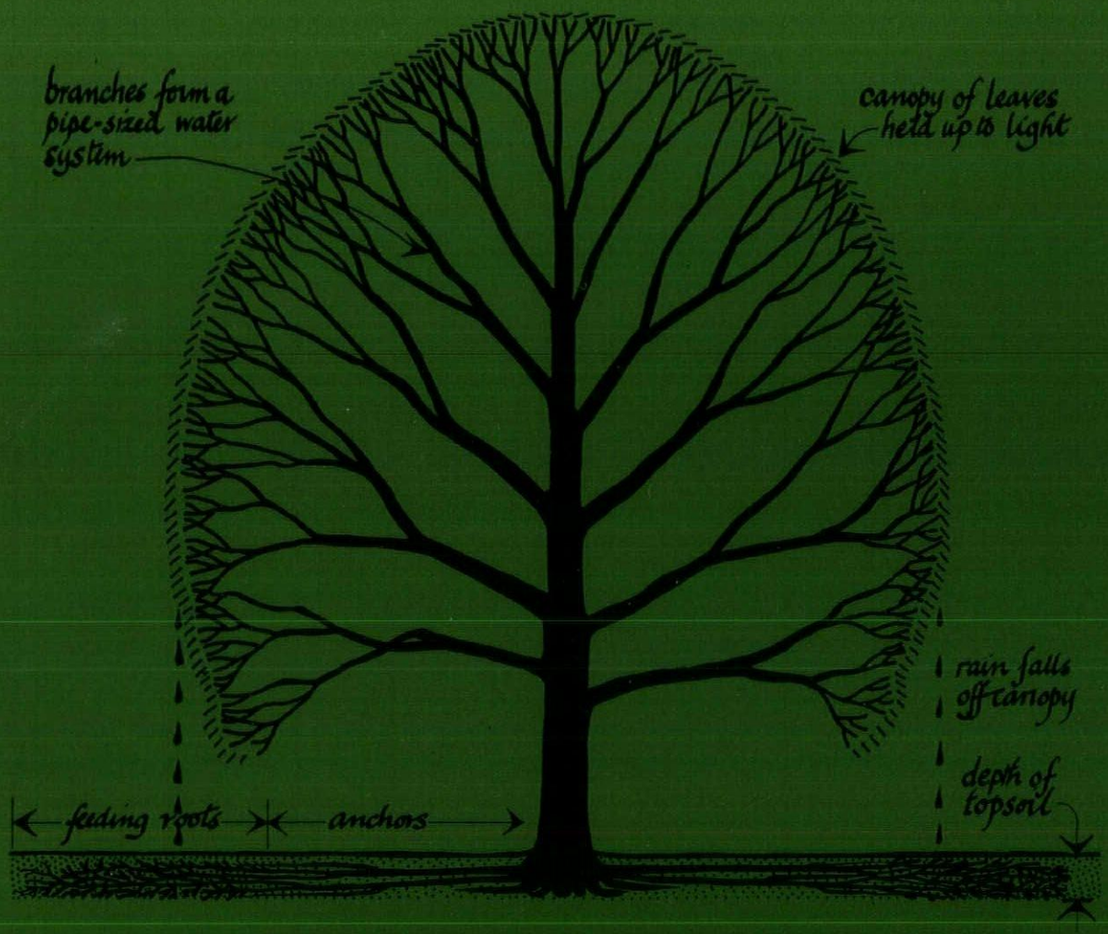


The superb effect of one big tree, properly cared for: Stratton Audley, Oxon.

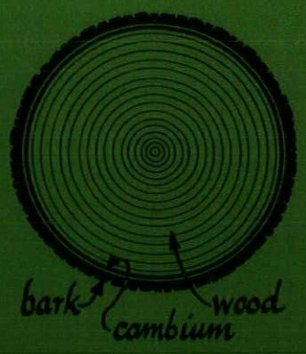
The trees in our towns are constantly in danger. A dozen practical reasons can be found for destroying them; they can be accused of damaging buildings and drains, cutting off daylight, dropping leaves, harbouring pests, interfering with street lighting, being unsafe. It has recently been estimated that the central London boroughs are losing the trees in their streets and private gardens at the rate of one tenth per annum. This could mean that in a few years' time *no* trees will remain outside the parks and a few protected gardens and squares.

Some of this destruction is deliberate: that caused for example by inability to see the value of trees, or by the development of sites at densities which do not admit trees to be kept. But a great deal is due to maltreatment and damage inflicted through ignorance of the physiology of trees, and often with the best intentions trees are made dangerous or killed by lopping done to make them safe; and it is sad to see how often trees which the architect has meant to preserve die from root damage—from drain trenches or paving or changes of level—which the architect did not know he was causing. The knowledge required to prevent this is not extensive or complicated, and the basis of it can be set out quite shortly.

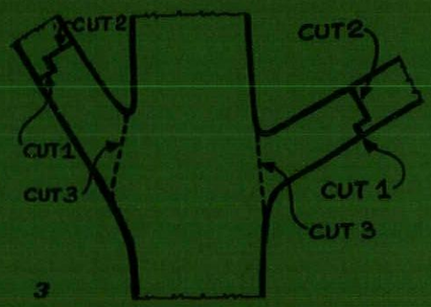
[*continued on page* 385



1 Diagram of root & branch system

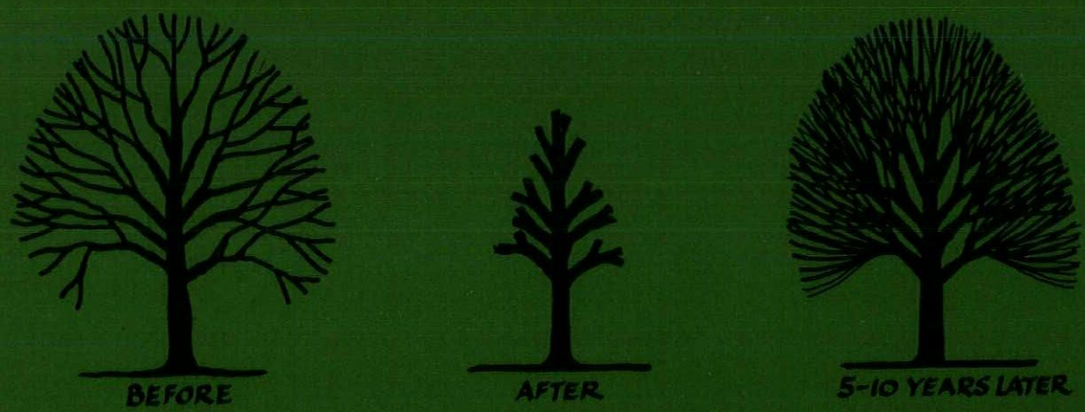


2 SECTION OF TRUNK OR LARGE BRANCH



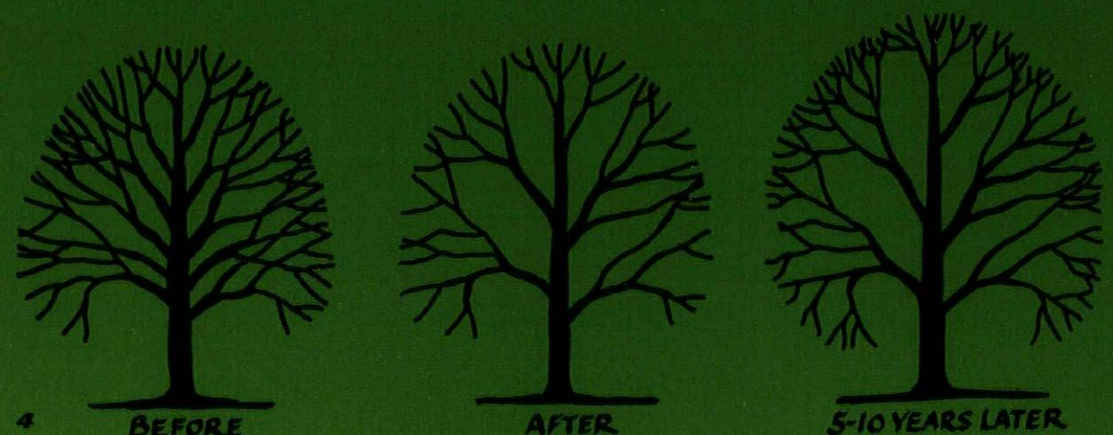
3 PRUNING OF BRANCHES

Correct cuts to prevent tearing (1 & 2) and to allow healing of wounds (3)



WRONG
LOPPING TO STUMPS

1. Mass of straight branches grows from each cut; cut ends, branches fall
2. Tree shape destroyed & foliage much increased
3. Constant & frequent pruning needed with many boughs to cut each time



4

RIGHT
THINNING OUT BRANCHES AT THE TRUNK

1. No further growth from cuts which heal over with bark
2. Tree shape preserved & foliage permanently reduced
3. No further attention needed for many years

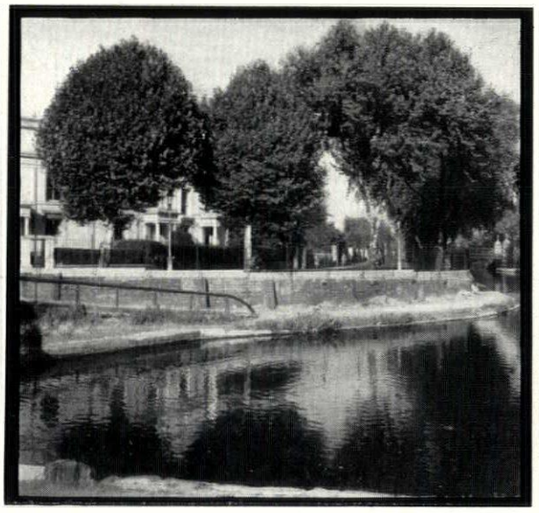


1, *Trees as architecture: Luxembourg gardens, Paris. Limes partly pleached in upper branches, needing fairly frequent and skilled attention.*



2, *the worst kind of lopping, and in a place where no reason for it could exist. The water shoots are beginning to grow and unless very carefully treated, these trees will be rotten and hollow in a few years' time: New St. Pancras' churchyard.*



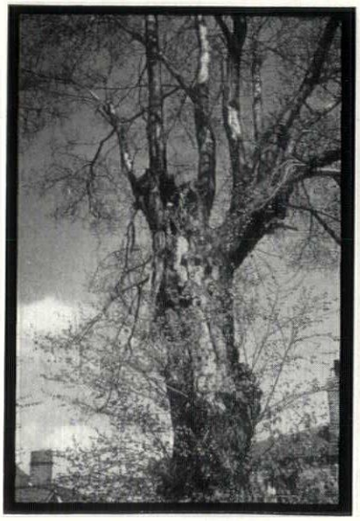


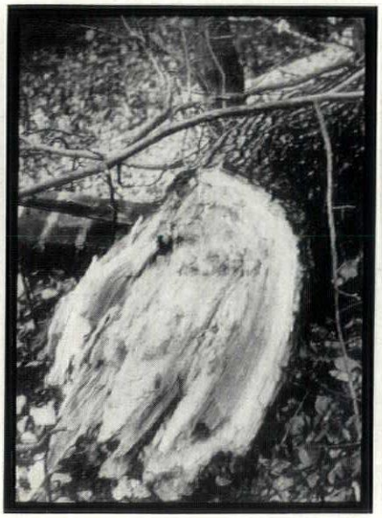
3, 4



5

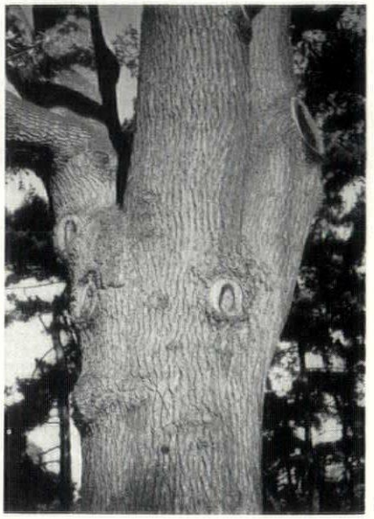
Blomfield Road, London, W.9: 3, *the trees on the left have been lopped, those on the right carefully thinned.* 4, *the same trees two seasons later. The 'water shoots' on the lopped trees are* 12–15 *ft. long. The thinned trees have grown a few inches only.* 5, *restoration: the same lopped trees after removal of many of the water shoots; if the stumps heal, as they may on a plane tree if carefully shaped, the tree shape can be eventually restored.*





6, 7





8, 9

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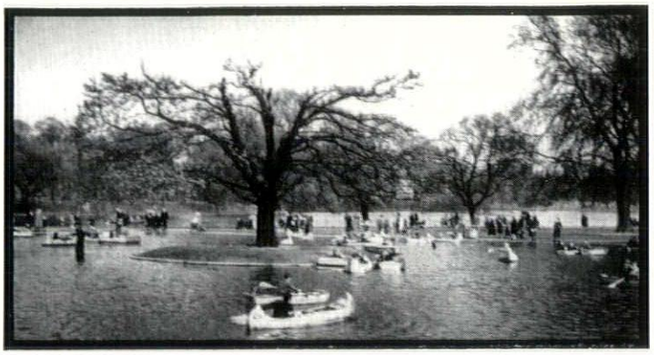
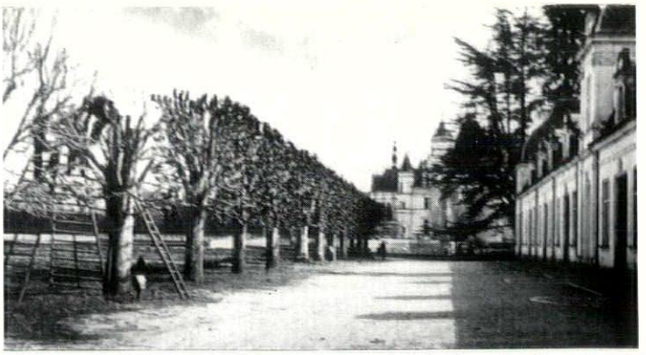


10, *root damage: a chestnut dying from removal of its feeding roots to make a pond in Regent's Park, London; the circle is wide, but not wide enough. The upper branches have been cut back to help, but the damage is too severe and this tree will die.*



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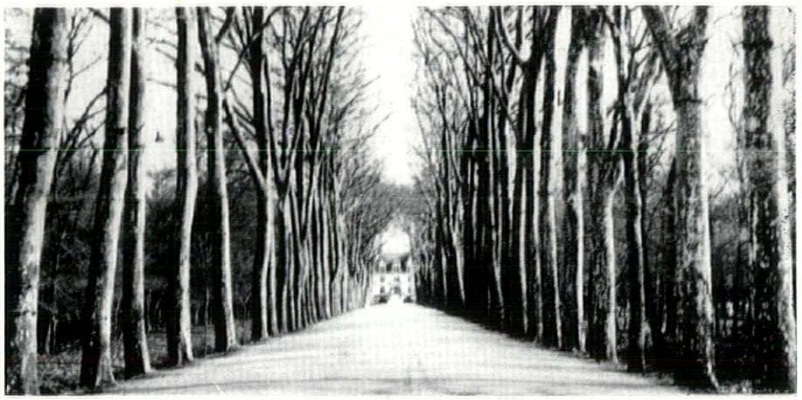

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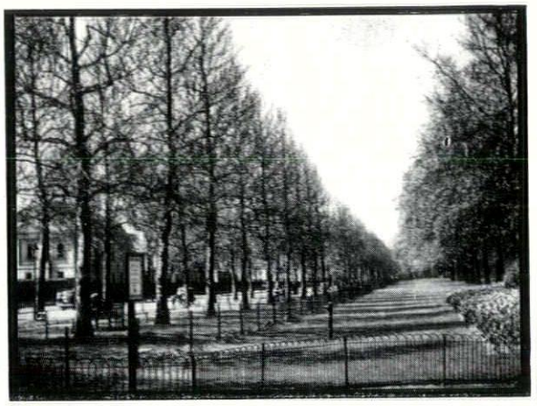
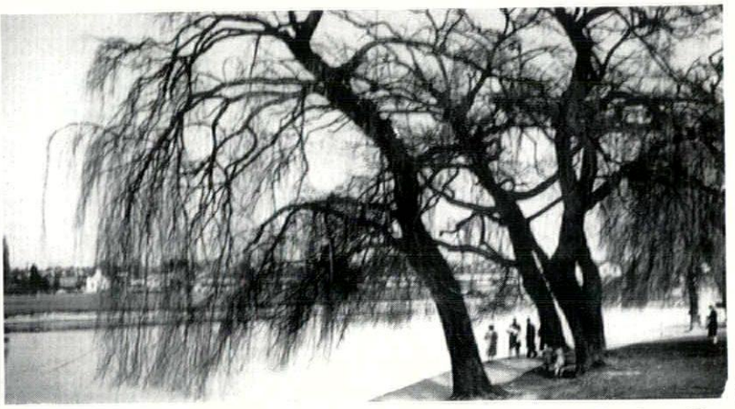


13

12, *planes grown very close (17 feet apart) and lateral branches thinned to make a splendid high avenue, at Chenonceaux; all wounds healed.* 13, *planes on left trimmed to pyramidal shape by cuts made a little farther out each year; horticulturally sound but wasteful of labour and in appearance less pleasing than the planes on the right, planted about the same time and slightly thinned only to preserve their natural shape. Birdcage Walk, London.*



14

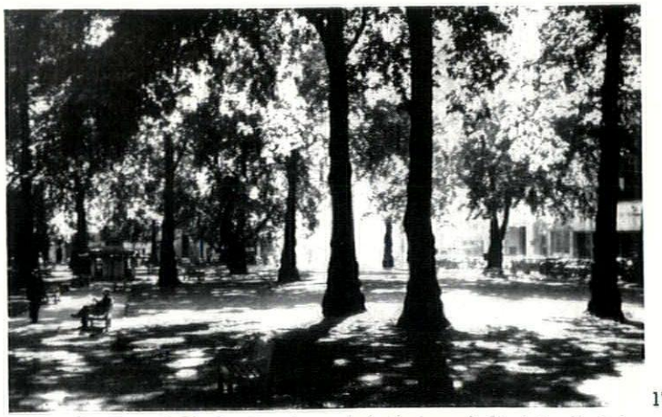


15

14, *Cherries at Bideford: only a few years old, and already stunted, misshapen and ugly. This kind of tree is no substitute for large forest trees for which room must be found in our towns—like the willow,* 15: *Windsor.*



16



17

Trees hold sunlight and in towns can serve the useful purpose of bringing it down into the shadows of large buildings. 16, *chestnut leaves lit from behind.* 17, *planes bringing sunlight into Berkeley Square.*



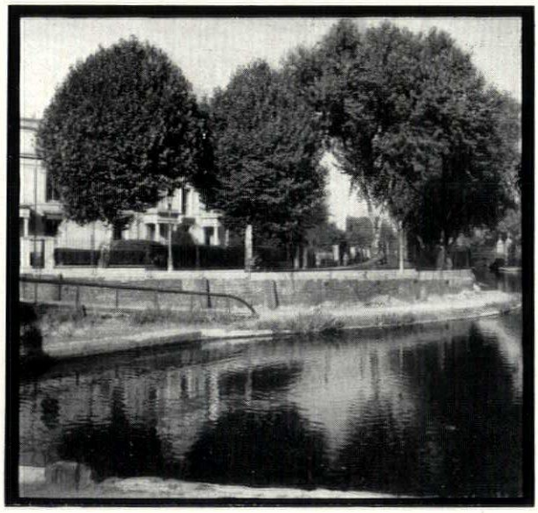
1, *Trees as architecture: Luxembourg gardens, Paris. Limes partly pleached in upper branches, needing fairly frequent and skilled attention.*



2, *the worst kind of lopping, and in a place where no reason for it could exist. The water shoots are beginning to grow and unless very carefully treated, these trees will be rotten and hollow in a few years' time: New St. Pancras' churchyard.*

3, 4







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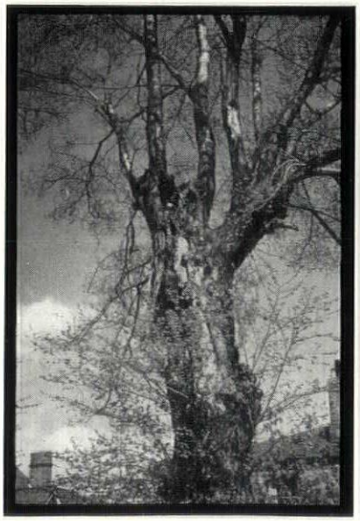

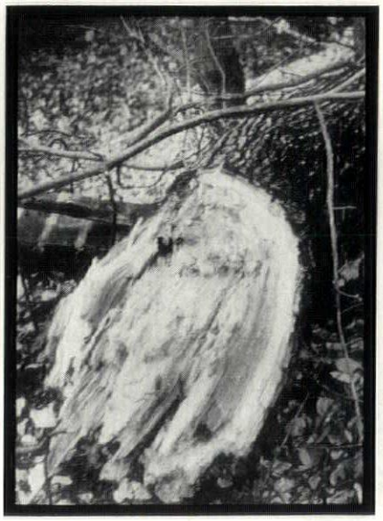

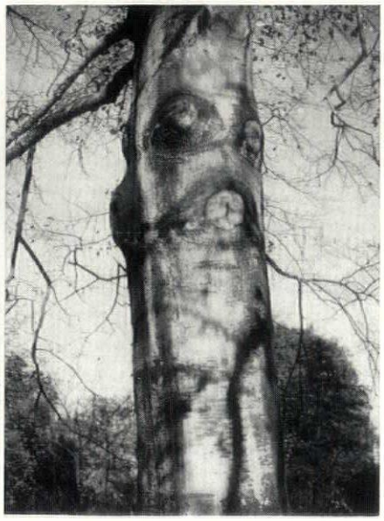

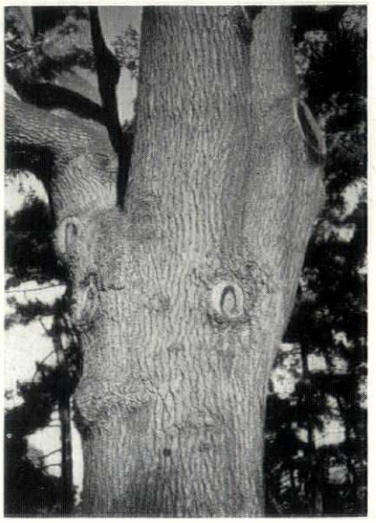

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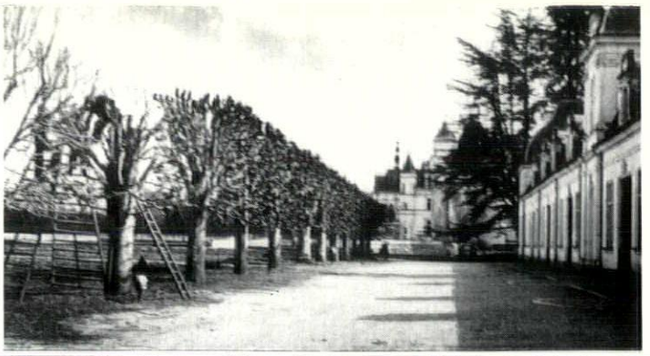

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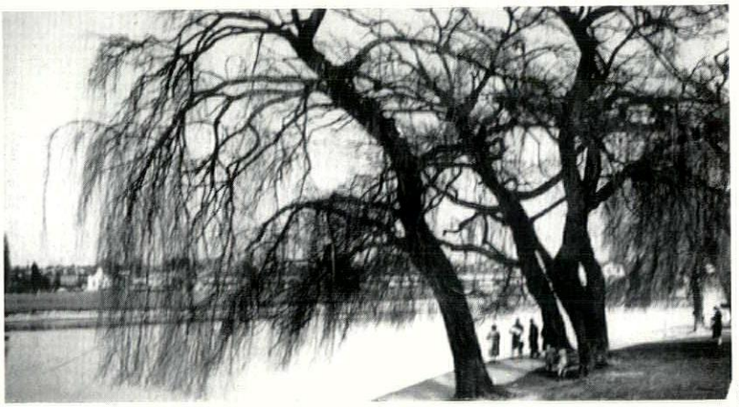

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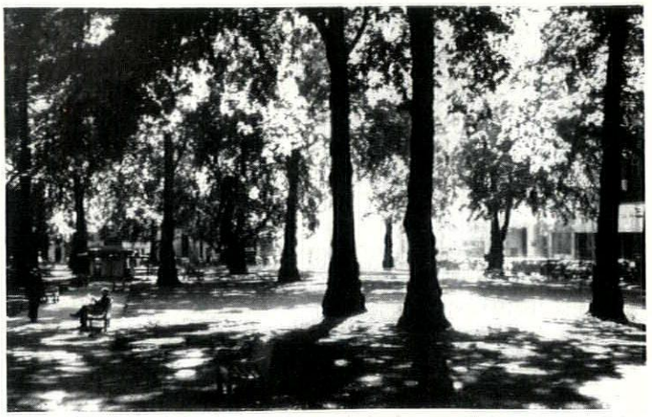


17

Trees hold sunlight and in towns can serve the useful purpose of bringing it down into the shadows of large buildings. 16, *chestnut leaves lit from behind.* 17, *planes bringing sunlight into Berkeley Square.*

continued from page 381]

Essentially, a tree is a water system, 1. The whole shape and ramification of both roots and branches are designed to carry water from the soil up into the leaves, where it is evaporated into the air; this process, known as transpiration, is vital and it is essential that the amount of water transpired shall be balanced by the amount sucked up by the roots. Damage to the roots, if severe, will cause wilting and death in the branches.

The tree makes the food it needs for its growth by means of the chlorophyll in the leaves, the miraculous green substance which builds up sugars and starch from the reaction of daylight and water. Leaves must have light, and the tree makes great efforts to hold all its leaves out to the sky, making a roughly globular canopy, not a dense mass.

The roots spread out radially from the trunk in a shallow layer in the topsoil, seldom more than two or three feet deep. Some trees have tap roots going deeper into the subsoil, but these are for anchorage. The thick parts of the radial roots near the trunk are mere anchors also, all the water being collected by the fine fibrous roots which fan out at the edges of the radial system, especially just under the tips of the branches where the rain drips off the leaf canopy. It is these outer feeding roots which are vital to the tree. Any digging of trenches or changes in level within a circle of at least the diameter of the leaf canopy, and often much larger, will do more or less damage to the water supply. Extensive root damage will kill the tree; if a part only of the system is damaged, pruning of the branches to a corresponding extent will put the transpiration system in balance again and help the tree to survive.

The feeding roots must operate in *topsoil;* that is, soil rich in organic matter, porous, containing oxygen and full of bacteria whose activity, especially in the fixing of atmospheric nitrogen, is essential to the process. If the entry of oxygen into the soil is cut off, by a tarmac carpet, or by waterlogging, or by a raising of the ground over the root area, the root action, and the bacterial action on which it depends, will cease. A very common cause of death is the raising of the ground level round trees, especially by the spreading of heavy soil. It is sometimes thought to be safe to do this if a well is left round the trunk; this is not so, as the feeding roots will still be damaged. If a raising of the ground is essential, it should be in porous shingle or gravel which will allow air to get to the topsoil layer.

The water, bearing minute but essential chemical elements in solution, is carried up the trunk and branches to the leaves mainly in a layer of cells called the *cambium* which lies, like a pale green and juicy sleeve, just under the bark, 2. The cambium forms a layer of wood on its inner side each year, the *annual ring*, and bark on its outer side which cracks and expands as the tree grows. The wood is more or less inert—the structural core of the tree, hard and tough unless attacked by fungoid decay. The cambium, only a few millimetres thick, is the vehicle of the tree's circulation system and of its growth, and a cut a fraction of an inch deep round the trunk or a branch, severing the cambium, will kill everything above it if it is not healed at once. A constriction, such as a wire or an old tie round the trunk or branch, will have a similar but slower effect. The cambium has remarkable powers of healing and will creep back over wood exposed by a fallen or cut branch and restore the bark; all good tree pruning relies on helping the cambium to do this and seal the wound before fungi and bacteria begin to rot the exposed wood. The cambium cells also tend to form new shoots when injured or cut; this tendency is very strong in the smaller branches, but almost absent in the trunk.

An understanding of the properties of the cambium is the key to good pruning. In principle, the best pruning is no pruning. A healthy tree in good conditions of soil and situation will do finely without ever being touched by the saw. Much tree surgery, as much human surgery, is done to amuse and gratify the surgeon. Sometimes, however, and especially in towns, careful pruning is a good thing, 3. A large tree in its natural state will tend to kill out its smaller inner branches by overshadowing them; this process of thinning can be helped by pruning as the tree grows. Low branches are often not wanted near roads and paths; trees may grow irregularly through damage by smoke pollution, or by overshadowing by buildings or other trees; in such cases pruning is essential. Much more difficult, and often attempted, is to keep large trees to a modest size by pruning; this is seldom satisfactory except with trees such as plane and lime which stand cutting extremely well, and even with these it is better to do it continuously and in a frankly artificial manner as in the French systems of pleaching, 11, rather than by the desperate periodic lopping which disfigures so many English streets.

It is important to remember the difference between a cut on a branch, leaving a stump, and a cut flush with the trunk. If a stump is left, the branch cambium will make many new shoots; these will grow out rapidly, sometimes 6 or 7 ft. per year. Meanwhile the cambium has great difficulty in creeping over the cut stump and forming new bark; the stump, exposed skywards to the weather, is attacked by fungi and bacteria and begins to rot; the rot spreads down inside the stump into the trunk and can eventually render the whole tree hollow. The stump in a few years bears 20 or 30 branches where one grew before, all attached to the rim of the rotten wound, from which as they gain weight they will break and fall. The lopping, instead of making safe, has made the tree really dangerous, 2 and 6, and nothing can be done at this stage to preserve it. If, however, a *second* cut is made, taking the stump off flush or nearly flush with the trunk, the cambium makes no shoots, or a very few which can be removed easily the following year. A smooth oval wound is left which the cambium will cover neatly, 8 and 9, rolling in from the sides to seal the wood with new bark before rot sets in. A mild antiseptic and waterproof dressing such as plastic bitumen or plain coal tar helps to prevent decay of the exposed wood until the healing is complete; strong disinfectants, such as creosote, may damage the cambium and retard healing.

Careful removal of a few branches in this way can do much to lighten and improve town trees, and undoubtedly helps to prolong their life, 4; the planes in the London squares are excellent examples.

Apart from mutilation by bad pruning, there are of course many other things which make life hard for a town tree. Restricted root space, hard and impervious pavings; draughts caused by the funnelling of wind between buildings; lack of light from overshadowing by buildings; atmospheric pollution (both directly and in cutting off sunlight); poisoning by gas main leaks (a minute trace is enough) and by petrol and salt washed off roads; the drip from copper telephone wires; all these and many more will damage trees, and tend to limit the kinds of trees suitable for town planting to certain robust and resilient species. But of all these troubles the most serious is impervious paving. Many of our great town trees grew to maturity before the invention of tarmacadam and concrete pavings, and with their established root systems they survive better than newly planted trees can ever hope to do unless special efforts are made to set them in grass or in pavings pervious to both rain *and air*, such as gravel, cobbles, or open jointed slabs.

Trees weakened by town conditions become liable to various diseases. In general, these are secondary to the causes of damage quoted above; a healthy tree can withstand most of them. Caterpillars can do serious damage in town conditions where birds and their other natural enemies are few, but healthy trees usually recover rapidly from this kind of defoliation. Probably the most serious menace to urban, and indeed all other trees, is the honey fungus *armillaria mellea*, a brown

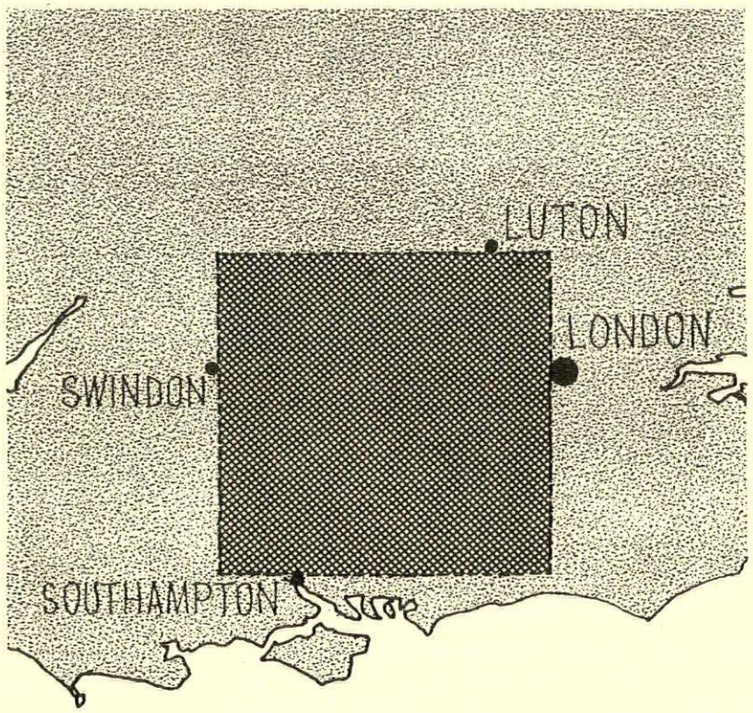
mushroom, sometimes phosphorescent, with a black bootlace-like rhizomorph, which attacks roots and bases of trees, killing them rapidly; it operates most fiercely in the badly drained and deoxygenated soils often found in towns.

Quite as important as the preservation of old trees is the planting of new ones. Above all, we need *large forest trees.* Small trees, however decorative they may be in certain places, are no substitute for big ones. It is specially sad that so much reliance is placed on the pink varieties of the Japanese cherry, garish in flower, gawky and dull-leafed when not, and short-lived as well, 14. Flowering trees should be chosen for form as well as colour, and should come in groups against a background of larger, preferably evergreen, trees against which their flowers can be seen; out amongst the houses on the by-pass they make rather than mitigate subtopia. On the other hand the great forest trees will dominate the most chaotic urban mess and create an urban landscape where the buildings have failed.

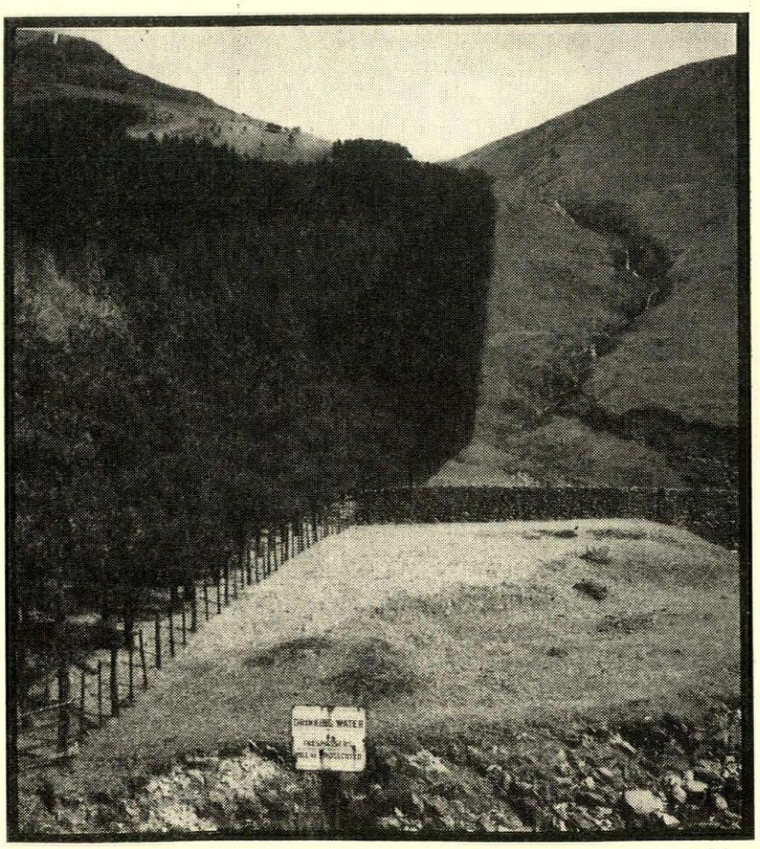
Town trees should be robust in constitution, fairly quick growing, and long-lived. The last two qualities are contradictory: usually quick-growing trees decay early and become dangerous within a century. Best of all are plane, lime and horse chestnut; and I would add three more of specially distinctive character, the tree of heaven (*ailanthus*), the locust or false acacia (*robinia*) and the ginkgo. Even this to my mind impeccable list may be criticized—the plane for distributing its throat-irritating seed hairs, the chestnut and ailanthus for casting their big leaves on roads, and so on; but let no one suggest that the trees are not worth putting up with such minor annoyances. If very quick growth is essential, use the willows, 15, and the poplars; not the Lombardy poplar so much as the black, the white and the large-leaved balsam poplars. Remember, however, that as well as being short-lived, the willows and poplars are extremely thirsty for water, and can dry out (and hence shrink) heavy clay soils to cause shifting of foundations and serious cracking of buildings. This—almost the only way in which buildings can be damaged by trees—does not apply to light non-shrinkable soils, or even seriously to clay soils with other trees than the poplars, the willows and to a lesser extent, the ash.

Above all, what is needed is a plan for planting and maintenance of trees and someone to carry it out. Space must be found in old towns, and left in new ones, for forest trees. The plan must consider trees not only as blots on a paper pattern, but in perspective as part of the scene; as the raw material of a work of art. And as a material trees are vastly different from the rectangular and linear shapes of architecture. Trees vary with the seasons; they absorb light rather than reflect it as buildings do; they can be sunlit from behind, 16, and appear flooded with light against shadowed buildings or other trees, 17; they create enclosures of vast height and size, and yet leave views between their trunks—trees are *always* on pilotis! Trees grow and decay, and the work of landscape art has therefore to be adjusted and amended through centuries of existence. In short, a townscape with trees is a work of great complexity, needing an artist not only for its creation, but for its maintenance as well. It is no fault of the Borough Engineer, that most worthy and hardest worked of all officials, if his tree schemes go awry; what every town needs is a landscape architect, or at least a town verderer, in charge of *all* its trees, whether in park, square or street.

Trees can make an urban landscape: badly selected and planted they can obliterate the countryside. Below left is the equivalent of the grotesque area planned to be covered by new Forestry Commission planting before the end of the century: below right is how most of it will look. Geoffrey Kelly's article opposite ☞ attacks both the end (a left-over from the submarine blockade) and the means of afforestation—the chicken wire, the curt notices, the complete disregard of landscaping.



The dark area represents three million acres—that is equivalent to the area of new planting proposed by the Forestry Commission in the next forty years. In addition there is to be two million acres of regeneration and replanting: a large proportion of this is likely to result in a blanket of conifers too.



Geoffrey S. Kelly

AFFORESTATION v. LANDSCAPE

A REVIEW OF THE AIMS AND METHODS OF THE FORESTRY COMMISSION

Not since our Neolithic ancestors began clearing the indigenous forests to found an agriculture and a landscape which succeeding generations developed into the finest in the world has the face of Britain been threatened with as fundamental a revolution in appearance as the afforestation policy of today will effect if it proceeds unchecked, especially in our mountain areas.

The importance of trees in the composition of any landscape can hardly be exaggerated, and our own familiar lowland pattern of arable and pasture land, laid in a mosaic of fields bounded by hedgerows and an occasional small wood, derives most of its charm from the infinite variety in colour, form, and placing of its trees.

In the north and west, where small-scale lowland intimacy expands into a broader sweep of stone walls and heather-covered mountains, the power of trees to make or mar their setting is absolute, and here, like humanity, they are usually more acceptable singly or in small groups than in massed battalions.

A few Scots pine bent and battered by the winter winds that scour their Highland glen, a stand of sycamores on a Lakeland fell, or a small oak-wood in a far Welsh cwm, can each give profound articulation by their visible conformity to the very different landscapes in which they are set. They provide scale and also an unobtrusive hint of ageless human influence upon backgrounds which might otherwise intimidate through their very emptiness.

Afforestation has exactly the opposite effect: it creates scenic claustrophobia. Like every other industry, it imposes its own distinct pattern upon the landscape which is inescapable. But unlike farming, whose noticeable interference with the background diminishes as its remoteness increases, forestry tends to obtrude increasingly upon the environment the wilder it is. The result, in a tiny island like Britain, where space and solitude have become invaluable to an overstressed population, is liable to be psychologically, as well as scenically, disastrous. We shall be progressively denied mental relaxation and ultimately unable to find spaciousness in our natural surroundings on a scale greater than a municipal park.

To leave the packed cities for a while and look for relaxation in the hills only to find them even more packed with conifers, through which it is as exhausting to struggle as during the rush hour, and whose clamorous patterns dominate the view from every valley and from any summit they have not made inaccessible, is an appalling thought. But it is inevitable if afforestation claims more and more of the highlands of Britain 'in the national interest.' Only the interests of Bedlam could destroy an environment in order to create the wealth to enjoy what has been destroyed.

Moreover, it is not a paying proposition to grow conifers on land, however poor, which is raising sheep. All such land could, as Sir George Stapledon has proved, double or treble its production if a fraction of the capital to be tied up in afforestation were diverted to modern methods of soil and stock improvement.

Strategically, our afforestation policy is equally unrealistic. It is a legacy from 1916, when at the height of the submarine campaign a committee under Sir Roger Acland was set up to examine and report upon means of ensuring a strategic reserve of home-grown timber. Pit-props were a vital necessity forty years ago to enable us to mine the coal upon which depended not only our ships, railways and armament production, but indeed our entire industry. As a result of this report, the Forestry Commission was formed in 1919 and given an afforestation programme of 1,700,000 acres which was intended to provide a three-year strategic reserve by about 1980. This programme (which reached 1,000,000 acres this year) was re-examined in 1943—during another submarine campaign—and a figure three times that of 1916, 5,000,000 acres,* fixed as the desirable objective of the next 50 years. But that was two years before two A-bombs dropped on Hiroshima and Nagasaki finished a six-years global war in as many days, and made the probability of any future major war lasting much longer seem as likely as that we should ever need battleships again. The H-bomb has since made that grimly clear to the extent of closing Scapa Flow, which even as recently as 1943 would have been unthinkable. But the 1916 Acland Report is still the basis of our afforestation policy.

Afforestation is but one casualty of a coal era that is becoming as obsolescent as the age of cheap labour that conceived it. How rapidly we may judge by two statements made recently by one of the principals of the Atomic Energy Research Establishment at Harwell that 'atomic power from Calder Hall when functioning fully will dispense with the 4-5,000,000 tons of coal now required to generate the same amount of electricity,' and 'Denmark's fuel for a year can now be carried in one small aircraft instead of seven ships laden with coal every week.'

Food production is now our greatest concern and will become increasingly so. Consequently we cannot afford to waste one acre on conifers taking at least sixty years to mature when we could produce mutton, lamb, and wool of far greater value at far less cost, leaving our diminished capital resources for investment in more immediately promising and less problematical projects than ensuring supplies of timber for posterity.

The total land area of England, Scotland and Wales is 56,000,000 acres. We have the highest population density in the world, that for England and Wales being 750 to the square mile compared with a world density of 46. We have already almost 4,000,000 acres of productive woods; to add another 3,000,000 is inviting starvation. We just dare not risk taking all that land from food production.

Afforestation, driven largely to the hills because of dearer land values elsewhere, not only occupies the lower and potentially richer land there up to the 1,500 ft. contour, thus denying it to sheep, but it also sterilizes the poorer and higher ground, which should be used as a seasonal food supply (instead of being partially occupied all the year round), and intensively grazed during the summer and autumn. This improves the quality of the grazing, keeps it in good heart, and prevents the spread of the coarse molinia and nardus herbage, which, if not closely cropped, extinguish the valuable fescues and heathers. In autumn the stock, which should include a complement of cattle as well as sheep, is brought down from the high ground to selected sheltered pastures in the valleys which were left in the spring to regenerate, and where silage and perennial grasses are now ready to keep the breeding stock, and any others retained, during the winter.

It is apparent, therefore, that even partial afforestation of our mountainous areas destroys the possibility of economic food production on what is left, which degenerates into subsistence ranching, the grazing progressively deteriorating through lack of intensive cropping during the summer, as sheep are selective

* 2,000,000 acres to be regeneration and replanting of existing woodland, 3,000,000 acres to be new afforestation.

grazers. Scenically this has the dismal effect of turning the beauty of 'black' or heather mountains into the drab uniformity of 'white' nardus or mat-grass mountains. The combination of withered grass slopes above sombre green coniferous slums is as horrible visually as it is unpardonably bad husbandry.

As individuals and as a nation we must now decide whether it is saner to import food or to import timber. Should increased home food production be sacrificed to a long term afforestation programme of doubtful value?

The answer has never been more clearly demonstrated than by the recent impressive exhibit by the Ministry of Agriculture at the Royal Show. The title and theme of the exhibit was 'Meat from the hills' and it provided a devastating indictment of the folly of assuming that our highland areas are more suitable for afforestation than food production. 'The five million acres of upland grazing in England and Wales,' the Ministry hand-out stated, 'provide summer pasture for much of our breeding stock of sheep and cattle. Farmers in many parts of the country, particularly in the north, look to the hills for their main source of raw material for the production of good beef and fat lamb. Hill flocks are the foundation of Britain's sheep industry. They are the reservoir from which, year by year, directly or indirectly, the commercial lowland flocks are renewed.' Yet from this vital 'reservoir,' in Wales alone, at least 800,000 acres are coveted by the Forestry Commission, and indeed must be obtained from the hill farms if the afforestation programme is to reach its new objective.

Such a confliction of national interests shows the confusion behind our State afforestation policy. It does not necessarily mean that there should be no afforestation in the hills, nor that timber, of the right kind, in the right place, in the right amounts, may not be a national asset both scenically and economically. The Forestry Commission, moreover, cannot be blamed for doggedly implementing what is now seen to be an outdated and misguided policy of mass afforestation, as this was largely due to initial misdirection.

The biggest mistake was to embark upon the wholesale coniferization of Britain as if it were a continent. The preposterously excessive scale of this may be better appreciated if compared with official figures recently published by the Coast Woods Trade Extension Bureau, British Columbia, which state that in this famous timber-producing province, about four times the area of Great Britain, '10,051,000 acres of land are considered suitable only for the perpetual cultivation of forests.' Yet that is the home of Pacific Coast hemlock, Douglas fir, Western red cedar and Sitka spruce, and it is the permanent extent of such vast Canadian forests and their famous timber industry supplying world markets which we are trying to emulate in this small island.

If the 1943 afforestation programme were added to our present area of woodland we should have nearly 70 per cent of the figures for British Columbia!

Lesser errors of British afforestation, just as much the result of over emphasis on a single-minded objective, were made in the deliberate creation of large even-aged pure woods of conifers which sound European forestry practice now condemns, and which are rarely found in nature except where extreme conditions of soil poverty, climate, or altitude permit only one species to survive. In the natural forests of British Columbia for instance, the mixture in virgin timber stands is Pacific Coast hemlock about 30 per cent, Douglas fir 24 per cent, Western red cedar about 26 per cent, and Sitka spruce and others 20 per cent.

The familiar Forestry Commission style of planting in large blocks, groups, lines and strips, in collections of pure woods of even-aged conifers, as well as creating eyesores, is extremely vulnerable to insect plagues, disease epidemics, wind-break, snow-break, and fire hazards. Also it is liable to cause soil deterioration through the working out of soil nutrients from lack of humus decomposition and for other reasons. As Lord Bolton states, 'the leaf-fall from conifers does little to maintain soil fertility, and in the case of many soil types it causes definite deterioration. The leaf-fall of broad-leaved trees, on the other hand, has a markedly beneficial effect so far as soil improvement is concerned.'

In order to obtain regular and continuous output, forests must be organised so as to contain woods and timber of such several types and ages as to form a regular succession from which the required periodic supply for marketing may be obtained. This demands the mixed wood, at its best when the mixture is an intimate one of very small units such as single trees or small groups, so that apart from any aesthetic reasons, good silviculture condemns the large even-aged uniform plantations which smear our landscape such as at Thetford Chase in Norfolk and Suffolk. Here is a 36,000-acre eyesore, a vast timber factory as deadly as any industrial squalor of the nineteenth century, and as closely akin in origin. Both stem from the Philistinism of uncontrolled development and a rejection of any objective other than monetary exploitation.

Even more titanic Thetford Chases are inevitable unless we admit that the 1943

Here is the balance sheet for afforestation v. hill farming:

	£
Cost of afforestation of 3,000,000 acres (@ £59 per acre, the present average official figure) ... ... =	177,000,000
Maintenance costs over yield period of 60 years at £3 10s. per acre per annum ... ... =	630,000,000
The total yield at the end of 60 years including the value of all thinnings, etc., could be expected to be worth 2s. 6d. per hoppus foot (although the official figures for 1954 only gave a net return of 1s. 4d.) which at £1,125 per acre of 9,000 hoppus feet ... ... =	3,375,000,000
Deduct maintenance costs ... ... =	630,000,000
∴ net return from investment of £177,000,000 in afforestation over period of 60 years ... ... =	2,745,000,000
Equivalent return from £177,000,000 at 4½ per cent compound interest ... ... =	2,832,000,000
***Net loss* from afforestation** ... ... =	**87,000,000**
But this land raises sheep, the return from which, without any improvement of the land or investment of capital, averages £3 per acre, which over 60 years gives a clear profit of ... ... =	540,000,000
∴ **the *total loss* by afforestation of 3,000,000 acres of our present rough grazing and mountain pasture** ... ... =	**627,000,000**
If, however, £59 per acre were invested in improving the land for agriculture instead of afforestation, the return over a period of 60 years would be as follows:	
Initial investment ... ... =	177,000,000
Repayment completed within 20 years, including interest charges at 4½ per cent. Value of trebled livestock production at, say, £9 per acre over the remaining 40 years ... ... =	1,080,000,000
To this must be added the return from the released initial capital of £177,000,000 at 4½ per cent C.I. over the remaining period of 40 years =	1,026,000,000
∴ **the gross loss through investment in afforestation instead of livestock production is more than £2,000,000,000 over even a minimum yield period of 60 years, which is equivalent to an annual loss of over £33,000,000.**	

programme was more symptomatic of the panic planning of the Age of Anxiety than of clear thinking and amend it accordingly. Having decided our current programme is absurdly ambitious it should be a simple matter to revert to the 1916 objective of 1,700,000 acres as only 1,000,000 acres of this had been planted by this year. Therefore nobody is going to suffer by such a realistic adjustment, as even at the present rate of afforestation it would be 1984 (a rather ominous date) before it could be completed.

A reduction to the 1916 acreage would not, however, automatically ensure satisfactory afforestation schemes in the future. The Forestry Commission is too deeply committed to its coniferous crusade regardless of considerations other than the limit of its annual Parliamentary grant—a sum voted to cover the mounting losses of the Commission, which in the latest published figures, those for 1954, were £7,850,000—a 10 per cent increase on 1953. Apart therefore from the limitations of the Parliamentary grant the Forestry Commission is almost independent, as it is not under the full direction and control of a Ministry. It is also chronically insolvent, and is consequently driven to constant propaganda, boosting its future expectations in order to persuade the taxpayer to subsidize its present losses.

The most immediate and satisfactory amendment would seem to be that the present virtually independent status of the Forestry Commission, by which it can browbeat local agricultural interests and even Whitehall Ministries into agreeing to unsuitable afforestation schemes, should go. The Forestry Commission should become a department of the Ministry of Agriculture and Fisheries, divested of its present dictatorial powers of requisition. It must also curb its partiality for purchase by infiltration, which often prevents the potential young farmer buying and improving hill farms back to their once prosperous conditions but now almost derelict from neglect and old-fashioned methods (about the only way he can start on his own), because the Forestry Commission's agents acquire these farms from their aged owners before they come on the open market.

By a recent redeployment of District Officers it is even possible to find their offices in buildings serving as local Headquarters of the NFU. These and similar infiltration tactics leave the outsider no chance, and are one of the reasons why unsuitable afforestation schemes may reach an advanced stage with everything 'fixed between friends' before the public has a chance to protest. Under the more comprehensive policies and realistic control of the Ministry of Agriculture, it should not be difficult to eradicate such practices and to integrate afforestation completely with agriculture instead of forcing it to compete by fair means or foul as at present.

It is difficult to see why this was not done from the beginning instead of setting up an independent Forestry Commission. One cannot believe, for example, that setting up a Schools Commission as a panic building measure in 1945 would have achieved anything but chaos. Especially if it had been so powerful as to be practically independent of the Ministry of Education, absolutely beyond the control of the Local Education Authorities, and vested with arbitrary and comprehensive powers to requisition sites for schools, including those already being used for educational purposes.

Possibly the very similarity provides the answer. The effective organization by which the Ministry of Education leads in research and methods of school building could well be used as a pattern for the treatment of afforestation within the Ministry of Agriculture, which could augment its architects' department with an afforestation team as enthusiastic and effective as the schools design and development team at the Ministry of Education. Such a team could work in close conjunction with the Agricultural Land Service, the National Agricultural Advisory Service, and all other branches of the Ministry. They would also be able to advise County Agricultural Officers and to work in liaison with County Planning Offices, as well as being able to help private landowners. They could write a series of afforestation planning bulletins similar in scope to the Ministry of Education building bulletins, and assist as necessary in preparing forestry pamphlets.

Another stage in our re-appraisal is to decide that even apart from agriculture or aesthetics, our mountains have far greater recreational value, both for our own population and as a dollar attraction, than their monetary worth as timber factories. From these basic assessments it should be possible to formulate a realistic afforestation policy which, both in broad outline and in essential details, could be planned as an integral and valuable part of our civilization; not merely an anachronistic adjunct, an expensive hobby masquerading as an economic necessity.

Although relegating the Forestry Commission to the control of the Ministry of Agriculture and Fisheries is most desirable, it is even more essential to put all major afforestation schemes under the control of the Town and Country Planning Act, like any other types of large-scale industrial development. This should be done straight away. It would stop the present farcical situation in which the National Parks, areas designated as such 'because of their outstanding natural beauty,' are being irretrievably ruined by incongruous afforestation. As for instance in Snowdonia where in reply to protests about one scheme the Welsh office of the Ministry of Housing and Local Government responsible for protecting the National Parks stated 'proposals for afforestation by the Forestry Commission affecting land in the Snowdonia National Park are not submitted for the Department's approval or observations.' Why not?

In order to save what is left of the National Parks from final ruin we must stop immediately all further afforestation in them until each has been competently surveyed and any areas considered suitable for afforestation designated, subject always to the overriding considerations of agriculture and scenic quality.

There is no reason why the changes recommended should not greatly benefit all interests, including those of the Forestry Commission, which, if it were relieved of the fantastic pressure of the 5,000,000-acre programme and suitably reorientated, could devote itself to becoming not only an economic asset by carrying out a reduced programme, and by advising upon the tending and replanting of our present woodlands and their conversion to sounder production cycles and yield programmes (as for instance in the recently issued report of the Committee on Hedgerow and Farm Timber, which is wholly admirable), but by the properly planned planting of areas requiring wooded relief afforestation could exercise a most welcome influence upon our landscape instead of a threatening menace as at present. Indeed, it might almost become an 'amenity' which, to use the Forestry Commission's own description, 'evolves from a compromise between pleasure to the eye and an appreciation of the right use of land; amenity follows not from doing what looks best but from doing what is required in the way that looks best.'

To achieve this transformation, however, will require more than a mere reduction in acreage to be planted—it demands an entire change in outlook upon the part of all connected with forestry. It would be worth the effort, for the result could be a new landscape charter for Britain.

It would be startling and effective. There would be no more jerry-planting, no more Sitka slums, no ghastly firebreaks. No granting a local junior official a sum of money with which to plant as much land as possible. Wire fences could be unobtrusively sited, planting boundaries contoured properly, species chosen for their fitness for all purposes, not merely for the sole purpose of soil exploitation. To quote Lord Bolton again: 'There is no soil type capable of growing a profitable crop of conifers which is not also capable of maintaining healthy broad-leaved trees.' The deciduous tree might come back into its proper heritage.

There are many areas suitable for birch, and others for poplar (the latter yields even quicker returns than Sitka), that would be enhanced by such deciduous planting, where coniferous intrusion could be disastrous. Foresters given sufficient training and guidance in the elements of landscape composition would in time appreciate this. They would have learned that there are basic and simple components which give quality to any landscape and by which it can always be analyzed aesthetically. These can be grouped under about half a dozen headings such as scale, texture, colour, variety, pattern, and character. In consequence the principal components of outstanding beauty or appeal in any landscape may be examined and the effect of any proposals to alter these analyzed and assessed reasonably accurately. Which, of course, makes nonsense of the contention often heard that afforestation aesthetics, or 'conifers versus deciduous' are solely matters of individual taste about which there are many differing opinions—differences of opinion there may be, but by reference to objective scenic analysis they can be impartially tested and proved right or wrong. It might help to give a series of simple afforestation-project test-questions for the guidance of laymen on planning committees. The first group should be economic, as we are a commercial nation. What is the present use of the land? If it is not being used for food production, why not? If it is incapable of food production, could it be made productive by expending the same amount on it as afforestation would cost? Has the district considerable scenic attraction? For natives only? For dollar tourists? Will afforestation enhance the amenities? Which really means will large plantations of trees improve the appearance of the district? Does the Planning Officer approve? Has he applied the 'basic six' test? These are the six questions mentioned above, and it might help to demonstrate their application by using a recent specific instance in a National Park—where, of course, they should not have been required, as the stage of having to apply them should never have been reached. The land was in a particularly lovely valley, and was being used for agriculture. It carried about 200 sheep and was capable of improved production, but afforestation destroyed any possibility of improvement above the tree line, and indeed threatens the rest of the valley with dereliction. The Forestry Commission were asked to release this land so that it might return to agricultural use, and they refused. This is a text-book example of the 'mass application of misunderstood principles,' not only by officials but by specialists, some of whom (rather surprisingly) act as advisers to both critics and criticized, and (even more surprisingly) do so without apparent qualms, professional or ethical.

The reasons for opposition to coniferous afforestation in this specific case, which apart from being a violation of the general principles of the National Parks Act was in addition, of course, bad husbandry, were easily adduced from the 'basic six' test. These gave the following results in simple non-technical terms.

1. *Scale.* The scale of the valley, at present set by small mixed woods of deciduous trees, merging into an upland of heather, will be destroyed, and the mountain background dwarfed.

2. *Texture.* The existing soft and scumbled texture of both middle distance and background will be replaced by harsh regularity of conifer spikes.

3. *Colour.* The colour, at present mainly in the subtle brown and neutral ranges with exactly the right amount of chroma relief in the purple-reds of the heather and the contrasting green-yellows of deciduous trees and scrub, will be totally unbalanced by coniferous masses in the green and blue-green ranges.

4. *Variety.* The seasonal variation which is such a marked feature of this valley due to the heather, grasses and deciduous trees, will be lost.

5. *Character.* The character of unspoilt grandeur and remoteness from urban activities, now so valuable a feature, will be spoiled by the congested mechanical layout and all the ancillary activities of commercial plantation.

6. *Pattern.* The general landscape pattern will be violently disrupted and this will be intensified by the Forestry Commission's proposals to introduce a variety of planting areas (as distinct from mixed plantations) the result of which will be to produce a number of large-scale blotches which will not merge even with a distant background and will always obtrude upon the foreground and middle distances.

Large-scale camouflage could be afforestation's greatest opportunity to cover mining operations, spoil heaps, quarries and waste land, service camps and dumps. The provision of screens for camping and caravan sites, and refuse-disposal tips, and replanting of scarred areas after open-cast coal or ore extraction. The chance to make industrial derelict areas bloom if not with roses at least with poplars. None of these chances has yet been taken. There is not one instance—in forty years and a million acres—of a Commission plantation sensibly used and sensitively sited to achieve anything more than the extraction of the utmost fertility from the soil, leaving it more impoverished than if it had never been coniferized.

The sad list could be continued with the lesser opportunities equally bungled: the awful trim, the fire notices and wire fences which, with the fire-control towers and their network of telephone wires, destroy any illusion of remoteness other than that of a concentration camp; the unplanned scars, visible across several counties, with which the drainage ditches tattoo our finest hills and mountains, preparatory to final immolation in coniferous mourning; the pathetic attempts to 'provide amenity' by planting the most incongruous borders of exotics to the Sitka slums, like grafting peacock feathers on a crow; the provision of 'view-points,' like peep-holes on the pier at 'What the butler saw.'

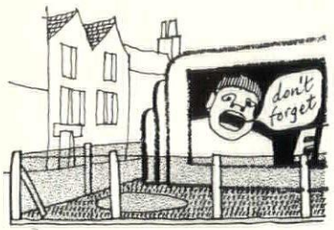
These mistakes stem from a fundamental ignorance of, and an occupational hostility to, the principles of design. They will not unfortunately be eradicated just by sending foresters on landscape design courses, however desirable this might seem, any more than jerry builders could be transformed into rivals to Mies or Corb, by a pep course at the AA.

The conclusions seem inescapable. Design the schemes for the foresters to plant, having first settled an acceptable national plan for state afforestation which would integrate it with agriculture, and ensure that it is planned upon a realistic basis to conform not only with the changed international, strategic, and economic conditions of the Atomic age, but with the altered national values which automation, and consequently more leisure, will give to every claim upon open space in our already over-crowded countryside.

This article has ventured to suggest the outline of a practicable way in which this could be done. The detailed execution could be extremely flexible. In many cases individual schemes, which it must be remembered would have to include roads and drainage layout, and the design and siting of forestry buildings, houses, saw mills, pulp mills, etc., could be prepared by local architects and landscape architects, subject to the approval of the headquarters team at the Ministry of Agriculture, in much the same way as private and local authority architects now submit their school designs to the Ministry of Education for approval. All projects of any significance should also automatically be referred to the county planning authorities.

Whatever the changes in organization and administrative procedure are to be, they must be adopted urgently before the present intentions for wholesale afforestation of our hill and mountain areas are put into effect. Otherwise we shall find that our bureaucratic Dumbiedykes have debased into coniferous officialese such remnants of dignity and grandeur as are still possessed by what was once the loveliest landscape in the world.

advertising



Caution: not breaking open the town.

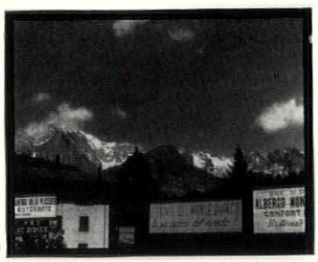
Metropolis	Clinging to buildings, ***2;*** or to the street itself, ***1.***
Town	Tailored to the building, ***3*** or ***4;*** or small and neat, ***5*** and ***6***. Never a hole in the town, ***a.*** Reduced in scale for country towns, ***7*** and ***8.***
Arcadia	None—it shatters the illusion.
Country	Very little in villages, to village scale, ***9*** and ***10*** overleaf. None in open country.
Wild	Never in any circumstances, ***b.***

In open country and the wild advertising is alien anyway because it is an urban import, in arcadia it does more than simply add a disturbing element—it strikes at the heart of the suburban illusion. But towns are enriched, not spoilt, by advertising if it is fitted into the



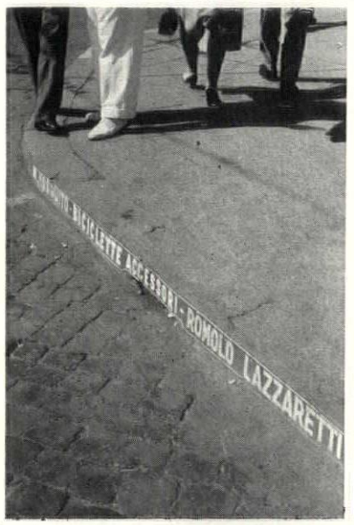
a

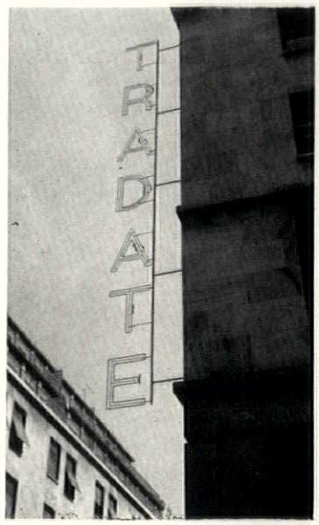
urban pattern. In a ***1, 2, 3***
metropolis, this means jamming the ad. under the sidewalk, 1, *or having it clinging to the buildings,* 2, *fitting in where it can because all the big spaces have been used already. In a town the pressure on*



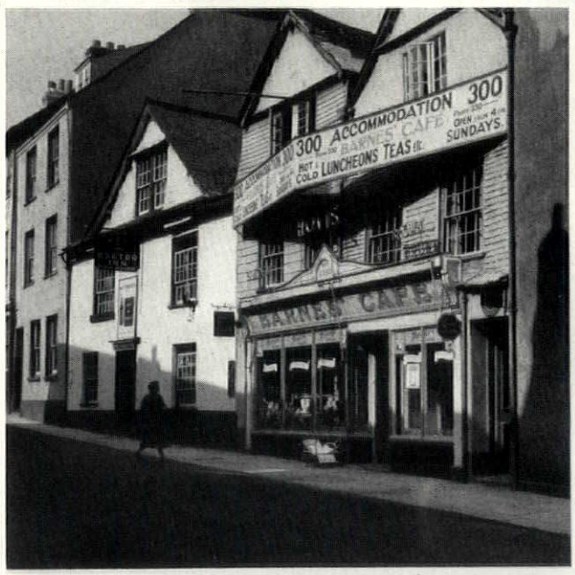
b

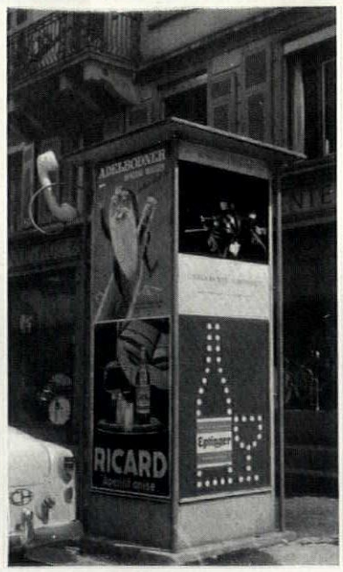
space is less but the need for fitting into the pattern remains the same—whether it is painted on a wall, 3, *imaginatively arranged* ***4, 5, 6***
to fit the facade, 4, *or kept small and pasted on kiosks,* 5 *and* 6 *(which the eye then reads as points of colour in the street).* 5 *is a phone box as well—thus saving a little more space, making one more object do two jobs. The typical English way,* a, *is to find or make a hole in the town, dump an ill-shaped advertisement in it to make a thumping big interruption and then finally break the urban unity* ***7, 8***

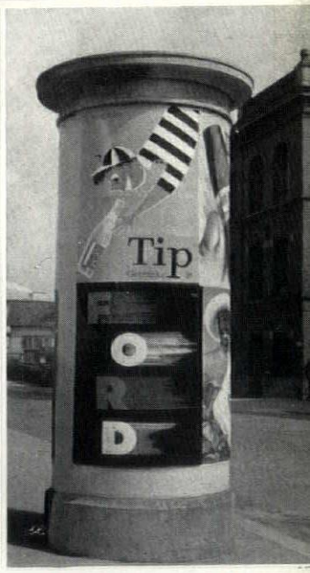


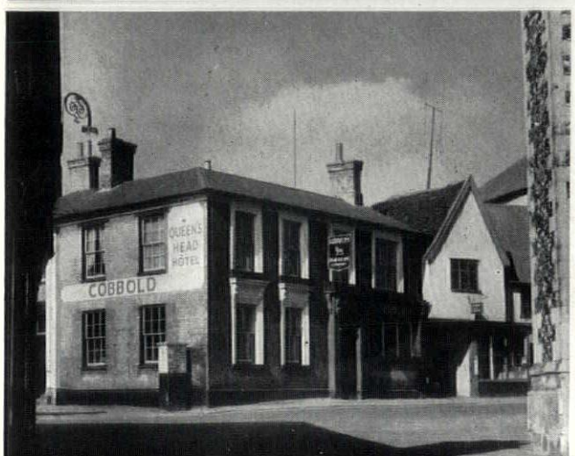










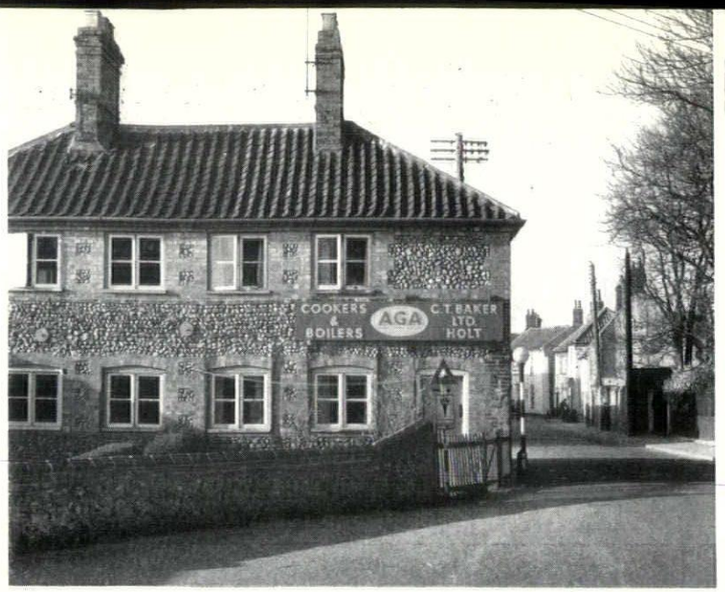


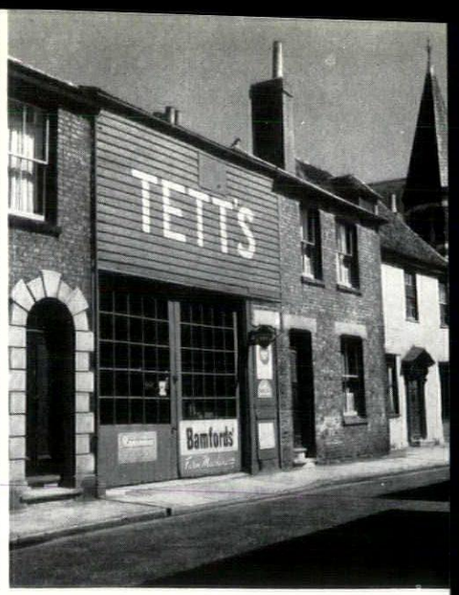


advertising cont.

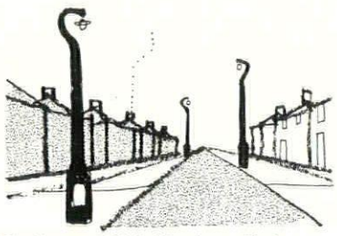
by adding suburban planting in front. In smaller towns, the touch needs to be subtler—advertising in country towns needs to be less strident, more personal, more carefully fitted to the building, 7 and 8, on previous page and villages can stand a very little advertising, 9 and 10, which should be an indistinguishable part of the texture of the building: as 10 is by design and 9 by accident combined with brilliant positioning.

key: 1, Rome. 2, Turin. 3, Morestel, near Grenoble. 4, Tewkesbury, Glos. 5, and 6, Zürich. 7, Stowmarket, Suffolk. 8, Winsford, Cheshire. 9, Holt, Norfolk. 10, Sandwich, Kent. a, Northwich. b, Little St. Bernard Pass. **9, 10**





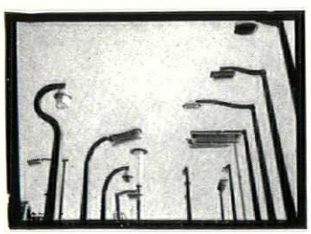
street lighting



Caution: not thick obtrusive verticals.

Metropolis	wall brackets, ***1.***
Town	wall brackets, ***2*** and ***3;*** or thin standards, ***4-7.*** Never thick and clumsy, ***a.***
Arcadia	small scale and light, ***8*** and ***9;*** not clumsy, ***b.***
Country	in the villages indirect lighting, ***10;*** or intermittent points of light, ***11.*** None in open country.
Wild	none.

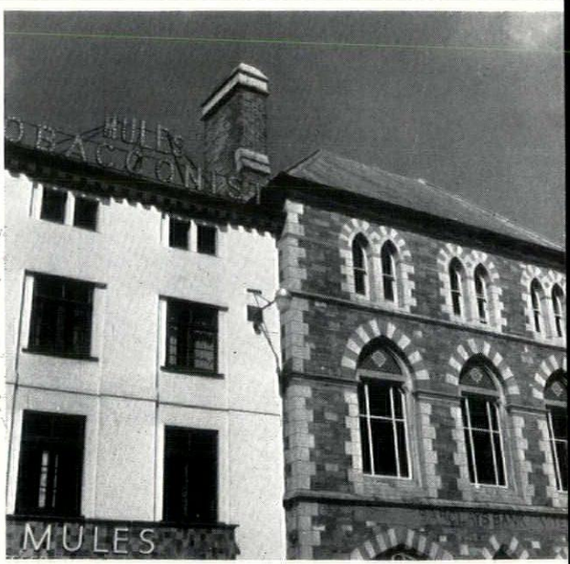
Light poles are interruptions, unwanted verticals of the worst sort: in villages or in open country continuous lighting is itself an interruption. It is not much use cleaning up the design if the pole remains in the view like a sore thumb. Hence the British crop of 'improved' concrete standards, C.O.I.D. approved or not, a, will still do incalculable harm. If the lamps will fit on buildings or walls, put them there, 1-3: even inept fittings like 3 do far less harm than the standards would. In 1, the wall fittings are well hidden, forced not by civic conscience but by economic pressure—there just isn't any **1, 2**

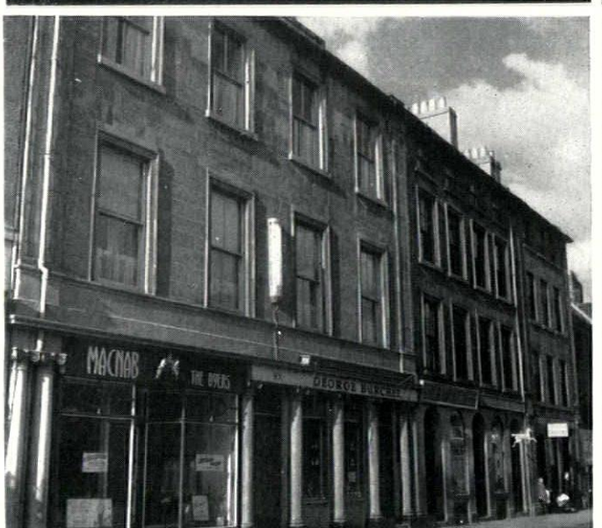


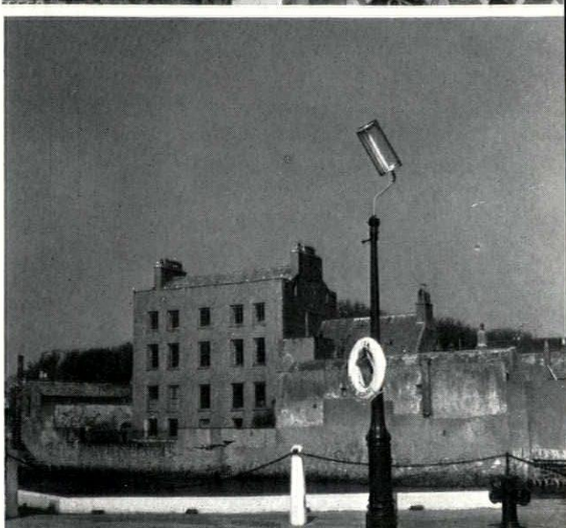
a

room in the street for lamp standards, which is as it should be in a metropolis. The City of London is a splendid example of not wasting land because there's a lot of **3, 4**









street lighting cont.

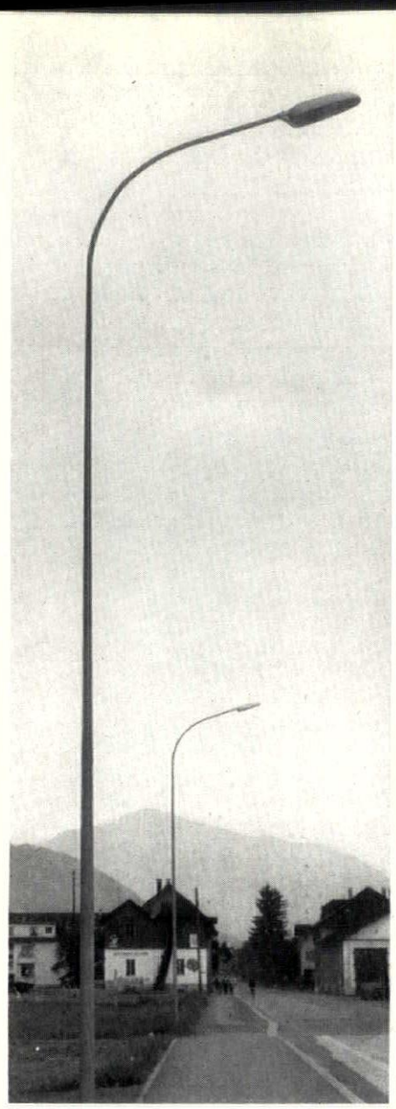
£ s. d. at stake; in fact all our land is precious—even if the only high valuation we are prepared to put on countryside is in terms of tourists' $'s. If there have to be lamp standards in a town, keep them crisp and small, 4, *or make them thin—*really *thin,* 5-7. *These three are near Zürich—there is hardly a bad lamp standard in Switzerland—*5 *and* 7 *are steel but* 6 *is concrete; and they are all about* 25 *ft. high. We suggest a short compulsory Swiss visit for all British lighting engineers as soon as possible. For the arcadian illusion small scale standards are a necessity —whether new,* 8, *or old,* 9. *If fluorescent fittings are essential the old standards can be converted to*

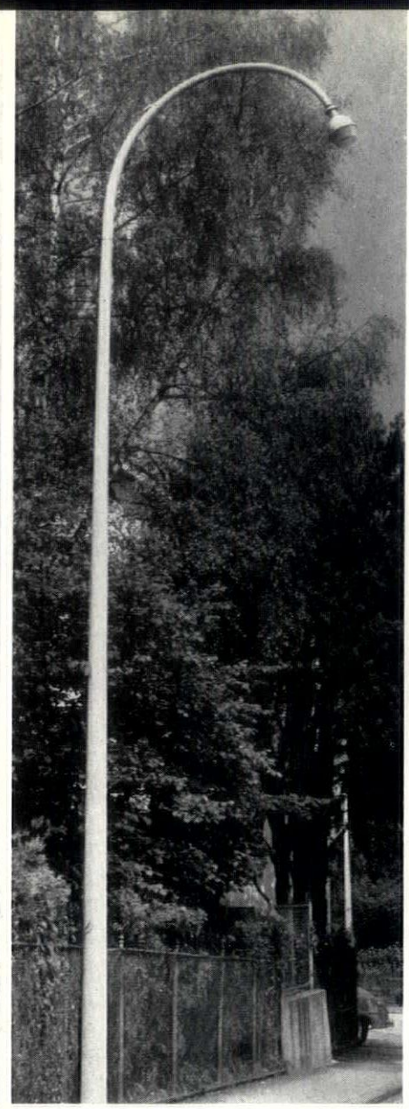


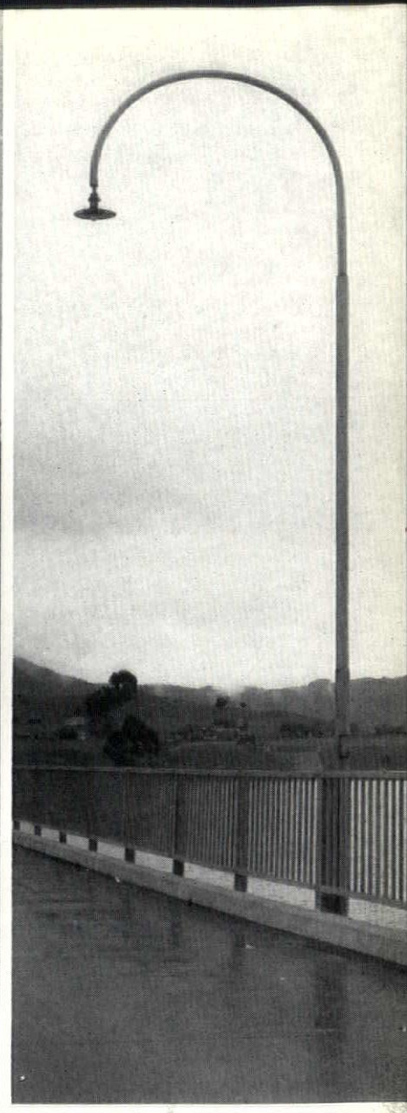
b

take them, 9 *inset, instead of putting up ghastly and costly replacements, b (for example* **5, 6, 7** *Marylebone's shocking beating-up of St. John's Wood with concrete truncheons). Village lighting needn't even be continuous: it can be indirect lighting or floodlighting of a few objects—typified by the indirect and most un-byelaw lighting at Turnhouse Airport,* 10. *The pattern, of lit window panes and home-made door lights,* 11, *will provide the rest. If you want the pleasures of living in a village, accept the village ways—for the sake of your rates, if no more worthy considerations will move you.*

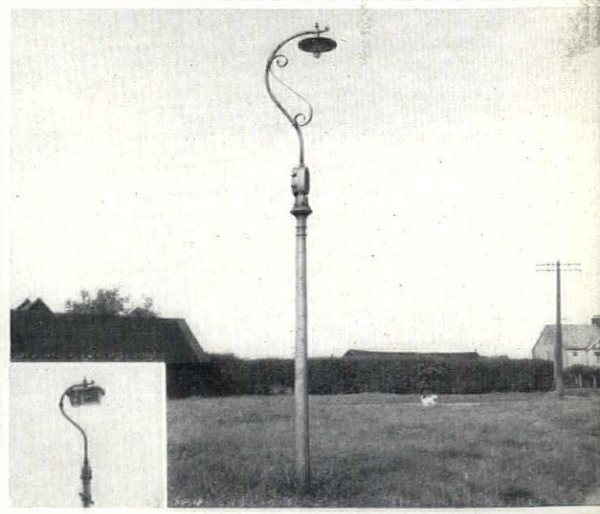
key
1. *Lower Thames Street, London.* **8, 9**
2. *Launceston.*
3. *Haddington.*
4. *Castletown, IOM.*
5. *Zug.*
6. *Zürich.*
7. *Einsiedeln.*
8. *Harlow New Town.*
9. *St. Albans; inset, Barnet.*
10. *Turnhouse Aicport.*
11. *Bradenstoke-cum-Clack, Wilts.*
a. Folkestone.
b. St. Helier estate, Morden.

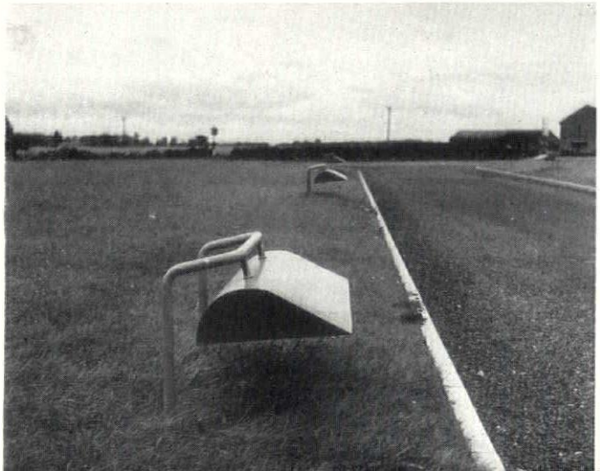








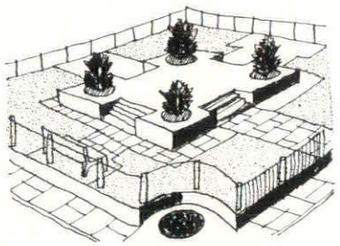






10, 11

parks



Caution: don't municipalize.

Metropolis	Oasis, sealed off from traffic, ***1-3;*** or lung, as big and as unrestricted as possible, ***4*** and ***5.*** Never pathetic fragments in the traffic stream, ***a,*** or Municipal Places of Enjoyment.
Town	
Arcadia	whole landscape should be a park, ***6*** and ***7.***
Country	greens and commons provide all the space needed, ***8;*** don't tamper with them, ***b.***
Wild	only in the sense of National Parks

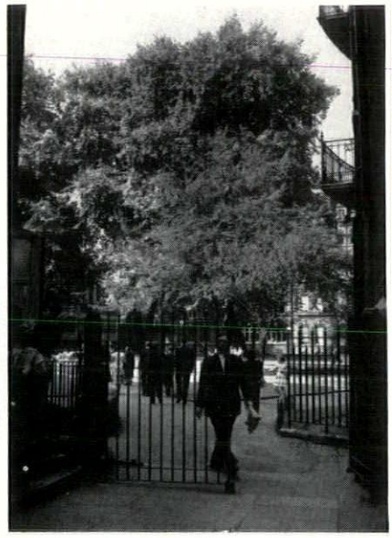
Public parks in towns must do a job, viz. provide relaxation, give the greatest possible contrast with the flurry around. Hence they should either be big enough to lose oneself in—a lung—or, if small, sufficiently sealed off from traffic to afford respite—an oasis. It is useless to put a few seats and some municipal gardening on an odd bit of ground next to a main road, a. All the flurry is still there, both directly through the traffic roaring by, and indirectly through the flurry of the misplaced suburban-garden landscaping. The lung must be unrestricted, as open as possible and as rural-seeming as possible, 4 ***1, 2, 3***

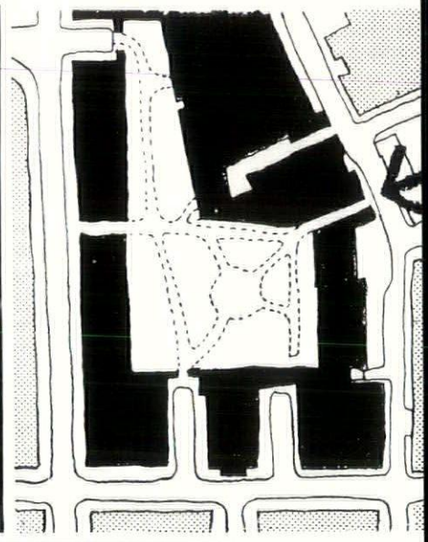


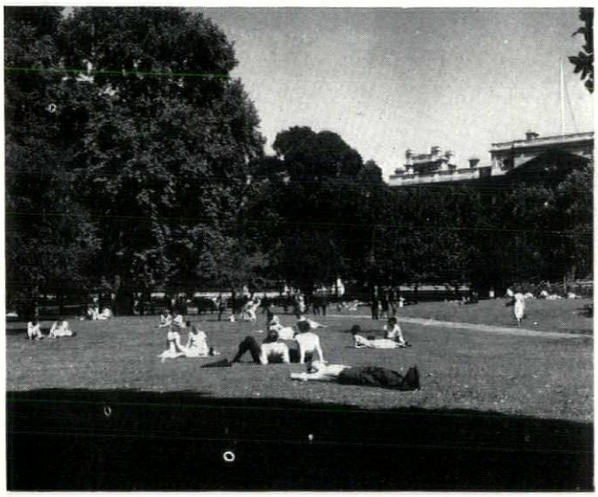
a

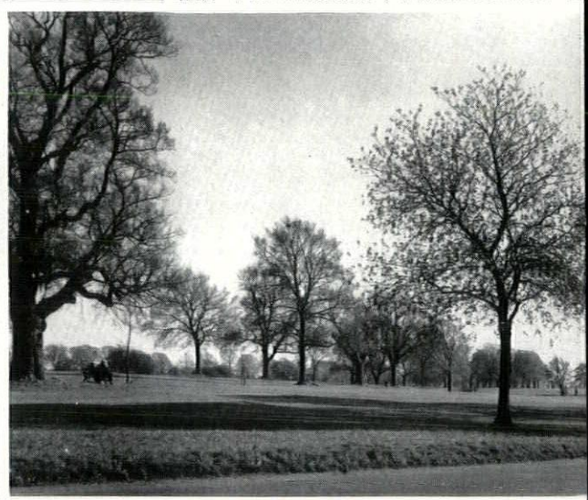
and 5. *The oasis must be hemmed in by buildings:* 1–3 *show St. George's Fields, an oasis in one of the most oppressive bits of* 1890-*brick Mayfair. From outside there are only four entrances, slits in a wall of buildings, arrowed in the photograph,* 1, *and on the plan,* 3. ***4, 5***
Inside you are insulated from surrounding traffic, 2, *in a small shady world of your own.*
In arcadia the whole landscape is a park, 6 *and* 7, *its ideal is a pine wood dotted with houses and seamed with a network of intricate footpaths. That is the illusion and everything should conform to it: roads, verges, filling stations, telephone boxes and car parks. They need not to be olde worlde, but they must be small scale and prepared to lose themselves in trees.*
The village park is the village green, and it doesn't need tarting up. Here is a green as it should ***6, 7***

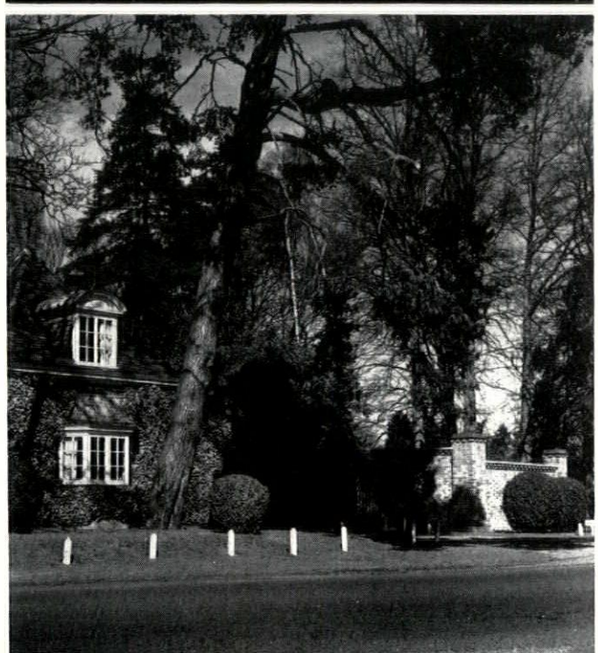
















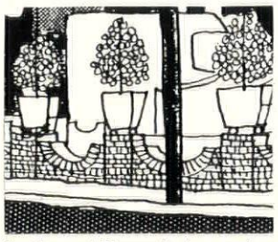
b

be, 8, not outstanding but shown because the rot has started in one corner of it, b, with suburban trim and flower beds.

key: 1-3, St. George's Fields, Mayfair. 4, St. James's Park. 5, Durdham Down, Bristol. 6, Cranbourn, Berks. 7, Sunningdale, Surrey. 8, and b, Wooburn Green, Bucks. a, Brewood, Staffs. **8**



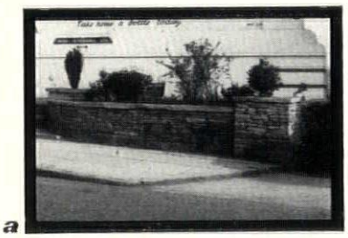
ornamental planting



Caution: not like a suburban garden

Metropolis Town	Points of colour only, ***1,*** inflections, not interruptions; and not treated in a suburban way, ***a.***
Arcadia	The whole landscape is planted: park-like, ***2,*** or lush and jungly, ***3.***
Country	An individual affair: front gardens, ***4.***
Wild	Not at any price.

Planting in the ornamental sense, belongs to gardens, not to the landscape as a whole; it is private, not public. In arcadia, where the whole landscape is an extension of a garden, planting is not only welcome but obligatory: in 2, the planting turns the landscape into a



1, 2

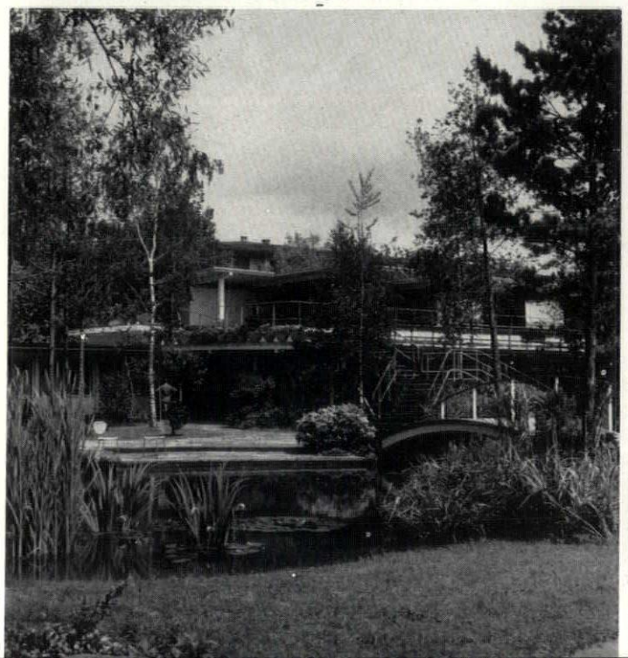
a

miniature park: in 3, its planting creates a 'suburban jungle' in the true sense of the phrase. One corresponds to the trim half-rural part of arcadia, the other to the closer-built and hence closer-landscaped suburban fairyland. In the country planting is a matter of individual choice: it should stay in the private front gardens from which it originally came, 4. In the towns it is only admissible if it reads in the street pattern as a point of colour, 1, not as a garden. The eye must be able to take in the planting without seeing it as an interruption; hence window boxes or tubs of flowers.

key: 1, Rothenburg, near Lucerne. 2, Blaise Hamlet. 3, Strandbad Tiefenbrunnen, Zürich. 4, Parracombe, Devon. a, Northwich. **3, 4**

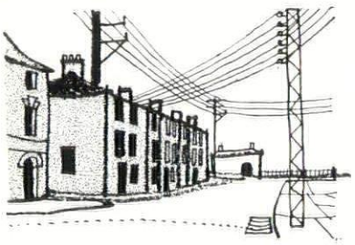








wire



Caution: not in the main street

Metropolis	no problem: wire is underground anyway.
Town	if wire can't be put underground, run it around back lanes or even under the eaves, ***2.*** This leaves town centres free, ***1,*** and village greens unspoilt, ***3*** and ***4.*** In open country canalize wire along main roads, ***5,*** and then camouflage it behind trees, ***6.*** The result is the unity of the street regained, ***7;*** the alternative is disintegration of the street, ***a.***
Arcadia	
Country	
Wild	no wire.

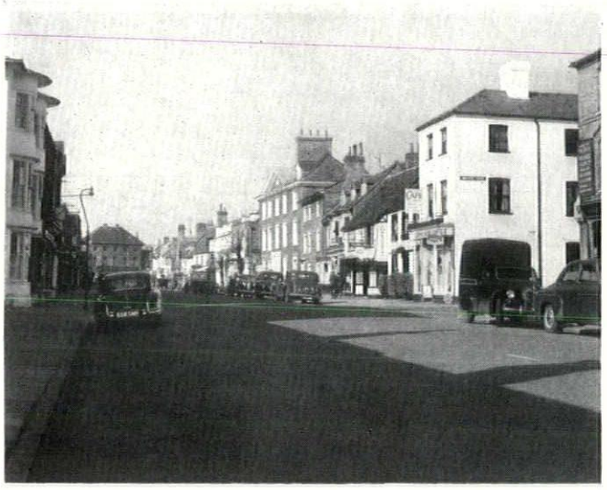
This is a page of expedients. The price of having Marlow High Street free from mess, 1, *is a tangle of wire in the back alleys. It is a fair compromise, if there isn't enough money to do the proper thing: what normally happens is no compromise at all,* a. *In the case of West Burton, in the North Riding, a careful scheme, shown on the plan,* 4, *was produced by a co-operative electricity board at the original prompting of the planning authority. Here the wire is carried around the back with the* ***1, 2*** *vital section at the neck of the green taken underground, leaving the*

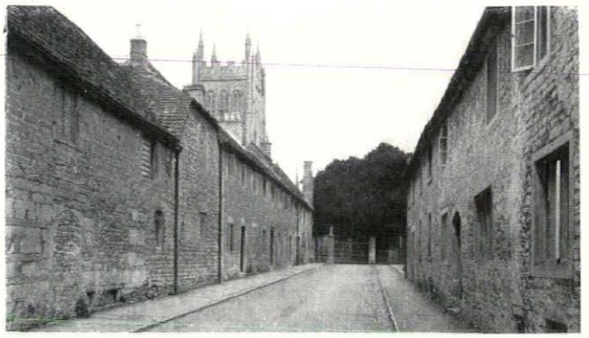


a

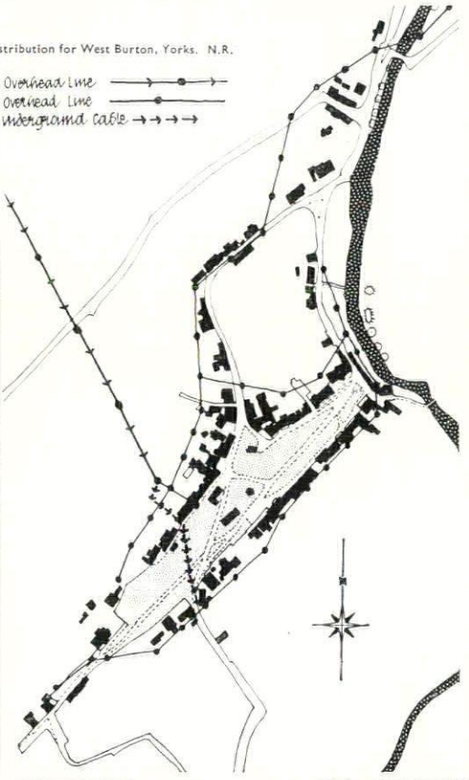
central space, 3, *unimpaired. In* 2 *the electric cables run under the eaves of the terrace on the right—another example to prove that local authorities can co-operate if* ***3, 4*** *the electricity board isn't boneheaded* and (*a big qualification*) *if the planner has enough guts to take the first steps and persist until he gets some results.*

In open country there is a different sort of expedient, 5 *and* 6. *It is frankly second best to putting wires underground: equally it is far better than having them aimlessly straddling the countryside. The reason why telegraph poles are less obtrusive than most other interruptions is that they indicate a comprehensible line across the country—that of a main road—* ***5, 6***













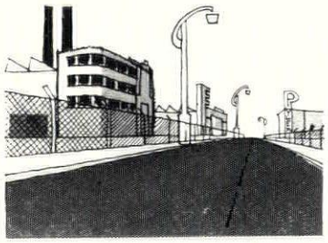
wire cont.

and a line which on the whole respects the contours. Any sort of wire canalized along a road in this way, 5, *does less damage than slashing across open country. In fact, most of the effect on the road-user can be removed by using roadside tree planting as the French do and then siting the poles and wires outside the line of the trees,* 6. *We have become so punch drunk with wire, poles, lamp standards and all the other vertical interruptions that it is worth showing the effect of just one street without them—at Ludlow,* 7, *where the wires have just recently been put underground. It shows clearly the regained enclosure—wall—floor—wall—which is the basis of any urban effect and which would be impossible with a twittering skyline.*

key: 1, *Marlow, Bucks.* 2, *Mells, Som.* 3, and 4, *West Burton, Yorks., N.R.* 5, *near Stapleford Tawney, Essex.* 6, *near Malines, Belgium.* 7, *Ludlow.* **7**



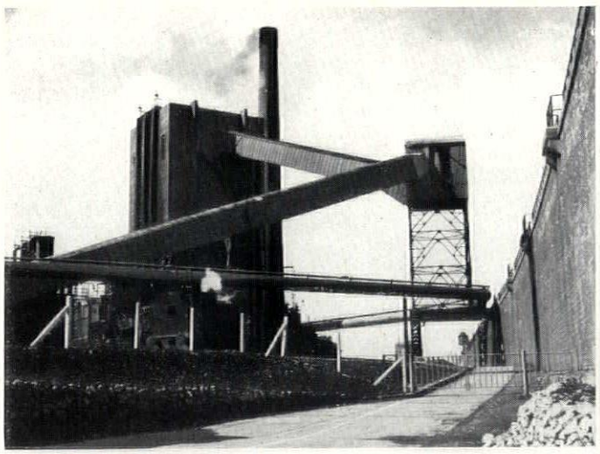
industry



Caution: not isolated.

Metropolis	ground rents force it into the pattern.
Town	accept industrial forms, ***1.*** Work them into pattern of town if possible, ***2*** and ***3.***
Suburb	small clean factories can fit the pattern, ***4.*** Don't isolate them in an industrial desert, ***a.*** overleaf.
Country	agriculture is the country's industry and may look industrial, ***5-7*** overleaf. If big alien industry is inevitable it makes its own rules, ***9*** and ***10*** overleaf.
Wild	no industry.

Don't be afraid of industry; exploit it. Its forms may be the only exciting component of the landscape for miles, 1. *Wherever possible they should be worked into the urban pattern, not sealed off separately in zones. Zoning for zoning's sake—one of the mainstays of present-day planning practice—means quite literally evisceration to the average town: it takes away its guts. In a metropolis industry inevitably fits into the pattern: there's no room for an isolated 'industrial zone' in the City of* **1, 2** *London. In a town, big and small industry can be adapted to the pattern,* 2 *and* 3, *and one of the most useful techniques is the flyover like the coal chutes for Portsmouth Power Station,* 2: *the tower of Portsmouth Cathedral at the end of the street makes its point with more force, not less, for having such an uncompromising frame. If the industrial area is enormous or* **3, 4**



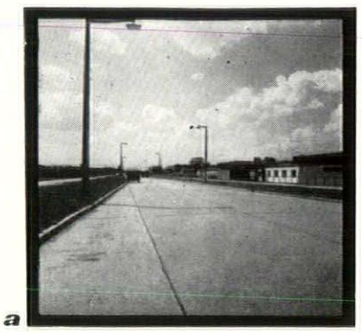






[*continued overleaf*

has unpleasant effects then keep it separate: but in fact most of our factories are now small and clean. The real industrial offenders are the huge plants whose fumes and smoke are carried for miles—like Thamesside cement works or I.C.I. at Billingham—and the real solution is suppression at the source. In arcadia small factories carefully dovetailed need not destroy the illusion, 4, *over-*



a

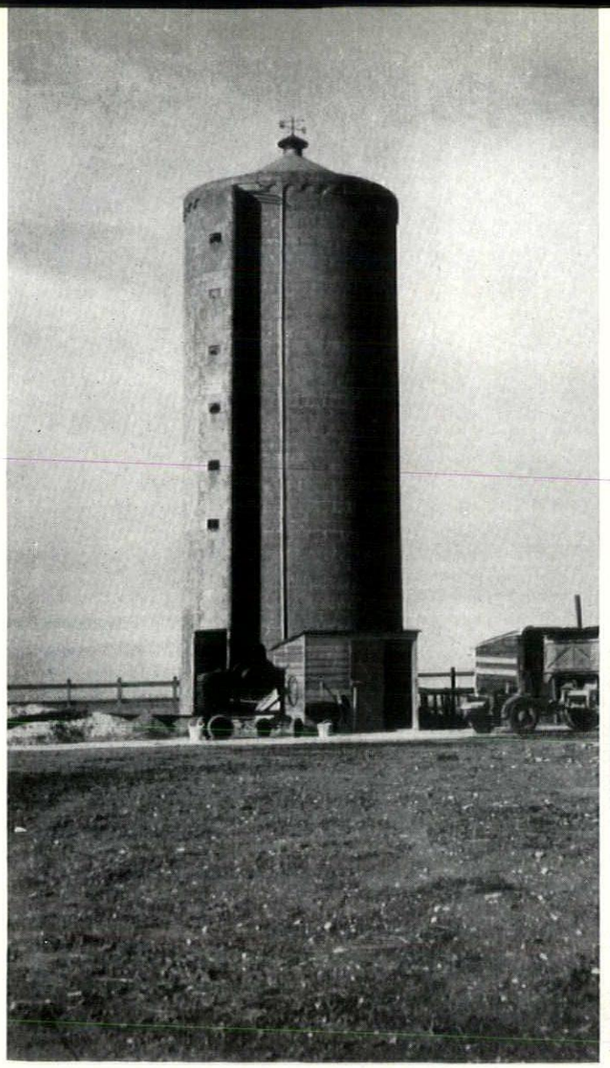
leaf. Put wire round the factory, or a concrete footpath and grass verges between factory and house, and the whole thing is burst open again: make a 'factory estate' and the same thing happens, a. *The country has its own legitimate industry—agriculture, and modern agriculture is mechanized, so express the mechanization frankly,* 5–7. *In fact agricultural buildings are among the few places where honest-to-god forms haven't been 'toned down': it is industry with its mess and its wire and its genteel office accommodation that needs to re-learn its own game from the farmers. Big industry in the countryside is bound to be an interruption if, like coal mines or cement works, it is inevitable, it must be accepted: what it does is to replace country by a separate category—the industrial area—with its own rules: that is replacing an uninterrupted pattern with a set of regular compact interruptions,* 9. *The basic rule is to make interruptions as clean and as positive as possible,* 8 *and* 10, *and as close-built as possible, with real countryside starting a few yards away from one factory and stretching right up to the next. Northern France can teach us a lot about this sort of pattern: in Britain we are swamping the country in between by sprawling housing and the misuse of derelict land.*

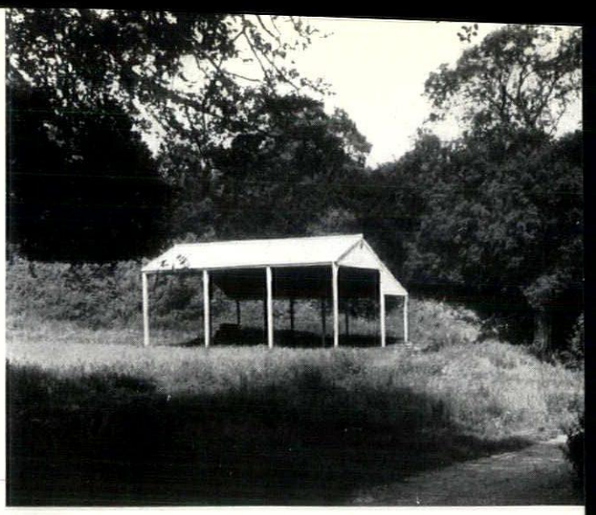
5 **6** / **7**

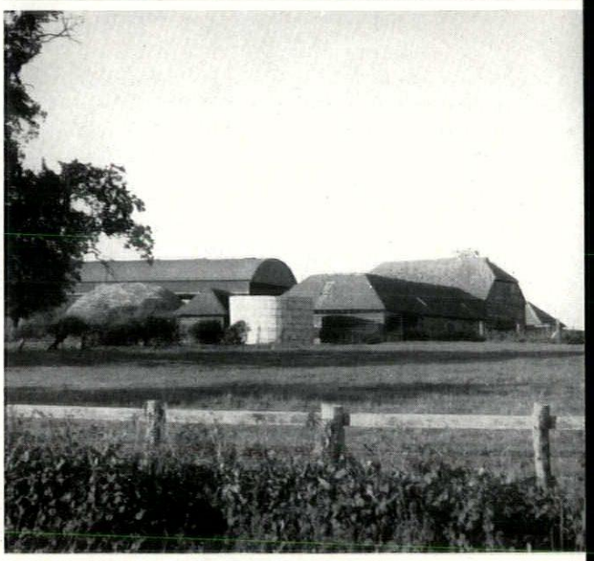
8

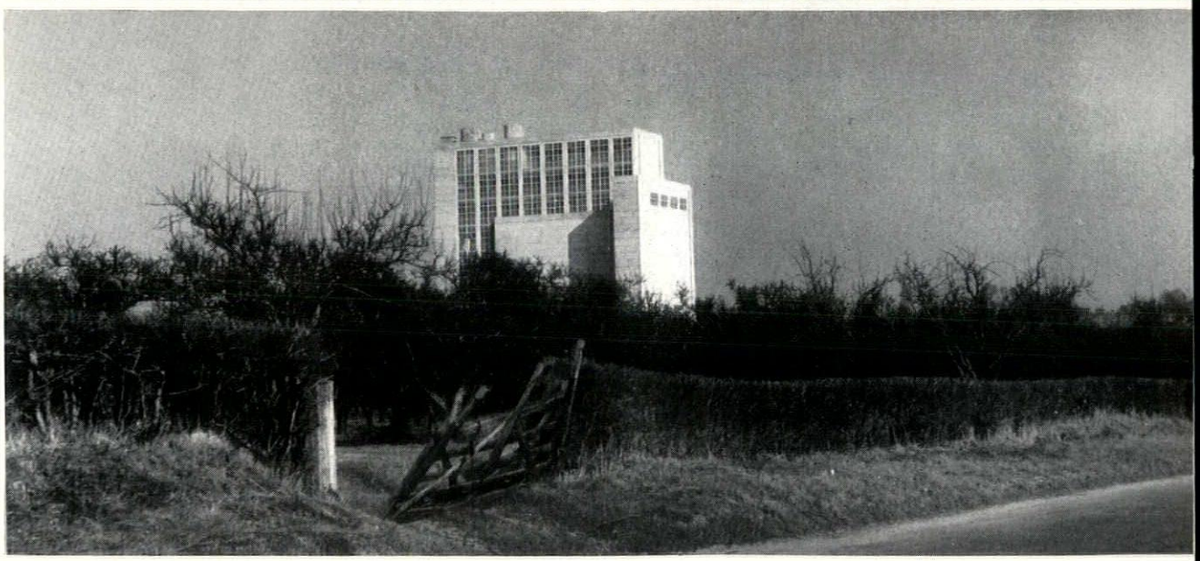
key: 1, *Margam steelworks.* 2, *Portsmouth.* 3, *Brigg, Lincs.* 4, *Woking, Surrey.* 5, *Compton, Berks.* 6, *Challock, Kent.* 7, *Wisborough Green, Surrey.* 8, *Haughley, Suffolk.* 9, *near Bourbourg, France.* 10, *Sharpness, Gloucs.*

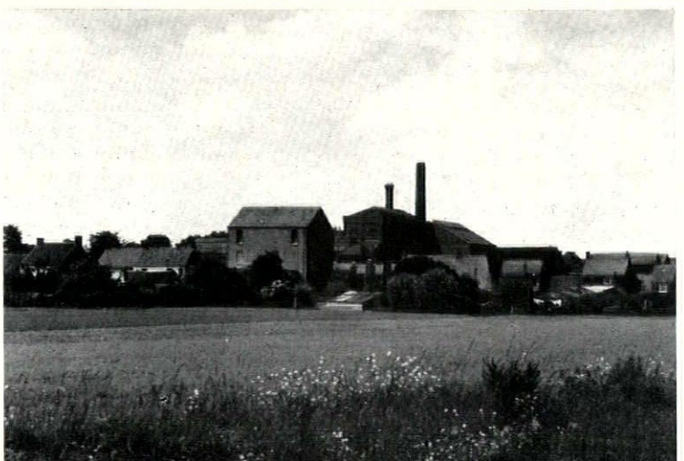
9 **10**

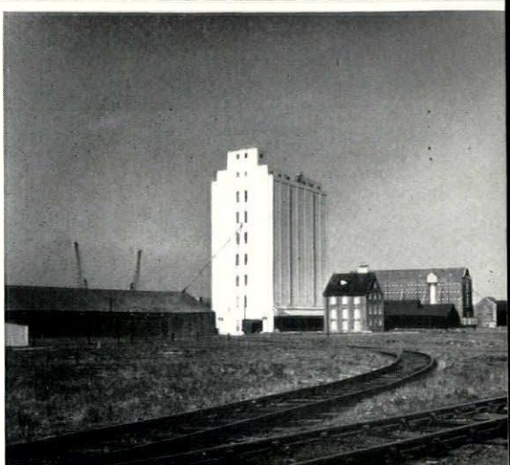








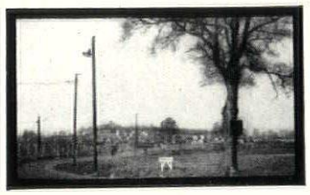




military installations

A countryside problem: integrate if you can, **4,** otherwise camouflage: Bicester Garrison as it is, **a** and as it ought to be, **1.** At least get rid of the clutter, **b,** and leave the big shapes free-standing in the landscape, **2.** Keep 'security' unobtrusive, **3.**

It is in the ordinary countryside that most of the installations are dumped, automatically representing a terrific urban impact (Bicester Garrison is the size of a New Town). This sort of thing can be integrated into the landscape—again, the Swiss show us how to do it, 4; the airstrip in the middle distance is quite clear, but by camouflaging all the ancillaries and letting the countryside pattern run right up to the runway it takes its place naturally. More often, the only answer is camouflage. Bicester Garrison should



a **1**

look like this, 1, *and not be the mess it is at the moment, a. The things that can't be camouflaged should be treated as if they were big industrial forms, by camouflaging all the clutter round the base—not leaving it as a mess exactly fitted by the word eyesore, b. The result could then be*



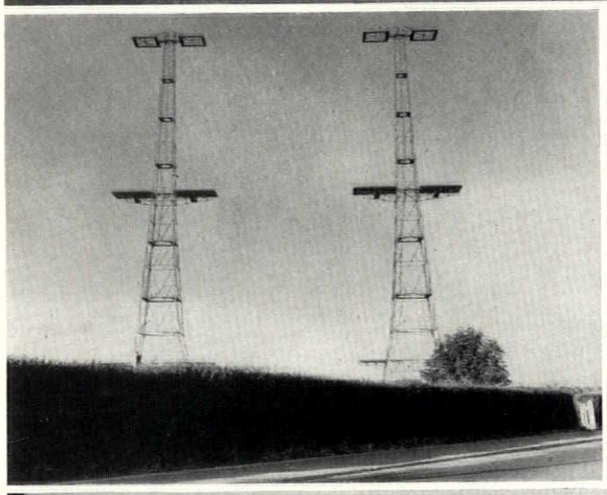
2,3

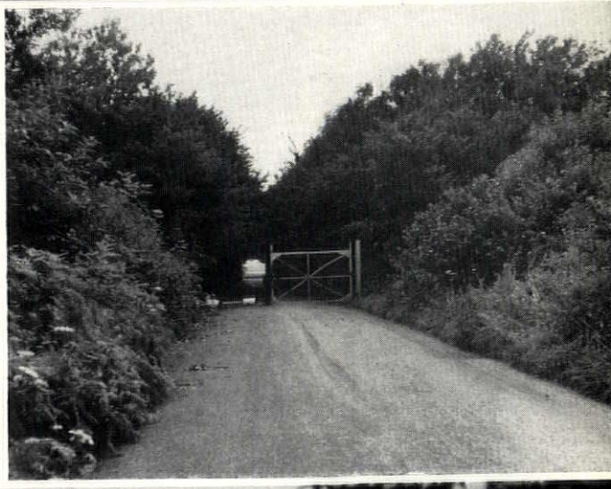
b

something like the masts at Dunkirk, 2. *Finally, security can be attained without the American triple wire fence and crow's-nest blockhouses. This could be the main entrance to an airfield,* 3*: it is, alas, only a blocked road at the back of one. Inside the screen of camouflage there can be enough wire and display to satisfy anyone's heart: outside, the countryside could still be read whole, looking the same as it was before except for an extra large wood. This doesn't happen at the moment: and unless the planning system is reformed* (see page 431) *it never will.*

key: 1 *and a, Bicester Garrison, Oxon.* 2, *Dunkirk, Kent.* 3, *West Malling, Kent.* 4, *near Näfels, Switzerland. b, Bulbarrow Hill, Dorset.*









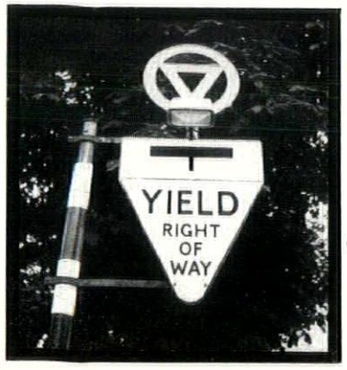
4

the road: abstract signs

Simple abstract signs are anonymous - they have no visual overtones and fit anywhere: (country ***1-4,*** suburb, ***5,*** or town, ***6-8.***) And to any scale (distant view, ***3,*** or close up, ***2***)

It is not accident that all these examples are Continental. Our inability to think visually and our obsession with putting things down in words—making a statute book of the countryside—has eaten deeper into the Ministry of Transport than anywhere else in the Civil Service. Put an abstract sign into the view and the eye can read it both as a road sign and as an inflection on the pattern of the landscape. Think up a wordy equivalent and the chance of making a pattern has gone: the eye can't swallow it, it becomes an interruption, a literary intrusion into a visual world.

As might be expected, the abstract signs are also better road signs ***1, 2*** *because they can be clearer and less equivocal. 2 is more effective than a dozen boards screeching 'Warning, Single Carriageway Ahead': the eye can take in 6 in a fraction of the time needed to assimilate the equivalent message in words—that it is a one way street with parking permitted on the left hand side. 3 and 4 show that an abstract sign* ***3, 4*** *remains part of the landscape whether the onlooker is two hundred yards away or twenty. Meanwhile what do we get? This, a, . . .*



5, 6

a

. . . awful to look at and hopelessly confusing for foreign drivers (Oxford Concise Dictionary: yield—produce or give or bring as fruit or result, repay cultivation, etc.). When will we stop trying to read our environment like a book?

Key: 1, near Zug, Switzerland. 2, on the Ostend-Brussels autoroute. 3, and 4, near Pontoise, Ile-de-France. 5, Hilversum. 6, Amsterdam. 7, Todi. 8, Alkmaar. a, Slough.

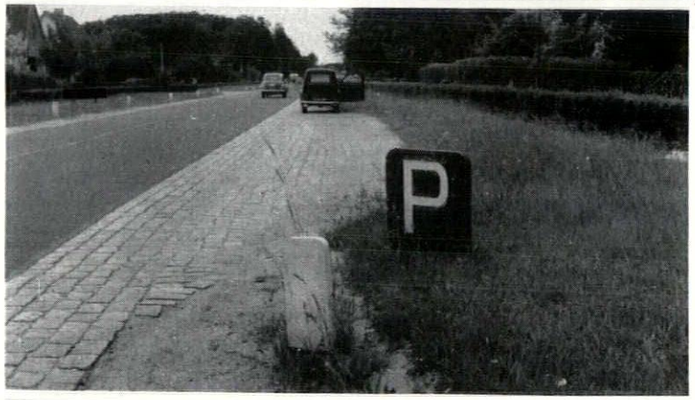
7, 8



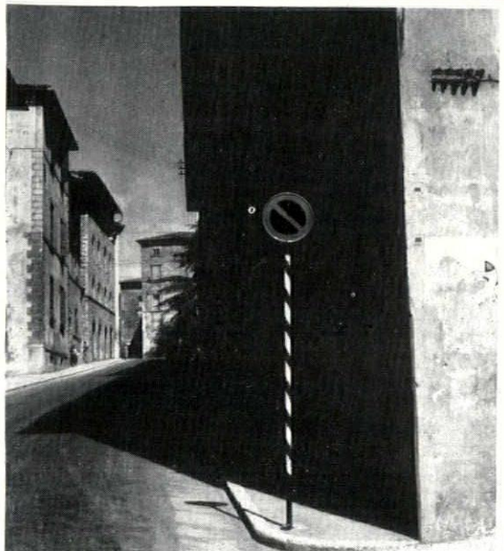


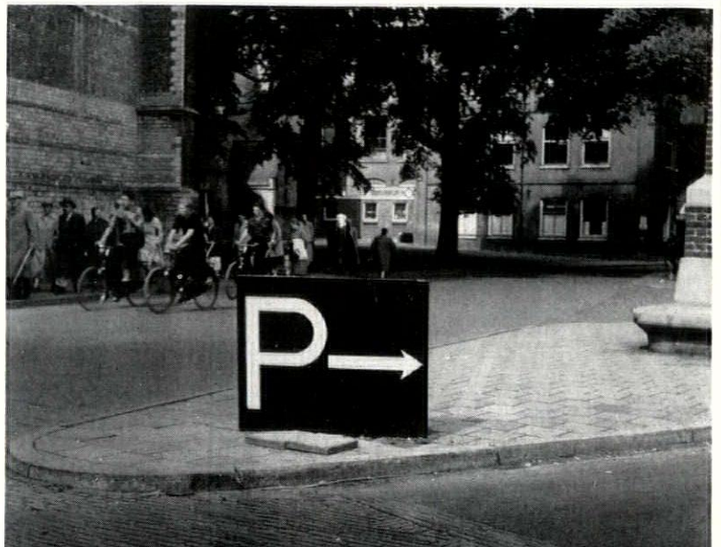




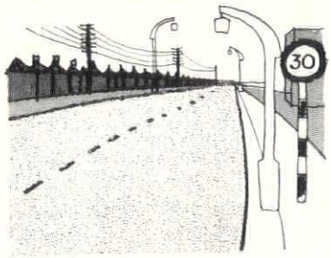








the road: trunk road layout



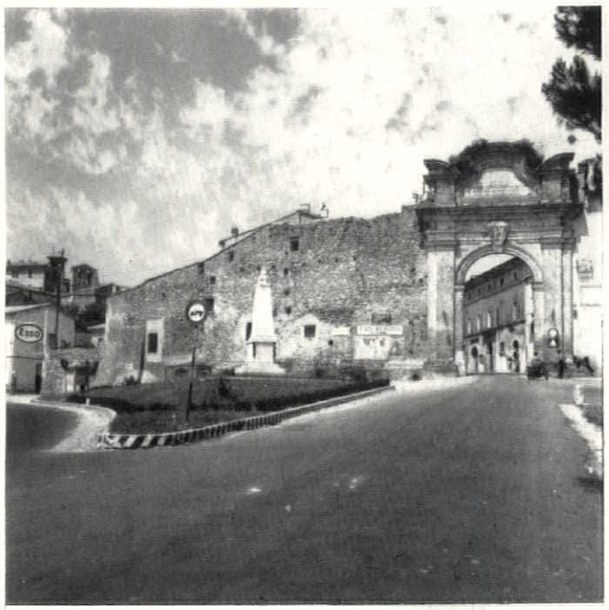
Caution: not endless and arid.

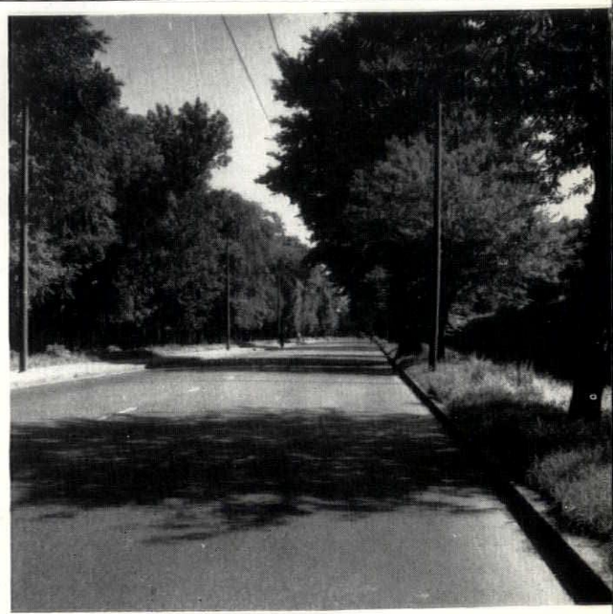
The trunk road has its own rules as a horizontal ribbon crossing all the categories. But it must be insulated from the surrounding landscape.

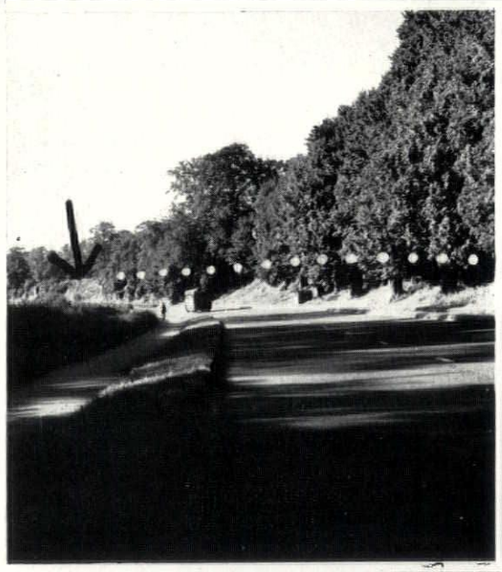
Metropolis	none: if you want to travel, expect to go slowly.
Town	internal by-pass, ***1,*** not ring-road.
Arcadia	tree-lined boulevard, ***2,***
Country	clean cut through the landscape: country, ***5;*** and wild, ***6.*** Minimize width by separating carriageways, ***3,*** or continuous central strip, ***4.***
Wild	

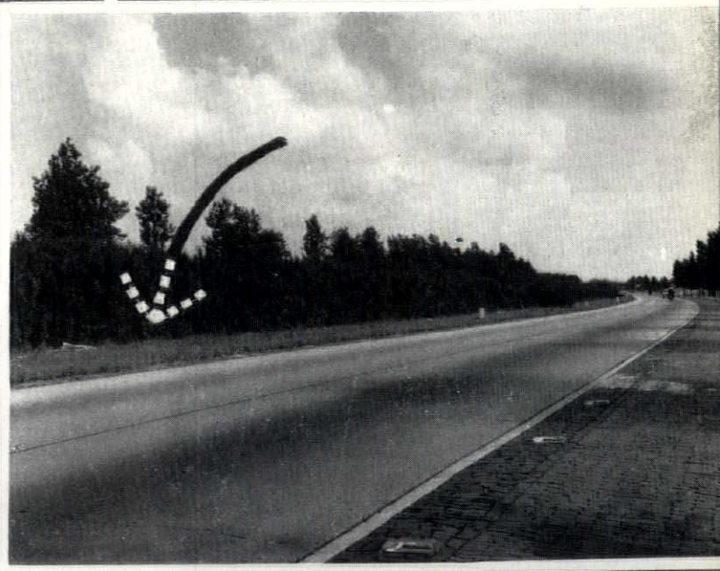
The trunk road must be fast, and if it is going to create its own rules it must do its utmost to respect the contours. It must be kept in bounds, which means that in the country and the wild it should make a frank railway-like cut across the landscape, 5 and 6; in arcadia complete insulation by camouflage is needed, 2 — the inhabitants living on either side should be unaware that the trunk road is there at all. In the towns it mustn't thunder through the centre but should glance off near it, something brilliantly done in most Italian towns, 1 (and not be five miles away from the centre like the English ring-roads which encourage sprawl and create traffic problems of their own). ***1, 2***

When you are on the road, everything is seen from a frame of reference moving at 60 mph, breasting the landscape like a surf-rider. That effect is worth preserving for its own sake, and there is nothing which will defeat it more quickly than an enormous expanse of multiple carriageways and their verges. Camouflage the second carriageway and reduce the apparent width of the road to something that can be read as an extension of your wheels. At its simplest have a continuous central strip, 4, a sound Dutch job well done, unlike our botched and straggling shrubberies; a better solution is to split the carriageways altogether, 3 (the other carriageway is up the hillside as indicated by the dotted line). If there is a difference of level—it need only be 6 or 8 feet—the eye takes in the other strip as something quite separate. ***3, 4***







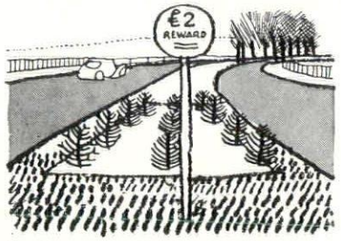






key: 1, San Gemini, near Todi. 2, Hampton Wick, Middlesex. 3, Dorking By-Pass, Surrey. 4, Rotterdam-Antwerp motorway near Dordrecht. 5, Cologne-Wuppertal autobahn west of Lennep. 6, Grimspound, Dartmoor. ***5, 6***

the road: trunk road detail



Caution: no small-scale beautifying.

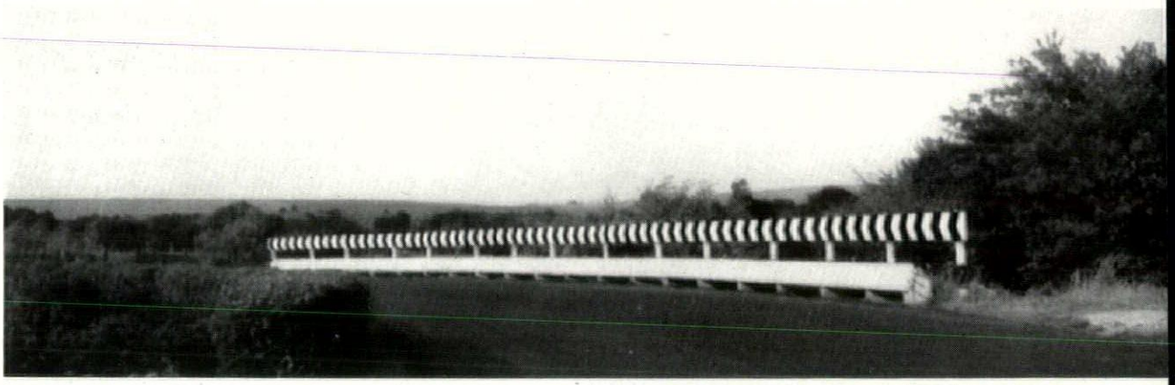
trim	horizontal and large-scale, ***1-3.***
structures	portable, ***4;*** or horizontal and part of the flow of the road, ***5.***
signs	big and legible, ***6*** and ***7;*** not confused with local roads, ***a.***

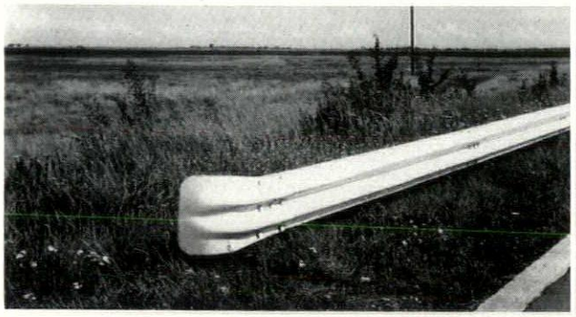
Everything to do with a trunk road must be big, legible, comprehensible at a glance and horizontal. These things combine to give an international language all of its own: 1 *is English; it could as well be in Italy or Sweden.* 2 *is simple sheet metal,* 3 *is whitewashed stone from the Isle of Man, whose Highway Board can knock spots off the Ministry of Transport. In each case the trim is flowing with the road and the driver.* ***1*** *Similarly, in* 5*, the driver feels that the lines of force of the road flow without a break through the autobahn filling station: there is no interruption. In* 4 *the snack bar is portable, like an extra vehicle drawn up at the roadside: again, no interruption. The lettering on autobahnen,* 6 *and* 7*, lacks punch but it has the primary value of legibility and, in* 6*, of respecting the lines of flow; the long horizontal sign gives you a psychological push off the road. Contrast these with the usual fatal British compromise of having reasonable trunk road trim and then making nonsense of it by duplicating everything with a local-road signpost, a.*

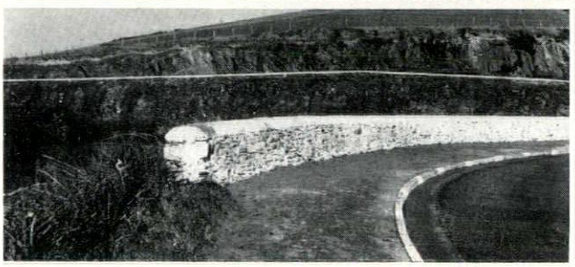
2 / ***3*** ***4***

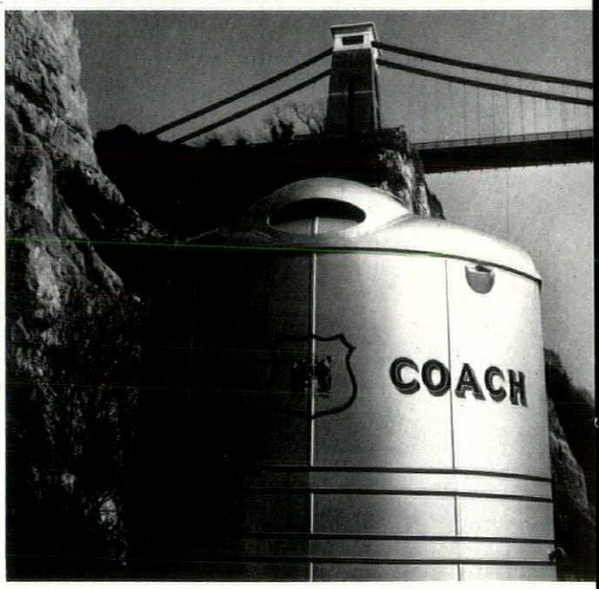


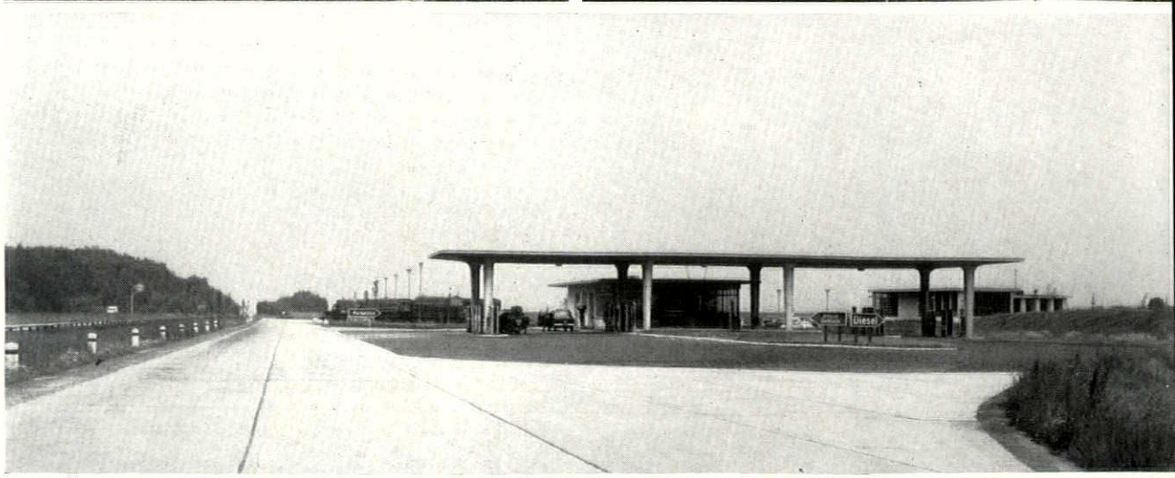
a











5

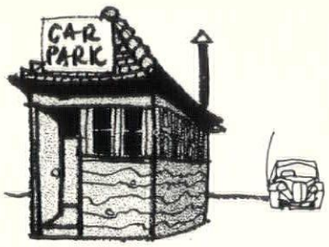




key 1, *Wylye, Wilts.* 2, *Richborough, Kent.* 3, *Near Kirkmichael, I.O.M.* 4, *Clifton Gorge.* 5-7, *Frankfurt-Cologne autobahn near Limburg.* ***a****, Sparkford, Som.*

6,7

the road: car parks



Caution: not a desert of asphalt.

metropolis	underground or multi-storey.
town	pocket handkerchief - done neatly, ***1,*** not shoddily, ***a;*** camouflage by trees, ***2;*** or containment by walls (seaside), ***3.***
arcadia	keep cars out of the pattern by camouflage and siting, ***4.***
country	lost among trees, ***5,*** or honest roadside strip, ***6.***
wild	no car parks: park where you can, if you can.

To get parked cars into the landscape pattern there are two things that the planner can do: contain them behind a rigid boundary (provided the boundary itself isn't an interruption), or camouflage them. 1, 3 *and* 6 *show containment:* 2 *and* 5 *show*



a

camouflage. 4, *shows both,* a, *shows neither. Containment needs firm boundaries which are themselves part of the pattern: hence the setts and rail in* 1, *the seawall in* 3, *the sunken car park —temporary, alas—in* 4, *the firm brick strip and the white studs in the Dutch motorway,* 6. *The botch-up in this column,* a, *isn't containment it is just expedient car-dumping on a bit of slum clearance. Camouflage means losing the cars among trees—either in an urban way,* 2, *or a rural way,* 5. *The urban solution needs a revolutionary change of heart—from regarding cars as an unavoidable evil to be housed on a vacant lot to realising that every car park is a potential town square, as long as the cars don't dominate.*

1, 2

3, 4

In the wild the camouflage and permanent trim needed for a car park would be more of an interruption than the cars themselves. Park where you can, and don't expect smooth going: bogged wheels and broken springs are fair comment on nature's part.

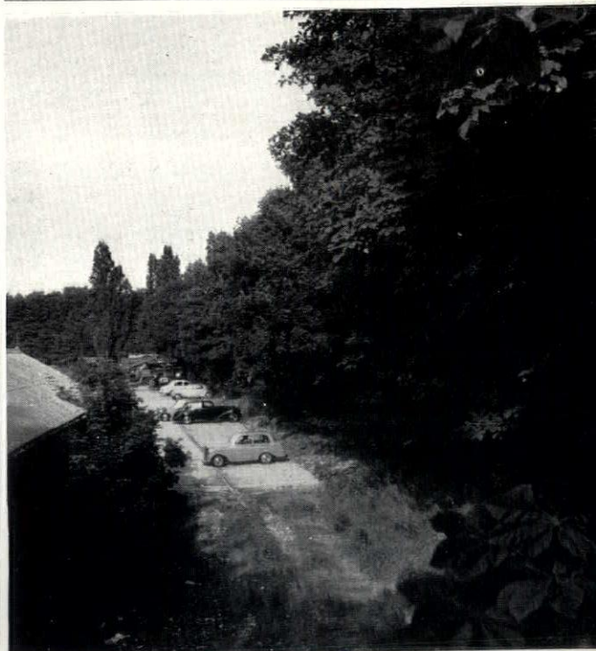
key: 1, *Bradford on Avon, Wilts.* 2, *St. Benoît-sur-Loire.* 3, *Sandsend, Yorks N.R.* 4, *Croydon.* 5, *Otterloo, Holland.* 6, *Rotterdam-Antwerp motorway near Dordrecht.* a, *Poole.*

5, 6





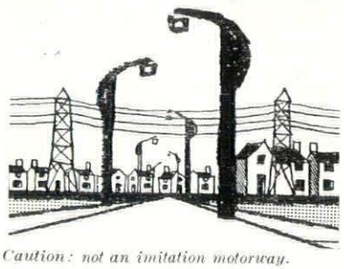








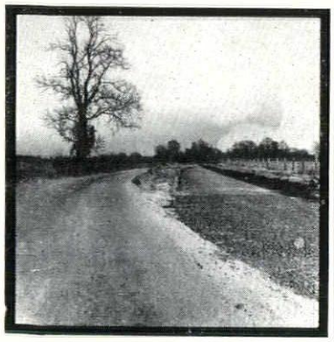
the road: local road layout



Caution: not an imitation motorway.

Metropolis	roads should fit the town, ***1*** and ***2,*** not vice versa.
Town	
Arcadia	winding and complex, ***3.***
Country	narrow, respecting the natural pattern, ***4;*** never piecemeal widening to be a cut-rate arterial road, ***a.***
Wild	rough tracks, ***5.***

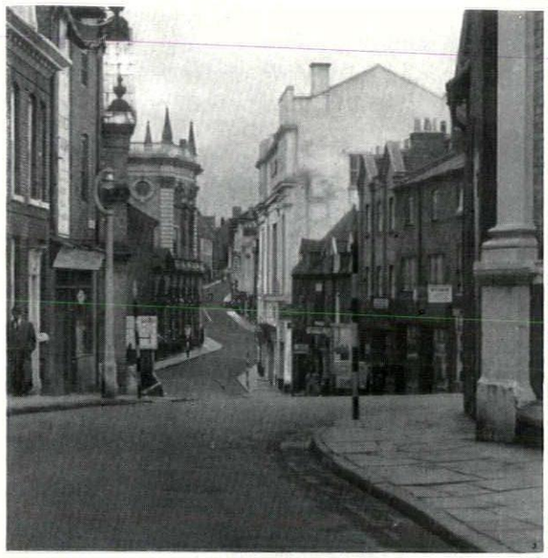
A good system of trunk roads will ensure that the long journeys can be made quickly: the rest of the road system should be left alone. The fundamental crime is to try to make every lane into a cut-rate arterial road, a. In towns the occasional traffic block is a justifiable price for keeping the town intact by designing imaginatively to give both sight lines and enclosure, 1, *or by keeping the old pattern in modern dress,* 2. *Municipalization is fatal to arcadia: local roads should look like country lanes spruced up, with trim hedges instead of fencing, and mown grass for a pavement,* 3. *Country lanes should remain as country lanes: even to the extent of giving way to* ***1, 2***

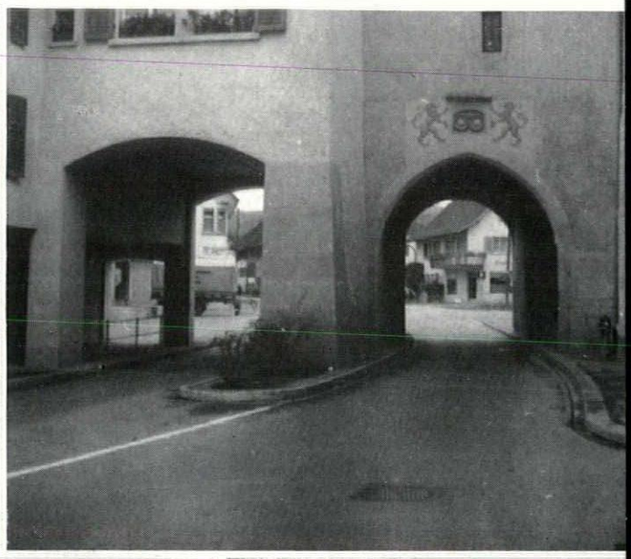


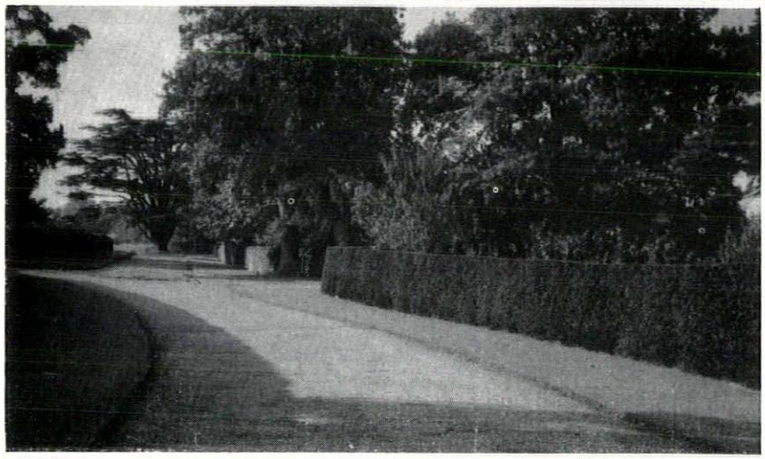
a

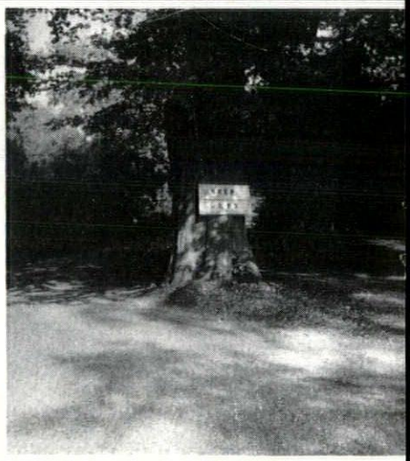
nature literally, 4*—the effect is just like that of an unspoilt historic monument: neither demolished nor railed around, but accepted into the pattern. The pattern in the case of the wild is that of unfenced barely surfaced tracks; adequate for farm traffic and no more,* 5. *You go at your own risk. The wild subdued with asphalt and kerbs ceases to be wild: it might as well be a public park in Streatham. The Continent has fast trunk roads and unimproved local roads—both are fun to drive on: we muddle along confusing the two and our road conditions get worse every year.* ***3, 4***

Key: 1, *Shrewsbury.* 2, *Mellingen, near Baden, Switzerland.* 3, *Camilla Lacey, Surrey.* 4, *Box Hill, Surrey.* 5, *hill road from Killin to Bridge of Balgie at Lochan na Lairige.* a, *Long Sutton.* ***5***



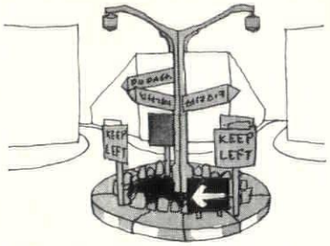








the road: local road detail



Caution: not municipal rustic

Metropolis	filling stations worked into the pattern, ***1;*** portable street furniture, ***2;*** the road surface as a signpost, ***3.***
Town	
Arcadia	extreme care in maintaining the illusion, ***4,*** a T.T. grandstand.
Country	respect for rural pattern, ***5,*** and genuinely rural trim, ***6.***
Wild	only to indicate the boundary of the wild, ***7.***

This is an anthology of separate points to show that road trim can express local character like any other set of objects. The filling stations, 1 and 5, could have produced two gashes in the landscape: instead 1 maintains the terraced street line of the town, and 5 with careful siting of pumps and unifying whitewash fits into the country view. In both cases the standard lettering enhances the result once the basic unity is preserved. All you need for a town roundabout is a portable police stand, 2—not a huge affair of stonework and shrubs and ninety-five signs, but something which can be moved around to suit the traffic flow, which is ideal for controlling traffic, and which must have cost about five pounds to produce. 3 shows a complex web of different uses (main road, minor road, car park, pavement) indicated perfectly clearly without any interruption in the flow or any signpost. 4, which looks like a setting for the performance of an idyll, is one of the main T.T. grandstands in the Isle of Man. In the town it would jar, in the country it would appear too coy, but where it is, on the edge of Douglas, it is just right. One last reminder, 6, that the country is rough, not smooth: what is more fitting as an emergency buffer for over-enthusiastic motorists than motor tyres? This in its simplest form is the act of imagination we seek so hard and find so rarely among local government officials. Finally, there should be as little road trim in the wild as possible, but a cattle grid can be very effective in indicating the boundary between upland and wild, 7; beyond this, there is unrestricted open space, you are out on your own, free of human interruptions—if you're lucky.

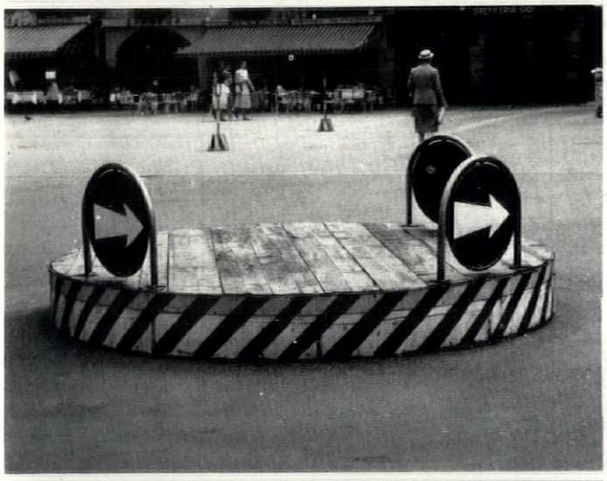
1 ***3*** ***2*** ***4*** ***5***

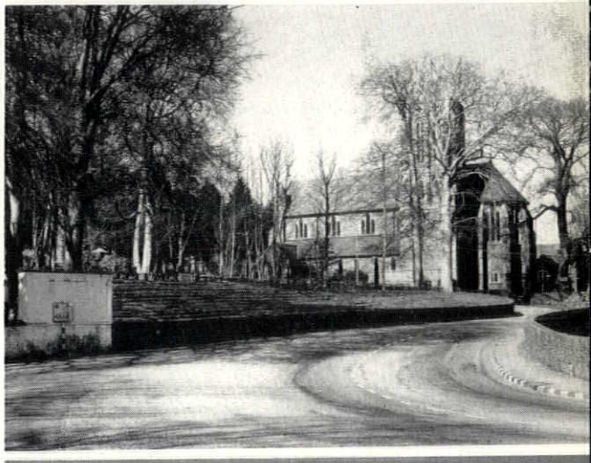
key: 1, South of France. 2, Wigton, Cumberland. 3, Como. 4, Kirkbraddan, I.O.M. 5, Thurton, Norfolk. 6, near Santon, I.O.M. 7, moors above Kirkmichael, I.O.M.

6, 7

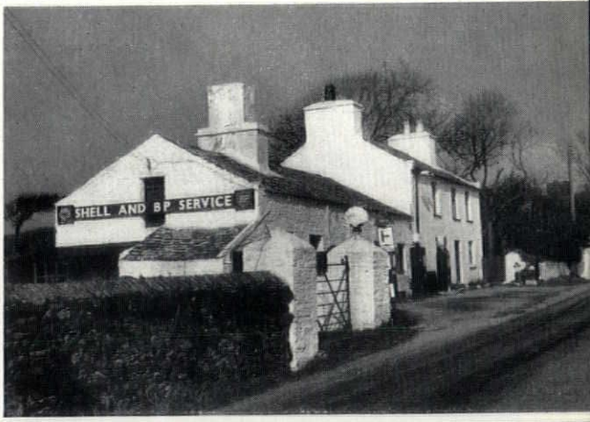


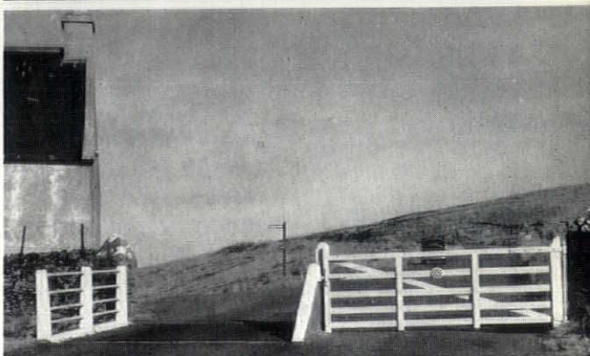




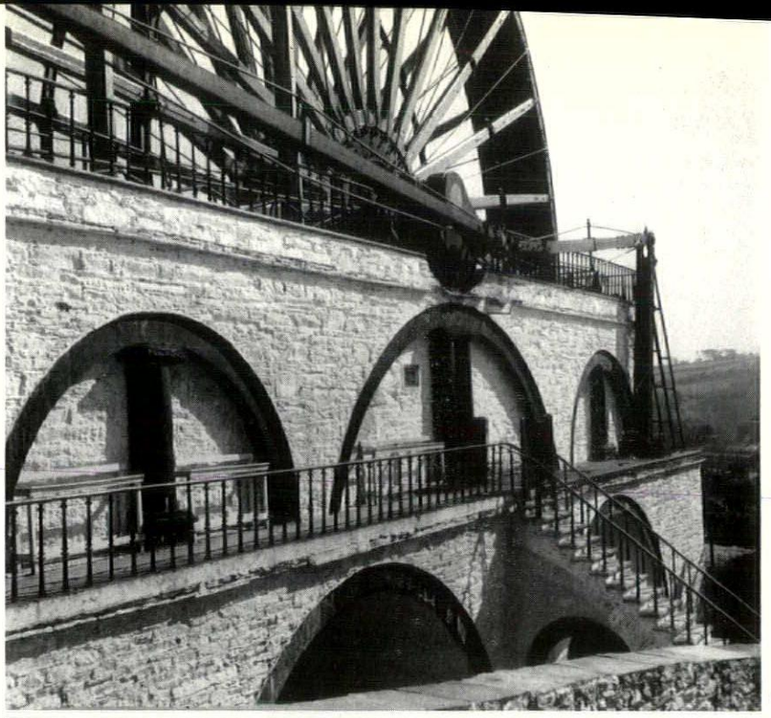












1, 2





3, 4

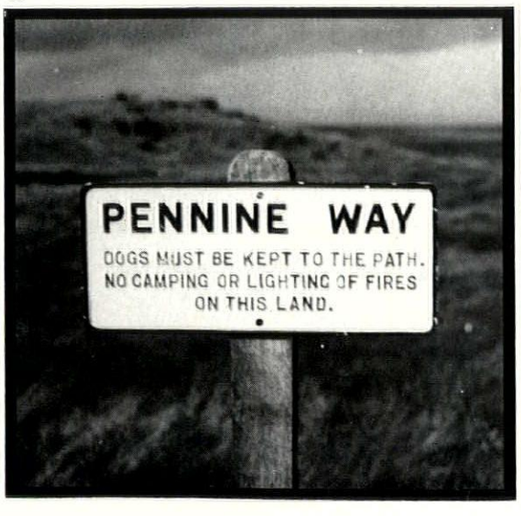
***visual thinking vs. literary thinking**: the whole of this case-book would be unnecessary if people planned with their eyes and not their fountain-pens: visual thinking for visual problems. Some Britons still do—in the Isle of Man, for instance. The designer of the famous Laxey Great Wheel, 1 and 2, dovetailed huge and up-to-date machinery into a wooded glen in the 1850's without ever worrying about siting or zoning in the abstract: he just used his eyes. So did the retired joiner who repainted it so splendidly in black and white a few years ago at his own expense. The trim used by the Isle of Man Harbour Board, 3 and 4, which looks so timeless, is in fact constantly being renewed and altered: much of it is post-war. Switzerland has regained the habit of visual thinking by conscious effort and education: but Great Britain will never get better while the civil service and local government officials treat the landscape as a legal document, typified by the three stupidities shown below. The first and second are self-evidently absurd, a and b; the third, c, represents the sinister wish to 'Mark the U.D.C. boundary'—by a dowdy sign—way out in the countryside.*

Unless the whole tribe of Ministry spokesmen, local officials, Council members and board executives get out into the open air, in sunshine or rain, and then open their eyes and realize what their decisions are actually doing to the landscape, things won't get much better—whether the results are minor lunacies like these three notices, or major lunacies like most housing estates. Subtopia isn't the will of the people: it is largely the result of allowing the vast majority of our public servants to go through life with their eyes shut.

a



b



c



a vote of thanks

Whilst compiling the casebook we came upon a lot of examples of positive planning and of outrages successfully combated which were impossible to photograph. We have included a selection here and would like to thank the public and private bodies concerned, notably the Council for the Preservation of Rural England, for succeeding against the worst of odds. If the government wants to safeguard the appearance of the country it governs—or even if it wants more tourist dollars—it could do worse than subsidize and publicize these devoted efforts. Respect for the landscape will rarely stop an intended bit of vandalism whether public or private: a bit of money and some public ridicule might.

planning authorities

First and foremost we want to thank the Isle of Man for being a model of humane planning that gets results. Man has fifty thousand people, and what is effectively a complete administration of its own—consequently everything is done with a minimum of formality, bureaucratic organization and amour-propre. The details of planning applications are similarly kept to a minimum and replaced by informal discussion as far as possible. The result—thanks largely to the personal efforts of the planning officer and his staff and aided by an extraordinarily good Highways Board—is that Man is probably the best planned county in Great Britain.

Secondly, the North Riding of Yorkshire for its all-round work in getting government departments, the GPO, and the forestry commission to compromise and co-operate when making their proposals. One result is shown on page 396 in the grid supply for West Burton; similar compromises are being repeated all over the county, which is the perfect example of making inadequate powers go a long way.

We would also like to thank:

Lancashire County Council for doing its best to keep up a green belt in S.W. Lancs whilst having to work with fifteen county boroughs who have quite separate planning powers: for starting on a planned programme of land reclamation, and for co-operating wholeheartedly with the local preservation society—the Lancs branch of the CPRE actually has its headquarters in the County Offices at Preston.

Cambridgeshire County Council for removing almost all advertisement hoardings in open country and from unsuitable sites in Cambridge itself.

The Peak Park Planning Board for its skilful handling of a difficult administrative job—a separate planning organization superimposed on three counties—and for the care it takes over materials and siting of new houses and farm buildings in open country.

The Lakes Planning Board for its dogged and largely successful fight with the local electricity authority against the threat of big pylons in Lakeland—a landscape to which they would do irreparable harm. Their motives have been consistently misrepresented to serve the tortuous ends of local politics: a process which reflects even less credit than usual on our system of local government.

The County Surveyors of Wilts and Shropshire for understanding the nature of main road trim, something which it seems that the Ministry of Transport has yet to grasp.

Durham County Council for using 'design control' to improve and not inhibit design. After three years' hard work by the planners on private builders, most house designs have reached a stage at which they could infill a Durham village without disrupting it. This is no small achievement, looking at the standard around London, and it shows how this much-maligned control could work if applied intelligently and enthusiastically. The Council have also produced a comprehensive scheme for Green Belts in Durham (accompanied by vociferous abuse from Darlington, West Hartlepool, etc.) which is now under consideration. We hope the Ministry won't whittle the proposals down until they become useless.

Essex County Council for keeping its share of the green belt truly green (apart from wholesale incursions by the LCC). By some miracle the country between Abridge and Ongar remained really rural—not even nibbled at—until the end of the war: and the strict control on building there seems to promise that it will stay that way. (But the Green Belt here, as in every other county, is badly leap-frogged.)

Deal Town Council who, far from pouring scorn on the idea of their having any outrages, instructed the borough surveyor to compile a list of them, as a result of which Walmer station has been tidied up, advertisement hoardings have been controlled and other messes are on the way to being cleared up.

preservation: societies and private individuals

Our first thanks go to the Council for the Preservation of Rural England which is the main body which combats outrages in the countryside. It is handicapped by being run on a tiny income, without an official grant (perhaps the lack of subsidy is not surprising, as government departments themselves do so much of the damage). It is also largely dependent on the vitality of its local branches if only to report outrages before it is too late. Where the branches are active—like those in Lancashire and the Peak District—remarkable work can be done.

Here are some of the most striking cases won by the CPRE since the war.

1. *Burbage Training Area, Derbyshire*, 1947
Burbage is a beautiful, wild, upland gritstone valley flanked by cliffs. This area is a popular playground for Sheffield and provides an exciting though not very extensive walk suitable for middle-aged persons who use it intensively. The Army were in possession of this valley at the end of the War and in 1947 proposed to retain it as a training area. The CPRE were successful in persuading the local command to abandon their proposals, to clear the area and open it once more to the public.

2. *Letcombe Bassett, Berkshire*, 1949-50
This village had been in effect condemned to decay chiefly owing to the difficulty of providing drainage, and this became a test case in respect of the prospects of survival of a small remote village. After a Public Inquiry, the Wantage RDC decided to provide drainage for their own cottages and proposed to consider reconditioning some of the old cottages. It is hoped that this small village has now been reprieved and that other similar villages may reap the benefit of this case.

3. *Hardcastle Crags, Yorkshire*, 1949-50
The CPRE in conjunction with the Hardcastle Crags Preservation Committee was successful in defeating a clause in the Halifax Corporation Bill authorizing construction of the Hebden Reservoir, under which this famous valley would have been inundated and the existing landscape entirely destroyed.

4. *Barnet Lane, Boreham Wood, Hertfordshire*, 1953 *and* 1954
Combined efforts by the CPRE, the Hertfordshire Society and local interests were successful in saving from development the northern frontage of Barnet Lane: a vital part of the London Green Belt.

5. *Power Station, Plas Machen, Monmouthshire*, 1953
As a result of opposition to a proposal for a power station at Plas Machen, in the only part of the Rhymney Valley which is not already industrialized, in which CPR Wales participated, this proposal was abandoned.

6. *Hartslock Woods, Oxon*, 1954
The CPRE protested against the proposed clear-felling of these famous woods and, after prolonged negotiations, an acceptable scheme of replanting has been adopted.

7. *WD Buildings on Dartmoor*, 1955
In 1955 a War Department proposal to erect a large number of unsightly buildings for emergency use on an exposed site adjoining the northern boundary of the Dartmoor National Park, which the planning authority originally accepted without objection, was abandoned owing to the sustained opposition of the CPRE and its local affiliated body, the Dartmoor Preservation Association.

8. *Lamorna Valley, Cornwall*, 1955
The CPRE and its Cornwall Branch successfully opposed a proposal to erect over 100 houses, together with a petrol station and a six-acre caravan site in this famous Cornish valley.

9. *North Wales Hydro-Electricity Schemes*, 1955
Important concessions in respect of these schemes were obtained by the CPRW in conjunction with other bodies. In the Ffestiniog Scheme, a tunnel is to be provided instead of six 7-ft. pipes for a length of 600 yards. In the Rheidol scheme, a tunnel will be provided instead of pipeline for 220 yards down the hill Dinas, and the flow down the Rheidol gorge will be restricted considerably less than as originally proposed.

We also want to thank:

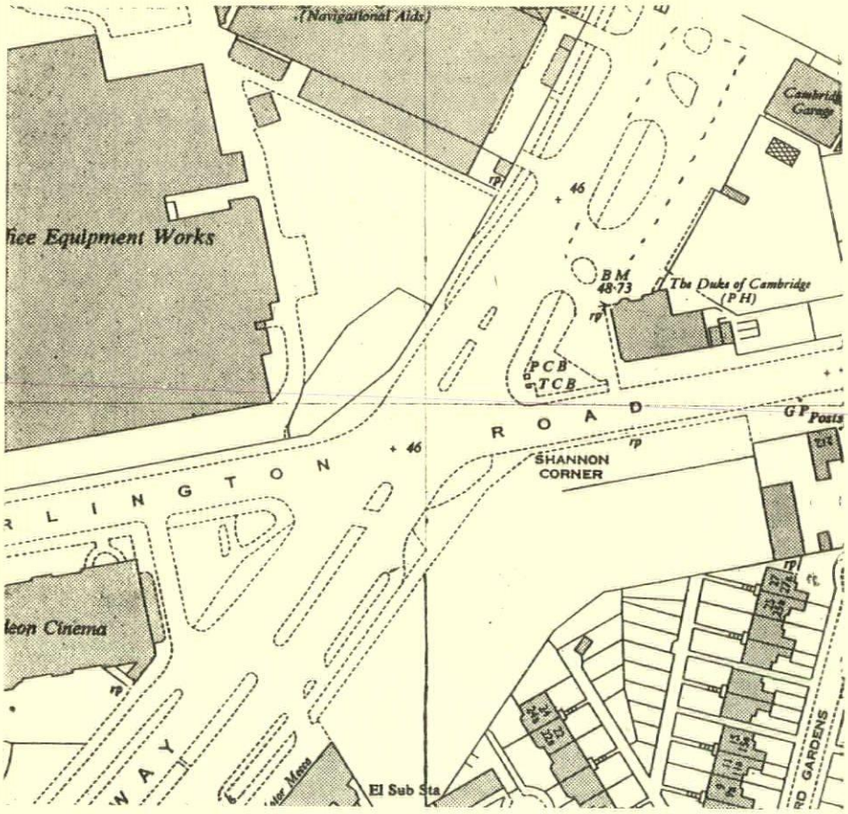
The Kensington Society who as a result of persistent agitation in the past are now consulted before street furniture is altered in Kensington and whose wishes are usually respected. And to the Chelsea Society for doing similar work there: both societies show how much can be done inside a town or locality with enthusiasm, persistence and refusal to be put off with eyewash. The work of the Central Council of Civic Societies, the urban equivalent of the CPRE, ought to receive much more publicity.

Mrs. Paul Reilly for preventing the replacement of the unobtrusive and elegant street lighting in her Chelsea street by the simplest possible means—going out and protesting to the men who came with the replacements (the 'question-mark' pattern, not the 'politely-sick' pattern). The men took them away again and they haven't been seen since. And to Arnold Machin, ARA, for gallant and, alas, unsuccessful attempt to resist removal of the old light fittings on his Victorian estate at Stoke-on-Trent by chaining himself to one of them. How many more cases could have been prevented—or, at least, reconsidered—by similar action? Once the public has shown that it is not on the voters list just to be sat on, half the battle is won. At the moment, as far as local government is concerned, it is living in something more like a two-party tug-of-war dictatorship than a democracy.

David Verey and the other part-owners of Barnsley for making a splendid village out of an ordinary one simply by taking extreme care over the details (see page 380).

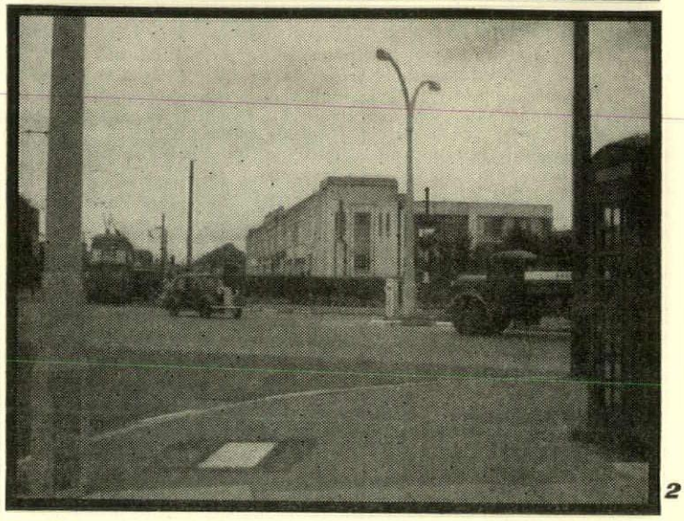
The Rottingdean Preservation Society, trapped inside the County Borough of Brighton, for its twenty-year struggle against steamroller sprawl. It has, after repeated fighting and against repeated breaches of good faith, wrung some concessions about building on the downs from the Corporation: the whole sorry story will be given in detail in a future issue of the ARCHITECTURAL REVIEW.

The St. John's Wood Preservation Society for its resistance to the barbarous and pointless replacement by Marylebone Council of old small-scale lighting in St. John's Wood side streets by squat concrete columns. The uproar caused a surprised council to think again, and has at least won the concession that the society and the RFAC will be consulted before extension to side-street lighting takes place.





1

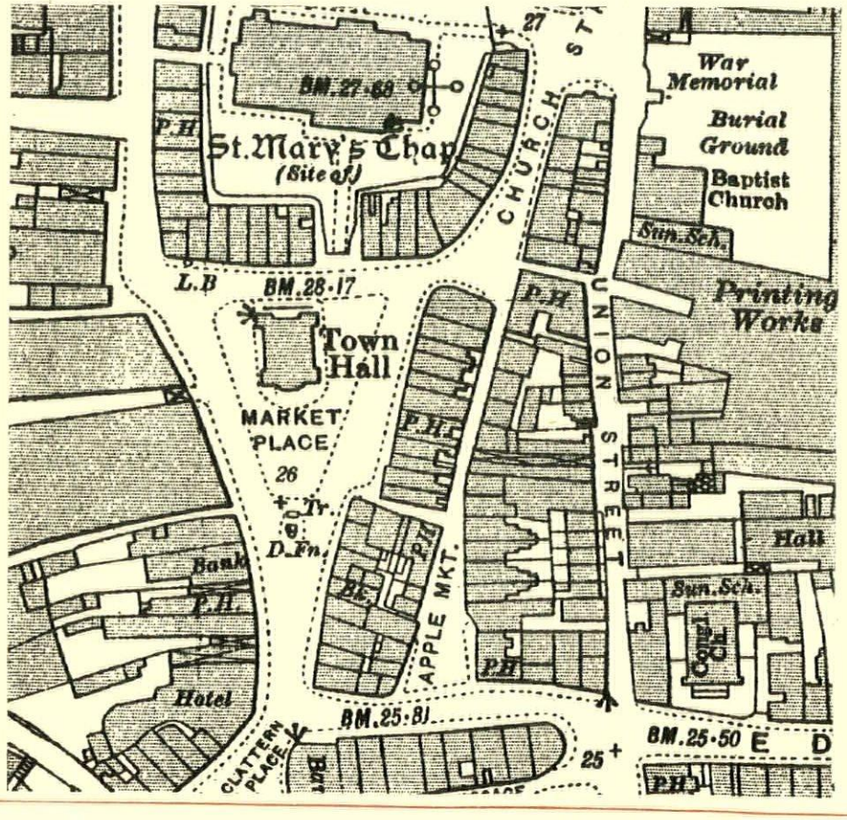


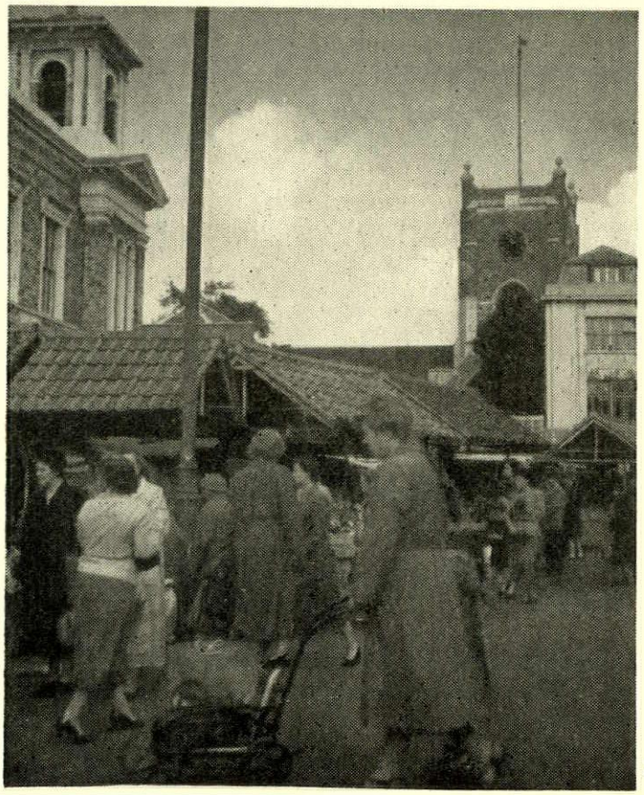
2

Same area (approx. nine acres)

Above is one intersection on the Kingston by-pass, showing the appalling waste of land—at the corners, in vacant sites, in the verges, in front of garage and cinema. The result, inevitably, is that it looks like a desert, 1 and 2. Below and occupying the same area (both maps are to the same scale) is almost all of the centre of Kingston-on-Thames: church, town hall, two market places and most of the shops. The first is inevitably anonymous subtopia, the second inevitably a recognizable place—one of the best town centres in the home counties, 3.

This is the real answer to urban sprawl—careful and compact planning, making use of the principle of economy. In theory it sounds easy to plan tightly: in practice there are dozens of obstacles, beginning with theories of overcrowding held by 'informed opinion' that have never been tested on the site, ending with such mundane things as the way in which gas and electricity mains are laid under the footpath. If misguided ideas are fixed in the byelaws and then applied rigidly and without intelligence, the best schemes are doomed to end up looking as the New Towns have. The only answer is a point-by-point overhaul of byelaws and the byelaw spirit: and this is carried out by Walter Manthorpe in the article opposite.





3

Walter Manthorpe

THE MACHINERY OF SPRAWL

The gross inefficiency of the mechanics of living is gradually penetrating into the national mind and there is a widespread call for a land policy which can meet the demands imposed by our particular social organization. Above all, the full exploitation of our limited and inadequate land surface needs considerably greater study, for in this exercise lies not only the answer to the question of efficient organization but also that to the problem of the spiritual needs of man in so far as they can be satisfied by an ordered and truly pleasurable environment. But creative experiment is, in most parts of the country, effectively barred to any architect who wishes to demonstrate the qualities of efficiency, compactness, and urbanity in that fundamental unit, the ordinary residential area. Rules of thumb, planning controls, byelaws and general prejudice have now so combined that it is practically impossible to build towns; only garden suburbs are permitted. The object of this article is, therefore, to identify as many as possible of these hedging rules, which frequently impose a predestined form on development long before the architect has the opportunity even to consider his design, and to re-examine their validity in the light of what we see happening to the land of Britain. The first, and most important, barrier to reform is:

1 'informed opinion'

The Final Report of the New Towns Committee of July, 1946, well exemplifies the kind of authoritative opinion which inhibits new thought upon the inadequacies of the residential areas built between the wars and it demands prior attention because it was the manual upon which brave endeavours to build New Towns have been based. It is a learned and valuable document, but it must be judged by the towns it has produced. In some cases it is perhaps too early to see the final result but in others there can be no hesitation in coming to dismal conclusions, which are largely a direct consequence of the following planning principles which the Committee enunciated:

a. Density

'General Urban Zones'—'The net residential density taken . . . is 30 persons per acre; but if the aim of a balanced population is attained and there is a due proportion of larger houses on larger sites the average residential density is not likely to exceed 25.'

'Area for Towns'—'Assuming an overall density in the built-up area, including recreational parks, of roughly twelve persons an acre, the approximate areas of land to be purchased for towns of different population should be:

Intended Population.	*Built-up Area; Acres.*
20,000	1,650
30,000	2,500
40,000	3,300
50,000	4,200
60,000	5,000

comment Before looking at the value of the suggested figures it is essential to reflect upon the significance which is frequently attached to the terms 'high density' or 'low density' even in informed minds. The following propositions will help to clarify the position:

1. High density does not necessarily imply poor living conditions.

Luxury flats:	*Net density:*
The White House, Regents Park	511 persons per acre.
Dolphin Square	316 „ „ „
Dorset House over	300 „ „ „
Much of Mayfair	200 „ „ „

If the domestic architecture is not entirely acceptable, here are some of the nation's cherished Buildings of Architectural and Historic Merit:

Brompton Square—
early nineteenth century town houses of considerable charm
About 100 persons per acre.

South Terrace—
three- and four-storey houses typical of the best in traditional British planning
88 persons per acre.

Pembroke Square
—three-storey terrace of circa 1830
About 90 persons per acre.

Edwardes Square
—mostly three-storey houses with small gardens of circa 1819
Between 59 and 109 persons per acre.

Pelham Place and Crescent—Basevi's composition of circa 1825
About 70 persons per acre.



1



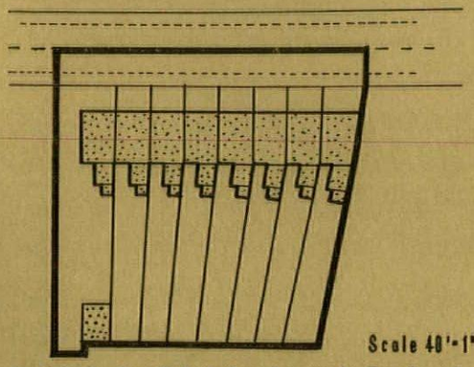
2

1, *Pelham Crescent* (70 *p.p.a.*) *and* 2, *Brompton Square* (100 *p.p.a.*): *two of the most sought-after sites in London. Obviously they do not provide sub-standard living conditions: the density is achieved by a careful use of space and willingness to make a town more than a collection of unrelated boxes.*

These are examples of impeccable architecture carried out over 100 years ago, when there was no land shortage, with the

aim of providing the best possible living conditions within the social framework of the time. They are still the most sought after houses in London.

2. Conversely, low density does not necessarily imply good living conditions: some of the London slum clearance schemes



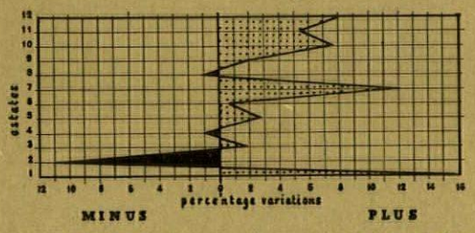
3, recently demolished slum houses in London at a density of 20 people to the acre.

have been dealing with houses at 20 persons to the acre, 3.

3. The term 'net residential density,' in fact, conveys one thing only—that a given number of people are living, or should live, upon a specified acre of land, but

4. Even in its single function, net density is a grossly inaccurate instrument. It can never be precise because a planning authority can never accurately control the number of persons continuously living in a given area. There is indeed no reason why it should wish to do so, excepting where statutory overcrowding exists; and density in the town planning sense has no direct part to play in that situation.

For some planning purposes it is, of course, necessary to know approximately how many persons will live in a given district—in London, for instance, density control is essential because unlimited numbers of new residents would add to the already impossible burden of providing essential public services such as schools, public transport and open spaces. But the actual population resulting from the implementation of a density control policy



4, percentage variations of the actual population occupying twelve new LCC estates compared with the estimated population derived from density calculations.

is likely to be materially different from the estimate, and will certainly vary over a period of twenty years.

5. Density is preferably stated in terms of rooms per acre. The government handbook 'The Density of Residential Areas,' put forward this proposal in 1952 but planning authorities have not yet generally accepted it. The number of persons conveys no direct impression of the amount of bricks and mortar permitted on a site—which is the essential information an architect wishes to have. Unfortunately, the number of rooms is still affected by a very indefinite factor—the size of the dwelling. Since the word 'room' means 'habitable room,' the following kind of situation arises:

Density Zone—100 rooms per acre (net). These could be provided within EITHER 100 single-room dwellings, each with its own bathroom and kitchen, giving 300 actual rooms

OR

20 five-roomed dwellings, each again with its bathroom and kitchen, giving 140 actual rooms.

From the civic design point of view, therefore, density control alone, even in terms of rooms per acre, is quite ineffective in achieving a foreseeable type of building, except that excessively low densities simply deprive the architect of the raw material from which cities are made—building bulk.

With these considerations in mind, the New Towns Committee's figure can be seen in perspective when placed beside the ideas of some other authorities:

Net residential density:

(*a*) *London* (where 'High' densities are accepted). Average	70	persons per acre.
(*b*) *Garden City.* Ebenezer Howard.	50—75	,, ,, ,,
(*c*) *The familiar houses to the acre*	42	,, ,, ,,
(*d*) *Hertfordshire* (which has specifically adopted the arguments in favour of 'Low' density)	39	,, ,, ,,
(*e*) *New Towns Committee*	25	,, ,, ,,

Clearly the New Towns density is unnecessarily low. 70 ppa. is a very reasonable net density and 100 ppa. could be achieved without a high proportion of flats. Unfortunately there are signs that the New Towns Committee has influenced not only new town design but also the planning of many other built-up areas.

Area for Towns

Existing towns show very widely varying overall densities for very good local reasons. The available information suggests the broad conclusion that larger towns and those providing their own employment tend to have higher densities. Conversely, smaller and dormitory towns tend to have lower densities. But these figures mean little on their own and the exercise in simple division of the intended population by 12 in order to arrive at the acreage of the built-up area is a very misleading one.

There is also the problem of density being quoted within the framework of a preconceived picture of the town. To include 'recreational parks' in the density of the built-up area is to imply that in a town of 60,000 persons something like 600 acres of parks, in addition to school playgrounds, must be digested within the city limits. It ignores the more modest but better-founded proposition that we do not know exactly how much open space will be required or the suggestion that large recreational areas should be sited outside the urban fence where they can be integrated within the countryside instead of being used to disintegrate the town; where they can be easily varied if the needs of the town change.

b. Standards for Schools, Open Space and Industry

'The standards which will in future govern (educational) requirements are set out in the regulations of the Minister of Education under the Education Act, 1944.'

comment No doubt the Minister investigates school requirements very closely before making regulations. Nevertheless the 1945 regulations were revised in 1951 to reduce the site areas for certain primary schools and it may be that the generous standards provided will be reconsidered in the future. Inside London, also, few of the proposed school sites come up to standard (most are well below) but new schools recently completed there have exercised the ingenuity of the architects with results of considerable merit. In place of the familiar articulated plan, with each school function carried on in separate single-storey blocks connected by covered ways, 6, the London County Council is building to more compact designs which contribute to the urban scene, 7.

'Open space is taken at the accepted minimum of 7 acres per 1,000 population, but at least 10 acres are likely to be required.'

comment This is a sweeping recommendation without any detailed justification, although in this it is not alone among many vague estimates of open space requirements which have been put forward in the past. Certainly there are some details in the Greater London Plan in justification of 7 acres per thousand (although even these are open to question) but it is difficult to accept a 43 per cent increase on this figure because it is 'likely to be required.'

The fact is that no-one knows how much land is needed to provide a satis-

factory open space system and we still await a scientific enquiry. Certainly the demand will vary according to the density of the surrounding area but the most generally agreed figures in this country lie between 3 and 6 acres for playing fields and 1 acre for parks and gardens. It would, therefore, have been more reasonable to include 1 acre per thousand within the general urban area as town parks, playing fields being placed outside the town. This suggestion takes account of the following points:—

(*a*) Open space is only valuable in so far as it is used. There is much park land in our older cities which is barren because the layout is outdated, unimaginative or inadequate, 8 and 9. It would be expected that intelligent treatment of open spaces in new towns would give a much greater return to the public in terms of pleasure per acre.

(*b*) In new towns people are much closer to the open country than in cities encompassed by sprawl; they do not need parks to take the place of the countryside. In London such quasi-rural areas are required because the country is normally inaccessible.

(*c*) Use of the motor car is steadily increasing and better travelling facilities bring more people to pleasure and recreational areas outside the town during every season of the year.

'For a town mainly dependent on manufacturing industries of light and medium types an area of about 100 acres per 10,000 of total population should be reserved until closer estimates can be made of the trend of demand.'

comment The Committee have very properly adopted a cautious approach to this problem. In the broadest terms it is the question of an employment policy upon which the Committee expresses the view that new towns should provide variety of employment as between industrial and other occupations. If it is accepted that New Towns are to provide employment in order to relieve pressure on London, then employment in offices should receive greater emphasis; 97 per cent of London's surplus employment* is in office and similar occupations.

This drastically changes the picture of land requirements. There are many parts of London where office workers are efficiently accommodated at 1,500 per acre—most of the new buildings in the City are designed on about that basis. So for a total population of 10,000, on the assumption that 60 per cent are workers, all in offices, only about 4 acres of land are required. Again adopting the figure of 60 per cent of the total as representing the working population, if these are all in manufacturing industry, they could be accommodated on 40 acres at the average rate in London of 150 workers per acre. It is not suggested that these figures in any way comprise the total picture, but they do convey a different aspect from that presented by the Committee and the New Towns themselves, 10. It is based upon the concept of land economy and a compact town. As well as providing the essential requirement of varied employment, offices would also contribute greatly to the social and architectural qualities of the town centre, and could, in most New Towns, be sited there without expanding the land requirements.

* Surplus employment is defined as the difference between the number of jobs in a town and the number of resident occupied persons.

c. Roads

'Residential roads carrying two-way traffic should be not less than 40 ft. wide between fences and should have two footways. Carriageways in such roads should preferably be not less than 20 ft. wide, but exceptions can be made for roads developed on one side only. In short minor roads, cul-de-sacs and squares the carriageway may, in particular circumstances, be reduced to 16 ft. or 13 ft.; one footway is essential. The paved footway and the verges together should be not less than 10 ft. 6 in. wide.

'Grass verges add much to the amenity of a residential road and are usually best placed between the footpaths and the carriageway.'

comment In 1951 the then Ministry of Local Government and Planning published its Suggested Minimum Street Widths for Carriageways and Footways of New Streets, showing considerable reductions on the Committee's proposals:—

'For residential roads, the carriageway is 16 ft. with two 6 ft. footways.

For cul-de-sacs of given lengths and for roads giving access to property on one side only, the carriageway is 13 ft. Certain streets may dispense with footways'.

The grass-verge approach to amenity is one which still strongly survives but at least one highway authority has realized the simple impracticability of maintaining these tired strips, particularly when they are placed between the footway and carriageway. If the developer insists upon providing them they are to be sited outside the footways and so excluded from the road when it is taken over for public maintenance. But on visual grounds also, the intermittent grass strip must be rejected as falling between two stools—it is no more than a distorted vestige of grass as it can be seen when used as a noble element in civic design and serves but to add to the break-down of the street scene.

'Ample sight distance to be provided at intersections.

comment Another example of the sovereignty so frequently attributed to the motor car with disastrous results to the town. A layout involving staggered road junctions quickly disintegrates with the rigid imposition of triangular open areas at every corner.

d. Location of Underground Services

'Hitherto there has been no common practice, but a Joint Committee of the Institutions of Civil and of Municipal and County Engineers with representatives of other interested bodies and of government departments, has recommended that the services should be laid in the following order: (i) (nearest to the highway boundary) electricity; (ii) gas; (iii) water; (iv) (nearest to the kerb) telecommunications.

'We endorse this recommendation. In general a width of not less than 10 ft. 6 in. on each side of the street is sufficient for an orderly disposition. In residential or less densely developed areas it is possible to locate the services in a less width, but this seriously limits the space available for repairs. When mains for a service are laid on only one side of the street, frequent connections across and under the carriageway are necessary; they are, accordingly, increasingly being laid on both sides.'

comment It is probable that these words have caused greater damage to the architectural character of new towns than any others.

The December, 1954, issue of the Report of the Joint Committee referred to (which has only a few revisions as compared with the 1946 issue) contains the following:

Terms of Reference.

'To draw up notes for the use of engineers on the best location of underground services.'

Distribution or Service Mains.

'. . . in general a width of not less than 10 ft. 6 in. on both sides of the street provides for an orderly disposition of distribution or service mains.'

'In many cases, however, particularly in new estates and in less densely populated areas of existing towns, it is appreciated that *it may not be justifiable to provide* 10 *ft.* 6 *in. wide footways.* For this reason it is felt that some guidance on the location of underground services in narrow footways should be given, and (a drawing) indicates a typical arrangement whereby it is possible to lay pipes and cables, provided they are moderate in size, under the footways on both sides of the street; it is strongly recommended that this be done where economical and practicable. Where this is not possible the work should be so planned as to minimize disturbance of the carriageway. In cases where service pipes and cable must traverse the carriageway to supply premises on the side of the street remote from the distribution main it is recommended that, wherever possible, these be laid before the carriageway is made up.'

Sewers.

'As properly constructed sewers rarely

require to be uncovered after they have been laid, objections to the laying of the sewers under carriageways because of interference caused by repair works need only be considered in relation to the more important highways.'

Harlow is an example of a new town where the views of the New Towns Committee have been adopted. In the REVIEW for May, 1955, Mr. Frederick Gibberd complained of the effect on townscape of placing services in 9 ft. verges on either side of the carriageway, of laying sewers outside the carriageway for reasons of accessibility and of allowing house drains still further to widen the land that is sterilized to building. His diagram showed that, in a typical case, houses would be prevented from approaching nearer than 21 ft. to the kerb, 5.

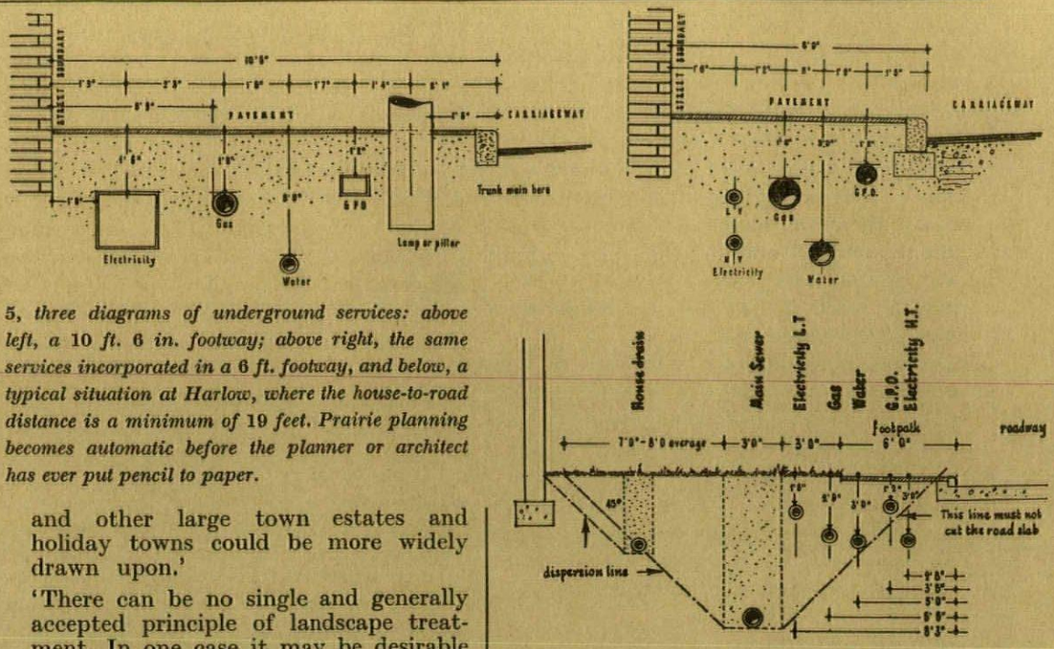
It is, however, quite clear that the Joint Committee did not intend underground services to make such a travesty of civic design. It is quite feasible to accommodate the four underground services in a 6 ft. footway and to place the sewer under the carriageway, unless it can be more satisfactorily located in back gardens. House drains also can normally be located at the rear of dwellings.

The problem has been magnified to a degree quite out of relation to its true importance and even the order of laying, to which the New Towns Committee attached considerable significance, is of no great moment. The Joint Committee itself said that where an agreed order and depth for the various mains already exists it is not suggested that it need necessarily be altered to accord with their recommendations. In London, each statutory authority keeps its own records of the precise location of services. No doubt the same thing is done in New Towns and a fixed order of laying has no particular value in enabling existing mains to be easily traced. In cities, and certainly in London, cables are normally laid in stoneware pipes from which they can be withdrawn and replaced when necessary. If the New Towns were more compact there is no reason why they should not enjoy the benefits of the same system since the extra cost (if any, in the long run) would be compensated for by the saving on overall length. There are naturally certain general principles to be followed —gas and electricity mains are, for instance, kept apart—but there is no need for towns to be designed round an axis of sewers and telephone wires. If the building of a satisfactory city is established as being the primary objective, the engineering services can and should be adjusted to fit into the pattern.

e. Town Planting

'Experience gained in the extensive planting at Letchworth and Welwyn and other large town estates and holiday towns could be more widely drawn upon.'

'There can be no single and generally accepted principle of landscape treatment. In one case it may be desirable to merge the town quietly into the surrounding landscape, by planting ecologically related to what exists already, with green wedges penetrating from outside into the town area. In another it may be better that the town should stand out sharply from its rural setting, a clearly defined boundary accentuating the distinction between country and town.'



5, three diagrams of underground services: above left, a 10 ft. 6 in. footway; above right, the same services incorporated in a 6 ft. footway, and below, a typical situation at Harlow, where the house-to-road distance is a minimum of 19 feet. Prairie planning becomes automatic before the planner or architect has ever put pencil to paper.

comment These words succinctly convey the unresolved duality of outlook which begs the question of the design of towns although the emphasis rests upon treatments adopted in 'large town estates and holiday towns.' The Committee's preference is for the town-country of the garden estates, not for the country towns such as Bury St. Edmunds; for the romance of buildings placed in landscape, not for the rational urbanity of Oxford, 13. Old Hatfield gives way to Bournemouth, 14, and to ensure the final destruction of the town the planners are enjoined to direct the green cheese-shapes at its heart. The possibility that town and country are distinct entities is almost an afterthought. Parkways should also be mentioned—they have their place in areas of high civic dignity where formality dominates: elsewhere they are ignoble.

f. Byelaws and Building Regulations

'Existing byelaws for building and streets contain redundancies and anachronisms, and they overlap clauses under town planning schemes. Their original purpose was to protect the public from the worst consequence of bad practice by enforcing observances of certain minimum standards. But because they were usually conceived in a period when there was little research and experiment in this field and standards of living were low, many have outworn their usefulness.

'We recommend accordingly that in the special circumstances of a new town the local bye-laws should be revoked and the building regulations in the leases relied on.'

comment It is indicative of the current state of opinion that this recommendation of the Committee, which is worthy of downright support, has not once been put into effect.

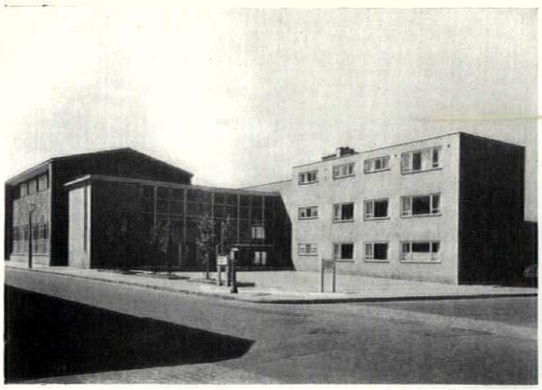
g. Neighbourhood Planning

There is one most noticeable distinction between the New Towns Report and the plans it has engendered. Despite the quotations given the Report pleads for unity of the general residential zones—these areas 'should not be further subdivided in the master plan'; 'the character of the town as one of diverse and balanced social composition must be established at the beginning'; 'segregation should be avoided.'

In contrast to this concept of the town as one unit, current planning dogma is increasingly engrossed in the pattern of a neighbourhood structure. For ease of analysis, for statistical purposes and for local relationships between houses, shops and schools this is, of course, wholly legitimate but there is a marked tendency to translate diagrams of social theory into physical development.

It is tempting to prepare a town plan which is little more than a slightly adjusted version of a schematic collection of statistical cells. Having done so, the space between globules cannot very well be designated as anything other than parkways or open space. The result is a series of over-emphasized neighbourhoods of which the inhabitants are unnaturally forced to look inwards to their local centre which is exalted at the expense of the town core itself. Not only is the town sundered in the physical sense, but the sought-after civic unity is endangered and the social advantages of a medium-sized town are lost.

[*continued on page* 419





6, 7

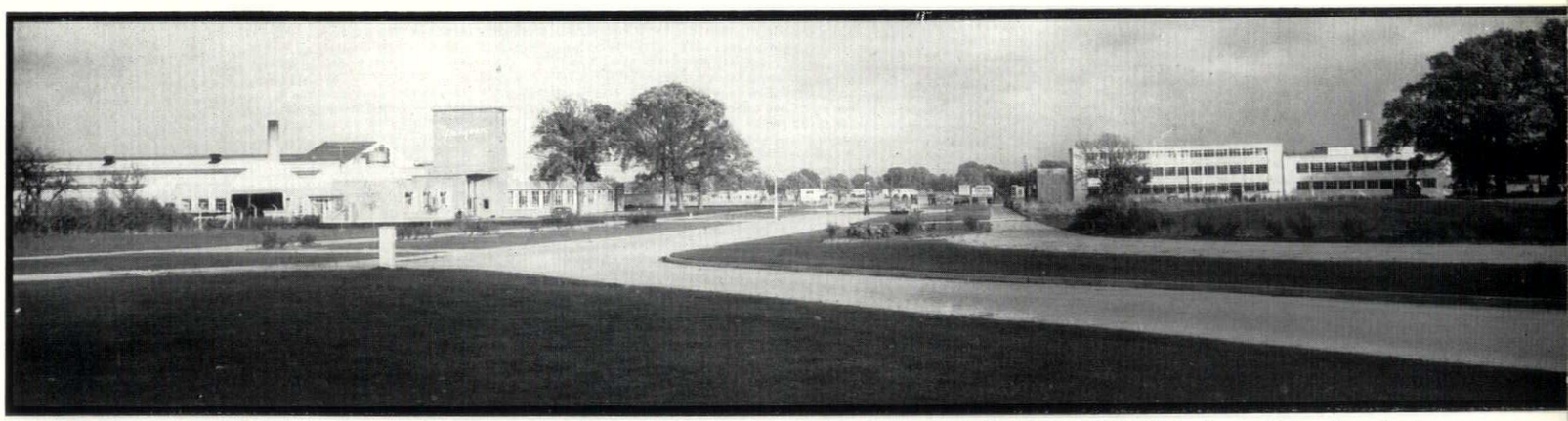
schools: *compact layout (6, Ricardo Street, Lansbury) contrasted with sprawl which, however pleasant in itself, eats up more land and makes it less likely that the New Town will become a town in fact as well as in name (7, Swan Mead, Basildon New Town).*





8, 9

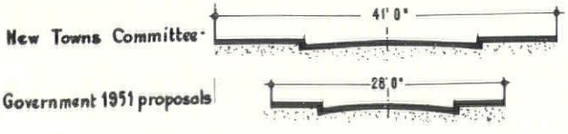
open space: *treated like this it is worse than useless (8, Old St. Pancras churchyard. 9, Norland Square, Kensington). Better to keep the town compact and have unlimited open space (i.e. countryside) within walking distance: or, in a city, to keep the parks few, big, and uncluttered.*



10

industry: 10, *Manor Royal, Crawley: an irredeemable desert with some pathetic landscaping which doesn't landscape. Half of this view could have been kept as countryside by careful tight planning: many of the factories could have been fitted in with the housing to the benefit of both.*

street widths: *the reasonable Ministry of Housing minimum standards compared with New Towns Committee proposals,* 11, *and with the Model Bye Laws,* 12. *The principle of adding* 50% *to every dimension to be on the safe side just won't work with town design—there is no town left when you have finished.*

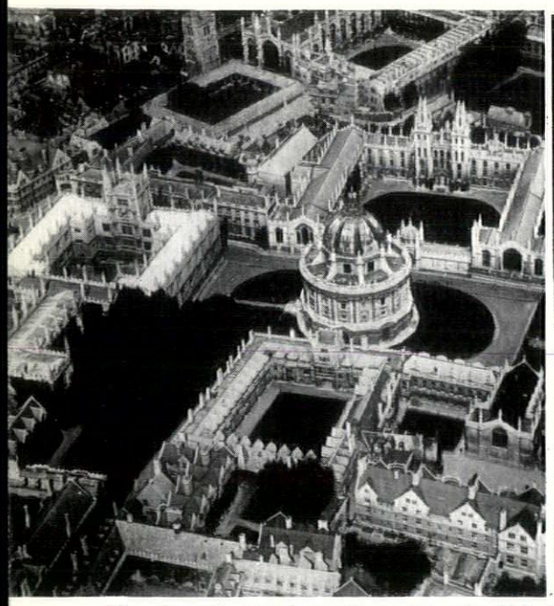


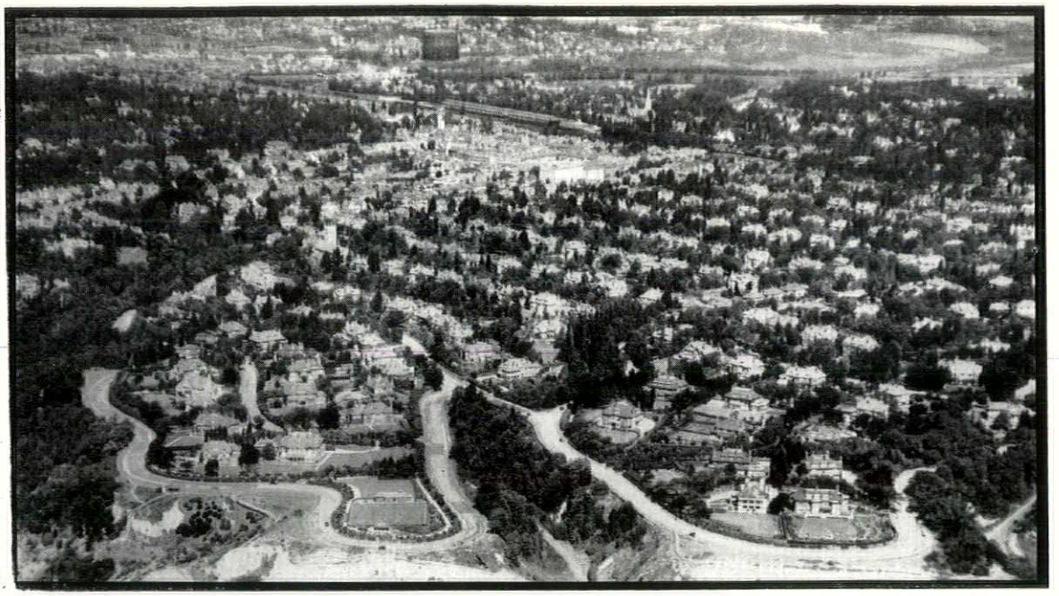
11

COMPARISON BETWEEN MODEL BYE-LAWS AND THE SCHEDULE OF MINIMUM STREET WIDTHS

Type	Minimum Schedule	Model Bye-Laws
Minor Street	28'0" — 6'0" — 16'0" — 6'0" (12ft if shops)	36'0" — 6'0" — 24'0" — 6'0"
One sided street not exceeding 1000ft in length	19'0" — 13'0" — 6'0"	26'0" — 20'0" — 5'0"

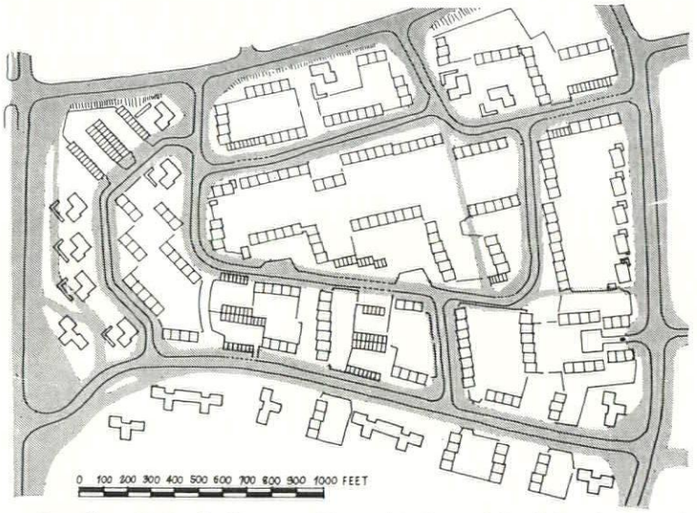
12





13 **landscaping:** *how a town should look: Oxford,* 13*—economy, supreme urbanity and (for once a true use of the word) amenity. A town from the air should look like an interlocking jigsaw of enclosed spaces—not like a checkerboard of isolated buildings in landscape—*14*, Bournemouth.*

14



15



16

dead ground: *the ground barred to the architect before he even starts to design is shown shaded in the sketch of a housing area in Harlow New Town,* 15*. How can the result help looking like this?—*16*, Peterlee.*





17

18

the result: *fit everything together with a minimum of wasted space and results like this will come almost automatically—*17*, Old Hatfield. Waste the space and the town will never get any better than this—*18*, Stevenage (it could be almost any post-war estate in the country). At the same time the countryside will be over the horizon instead of at your doorstep.*

compact towns and true countryside, or a mediocre hybrid?
The choice is presented diagrammatically opposite

continued from page 412]

Summary of Section 1:

All these savings may seem negligible in themselves. But, together, they add up to something. Here are, compared, the standards of the New Towns Committee (left), and a revision based on common-sense standards (right) which doesn't treat the land as an expendable commodity and each street as a miniature boulevard; a revision which saves nearly two-thirds of the original area.

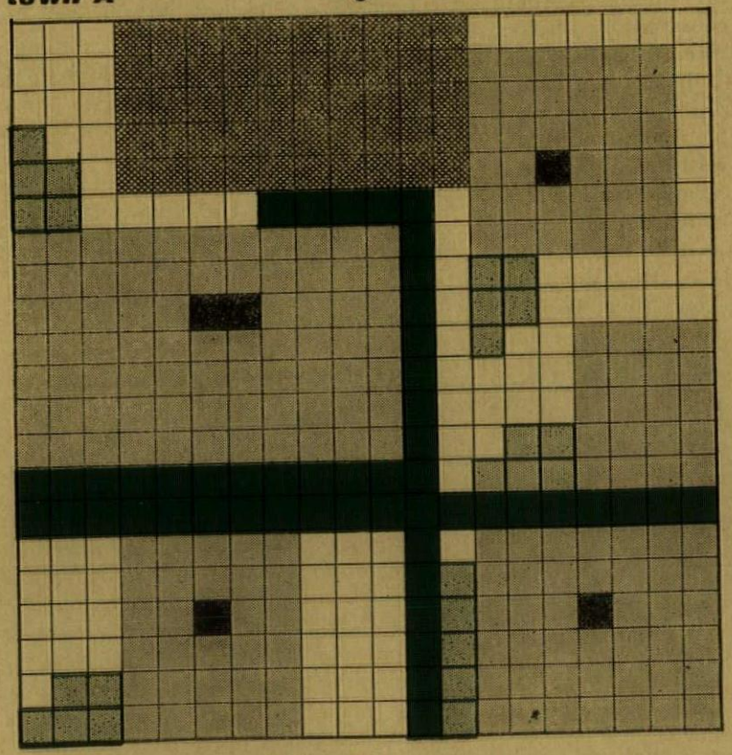
A. NEW TOWNS COMMITTEE.		Acres per 10,000 Population.
Town Centre		10
Industry		100
General Urban Zones:		
Housing (25 ppa)	400	
Schools	50	
Open Space	100	
		550
		660
But the Committee thought this might be extended to ... ... which is equivalent to 13 ppa gross density and then, after further consideration, picked on 12 ppa.		760

So for a town of 50,000 persons the land required is 4,200 acres.

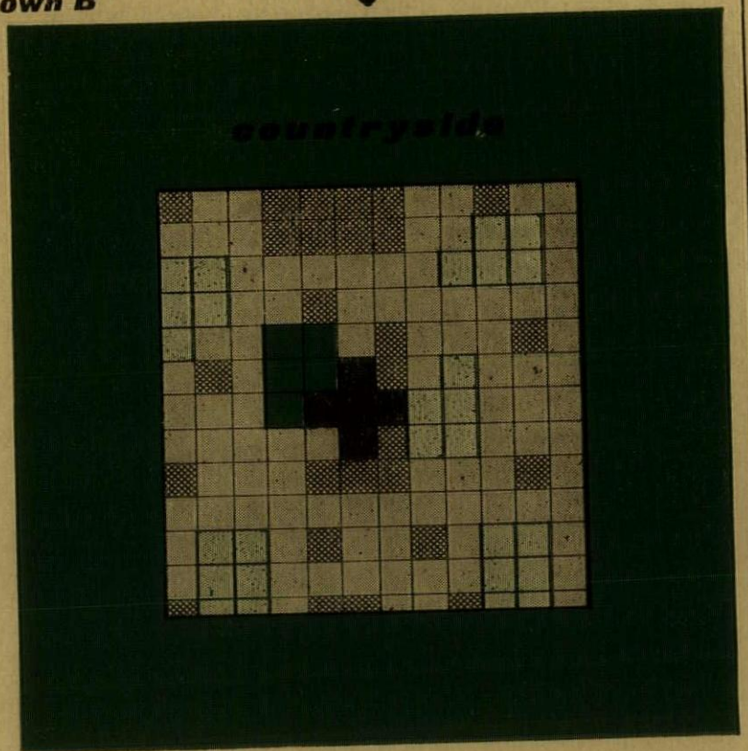
B. REVISED PROPOSALS.		Acres per 10,000 Population.
Town Centre		10
Places of Employment		50
General Urban Zones:		
Housing (70 ppa)	140	
Schools	50	
Open Space	10	
		200
		260
But there may be some unusable land and we may adopt ... ... which is equivalent to 33 ppa gross density. (Ebenezer Howard suggested 30 ppa.)		300

So for a town of 50,000 persons the land required is 1,500 acres.

town A



town B



Key. Each square represents 10 acres.

= town centre: fragmentation into sub-centres in town A because of distances involved: one compact centre in town B.

= industry: one huge estate in town A; a small estate for the noisy and smelly factories in town B; the rest—including office employment—worked into the town.

= housing: space saved in town B largely by reasonable standards for road widths and verges.

= schools (assumed the same for both towns).

= open space: fragmentation countryside in town A; one central park in town B, plus all the land returned to countryside: 2,700 acres of it. Maximum distance of housing in town A from true countryside = approx. 630 yards. Maximum distance of housing in town B from true countryside = approx. 280 yards. Uncoloured ground in town A is simply space left over—the inevitable result of the 'one for the pot' calculations used in working out its area.

2 *Economics and Administration* are taken together as the next barrier to progress because they combine to frustrate good design in a variety of ways, both directly and indirectly.

Although purely economic questions are not everywhere regarded as being critical they do have a serious effect in some circumstances. The following are some of the ways in which they have done so:

Building Costs

It is well known that in this country high buildings cost relatively more than low ones, even though it is a matter of merely one floor being added to the ordinary two-storey house. The reasons for this rise in price are far less apparent and although some items can be identified without great difficulty there is still a large unknown quantity which creeps into builders' estimates immediately they are asked to work more than a small distance above ground level. In other countries flats are as cheap as, or cheaper than, houses, and it may be simply that their building operatives are more familiar with the constructional techniques involved than is the British workman. Research is continuing and it is possible there will shortly be a change in the relationship between costs of high and low buildings, but, in the meantime, every architect knows that in normal circumstances the introduction of a higher building into a housing layout will be a relatively expensive operation. Moreover, within the framework of the present national economy and especially in the economic circumstances of the New Towns, being largely made up of young married couples with families, it may be difficult to find tenants for flats, excepting in such areas as London. Nevertheless, higher densities involving the use of taller buildings may, in some cases, show an over-all saving.

Land Values

Here are some of the average prices which have been paid for land within the designated areas of New Towns. In most cases the figures include the cost of some buildings:

	Per acre.
Aycliffe	£61
Stevenage	66
Harlow	90
Basildon	96
Peterlee	96
Hatfield	97
Crawley	107
Corby	126
Cwmbran	135*
Hemel Hempstead ...	162*
Bracknell	341

* Year 1952–53

Land, therefore, is comparatively cheap and it is not surprising that it is used liberally, or even wasted. Perhaps there would be a more rational attitude towards the land which is sometimes frittered away if its cost were nearer to the figure of £60,000 per acre which a London Borough on the edge of the City is thought to have paid for a housing site.

Roads and Services

It is apparently cheaper to set houses back from the edge of the street than to construct foundations in such a way as to avoid the possibility of damage by the weight of the building to drains and sewers (see also page 412).

It is apparently cheaper if sewers are placed under wide verges and the slab of the carriageway is of lighter construction than would otherwise be necessary to protect a sewer under the road from traffic vibration.

It is apparently cheaper to grass small open areas in streets than to treat them in a logical and interesting manner with hard surfacing. It is also cheaper to neglect these grass areas than to maintain them properly. (In Crawley maintenance of incidental grassed areas costs 17s. 4d. per house per annum.)

But there is much confusion of thought on the economics of housing layouts which is well illustrated by the Third Supplement to the Housing Manual (Houses, 1953). This dealt at considerable length with four different layouts and, in terms of capital cost, proved that the double footpath access system was considerably cheaper than the others. Mr. J. Mercer has, however, had no great difficulty in proving that, if maintenance and operating costs are taken into account, the double footpath access is the most expensive, whilst the conventional layout is the cheapest. (Paper entitled: 'The Effect of Modern Tendencies in Estate Layout on the Cost of Future Maintenance and Servicing,' read at the Municipal Engineering Congress on November 17, 1954.)

The fact is that there is little reliable knowledge of the economics of housing layouts and the architect should not allow himself to be thwarted by unsubstantiated catch-phrases.

Local Government Economics

'In the year 1821 the population of the City of Norwich was approximately 50,000, and it must be assumed that the majority then lived within the City walls—that is to say, within an area of about one square mile. It is true this only means there was an over-all density of eighty persons to the acre, but it has also to be remembered that, according to one authority, Norwich was then known as the "city of gardens" and there were many more open spaces than are evident at the present time.'

'. . . large tracts of land "ripe for development" towards the outskirts of the city are held by trusts, private owners and the Corporation itself.'

City of Norwich Plan, 1945.
C. H. James & S. Rowland Pierce.

Norwich is a fine city but the many thousands of visitors who savour its particular qualities every year mainly devote their attentions to the city as it was at the end of the seventeenth century—the city within the city walls—not to the city administered by the Norwich Corporation. The passages quoted above point towards the disaster which has engulfed the city and which the authors of the 1945 Plan instantly recognized.

The steps to disaster took place in the following manner:

(*a*) 1821–1871. A limited amount of growth immediately outside the city gates.

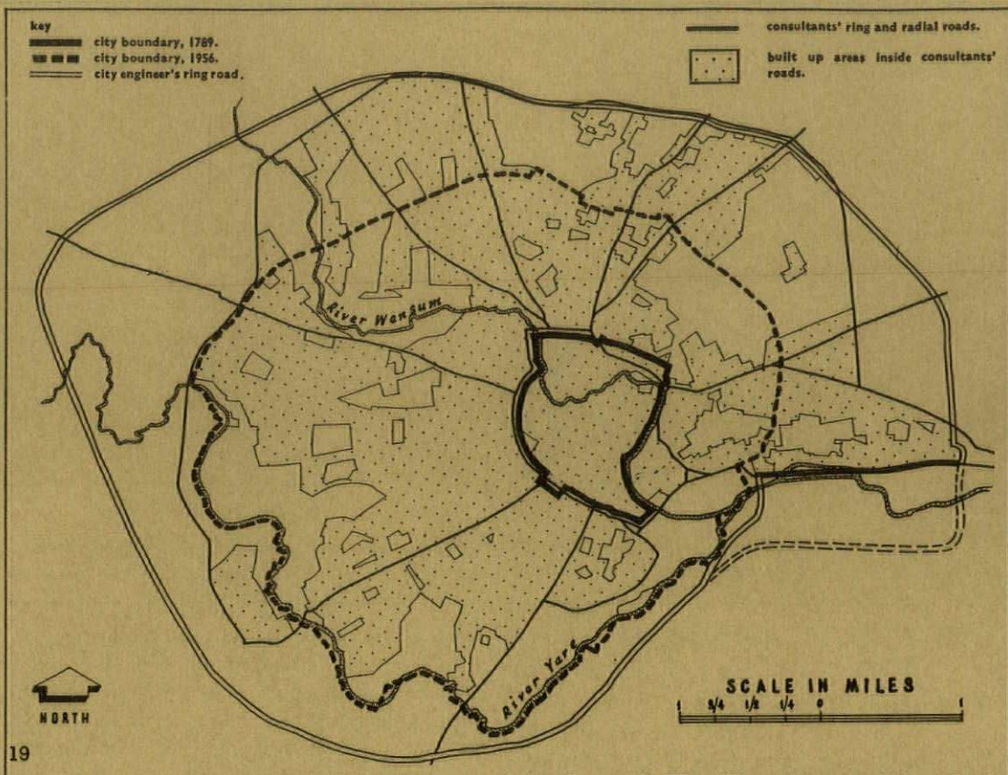
(*b*) 1871–1901. Considerable development immediately outside the mediaeval city—mostly monotonous and unimaginative.

(*c*) 1901–1914. Similar development at a slower rate.

(*d*) 1918–1939. Local authorities became also housing authorities and the Corporation acquired land within its own boundaries on a large scale so as to preserve land for its own use. Municipal housing was undertaken to an extent probably unequalled in towns of a comparable size amounting to about two-thirds of the total number of dwellings built in the period. The original square mile of the city had grown to an administrative area of over 12 square miles. The population was, nevertheless, only 122,000. But, because of the Corporation's acquisitions, and because much other land was held by trusts which were not prepared to sell, there was little land available in the inter-war period for private developers within even the now enormous administrative area. So they leapfrogged to the country beyond and many estates have grown up with the blessing of the authorities for the rural areas outside the city limits. They present the usual picture of sporadic, ill-designed and indifferently controlled growth.

The planning consultants, instructed to proceed on the basis of a maximum density of 60 persons to the acre, had little choice in making their recommendations to encircle the agglomeration of development with a ring road and to cover the remaining undeveloped land with new housing neighbourhoods, allowing liberal areas for new public open space. Inevitably these proposals were accompanied by the suggestion that the administrative boundaries should be further enlarged to fit the new picture.

Within this brief outline of a sad story are discernible some of the factors which have swayed local government decisions:



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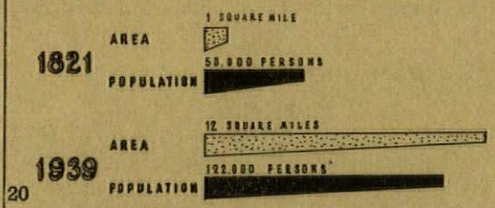


20

19, *Present-day Norwich, a microcosm of the national problem—the empire-building road schemes, the incomplete and gap-toothed sprawl.* 20, *the result: each person in Norwich uses up* five times *as much land as he did at the beginning of the nineteenth century. Is he five times better for it?*

(*a*) An urban authority acquires housing land in advance of its needs so that it will not face a scarcity as the tide of development sweeps onwards. This has, however, now become an element in a town-planning catastrophe.

(*b*) Local authorities, even rural ones, will usually welcome development, however undesirable from a planning point of view, because bigger populations and more rates are good business as well as boosters of prestige.

(*c*) An urban authority will normally wish to extend its area to enclose development beyond its perimeter, so as to gain rates from a population which is in many ways benefiting from the services it provides.

SUMMARY

In terms of direct costs there are problems associated with buildings more than two storeys high which it is hoped will be better understood as a result of investigation now being undertaken by the Building Research Station.

In spite of the proportionately greater cost of building above two storeys, densities higher than those in general use are demonstrably effective in reducing over-all cost per habitable room. The Ministry's Handbook on residential density suggests that it may be possible to attain a saving of, perhaps, 20 per cent of land compared with inter-war practice and at no greater cost by close attention to detail, avoidance of waste, and judicious use of terrace houses and low flats.

The local government approach to economics and administration is a matter of great complexity and sometimes unpredictable results. Galloping expansion is apparently stimulated by the present arrangements, and it seems that control of the situation was lost when the administrative boundaries of a town were no longer identified with its physical boundaries. The first step was not an unreasonable one—the town was expanding and those forced to live outside the walls should not evade their responsibilities to the city fathers—but subsequent steps have contributed largely to the abandonment of the city as a recognizable form.

The Minister of Housing and Local Government has suggested a method of checking future unrestricted sprawl by the formal designation of Green Belts around built-up areas. This is wholly admirable and the Minister will, no doubt, enhance his high reputation by vigorously pursuing the achievement of this aim. We have long been too much afraid of drawing a line—in fact, we stop at nothing where landscape is concerned. In new and expanded towns, and in others where possible, there is everything in favour of locating public open space in these Green Belts. The barrier would then be doubly effective, for land acquired under the Open Spaces Acts and dedicated to public use is protected from building to a degree unattainable in almost any other way. There will be cases where population within the belts will grow and a healthy pressure will be exerted upon available land. Economic trends will bring about a greater appreciation of the real value of land and building technicians as a group will be asked to exercise their skill in obtaining the maximum return compatible with the observance of recognized standards, instead of being doomed to dally with the Englishman's concept of his bungalow-castle.

But, in the meantime, public opinion is in favour of the semi-detached house at not more than 8 to the acre and in most areas the speculative builder who departs from this formula is heading for bankruptcy.

3 New Streets Byelaws

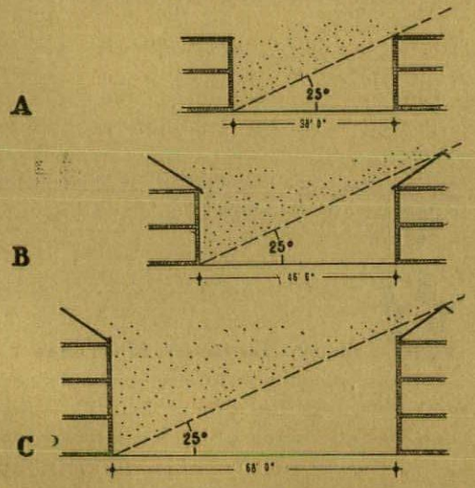
Overall street widths are probably the most critical of the difficulties to be overcome in designing a town. Even recklessly low densities can be at least partially concealed if a coherent street picture is maintained, but houses riven by gusty runways are doomed to eternal scatterdom.

Our street byelaws are designed upon the still prevailing practice of laying down a road pattern which is the dominant characteristic of the area. Buildings are subsequently appended and any relationship they may have to each other is fortuitous. The opposite approach of designing buildings in grouped relationships and evolving a road pattern to suit them leads to consideration of *daylighting and sunlighting*. These are the factors determining the spacing of buildings which can be defined with some precision and allowed for in the process of manipulating the architectural balance.

Mr. Frederick Gibberd has made it clear that 'the architect cannot always place his building as near to the road as he may wish, and a close relationship of dwellings to each other is impossible.' That it is not the important matters of natural illumination and insolation which frustrate the achievement of this relationship is soon established. The Government accepts an angle of 25° between facing terraces of houses as being sufficient to provide daylight to the excellent standards recommended by the Department of Scientific and Industrial Research. Two-storey flat-roofed houses need be only 38 ft. apart. With a roof-pitch of 30° the distance is about 46 ft. In the same conditions, three-

storey houses are placed 68 ft. apart, 21. Even these figures are liberal, and it is quite possible to design for adequate daylighting in terraces of two-storey houses placed not much more than 20 ft. apart, 22. If account is taken of reflected light the figure may be even less.

With sunlighting, factors other than the spacing of buildings take greater prominence in the calculations. These are design and orientation, which are matters entirely within the architect's control if he is given the liberty to employ his facility. The Codes of Practice Committee has recommended that the standard to be aimed at is to provide one window in the



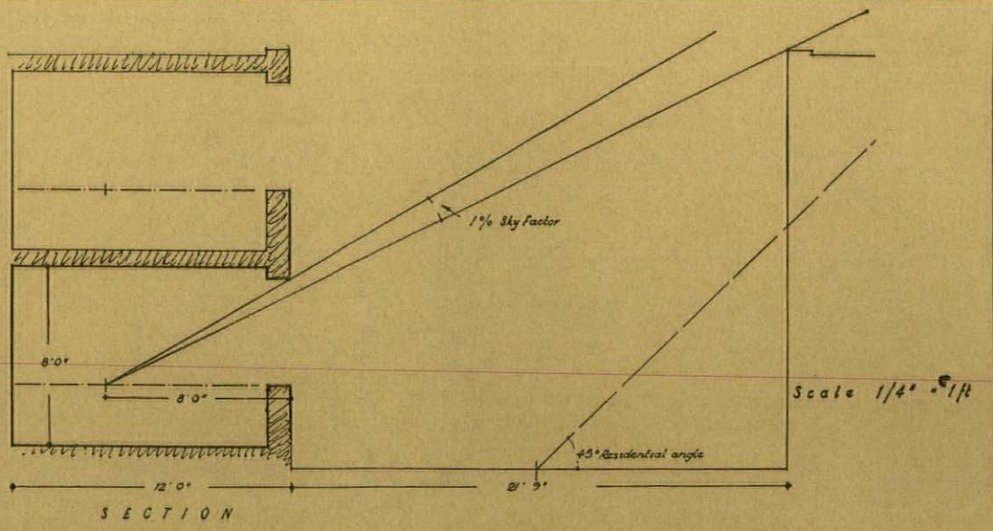
21, *application of 25° daylighting angle to three different types of building.*

principal living room so placed that sunlight can enter for at least one hour of the day during not less than ten months of the year from February to November. The position is best summarized by saying that sunlighting requirements alone do not necessarily have any great effect upon density provided the buildings are so arranged as to admit sufficient daylight.

Against this background of the simple architectonics of building relationships, and bearing in mind that services can be satisfactorily laid beneath a 6 ft. footway, the requirements of various highway authorities present a most confused picture, 24. The selected examples illustrated suggest the following general conclusions:

(i) Carriageway and footpath widths in themselves are not widely dissimilar. It is not, therefore, traffic capacity which directly affects the relationships between facing buildings.

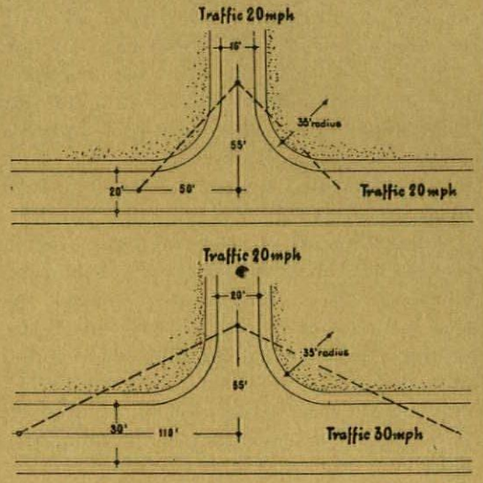
(ii) It is building lines which create most difficulty for the architect. These vary considerably in different administrative areas and appear to be quite arbitrarily imposed. They are not related to any ascertainable principles; they can only be supposed to represent the individual authority's concept of 'amenity.' The exception is London, where the normal main street width is 40 ft. and this generally coincides with the prescribed building lines, so that buildings may be placed up to the back edge of the pavement.



22, *minimum spacing of two-storey houses to give recommended daylighting standards—i.e. 1% sky factor 8 ft. inside the room from the window.*

Visibility at Junctions

Sight lines at junctions are frequently mentioned as forming barriers to successfully integrated layouts. When excessive requirements are allied to generous kerb radii an otherwise carefully related street picture can quickly be dispelled. To a considerable extent the design of a junction is dependent upon the speed of the traffic approaching it. At the same time, generous sight lines will encourage traffic to travel faster. Some authorities specify sight lines based upon a speed of 20 mph for traffic on both roads. The sight lines are extended when the driver on the through road is expected to maintain a speed of 30 mph. In the Government handbook 'Design and Layout of Roads in Built-up Areas' (from which the two examples are taken), 23, suggestions are also made for dealing with areas in which the building line is coincident with the back of the footpath. The resulting 45° splay is acceptable on traffic grounds and there seems to be no reason why it should not be more generally employed. In London, kerb radii and sight lines are kept to the reasonable minimum and the demands of the motor car are not allowed to dominate human requirements for a pleasing environment.



23, *the effect on design of junctions of applying standard sight lines for through road traffic travelling at 20 m.p.h. and at 30 m.p.h.*

Footpath Access

This is an important element in the design of a compact layout. In the Ministry's Schedule a dwelling may be up to 150 ft. from the nearest carriageway, measured along the 6 ft. wide footway. A pedestrian way lined with shops should be 20 ft. wide.

In London, footpath access is 6 ft. wide and no limiting length is specified. There are special arrangements to meet the needs of firefighting appliances.

In Harlow and Hatfield lengths for footpath access are respectively 120 ft. and 100 ft.

SUMMARY

London's estate roads can probably count on a traffic load as heavy as any in the country. The widths and building lines prescribed there meet the engineering needs, give the planner the freedom he is denied elsewhere and should be generally adopted.

4 Planning Controls

Apart from the considerations which have been dealt with in discussing requirements for new streets, the most serious problem emanating from the planning authorities is the control of residential density. One of the documents which illuminates the attitude of a council within whose area New Towns are being built is the 'Report on Planning Standards for Hertfordshire with special reference to the control of housing density.'

Authority	Main Streets	Inner Streets (Estate Roads)	Culs de Sac etc.
County "A"	70' overall 35' 35' 9' 16' 9'	70' 35' 35' 6' 4' 16' 4' 6' V fp	70' 35' 35' 4'6" 16'0" 4'6" 35' 13'0" 6' open space street not over 400' long
County "B"	80'–90' overall 40'-45' 9' 16' 9' roads and paths as above (County "A")	76'–86' 38'-43' 6' 4' 16' 4' 6'	62'–72' 31'36'
County "C"	Carriageway widths cannot be determined until a sketch layout has been prepared, although short estate roads usually have 16' and culs de sac 13' carriageways. Footpaths are 6' minimum. Verges are not favoured. Building lines are laid down by individual Rural District Councils.		
County "D"	100'	70'	Not distinguished
	Street widths are prescribed by individual constituent authorities. In some cases the carriageway widths may be relaxed but the overall byelaw width must be maintained by the inclusion of additional verges		
County Borough "E"	66' 33' 7' 22' 7'	78' 39' 6' 16' The building line may be varied for aesthetic reasons	3' 13' 3' The building line varies
Harlow New Town	62' 31' 6' 22' 6'	56' 28' 6' 16' 6'	50' 25' 6' 13' 6'
Hatfield New Town	not distinguished	70' usual 40' usual width	not distinguished
Basildon New Town	100' 15' 7' 7' 22' fp. V.	58' 15' 6' 16'	45' minimum 15' 6' 13'
LONDON (minimum requirements)	(i) 40' 8' 24' 8' (ii) (within housing estates) 8' 20'	40 6' 16' not for through traffic	(i) culs de sac 6' 10' 1'6" fp (ii) inner access roads and private ways 15" 10' 1'6"
	Building lines are covered by daylighting requirements and by the London Building Acts. In new streets buildings are not normally brought nearer than 20' from the ℄ of the road, but this may be waived.		

24, all the futility resulting from a mass of uncoordinated authorities is summed up in this diagram of the new streets byelaws of ten authorities—a farcical situation if it weren't for the fact that nine of them represent sprawl. A drastic national overhaul of the whole byelaw system is needed: at the moment we have more local rules than ever before and less local character coming out of them. Paradoxically, things that would benefit from local variations—like bricks—are stereotyped from Boscastle to Newcastle.

The report is a general statement of the Council's policy and refers initially to:

'Plans submitted for very close development by the London County Council and by the Stevenage New Town Corporation . . .'

'In both the layouts mentioned above, there are numbers of houses with an average site of 20 ft. frontage by 90 ft. depth, giving about 25 ft. depth of front garden and 40 ft. depth of back garden, after allowing for the space taken by the house itself.'

The Council asks:

'Are people really likely to be willing to give up their work in London and to take new jobs in Stevenage or, still less, to travel daily from houses in Boreham Wood and Oxhey to work in London, in order to live in such conditions? Is it not very doubtful whether they will be willing to do so once the present housing shortage is over and the alternative of a flat nearer their work

becomes available, due to redevelopment of the inner areas? Extensive developments at these low standards may well, in the future, place upon Hertfordshire the further burden of untenanted property and the matter calls for very careful consideration.'

comment These questions well exemplify the clouds of confusion which beset the density issue. The simple answer to the Council's questions is that it is quite feasible to develop at densities in the region of 70 to 100 persons or rooms per acre in residential areas which will provide satisfactory living conditions and which will be the subject of vigorous demands for the whole of the foreseeable future; the assumption must be made that these residential areas will be planned either as parts of new towns, or as extensions to old ones, and that the occupants will be provided with workplaces and with all necessary social facilities.

Any attempt to clarify and deal with the other weighty matters posed in the questions would be a formidable task and one which is hardly relevant to a decision as to the appropriate size for a garden, but it may be said that if people decide to return to London from the New Towns it will be because of the failure to build and create satisfactory townships in the full architectural, social and economic sense and not merely because the gardens are smaller than it is imagined they should be.

Density

The report continues with an examination of the cases for high and low density. The arguments for high density are stated as being:

The agricultural—loss of farmland.

The financial—high density shortens roads and services enabling rents to be lowered. It reduces demand on public transport. It conserves building materials.

The cheapest form of housing is two-storey terrace building to a high density.

comment No doubt other reasons for higher densities will come to light and the matter will be considered by the Council on a broader basis at a later stage.

* * *

The case against high density is dealt with by:

(*a*) The reply to the agricultural case: If density is 'increased to the extent of insisting that 20 per cent of families should live in flats, and the bulk of the remainder in small terrace houses, it is unlikely that a saving of more than 70–80,000 acres (in England and Wales) could be achieved.'

'When the size of the plot is reduced much below one-twelfth acre, the available area becomes insufficient to include a vegetable garden.'

'The only effective way of saving agricultural land would be to halt all development of new land and to rehouse the population in flats within the existing built-up areas. This is, of course, a Continental solution to the problem.'

'The 12 to the acre density has been accepted as a maximum for the development of new sites, since the reports of the Tudor Walters Committee in 1918 and experience has shown it to be by no means overgenerous.'

'Private enterprise housing in the County, under severe building restrictions, has not averaged more than six to the acre since the war, and indicates the size of garden which is provided when the choice rests with the individual.'

'From the point of view of Civil Defence, low density or "dispersal" is likely to be more valuable in the future than in the past.'

'There is no hope of the country being self-supporting in food, and it would be absured to spoil the living conditions of the urban population in pursuit of the unobtainable ideal of national self-sufficiency in food production.'

(*b*) The reply to the financial case:

'Any policy for raising density by a substantial increase in the proportion of flats to houses would lead to a sharp increase in cost, since the extra cost of flat dwellings exceeds any saving on services and roads.'

The report concludes that low density wins.

comment 80,000 acres—125 square miles—one MORE conurbation greater than the area of London County imposed on this disappearing island. In more familiar form it is a strip of subtopia 1½ miles wide stretching from the Wash to Colchester. It is the area of 13 new towns the size of Harlow, IN ADDITION to a further 400,000 acres or 750 square miles required for development generally during the next 20 years.

The un-British approach to town planning is, of course, acceptable to no-one, particularly to the many millions of people who wish to buy their vegetables from a greengrocer's shop and private enterprise has for a long while demonstrated its infallibility, but it is difficult to understand how the hydrogen bomb will distinguish between the 12-to-the-acre men and the rest.

* * *

The next step of the report is to define the limits of high density housing.

'. . . simply on daylighting (i.e., health) grounds, the minimum distance between houses might be put at 70–75 ft., or an approximate density of 22 houses (77 persons per acre) to the net acre. It is contended that such a density is only justifiable in the re-development of central areas in large cities where it is imperative to rehouse as many people as possible on the same site, in order to keep them near their work.'

The report considers that the distance between the *rear* walls of houses should, however, be not less than 150 ft. (for reasons of privacy) and, with this figure combined with a distance of 72 ft. between front walls, arrives at a typical maximum net density of 14.6 houses or 51 persons.

'In suggesting a maximum average density of 14.6 in place of the 12 houses per acre in general use, the Committee have been mindful of the agricultural and economic pressures referred to . . . above, but they view this higher figure as a maximum which needs to be relieved with areas of lower density if a monotonous appearance is to be avoided and if the new community is to have an opportunity to develop a sound social structure.'

The density of medium density housing is arrived at by a similar process. By analysis of a cross section of the weekly incomes of some of the householders living within 15 miles of Charing Cross it is deduced that:

60 per cent of houses should be at 13.3 per acre.

25 per cent of houses should be at 8 per acre.

15 per cent of houses should be at 6 per acre.

Giving an average overall density of 35 persons per acre. A neighbourhood of 10,000 persons is estimated to require 463 acres, including schools and open space.

comment Whilst it is noticeable that the neighbourhood area is still nearly 100 acres less than the figure adopted by the New Towns Committee, it is difficult to accept the process of reasoning set out above as a basis for the density structure of a county. The question of daylighting has already been dealt with above and whether the monotony of a density of 14.6 houses per acre can be relieved by reducing it in places is a matter for discussion.

The distance between buildings necessary to preserve privacy is one upon which there is little agreement. Generally, the authorities which prefer low density like more privacy, e.g.:

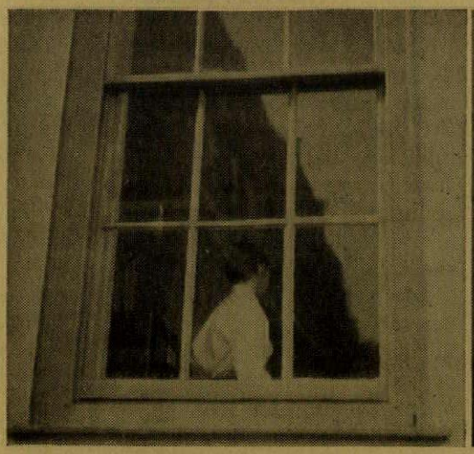
Hertfordshire	150 ft.	privacy distance.
Hatfield	100 ft.	,, ,,
Harlow	80–90 ft.	,, ,,
Coventry		
Houses	80 ft.	,, ,,
Bungalows	40 ft.	,, ,,
London	60 ft.	,, ,,
Wrexham	60 ft.	,, ,,

The photographs, 25-29, suggest that privacy depends far more on the distance of the inmate from the window than on the distance from the window to the observer.

Certainly a great deal of the need for privacy can be met in the design of the houses themselves, but it is remark-

privacy:

subject near window



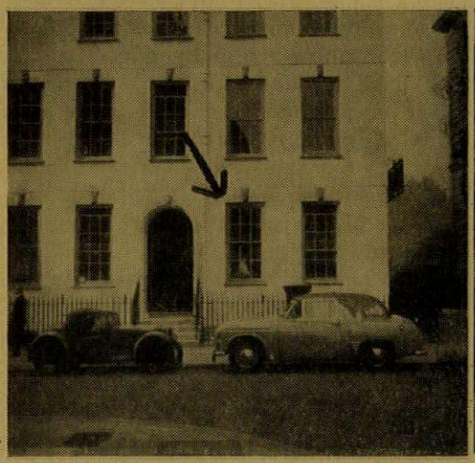
25

subject 12 ft. inside room



26

10-ft. distance: *subject is clearly visible when in front of window,* 25, *but can only be seen dimly when standing* 12 *feet inside the room,* 26.



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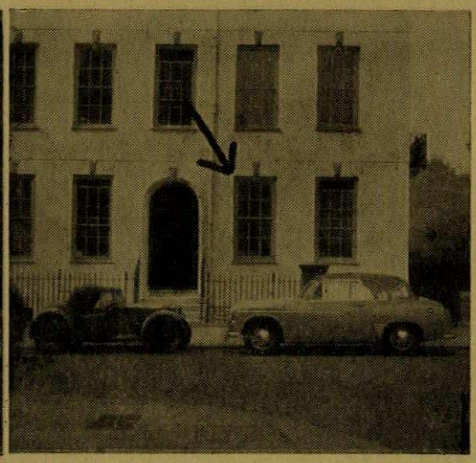


28

52-ft. distance: *subject still clearly visible in window,* 27, *but has disappeared entirely when standing back,* 28. *This is the distance beyond which it was impossible to see to the back of the room. (The minimum privacy distance adopted in London is* 60 *feet.)*



29

145-ft. distance: *subject close to window is still without complete privacy. The vanishing distance is about* 250 *feet.*

Summing-up: 'complete privacy,' as an object attainable by increasing the distance between houses, is largely an illusion. To attain it nearly 100 *yards is needed between houses, which even Hertfordshire might agree was impracticable; and* 150 *feet is still not much use if you persist in undressing in the window. 'Common-sense privacy'—i.e. privacy at the back of the room—is attainable at a minimum distance of about* 50 *feet, as thousands of Londoners know.*

able that the general clamour for isolation emanates from many who voluntarily congregate at holiday-times in our overcrowded resorts instead of seeking the fast-disappearing remote country-side.

5 Building Byelaws

These are not a great barrier to improved design, but the byelaws which deal with Space about Buildings can be the cause of annoyance, if interpreted inflexibly.

Very frequently a byelaw will require an open space immediately in front of a domestic building, extending throughout the whole width of its front to a distance of not less than 24 ft. This seems reasonable, until the district surveyor rejects the corner treatment on the ground that the flank wall must be called 'the front.' His decision involves widening the corner space to 24 ft., so destroying the sense of enclosure.

Other byelaws often demand at the rear of a domestic building 'an open space exclusively belonging thereto and of an extent not less than three-hundred square feet.' This also has to extend throughout the entire width of the building. Whether a corner treatment involving a house with a small patio would comply is a matter for conjecture.

The root of the matter is that byelaws, like other restrictions, are almost all related to an anachronistic concept of the development they affect. Any design which discards the old approach is apt to be rejected for the reason that it fails to fit to a pattern of rigid rules; not upon a fair evaluation of its own qualities.

6 Garages

The provision of space for motor cars in a contemporary housing layout calls for great ingenuity if densities are not to be greatly reduced, particularly as the requirement is gradually being accepted as one car space for every two dwellings.



30



31

garages: *present-day standard solutions are either a separate garage—a tiny box for the car attached to the little box that is the house,* 30, *or no garage at all,* 31 *(Hendon Way). Garages can be fitted in without chaos, see illustration* 32 *and the garages in Horndean Close on page* 423.

The speculative developer solves the problem by leaving space for a garage at the side of a house, 30. The cost of the garage building is, perhaps, £70.

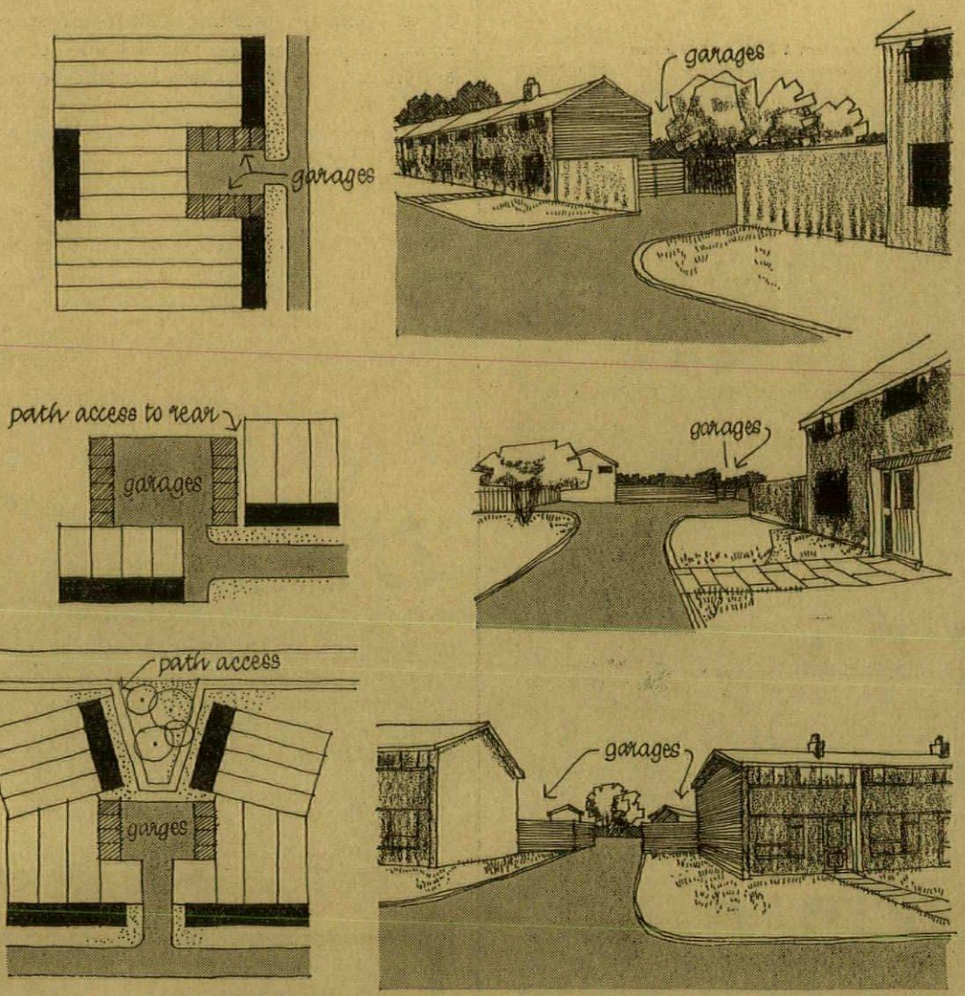
Cars parked in front gardens are a familiar unpleasant sight, 31.

If the garage is built into the house it may cost £250 extra.

If street parking is to be accepted, then carriageways must be even wider, or alternatively verges (wide enough to take a car) must be paved.

Multi-storey garages will cost at least £600 per car.

The three layouts illustrated, 32, are all in use at Harlow and combine the economy



32, *three layouts at Harlow New Town for garages fitted into a housing pattern in a way that adds to the rhythm of houses and streets instead of inhibiting it.*

of the speculative builder with the virtues of considered civic design.

The Potentialities of Rational Standards

The simple conclusion which emerges from consideration of all these influences directed towards the design of residential areas is that they are imposed without any regard to civic-architectural qualities. The combined effect is that the architect is barred from carrying out development which has the character of a city. He will be beset by worn-out planning theories and their derivatives, planning controls, which are so frequently incapable of justification. He will be the slave of engineering requirements as to roads and services. Much of the pressure to which he will be subjected is the product of fear—fear of the kind of development which took place under byelaw control combined with a lack of faith in the ability of the contemporary architect to assess and provide for the needs of man in his home. This fear is exemplified by one of the arguments which has been employed against urbane layouts to the effect that approval would commit the planning authority to acceptance of inferior development by the speculative builder—development which might conform to the same analysis in terms of density, spacing and road-widths, but which would be the antithesis of the other in terms of civic design.

Faced with these heavy odds, the architect will also have other forces to combat. Of these, economics will be to the fore, since it is generally accepted that the profitable disposal of sites depends upon the creation of new suburbias, whilst even in the residential areas of central London it is now safest to speculate with houses of comparatively low density. The architect must himself bear some of the blame for the currently high building costs which limit variety in architectural composition, but he cannot easily change public opinion which has been nurtured on a distorted garden-suburb philosophy and which will not be altered until the advantages of some alternative examples are there for it to see.

Meanwhile the contemporary movement within the profession towards building high has been greatly influenced by l'Unite d'Habitation and the thought of which it is the expression. But the motives of M. le Corbusier are very similar to those of the exponents of low density—the subjection of the city to the natural influences of sun, air, trees and grass to such an extent that the neuter town-country emerges. Their respective solutions are opposite extremes with a common romanticism.

In the British scene there is room for derivatives of both extremes and where higher densities of about 200 persons per acre are the aim the current emphasis on open planning has led, quite naturally, to acceptance of a pattern of high buildings which are well lighted and enjoy good insolation, as well as the benefit of whatever distant views may be available. Practically the only examples to be found in this country are in London. These are buildings in landscape, and they serve their purpose best when used as part of an area of comprehensive development in order to free land for a variety of lower buildings which meet the needs of different sections of the population. Architecturally they provide point and contrast; by careful placing and design they can give grace and form to a city skyline.

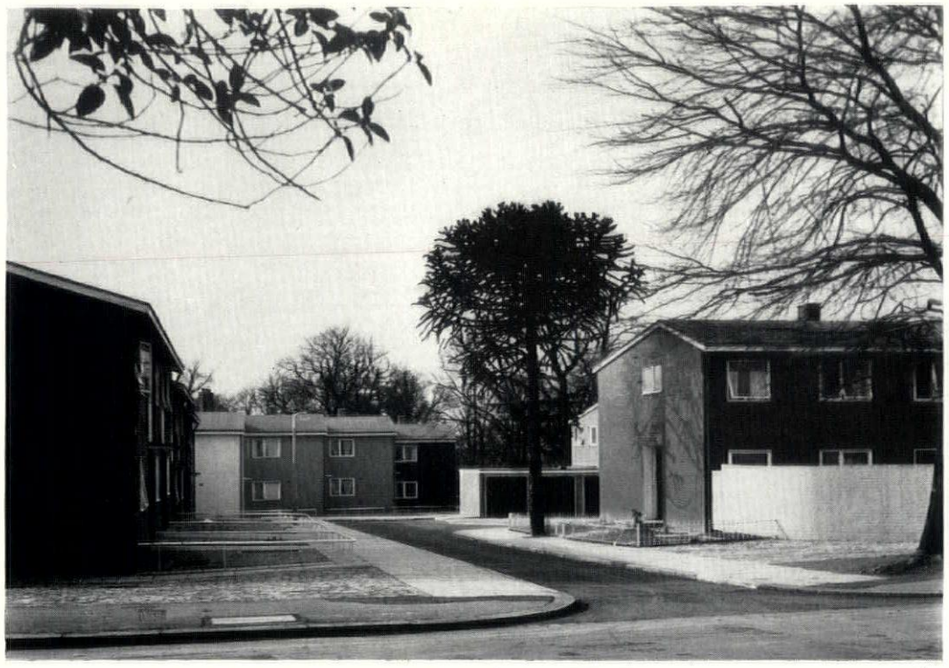
But the city in the British tradition demands artifice and continuous close building. It is not a composition of buildings set in a park, but a dignified expression of social integrity in which man's work predominates. Grass and trees may appear as elements in the scene, but their position is one of subordination to the elegant declaration of human skill and contrivance.

There is, therefore, emerging a form of layout, in which different kinds of residential accommodation are adapted to the varying demands of the inhabitants, designed to fit the many different kinds of family which can be identified by a simple social survey. Some high buildings are employed, but only when and where they can be justified on social and civic design grounds. They are not permitted to disintegrate the composition of streets and squares which form the main pattern of the neighbourhood. Roads are adequate for traffic, but not expressions of the dominance of the motor car, and pedestrian ways are their equal in importance.

Such urban compositions as these point the way to a new solution of the problem of living in cities, but, in most places, the architect is denied freedom to exercise his abilities, and layouts which do not conform to the many irrational controls now in force are not permitted.

On the next four pages are examples, old and new, of the result of applying rational standards to housing layout ☞

rational standards: 1. Horndean Close, Roehampton



1



2

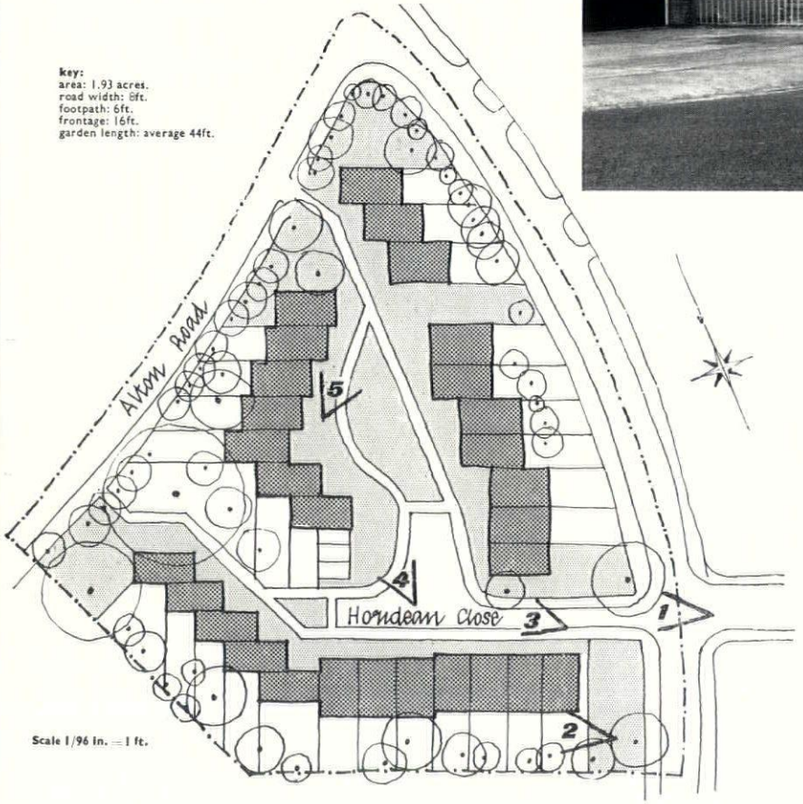


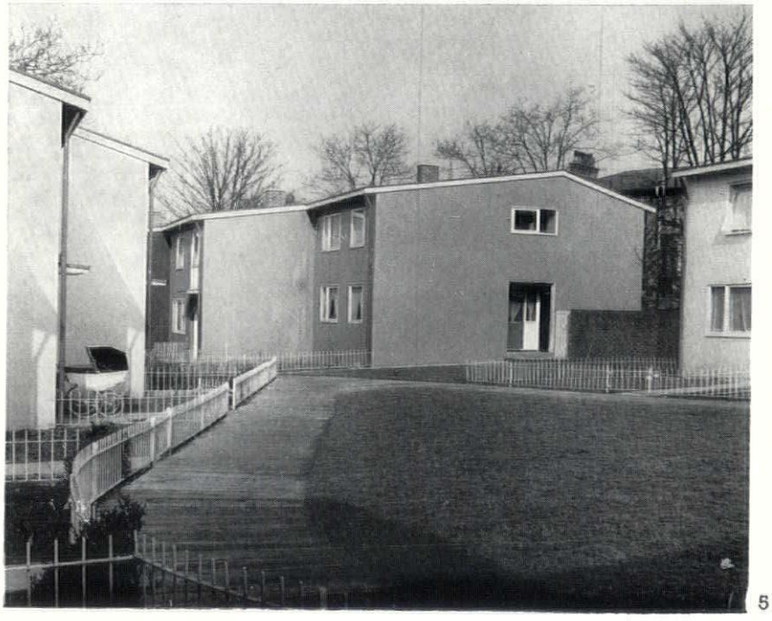
3

Urban houses can be at a high density without losing any of the traditional amenities if the space around them is carefully used. This is part of the L.C.C.'s Alton Estate at Roehampton, built in 1955. The viewpoints are indicated on the plan below; 1 shows the way in which the houses are painted in sequence from cream to deep green, 2 shows a typical back garden. The density—in spite of being a corner site—including all the surplus road inside the dotted boundary on the plan, is approximately 70 rooms per residential acre, which can be considered as 70 people per acre.



4





5

rational standards: 2, London Squares.

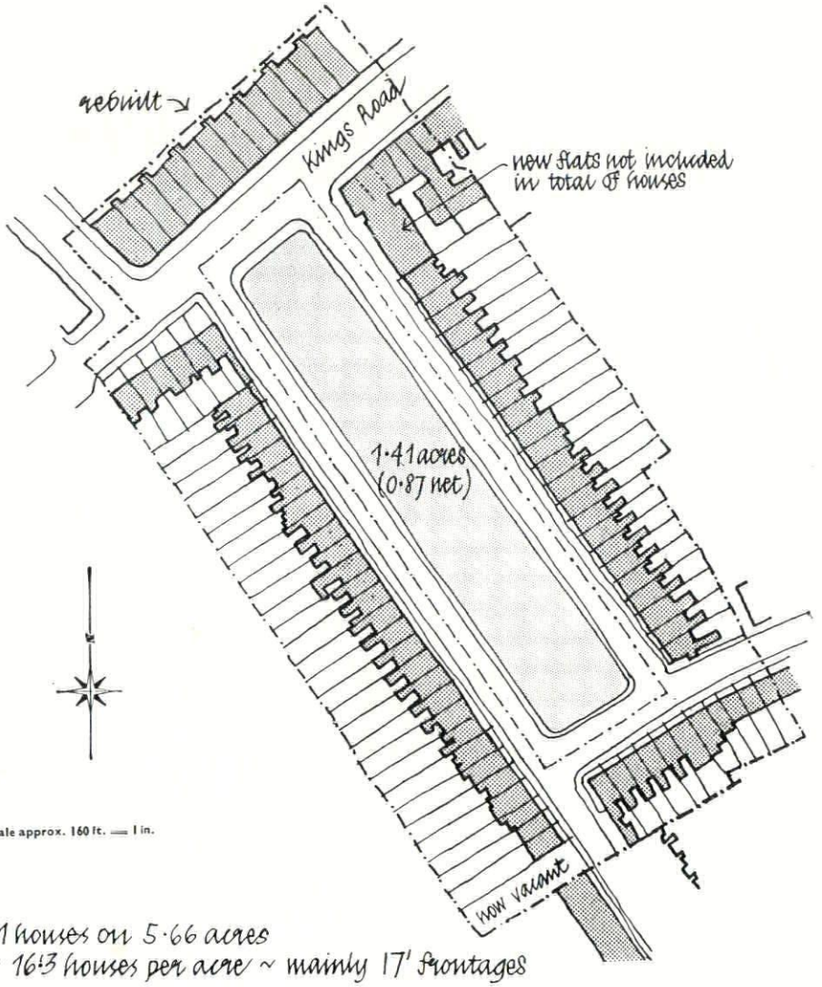
Everyone admires the urbanity of the Georgian and Early Victorian squares of London; few people have thought to examine to what density these truly 'desirable residences' were built. Here Elizabeth Denby analyses three of them: one Georgian, one Early Victorian, and the third a remarkable piece of early twentieth-century revival, built just before the bye-laws and misapplication of garden city principles castrated urban design in England. Now we produce, at best, 'buildings in landscape'—a suburban idea, and a very fine one, but useless in a town. In the table below 'gross density' (col. 4) indicates houses per net residential acre. At 5 to 8 rooms per house, this gives densities of 120 to 150 people to the acre (the New Towns Committee recommended 25 p.p.a. net) and includes not only private gardens but 'open spaces' finer and safer than any recreation ground or left-over derelict plot.

Vital statistics						measurements taken from 1/1250 O.S.					
			col. 2 ÷ col 3								
	NUMBER OF HOUSES	TOTAL ACREAGE	GROSS DENSITY	GROSS ACREAGE OF SQUARE	DENSITY OF HOUSES ALONE	Normal frontage	Normal depth of back garden	Depth of house	Front garden	Pavement	Road
1	2	3	4	5	6	7	8	9	10	11	12
Paultons Square, Chelsea	91	5·66	16·1	1·41	21·4	17'0"	70'0"	30'0"	5'	5'	24'
Cleaver Square, Southwark excluding Kennington Pk. Rd. frontage	67	3·88	17·3	0·87	22·2	15'6"	65'0"	25'0"	6'	7'	22'
Courtenay Square, Lambeth	38	1·53	24·8	0·29	30·6	15'7" or 18'0"	40'0" or 28'0"	22'0"	5'	7'	13'

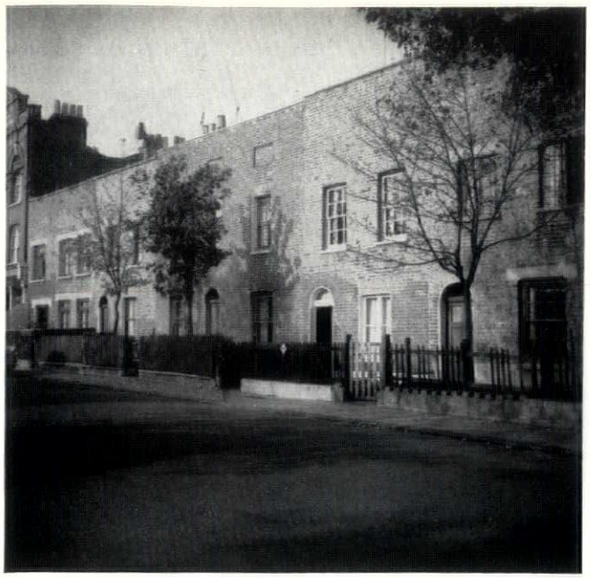
a: Paultons Square, Chelsea—*c.* 1840 *with individual gardens and communal (tenants only) central space. Built for artisans, now largely gone up in the world and expensive. Below, north-east side of square; bottom, the central garden.*

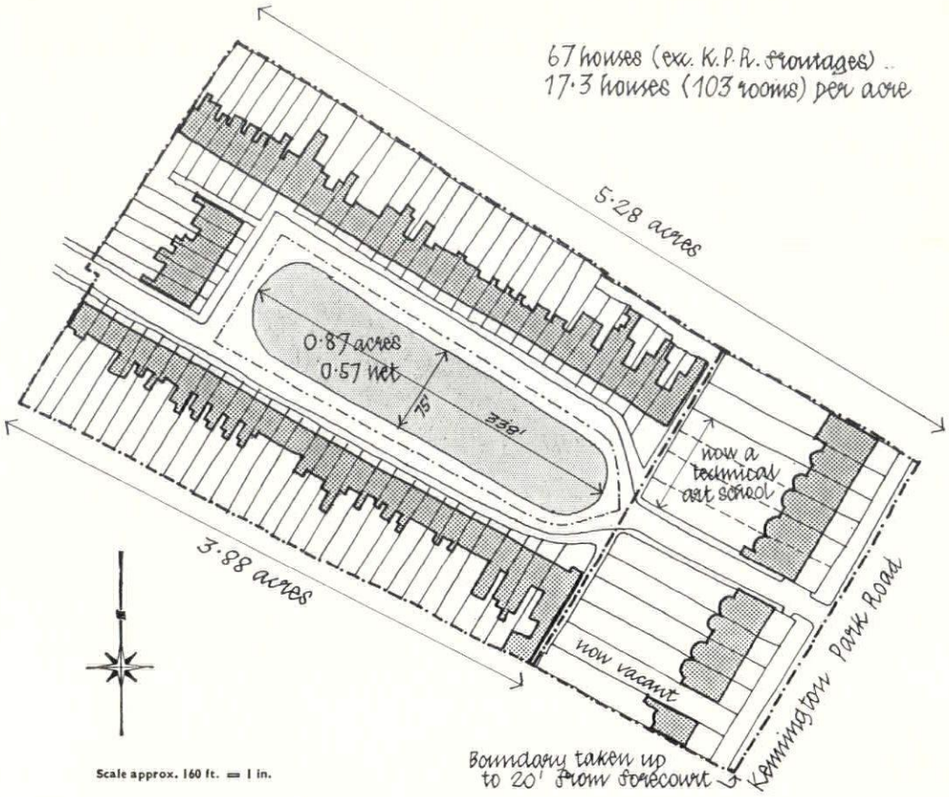




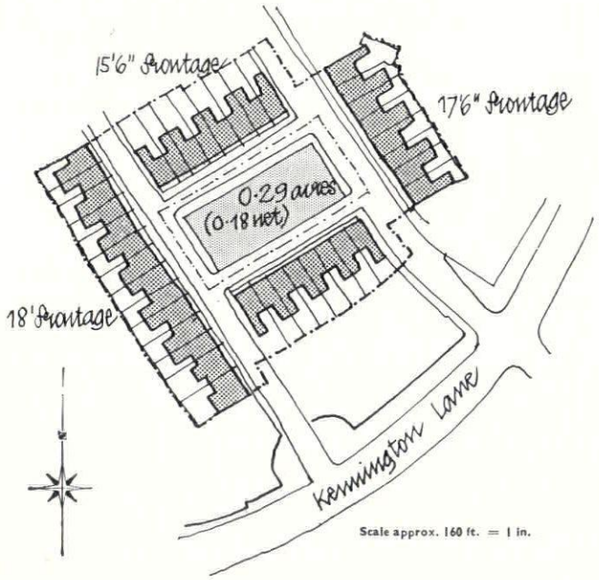


91 houses on 5·66 acres
ie. 16·3 houses per acre ~ mainly 17' frontages



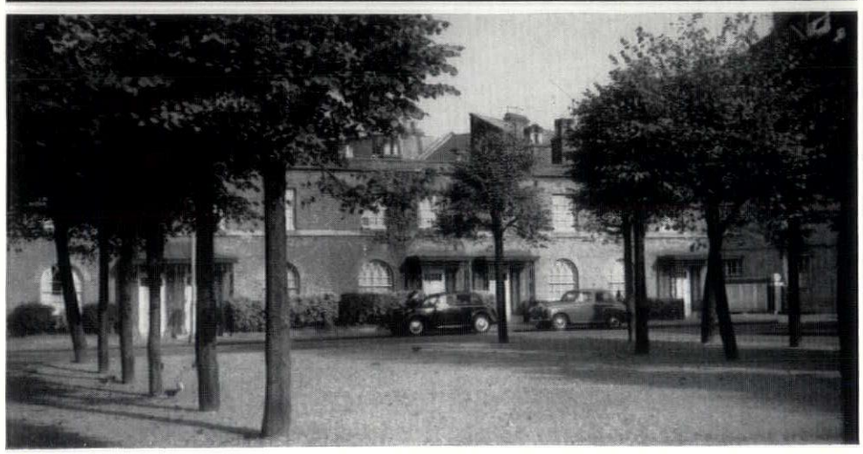


b : Cleaver Square, Lambeth—1800–1820, *two- and three-storey terraces. Still largely working class, it forms the perfect pattern for housing large families in an urban way. Several squares like it have been pulled down in Southwark since the war to be replaced by all-flat estates which are often at no higher density. Meanwhile the large families move out twenty miles to estates like Oxhey (see overleaf). The central space has been unhappily municipalized with asphalt and jaded shrubs, but the houses themselves remain unspoilt. Above, part of north-east side of square.*



38 houses on 1·53 acres
ie. 24·8 houses per acre

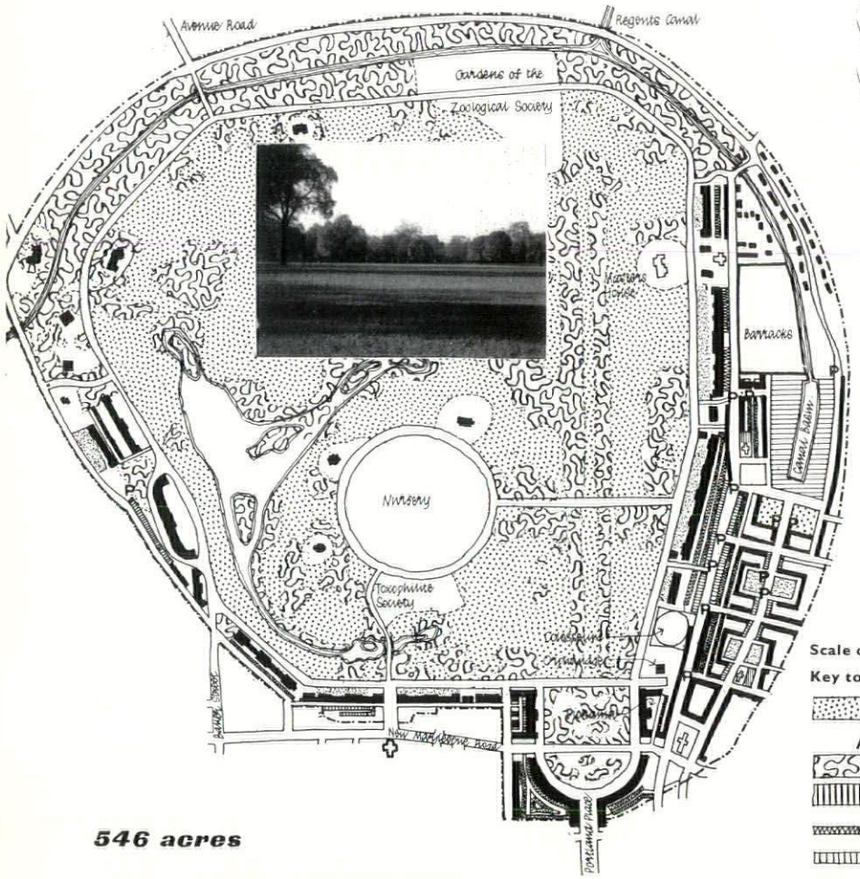




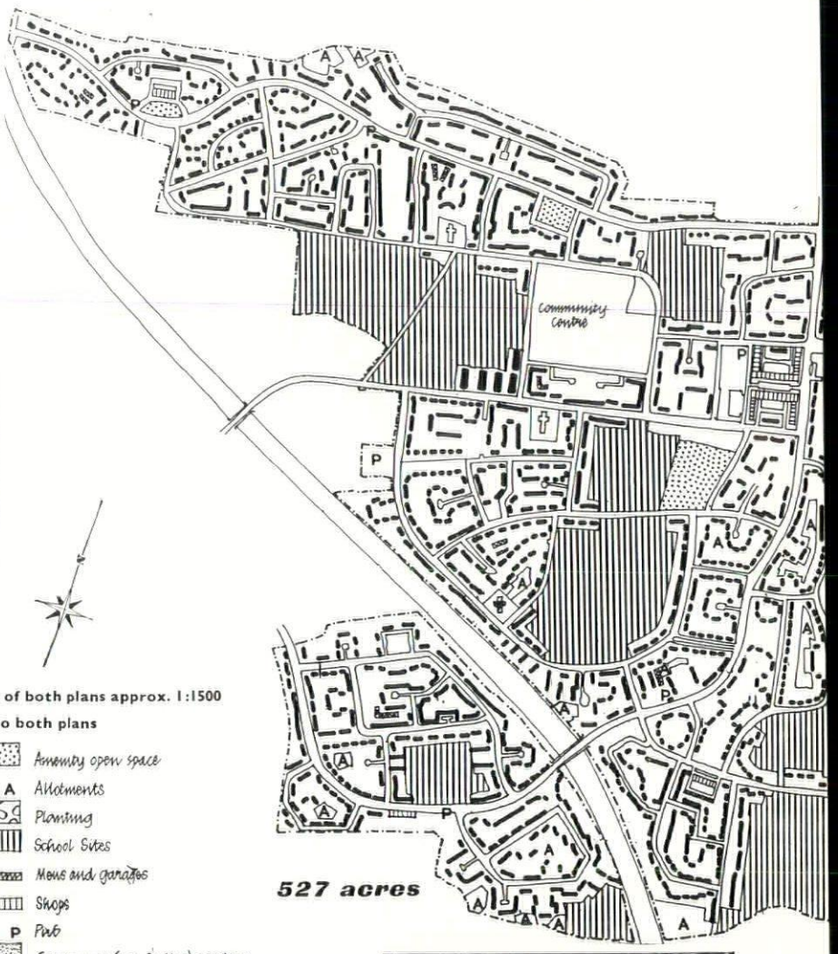
c : Courtenay Square, Lambeth—1914, *part of the extraordinary Duchy of Cornwall housing designed by Adshead and Ramsay; almost the only buildings in the dim history of Neo-Georgianism to take a common-sense view of 'revival' and produce what was effectively a Georgian design—with Georgian economy of space and consequently Georgian urbanity (today's Duchy buildings at Kennington make a sad contrast). Central space open and beautifully cared for, trees and gravel: houses impeccable. Above, the north-west side; below, the central open space.*

Rational standards: 3

Compact planning—Regents Park ..... contrasted with Sprawl—Oxhey, Herts.



546 acres

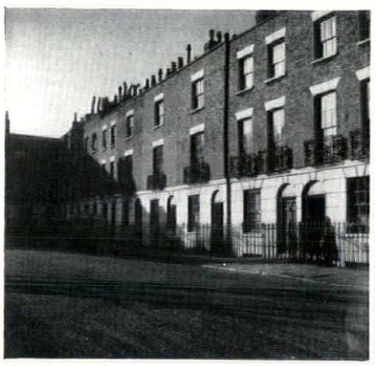


527 acres

Scale of both plans approx. 1:1500

Key to both plans

- Amenity open space
- A Allotments
- Planting
- School Sites
- Mews and garages
- Shops
- P Pub
- Communal (not Public) gardens
- Church
- Industry



Family housing: Regents Park: Clarence Gardens—worn out and due to be replaced, but still trim. These houses, at 132 rooms per residential acre, have small private gardens and share a large common one, quite apart from Regents Park.

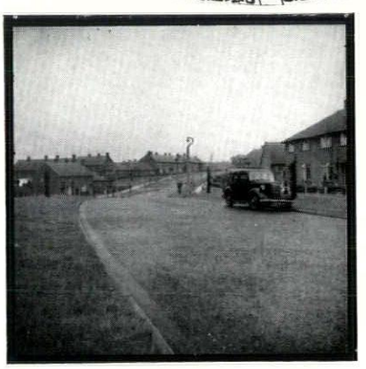


Flats: The terraces encircling Regents Park are at 104 large rooms per residential acre and are the equivalent of what we would today build as flats. They face uninterrupted parkland and their backs are a hundred yards from shopping streets.

Comparative statistics:

		REGENTS PARK CROWN ESTATE			OXHEY HERTS L.C.C. ESTATE		
TOTAL AREA		546 acres			527 acres		
RESIDENTIAL AREA		115 acres			334·86 acres		
	FLATS	—			384		
	HOUSES	1765			3839		
	TOTAL	1765 dwellings 12116 rooms			4223 dwellings 14017 rooms		
	DENSITY	105·3 rooms per acre			41·8 rooms per acre		
NON-RESIDENTIAL AREA		431 acres			192 acres		
	CHURCHES		1·61			6·85	
	SHOPS	6·0		(within residential area)		8·24	
	GARAGES		—	" " "		2·0	
	PUBS	1·0		" " "		4·23	
	SCHOOLS		1·53			94·12	
	ENTERTAINMENT		2·29	Diorama, Colosseum		0·58	site for cinema
	PARK & WATER		392·29	Regents Park	4·0	11·70	Easement 4 acres & Water Bd in Residential Area
	INDUSTRY		14·07	including Canal Basin		—	
	POLICE STATION		0·59			0·50	
	ALLOTMENTS		—			15·27	
	COMMUNITY CENTRE		—			13·0	
	OTHERS		8·62	Orphanage ·5 Barracks 7·87 Pantechnicon ·25		5·0	Reserved sites 3·5 Estate Office ·5 Station approach 1·0
	OTHER HOUSING		10·0	villas in Park		30·65	Sandy Lane housing
GRAND TOTAL		546·0 acres			527·0 acres		
GROSS DENSITY		22·2 rooms per acre			26·6 rooms per acre		

i.e. Regents Park provides nearly as many rooms as Oxhey on one-third of the residential area. The result is that the land left over provides London's biggest and best public open space; and the housing—half of it, alas, now demolished—made up the most coherent urban landscape in London.



Family housing: Oxhey. The familiar layout of cottage estates at 42 rooms per residential acre: wide roads and verges, long distances to shops. The schools take 94.12 acres against only 11.7 acres of public open space.



Flats: The alternative now offered to families within cities. This L.C.C. estate at Woodberry Down, Stoke Newington, has technically an excess of open space per dwelling and is at 126 rooms per residential acre—less than Clarence Gardens.

The comparison opposite shows the difference between rational standards and land-grab; it is also a comparison between true urban development (Regents Park is under a mile from Oxford Circus) and sprawl (Oxhey is sixteen miles and twenty-two weary Tube stations from Oxford Circus; it and its like have ensured that Oxford Circus is now twenty miles from the countryside). The article below examines the mechanics of sprawl and particularly the figures on which the present official policy of overspill and decentralization is based.

Elizabeth Denby

OVERSPRAWL

No one can feel happy as he looks at the results of 35 years' ardent housing and town-planning effort. Indeed it is no new thing to hear a Minister extol the immense output of new homes in the first part of a speech and deplore, towards the end of the same speech, the ribbon rash and sprawl which increasingly spoils the countryside. We have pursued the same housing policy unflinchingly throughout those years—a policy of high-density flats within a town and low-density cottages outside it: a policy that is now geared to the machinery for decentralization to produce nation-wide sprawl. The time is ripe—over-ripe—for looking back into the towns, and particularly into the old industrial areas, redeveloping according to human needs—that is, planning with, *not* for *(or against!) the people.*

This is possibly our last chance to 'stop, look and listen'; to analyse, to justify, and to reassess housing needs and housing possibilities before turning on the green light for the desperate policy now proposed of overspill and decentralization; a policy at odds with the population and density figures given below.

The Barlow Commission, reporting in 1940, recommended:

(*a*) The continued and further re-development of congested urban areas.

(*b*) Decentralization and dispersal both of industries and of industrial population from such areas.

But the great industrial areas whose decentralization is still considered so urgent would appear to have solved their problem already. Industry and people are no longer attracted to or by them but are flowing from the land once rural, now foul and scarred, to new agricultural areas.

The population of England and Wales increased between the 1931 and 1951 Censuses by 9.5 per cent (3,792,547 persons). But only half a million of this increase was in the six old industrial areas as a whole:—

S.E. Lancashire actually declined by 0.2 per cent—5,911 persons.

Four were roughly static :—

		Persons
Tyneside increased by	1.0%	8,246
Greater London by	1.6%	130,464
West Yorkshire by	2.2%	36,771
Merseyside by	2.6%	35,582

Only the West Midlands increased appreciably and that by 15.7%—303,743 persons.

A new Industrial Revolution is taking place, this time by deliberate planning policy. The swing of industry and population into Professor Eva Taylor's famous agricultural 'coffin'; the significant increase in the Eastern, South-Eastern and Southern Regions; the New Towns built on first-class agricultural land; the 21 immense new housing estates built by the London County Council to accommodate their 'overspill'—eleven of them in their own green belt; the towns now to be expanded throughout the land to take 'overspill' from other cities, again in rural areas; the recent unofficial new towns such as Donnington in Shropshire, to house the evacuated Woolwich Arsenal Stores, or Fawley oil refinery on Southampton Water, or the oil refinery on the Isle of Grain in the Thames estuary, were all sited on good agricultural land, although alternative derelict areas or towns were near and begging for rehabilitation (viz., Oakengates, Gosport/Lee-on-Solent and Sheerness respectively).

A few figures showing the decline of the huge industrial towns and the encroachment of population on rural districts are relevant here.

In 1931 there were 638 rural areas, which by 1951 had been reduced to 479, thereby transferring nearly one million persons from the rural into the urban category. Yet the actual number of people living in this reduced area rose from 8,000,459 persons in 1931 to 8,422,820 in 1951 and to 8,676,440 in 1955.

Housing returns show that between April 1, 1945, and December 31, 1955:

547,066 new permanent homes were built by large towns and cities (i.e., over 75,000 population).

489,103 new permanent homes were built by medium towns and cities (i.e., over 25,000–75,000 population).

361,665 new permanent homes were built by small towns (i.e., 25,000 and under).

126,254 new permanent homes were built by the LCC and metropolitan boroughs.

458,920 new permanent homes were built by rural districts, of which only 40,023 were let to agricultural workers.

Between April, 1945, and December, 1955, over half of all new homes in 10 English and 5 Welsh counties were built in rural areas. In addition, between 1931 and 1951, 57 out of the 79 English county boroughs enlarged their boundaries, as did 207 out of the 278 municipal boroughs and 349 of the 498 urban districts; 83 per cent of the rural districts (347 out of 419) had their boundaries reduced.

TABLE 1: THE PROOF OF ROT IN THE CENTRE, SPRAWL ON THE OUTSKIRTS

The counties which changed most between 1931 and 1951 were:

Population Increased.	% Increase.
Hertfordshire	52.0
West Sussex	42.9
Buckinghamshire	42.3
Bedfordshire	41.4
Middlesex	38.4
Surrey	35.6
Oxfordshire	31.5
Berkshire	29.4
Flintshire	28.5
Kent	28.2

i.e., nine out of ten were on the outer ring of Greater London.

Population Decreased.	% Decrease.
Durham	1.5
Monmouthshire	1.6
Brecknockshire	2.2
Glamorgan	2.2
Cardiganshire	3.5
Merionethshire	4.0
Carmarthen	4.1
Montgomeryshire	5.1
Radnorshire	6.2
London	23.8

The towns which increased or decreased most were:

Increased over 50% (27).

In or very near Greater London (23).	% Increase.
Ruislip, Northwood	325.8
Chigwell	216.9
Chislehurst and Sidcup	208.7
Hayes and Harlington	185.6
Bexley M.B.	171.9
Hornchurch	164.4
Orpington	145.0
Romford M.B.	132.5
Harrow	127.1
Carshalton	119.7
Surbiton M.B.	101.1
Wembley M.B.	99.7
Slough M.B.	97.7
Epsom and Ewell M.B.	93.2
Merton and Morden	81.0
Uxbridge M.B.	75.4
Sutton and Cheam M.B.	66.8
Enfield	63.0
Ealing M.B.	60.4
Coulsdon and Purley	60.2
Esher	58.0
Luton M.B.	56.6
Barking M.B.	52.5
Others (4).	
Huyton with Roby (Merseyside)	973.0
Solihull (Nr. Birmingham)	167.9
Scunthorpe M.B. (Lincs)	60.7
Gosport M.B. (Hants)	51.5

Decreased (23).

In or very near Greater London (7).	% Decrease.
West Ham C.B.	41.9
London A.C.	23.8
Tottenham M.B.	19.5
Leyton M.B.	18.0
East Ham C.B.	15.1
Walthamstow M.B.	9.0
Brentford and Chiswick M.B.	6.1
S.E. Lancs and Merseyside (9).	
Salford C.B.	20.3
Oldham C.B.	13.6
Burnley C.B.	13.5
Blackburn C.B.	9.4
Manchester C.B.	8.2
Rochdale C.B.	8.2
Liverpool C.B.	7.8
Birkenhead C.B.	6.0
Bolton C.B.	5.7
Wales (2).	
Rhondda U.D.	21.2
Merthyr Tydfil C.B.	14.1
Others (5).	
Great Yarmouth C.B.	10.0
Smethwick C.B.	9.5
Gateshead C.B.	7.7
Portsmouth C.B.	7.5
South Shields C.B.	5.8

It will be seen that all these 27 *increases* were *outside* the 'conurbations' and not in the big centres themselves. In the main they were not only on good agricultural land, but in the Home Counties. Of the 23 *decreases*, all are in the *centres* of the old industrial areas, one being the London Administrative County itself and 17 being county boroughs, of which 9 were in the S.E. Lancashire and Merseyside conurbations.

These figures of the actual movement and shift of population over the past 25 years are difficult to tie up with current policy. The London Administrative County, for instance, has lost 23.8 per cent of her population. She is now, at 3¼ million people, below the ideal size postulated under the Plan. Yet she reiterates the need for homes for 400,000 overspill, outside the county.

Salford County Borough has declined by 20.3 per cent and Manchester by 8.2 per cent, yet between them they demand the removal of a further 300,000 people (together with industry) to new towns or country towns preferably in the Cheshire rural areas.

Here is the paradox:

(1) Five of the six great industrial areas are apparently static or declining.

(2) Population and industry are drifting anyway to the agricultural counties in the middle and south of England.

(3) The Government policy of decentralization appears to have been already implemented.

How then can further and more drastic decentralization of people and industry into rural areas be justified?

Let us look more closely at these old industrial areas:

1. They are founded on heavy industry—on coal, iron, steel, shipbuilding—which *cannot* be shifted. They employ large numbers of workpeople and are peculiarly vulnerable in times of industrial depression. Indeed, it might well be argued, even in these post-war boom-years, that four of them seem more likely to bleed than to choke to death.
2. The areas have a low over-all density. They are crowded only in pockets. **(See Table 2.)**

How *can* there be overspill from industrial areas on these figures? A rearrangement of people within existing boundaries seems logical, humanly desirable and economical. But that suggestion brings one to density. What *do* 'overall densities' to the acre actually mean in terms of healthy, pleasant towns and homes?

In 'The Density of Residential Areas

TABLE 2: THE FALLACY OF OVERCROWDED CONURBATIONS

THE CONURBATIONS

AVERAGE DENSITY (PERSONS PER ACRE), 1951 CENSUS

(*a*) **TYNESIDE.**—Composed of 13 towns averaging 14.4 ppa.

Highest. 3 over 20 ppa.		Lowest. 5 under 10 ppa.
Newcastle C.B.	26.3	Of which 3 were under
*Gateshead C.B.	25.7	5 ppa.
*South Shields C.B.	21.8	

It is estimated that over 10,000 acres of land are derelict in Northumberland and Durham.

(*b*) **S.E. LANCASHIRE**—Composed of 53 towns averaging 9.9 persons per acre.

4 over 20 ppa.		34 under 10 ppa.
*Salford C.B.	34.2	Of which 20 were under
Droylsden U.D.	26.1	5 ppa.
*Manchester C.B.	25.8	
*Oldham C.B.	22.7	

(*c*) **MERSEYSIDE.**—Composed of 12 towns averaging 14.5 ppa.

3 over 20 ppa.		5 under 10 ppa.
*Liverpool C.B.	28.8	Of which 4 were under
Litherland U.D.	27.1	5 ppa.
Bootle C.B.	24.3	

It is estimated that well over 15,000 acres of land are derelict in Lancashire and Cheshire.

(*d*) **WEST YORKSHIRE.**—Composed of 33 towns averaging 5.5 ppa.

0 over 20 ppa.	28 under 10 ppa.
The highest is Shipley U.D. with 14.9 ppa.	Of which 21 were under 5 ppa.

It is estimated that well over 9,000 acres of land are derelict in this conurbation.

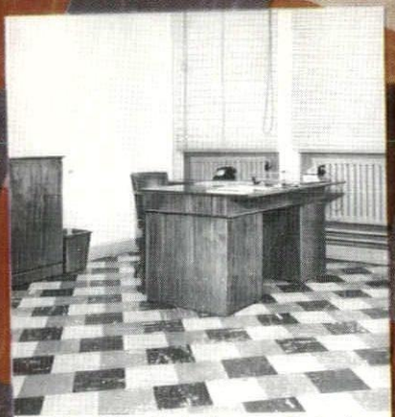
(*e*) **WEST MIDLANDS.**—Composed of 24 towns averaging 13 ppa.

2 over 20 ppa.		10 under 10 ppa.
*Smethwick C.B.	30.6	Of which 5 were under
Birmingham C.B.	21.7	5 ppa.

It is estimated that some 10,000 acres of land are derelict within this area.

N.B.—*These towns declined substantially between 1931 and 1951, and again from 1951 to 1955.

EDINBURGH WEAVERS 102 MOUNT ST LONDON W1



New Office Block (Accounts Section)
John Laing and Son Limited.
Architect: Sydney Greenwood A.R.I.B.A.
Contractors John Laing & Son Ltd.

Show floorthought with MARLEY tiles

Handbook (1952)' para. 78, it is considered that a town of 50,000 people, after allowing 100 acres for central civic use, 50 acres for 'large establishments', and 'land for all other uses to reasonably generous standards', could assume that 50 persons to the acre was a good *gross* residential density, giving an *overall* town-density of about 22 persons to the acre.

Yet the 14 New Towns, each intended for some 50,000 inhabitants, will ultimately average only 13–14 persons per acre overall. And of the 157 towns and cities in England and Wales which have 50,000 citizens and over **only 26 in the whole of the country, outside the London Administrative County,** *have* **an overall density of more than 22 persons to the acre!** They are:—

TABLE 3: THE FALLACY OF OVER-CROWDED TOWNS

	Overall persons per acre.
In the Greater London Area (15)	
Tottenham M.B.	**42.1**
Leyton M.B.	**40.5**
Willesden M.B.	**38.7**
West Ham C.B.	**36.4**
East Ham C.B.	**36.3**
Hornsey M.B.	**34.1**
Penge (Kent) U.D. ...	**32.5**
Wood Green M.B. ...	**32.5**
Acton M.B.	**29.0**
Kingston-on-Thames M.B.	**28.5**
Walthamstow M.B. ...	**27.8**
Edmonton M.B.	**26.7**
Brentford & Chiswick M.B.	**25.4**
Merton & Morden U.D. ...	**23.0**
Mitcham C.B.	**22.9**
In S.E. Lancashire and Merseyside (7)	
Salford C.B.	**34.2**
Liverpool C.B.	**28.8**
Litherland U.D.	**27.1**
Droylsden U.D.	**26.1**
Manchester C.B.	**25.8**
Bootle C.B.	**24.3**
Oldham C.B.	**22.7**
Elsewhere (4)	
Smethwick C.B.	**30.6**
Newcastle-upon-Tyne C.B.	**26.3**
Gateshead C.B.	**25.7**
Portsmouth C.B.	**25.2**

13 more towns had over 20 (but under 22) persons to the acre overall. These are:—

In the Greater London Area (7)	
Ilford M.B.	**21.9**
Friern Barnet U.D. ...	**21.7**
Southall M.B.	**21.4**
Ealing M.B.	**21.3**
Wembley M.B.	**20.8**
Barking M.B.	**20.2**
Finchley M.B.	**20.1**
Elsewhere (6)	
South Shields C.B. ...	**21.8**
Birmingham C.B. ...	**21.7**
Kingston on Hull C.B. ...	**21.2**
Sunderland C.B.	**21.2**
Preston C.B.	**21.0**
Middlesbrough C.B. ...	**20.6**

Such cities as Leeds, Sheffield, Bristol, Derby, Leicester, Southampton, with enormous 'overspill' programmes, have only 13.1, 12.9, 16.7, 17.4, 16.7, 19.4 people to the acre respectively.

Of the 'crowded' towns listed above the following increased their boundaries substantially between 1931–51:—

TABLE 4: LAND-GRAB

Birmingham gained	**7,546 acres.**
Liverpool ,, ...	**6,079** ,,
Ealing ,, ...	**5,837** ,,
Manchester ,, ...	**5,565** ,,
Sunderland ,, ...	**5,213** ,,
Hull ,, ...	**5,049** ,,
Middlesbrough ,, ...	**2,972** ,,
Newcastle-on-Tyne gained	**2,642** ,,
South Shields ,, ...	**2,475** ,,
Wembley ,, ...	**1,726** ,,
Preston ,, ...	**1,717** ,,
Gateshead ,, ...	**1,338** ,,
Portsmouth ,, ...	**1,258** ,,
Bootle ,, ...	**1,110** ,,

It is both interesting and instructive to see how five of these cities have used their new land, illustrating the results of land-wasting, low-density development which has been official policy since 1919. **(See Table 5.)**

These extremes of density between the inner and outer wards, the old and the new development, are universal. Yet the Minister of Housing and Local Government said on July 9, 1956, 'The shortage of land is the practical problem of congestion. The big cities are bursting at the seams. They are short of land for almost everything.'

Indeed, a conservative estimate of overspill over 20 years from the large conurbations and large county boroughs is as follows:—

TABLE 6: . . . AND HAVING IT

Conurbations	Est. Overspill of Pop.	Est. No. of Dwellings
London	472,100	147,500
Birmingham ...	203,600	63,600
Glasgow	300,000	93,800
Leeds	36,750	11,500
Liverpool ...	112,200	35,000
Manchester ...	226,650	70,800
Newcastle-on-Tyne	76,900	24,000
Sheffield	83,600	26,100
South Wales ...	35,000	11,000
County Boroughs:		
Bristol	51,200	16,000
Derby	24,300	7,900
Kingston-upon-Hull	26,000	8,130
Leicester	60,500	18,900
Middlesbrough ...	25,300	8,000
Portsmouth ...	40,000	12,500
Southampton ...	21,500	6,700

TABLE 5: EATING YOUR CAKE . . .

BIRMINGHAM at the 1951 Census had 1,112,605 people on 51,147 acres, averaging 21.7 persons to the acre overall. Of its 38 wards **22** wards had **18,140** acres for **626,360** people, averaging **34.5** ppa. **16** wards had **33,017** acres for **486,325** people, averaging **14.7** ppa.; i.e., **15,867 more acres for 140,035 fewer people.**

Had these 16 wards been developed at only 20 ppa overall, 173,815 more people could have been housed and the 22 crowded wards been reduced to 24.9 persons per acre overall.

This city estimates its overspill at 203,600, requiring 63,600 more dwellings. **How many more acres will they take, and where?**

LIVERPOOL at the 1951 Census had 788,699 people on 27,356 acres, averaging 28.8 persons per acre overall. Of its 40 wards **28** wards had **11,428** acres for **585,680** people, averaging **51.2** ppa. **12** wards had **15,928** acres for **202,979** people, averaging **12.7** ppa., i.e., **4,500 more acres for 382,701 fewer people.**

Had those 12 wards been developed at only 20 people to the acre overall, 115,581 more people could have lived there and the 28 crowded wards reduced to 41 persons per acre overall.

In 9 of these 28 central wards, the percentage of grossly overcrowded people (over 2 persons to a room) exceeded 10 per cent—in four of them it was over 20 per cent.

This city estimates its overspill at 112,200 persons, needing 35,000 dwellings. **How many acres will they take, and where?**

MANCHESTER at the 1951 Census had 699,000 people on 27,255 acres, averaging 25.65 persons per acre overall. Of its 36 wards **28** wards had **14,294** acres for **516,236** people, averaging **36.1** ppa., **8** wards had **12,961** acres for **182,764** people, averaging **14.1** ppa overall, i.e., **1,333 more acres for 333,472 fewer people.**

Had those 8 wards been developed at an overall average density of only 20 ppa 76,456 more people could have lived there, and the 28 crowded wards reduced to 30.7 ppa overall.

This city estimates its overspill at 226,650, needing 70,800 homes. **How many acres will they take, and where?**

SUNDERLAND at the 1951 Census had 181,524 people on 8,575 acres, averaging 21.2 ppa overall. Of its 18 wards **14** inner wards had **4,599** acres for **145,775** people, averaging **31.7** ppa. **4** outer wards had **3,976** acres for **35,749** people, averaging **9** ppa overall; i.e., **623 fewer acres for 110,026 fewer people.**

Had those four wards been developed at only 20 ppa overall, 43,771 more people could have been housed, and the 14 wards would have been reduced to 22.1 ppa overall.

This city estimates its overspill at about 15,000 persons, needing 5,000 dwellings.

HULL at the 1951 Census had 299,105 people on 14,360 acres, averaging 20.8 ppa overall. Of its 21 wards, **14** wards had **6,635** acres for **212,402** people, averaging **32** ppa overall, **7** wards had **7,725** acres for **86,705** people, averaging **11.2** ppa overall; i.e., **1,090 more acres for 125,699 fewer people.**

Had those 7 wards been developed at only 20 ppa overall, 67,797 more people could have been housed, and the density of the 14 crowded wards reduced to 21.8 ppa.

This city estimates its overspill at 26,000 people, needing 8,130 dwellings. **How many acres will they take, and where?**

Table 6 merely indicates the highspots of the programme of decentralization and change which is contemplated. These half-million families must all be 'received' by some market town or village and, under the subsidy inducements, many will be housed in flats in order to save land. The change in the appearance and the quality of life which this policy implies, its impersonality, its cost, its human implications, take a layman's breath away. How does it tie up with densities within the conurbations? within each town? with the trend of industry in slumps as well as booms? It is urgent and important to understand what we are doing, before we irrevocably destroy so much of value, before we treat England as an immense pudding to be stirred vigorously by every Government Department in turn, and the English people as rootless displaced persons to be 'directed' here or there, without clear proof of its necessity.

What standards have in fact been used to justify such large scale disturbance of settled communities? If urban life is to have any significance, we must surely accept some yardstick by which expansionist schemes can be measured.

For, just as the *over-all* density of English towns is rarely as high as 22 people to the acre, so is the *gross* density rarely 50 people—as a glance at the conurbation breakdowns shows. But, assuming that these densities within a town will give good living conditions, what should be the density of residential neighbourhoods?

To quote again from the 'Density of Residential Areas Handbook' (1952):—

> 'The absolute maximum density for two-storey terrace-houses is about 105 rooms per residential acre, secured by arranging terraces in close rows 70 ft. apart and . . . few people would disagree that it is an extremely monotonous layout. Introducing minimum variety into layout (i.e., culs-de-sac) with small incidental open space (roughly 1 acre per 1,000 rooms) but retaining 70 ft. spacing between the rows, reduces the density to 72 rooms per acre. Enlarging the back gardens to 50 ft. (i.e., 100 ft. between the backs of houses) reduces the density to 65 rooms per acre. This last figure might be regarded as a practical working standard, though it should be remembered that higher figures are possible if minimum gardens are acceptable. . . . Densities for corresponding three-storey terrace-houses are roughly 135, 95 and 85 rooms per acre respectively.'
>
> 'The maximum possible densities for flats vary from about 120 rooms per residential acre for low blocks to about 180 rooms per acre for taller, longer blocks . . . or, depending on a number of variables, from 200–300 rooms per acre.'

For practical purposes 'rooms per acre' can be taken as 'persons per acre'.

I suggest that two further factors should be taken into account. *First*, the neglect of *family* groupings weakens the conclusions, for 105 rooms may be 53 two-roomed dwellings for childless couples, or 18 six-roomed dwellings for parents each with four children—two very different problems needing very different solutions. *Second*, the neglect of the square, the crescent, the circus and the short terrace as part of the traditional high-density house-grouping in urban England, which gives that rhythmic subtlety of design which is so satisfying in areas developed in this way, disguising their high urban density.

The estimated overspill and number of dwellings said to be required by each of the cities named above were based on an average family of 3.2 persons. In fact of course an average is the mean between two extremes, which may be close to or far from the average. Thus 3.2 may be the mean between a large number of two and of four-person families, or between a large number of two- and a smaller number of eight-person families. 'Housing' is profoundly influenced by this variation.

Since 1945, local authorities in England and Wales have concentrated on the three-bedroomed house (or two bed-and-box, as tenants say) and the two-bedroomed flat. Here are the actual figures for the period April 1, 1945, to December 31, 1955:—

Local authority building by number of bedrooms.

	1	2	3	4 or more	Total
Houses	31,823	252,320	855,517	32,443	1,172,103
Flats (inc. maisonettes)	68,381	135,334	43,053	4,958	251,726
	100,204	387,654	898,570	37,401	1,423,829

It will be seen that 80.9 per cent of all flats and 24.2 per cent of all houses are of one to three rooms, i.e., for small families or childless people, while the number of homes for large families is negligible.

Yet overcrowding is most acute, subsidized homes are most needed, by the large families. And when it is remembered that the few larger dwellings built within towns have been mainly flats—which are unpopular with and unsuited to large families — the urgency of reconsidering standards of residential neighbourhoods in terms of *rooms per family grouping* is even more apparent.

The balance which has swung so sharply against large-family houses within towns since 1919 must be redressed, and as a general principle it is always better to build for the extremes than for the mean. In fact, this may be the solution of the clearance of slums and the redevelopment of worn-out central areas without overspill, decanting, or decentralization. If estates were planned in terms of *family* groups needing houses and *non-family* groups needing flats, each group at the same density of *rooms*, though not of dwellings, to the acre, a new and lovely grouping would emerge and at a density considerably higher than that achieved today. An extreme example of this grouping is shown in some detail on page 426, compared with a typical example of modern lay-out and planning, on roughly the same acreage, for roughly the same number of people, but with very different amenities and results.

The Regent's Park Development for the Crown, built at the beginning of last century, left nearly 400 acres of the site as a beautifully planted park, concentrating its tall dwellings round it. These great terraces, readily accessible from main traffic routes at the back, were at a density of c.104 large rooms to the residential acre. Because the tenants often had also a country house, most of these houses had only small common gardens, but they had the use of the magnificent park. They are the equivalent in height and scale of what we, today, would build as flats.

To the east of the estate were grouped in three squares and a number of short terraces the small family houses intended to suit the skilled workers and their families, who could easily find work within walking distance at the great houses to the west, as well as in the industrial area round the canal basin, which was part of the development. The houses were five to eight-roomed, with frontages from 12 ft. to 16 ft. and 30 ft. to 60 ft. private gardens behind most of them. The three squares were originally intended as markets, but were soon turned over to communal use by the tenants round them who planted, tended and used the squares themselves. These small urban family houses were at a density of 22 dwellings—132 rooms—to the residential acre.

Here in miniature is the answer to the whole problem. True urban redevelopment makes unnecessary both sprawl and overspill (which is only sprawl-gone-somewhere-else). And the right sort of urban redevelopment means a New Deal for town dwellers. Flats for big families in towns provide companionship but no privacy (or children's breathing space): cottages on the outskirts provide (sometimes) privacy, but no companionship, remote alike from work and play. But the mixture, in the town, of flats for those who want them (the childless, the single people, the old couples) and taut terrace housing for the families, can achieve both—and may even, as in Regent's Park, give a terrific bonus in the form of one of the finest town parks in the world.

In short, we are trying to tackle today's problems with pre-war figures, and pre-war town-hating attitudes of mind. It is time for a new look and some new solutions.

A PLAN FOR PLANNING

1. *As things are going at present, the very best we can hope for is that a rural county (with a good planning officer and a lot of luck in being out of the way of urban sprawl or interference by government departments) will get no worse than it is at the moment.*

2. *That is to say, the best we can do is what ought to have been guaranteed automatically by the planning system. More than that—i.e., positive planning—is almost unknown in Britain, not because of lack of enthusiasm or ability, but simply because the planners have no time left over from trying to plug the leaks in a system which is as full of holes as a sieve.*

3. *The first thing is to build an effective system: a framework under which, even if nobody shows any imagination, things will get no worse. Only then can positive planning be used to clad it.*

4. *The ultimate object of positive planning is to preserve and intensify the sense of place: the difference between integrating the result of a planning application* into *the landscape and putting it down* on *the landscape.*

5. *We can't be schizophrenic about living in towns and wanting to preserve the countryside. In a country as small as Britain, town and country can't be separate concepts that you can develop independently. The only real guarantee of unspoilt countryside is a set of tightly planned towns: and, conversely, a green countryside that can be made to stay green is a guarantee that our towns will be properly redeveloped. But you can't eat your countryside and have it.*

THE FRAME

Stage 1

1. The first step is to give a safeguard to ordinary countryside. At present there is none: outside areas of 'special landscape interest' or the London Green Belt (a pre-war idea) agricultural land is coloured white on the development plans—neither scheduled nor unscheduled, just open to any application (or to repeated applications after refusal). Where there ought to have been the clearest direction of all there is a vacuum; consequently the local officers are continually fighting a flood of applications which prevents them from getting down to real planning.

2. The Minister is proposing Green Belts for other towns besides London: but as a check to sprawl these will be almost useless. The London Green Belt has stayed more or less green, but sprawl goes on unchecked **beyond** it, around Redhill or Slough or St. Albans.

3. The only solution is to make **all** agricultural land into 'Green Belt' land. We are coming round to this anyway: why wait until diluted sprawl has spread a hundred miles around London, Birmingham and Merseyside? In the 'white land' on the development plans there is a practicable working boundary, for the towns have already carved out their estimated housing needs for the next twenty years. There will be no immediate distress: there will be a need for the towns to plan their housing tightly (see particularly pages 423-426) and there will at last be a point where one can clearly say 'that's enough.'

Stage 2

1. That is one dimension in the frame. The second is to ensure that every change which will affect the landscape does in fact go through the planning machinery.

2. For if the planning system has a vacuum at its centre, it has also been set up in a wind tunnel. The last ten years has seen a gale of runway extensions, transformer stations, ordnance depots, grid lines, government housing estates, sewage works and water works. Not one of them needed planning consent.

Government Departments

3. First, the Crown as a general principle of law need give no account of its actions. 'The Crown' includes, unhappily, the three Services, the Ministries of Fuel and Power, Works, Supply, and Transport, the G.P.O, the Central Electricity Authority and the Atomic Energy Authority: enough to account for at least thirty per cent of the examples in *Outrage*.

4. That these bodies shelter under 'The Crown' is an absurd anomaly resulting from the days when Crown property meant land owned and used by the Royal Family. Obviously we do not wish this to come under planning control. (In fact, of course, there is no need, for Sandringham and Windsor Great Park are among the neatest and trimmest estates in England.)

5. At the moment, local (not national) planning officers are graciously 'consulted' when plans are cut and dried, and in some cases required to give an answer within fourteen days: opposition in these circumstances is rather like David fighting a Goliath who has built into the rules a clause saying that he can confiscate the sling (with a gruff shout of 'in the national interest') whenever things become difficult.

6. We therefore propose compulsory consultations, ministry to ministry, for all the 'Civil Service' Crown

bodies, to settle the basic details against a national development plan (another thing we haven't got, see page 433) so that big changes can be made while plans are still elastic.

7. When the site has been narrowed down to one county, the local authority should be called in: and when the site has been agreed there should be formal application so that a planting scheme (carried out by a reorganized Forestry Commission, see page 440) can be imposed and enforced as a condition of consent.

8. The derelict camps which are in the uneasy guardianship of the Ministry of Works should be put back where they belong—with the Services; and their clearance could well be made part of routine Royal Engineers' training. Ironically and typically, there are Territorial Sappers who would be glad of the chance to blow something up!

Permitted Development

9. A disastrous 'experiment in freedom' was made in 1950 by which a whole range of development was gaily released from planning control altogether. It is enumerated below[1] and divides into two classes: pure loopholes (significantly, all for official bodies) and minutiae—small things, but ones which can materially affect the landscape.

10. The loopholes should simply be brought back within planning jurisdiction, and nearly every planning officer in the country would be glad to see them there.

11. For the minutiae we propose a shortened form of application—i.e. simply by letter stating what is proposed. The planning officer can call for a full application if he thinks it is required; no reply within fourteen days being construed as permission. (Just this form of application is already used for farm buildings in areas of 'special landscape interest'.)

Stage 3

1. We now have, first, the fundamental planning aim and, second, the means to apply it to every projected alteration in the landscape. Thirdly, we must ensure that the administrative machinery is coherent enough to carry through a national plan.[2]

2. At the moment it is not, and its weakest link is where the threat is strongest. The basic planning authorities in Great Britain are the counties **and** the county boroughs. This means, for example, that there are fifteen independent planning authorities in South Lancashire. So all hope of truly regional planning is doomed from the start in the parts of Britain which most need regional plans.

3. The difficulty is not just administrative. County boroughs have a vested interest in sprawl: more land means more prestige, more housing on that land means more ratepayers. The more land they can grab, the less is the incentive to redevelop the town centres properly; so the towns decay and the countryside is destroyed simultaneously. We have a new meaning for the term 'rotten borough.'

4. County boroughs already control a lot of countryside grabbed between the wars. They could augment their boundaries almost at will, either by application to the Ministry or by private bills whipped through an apathetic parliament. (Stopped for the moment while the commission on boundaries is sitting. As it is likely to recommend many more county boroughs, the remedy looks like being worse.)

5. Once countryside is inside the borough boundary it is out of anyone else's control. By and large the planning officer is either unqualified, uninterested or subordinate, rubber-stamps the housing application and another bit of legal sprawl is created. This is just what has happened at Brighton (see AR, Oct., 1955). The saddest places in England are the old villages caught on the wrong side of the borough boundary and then swamped.

6. All this is also true, to a lesser extent, of all the municipal boroughs and U.D.C.s: here the county council can (and is almost expected to) delegate some or all of its powers to the local councils. Some counties don't, like the Yorks N.R., and are noticeably the better for it: some counties have apparently delegated all their powers, like Staffs and Beds, making any coherent plan almost an impossibility.

7. The cure for this is **first**, that the county must have the right of veto over the basic land use inside the county boroughs,[3] and a right of veto on all powers delegated to the district councils and municipal boroughs.

8. Second, the adoption of the principle of 'no delegation without qualifications'—i.e., no delegated powers unless the authority is prepared to pay a full-time planning officer who isn't doubling with another post (because planning a borough is a full-time job), who isn't subordinate to some other borough official, and who holds visual qualifications (T.P.I. or R.I.B.A.).

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[1] *Statutory Instrument No.* 728, 1950, *First Schedule.*

a. Loopholes:

Class 7: forestry buildings and works.

Class 12: specific development under local or private Acts of Parliament (i.e. if an authority can slip through a private bill, almost any specific outrage can be committed).

Class 13: ancillary buildings and 'lamp standards, information kiosks, passenger shelters, public shelters and seats, telephone boxes, fire alarms, public drinking fountains, horse-troughs, refuse bins, barriers for the control of persons waiting to enter public vehicles and similar structures or works.'
The lot: an anatomy of street furniture.

Class 14: local highway works for road improvement on land *outside* boundary of the road.

Class 18: statutory undertakers:
c: water-hydraulic power and undertakings: plant and machinery under 50 ft. high and all ancillaries.
d: Gas undertakings: plant and machinery under 50 ft. high, governor houses up to 600 cu. ft. and all ancillaries.
e: Electricity undertakings: transformer stations under 1,000 cu. ft., machinery under 50 ft. high and all ancillaries (including power lines).
f: Road transport undertakings: overhead wires, huts, stop posts, signs, barriers.

Class 20: National Coal Board buildings: permission to be obtained but authority shall not refuse permission *or impose conditions* unless satisfied that building materially affects amenity or could be resited. (This safeguard looks as though it would be worthless in practice.)

b. Minutiae:

Class 2: gates, fences and walls up to 4 ft. high at a roadside; 7 ft. elsewhere.

Class 5: use of land by recreational organizations (which can produce the squalor shown in AR, Sept., 1955, page 190).

Class 8ii, 13ii, 20ii: deposit of { industrial waste / local authority refuse / coal slag } on existing sites, *whether or not* superficial area is extended.

[2] The basic trouble is the tying down of planning to local government *as long as* local government itself is tied down to be a cut-rate, cut-intelligence mirror of national politics. But that is hardly included in our present brief.

[3] This would obviously be achieved anyway by freezing the 'white land' on the development plans which we have stated as the basic step: but we wish to formulate a policy in which each section could if necessary be applied by itself and still be an improvement on the existing situation.

[*continued on page* 433

continued from page 432]

THE CLADDING

1. National Administration

1. The first step towards positive planning is to have a plan. A good solid platitude, but a national plan is just what we haven't got: and, as Sir Patrick Abercrombie recently pointed out, we haven't even got a set of regional plans.

2. What we have (or will have when Denbigh and Glamorgan part 2 are submitted) is a library-full of separate development plans—148 of them. A national plan only exists as the arithmetical sum of this library-full.

3. In the countryside, where there is urgent need for a plan (before there ceases to be any countryside) and where there is general agreement on what to do, the development plans are little more than a vast accumulation of statistics.

4. In the towns, where planning needs to be flexible (unless you intend to employ an astrologer to forecast industrial trends) and where realization of what a town **is** has only been rediscovered in the last ten years, there are fearfully precise plans for redevelopment and, usually, obliteration.

5. In neither case is there any direct relation to the look of things: hardly a drawing in all the plans from Anglesey C.C. to the County Borough of York. There's a close relation to the byelaws and the sociological standards: no relation to the result in three dimensions, and not much relation to the people who are being planned.

6. All the plans need reworking in visual terms: but most of all we need a national development plan, to make sense of the piles of unrelated statistics.

7. This is the job of the Ministry: and at present it is revoking its primary function by treating appearance as a matter of taste and therefore of opinion. This is equivalent to the Treasury refusing to exercise financial control on the grounds that our economic system was based on laissez-faire. The setting up of a green belt is in itself a fundamental act of taste—preferring open countryside to unchecked sprawl.

8. Instead of realizing that there are common sense visual rules (we have set them out on pages 355–358) and adhering to them, it has created a set of wordy abstractions in lieu—like 'not in conformity with existing development'—which are much harder to work to than the visual rules would be, and in addition induce frustration in both planned and planners (who in practice have to use the visual rules and are then forced to disguise them in jargon afterwards).

9. We suggest therefore a team of expert planners and architects inside the Ministry of Housing free of administrative ties (just like that inside the Ministry of Education). Their fundamental job will be to teach the civil service to think visually,[4] and to reword all the planning legislation: but the most urgent task is to produce a national plan making sense of the development plans, establish acceptable sites for airfields, power stations, afforestation.

[4] There's obviously a similar fundamental job to be done in the schools: one year to train the teachers and ten years to train the children: everyone agrees on this, so it should be started *now*, not remain as a pious hope which is already about thirty years old.

10. In conjunction with compulsory application to the Ministers that we are proposing for Government departments (page 432), this will mean that the Ministry would have ready a set of alternative sites, or proposals for better use of existing facilities.

11. In a recent example—the supergrid from Burton-on-Trent to Fleet—this would have meant agreed siting at an early stage instead of a piecemeal fight by each county against the Central Electricity Authority, which has acted throughout with a maximum of ambiguity and curtness.

12. Hand in hand with this goes the need for regional planning of tricky areas like the Tyne, Lancashire-Cheshire, and Greater London. This means effective co-ordination between authorities, rather than a separate organization: it could be done by one man with a fighting temperament, effective ministerial backing and an effective plan to work on.

13. In the foregoing we are censuring the Ministry, not the present Minister. From the outside, the two creative proposals made recently have both been due to his personal intervention: provincial Green Belts and the Oxford relief road. 'There's plenty of creative work going on at the Ministry' was said complacently after this year's T.P.I. conference. Maybe, but there's little enough evidence of it Out There.

2. Local Administration

1. With the national and regional plans settled and with the juggernauts brought under effective control, the local planning officer can go to work. With all the basic decisions taken, he can switch from being a mixture of rubber stamp and wicked uncle to being positive: i.e., asking for development, not refusing it.

2. His first job is a microcosm of the national plan: in the town a list of all the vacant lots, derelict sites, unused strips of ground; in the country, of gaps in villages; in the suburb, of undeveloped plots. At the same time he can evaluate suitable conditions of consent for each.

3. He can also publish and display as widely as possible the areas where building is prohibited, together with the reason—that it is saving the countryside for all to enjoy, from all who want to despoil it—without fear or favour to private person or public body. At the moment, such wording would be a mockery: inside the framework we have already suggested it would represent the exact truth. And it is a truth which everyone would support—at least in the abstract.

4. Armed with these two weapons he can meet any developer half way and say 'I have this list of sites; would you like to build on one?': acting as a comprehensive official estate agent, or a local land exchange.

5. At the same time, freezing the agricultural land will make such preliminary consultation a necessity for anyone wanting to build. It can be made the first stage in a planning application whilst remaining quite informal.

6. This stage should establish basic agreement, so that the mechanics of the actual form of application, which

seem so unnecessary to the layman, can be slashed. One application and a sketch plan would be enough. This would remove the man-in-the-street's chief grievance against 'planning'.

3. Housing Problems

1. Overspill and decentralization[5] policy cannot be treated as a series of local agreements between authorities. They must be handled through a central Land Exchange—another job for the team inside the M.O.H.L.G. The basic decisions could almost be handled by one man.

2. Most towns are using overspill figures as a way out of undertaking proper urban redevelopment, and using decentralization as a means for legalized sprawl. Here's Birmingham's proposed list of reception towns —and remember, Birmingham is 20 miles across.

Town	*Present Population*	*Suggested Expansion*	*Distance from centre of Birmingham*	*Distance from outskirts (our figures)*
Redditch	29,000	15,000	13 miles	5 miles
Bromsgrove	28,000	12,000	13 ,,	3 ,,
Malvern	21,500	10,000	35 ,,	25 ,,
Lichfield	11,000	10,000	16 ,,	4 ,,
Tamworth	13,000	10,000	13 ,,	5 ,,
Rugeley	8,500	5,000	22 ,,	10 ,,
Cannock	41,000	10,000	17 ,,	continuous building

In fact, Birmingham isn't even bothering to decentralize to the towns:

> 'Mr. Moss asked the Minister of Housing and Local Government what local authorities in Warwickshire had made a contribution to the Birmingham overspill problem by agreeing to municipal houses being built in their areas by Birmingham Corporation. Mr. Duncan Sandys, replying on June 12, said—The Meriden Rural District Council have agreed to the Birmingham Corporation building in their area. In addition, the Corporation are considering proposals made by the Tamworth and Atherstone Rural District Councils. . . .'

This is just sending subtopia galloping across the country with everyone's blessing—until the countryside finally disappears.

3a. Overspill

1. The present overspill figures—estimates 20 years ahead for a population based on a uniform family size —are a statistical chimera, and a slump or boom would quickly prove it. Yet they are being worked to and accepted unconditionally. You cannot build for a given population—you can only build a certain number of dwellings. At one end, if you decant London it will only fill up again because it is a magnet: at the other, if you decant the industrial towns of the North you will find yourself at the end with a square mile of waste land and nothing to put in it.

2. The figures on page 428 show that there are very few overcrowded boroughs as a whole, but pockets of congestion in each. The only effective overspill figures are therefore the surplus left over after you redevelop these pockets to a humane standard. The examples on pages 423–426 show how high a density this humane standard can give. Up to a maximum of at least 70 p.p.a. it isn't the density that is the determining factor, but how you achieve it.

[5] The real place for decentralization and for the New Towns, financially aided, is the Commonwealth; but that is way outside our present scope. We can't examine it here, but we wish the Government would.

3. The figures also prove that the land squandering of the towns themselves, in their earlier housing, is largely responsible for their present troubles. Another cure is therefore to increase the density (and the urbanity) of the 'thirties estates: a solution which has hardly entered the heads of the towns in their feverish search for building sites. The REVIEW will do a pilot study to that end of one of the emptiest of these estates next year.

4. Only then should an overspill proposal be taken to the Land Exchange, who should be able to call for redevelopment plans to support the figures.

3b. Redevelopment

1. Redevelopment itself treats the family as an average unit of 3·6 people and the urban population as a collection of ping-pong balls, to be bandied about the borough or county (or country) at will. There is an ocean of abstract sociology and no humanity at all.

2. Every town has many sites waiting to be redeveloped at any one time and all towns have vacant sites. Sites should be paired so that the inhabitants of site A can be moved all together a few streets away into the houses on site B (built on the vacant land) and so on. But it needs co-ordination, not a mad piecemeal effort.

3. Using this technique the inhabitants of a clearance area could be treated as humans, not statistical fodder. The estate they move into could be planned to have the exact proportion of flats : maisonettes : small houses: large houses. Moves would be measured in yards, not miles.

4. In any case, to build uniform housing for a 3·6-person family is daft: it leads either to uniform flats or uniform houses. It leads to over-use of some units (hence overcrowding and future overspill) and under-use of others. If you build for the mean and the extremes, in correct proportions for each you will have the socially correct solution, the most economical, and as a bonus, the best looking as well.

5. Build flats for those who want flats: the elderly, the childless, the pure urbanites. Small terrace houses with small gardens for small families, taller terrace houses and bigger gardens for bigger families. Not a rule of thumb to fit somebody's byelaws, but a humane environment for people. Keep these in the pattern of the town by taut planning and cutting out wasted space—again, not to somebody's byelaws, but to the needs of each particular site.

3c. Decentralization

1. There will be a small residue left over from slum clearance and proper redevelopment in every town. There will be a perennial overspill from London, possibly from Birmingham and Liverpool, the other magnets for immigrant labour. Assuming a Land Exchange takes charge of the whole problem, where are they to go?

2. **Not** on to first-class agricultural land like the present expansions of Swindon and Bletchley.

3. **Not** to balanced (and beautiful) country market towns like the proposed blowing up of Huntingdon and Bury St. Edmunds.

[*continued on page 436*

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4. Not to towns where anyone can commute back to the parent if they want to (see Birmingham proposals; also the New Towns and London's suggested expansion of Letchworth, Aylesbury, and Wokingham).

5. Instead, bring balanced industry into the areas that are

(*a*) one-industry and susceptible to slump;
(*b*) with slum and derelict-land problems which would be transformed by outside financing;
(*c*) need tidying up anyway.

This means the industrial distressed areas of the 'thirties (which could easily become distressed again): Tyneside, South Wales, East Derbys., the lowland Scots coalfields, Oakengates-Shifnal, Charnwood Forest. This is both good landscape sense and good land-use sense—and could prove in the long run (e.g., a slump or the coal running out) to be economic salvation.

6. This must be done as a grafting, not a dumping operation—reclamation, clearance and infill going hand-in-hand, not 1,000-acre housing estates on agricultural land. The Government and the exporting authority have the money to finance what the receiving areas themselves could never do.

4. Commuting

1. If agricultural land is frozen the number of sites in open country available to commuters will be reduced by nine-tenths.

2. On the other hand, the rural population is static or declining, due to mechanization, and is largely rehoused, usually outside the village group. There are hundreds of empty cottages in every county: a dozen empty sites in every village.

3. Correlate these: channel the commuting pattern from a mass sprawl over the countryside into rehabilitation of the villages, by conversion and infill.

4. County planning offices should have available a list of such sites, and the grant scheme for cottage conversion should be operated from the Ministry through the county—not the borough or rural district, where one is at the mercy either of unco-ordinated byelaws or of boroughs like Burnley which just aren't interested.

5. Each site must have its conditions of consent carefully worked out to augment the village pattern, not explode it. This may mean terracing or walling or restrictions on siting, a legitimate price to ask for being allowed to build in a nice place in surroundings that are guaranteed to stay genuinely rural. The REVIEW will publish an article rehabilitating a set of gap-toothed villages in the Home Counties next year.

6. This is frankly an exurban pattern, but one which will augment the countryside, not destroy it. It visualizes road journeys of five to ten miles to a railhead and rail journeys of up to an hour therefrom: with road traffic in Greater London at saturation point this would take no longer than the trail up from Debden or Hounslow.

7. This provides the solution to those who really want to live in the countryside and are prepared to accept the countryside's terms. For those who are understandably in reaction against the flat at Woodberry

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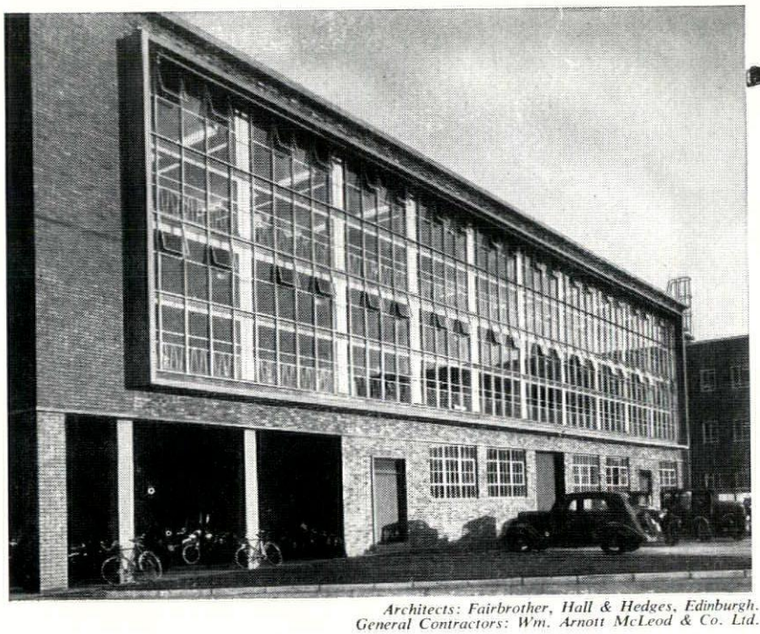

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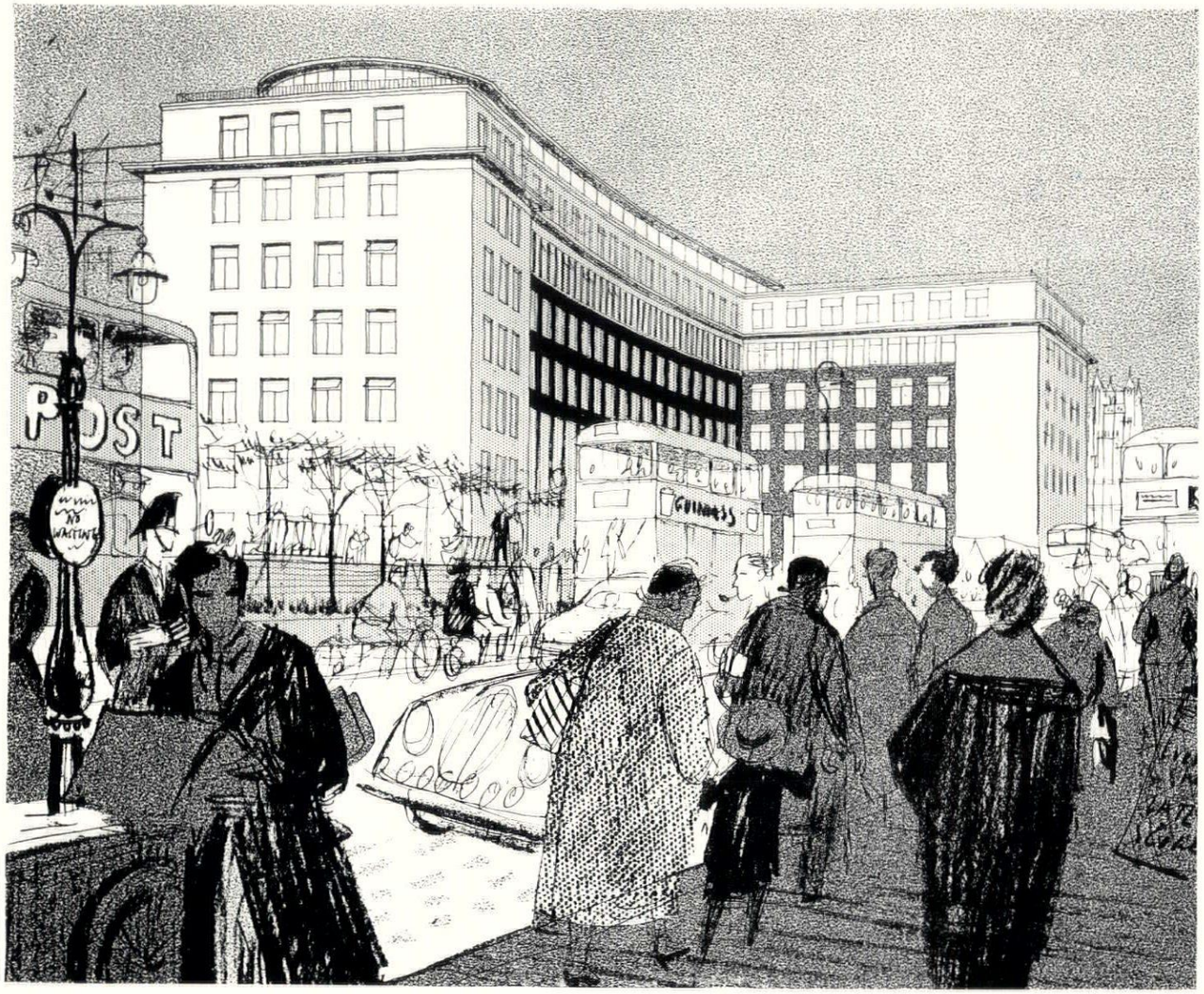

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continued from page 436]

Down or the furnished room at Earls Court, the answer lies in taut urban redevelopment and in full use of land in the existing suburbs.

5. Byelaws

1. Taut planning is often made impossible by out-of-date or irrational byelaws (see pages 409-422). They need a nation-wide overhaul and standardization, and continual review thereafter: another job for the M.O.H.L.G. team.

2. The most important thing is to ensure that the byelaws serve the environment, not—as usually happens today—the other way round.

6. Design Standards

1. The C.O.I.D. has done good work in establishing a minimum standard for lamp standards: but as is shown on page 393, that is not good enough. It is inevitable that the designs should be only a minimum, because the Council has to approve something, but manufacturers tend to regard approval as something final which precludes further effort. What is needed is a maximum standard which will be a true guarantee of quality.

2. This approval should carry a good fat inducement behind it in the shape of outline planning permission for approved designs.[6] Without inducements nothing can be done.

[6] We are assuming that sheet furniture should require permission (see page 432).

7. Design Control

1. This, frankly, has done far more good than harm. For every modern house lost to us there have been fifty horrors ameliorated.

2. We propose it should remain: if it were interpreted in terms of visual effect instead of administrative formulae (and in fact most local planning officers already do interpret it visually) the friction would disappear; for architect and planner would be talking the same language.

8. Afforestation

(This is a summary of the points contained in the article on pages 387–390.)

1. Abandonment of the present 5-million acre programme—ten per cent of our land surface, five times more than the Commission have planted already, seventy per cent of the forest acreage of British Columbia!

2. Reorganization of the Forestry Commission from being an autonomous body, out of reach of planning and public opinion, to become a part of the Ministry of Agriculture.

3. All planting schemes to be brought inside the planning network.

4. Return of existing schemes to agriculture as trees mature until the conifer acreage is at an acceptable level for an atomic-age country: an acreage which should be accommodated in two or three already spoilt areas—like Thetford Chase or some of the

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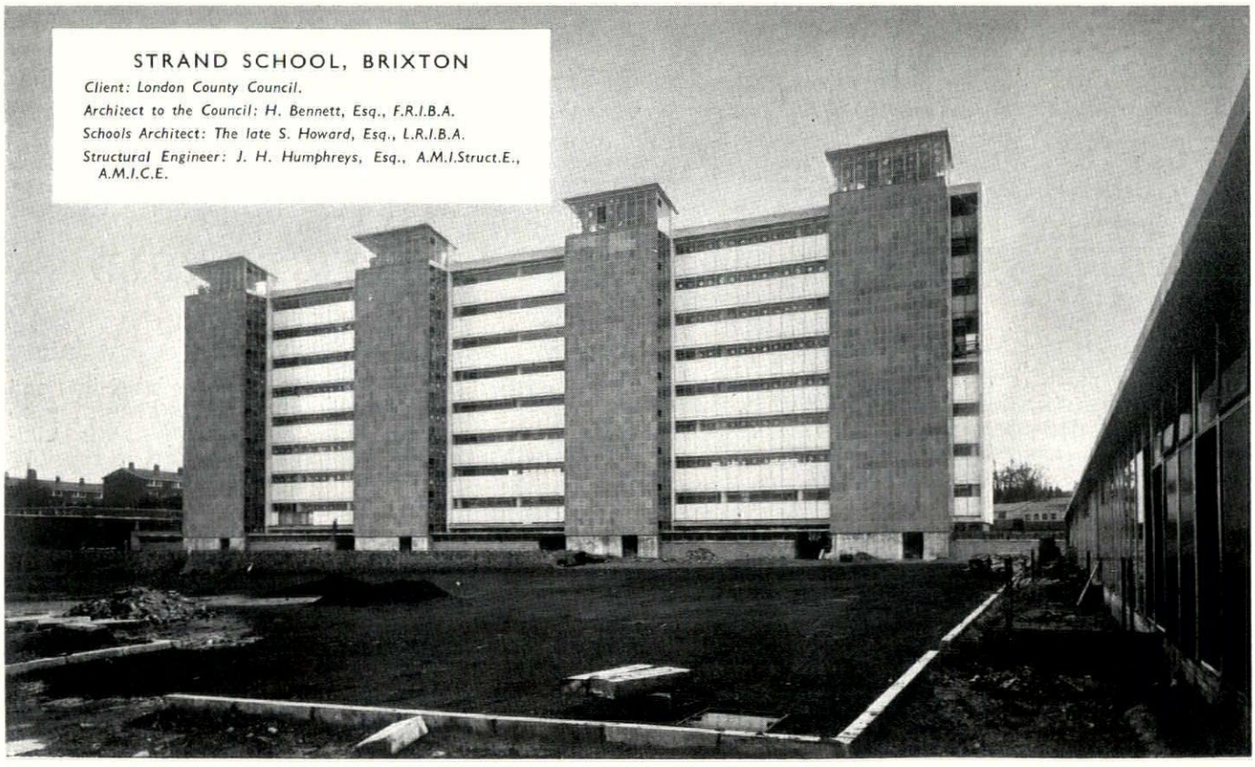

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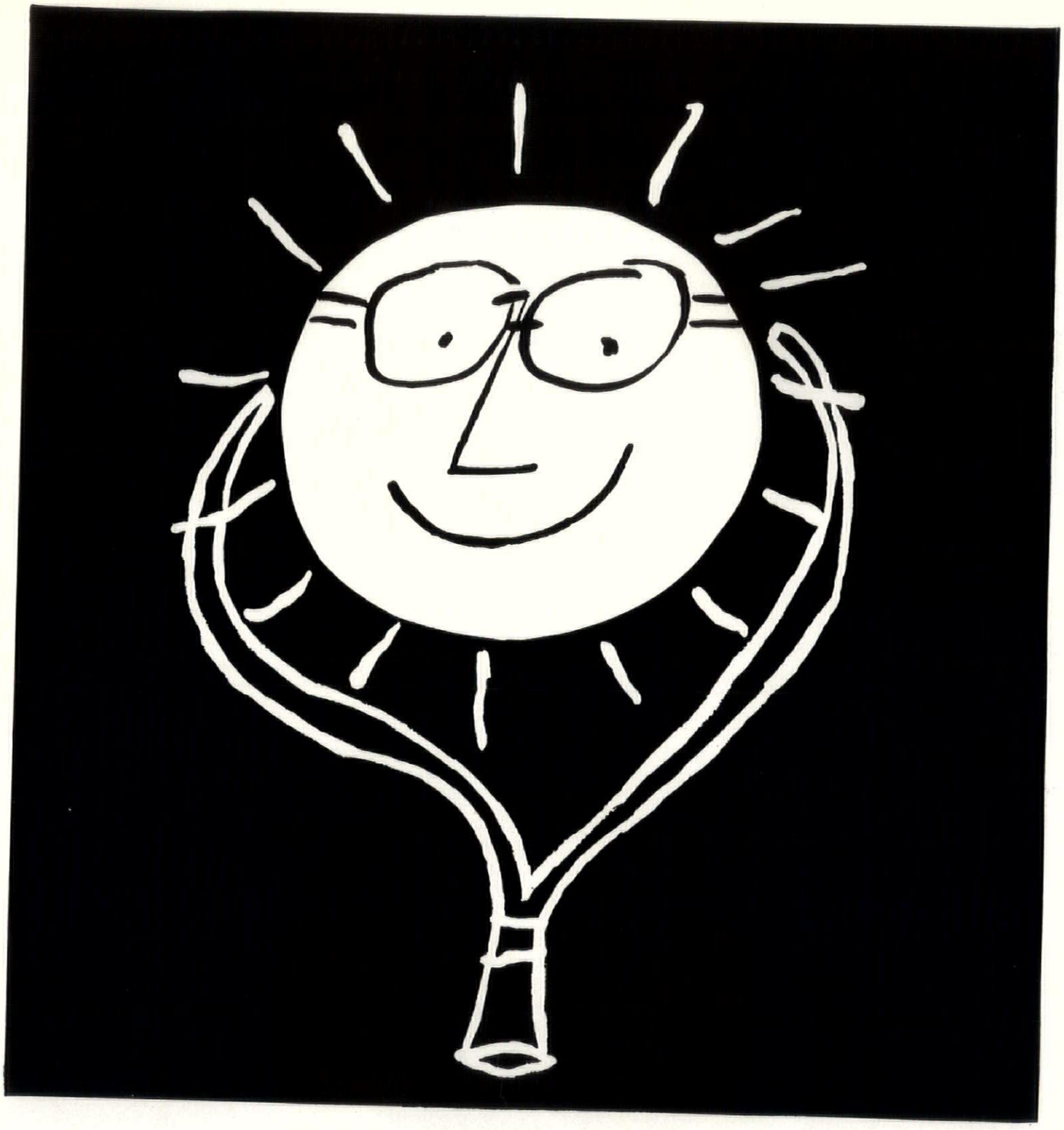

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Scots moors—and not spread over the whole country.

5. Surplus foresters reorganized as teams of specialist advisers at disposal of planning officers for carrying through details of planting schemes: at the same time a national camouflage corps and a cadre of down-to-earth landscape architects.

9. Financial Aid

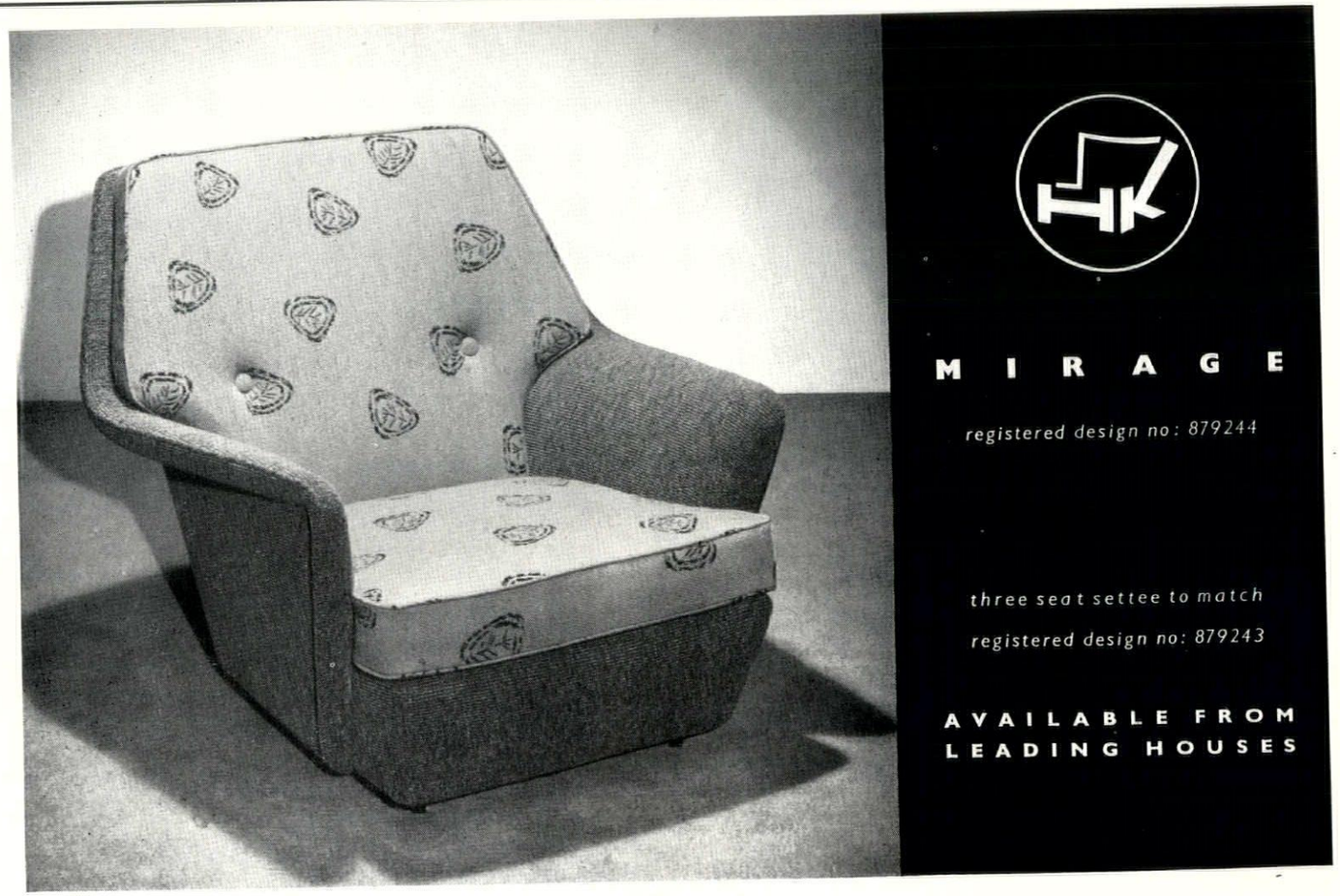
1. Countryside preservation has oceans of goodwill but no cash. (For example, Lancs C.P.R.E. did fine fighting work last year on a *total* expenditure of £1,630! Think by contrast of the millions of pounds wasted yearly in the three Services alone; think on a lesser scale of the thousands of pounds spent on municipal rustic up and down the country.)

2. The government should be prepared (and industry might be induced) to spend some money each year. Even a 'Save the Countryside' flag day (as the Swiss have) would help. There, the proceeds have transformed their Heimat-Schutz from fighter of lost battles to a powerful body which has even managed to move a whole hotel from the top of the Rigi.

3. Just as the Historic Buildings Council gives aid to deserving houses, so this money should be given to deserving environments; towards the cost of specific schemes at set pieces of landscape and townscape (wires underground, intricate traffic solutions, non-standard furniture). It should also be used on model areas—a London borough, a county town, half a dozen parishes—which are made into living pattern-books showing the neatest techniques and furniture, the subtlest planting and the tautest planning.

Summing up: *This Plan for Planning is an attempt to translate the principles of the Visual A.B.C. (page 355) into administrative terms. To keep the categories of landscape separate a national Green Belt is essential. To minimize the clutter of verticals the chief mess-makers—i.e. the government departments and statutory undertakings—must be brought under planning control. The principle of economy and of cutting out land-waste means a complete rethinking of our housing policy; and the large scale use of camouflage to cover up what can't be resited needs a national camouflage corps to do it, hence our proposals for reorganisation of the Forestry Commission.*

But above everything else, it's what the result looks like that matters: not whether it's neat on paper, or makes a pleasant statistic at the council (or the cabinet) meeting. The planners' job is to be able to generalize in an age bedevilled by specialists: to make each mystique of technology or each political manœuvre come to terms with the landscape.



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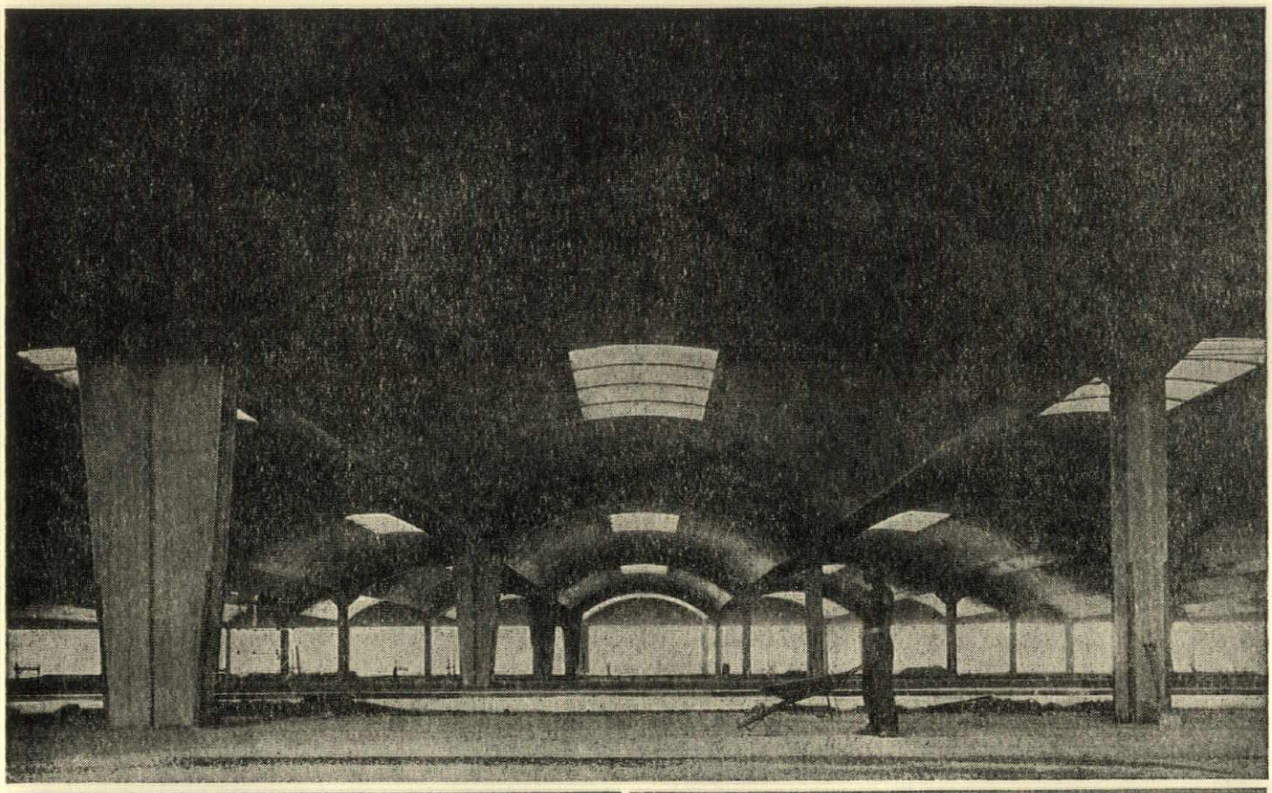



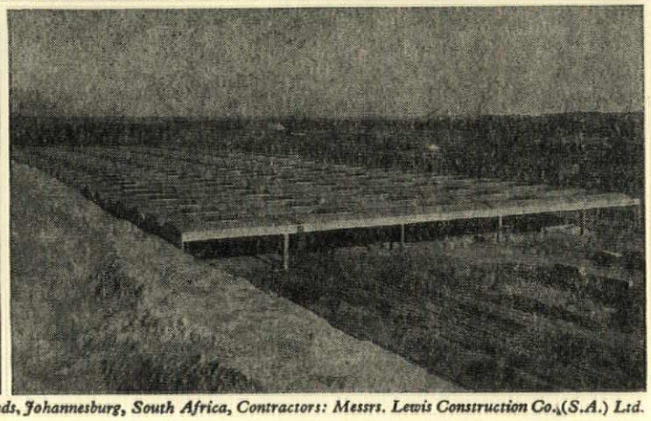

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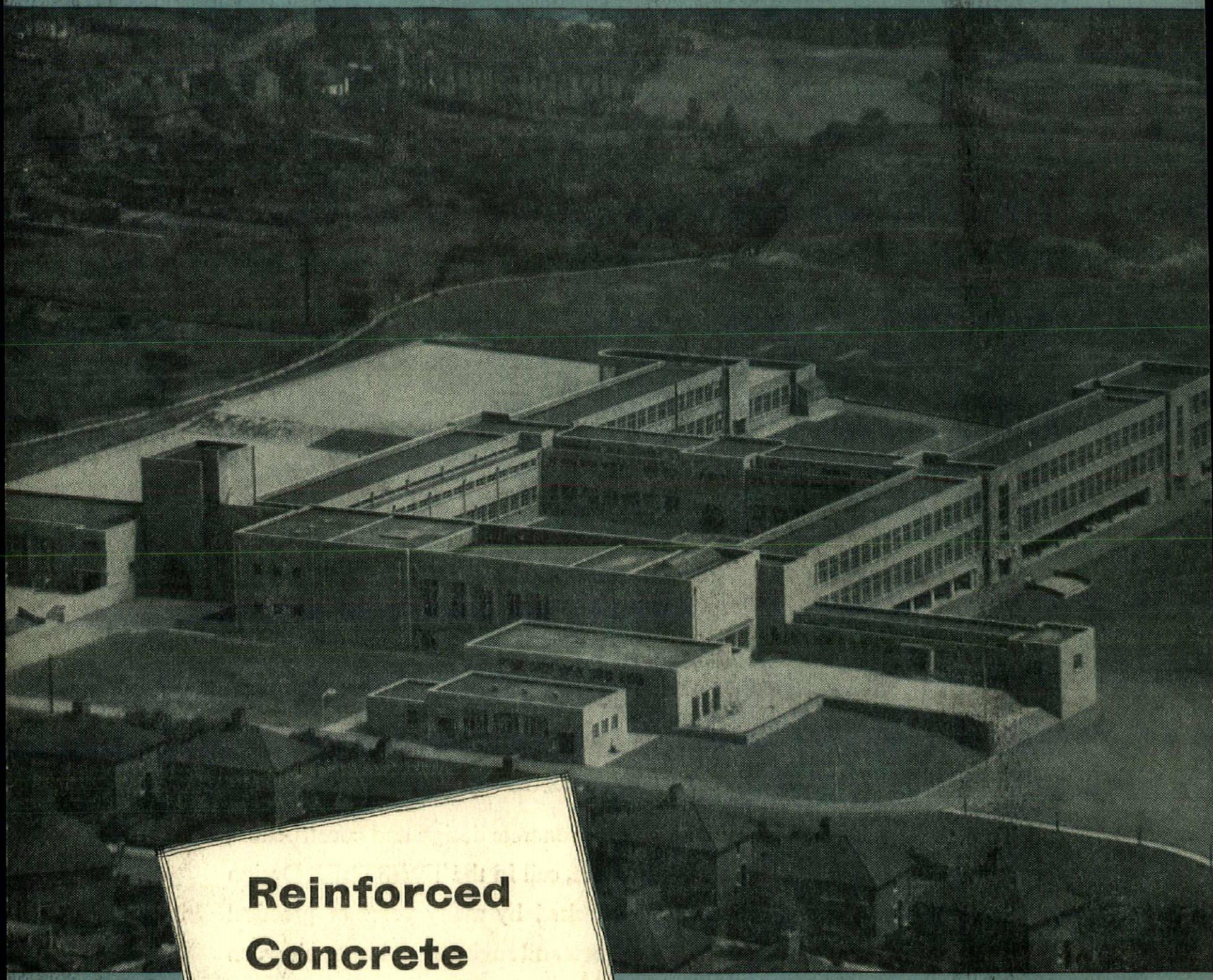

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