THE ARCHITECTURAL REVIEW VOLUME CXXVIII NUMBER 761 JULY 1960 FIVE SHILLINGS



COMMONWEALTH 2

recent architecture in the TROPICAL zone of the British Commonwealth, following the special issue on the four Dominions in the temperate zone, published in October, 1959.

dma

DAWNAYS
specialists in the design
fabrication & erection of
STEELWORK

DAWNAYS LIMITED STEELWORKS ROAD BATTERSEA SW11 TEL: BAT 2525
and at Welwyn Garden City Swansea Cardiff Norwich & Hull. Offices at Southampton Romford & Victoria Street SW1

views and reviews

MARGINALIA

VICTORY IN PICCADILLY

In rejecting the scheme proposed by Jack Cotton for the Monico site on Piccadilly Circus (the enquiry was described in Marginalia, February, 1960) the Minister of Housing and Local Government has made a decision whose ultimate consequences, particularly as a precedent, are as unforeseeable as they are welcome. The victory for progressive aesthetics and progressive town-planning is not yet complete, of course, and cannot be until an entirely satisfactory building for the site has been commissioned and put in hand, but the defeat of the original, unfortunate, proposal appears to be absolute, and the various directives given in the Minister's new brief for the developers, particularly that pertaining to the study of pedestrian circulation, definitely open the road to the kind of radical solution the situation in Piccadilly Circus requires.

The report of Colin Buchanan, who conducted the enquiry for the Ministry, is one of the most remarkable documents on town-planning to appear in English since the War, not only for the quality and authority of the evidence that went into it (summarized in the Marginalia note mentioned above) but also for the conclusions he has based upon it, and, further, for some of his *obiter dicta*, one of which is as disturbing as it is true—he refers to the drawing issued to the Press in October, 1959, and observes '. . . the building could scarcely have been presented in a cruder light. . . . Had this not been issued it is a fair guess that the building would now be in course of erection.'

The lesson here, quite clearly, is that those who care for townscape and architecture will have to be more alert than ever, since intelligent developers are bound to take the hint, and hire better perspectivists, with the result that the grounds for creating public uproar may be less obvious to the non-specialist press, whose interest (with other lay bodies) in the Monico case was in some ways as essential as that of the expert witnesses. However, it will not, one trusts, be too sanguine to hope that intelligent developers will take the hint embodied in the outcome of the enquiry as a whole, and offer better buildings as well.

LEEDS UNIVERSITY MASTER PLAN

The recently-announced long term development plan for the University of Leeds, the work of Peter Chamberlin (Chamberlin, Powell and Bon) not only puts Leeds among the handful of existing British Universities that have such plans, but also raises a number of interesting points about the re-integration of gown with town. In the view right, 1, the existing buildings cluster around the dome of the library, centre foreground, and to its upper right, while development now proceeding lies at the lower right. Part of the proposed Chamberlin development extends towards the existing hospital, top left. On this falling ground the integration of the University and the City is necessary at the traffic planning level, in order to have the new ring-road tunnelled under the University.

On the other side of the site, top right, are proposed new teaching facilities and—far more important—halls of residence for nearly 2,500 students, which should thus go a long way to convert what is now a commuting University into a largely residential one, and bring the real life of the University back into the centre of the town. Since the need for this type of Town/Gown integration is so little understood that some of the 'new wave' of universities (e.g. Brighton, Norwich, York) are proposing to push all their buildings into the suburbs, or even the country, it is to be hoped that the Leeds University Council can be persuaded to accept this plan in sufficiently emphatic terms that they may encourage others by their example.

VERNACULAR—BY ORDER

Readers of this Commonwealth issue of THE ARCHITECTURAL REVIEW may well wonder why Bermuda is not represented in its pages at all. The reason why this is so may be deduced without great mental labour from the following extracts from the notes issued for the guidance of those applying for permits under Bermuda's Building Regulations Act.

1. *The style of architecture of all new business premises and dwelling-houses shall be in accordance with local style and tradition.*

2. *The Board advises that the following architectural styles are acceptable: Late Georgian, Colonial style* 1800-1860, *Williamsburg style, English Renaissance, and Bermudian style.*

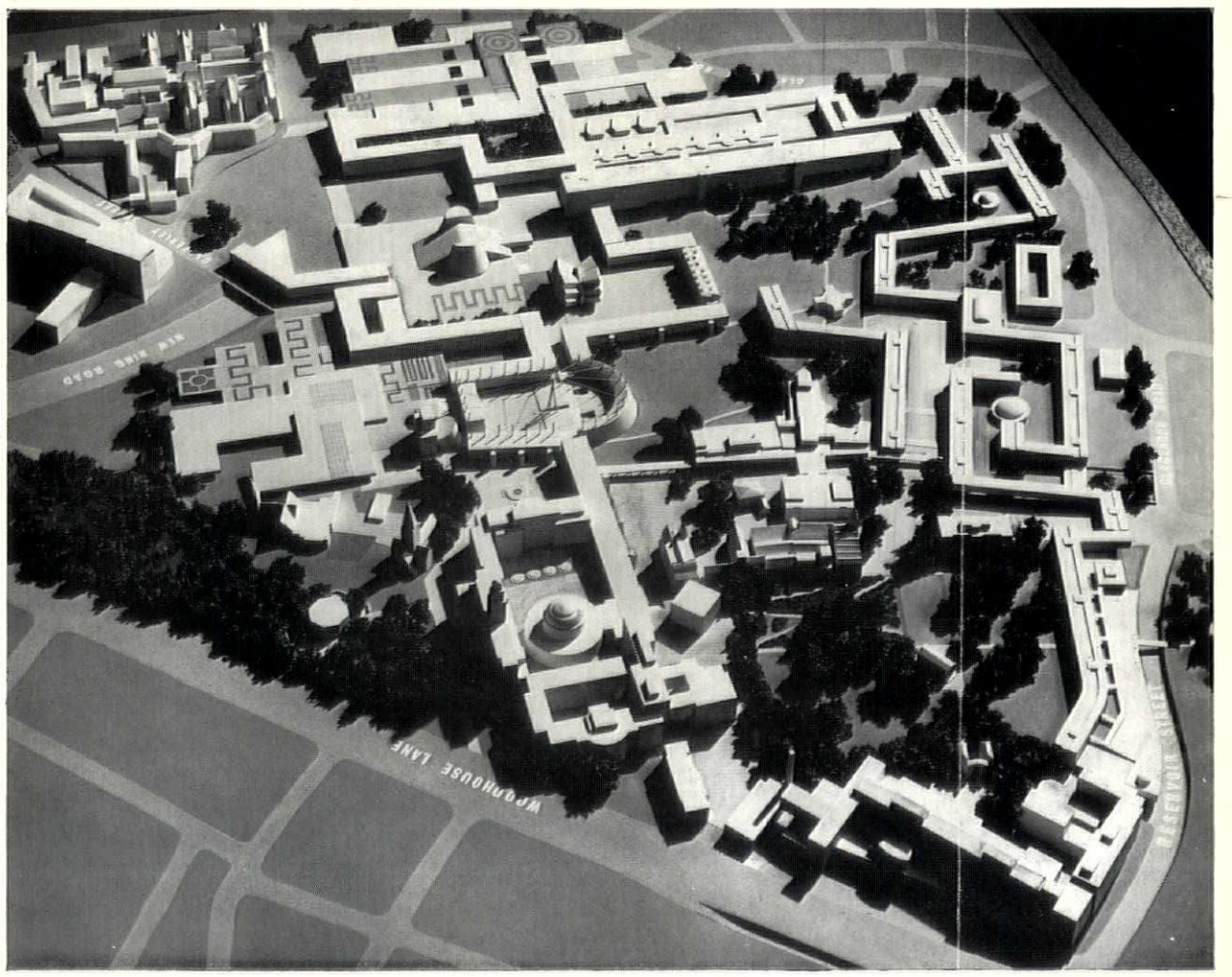
Buildings whose appearance is at variance with the aforementioned styles or is of ultra-modern and eccentric appearance are undesirable. *Conformity with modern requirements should be discreetly executed, without detracting from the style required. Each case will be judged on its merits, but architects are advised to consult with the Board before proceeding with final drawings in all doubtful cases.*

Presumably all cases are doubtful, even those that get built, since most of Bermuda's larger buildings conforming to 'modern requirements' seem to deviate from these stylistic canons. For instance, the new town hall in Hamilton, 2, hopefully described by the Bermuda News Bureau as 'Early Colonial,' has a portico with square columns of a type that Osbert Lancaster long ago identified as the trade mark of totalitarian regimes, while the Island Theatre, left background, suggests that as long as the detailing obeys the letter of the instructions, every corner quoined, it doesn't much matter that the total shape of the building is no kind of late Georgian, Colonial, Renaissance, or Williamsburg—unless that is a rare example of the 'Bermudian' style.



2, the city hall, Hamilton, Bermuda.

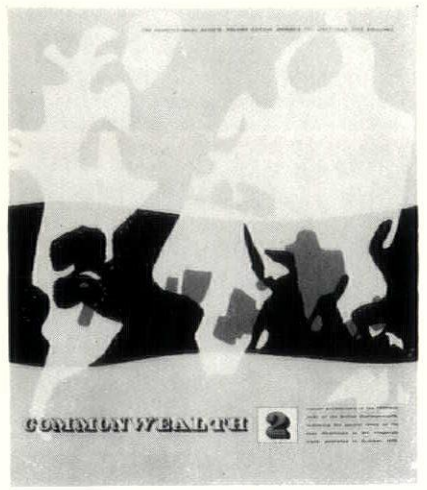
1, a model of the University of Leeds development plan.



ACKNOWLEDGMENTS

The colour photograph on the frontispiece by Roy Tsang is reproduced by courtesy of the Otis Elevator Co.

Other photographs: WEST AFRICA: 1-4, I. J. Rose-Innes; 11-13, D. A. Barratt; 16-20, Peter Pitt; 23, David Dupree; 32, R. Lannoy. EAST AFRICA: 1, 11, R. Ward; 5, 8, Dept. of Information, Uganda Government; 12-14, 16, Public Relations Dept., Tanganyika; 15, Studio Paramount; 19-21, 26, 28, J. H. Beers; 22, Peter Heathcote; 27, East Africa Railways and Harbours. 28, Standard Pic. THE RHODESIAS: 1, 2, Rho-Scot; 10, 12, John Akester; 17, Camera Craft; 18, Robal Studio; 19, *Architecture and Design*; 20, Federal Power Board; 21-23, Sylvia Beck (PVT) Ltd. THE CARIBBEAN: 1, 3, 6, 7, Gerry Murison; 4, Tell Precision Co. Ltd.; 8, 9, Gick; 10, 11, Tom Leonard; 12, Noel Norton; 14, 15, 18, 20-24, A. D. Porter; 16, 17, Chan's Photographers; 19, Paul O. Rupp; 26, 28, L. St. Helene; 30, Skerritt; 31, 32, Fitzpatrick Studios. INDIA, PAKISTAN AND CEYLON: 1-3, 5, 7, Valerie Winter. MALAYA: 1, 2, Ng Bros. Studios; 6, Federal Information Dept.; 7, 10, 12, Lee & Sons; 11, Mellow Yap Photo Co. SINGAPORE: 1-3, 11, Singapore Improvement Trust; 4-6, 8, Tong Photo Service; 7, M. Bile Foto Service; 9, M. J. Cotton; 10, L. J. W. Goring. NORTH BORNEO: 7, 8, Gordon Wells. HONG KONG: T. T. Wong. FIJI: 1, Art Studio Suva; 4, Stinsons.



The cover, *designed by Gordon Cullen, of this second Commonwealth special issue (the first appeared in October* 1959*) identifies its subject—the Commonwealth countries of the torrid zone. The issue deals with their peculiar building problems and their architectural achievements.*

THE ARCHITECTURAL REVIEW

9-13 QUEEN ANNE'S GATE, WESTMINSTER, SW1 WHITEHALL 0611 FIVE SHILLINGS

VOLUME 127 NUMBER 761
JULY 1960

SUBSCRIPTION RATE:—*The annual post free subscription rate, payable in advance, is £3 3s. 0d. sterling, in USA and Canada $10.50, in Italy Lire 6940, elsewhere abroad £3 10s. 0d. Italian subscription agents: A. Salto, Via Santo Spirito 14, Milano; Librerie Dedalo, Via Barberini 75-77, Roma. An index is issued half-yearly and is published as a supplement to the REVIEW.*

Directing Editors	*J. M. Richards, Nikolaus Pevsner, H. de C. Hastings, Hugh Casson*
Executive Editor	*J. M. Richards*
Assistant Executive Editor	*Reyner Banham*
Assistant Editor (Production)	*William Slack*
Features Editor	*Kenneth Browne*
Technical Editor	*Lance Wright*
Assistant Editor (Counter-Attack)	*Ian Nairn*
Staff Photographers	*De Burgh Galwey, W. J. Toomey*
Advertisement Manager	*V. V. Tatlock*

Commonwealth 2: Special Issue

CONTENTS

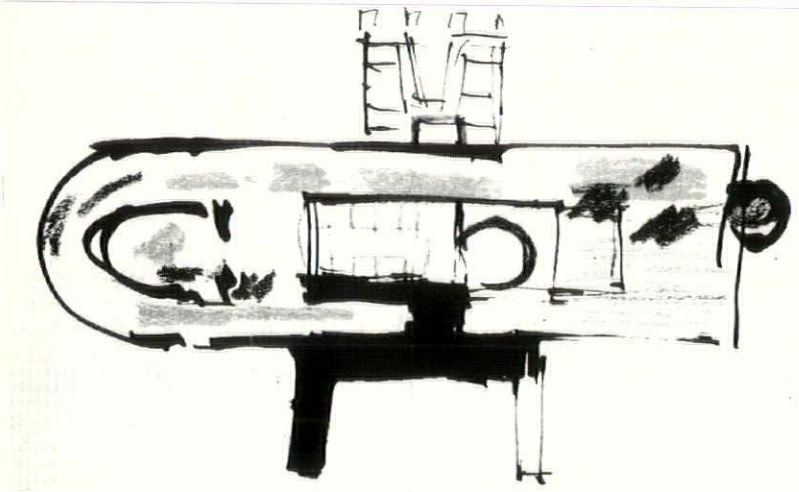
1 **Marginalia**
4 **Frontispiece**
5 **Commonwealth 2**
7 **West Africa:** *introduced by E. Maxwell Fry*
21 **East Africa:** *introduced by Richard Hughes*
31 **The Rhodesias:** *introduced by R. K. Rutherford*
41 **The Caribbean:** *introduced by Wilfred Woodhouse*
53 **India, Pakistan and Ceylon:** *introduced by O. H. Koenigsberger*
59 **Malaya:** *introduced by Julius Posener*
65 **Singapore:** *introduced by Lincoln Page*
66 **Brunei, Sarawak and North Borneo:** *introduced by Peter Morley*
73 **Hong Kong:** *introduced by Eric Cumine*
74 **Fiji:** *introduced by G. A. Atkinson*
81 **Principles of Tropical Design:** *G. A. Atkinson*
84 **Air Conditioning:** *Richard Harrison*
86 **Quality Concrete:** *Tom Ridley*
88 **New Materials:** *W. H. Ransom*

views and reviews

THE TWELFTH TRIENNALE

All being as well as it ever can be with a large and complex international exhibition, the Twelfth *Triennale di Milano*, will open in the middle of this month (July), with, for the first time in its history, a substantial exhibit officially sponsored by the British Government. Some of the background to this achievement, at a time when all hope seemed to have foundered, was given in *Marginalia* for October 1959. Since then, the Board of Trade having failed, in accordance with what is now a tradition, to think of a pretext for sponsoring an exhibit, the Minister of Education has taken over, and Britain will be represented by a three-class infants' school, designed by the Nottinghamshire County architects department (under W. D. Lacey) and built in the system devised by CLASP. Not in itself spectacular architecture, the school—if fully and carefully explained—should make a profound impression by virtue of its ingenuity, low cost, practicability and general air of 'know-how' and will also provide an umbrella for a wide variety of educational, sporting and furniture-trade products, even if the Triennale secretariat's ambition to have live English teaching in progress inside it cannot be realized.

It is not clear yet whether other countries will be sending educational exhibits on this scale (the theme it will be remembered, is *Homes and Schools*) but many of the special exhibits promise to be of exceptional interest, particularly those devoted to the work of individual Italian architects who include, on this occasion, Franco Albini, Figini and Pollini, Lingeri, Michelucci, Carlo Mollino, Quaroni, Mario Ridolfi, and Carlo Scarpa. The graphic design of Triennale publicity material appears to be as good as ever this year, though the symbol on the posters, 3, may cause some bafflement at first. Triennale regulars, however, will recognize it as a rather romanticized version of the plan of Muzio's *Palazzo dell'Arte* which is always the nucleus of the exhibition.



3, symbol from the poster for this year's Milan triennale.

EARLY VICTORIAN STUDIES

A book of Victoriana, produced and published by the Art Society of a boys' school, will probably produce the observation 'Well, that's finished the Victoriana bit for good.' But, on reading it, the *afficionada* will find that the early-starting students who produced *Victoriana* (Art Society Press, King's College School, London; edition limited to 300 copies) have touched on at least two points relative to Victorian studies that have not yet been properly thought out at all.

The very first sentence of the main text reads 'With the accession of the young queen, the dissipation and worldliness of the past were finally stifled, and stern respectability was established in every English household.' *Nonsense*, declares the Victorian student, nowadays made conscious of the survival of the Queen's disorderly uncles, and also that respectability was already well set in by the time the Prince Regent took over. Yet the art historian, and the architectural historian both still tend to think of Victorian as something that came in fairly smartly after Regency, forgetting that—as in domestic morals—there was a long period of transition that had barely finished by the time of the Great Exhibition of 1851.

Conversely, the unthinking distributor of art-historical labels equally unthinkingly stops off the Victorian period well before the Good Queen died. Yet *Victoriana*, most justifiably, includes some characteristic samples of Art Nouveau—something which very definitely is *not* what we usually mean by Victorian. Yet the bulk of what is good in Art Nouveau was made, built or painted before 1901, and belongs under the *Victoriana* umbrella as surely as pre-Raphaelitism. Victorian studies, it appears, may only be languishing from a lack of fresh eyes and an open-minded, not-too-professional approach.

THE CLEANING OF LARGE BUILDINGS

In the above article (AR, April, 1960, page 283) reference is made to 'a type of window . . . which spins round through an angle of 180 degrees' when it was remarked that 'there is evidence to show that this easy movement on a large window is a source of danger'. Though this type of window may prove a source of danger, there is, in fact, no evidence that accidents have occurred

CORRESPONDENCE

GREEN BELTS

To the Editors.

SIRS,—First let me congratulate you very much on 'Counter Attack.' The waste of good agricultural land by low density and town sprawl has long worried me.

But I must protest against trying to save the countryside by making all agricultural land 'green belt.' In the South where large villages are only two or so miles apart it is, of course, necessary. Here, where villages of a hundred or two hundred people are four or five miles apart and some parishes are scattered with no central village, the problem is one of rural depopulation, disguised for twenty years by a shortage of houses and farms. Villages need to increase in size to pay the inflation rise for services like the village hall or the bus service. Other jobs, such as quarrying are essential to farmers who need men for occasional help at weekends or evenings. Without social life girls marrying farmers will refuse to come to the valleys. The beautiful old farms and shining green valleys are one of the glories of Lakeland. If they go to summer visitors the buildings fall down and the fields are rough grazing and grow weeds. If the next farm goes also and even rough grazing is not wanted the fields will grow impenetrable scrub.

And still the planners think they can save Lakeland by delaying our electricity until it can go underground (one valley had to wait 25 years) or refusing to let the local mason, who keeps the farms in repair, build a pair of houses, one for himself and one for a retired Doctor of Music (local talent was already great here, a farmer being a wonderful tenor and a joiner's wife playing the fiddle; a retired Doctor of Music might have made the local community something quite unique). A fell farmer was not allowed to put up a portable nissen hut costing £50 for hens; he would have been allowed a stone built slated building costing several hundred, but the farm could not afford that and he wanted something portable for the time when he could get a bigger farm . . . when that time comes will he stay under the Lake District Planning Board? If all the farms in sight had wanted to copy him there would only have been two or three such huts over many miles.

There is very great danger that 'the green belt mentality' (applied even more rigorously in fells and valleys because they are more beautiful to start with) will entirely destroy the very beauty they set out to save. If the working farmer is driven away because his farm is made too uneconomic and too inconvenient for his wife, the dense scrub that will cover all the land will indeed destroy all beauty. Anyone who has (like me) spent a great deal of time clearing this scrub to keep young trees alive in a plantation can imagine what it will be like. Admittedly it is more probable that the land would be ranched by a farmer from a distance who would come up in a Land Rover to do his shepherding, but what will happen to the valleys and farmhouses then? If we keep the farms going by allowing overhead electricity and telephones, portable farm buildings, an occasional quarry and some new houses, future generations can take them down if they wish. But if we let the centuries-old farms decay the beauty of the land, as we inherited it and love it, it will be gone for ever.

Yours, etc.,
Penrith. JEAN MACINNES.

Ian Nairn writes—

This is point of view that I have never heard before, probably because the people who feel like this are too busy working to write. I am sure that Miss MacInnes is fundamentally right—that it is pointless to keep the appearance without the reality—and I am also sure that there must be overall land-use planning.

There ought to be very much greater application of 'everything on its own merits,' but that does not mean that the overall rules and powers are not necessary. The true test of a healthy planning system is that it can contradict itself: that what is good for X may be awful for Y. And unless the whole countryside is to go under, as America is going under, the only guarantee of individual freedom is going to be a clearly understood basic pattern. Within that we could have much greater choice of action than we have at the moment—even in National Parks.

BOOK REVIEWS

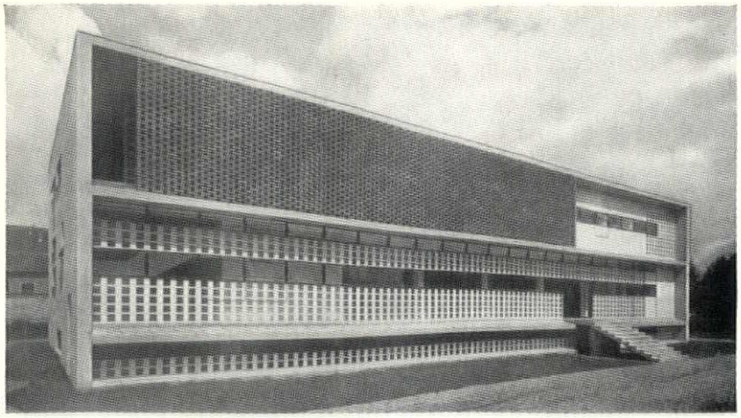
ON GARDELLA

GARDELLA. (*Introduction by G. C. Argan.*) *Communità, Milan. 5,000 lire.*

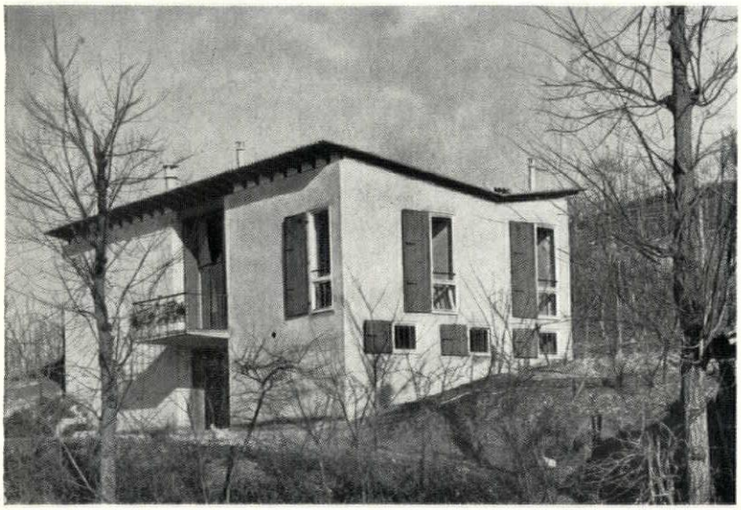
To understand Gardella, I have been told, is to understand what has been happening to Italian architecture since the war. This new volume from Olivetti's publishing house (Gardella was the last important recruit to the Olivetti stable before Adriano Olivetti's death) will at least make clear the evidence on which the proposition is based.

Whatever has happened to Italian modern architecture has clearly happened to Gardella with greater emphasis, and less programmatic polemics than to anyone else, and—more to the point—anything between four and two years *before* it happened to anyone else, at every phase of the *Movimento Moderno's* chequered career. Right at the beginning, after the incredibly rapid ripening of his modern style, he established the visual image of Italian Modern that still hypnotizes world opinion. The tuberculosis clinic at Alessandria, of 1938, (4, overleaf) has it all—the abstract clarity of composition, the hard-edge forms, the decorative mixture of modern materials with traditional ones, the elegance and visual cunning.

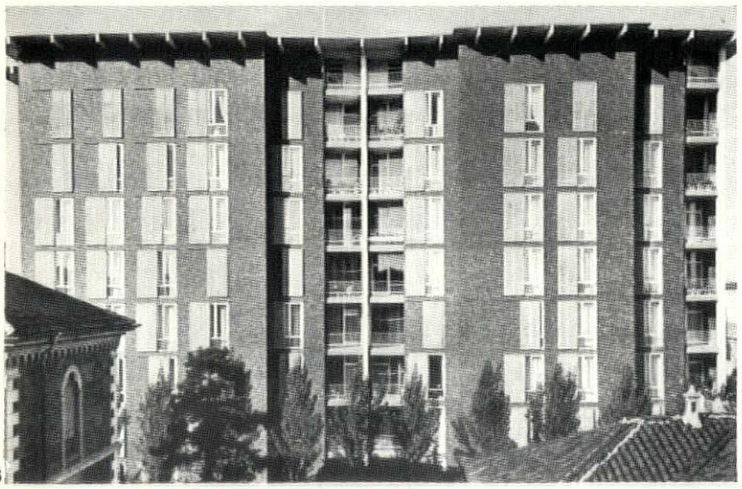
But almost the moment the War was over, he appeared as the designer of a modest little house, modest in size and stylistic pretensions—but now seen to be a portent of far from modest developments in the hands of other people. Hidden in the vineyards at Castana, 5, it performs the technological/handicraft double-take, the peasant/urban double-take, and the traditional/modern double-take with an unpompous assurance and absence



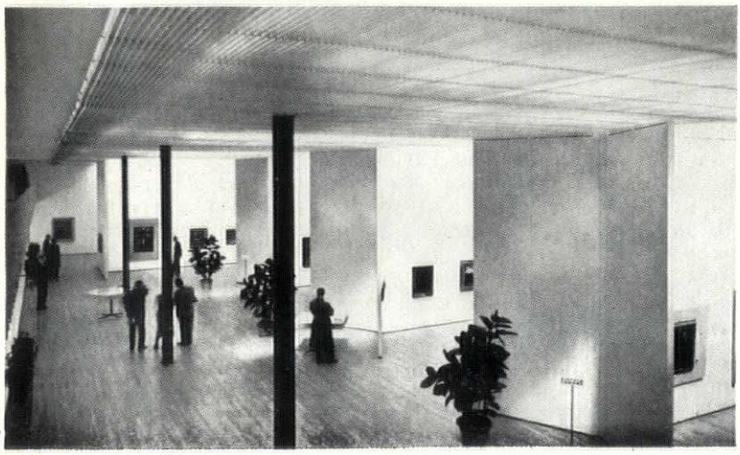
4



5



6



7

of socio-cultural double-talk that has been equalled neither by Quaroni's attempt to do the same thing at Matera (for entirely commendable reasons) nor the Neolibertarians (for reasons that still don't bear examination in spite of their mounting bibliography).

Here, if you have to have the place and date, is the point where Italian modern architecture quietly slipped off the rails. But while most of the rest of the train went crashing down the embankment intent on picturesque ruination, Gardella, the pilot engine, had merely gone down a branch line whose ultimate destination may yet prove to be the same as that of the International Modern movement at large. At all events, if some of his subsequent work seems stylistically unsteady and visually insensitive, he has produced at least three buildings of incontestable merit. The Borsalino workers' flats at Alessandria, 6, in which the tall traditional windows reappear, with great subtlety, in association with brick surfaces and polygonal plans (comfortably ahead of the Italian discovery of Aalto), the Gallery of Modern Art in Milan, 7, still the best general purpose gallery in Europe and visually streets ahead of its nearest rival, the new wing of the Stedelijk in Amsterdam, and the house on the Zattere in Venice, 8.

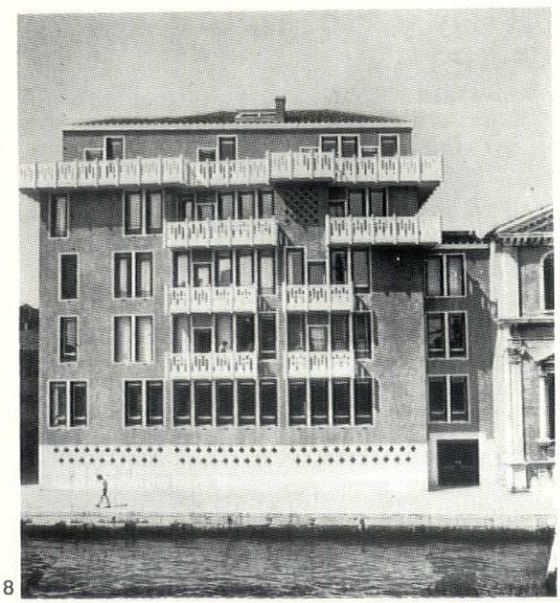
Here, the non-Italian critic finds himself hard put to know what to say. The quality of the building is immediately, unarguably convincing—it is right for its site, in spite of defying all the rules that an English amenity society or a Neolibertarian theorist might devise for 'keeping in keeping' with an *ambiente pre-esistente*. Faced with a history-loaded situation in which even Frank Lloyd Wright could only make gestures of vulgar defiance, Gardella has responded, as far as one can see, by *inventing a vernacular*—the building's most conspicuous virtue is to look like a conversion job at first sight, and then reveal somewhere between second and seventh sight, that it is basically a masterpiece of the stylist's art.

Clearly, everybody faced with a similar problem needs to know and understand this building, but how much they will learn from Professor Argan's introduction, I don't know. He discusses it at some length, but in his usual knotted and abstract style, touching on a number of interesting problems, but most of them at least two removes from the building itself. However, the running text and captions—presumably the work of Pier Carlo Santini—stick to the facts of structure, materials and finishes, and thus provide the starting point for thinking one's way into the building from the opposite end to Argan, so to speak. Any architect who is going to have to design a new building in an old environment should start on both texts at once and see at what point he meets himself coming from the other end, and then think very hard because—I am convinced—there is an extremely important lesson to be learned here, and it won't be learned by imitating the style of the building.

P.R.B.

BOOKS RECEIVED

EVERYMAN'S CONCISE ENCYCLOPAEDIA OF ARCHITECTURE. By Martin S. Briggs. Everyman's Reference Library. 21s.
ROYAL PAVILION. By Clifford Musgrave. Leonard Hill. 50s.
CONVERSATIONS SUR L'ARCHITECTURE. By André Gutton. Editions Vincent Fréal et Cie.
THE STATUS SEEKERS. By Vance Packard. Longmans. 21s.
INTERIORS BOOK OF OFFICES. Edited by Lois Wagner Green. Whitney Publications Inc., 18 East 50 Street, N.Y.22. $12.50.
SCHOOLHOUSE. Edited by Walter McQuade. Simon & Schuster. $10.00.
THE ENGLISH TRADITION IN DESIGN. By John Gloag. A. & C. Black Ltd. 25s.
MADE IN NEW YORK. Edited by Max Hall. Harvard University Press, Cambridge 38, Mass. 54s.
PRINCIPLES OF MODERN BUILDING. DSIR. HMSO. 20s.
WAGES IN THE METROPOLIS. By Martin Segal. Harvard University Press. $4.75.
MODERN EUROPEAN ARCHITECTURE. By A. Dorgelo. Elsevier Publishing Co. 152s.
INTERIORS IN COLOUR. By Roger Smithells. B. T. Batsford Ltd. 35s.
CORIPPO. By T. Amsler, D. Herrman, K. Lohrer, B. Pedolin and U. Weber. Verlagsanstalt Alexander Koch GmbH, Stuttgart. 35DM.
STUDIES IN LANDSCAPE DESIGN. By G. A. Jellicoe. Oxford University Press. 25s.
RESIDENTIAL RENEWAL IN THE URBAN CORE. By Chester Rapkin and William G. Grigsby. Oxford University Press. 30s.
COLOUR IN INDUSTRY TODAY. By Robert F. Wilson. Allen & Unwin. 35s.
THE URBAN COMMUNITY. By Nels Anderson. Routledge & Kegan Paul. 35s.
LITURGY AND ARCHITECTURE. By Peter Hammond. Barrie & Rockliff. 37s. 6d.
TOWARDS A HABITABLE WORLD. By J. van Ettinger. Elsevier Publishing Co. 55s.
BYGGE-ORDBOG. By Ruth Bredsdorff. Nyt Nordisk Forlag. 26.50 cr.
MATISSE FROM THE LIFE. By Raymond Escholier. Faber & Faber. 63s.
PILKINGTON BROTHERS AND THE GLASS INDUSTRY. By T. C. Barber. George Allen & Unwin Ltd.
THE CONSTRUCTION OF BUILDINGS. By R. Barry. Crosby Lockwood & Son, Ltd.



8

Some of the illustrations from Gardella, *reviewed on this page.*
4, tuberculosis clinic at Alessandria (1938).
5, house at Castana (1946).
6, flats at Alessandria (1951).
7, Gallery of Modern Art, Milan (1953).
8, house in Venice (1957)



Startling changes in long established topographical patterns are taking place in all quarters of the world as the tropical areas of the British Commonwealth—hitherto largely undeveloped—emerge into nationhood, sophistication and the first stages of industrialization. Above is Hong Kong, looking across the island city, where buildings on an unprecedented scale can be seen rising among the old, to the harbour beyond. Hong Kong is one of the territories dealt with in this special issue, devoted to illustrating new architectural developments in the tropical areas of the Commonwealth. The photograph is by Mr. Roy Tsang.

COMMONWEALTH 2

This is the second of two special issues of THE ARCHITECTURAL REVIEW designed to give a picture of architecture in the British Commonwealth today. The first, published last October, dealt with the four large Dominions: Canada, South Africa, Australia and New Zealand—all, roughly speaking, in the temperate zone. This issue deals with the remaining Commonwealth territories, all of which lie, in a general climatic sense if not wholly so in the strictly geographical sense, within the tropics.

Apart from catering for tropical rather than temperate climates, the architecture illustrated this time differs in several ways from that of the four Dominions. On the whole the tropical territories are the less developed areas of the world; they are inhabited by colonial or ex-colonial peoples vigorously emerging into nationhood and faced, while they do so, with the problem of assimilating European techniques and ideas of progress. By contrast, the Dominions share the same technical standards, the same degree of industrial development and architectural sophistication, as Europe and America. Theirs is an old civilization translated to wider spaces, not a new one based on differences of race and climate and culture.

It follows that the buildings illustrated in the first Commonwealth issue were designed, as in any European country, by local architects for the most part locally trained. In the case of this second issue the position is very different. Although in due course each territory will no doubt become self-sufficient architecturally, for most of them this will be a long process, and they are only now beginning to acquire their own architectural professions and architectural schools. Not till they have done so, perhaps, can they expect to achieve a consistent architectural style recognizably their own.

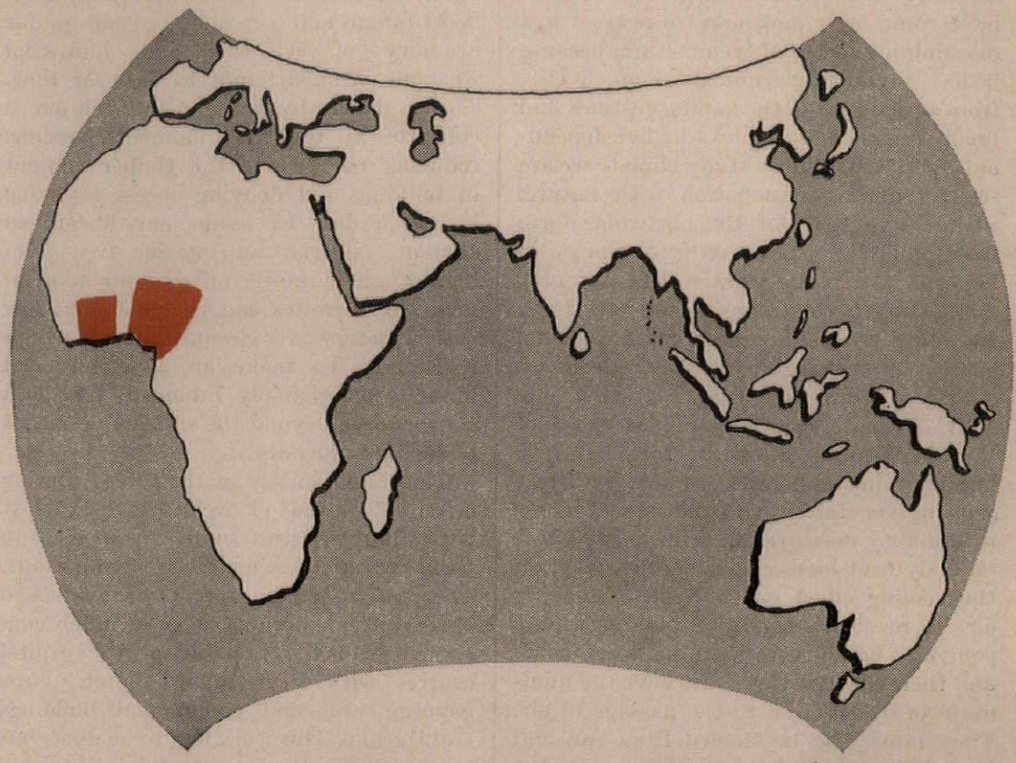
Most of the buildings illustrated here were either designed in England by English architects (as in the case of many of those in West Africa) or designed by architects of English origin, largely trained in England or America, who practise locally. Their practices are often fairly newly established, but in several localities, such as Singapore and Hong Kong, large buildings in a purely western style have been dominating the skyline for

several generations, and the newer, more modern, architecture is the work of the successors of the Western-trained architects who designed them. In these cities, however, there also now flourish firms of Chinese and other native architects, and before long no doubt native African architects will be putting up important buildings in East and West Africa and West Indian architects in the Caribbean. India is an example, from among the countries represented here, of one in which every building illustrated (except for the rather specialized case of Chandigarh, and of Le Corbusier's work elsewhere) is the work of native Indian architects.

The progress towards architectural self-sufficiency is one of the subjects touched upon in the articles that introduce each section of this issue—articles written for the most part by architects resident in the territory dealt with or who, like Mr. Fry in Ghana, have done work there over a long period. These articles also touch on such matters as climatic and social conditions and the availability of materials and skilled labour, some knowledge of which is required for the purpose of understanding which qualities of the architecture shown arise from internal causes and which from outside influences, and why the architecture of the various territories has much in common but many points of difference.

In each section the buildings illustrated have been chosen to give a picture, as far as the space available allowed, of the most interesting work that has been done in each tropical territory of the Commonwealth in the last few years. Where a building has already been illustrated in the REVIEW only a small reminder picture is included. The final choice of examples is that of the Editors of the REVIEW, but they have been greatly helped by the architects in each territory who made a preliminary choice on their behalf and collected together photographs and plans. The Editors are indebted to the following for performing this task: Mr. John Godwin (of Godwin and Hopwood) in Nigeria; Mr. B. G. White and Mr. A. E. Crocker in Ghana; Mr. R. B. Browning and Mr. Richard Hughes in East Africa; Mr. P. O. Coltman in Northern Rhodesia; Mr. Lloyd Spencer in Southern Rhodesia; Mr. J. C. Rose (assisted by Mr. J. C. Walker and Mr. P. M. Stevens) in the Caribbean; Mr. J. Posener in Malaya; Mr. J. L. Middleton and Mr. Lincoln Page in Singapore; Mr. Peter Morley in the East Indies; Mr. Eric Cumine and Mr. Stanley Kwok in Hong Kong; Mr. F. W. Smith in Fiji. Thanks are also due to the numerous architects who have provided material illustrating their own work, and to Mr. George Atkinson of the Tropical Building Section of the Building Research Station, who has given invaluable help and advice.

E. Maxwell Fry



WEST AFRICA

What we call West Africa is a long strip of land lying between the South Sahara and the South Atlantic Ocean, comprising the one-time colonies and dependencies of Britain, France and Portugal. It is a fringe of rain forest that tapers off northward and westward. Until the last war it was a place known chiefly to traders, missionaries and the small number of officials that administered it. Its emergence into the full current of world affairs, and of its component countries into independence, is an effect of accelerated communication, due largely to war. Even before the end of the war Parliament had voted £200 millions under the Colonial Development and Welfare Act, enabling the earliest start to be made on the education, in the widest sense of the word, of peoples who had hitherto been entirely subservient to the primary producing needs of dependent colonies.

This defines the political attitude of Great Britain towards these countries. It also indicates their emotional response to the situation and explains the rapid technical advances made: not rapid enough for the peoples concerned, but appearing too rapid to many an outside observer.

In 1944, when Jane Drew and I started planning and building in West Africa, little of this was apparent. India was still a dominion, and the Empire was virtually intact. Nevertheless, the change was in the air, and my own attitude to our work was that it was an instrument of introduction to European life and thought. For good or ill a decision had been made by both parties to the affair. There was no question of turning back on any tracks. It was a matter of making the most of the situation given. It was a matter, more precisely, of planning tropical towns for modern life in the fullest sense of the term: of building schools and universities for an unrestricted range of education; and in all this of foreseeing an advance on the widest technological front. At the outset the impediments to carrying out a large programme of buildings were formidable. The building industry consisted of a few under-organized and badly equipped firms using illiterate but not unintelligent local workmen. It needed, and without question accepted, the regulating machinery current in more highly developed countries—a detailed building agreement, cost accountancy as understood by quantity surveyors, payment by measurement on accurate and detailed architects' and engineers' drawings, expert supervising.

The main interest for architects lies elsewhere, and concerns the application of CIAM principles and methods to comprehensive problems of tropical architecture and planning. It is on that score that the achievement in West Africa will be measured. It concerned first the needs of

the people, which in the first few years came to us all in terms of education, and secondly it concerned climate, which I have come more and more to respect as a determining factor of architecture, because it has already determined so much else, from agriculture to the habits, customs and finally religions of peoples who live dependant upon it. When we study climate we are seeking an accommodation with nature; we are searching for the particular form from amid the general order of things, in hopes of fashioning what will be uniquely applicable to conditions as we see them. In doing so we are creating a regional character answerable to local needs, a dialect of internationalism.

The climate of the populous areas of West Africa is intensely tropical—hot, humid, rainy and insect-ridden, with fast growing vegetation, and the critical factor is humidity measured in terms of its effect on body heat-loss; or, put another way, on the cooling effect on the skin of moving air. To meet this condition buildings must generally be no more than one room thick and their construction must offer the minimum of obstruction to the passage of air. They must also be shaded from sun and protected from driving rain, and the quality of the moving air must be enhanced by the presence of vegetation. There are many other considerations, among the first of which is the necessity for orientation to keep sun off walls, to turn away from storms and—most important—to face into the breeze. Most of these conditions can be evaded by using air-conditioning, but without absolving the architect from his preoccupation with climate, since the expense of air-conditioning makes it most sensitive to heat gains within the envelope, varying as they do with the daily passage of the sun across the building. The conditioning system already suffers from the costly necessity of extracting humidity by refrigeration and can afford no further overload whatsoever.

So, therefore, climate presses from all directions, and few architects in any of their works have successfully dealt with them all. But they have developed a common attitude to the obsessing problem. The solutions in terms of building have changed enormously over fifteen years. The predominant building material of West Africa was, and perhaps still is, mud, which under the conditions of tribal life and economics, with its perpetual renewal through communal effort, was entirely appropriate. Under a system of cash-economy it becomes immediately expensive, no matter now low its original capital cost. This is one of the deplorable effects of the division of labour; one among many. The dominance of maintenance faces us also with our enemies the insects. Tribalism could tolerate them and mend and make do, but we must fight the termite and ant as we fight the anopheles mosquito, must resist fungus and corrosion and call on our armoury of scientific and industrial weapons in an attempt to outwear time. This explains why we jumped to reinforced concrete at the first moment possible, reducing everywhere the timber content of building and denying access to flying insect hordes. If, as in our library in Ibadan, Nigeria, an interior free from insects and a fabric offering no nourishment for termites can be created at low cost, a victory over circumstances has been registered. To make an air-conditioned library, as originally intended, has been shown to be beyond the reasonable means of such a university.

This rapid survey of the forces bearing on the evolution of architecture in West Africa stresses the simpler responses to them because these are the most important. The present building programme tends to obscure them because it is so much concerned with the building of the capital centres with their luxury hotels, large governmental and commercial buildings and the like. This work had to be done, but beyond it lies the immense task of raising the standards of life in low-income countries outside the showy capital cities, and for this is required first and foremost a housing and town-planning policy with a status equal to its first class importance. If any West African Minister should read this article I would urge upon him the necessity of making town-planning a major instrument of government, with powers over land-use and with as nearly as possible a benevolent landlord's view of his responsibility. Just as architecture must deal with the conditions of climate and society in evolving a style suited to tropical Africa, so must town-planning study the peculiar needs of the region and plan accordingly. The evanescent nature of so much of the existing towns and villages makes it possible to replan at less expense than elsewhere in the world, although the major problems of industrialism and traffic congestion will be similar.

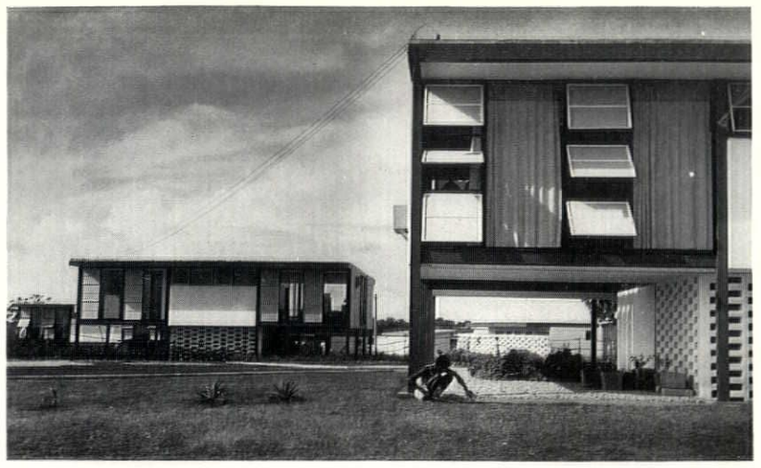
African life needs a different pattern, of different houses, than elsewhere. Its needs are peculiar and unique. They have been studied in detail by anthropologists and others, but unless the status of town-planning is improved and responsible researches undertaken rapidly, all this will go by default and towns will be built, or grow congested, with no directing impulse arising from knowledge of the conditions. Cheap housing, as we found in India, is of all architecture the most difficult to create, and even so cannot be considered apart from town-planning. What is important is not the individual unit but the life cycle of which it is a part. I am not suggesting that town-planning is not being used. There is evidence of serious planning in many centres. The point I make is that at the rate of development in West Africa it should be given a still greater importance and the means of dealing with existing property because of the incalculable benefits it will confer upon the changing lives of the people.

Much of the work shown in this section comes from the offices of expatriates like myself whom accident or good fortune brought to West Africa. We are, of course, part of the architectural history of the region and deeply involved with its evolution. But the next stage is being rehearsed in schools of architecture all over Britain and in those now established at the Kumasi and the Zaria Colleges of Technology, which move rapidly towards recognition by the RIBA as centres of examination as well as teaching. It is quite some years since Mr. T. S. Clark joined our Town Planning Office in Accra as its first West African representative and went on from there to be the chief executive architect of the Tema Town Corporation. He was the first president of the Ghana Society of Architects, now a chapter of the RIBA overseas. And in a recent visit to Accra, I saw large and splendid new government office buildings rising, pointing to the eventual condition in which West African architecture will be as West African as its people, but no longer isolated.

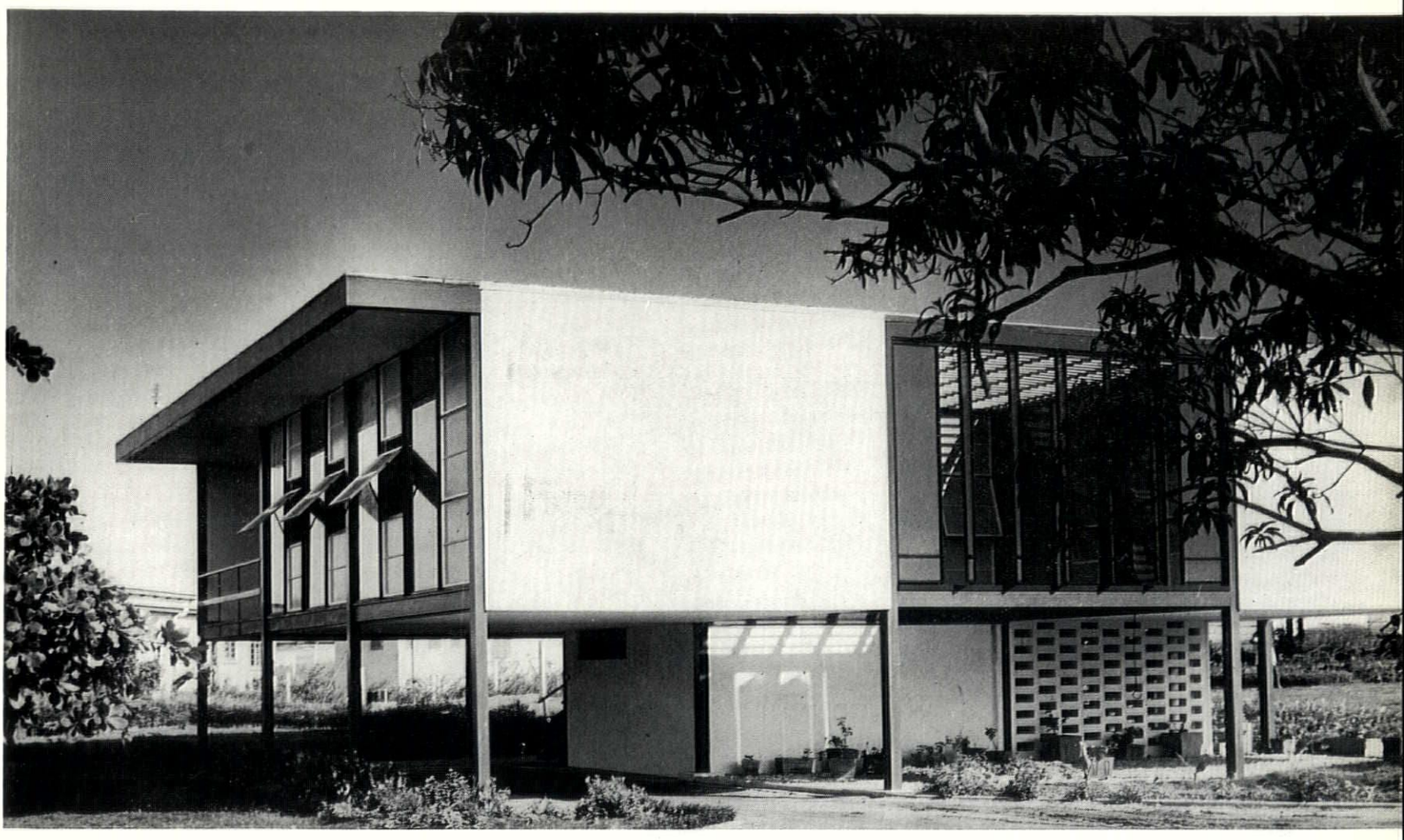
The greater part of the buildings shown in this section are in the more rapidly developing south. But in Nigeria, Ghana and Sierra Leone there are also areas in which the rain forest is thinning out to orchard bush and scrub, and humidity is evaporating towards the typical hot-dry tropic of the semi-desert. These regions are inhabited by people of Muslim faith, and in Nigeria they compose the majority of the total population of the country, but spread thinly over a vast area. For these people an entirely different architecture is needed, both because of the climate, which is critically hot with hot dust-laden winds, and also of the social religious observances of the people. It is an architecture of shade and enclosure that sets a high value on water, which is as hard to find there as it is plentiful in the south. In the north as well as in the south the transformation of the West African countries into secular states on Western lines continues, imposing upon architects the great responsibility not only of providing buildings that will remain workable long into the future, but of investing them with a character emotionally in tune with the varied and dramatic circumstances of their time.

GHANA

1 *and* 2, *housing at Tesano, near Accra (architects, Kenneth Scott Associates). The group of three steel-framed houses was built for a speculator and leased to the Mobiloil Company. Each has car-port, store, laundry and drying-yard on the ground floor, and on the first floor (area* 2,000 *sq. ft.), stoep, living-room, kitchen, two air-conditioned bedrooms and two bathrooms. Servants' quarters are separate. Floors, roofs and partitions are timber; ceilings and partition infill, plaster. Roofs are bituminous felt on wood-wool decking. Windows are steel with Venetian blinds behind the fixed panels.*

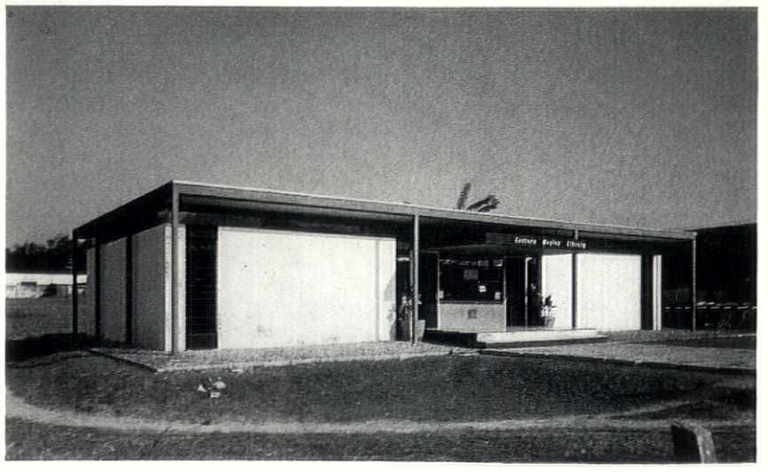


1



2

3 *(right), regional library at Koforidua, for the Ghana Library Board (architects, Kenneth Scott Associates). It contains a general and children's sections, besides staffrooms, cloak-rooms, stores, etc. The total area is* 1,350 *sq. ft. The structure is steel framed with timber roof finished with felt on plywood decking. Partitions are concrete blocks plastered. Windows are adjustable glass louvres with a continuous strip of fixed glazing at clerestory level.*



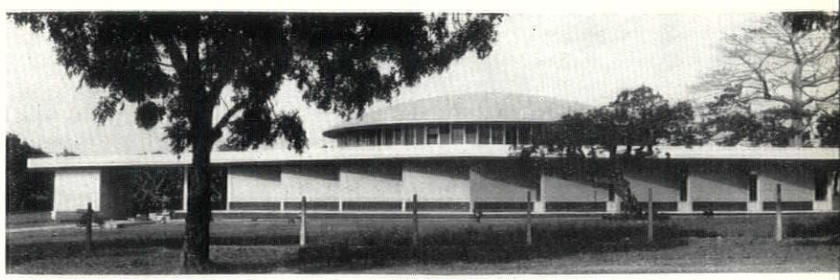
3

GHANA

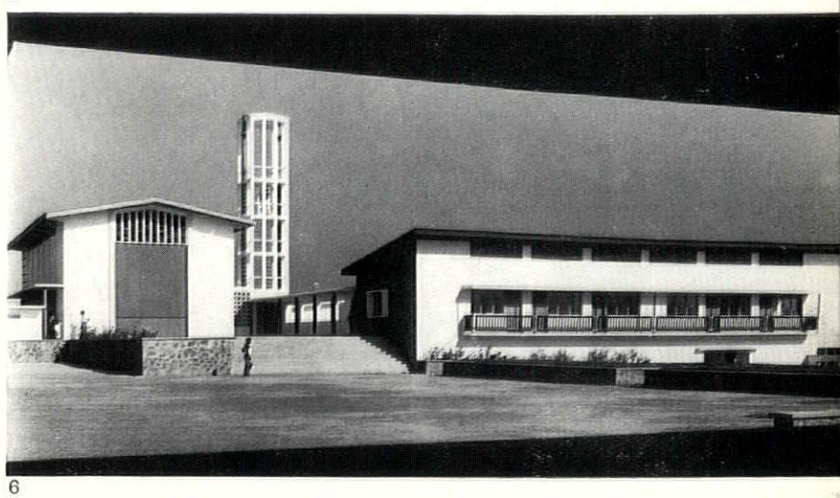


4

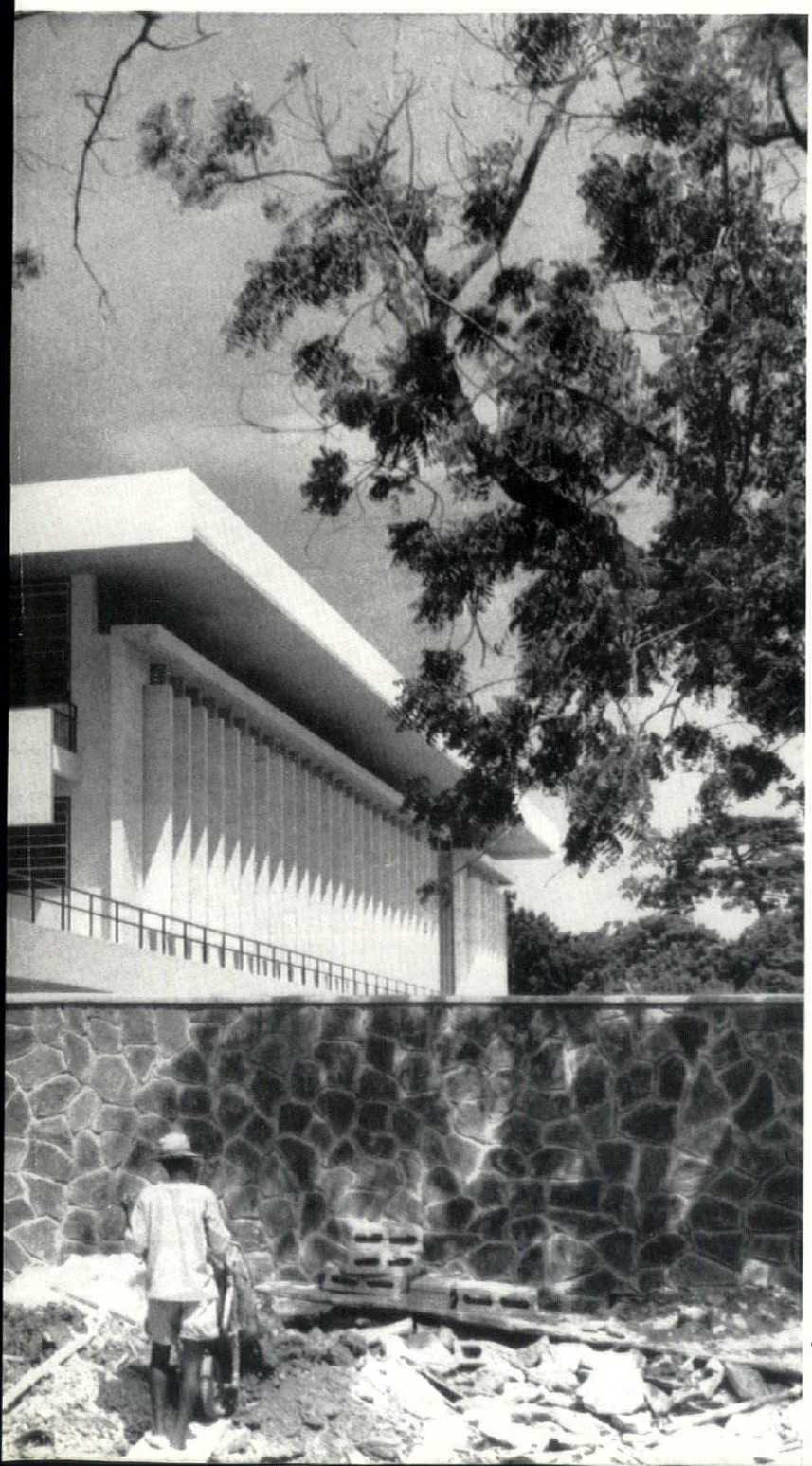
4. *hotel at Accra (architects, Kenneth Scott Associates) : extensions to the existing Avenida Hotel, consisting of four-storey bedroom block (shown in photograph), restaurant and bar. The bedroom block has fourteen air-conditioned rooms, each with a bathroom. The structure is reinforced concrete with external walls and partitions of concrete blocks, rendered. Roofs are timber with wood-wool decking and felt. Staircases are cast iron, helical type. Floors are terrazzo, and windows of aluminium, sliding horizontally, with Venetian blinds.*



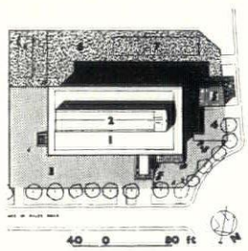
5



6



7

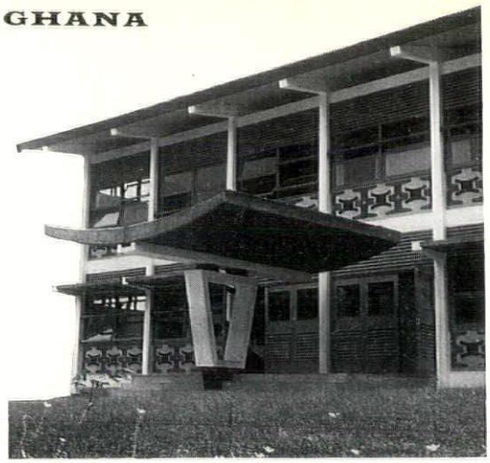


site plan, bank at Takoradi
key
1. banking hall.
2. manager's flat.
3. public car park.
4. manager's car park.
5. guards' quarters.
6. service yard.
7. warehouses and garages.
8. servants' quarters.

5, *museum at Accra (architects, Drake and Lasdun), designed as the first stage of a national museum and opened in March, 1957, as part of the celebrations of Ghana's independence. The interior is lit by slit windows in the saw-tooth walls (shaded by the overhanging roof) and clerestory windows beneath the dome, also lighting a gallery. Construction is reinforced concrete and rendered brick, with aluminium dome prefabricated in Britain (see AR, June, 1957).*

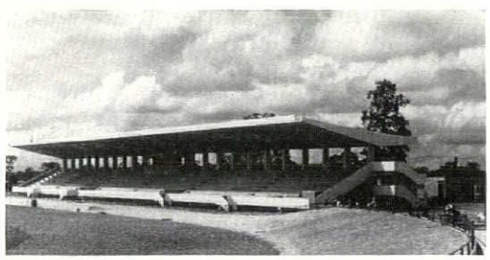
6, *Boys' school at Apowa (architects, Fry, Drew and Partners), typical of the large number of schools and training colleges designed by these architects around 1950 for the then Gold Coast (see AR, May, 1953). The photograph shows the hall, chapel and administration building. Construction is reinforced concrete.*

7, *bank at Takoradi (architects, Drake and Lasdun). A large banking hall, shared by the Ghana Commercial Bank and the Bank of Ghana Currency Agency, is divided by light aluminium screens. Each user has a separate entrance, but they share strongrooms, staff-rooms, etc., which are at a lower level. A manager's flat is at roof level. Sun is excluded by the roof overhang and the projecting wall-fins. These, and the balcony, are faced with travertine. The base is faced with local stone. The main structure is concrete, the roof having a double skin for insulation. Windows are aluminium.*



8

8, *dormitory block, Mfantsipim School, Cape Coast (architect, Kenneth H. Holgate): one of a group of three buildings (the others still under construction) providing dormitory space for 200 students, together with common-rooms, etc., in this Methodist church school. Construction is reinforced concrete frame with concrete block infill, rendered with cement and sand. Panels under windows are additionally rendered in colour, a pattern being made by the use of a plywood template. Roofing is asbestos. Doors, windows and all exposed woodwork are oiled mahogany.*



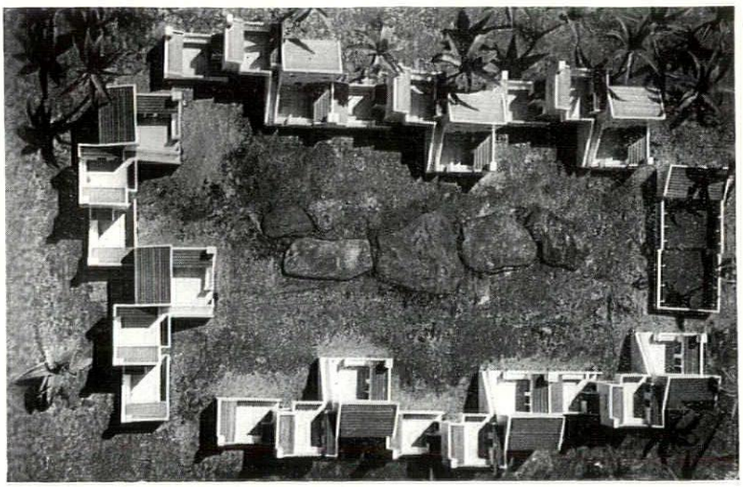
9

9, *sports stadium at Kumasi (architects, Kenneth Scott Associates). Part of a sports arena containing fields, running and cycle tracks, open terraces for 24,000 spectators and an office and committee building. This grandstand, seating 1,500, has changing rooms, dormitories and stores beneath it. It is of reinforced concrete with balanced cantilever roof, left as it comes from the shuttering except that fascias and parapets are painted.*



10

10, *offices, showrooms, etc., for the motor department of the United Africa Company, Accra (architects, Kenneth Scott Associates). The main building has a showroom on the ground floor with mezzanine offices, and two office floors above. At right-angles is the storage building with new vehicles and spare-parts sales department on the ground floor and spare-parts storage above. There is a staff canteen on the roof.*



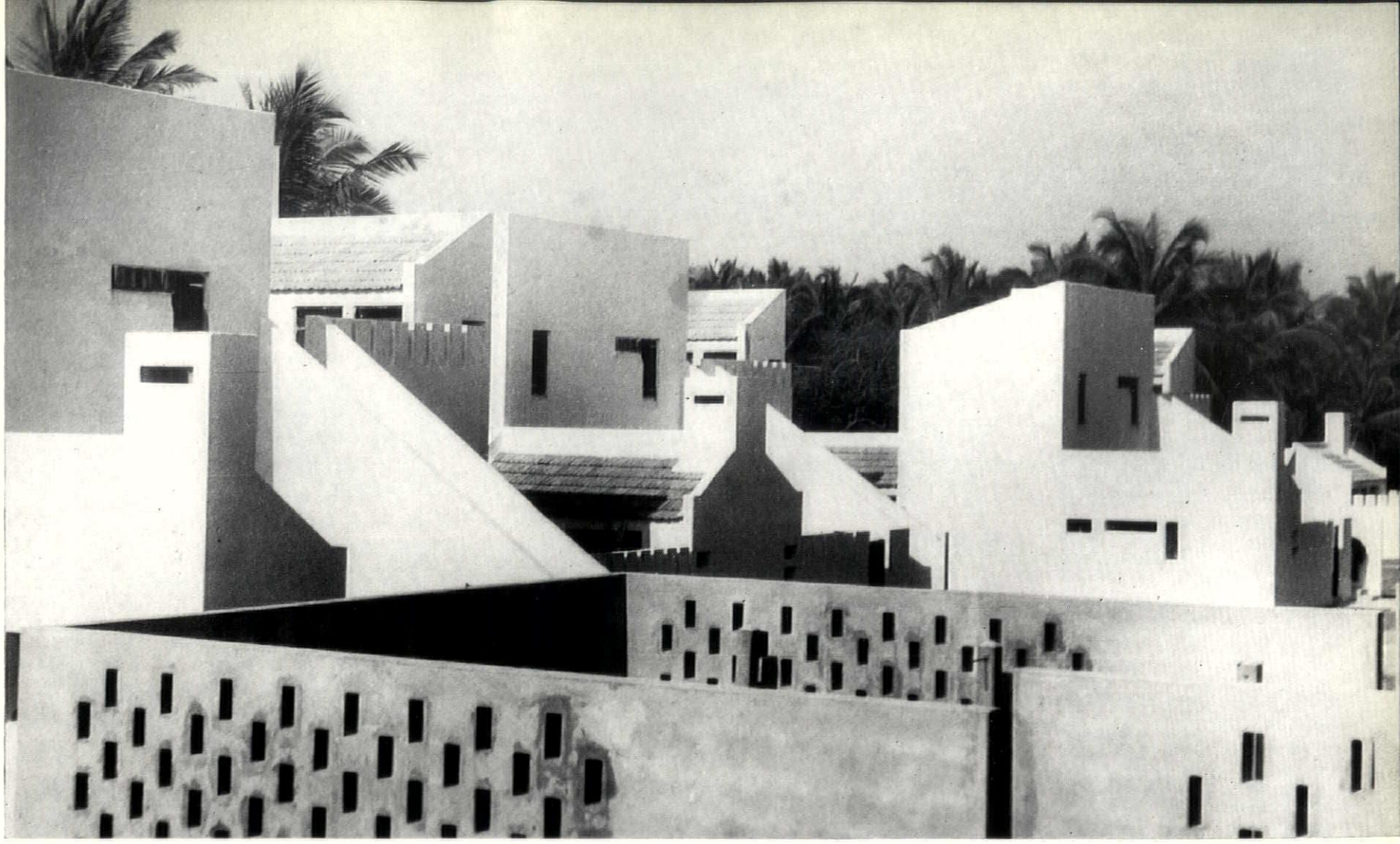
11

12→

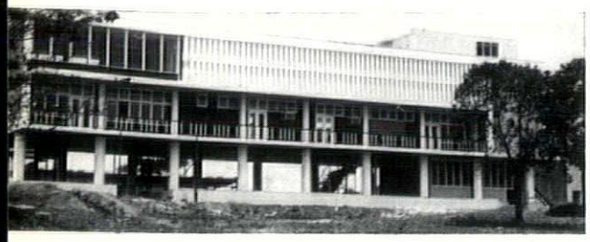
13→

typical ground and first floor plans, junior staff quarters, Government House, Accra

11 *(above) and* 12 *and* 13 *(facing page), junior staff quarters, Government House, Accra (architect, J. G. Halstead, chief architect, Public Works Department). Twenty-four self-contained dwellings occupy a one-and-a-half acre site adjoining the grounds of the seventeenth-century Danish castle which is now the official residence of the Prime Minister of Ghana. The architectural character of the castle is to some extent echoed in the style of the dwellings. These are planned in three blocks, surrounding the centre of the site where there were outcrops of rock. The fourth side of the square is occupied by a laundry and drying-yard. The dwellings look inwards to the square, which provides a safe playing space for children. Each block (see plan) consists of units of three dwellings—two ground-floor, one first-floor—which are only one room thick to provide cross-ventilation. Each dwelling has a private courtyard for open-air living and sleeping. Load-bearing walls are of rendered concrete blocks. Floors are reinforced concrete, roofs are timber, tiled, and windows and doors also timber.*

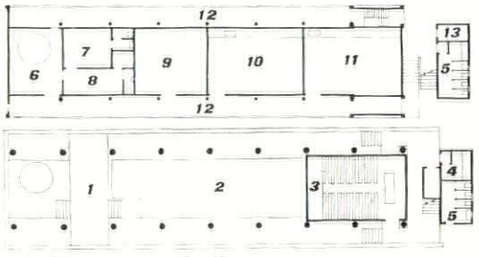






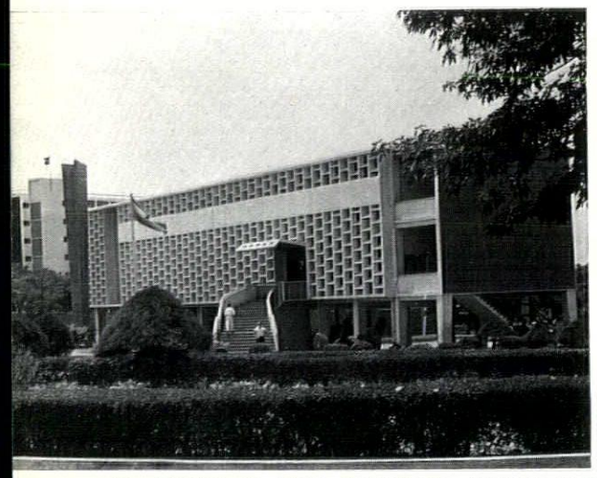
14

14, *school of architecture at Kumasi (architect, Charles I. Hobbis): the first section of a two-phase programme for the School of Architecture, Town Planning and Building, at Kumasi College of Technology. There is a partly open ground floor (see plans below). On the second floor are three more studios and an exhibition hall; on the top floor one large classroom. The structure is reinforced concrete with walls of precast blocks or local stone and aluminium roof.*



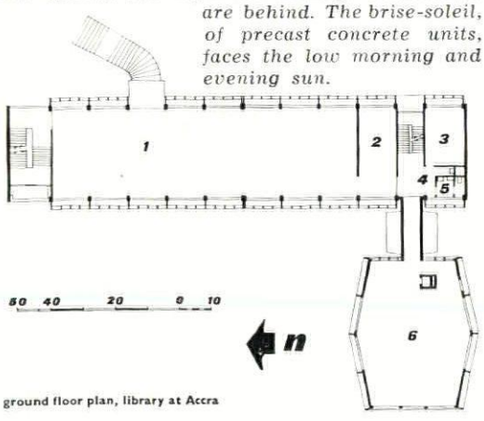
key
1, roadway.
2, garden.
3, lecture theatre.
4, dark room.
5, lavatories.
6, entrance hall.
7, headmaster.
8, secretary.
9, library.
10, studio.
11, materials gallery and store.
12, open balcony.
13, store.

ground and first floor plans, school of architecture, Kumasi



15

15, *library at Accra (architects, Nickson and Borys): a three-storey building in the centre of Accra near the classical-style Supreme Court. The ground floor is partly open, with parking area and services; on the first floor (see plan below) is the lending library and on the second the reference library. Stackrooms are behind. The brise-soleil, of precast concrete units, faces the low morning and evening sun.*



key
1, lending library.
2, stack room.
3, stores and binders.
4, staff hall.
5, lavatories.
6, cataloguing.

ground floor plan, library at Accra



16

16, *assembly hall, Accra (architects, James Cubitt and Partners), built as a memorial to Gold Coast personnel killed in the war. It contains hall, foyer, bar and offices and a small flat for the secretary. Construction is timber. (See AR, May, 1956.)*



17

17, *showrooms and offices at Accra for the Industrial Development Corporation (architects, James Cubitt and Partners): the south façade, with louvred walls to give shade.*

18 *(below), school at Sekondi (architects, James Cubitt and Partners): the science block (see AR, May, 1956).*

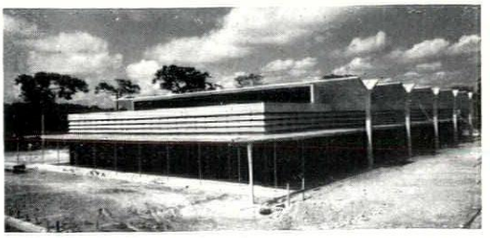
19 *and* 20, *Kumasi College of Technology (architects, James Cubitt and Partners), a large scheme already illustrated in the AR (May, 1956).* 19, *the pharmacy building;* 20, *the engineering workshops, with ventilated timber roofs hung from concrete* Y*-beams.*



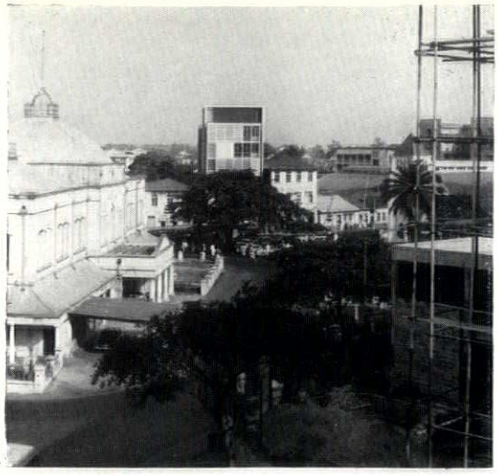
18



19

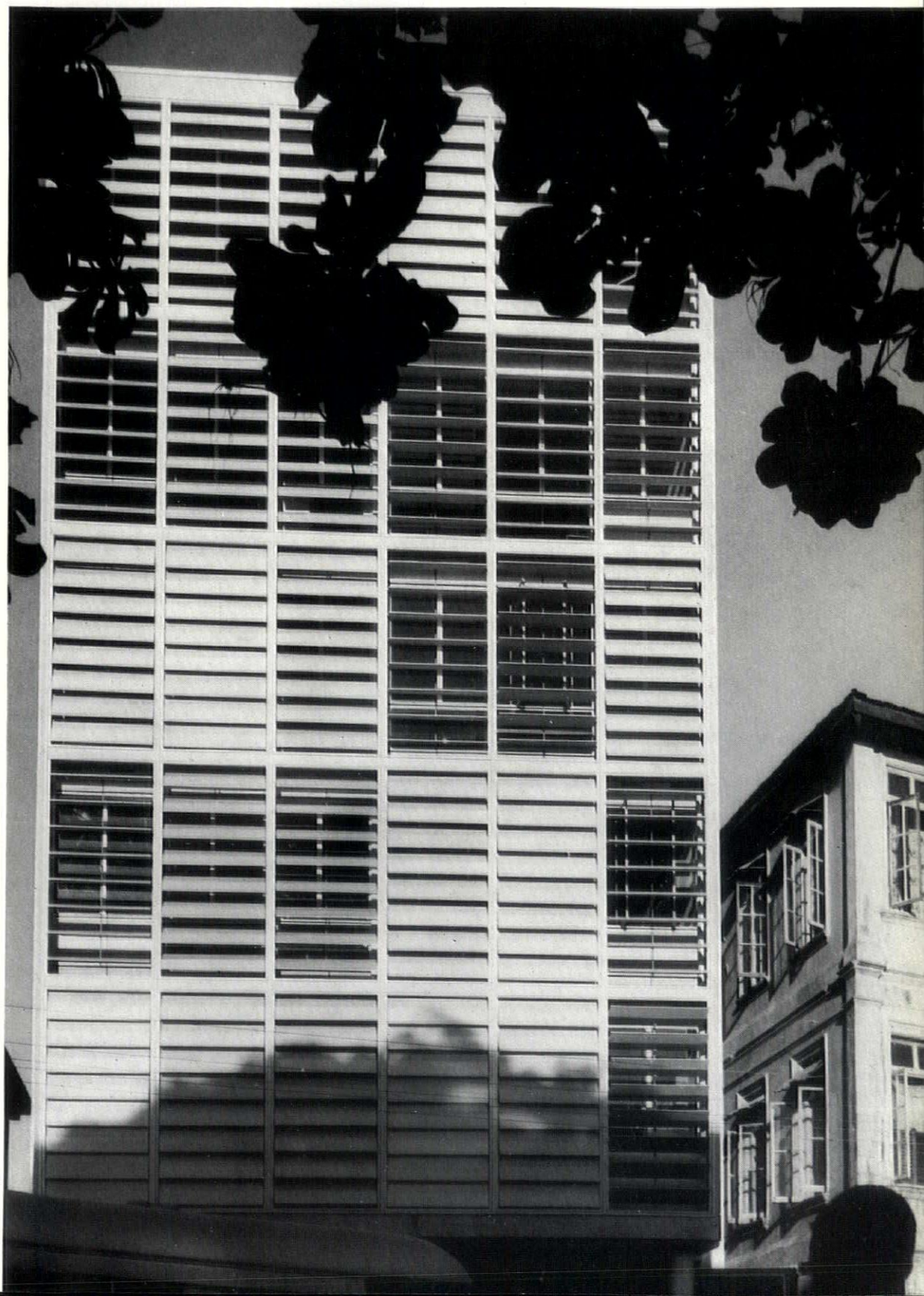


20

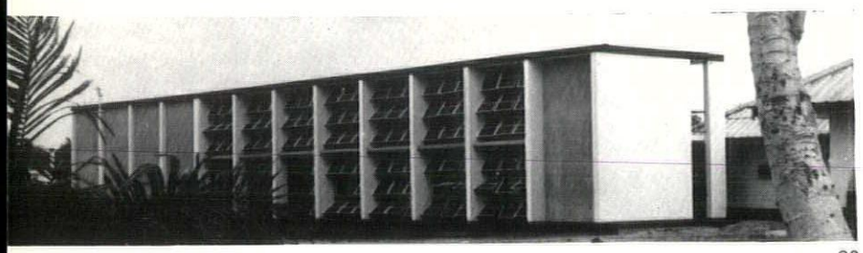


21

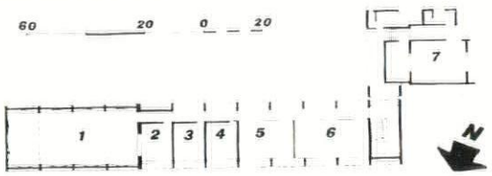
21 and 22, offices and showrooms in Lagos (architects, Godwin and Hopwood), the first stage of a two-stage project for Allen and Hanburys (Nigeria) Ltd., on the east side of Tinubu Square. Most of the ground floor is open for car-parking. Showrooms, reception and director's office are on the first floor and above are four more floors of offices. The two main elevations, 22 below, had to be protected from the low morning and evening sun and have adjustable aluminium louvres, with pivoted windows behind to admit the breeze. Construction is reinforced concrete. The concrete slab roof has an aluminium roof over it, with air-space between.



22

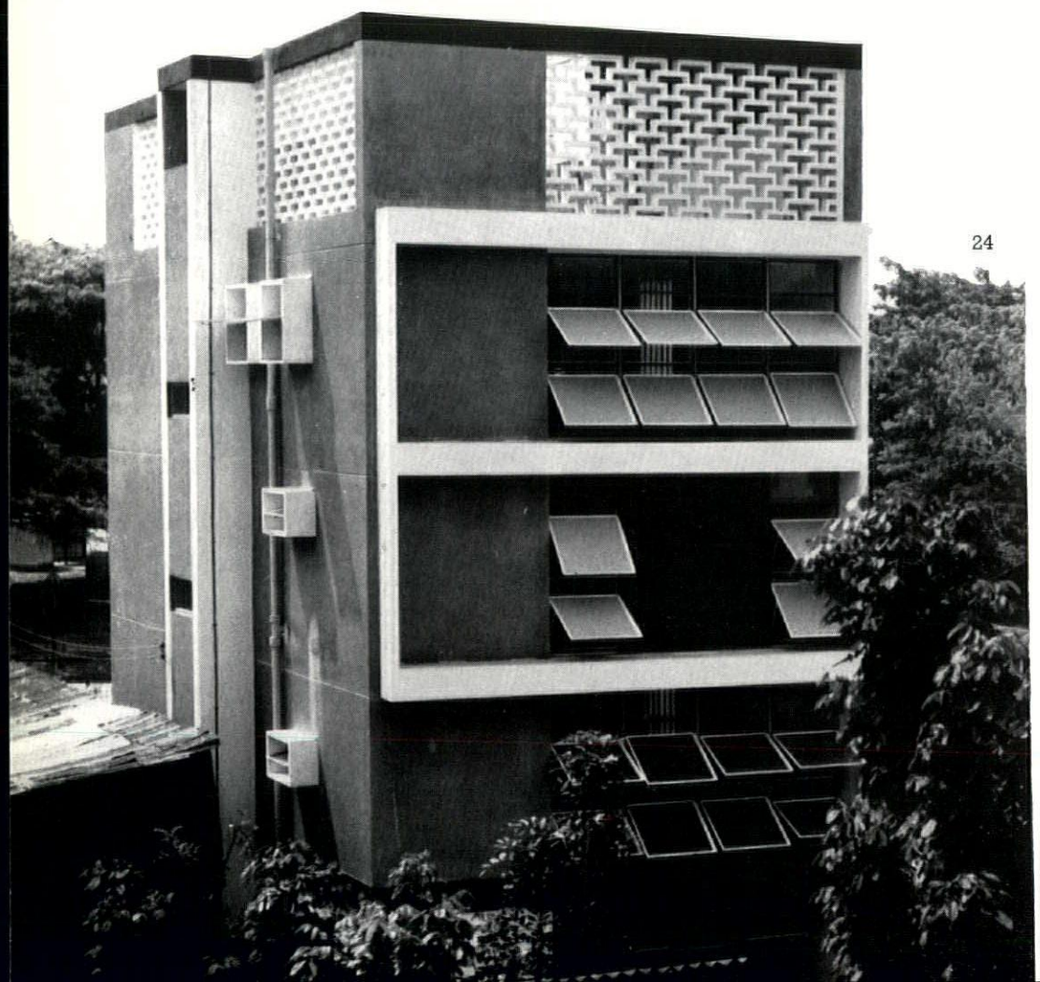


23



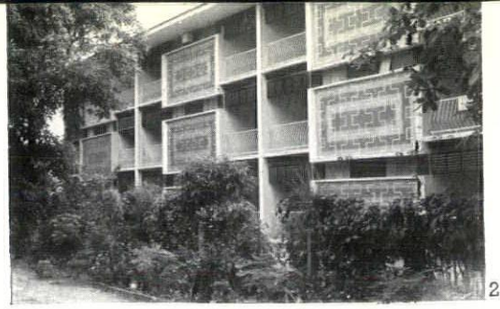
key
1, studio.
2, cubicle.
3, 4, records.
5, testing.
6, workshop.
7, existing studio.

23, *extensions to Broadcasting House, Enugu (architects, Godwin and Hopwood). It contains a two-storey studio with technical rooms alongside it (see plan), above which are offices. The main windows face south. The studio is separated from the remainder by an expansion joint. Construction is load-bearing piers of hollow blocks, filled with concrete, and reinforced concrete floor and roof beams. Roof covering is aluminium and the walls are insulated with aluminium foil. The interior is air-conditioned from a plant in a semi-basement beneath the studio.*



24

24 *(left), architect's own office and residence, Lagos (architects, Godwin and Hopwood). On a restricted site on Lagos Island, it has four floors each divided in two and linked by a spiral stair. The two lower floors contain car-port, entrance and offices and the two upper floors a maisonette with roof-garden above. Servants' quarters are in a separate building behind. Windows are kept to a minimum on the east-west walls (the photograph shows the building from the north) except on the bedroom floor which is air-conditioned. Construction is reinforced concrete and hollow blocks.*



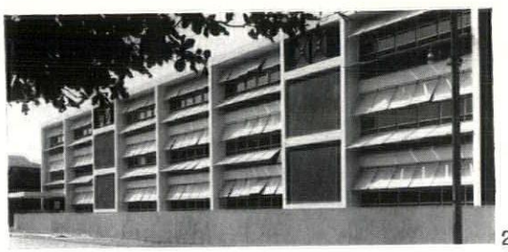
25

25, *bedroom block, Ikoyi hotel, Lagos (architects, Halliday and Webster—Design Group Nigeria): a detached block in the grounds of the existing hotel, providing 24 single and 12 double bedrooms each with its own bathroom and private balcony, reached from a central corridor. All rooms are air-conditioned. Construction is reinforced concrete with projecting panels (forming the wall of the bathrooms, which have clerestory lighting) faced with ceramic mosaic tiles.*



26

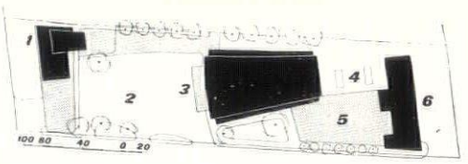
26, *Treasury Buildings, Ibadan (architect, J. E. K. Harrison, in association with the Ministry of Works and Transport, Nigeria Western Region): the principal government office building for the Region, providing offices for the Prime Minister and his staff, a cabinet room and offices for the Ministry of Finance. The photograph is from the south-east, showing the large balcony outside the Prime Minister's room.*



27

27, *school at Lagos (architects, Godwin and Hopwood), a Methodist school for 1,080 boys and girls, comprising two classroom wings with a covered assembly space between. The photograph shows the longer block, facing south, at the far end of which is a maisonette for one of the Methodist catechists. Construction is reinforced concrete with brick infill and timber and aluminium roofs.*

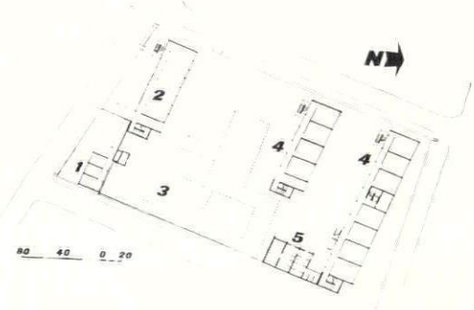
28



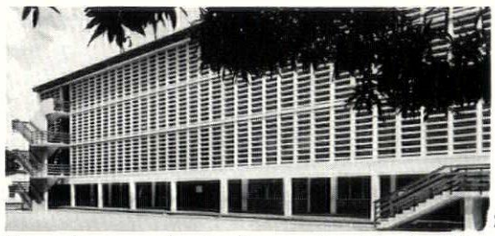


key. 1, bank and tower. 2, car parking. 3, assembly hall. 4, service yard. 5, roof restaurant and showroom. 6, shop.

28 (left), office building, Ibadan (architects, Fry, Drew, Drake and Lasdun), for the Co-operative Bank of Western Nigeria. The 10-storey tower shown in the photograph has the bank on the ground and first floors. Also on the site (see plan above) are an assembly hall seating 850 for co-operative and other functions, a shop wing with offices over and a showroom with restaurant on roof. Construction is reinforced concrete.

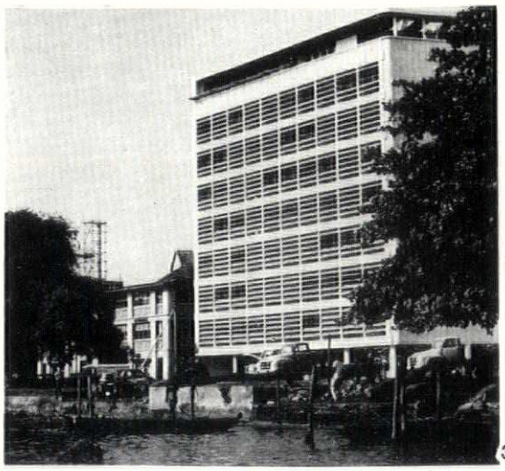


key. 1, admin. building. 2, assembly hall and meal room. 3, existing school (to be demolished). 4, classroom blocks. 5, lavatory block



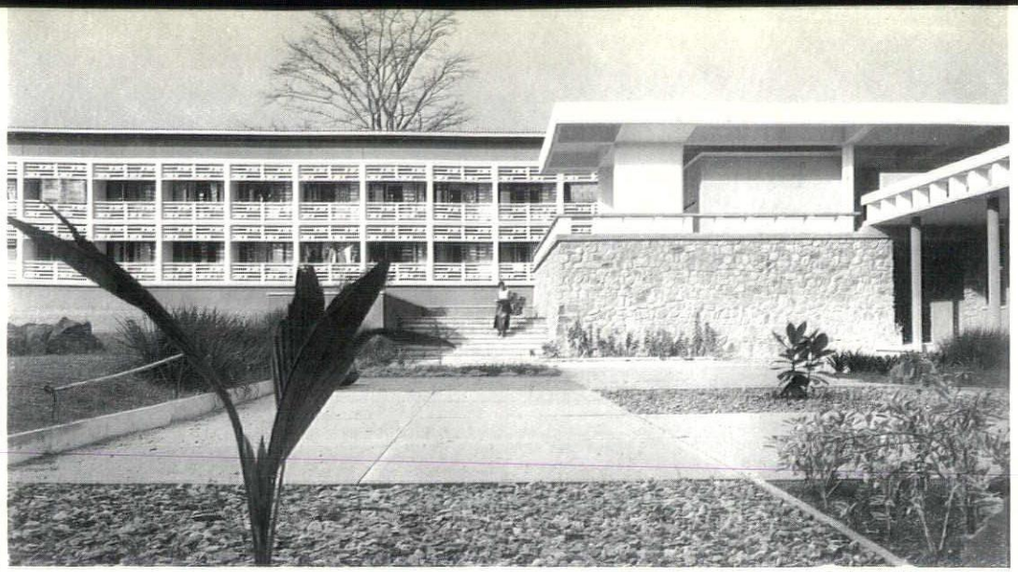
29

29, primary school, Lagos (architects, Fry, Drew, Drake and Lasdun): one of a series using multiples of four and eight classrooms in units adaptable to various sites. Construction is reinforced concrete, with concrete block walls including precast louvre blocks. Windows have timber frames. Site plan above.



30

30, office building on the waterfront at Lagos, for the same clients as 28 (architects, Fry, Drew and Partners). The ground floor is open, for use as car-parking. Construction is reinforced concrete frame, with the blank side wall faced in travertine. The windows are protected by adjustable aluminium louvres.



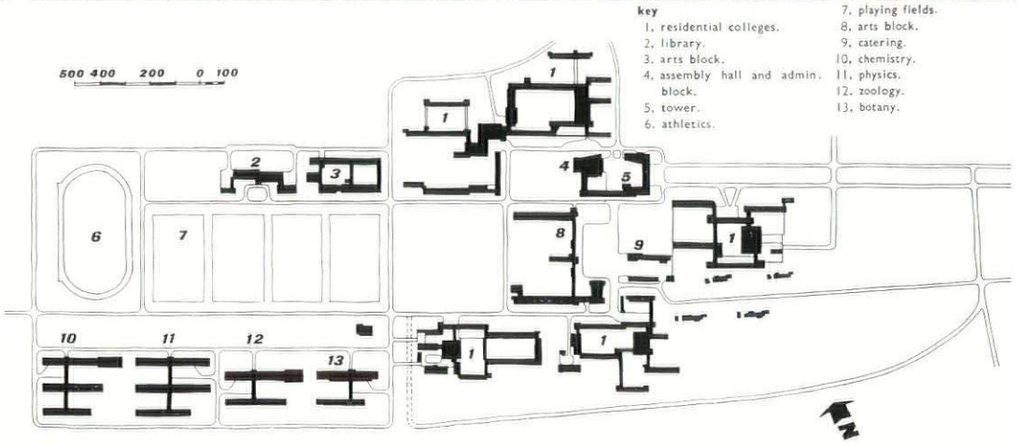
31



32



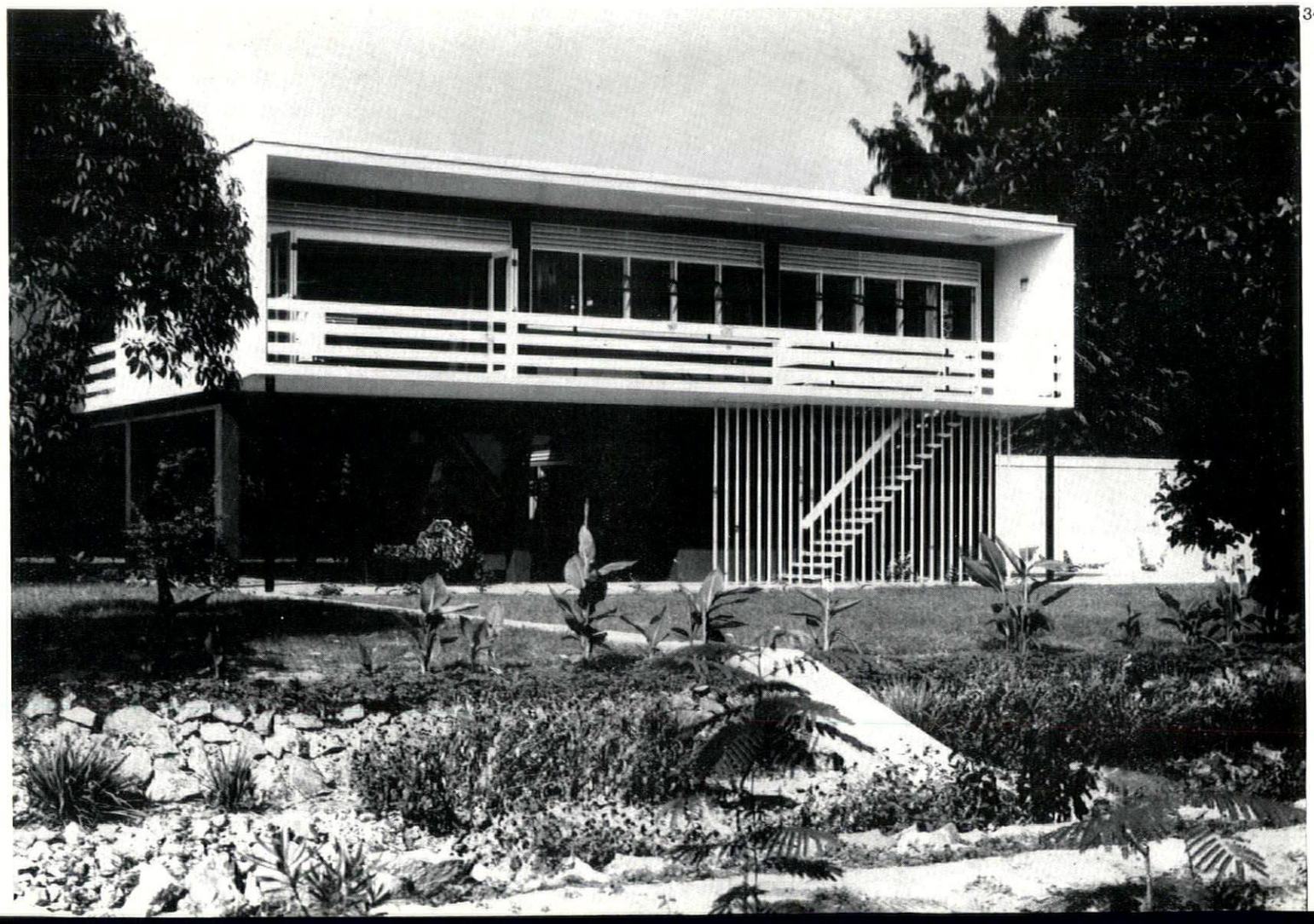
33



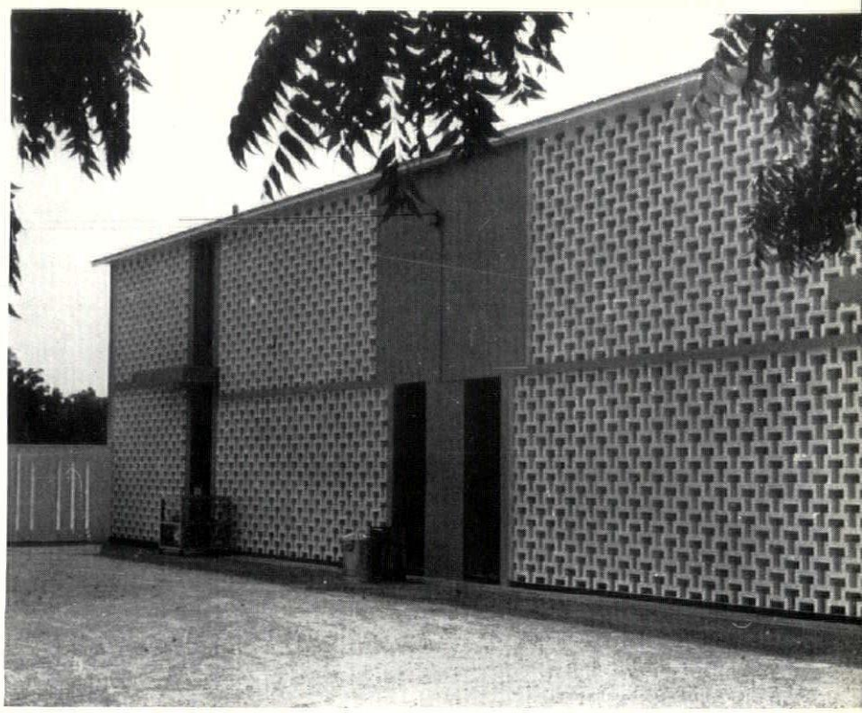
University College, Ibadan (architects, Fry, Drew and Partners): a complete university (see site plan, left) on a site of five square miles. 31, one of the women's residential colleges (all of which are planned round courtyards). 32, the library, with natural cross-ventilation. It is fly-proofed behind perforated concrete screening. 33, housing for senior staff.

34 (below), house at Ikoyi, Lagos (architects, Fry, Drew and Partners): one of three built for British Overseas Airways personnel. On the ground floor is a garage and a guest suite. Above is a two-bedroom flat with a terrace (shown in the photograph) opening from the living room. There is also a 20ft. square central open court. Construction is reinforced concrete with block walls and hardwood windows.

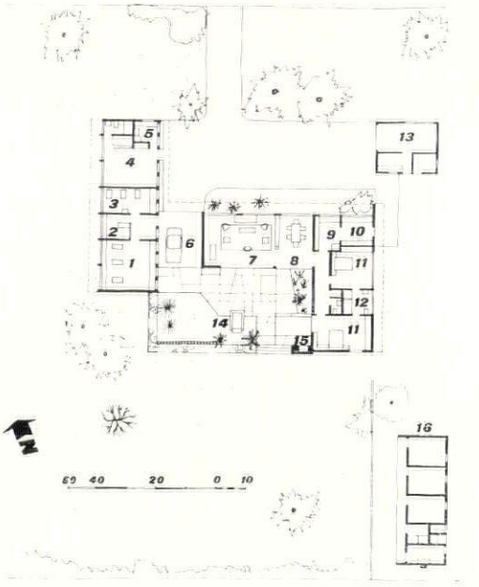
34



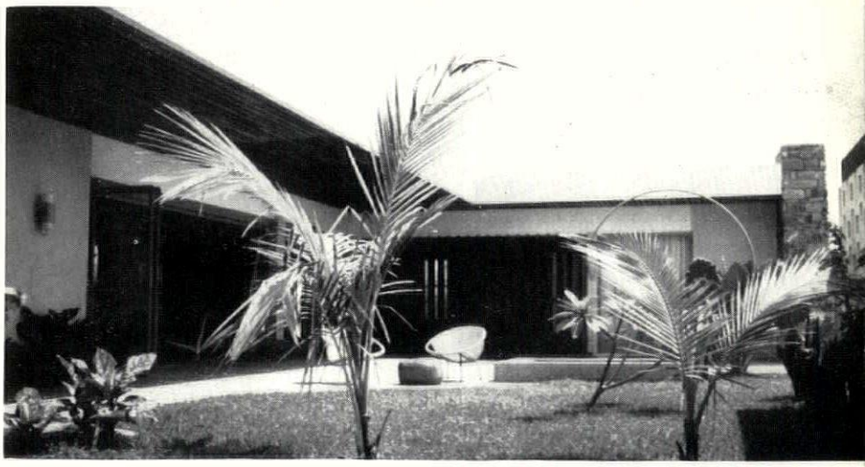
35, *houses at Kano (architects, James Cubitt and Partners) for Barclay's Bank. A group of semi-detached houses to which two more pairs will later be added. The near-desert climate of Kano demands protection against heat and glare, provided by a perforated screen of concrete blocks 3ft. in front of the south wall and a wide roof overhang on the north wall. Construction is of concrete beams and blocks with timber and asbestos roof.*



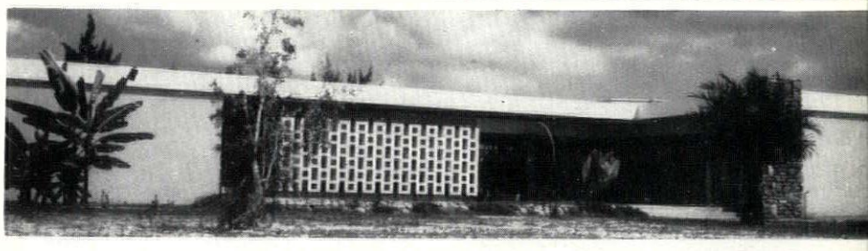
35



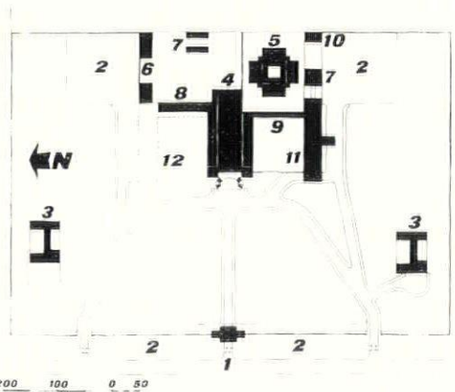
36 *and* 37, *architects' own house and office at Apapa, Lagos (architects, Becker and Voigt): single-storey, with garage and boys' quarters separate. The house itself, and the office and guest wing, both facing a screened courtyard,* 36, *are separated by a car-port (see plan above).* 37, *view from the south-west. Walls are load-bearing blocks; the roof is reinforced concrete and timber.*



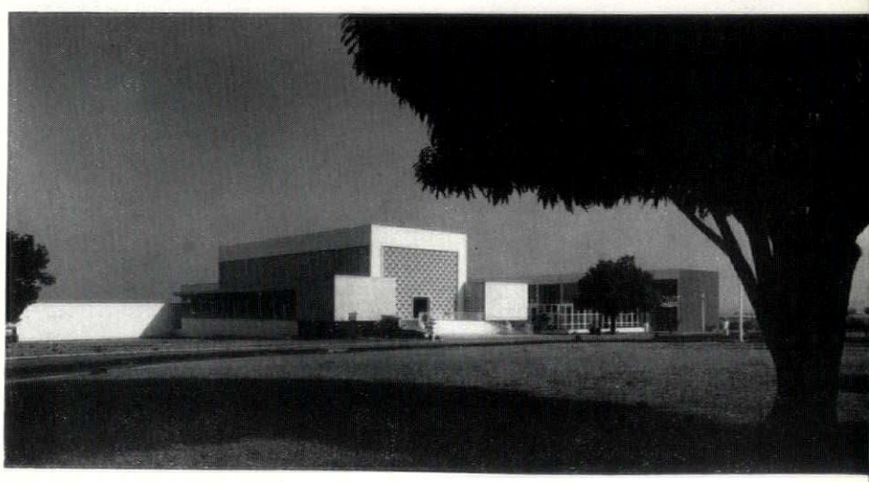
36



37

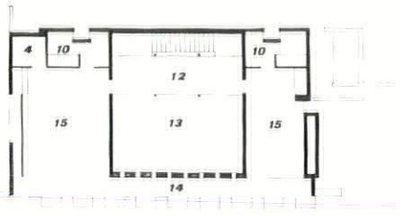


38, *State House, Kaduna, Northern Region (Ministry of Works, Northern Region: chief architect, J. E. Evans; architect, J. R. Greer-Perry): a symmetrical group of buildings (site-plan above) with a high reception hall in the centre flanked by a cabinet room on one side (not yet built) and the Prime Minister's offices on the other. All are linked by covered ways. Ancillary buildings enclose garden courts. Construction is reinforced concrete and concrete blocks with a steel roof to the hall.*

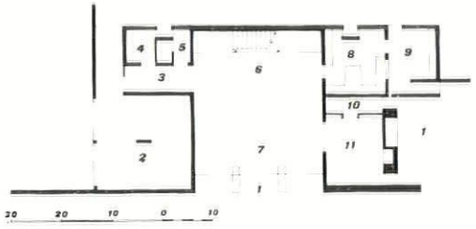


38

NIGERIA



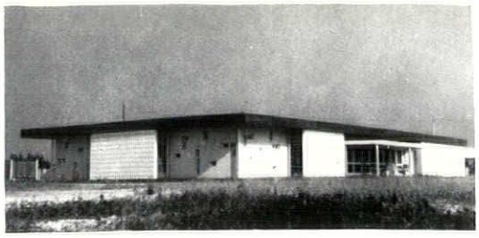
first floor plan



ground floor plan of house at Kano

key. 1, terraces. 2. garage. 3. lobby. 4. stores. 5, lavatories. 6, dining area. 7, living area. 8, kitchen. 9, laundry yard. 10, bathrooms. 11, study. 12, bridge - 13, upper part of living room. 14, balcony. 15, bedrooms.

41



39

39, house at Lagos (architects, the Architects' Co-Partnership) for the general manager of an oil company. It is planned to provide natural ventilation to the living-rooms; the bedroom wing is air-conditioned. Concrete block walls support timber roof beams and aluminium sheeting.



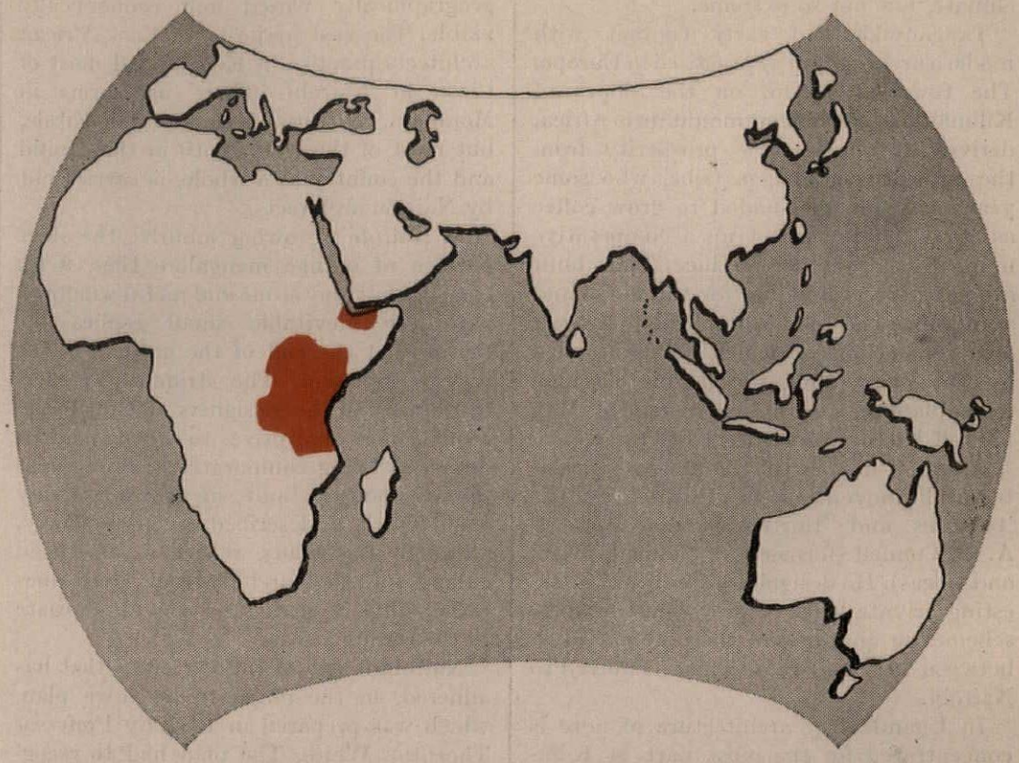
40

40, dock offices at Port Harcourt (architects, the Architects' Co-Partnership) for the Nigerian Ports Authority. The first floor windows are shaded on the corridor side by adjustable vertical louvres allowing full ventilation and on the office side by horizontal aluminium louvres hung from the roof beam.

41, house at Kano (architects, the Architects' Co-Partnership), designed for the hot dry climate of this region. The ground floor walls are of rubble stone 18in. thick and have small openings, providing protection from high daytime temperatures. The heat from these walls, however, radiates after sundown into the interior of the house, so a light structure has been used on the first floor, composed of steel rods and aluminium sheetings, the high conductivity of which quickly disperses at sundown the heat absorbed during the day. Plan on left.



Richard Hughes



EAST AFRICA

East Africa as a region consists of four territories, distinct from one another in historical and political development, climatic and geographic characteristics and economic levels. These factors affect their architectural character no less than do the differences in procedure for the registration of architects.

Zanzibar, the smallest and most isolated of the units in the region, is still in the grip of a strong Arabic influence. The island is ruled by a hereditary Sultan, part of a tradition which includes the architecture, with arcaded courtyards and white walls, embellished with complex tracery, purple shadowed in the strong sun. The narrow streets, overhung with intricately carved balconies, and lined with blank walls punctuated by carved doors, massive and black with age, apparently create too strong an atmosphere for modern architecture—banks, petrol stations and even the airport are built with moorish arches and traceried balconies. One should add that lack of space in the town of Zanzibar makes new buildings of any style comparatively rare.

Tanganyika, the largest in area and population of the East African territories, is in many ways the most interesting. Politically Tanganyika, under the leadership of Julius Nyerere, is closer to responsible self-government than either Kenya or Uganda, and with less bitterness and controversy between the various racial groups. The legacy of German colonial architecture, with improbably slender cast-iron columns supporting wide first-floor verandahs and white-painted louvred shutters with black trim, is a valuable one to the coastal towns of Tanganyika.

Since the war, new buildings in Dar es Salaam, as in Mombasa farther to the north, have mostly been covered with concrete louvres or egg-crate brise soleil, in an attempt to keep out direct rays of the sun. The general economic level of the country does not allow many entirely air-conditioned buildings, which could be designed as such, or more sophisticated adjustable types of sun-screening which would provide better conditions and more interesting and intricate elevational patterns. The result is a certain heaviness and crudity. An allied factor is that standards of workmanship are such that buildings must be designed down to the level of the craftsmen available. Other than simple screening of the sun's rays, there has been little exploration of climatic design. The hot and humid conditions to be found along the coast affect Mombasa, Tanga and Dar es Salaam. A characteristic of this climate is little diurnal and annual range: the mean maximum and minimum temperatures for Mombasa are 86 deg. and 72 deg., with a mean humidity of 80 per cent. Towns such as Kisumu,

Entebbe and Kampala, on the shores of Lake Victoria, also have a hot and humid climate, but not so extreme.

Tanganyika had early contact with modern architecture as practised in Europe. The town of Moshi, on the slopes of Kilimanjaro, the highest mountain in Africa, derives its considerable prosperity from the enterprising Chagga tribe, who some years ago were persuaded to grow coffee as a cash crop and set up a co-operative union to market the produce. They built a headquarters building for the union and a number of clinics, schools, district offices and houses, which were designed by Dr. Ernst May, the famous German town planner, and his partners. Dr. May himself has now returned to Germany.

Another link with the modern architectural movement in Europe of the 'twenties and 'thirties is the work of A. D. Connell (formerly of Connell, Ward and Lucas). He designed a number of interesting private houses and low-cost housing schemes in and around the port of Tanga between 1947 and 1954, when he moved to Nairobi.

In Uganda any architecture of note is concentrated for the most part in Kampala, which spreads over a number of hilltops, the crests being capped with the hospital, cathedral, mosque and Kabaka's palace. The hills, with the hot and humid climate and luxuriant vegetation, give Kampala a character of its own. This is enhanced by being the seat of an hereditary ruler, the Kabaka of Buganda, and the commercial capital (Entebbe on the lake shore is the administrative capital) of a prosperous African state.

Uganda has self-government within reach as soon as the various factions in the country can come to agreement on the details. As in East Africa generally, the greatest volume of building is commissioned by the Asian community, but to a large extent to other than qualified or registered architects. This is made even easier in Uganda than elsewhere, as the Protectorate has no ordinance controlling the use of the title 'architect'. In Kenya and Tanganyika this is restricted to those whose qualifications satisfy the Board of Registration, although this does not prevent firms of 'building engineers,' 'building consultants,' 'designers' and others carrying on a flourishing trade with reduced fees and professional standards.

This has had a marked effect on the visual environment of East African towns, as more than half the non-government work is designed by other than qualified architects. The effect is, for the most part, crude and garish, with bizarre colouring and outmoded clichés, and the planning is often wasteful and inconvenient.

Kenya is the most complex of the East African territories: politically confused, geographically varied and economically viable. The vast majority of East African architects practise in Kenya, and most of those in Nairobi. There are firms in Mombasa, Nakuru, Kisumu and Kitale, but most of the work, both in the capital and the country as a whole, is carried out by Nairobi architects.

In Nairobi's growing suburbs, the older pattern of orange mangalore tiles, 9 in. coursed dull grey stone and metal windows, with the inevitable small replica for servants at the end of the garden, is not now so frequent. The stridently modernistic work of the 'designers' has made the public more receptive to good modern design as being comparatively mild. Most private houses built in Nairobi today could loosely be described as contemporary, although too many reflect a superficial culling of the architectural magazines rather than a genuine style appropriate to the country.

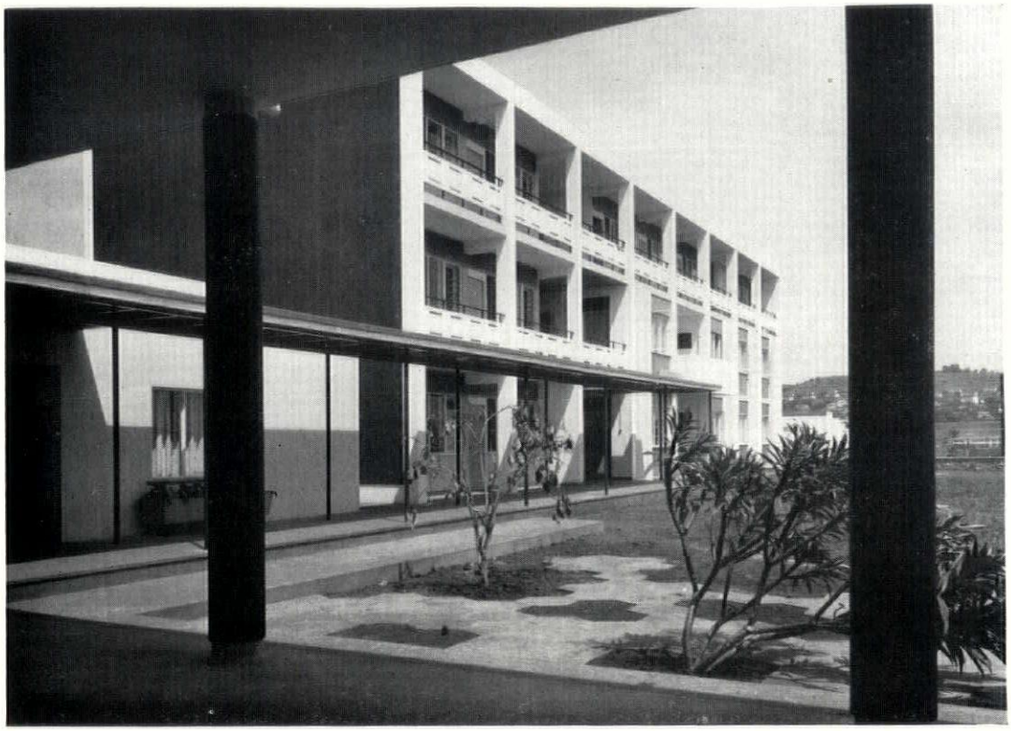
Nairobi is one of the few cities that has adhered, in the main, to its town plan, which was prepared in 1947 by Professor Thornton White. The plan had to recognize the existing sprawl of the city and also did little to integrate the vast areas of African housing with other residential areas. The acres of low-cost and low-standard African housing which form a large part of any East African town, lie unrelated to the life of the town itself, but always present. The plan has, however, given the new commercial and administrative centre some coherence and order without regimentation, although the regimentation of the international style has engulfed Nairobi, as it has most other cities. In East Africa, stainless steel and porcelain curtain walling becomes standard metal windows with painted (or coloured mosaic) spandrels in a grid of concrete mullions. The rectangular block is framed and lifted off the ground as in Canberra, Chicago or Caracas. The East African climate, however, requires less window area and deep reveals or sun screening, rather than the continuous window this style demands; for even in towns with a relatively temperate climate, such as Nairobi, Moshi and Nakuru, the brightness of the sky and sun is excessive for the greater part of the year. These towns, at altitudes of 4,000 feet to 6,000 feet, have a mild climate, with day temperatures rarely above 80 deg. or below 65 deg. and cool nights, the lowest recorded night temperature for Nairobi being 44 deg.

Local materials are limited: asbestos, concrete tiles and shingles are available locally, as is stone, some brick and hollow blocks, both clay and concrete. Portland cement and standard metal doors and windows are produced by East African factories. Practically all other materials and equipment, apart from timber (but including hardboard, softboard, plywood, etc.), have to be imported, mainly from Europe. This keeps building costs up and causes endless delays and frustration when local agents are out of stock of special fittings and materials.

A growing field of work, which could break away from both the traditional and international styles, is that commissioned by African dominated organizations. Many African district councils are building office blocks and council halls; parish committees are starting new churches, the Chagga Coffee Co-operative has already been mentioned and, also in Tanganyika, the Cotton Co-operative has recently commissioned new offices. The first stage of Tom Mboya's Kenya Federation of Labour headquarters is nearing completion in Nairobi. This new class of clients neither recognizes nor wants European traditions, particularly of the village green type, but they do want something good, up to date and vigorous which will reflect their hopes for a new Africa.

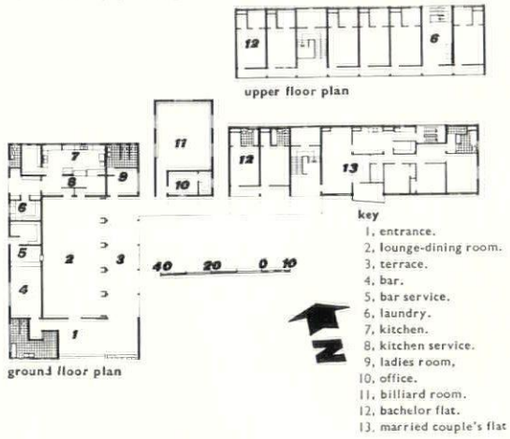
The majority of architects in East Africa are Europeans, with a number of Asian firms. All these firms are based in the country, and their principals and assistants regard themselves as East Africans, having permanently settled in East Africa. Most of the older generation were born and trained in Britain, but there is a growing number of young European and Asian (and there is now one African) architects who were born in East Africa, have trained abroad and returned to practice, sometimes in their father's firm. In this rapidly developing area, this pattern is already changing in that there is now a Faculty of Architecture in the Royal Technical College of East Africa (soon to be part of a University of East Africa) which has some 25 students in the first four years.

The Faculty was founded in 1956 and runs a course aimed at producing a qualified architect in seven years. The first three years up to RIBA Intermediate are similar to courses in British schools. The second stage consists of one and a half years of full-time studio work, one year in an architect's office, followed by six months revision in the College before taking the RIBA finals. Whether a student can develop the breadth of vision and recognition of the highest standards in architecture, when he has been educated entirely in a small country, isolated from the traditions of the past and the best of the present, remains to be seen. In any case the demands of a fast developing region are such that architects from Europe will still be needed for many years to come.



1

1, *police officers' mess and flats, Kampala (architect, C. G. Andrews, chief architect Public Works Department; assistants in charge, J. S. Fuller and W. A. Schwartzel). The main three-storey building, in the centre of Kampala, accommodates ten bachelors and two families. The single-storey mess (see plan below) contains a lounge-dining room, a bar, a billiard-room and services. The flats have a reinforced concrete frame with hollow pot concrete floors and roof. The mess has load-bearing walls with a hollow pot concrete roof of butterfly shape.*





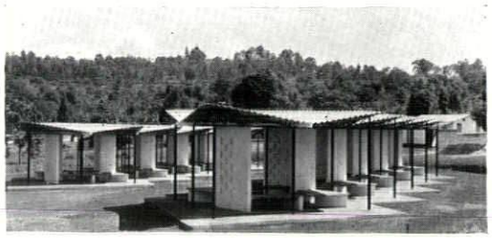
2, *bank and offices, Kampala, for the Uganda Credit and Savings Bank (architects, Inglis, McGuinness and Wilkinson), comprising a main banking-hall with covered side entrance and an office block at right-angles attached to one end (on left in photograph). The banking-hall has a mezzanine gallery at the rear containing the senior executives' offices. A second gallery, running the length of the hall, forms a canopy over the counter and tellers' booths and provides storage for files. The hall is top-lit by dome lights with heat-resisting glass. The strong-rooms are in the basement.*



3

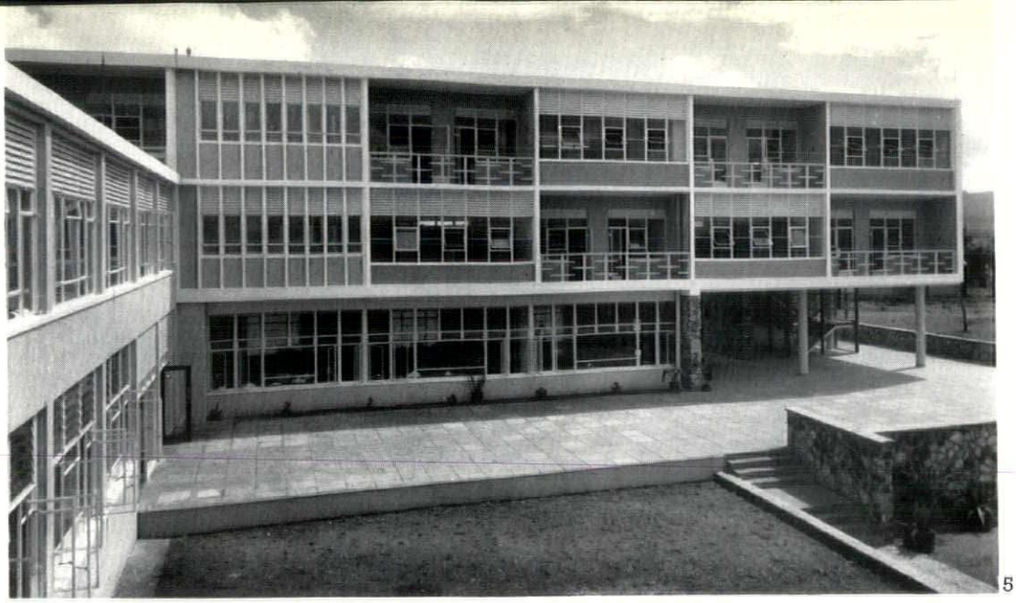
3, *office block, Owen Falls hydro-electric scheme (architect, H. L. Ford; consulting engineers, Sir Alexander Gibbs and Partners): for the Uganda Electricity Board. The four-storey building adjoins the power station with road access at two levels and contains offices, control-room, cable-chamber, canteens and welfare accommodation. Construction is reinforced concrete with deep exterior columns on north and south elevations to shade the walls and windows. Wall facing is precast concrete slabs with local granite aggregate.*

UGANDA

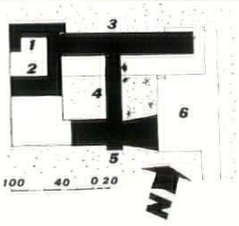


4

4, *village market at Kiwafu, near Entebbe (architect, Robert Browning) for the African Housing Division, Ministry of Social Development. It serves a village estate where Africans can buy a plot of land and build their own semi-traditional houses, mostly of mud and wattle. The roof, of locally made asbestos-cement sheeting, has tubular supports which also serve as rainwater-pipes. Walls are concrete blocks. Construction was by direct labour under the supervision of an African engineering assistant.*



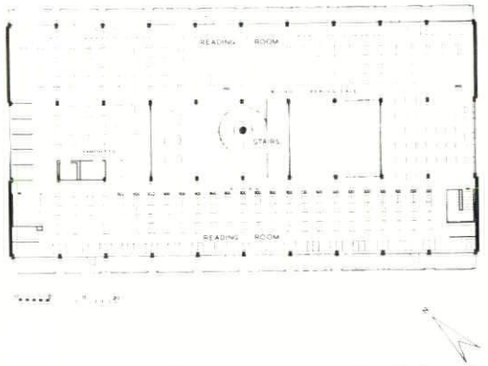
5



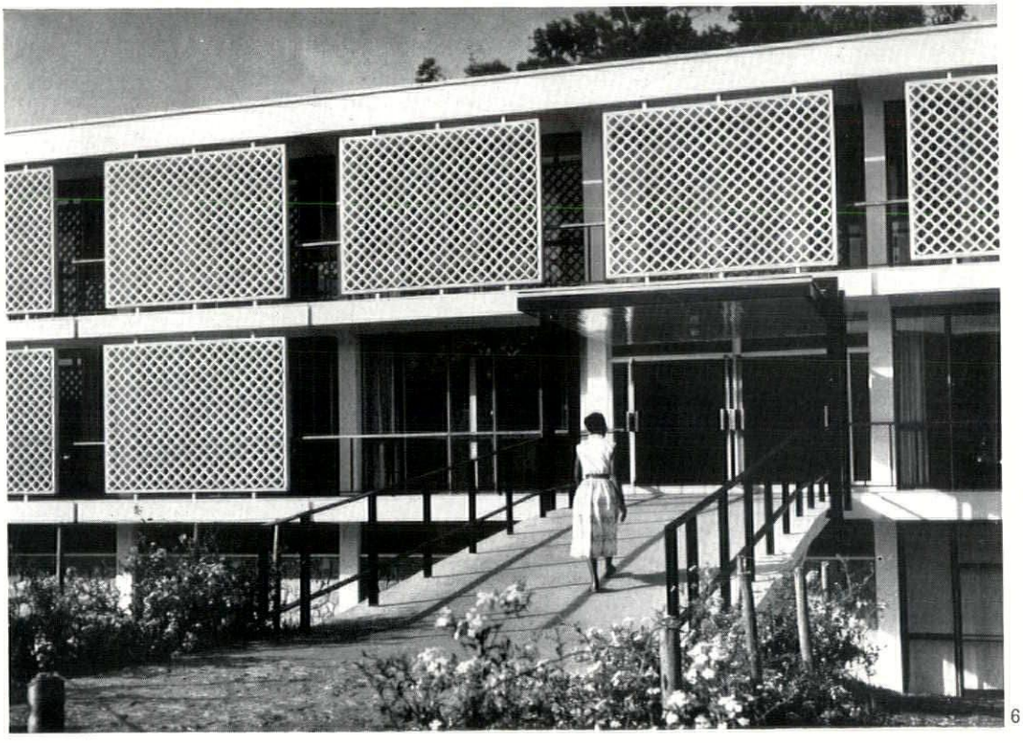
site plan, school at Mbale

key
1, kitchen.
2, workshops.
3, living accommodation.
4, administration.
5, teaching block.
6, car park.

5 *(above), School of Hygiene, Mbale (architect, John Falconer of Deans and Partners) for the Director of Public Works: a residential school for 120 adult students being trained as health inspectors, etc. The photograph shows two storeys of dormitories and study-bedrooms above a ground-floor common-room. On the left is the administration wing.*



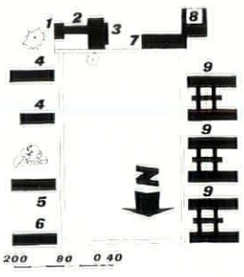
6, *library at Makerere College (the University College of East Africa) near Kampala (architects, Norman and Dawbarn). It houses* 120,000 *books and* 300 *readers and includes binding, printing and photographic departments. The plan (see main floor above) consists of two two-storey units separated by two courts, one open and one covered to form the stair and catalogue hall. The service rooms are in a lower ground floor. The library floors have verandahs along the two long sides screened by pierced ceramic grilles (see photograph, which shows the main entrance). The building has a reinforced concrete frame. The end walls are of precast concrete slabs with large windows protected by metal louvres.*



6

7, *residential secondary school (Teso College, Aloet) near Soroti, a hot, barren and rocky part of Uganda (architect, John Falconer of Deans and Partners). The buildings (see plan below), accommodating* 240 *boys, are planned round a square on a flat site. The photograph shows the library and administration from the west, with the assembly-hall beyond.*

key
1, library.
2, administration.
3, assembly hall.
4, classroom blocks.
5, practical rooms.
6, laboratories.
7, dining hall.
8, kitchen.
9, dormitory blocks.



7



8, *National Theatre and cultural centre, Kampala (architects, Peatfield and Bodgener). The theatre itself seats 400 and the building (see plan beneath the photograph) also contains offices, libraries and accommodation for various cultural societies. Construction is a reinforced concrete frame faced with terrazzo slabs and grilles incorporating East African white marble chips. Behind the grilles the window walls are in local cedar framing.*

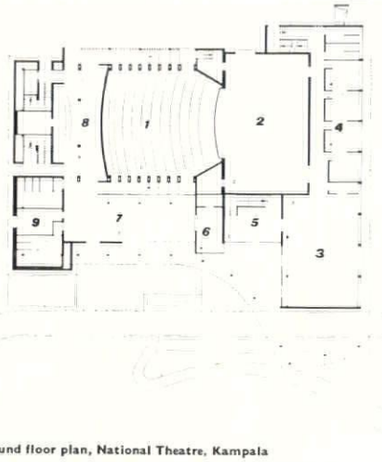


8

9, *cricket grandstand at the headquarters of the Uganda Sports Union, Kampala (architects, Peatfield and Bodgener; engineer, Colin Harris). The headquarters also includes tennis and hockey grounds, a large indoor stadium, a club-house and hostel accommodation. The cricket grandstand, which seats 1,200, has a cantilevered roof clad with Kenya red cedar and roofed with asbestos sheeting on teak joists. Seating is precast concrete.*



9



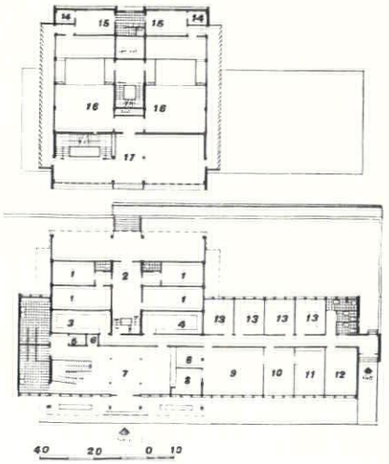
ground floor plan, National Theatre, Kampala

key 1, auditorium. 2, stage. 3, green room. 4, dressing rooms. 5, office entrance hall. 6, box office. 7, entrance foyer. 8, bar foyer. 9, manager's office.

10, *office building (Amber House), Kampala (architects, Moross and Graff). On a steeply sloping site in the business centre of Kampala, it houses the offices of the Uganda Electricity Board and the Lint and Coffee Marketing Boards. Three- four- and five-storey wings are planned for maximum air circulation and protection from the east and west sun. There is a basement parking garage for 100 cars. The reinforced concrete frame is clad with white and grey precast terrazzo slabs.*



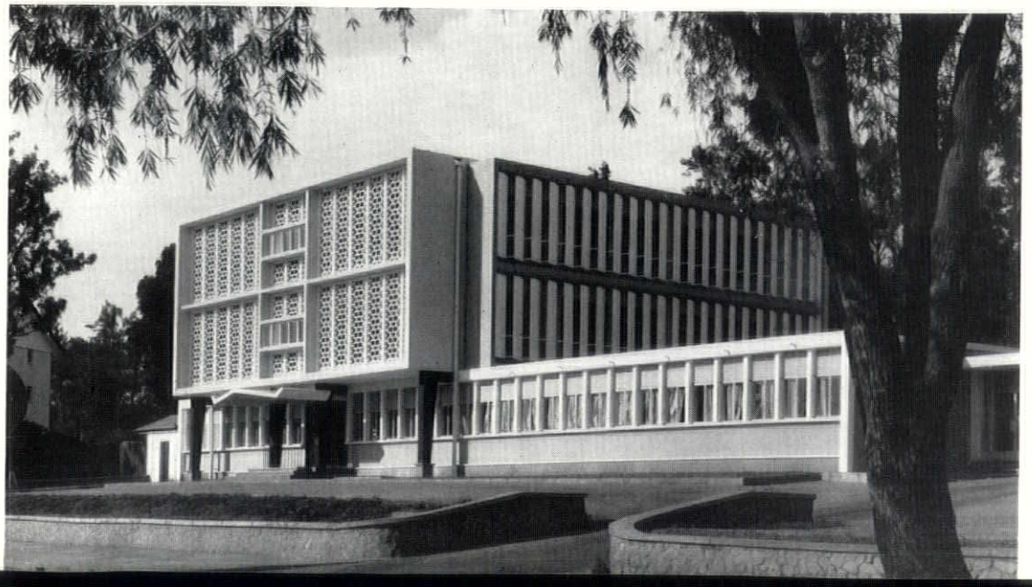
10



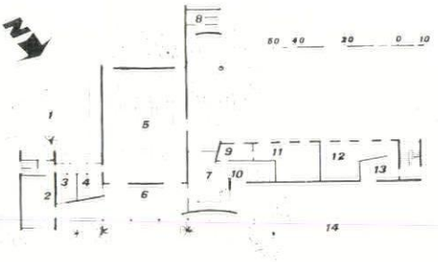
ground and first floor plans, magistrates' court, Kampala

key 1, cells. 2, duty room. 3, court exhibits. 4, police exhibits. 5, meters. 6, telephone. 7, entrance hall. 8, public reception. 9, general office. 10, chief clerk. 11, library. 12, advocates. 13, offices. 14, stores. 15, magistrates. 16, courts. 17, public waiting.

11 *(below), magistrates' courts, Kampala (architect, C. G. Andrews, chief architect Public Works Department; assistant in charge, J. E. C. Callaghan). The building adjoins the new police headquarters and contains four small courts. They are on the first and second floors (see plans, bottom left), with the entrance-hall, offices and cells on the ground floor. The building has a reinforced concrete frame. Concrete grilles and louvres protect the main rooms from the sun.*

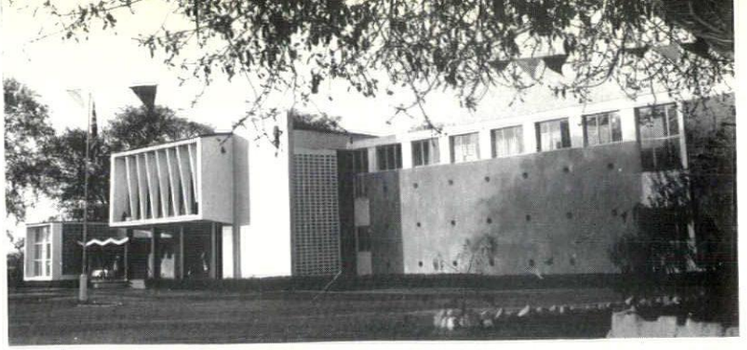


11



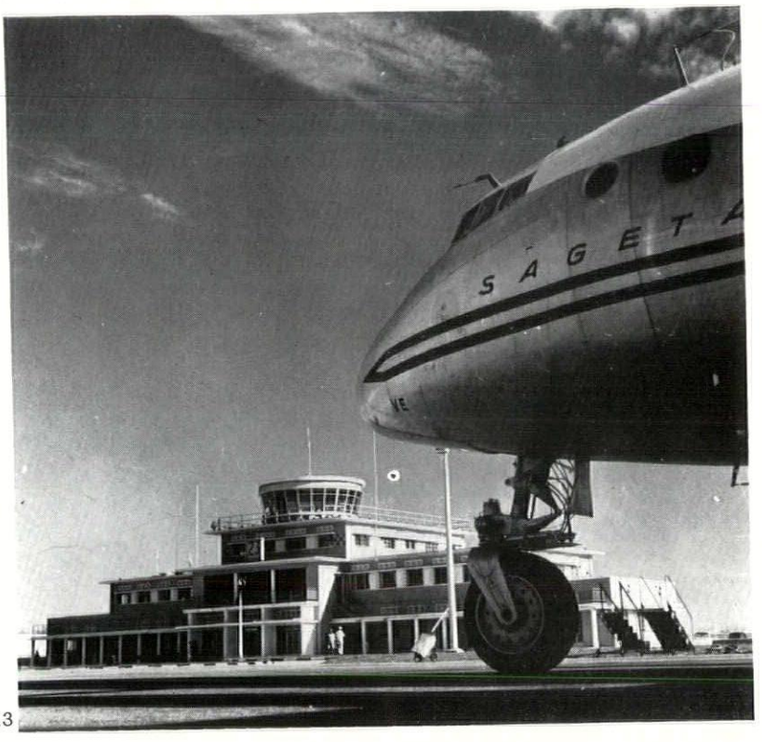
key
1, members' car park.
2, committee room.
3, 4, cloaks.
5, council chamber.
6, entrance.
7, hall.
8, lavatories.
9, medical superintendent.
10, correspondence.
11, medical store.
12, equipment store.
13, foreman.
14, visitors' car park.

12, *local government headquarters, Singida (architects, French and Hastings; built under the supervision of the Tanganyika Public Works Department). The entrance verandah, with a public gallery over it, leads directly into the council chamber—see plan above. On one side are committee-rooms, etc.; on the other a two-storey wing of offices and stores. The photograph is from the north, the prevailing wind being south or south-east.*



12

13 *(right), terminal building, Dar es Salaam airport (architects, Public Works Department). It handles 5,000 passengers a month. On the ground floor are the departure, waiting and customs halls and airline offices; on the first floor a restaurant, bar, kitchen and meteorological offices; on the second floor radio control. Walls are load-bearing concrete block and floors precast reinforced concrete T-beams. The control-tower is air-conditioned.*

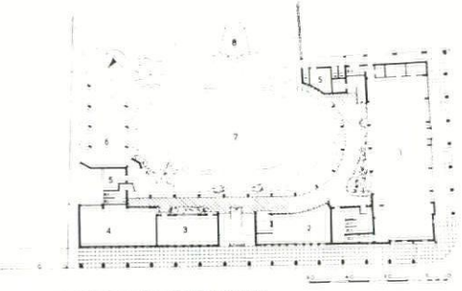


13



14

14 *(above), European primary school, Dar es Salaam (architects, C. A. Bransgrove and Partners): from the main approach, with covered play area on the left (classrooms over) and two-storey classroom wing on the right. There are eight classrooms altogether, all with pierced walls of precast concrete blocks to give through ventilation, together with staff-rooms, cloakrooms and (on the second floor) two staff flats. The frame is reinforced concrete.*

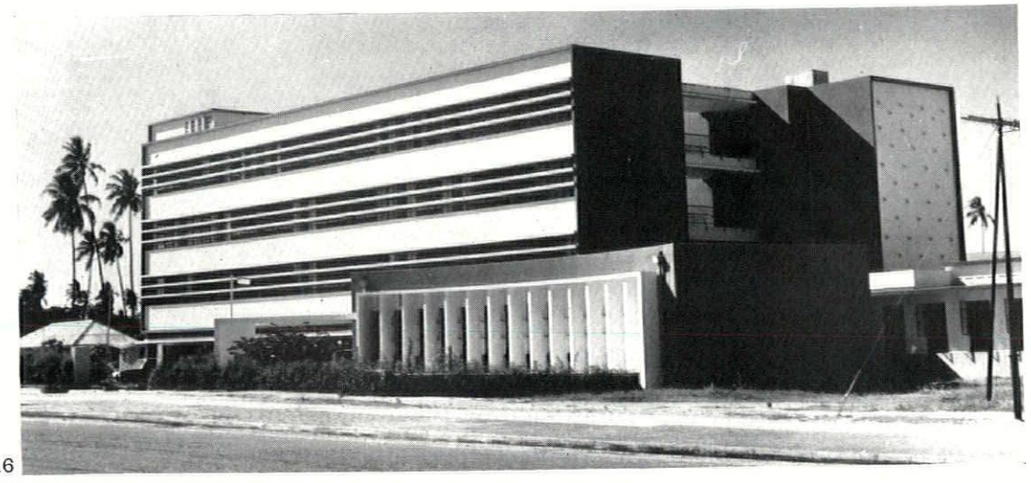


ground floor plan, Goan Institute
key 1, commercial premises. 2, club office. 3, committee room. 4, table tennis room. 5, store. 6, children's play area. 7, open-air dance floor. 8, band stand.

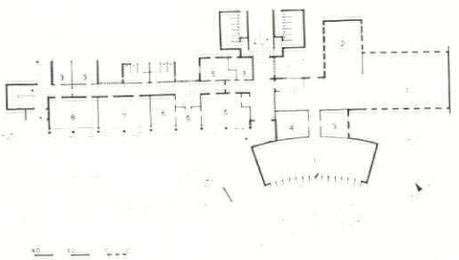


15

15, *Goan Institute, Dar es Salaam (architect, A. B. Almeida): a club in the centre of the town for the Goan community. The main club rooms overlook an enclosed garden, which has a sunk open-air dance floor—see plan on left. Construction is reinforced concrete with concrete block walls and perforated and louvred concrete screens.*

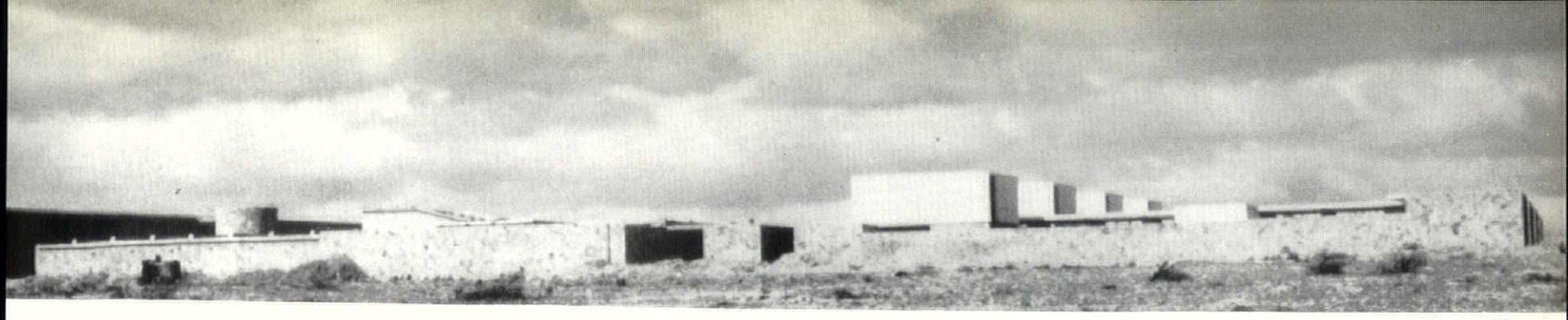


16



key 1, library. 2, stacking room. 3, store. 4, bookbinding. 5, bursar. 6, office. 7, staff room. 8, committee room.

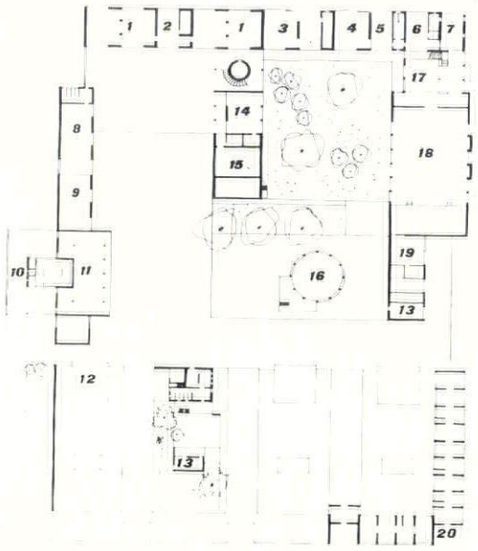
16, *technical institute, Dar es Salaam (architect, A. B. Almeida): the main classroom and administrative block, flanked by the single-storey reference library and reading room, with projecting entrance hall—see plan above. Behind is a hostel block.*



SOMALILAND

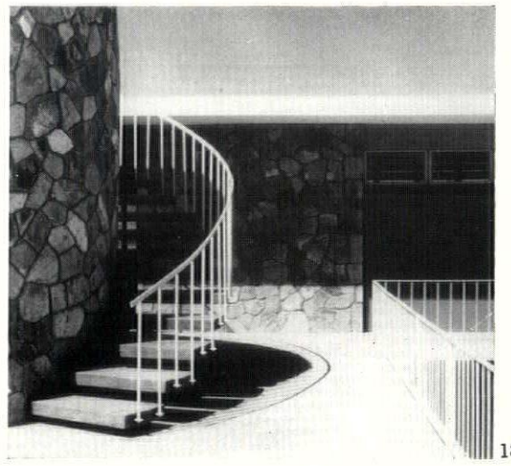
17, boys' secondary school, Sheikh (architect, Leslie Wright): a residential school planned as a walled enclosure. The various single-storey blocks of buildings look inwards to a paved garden, in the centre of which is a circular mosque with a saucer dome—see plan on right; the classroom wing has an upper floor containing more classrooms and a lecture-theatre, reached by the circular staircase, 18. Walls are load-bearing stone. The school has been designed for vertical extension.

key
1. laboratories.
2. prep.
3. library.
4. staff room.
5. assistant principal.
6. principal.
7. office.
8. common room.
9. canteen.
10. kitchen.
11. dining room.
12. common room with master's study over.
13. prefects.
14. art room.
15. book store.
16. mosque.
17. entrance hall.
18. assembly hall.
19. workshops.
20. dormitories.



ground floor plan, secondary school, Sheikh

17



18

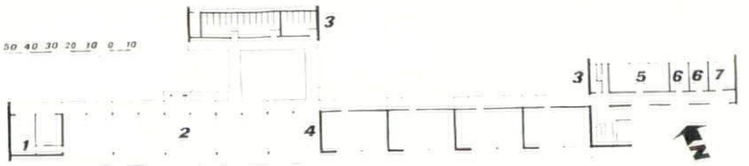
KENYA

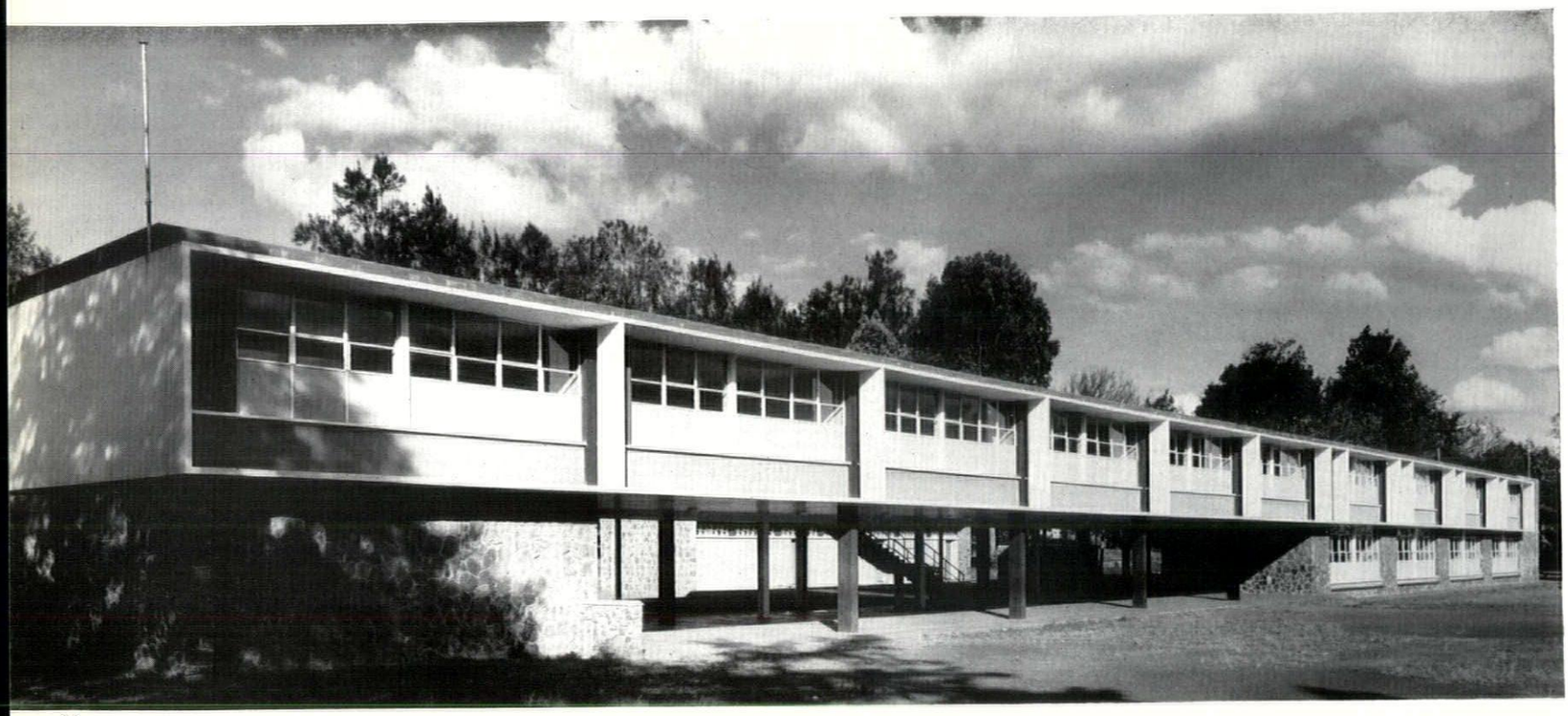
19 (below), Asian housing, Nairobi (architect, Idris Davies): a group of identical blocks of municipal flats with staircase access, each with two flats on each of four storeys.

19



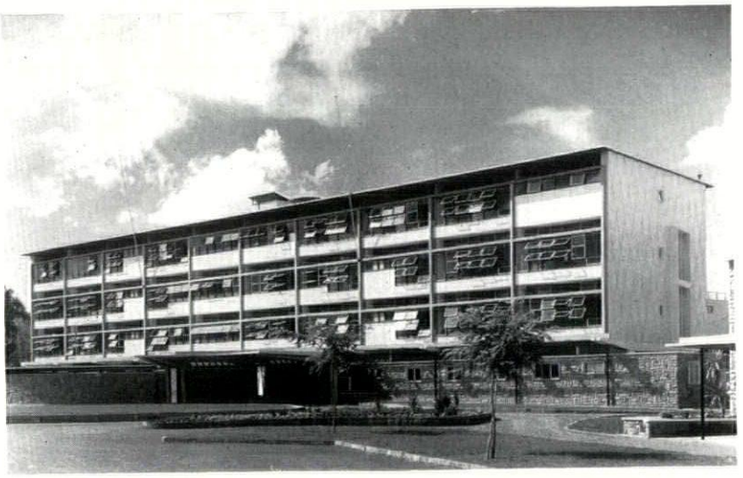
KENYA





20

20, *Arya girls' senior school at Parklands, Nairobi (architects, T. G. Gedrych and Peer Abben): a two-storey building with ground floor partly open—see plan at top of page—of concrete construction with rubble stone ground floor walls.*



21

21, *Aga Khan hospital, Nairobi (architect, A. D. Connell). The photograph shows the south front of the four-storey ward block (four large and four small wards at each level totalling 120 beds). Behind it, linked to the ward block by a glazed lobby, is a fan-shaped service and operating block flanked by ramps leading to the upper floors of both blocks. Service circulation runs beneath it.*



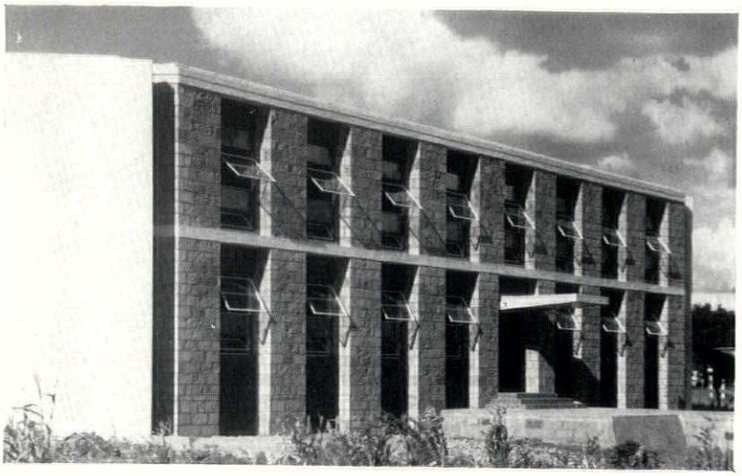
22

22, *cinema in Government Road, Nairobi (architects, Blaker and McCullough), photographed at night showing the illuminated interior behind the all-glass façade. The panel behind the lettering is of ceramic mosaic. Construction is reinforced concrete with a steel truss roof.*

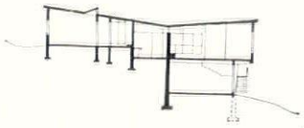
23 (below), Kenya Federation of Labour headquarters, Nairobi (architect, H. Richard Hughes): from the south west. The building, for Tom Mboya's trade unions, sited in the African part of Nairobi, has offices on the upper floor and is designed for the addition of a second office floor later. The assembly hall shown on the ground-floor plan below has also not yet been built. Construction is load-bearing stone piers, U-shaped for stability, with reinforced concrete floor and roof slabs.



24



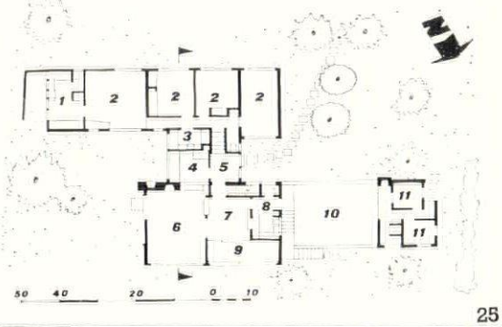
23



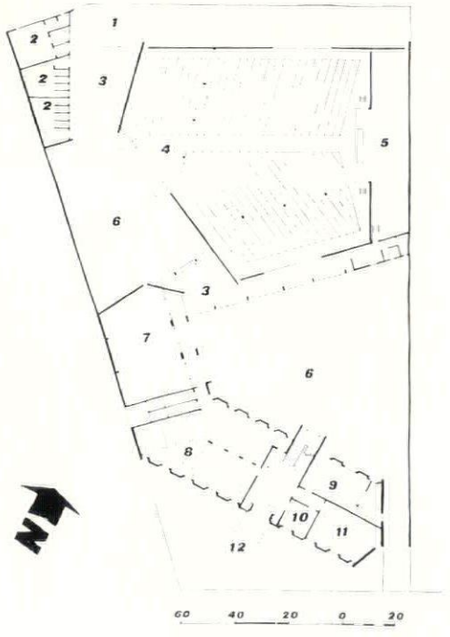
cross section and ground floor plan, house at Nairobi

key

1, dressing room.
2, bedrooms.
3, bathroom.
4, study.
5, hall.
6, living room.
7, dining room.
8, kitchen.
9, balcony.
10, yard.
11, servants.



25



ground floor plan, headquarters for Kenya Federation of Labour

key

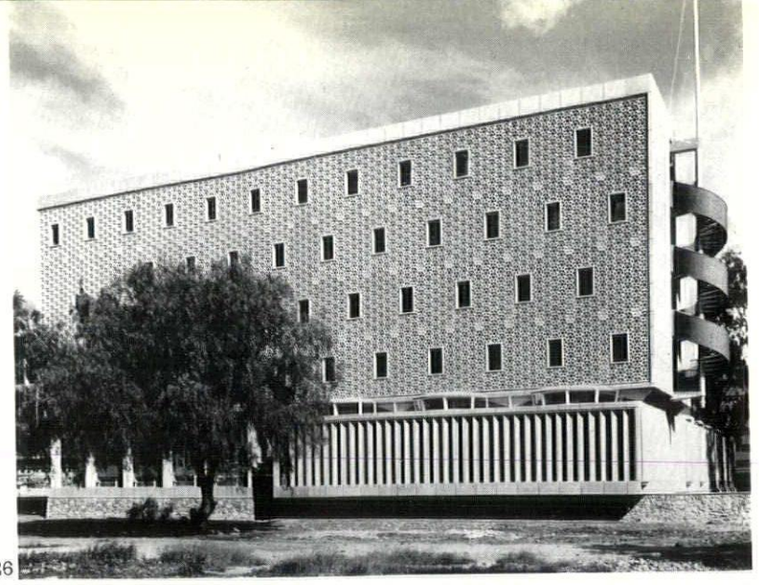
1, car park.
2, lavatories.
3, covered ways.
4, assembly hall.
5, platform.
6, courtyards.
7, classrooms.
8, library.
9, canteen.
10, reception.
11, office.
12, main entrance.



24 and 25, architect's own house at Nairobi (architect, H. Richard Hughes), designed to use a very steep site in a way that would separate the house conveniently into units—see plan and section. The living rooms are at the entrance level but on the north side, where there is a view across a waterfall at the bottom of the garden to the forest beyond, they are one floor up. The study, hall and bathroom form a link with the bedroom wing, which is a few feet higher. This has been planned for future expansion. The stone spine screens the backyard and servants' quarters from the entrance. Walls are concrete blocks; roofs are timber. 24, from the east, showing space beneath living-room which has now been walled in to form a drawing-office. 25, the dining-room, with view over the forest.

KENYA

26. *Crown law offices, Nairobi (architect, A. D. Connell), a five-storey building with its whole north-west façade (shown in the photograph) and the corresponding façade on the opposite side covered by a concrete grille for sun-protection. The openings in the grille coincide with alternate windows behind, which are centrally pivoted. The upper floors contain offices either side of a central corridor, with a first-floor conference room the full width of the building at the far end and a two-storey library above it. The louvred ground-floor wall shown in the photograph marks the end of a single-storey public office projecting at right-angles behind the main building, with domed roof-lights.*



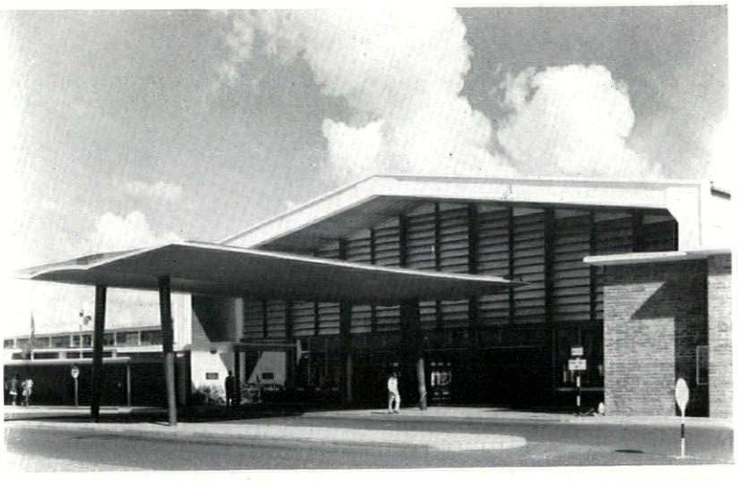
26

27. *coffee mills and warehouse, Nairobi (architect, Blackburne Norburn): a complex of buildings constructed over several years for the Kenya Planters' Co-operative Union. The newest part is that on the right: an additional mill block with dust-house in front of it. In the centre is a storage block connected to a warehouse by a bridge. An auction-hall also forms part of the scheme.*



27

28. *terminal buildings, Nairobi airport (architects, Kenya Ministry of Works): a detail of the main entrance leading directly into the passenger concourse. Beyond the latter are the customs hall and waiting lounges and, on the far side of the building, the aircraft standings. On the left of the photograph can be seen part of a two-storey block of offices, etc., surrounding a garden court, beyond which are a restaurant and the control-tower.*



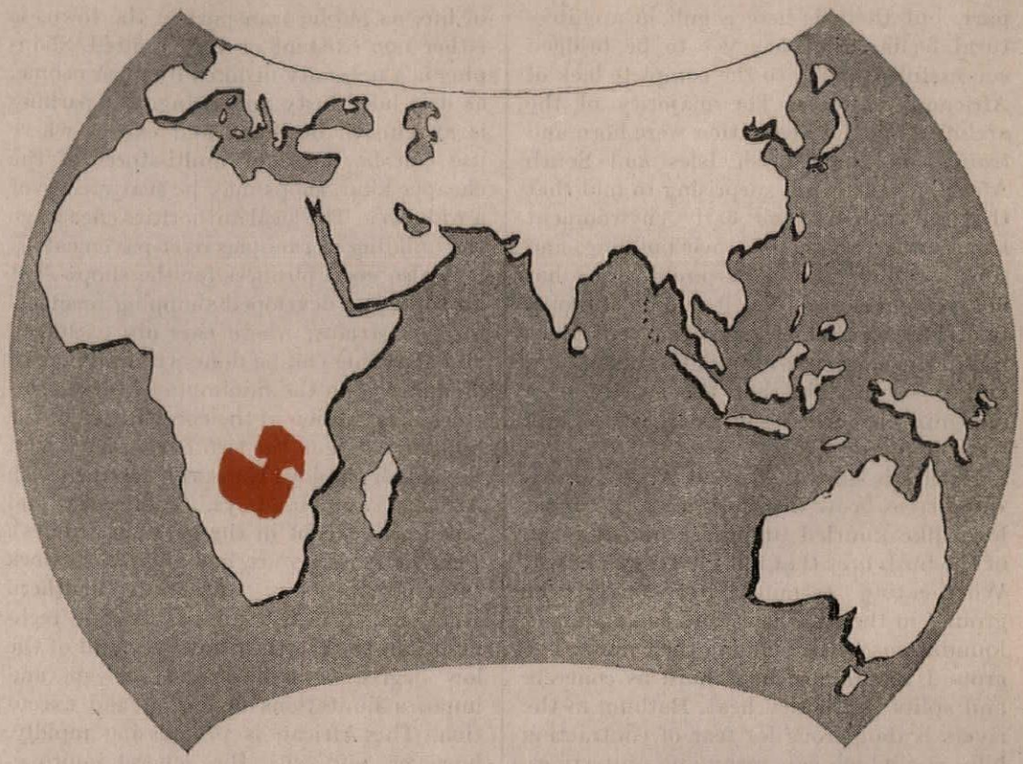
28

29. *office building, Nairobi (architects, Jackson and Hill): an eight-storey curtain-walled block, typical of those now being constructed in the central business area.*



29

R. K. Rutherford



THE RHODESIAS

During the last twelve years, the growth of building in the Rhodesias, which with Nyasaland form the Federation, has been remarkable. The cement rendered shanties with corrugated iron roofs, the neo-Georgian 'official' buildings and the smattering of sham Cape Dutch, have given way to the modern buildings of ten, twenty and more storeys which now overshadow the 'tin shacks' of the pioneers. Yet the transformation of style, quality of material, general amenities and know-how has happened so quickly that people have had little time to think, developments have been rushed ahead by force of circumstances, and a trail of problems, some serious, has been created which will have to be resolved. Too rapid development does not produce the best results, and this can be said of the majority of the towns in the Rhodesias. The slowing down of the tempo over the past two years, though it may be only a passing phase, has not been wholly a bad thing, and the country has time now to have a breather and do some re-thinking.

The Rhodesias are in the sub-tropics on a land-locked plateau some 5,000 feet above the sea. In the dry season, the winter temperatures are low enough to need fires at night, and rise during the day into the seventies. This is followed by high winds and a gradual rise in temperature into the nineties, bringing small whirlwinds known as 'dust devils' to tear off roofs, and the hot 'suicide' month of October when tempers are at straining point. Eventually the weather breaks, accompanied by thunderstorms and intermittent torrential rain. In spite of this, it is a fine healthy climate.

Climate conditions the physical elements of building. There is need for protection from the hot west afternoon sun, the heavy rains, and the cool persistent winds of spring. Living-rooms are orientated to face the north sun in the winter months, and bedrooms to catch the cool night winds. Yet perhaps the most important need is the suppression of glare from both the sky and from sunlight reflected from the ground. To combat the effects of glare on domestic and working conditions usually involves capital outlay, but deserves special consideration when measured in terms of comfort and efficiency. It is fortunate that vegetation grows so quickly to form background screens. It is common for trees to reach a height of twenty feet in four years from seed.

Now that Africans are living in towns in large numbers, a complex of social, economic and human problems has come with the appearance of the urban African. Cut off from his traditional way of village life, he has to make for himself a fundamentally new kind of existence in unfamiliar surroundings. The African himself

should be best suited to evolve a style of building to meet both the temperament and the conditions of his urban counterpart, but there is here a gulf in architectural feeling that has yet to be bridged successfully, owing to the complete lack of African architects. The majority of the architects in the Federation were born and trained in the British Isles and South Africa, and it is not surprising to find that the influence of their early environment has found expression in their buildings and that a typical Rhodesian architecture has not yet developed. Yet it is only the past twelve years that has seen this prodigious initial development in building take place, and it is possible that the growth of a recognizable Rhodesian expression will soon be discernible.

Nature is hard in Central Africa. Hardwood trees grow with foliage at the upper level like knurled umbrellas out of reach of the bush fires that kill the growth below. Wood-eating termites live under the ground in their millions, and can endanger foundations when building their nests. The ground in summer is as hard as concrete and splits in the dry heat. Bathing in the rivers is dangerous for fear of contracting bilharzia which eats away one's intestines. One expects rugged conditions in Africa, and one would expect the European buildings to be different to those in temperate climates. Yet go to the suburbs of any town in the Rhodesias and the general run of houses is fundamentally like those one will find in England and South Africa. Perhaps this shows the European's desire to turn his back on a natural environment that is foreign to his inherent background. The wild flowers in the bush have very vivid colours to counteract the strong sunlight that drains the colour from vegetation. As a parallel, it is noticeable how Africans like to wear bright clothes, and colours are used on buildings that would be considered harsh in temperate climates.

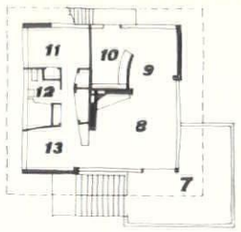
The car is an essential and not a luxury of life, as public transport in the towns is either non-existent or very limited. Shopping is a necessity disliked by most people, as it is hot, dusty and tiring. Car parking is an elusive business, and except where use can be made of multi-stores of the cheaper kind, shops may be scattered over a wide area. The local authorities encourage the building of canopies over pavements—it is also good business for the shops—yet no town has developed shopping precincts for pedestrians, where cars are excluded, and shopping can be done within a limited area and with the minimum of fatigue.

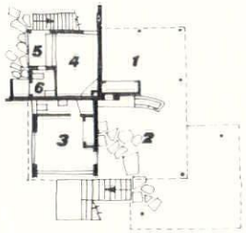
The distinction in the composition of the building trade in the two Rhodesias is that the North employs European foremen with Africans as 'boss-boys,' tradesmen and labourers (except in the specialist trades), whereas Africans are not allowed to work as tradesmen in towns in Southern Rhodesia. This has forced building techniques in the North to take account of the low degree of skill of the African, and imposes limitations in design and execution. The African is progressing rapidly, however, and with the general improvement in local building materials, more advanced designs are now possible.

The basic building materials are found locally. Some excellent facing bricks are now made in Southern Rhodesia, but the common brick of the Rhodesias is still of poor quality, and there are no standards for strength, porosity or size; in fact, the lack of standards for materials generally makes building a more complex and hazardous operation, and adds to the eventual cost of maintenance. River and 'dambo' sand, lime and sandstone, iron ore, asbestos and coal are all found locally. Conifers are difficult to grow because of destruction by termites (though they are now being grown in Southern Rhodesia) and are expensive to import. Local hardwoods are not used to any great extent due to lack of facilities for seasoning and their extreme hardness in most cases. South Africa provides many of the finished building products, but these are now being manufactured to an ever-increasing extent in the Rhodesias. The high cost of transport of imported materials due to the long distances incurred can increase the cost of building disproportionately. It is a challenge to the architect to adapt himself to the limitations of materials, labour, constructional equipment and finance.

It is invigorating to live in a young country and to feel that, in spite of mistakes, one has a share in its growth. The Rhodesias have a sufficiently long period of development and experience behind them to weigh up their mistakes and good points, and the next decade may well be vital to the future pattern of development. High buildings are a commonplace and only the beginnings of what is to come. There are misgivings about the capability of the new grid towns to be able to absorb the traffic as the population and number of vehicles increase. It is not unusual for Europeans to have two cars, and Africans are beginning to become car owners. There is a feeling that there is no live 'heart' in the towns, a lack of character in the suburbs which are apt to sprawl and open spaces to disappear. The majority of houses are single storey with large gardens, a legacy from the days when land was easily obtainable and the saying was, 'Oh, but there is the whole of Africa to build in.' Economic forces are changing this attitude. The old parts of the towns are being rebuilt and concrete is replacing pisé and corrugated iron. The pattern is taking shape and has come to stay. This is a vital period of development.

NORTHERN RHODESIA





1, *architect's own house at Ndola (architect, H. Cameron-Smith of W. D'Arcy Cathcart & Son), on a wooded site orientated to take advantage of distant easterly views. The core of the 28ft. square plan (see plans on right) is a large brick chimney containing flues from barbecue and servants' quarters below and living-room fireplace. Screen wall between kitchen and dining space is also brick. Remaining construction is steel (for staircase and roof-ridge) and timber.*



1

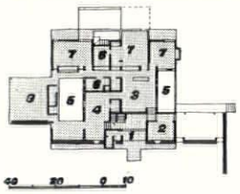
2 *(right), architect's own house at North Rise, Ndola (architect, Norman Hunt): car port and open living and dining areas on ground floor; three bedrooms, study and living rooms on first floor, all facing east and fully glazed (see photograph) with service rooms behind. Construction is a light steel frame, timber and local stone.*

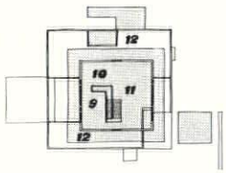
key
1. car port.
2. court.
3. future room.
4. servant.
5. laundry.
6. lavatory.
7. balcony.
8. sitting area.
9. dining area.
10. kitchen.
11. children's room.
12. bathroom.
13. bedroom.



2

3, *house at Ndola (architect, Julian Elliott; supervising architects, Gluckman, de Beer and Peters). The site slopes to the east and the view. The ground floor (see plans on right) comprises a self-contained family unit for everyday use, with direct access to the garden and a series of enclosed courts. Over it is a suite of larger rooms for more formal use, planned round a service core, with sliding doors leading on to terraces.*



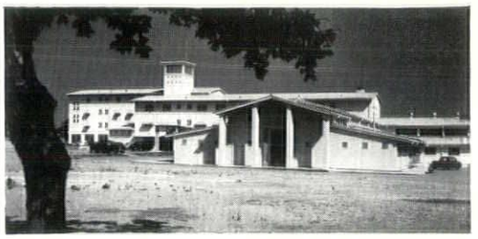


key
1. entrance.
2. study.
3. family room.
4. kitchen.
5. courts.
6. bathrooms.
7. bedrooms.
8. garage.
9. dining.
10. music.
11. living.
12. terraces.

plan of house at Ndola by Julian Elliot

3





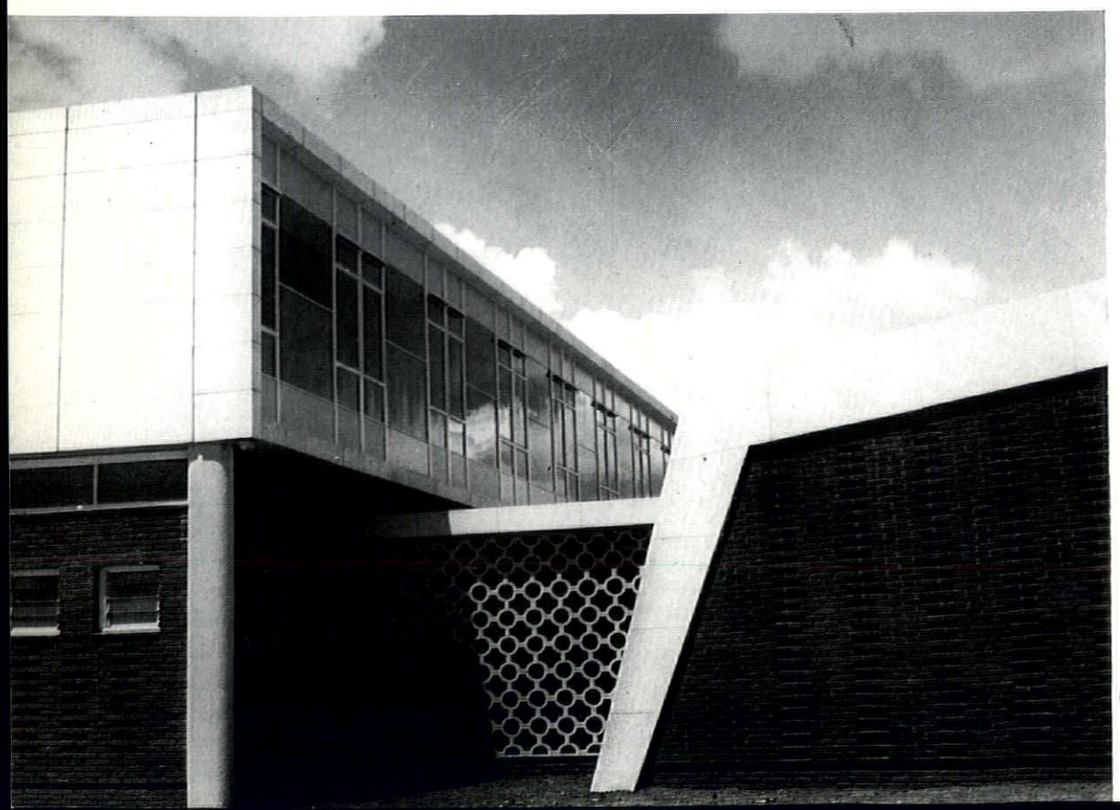
4

4, *Ridgeway Hotel, Lusaka (architect, Geoffrey A. Jellicoe)—fully illustrated, AR, February, 1954. The site is a tree-clad spur of a hill above the lower town. Bedrooms occupy the two upper floors, planned in two parallel wings, below which is the reception area, the main lounge and the offices, etc. The other public rooms are single-storey. The photograph shows the ballroom with, beyond it, the bedroom wings and central water tower. There is also a restaurant with open-air verandah overlooking a pool. Construction is reinforced concrete with brick infill panels, rendered externally and colour-washed pink. Roofs are timber covered with asbestos sheeting. Interior decoration and furnishing are by Denis Lennon.*

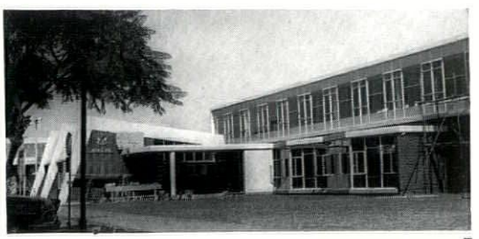


5

5 *(left), church at Lusaka (architects, Rinaldi, MacDonald and Harvey); for the Seventh Day Adventists. Construction is light steel frame and timber, with screen walls and tower in brick and local stone. The roof is covered with shingles.*

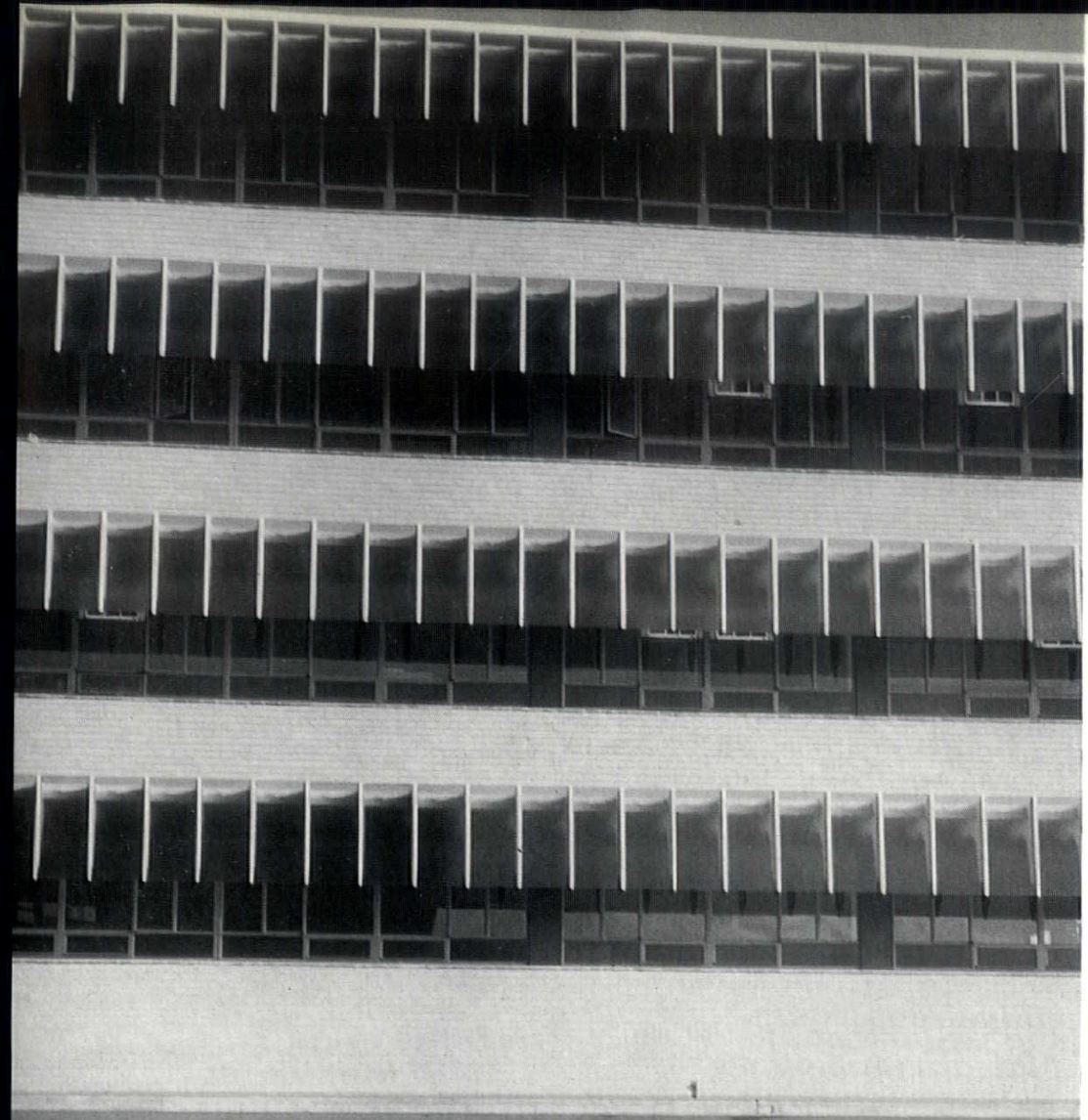


6



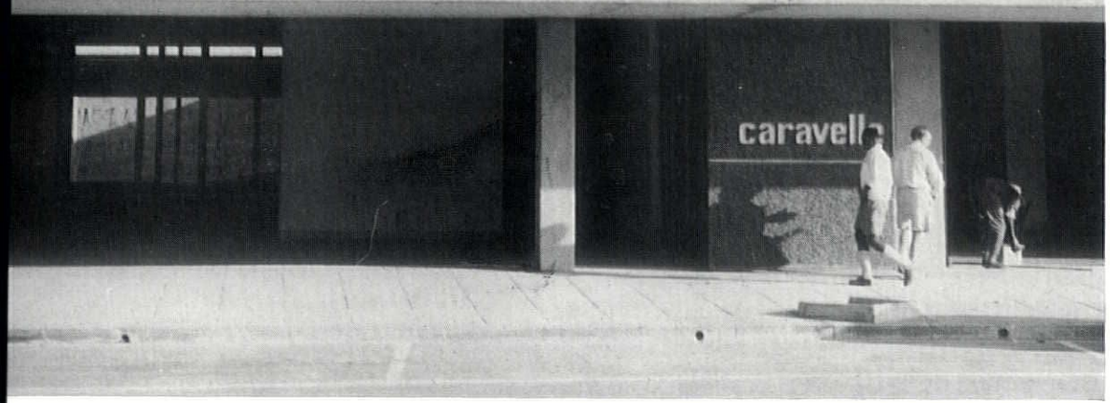
7

6 *and* 7, *municipal library at Lusaka (architects, Rinaldi, MacDonald and Harvey). The building was still unfinished when these photographs were taken: (above), the entrance side showing hall on left and the main first-floor reading-room on right; 6, detail of the link, with a patterned concrete grille, between the main library and the hall. Construction is a reinforced concrete frame with precast slab walling above and narrow brick walling, pierced as shown in the detail, below.*



8

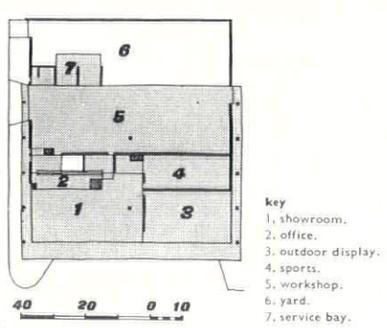
8, *office building (Caravelle House) at Ndola, with bookshop and restaurant on the ground floor (architects, Gluckman, De Beer and Peters; supervising architect, Julian Elliott). The four floors of offices face north-west and are protected from the sun by a continuous projecting fascia of heat-absorbing glass, sub-divided by aluminium frames and cantilevered from the face of the wall on aluminium brackets. Horizontal louvres allow heated air to escape up the face of the building, and also allow windows to be open when it is raining. Walling between the windows is in a grey terrazzo brick.*



9, *garage at Broken Hill (architect, Julian Elliott; assistant in charge, Neil Grobbelaar; engineer, Ove Arup and Partners). Showrooms, spare-part store and workshops are planned round a central administrative core—see plan below—with service core beneath. The tubular steel roof is a spine-girder with balanced cantilevers supported on shaped concrete columns and forming a parasol independent of internal partitions, allowing flexibility of sub-division. The roof is covered with corrugated iron, with translucent sheets designed to equalize the intensity of light in the showroom with that outside and so avoid reflections in the glass wall. The ceiling is expanded metal, through which the light passes and the underside of the roof is partly seen.*



9

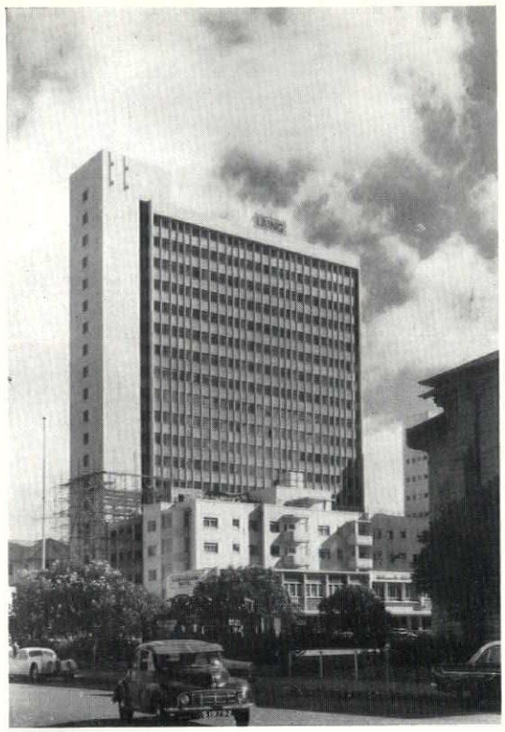



GRANT'S
ROYAL

SOUTHERN RHODESIA

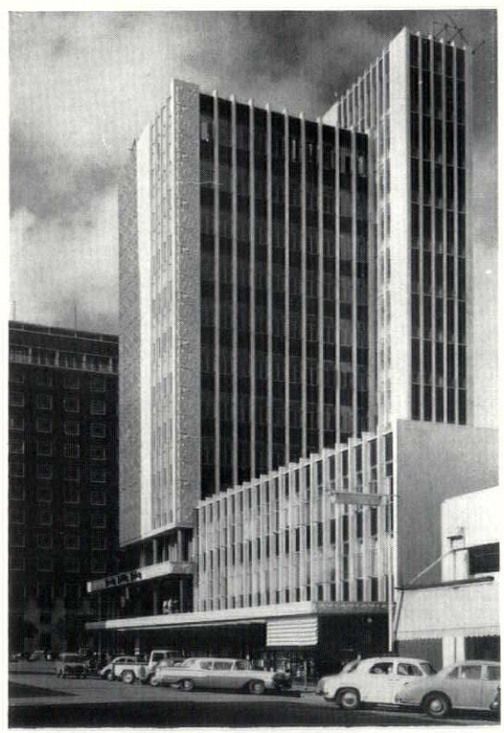
10

10 *(left), office building (Robinson House) in the centre of Salisbury (architects, Feit and Meyers, in association with Toung, Morgenstern and Morgenstern of Johannesburg). The ground floor has shops on the two street frontages and the basement a car park. The main tower of fourteen office floors has north-south aspect; the lower wing at right angles has four office floors. Planning is on a 4ft. module. Construction is reinforced concrete with flat slab floors. The north and west façades have terrazzo fins and spandrel panels and all windows are protected from the sun by steel horizontal louvres.*



11, *Ambassador Hotel, Salisbury (architect, Albert Ruddiman): a 20-storey extension of the old hotel, which can be seen in the foreground of the photograph and will later be demolished and replaced. The five lower floors only of the present extension are used for hotel purposes, the remainder being Government offices. Construction is reinforced concrete.*

11



12, *building society offices, Salisbury (architects, Feit and Meyers, in association with Toung, Morgenstern and Morgenstern of Johannesburg). The ground floor has a banking-hall and shops. The upper floors (except for the tenth, where the society has its executive office) are planned for separate letting. The main tower block of eleven floors faces north and south. The plan is based on a 4ft. module. The main façades have brushed terrazzo fins, steel windows and pressed steel spandrel panels, with a sculptured reconstructed stone facing to the tower. The shop fronts and banking hall are finished in granite and bronze.*

12



13, *office building (Trustee House), Salisbury, partly for an investment and property company, partly for letting (architects, John Gauldie and Partners). The ground floor has shops and parking space. The tower block faces north with a view over a public park. Cladding is brick. Boxed screens protect windows from the sun. All office accommodation is air-conditioned.*

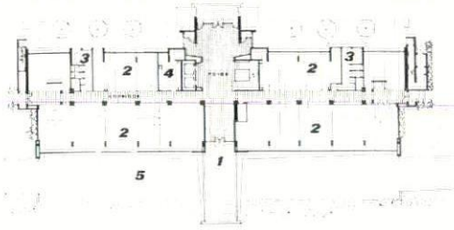
13

14



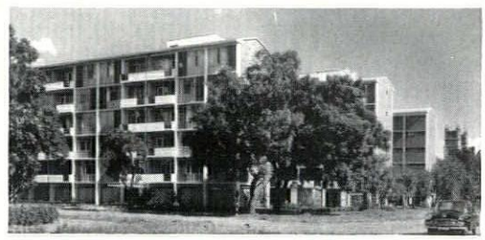


15



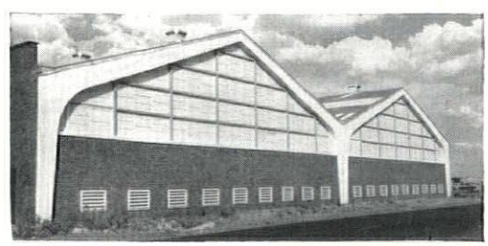
key 1, bridge. 2, offices. 3, lavatories. 4, messangers. 5, ramp to basement.

14 *and* 15, *headquarter offices for Rhodesia Railways, Bulawayo (railway architect, H. Billiard; assistant architect, C. E. Plews): in Metcalfe Square, overlooking the Park. It is the first stage of a much larger scheme. A basement car-park is reached by a ramp, which the main entrance bridges over—see* 15 *and plan above. Above are seven floors of offices and a top floor with motor-rooms, etc., on which a cafeteria will be added later. Construction is a reinforced concrete frame with brick infilling.* 14 *is a detail of the external stairs on the end walls, which face east and west.*



16

16 *(above), flats at Salisbury (architects, Rinaldi, Macdonald and Harvey): a group of six identical blocks, laid out in parallel formation, on the fringe of the central business area. The ground floor of each block is occupied by garages.*



17

17 *(above), factory at Bulawayo, producing paper bags, containers, waxed paper, etc. (architects, Rinaldi, Macdonald and Harvey): designed for maximum flexibility of plant and layout. The photograph shows the south elevation of the main production hall, constructed with portal frames in concrete, filled with brick panel walls and glazing.*

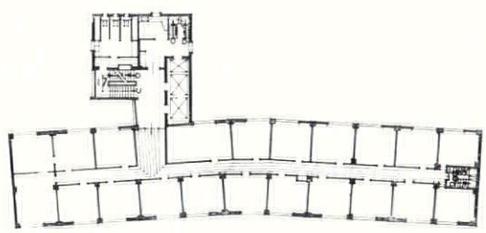


18

18 *(above) car showroom and garage, Bulawayo (architects, Berlowitz and Furmanovsky; engineers, Ove Arup and Partners). The building occupies a whole block of Jameson Street, and contains showroom, spares department, used car showroom, battery shop, stores, workshop, service-line and filling station and offices. It is one of the largest of its kind in Africa. To meet the need for minimum changes in floor level, ramps take up a 6ft. fall in the site and mezzanine floors are introduced at the lower end. The photograph shows, from left to right, workshop entrance, ramp entrance to upper-level car-store, and service-line entrance and exit. Construction is reinforced concrete with brick panel-walls on the upper floor and stressed-skin roof in steel.*

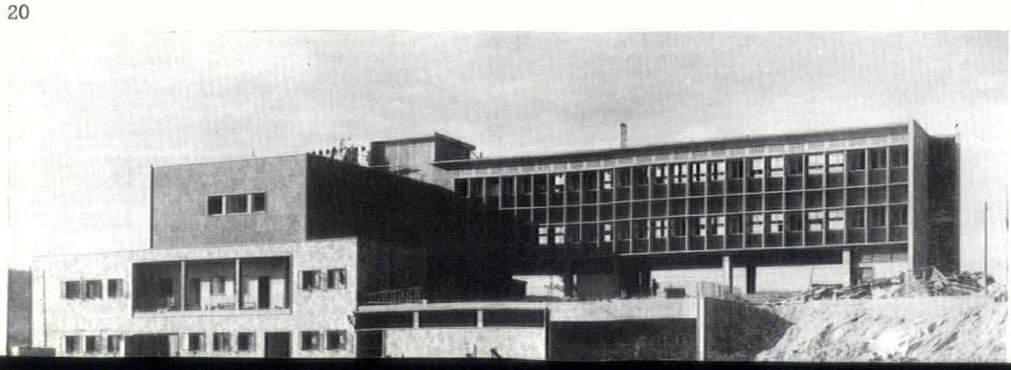


19



19, *office building (Compensation House), Salisbury, for the Workmen's Insurance Fund (architects, Driver-Jowitt and Lincoln): a semi-government project, forming the first part of an official centre straddling the main street of Salisbury. The curved main block (see plan above) is orientated to avoid direct sunlight. The covered entrance leads to an industrial court on the ground floor, with offices above which include those of the Federal Prime Minister; also the Cabinet room. Window façades have yellow-bronze metal panels and blue mosaic, and steel windows with dark-tinted glass. Other façades are mosaic and terrazzo.*

20



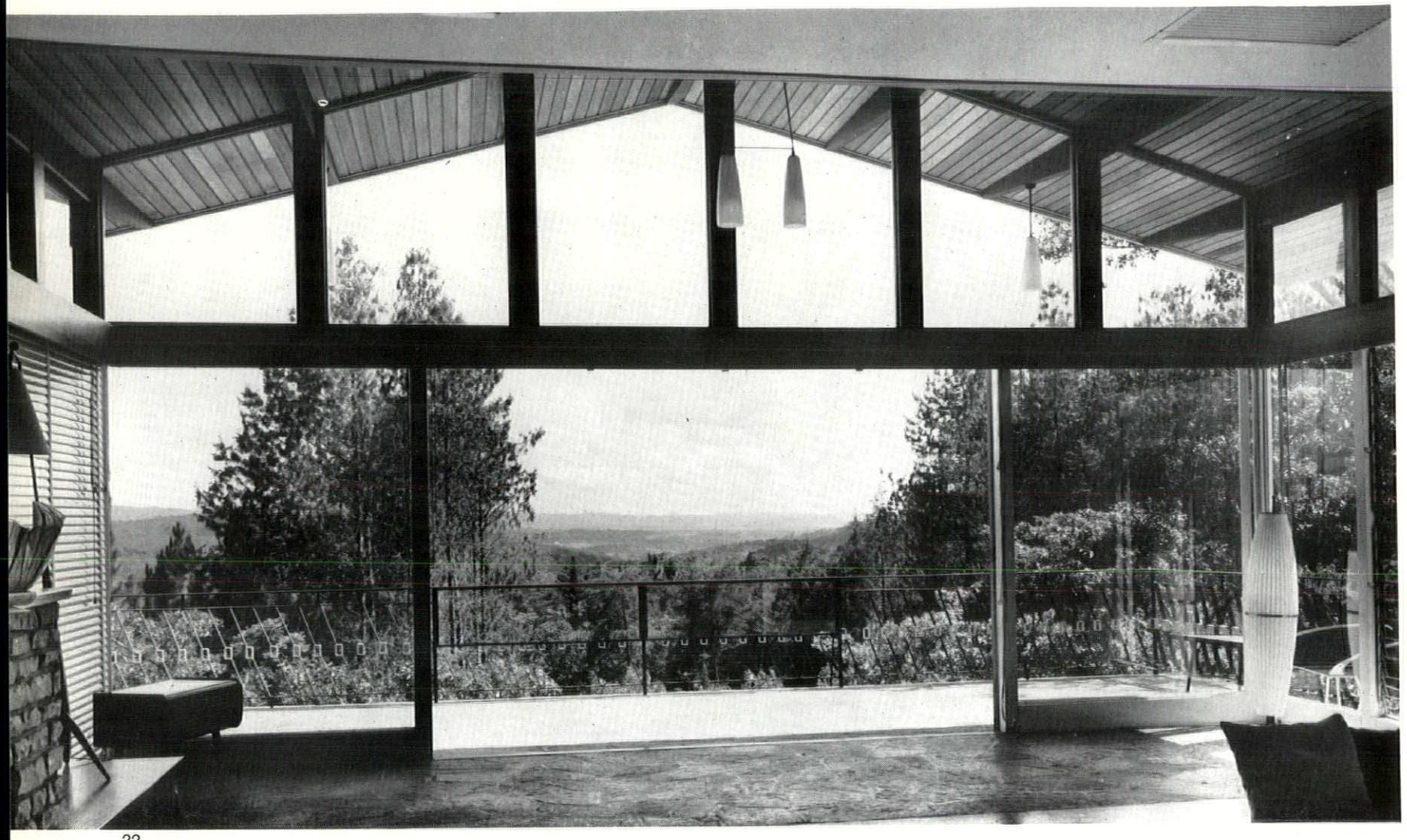
20, *control and office building of the Kariba Hydro-Electric scheme, a Federal project on the Zambesi river (architect, H. L. Ford; engineers, Alexander Gibb, Coyne and Sogei). The building, shown here from the north-east, contains the main control room and the offices of the Federal Power Board, which include a demonstration room for film shows, etc., and an observation room cantilevered over the Kariba gorge. The reinforced concrete frame has walling of precast slabs and local stone.*

SOUTHERN RHODESIA

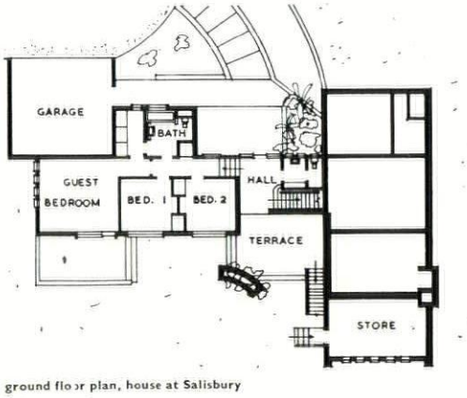


21

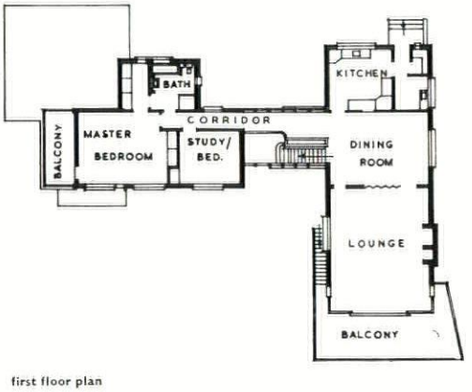
21 and 22, house at Salisbury (architects, A. Lloyd Spencer and Partners), built on the top of a small but steep hill, with a cantilevered balcony designed to make the most of beautiful views over the Umwinisidale Valley. The main living-room has sliding windows, seen in 22, opening on to the balcony. The upper floor of the bedroom wing (see plans below left) opens off a gallery over the living-room; the lower floor is reached up a small flight of steps from the entrance-hall.



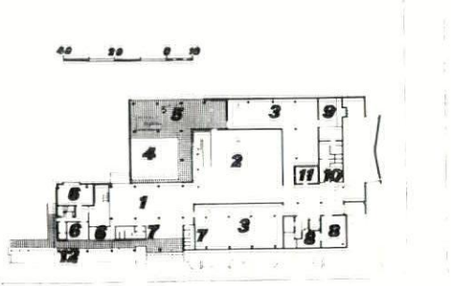
22



ground floor plan, house at Salisbury



first floor plan



ground floor plan, Rhodes National Gallery

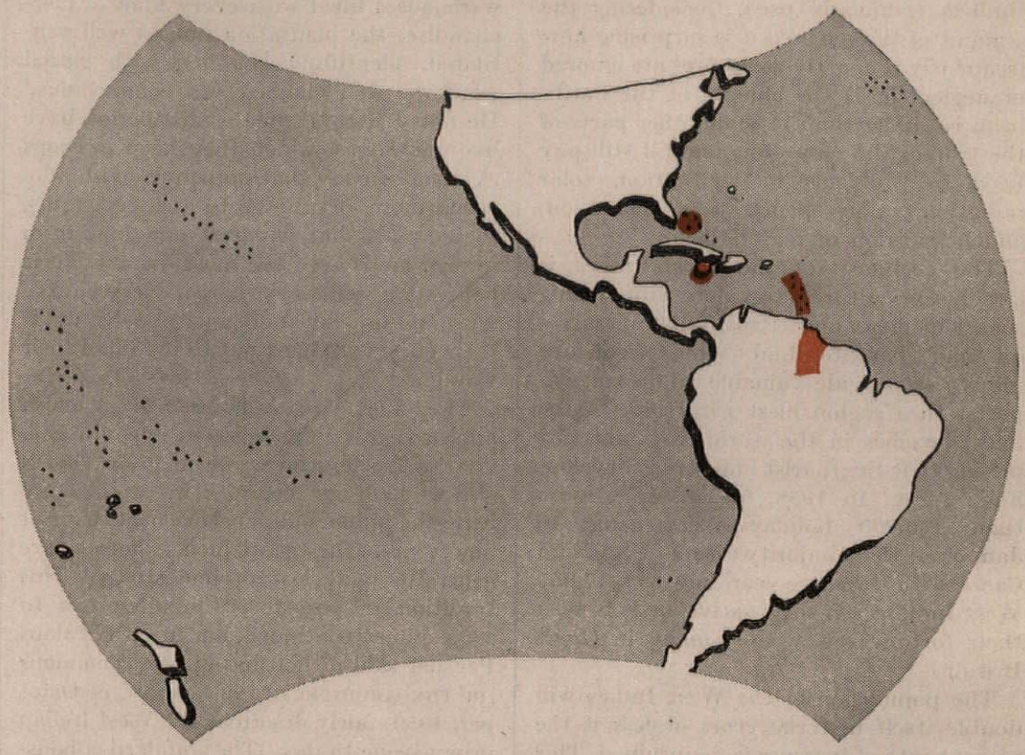
key 1, entrance. 2, main gallery. 3, storage. 4, open court. 5, open-air display. 6, office. 7, lavatory. 8, workshops. 9, air-conditioning room. 10, African changing room. 11, strong room. 12, pool. 13, library. 14, galleries.

23



23, Rhodes National Gallery, Salisbury (architects, Montgomerie and Oldfield), the result of a competition. A large double-storey multi-purpose gallery is surrounded by storage rooms at ground level and a library and more gallery-space at first floor level—see plan above. A ramp links the two levels, on both of which there is exhibition space in the open air. Construction is reinforced concrete, with exposed tubular steel roof enclosing top lights.

Wilfred Woodhouse



THE CARIBBEAN

Until recently when one spoke of the British West Indies one meant the British colonies of the Caribbean and also the mainland dependencies of British Guiana, in South America, and British Honduras, in Central America. In 1958 a Federation, under the style The British West Indies, came into being. It comprises the British island colonies, but not the two mainland territories, although they are associated with the Federation in a number of regional activities. The federated territories, bordering the Caribbean Sea, stretch in an arc of over 1,000 miles from Jamaica, south of Cuba, to Trinidad, north-east of Venezuela. The Bahamas and Bermuda are sometimes described as part of the West Indies; they are no part of the Federation and strictly speaking are North Atlantic territories, not Caribbean.

The population of the West Indies exceeds three million. Over one-half live in Jamaica, the largest island; but the Federal Capital is in Trinidad. Prior to the Federation the Mudie Commission visited the area to advise on the island best suited for the Capital. Barbados was first choice, followed by Jamaica and Trinidad. The Commission made some adverse comments about politics and standards of public life in Trinidad, which caused a good deal of acrimony at the time. In the event that colony was chosen by local decision as the seat of the Federation. The most favoured site there for the capital buildings is still leased to the United States under a war-time agreement for American bases in the Caribbean. So for the present the Federal Government is accommodated in temporary quarters in Port-of-Spain.

The people are chiefly of African, East Indian and European descent; with several thousand Chinese in Trinidad and Jamaica. The Africans are directly descended from the slaves brought from the Guinea Coast. Following the abolition of slavery in the early nineteenth century there was a large immigration of indentured labourers from India; their descendants are to be found to-day mostly in Trinidad and in British Guiana.

Most of the islands are mountainous and of volcanic origin; Antigua and Barbados, being mainly of coral limestone and low-lying, are the exception. The climate throughout is tropical, but it is tempered by trade winds; temperatures average between 75 deg. and 85 deg. Fahrenheit and the range of rainfall in a year can be as low as 30 in. and as high as 200 in. Hurricanes are not uncommon and there are occasional earthquakes. The hurricane season lasts from June to November, during which period three hurricanes on an average pass over some part of the Caribbean. Risk of serious damage is not very great where buildings are well constructed. A contributory factor to collapse, especially

in wooden buildings, is the white ant (or termite), which infests and weakens many timbers commonly used. Considering the amount of timber used it is surprising how frequently preventive measures are ignored or neglected. If the climate of the Caribbean is kinder than in some other parts of the tropics the wise designer will still pay heed to problems of ventilation, solar radiation, rain penetration, corrosion, and infestation of materials.

The economy of the West Indies is largely agricultural, the main crops being sugar, bananas and citrus; but minerals—oil and bauxite—and some secondary industries provide valuable additional exports. In a region blest with some of the finest beaches in the world, it is not surprising that the tourist industry is developing rapidly. In 1958, for example, more than 170,000 holidaymakers came to Jamaica, the majority from USA and Canada. In the same year, however, 17,000 West Indians left their native lands to seek their fortunes elsewhere—many in Great Britain.

The population of the West Indies will double itself in forty years or less if the present rate of increase is maintained. This places a severe strain on the slender resources, both from home or abroad, which are available to the region. The first call on these resources is for the general improvement of the economy, but this means that social services, including much-needed housing and health services, must come second. The rate of new house-building is far behind what is needed to remedy overcrowding and obsolescence and to provide for the increasing population. Barbados provides a good illustration of the difficulties. Here the population increases at two per cent per annum. The most optimistic estimate of the rise in the national income during the next generation is that the rate will not exceed one-half per cent per annum. Here is a country with a permanently limited income and a rapidly rising population. One cannot escape the conclusion that some parts, at least, of the West Indies are over-populated. While new harbours, industrial development, education, health and housing improvements are very desirable, nothing Governments can do is comparable in importance with success in arresting the increase of the population.

Of the settlements or architecture of the indigenous Caribs nothing remains to-day. What may still be seen, however, are several fair examples of an imported Georgian vernacular, especially in the plantation houses of Barbados and Jamaica. Pierre Labat visited Bridgetown in 1675—twenty-five years after a serious fire and a hurricane. But already he found 'solid buildings, handsome streets, and warehouses filled with every kind of merchandise; the plantation houses well ventilated, plentifully supplied with glazed windows, well planned and commodious.' He noted that 'People of distinction have live partridges, which they keep in coops . . . one can say that no people exist, who spend more, or who go to greater lengths, to have all that is rarest and best from foreign lands even the most distant. Their houses are well stocked with every kind of wine and liqueur and they are delighted if their guests are hard put to it to find their way home.'

The fine 'Great' houses of Jamaica appeared less impressive to one visitor—Charles Leslie, who wrote in 1739: 'One is not to look for beauties in architecture here; the public buildings are neat, but not fine . . . the gentlemen's houses are generally built low of one storey.' This tradition of one-storey building has to some extent continued, and what Nikolaus Pevsner said of housing in the Dominions (in THE ARCHITECTURAL REVIEW of October, 1959) fairly describes the West Indian urban scene to-day. 'The standard of housing,' he wrote, 'is the never ending suburb of bungalows widely spaced in the well-to-do, crammed together in the poorer districts. They never make visual sense . . . modern clichés have been absorbed naturally and vulgarized with disarming success . . . the detached dominates everywhere and that defeats any attempts at visual planning.' Nor is subtopia missing; overhead cables, crude road signs and blatant advertisements assault the eye. Perhaps the onset of tourism will prove a silent ally in the battle for civic decency.

Since 1946 the West Indies have received an average of £2 million a year through the Colonial Development and Welfare Acts, whose object is 'to assist in any purpose likely to promote the development and resources of any colony or the welfare of its people.' Whenever possible the colony is asked to make a proportionate contribution—be it as little as 5 per cent or as much as 50 per cent—and all but the poorest have taken the residual recurrent charges on to the local budget. The greater part of these funds has been devoted to education and agriculture, with lesser amounts to health services, water-supply, housing and town-planning in that order. Assistance has also come through the Colonial Development Corporation, which has invested £8 million in the Caribbean since 1948. Its chief stakes are a timber mill in British Guiana, a cement factory in Trinidad and, more recently, a chemical plant and houses for the middle classes in Jamaica. These two external sources of finance, together with local sources, have stimulated a considerable variety of building projects which have called for the services of architects.

Before the war very few architects practised in the West Indies; now several practices have been established—some local, others as branches of firms in Britain. Ancillary services such as those of structural and mechanical engineers and quantity surveyors have also established themselves.

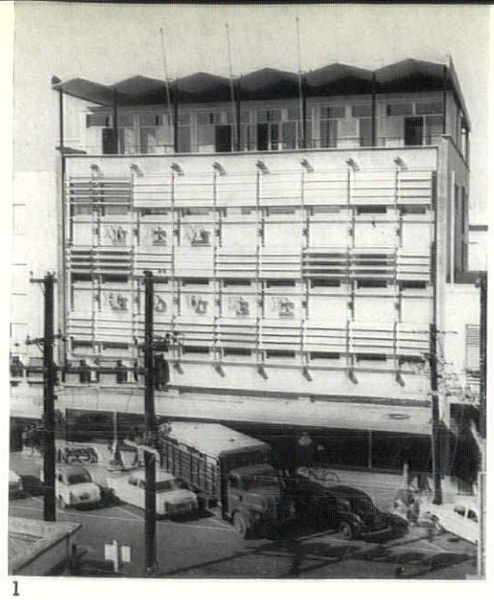
There are as yet no facilities for professional training in architecture, engineering or planning in the West Indies; those seeking it must go to North America, or to the United Kingdom. An engineering faculty is now under consideration at the University College in Jamaica, but the prospects of a faculty for architecture seem remote. Three years ago a mission studied the needs for technical training in the West Indies. It was suggested that the need for architects over the next ten years would be less than 30 qualified men with about 160 assistants; it was also recommended that a large number of supervisors and skilled men would be required for the building industry. These estimates look a little out of scale with what was suggested in the field of engineering—admitting that many of these would be absorbed in the sugar and oil industries. It was suggested that there was a need of 140 civil and structural, 96 mechanical and 56 electrical engineers, plus 900 assistants. Such estimates are not easy to make. It is generally agreed that there is a great need for more training facilities for the building industry; technical schools now under erection in Jamaica and Trinidad will help.

As elsewhere in the Commonwealth there is a growing use of cement, but the present standard of concrete technology cannot be said to be very high. Cement is not the only material produced locally—timber from Guiana and Honduras, asphalt from Trinidad, clay block from Trinidad and Barbados, and gypsum from Jamaica are others. But much has to be imported, and expensive freight rates are reflected in the cost of building. There is no organized building industry as is known here, but several British firms have now established branches in the Caribbean. Wherever they have undertaken a contract—whether for a deep-water harbour, a university college, a hospital, or a luxury hotel—these firms have provided on-the-job training and there has been a marked improvement in the standard of workmanship. Like most people West Indians will respond to opportunity and encouragement.

JAMAICA

1, *insurance offices, Kingston (architects, Norman and Dawbarn) for the National Employers' Mutual Insurance Co. and for letting. All but the top floor, which has a folded slab roof protecting the windows, is air-conditioned. The rest of the façade is protected by movable aluminium louvres.*

2 *(right) hotel at Montego Bay (architects, Ballard, Todd and Snibbe of New York). The one-suite width gives cross ventilation, avoids internal corridors and gives all rooms a view of the bay. Each suite has a private breakfast-terrace. The ground floor has a restaurant and bar opening on to a swimming pool and open-air dance-floor. The hotel is air-conditioned.*



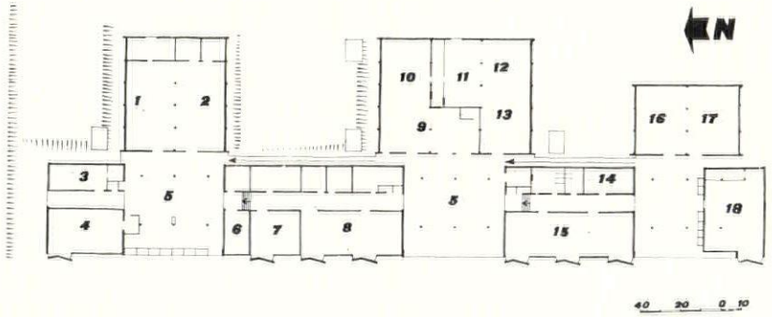
1



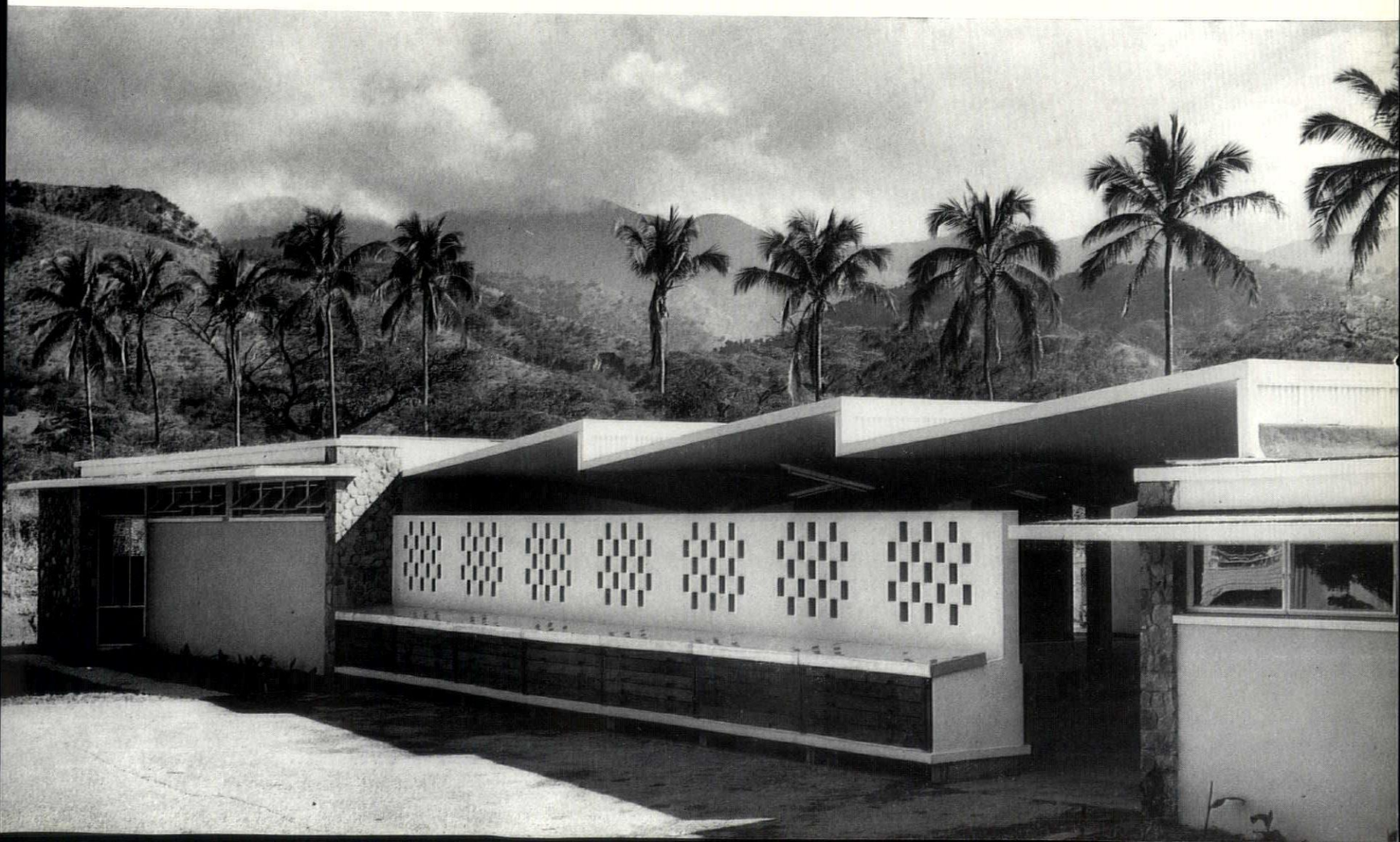
2

3 *(below), Kingston College of Arts, Science and Technology: the engineering workshops (architects, Norman and Dawbarn). These comprise the second stage of the college, the first having been the conversion of existing buildings into classrooms, dormitories, etc. Further new buildings will follow. The photograph shows the building department workshop, one of three (see plan on right), each with semi-open work-space in front, and connected by laboratories, staff-rooms, etc. The bins beneath the pierced screen hold materials. Roofs are precast reinforced concrete frames with timber decking.*

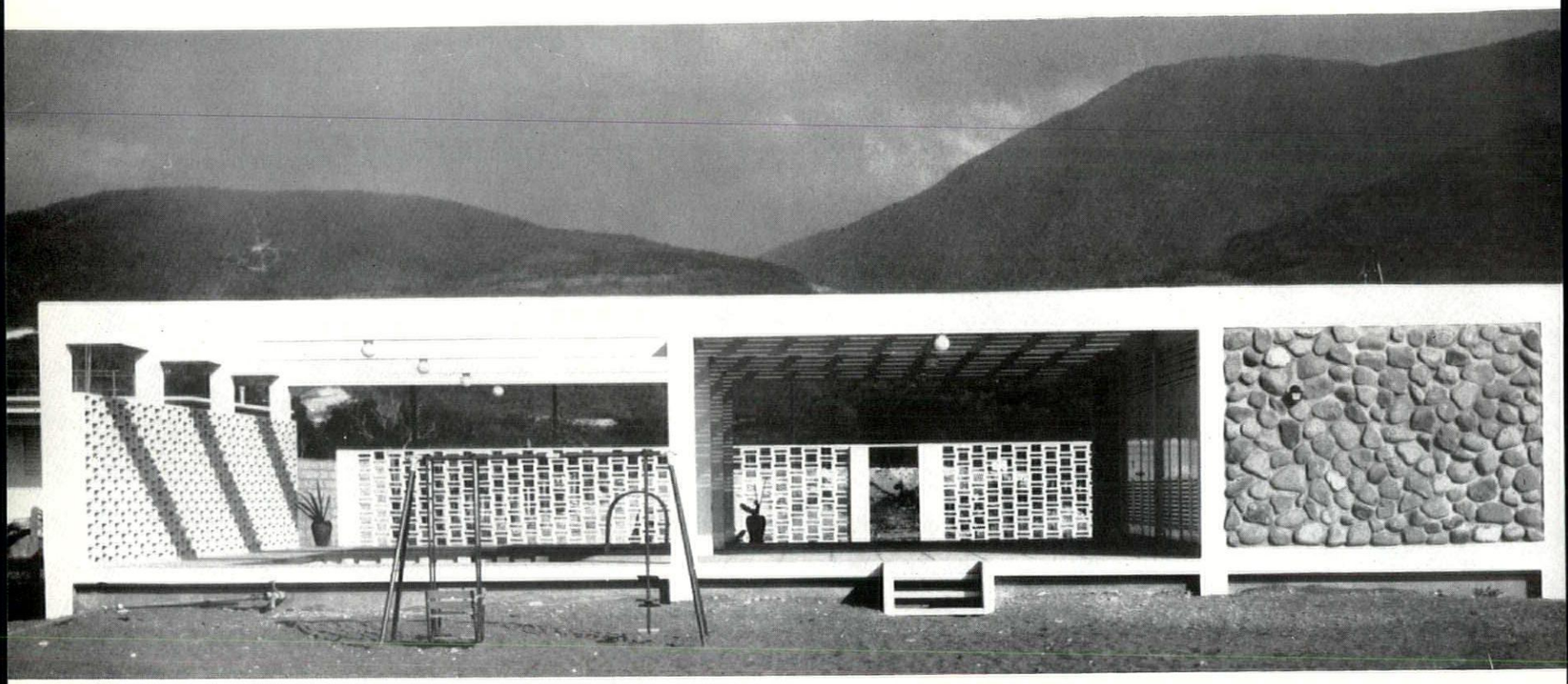
key
1. carpentry and joinery.
2. machine cutting.
3. plumbing.
4. building science.
5. covered areas.
6. metrology.
7. strength of materials.
8. applied mechanics.
9. auto shop.
10. welding and sheet metal.
11. general workshop.
12. heat treatment.
13, 16, 17. machine workshop.
14. fuel technology.
15. heat engines.
18. electrical laboratory.



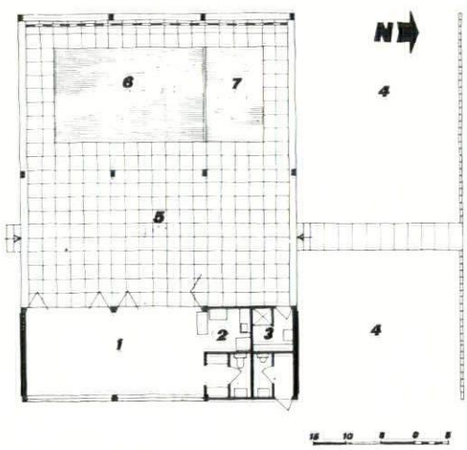
3



JAMAICA



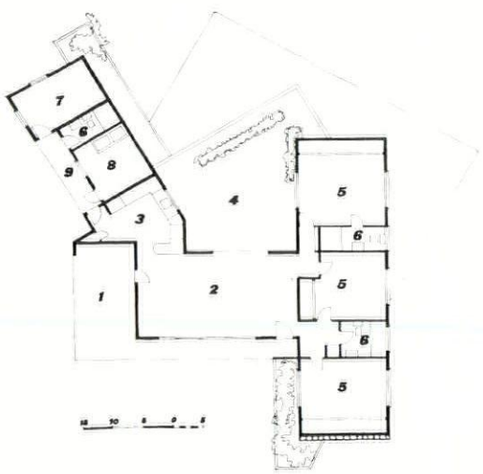
4



4 (above), beach cottage at Bull Bay (architect, Denis G. M. Chalmers): for day and occasional night use. The main room, which can be divided in two by a curtain to serve as living and sleeping room, opens on to a covered patio (see plan on left) with swimming pool and children's pool. Construction is reinforced concrete with panels of seastones from the site. The screen-wall seen in the background in the photograph gives privacy from a main road beyond. The ground between screen and cottage is to be planted as a garden.

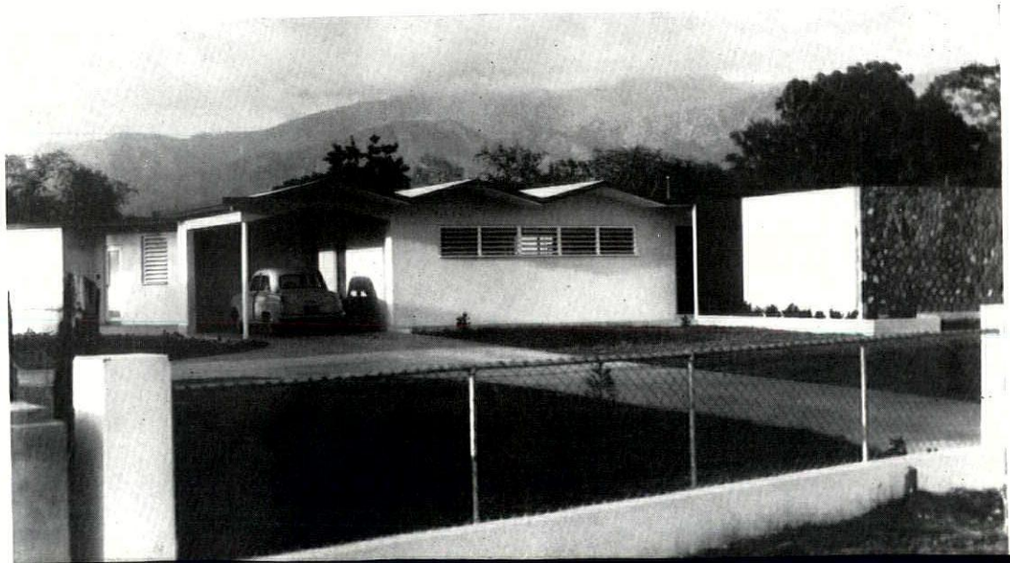
key
1, living and sleeping.
2, kitchen.
3, change.
4, gardens.
5, patio.
6, pool.
7, children's pool.

5, (below right), house at St. Andrew (architect, Wilson Chong): single-storey, planned round a paved terrace—see plan below—with car-port under an extension of the living-room roof. The latter is reinforced concrete, consisting of flat slab and hipped plates. Walls are load-bearing reinforced blocks, plastered. Windows are timber.



key 1, car port. 2, dining and living. 3, kitchen. 4, patio. 5, bedrooms. 6, bathrooms. 7, maid's room. 8, laundry. 9, walkway.

5

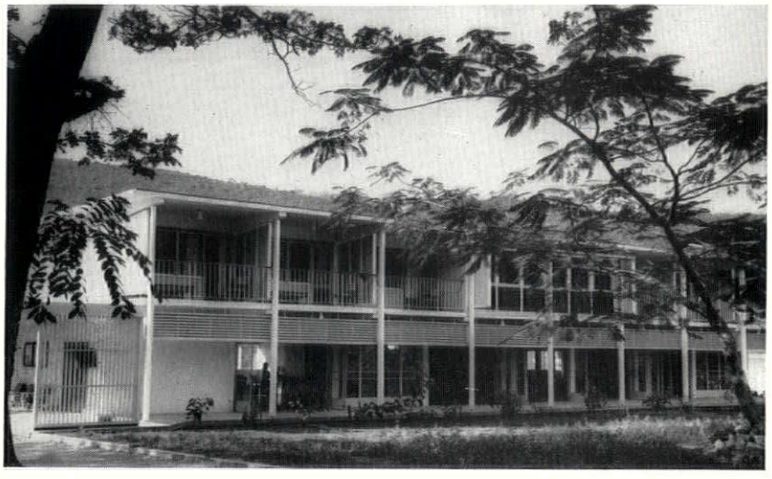


6, *terminal building, Montego Bay airport (architects, Norman and Dawbarn), designed to allow expansion at either end—one end has already had a restaurant added—and to allow a free flow of air through the concourses. The air-side (shown in the photograph) has two-storey offices; the other side is single-storey. The curved roof, which has a precast concrete frame, oversails both sides to shade the windows. The main structural frame is also precast, with wall panels of local stone or concrete blocks.*

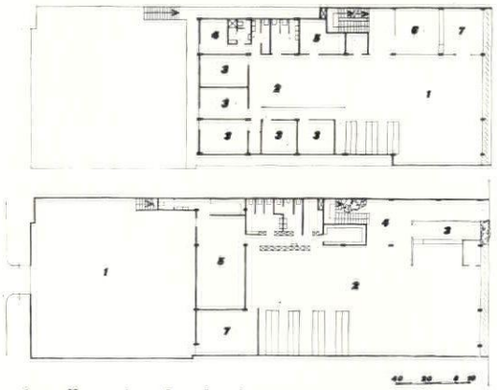


6

7, *senior common-room, University College of the West Indies (architects, Norman and Dawbarn): the latest addition to the large group of college buildings illustrated in the AR, October, 1953. It provides recreation and dining-rooms for the senior academic staff and, on the first floor, a library and six visitors' bedrooms. It faces north with views to the Blue Mountains. It has a reinforced concrete frame with concrete block walls.*



7



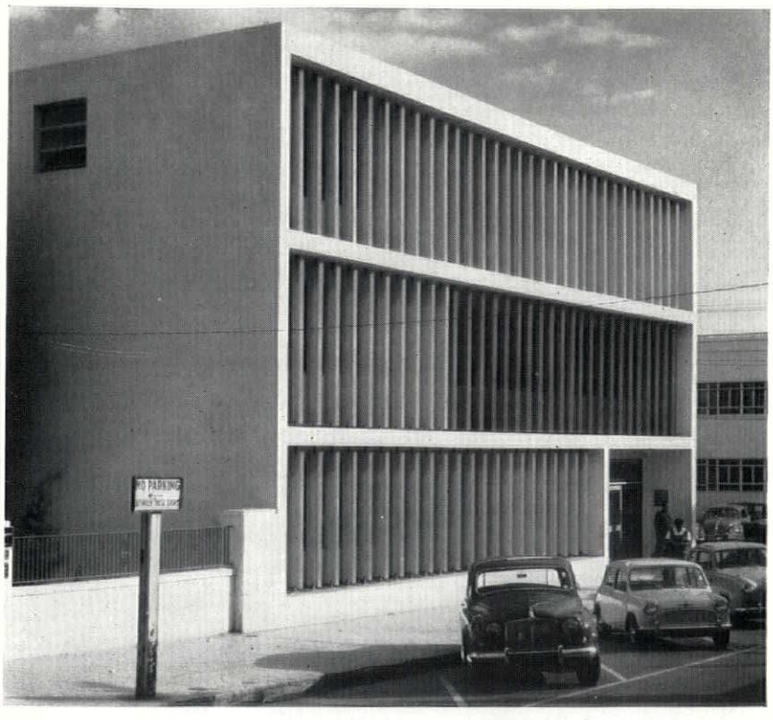
offices at Kingston

key

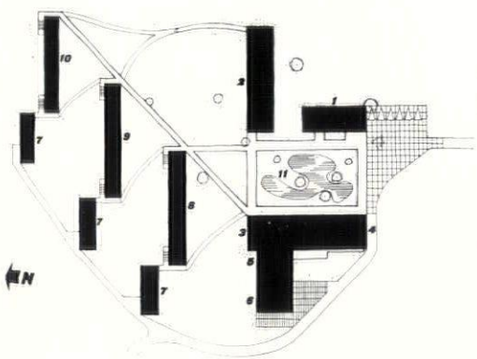
ground floor plan
1. car park.
2. general office.
3. public waiting space.
4. lobby.
5. lunch room.

first floor plan
1. general office.
2. secretaries.
3. offices.
4. library.
5. vault.
6. public waiting space.
7. reception.

8, *offices in the business centre of Kingston (architects, Ashwell, Dunn and Associates). The building (see plans above) contains general office space and the offices of the architects who designed it. The structure is reinforced concrete with reinforced block infill panels and movable louvres protecting the street front. The roof is insulated against sun by 3in. of water contained by an asphalt membrane. The offices are air-conditioned.*



8



site plan of farm school

key
1. admin. and library.
2. classrooms and laboratories.
3. dining hall.
4. assembly hall.
5. kitchen.
6. laundry.
7. lavatories and cycle sheds.
8, 9, 10, dormitories.
11. quadrangle.

9, *Government farm school, between Kingston and Spanish Town (architects, Ashwell, Dunn and Associates): a residential training school for 160 students, on a plateau in the Liguanea Plain. The buildings (laid out in parallel east-west blocks to avoid sun-penetration—see site plan above) are connected by covered ways. The photograph shows the administration and one of the classroom blocks looking eastwards across the garden courtyard. Construction is reinforced concrete with concrete block walls.*

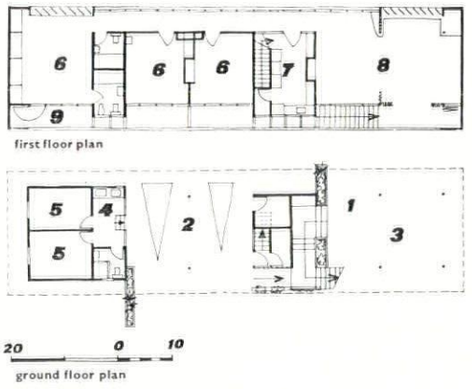


9



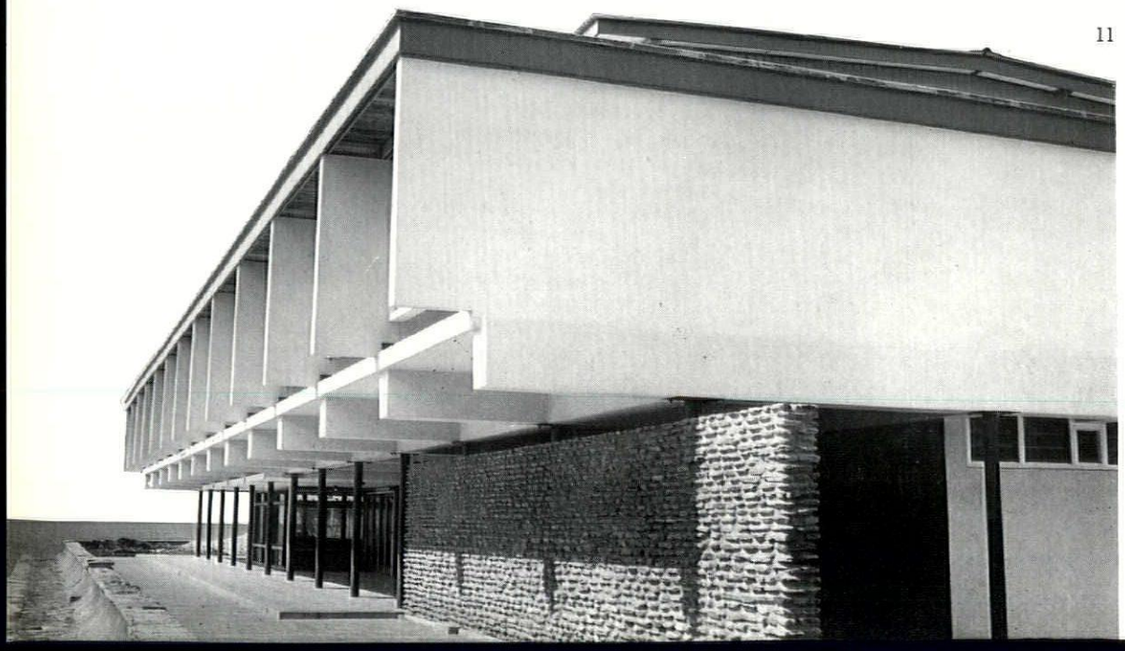
10

10 and 12 (facing page), seaside house overlooking the Gulf of Paria (architect, Anthony C. Lewis), on a steeply sloping site of which only a narrow strip was levelled. The main rooms are on the upper floor (see plans below), raised on steel columns. The superstructure is reinforced concrete, with continuous concrete fascia top and bottom. The landward elevation, 12, facing west, has both vertical and horizontal louvres. The upper roof is a clerestory with fixed louvres for convection. Cladding is plywood with cedar cover-strips. Ground floor walls are brick. 10 shows the approach from the north-west.



key
1, entry.
2, car port.
3, garden porch.
4, laundry.
5, maid.
6, bedrooms.
7, kitchen.
8, living and dining room.
9, balcony.

12→

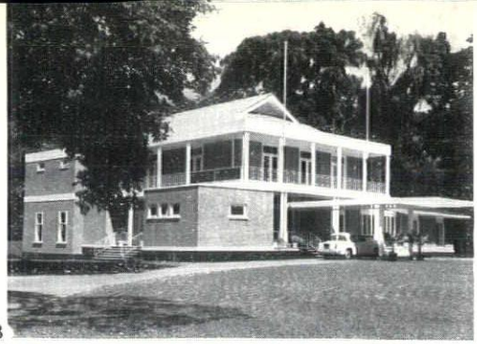


11

11, Shorelands Hotel, on a promontory overlooking the Gulf of Paria (architect, Anthony C. Lewis). The twelve guest-rooms are in a row on the first floor, each with bathroom and private balcony. The latter have projecting side walls to give greater privacy. The ground floor has informally planned entrance, reception and staircase opening on to a lounge with an open terrace on the south (sea) side. This is used for dining and is partly protected by plate-glass screens. Construction is steel columns with reinforced concrete beams. The low-pitched roof provides clerestory lighting and cross ventilation to the bedrooms over the top of the corridor. The free-standing ground-floor walls are of local stone.



TRINIDAD



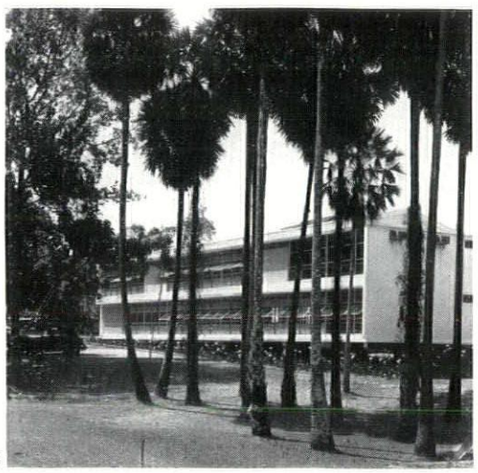
13, *new Government House at St. Ann's, Port-of-Spain (architects, Mence and Moore), required because the old one is now occupied by the Federal Governor-General. The accommodation is that of a large residence with provision for guests (including, on occasion, Royalty) and for large-scale entertaining. Construction is reinforced concrete with pipe columns and walls of concrete bricks.*

18→

18 *(facing page), office building at San Fernando (architects, Mence and Moore) for the Trinidad and Tobago Electricity Commission. The two storeys of offices, which are one room deep, oversail the ground floor, which is extended in the form of a single-storey wing at the back and contains reception and showroom. Construction is a reinforced concrete frame with rough concrete facing slabs in the end wall and a low basement wall of concrete bricks. The staircase window has horizontal metal louvres. The offices are protected by aluminium and timber sunbreakers.*

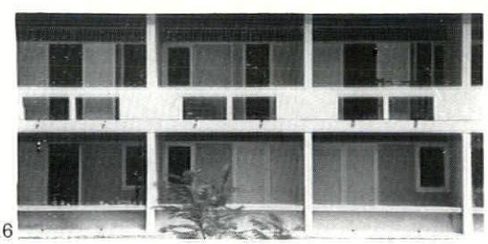


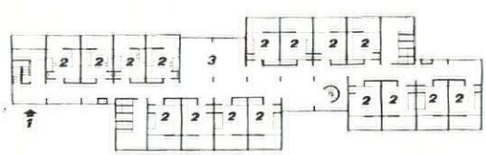
14, *fire services headquarters, Port-of-Spain (architects, Mence and Moore), with the usual accommodation for appliances and watch-rooms and dormitories above and in mezzanines at the sides. It has a reinforced concrete frame and timber floors. Anti-glare glass is used either side of the entrance.*



15, *office building, Port-of-Spain, for the Cocoa Board (architects, Mence and Moore): a reinforced concrete structure of 20ft. span with a 10ft. cantilever either side. Walls are metal windows and concrete blocks. The roof is timber.*

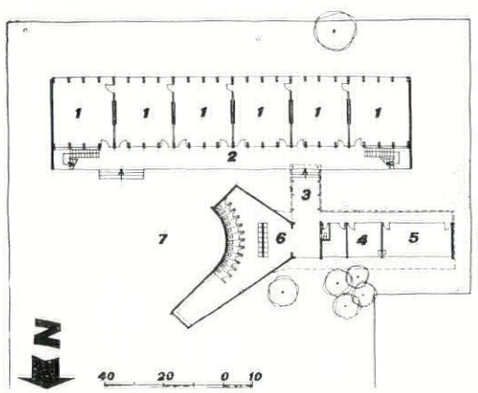






ground floor plan, students' quarters, St. Augustine

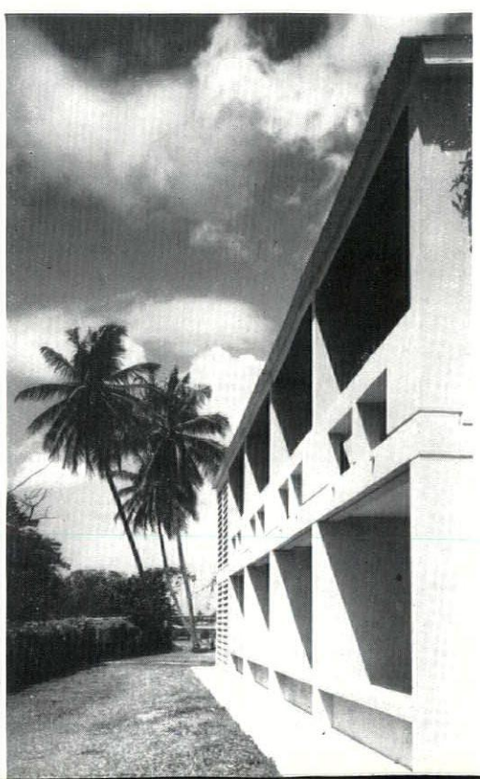
key 1, entrance. 2, students' rooms. 3, dining room.



ground floor plan, primary boys' school, Port-of-Spain

key 1, classrooms. 2, corridor. 3, covered way. 4, head teacher. 5, staff room. 6, lavatories. 7, playground.

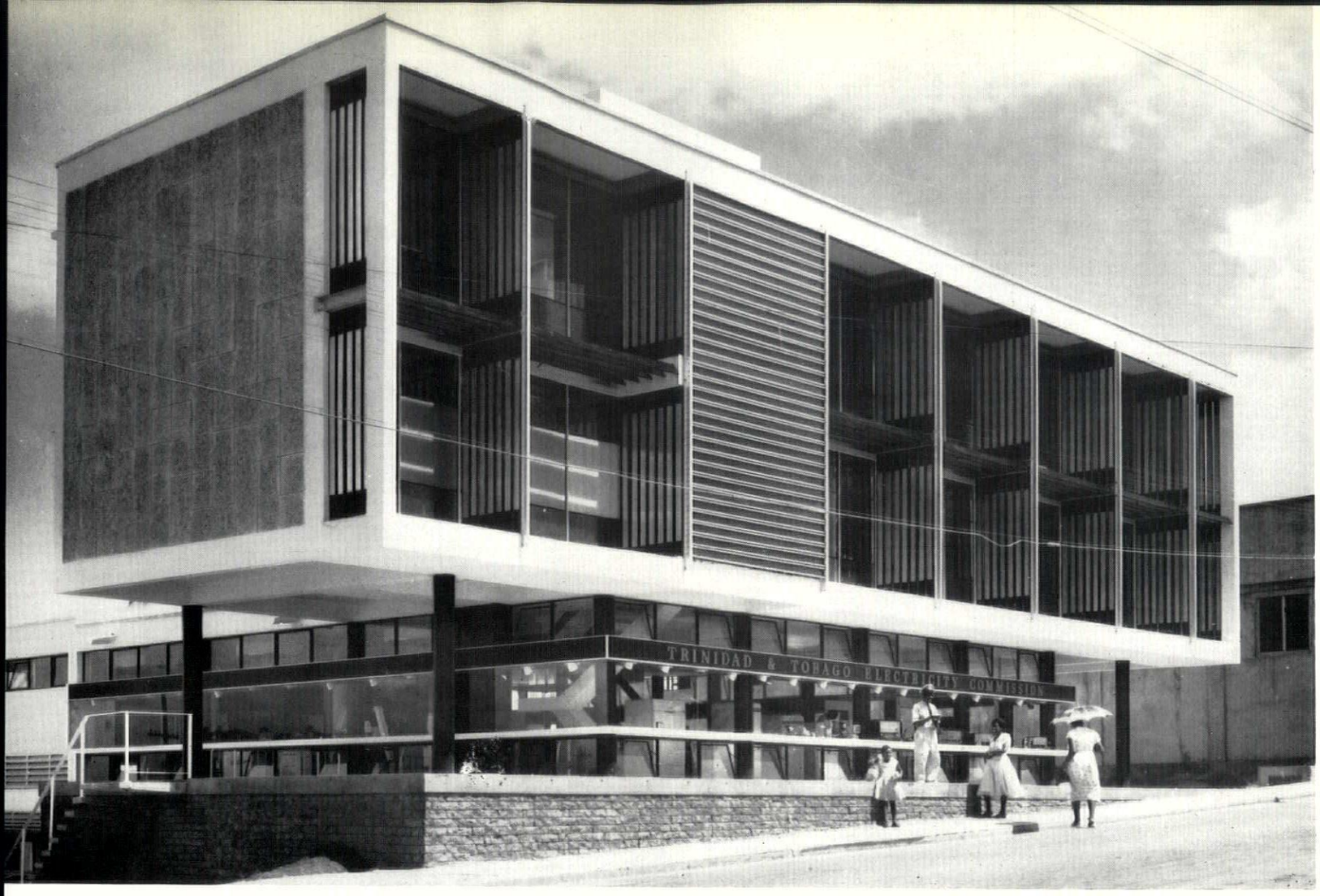
16 *and* 17, *students' quarters, with dining-room and kitchen, at the Imperial College of Tropical Agriculture, St. Augustine (architect, R. Llewelyn Davies; supervising architect, Colin Laird). The buildings run east-west for protection from the sun but are designed to catch cross-currents of wind, which is mainly easterly. The students' rooms are in two blocks, 16, each with sixteen rooms to a floor, arranged in groups of four—see plan above. 17 shows the dining-room with open timber grille and louvred doors to provide through ventilation. The structure is reinforced concrete with walls of hollow clay blocks.*



19 *(above), boys' primary school, Port-of-Spain (architect, Colin Laird). The photograph shows the two-storey classroom block—see plan. Construction is precast reinforced concrete frame with prefabricated timber cladding units of egg-crate form on the north side to protect the classroom corridor from north-easterly driving rain.*

20→

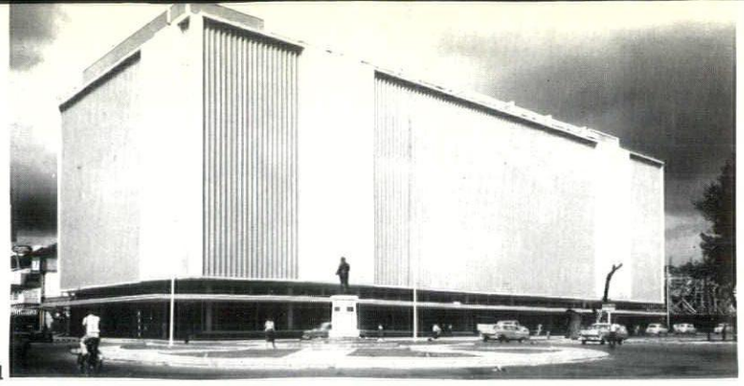
20 *(facing page), staff houses for an oil company, St. Joseph Village (architects, Bolton and Barnstone of Houston, Texas; supervising architect, Colin Laird): built to a semi-standard plan used by the company in various territories. One of the pair of houses looks inward to a patio; the other outwards towards open country and the prevailing breeze. Construction is timber on stone bases.*


TRINIDAD & TOBAGO ELECTRICITY COMMISSION



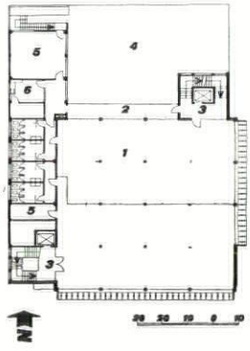
TRINIDAD

21, *office and store building, Port-of-Spain (architects, W. H. Watkins and Partners): the tallest building in Trinidad, 106ft. high. The sales area occupies the general and first floors, which are connected by escalators. Above are four floors of lettable office space and on the top floor a caretaker's flat and eleven luxury apartments with views south and west to the Gulf of Paria and north to the mountains. The whole building is air-conditioned. The main façades have continuous curtain-wall glazing, protected against glare by fixed vertical aluminium louvres.*

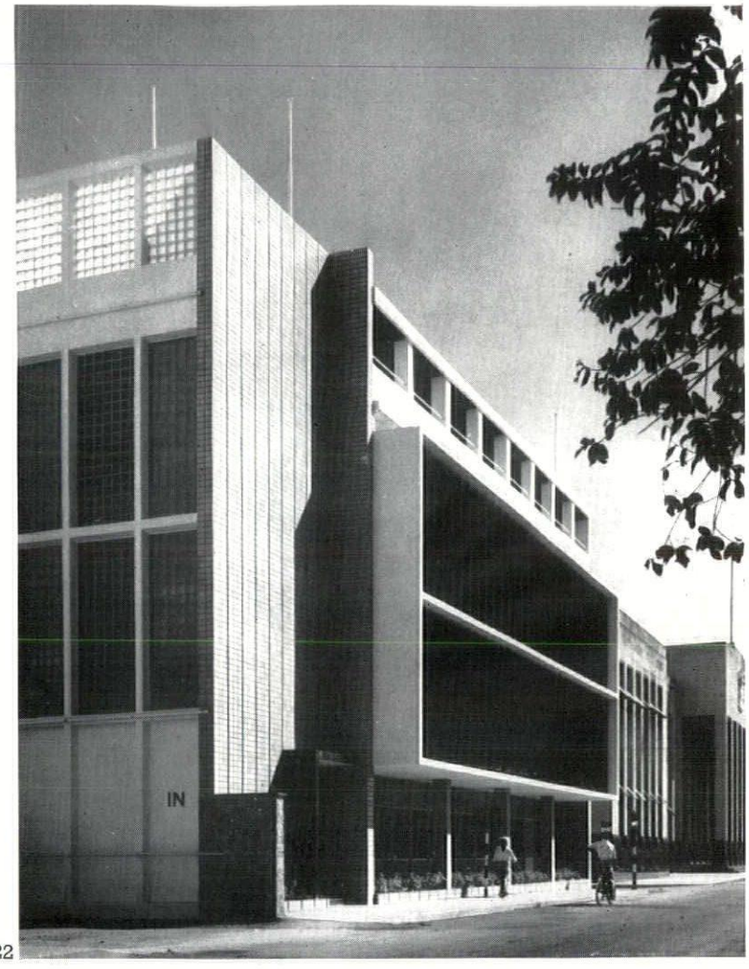


21

22, *office building, Port-of-Spain (architects, Prior, Lourenco and Nothnagel): a three-storey block designed for the later addition of two more floors. The ground floor provides showroom space, and this and the office space above (see plan) has lifts and staircase at the south-west and north-east corners and services grouped along the west side to allow freedom to sub-divide the floor-space as required. Construction is reinforced concrete. The south and east façades are protected by vertical adjustable louvres. The building is air-conditioned.*

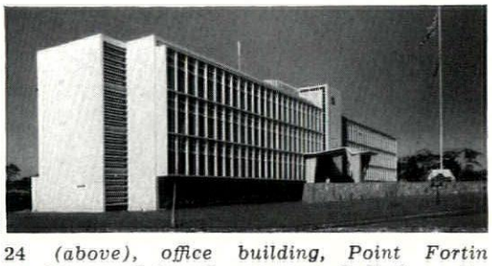


key
1. general office.
2. balcony.
3. foyers.
4. yard below.
5. stores.
6. tea room.



22

23 *(right), Federal House, Port-of-Spain (architects, Trinidad Works Department; architect in charge, L. E. Cornialliac): a six-storey office building originally designed for the Colony Government but subsequently leased to the new Federal Authority. It is fully air-conditioned.*



24

24 *(above), office building, Point Fortin (architects, Prior, Lourenco and Nothnagel): a four-storey air-conditioned block with floor-space designed for maximum flexibility of sub-division by steel partitions. Construction is reinforced concrete with two north-east and south-west façades protected from the sun by vertical light-weight concrete fins and horizontal fixed louvres.*



23

BRITISH GUIANA

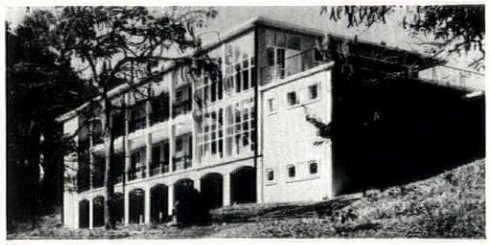
25, *Christian Science church, British Guiana (architects, Mence and Moore), seating* 100 *people. It is built wholly of timber: local hardwoods treated against termites. The main roof beams are of greenheart and are unsupported between the ground and the ridge. They are* 10*ft. apart and they and the secondary rafters are exposed internally. The roof is covered with grey asbestos slates. Boarded walls are oiled, with fascias painted white. The fixed louvres in the north and south gables are of asbestos in hardwood mullions. The dormer windows have green anti-sun glass.*



25

WINDWARD ISLANDS

26, *Victoria Hospital, St. Lucia (architect, Michael V. Smith, executive government architect, Windward Islands): the new T.B. ward, which is the first stage of the rebuilding of a nineteenth-century hospital on a very steep site. The floor above the arcade contains the female ward and the top floor the male ward.*

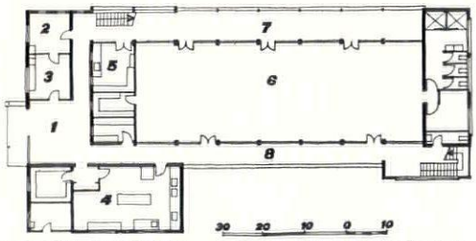


26



27

27, *Princess Margaret Hospital, Dominica (architect, Michael V. Smith, executive government architect, Windward Islands), laid out in parallel blocks, running north-south, connected by covered ways. (See plan beneath photograph) and largely built by direct labour. The photograph shows the private patients' block.*



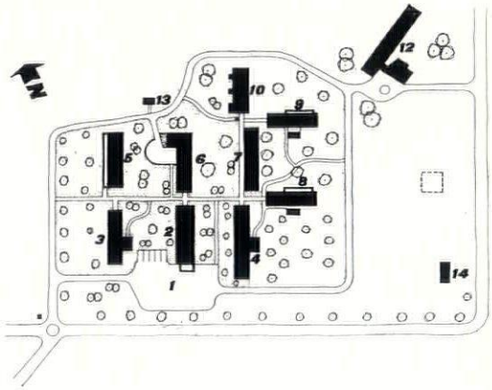
typical floor plan, Victoria Hospital, St. Lucia

key

1, waiting.
2, doctor's office.
3, treatment room.
4, kitchen.
5, ward pantry.
6, female ward.
7, verandah.
8, covered way.

key: hospital at Dominica

1, car parking.
2, admin.
3, medical wards.
4, maternity and children's wards.
5, isolation and observation wards.
6, laundry and kitchen.
7, operating theatre and x-ray.
8, female surgical block.
9, male surgical block.
10, private patients.
12, nurses' hostel.
13, mortuary.
14, matron's quarters.



site plan, hospital at Dominica

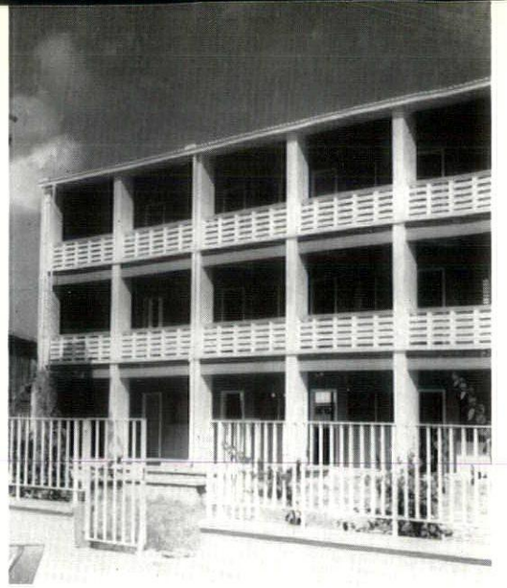
28, *post office, Castries, St. Lucia (architect, Michael V. Smith, executive government architect, Windward Islands). It was constructed after the fire in* 1948 *which destroyed the whole commercial centre of the town.*



28

LEEWARD ISLANDS

29, *Government offices, St. John's, Antigua (architects, Robertson Ward Associates). The building also contains the offices of the Administrator and the Ministers and their staffs. It is one room deep to give cross ventilation, with access galleries on the lee side of the building. It has a reinforced concrete frame with concrete block walls and steel truss roof covered in asbestos. Balustrading to the galleries is precast concrete.*



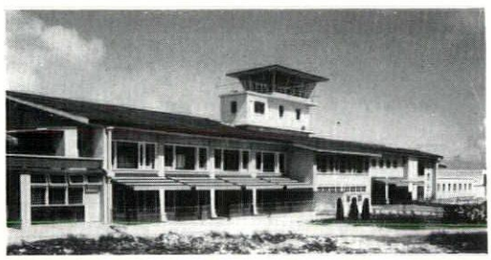
29

30 *(below), offices and warehouse, Basseterre, St. Kitt's (architects, McMorris and Sibley), sited close to the harbour and containing also a retail shop and a travel agency. The structure is reinforced concrete with walls of local limestone and concrete blocks. On the south-west and north-west elevations (seen in photograph) aluminium louvred windows are fitted between vertical concrete fins.*

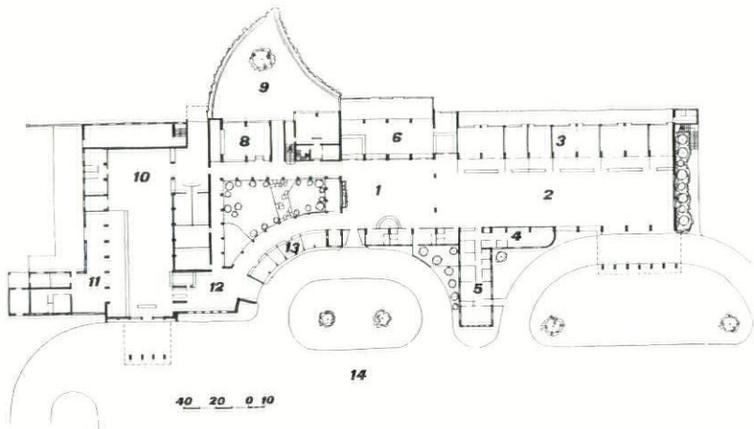


30

BARBADOS



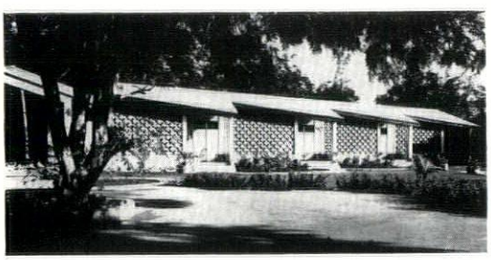
31



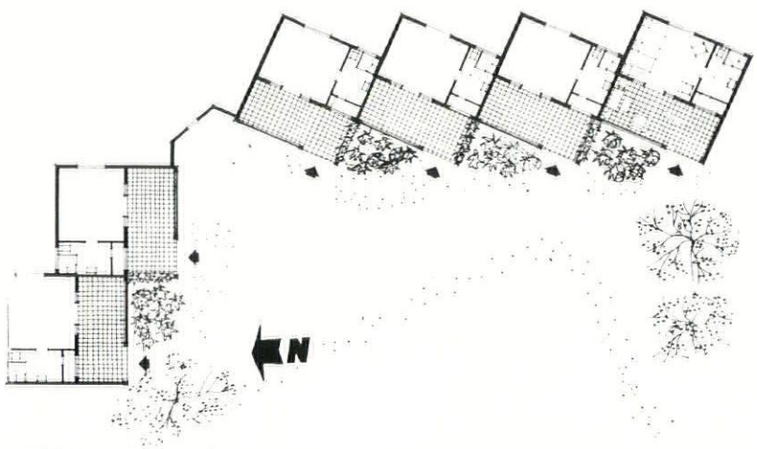
key
1, waiting room.
2, airlines' concourse.
3, airlines' offices.
4, aircrews' room.
5, general office.
6, departure lounge.
8, cocktail lounge.
9, observation patio.
10, customs and immigration.
11, baggage unloading.
12, reception hall.
13, shops.
14, car park.

ground floor plan, terminal building, Seawell Airport

31, *terminal building, Seawell Airport (architect, K. J. Tomlin, Director of Public Works, Barbados), planned round an open patio—see plan on right; on the first floor are the main concourse and restaurant. Walls and columns are of local coral limestone, with steel roof covered in asbestos.*



32

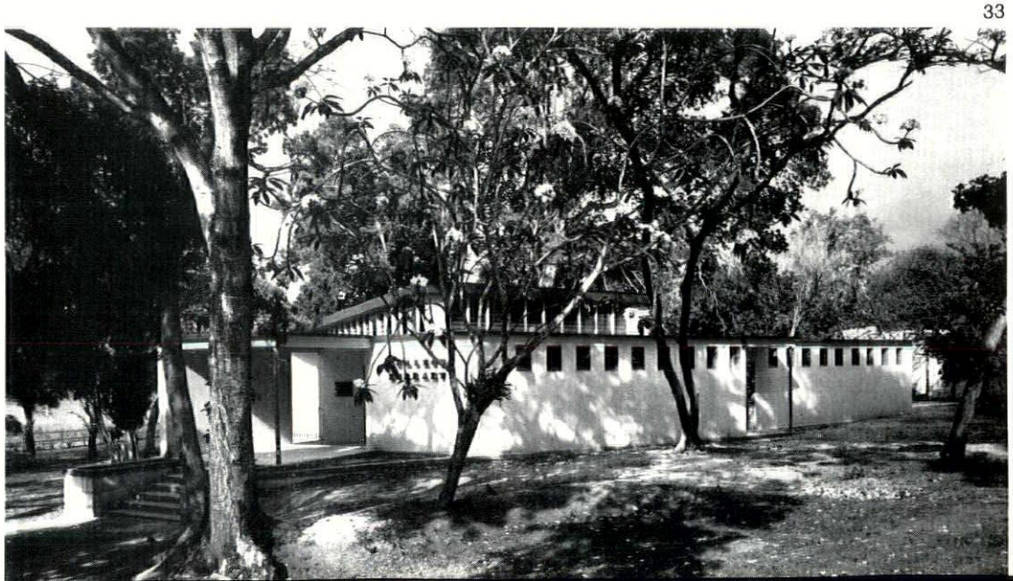


ground floor plan, hotel extension

32, *hotel extension (architect, Barbara Hill): two blocks with six cabana-type luxury apartments—see plan on right—serving also to shelter the swimming-pool from the wind. Gardens are reached through the connecting wall. The apartments are staggered in plan to give privacy. The front panels are a grille formed of local clay pots.*

33 *(right), school library (architect, Anthony C. Lewis)—for Harrison College, but sited in a wooded area away from the other school buildings. The walls have a saw-tooth plan to increase the extent of wall-space for shelving. A clerestory roof increases convection. The photograph shows the library from the rear, with the reference wing on the right.*

33



O. H. Koenigsberger



INDIA, PAKISTAN AND CEYLON

For the poor of Asia shelter has always been, and still is, a matter of self-help. The peasants of India, Pakistan and Ceylon need but little of it, because most of their lives are spent in the open; but they do need some protection from sun and rain, occasional privacy, and safe storage places for their belongings. Their urge to beautify and decorate is seldom applied to the whole house, but to essential parts, such as the door or threshold (the Indian housewife decorates the threshold of her house every morning with patterns of rice flour), to images of domestic gods, oil lamps, clay or brass pots and other objects of daily use. The flowers used to adorn the domestic altar and the hair-do of women are significant signs of the need to brighten an incredibly hard and drab life.

The poor man's (and woman's) need for spectacular buildings as subjects of his day-dreams was catered for in the past by the houses of his gods with their incredible wealth of figurative decoration, and by the splendour of the palaces of maharajas and emperors. The fact that the architecture of the imperial palaces from the Moguls to the British Viceroys was basically foreign and that of the maharajas imitated the worst Victorian horrors did not affect its capacity to satisfy this need.

Independence brought a complete change. Gandhi and his disciples had established an image of a new country that was both romantic (going back to the simple life and self-contained economy of the village, wearing hand-spun and hand-woven cloth) and puritan (prohibition, reduction of top pay-scales, abolition of rajahs, imposition of a luxury tax). The leaders of the new India accepted Lutyens's New Delhi as a convenience, but resented it as an inappropriate setting for the hard-working public servants of a poor country. They prepared five-year plans for a community of responsible citizens and scorned any idea of fobbing off the ruled with *panem et circenses*.

It was in keeping with this general attitude, which prevailed to a lesser degree also in the first years of the new Pakistan and Ceylon, that architectural interest concentrated at first almost exclusively on low-cost housing. The best brains of the three countries were concerned with new towns (India started twelve between 1945 and 1951), prefabrication, village improvement and community development.

Public buildings, instead of being welcomed as opportunities of expressing the aspirations of the new countries, were treated as necessary evils. Confusion reigned as to their shape and style. The 'moderns' wanted to prove that Asians could do as well or better than the West in applying new technologies. The traditionalists advocated a return to historical patterns in the belief that one could

thereby create something typically Pakistani, Indian or Ceylonese. Many intellectuals thought that attention to climate and the use of local materials would be enough to create a new national style.

It is necessary to understand the Indian background as well as these post-war currents of emotion and thinking to appreciate the impact of Le Corbusier's work at Chandigarh. The High Court and Secretariat building of the Punjab capital were the urgently needed proof that public buildings in India could be modern, yet different from contemporary work—even by the same architect—elsewhere. That does not mean that they were popular. A public-opinion poll amongst literate Indians (still a minority) would probably produce a strong vote against them. But more important than approval or dislike is the fact that the buildings of Chandigarh were the first examples of post-war architecture that aroused heated discussion throughout the country. Their high costs enhanced rather than diminished their importance as focal points of public interest, and of the day-dreams—if not of the poor Indian masses, at least of a new generation of Indian architects.

After the completion of these Chandigarh buildings we find at various points of the sub-continent architects who if they do not exactly imitate Le Corbusier, have the courage of their own convictions and try to find their own mode of expression. They are still lonely swallows, but they *are* emerging. Their efforts are helped by the trends of the second and third five-year plans which have gone far towards restoring the balance between village development on the one side and industrialization and modern technology on the other and have increased confidence in technical progress.

India, Pakistan and Ceylon have strong and highly developed engineering professions. Indians lead in irrigation engineering and command vast experience in the construction of dams and canals. The architectural profession has developed only in the last four decades, and the number of qualified architects is small—about one per million of inhabitants in India and one per ten million in Pakistan. Practising architects are concentrated mainly in the large cities. Most of the design work in small towns and villages is handled by civil engineers or small builders.

India has five schools of architecture with five-year courses and examinations controlled by a governmental Board of Technical Studies which aims at standards comparable to those in Britain. One Indian school, that of the Indian Institute of Technology at Kharagpur (Bengal), has a Graduate School of Design modelled on that of MIT. Pakistan and Ceylon have no schools of architecture and depend on training abroad, but Pakistan has plans for the establishment of schools at Karachi, Lahore and Dacca, one under Colombo Plan auspices and the other two with the help of the Ford Foundation.

An architect practising in Bombay or Calcutta could in theory command all the materials and equipment available to his colleagues in the West. In practice, he is restricted by shortages of steel (Indian steel production is increasing rapidly, but is still far short of the country's needs), and his choice of panelling and cladding materials and fittings is limited. More and more building materials and components are made in India, but many of the less frequently used items must be imported. The shortage of steel accounts for the almost complete absence of steel-frame construction and the preponderance of concrete. The use of large areas of glass is ruled out by climatic considerations.

Air conditioning is used more and more in important commercial and public buildings, but is still far too expensive for universal application. In most buildings, the architect must combat severe climatic conditions without it. India, Pakistan and Ceylon include climatic regions of great variety and contrast, ranging from the warm-humid equatorial areas of Western Ceylon, the Malabar Coast and Bengal to the hot-dry desert or near-desert conditions of Rajputana and Sind. Large areas of the sub-continent have Intermediate or Monsoon climates; that is, they are hot and dry for almost two-thirds of the year and warm and humid for the remainder. The hill-towns of the Himalayas have to cope with severe winters, settlements in Assam and in the Malnad 'boast' of the highest rainfall figures in the world and some areas such as the Mysore plateau enjoy a pleasant almost sub-tropical climate.

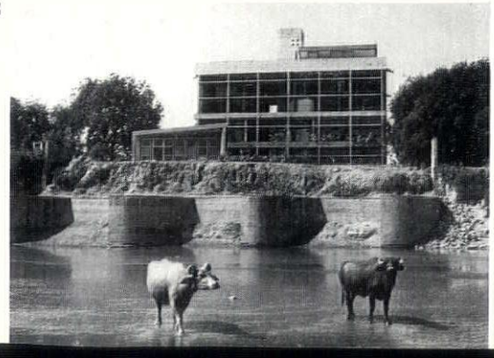
Traditional building practices and local materials vary in accordance with the different climates, and these affect contemporary buildings as they have affected those of the past. It is still far too early to discern clearly Indian, Pakistani, or Ceylonese architectural movements. The new countries of Asia need time to develop modern vernaculars of their own, but promising beginnings can be found as the following pages show.

1

1, *the High Court at Chandigarh, the new capital of East Punjab, of which Le Corbusier is the planner as well as being the architect of this and other public buildings. The High Court forms one of a group of buildings, all of fully exposed reinforced concrete, raised up above the rest of the city on what is known as the capitol, at the northern end of the main axis. The photograph shows the southern side, seen across an artificial pool.*

INDIA

2



2, *the Millowners' Building at Ahmedabad (architect, Le Corbusier) : an office building, containing also conference and meeting rooms, for the local Association of Millowners. It is of exposed reinforced concrete construction and is shown in the photograph from across the Sabarnati river.*



3

3 *(above), Chinubhai house at Ahmedabad (architects, Vastu-Shilpa): a three-storey house with exposed reinforced concrete frame incorporating cantilevered slabs forming balconies. The small amount of infill walling is of narrow red bricks laid with straight joints.*

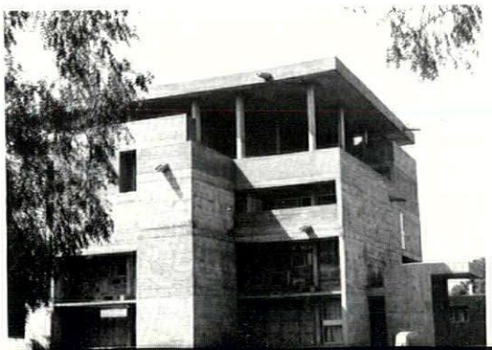
4 *(below), housing at Chandigarh, East Punjab (architect, E. Maxwell Fry): part of a terrace of one of the numerous standardized house-types evolved for the residential quarters of the city by Maxwell Fry, Jane Drew and Pierre Jeanneret, all working under Le Corbusier's planning control. The two-storey type illustrated has three bedrooms and two sitting-rooms and a screened sleeping-terrace on the roof.*

4



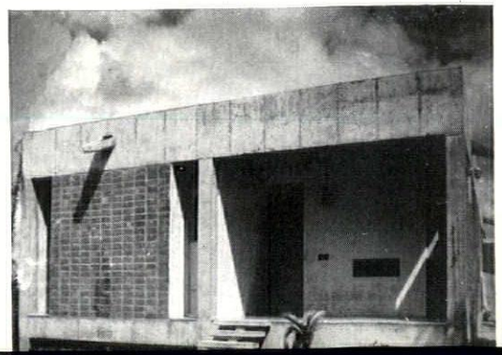
5, *Shodhan house at Ahmedabad (architect, Le Corbusier): in exposed concrete showing the imprint of the timber shuttering, except on the soffit of the roof where the surface is smooth, derived from sheet-metal shuttering, and brightly coloured. The house has a complicated section with the main living-rooms, etc., half-way up. This floor and the mezzanine below it are reached by an internal ramp.*

5



6, *Nalini Banker house, Ahmedabad (architects, Vastu-Shilpa; partner in charge, Balkrishna V. Doshi): a single-storey, two-bedroom house, rectangular in plan with a central courtyard open on one side. The photograph shows the south end, with recessed porch leading straight into the living-room and, on the left, the two corner windows of the main bedroom. Construction is reinforced concrete with brick infill.*

6

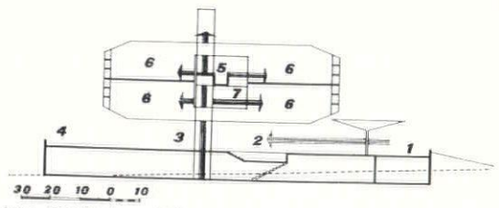


7

7 (above), the Secretariat, Chandigarh (architect, Le Corbusier). It stands on the capitol at the northern end of the city, but at the opposite side from the High Court (see page 55), from the roof of which the photograph is taken, looking north-west. Eventually the parliament building will be between them. It accommodates 3,000 employees and is divided vertically by a series of expansion joints into six ministerial blocks, each consisting of office-space either side of a central corridor. The wall with small apertures to the left of the centre of the façade is that of an enclosed ramp standing out at an angle and serving all floors. The section further to the right, with a changing pattern of brise-soleil, is that of the Ministers' offices. The roof-top structures house club-rooms, etc.

8 (below), Utkal University, Bhubeneswar in Orissa Province (architects, Chatterjee and Polk): the still uncompleted range of buildings sited on the flat plain north-west of the bay of Bengal.

9 (far right), hotel at Ahmedabad (architect, C. M. Correa). The riverside site slopes steeply and the entrance driveway takes cars up to first floor level, where the public lounges, dining-rooms, etc., are placed—see section right. At the lower level is a general-purpose public room opening on to the garden and a shopping arcade. The bedrooms above are planned round an internal garden and a lift and service core. The base of the building is of exposed brick and the upper part plastered white.

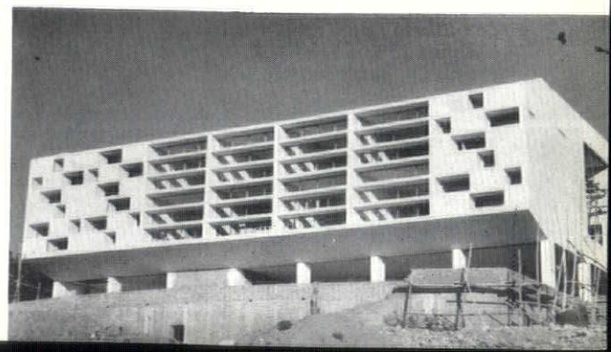


key 1, drive. 2, entrance. 3, lounge. 4, terrace. 5, bridge. 6, rooms. 7, garden.

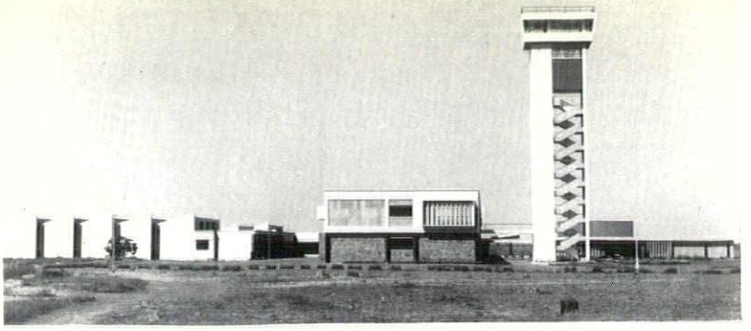
8



9



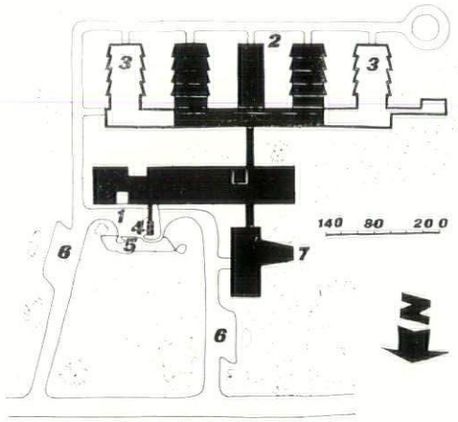
INDIA



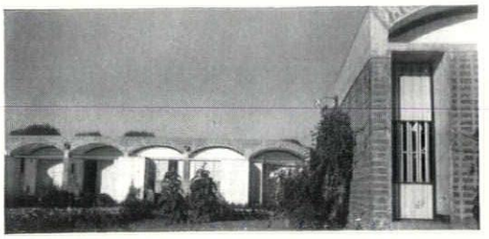
10

key
1. entrance to main block.
2. technological block.
3. future extensions.
4. tower.
5. cooling pond.
6. car park.
7. auditorium.

10 *(far right), Central Electronics Research Institute, Pilani, Rajasthan province (architects, Kanvinde and Rai): one of a chain of national research laboratories. The buildings, on a flat site, are in three groups—see plan on right: the main group, housing the quieter activities (centre of photograph), including offices, research laboratories, museum and library; a lecture theatre and cafeteria group (on the right behind the tower), and a technological group containing workshops, etc. (on the left). The tower, which is linked to the main buildings by a bridge, is for cosmic ray research. The structure is a reinforced concrete frame with brick infill walls, faced with stone on the main buildings which also have a system of vertical adjustable asbestos louvres for sun-protection.*



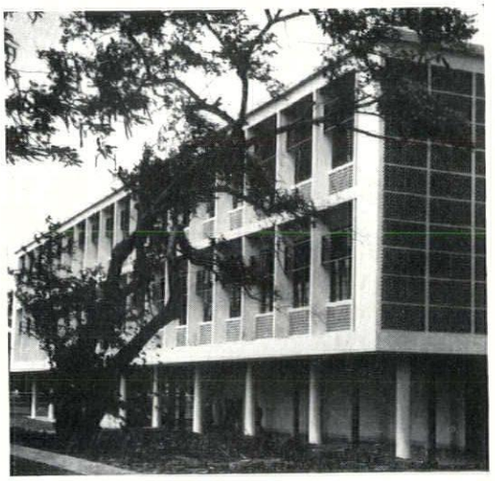
site plan, Central Electroni: Research Institute, Pilani.



11

11 *(above), staff houses for the Physical Research Laboratory, Ahmedabad (architects, Vastu-Shilpa; partner in charge, Balkrishna V. Doshi): one of a series of dwelling types evolved for research organizations. Construction is wholly brick, including the vaulted roofs. Windows are unglazed, and have either wooden shutters or metal louvres. The 4in. slit under the vault has only flywire.*

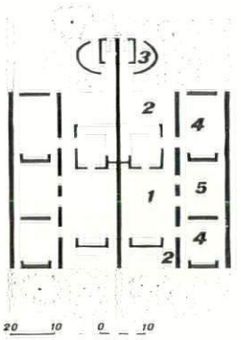
PAKISTAN



12

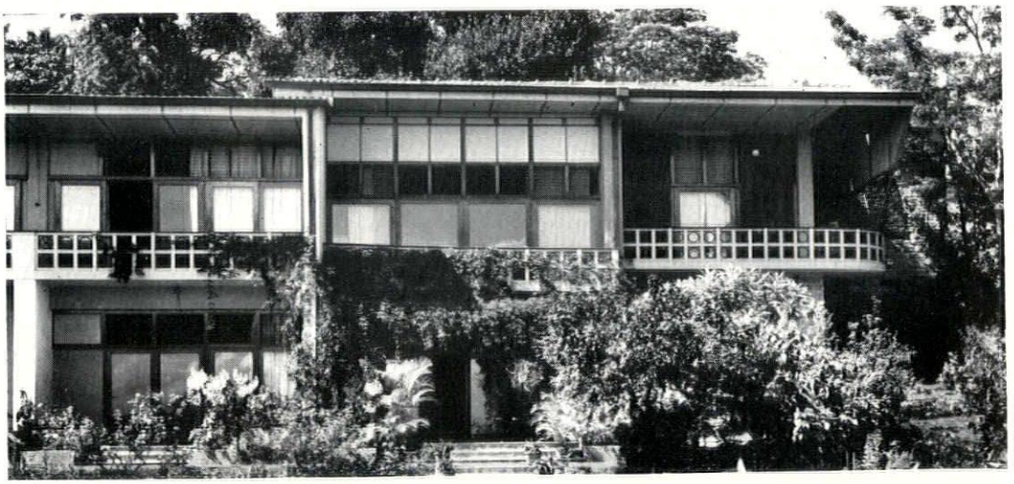
12, *public library, Dacca (architect, Muzharul Islam). It is of reinforced concrete construction and the reading-room wing on the far side has a vaulted roof of shell concrete. Also in Dacca (capital of East Pakistan) is a Government institute of arts by the same architect.*

key
1. living room.
2. verandahs.
3. lavatory.
4. bedrooms.
5. courtyard.



plan, staff houses at Ahmedabad.

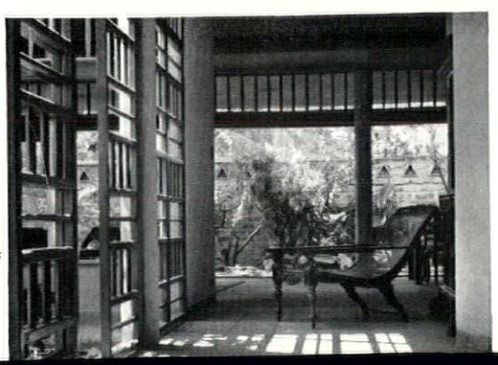
CEYLON



13

13, *house at Kandy (architect, Minnette de Silva). The photograph shows the garden front. The different sections of the house change level to follow the slope of the ground. Construction is reinforced concrete and timber.*

14 *and* 15, *house at Colombo (architect, Minnette de Silva): a reinforced concrete structure planned round a garden court.* 14, *looking from the entrance through the living-room into the garden. On the left is a wooden trellis between living-room and courtyard.* 15, *shows the car-port beneath the overhanging first floor, with the courtyard to the left. The triangular vents in the gable are traditional in shape and also serve as niches for oil-lamps during festivals.*

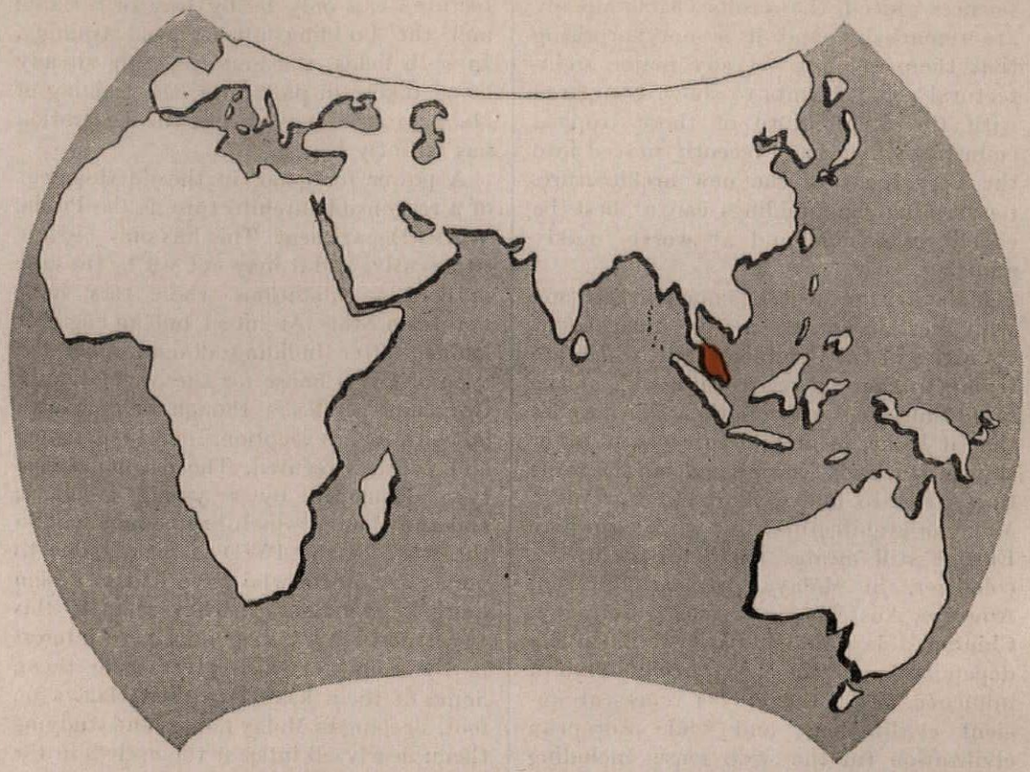


14



15

Julius Posener



MALAYA

The Federation of Malayan States occupies that thin limb which the Asian continent throws out in a south-easterly direction, very nearly touching the Equator, known geographically as the Malacca Peninsula. It is virtually an island, the smallest of the Sunda Archipelago isles which include Sumatra and Borneo. Architecturally it possesses but thin local traditions and, consequently, few viable local prototypes of buildings. At the same time, it lies across the main road of world trade and is, therefore, immeasurably more advanced and Westernized than its neighbours.

Half the present population consists of recent immigrants: Chinese, Indians, Europeans. Of these, the Chinese form by far the largest, and also the most conspicuous, element. The other half, though having a much older birthright in the peninsula, is likewise not indigenous, for the Malays, too, are immigrants. The truly native element is represented by the remnants of tribal population living in the hills of the less Westernized among the Malayan states. As a subject for study, in particular for their ways of living in houses and building them, they are full of interest; as a community in the Federation they are practically without influence.

A near-island, then, and a new country. Its population of over five million—rapidly increasing—is living on the still flourishing industries of tin-mining and rubber-growing. It has recently achieved independence, as a federal monarchy, remaining in the Commonwealth, and is very much a country on the move. Kuala Lumpur, the capital, at present a city of about 450,000 inhabitants, is expected to pass the million mark within the next twenty-five years. Its face is changing almost monthly. It has the outcrop of miniature skyscrapers which is so typical of up-and-coming places—with the traffic problems following in their wake. It has many cinemas, some of them very smart indeed. You can hear concerts and plays there; it has its Radio Malaya; it has libraries, high schools; even a division of the University of Malaya is moving up from Singapore. Recently a grand, indeed a grandiloquent, avenue has been completed which was meant to lead to the 'diplomatic enclave,' a piece of high ground in the rubber hills west of the town where every embassy was supposed to build its seat. This may never happen; but something is bound to happen on those newly developed sites. There is no lack of movement, if it is not always in the best direction.

This optimism is based upon one thing mainly: the talent and enthusiasm to be found in both the large communities—Malay and Chinese. If one remembers that architecture, as the West understands it

at present, town-planning and housing are all in Malaya very new crafts and sciences indeed, the results visible already are remarkable and it is not surprising that there are not yet any major architectural achievements to show. Compared with the architecture of those tropical countries which have recently moved into the very focus of the new architecture, recent Malayan buildings can at best be called responsible and at worst frankly amusing.

Malaya, at present, has much in common with certain other newly independent countries in the Commonwealth which are trying to shape a progressive and, at the same time, distinctive nation. This implies that it looks, in architecture—as in other things—towards Europe and, at the same time, tries to find a short cut towards a Malayan architecture. But while elsewhere Europe still means, mainly, Britain, the colonizer, in Malaya it means Britain, America, Australia and recently Germany. Chinese Malays and Indians are much less dependant upon the one source of Western influence. They themselves represent ancient civilizations; and while European civilization (in the wide sense, including oversea Europeanized countries) seems as inevitable here as it would seem to be elsewhere, Chinese and Malays do exercise a choice. They have been meeting Europeans on equal terms since long before Independence, they have been mixing socially, they have been working together in business, in administration, in schools; and there, also, on equal terms.

This greater maturity brings with it its own problems. At present, every foreign plant is being put into the architectural soil of the Federation: and it grows! Nobody can say that the designs made by the many young Chinese architects trained oversea—mostly in Melbourne—are less foreign than the designs of the British architects still guiding the building effort of the Public Works Department, many of the larger municipalities and such public utility bodies as the Central Electricity Board. It may seem paradoxical but it is largely true that the local British architect cares more about a tropical architecture—and certainly no less about a 'Malayan' one—than his Asian colleague. He is also the one who most vigorously campaigns for the use of the local building material, timber, and who devotes a loving interest to the study of traditional Malay and tribal houses. The situation, at times, recalls that ancient cartoon where Serenissimus, visiting a village in his principality, is shown in local garb while the village notables receive him dressed in their towny best.

All recognize, however, that the way towards a suitable tropical architecture for this country—which, in time, may or may not develop into a Malayan architecture—can only be by way of research and the building up of local training. In both fields, the first steps are already being taken; in particular, the training of Malayan architects within the Federation has recently begun.

A power for good, in the development of a responsible architecture, is the Public Works Department. This has only become so recently, and it may not yet be the case in certain outstations where they have not yet a State Architect but an engineer looking after building design. Also, the type of PWD house for the occupation of Government officers, though well planned, is, with one exception, poorly designed and poorly executed. The exception is a type developed by a young architect; and the change which has come about in the work of the PWD is mainly due to young architects who have had to design quite large buildings. They react to this opportunity by taking an active interest in the country which gives it to them. Some of them have traversed Malaya on foot, sleeping in Malay houses and studying them; nearly all interest themselves in the training of architects locally and one, Norman Lehey, has given up his post in PWD to take up full-time teaching at the Technical College.

But their most significant contribution of PWD to the hoped-for future architecture of Malaya is found in its work, some of which is shown on the following pages. Its design may be 'international' or 'European'—it is difficult to see how it could be anything else—but it is sober, restrained and thoughtful. The buildings are, on the whole, well planned and (which is possibly even more important) well detailed; last, but not least, it shows a tendency towards a correct tropical—if not actually a Malayan—way of building. Among practising local architects, there are also some who are moving in the same direction, but the conditions prevailing in a large public office which is its own client are more favourable to experiment.

Another organization with a large and enterprising programme is the Housing Trust, which was established in 1950 and is now working under the Ministry of the Interior. The gigantic nature of the task it has to tackle is indicated by the following extract from a statement issued by the Trust last November:

'From the 1957 census it is found that there are approximately 70,000 families living in squatter huts in urban areas, that a further 45,000 families are living as sub-tenants, mostly in one room, and that in order to house the annual increase in the population, which amounts to 3 per cent, a further 25,000 houses will be needed every year. This means that at least 120,000 houses are needed now to provide homes for badly housed families, in addition to the 25,000 required each year. Although these figures may not seem large to Western eyes, it should be remembered that the total of households in the Federation is 1,258,561.'

The figures are, indeed, desperately large and out of all proportion to funds available. The Housing Trust has mainly, since 1953 when its full staff was appointed, built low-cost houses for re-sale in outlying parts of towns and in the 'new town' of Petaling Jaya. More recently, after the fire of 1956, it has built, jointly with the municipality, two major housing schemes, including flats and shops, in the heart of Kuala Lumpur; more recently still, it is developing minimum types of houses and, in conjunction with the Forestry Department of the Government, it is designing timber houses which can be mainly built by the purchaser himself, and helping the purchaser to acquire them.

Finally, something must be said about one-family private houses, because these are the playground of Malaya's young architecture. Kuala Lumpur, which is marvellously situated at the foot of the central chain of hills—a kind of Malayan Apennines rising to over 6,500 feet, densely covered with jungle—is surrounded by lower hills, and these are now being covered with the new garden suburbs. The most popular is Kenny Hill, overlooking the high chains and their rocky cave-riddled forehills. The houses here and in similar places are often amusing, endearing even, and brimming with the newest and the best from everywhere.

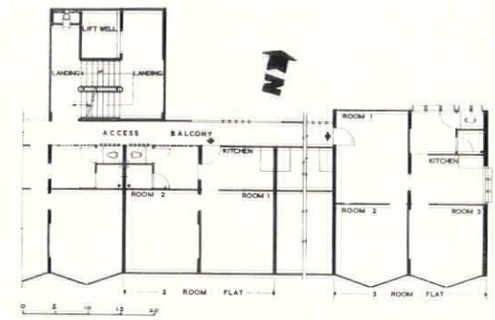
Some of their architects are not fully qualified but shelter behind the signature of a qualified friend; others are by qualified architects, mostly with Australian degrees, the majority Chinese. These architects are full of zest, ready at any moment to fire all their guns at once; and they are not necessarily their own guns either: butterfly roofs or other roofing oddities, V-shaped supports, all sorts of concrete grilles, louvres, fins, eccentric canopies, framed windows deeply boxed out, etc. Every house must show as many building materials as is feasible: rubble, brick and, recently, timber; also ornamental grilles, and, should any surface remain unadorned, abstract murals. Often, however, the houses are very well planned, including nearly always a double-height living space with rooms leading off at different levels. One architect proudly proclaimed that his house, on a steep slope—they are nearly all slope-houses—has seven levels. The designers say that every hooded window, ornamental concrete grille and broken-up roof has been designed 'to suit the climate,'

[*continued on page 65*

MALAYA

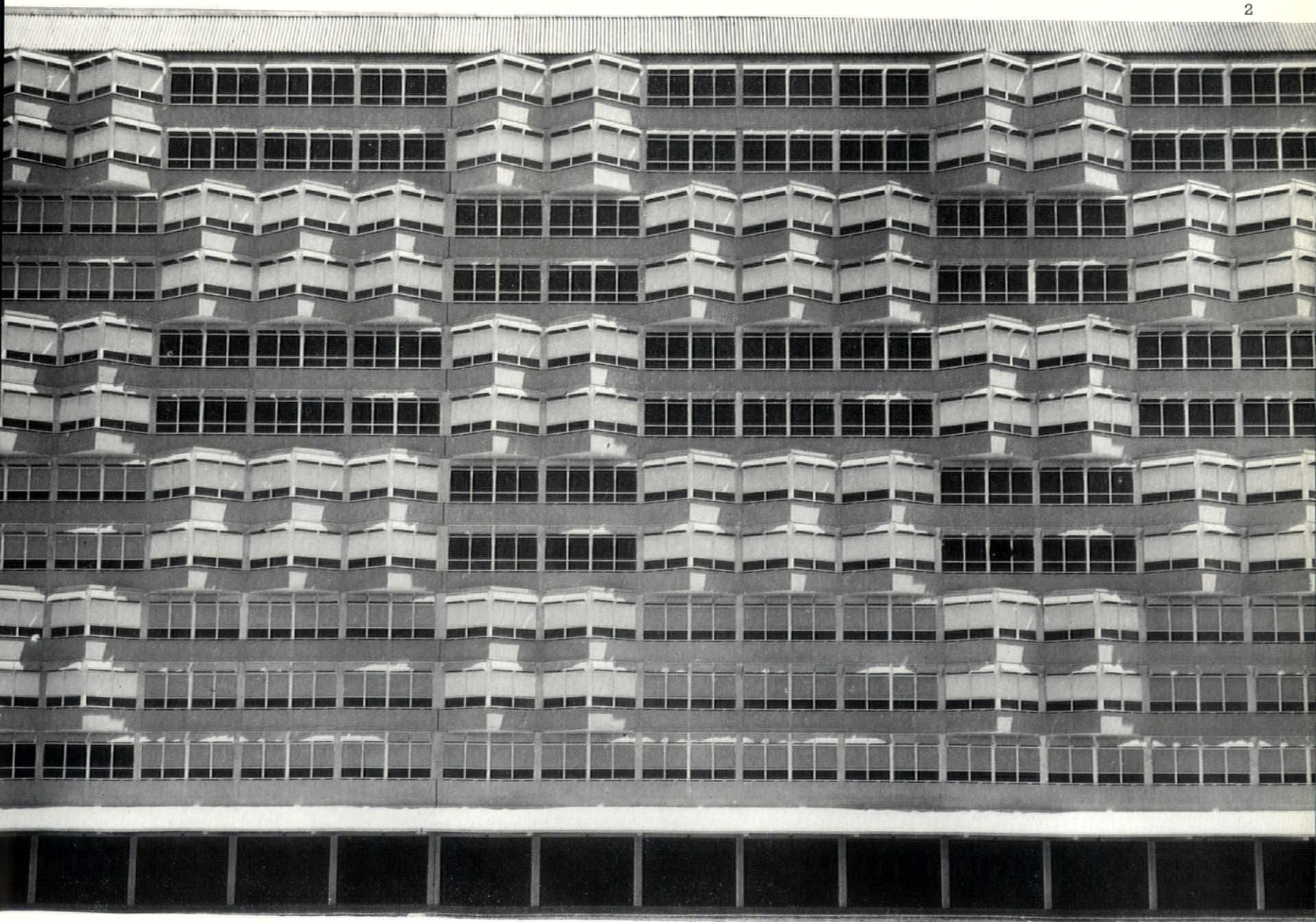
1 *and* 2, *flats at Kuala Lumpur (architect, R. H. H. Davis, chief architect, Federation of Malaya Housing Trust): part of a large housing scheme for really poor people—see plan on right. There are* 280 *flats in all. The twelve-storey block illustrated is one of two separated by a courtyard. The access balconies face inwards, so that the flats themselves face north in one block and south in the other—almost identical aspects only three degrees north of the equator. Construction is a reinforced concrete box-frame with cantilevered galleries. The external façades are enlivened (see* 2, *below) by projecting groups of two or three windows as triangular bays. The windows are shuttered, with a hooded top section for permanent ventilation. Groups of the shutters are painted in different colours: yellow, grey, white and olive green, and the walls behind the access galleries on the other side in dark red. These can be seen in the background of* 1, *the view approaching Kuala Lumpur down Batu Road.*

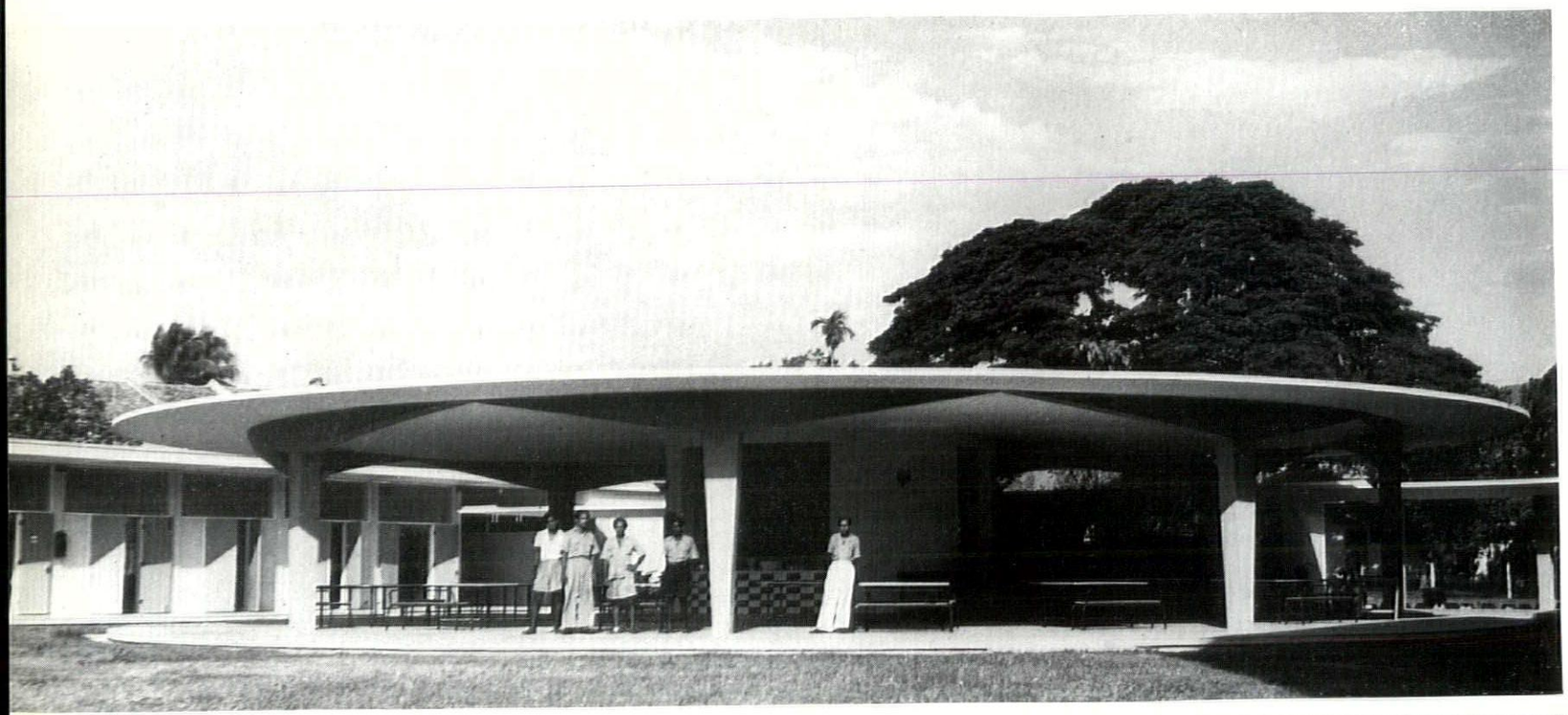
1



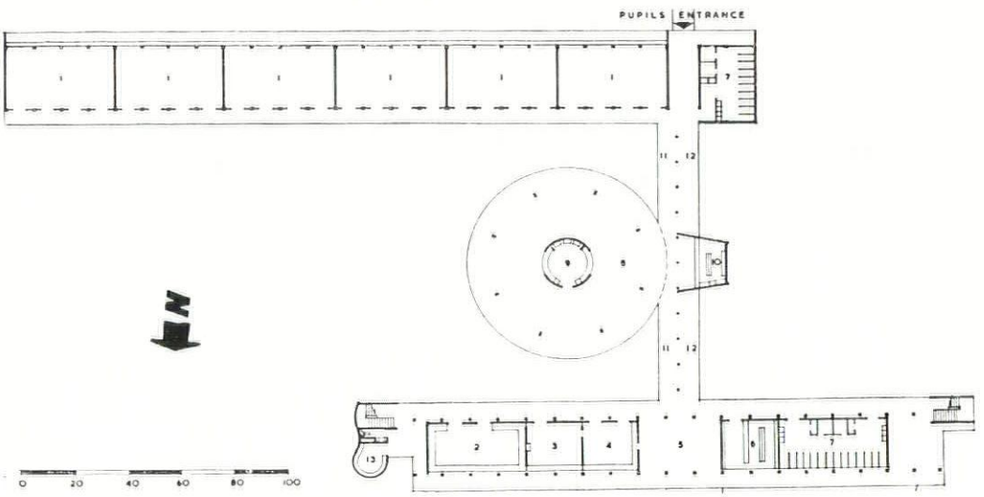
plan of typical flats.

2



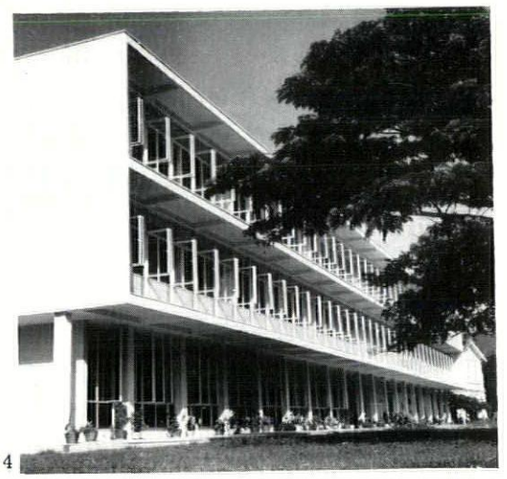


3



key

1. classrooms.	8. canteen.
2. staffroom.	9. kitchen.
3. principal.	10. tuckshop.
4. clerks.	11. covered way.
5. foyer.	12. bicycle shed.
6. bookshop.	13. store.
7. lavatory.	14. car park.



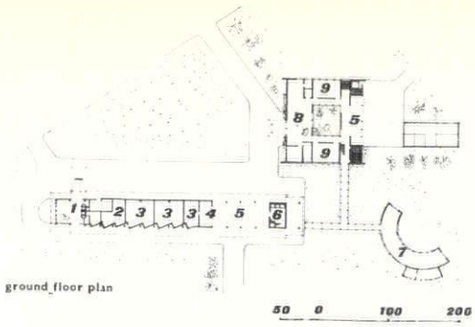
4

3 and 4, girls' school, Penang (architect, W. I. Shipley, Public Works Department, Penang). It consists of a three-storey classroom block with staffrooms on the ground floor, 4, a single-storey classroom block and a circular canteen and tuckshop, 3 above—see plan on left. The buildings are connected by covered ways and are of reinforced concrete. Windows are metal, with coloured glass panels below, backed by built-in furniture.



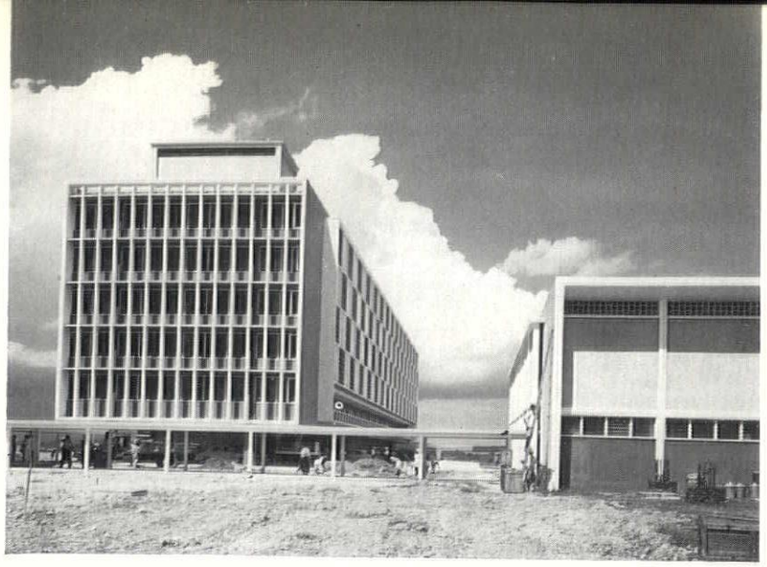
5

5, police-station and district headquarters, Balik Pulau (architect, W. I. Shipley, Public Works Department, Penang): a group comprising a two-storey building (shown in photograph) containing police-station, cells and offices, and single-storey canteen and recreation block, garage block and fire station. The two-storey block is reinforced concrete with window panels of yellow enamelled sheet metal.



key
1, office entrance.
2, air-conditioning plant.
3, air-conditioning stores.
4, post office.
5, car port.
6, secondary entrance.
7, canteen.
8, laboratory block entrance and offices.
9, laboratories.

6, *government offices at Petaling Jaya, the site of a new satellite town planned near Kuala Lumpur (architect, P. S. Merer, succeeded by Howard Ashley, Public Works Department). The main building—a six-storey block—runs north and south. Linked to it by a covered way are a square two-storey chemical research building and a canteen—see plan above. The office block is of reinforced concrete with a 12ft. cantilever on the long sides. These have continuous windows protected by a concrete grille 18in. in front. The short sides have vertical concrete fins to protect the staircase and lavatory windows. The walls are grey mosaic and the window panels red. The building is air-conditioned.*

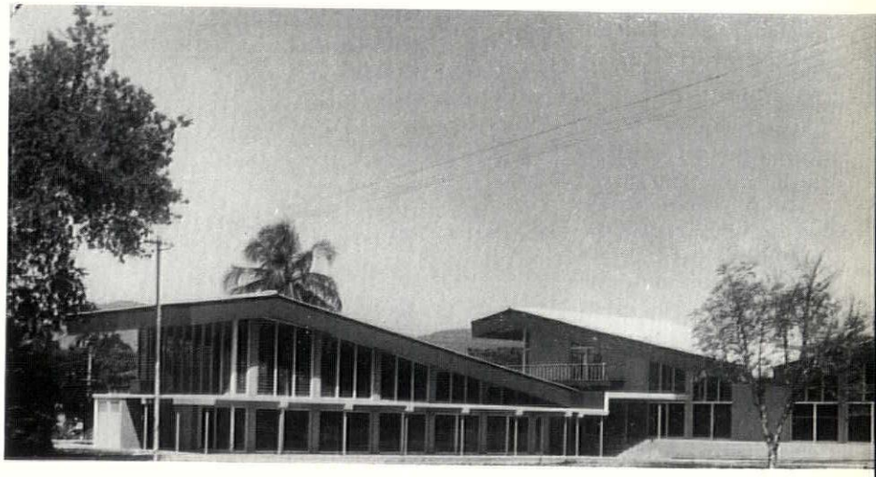


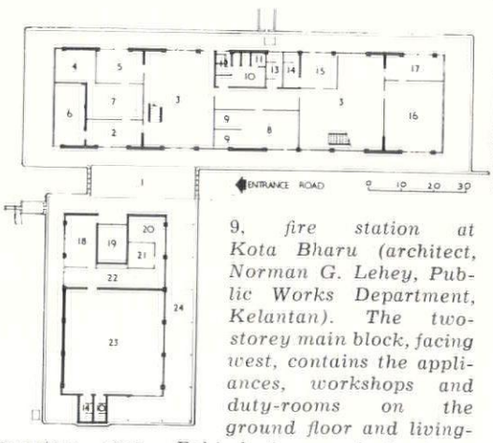
7, *terminal building, Kuala Lumpur Airport (architect, P. S. Merer, Public Works Department). Concourse, restaurant, passenger controls and customs are on the ground floor, with offices and a viewing lounge above. At the west end (on the left of the photograph) is another single-storey lounge. The control tower was originally intended to be above the main staircase (right of photograph). The windows are protected by vertical aluminium fins inserted between the members of a continuous concrete frame. The staircase has a blue ceramic grille.*



8, *offices and courthouse at Ipoh, for the Department of Religious Affairs and Malay Custom (architect, P. G. Morley, Public Works Department, Perak)—see plan below. The office building (right of photograph) has a mezzanine floor at either end of a V-shaped roof which slopes inwards to a reinforced concrete gutter wide enough for a cleaner to walk along it. Both buildings have reinforced concrete portal frames of diminishing height; the lower parts of the walls are composed of glazed steel doors pivoted top and bottom, and the upper part of wooden frames with fixed glass louvres for permanent ventilation.*

key
1, porch.
2, foyer.
3, general office.
4, mufti and katib.
5, super kathis.
6, canteen.
7, library.
8, missionary.
9, fund section.
10, men's lavatory.
11, store.
12, bath.
13, president's lavatory.
14, women's lavatory.
15, female clerks.
16, president.
17, secretary.
18, appeal committee.
19, witnesses.
20, 21, offices.
22, clerk and registrar.
23, appeal court.
24, covered way.

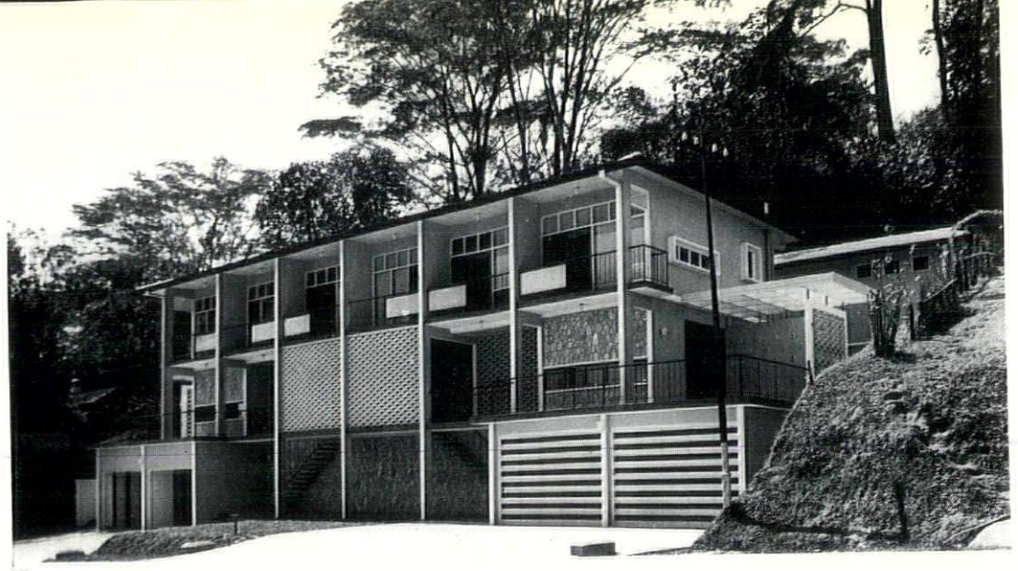




9, *fire station at Kota Bharu (architect, Norman G. Lehey, Public Works Department, Kelantan). The two-storey main block, facing west, contains the appliances, workshops and duty-rooms on the ground floor and living-quarters over. Behind is a single-storey instruction and office wing, enclosing a parade and training ground. The living quarters are screened by vertical precast concrete fins, with reinforced concrete beams top and bottom.*



10, *pair of houses, Kuala Lumpur (architect, P. S. Merer of Booty, Edwards and Partners). These are staff houses for the Mercantile Bank. They are entered from a terrace at first-floor level, the ground floor being occupied by garages and existing only at the front owing to the steeply sloping site. The verandah which covers the whole façade is closed in in the centre by a concrete grille to form a porch and is sub-divided vertically to give privacy to the second-floor balconies.*



10



11

11 *(above), arts building, University of Malaya, Kuala Lumpur—the main body of the university being at Singapore (architect, Bill Cheng of Palmer and Turner). The main four-storey block with open ground floor has three lecture-halls behind (on the right in the photograph) linked by covered ways. Concrete grilles protect the windows from the sun.*



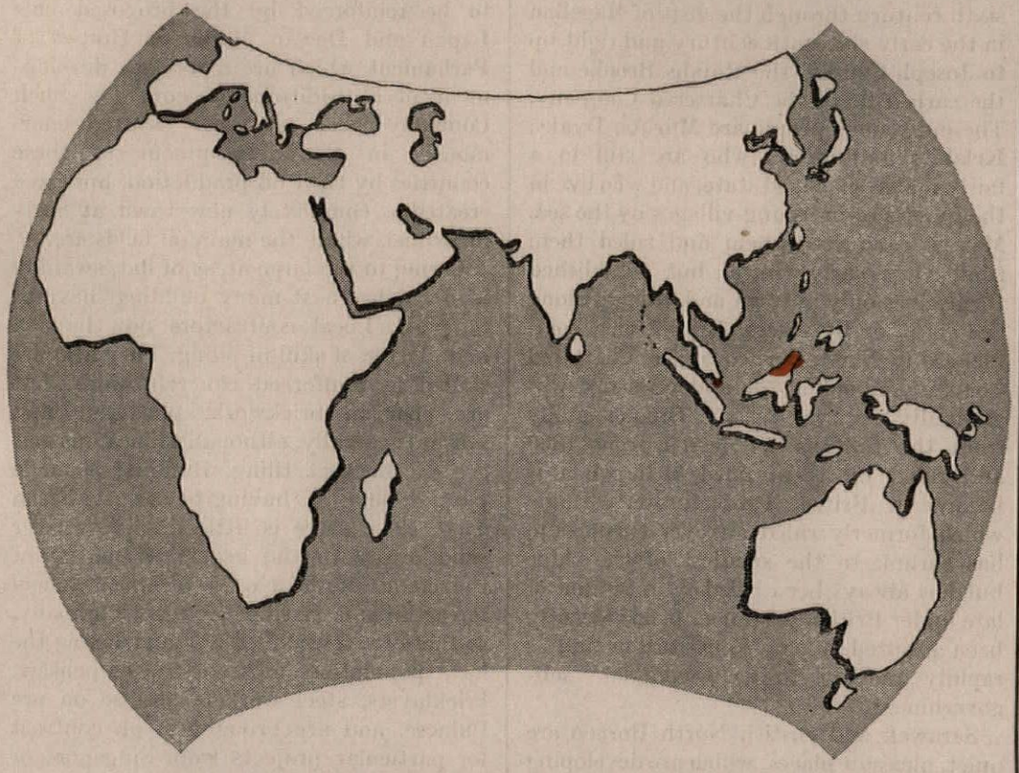
12

12, *bank and offices, Kuala Lumpur (architect, P. S. Merer of Booty, Edwards and Partners): a temporary building to serve between the demolition of the old premises of the Mercantile Bank and the erection of a new larger building by the same architects. It occupies an awkward triangular corner site in Mountbatten Road, in the business centre. The office floors are reached by a circular staircase from the ground-floor bank. The building is concrete framed with exposed diagrid floor-slabs and fixed vertical fins to protect the office windows. It is air-conditioned.*

continued from page 60]
the owners believe it and call their house cool—which quite often it is on these windswept slopes—and it would be unfair not to admit that those features, before they became mere decoration, had meaning as protection against sun and glare; and this includes strong colours which are always agreeable here.

However, the predominance of such designs has been challenged in recent years, and all sorts of houses are now going up, from the gaily vulgar to 'architects' austere,' with the majority finding themselves a shelf somewhere between those extremes. Even more promising, there begin to appear among those houses more and more whose designers seem to have given thought to the climate and to deal with it in a less haphazard way.

Lincoln Page



SINGAPORE

Any assessment of recent architecture in Singapore must be made against the background of a fine traditional Palladian idiom, originating in England and exported to India by the East India Company and thence to Singapore when that colony was founded in 1819. The military engineer-officers and architects of the British Army in India, often using pattern books of the classical orders, were quick to see how adaptable the Doric and Tuscan orders were to tropical use. So was evolved what might be called the colonial classic style, with its dignified white façades, buildings one room deep for free air movement, its wide verandahs and footways behind the colonnades, giving shade and protection to the inner walls and sensible louvred openings and hooded windows.

This splendid tradition deserves emphasis because the local understanding of climate upon which it was based has since been lost sight of. Present work shows a good deal of insincerity in design, and while the new tropical architecture of the central Americas and other low latitude territories is entering a brilliant and vital phase, the architects of Singapore seem not to have comprehended the fundamentals of the new approach and have been content to apply the outward forms and elements of the modern movement indiscriminately to their work. We see irritating architectural mannerisms repeatedly used, together with such structural forms as the hyperbolic paraboloid simply because the architect felt he was being 'modern' in using them. There is no recognizable evolution from the past of a contemporary local style. In fact, a sharp break has been made with the past, which is perhaps understandable in a place where influences from East and West converge. Singapore is an entrepôt city through which is channelled the materials and ideas of the world and it is not surprising that the superficialities of an international style should be seized on by this rapidly expanding and cosmopolitan city as an expression of its ambitions.

New European and American materials are everywhere in evidence. The ease with which they are obtained has resulted in the use of all the standard building elements manufactured in those countries so that the office block recently completed on Collyer Quay, Singapore, for instance, would not look out of place in London or New York. The traditional materials were local bricks laid and plastered in lime and sand and roofs covered with palm thatch or locally made Chinese tiles, which gave great character to the building. The latter, unfortunately, have given way to the Marseille pattern tile. Bricks and cement blocks are manufactured in Singapore, cement and steel being imported. Excellent timber from Malaya is available and Chinese labour is capable of a high standard of workmanship.

Life in low latitude territories where the climate is hot and humid is only tolerable when buildings are designed to keep people cool. That is why the early buildings were so successful. In Singapore there is considerable thermal discomfort. Winds which are light and variable cannot be counted on to keep one cool. Air temperatures of 84 deg., with a relative humidity of 85 per cent., are of common occurrence. Design considerations should, therefore, provide for free air movement to prevent the inside temperature rising above the shade temperature. This process is defeated if the air is allowed to move across hot surfaces like the tops of concrete roofs and areas of paving, thereby heating it up before it enters the building. Large openings are needed to give the greatest benefit on those days when there is only a slight breeze. Buildings should be orientated to take advantage of the prevailing winds and to minimize the effect of the sun, which is most intense on the east and west. It is desirable to expose as little wall surface as possible to these points of the compass and to protect exposed walls by shading and projections. All openings must have protection from the sun, glare and driving rain in the form of canopies, verandahs and various kinds of louvred sun-breaker. The latter offer some degree of protection at the same time as admitting air. Permanent openings are necessary at ceiling and floor level and the roof space should be well ventilated and insulated. All surfaces should be light

in colour to reduce the transmission of heat into the building.

These are stringent requirements, and the success of the designs have depended on the degree to which the architect has satisfied them. Unfortunately, they are often neglected or, if considered, misapplied. The sun-breaker, for instance, is used in a clumsy and unscientific way—the device is not fully understood. From the point of view of the people who have to live and work in these buildings, there is much cause for complaint. Large areas of glass are exposed to the sun, thereby intensifying heat and glare and subsequent steps have to be taken to combat this with blinds, hoods, fans, air-conditioning and other means. The need to allow for maximum air movement is overlooked, as can be seen by the absence of permanent ventilation at ceiling and floor level and by the use of fenestration copied from European examples and therefore unsuitable for the tropics.

There are, however, a few recent examples of work that redeem this sombre picture, and do show that there is some basic thinking about the fundamentals of good architecture, but there is little evidence of real understanding of the exciting trends elsewhere. The poverty of design cannot be for want of stimulus from nature. What more could an architect demand as a setting for his buildings than the brilliant sunshine giving heavy, luminous shadows and the bright colours and lush, green vegetation? Those public authorities that are engaged in building, such as the Singapore Improvement Trust, the Public Works Department and the Services have a great opportunity and responsibility to further the interests of good architecture because they carry out such a large proportion of the total work. In the field of private work, more and more will be executed by Asian architects who have been trained in the traditions of the West. There are outstanding exceptions, but generally their approach is naïve. There is no reason, however, why they should not in due course bring the freshness to their solutions that can be seen in Japan to-day.

To bring about an improvement in the standard of design, architectural education of a liberal kind will have to be instituted as a first step. Some progress in this direction had already been made, but the new self-governing state has suppressed this to the detriment of architectural progress. It is to be hoped that the folly of this step will soon be realized. Ultimately, it is the integrity and vision of the architect and his response to the conditions for which he is designing which will enable modern Singapore architecture to bring about a significant contribution to the contemporary scene.

Peter Morley

BRUNEI, SARAWAK AND NORTH BORNEO

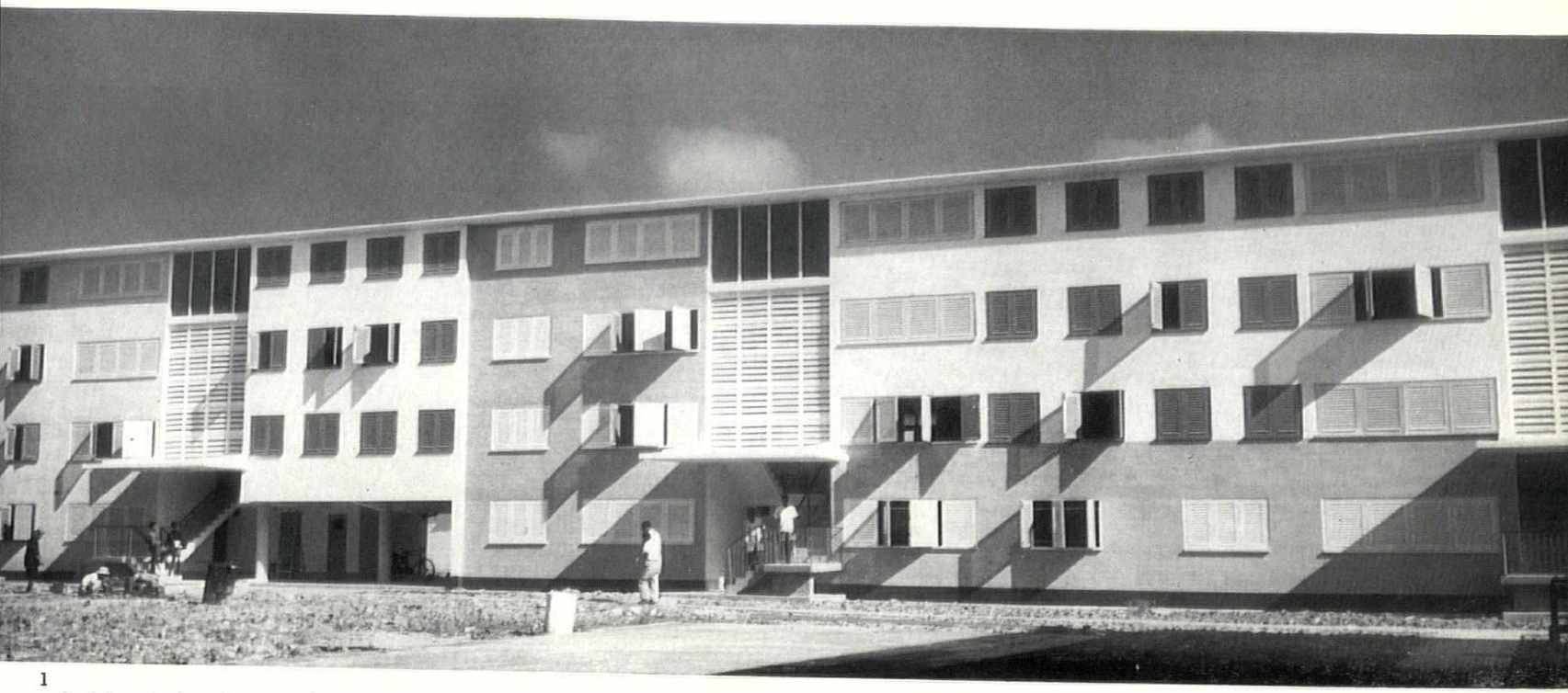
These three territories have an ancient history of trading in spices, camphor and gold, of conquest by Malay sultans, of piracy and general adventure ranging from visits by Chinese merchants in the sixth century through the visit of Magellan in the early sixteenth century and right up to Joseph Conrad, the Rajahs Brooke and the early rule of the Chartered Company. The indigenous people are Muruts, Dyaks, Kelabits and others who are still in a fairly underdeveloped state, and who live in the jungles or in fishing-villages by the sea. Malays conquered them and ruled them from very early times, but established themselves only in town and villages along the coast or by rivers. British rule commenced in North Borneo by the Chartered Company about 1870, and Sarawak was gradually acquired by the Brooke family from the Sultans of Brunei from 1839 and ruled by them until 1946 when it became a British Protectorate. Brunei, which formerly ruled all over this group, has shrunk to the smallest of the three but has always been ruled by a Sultan, of late under British guidance. It has recently been granted a new Constitution and is rapidly moving towards complete self-government.

Sarawak and British North Borneo are quiet, pleasant places, which are developing slowly on a good stable basis. Towns are growing, industry and agriculture are being developed and there is every reason for the inhabitants to look to a steady and fairly prosperous future. Most of the towns were razed by one side or the other in the last war but have since been rebuilt to unexciting but sensible straightforward plans. The State of Brunei has a totally different post-war history. It too was devastated during the war, but the enormous increase in the production of oil by the Brunei Shell Petroleum Company has led to a very rapid rebuilding of the towns. There has unfortunately been no town-plan, and a great opportunity was lost when a whole town sprang up with many good modern buildings, both private and government, which had little relationship to each other. Large parts of the original river town, consisting of wooden and thatched buildings on stilts, remain however. Many such surround the new mosque, which was one of the first post-war buildings to be started, built to a basically traditional design as required by the Sultan. It provides a focal point in the town (which is built on flat land), a focal point soon to be reinforced by the proposed new Lapau and Dewan Majlis or Houses of Parliament which are a modern development of a traditional design. The Shell Company have not only assisted enormously in the development of these countries by their oil production, but have created a completely new town at Seria in Brunei, where the main oil fields are.

Owing to the large areas of flat, swampy land by the coast many buildings have to be piled. Local contractors now have a high degree of skill in piling. They also are skilled in reinforced concrete work, but are poor in brickwork, plastering and finishes generally, although Chinese masons are excellent at tiling. Building is made more difficult by having to use salt beach sand, since there is little inland or river sand owing to the geological nature of the countries. The only technical school for artisans is run by the Shell Company, so there are few skilled artisans among the local population. Most of the carpenters, bricklayers, steel workers and so on are Chinese, and are brought in on contract for particular projects from Singapore or Hong Kong.

The problems of building in this climate are now well known. Heat and humidity are the main things to overcome and, if it is to be done by natural means, this involves basic one-room-deep buildings with the maximum cross ventilation and the use of ceiling fans. This then raises the problem of wind control, so some form of adjustable louvre is generally used in windows. The advantages of complete air conditioning of buildings are now being recognized and many new projects are being so treated. The additional expense is, of course, generally not great since the cube of the buildings can be reduced. Roofs, pitched or flat, must be insulated and sun and rain must be kept from walls and windows. This is achieved traditionally by overhanging eaves or open verandahs, but a variety of adjustable or fixed brise soleils, screen walls and so on are now also used.

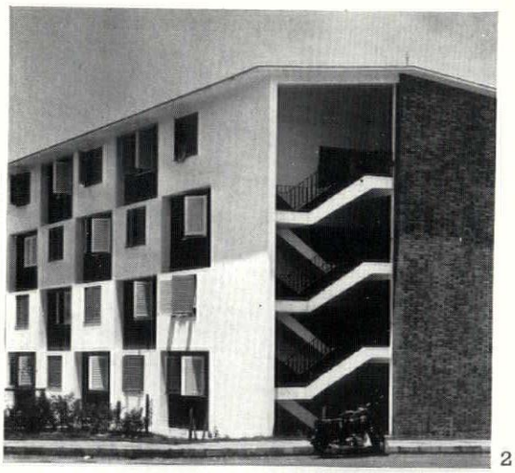
SINGAPORE



1

1 *(above), housing on the Princess Estate, Queenstown (architect, P. R. Davison, Singapore Improvement Trust): planned in four-storey blocks with variety given to the façades by changes in the colour and texture of walls and window-shutters—load-bearing cross-wall construction, using hollow blocks for thermal insulation.*

2 *(right), housing at Queenstown (architect, Lincoln Page, Singapore Improvement Trust): balcony access with semi-enclosed stair at each end. The recessed panels on the façade (which are coloured deep blue) arise from the variation in room-depth required by bathrooms and kitchens. These are opposite handed on alternate floors to give the chequer effect.*



2

4 *(below), flats for senior Government officers (architect, M. J. Cotton, Public Works Department). They have either two or three bedrooms, with lift and staircase access. The open part of the ground floor provides a children's covered play-space. Construction is reinforced concrete.*



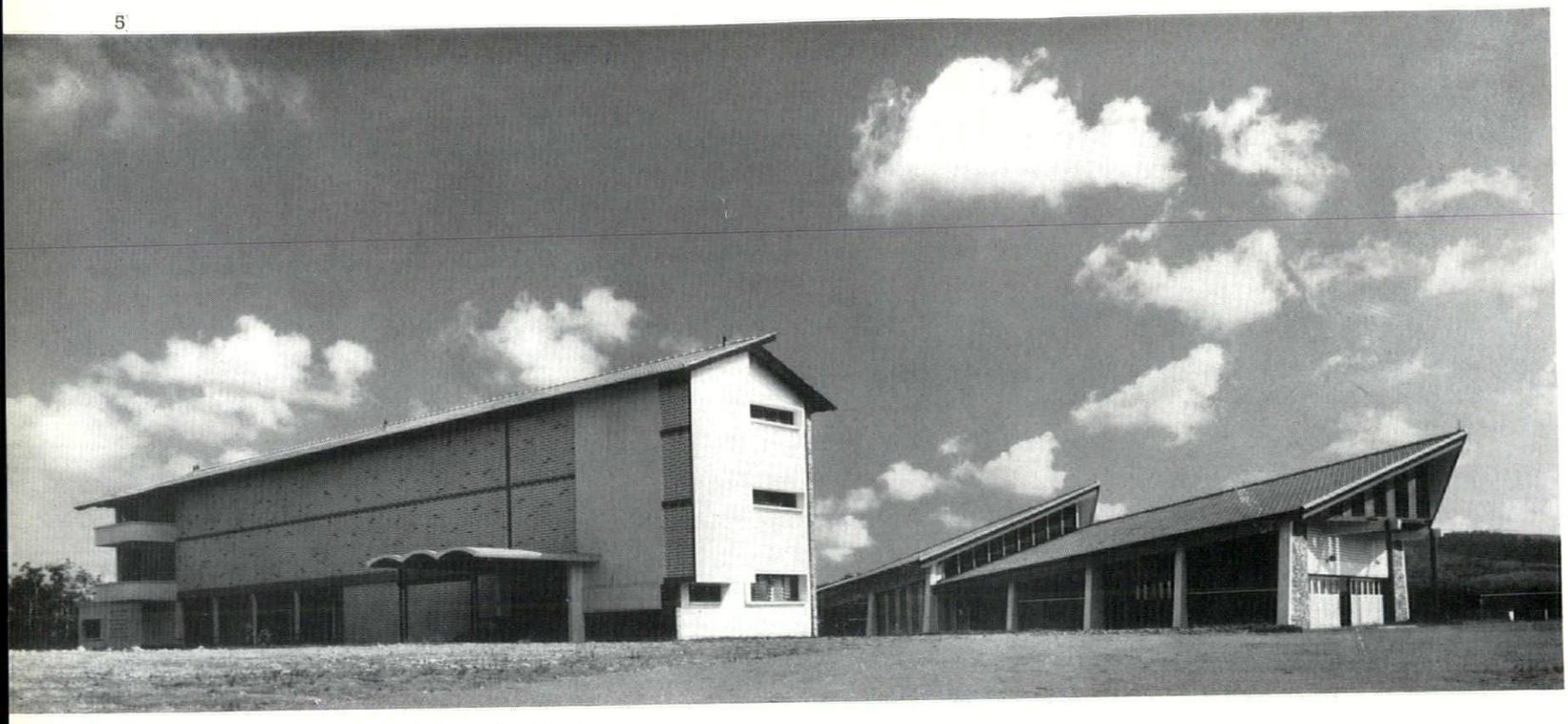
3

3 *(above), housing at Tiong Bahru (architect, Lincoln Page, Singapore Improvement Trust). There are six flats to each stair and shops on the ground floor. Construction is a reinforced concrete frame with cement block infill walls, rendered brick-red on the main façade with surrounds in white.*

4

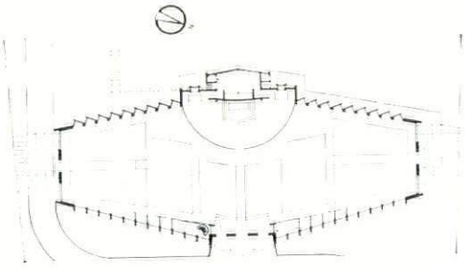


5

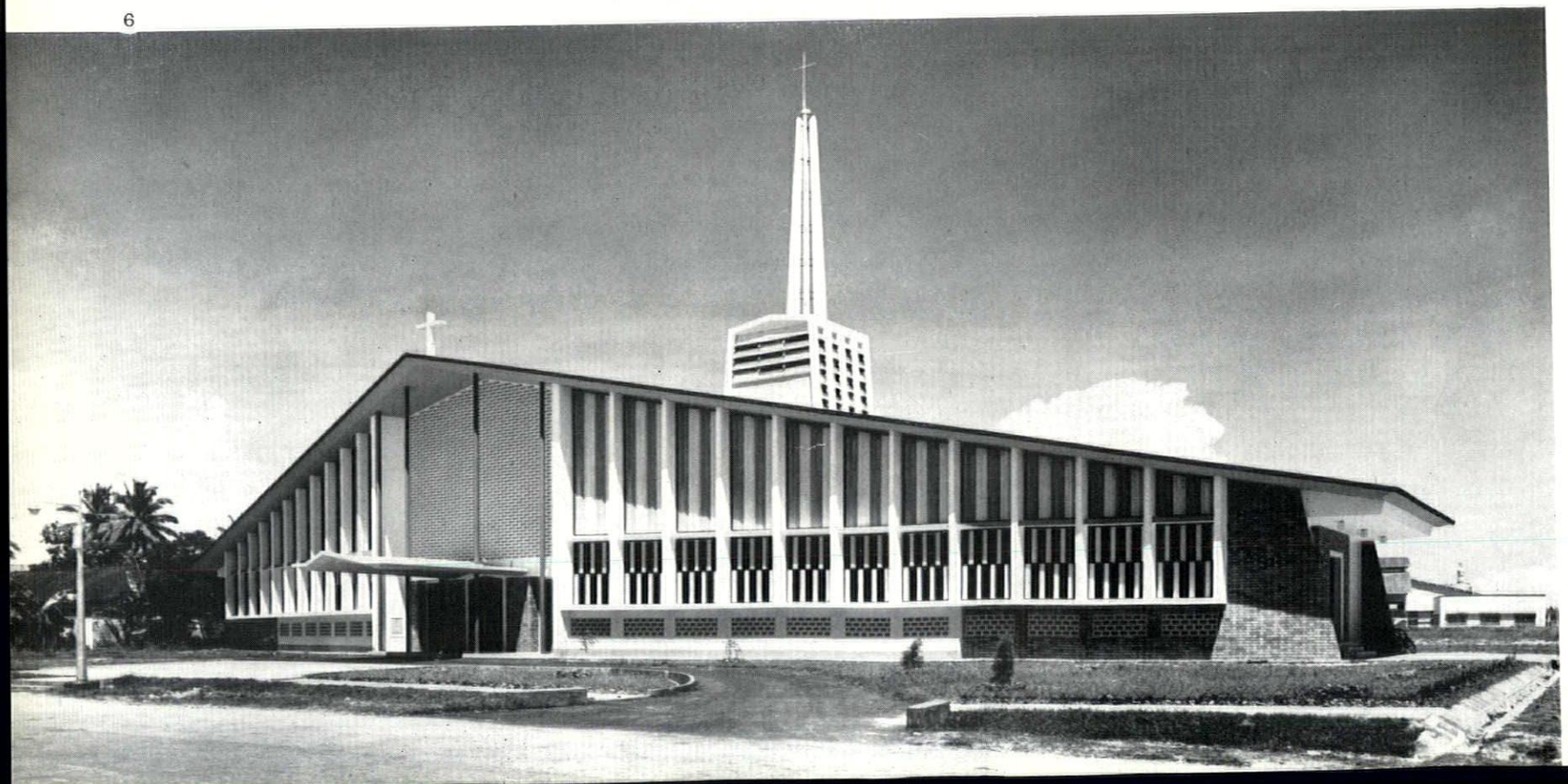


5 *(above), St. Anthony's Friary (architect, Alfred Wong): for the Franciscan Fathers. The site is about* 15 *miles from Singapore city with wide views of the surrounding countryside. The main building (on left of photograph) has the refectory, workroom and reception-rooms on the ground floor and fourteen bedrooms above. It is connected by a covered way to the chapel (right in photograph), which has roofs at two levels, forming a clerestory that admits light to the altar. Construction is reinforced concrete with tiled timber roofs.*

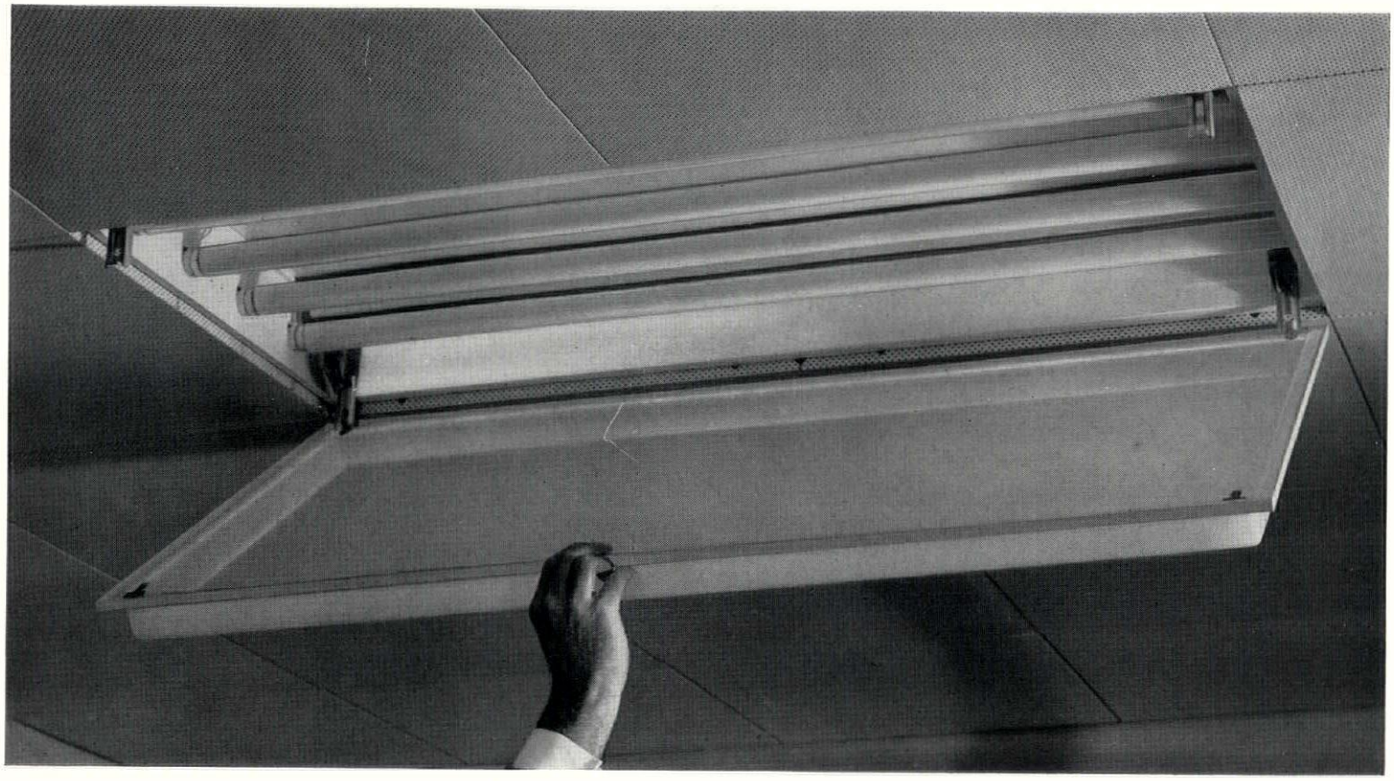
6 *(below), Roman Catholic church (architect, Alfred Wong)—dedicated to St. Bernadette. It seats* 1,200 *and has reinforced concrete columns and steel beams, exposed internally, supporting a light steel deck roof. There is a choir balcony over the main entrance. Bells are housed in the small tower below the flèche—plan on right.*



6



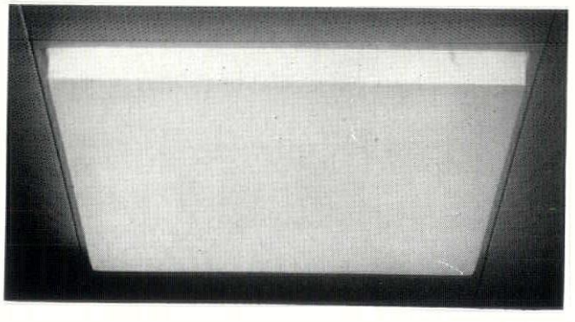
ALLOM
HEFFER
AND COMPANY LIMITED



The recessed fittings illustrated are made in various sizes and incorporate a completely new method of securing simple maintenance by means of the Allom Heffer patent locking device (Patent Application No. 32933/59) which provides:

- A positive method of opening and shutting on a pull-push principle.
- Hinging on either side of the fitting when fully clear of the ceiling.
- Complete detachment of the diffuser when required.

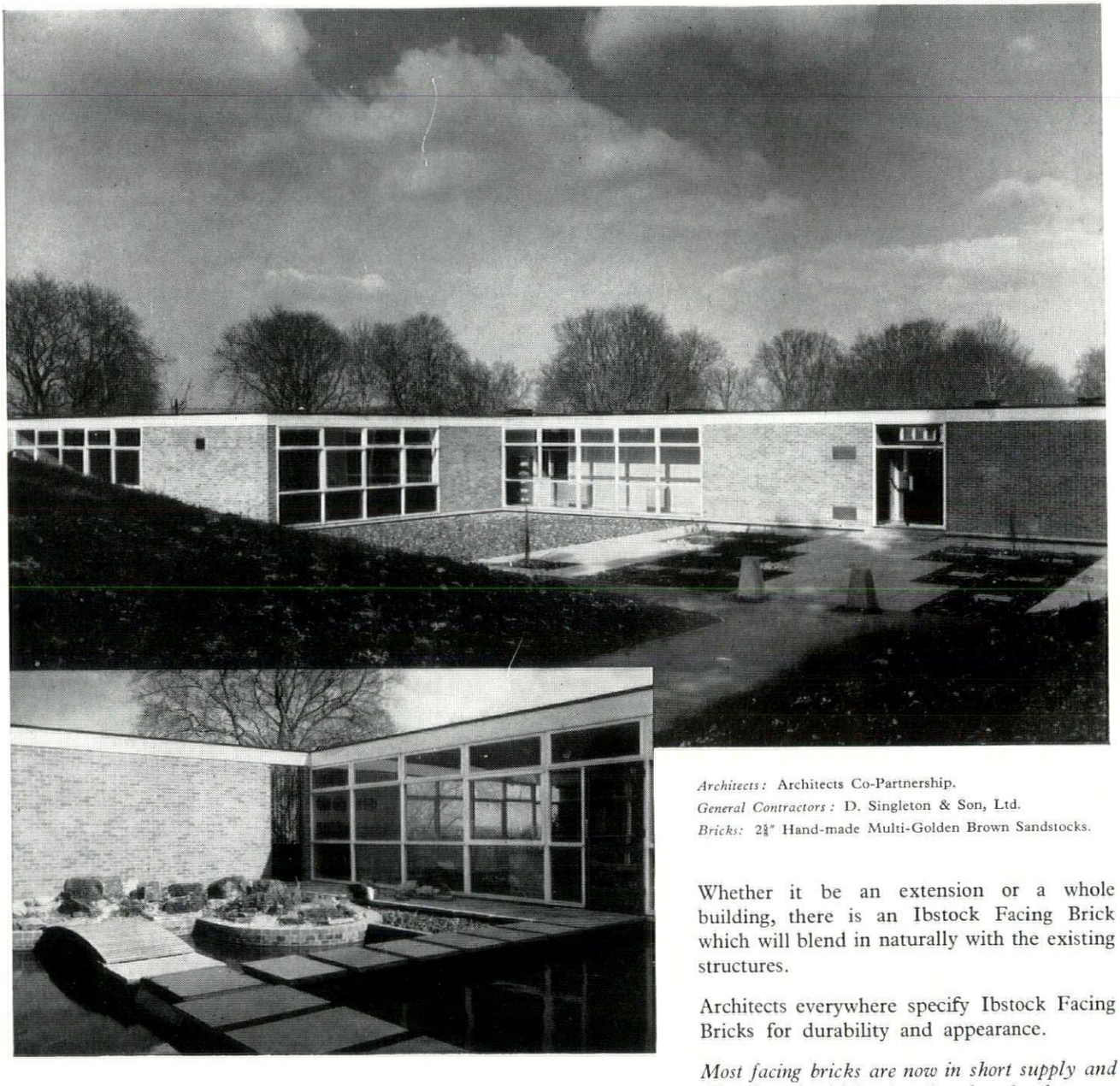
Apply for Brochure series 707



17 MONTPELIER STREET • KNIGHTSBRIDGE • LONDON • SW7 • TELEPHONE KNIGHTSBRIDGE 6897-8

Ibstock Facing Bricks

were used for the new Science Extension at Bryanston School, Dorset



Architects: Architects Co-Partnership.
General Contractors: D. Singleton & Son, Ltd.
Bricks: 2⅝" Hand-made Multi-Golden Brown Sandstocks.

Whether it be an extension or a whole building, there is an Ibstock Facing Brick which will blend in naturally with the existing structures.

Architects everywhere specify Ibstock Facing Bricks for durability and appearance.

Most facing bricks are now in short supply and all orders should be placed as far ahead as ever possible. We are, of course, anxious to receive enquiries for future deliveries and shall be happy to make reservations against architects' specifications.

Send for samples and full details

Ibstock

FACING BRICKS

IBSTOCK BRICK & TILE COMPANY LIMITED, Ibstock near Leicester
London: B.R. Goods Depot, Wright's Lane, Kensington, W.8.

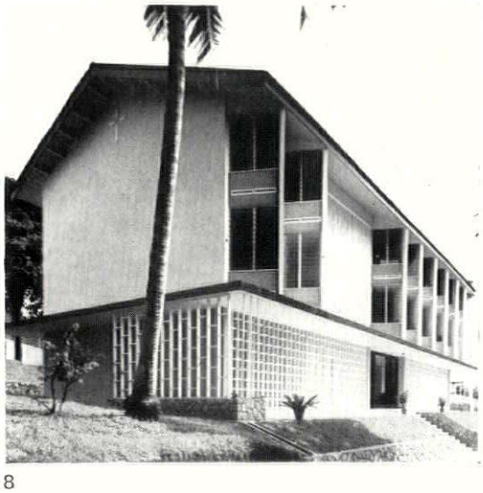
Telephone: Ibstock 591 (3 lines)
Telephone: Western 1281 (2 lines)

7. *Victoria Theatre (architects, James Cubitt, Leonard Manasseh and Partners): the internal reconstruction of a theatre of 1896 within the original walls. The air-conditioned main auditorium has 950 seats and is designed for use as a theatre, cinema and concert-hall and for public meetings. There are also a rehearsal theatre seating 150, a large foyer, four bars and dressing-rooms for 75.*



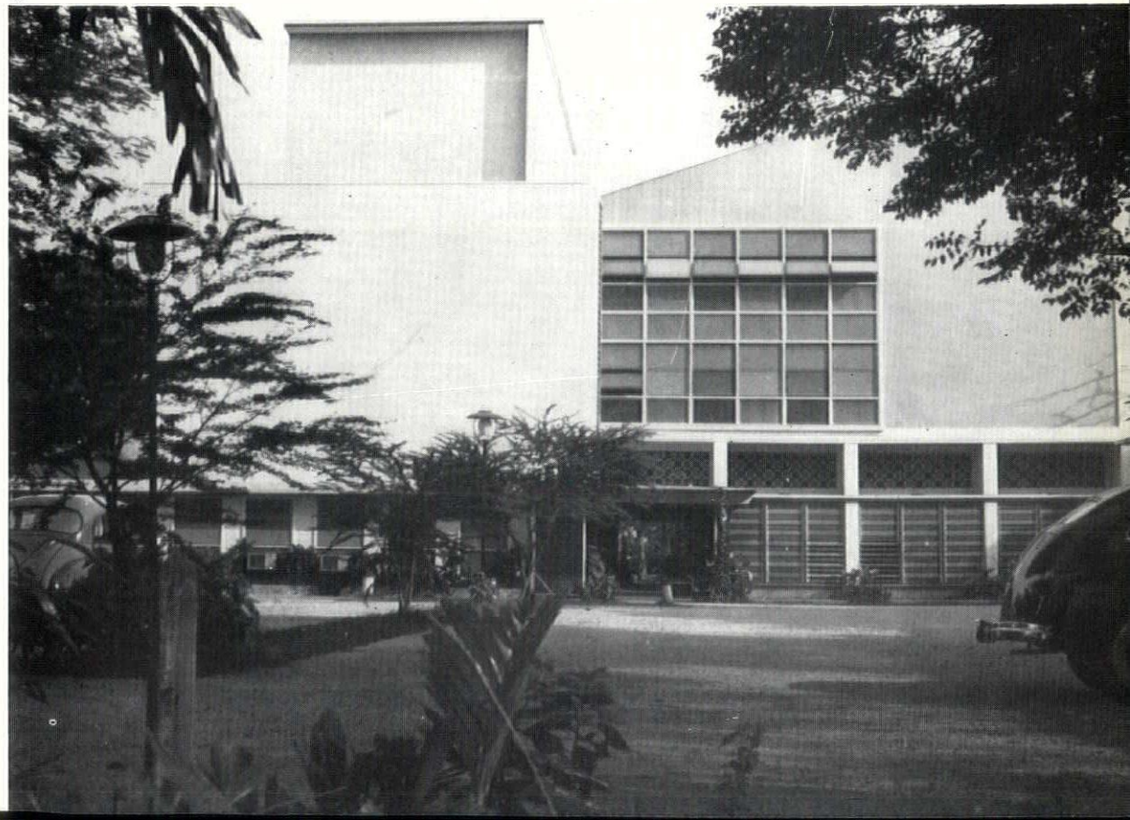
7

8 *(below), St. Peter's Hall, a residential college for Anglican students (architects, E. E. Keen and Partners). Accommodation includes chapel, refectory, library, common-room, three small flats for married students and fifteen rooms for single students. The site slopes steeply, but a level platform was left by the demolition of an earlier building. This produced an east-west orientation for the main frontages; hence the angled windows to protect rooms from the morning and afternoon sun. Construction is reinforced concrete with brick infill walls and a timber roof.*

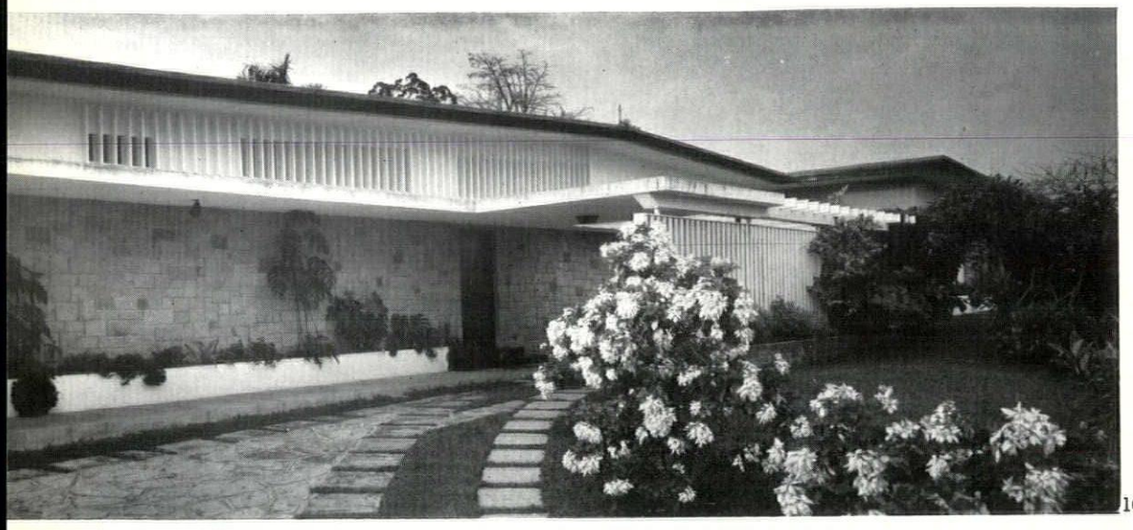


8

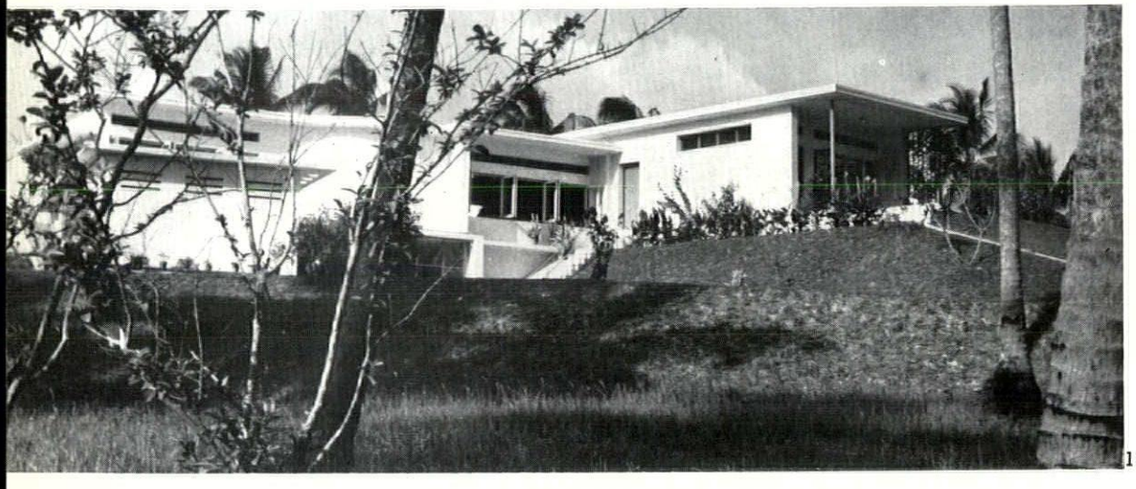
9



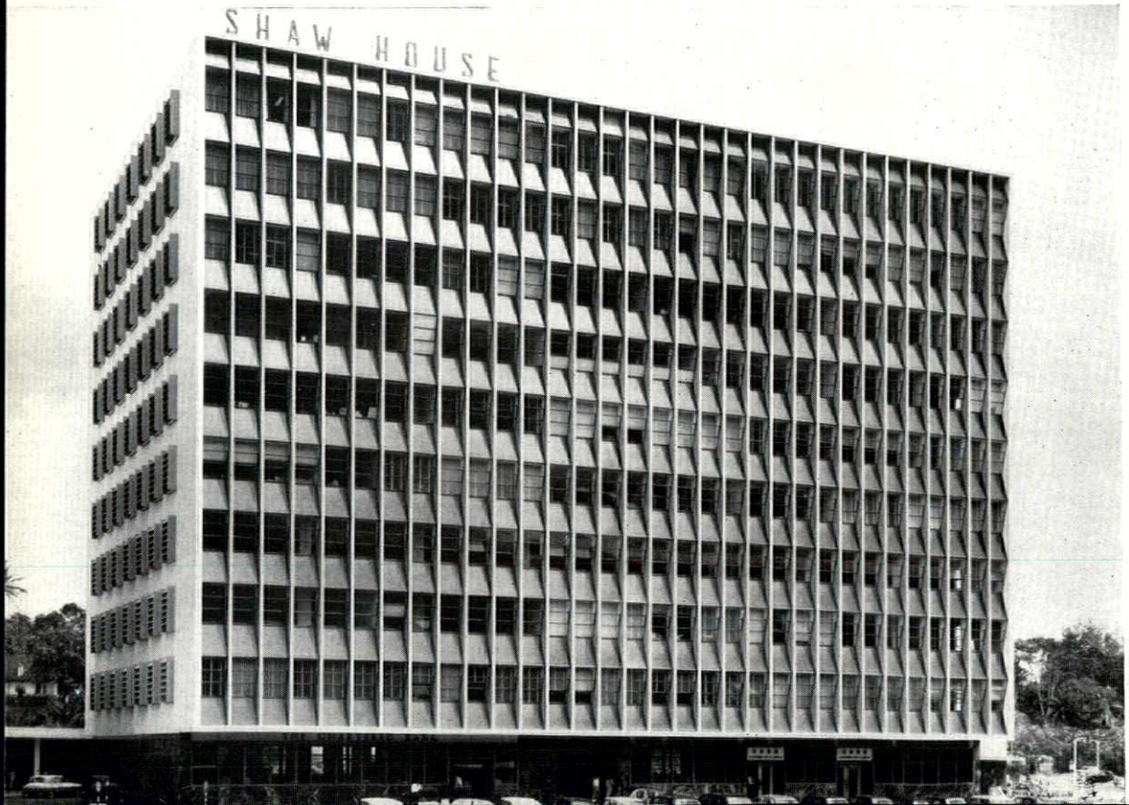
9 *(right), Government adult education centre (architect, M. J. Cotton, Public Works Department). The building contains an air-conditioned theatre seating 350 people with a full stage. The theatre is at the upper level, and below it are study-rooms, offices and a bar. Construction is reinforced concrete.*

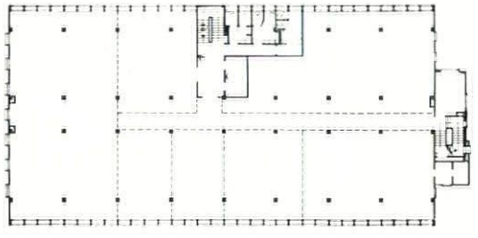


10, *house at Belmont (architects, James W. Ferrier and Partners): on a suburban site and with the main interest on the garden side, shown in the photograph. The living and dining room on a lower level are connected with the bedroom wing, which overlooks a private courtyard, by a bridge across a garden pool.*

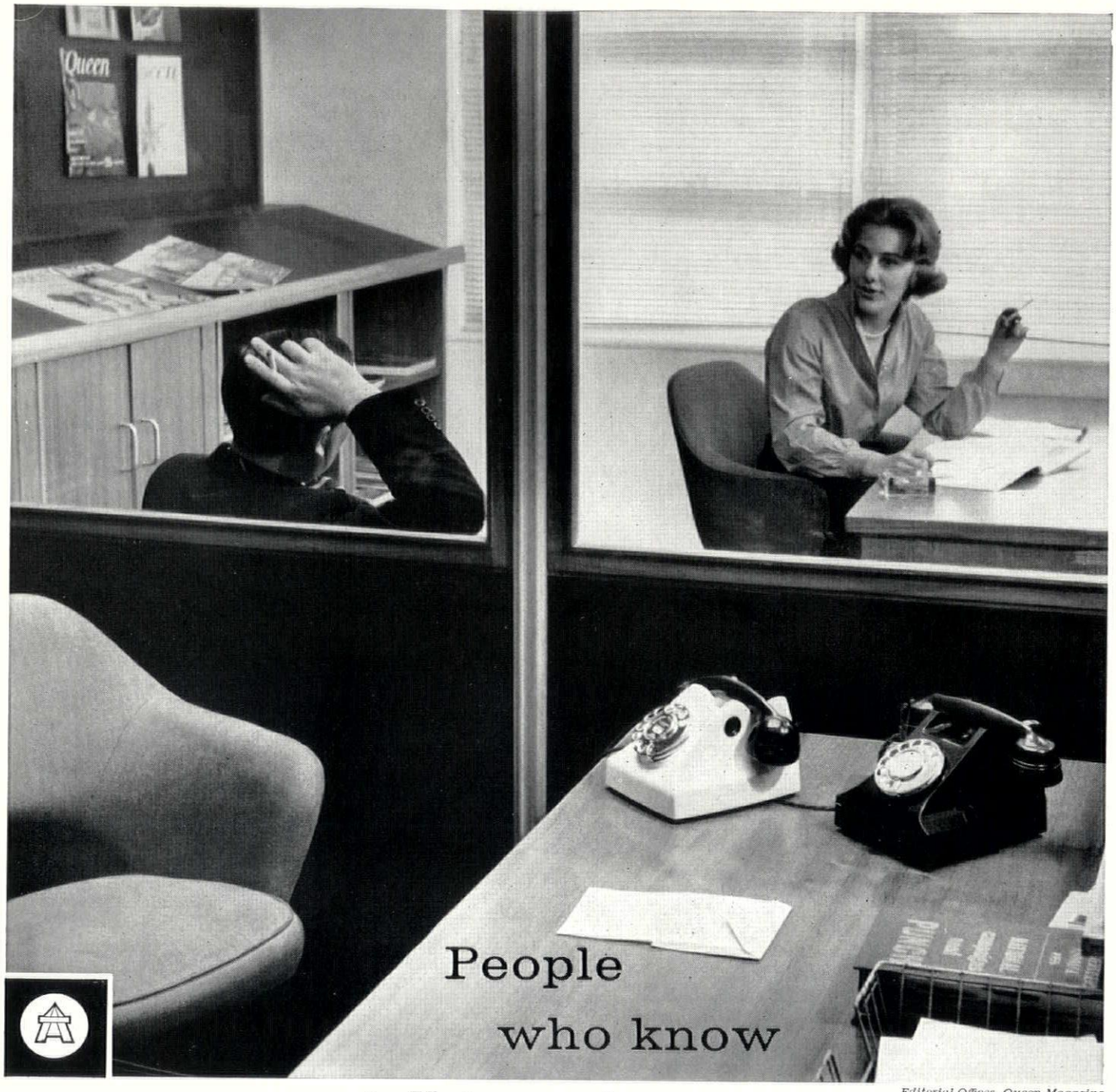


11, *senior officers' quarters, Kay Siang Road (architect, Lincoln Page, Singapore Improvement Trust): planned with changing levels, determined by the slope of the site. The lowest level has the garage, main entrance, stores and servants' rooms. Steps from this level lead to a central lounge that separates feeding from living areas, and a few more steps lead to the bedroom and bathroom wing which runs at right angles to the lower part of the building (on the right in the photograph). Load-bearing walls are of hollow blocks.*





12, *office building (architects, van Sitteren and Partners), incorporating a cinema. The office floors are designed for easy sub-division for letting and each floor is separately air-conditioned. Construction is reinforced concrete, with dark green marble facing on the ground floor and white bush-hammered plaster above. The fins are faced with yellow glass mosaic and the windows on the main (west) façade have asbestos louvres. On the north and south façades they are angled to give protection from the sun. The steel windows are locally made.*



Editorial Offices, Queen Magazine

are talking about

...the daylight saving devices in the Queen Magazine's new editorial offices (shown here)...the well-furnished but uncluttered look of the new A.E.I. executive suite in London...the controlled use of textures in the World Headquarters of Castrol Oil Group...and the scores of other furnishing and designing jobs carried out by

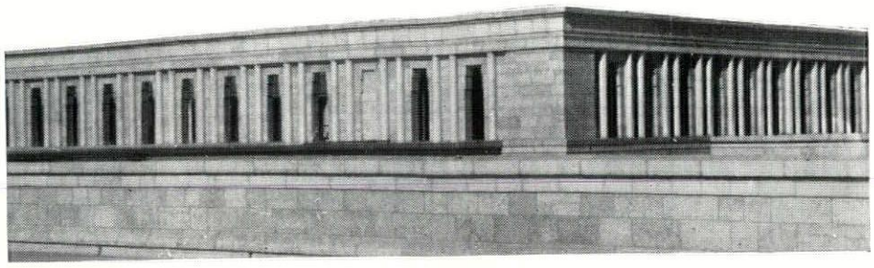
HEAL'S

CONTRACTS LIMITED

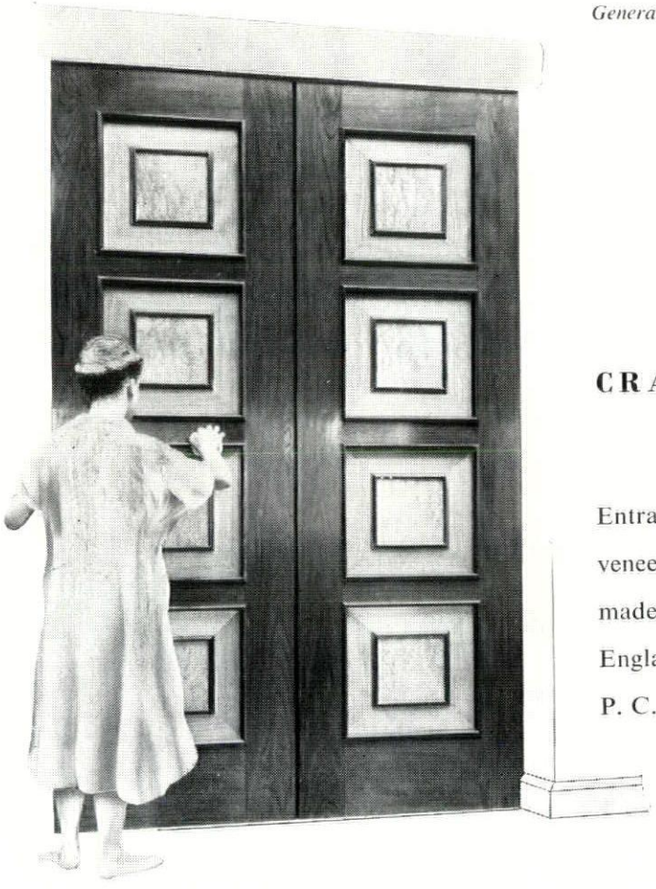
196 Tottenham Court Road London W1 Museum 1666

The Houses of Parliament—BAGHDAD

An example, of world wide renown, of the efficient all round collaboration of two outstanding specialist firms with the architect and the general contractors.



Architect: *J. Brian Cooper, F.R.I.B.A.*
General Contractors: *Etablissements Derviche Y. Haddad Co.W.L.L.*



Elliotts OF Reading

CRAFTSMEN IN WOOD AND METAL

Entrance doors of Honduras Mahogany with decorative veneers, 9ft. 8ins. high, to the senate and the commons chamber, made and supplied by Samuel Elliott & Sons (Reading) Ltd., England, and hung overhead with sliding door gear made by P. C. Henderson Limited, Romford, England.

Henderson **SLIDING DOOR GEAR**

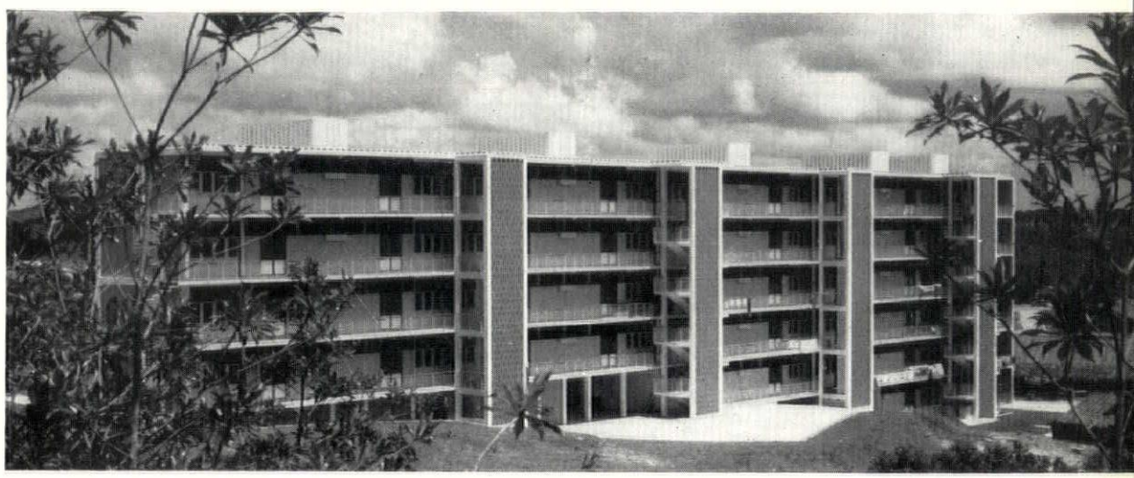
for any Door, Window or Partition that slides or folds

Qualified technical representatives willingly wait upon architects everywhere without obligation.
General Catalogue No.55 should be available in every room in every architect's office.

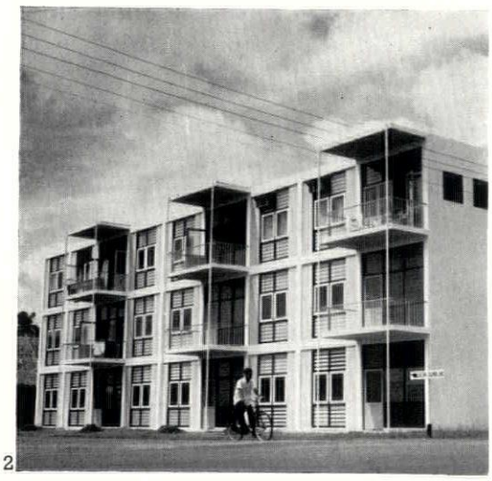
SAMUEL ELLIOTT & SONS (Reading) Ltd.,
READING · BERKS.
Telephone: Reading 71536-7-8

P. C. HENDERSON LIMITED,
HAROLD HILL · ROMFORD · ESSEX
Telephone: Ingrebourne 41111. Dial IL4

1, *flats at Tasek (architect, J. Bailey): a rectangular block built across the contours of a sloping site, so that there are six storeys at one end and four at the other. The building contains 50 flats altogether, each with a living-room facing south and two bedrooms facing north. The photograph shows the south side with projecting staircase-towers and access balconies.*

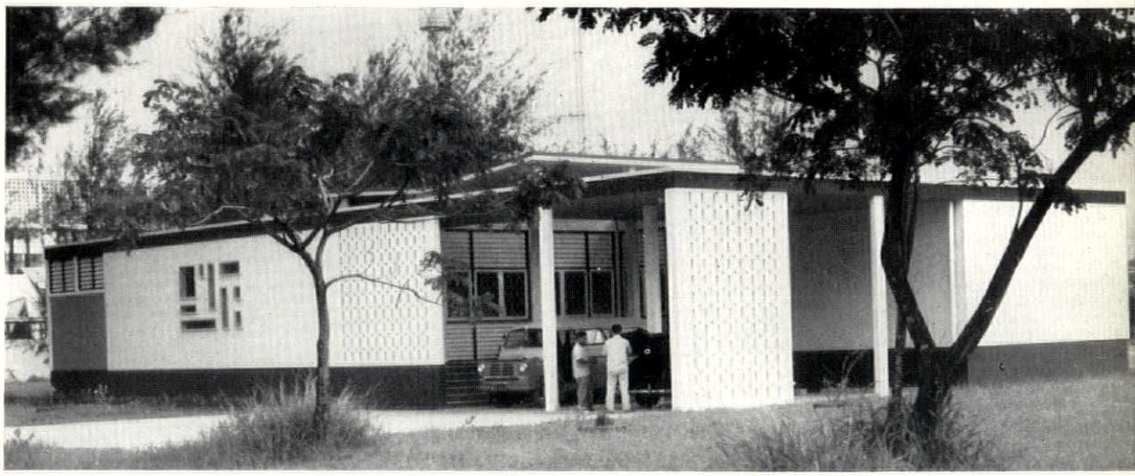


1



2

2 *(above), flats in Brunei town (architects, Booty, Edwards and Partners): a three-storey block with covered balconies the full width of each living-room. Access is by a semi-open staircase at the end of the block. Construction is reinforced concrete.*



3

3 *(above right), broadcasting studios, Kuala Belait (architects, James Cubitt, Leonard Manasseh and Partners). Contains studios, library, offices, control-rooms and waiting-space, all air-conditioned, planned round small garden courts. Construction is reinforced concrete. The building is raised in the centre to give clerestory lighting and ventilation.*

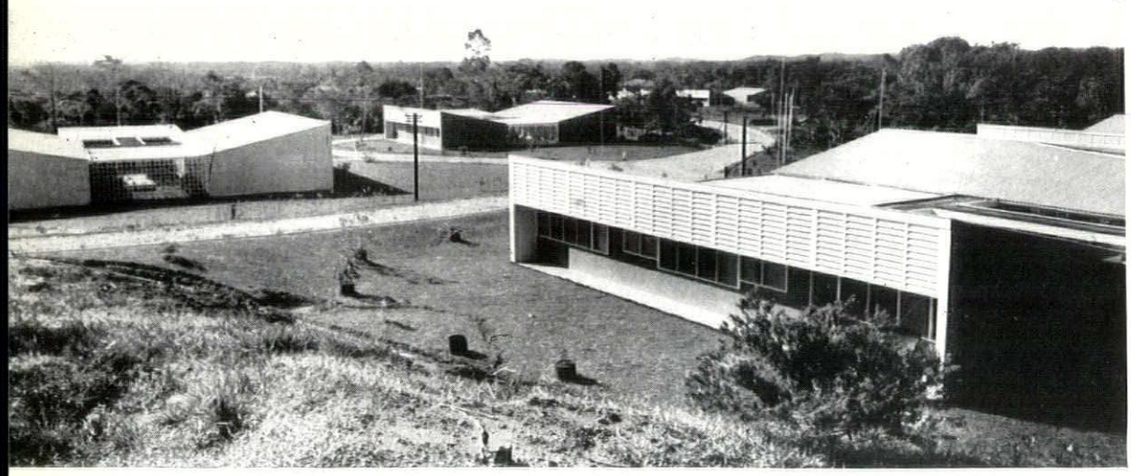


4

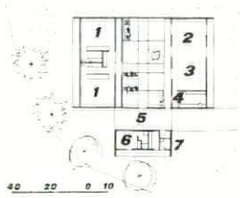
4 *(right), Government offices, etc., Kuala Belait (architects, Booty, Edwards and Partners): a group of buildings including offices, post-office and court-house. The main office block is on the right in the photograph, with the octagonal post-office in the background. The structure, including piling, is reinforced concrete. All windows, doors and sun-breakers are of anodized aluminium because of the highly corrosive salt atmosphere.*

BRUNEI

5

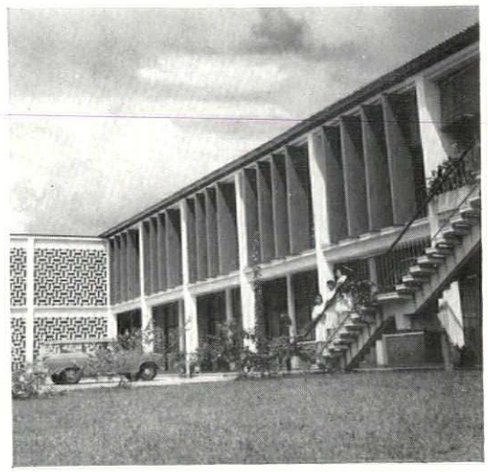


5, *senior Government officers' quarters (architects, Public Works Department, Brunei): a group of identical single-storey houses, each with living-rooms and bedrooms separated by a courtyard—plan of individual house on right. The two wings of each house are linked by a trellis. They have load-bearing cavity end walls. The side walls, facing both inwards and outwards, are all window or louvred panels.*



ground floor plan, officers' quarters
key
1, bedrooms.
2, living area.
3, dining area.
4, kitchen.
5, garage.
6, servants.
7, laundry.

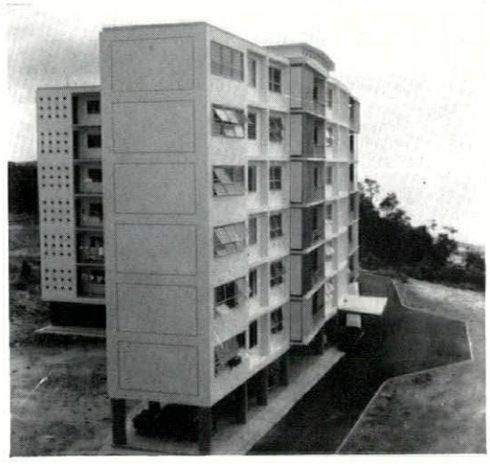
6



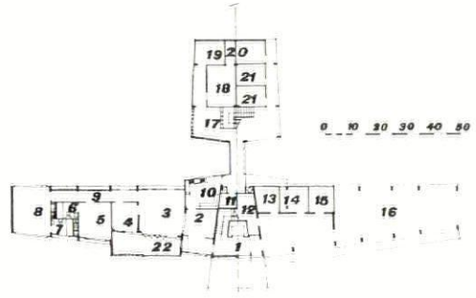
6, *girls' school, Brunei town (architects, Booty, Edwards and Partners): a two-storey building planned round an open court, with sun-screening either by means of vertical fins (right of photograph) or decorative concrete grilles (on the left). Construction is reinforced concrete with brick infill panels and timber roofs. The roofs are covered with glazed tiles.*

NORTH BORNEO

7

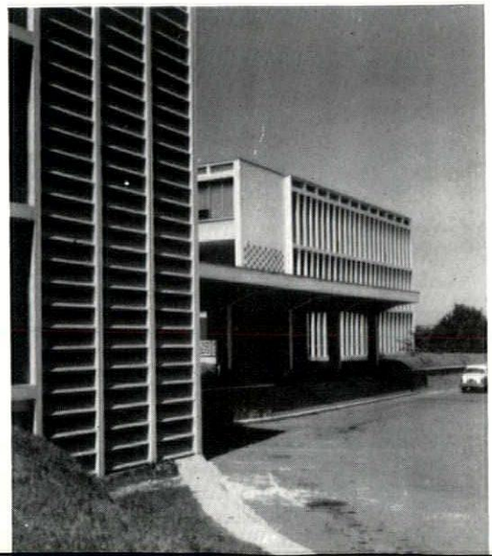


7, *flats at Signal Hill, Jesselton (architects, Palmer and Turner): twelve two- or three-bedroom flats with servants' quarters additional, planned in two linked blocks at right-angles—see plan, far right. Construction is reinforced concrete with brick infill panels.*

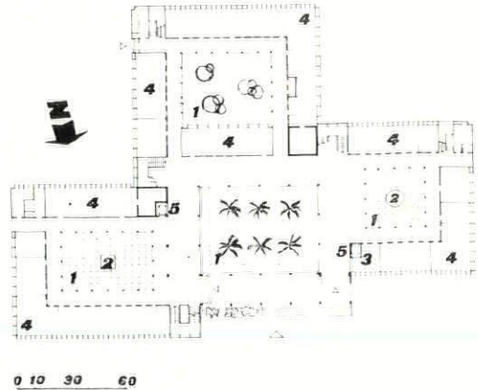


half upper floor plan (left) and ground floor plan (right) flats at Jesselton
key 1, lift lobby. 2, dining room. 3, living room. 4, study. 5, 8, bedrooms. 6, 7, bathrooms. 9, passage. 10, kitchen. 11, 12, 13, 14, 15, stores. 16, garage. 17, ironing. 18, servant. 19, servant's kitchen. 20, lavatory. 21, store. 22, terrace.

8

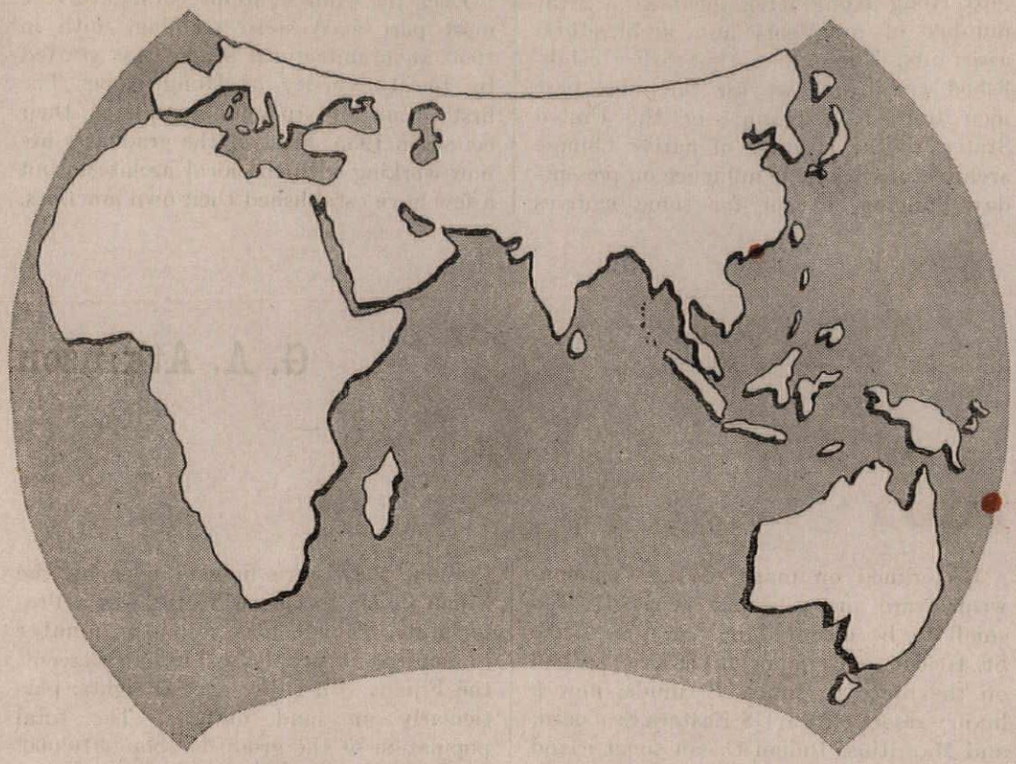


8, *central Government offices, Jesselton (architect, R. Gordon Brown). Three blocks, each planned round a courtyard, form three sides of a tree-planted square—see plan, far right. Construction is reinforced concrete on a 2ft. 8in. grid, on concrete piling. Sun-control is by galvanized steel or slatted timber louvres and an air-space between the double reinforced concrete roof.*



ground floor plan, central government offices at Jesselton
key 1, terraces. 2, fountains. 3, enquiry office. 4, offices. 5, lifts.

Eric Cumine



HONG KONG

In 1841 this barren island rock was ceded to the British with a population of about 4,000 villagers and fishermen, living in some 50 villages or hamlets. In 1860 the colony was extended on to the Kowloon Peninsula, and in 1898 the British again extended, acquiring under a 99-year lease a substantial piece of the mainland near Kowloon and a group of islands, now together known as the New Territories. Urban development has been concentrated largely in Victoria, on Hong Kong Island itself, though since the war Kowloon—across the harbour from the island—has also grown enormously.

The area available on Hong Kong Island for urban building was originally no more than a narrow strip of comparatively level ground along the foreshore. As the nineteenth century proceeded, the tiers of houses gradually rose up the sides of the rock, the fashionable residential area rising at the same time.

Reclamation of land from the sea began in the Colony's earliest days, and continued in spite of much opposition from the principal commercial houses with foreshore sites. It failed, however, to keep apace with the increasing population. In 1870 the central part of Victoria, chiefly by now occupied by Chinese, was seriously overcrowded and insanitary. This was one of the factors that led the European community to climb even higher and develop the summits of the Peak as a residential area, a movement hastened from 1888 onwards when Peak and city were linked by a funicular railway. The Colony continued thereafter to grow steadily, but its most spectacular increase in population took place after the end of the second World War.

A brief period of military administration was followed by the formal re-establishment of civil government in May, 1946. From the moment of liberation from the Japanese, Hong Kong made an astonishing recovery. In August, 1945, it was estimated that the population had been reduced to about 600,000. Eighteen months later at least 1,000,000 people had returned, and the population was still rising. Once again there was an acute housing problem and water shortage. At the end of 1959 the population was estimated at 2,919,000.

One of the most striking features of the post-war years has been the steadily increasing part which the Government has begun to play, directly or indirectly, in the provision of housing and other forms of social services for this increasing population, and especially for the poorer sections of the community. But in addition private building on a wide scale has transformed and modernized much of the urban areas and the more accessible parts of the New Territories. Particularly in Kowloon and Tsuen Wan, industrialists have opened large modern factories, producing a wide range of goods for export throughout the world. To meet the demand for more land for industry and housing, the Government has continued the traditional policy of reclamation. It has also embarked on a large-scale reconstruction of the Colony's road network. More rigorous traffic controls have been introduced in the face of enlarged public transport services and the increase in number, and in size, of private cars in daily use. The railway has changed from steam to diesel-electric traction.

The Government, with an unusually progressive and well staffed Public Works Department, has also been active in the provision of schools and hospitals. One of Hong Kong's major problems, at a time of continual refugee influx, has been the provision of adequate medical and health facilities, both official and unofficial. The Colony's earliest hospitals were run by missionary bodies, as indeed are a number at the present time. The first Government hospital was the Civil Hospital, founded in 1859. Part of its large old-fashioned buildings is still in use, and on the remainder of the original site there stands today the spacious and modern Tsan Yuk Maternity Hospital, opened in 1925, and the Queen Mary Hospital, one of the largest and most up to date in Asia, opened in 1937. This is now being doubled in size.

An increased, and ever increasing, tempo is apparent in every aspect of Hong Kong's daily life, but it is the growth of local industry which came into being to replace the traditional entrepôt trade of the Colony which has been the most significant feature, after population growth, of the post-war years.

In 1955 two changes in the law allowed much higher building, and made it very much easier to get possession of tenanted buildings by compensating the evicted tenants. As a result, buildings between fourteen and twenty storeys high are becoming common, particularly in Victoria and in the newly built area to the east, from Causeway Bay to North Point, in a burst of building in which Hong Kong is trying to catch up with the demand for housing. The old solution of making land by reclamation or levelling is still in vigorous progress; but instead of the new land being covered with closely packed buildings there are tall square blocks, with plenty of breathing space between. In the town centres, particularly in Victoria, buildings sometimes in excellent repair are being torn down to be replaced by much higher ones. Gradually the pre-war, arcaded building, with square pillars covered in Chinese characters denoting the names of the shops, is giving way to the steel-framed structures whose overhanging, if any, needs no pillars and leaves the pavement clear.

The provision of housing, probably the most important field of enterprise in Hong Kong at the present time, is faced by planning problems quite different from those of the West, if only because of the shortage of land on which to build and the extremes of accommodation demanded. These range from flats with space-standards as low as 35 sq. ft. per person, plus kitchen and lavatory, to flats and houses of Western standard, from 800 to as much as 3,000 sq. ft. in area, but with quarters for living-in servants. The servants' rooms are generally next to the kitchen and must not be seen from the main rooms.

Chinese cooking, which involves a lot of deep-fat frying, together with the high cost and expensive upkeep of mechanical ventilation, makes internal kitchens and bathrooms undesirable. As a result the average plan of a block of flats has a large perimeter, with all such rooms provided with windows on an outside wall.

Speculative building is organized on the basis of a quick return of the capital invested (between three to five years), which limits the architect's scope in the way of refinements in details and demands the use of lasting materials. Such speedy designing and building tend to result in buildings which are cliché-ridden. Novel features introduced into any building are repeated in others *ad nauseam*. Such repetition in itself is partially, however, responsible for a place producing its own style—or a style with its own peculiar clichés, and Hong Kong's contacts with the outside world are so close, conditions for import are so liberal, that anything which is economically viable is adopted and adapted.

Hong Kong is about 20 deg. north of the Equator and has a hot, humid summer and a dry winter period of several months, during which the temperature never falls to freezing but cold winds and clouded skies make heating in buildings necessary. It is in the typhoon area, and winds of 134 miles per hour have been recorded. The building industry is highly skilled and local materials are good though limited to sand and stone.

Excellent well-seasoned teak is available and is much used for flooring, outdoor woodwork and furniture. The Chinese carpenter uses primitive tools but is a sensitive and competent craftsman. Locally manufactured bricks and tiles now replace those formerly imported from China, but their range is limited. There are also local ceramic units, which are widely used for grilles and the like.

In the pre-war days, most of the practising architects either came from abroad or had set up on their own after serving as articled pupils under the same architects. Since the second World War the refugees from mainland China who have flooded into Hong Kong have included a great number of architects and architectural assistants. These, like the earlier established architects, are for the most part men trained in Europe or the United States, so the heritage of native Chinese architecture has little influence on present-day building, except for some motives derived from it, employed in such details as decorative grilles.

Even the Chinese architects had for the most part a Western training, until in 1950 an architectural school was started by the University of Hong Kong. The first group of students completed their course in 1955. Most of the graduates are now working with the local architects but a few have established their own practices.

G. A. Atkinson

FIJI

Underlined on maps of the Commonwealth are many island territories too small to be coloured in red: places like St. Helena, once important as a port of call on the route to India; Bermuda, now a luxury resort off the US Eastern Seaboard; and Mauritius, Indian Ocean sugar island whose people—though mostly Hindu—speak French. The largest number of these islands lie in the Caribbean Sea and the Pacific Ocean. The West Indies are well known; their architecture is described and illustrated elsewhere in this issue.

We know less about the Pacific Islands. Before the Japanese War the names which came first to mind would have been Tahiti, a French island, and Hawaii, which recently became the 49th of the United States. Japanese invasion and American reconquest gave fame to such names as Guadalcanal in the British Solomon Islands and Tarawa, one of the Gilbert and Ellis Islands. The personality of Queen Salote interested Coronation Londoners in Tonga, another small Pacific island.

Most important of these islands is the Fiji Group which straddle the 180 deg. meridian and lie about 1,200 miles south of the equator on the air route from Hawaii to Australia. They include 300 islands, about 100 of which are inhabited; but only two are of any importance, Viti Levu and Vanua Levu. It is on the first, Viti Levu, where are to be found the islands' capital, Suva, its international airport, Nandi, and two of its main sources of wealth—sugar and gold. Its other main source of wealth—the growing of coconuts for copra, a romantically lazy but not very profitable pastime—is distributed throughout the group.

First mapped by William Bligh of *Bounty* fame, the islands were mainly inhabited by a predominantly Melanesian people, when in 1874, under a Deed of Cession, they were handed over by the Fijian Chiefs to Queen Victoria as a Protectorate. Though now second in number to immigrant peoples of Indian descent, the Fijians still enjoy special rights, particularly on land matters. The total population of the group is about 370,000.

An engraving of the 1874 cession ceremonies shows a verandahed range of corrugated iron roofed offices where the new Administration had established its headquarters. They contrast sadly with the Fijians' own traditional thatched 'bures.' Unfortunately, as in many other countries, the materials needed for traditional rural building techniques—like reeds and bamboos, which grow wild—are becoming scarce as more land comes under cultivation. Skills are dying out, and the 'bures' are being replaced by timber and sheeted cottages. Until recently, much of the building in Fiji was in wood, usually with corrugated iron or asbestos cement sheet roofs. Many of the architects and builders came from New Zealand or Australia and brought techniques and styles with them. In recent years, concrete has become a popular material. Cement and most other building materials have to be imported. The only local material of any importance is timber, likely to be used increasingly as modern preservation techniques are introduced. (Fiji suffers seriously from dry wood termite infestation.)

Lying 18 deg. south, Fiji enjoys a tropical island climate tempered by cool breezes in the winter season (May to October). Suva, the capital, is on the wetter side of Viti Levu. Its climate, being more humid, less sunny and with more breezeless days, is less pleasant than that at Nandi, on the north-west coast. Like other islands lying towards the tropics, Fiji from time to time is struck by hurricanes, the last serious storm being in 1952.

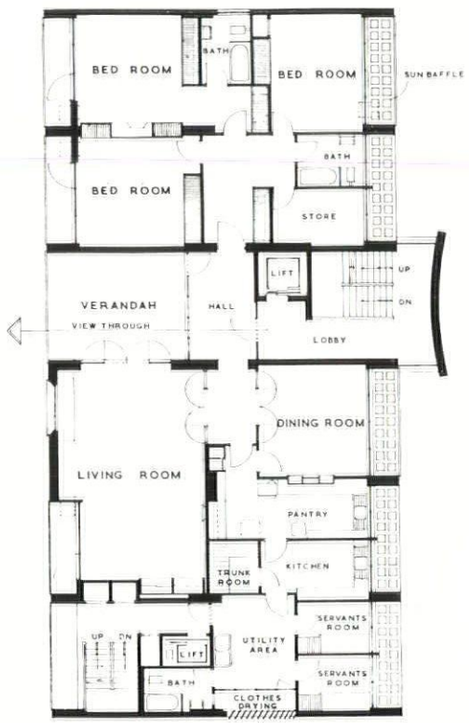
1

1, *low-cost housing at Sai Wan Chuen (West Bay Village), for the Hong Kong Housing Authority (architect, T. S. C. Feltham). Consists of five blocks of one-room deep flats—to provide cross-ventilation—placed across the contours of a hillside site. The approach road enters the scheme at the half-way level, from which there are lifts to all floors above but stairs only to the floors below. There are 640 flats altogether, varying in size for four-, five- and six-person families. Both balcony and staircase access are used.*



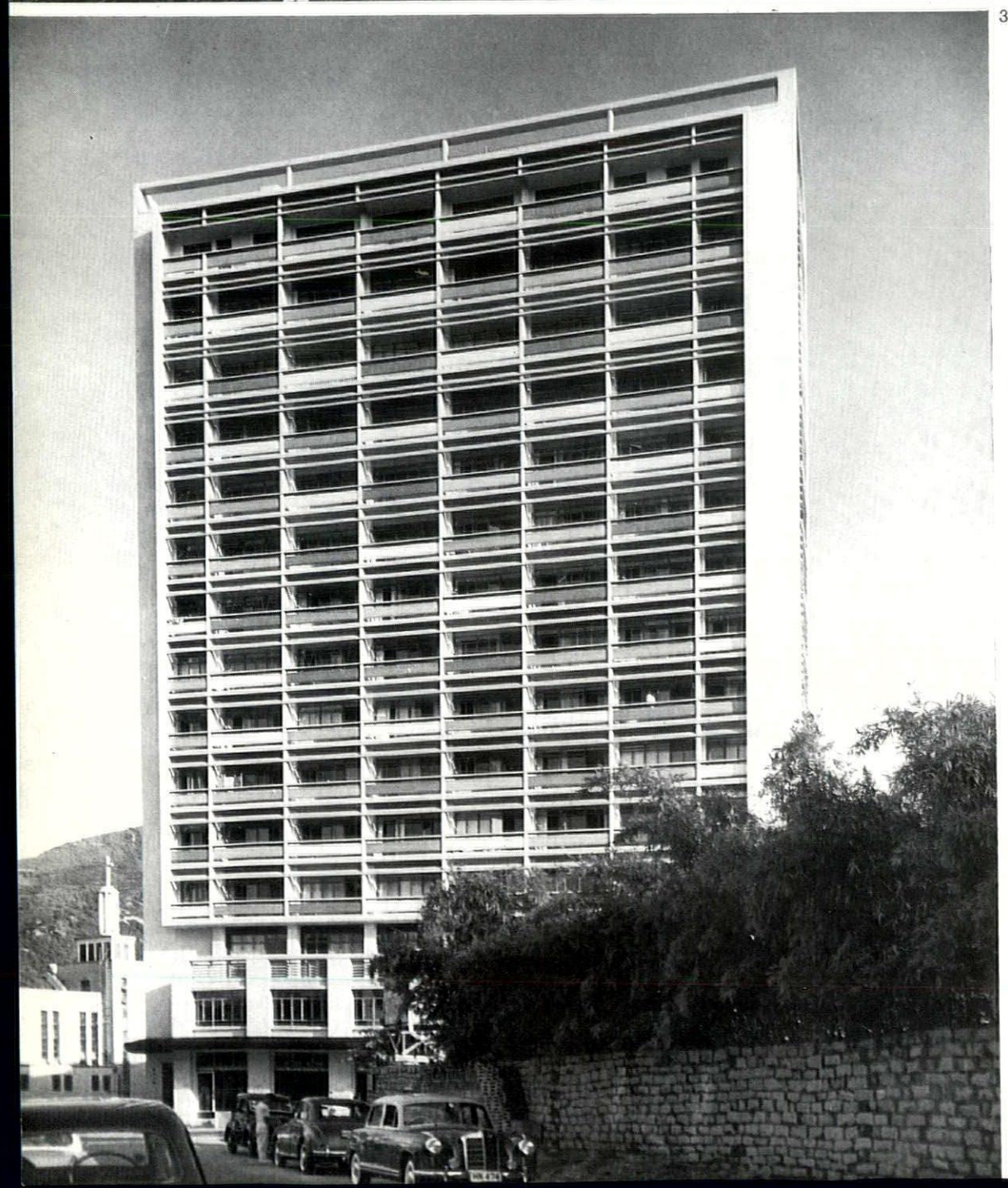
2





2 (above left), staff quarters for the Hong Kong Electric Co., called Cavendish Heights (architects, Leigh and Orange): the blocks are linked by a courtyard and contain identical flats, one to each floor. They face north-west and south-east with views over the harbour. Since many of the occupants are engineers engaged on shift-work, the flats (see plan above) have been divided into noisy and quiet areas separated by the lift, staircase, entrance and main verandah. The quiet area, containing three bedrooms and two bathrooms, can be separately air-conditioned. The living-room and dining-room can be thrown into one. There is covered drying-space on the roof of each block.

3



3, flats — Tower Court — (architect, Eric Cumine): a block facing north and south containing a variety of flats from single-room studio flats to maisonettes that occupy almost two complete floors. All living and bedrooms have balconies and all bedrooms connected bathrooms. The maisonettes are entered at the bedroom level with the living-rooms above, in order to allow kitchens, etc., to face the back without interfering with horizontal circulation and to restrict noise-transmission from living-rooms to the bedrooms of the same flat. The whole eleventh floor is occupied as offices by the Indian Consulate together with a two-bedroom flat. The twelfth floor is one large flat. Half the thirteenth and the whole of the fourteenth floor together form a large penthouse maisonette with five bedrooms and living-room and dining-room which, when united by sliding doors, occupy half the floor-area of the building. The other half of the thirteenth floor is a full-width one-room flat.

CROSSLEY CARPETS

CROSSLEY EXPERTS WELCOME CONTRACT INSTALLATION PROBLEMS

Crossleys are always glad to meet architects and clients at the early planning stage of any project. Particular preferences in colour and design, installation requirements and technical problems can all be freely discussed with the Crossley Designers and sales staff at both the Halifax and London Studios.

Carpets specifically designed as a result of these consultations will then be supplied through usual trade sources.

LEEDS
LONDON
DUBLIN
GLASGOW
NEWCASTLE
MANCHESTER
BIRMINGHAM



Ravendale—16639/8—Designed by P. Bushell

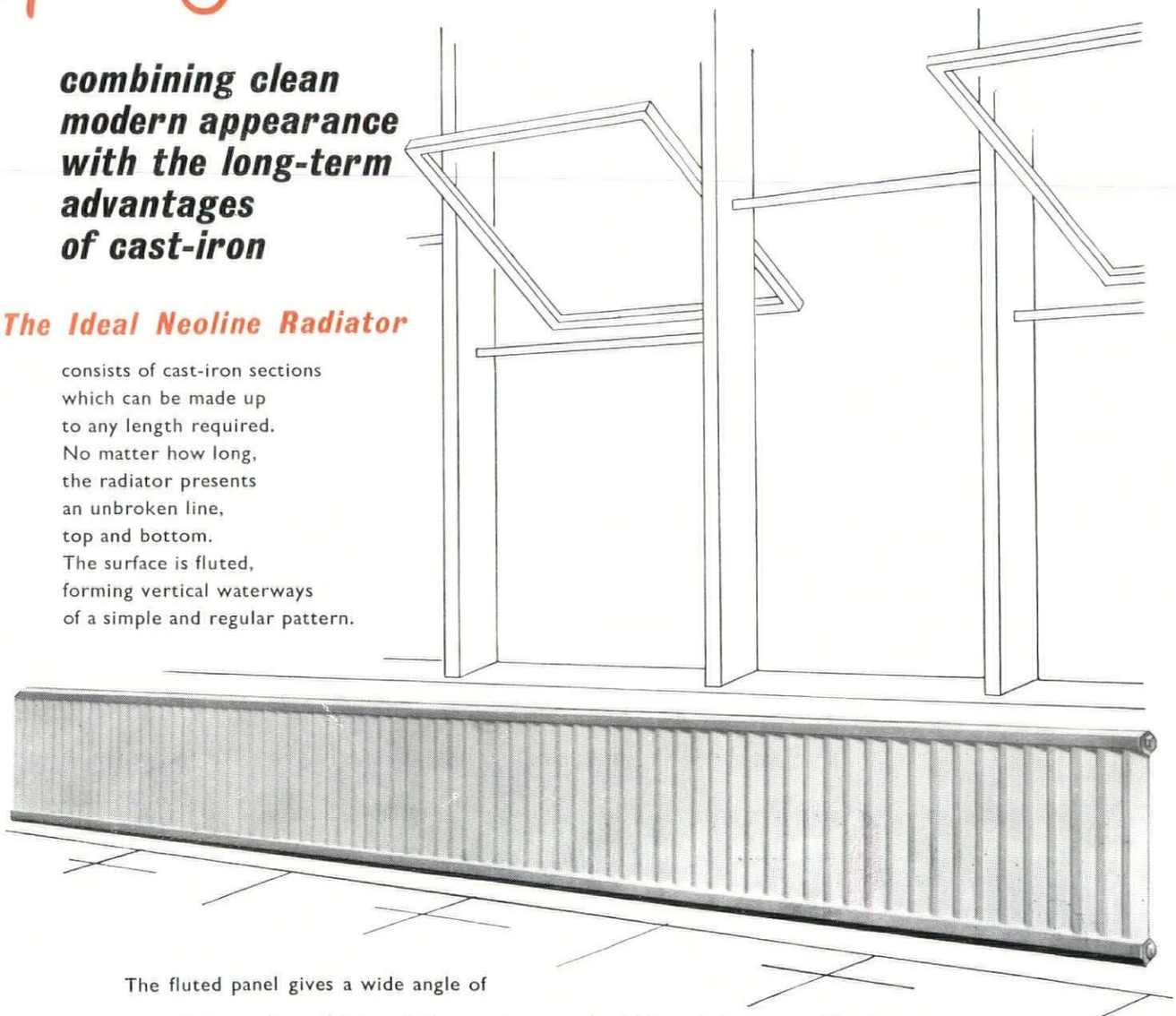
JOHN CROSSLEY & SONS LTD.,
DEAN CLOUGH MILLS, HALIFAX
Famous for fine carpets since 1803

A design in radiators...

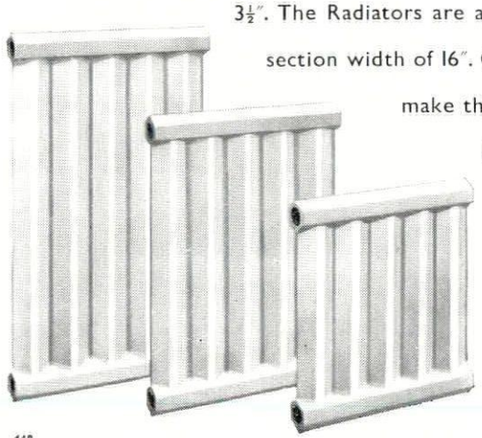
combining clean modern appearance with the long-term advantages of cast-iron

The Ideal Neoline Radiator

consists of cast-iron sections
which can be made up
to any length required.
No matter how long,
the radiator presents
an unbroken line,
top and bottom.
The surface is fluted,
forming vertical waterways
of a simple and regular pattern.



The fluted panel gives a wide angle of radiation and small integral fins at the rear give high emission area without increasing the distance from wall to the front of the radiator, this being only 3½″. The Radiators are available in three heights—18″, 24″ and 30″—all having a section width of 16″. Clean design, a high efficiency and the long life of cast-iron make the Neoline Radiator the first choice in schools, offices, private houses . . . in fact wherever radiators of this type are called for.

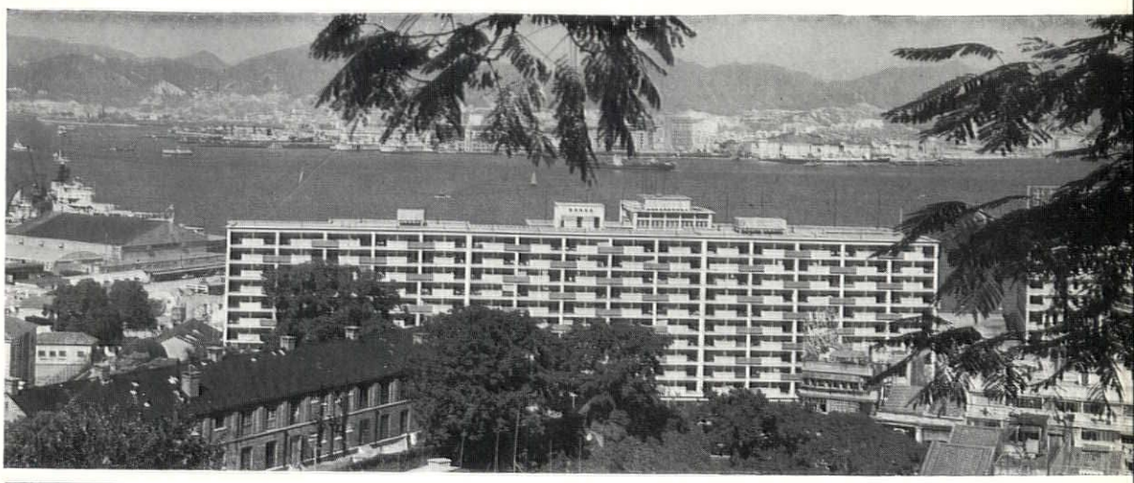


448

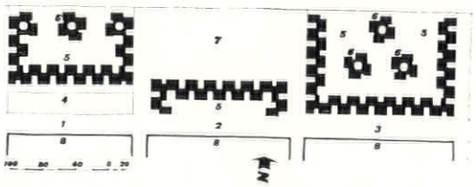
IDEAL CAST-IRON RADIATORS

Manufactured by
IDEAL BOILERS & RADIATORS LIMITED · IDEAL WORKS · HULL

4, *police married quarters, Arsenal Yard (architects, Public Works Department; architect in charge, T. T. Wong). A primary school occupies the whole ground floor. Above are ten floors of thirty dwellings, each consisting of one large all-purpose room with a verandah facing south, the kitchen forming part of the verandah. Access is from balconies along the north side, reached by lifts. Lavatories and washrooms are grouped in two separate projecting wings, with a drying-space between. Construction is reinforced concrete bearing walls.*



4



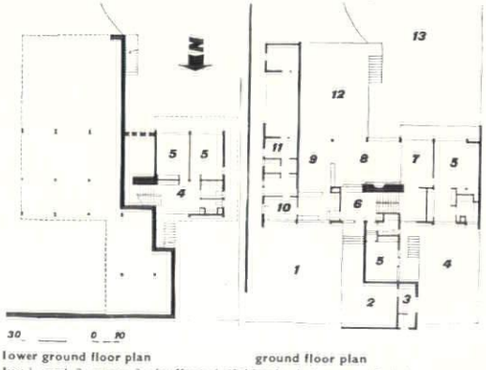
site plan, housing at North Point
key 1, west estate. 2, centre estate. 3, east estate. 4, government printing works. 5, playgrounds. 6, point blocks. 7, bus concourse. 8, existing buildings.

5, *low-cost housing, North Point (architect, Eric Cumine): a scheme for the Hong Kong Housing Authority, accommodating* 12,300 *people—see site plan above—giving a density of* 2,000 *per acre. There are wide promenades along the harbour frontage (shown in the photograph). The tower blocks in the middle of the two flanking sections have covered play-areas at ground level and ten floors of flats above. The scheme includes a community centre and* 71 *shops. Later there will be a bus terminus and a ferry pier. The flats vary in size to house from three to eight people. Construction is reinforced concrete with brick infill walls.*

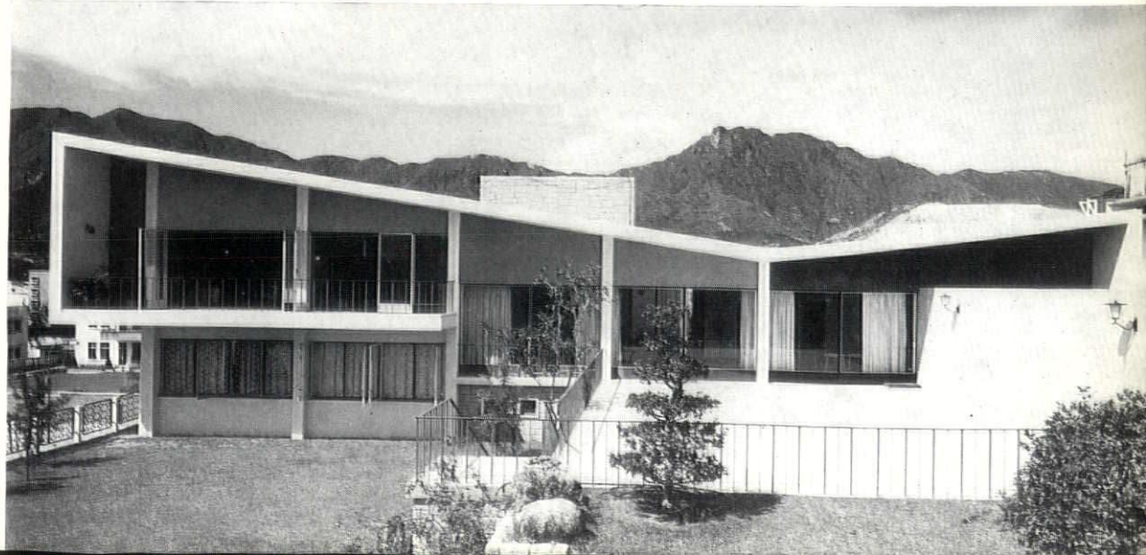


5

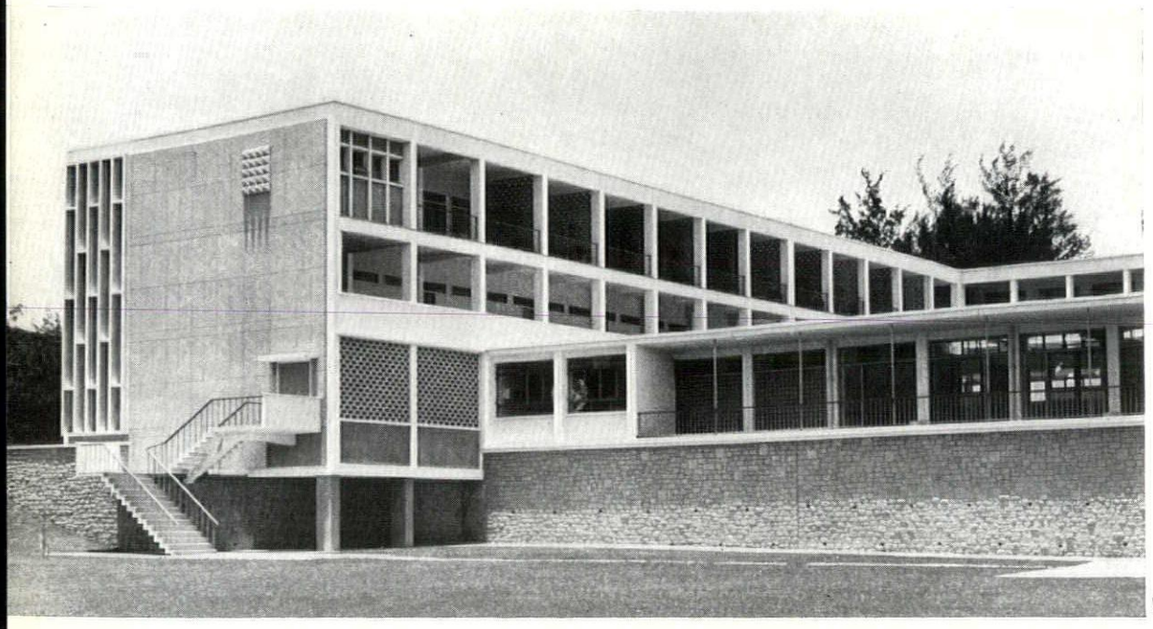
6 *(below), house on a hillside site across the harbour from Hong Kong Island (architect, Stanley T. Kwok). It is on two levels—see plan below. All main rooms face south and get the benefit of the view and prevailing sea-breezes. The apparent size of the living-room is increased by a study-ante-room to the main bedroom in the form of a balcony. Beneath are children's bedrooms adjoining a play area and two more bathrooms. The house has a reinforced concrete frame.*



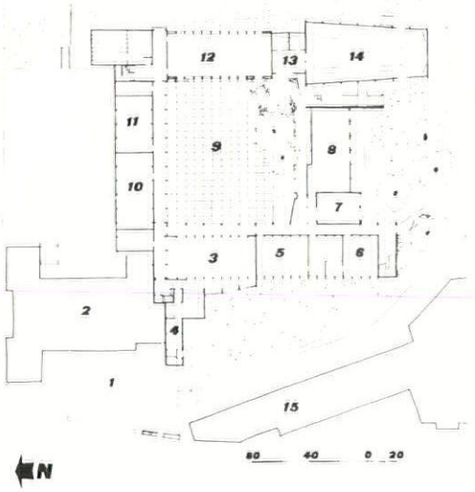
lower ground floor plan **ground floor plan**
key 1, yard. 2, garage. 3, chauffeur. 4, children's playing areas. 5, bedrooms. 6, foyer. 7, study. 8, living room. 9, dining room. 10, kitchen. 11, servants. 12, terrace. 13, garden.



6



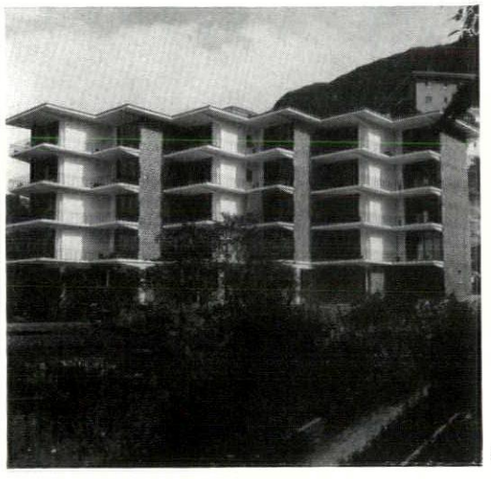
7



ground floor plan, teachers' training college, Kowloon
key 1, car park. 2, existing assembly hall. 3, dining room. 4, kitchen. 5, handicraft room. 6, pottery room. 7, project room. 8, study room. 9, paved area. 10, female students. 11, male students. 12, existing gymnasium. 13, foyer 14, lecture hall.

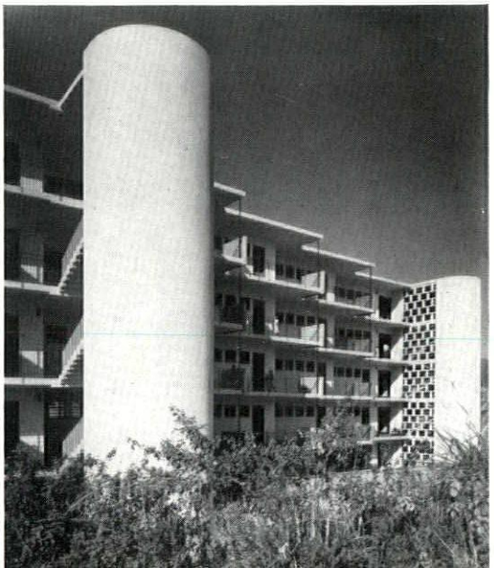
7 (above), teachers' training college, Kowloon (architects, Public Works Department; architect in charge, D. G. Farrow): an extension of the original Grantham training college. The new accommodation—see plan top right—consists of lecture and tutorial rooms and special classrooms, library, refectory and a lecture-hall seating 340 also used for practice instruction of primary school childen. Access balconies, projecting eaves, vertical fins and precast concrete grilles protect the rooms from the sun. Construction is reinforced concrete with a steel truss roof over the lecture hall. Infill walls are rendered brick.

9 (below), Government primary school at Kowloon (architect, W. Szeto). It consists of 24 classrooms for 45 pupils each, three larger specialized teaching rooms, offices, staff rooms, etc. At ground-floor level—see plan to right of photograph—is a covered playground linking the staircase hall with the single-storey lavatory block and the classrooms over. These are given north lighting by a saw-tooth plan. The entrance block contains the special teaching and staff rooms, also over a covered playground.

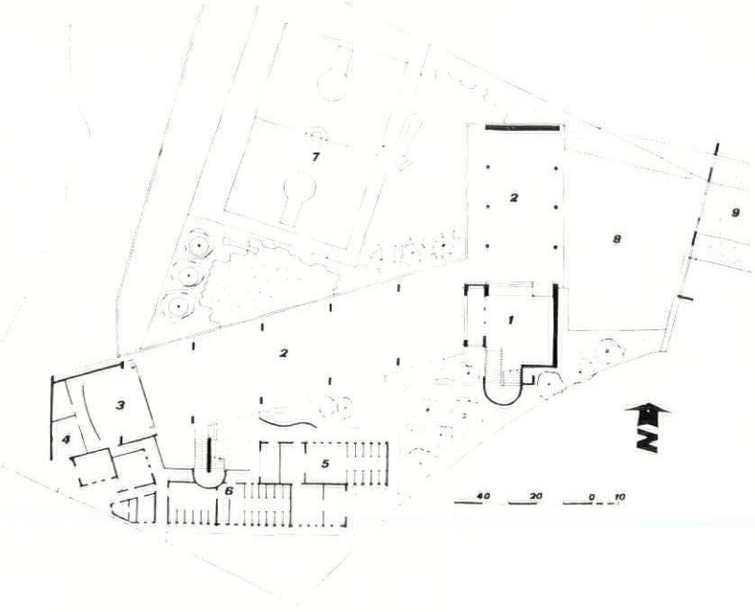


8

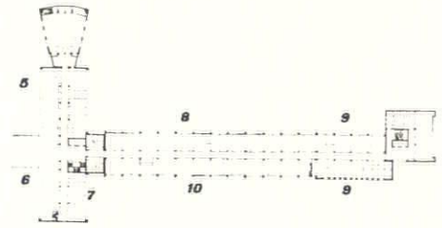
8 (left), university flats (architect, R. Gordon Brown)—see also AR, June, 1956: on a steep site in the university grounds, facing west over the harbour. The saw-tooth plan turns the windows away from the sun. There are three flats per floor, two with two bedrooms and one with one. Construction is a reinforced concrete frame with cross walls of local granite and louvres and other external woodwork of teak.



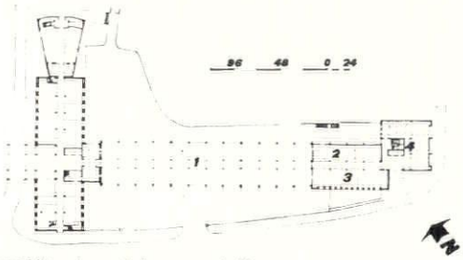
9



ground floor plan, primary school at Kowloon
key
1, entrance hall.
2, covered playground.
3, platform.
4, dressing room.
5, boys' lavatory.
6, girls' lavatory.
7, basket ball court.
8, car park.
9, approach road.



first floor plan



ground floor plan, central government offices
key 1, car park. 2, paying office. 3, dining room. 4, clinic. 5, council chamber suite. 6, quartering authority. 7, legal department. 8, 10, building ordinance offices. 9, port works offices.



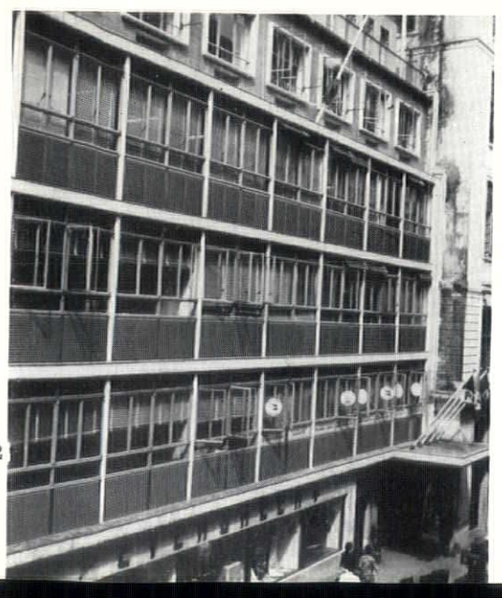
10

10 *(above right), central Government offices (architects, Public Works Department; architects in charge, J. C. Charter, J. T. Mallorie, A. Fitch and J. B. Aitken): a T-shaped block of offices with a council chamber at the end of one wing—see plans above—sited above the central area of Victoria city. The height was kept low so as not to obstruct the views over the harbour from Government House, further up the hill. The offices, which are air-conditioned, are 19ft. deep and planned on a 4ft. 6in. window bay. The fins between windows are part of the structural reinforced concrete frame. Below the windows are slate panels separated by precast mullions.*



11

11 *(right), ferry concourse and car-park (architects, Public Works Department; architects in charge, A. Fitch and R. J. Phillips): on land reclaimed from the harbour near the centre of the city and the future city hall. A three-tier car-park—seen in the photograph—is combined with pedestrian paved areas and covered waiting-spaces for the ferry that crosses the harbour to Kowloon. The upper levels of the car-park, which is of reinforced concrete cantilevered over the approach, are reached by structurally independent ramps. It accommodates 405 cars.*



12

12 *(right) office building (architects, Leigh and Orange) known as Caxton House. The façade treatment derives from the need to enable individual tenants to install their own air-conditioning, the units for which can be fitted behind the louvred panels beneath the windows, avoiding the unsightly exposure of air-conditioning units which often occurs when there is no central plant.*



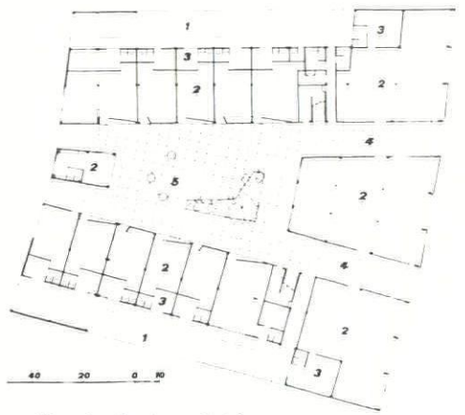
13

13 *(far right), shipping offices and warehouse, North Point (architects, Palmer and Turner): a free-standing six-storey block for the Royal Inter-Ocean Lines planned round a central light-well—reinforced concrete frame construction. The lower three floors are given to storage of ships' gear and supplies.*



1

1, *shopping arcade at Suva, with offices over (architect, Gordon J. Larsen), planned round three sides of a paved square, open to the south-east which is the direction of the prevailing breeze—see plan below. The offices are reached from a balcony that overhangs the entrances to the shops.*



ground floor plan, shopping arcade at Suva

key 1, service courts. 2, shops. 3, stores. 4, access ways. 5, centre court.



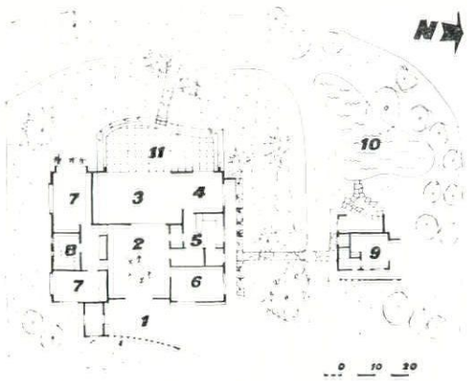
2

2, *central medical school (C. N. Nettleton, Government architect): contains hostel and teaching accommodation for* 100 *students. The U-shaped plan has a central wing containing the assembly-hall. Access is from open balconies—photograph from the north-east.*



3

3, *offices and shops, Suva (architects, Larsen and Associates). Built across a sloping site, it has shops on the ground floor with two floors of office space above. At the lower end (left of photograph) is a free-standing stair-tower, elliptical in shape.*



ground floor plan, house at Tamavua

key 1, garage. 2, courtyard. 3, living room. 4, dining room. 5, kitchen. 6, study-bedroom. 7, bedrooms. 8, bathroom. 9, servants. 10, pool. 11, terrace.

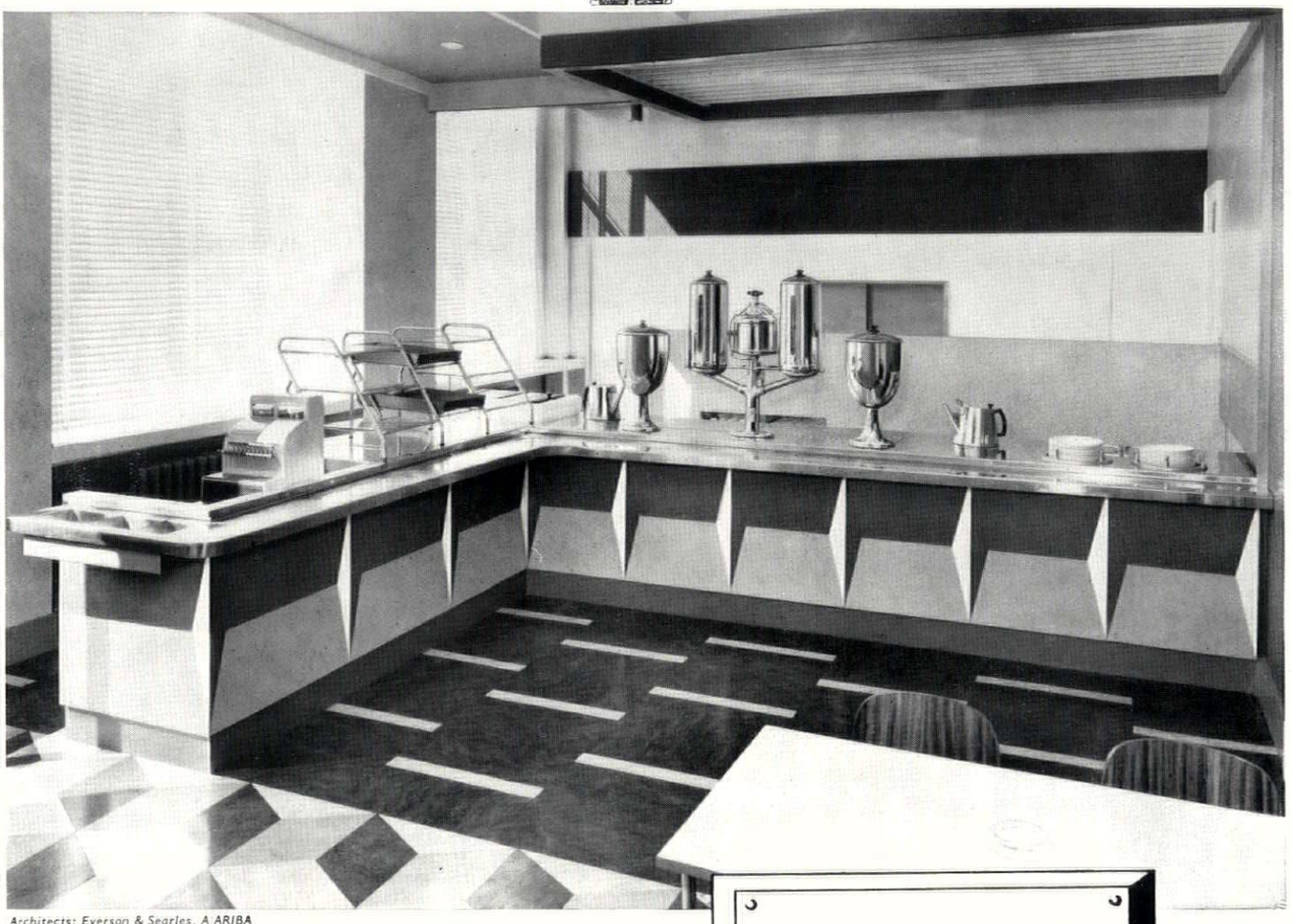


4

4, *house at Tamavua (architect, Hans Furrer)—for the architect's own occupation. The site is high up, with a wide view over nearby hills and Suva harbour, and is orientated to face the view and make the best use of the prevailing breeze. Rooms are grouped round a central yard—see plan above—which is roofed with glass. The house has a reinforced concrete frame with concrete block panel-walls reinforced horizontally against earthquakes and hurricanes. Roofs are timber, treated against termites, covered with galvanized corrugated iron. The main bedroom has movable vertical sun-screens (far left in photograph) and the living-room verandah horizontal louvres.*

By Appointment to Her Majesty the Queen

Manufacturers of Kitchen Equipment



Architects: Everson & Searles, A ARIBA

Putting it in the BANK

The new servery in the sixth floor tea and coffee bar at Westminster Bank's Head Office in Lothbury, London, E.C.2. was installed by Still's to the specification of the architects.

We have over 80 years experience in the manufacture of catering equipment, and offer the widest range of adaptable units for every catering purpose.

The service of our organization in the preparation of layouts for any type of catering installation is available to architects everywhere, without obligation.

We shall be pleased to send you our fully illustrated literature on request.

W. M. STILL & SONS LTD.

Manufacturing Engineers for over 80 years.
Registered Office: 29/31 Greville Street, London, E.C.1
Telephone: HOLborn 3744.

BRANCH OFFICES:

Manchester: *16, Tariff Street, Manchester, 1*
Telephone: Central 6339

Glasgow: *136 Renfield Street, Glasgow, C.2*
Telephone: Douglas 0444

Bristol: *31 Lawrence Hill, Bristol 5*
Telephone: Bristol 58440

AP251

HAND MADE TILES IN BRIDGWATER CLAY



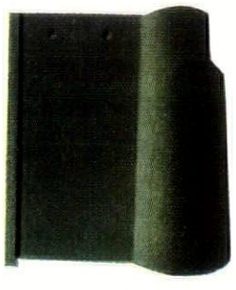
COLTHURST SYMONS



'REYNARDO' No 14



PANTILE No 6



'BAMBINO'



DOUBLE ROMAN No 9

Long famous for their fine appearance, durability and for the creative scope they offer the architect. Hand moulded from non-ferrous Bridgwater clay, they are available in a variety of shapes, colours and textures. Details of the tiles illustrated and of the full Colthurst, Symons range, available on request.

COLTHURST, SYMONS & CO LTD BRIDGWATER SOMERSET

In the four articles that follow authors with special experience outline and give as much practical information as possible on several problems peculiar to building in the tropics. George Atkinson, head of the Tropical Building Section of the Building Research Station, introduces the subject by outlining the problem of providing comfort conditions in the many different climates which are to be met in the tropical zone. He is followed by a heating engineer, Richard Harrison, who considers how far it is practicable to provide these conditions by using air-conditioning equipment. The last two articles are about the use of materials. Tom Ridley, a structural engineer, advises on the making of concrete and W. H. Ransom of BRS describes how our new man-made materials stand up to tropical use. The first and last articles are printed by kind permission of the Director of Building Research.

G. A. Atkinson

PRINCIPLES OF TROPICAL DESIGN

The author is head of the Tropical Building Section of BRS. He begins by listing the climatic data the architect must seek out. He then outlines a policy to be followed in respect of shade, air movement, thermal insulation, thermal capacity and air-conditioning.

'Where winter never comes' aptly describes the countries whose architecture is reviewed in this issue. Man builds for shelter against the heat of the sun; protection against the cold is secondary or unnecessary. But, within the generality of warm climates, there is marked diversity. To divide them, as is often done, into warm-humid and hot-dry is sometimes convenient; but it hides features of significance and, on occasion, can mislead inexperienced designers. (For example, Aden is hot and arid, yet being on the coast its air is humid.)

The climate at no two places is quite the same; invariably one at least of the determining influences—like latitude, height above sea level, nearness to sea or other large body of water, and to hills or mountains, wetness of the ground and the nature of its vegetation—is different. Moreover, man changes the climate by cutting down forests, draining swamps, damming rivers, and polluting the skies. Very local differences are likewise caused by buildings, roads and open spaces. Generally it is warmer and drier in the centre of a town; breezes blow less strongly; and the sun, because of dust and smoke, shines less fiercely. Descriptions of climates are usually based on meteorological observations made at the local airfield or an open site out of town. In tropical countries conditions in towns are likely to be more trying to man, and less so to his works.

The prudent designer by observation will become as acquainted with the detailed climate of place and site as with the landscape and topography, understanding the changes which his work will cause to the physical environment as well as to the setting. However, an architect may be called on to build in an unfamiliar place. Table 1 summarizes briefly the characteristics of different tropical climates from the standpoint of architectural design. Based on a subjective evaluation of places known to the author, it may guide both those working for the first time under unaccustomed conditions and those attempting to judge how relevant to their familiar circumstances are solutions worked out elsewhere. Approaching for the first time an unusual climate, one can be overwhelmed by a mass of data. It is better to concentrate attention on a few significant features. They include:

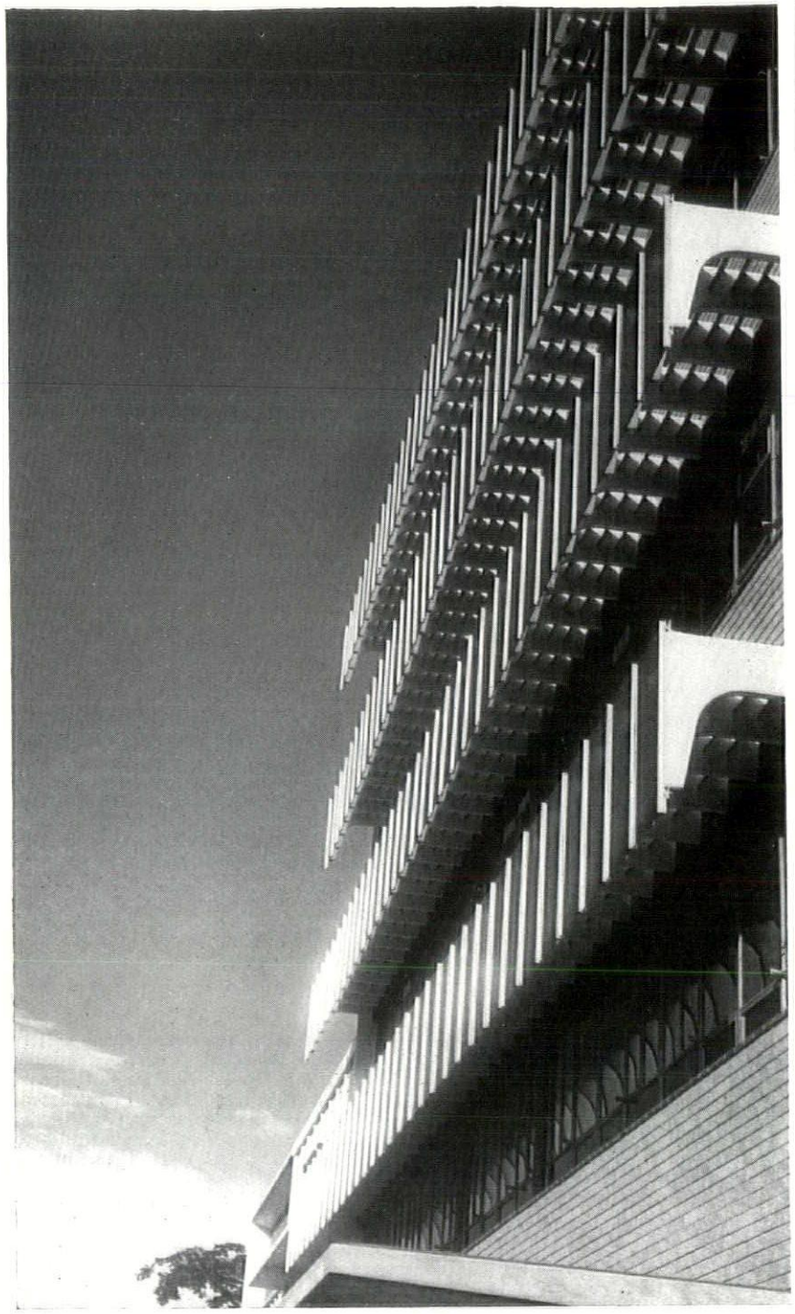
1. *Latitude:* Determines position of sun in sky at different seasons, also length of day; essential for shading design. Indicates how seasonal climate is. Within Tropics (23½ N. and S.), sun overhead at noon twice in year; but hottest on clear summer day between 30 deg. and 45 deg.

2. *Altitude:* With increasing height above sea level, the atmosphere becomes thinner, sunshine stronger and air cooler under otherwise comparable conditions. (In the free atmosphere, temperature diminishes with height: 3.6 deg. F. per 1,000 ft.)

3. *Continentality:* Away from sea

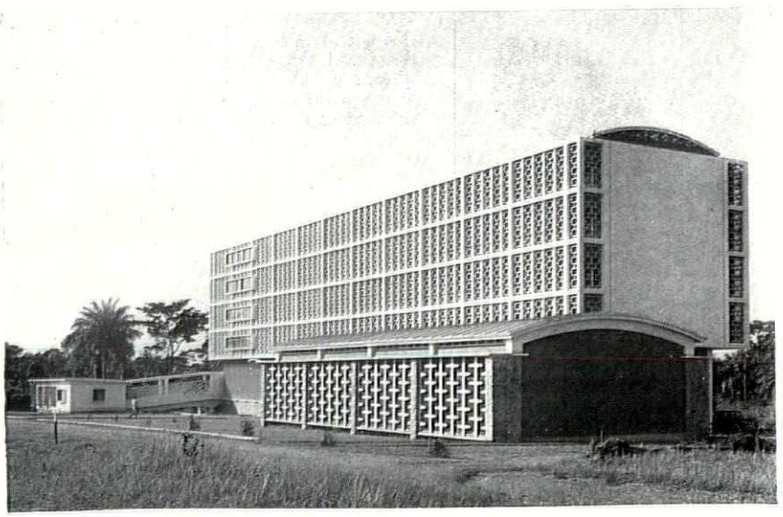
Table 1: a tentative classification of warm climates for building design

warm, humid		intermediate	hot, arid		cooler, uplands	
equatorial lowlands	tropical island, trade wind coast	tropical inland: savannah country	low latitude deserts, or semi-deserts		equatorial	tropical
			inland	maritime		
7½°N to 5°S of Equator; at or near sea level, and close to sea, large lake or river basin. Equable, never very hot nor very cold. Seasonal change may be less than 10°F. High wet bulb temperatures, average over 75°F. Air humid and often still especially at night. Heavy rainfall with rain most days of year. Cloudy skies but usually not overcast, sky therefore very bright. Abundant insect life, mould and vegetation	further north and south, and thus more seasonal. Still usually equable but more sunny and thus warmer by day and cooler by night. Humid but cooling breezes: trade winds, or off-on shore wind. Strong winds at times, especially on windward coasts; risk of cyclones (hurricanes). Wind, and particularly rainfall pattern much influenced by local topography. Blue, partly cloudy skies	inland away from Equator (5°–15° N and S). Seasonal due to latitude. Effect of altitude especially above 1,000–2,000 ft. noticeable. Less rainfall than equatorial lowlands with dry and wet season (or seasons). Total rainfall may vary from year to year. During wet season—sun overhead—conditions like equatorial lowlands; dry season, hotter by day and cooler by night. Open country—grasslands, or tropical deciduous forest	near and beyond Tropics: 20–25° N and S or, extremes, 15–30° N and S. Hottest and most arid places in world. Meagre and very variable rainfall. Absence of settlement—until recently (strategic or minerals)—except where underground sources of water (oasis); traditionally populated by nomads taking advantage of localized rains. Dry; large seasonal—may exceed 30°F.—and diurnal—20–40°F.—range in temperature. Cold at night, especially in winter. Dusty. Clear blue skies frequent. Very sunny	resembles hot arid (inland) but less extreme. High humidity, which offshore-onshore breeze only partly counteracts	altitude makes air temperature cooler, especially at night—50–55°F. Rainfall varies with wind pattern and topography. May be overcast periods. Length of day constant	more seasonal with higher latitudes. Rainfall more variable. Winter season with cool nights—may fall below 40°F.—and heating required



1, *sun-protection in an office building at Ndola, Northern Rhodesia (architect, Julian Elliott)—see page 35. A projecting band of heat-absorbing glass in aluminium framing shades each row of windows. Horizontal louvres, between this band and the wall, allow hot air to escape up the face of the building.*

2, *a building whose architectural character is largely determined by the perforated concrete sun-screening that covers its north and south facades, permitting natural cross-ventilation: the library at University College, Ibadan (architects, Fry, Drew and Partners—see also page 18).*



or other large body of water, likely to be drier with hotter days and cooler nights. May be less breeze.

4. *Annual range of temperature*:* Indicates how seasonal is climate Range small, little seasonal change; range large, markedly seasonal. Compare with latitude, rainfall and wind regime.

5. *Daily range of temperature*:* Distinguish between seasons if necessary. Range small, likely to be humid and not very hot. Range large, likely to be dry and sunny, very hot in the sun but cooling rapidly after dark in open.

6. *Rainfall pattern*:* Observe seasonal distribution as well as annual amount.

7. *Wind regime*:* Local topography has strong influence on wind pattern. Observe periods of calm, also time of day when they occur. Relate prevailing winds to rainfall pattern.

Shade

Whatever the climate, except in highlands or at and beyond the Tropics in the winter season, shade from the heat of the sun is of first importance. Anyone entering a 'wide vision' car which has been standing closed in the hot sun knows the benefits of shading. In a cool climate, we welcome the fact that ordinary glass discriminates between radiation of different wavelengths—letting in the sun's heat and light yet returning to the sky and our surroundings only a small part of the room's heat which is radiated at low temperature. But in a warm climate, there is little to be said for unshaded glass†—except for making solar heaters.

Shading devices—not always correctly used—have become the symbol of tropical architecture. A discussion of their design for different conditions of latitude, orientation and climate is beyond the limits of this review. Except in the early morning or the cool season, direct sunlight through windows and doors is to be avoided especially if they are glazed or the building air-conditioned. Shades should be outside the glass. North and south facing openings can be shaded with horizontal canopies which also permit windows to be kept open when it is raining. West and east facing openings, on the other hand, require vertical shades which, if fixed, screen the view and cut down the daylight. For this reason, especially, west-facing openings should be avoided.

Only in the winter season and beyond the Tropics, when the sun is low in the sky, does a roof receive less heat per unit area than any of the walls of a building. (Then, on a clear day, south-facing walls are most intensely heated by the sun.) In the summer season, though the roof receives most heat—hence the need for great care in roof design—the east and west-facing walls are the next most intensely heated parts of a building. This fact underlines the importance of siting tropical buildings with the long axis running east and west.

Air movement

When it is warm and especially when it is also humid, movement of air across the skin makes one feel cool. In a place like Singapore, where it never gets very hot or cold, a building not air conditioned is best made as open as possible to offer least resistance to light winds. But shade against the sun and protection against rain, sky glare and, probably, insects, intruders and gaze of neighbours usually makes screening necessary. It cuts down the breeze. Mechanical fans are used to move the air when the wind drops.

Especially during the late afternoon and evening, abundant fresh air is needed to keep an occupied building cool. The heat gained during the day by the structure has by then reached the interior. The wind is likely to be light (below 4 knots on an open site) and any exchange of air between indoors and outdoors is predominantly by stack effect. Webb has discussed natural ventilation under these conditions and shown how size and height of openings determine the ventilation rate. Here high ceilings or, rather, ventilators placed high up are advantageous or, better, two-storey buildings with open staircases. Away from the ground the wind is stronger, so the upper floors of high buildings are cooler.

In the trade-wind belts further from the Equator the wind blows persistently for most of the year at least on windward coasts. If a building is too open, papers and furnishings are blown about, yet for comfort some air movement is needed. It may be best to face away from the wind making the leeward side the more open.

In upland places like Nairobi and in the winter season at higher latitudes, for example in Hong Kong, a permanently open building is too well ventilated and will be too cold at times. Ventilation must be controlled. In hot, dry places like Kano it should also be under control to exclude the heat of the day and dust. But abundant fresh air is needed after sunset to cool the building. Mechanical ventilation—e.g. attic fans—helps to draw in the cooler night air.

Thermal insulation and capacity

In warm climates, the dominant thermal problem is to check the passage of the sun's heat into a building. At night, except at high altitudes and in the winter season at and beyond the Tropics, it is warmer—by up to 5 deg. F. or more—indoors than outdoors. Loss of heat is usually welcomed. Under such conditions, the heat transmission pattern is not the same as that familiar to designers in colder climates. This is true both in naturally ventilated and in air conditioned buildings though only in the latter can the effects of thermal design be costed.

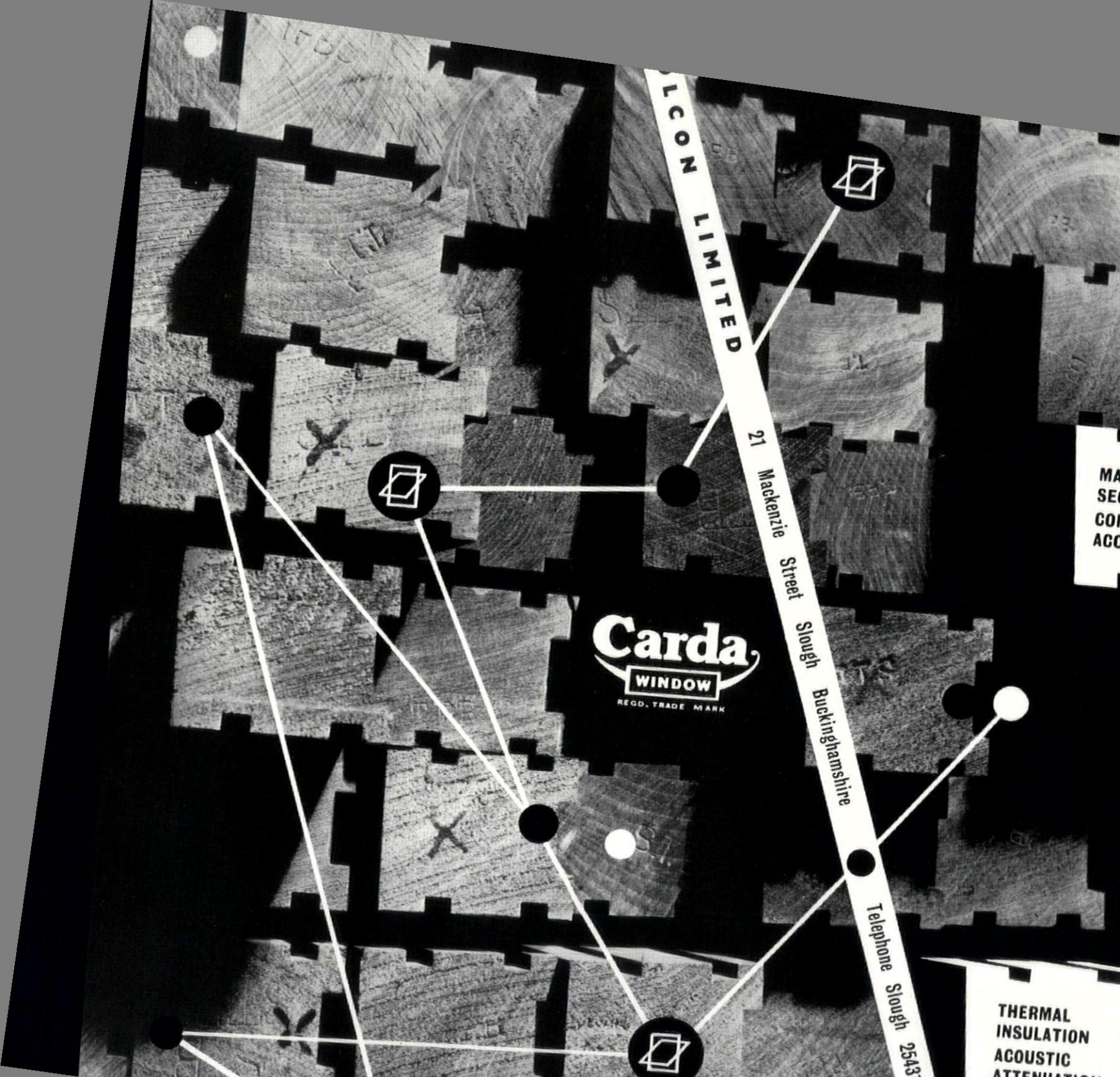
First line of defence against solar heat gain is shade, particularly of roof, windows and west facing walls. Subject to practical considerations shades should be as light in weight and colour as possible. Their inside face is best of shiny metal. Where it is not practical to provide shades, the outside of a building should be light in colour to reflect the sun's heat.

Whether the main structure should be well insulated or not, should be light or heavy in weight, or more accurately has a low or high thermal capacity, depends on whether the surface is sunlit or shaded, the diurnal range in temperature is large or small, whether day-time or night-time use is the more important and whether the building is naturally ventilated or air conditioned.

[continued on page 83

* These are meteorological properties caused by the first three geographical features.

† Though tinted glass absorbs more of the sun's heat, in so doing it heats up. It also lets through less light—but proportionately more heat—so that, although it may have a use in reducing sky and ground glare, its net effect in giving protection against the heat of the sun is slight as the users of buildings with large unshaded windows unfortunately discover. Figures giving heat reduction but omitting the coincident reduction in daylight can mislead.


LCON LIMITED
21 Mackenzie Street Slough Buckinghamshire
Telephone Slough 2543
Carda
WINDOW
REGD. TRADE MARK
THERMAL
INSULATION
ACOUSTIC

Shower Song

Bending and turning and gaily carolling
Loving the feel of the tropical rain
Leaving to Leonard the job of controlling
Once she gets in she just wants to remain.

Gone are the quirks of the old fashioned mixer
Everything else but never just warm,
Thermostat Leonard is fitted to fix her
And keep the temp. fast at divinity's norm.

Keeping the temp. fast" is just what Leonard
ontrol by thermostat does. It turns stone-cold
nd stinging-hot into steady warm — immovable
ntil the bather moves it. It makes the shower, the
eonard shower, the best bath in the world.
nat's why the Leonard valve has come to be
ecified by architects everywhere not just for
owers in hospitals and schools, but also in
tories and mines and ships.

Please let us tell you more about Leonard thermostatic valves. We have composed iterature to cover all applications in detail. Write for engrossing publication S.C.70 o: Walker Crosweller, Cheltenham. The mpetuous should 'phone us at Cheltenham 6317 or, in London, at Holborn 2986.

WALKER, CROSWELLER
& COMPANY LIMITED
CHELTENHAM. ENGLAND.

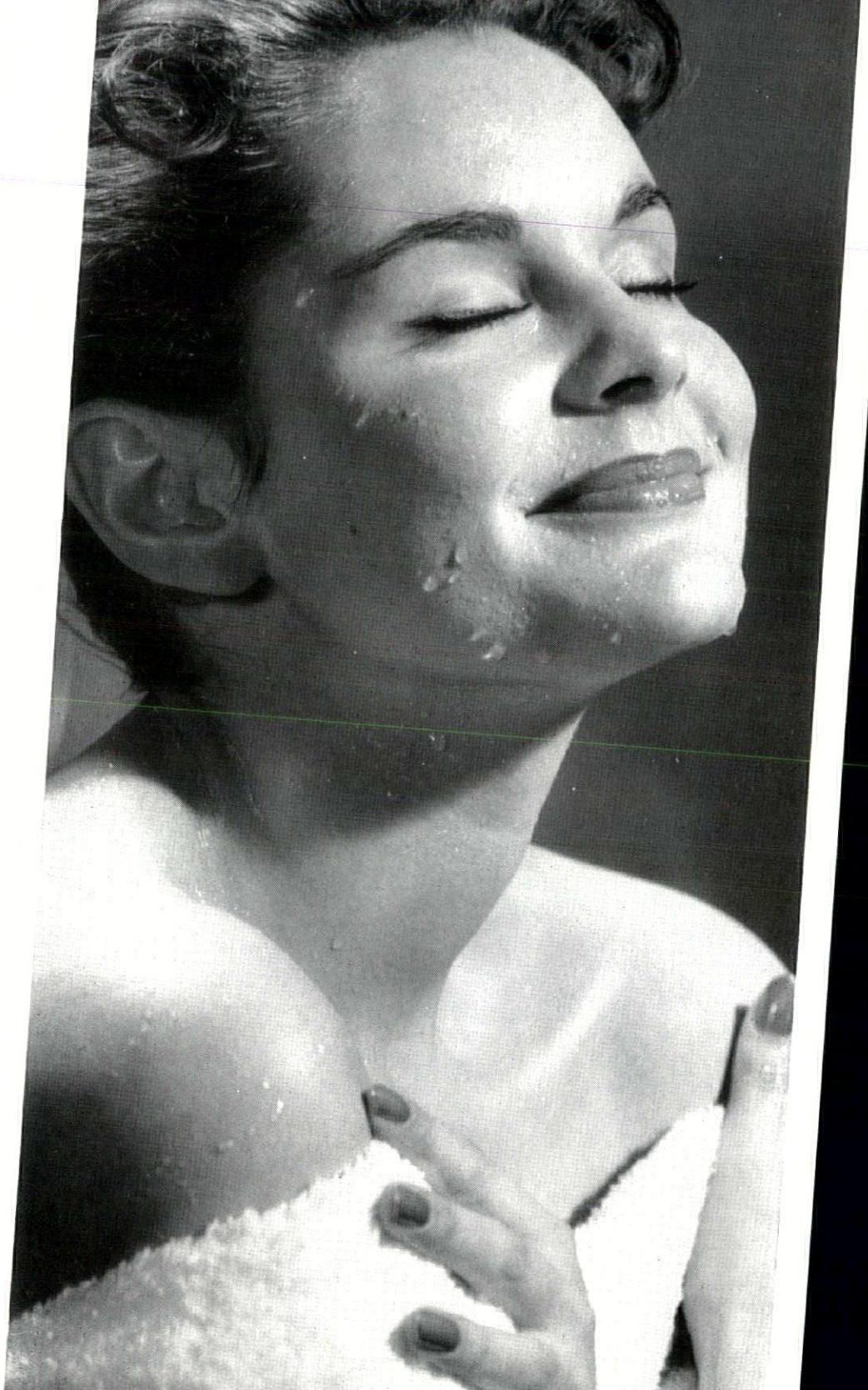


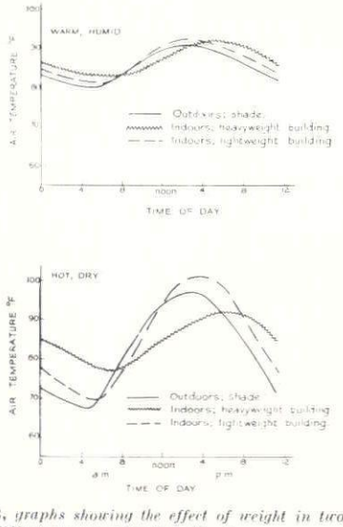
Table 2: relative importance of thermal insulation and capacity under different conditions of climate and use

type of climate	predominant use	outside sunlit[1]		outside shaded	
		air-conditioned	naturally ventilated	air-conditioned	naturally ventilated
EQUATORIAL, *i.e. small diurnal temperature range* (average wet bulb temperature more than 75°F.)	at night	low thermal capacity, insulation not as important as vapour barrier	low-moderate thermal capacity, insulation secondary	low thermal capacity, insulation not as important as vapour barrier	low thermal capacity, insulation secondary
	during day	high thermal capacity, good or very good insulation, a vapour barrier	thermal capacity not important, good insulation	moderate thermal capacity, good insulation and vapour barrier	thermal capacity not important, insulation not important
TROPICAL, *i.e. large diurnal temperature range* (average wet bulb temperature less than 75°F.)	at night	low thermal capacity,[2] insulation not important	low thermal capacity,[3] unless night temperature low, then moderate; insulation secondary	low thermal capacity,[2] insulation not important	low thermal capacity,[3] insulation secondary
	during day	high thermal capacity, very good insulation	high thermal capacity, good insulation, best on outside	high thermal capacity, good insulation	high thermal capacity, insulation less important

[1] white sunlit surfaces absorb little of the sun's heat and so are cooler, being next best to shade; dark surfaces, because they absorb much of the sun's heat, are to be avoided especially in sunny climates. Shiny metals reflect much of the sun's heat but cannot easily lose any heat absorbed.
[2] air conditioning not necessary, except to control noise, but for building design which prevents rapid loss of heat gained during day.
[3] when temperatures high, cooler to sleep outdoors.

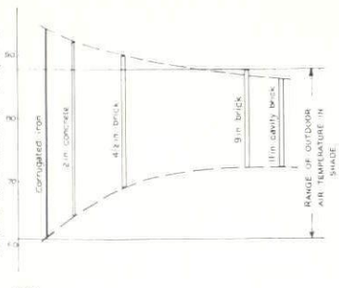
continued from page 82]

Table 2 attempts to show the relative importance of thermal insulation and capacity under different conditions. 3 illustrates the effect of weight in a warm, humid climate and a hot, dry climate. In the first, air temperature in shade varies by less than 10 deg. F. in the twenty-four hours; inside any type of building it will be a little warmer and usually a little drier at night time than in the open. A heavyweight building will be somewhat cooler until after noon but warmer in the evening, but its weight is not very important.



3, graphs showing the effect of weight in two different types of tropical climate.

4, relative thermal damping effect of different external walls.



In a hot, dry climate, however, the diurnal range may be 25–30 deg. F. and the damping effect of weight should not be ignored. (The relative damping effect of typical walls is shown in 4.) A heavy weight structure, with windows closed, will be markedly cooler until nightfall and then warmer.

Artificial cooling: air conditioning

Shading and thermal insulation reduce the amount of heat passing into a building. Thermal capacity retards its passage which means that, as 3 shows, it can be cooler indoors during the day but will be hotter at night. None can make a building cooler than shade temperature over the twenty-four hours. (Normal buildings are likely to be 3–5 deg. F. warmer.) Air movement makes one feel cooler but, with one exception, cannot cool the air below shade temperature. The exception is in dry climates where the air temperature can be lowered by evaporative cooling, i.e. passing the air through a moist screen. None of these devices can dry the air; evaporative coolers make it moister—unimportant in a dry climate.

To cool a building over twenty-four hours, refrigeration is necessary, filtered air being drawn by fan over a chilled coil. Part of the moisture in the air is removed as condensate. Air conditioning practice is discussed in detail by Harrison (see page 84).

To cool a building costs possibly three times as much as to heat it volume for volume. In equatorial climates the system will be operating throughout the year. Air conditioning is, therefore, expensive. In most tropical countries it is likely to continue to be the exception rather than the rule. The cooling load should be kept down by shading and a high standard of insulation and, in a humid climate, by a vapour barrier. Sources of heat and moisture within the conditioned space should be treated at source. Building volume should be kept to a minimum and plans compact. (Buildings designed for efficient air conditioning are likely to be uncomfortable if the system fails.)

Rooms can be cooled by window units—most flexible but least efficient—by a central system; or by units serving a group of small rooms or a larger space. The last—rather similar in effect in planning as warm-air convector systems used in many post-war English schools—have the advantage of reasonable flexibility and permit the use of open and closed (conditioned) space in close proximity. (One of the social disadvantages of complete air conditioning is the creation of a barrier between its closed space and the rest of the tropical world.)

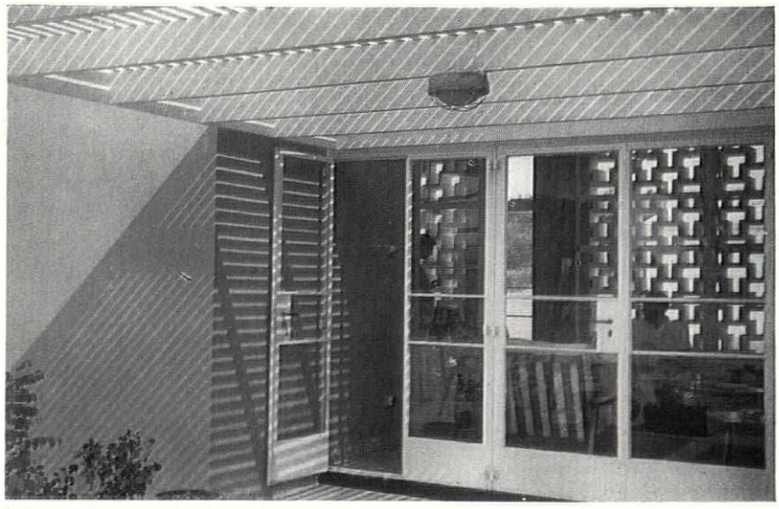
To sum up, the elements of tropical architecture are:

(i) *The open air:* too warm for living unless well shaded during the day but, particularly in drier climates, where the sky is clear, a most pleasant place to occupy at night. Importance of screens and vegetation.

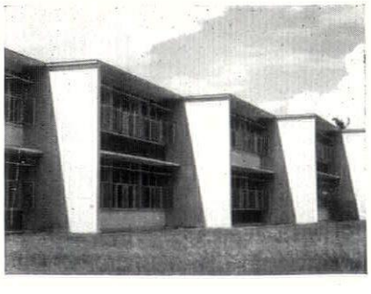
(ii) *Screened and shaded open space:* open to natural breezes (and noises) but, by day, shading is needed against the bright light of clouds and other sunlit surfaces.

(iii) *Enclosed space:* closed against the heat of the day (and outside noises), a retreat—may have to be artificially cooled.

All have their place in warm climate design.



5, in this house in the dry, arid climate of Kano, Nigeria, sun-protection is by a perforated screen covering the south facing facade (background of photograph), 3 ft. in front of the window-walls, and a wide roof-overhang on the north (architects, James Cubitt and Partners)—see also page 20.



6, the shading of windows by overhanging roofs and projecting walls in a school at Penang, Malaya (architect, J. R. Stewart, Public Works Department).

Richard Harrison

AIR CONDITIONING

The author is a partner in the firm of consulting mechanical and electrical engineers, J. Roger Preston and Partners. He considers first the use of air-conditioning in the tropics, laying stress on the need to provide 'buffer zones' between fully conditioned areas and outdoors. He then considers the different methods of circulating air, the space requirements and the order of cost.

George Atkinson in his introductory article has already pointed out the importance of deciding the exact climate a building must endure. This must be a *reasonable* decision. If one selected the worst condition of dry bulb temperature and coincident relative humidity ever experienced, this would be absolutely safe and the plant designed on this basis would never fail to maintain the required inside condition. Such a plant would, however, be very extravagant because it would virtually never be used to its full capacity, and in practice it is always found more difficult to operate a plant satisfactorily at partial duty than at a condition approximating to its full duty. Furthermore the thermal fly-wheel effect of the building construction will tend to smooth out the effect of short term peak conditions so that they are not really felt inside the building. The selection of the outside design condition is therefore a matter of judgment to ensure satisfactory performance under normal maximum conditions while achieving the utmost economy in plant.

The basis of the selection must be the meteorological data for the particular area. Most countries publish printed data based on Observatory readings, and where such printed data exists it is best to use it in the standard form in which it is provided. It must be remembered, however, that strictly the data is only accurate for the location of the Observatory and may not be entirely valid for the surrounding locality, e.g. conditions near the coast may be more humid than those at an Observatory some miles inland and possibly on a hill.

Another source of reliable data is the local airport, though this again is probably some miles away from the town. Failing these, data can often be obtained from oil companies, from contractors working at a particular site and so on, and in the last resort it will be necessary to set up a station and obtain data for the particular site.

As an example of the use of the data obtained, Table 3 is abstracted from the published data of the Royal Observatory, Hong Kong. The table shows that there are on average:

1 day in two years when maximum temperature reaches 93 deg. F.
3 days per year when it reaches or exceeds 92 deg. F.
8 days per year when it reaches or exceeds 91 deg. F.
22 days per year when it reaches or exceeds 90 deg. F.

It will be seen that temperatures over 90 deg. F. are of infrequent occurrence and it can be ascertained from the detailed records that they are also of short duration. Accordingly 90 deg. F. might be selected as the outside design dry bulb temperature, and with this figure there would be only 8 days in an average year when the internal condition must be allowed to rise (1 deg. F. to 3 deg. F.) due to excessive outside temperature. This expedient is quite permissible and probably desirable. Similarly the dew point corresponding to the design day can be selected on the assumption that the maximum dew point occurs on the hottest days. A figure of 79½ deg. F. dew point corresponds to a convenient wet bulb figure (82 deg. F.) and this is selected.

The accompanying figure, 7, shows on a psychrometric chart zones embracing the recommended outside summer design conditions for many parts of the world, based on data from various authorities. It will be seen that the highest temperature within this zone is 115 deg. F. (and very dry) and the highest wet bulb is approximately 84 deg. F. at a fairly low dry bulb temperature. On the same chart has been shown the approximate zone of required internal conditions, which is naturally much more restricted in range than the external ones. As reference points the usual internal and external design points for London are shown connected by a line.

As to the inside condition, the selection may be considered under the following heads:

(*a*) Type of person using the building. If the occupants are foreigners it might be thought that the requirements for equal comfort would be somewhat different from those of people native to the locality, but in fact there does not seem to be any definite evidence that this point of view is valid; increasing residence of Europeans in the tropics has shown that they are as adaptable to the conditions as are the native population, and are able to work just as hard in reasonable comfort. The age, sex, general condition of health, amount of clothing, acclimatization and mental outlook are important factors whether the subject is native or foreign. There must, of course, be upper limits to the condi-

[continued on page 85

Table 3: external design conditions for Hong Kong
Lat. 22 deg. N. Long. 114 deg. E.

general
(data obtained from Royal Observatory)
meteorological results 1949 to 1953; meteorological records 1884 to 1950

hottest months: July, August
coldest months: January, February
absolute maximum: August 1900, 97 deg. FDB (dry bulb)
absolute monthly mean maximum: August 1933, 89.5 deg. FDB, 76 deg. FDP (dew point)
monthly mean maximum: 60 years, 86.7 deg. FDB, 74 deg. FDP
diurnal range: hot months, 8.8 deg. FDB, 2 deg. FDP

analysis of results

		FDB				FDP			
		90	91	92	93	78	79	80	81
June	1949	4	1						
	1950	1							
	1951	1							
	1952	9	2	1					
	1953	5							
July	1949	6	2	1		19	14	1	
	1950	6	4	3		8	11	6	
	1951	5	1	1		10	11	3	1
	1952	4	4			9	8	9	1
	1953	9	6	2		10	14	4	
August	1949	4	1			14	11	5	1
	1950	2	2	1		15	4	3	
	1951	4				9	4	5	3
	1952	3	1			17	4	1	
	1953	5	3	4	2	6	4	6	9

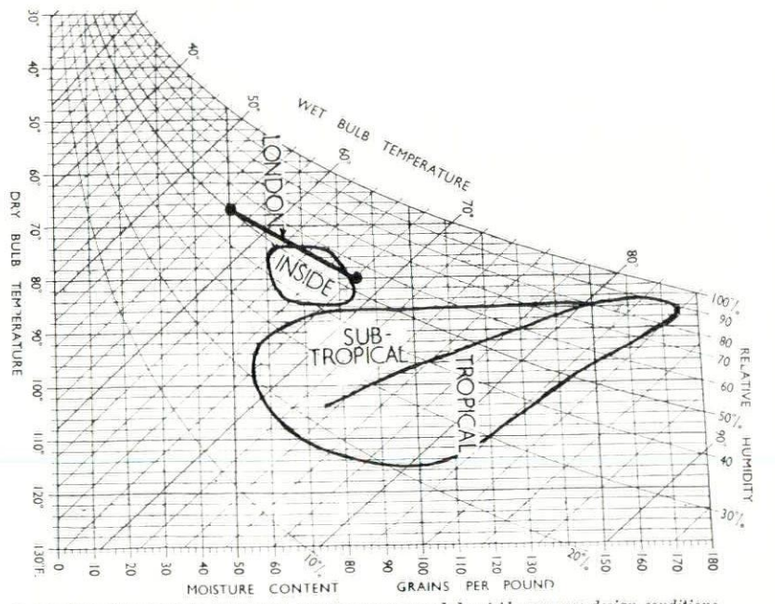
summary

no. of days over

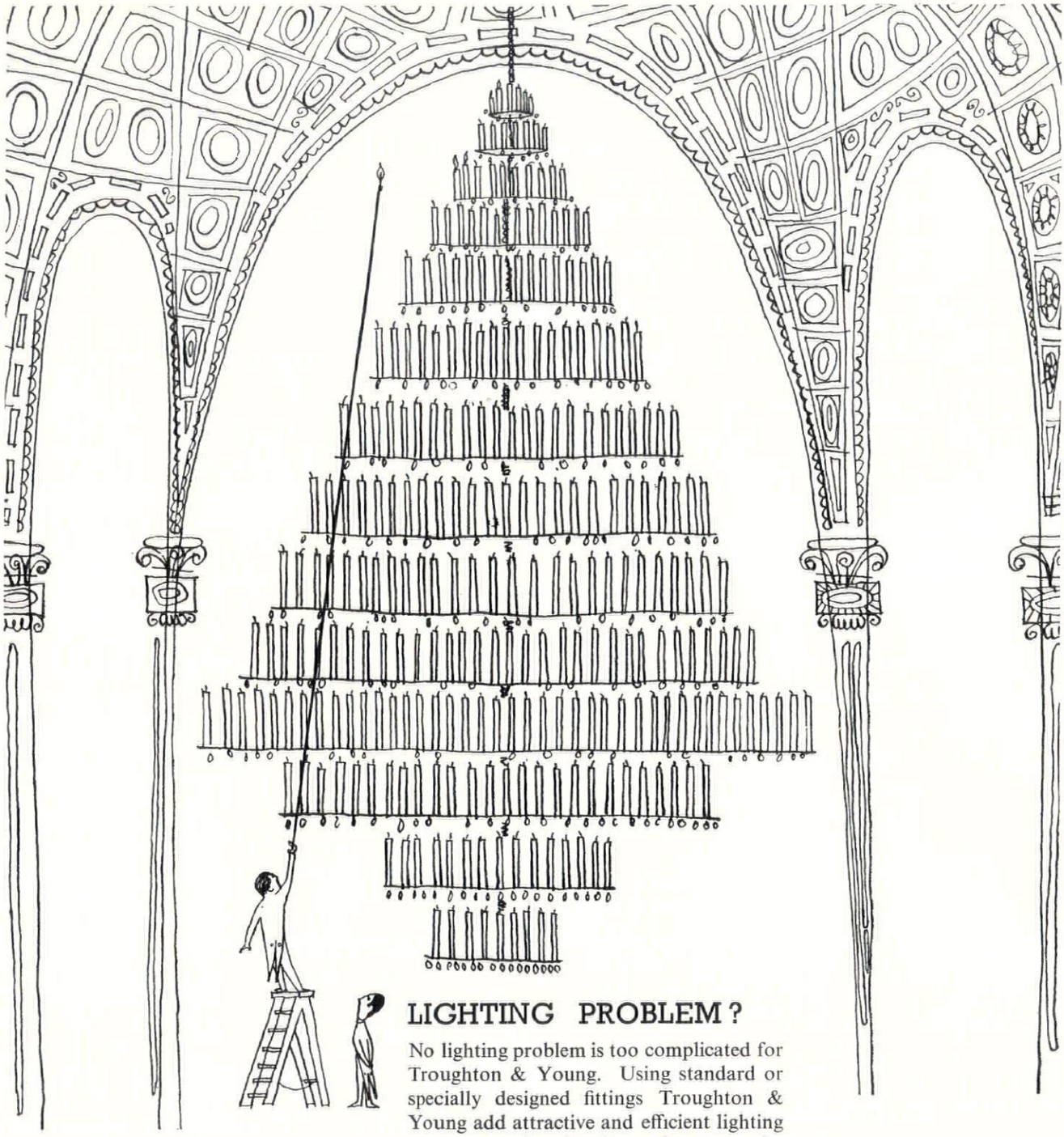
FDB				FDP		
90	91	92	93	79	80	81
22	8	3	0.5	27	12	3

proposed external design temperatures

90 deg. FDB, 79.5 deg. FDP, 82 deg. FWB (wet bulb)



7, *psychrometric chart showing zones covering recommended outside summer design conditions.*



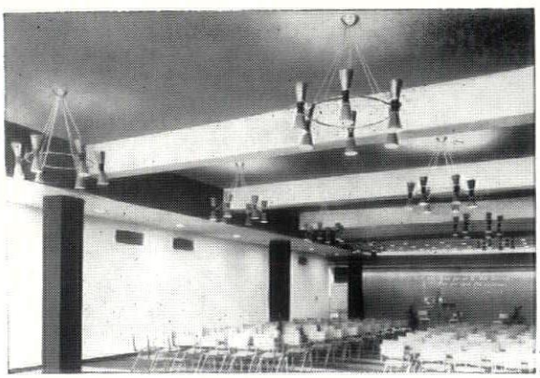
LIGHTING PROBLEM?

No lighting problem is too complicated for Troughton & Young. Using standard or specially designed fittings Troughton & Young add attractive and efficient lighting to any interior decoration as can be seen in the illustration below.

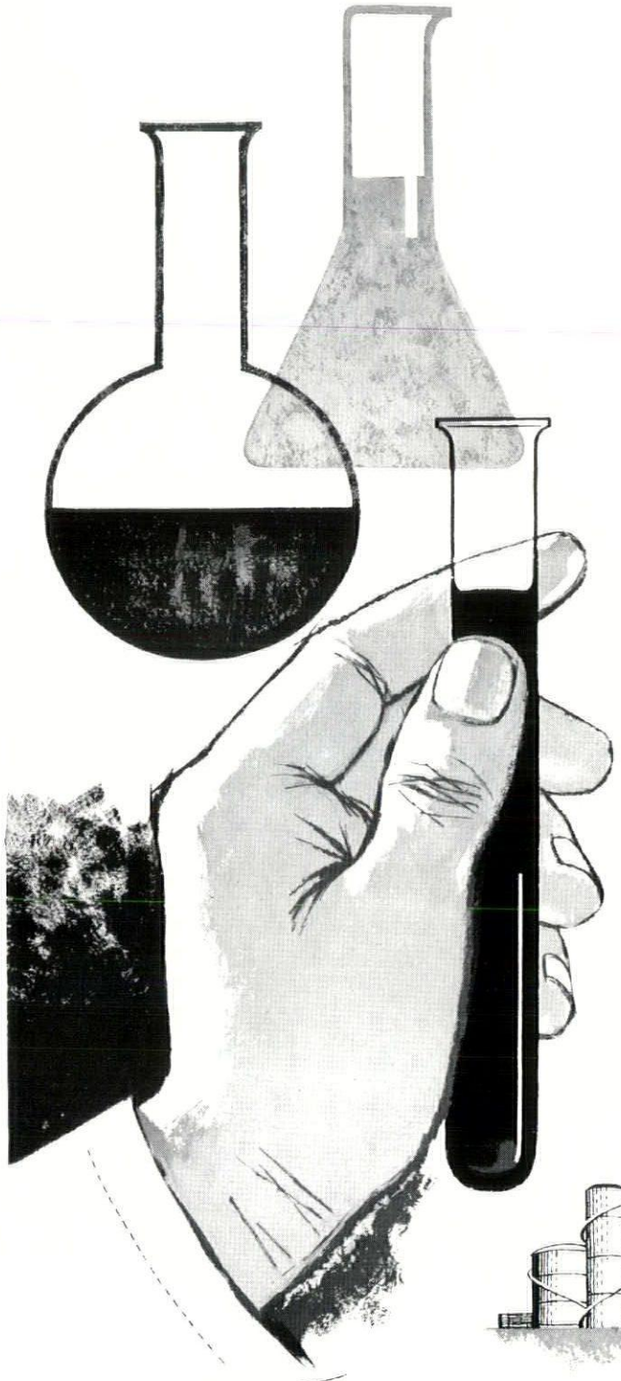
Why not discuss *your* problem with

TROUGHTON & YOUNG

TROUGHTON & YOUNG (Lighting) LTD.,
The Lighting Centre, 143 Knightsbridge, London, S.W.1.
Tel: KENsington 3444
And at Rodney Street, Liverpool 1.

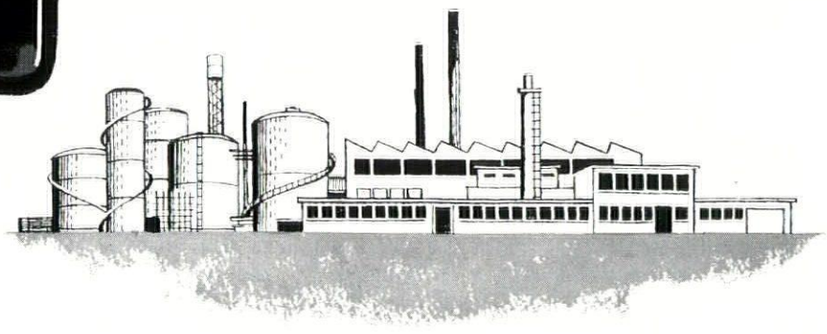


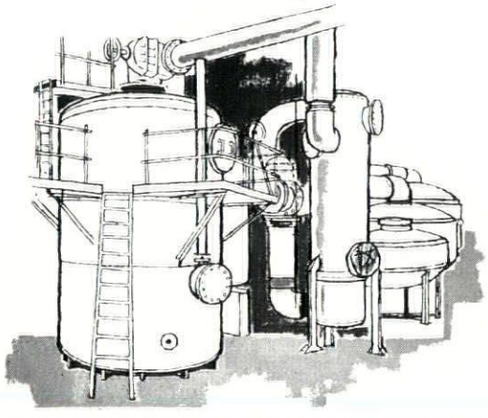
Kingdom Hall, International Bible Students Association.
Architect : Keith P. Roberts of St. Albans, LRIBA.



ACIDS AND ALKALIS... AND L.&T.

It is, perhaps, not surprising that the chemical industry, which produces so great a variety of specialised products, should also require special qualities in its flooring. Not only must this be heavy-duty in a very real sense; it must be capable of rapid installation, so that interruption to highly-geared production processes is minimised and it must also be resistant to the effects of many industrial liquors. All these requirements are met by Limmer & Trinidad Industrial Flooring—the flooring which is quickly installed, extremely hard-wearing and capable, moreover, of being given the additional special qualities which individual industries require to enable their floor to withstand their own particular risks and hazards. Descriptive leaflets on request.





THE LIMMER & TRINIDAD LAKE ASPHALT CO. LTD.,
Trinidad Lake House, 232/242 Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.,
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.,
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

MEMBERS OF THE

LIMMER & TRINIDAD GROUP OF COMPANIES

continued from page 84]

tions in which a person can work, and the efficiency of persons doing mental work shows a marked falling off at high wet bulb temperatures.

(*b*) Period of occupancy. There is no doubt that whatever the age or physical condition of a person he will feel a physiological shock on entering or leaving an air-conditioned space. It appears to take about 10 to 15 minutes before the body settles to a state of equilibrium, and during this period a person feels chilled often to the point of shivering. This is obviously of importance where occupants are entering and leaving within a short time, and the nature of occupancy should be carefully ascertained when selecting the inside design condition. In the typical case of the public hall of a bank, the customers may be indoors for perhaps 5 to 30 minutes, and in such a case it is best not to aim at complete air-conditioning in the public spaces but to allow the temperature therein to be at some point intermediate between that of the offices and cashiers' space, and that outside.

For continuous occupation, it is permissible, in the author's opinion, to design for an inside temperature of 27 deg. F. to 30 deg. F. below the outside design temperature, subject to the entrance zones and corridors of the building being put to best use as 'buffer zones' and being maintained at some temperature intermediate between that of the inner zones and the outside. At times when the outside temperature rises above the design condition then the inside temperature should certainly be raised correspondingly.

(*c*) The nature of the work done by the occupants has a fundamental effect upon the amount of heat and moisture which they emit, and both these must be taken into account in the air-conditioning calculations. In any case it is desirable to maintain somewhat lower temperatures in spaces where physical work is being done, than in such spaces as a cinema or hotel lounge.

(*d*) There is also a psychological effect upon the occupants of the size of room, amount of glare from windows, intensity of light and so on, which have been dealt with by other contributors.

The selection must therefore be a compromise, setting the maintaining of pleasant (i.e. cool and dry) conditions against the cost of the air-conditioning plant to achieve them, and subject to the temperature difference between inside and outside not being too great. Table 4, taken from the Institution of Heating and Ventilating Engineers' Guide to Current Practice, gives recommended internal summer design conditions for tropical climates. Since design conditions above 100 deg. F. will seldom be found associated with a design R.H. above 45 per cent, the recommendations in effect take separate account of hot humid and very arid climates.

Air circulated

The air circulated is introduced into the conditioned space at a temperature and humidity below that required, and by picking up heat and moisture in its passage it acts as a vehicle for the removal of the gains. The difference between the supply-air temperature and the room temperature is usually about 12–20 deg. F. in tropical installations. The greater it can safely be, without causing draughts, the less the quantity of air required to be circulated.

Most of the air is recirculated through the system, fresh air being introduced from outside only to the extent necessary for breathing, except that in cases of sparse occupancy the proportion of fresh air introduced should not be less than 10 per cent of the total air circulated so as to maintain a positive pressure within the building and so minimize the infiltration of unconditioned air from outside.

The absolute minimum required for breathing is about 600 cubic feet per person per hour, but it is recommended that this figure should be increased to not less than 1,200 and preferably more.

The design of the air-conditioning plant should be such that the proportion of fresh air may be increased to take advantage of those periods when the outside air is at such a condition that it can be used direct to do cooling, thus reducing the period of use of the refrigeration plant.

In most buildings the differing incidence of the solar radiation during the day will cause wide fluctuations in the internal temperature unless steps are taken to obviate this. Large air-conditioning installations are therefore invariably divided into zones each with their own controls and each serving a portion of the building of like aspect. For small buildings one plant may be used for several zones delivering air at a basic condition, and with separate re-heaters for each zone. This is not an economical arrangement in all cases since all the air must be cooled to its lowest condition, and a large part of it then reheated.

Another method and one which gives the individual occupant control over the conditions in his own room is the use of a double-duct system consisting of two supply ducts, one fed with air at a fixed minimum condition, and the other with warmer air; each room then being provided with a blender or mixing device of some kind taking part of its air from each duct. This system lends itself well to the supply of air at high velocity since the blender can be in the form of an acoustically-lined cabinet (usually under the window) with grilles discharging the mixed air into the room.

Another application of high velocity systems is to introduce the fresh air only, into the room, through a cabinet containing nozzles so arranged as to induce a secondary circulation of air from the room, and to mix it with the primary air supplied by the duct. Such units require additionally a heating/cooling battery supplied with warm or chilled water according to season, so as to temper the air supply. This system, however, has the disadvantage that both ducts and pipes are required to each unit, and while it is simple in its arrangement it is not as economical in operation as other systems in the intermediate seasons. It is also not possible with this system to do heating with one unit and cooling with another since the water supply is either warm or chilled and must be changed over on a specific day.

High velocity systems have the great advantage of keeping duct space to a minimum. For instance, a main duct to the floor of a building might be 10 in. diameter instead of 24 in. by 12 in. This is a considerable advantage from the architect's point of view. On the other hand the sound-absorbing units which are a necessary part of high velocity systems will occupy additional space; and from the purely engineering point of view the standard of ductwork, etc., must be very high if air leaks are to be avoided. In addition the running cost of such a system is relatively high due to the increased fan horse-powers required.

The cost of a high velocity air-conditioning system from the plant point of view is not much different from that of an orthodox system, but in the overall cost, account must be taken of the value of space saved, the greater height sometimes available due to the less depth of sub-ceilings required to conceal ducts, and so on. The refrigeration plant itself is the same, both as to cost and space, for either system.

For smaller installations or those in existing buildings where structural adaptation is difficult, the self-contained room unit is often used. It consists of a small compressor with its own evaporator and condenser coils, air filter, fan, and inlet and discharge grilles, all enclosed in a cabinet which may stand on the floor or be mounted at the bottom of the window opening. All the heat removed from the room must be disposed of through the condenser, which may be air-cooled or water-cooled. In the former case outside air is used and an additional quantity of outside air may be drawn into the room through the unit. The self-contained units are convenient in certain cases but due to their cost and to the fact that an electrical supply and usually a drainage point is required for each, they do not lend themselves to extensive installations.

Cost of installations

It is impossible to give any hard and fast rule for the cost of installations related to the cubic content or floor area of the building due not only to the great variation in building construction but also in localities and orientations. It is difficult even to

Table 4: recommended internal summer design conditions for tropical climates

	external design conditions	internal design conditions	
		for continuous occupancy	for transient occupancy (15-30 min.)
dry bulb temperature (deg. F.)	above 100 deg. F.	78 deg. F. to 83 deg. F. [a]	80 deg. F. to 85 deg. F. [b]
	below 100 deg. F.	74 deg. F. to 78 deg. F.	76 deg. F. to 80 deg. F.
relative humidity at design condition	above 45 per cent	not to exceed 60 per cent	
	less than 45 per cent	not to exceed 50 to 55 per cent	

Notes

[a] for continuous occupancy (over 30 minutes) it is recommended that the difference between external and internal design dry bulb temperature should not exceed 27 deg. F. to 30 deg. F.

[b] it is recommended that the difference between the external design temperature and that in the space, should not exceed 20 deg. F. For such spaces as corridors and entrance halls where the occupants are passing straight through into a fully conditioned space the temperature in the corridor, etc., should be approximately midway between that outside and that of the conditioned space.

Table 5: space occupied by air-conditioning plant

building	floor area of plant spaces as a percentage of gross area[1]		
	refrigeration plant	air-conditioning plants	total
tropics			
public building	4.6% [2]	5.0%	9.6%
do.	3.1% [3]	9.2%	12.3%
air terminal	2.9% [6]	3.2%	6.1%
bank building	3.0% [3]	2.8%	5.8%
do.	2.4% [4]	4.7%	7.1%
office building	9.0% Total[7]		9.0%
United Kingdom			
public building	1.4% [5]	4.7%	6.1%
office block	3.6% [5]	10.7% [8]	14.3%
electronic equipment building	9.0% [3]	8.0%	17.0%

Notes

[1] gross area includes staircases, duct risers, tank spaces, etc., as well as the AC plant spaces.
[2] plus cooling towers on roof.
[3] includes cooling towers on roof or in open compound.
[4] includes economizer-condenser.
[5] includes cooling-towers.
[6] plus sea-water-cooling pumping plant.
[7] self-contained air-conditioning plants with cooling tower on roof.
[8] includes calorifiers, etc.

General

boiler plant, fuel space, tanks, heating equipment, fire pumps and electrical equipment (other than AC starter panels) excluded in all cases.

give a rough guide, and any rule of thumb, while it may help to visualize the magnitude of the problem, can be dangerous as a basis for final conclusions. However, as a first approximation the air-conditioning load will be of the order of 1 ton r. for every 2,500 to 4,000 cubic feet of an ordinary building. (One ton of refrigeration, originally derived from the heat absorbed by the melting of a short ton of ice in 24 hours, equals 1,200 btu/hour extracted.)

As to the cost of the installations these vary widely in different parts of the world. Costs as small as £200 per ton and as expensive as £700 per ton or more are met, but at a figure of £450 to £500 per ton the cost works out at about 3s. per cubic foot of conditioned space. Each case must certainly be considered on its merits and calculations made to a reasonable degree of accuracy before a realistic estimate can be made. In this connection it is most important that there should be close collaboration between the architect and the air-conditioning engineer from the very first so as to ensure on the one hand that the design and building construction lend themselves to air-conditioning as far as possible, and on the other that the air-conditioning installations selected are the most suitable for that particular building.

Space required

The planning of the building must take account of the space requirements of the air-conditioning equipment, under the following heads for a central chilled water system:

(*a*) Cabinets under the windows or elsewhere: and/or diffusers and grilles in walls or ceilings.

(*b*) Ducts and/or pipes serving the air-supply and extract points. These may involve sub-ceilings, particularly to conceal the main duct-runs in corridors; and casings to conceal the main rising ducts. Access is required to dampers, control instruments, etc., in the ducts. All supply-air ducts, and sometimes the recirculation ducts, should be insulated, and may have to be acoustically treated, also.

(*c*) Trenches and risers for the chilled-water piping between the refrigeration plant and the zone-plants. Electric wiring and cable runs for the motive and control circuits for these plants.

(*d*) Space for the zone-plants themselves, with fresh-air intakes and outgoing ducts. Access to all such spaces, for plant removal and for maintenance.

(*e*) Central refrigeration plant room, which preferably should be separate from the main structure, but in any case should have solid foundations for the heavy plant. Good access with provision for lifting. Space for engineers' stores and minor workshop.

(*f*) Cooling of the condensers: in some localities this may be by the use of water from lake or sea, requiring pumping plant and mains. Otherwise by some form of forced-draught evaporative cooling towers, located on the roof of the building or of the compressor-room, or separately in the open air.

A recent development is a tendency away from large central refrigeration plant in favour of packaged zone plants each with their own compressor, on the grounds of flexibility and elimination of extensive chilled water circulations. Each such compressor plant would, of course, have to be provided with a supply of condenser cooling water (or have an air-cooled condenser) and vibration problems might be encountered.

The amount of space occupied by the plant will vary greatly depending on whether the spaces available lend themselves to the plant layout; on the use of the building and its subdivision, e.g. an air terminal consists of large undivided spaces, whereas an office building has a large number of small rooms. Table 5 gives some idea of the space occupied by the plant in some recent fully air-conditioned buildings in the Tropics, with a few United Kingdom examples by way of comparison.

Tom Ridley

DESIGN OF CONCRETE

Many architects working in the tropics have had to accept disappointing concrete work. The author of this article, Tom Ridley of Ove Arup and Partners, describes the causes of poor results—high temperatures, variable humidities, badly graded aggregates and cement which has been kept too long—and advises how all can be overcome.

The effect of climate on the properties of concrete is chiefly through the influence of temperature and humidity. In tropical climates the daily maximum shade temperatures may often be as high as 95 deg. F., and the out-of-shade temperature under which concrete production is often carried out may reach 110 deg. F., or more. Humidity will usually vary with the change of seasons, and may be as high as 95 per cent relative humidity, or as low as 65 per cent.

During recent work in West Africa it was observed that the high temperature of mixing and curing had the effect of reducing the 28-day strength of concrete by approximately 15 per cent.

The rate of strength gain of concrete under these conditions is more rapid in the early ages up to seven days, but this rate of gain at later ages is much reduced. This means that the proportion of 28-day strength achieved after seven days may be as high as 85 per cent, the exact figure depending on the type of mix being used. This proportion compares with a value of approximately 70 per cent under the climatic conditions in this country, and thus considerably influences any predictions made of the strength of 28-day concrete cubes from the 7-day figures.

When high strength is required for prestressed concrete work, the concrete mix proportions need to be carefully designed. As a result of the reduction in strength due to high temperature, a special allowance must be made in mix design for this type of concrete in the Tropics. The result of this is usually the need to adopt a lower water/cement ratio to give the increased high strength required, with a consequent deterioration in the workability of the concrete. To overcome this effect a cement of special strength characteristics can be used, i.e. rapid-hardening; which gives an increased rate of hardening at early ages, and also increased 28-day strength of sufficient amount to permit an increase of the water content. The use of a 2 per cent addition of calcium chloride, by the weight of cement, has also proved to be advantageous in this respect when ordinary cement is being adopted. An increase of up to 25 per cent of 28-day strength has been obtained when compared to mixes without the calcium chloride addition.

For concrete mixes to be used in normal reinforced concrete work which has been designed to the current Codes of Practice used in this country, a cube strength of more than 5,000 lb/sq. in. is not usually necessary. A reduction of water/cement ratio in this case, and the resultant deterioration of workability, can be overcome by using a slightly increased cement content. This means that to achieve the desired concrete strengths for this type of work the contractor must be allowed some scope within the specifications to combine adequate workability with the use of specially proportioned mix for this purpose. If strength is used as the sole criterion for the concrete mix, this may have the bad effect of making compaction in the formwork extremely difficult with possible poor finishes and much bad temper all round!

A suggestion for this type of work is to make the concrete specification one which stipulates the required strength values and the minimum cement contents per cubic yard of the mixed concrete. A special clause can be inserted within the specification and schedules to the effect that the actual cement contents for the work will be agreed with the contractor on site, after the concrete mix proportions have been chosen. The choice of mix proportions will normally be made from the results of preliminary trials, or if sufficient experience is available, by recommendation. This procedure is one which should result in satisfactory concrete being made from all points of view, and any variation in cost of the work will be very small.

Local materials

In many tropical countries there are no satisfactory supplies of good quality concrete aggregates available ready for use as a commercial product. It is therefore necessary to accept the supply of the best local materials, and deal with the problem of improving their quality on site. This will usually involve careful washing out of all vegetable matter and clayey soil, together with the grading of particle sizes to conform with the desired standards. The influence of the size, shape and grading of the aggregate particles has a considerable effect on the type of concrete which is made from them, and especially on the workability. As mentioned previously the question of workability is one which has to be taken into account in the strength calculation of mix proportions, and for this reason particular attention should be given to aggregate properties in the Tropics. With the reduction of water/cement ratios as proposed, improvement in workability can often be made if the aggregates are carefully prepared for this purpose.

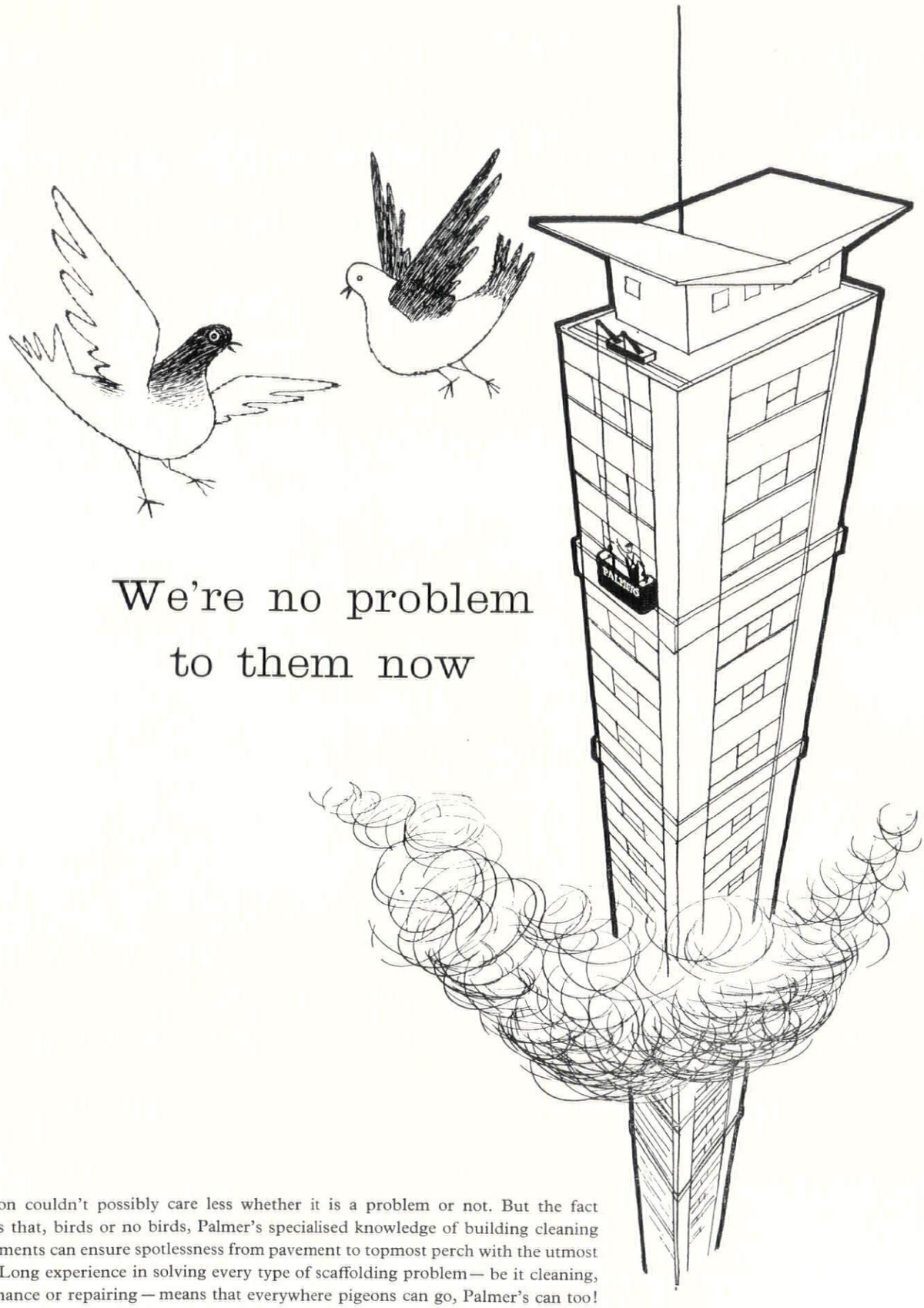
Coarse aggregates most frequently are obtained from native 'quarries' where crushing of the stones is not sufficiently well supervised to give good gradings. Excessive dust and inconsistent sizes result in a coarse aggregate which has the effect of gap-grading with the fine aggregate. This can result in honeycombing of the concrete unless the mix is very carefully chosen and supervised. Natural gravels are also found frequently, in land and water borne deposits. These suffer normally from containing too much fine material, which can result in harsh concrete giving poor finishes. On the other hand the sand can often be of excellent potential quality, and when washed will be a first class aggregate, of the type which is sharp but well graded.

The supply of cement is most often of imported origin, but in several tropical countries cement factories have been recently constructed. With imported cements there is always some doubt as to quality because of the increased age since manufacture due to the time taken in shipment. Deterioration can take place as a result of contact with moisture, or the method of handling and packing which damages or punctures the containers. Tests have shown that provided the containers are in sound condition the quality of cement is well within the requirements for quality cement work, and that storage of the cement can be carried out for several months. For periods of storage over three months it is advisable to use a special type of waterproof paper sack, which can be obtained from most suppliers at very little increased cost. For periods of storage over six months the use of a steel drum which has been sealed from the atmosphere is to be preferred, and tests on cement stored up to 18 months in this way have shown no signs of deterioration.

Site control methods

The methods used for manufacturing concrete on site must be arranged to give the desired results to fulfil the design requirements, without regard to the total size of the job or the amount of concrete being made at any one time. This is a general stipulation, and the methods are concerned with the batching, mixing, placing and finally curing the concrete. They are chiefly the concern of the contractor for the work, who is usually sympathetic towards the

[continued on page 88



We're no problem to them now

A pigeon couldn't possibly care less whether it is a problem or not. But the fact remains that, birds or no birds, Palmer's specialised knowledge of building cleaning requirements can ensure spotlessness from pavement to topmost perch with the utmost safety. Long experience in solving every type of scaffolding problem — be it cleaning, maintenance or repairing — means that everywhere pigeons can go, Palmer's can too!

PALMER'S TRAVELLING CRADLE & SCAFFOLD CO. LTD.
3, Woodside Green · London · S.E.25 · Telephone: ADDISCOMBE 7721/4.

continued from page 86]
idea for first-class results within the scope of the contract. The control methods to be adopted in order to achieve the desired results can frequently give savings in materials, especially with cement, and thus there can be a financial incentive. In tropical countries this is more so as the cost of cement is very high, and the cost of labour relatively low.

The effect of tropical climate conditions on site control methods for quality concrete arises chiefly through the increased attention which must be paid to the question of water content at the mixer. High mixing temperatures give rise to rapid evaporation from moist aggregates, and from the batches of mixed concrete before placing; which means that the control of workability is a tricky operation within the strict limits of water content derived from the strength requirements. To limit the effect of the direct rays of the sun it is desirable to place the concrete mixer and adjacent aggregate stockpiles during mixing under a roof shelter. This can be made from temporary materials without any difficulty, and also proves very useful in helping to keep the moisture content of the aggregates constant even during sudden tropical rainstorms.

A procedure which has been successfully adopted on larger jobs to control water content is one which involves drying out samples of the aggregates prior to each mixing. The results from weighing the amount of water contained in each aggregate are used to calculate the correct batching proportions from the dry weight proportions chosen in the preliminary mix agreed for the job. A simple form of nomograph can be designed to make these batching calculations automatic, and the work involved in applying this method of control is not inconvenient. It has been found that the batching of water by weight is to be preferred to the various ways of measuring it by volume, and a very simple form of lever balance can be obtained for this purpose.

The method of conveyance of the mixed concrete, and the method of placing, will always vary from one job to another. With the form of sun shelter described above, the mixer is not able to move freely about the site, and the distances to be covered in transporting concrete into position can be large. In this case a method of covered skip or dumper is to be preferred which will retain the concrete in its properly mixed condition, without loss of workability or segregation.

Curing of concrete in tropical climates is something which needs a considerable amount of attention, due to the rapid evaporation as the concrete is hardening. For vertical surfaces such as walls it is necessary to keep up a continuous spraying of water, particularly if steel shuttering has been used. For horizontal areas such as slabs the best method of curing is by ponding, in which the slab is covered by a layer of approximately 3in. water. Alternatively hessian covering and shading, with continuous watering, can be equally successful. Due to the increased rate of strength gain under high temperature conditions, the stripping of formwork may be possible sooner than expected in this country. However, it is not desirable to reduce the periods required before stripping as the formwork provides a protection to the concrete surfaces which should be maintained. In certain cases surface cracking may result if rapid drying out of the concrete takes place due to too early removal of the formwork.

Scope of application of quality concrete

The results of concrete cube tests in tropical climates show that strengths up to 8,000 lb./sq. in. are obtainable with no more than the usual amount of control adopted in this country. The selection of concrete mix proportions has been shown to require that certain allowances be made for the prevailing high temperature conditions, but with these allowances there is every reason to expect first class concrete structures well up to the standards achieved elsewhere.

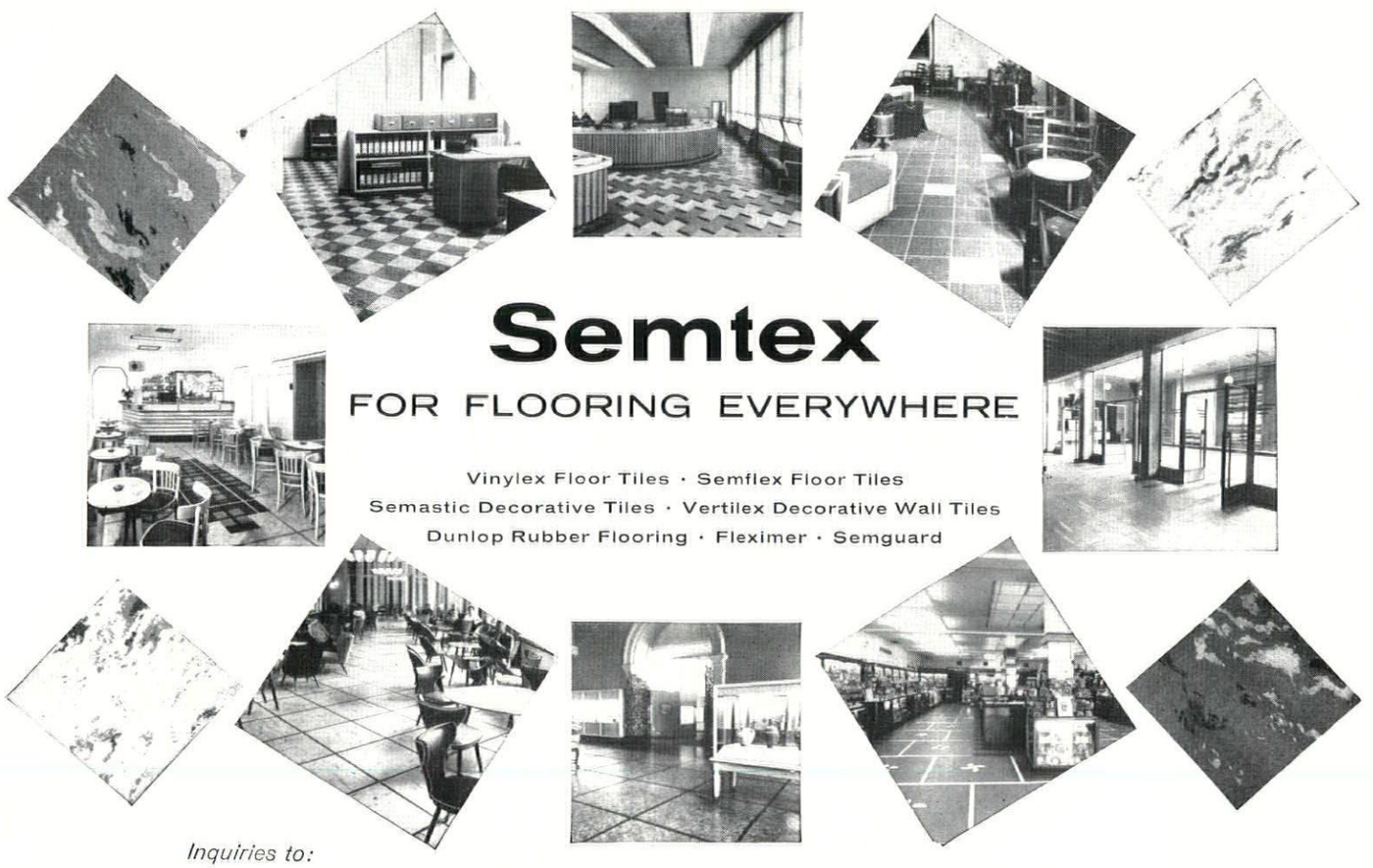
W. H. Ransom

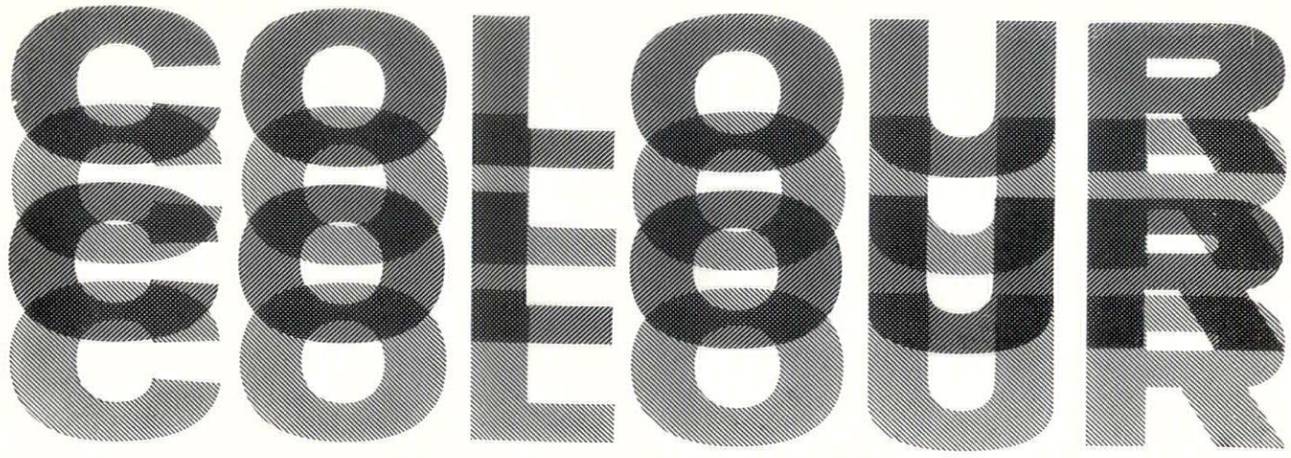
NEW MATERIALS

The author of this last article, W. H. Ransom of BRS, describes the taxing conditions which building materials must stand up to in the tropics. He then takes a selection of characteristic new products: polyethylene, pvc, translucent corrugated roof sheets, polystyrene, wood particle board, paper resin laminates, pva emulsions and pitch fibre—and states in what conditions each can be used.

Building materials will, initially, possess certain desirable properties. They may be strong and resistant to impact and fire; they may be elastic and have the ability to adhere to other materials; they may be waterproof and of good appearance. When exposed to the weather under normal working conditions these initial properties can change. Then the material may corrode and become weaker; it may embrittle, fade and discolour. Obviously it is an advantage if the probability of such changes can be forecast. In the Tropics, however, many of the materials to be described are very new and there are few relevant laboratory results specific to the

[continued on page 90





the logical use of colour in building no. 4

quality of daylight:

It is now becoming generally known and, what is more important, appreciated that the source of light plays an important part in the creation of colour in rooms and in the external appearance of buildings. The new type of fluorescent lamp has emphasised — indeed forced attention upon — the careful selection of colours for buildings illuminated by fluorescent lighting.

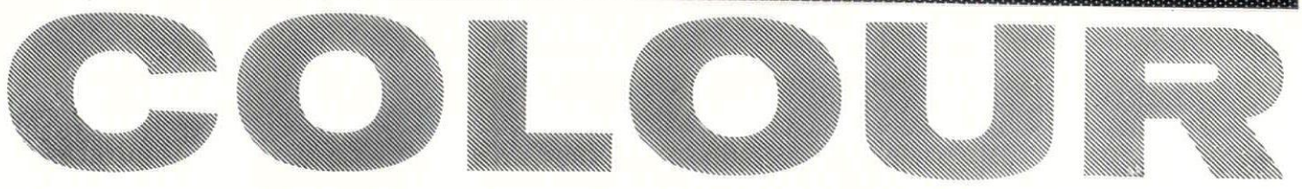
At the same time it is not often fully realised that daylight — the most generally accepted form of illumination — does vary in quality, and although the variations in the quality of daylight in different places and different parts of the country are small, such differences may often play a decisive part in the selection of the various colours.

There does not seem any doubt that the daylight of the industrial north of England, particularly near the sea, possesses an excess blue component compared with the urban daylight of late afternoon and evening. The colour of the gentian flower sparkles in the south of England because the red component of this colour is reflected into the eye of the observer, whilst in the north the relative absence of the red component makes the colour appear lifeless and dull.

Generally the most suitable colours for the northern light are the pastel colours of high reflection value which can be used together with white and a whole series of greys, again of high reflection value. If interest is then obtained with small areas of strong colour then satisfactory decoration can be achieved. The choice of the hue of the pastel colour needs care in selection, but it has been found that the pastel reds and the yellow-reds do give pleasing results, although any basic colour, reduced as a pastel, can be used. In the south, on the other hand, the whole gamut of the colour range can be fully used.

The next announcement in this series will be on " Glare ".

Goodlass, Wall & Co. Ltd, Corn Exchange, Liverpool 2 or 179/185 Gt. Portland St, London W1



continued from page 88]

climatic conditions. Even so some useful guidance on probable behaviour can now be given though some of the remarks made in this article will, no doubt, need to be modified in the light of future practical experience.

The factors that cause detrimental changes in a material are often present in both tropical and temperate areas. It is primarily the variation in the degree of intensity of these factors which is responsible for any differences in behaviour in the two climatic regions. The essential difference lies in the much higher levels of solar radiation—both light and heat—received in the Tropics. Because of absorption by cloud and dust, solar radiation received at the earth's surface is a maximum, not at the Equator, but between latitudes of 15 and 35 degrees both north and south of the Equator. (The world's highest shade air temperature of 136 deg. F. was recorded at Azizia on latitude 32½ degrees N.)

The surface temperatures attained by building materials by day are greater than the corresponding shade air temperature. Then a dull or black surface, especially if insulated underneath, may well be some 50–60 deg. F. hotter. Moreover, at night it can fall below air temperature when the atmosphere is clear with little moisture or dust. High temperatures in themselves can cause fundamental changes within materials—particularly in the organic materials, bitumen, paint, plastics and rubber—changes which are manifested by embrittlement. Volatile constituents—e.g. paint driers—will be lost more rapidly and premature evaporation of water from cementitious mixes will result in poor hydration and hardening. Furthermore, high temperatures have the secondary effect of stimulating biological activity and increasing the rate of other degradation reactions both of which are detrimental to many organic materials. Fluctuations in temperature cause thermal movements of materials. These impose differential stresses upon different materials used in conjunction with one another and even within a homogeneous material through unequal heating of the surface and underlying layers. These stresses can cause crazing, cracking and distortion. This is most marked when changes are large and rapid—for example, in hot, desert areas where diurnal temperature variations are high. In equatorial rainforest areas changes are much smaller and may well be less than in temperate regions. Quite apart from any heating effects, the shorter wavelengths of sunlight itself can be absorbed by bitumen, many paints, plastics and rubber. Embrittlement, crazing, and discoloration are caused, the effects being most pronounced at high altitudes and in coastal areas.

Moisture is detrimental to most building materials. Deterioration is most likely in equatorial rainforest areas where humidities are so high that the small drop in surface temperature of a material at night frequently results in heavy condensation upon it. Even when stored under cover building materials can then be thoroughly wetted. They may corrode or rot particularly when condensation occurs in relatively inaccessible crevices from which subsequent evaporation is slow. Prolonged high humidities, too, are conducive to mould and algal growth. At the best, building surfaces are disfigured; at the worst, decay can result. Tropical savanna regions have markedly wet and dry seasons and the annual range of relative humidity can exceed 90 per cent; the daily range can be greater than 70 per cent. Such extreme fluctuations of humidity cause marked dimensional changes of many building materials—notably of timber, boards, earth, and cement products. Warping, splitting, crazing and cracking can result.

Rainfall amounts in tropical areas vary widely but in general terms the wettest areas may be said to be between 10 deg. N. and 10 deg. S. Here annual totals commonly exceed 60 in. and may exceed 100 in. High intensity falls of 2–3 in. per hour are not uncommon during storms. High total rainfall and high intensity falls keep humidities high, cause the prolonged and thorough wetting of materials, and can erode the softer ones. Tropical convective hailstorms can be severe and even material such as concrete and clay tiles, asbestos-cement and thin gauge aluminium sheets can be broken by hailstones which at times weigh over ¼ lb. Paint films, too, can be damaged.

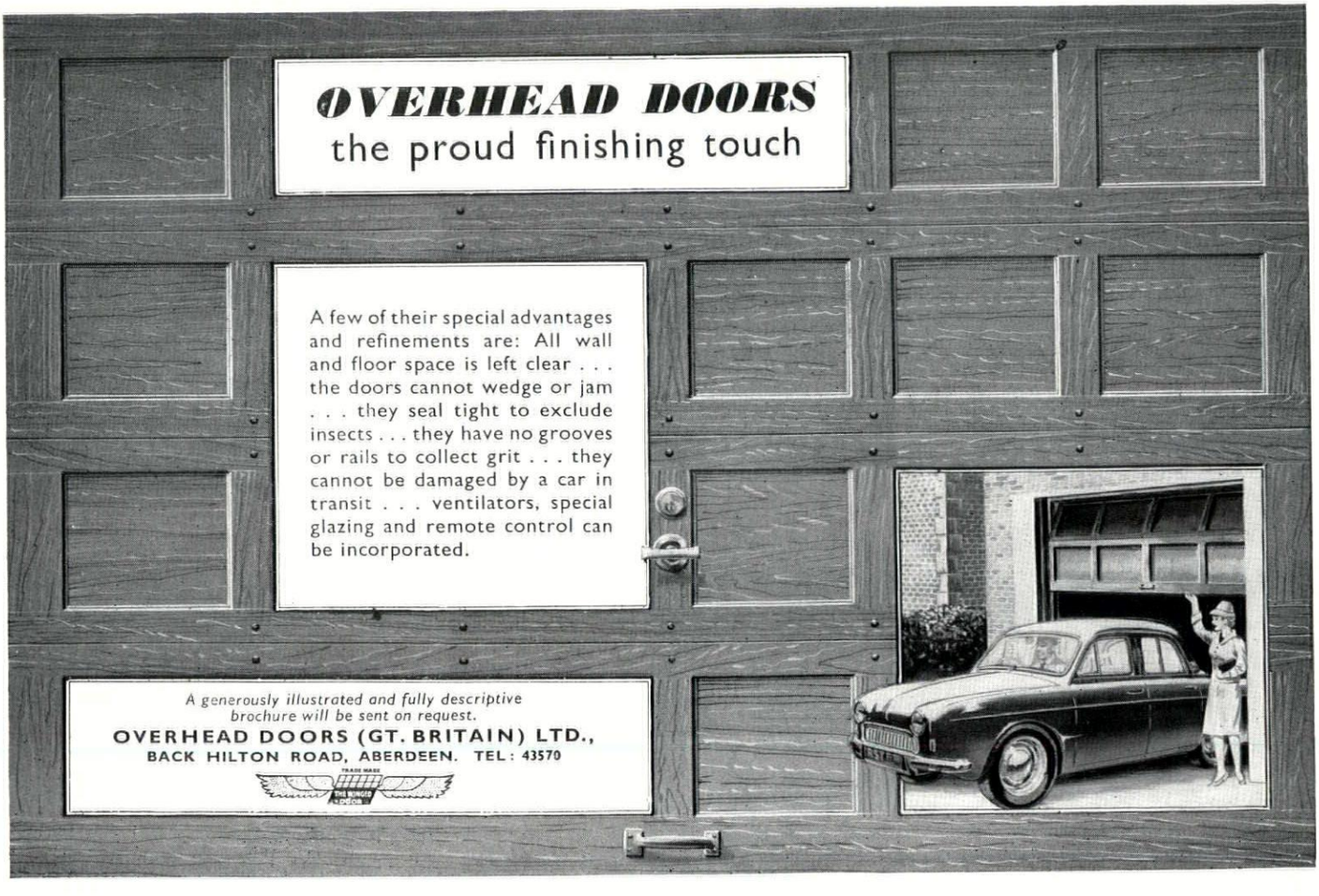
Damage by insects to building materials is chiefly caused by the termites, whether earth-dwelling—where contact with the ground is vital to their life—or wood-dwelling—where no such contact is needed. Both types feed on timber, fibreboard, hardboard, and some plastics and can damage bitumen, paint, rubber and earth in their search for food. Termites are widespread and cause much damage where remedial measures are not taken.

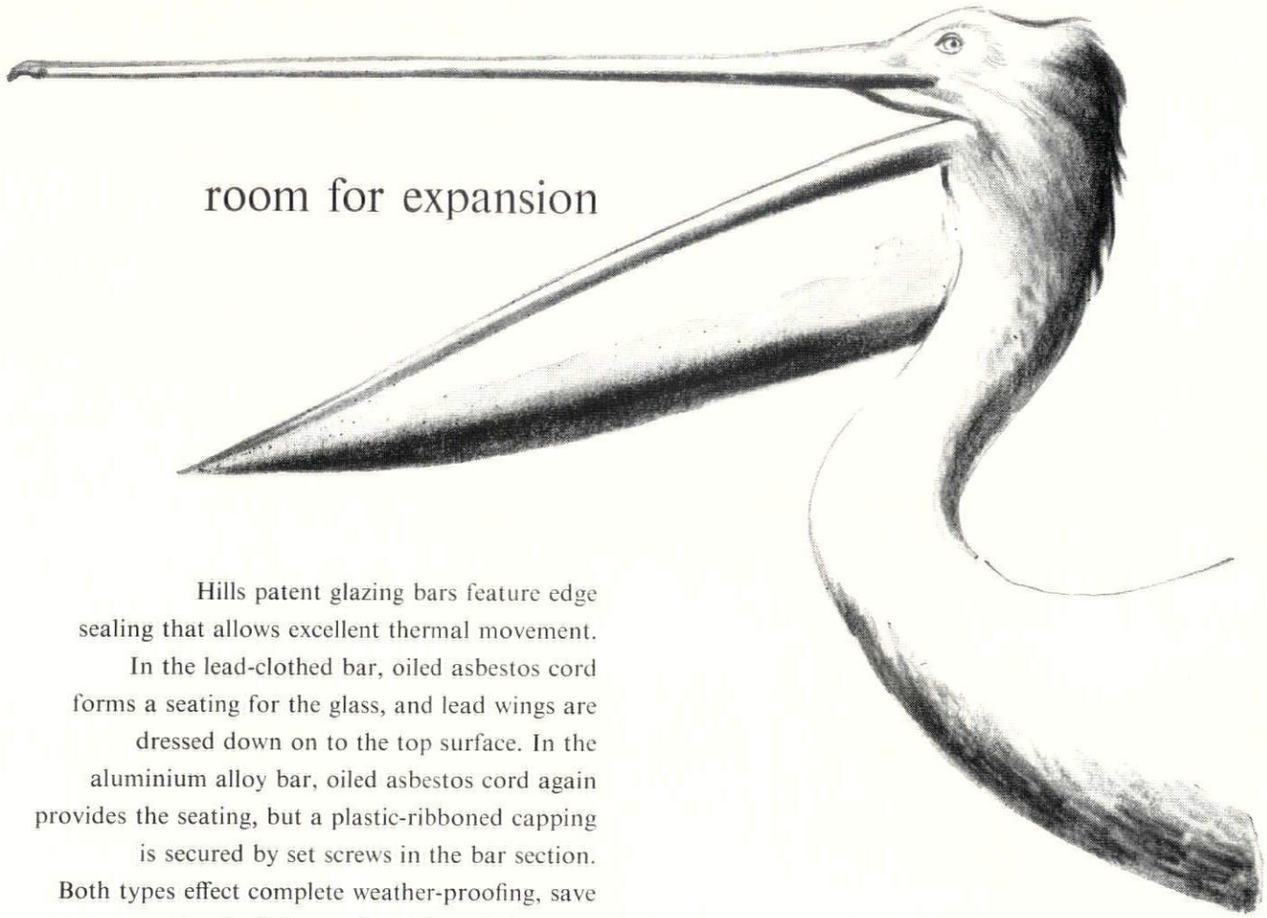
Damage through atmospheric pollution is generally less in the Tropics than in the more industrialized temperate areas, but in hot, desert areas wind-blown grit can etch glass and erode paint films. Near surf beaches, too, the high concentration of sea-salt in the atmosphere degrades paint films and promotes the corrosion of metals.

Plastics

Plastics figure prominently amongst the building materials most recently introduced into the Tropics. Of the many types now available special mention must be made of polyethylene, polyvinyl chloride (pvc), acrylic resins, polyester resins and polystyrene. Polyethylene, stabilized with carbon black, has been used indoors for above-ground cold water service pipes. At normal indoor temperatures these are tough with a high impact resistance. They do not corrode and present-day compression jointing and welding techniques have overcome earlier fixing difficulties. They should not be used for hot water services for even high density polyethylene embrittles and deteriorates if its temperature regularly exceeds 115 deg. F.—a property which precludes its continued use if exposed directly to the tropical sun, especially in desert and marine atmospheres. Polyethylene can be usefully employed in sheet form as a vapour barrier, as a temporary protective covering to both buildings and materials, and as a curing membrane for concrete. It is available reinforced with glass fibre. It should be noted that polyethylene is susceptible to slight termite nibbling which limits its possible uses below ground. It is highly resistant to fungal growth which, when it occurs, is generally confined to extraneous surface matter.

[continued on page 92

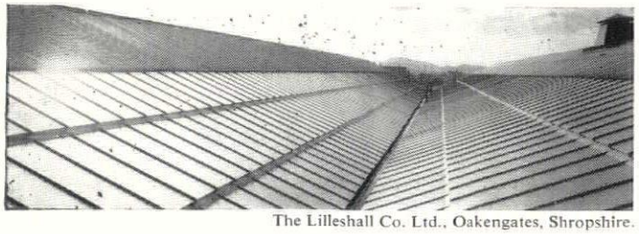




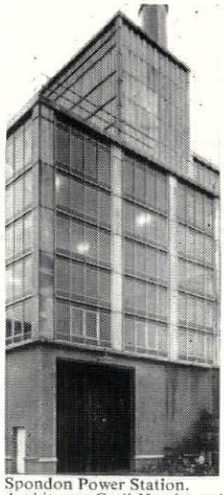
room for expansion

Hills patent glazing bars feature edge sealing that allows excellent thermal movement. In the lead-clothed bar, oiled asbestos cord forms a seating for the glass, and lead wings are dressed down on to the top surface. In the aluminium alloy bar, oiled asbestos cord again provides the seating, but a plastic-ribboned capping is secured by set screws in the bar section. Both types effect complete weather-proofing, save time in fitting and cost in maintenance.

For full information on Hills patent glazing please contact our Technical Department.



The Lilleshall Co. Ltd., Oakengates, Shropshire.



Spondon Power Station.
Architects: Cecil Howitt and Partners, Nottingham.

HILLS (WEST BROMWICH) **LIMITED**

ALBION ROAD, WEST BROMWICH, STAFFS.
Telephone: West Bromwich 1811 (15 lines).

London: CHAPONE PLACE, DEAN STREET, W.1.
Telephone: GERrard 0526/9.
Branches at: Manchester, Bristol, Newcastle-on-Tyne, Glasgow.

EP P8

continued from page 90]

So far, the principal building use for polyvinyl chloride (pvc) has been as a tough, flexible floor covering in sheet or tile form. For interior use there are no special tropical problems. Pvc in a wide range of colours has been recently introduced for rainwater goods and as a covering to metal and wooden window frames. There is no published experience yet of this use in the Tropics but there are good technical reasons for believing that black, grey and white colours will weather best. The rainwater goods are light, easy to handle, and do not corrode. Adequate provision must be made for their high thermal expansion which is some ten times that of steel. On metal window frames, too, differential thermal expansion of the pvc and of the metal may pose problems. Termites are known to nibble pvc and, with wooden window frames, there is a possibility of attack on the pvc to reach the timber with the subsequent destruction of the frame. This possible termite attack makes the use of pvc water and gas pipe for use underground unlikely but above ground and indoors it should be satisfactory. Pvc may also be used for waterstops in expansion joints.

Acrylic resins and polyester resins reinforced with glass fibre have been used as translucent corrugated roof sheets for daylighting. Under tropical exposure, they will both suffer some loss in light transmission and can discolour. Acrylic sheets are essentially durable and give good service. Less is known of the durability of polyester resin. With many of the reinforced polyester resins at present available the glass fibres will slowly become exposed and the dirt then collected will encourage mould growth.

Expanded polystyrene is a good insulator, essentially free from attack by insects and mould but has a maximum safe working temperature of around 140 deg. F. This limits its use in the Tropics—it could be unwise, for example, to place it immediately underneath a black bituminous roofing felt.

Plastics, particularly urea-formaldehyde, are also used in the manufacture of resin-bonded wood particle board. The properties of particle board depend greatly upon the type of wood chip used. Random wood waste is undesirable. Forest thinnings are mainly employed, preferably of coniferous timber whose naturally high resin content prevents undue absorption of the expensive plastics resin. The chips are bonded under pressure and heat and the boards so formed can be used internally for flooring, ceilings and partitions, but are not suitable for prolonged external use.

Phenol-formaldehyde is weather-resistant and is used in the production of opaque corrugated paper-resin laminates for roofing. Save for loss of original gloss such roof sheets are durable to tropical exposure. Hollow rigid phenol-formaldehyde bonded panels have been used successfully as internal partitions. Melamine formaldehyde paper laminates have been used for facing hardboard, particle board, and phenol formaldehyde paper laminates and give satisfactory service indoors.

Plastics are also used in the preparation of modern paints—notably the emulsion and alkyd resin paints. Though there are others, the emulsion paints mainly used today are based on polyvinyl-acetate (pva) emulsified in water which, being a colourless medium, allows clean pastel shades to be produced. Pva emulsion paints are primarily decorative—not protective—and the best results are obtained on concrete, brick, stone and plaster. These surfaces can be painted when slightly damp for the pva paint film is porous and allows moisture to breathe through it. Application is easy by brush or roller and a good finish is obtained showing few joints; drying is rapid. Flaking of pva paint is rare, adhesion in multiple coats is good, and fungal resistance is high. Alkyd resin paints are both decorative and protective and can be obtained in many brilliant colours. They dry rapidly to give a tough, elastic film of considerable durability. Early difficulties of application have now been overcome. They are reasonably resistant to mould growth but less so when weathering has roughened the surface.

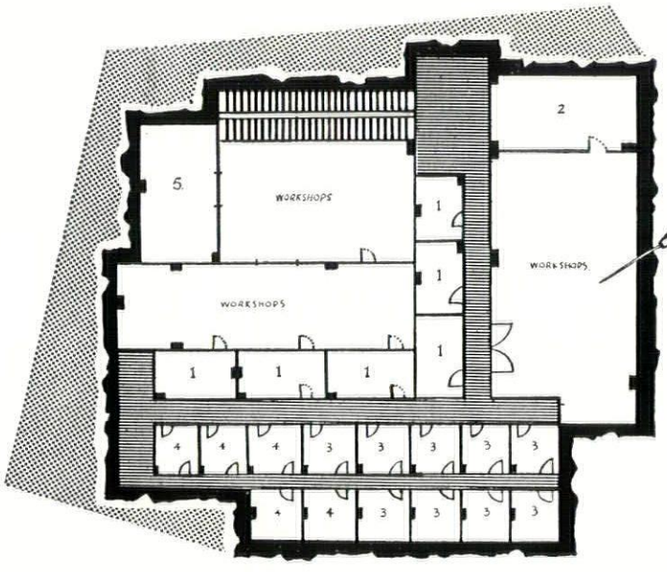
Pitch-fibre sewage pipes consisting primarily of cellulosic fibres impregnated under vacuum with heated coal-tar pitch are also new to the Tropics. They are light (5 lb. a foot run for a 6-in. diameter pipe), tough and resilient, and resistant to soil sulphates, to attack by sewage, and to fungal decay but not to organic pitch solvents and to continuous hot water. Pipes are of smooth bore with tapered ends and the few joints needed are easily made by driven-on sleeve couplings. These eliminate the need for jointing compounds and so the possibility of obstruction in the pipes and the later entry of tree roots. They can be safely used underground. They should not be stored in direct sunlight for the high surface temperature then reached could seriously reduce their otherwise satisfactory resistance to flattening.

Brief mention may be made in conclusion of aluminium sheets. They are light and strong, and alloy NS-3 (BS 1470 : 1955), which is chiefly used, has considerable resistance to corrosion even near the coast. Corrosion can occur, however, through direct contact with dissimilar materials—particularly with copper, lead, concrete, lime and some woods—and through crevice conditions. This is especially likely in wet regions and special protective measures are called for. Fixing accessories should be of aluminium, or galvanized or stainless steel, and crevices should be packed with a suitable barium chromate jointing compound. To avoid the discomfort from 'glare' from the surface of new sheets these can now be obtained suitably treated. Aluminium may be anodized to thicken artificially the weather-resistant oxide film which forms naturally upon exposure. The anodized layer can be dyed and coloured sheets are available. The main outlet so far, however, has been for window frames and curtain walling.

Advertisement

SITUATION VACANT

Senior Draughtsman required for well paid permanent appointment. Superannuation scheme, canteen facilities. Applications with details of past experience, present salary and copy references to be submitted to The Manager, The Concrete Department, The Croft Granite, Brick & Concrete Co. Ltd., Croft, near Leicester.



PLAN FOR STABILITY

WITH

WEST'S SHELL PILING SYSTEM

The stability of West's Shell Pile is derived from a number of factors. Firstly, the pile is driven to the correct dynamic set for the bearing capacity required. Secondly, while the consolidating effect of the positively driven pile is retained, the outer shell being firmly embedded in the load-bearing stratum, there is no fatigue in the pile core, which is cast after driving is completed.

Please write for the latest pubiications describing this modern system to:

WEST'S PILING & CONSTRUCTION CO. LTD

Foundation Specialists · Design & Construction in Reinforced Concrete

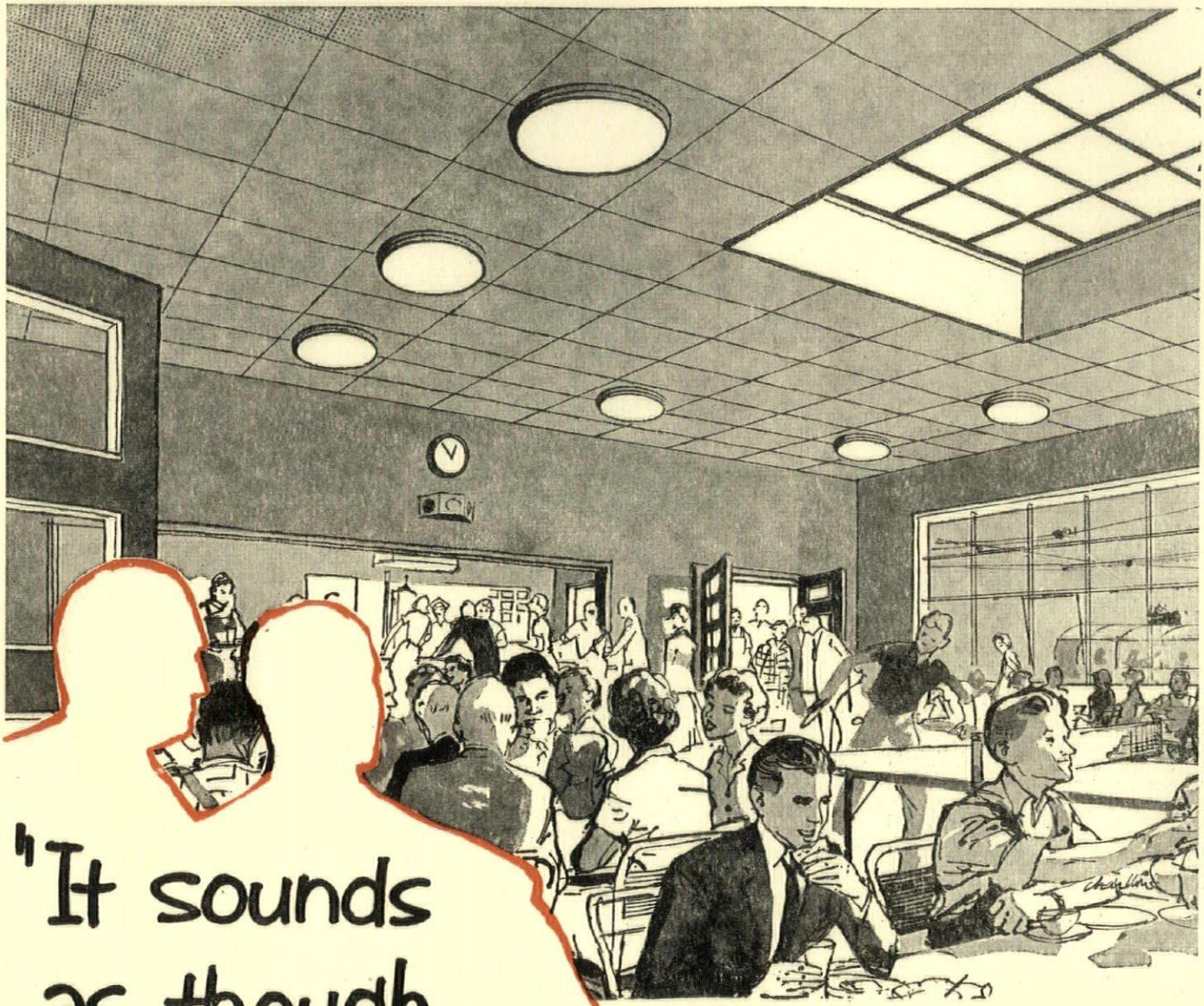
BATH ROAD · HARMONDSWORTH · MIDDLESEX · Tel: SKYPORT 5222

Branches in London · Bristol · Birmingham · Manchester . Glasgow

Australasia: West's Shell Piling (Asia) Pty Ltd, Melbourne, Sydney, Adelaide & Wellington, N.Z. Southern Africa: The Roberts Construction Co. Ltd, Johannesburg. France: Compagnie Générale de Construction de Fours, Paris

A MEMBER OF WEST'S GROUP OF INDUSTRIES

A7



"It sounds as though they called in Cullum"

Now one can eat in peace. *Now* one can enjoy a meal without the distracting clatter of cutlery, rattle of crockery and the scraping of chairs. Excessive noise in a canteen is just as bad as excessive noise at work. At a time when people should be able to relax, relaxation is impossible. But Cullum can reduce noise to bearable levels. Why not let them do it for you?



PROGRESS WITH QUIETNESS

Sound control by CULLUM

BRITAIN'S MOST EXPERIENCED ACOUSTIC ENGINEERS

CONCESSIONNAIRES FOR ACOUSTI-CELOTEX AND BURGESS ACOUSTIC TILES

HORACE W. CULLUM & CO. LTD · The Acoustic Centre · 58 Highgate West Hill · London N.6 · *FITzroy 1221 (P.B.X.)*

Printed in Great Britain for the Proprietors of "The Architects' Journal," of "The Architectural Review," and of "Specification" (The Architectural Press, Ltd.) 9-13, Queen Anne's Gate, Westminster, S.W.1, by Knapp, Drewett & Sons Ltd., by appointment to Her Majesty the Queen, Printers, Kingston-on-Thames.
Editorial illustrations engraved by The Engravers Guild Ltd., Windsor House, 23/26, Cursitor Street, London, E.C.4.
Entered in the New York Post Office as Second Class Matter

Reinforced Concrete for strength with lightness

BRC

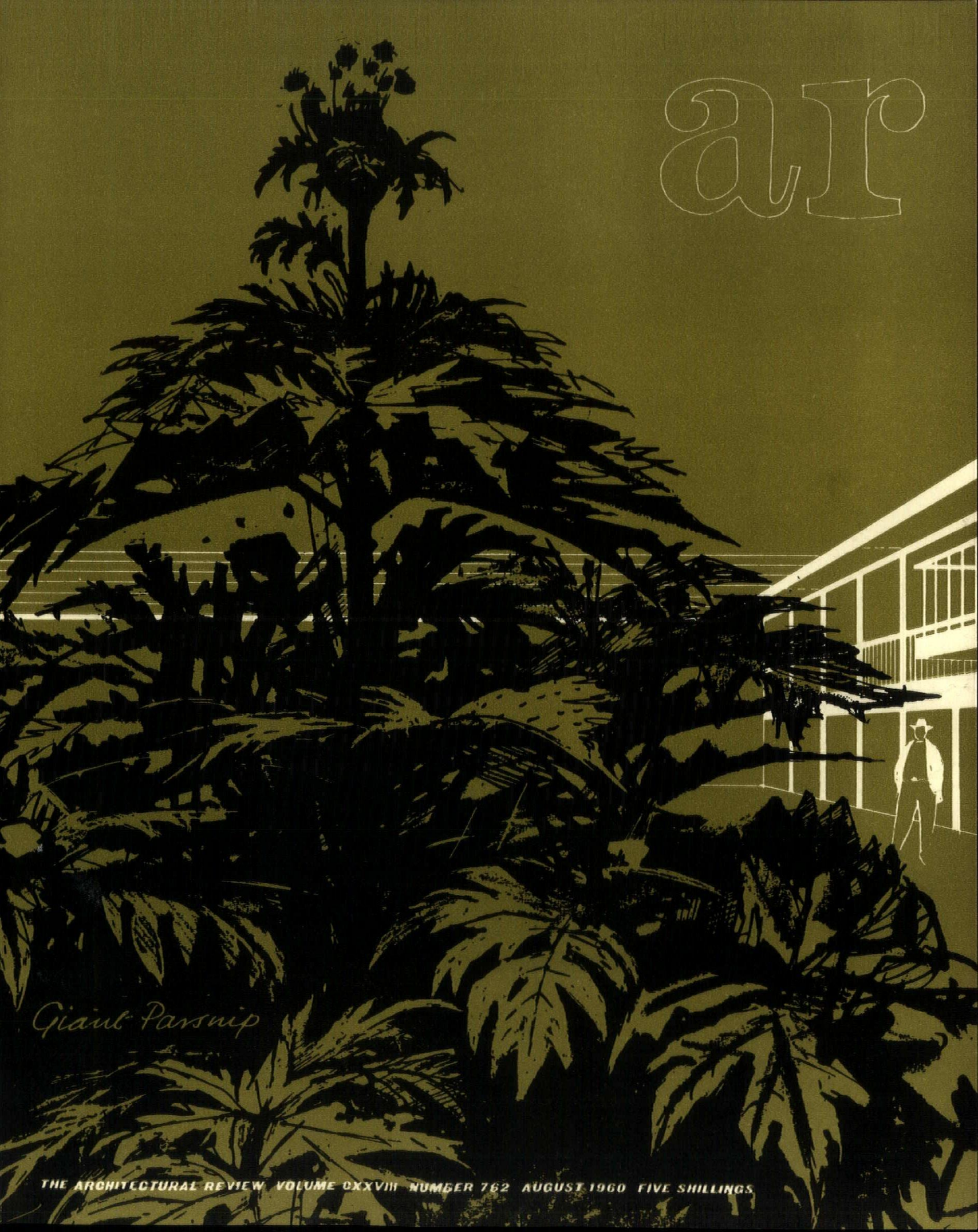
Specialists in Reinforced Concrete Design and Suppliers of Reinforcement

THE BRITISH REINFORCED CONCRETE ENGINEERING CO. LTD., STAFFORD

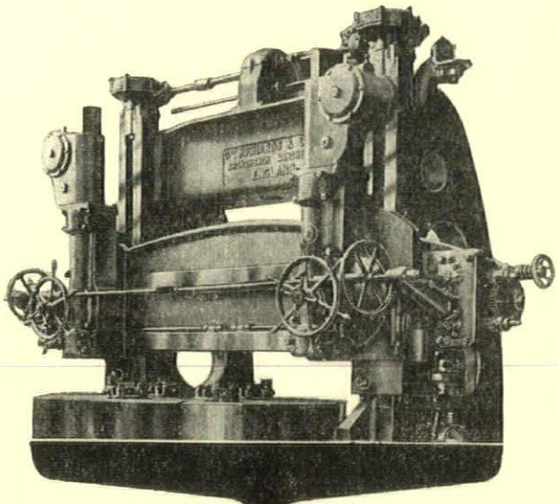
London, Birmingham, Bristol, Leeds, Leicester, Liverpool, Manchester, Newcastle, Cardiff, Glasgow, Dublin, Belfast, Bulawayo, Calcutta, Johannesburg, Singapore, Vancouver.

Export Sales: 54 Grosvenor Street, London W.1

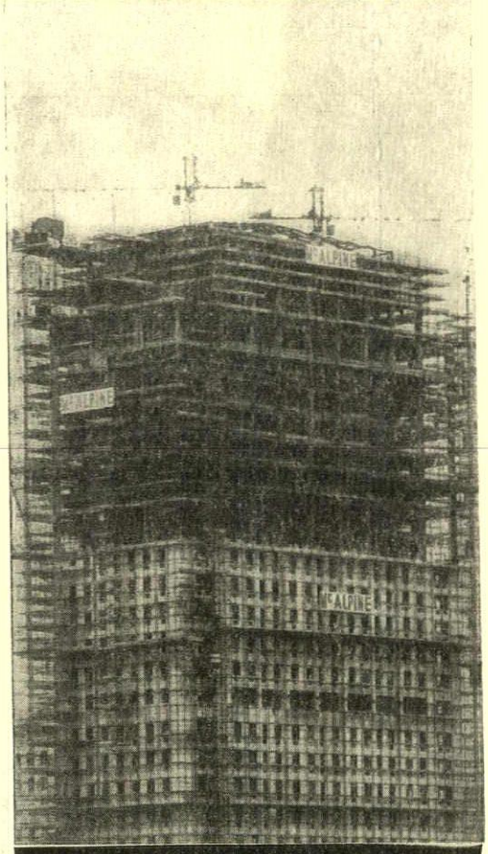
ar



THE ARCHITECTURAL REVIEW VOLUME CXXVIII NUMBER 762 AUGUST 1960 FIVE SHILLINGS





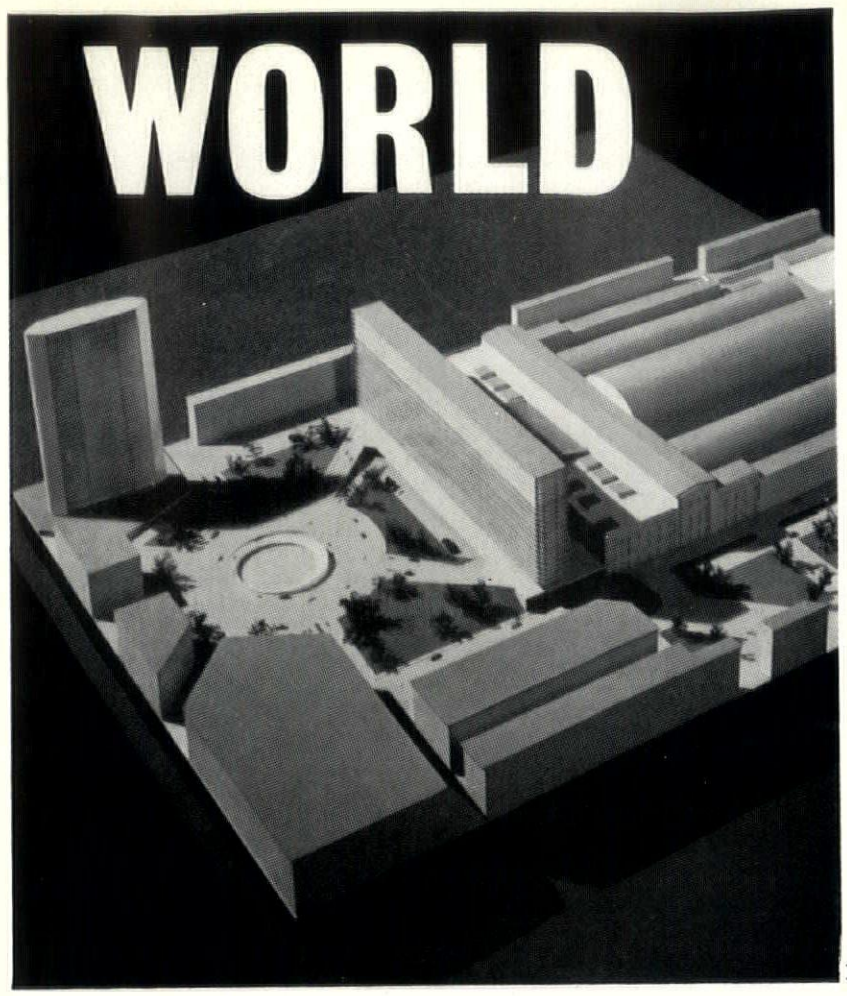


DAWNAYS

specialists in the design
fabrication & erection of

STEELWORK

WORLD



1

MILAN: REPLANNED ZONE OF CIRCULATION

Station project by Minoletti and Gentili

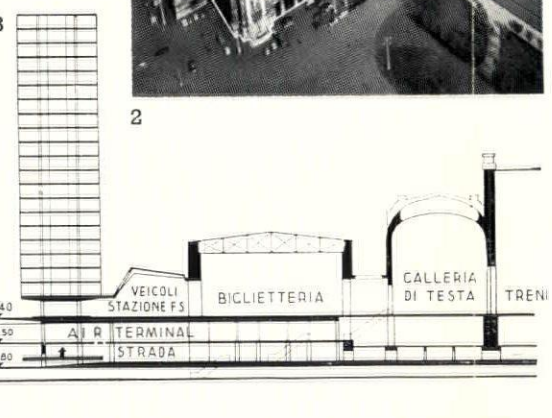
The spirit of Sant'Elia, sleeping—as his epitaph puts it—*in paradiso con gli eroi*, must have stirred when Giulio Minoletti and Eugenio Gentili's project for Milan Central Station was given the seal of official approval. There could be no more violent contrast than that between Sant'Elia's far-seeing and visionary projects, complete with multi-level circulation and attached airport even in 1912, and the grossly pseudo-classical construction eventually put up in the Twenties, obscuring the unique five-vaulted train-shed.

Now the Minoletti-Gentili project, 1, proposes to adapt and revise the existing works to a condition within striking distance of the Santelian scheme—not out of sentimentality for the high days of Futurism, but in answer to traffic problems that Sant' Elia had foreseen, but that no one could be bothered to anticipate on the ground. In solution of these problems it is now proposed, as the diagram 2 shows, to strip off most of the classicizing façade and replace it by a thin office slab, 3, in the manner of the Termini station in Rome; to concentrate Milan's scattered air-terminals in a space below the booking hall; to connect the central station with that at Porta Nuova by underground travelators; to completely remake the piazza Duca d'Aosta in front of the station on four different levels (Sant' Elia would have been proud!) in order to accommodate parking and two metro lines, one connecting directly with Malpensa airport; and to deck over part of the railway beyond the train-shed for a heliport.

The result, if completed, will be a radical transformation of Milan's main travel-nucleus, but one must wonder how far this replanning has been restricted, even distorted, by the Pirelli tower, visible at the left in 1. Handsome as the tower may be, its siting in relation to the station, in terms of circulation and congestion, now seems far more thoughtless than the siting of the Torre Velasca, in terms of townscape, in relation to the cathedral.



2



3

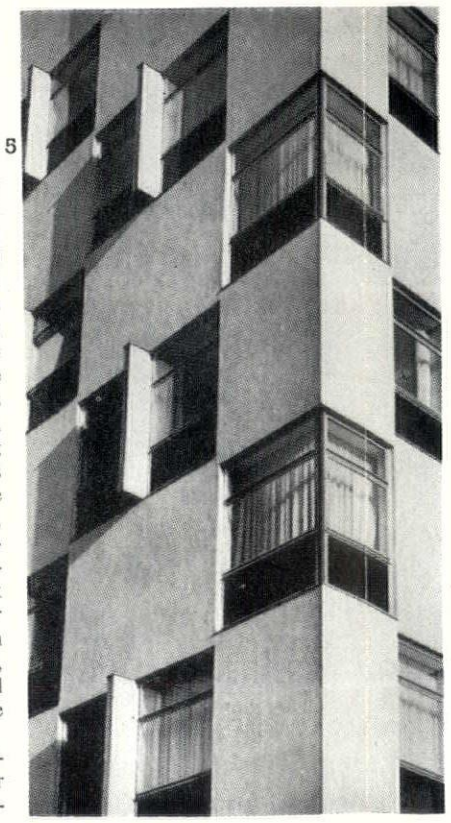
BERLIN: TOWERS BY SCHWEBES & SCHOSZBERGER



4

Although it is easy enough to make flattering comparisons with the Stalin-Allee in the Eastern Sector, the real standard of new architecture in West Berlin has not been exceptionally high —certainly not as high as West Berlin's status as a showplace of democracy would seem to require. Recent additions to the city's buildings have improved the standard, but not always enough. Thus, the Berlin-Hilton hotel, 4, is hardly up to the standard-bearing quality of the great Hiltons, but it is difficult to tell whether this is due to the American partners in the design, Pereira and Luckmann, or the German ones, Schwebes and Schoszberger. The chances are that the bulk form is due to the first two (if their suppressed design for the Seagram building is any evidence; cf. Marginalia, July 1955) and the detailing, crisp and determined, 5, owes more to the Germans.

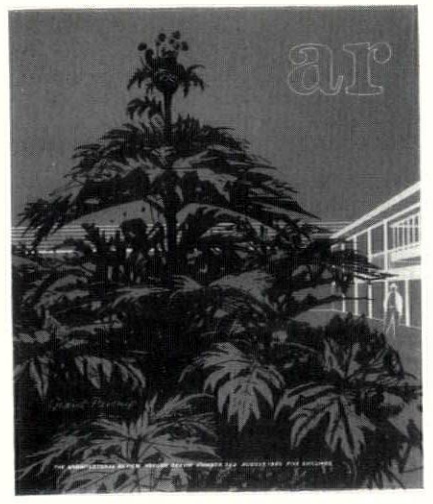
There is some ground for this supposition in one of the undoubtedly better recent West Berlin buildings, the Tele-



5

ACKNOWLEDGMENTS

WORLD, pages 93-96: 4, 5, *Deutsche Bauzeitschrift*; 6, 7, 12, 13, 15-17, 21, *Bauwelt*; 8, 9, *Arts & Architecture*; 10, 11, *Deutsche Bauzeitung*; 14, *Architecture and Building*; 18-20, Richard J. Neutra; 22-24, *Arhitekt*; 25, 26, *Arquitectura Mexico*. VIEWS AND REVIEWS, pages 97-99: 2, 3, Metropolitan-Cammell Carriage and Wagon Co. Ltd.; 4, Provost and Fellows of Worcester College, Oxford. FRONTISPIECE, page 100: G. E. Kidder Smith. UNDERGRADUATE ROOMS, OXFORD, pages 104-109: Galwey, Arphot. BIRMINGHAM: LIVERPOOL: MANCHESTER, pages 110-117: frontis, top, AR Aerial Photography Unit; page 113, 20, Stephenson and Young; remainder, Ian Nairn. FACTORY AT BASILDON NEW TOWN, pages 118-123: 1, 3-11, Galwey, Arphot; 2, Stanland; 12, Henk Snoek. PARKING TERMINALS, pages 124-134: frontis, bottom, Hedrich Blessing; 2, Verity Press Features; 9, Lawrence S. Williams; 10, 12, Gordon Sommers; 11,15, Cervin Robinson; 18, Foto Woscidlo. INTERIOR DESIGN, pages 135-139: Coffee Bar and Restaurant in Chelsea, 1, 2, 4-6, Priscilla Conran; 3, 9, Klemantaski Studio. Church of Our Lady of Lourdes, Leeds, 2, Galwey, Arphot. DESIGN REVIEW, page 140: Galwey, Arphot. A VOCABULARY OF PLANTS, pages 141-143: 1, Gerti Deutsch; 2, 3, Toomey, Arphot. CURRENT ARCHITECTURE, pages 142-148: 1-3, Edward Armstrong and Frederick MacManus; 4-6, Toomey, Arphot; 7, 9-11, Wainwright; 8, Donald Southern. MISCELLANY, pages 149-154: Exhibitions, 1, 4, 5, Arts Council of Great Britain; 2, The Silberman Galleries, New York; 3, Marlborough Fine Art Ltd.; 7, The Hanover Gallery. Townscape, Robert Hurd. History, National Buildings Record. Counter-Attack, George Outram & Co. Ltd.



The Cover *shows* vegetable enrichment *in one of its most dramatic forms, chosen by Patience Gray for the first of her series of articles on plants well adapted to modern architecture and modern maintenance. The ten-foot* Heracleum Mantegazzianum, *or Giant Parsnip, shown in Kenneth Browne's drawing as it appears in the grounds of a house by the Architects' Co-Partnership, is described and further illustrated on pages* 142-3.

THE ARCHITECTURAL REVIEW

9-13 QUEEN ANNE'S GATE, WESTMINSTER, SW1 WHITEHALL 0611 FIVE SHILLINGS

VOLUME 127 NUMBER 762
AUGUST 1960

SUBSCRIPTION RATE:—*The annual post free subscription rate, payable in advance, is £3 3s. 0d. sterling, in USA and Canada $10.50, in Italy Lira 6940, elsewhere abroad £3 10s. 0d. Italian subscription agents: A. Salto, Via Santo Spirato 14 Milano; Librerie Dedalo, Via Barberini 75-77, Roma. An index is issued half-yearly and is published as a supplement to the REVIEW.*

Directing Editors	*J. M. Richards* *Nikolaus Pevsner* *H. de C. Hastings* *Hugh Casson*
Executive Editor	*J. M. Richards*
Assistant Executive Editor	*Reyner Banham*
Assistant Editor (Production)	*William Slack*
Features Editor	*Kenneth Browne*
Technical Editor	*Lance Wright*
Assistant Editor (Counter Attack)	*Ian Nairn*
Staff Photographers	*De Burgh Galwey* *W. J. Toomey*
Advertisement Manager	*V. V. Tatlock*

CONTENTS

93 **World**

97 **Views and Reviews**

100 **Frontispiece**

101 **Historicism:** *Peter Collins*

104 **Undergraduate Rooms, Oxford:** *Architects, The Architects' Co-Partnership*

110 **Birmingham: Liverpool: Manchester:** *Ian Nairn*

118 **Factory at Basildon New Town:** *Architect, Anthony B. Davies*

124 **Parking Terminals:** *Michael Brawne*

135 **Interior Design**

Restaurant and Coffee Bar in Chelsea: *Designers, Conran Design Group*

Church of Our Lady of Lourdes, Leeds: *Architects, Walker and Biggin*

140 **Design Review**

141 **A Vocabulary of Plants:** *Patience Gray*

144 **Current Architecture**

Miscellany

149 **Exhibitions**

151 **Townscape**

153 **History**

155 **Skill**
Street Lighting

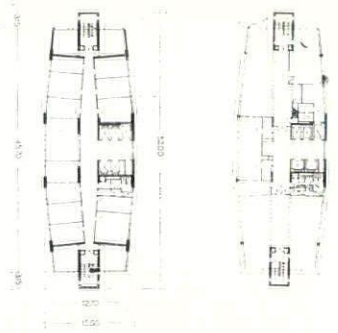
158 **The Industry**

162 **Contractors**

Berlin Towers

funken tower on the Ernst Reuter Platz, 6, which is entirely the work of Paul Schwebes and Hans Schoszberger. Though somewhat 'overdesigned' by non-German tastes, this appears to be a worthy addition to the limited roster of good European skyscrapers, and a bright beginning to the post-Pirelli epoch—the structure is the first of the sons of Nervi, though with suitable variations, 7, in the plans

7



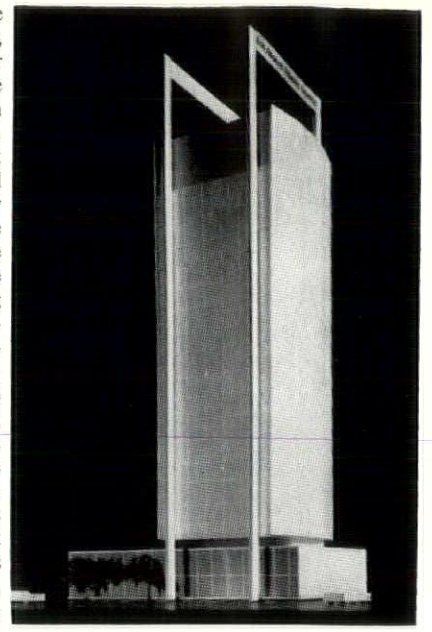
6



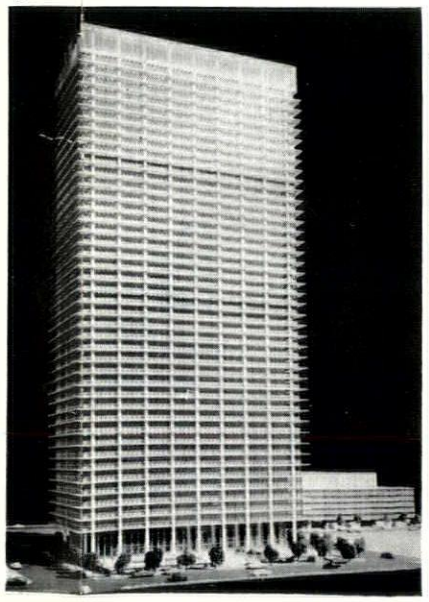
most of the usual rooftop tackle to the top of the off-lying multi-deck garage, leaving the top of the main tower clear for two glassed-in floors whose function has not been revealed, though the possibilities are clearly enormous.

Quite different in scale, though not in ambition, is the Los Angeles Federal Savings Bank building, 9, projected by Douglas Honnold and John Rex. The tower proper has only eight rentable floors above the banking-hall (the maximum permitted by the zoning laws for that part of the San Fernando valley) but the external structure, consisting of four steel columns, is carried, portal-frame-wise over the head of the tower to form a skysign at a height of 160 feet—high visibility was in the client's original brief to the architects. Within the small tower, each floor is intended to be let off as a single prestige office, with the lift doors opening directly into it, thus avoiding waste space for lift-lobbies.

9



8



TOWERS: U.S.A.

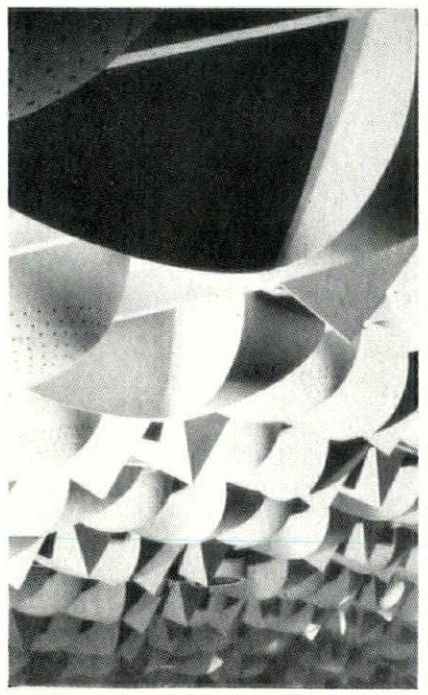
It seems to have been tacitly accepted in some quarters that the Seagram Building was not only the end of an epoch in Mies's life, but that there was nothing left to say about skyscrapers by anybody else either. In the meantime, tall towers (and towers with tall ideas) are still being designed, and skyscraper architecture is far from being a closed subject. Even a building like the Humble Oil offices, by Welton Becket and Associates, 8, in Houston, Texas, which looks at first sight like one of the Sons of Seagram, in fact presents a number of technical refinements, notably the aluminium sunshades, the return to the UN system of interposed mechanical service floors (10th, 20th and 30th of the main tower) and, most promising, the dismissal of

GERMAN CONCERT HALLS —DEVELOPMENT CONTINUES



10

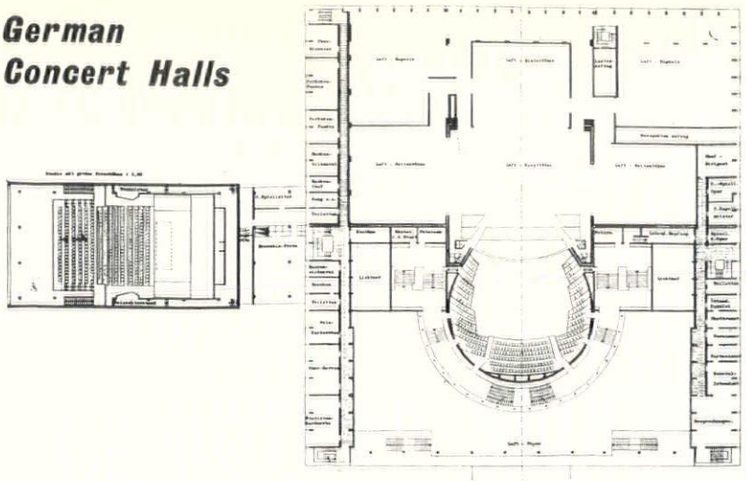
11



The progress and development of the post-war German concert hall, summed-up to date in AR August-September 1959, has been taken further—though it is not yet clear in what direction—by the publication of the prize-winning schemes for the rebuilding of the Schauspielhaus in Dusseldorf, the completion of the Stadttheater in Gelsenkirchen, and the Beethovenhalle in Bonn.

The last-named, 10, may be taken as a progressive evolutionary development of the principles established in the Liederhalle in Stuttgart, with polygonal and curved auditoria of various sizes, welded together by a complex of low-roofed foyers, though the acoustic treatment of the ceiling of the Grosser Saal reaches an extreme condition with its regular pattern of sectioned spheres and clustered pyramids, 11. Gelsenkirchen, conversely, veers towards order and symmetry—which may come as a surprise in a work of Ruhnau, Rave and von Hausen, who did the Munster theatre with its

German Concert Halls



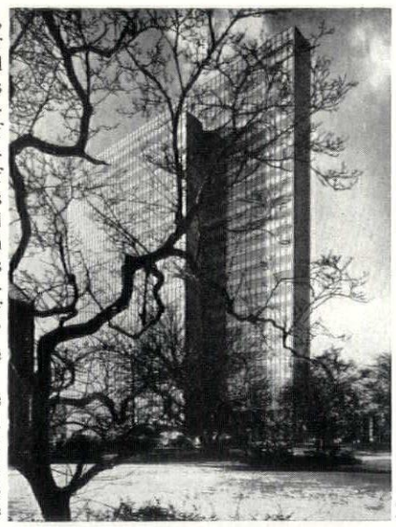
12



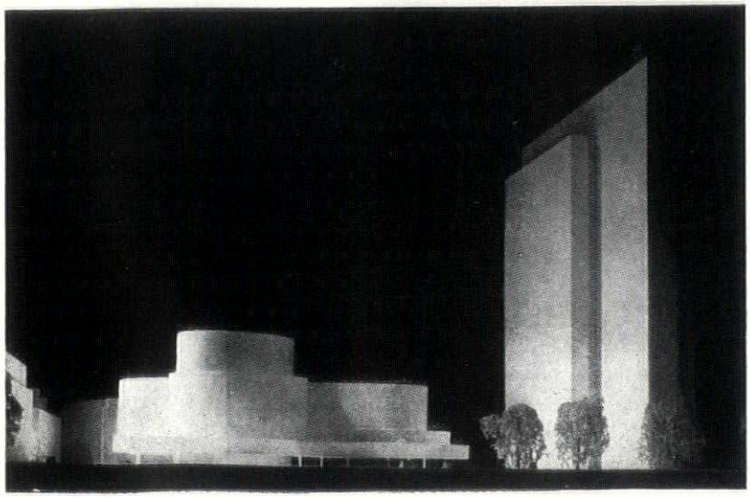
13

irregular outlines. As at Munster, however, the main hall is a regular horseshoe in plan, 12, but here wrapped in an extraordinarily spacious glass box of foyers, offices and other ancillaries, with a Kleiner Haus lying off more or less axially to one side. Architecturally, much of the best effect of this design comes from combinations of spatial structures, transparency and works of art, as in the view, 13, through the exterior glazing towards the glass drum that encloses the staircases serving the main auditorium, with one of Yves Klein's mural 'monochrome' propositions visible at the right on the flank wall.

The Dusseldorf situation is unique in that the new building has to be fitted into an environment which is not dominated by old buildings, but by a new one—Hentrich and Petschnigg's Rheinrohr tower, 14. Only one of three



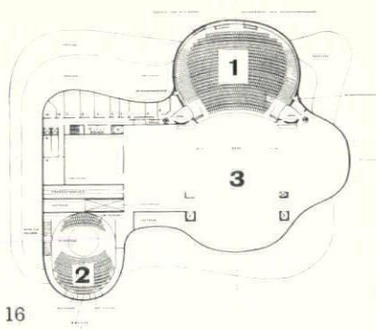
14



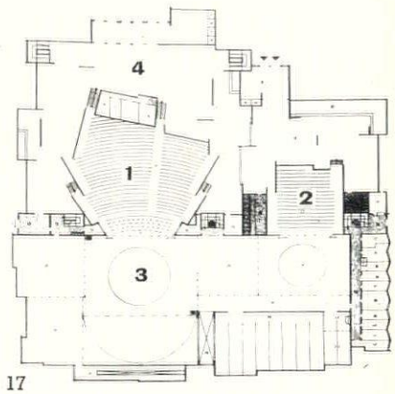
15

designs that were premiated *ex aequo* aimed to set against the large simple forms of the tower other forms that were equally simple and large, but in complete contrast to it. Since this design, 15, is the work of a distinguished local architect, Bernhard Pfau, it presumably has a slight margin over the other two prize-winners in probability of getting built. Its closed cylindrical masses would make a striking foil to the vast glass planes of the tower, and its shape in plan, 16, is probably unique in the world, certainly among recent German theatres.

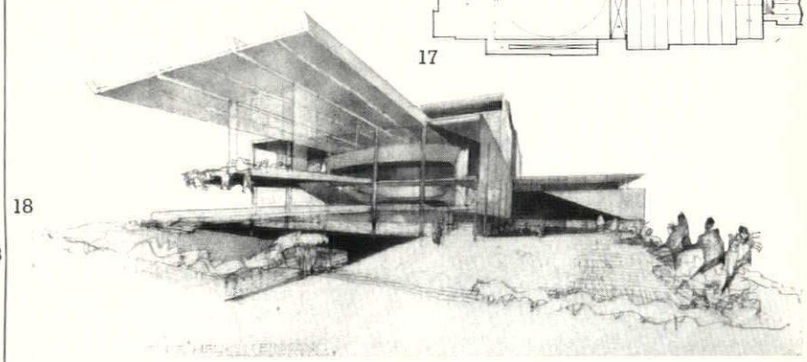
Of the other two premiated designs, that of Brockmann and Kiep is closest to German norms at present, with its romantic outlines and polygonal auditorium, 17, and the third is so completely out of step with current German practice, that it has been dubbed the 'California Clubhouse,' 18, by the locals. This was not a particularly clever observation, insofar as the design is the work of Richard Neutra, but they have a point insofar as this is



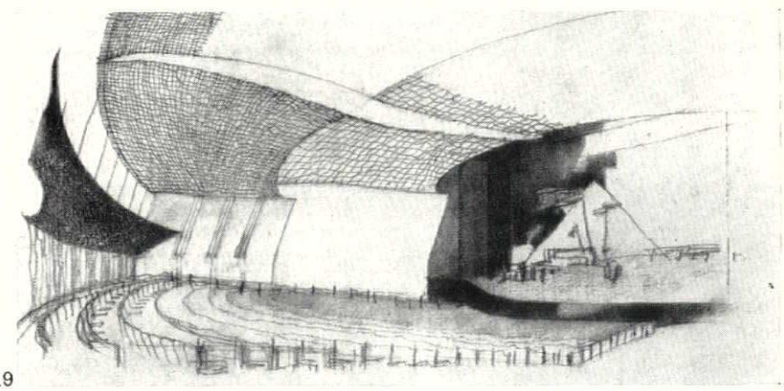
16



17



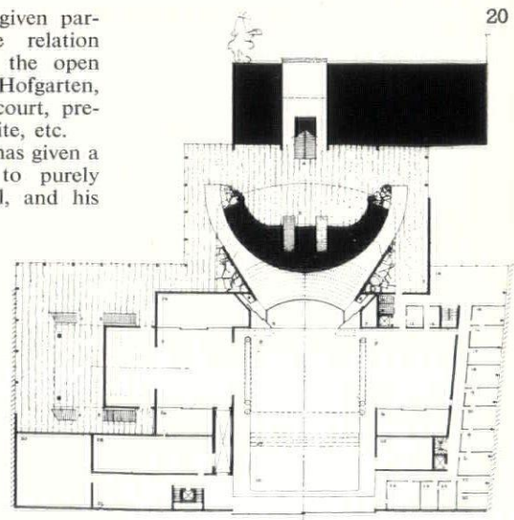
18



19

the one project that has given particular attention to the relation between the theatre and the open greenery and water of the Hofgarten, assisted by a sunken forecourt, preservation of trees on the site, etc.

Needless to say, Neutra has given a great deal of attention to purely theatrical qualities as well, and his report, with its accompanying diagrams and sketches, could well find a place in the libraries of architecture schools as a mind-stretcher for students who have been bullied by model bye-laws, fire regulations, etc., into thinking of theatrical design purely as a statistical, optical and acoustical problem—though Neutra's ground



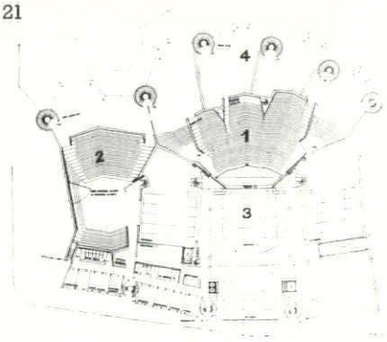
20

Concert Halls

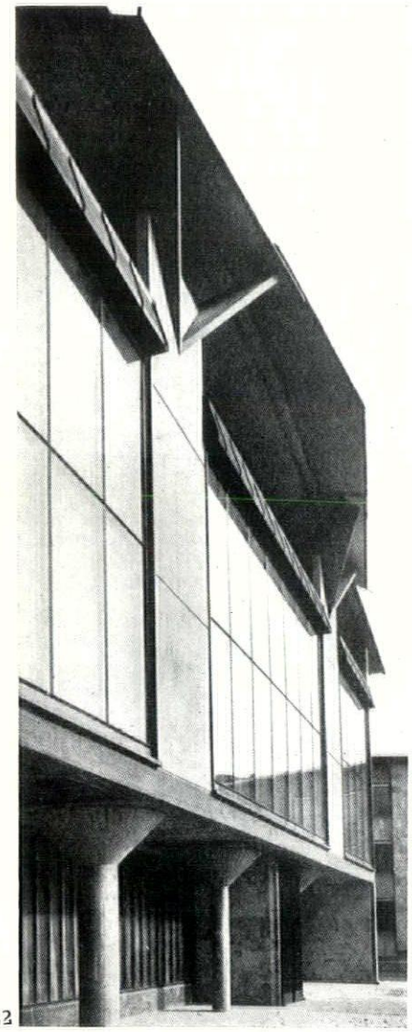
plan, 20, has as much plain commonsense about it as theirs are ever likely to possess.

Finally, one must sympathize with *Bauwelt* (15, 1960) and what appears to be a fairly large body of German opinion in regretting that no higher award than an 'ankauf' came the way of Rudolf Schwarz's intensely 'German' solution, best exemplified by its plan, 21, with its obsessive polygons, its shaped and free-flowing foyer-spaces, none of which is fully comprehensible from the elevations yet published.

21



Yugoslav Local Government Offices



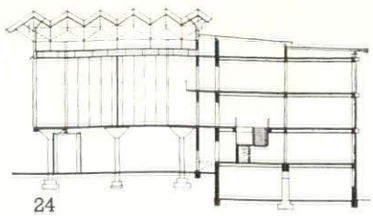
22

USABLE FORMS... SYMBOLIC VALUE

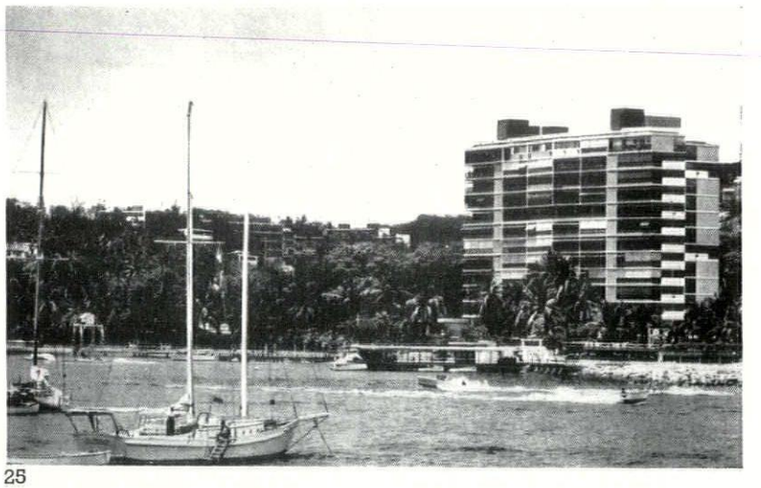
If there is an architecture which stands in need of shrewd and deep interpretative study at present, it is that of Yugoslavia. Its geographical and political intermediate position between East and West appears to be resolved in a very full comprehension of the culture of each, so that its architecture has a tendency to resemble the crucial phases of both (at least in their European aspects).

Thus, the ordinary well-informed reader, faced with 22, would almost immediately plump for Italy, and might even point, tentatively at an area between Reggio d'Emilia and the Adriatic coast. Faced with a general view of the whole however, 23, he would be more likely to plump for Scandinavia or possibly North Holland. It is clear that when good Yugoslav architecture goes European, it goes Pan-European. But it is equally clear that this complex of buildings at Kranj, for the local People's District Committee, designed by Professor Edo Ravnikar, is no eclectic assembly but grows from an inner logic of its own, albeit that logic has some relationship to the thinking of architects in other parts of Europe. Thus, in his account of the building in *Arhitekt*, 2, 1960, Professor Ravnikar stated that he 'wanted, in spite of all subjective and objective difficulties, to design a representative administrative building which would not diverge from the contemporary functional ideal of building, yet would have a more solemn attire . . . in short, practical, usable forms with a symbolic value.'

All too often, such an intention has been realized in the People's Democracies, in terms of pseudo-vernacular, or pseudo-antique detailing, but here it has been handled in terms of forms and structure, particularly the roof (see the section, 24). The result appears a good deal more convincing than many attempts to do the same sort of thing in Western Europe, and Yugoslav architects, in their privileged cultural position, may be able to teach us a thing or two yet.



24



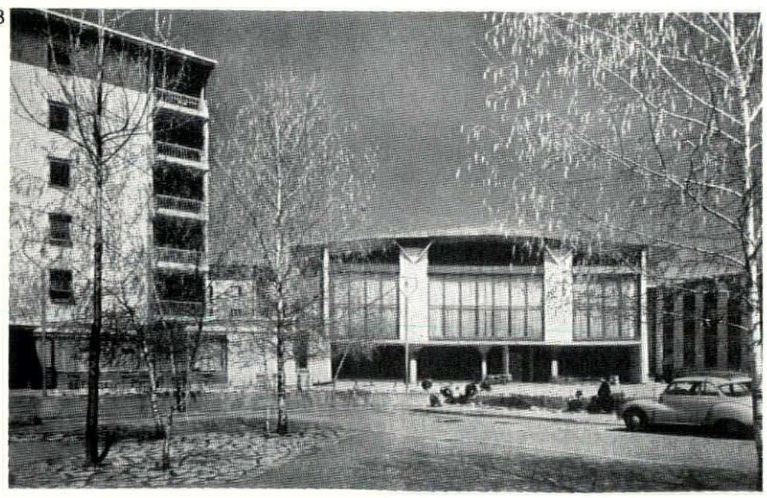
25

CONDOMINIO IN ACAPULCO

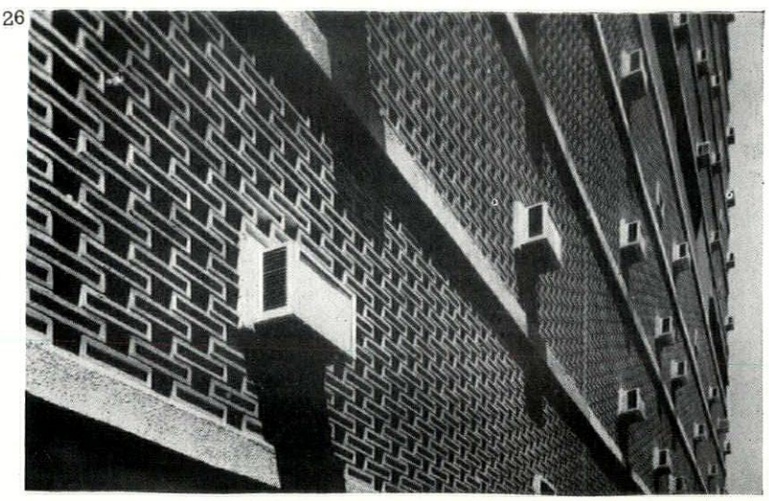
In spite of its proud record in the inter-War years, in spite of Candela, in spite of the University city on the Pedregal, Mexico has a habit of slipping out of the reckoning when Europeans discuss transatlantic architecture. But the country is still putting up good modern buildings, and must, therefore, have good architects. A recent number of *Arquitectura Mexico* (67, 1959) devoted to the work of Mario Pani, was a salutary reminder of the status and quality of one of Mexico's major architects (who has also been the editor of *Arquitectura Mexico* since its foundation in 1938).

Out of a substantial *oeuvre complète*, much of which has been fairly well illustrated outside Mexico, it is interesting to select a work which has not, the *Cocos* apartment block, 25, in Acapulco. This is owned in 'condominio' by the tenants—a form of building-finance which Pani helped to pioneer in Mexico—on a site between the Avenida Costera and the sea. The scheme has two aspects of particular interest—one, virtually inexplicable without a large scale drawing such as *AM* did not provide—is the section, which, as the photograph suggests, depends firstly on a stagger of half a storey between the front and back halves of the block, and secondly, on internal circulation within each split-level, up, or down, from elevator-served access balconies, staggered two-and-a-half floors as between the front and back of the building. Even if these internal complexities cannot be fully appreciated without actually visiting the building, the other point of interest registers well in photographs. It is, 26, the rich textural treatment of the street face, with its pot-tile sunscreen and air-conditioning intakes.

23



26

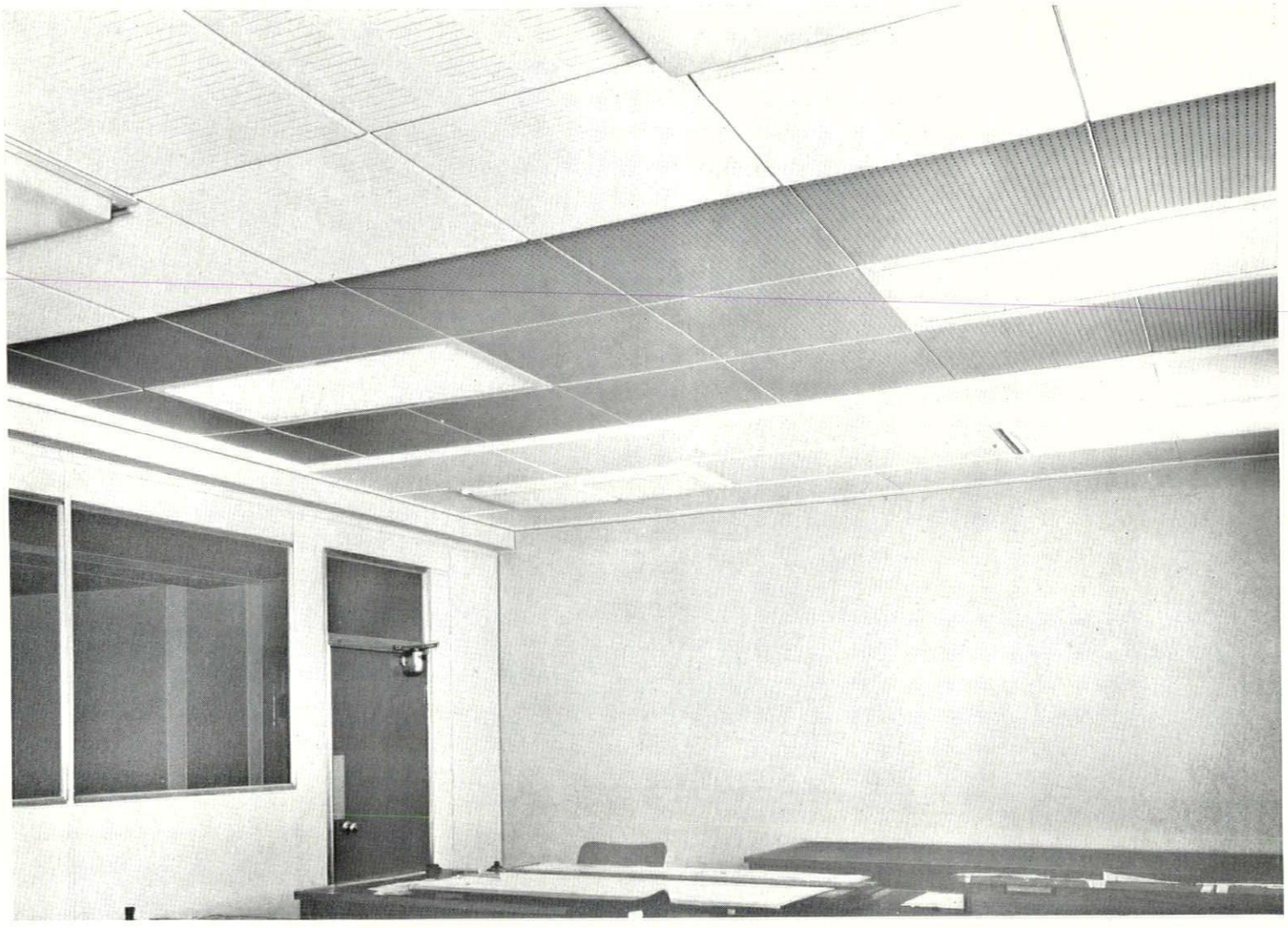




hille
CONTRACT DIVISION

HANDSOME IS, HANDSOME DOES—with his new Status Group, Robin Day introduces a truly protean modernity. At remarkably low prices, considering the materials and workmanship employed. Several basic broad desk tops, pedestals, panels, tables and storage cabinets combine in practically infinite permutations to match any space and function. Status has now joined other Hille furniture and fabrics in the many commercial and public building interiors being realised, and often originated, by Hille Contract Division; for example showrooms at Thorn House; offices at Belvedere Generating Station; bar, dining room, main lounge and bedrooms at Skyways Hotel. Visit our showrooms, 39/40 Albemarle Street, London W.1, Hyde Park 9576, or 24 Albert Street, Birmingham 4, Midland 7378, or write for brochure.

Internationally-honoured furniture for homes and offices



FRENGER

HEATED AND ACOUSTIC CEILINGS

OFFER YOU

FREEDOM OF CHOICE

Freedom of choice enables you to use perforated or unperforated panels made of aluminium, steel, plaster or asbestos. It gives choice of heated, unheated or cooled ceilings and, because of its rapid response to automatic controls, freedom of choice of room temperature. All types of lighting can be incorporated together with a choice of panel colours.

FRENGER CEILINGS LIMITED, 7-12 TAVISTOCK SQUARE, LONDON, WC1. *Telephone: EUSton 6084/8*
12 HARTER STREET, MANCHESTER 1. *Tel: Central 4612* · 65 BALFOUR AVENUE, BELFAST. *Tel: Belfast 28768*

views and reviews

MARGINALIA

THE ARCHITECT IN YOUR LIFE

In a gesture that sums up as forcefully as anything the anomalous position of architecture among the other learned professions, the RIBA has issued in connection with Architecture Week 1960 (itself a major innovation) a series of posters on the theme of 'the architect in your life,' intended for exhibition in schools, libraries and similar places. The aim of the posters, designed by Theo Crosby with texts by Donne Avenell, is to bring the contribution the architect can make to modern life and environments to the notice of the general public—or, at any rate, the thinking part of it. It is inconceivable that doctors, say, or lawyers, should ever be brought to such a pass as this in their relations with the public, and it is much to the credit of the RIBA that they have tackled their difficult job with tact and delicacy—the great bulk of the posters deal with the achievements of recent British architecture, and convey their message photographically with illustrations of work in such fields as housing, schools, recreation, town-planning, etc., but by far the most interesting are the three which expound the virtues on which the public can rely in architects: skill, experience and integrity. The last, 1, is perhaps the most difficult theme to put across, but in the directness and economy of means employed, the poster that does so, reproduced in miniature herewith, is perhaps the most persuasive in the series.

MIDLAND PULLMANS

Design on British Railways has at last attained the level where it becomes plausible to speak of it as *good design*, and not merely as something which should be commended because the designer has done his best under difficult circumstances, or because there has been a designer at all. The new high-speed diesel trains, to be known as the 'Midland Pullmans,' which are to operate from Paddington and St. Pancras, at last reach a technical level comparable to the more famous named continental expresses—indeed, the ride and the sound insulation at speed are probably better even than the German specials such as the *Rheinblitz*.

But in addition to these mechanical excellences, the Midland Pullmans appear to inaugurate a new phase visually. It is clear that the design-consultant, Jack Howe, has been called in earlier, and given a far bigger say in the project, than has been the case before. The whole train has been designed as a unit, both mechanically and aesthetically, and presents an unusual sense of integration, from its aggressive and characterful front end, 2, right through to the detailing of the interior, even in the second class, 3. What a photograph cannot illustrate, however, is the sense of unity given to the whole exterior by a very simple paint job applied to an almost flush sequence of carriage sides. The main colour is a strong nanking blue, which covers the whole visible and uninterrupted surface of the coachwork, except for a panel of white which embraces all the windows on each coach. This panel is not extended to form a continuous white streak all down the train, air-liner-fashion, but is separate and distinct for each coach in decent acknowledgment of a fact that many modern-movement train designers have sought to disguise—that even a permanently-assembled train like this is still a sequence of separate carriage units.

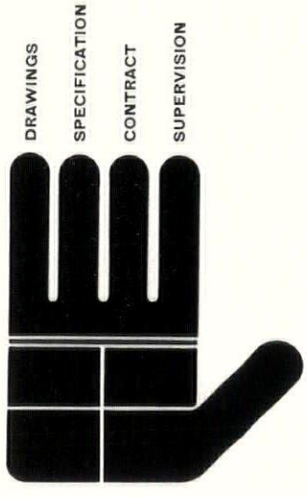
Two minor quarrels might be picked with (*a*) the lettering, a shaded Egyptian which seems steam-age, rather than diesel-age, and (*b*) the Pullman crest, a florid Victorian coat-of-arms that seems not to have been handled with the gusto which it deserves—note, for example, the small spread of the one applied to the nose of the motor unit in 1. But these, plus a slight tendency to over-decorate the first class interiors, are practically the only real faults to find in a scheme which sets a new standard for British Railways.

1, *poster from the 'architect in your life' series, issued by the RIBA.*

There are 19,000 members of the Royal Institute of British Architects. Some architects work for local authorities or for government departments, or they form the design teams of banks, chain stores, brewers and other industrial building owners. Some architects work in private practice. These private architectural firms range in size from the big groups of sixty or more architects to the architect who works by himself. But the same strict code of professional conduct binds both the individual architect and the group within which he works.

This code of professional conduct demands of the architect a high standard of integrity. It is the client's guarantee that the architect who works for him is his personal and professionally-responsible agent. The Code, which defines the relations of the architect with his client and with society generally, is established by the Royal Institute of British Architects.

The RIBA represents the architectural profession in the United Kingdom. It was founded in 1834 and was given its first Royal Charter in 1837.



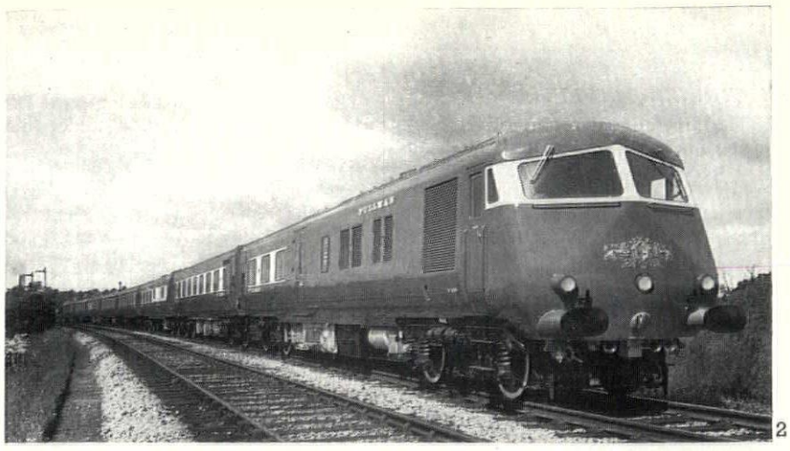
the **ARCHITECT**

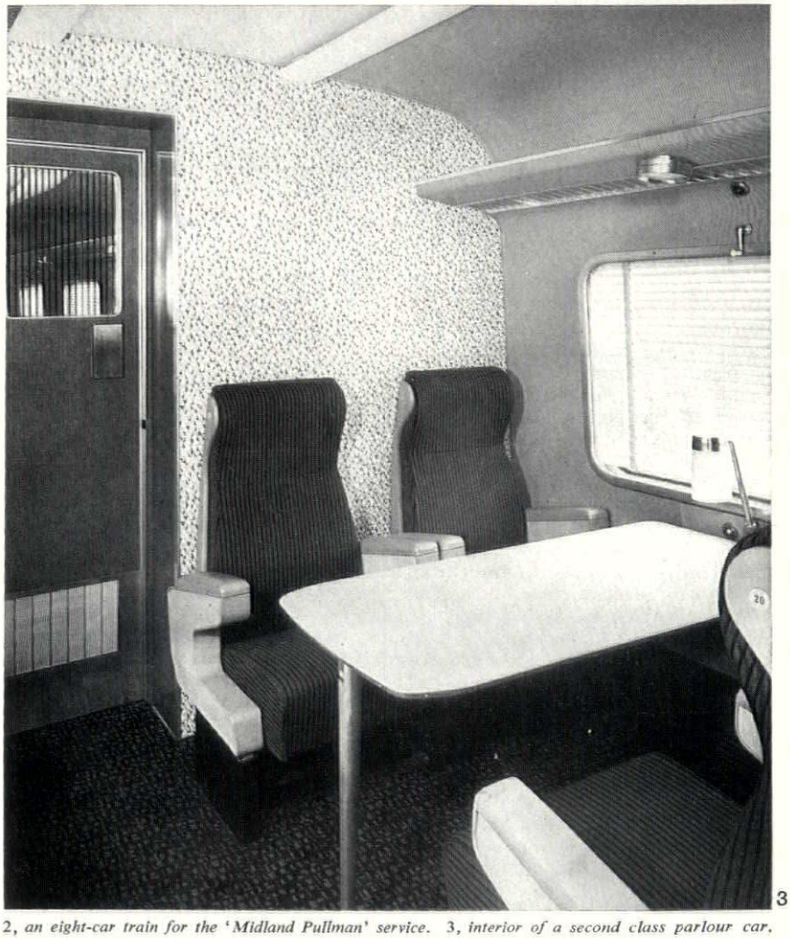
offers you integrity

The headquarters are in London and there are 123 Allied Societies throughout the British Isles and the Commonwealth to which members belong.

Besides maintaining the professional standards of its members, the RIBA controls their education, defines their conditions of work and the terms on which they do it, puts their point of view in consultations with other professional bodies and with the government, disseminates technical information, and establishes contacts with architects abroad.

The RIBA exists not merely to maintain the interests of architects, but to improve their service to the community.


2


3

2, *an eight-car train for the 'Midland Pullman' service.* 3, *interior of a second class parlour car.*

VICTORIAN SOCIETY

The first annual report of the Victorian Society has appeared, and with it a new pattern in the architectural culture of Britain has emerged—the love of Victorian architecture is no longer the hobby of scattered individuals, but now has an institutional body in being, proven capable of sustained activity, and beginning to establish itself as an influence on constituted authority—one of the most hopeful paragraphs in the report concerns the establishment by the Minister of Housing of a committee to advise on the grading of Victorian buildings as historic monuments, a committee on which the Society is strongly represented.

Nevertheless, most of the report is less cheerful, as is so often the case when such societies are in their fighting infancy, trying to establish a foothold in public opinion, though it seems unduly hard that this very first report should also have to chronicle the deaths of two such formidable Victorian scholars as Goodhart Rendel and Peter Floud. The list of threatened buildings makes salutary reading, and gives the lie to those who allege that the Society is simply taking a sentimental stand in defence of inconsequentially picturesque relics of an age of bad taste. In fact, it is the masterpieces of the period that are under threat at this moment—Bunning's Coal Exchange, Salvin's Harlaxton, Barry's Mount Felix, Hardwick's Euston Station, houses by Burges, Shaw and Pugin, though in the last case, Abney Hall with an interior by Pugin and Crace, salvation has come in the form of purchase as a town hall for Cheadle, Cheshire. Apart from this, however, the situation looks very grave, and it might well be a useful early task for the Society to establish a canon of architects whose work is of major interest, and so thoroughly publicize the list that local authorities and other bodies will know at once that their works are to be touched only at their peril.

As we go to press, it is learned that the Minister's advisory committee on the grading of Victorian and Edwardian monuments have, in fact, virtually issued such a 'prohibited list' in their report. They 'agreed' that the chief works of the principal architects of the day should be included, and the list finally agreed for immediate intention comprises: Sir Charles Barry, J. F. Bentley, G. F. Bodley, William Burges, William Butterfield, C. R. Cockerell, George Devey, Charles Fowler, E. W. Godwin, Charles Holden, W. R. Lethaby, Sir Edwin Lutyens, W. E. Nesfield, J. L. Pearson, A. W. Pugin, E. R. Robson, Sir George Gilbert Scott, George Gilbert Scott, junior, H. Bailie Scott, R. Norman Shaw, Leonard Stokes, G. E. Street, C. F. A. Voysey, Alfred Waterhouse and Philip Webb. It will be noted that this list spans from Sir Charles Barry to Charles Holden, whose death was reported in the AR only four months ago, and gives some idea of the length of the period which the committee now recommend should be put on a merit basis, instead of following the illogical date-grading that came in with the 1945 procedure.

CHANGE AT THE TYPE FRONT

Both of Lund Humphries's typographical periodicals are different now. The *Penrose Annual* (42s.) appears for the first time this year under the editorship of Allan Delafons, replacing the late R. B. Fishenden, which has resulted in minor changes throughout, though the general arrangement remains substantially the same. The aesthetic keynote is set this year by Kenneth Garland, art editor of *Design* magazine, in a lengthy rumination on the past and future of the modern movement, and the Moholy-Nagy tradition in particular, while collectors' pieces among the technicalia include a facsimile-transmitted copy of Asahi Shimbun, and an article on the damage done to book bindings by cockroaches eating the starch filler from the cloth. Somewhere in the middle are a pair of interesting reports on iron-curtain graphics from Poland and East Germany, and one of the last articles by the late Peter Floud, appropriately enough, on Morris wallpapers.

Lund Humphries's slighter but more frequent *Typographica* has now appeared with No. 1 of a new series (12s. 6d.), having run sixteen memorable issues of the old, still under Herbert Spencer's editorship. However, the characteristic all-Walbaum typography of the old has been replaced by fashiony Grot headings and bookish 'Venetian' text-face, which, combined with a slight change of format, has subtly but completely transformed the atmosphere of the magazine, even while the content remains much the same and makes it clear that *Typographica's* scholarly standards will be maintained. By far the most substantial and thought-provoking contribution to this issue is an essay by Henri Friedlander on *The History of Numerals*, though readers of the AR will also note a review, by Herbert Spencer, of Nicolete Grey's *Lettering on Buildings*.

CORRESPONDENCE

MILFORD HAVEN

To the Editors.

SIRS,—I was interested to read Raymond Spurrier's article in the April issue of THE ARCHITECTURAL REVIEW on the development of the Milford Haven area since, as prospective landlord of Lawrenny and its surroundings, I am naturally closely concerned with any planning there may be. Perhaps those who do interest themselves in this unique part of Pembrokeshire may like to know that we at any rate do not regard the existing situation with complacency.

Raymond Spurrier recognizes in his article that the owner, Colonel Lort-Phillips, did in fact commission Neville Conder in 1955 to draw up a plan for developing the Lawrenny Quay area. The fact that few of the points in his plan have yet been realized is due to a number of difficulties. In fact the increasing emphasis on the large-scale development of Milford Haven in recent years has led us to think that the original plan is no longer far-reaching enough. This plan has not yet been implemented, partly for financial reasons. The reconstruction of the Lawrenny Quay wall, on which Neville Conder's plan turned, was to be financed by the County Council. After 1955, in the era of the credit squeeze, the Council could no longer afford this, and to continue with the other plans before this step is settled would be premature and unwise. But it has also been held up because of all the talk and counter-talk of a tidal barrage. It is a question of knowing whether the yacht yard, which we are determined shall have a major part to play in the area, is to look for its customers among owners of large seaworthy yachts or to cater for dinghies and smaller craft. Until this question is decided, it is virtually impossible to plan and integrate the various facilities of the Yard.

Your article appears to assume that the barrage will be built, but opinion down here is that after the rejection of the Bill by Mr. Brooke, the scheme has been relegated to the very distant future. Clearly we can wait no longer, but must plan for an open waterway. This is what the present directors of the company would in fact prefer.

If this and some of the financial difficulties can be cleared up, and there seems good reason to hope that they now will be, there is nothing to prevent radical development of the whole area almost immediately. Because of the increase of interest in this area we think that a new plan could and should be drawn up with the help of expert advice, going beyond what was originally intended, perhaps creating provision for a number of new houses at Lawrenny Ferry. In any event we are determined not to begin work without a master plan for the whole area being drawn up.

Yours, etc.,
DAVID LORT-PHILLIPS.

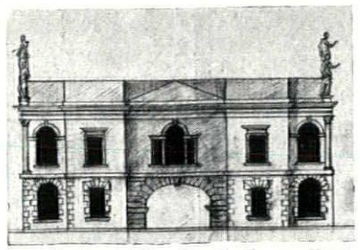
Lawrenny,
Kilketty,
Pembrokeshire.

THE GREENWICH LAYOUT

To the Editors.

SIRS,—I wish to reply to the assumptions underlying Mr. Octavius Wright's plea for Inigo Jones as the designer of the Queens House pavilions ('The Greenwich Layout,' May issue). He quotes three tenets, all three open to serious doubt. In order to evaluate them I quote them and comment upon each one in turn.

(i) 'There is a Jones drawing showing pavilions.' This, RIBA BD $1/4^{10}$, was published by Mr. Chettle as a sketch by Jones, but a re-examination of the corpus of Jones-Webb drawings at the Royal Institute of British Architects, Chatsworth, and Worcester College, Oxford, strongly suggests Webb as its author. It is closely linked to his designs BD $1/4^{11-13}$, especially BD $1/4^{11}$ where the staircases, later in the main block, are placed in extruded angles between the main block and the pavilions. In these fully worked out drawings by Webb the north and south fronts have received a pilaster treatment indicating that at one stage Webb proposed a grand rebuilding of Jones's original conception. The pilasters link his designs to the sketch which has a triumvirate of pedimented porticoes. Jones's draughtsmanship circa 1617 is perhaps illustrated by Worcester College series $1/58^{5}$, a preliminary design probably for the Queens House, 4, as no other building would have necessitated bridging a public street. The plan appears to be an H with pairs of projecting wings on the secondary fronts. The bridging arch is depressed so as to span a wide through-way. If this design belongs to a period immediately preceding the first building works, it shows that open loggias on the main fronts were then being considered although the present loggia of the Queens House belongs to the 1630's, the same decade as the Kings Lodge, Bagshot, 1631–32 and the Hale Park designs drawn by Webb in 1638 (BD $IV/5^{1-2}$).



4, *preliminary design for the Queens House, Greenwich, by Inigo Jones, c.* 1616.

(ii) 'The east and west roof parapets are not at present balustraded. . . .' The inference that Webb would have made use of balusters had they existed on the inside walls of the H is purely hypothetical. The present balusters on the Queens House probably have been renewed several times. A parapet is usually the first element of a building to show signs of decay. The few seventeenth-century topographical views might suggest that balustrades did exist on these fronts.

(iii) 'The terrace engages the whole of the north facade but 2½ feet at either end—an obvious provision for pavilions to be added. . . .' Yet this terrace must certainly belong to the alterations of 1668. The archway between the horseshoe stair now has no function. It originally led to the vaulted basement beneath the Cube Hall. There are structural remains of the old basement entrance to show that Jones's terrace projected less and was conceived circa 1635 as his sketch indicates. (BD $1/4^{1}$.) This is inscribed, 'for ye dour in to ye volte under ye tarras grenwich 1635.' Later in his article, Mr. Wright suggests that the horseshoe form was inspired by the special topography of the Isle of Dogs. Surely this is pure fiction?

The facts which follow these assumed tenets are equally unconvincing. A three-chain square (fact 2a) is not unusual and was familiar to Webb, as is borne out by an examination of his theoretical drawings. The Painted Hall at Greenwich is better described as three cubes—a common enough proportion. There can be no possible relationship between the cubic plans of Webb's pavilion scheme and Wren's proportions of the Painted Hall (fact b). Surely it is wilful to relate all this to the symbols of the Trinity?

The co-linearity of the points drawn by Mr. Wright to show an apparent site relationship between the pavilioned Queens House and the Wren layout must also be coincidental, although it seems almost certain that Webb's drawings were in Wren's office at Greenwich and were later owned by Hawksmoor. Mr. Wright confuses

ABSOLUTELY OUTSTANDING!

Two winters' weathering proves Manderlac's superiority

As a test, an architect in North Wales had eight caravans on one of his sites painted with different manufacturers' materials. Two and a half years' weathering have left the caravan painted with Manderlac as good as new—in the Architect's own words, "Manderlac is absolutely outstanding".

a MANDERS case history





MANDERLAC Alkyd Enamel dries quickly, to a hard surface that stays bright, and keeps its protective powers for years. It is easy to clean, covers well even on sharp edges and is so lustrous that it 'looks wet when it's dry.'

WRITE FOR FULL DETAILS AND COPIES OF THE WONDERFUL MANDERLAC COLOUR RANGE.

MANDERS

MANDERLAC

. . . proved the best

MANDER BROTHERS LTD., Dept. F8, WOLVERHAMPTON • Tel. WOLVERHAMPTON 20601



a bidet to complete the Kingston trio

This 'Standard' Bidet completes the trio of products with the name Kingston. The others are a lavatory basin and a closet. All three are characterised by design that is both elegant and sensible. And these fine shapes are made in 'Standard' vitreous china. This material is non-porous so that hygiene is not solely dependent on the glaze. And its strength makes it highly resistant to accidental damage. When you want fine design in the right material, specify 'Standard' vitreous china.

Kingston bidet by Standard

477

MANUFACTURED BY IDEAL BOILERS & RADIATORS LTD · IDEAL WORKS · HULL

the issue; for any relationship must be between the Webb of 1668 and Wren, *not* with the earlier Jones. It is equally difficult to see why Mr. Wright suggests as the source for the Webb sketch the Chateau of Chalvau as engraved by Du Cerceau. There is no similarity of elevation and in any case the use of Du Cerceau was not only confined to Jones. Webb's theoretical drawings of the 1630's draw heavily upon the French volume, and the reason why it is not to be found in Jones's library (as existing at Worcester College) may well be because the copy had passed into Webb's possession.

Mr. Wright's final arguments appear diffuse and difficult to comprehend in the light of documentary evidence. The slightly asymmetric alignment of the Charles II block in relation to the Queens House is read by Mr. Wright as supposing the eventual addition of the pavilions. But he seems unaware that provision for the central wing linking the (proposed) east and west wings was shown on the working designs as low single-storey pavilions. They were probably begun and discontinued when the south face of the Charles II block was reconstructed as it stands today. This west range was begun from necessity, not choice, as the proposed central hall or chapel was an extra consideration to the needs of accommodation. As events turned out, none of Webb's elaborate designs for the interiors were executed and the decorative adjuncts were kept to a bare minimum.

The supposition that Jones conceived the Greenwich complex from the first is theoretically interesting but unsupported by any documentary evidence. For a palace layout of this scale the direction of Jones's ideas can be studied in his Whitehall schemes of the 1630's. It is unwise to magnify the small and original 'conceit' of the Queens House into one unit of a preordained complex. The final result was only brought about by the additive work of several architects over the next century.

Yours, etc.,

JOHN HARRIS.

London, W.1.

BOOK REVIEWS

THE BIG CHIEF

A TESTAMENT. *By Frank Lloyd Wright. Horizon Press, New York; Architectural Press, London.* 70s.

FRANK LLOYD WRIGHT DRAWINGS FOR A LIVING ARCHITECTURE. *Published for the Bear Run Foundation Inc. and the Edgar Kaufmann Charitable Foundation by the Horizon Press, New York.* $35.00.

It was a little tiresome to find Sir John Rothenstein, in a recent *Observer* article, falling for that old chestnut about Frank Lloyd Wright and the leaking roof, a story Wright probably invented against himself. Sir John used this story to reinforce the fiction that Wright was not concerned with detail. This is, of course, the very stuff that myths are made of, but hardly worthy bait for so big a fish as the Director of the Tate. It belongs with Palladio's missing staircase and Vanbrugh's chimneys among 'Tales told to the Children.'

It would be surprising indeed if Wright, who built upwards of 500 private houses, the earliest dating back to 1887, never had trouble with his roofs. To-day some of these houses have no roofs at all; they have been burnt, neglected and pulled down to make way for 'progress'; but a great many survive and their standard is as varied as their cost. Wright designed houses on the one hand for the very rich, like the McCormicks, and on the other for people like the Jacobs and Bergers who had so little money that they built these houses with their own hands. No doubt some of Wright's clients didn't quite get what they wanted, some spent more than they expected to, and many waited for years for him to produce his plans. But the great majority found in these houses the kind of spiritual satisfaction that for many can only come from major works of art. Wright had the quite extraordinary ability to create houses which were at once good homes and great art. He did this over and over again, hence the ambition of so many to want 'a house by Mr. Wright' and wait a long time for it. He seemed to have an uncanny understanding of a client's real needs, and when allowed clothed these in a richness which is often a miracle of detailing.

These two books, which were under preparation at the time of Wright's death, are not intended primarily to give a picture of him as a purely domestic architect. Indeed, they are clearly intended to show Wright as an architect of great visionary projects. Yet it is his brilliance as a designer of houses which shines out and the reason is not far to seek. It arises in part from the complementary nature of the books; the *Testament* shows photographs as well as plans and perspectives intended for publication—and how beautiful these plans are as black arabesques on the white page—the *Drawings* shows Wright's original sketches for various projects and jobs. It is just because so few of the really 'grand projects,' like the Huntingdon Hartford Country Club and the Baghdad schemes, ever got beyond these sketches, while so many of the houses seen here, first as preliminary ideas, became completed buildings that this aspect looms so large.

Not that the visionary schemes are unworthy of study. For all their frightening grandiosity they show Wright's genius for 'place,' but this he had equally for small buildings. Few can pretend that all these drawings are attractive, yet all are explicit and descriptive and many are delicately beautiful. They often give a much better idea of the buildings they presage than do the final photographs; this is true of Wright's most magical building 'Bear Run' which does not, as photographs seem to show it, jut out from the side of a hill, but nestles at the bottom of an overgrown dell as in Wright's perspective.

Drawings for a Living Architecture (there are some 200, many in coloured facsimile) is a much more ambitious, if not pretentious, publication than *A Testament*. It is intentionally a 'rare book' and, therefore, expensive. However, most of the important buildings appear in the *Testament*, which probably gives the clearest picture yet of Wright's work and ideas and both the drawings and photographs are excellent. Those who look for a sort of distillation of wisdom will be disappointed. Wright was never given to the clear precise statement, but in this book his observations are at least reflective rather than propagandist. There is much in it that is tedious (homespun philosophy and private joking) but there are also some shrewd observations about his contemporaries, which included H. H. Richardson and Mies van der Rohe.

It is perhaps impossible for anyone who has not seen a major Wright building to understand the awe in which he is held by those who have. In spite of the firmly classical forms which underly them, they are a native American concoction. To extend Philip Rahv's literary classification, Wright was as much a 'Redskin' as Whitman; indeed, he was the big chief always battering at the stockades of the successful palefaces, like McKim Mead and White and Uncle Dan Burnham who tried (without success) to persuade him to go to the Ecole des Beaux Arts. Seldom did Wright succeed in getting behind the paleface stockades. There are few significant buildings of Wright's in the larger American cities, except the Guggenheim Museum and that is a wigwam—albeit a beautiful wigwam—among the paleface block houses.

Perhaps the greatest tribute to Wright's genius is that while the palefaces kept him out of their stockades, they united in admiration of his prairie architecture. Hyatt Mayor (the drawings curator at 'The Met.' a Jamesian sophisticate) goes far in explaining the magic of these drawings: 'He (Wright) refrains from drawing until he has meditated the building in all essentials. As he alters, in his imagination, a precise and still fluid idea, each afterthought automatically readjusts the whole, the way a puff of breath reshapes the whole of a cloud of tobacco smoke.'

'In leaving us,' wrote James Fitch in his obituary of Wright, 'he has bequeathed an architecture as much enriched and deepened as the English language upon the death of Shakespeare.' Could praise be greater than this; made while the smoke still rises from the funeral pyre of the old warrior—one of the last Americans, as Mumford calls him.

Fello Atkinson

THE LOO THROUGH THE AGES

CLEAN AND DECENT. *By Lawrence Wright. Routledge & Kegan Paul.* 30s.

Most readers will have a few fixed ideas about plumbing and history: that the Dark and Middle Ages were dirty ages; that dogs relieved themselves in baronial halls, and courtiers on the staircases of Versailles; that bad drains brought the Plague to London and later the Cholera. Visits to Roman villas have impressed on us that British plumbing was never quite the same after the Romans left.

We are not, therefore, surprised, in Mr. Wright's presentation of the result of his researches into 6,000 years of sanitation, to see that a bath from Knossos looks so like the tin variety which still lurks in country house attics, or to learn that Egyptians had efficient sand-closets. We find also that cleanliness in the Middle Ages was closer to Godliness than is generally supposed. Monasteries had running water (cold if not hot) for washing and flushing lavatories. Except for such dedicated individuals as St. Agnes, who died unwashed at 13, hot baths were taken by rich and poor. Bathing was communal and mixed, for there was no false modesty between the sexes. A contemporary woodcut shows a knight and his lady relaxing in the tub. In another, a family of three are eating a meal off a board placed across their bath. Stews (hot public baths) and bagnios had no pejorative sense at this time, though St. Benedict saw the red light when he pronounced public baths to be 'hot-beds of vice.' Bagnios were not banned from England until Henry VIII's reign.

'I thowt 'twur the will o' the Lord but Miss Annie she said it wur draains.' The poet bewails the death of the *squire*'s, not the cottager's, darter. Mr. Wright remarks that the rich with their inefficient pans and cess-pools often fared worse than the poor with none at all. As late as 1871, the Countess of Londesborough's drains nearly finished off the Heir Apparent. At Windsor there were 53 overflowing cesspits before the Prince Consort took matters in hand, while at Leeds, in the 1830's, 'whole streets were floating in sewage.' Yet Mr. Wright is inclined to blame cheap gin as much as bad drains for the cholera epidemics.

The bath's later history is less dramatic. After the decline of the public bath, it became a mildly erotic symbol associated with naughty ladies. Until stopped by nineteenth-century kill-joys, both sexes still plunged about (heavily-robed) in the waters of Bath. A mid-nineteenth-century craze was the Water Cure, with strange treatments such as the Bran Bath, Gargling Bath, Nose Bath, Hot Sitz and Back Sponge, Wet Socks, Wet Dress Bath. All that remains is the word 'Hydro' and a few gaunt hotels.

The author touches briefly on toothpaste, razor-blades, and soap; on jerries mediaeval, musical, and artistic, such as one (owned by the British Transport Commission) with turquoise lining and red and green roses. He refers to our insular dislike of the continental bidet, and to that hissing dragon which has terrified so many Fulbright scholars—the British geyser. The illustrations (some from nineteenth-century catalogues) often verge on the grotesque. Among the weirdest are Viollet le Duc's 'Fontaine Lavabo,' and an *art nouveau* lavatory pedestal.

Before laughing at our primitive ancestors, we should remember that there are still houses with TV but no bath or WC; that a short time ago the sanitary habits of wartime evacuees were a national shock; that American guide-books still advise readers to take their own toilet-paper to any British hotel. How many WC's (the author asks) flush properly at the first pull? How many do *not* freeze at the first opportunity? People no longer empty chamber-pots in the street, but they have no compunction in strewing town and country with litter.

Mr. Wright is no 'Specialist.' He leads the way down these discreet corridors of history in an urbane and entertaining manner, nearly always avoiding the temptation to be facetious or suggestive. The illustrations, an integral part of his book, have been particularly well chosen.

Peter Clarke



Reinius and Eriksen's bold concrete watertower in the centre of the Swedish township of Örebro stands as a check-point for the progress of the functional tradition in our time and there is no reason why English works need fall behind it in rational adventurousness—the tank was cast on the ground and jacked up (all 3,200 tons of it) in short lifts while the stem was cast in rings below it; nor in logical form—the stepped underside of the tank was developed from the need to provide anchor points for the pre-stressing cables; nor in urban sensitivity—not only is it a striking visual focus for the town, but its head serves communal non-utilitarian functions, such as carrying a television mast and a broad restaurant terrace with commanding views of town and country.

Peter Collins

HISTORICISM

The historians of modern architecture, by the very nature of their subject, cannot resist the temptation to be up to date. Henry-Russell Hitchcock finishes his *Architecture Nineteenth and Twentieth Centuries* (1958) with buildings constructed in 1956; Jürgen Joedicke's *History of Modern Architecture* (1959) includes photographs of models, such as that of Utzon's Sidney Opera House, yet to be built. The result is that architects are incessantly being reminded that everything they create forms a link in the chain of architectural development, and that their own work must therefore have some classifiable elements of novelty if the theory of evolution is to have any validity in the domain of art. The art historians, to use Gerhard Kallmann's phrase, are breathing down the architects' necks.

Hitchcock faces this problem squarely in the last chapter of his distinguished book. 'The very extent in time of what should be considered "the present" is a subjective matter,' he writes. 'I have known American architectural students whose present was so limited that they had never heard of Perret! To anyone under thirty the effective present will hardly extend backward more than five or ten years.' Yet even ten years is a precious insulation against Historicism, and one which is essential if architecture is to develop in an uninhibited way. It represents the distinction between the history and theory of architecture. Recent developments in architectural historiography seemed at one time to be encouraging the assertion of this distinction by showing a greater objectivity as compared with the histories of a century ago. Indeed, so objective have architectural historians now become, that they rarely permit themselves any qualitative assessment at all beyond 'crisp' or 'jolly.' Yet there are greater dangers than partiality in historical writing, for partiality can at least be perceived and refuted, whereas up-to-dateness exerts a subconscious influence which only advertising agents can claim to assess. History undoubtedly ends with the present, but historical studies must end sometime before then if we are to avoid confusing history with prophecy. One only has to look at the buildings admired twenty years ago to see how hazardous it is to anticipate the historical values which should be set on what we are now building ourselves.

It is not, I suspect, sufficiently realized that the distinctive character of modern architecture, or in other words the essential difference between architectural ideas before 1750 and architectural ideas since 1750, derives almost entirely from a new kind of awareness of history. It would be quite wrong to assume that the study of history is a natural, inherent, inevitable kind of human activity, or that it has been regarded in all ages as a distinctive form of thought. The Greeks were not interested in history because it is concerned with what is transient and changing, with facts in a space-time location, whereas the scholars of Antiquity were more concerned with what was permanent and immutable, such as is expressed by mathematics. The Roman historians such as Livy did begin their histories at a more remote period of the past than the Greeks (whose histories were little more than contemporary chronicles) but their aim in doing this was to show the Eternal City as having existed ready-made from all time, so that they could hold up the mythical morality of its first citizens as an example to their contemporaries. Mediaeval scholars had no more critical awareness of history than the scholars who preceded them, since they merely substituted the authority of theology for that of mathematics, and thought it incumbent on them to interpret the past entirely in terms of the Divine Plan.

With the advent of the Renaissance, historical thought followed Greek and Roman traditions, although it was soon to be modified by the influence of Descartes, whose scientific method was applied to historical research. It was in this age that manuscripts were first accurately dated and scientifically evaluated, and that non-literary documents, such as inscriptions and coins, were first used to check the narratives of

early writers, thus leading the way to the archaeological researches of the modern age. But it is a curious fact that although the study of ancient buildings and ancient manuscripts had formed an inevitable counterpart to the revival of Antiquity, history itself had little influence on seventeenth and early eighteenth century thought, because people then, like those of Antiquity, were more interested in the present than in the past. History was rarely taught in schools before about 1760, when it was introduced into the Dissenting Academies by such teachers as Joseph Priestley. Chairs of modern history had been founded at Oxford and Cambridge in 1724, but no lectures were delivered at Cambridge until 1773, whilst at Oxford the chair was usually occupied by such people as Thomas Gray, the poet. No chair of history was established at the Collège de France until 1769.

The first modern history ever to be written, according to Eduard Fueter, was Voltaire's *Siècle de Louis XIV*, published in 1751. The first history of architecture was that included as the first section of J. F. Blondel's *Architecture Françoise* of 1752. Others had written biographies of architects, and numerous travellers had published descriptions of ancient buildings, but apart from Fischer von Erlach's highly fanciful collection of engravings entitled *Historical Architecture*, there was no other book which assembled in chronological sequence a description of buildings from the time of the Egyptians, nor were there any lecture courses on the subject before Blondel opened his school of architecture in the rue de la Harpe.

Blondel had contributed all the articles on architecture in the *Encyclopédie*, so that it is not unnatural that he should have undertaken a task so much in harmony with the theme of that work.* But being, like the other *Encyclopédistes*, a rationalist, he did not think of the past as a collection of disparate styles, but as a progressive series of improvements, interspersed by occasional retrogressions, which had culminated in the architecture of his own day. Graeco-Romano-Renaissance architecture was for him simply 'Architecture' ('It was in the reign of Francis I,' he wrote, 'that architecture began to regain favour in France'), and since architecture thus meant for him the forms invented by the Greeks, improved by the Romans, perfected by the French, and used more or less correctly by every architect in Europe and America, he was incapable of seeing any Roman or Renaissance modifications as either current or obsolete, but only as either good or bad. He was in fact not an historian at all but a theorist (which was all he ever claimed to be), and since there could be no theoretical value for him in studying primitive or non-classical architecture, he confined himself to recounting the *literary* descriptions of ancient buildings extracted from the most celebrated authors of the past.

It was not until about 1820 that any general illustrated histories of architecture, such as we know them today, were published, and these were made possible only by the large number of monographs on Greek, Gothic and Oriental architecture published during the previous seventy years. Most of these general histories have the distinctive characteristics of Voltaire's historical works; they are critical, scientific, evolutionary, concerned with all eras and countries, and designed primarily to trace the origins and progress of varying manners or styles. Also, like Voltaire's histories, they aim at radical reform, and display, for all their occupation with the past, a dissatisfaction with the present and a great concern for the future. It is in these historical surveys, published between 1820 and 1850, that the demand for a New Architecture first appears.

One of the earliest expressions of this demand occurs in James Elmes's *Lectures on Architecture, comprising the History of Art from the Earliest Times to the Present Day*, first published in 1821. Elmes was a successful practising architect, but though he sided with what he calls 'the Greek faction,' this did not blind him completely to the dangers and frustrations which the co-existence of stylistic factions entailed. 'An indiscriminate patronage of ancient or foreign art is not the encouragement now required by the British School,' he proclaimed; 'had the Greeks fostered alone Egyptian art, they would certainly never have become the inventors of their own pure style. The Romans, on the contrary, by their exclusive patronage of Greek architects, are known only as degenerators, instead of inventors or restorers.'

Another architectural historian to profess dissatisfaction with current architecture was Thomas Hope, whose *Historical Essay on Architecture* was published in 1835. Being an amateur, he was under no obligation to demonstrate the practicability of his speculations, and was therefore free to propose reforms without restraint. 'No one,' he wrote, 'seems yet to have conceived the smallest wish or idea of making the new discoveries, the new conquests, of natural productions unknown to former ages, the models of new imitations more beautiful and varied, and thus of composing an architecture which, born in our country, grown on our soil, and in harmony with our climate, institutions, and habits, at once elegant, appropriate and original, should truly deserve the appellation of "our own".'

The culmination of the first great age of architectural historiography was James Fergusson's *Illustrated Hand-Book of Architecture*, first published unsuccessfully in 1849, revised and re-issued in its complete form in 1855, and eventually enlarged and extended in 1865 to form his famous *History of Architecture in all Countries from the Earliest Times to the Present Day*. Fergusson's main purpose in publishing his *Handbook* was to effect a return to 'the true principles which might guide us in designing or criticising architectural objects' by means of the study of all buildings constructed before 1500. He had no doubt that a New Style could be created, because, as he explained in his introduction, no nation in any age or in any part of the globe had failed to invent for itself a true and appropriate style of architecture whenever it chose to set about it in the right way. 'What that process is,' he announced, 'may perhaps be best explained by an example, and as one of a building character, though totally distinct, let us take ship-building,' which he did. He confessed that no architect had shown any ability to put the philosophy

* The article on 'History' had been contributed by Voltaire.

he recommended into effect, but found satisfaction in contemplating the Crystal Palace which was, he claimed, 'at least one great building carried out wholly in the principles of Gothic or of any true style of art.'*

In the past century, the reforms which Fergusson demanded and predicted have come into effect, but Historicism, the curse of the nineteenth century, has not for that reason been exorcised, mainly because architectural historians are deliberately or unconsciously keeping it in being. Sigfried Giedion goes so far as to assert that historical self-consciousness is a good thing, and that the trouble with the nineteenth century was that 'it lost all sense of playing a part in history,' people then being either indifferent to the period in which they lived or hating it. It is undoubtedly true that nineteenth-century architectural historians did not think many buildings of their own century worth recording, but then, neither does Giedion. Auguste Choisy, in his *History of Architecture* published in 1898, only mentions two buildings constructed in France since 1789 (namely the Halle au Blé and Labrouste's Bibliothèque Nationale), but then Giedion himself does not mention many more. It is all very well to lament the fact that nineteenth-century documents concerning urban development or new mechanical inventions were not scrupulously preserved for historical inspection, but this would seem to me a very healthy defect; for as Parkinson's Law seems to indicate, as soon as organizations start deliberately filing their records with a view to future historical research, there is every probability that their organization has ceased to be of any historical importance whatsoever. If the architectural innovators of the nineteenth century omitted to preserve their records, it was perhaps because they strove to emulate a tradition for which there were virtually no contemporary documents left.

The term 'contemporary history' was invented by Giedion, and its meaning explained by him in the opening pages of *Space, Time and Architecture*. It does not mean, as it would for a political historian, the history of his own times, but a selection of those structural and spatial developments of the past few centuries which seem to him relevant to the creative needs of the present age. But this is precisely what the late nineteenth-century architects understood by 'theory.' If we compare *Space, Time and Architecture* with Julien Guadet's *Elements and Theory of Architecture*, published in 1894, we find that the former treats the development of forms in much the same way as the latter. When Guadet discusses the spatial and structural possibilities of masonry stairways, he does so by exemplifying all the various masonry stairways constructed since the Middle Ages, just as Giedion explains the steel frame aesthetic by tracing its development from the cast-iron factories of Boulton and Watt.

There are of course major differences between the philosophies inspiring these two books. One is that whereas Guadet, lecturing so soon after Viollet-le-Duc's disastrous course on aesthetics at the Ecole des Beaux-Arts, considered it wise to be ostentatiously impartial in his selection of historical examples, Giedion's analysis is frankly tendentious, even within the limits of the Modern Movement itself. Neither Mies van der Rohe nor Alvar Aalto were included in the first edition of *Space, Time and Architecture*, which was essentially a justification of the doctrines of CIAM, of which he was secretary. But there is a more important difference than this. Whereas Giedion very rightly keeps revising his book to bring it continually up to date, Guadet, from the first, rigorously excluded all mention of the works of living architects because he thought it indecorous for a professor to comment on his colleagues' work. 'Amongst the works of your masters,' he announced in his inaugural address, 'there are some which, luckily for our epoch, will not only be classics in the future, but are so today. But you will appreciate that I cannot instruct, indeed must not instruct, by taking examples from among the works of living architects, because no professor wants to risk being accused of flattery.' As a result, the *Elements and Theory of Architecture* went through five editions in ten years with the text unchanged.

We thus find the paradoxical situation that whereas the twentieth century tries to give its histories of architecture the up-to-dateness of theory, the nineteenth century tried to give its theory of architecture the objectivity of history. Both attitudes are wrong, but they represent little more than a demarcation dispute, and it is to be hoped that theorists and historians will soon be able to settle the matter by direct negotiation, without subjecting contemporary architecture to the inconvenience and disruption of a crippling aesthetic strike. We cannot escape our awareness of history; of what Le Corbusier calls '*L'homme* dans le *temps* et dans le *lieu*'; but we can mitigate its more harmful effects on architectural creativity by maintaining a clear distinction between the history and theory of art. It is becoming less and less easy to do this because Historicism, after having imposed itself on biology a century ago by means of the theory of evolution, has now begun to control our basic thought-processes as a result of the importance now attached to psycho-analysis. Psychologists and sociologists have discouraged the nineteenth-century emphasis on abstract moral judgments of goodness and badness, right and wrong, in favour of the accumulation of *case-histories* of those who appear to express their emotions in an unusual way, and so architectural historians may well feel that they, too, are able to provide a substitute for traditional principles, and the value-judgments these require, by simply analysing, classifying, and tracing the origins of the newest architectural forms backward into the past. Architects have certainly many advantages in knowing the precedents for any forms they use, but none in seeing the forms themselves prematurely pigeon-holed; indeed, nothing but frustration can result from labelling nascent developments with catch-words, and categorizing their first expressions as paradigms, before the creators themselves are clearly aware of what they are aiming at, and before it is certain that the forms produced are of any historical worth.

*In view of the publication in the AR for April 1960 [pp. 280-282] of a detailed description of Marshall's Flax-Mill in Leeds, it may be remarked that Fergusson considered that this revolutionary industrial structure (less the façade) would have been more suitable for the British Museum than the building constructed by Smirke [see J. Fergusson: *Observations on the British Museum, &c.* (1849), pp. 39-48].

UNDERGRADUATE ROOMS, ST. JOHN'S COLLEGE, OXFORD

With ever more grandiose plans for the extension, reconstruction or creation of Britain's younger universities being announced month by month, Oxford and Cambridge as patrons and encouragers of architecture are becoming somewhat overshadowed. However, their efforts cannot be, by any means, written off—the amount and quality of modern building they are commissioning is, in fact, gradually increasing, and greater increases are to be anticipated.

It is in the nature of the works these universities require that the results shall be fragmentary and scattered—a group of lecture rooms here, extensions to a college there, rarely anything as large and self-complete as Churchill College, Cambridge. Furthermore, patronage is also scattered and diffused, with some work commissioned by the University at large, some by individual colleges, with the result that there is no overall picture of a unified and comprehensive architectural policy—not even the kind of diversity in unity underlying current developments in Birmingham.

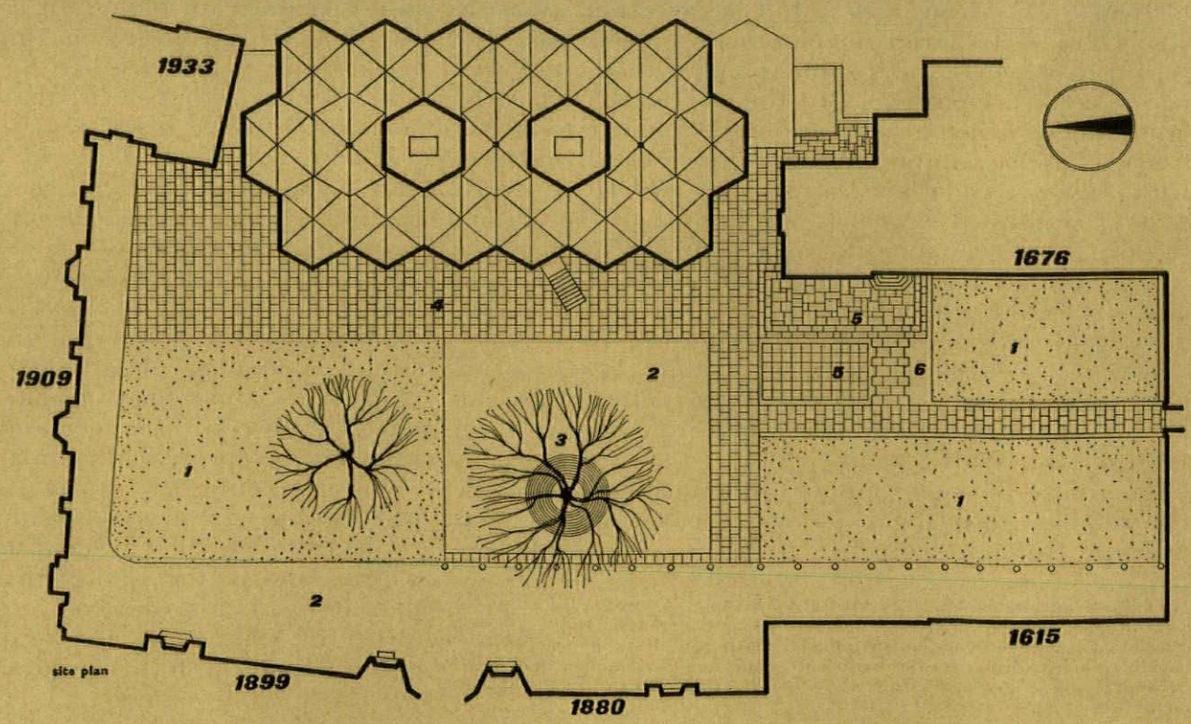
But, over and above these considerations, there is the difficult position of individual colleges to consider. In almost every case, any new work they commission must be fitted into an existing environment either of hallowed antiquity or, at least, carefully contrived Victorian 'character.' Two difficulties ensue: firstly, the commissioning of progressive designs tends to become psychologically difficult, particularly where any large part of college business is subject to a graduate vote, since the ties of sentimentality in absence that link scattered alumni to the college usually have an image of the antiquity or character of the place as their visual focus: secondly, when a progressive architectural office has been commissioned, there still remains the architectural problem of fitting the new work into the existing environment.

It now appears to be accepted that the surgical and forcible introduction of diagrammatically new work, complete in itself and regardless of its surroundings, cannot be tolerated, however much this may grieve determined Modernists, but this does not imply an unthinking relapse into stylistic Keeping in Keeping. The alternative is well seen in the new work for St. John's College, Oxford, which is described and illustrated here.

The first break with Keeping in Keeping was made, cautiously and in an idiom of studied neutrality, in the work undertaken for St. John's some five years ago by Booth and Ledeboer (AR, November 1957) in which the character of the place was interpreted, not in terms of style, but of materials, volumes and spaces. The new work by the Architects' Co-Partnership, which almost adjoins Booth and Ledeboer's, though its main elevation is on the opposite face of the range of buildings of which both form part, maintains the same considerations but adds another: the character of the Oxford skyline.

The detailed solution of these various problems is described on page 106, but two general points may be made here. Firstly, this kind of solution requires the architect to devise a style for each job, on the basis of the job itself and the surroundings into which it must be fitted. This might be expected to lead to a chaotic diversity of solutions but, and this is the second point to be made, something of a collegiate style can be seen emerging, apparently more on the basis of a functional approach than anything else. A resemblance may be noted between this work and David Roberts's for Clare College, Cambridge (AR, June 1959) as well as the similar saw-toothed elevation on the hostel block of Anders Tengbom's college at Lidingö (AR, June 1960) though the latter, since it is set in a grove of conifers, has not the same basis in an architectural environment.

The site plan on the right shows the whole North Quadrangle of the college, on to which the new undergraduate rooms face. The dates of the various college buildings surrounding the quadrangle are given round the edge. The numbers indicate the various floor surfaces.



UNDERGRADUATE ROOMS, OXFORD

ARCHITECTS | **THE ARCHITECTS' CO-PARTNERSHIP**



1, looking down the length of the North Quadrangle of St. John's College, through the gateway at the southern end. The new undergraduate rooms on the right of the photograph (see also the site plan opposite) back on to the President's garden.

2, looking through the archway by which the North Quadrangle of St. John's College is entered on its western side (see site plan, page 104) at the new undergraduate rooms on the far side of the variously paved or grassed central space.
3, close-up of the staircase which leads direct from the quadrangle to the entrance hall occupying one of the hexagonal units—see first-floor plan, page 108.
4 (facing page), the new building from within the quadrangle, on which is superimposed a diagram showing the geometrical arrangements of the hexagonal units.

UNDERGRADUATE ROOMS, OXFORD

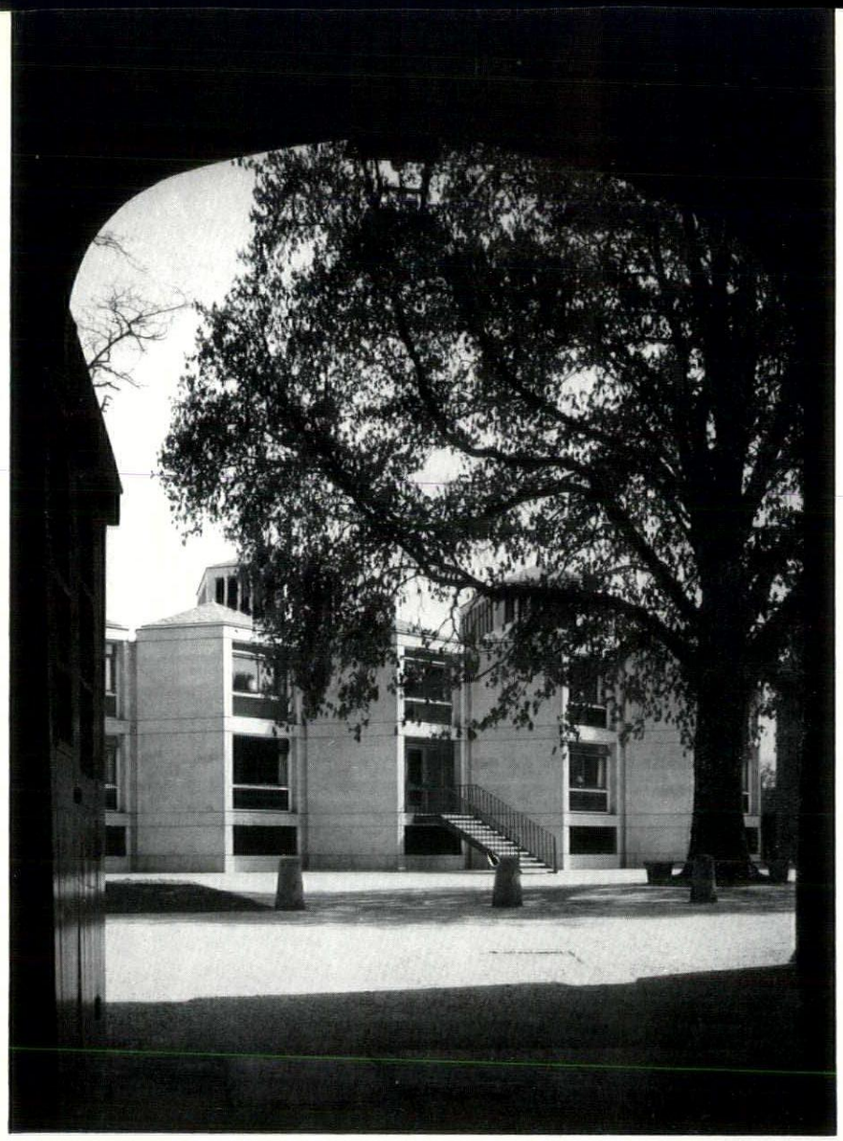
The site, until recently occupied by stables and other outbuildings, lies between the north-east corner of the North Quadrangle of St. John's College and the President's garden. The Quadrangle, informal in shape, contains buildings ranging in date from 1615 to 1933. The problem was to design a new building which would bridge the gap caused by the demolition of the stables, and create a finished quadrangle that would be satisfactory in itself as well as link together visually the whole complex of buildings.

The new building provides 34 rooms, three of which, in the south-east corner of the ground floor, are designed as a Fellows' Set complete with its own bathroom and kitchen. The honeycomb plan form arose from a desire to provide a broken skyline to the building, which would continue the Oxford tradition of spires, gables and pinnacles without recourse to the application of ornament. The five central hexagons contain three staircases linked by two bathroom units, which are planned to provide internal communication from one staircase to another.

The section of the building is designed to allow approach to rooms at half-landing levels off the staircases, giving three full storeys on the east side and two-and-a-half on the west, the remaining half-storey providing a semi-basement bicycle shelter running the whole length of the west side of the building, approached by ramps at both ends.

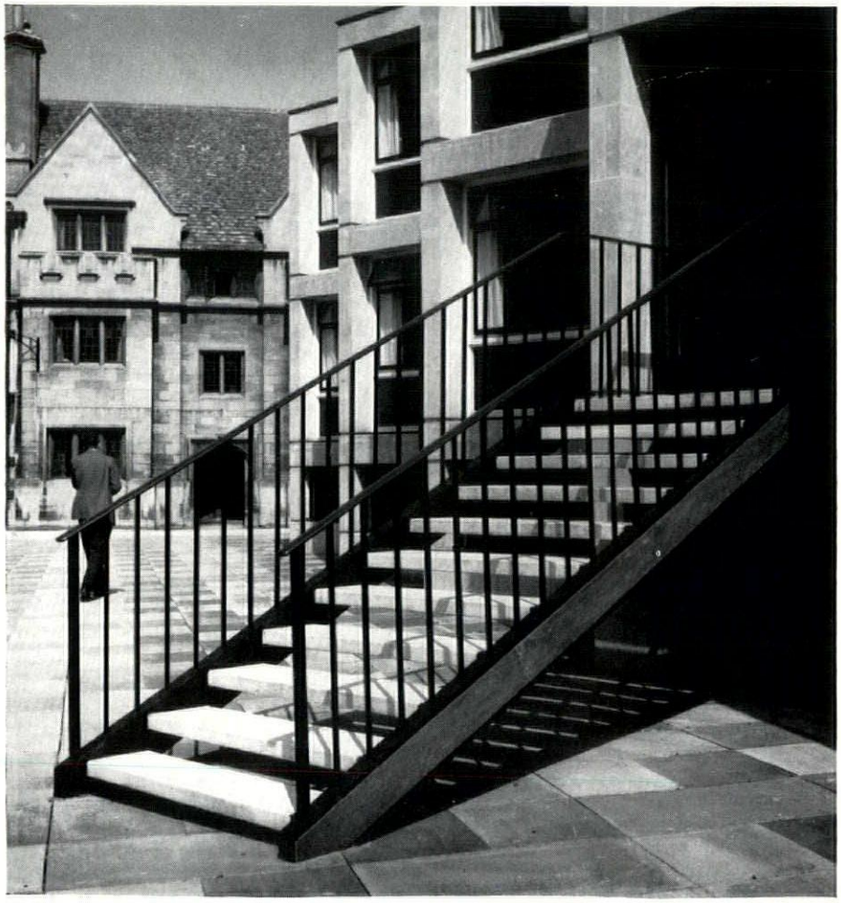
The rooms, each about 200 sq. ft. in area, have been furnished to the specification of a small College committee with the help of the architects. Every room has built-in cupboards and a screened basin unit. Underfloor electric heating gives background warmth, which can be supplemented by portable electric fires. The three staircase towers are taken up higher than the others to allow clerestory lighting round all six sides. The bathroom units are top lit and artificially ventilated.

The building is constructed with load-bearing Portland roche stone-faced walls and in-situ concrete floor slabs. The external walls rise from a granite plinth. The roofs are Cornish slate, with a slate coping masking a secret gutter designed so that all rain-water pipes are taken down through the central part of the building. The undersides of the rooms immediately under the roofs are lined with varnished Parana pine matchboarding. The double-glazed, horizontal sliding windows are aluminium framed and painted black. They are set in white painted hardwood sub-frames.

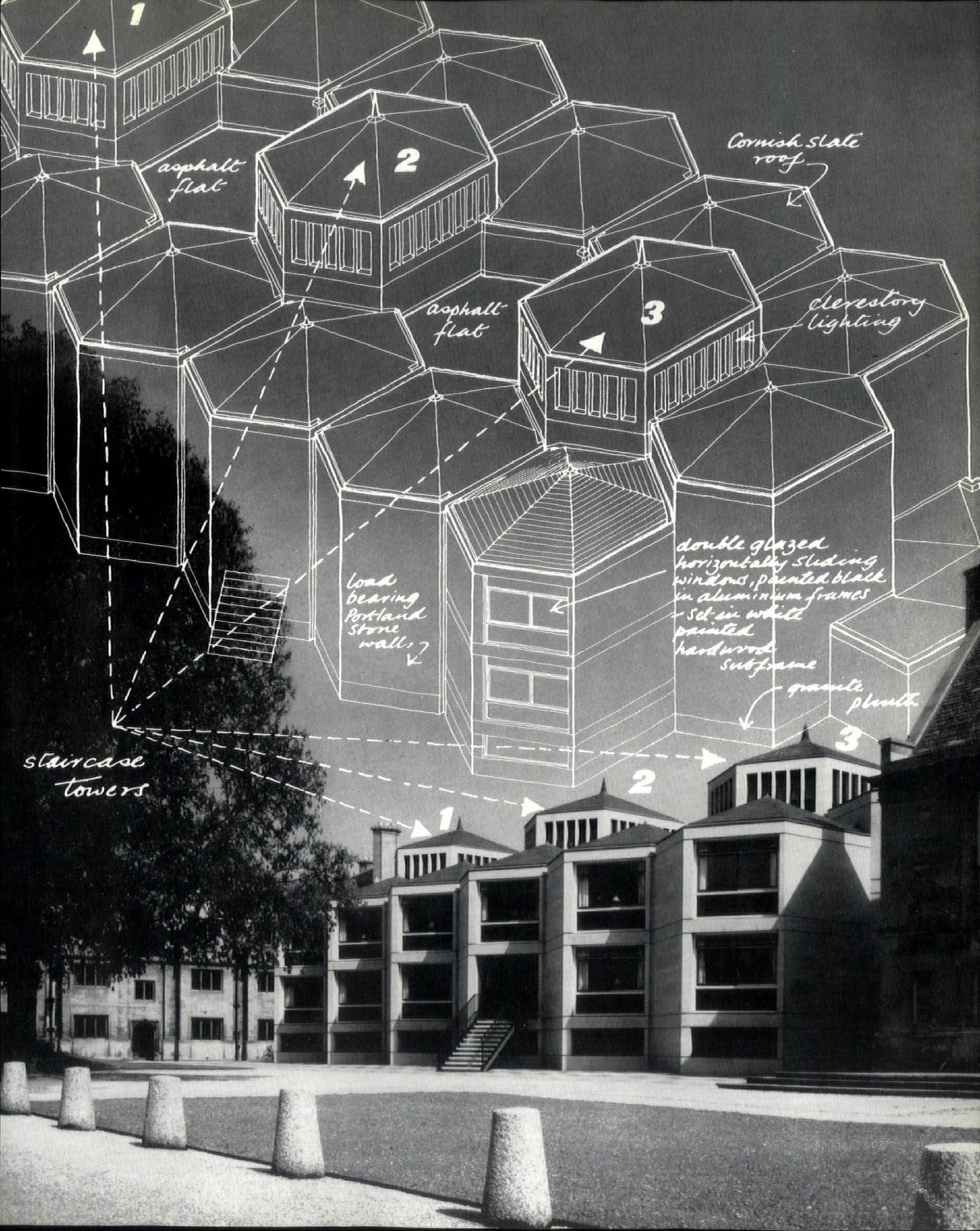


→ 4

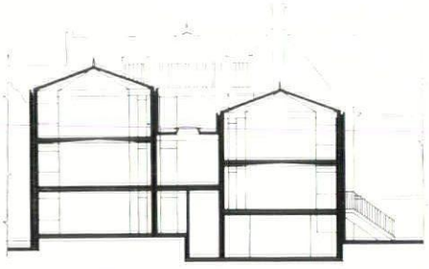
2



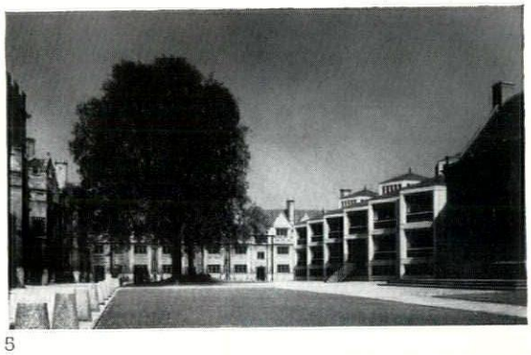
3


1
2
3
asphalt flat
asphalt flat
Cornish slate roof
clerestory lighting
load bearing Portland stone wall
double glazed horizontally sliding windows, painted black in aluminium frames set in white painted hardwood subframe
granite plinth
staircase towers
3
2
1

UNDERGRADUATE ROOMS, OXFORD

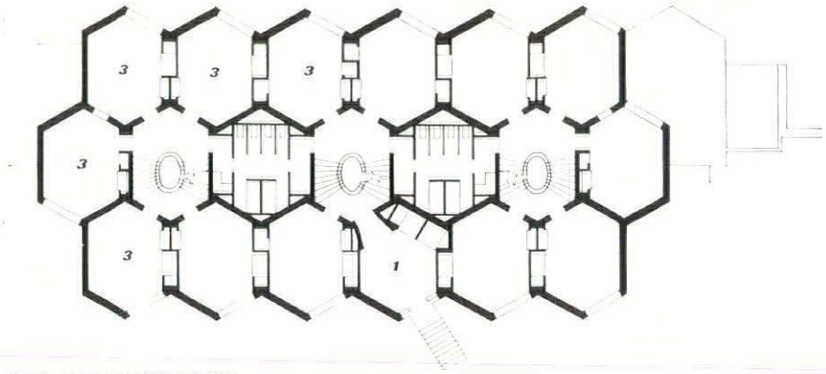


transverse section

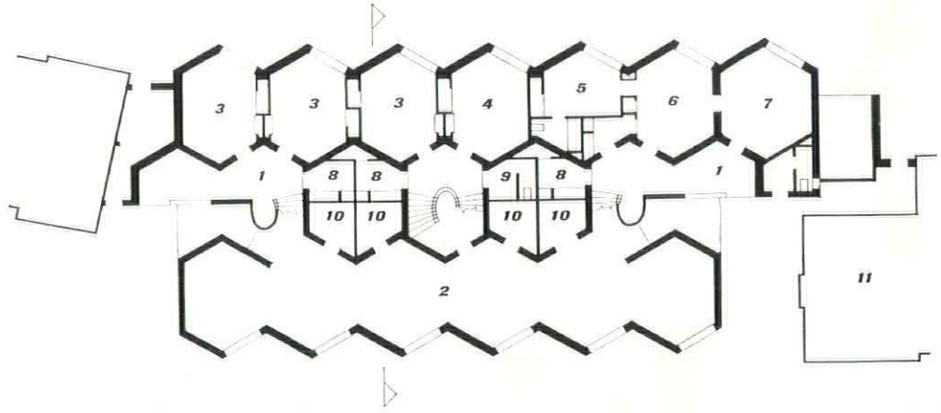


5

key
1. entrance
2. bicycle store
3. undergraduate bedsitting rooms
4. tutor's room
5. fellow's bedroom
6. fellow's dining-room
7. fellow's sitting-room
8. scout
9. lavatory
10. store



first floor plan (second floor similar)



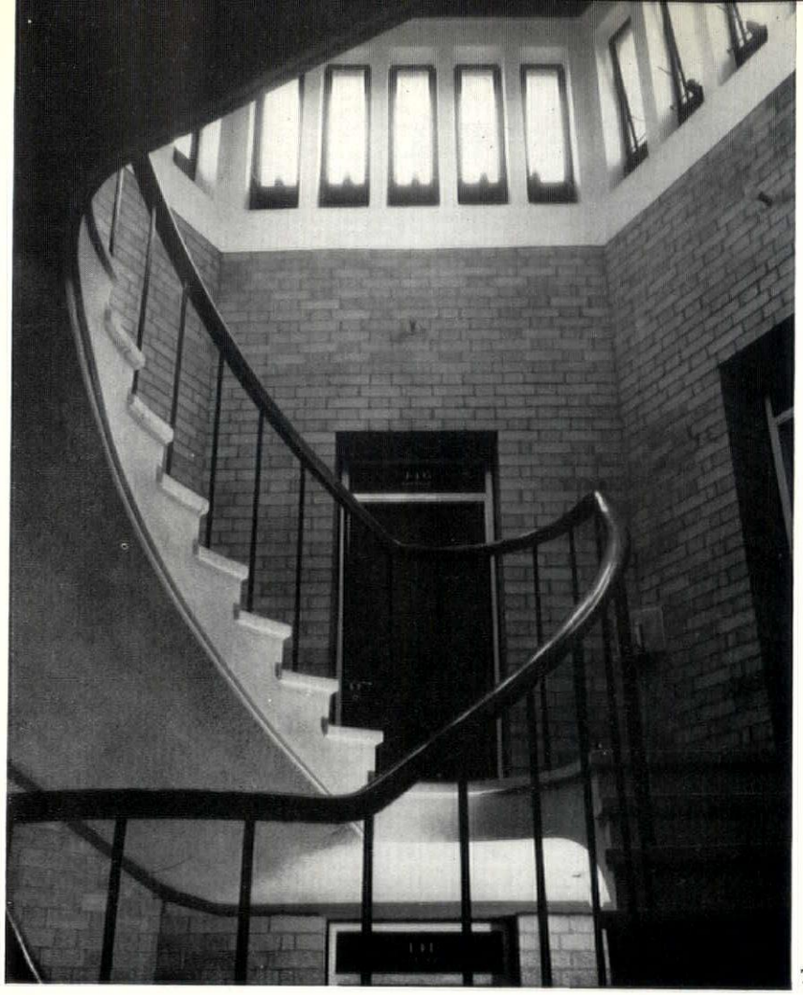


ground floor plan

5, looking north-eastwards across the quadrangle. 6, the opposite side of the new building, facing the President's garden. The three lower windows on the left are those of the suite of Fellow's rooms; the remainder are those of the undergraduate bed-sitting rooms.



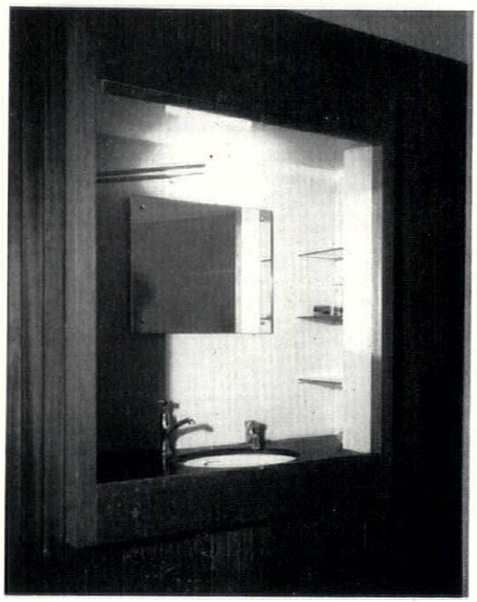
6



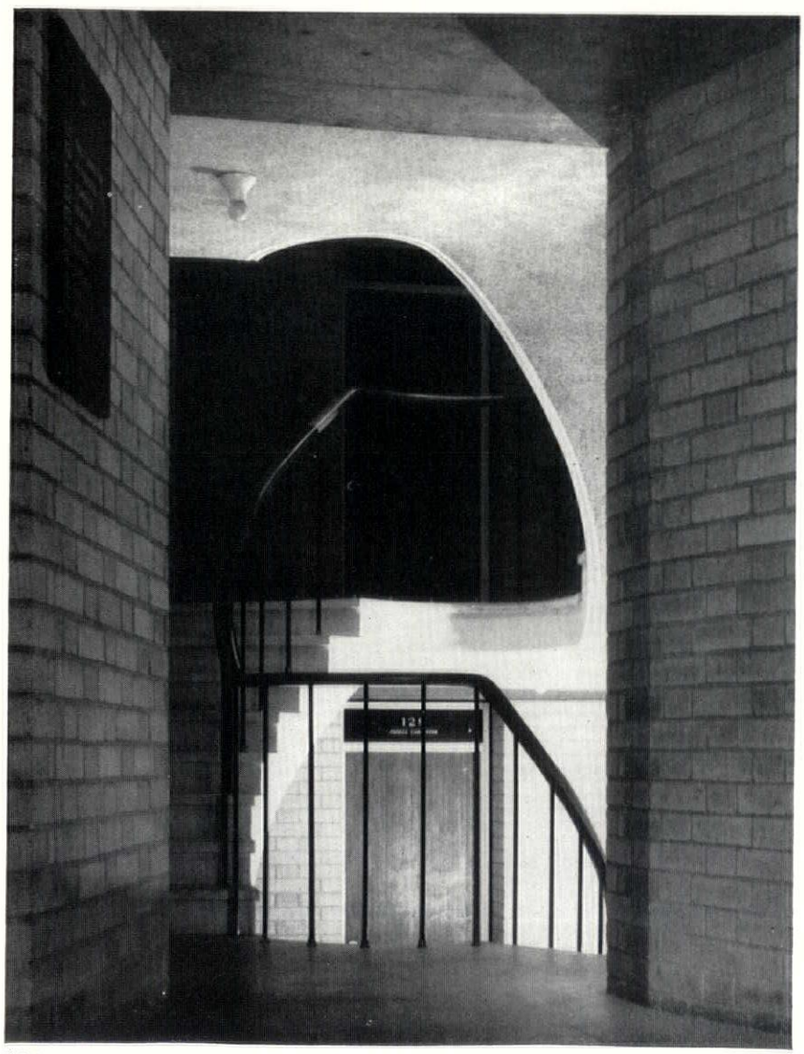
7



9



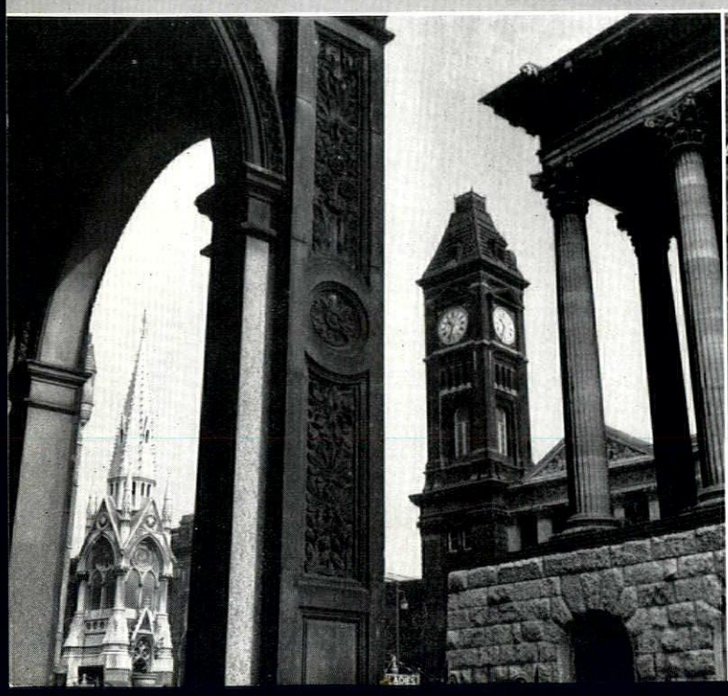
10



8

7, top flight of one of the three staircases in the central row of hexagons, showing clerestory lighting from the turret that rises above the roof—see section opposite and diagram on page 107.
8, the intermediate level on the same staircase.
9, interior of one of the upper range of undergraduate bed-sitting rooms, showing the ceiling lined with pine match-boarding.
10, detail of the wash-basin built in behind the panelling of each room.

These photographs sum up three sides of city planning. Above, the air view of Manchester shows the total problem which the city planner has to deal with. Yet all his efforts are wasted if he fails to provide a combination of the expressive and the humane to satisfy the real perennial needs of the man in the street. Below left, Victorian polyphony in Birmingham, the expressive city at a level which we have not even attempted in this country. Below right, the indestructible urge for people to congregate, say things, be living parts of a living city, even if it is only on a shabby piece of waste ground: Manchester's Speakers' Corner at the junction of Deansgate and St. Mary's Gate.





Ian Nairn

BIRMINGHAM : LIVERPOOL : MANCHESTER

A city is a living thing made up of living things, a personality with a character which is the amalgam of all the different and mutually contradictory bits of topography and of every inhabitant in it. This is all trite, and a truism, yet unless every councillor and official carries that sense of his city inside him the city will die—and it must be a sense of the reality, not just the surface trappings that represent it, given high flown names like 'Civic Centre,' 'Shopping Precinct,' 'Cultural Area.' Every civic alteration has got to make expressive, emotional sense and humane down-to-earth functional sense. Expression without humanity means the imposed diagrams of Karlsruhe and New Delhi; humanity without expression is the friendly but flat effect of Zürich or Frankfurt. Cities without either end up like many of the fearful anonymous aggregates of the United States—Albuquerque, Cleveland, El Paso. And somewhere in the middle, with a bit of everything and not quite enough of anything, are Birmingham, Liverpool and Manchester.

Our provincial cities have patterns and problems which they share more with America than with Western Europe. Because our Industrial Revolution was so rapid and so wholehearted, the old pattern was thrown overboard in a way that was not paralleled in France or Germany. The eighteenth-century pattern was unequivocal and long-established: London, Bristol, Norwich, York. By 1850 only London remained, and its partners were the *nouveaux riches* which are the subject of this article. They had centres of varying quality, but they all shared a machine-made outer ring of bricks and mortar: mean houses and small factories at Birmingham, elegant but now hopelessly overcrowded houses at Liverpool, implacable warehouses and offices at Manchester. The old cheerful piecemeal pattern—which will exist in London until the last mews and alley disappears under Neo-Georgian flats—had been broken: the city, for the first time, had become dehumanized. Inside the ring (whether the ring was made up of machines or mortals is almost irrelevant: both were treated alike, one became economic pressure and the other became political pressure) the nineteenth century did what it could—but to cities which had already gone suburban. Corporation Street in Birmingham or Piccadilly in Manchester were never intended to be lived in: the continuity of centre and periphery was broken up. Today flats in the centre of London are fairly numerous and very expensive; i.e. a lot of people want them: in the three provincial cities they hardly exist—the demand is there, but has never been met. Each has a centre surrounded by a ring of blight, the exact pattern of Chicago and all other nineteenth-century American cities. Our first experiment in trying to equate material progress with true progress has blown up in our faces—a metaphorical explosion assisted in varying degrees by the real explosions of 1940–41.

So the nineteenth century grafted symbolic centres—expression without humanity—on jumped-up country towns which until then had been all humanity without expression. The varying consequences are described in detail later: what they have led up to in each case is a collection of offices and public buildings uninhabited at night, which is really an expression of the city as it appears to the ratepayer or the council tenant. This I can only call, without any loading of words, the 'local government city': the intricate caste-ruled framework, almost autonomous yet dangerously susceptible to political changes of fortune. It may be an amicable parliament of friends or it may be a nest of vipers: but in both cases, from its very nature, it is likely to be material and impersonal—which may or may not mean inhumane. This has been long-winded. But what I meant to say by it is that the very things which are essential to a city if it is to become more than just so many bodies fairly close together are those things which are least likely to come naturally out of the present system. Hence these things need to be emphasized and underlined.

To make a city expressive is in many ways the easier part of the problem: it is that of giving the city visual identity, a shape which the man in the street can apprehend (and I can't say too strongly that this apprehension need not and probably cannot be either articulate or conscious). The man in the street is moving, hence the shape should comprise a sequence of spaces; it should make functional sense, and it should somewhere express civic dignity formally and grandly without disintegrating into an album of grandiose vistas. All this is, in a word, townscape, which is the REVIEW's exact sphere of activity, which can be demonstrated by photographs and drawings and which I have tried to outline, in a very circumscribed way, later in this article.

But very few people are really trying to find out what a city is like to be in, not only in terms of their own life but for every kind of person who uses it—the char, the office typist, the warehouse clerk, the barmaid. They all have different patterns, and thank goodness; but are these patterns being given any conscious thought? Does any planner in Birmingham or Liverpool or Manchester know how the corporation dustmen live, what they enjoy in the city centre and what they abhor? The problem is at least as important as

plot ratio, daylight angles and sight lines. To take one related example: most Cockney families like to live in the kitchen. The architect's job is not to ask why, nor to persuade Cockneys to live like young married architects, but to build big kitchens in the specific proportion that they are needed, as far as can be assessed. But do they?—not on your life. And the same pattern runs through every bit of designing for metropolitan living, private and public, so that in despair one almost welcomes piecemeal redevelopment because at least humanity may have some accidental chance of breaking through.

The crux of the thing in one word, is choice. The city centre must provide every kind of environment, as close together as possible—where possible gaining in character through the counterpoint of being seen next to something different. The big streets need the pedestrian network: the formal view needs the shop on the corner and the pub round the corner. Every scheme needs a few flats let at deliberately low rents with the subsidy money coming back to the city as a whole in increased night-time vitality and health, decreased rush-hour traffic. Every big scheme must contain a mixture of uses unless the city is to become a strictly zoned collection of mausolea: the zoning should occur organically, by character or pattern, rather than literally, by exact interpretation of categories of use. In short, every comprehensive development area and most large buildings besides must become miniature Barbicans. This is something that city planners can initiate, without too much trouble: the development companies will be quick enough to see the advantages once one or two of the units are working—units, incidentally, which must contain much more old property than present-day thinking allows. A higgledy-piggledy site with some structurally sound existing buildings is a godsend in human and emotional terms: we need a complete reversal of thinking from the present attitude which would see such an area as so much bomb-damaged rubble.

Choice, or multiple use, is one key to a happy city; humanity, or care with the details is perhaps the other, which brings the issue fair and square back to the architects- and engineers-in-charge. *Homo Sapiens* on his uneasy journeys through metropolis needs a continuous series of pointers which relate in a comfortable friendly way—the opposite of Route 11—overhanging signs, bollards, benches, trees, warm textures near at hand. Most modern architecture so far has not even the faintest inkling of how to provide them: ironically, Sir Albert Richardson's weird Financial Times building is more visual and textural for the person actually walking around the ground floor than anything else nearby. Clutter is bad when it obscures a deliberate architectural effect—the lamp standards in the market place, or the hoardings on the walls of the Georgian house—but in other places and particularly in some city streets it may be essential. It is the *genius loci* again, and there is no short cut to deciding for each place and each part of a place on its own merits; and in terms of the life it wants to lead, not the life the architect or planner would wish to impose on it.

Architecture has crept into this article stern-first—deliberately, in the present circumstances: too many people believe that an environment made up of adjoining comprehensive redevelopment areas done in the best LCC manner would make a marvellous city. Now architecture is here, the tale had better be told—tolled, more accurately. What has happened in Birmingham, Manchester and Liverpool can be seen from the photographs; the sum so far of fifteen years of rebuilding in the three largest English provincial cities is just two decent big buildings—Ringway Centre in Birmingham and Albert Bridge House in Manchester. The architects of the others have a lot to answer for. When everything else is said and all the difficulties and stringencies are accounted for this is still nothing else but sheer professional failure. About half comes from old provincial firms secure in their contracts, complacent in their outlook, complaisant in their visual standards and their architectural conscience: the rest seems to be bread-and-butter work for the huge London firms who do not give them the attention that a similar sized job in the capital might get. It is a far cry from the standards of a hundred and fifty—or even fifty—years ago. The average big Edwardian Baroque building was as good as it could be, according to its own lights: who could say that of most of the jobs on the next couple of pages?

The outlook, luckily, is not quite as gloomy as it has been. Albert Bridge House was an exception—built by the Ministry of Works, who, not having a commercial client at their heels, could and did spend the little extra time and care and affection that makes all the difference in buildings like this. Ringway Centre, however, was built by a Brummagem architect (J. A. Roberts) working with a commercial developer, and hence bedevilled by all the rush and flurry that the other firms seem to have found too much for them. If half a dozen architects can do as well, and shame the others into respectable imitation, and if the city planners can guide the city pattern into being 'expressive and humane,' then our three provincial cities may become places to enjoy in their own right, instead of being visited on sufference, with the visitor escaping overnight into such very expressive and humane neighbours as Warwick, Lichfield and Chester.

The rest of the article is in three parts. First, recently completed buildings; second, projects and buildings-in-progress with a look at the official proposals for the future pattern of the city centre. Finally, a suggestion of the kind of way in which the city centres can become expressive, not just collections of utilities. City centres have been taken to be the areas inside the ring roads, give or take a few yards.

1 rebuilding, 1950–60

BIRMINGHAM *The mixture very much as expected: anonymous slabs which have discarded pediments and pilasters and thus placed themselves in the awkward moment-of-truth position of having to depend on the architectural quality of the detail. 1 and 6—the last by a London firm which ought to know better—are depressing designs which could be anywhere. 3 is certainly an attempt to introduce individuality into an ordinary urban office building—Severn House, New Street, by Cotton Ballard & Blow. It is ugly but it has got personality, something that the passer by can look up and recognise as he goes by, which is more than can be said for the same firm's later Big Top, 4, which is an astonishing melange of unrelated clichés. 2 and 5 are 'clean and decent,' good enough if there is surrounding townscape against which their lack of individual character falls into place. Unfortunately, in these cases there isn't. That 5 is an Insurance Company's office designed by a local firm (J. B. Surman & Partners) is quite an encouraging sign.*

The one really hopeful building in Birmingham is Ringway Centre, 7 and 8, on the first portion of the Ring Road to be completed, immediately south of the Town Hall and New Street station. It incorporates a bridge over Hurst Street which has been combined with a pedestrian subway, including shops, whose levels have been carefully managed so that it is easier to use it than to try to cross the street. This kind of hidden persuasion is essential if the new pattern is to work properly: if Homo Sapiens *sees an easier way than the authorised one, he will use it, and quite right too. The detailing, especially on the 'bridge,' 7, inspires a lot of respect—for example the ground-floor piers and the delicate rhythmic thickening of the concrete beams; the total effect, easily apparent here, is to create a wall with gates in, something whose implication is explored a bit further on page 115. It is very nice to be able to say that the architect, J. A. Roberts, is young and has a local practice.*

LIVERPOOL *Liverpool had much more central area bomb damage than either of the other cities. Hence there are a lot of new buildings, and they just about touch rock bottom. At this level it doesn't matter much whether they are reactionary, 9-11, not quite anything, 12 and 13, or kind of contemporary, 14 and 15. Littlewoods, 9, is certainly worth some kind of prize or other. Ignoring 9-13 as being beyond redemption, what is most wrong with 14 and 15 is the complete lack of inner consistence and feeling for modern design as a coherent language. It looks as though every assistant in the office added his separate clichés in isolation (there are, of course, only too many buildings in London to which this would apply also). The only building I saw in the centre which had this basic decency was the modest but honest Seamen's Mission, 16, by Willink and Dod. And this, alas in the city of St. George's Hall, and of the former Goree Piazza and Custom House!*

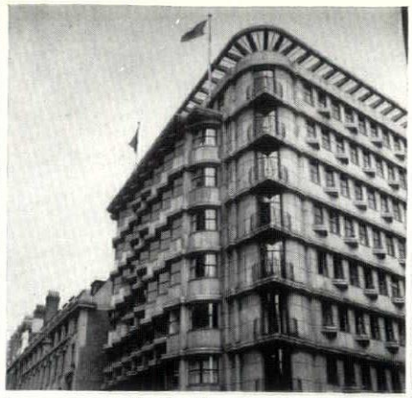
MANCHESTER *Only one or two sites in central Manchester were damaged by the blitz; hence the rebuilding came later and was less thorough-going than in Liverpool. Hence, also, all the buildings are more or less modern, though this means depressingly little in terms of quality. Peter House, 17, is graceless and bulky, and so is the first building, 18, in the Market Place Comprehensive Development Area: splayed around a roundabout, lumbering in its elevations, insensitive in its use of materials—not a happy augury for the future. 17 was designed in London, 18 in Manchester, which only goes to show that architectural mediocrity 'at this time,' as American pilots say, is nation-wide. Small buildings jog along, 19, and in fact make some case for piecemeal redevelopment in that a little mediocrity will get lost much more quickly than a lot. 20 is the AA Headquarters, architects Stephenson and Young of Manchester, in an almost unphotographable situation facing north-east; it is a far better building than this shot indicates. And it leads on to better things . . .*

[continued on page 114

Birmingham rebuilding


1

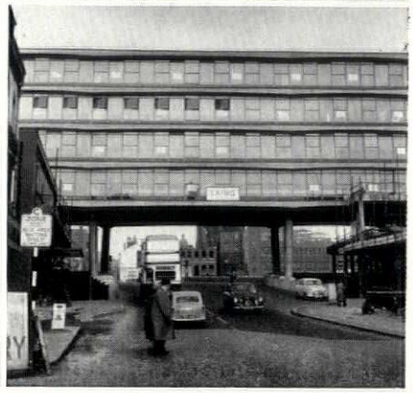

2

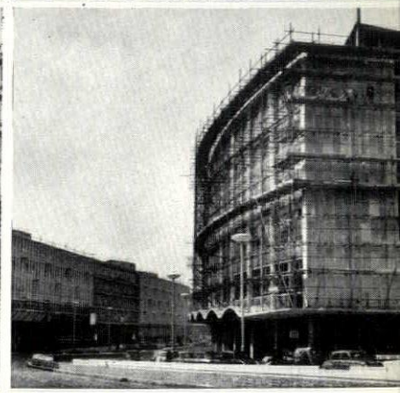

3


4


5

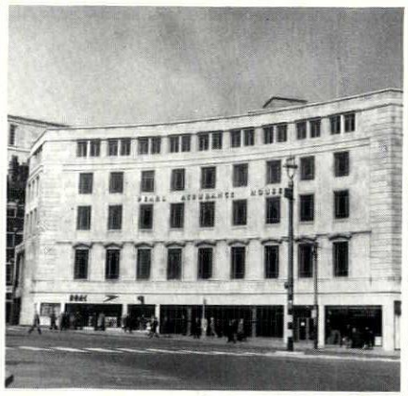

6


7


8

Liverpool rebuilding


9


10



11



12



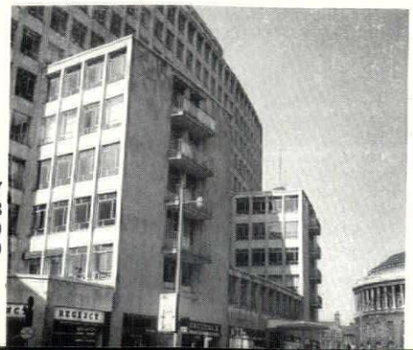
13


14


15


16

Manchester rebuilding


17

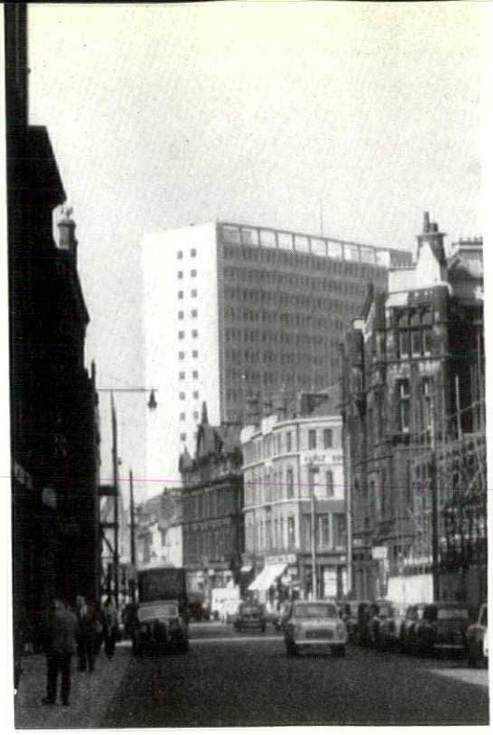

18


19


20



21

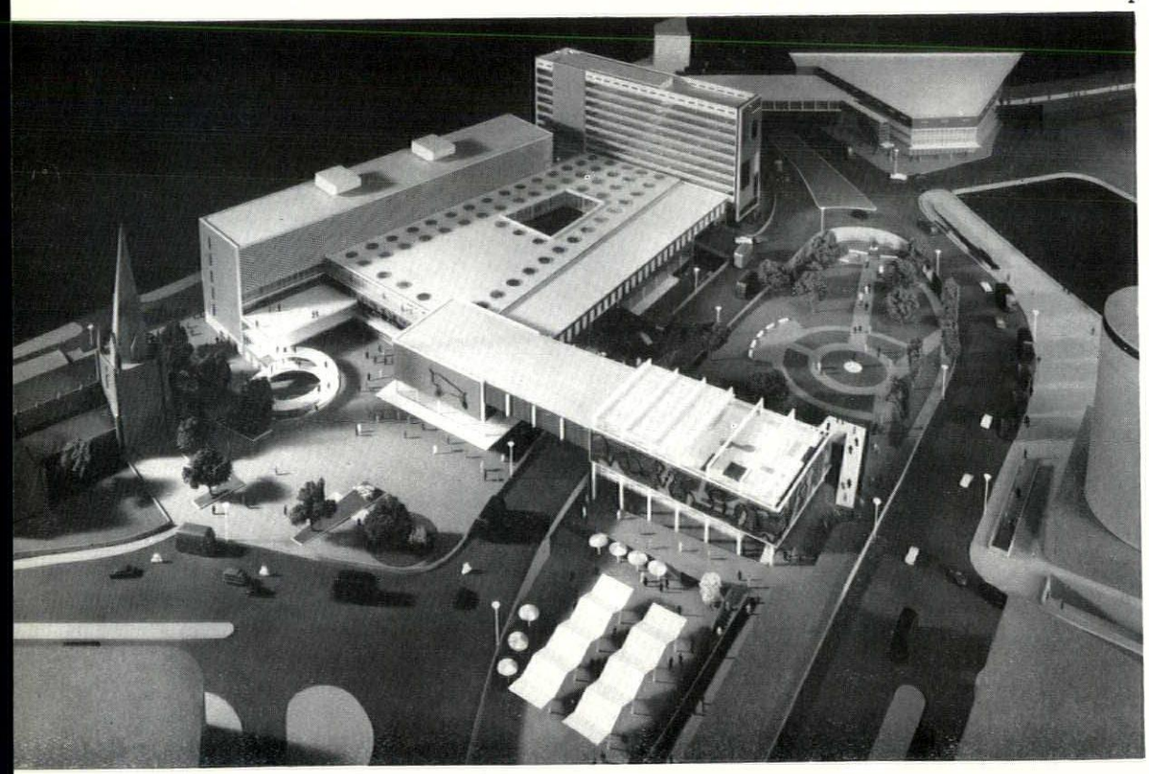


22

REBUILDING MANCHESTER: continued

. . . in the shape of Albert Bridge House, by the Ministry of Works; 21 and 22 show the effect of just one large well designed building in the townscape. Why are there only two—this and Ringway Centre—in ten years' worth of architects' fees in three cities?

1

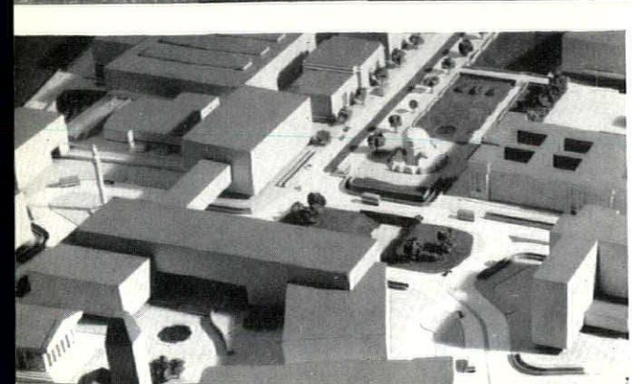


2 projects

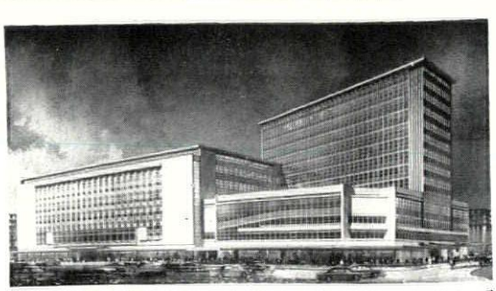
BIRMINGHAM *All three cities have ring road proposals. Birmingham is farthest ahead, with the southern-most part nearly complete and the Bull Ring scheme started. The line selected respects Birmingham's shape except at two points: the Bull Ring to the S.E. and the Civic Centre to the west. The Bull Ring was a hilly triangular market place. It now has the Ring Road slicing right through it; actually the scheme is imaginative and the end result could be more effective than the old pattern. I know we should be prepared to do this, but I simply haven't enough faith in our architects and planners to recommend it as a general principle. Most of the good things in the present scheme, 1, seem to be due to an earlier scheme, again by J. A. Roberts.*

The Civic Centre is an ambitious long-term proposal (replacing an appalling Beaux Arts layout of which the present limp Neo-Classicisms represent about one-tenth) for completing the centre piecemeal, designed in the City Architect's office, 2. It shows a lot of promise—the essentials are really those of the scheme praised in AR, February, 1951—and it overcomes the fact that the ring road slices through the area by bridging it wholesale. Best of all, it really uses the forgotten canal basin off Gas Street. Two things only worry me, one big and one small. The big one is this old problem of multiple use—at its simplest, this will be a very big area with no pubs in it—and there is no sign that anyone in the country is really prepared to examine what a Civic Centre ought to contain (this one has three separate public halls, for example—but where do you go before, after and in the interval?). The small one is that the present enclosure of Ratcliff Place behind the Town Hall is very pleasant—it is a Victorian masterpiece, really—and it would be a pity to lose it. Could E. M. Barry's library be kept as a podium to a modern building?

In the rest of the centre proposed rebuilding is imposing at a quick look or in an Academy sketch, disastrously hamhanded as it appears in the concrete. 3, Rackham's new building by T. P. Bennett & Son, is typical. One long-term road widening forecast in the Ring Road plan would be disastrous—the removal of the south side of Colmore Row and the opening-out of the area between St. Philip's churchyard and



2



3

the Town Hall as open space—neither building is big enough to stand exposure on this scale, and one of the best parts of central Birmingham, Waterloo Street, would be sacrificed to no real purpose.

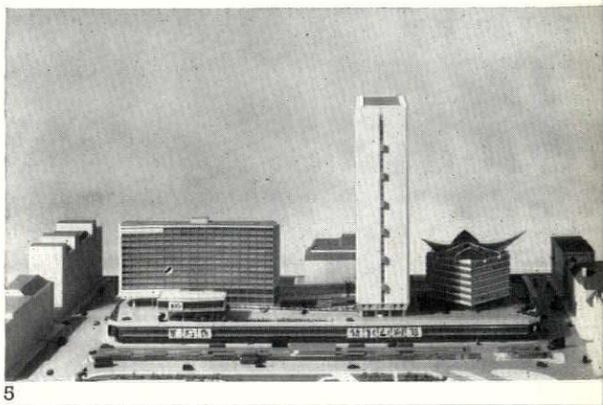
LIVERPOOL *A ring road is proposed, and a short section near the Pier Head has been built, neither better nor worse than most ring roads. The main schemes projected by the City Architect are a reconstruction of the Pier Head and rationalisation of rather a mean lot of structures at the foot of the Liver building, where the ferries come over from the Wirral, and the Civic Centre. The details of this are not fixed, but the site is, in South Castle Street on the axis of Wood's Town Hall, in an area which is largely bomb-damaged and could well do with more people. In fact, if the authorities could be persuaded, there is a splendid chance for a Barbican here—flats, shops, and Civic Centre. One radical suggestion made recently is that Bold Street, running S.E. from Central Station, should be roofed over, as a kind of monster arcade. This technique could add a complete new dimension to city centres—another element in the infinite choice which a city ought to offer.*

MANCHESTER *Again, a ring road is the centre-point of new planning. The route selected separates city and cathedral, but this could probably be overcome by using change of level and (preferably) sinking the road under a pedestrian square, so that the walkers' unity remains unimpaired. Inside the ring road no big street alterations are proposed, and this I think is a sine qua non of city centre planning. If a big ring road is built then the centre can be quite happily left to carry on at its own scale. The biggest area of new building is around Albert Bridge House on the W. side of the city, and here bomb damage has been used to convert a battered industrial area into an extension of the centre. This is a good way to break the nineteenth-century strangler's grip which is a very real thing in Manchester: if Salford, which starts on the other side of the Irwell, could be persuaded to co-operate the two centres might be linked and humanised and eight hundred years of mutual dislike might be ended. The new buildings here include Law Courts, 4, now half completed, and the eventual intention is to link them to Albert Square by a short formal axis which has got itself known as the Processional Way. This would be a good thing, because Manchester has no formal civic gesture—it is still in its pattern very much a country town grown up—and this one would be about the right length and in the right place. The Law Courts, however, might be too low to fill the view adequately, and the processional way itself would be slightly convex and slightly down hill, which might accentuate this.*

The biggest private development inside the Ring Road is the Piccadilly Centre, 5, by Covell and Matthews, which is the only one of the big commercial super block schemes in the three cities to hold out some hopes of being a good building—good in its architectural details and good to walk around, in a fuzzily humanistic sense which is just as important. Every city needs a few of these schemes, and they should be as good as they can be—the Big Top and Rackhams in Birmingham are really deplorable efforts for such big buildings on such important sites.

4





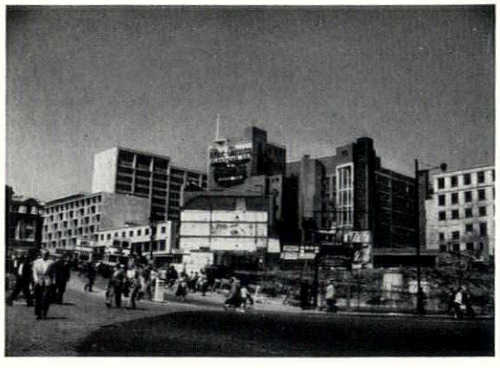
5

3 the expressive city

All three city centres are being defined by their Ring Roads as precisely as though they had medieval walls: and the more traffic there is, the stronger is going to be the contrast between inside and outside. This is a good thing, except where proper parts of the centre have been left outside the ring road (Birmingham: St. Martins Church; Liverpool: Central Station; Manchester: the Cathedral) and this may be remedied by having pedestrian 'break-out' at these points to keep the continuity.

Inside the ring, there is a splendid chance for each centre to become expressive, to catch hold of the particular differences in site and pattern and make them visibly manifest, that will give every citizen, however obscurely, a compelling sense of identity. This is every bit as much the planner's job as seeing that the traffic flows easily: in fact a sense of his own city should be the primary qualification for the job. These three little studies give, terribly briefly, some idea of the sort of thing planners ought to be always on the alert for—hidden arteries, patterns running through a place.

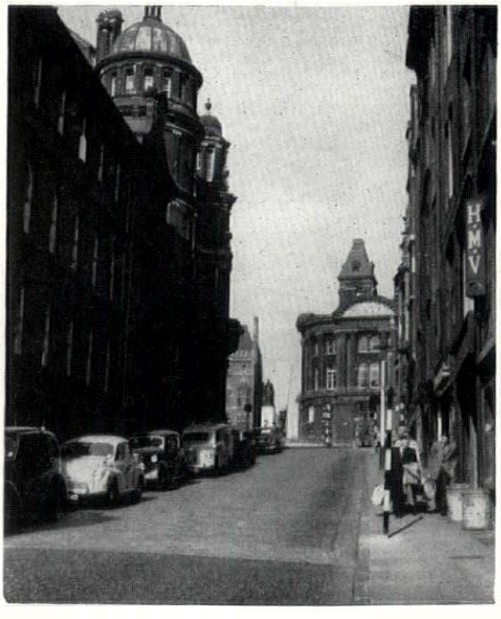
BIRMINGHAM *Birmingham is a hill town, though it has been difficult to realise it because the crimson red flow of factories and houses is so uniform that it takes you into New Street or Colmore Row before you know it. However, the ring road, by running around the bottom of the hill, is reasserting the hilliness. Already, around the Big Top, gaunt backs and sides are towering up above the new road, 1. It needs*



1



3

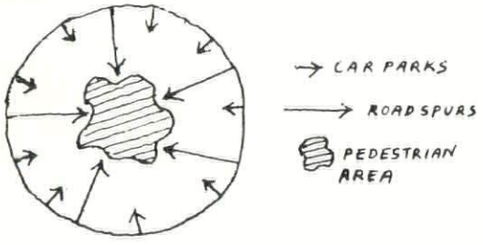


2

little more to accentuate views into the Victorian Centre, such as 2, or to control views and angles in the rebuilding, so that this sense is enhanced. At the same time Birmingham is very unpleasant to walk around, for the simplest reason—the pavements are too narrow. 3 is a typical scene anywhere around the main

streets on a Saturday: outside Lewis's there are genuine pedestrian traffic jams, controlled by policemen, the only ones I have ever seen. Every bit of pedestrian space is used to the utmost: 4 is the back of the Town Hall; 5 is St. Philip's Churchyard; 6 is the old Bull Ring market—I hope the new one is as good. So here is a town of pedestrians: why not give it back to them? With the ring road built, car parking could be provided against the hill slopes, with road spurs only penetrating into the centre, for essential traffic, blocked at the core by a pedestrian area which would include the main shopping streets and the pedestrian artery of Birmingham, the walk between New Street and Snow Hill Stations, through St. Philip's Churchyard.

The pattern shown diagrammatically below could be begun at once by taking in the streets around the churchyard and Temple Street, which leads to New Street Station, and work outwards from there. Buses, which are in-and-out-again, not through as in London, could use the spurs; with the central area less than a mile across nobody need walk far to their cars. Much of the proposed road work inside the ring road would become unnecessary, and the central core which would have a common-sense shoppers' unity has, on its hill-top, a visual unity also.




4

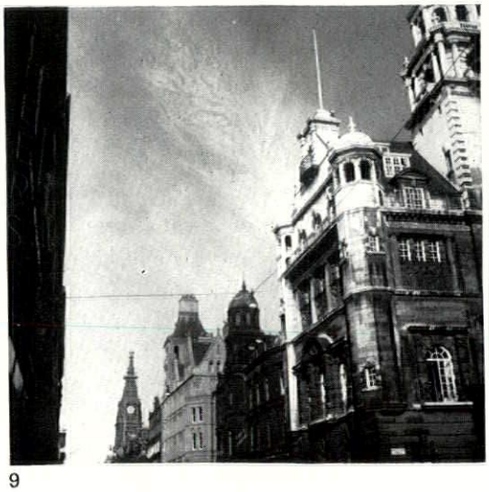

5

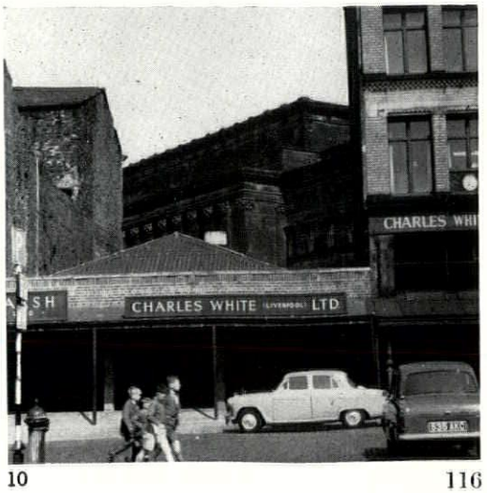

6

LIVERPOOL *This is not a developed idea at all, just an observation—that the most impressive part of Liverpool is what you see when you're out of it, 7, the splendid skyline at the Pier Head, reinforced—much more vividly to the eye than to the camera—by St. Nicholas Church on the left, the Cathedral on the right. More than anywhere else in Britain, Liverpool's beauty is above pavement level, with the interplay of the eloquent domes and towers left to us by the eclectic age, 8 and 9. It is not built on one big hill, but on several little ones, with the streets joining them all double-curved (i.e., concave and convex hills) so that the interplay becomes richer than ever. Something is always looking over your shoulder—an extreme and splendid case occurs with one corner of St. George's Hall, seen from Queen Square, 10. So the problem becomes what kind of shape to put on the tops of buildings—preferably not the flat-topped banality of Thorn House in London or of Liverpool's new semi-modern buildings, unless it is needed for counterpoint's sake. The new Civic Centre, which will appear behind the Liver Building in 7, has a big responsibility here. And that the tops of buildings are important even where they are below the skyline is shown in 8, where the Pier Head buildings in the foreground can transform the scene if they are allowed to be a deliberate part of the bigger shapes up above—either as a complement or a counterpoint.*


7

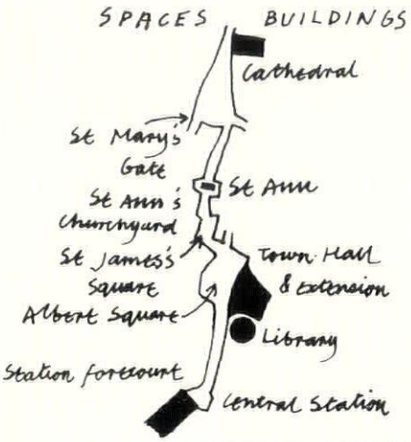

8

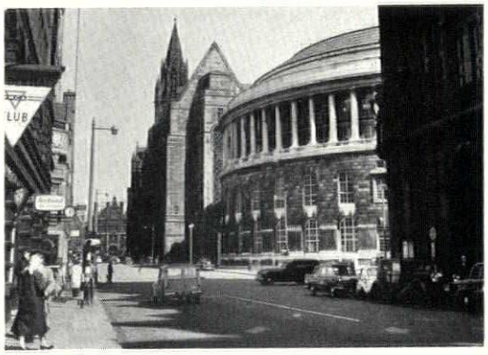

9



10

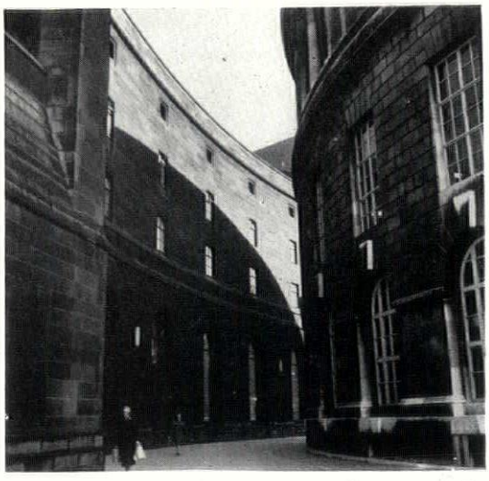
MANCHESTER *Manchester has escaped the horrors of bad formal planning, but this has left it without a sense of anywhere that is the 'centre of the centre.' An axis is needed, but whereas in the old days a 300-ft. swathe would have been cut right through the town, today we realise that something subtler, more humane and more exciting is required. So this is like Klee, a 'walk with a line.' It has some functional sense of its own, in that it links the Central and Exchange Stations; it joins up the Town Hall, Cathedral and St. Ann's Church, and it could with a little effort be all-pedestrian, once the ring road is completed. A deliberately publicized pedestrian 'line of life,' with everything along it designed to make shopping, staring and sitting more enjoyable, might be a very sound thing economically, as well as giving pleasure to those people who pursue what the TCPA once called, splendidly, the lust of the detached eye. So here goes . . .*





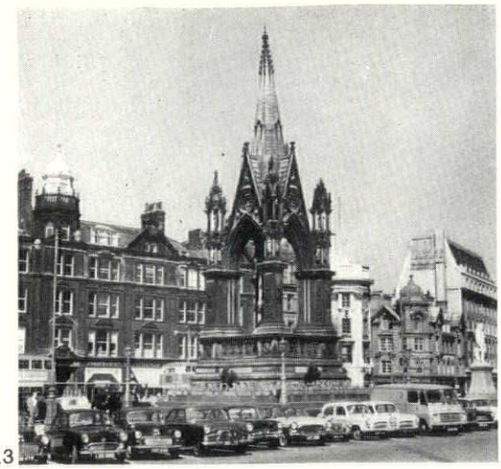
11

. . . starting in front of Central Station, 11, where a view down Mount Street catches the eye as though it were part of a vast course in solid geometry, spinning out a theorem as elemental (though less nobly detailed) as the famous sequence of St. Mary's and the Radcliffe Camera in Oxford: spire, gable end, cylinder. The spire is Waterhouse, both gable end and cylinder are due to Vincent Harris, no small achievement of relationship. This is the civic hub of Manchester, and after a glance right, 12 . . .



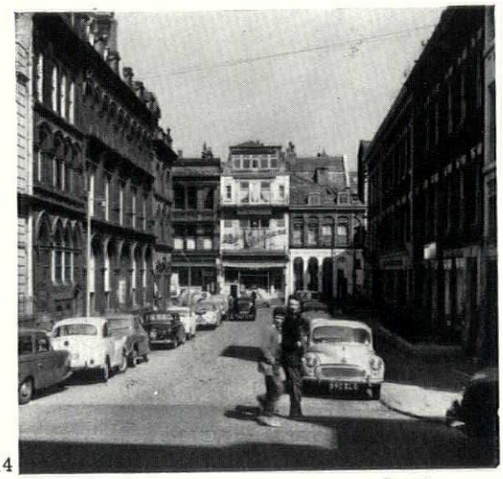
12

. . . at the by-products which come naturally when a few relationships have been built up, Mount Street becomes Albert Square, 13 . . .



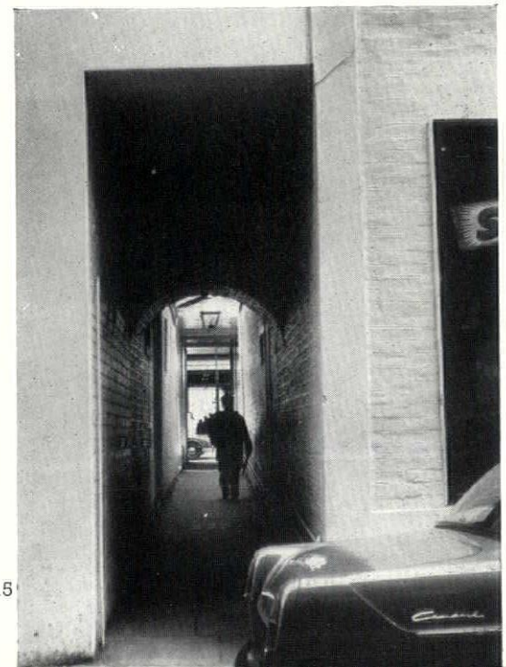
13

. . . Manchester's main civic space and a depressing pedestrian's nightmare of street furniture, asphalt and parked cars. There is not even a seat. The proposed processional way will come in on the left hand side of it and there is no reason why the whole thing should not become a grand paved pedestrian space—which ought not to prevent official cars from entering on official occasions: separation in general terms is essential for the proper functioning of motor traffic and the proper enjoyment of pedestrian space, but 100 per cent segregation is one more name for sterility. Beyond Albert Square the walk turns west into John Dalton Street to come on St. James' Square, 14 . . .



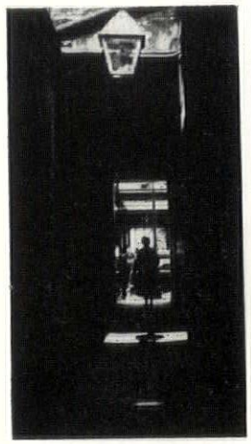
14

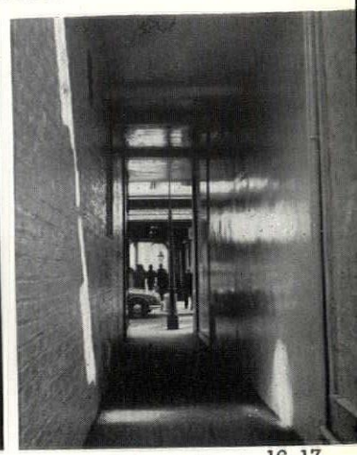
. . . much smaller, little more than a short wide street, the perfect foil to the grand civics we have had so far. At the end of the square an alley opens out, 15 . . .



15

. . . slips across two streets with a bewildering kaleidoscope of light and dark effects, private and public space, 16 and 17 . . .





16, 17

. . . and ends in one of the noblest intimate views in England, the grand early eighteenth-century pedimented porch of St. Ann's, 18 and 19 . . .

18





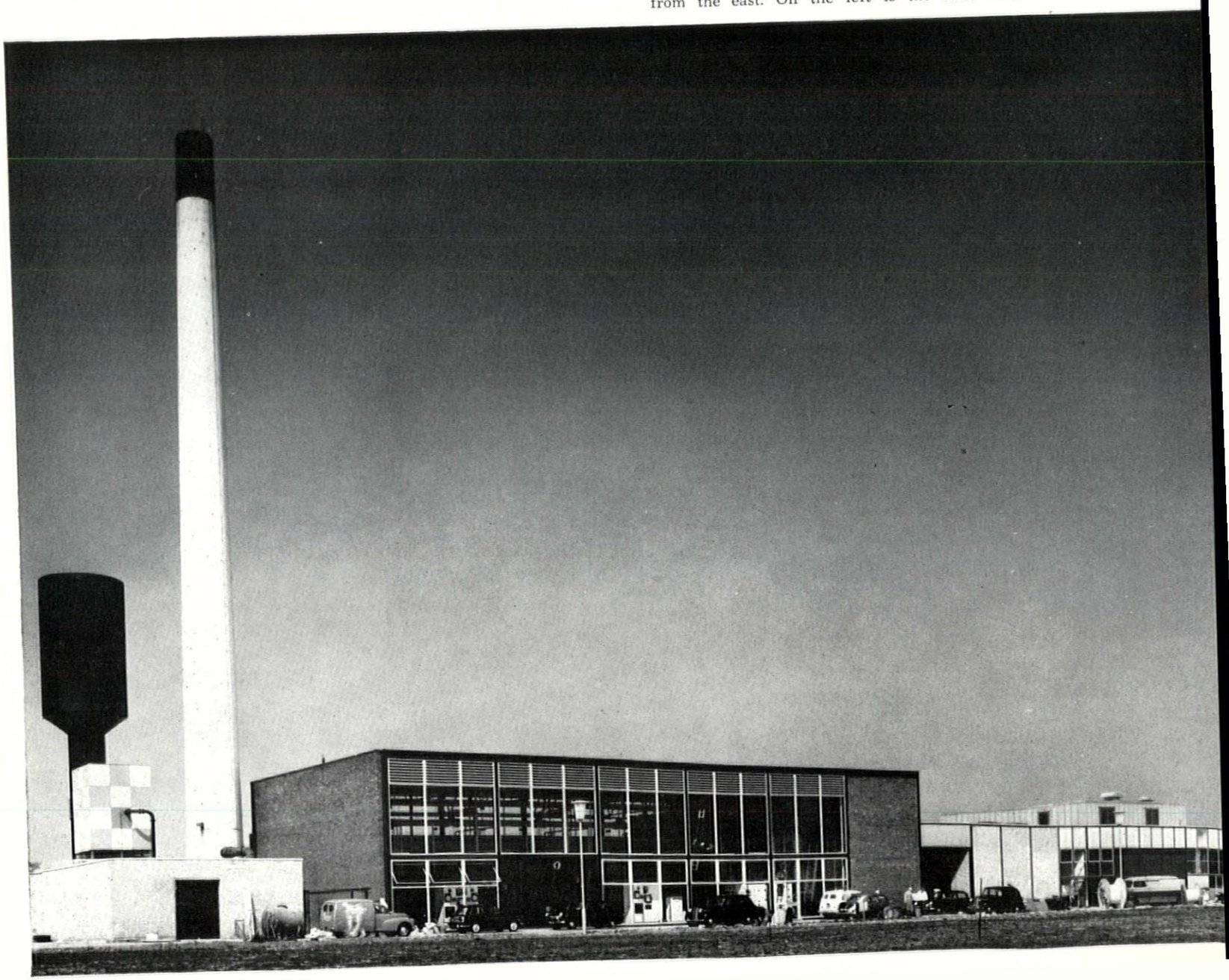
19

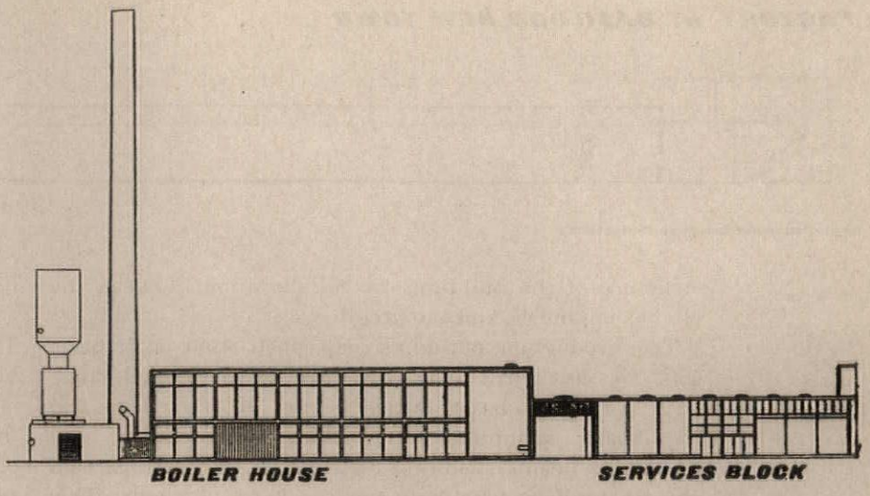
Even then the play is not ended, for around the corner is St. Ann's Square, and the heart of shoppers' Manchester. Beyond again, though visual interest falls away—and could so easily be re-created—is the tower of the Cathedral.

FACTORY AT BASILDON NEW TOWN

ARCHITECT | **ANTHONY B. DAVIES, Chief Architect-Planner, Basildon Development Corporation**

1, the boiler house (centre) and the services block (right) from the east. On the left is the steel water tower.

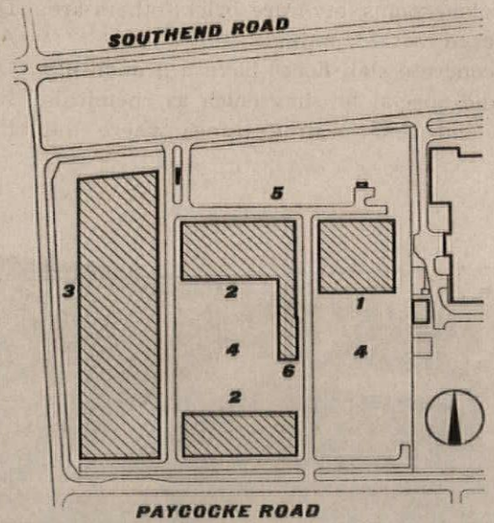




Most of the industrial architecture of the New Towns has not, so far, been more than competent and efficient, and the Ilford factory at Basildon is therefore the more welcome for having got off this level of the decent minimum to produce something with stronger claims to be considered as architecture. Nevertheless, an improvement in architectural quality is still not enough to bring the industrial areas of the New Towns up to the standard of the residential architecture there. Their planning rises little above the quality of pre-war trading estates, as if it were sufficient to group the factories into a kind of industrial Siberia, out of sight and mind, where standards applicable elsewhere could be relaxed. Clearly, planning for unspecified and variable industrial use has its difficulties, but it should not be impossible to raise the present uninspired planning of the industrial areas to a higher level, worthy of this and the few other well-designed factory buildings.

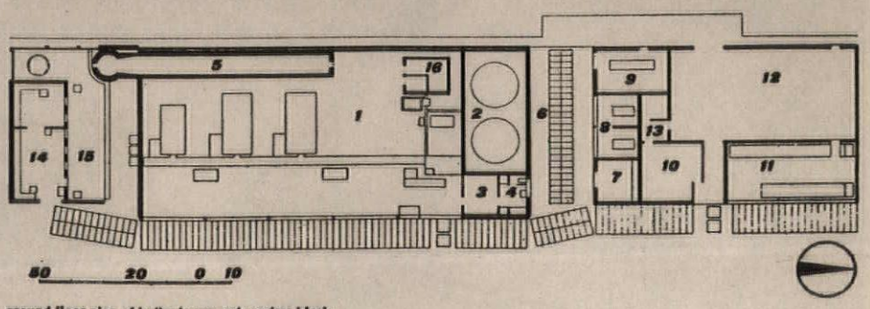
This factory, for Ilford Ltd., in the Nevendon industrial area of the new town, is designed to concentrate the company's production units, at present operating in widely distributed works, in one place. Three parallel production buildings and a boiler house have been laid out on the 19-acre site, with vehicular access roads and parking lay-bys between. Only one of the buildings has so far been constructed to its ultimate size (see site-plan) and space has also been left for six-storey office and canteen block at right-angles to the production buildings.

The planning was determined by a number of operational requirements: that floor areas should be uninterrupted in order to allow flexibility in use and freedom of plant layout; that floor and road levels should be uniform to facilitate fork-lift trucking throughout the site; that good natural daylighting should be available, except in certain areas where photographic processes require all natural light to be excluded, but that light and dark areas should be interchangeable as required; that services should be available at all points in the buildings; that the structure and the services should give as few dust-holding surfaces as possible. Cloakroom and office accommodation is planned so as not to interfere with the main flow of the production lines. The machine layout was provided by the client in the first place and was integrated in detail with the



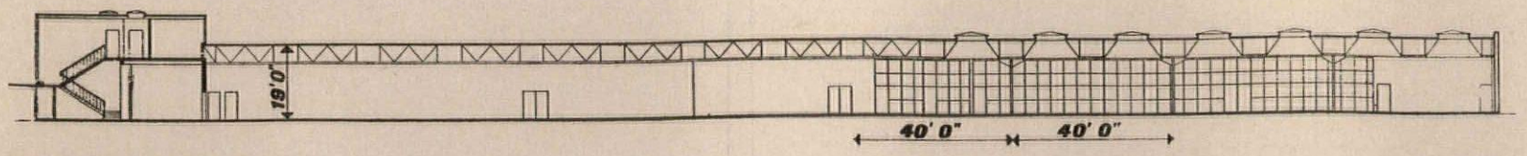
site plan

key 1, production block 1. 2, production block 2. 3, production block 3. 4, expansion areas. 5, future offices and canteen. 6, boiler house and service block.



ground floor plan of boiler house and services block

key 1, boiler house. 2, oil storage compartment. 3, engineer's room. 4, lavatory. 5, horizontal flue. 6, covered way. 7, HT switch room. 8, transformer room. 9 LT switch room. 10, telephone exchange. 11, spirit store. 12, storage area. 13, battery room and telephone workroom and store. 14, pump room. 15, refuse disposal yard. 16, store.



longitudinal section through production block 3

structure of the buildings by collaboration between the client's engineers and the architects.

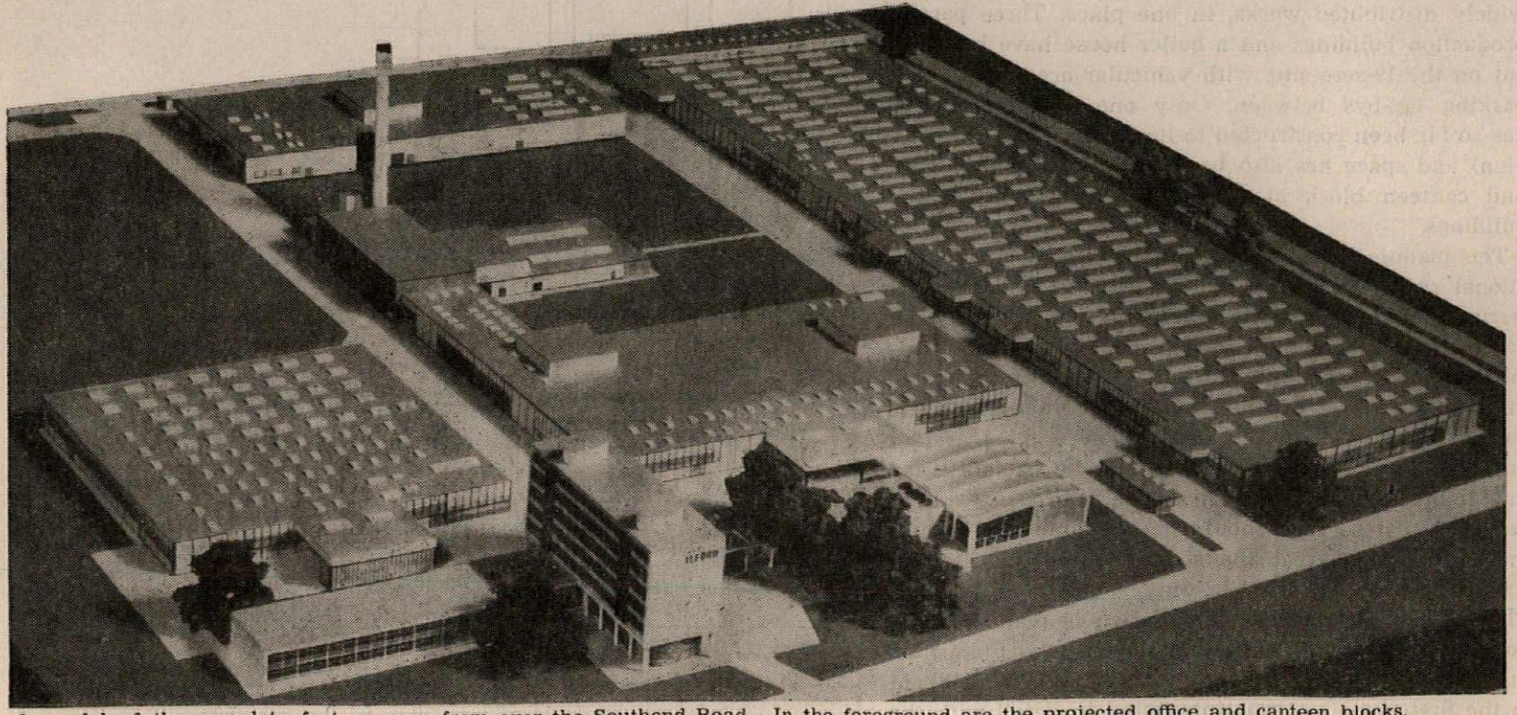
The production buildings are constructed on a basic 40ft. by 40ft. grid. The structure is in welded steel, with pairs of tubular lattice beams, 4ft. 6in. deep and 6ft. apart; spanning 40ft. between stanchions, and secondary beams spanning 34ft. All services are carried within the duct-ways between the pairs of beams. This system provides maximum room for services, enables them to be enclosed by an asbestos ceiling lining and allows easy access to them from any point on the production floor. The frame structure of the roof was designed to meet these conditions by Ove Arup and Partners and was prefabricated off-site. The stanchions are formed of welded steel channels giving a 7in. section.

Within each 40ft. square bay are two roof-lights, each 28ft. by 8ft., glazed with white ply-glass and providing uniform daylighting throughout the factory of between 26 and 34 per cent. External walling consists of anodized aluminium sashes fixed into steel perimeter stanchions at 10ft. intervals. They are glazed interchangeably with sheet glass or vitreous enamelled panels to give either daylighting or darkness as required. Permanent internal partitions (as for cloakrooms, etc.) are brick; others are in demountable glazed metal framing.

The reinforced concrete slab floors have a granolithic finish generally, and special finishes (such as chemical-resisting asphalte and acid-resisting tiling) where the manufacturing processes require it. Special paints have also been used to protect the structure in these areas. The exposed areas of the steel frame are painted matt black externally.

The services for the whole factory are grouped in the boiler-house and services block on the eastern side of the central production building. An underground duct surrounds this building, with branches to the other buildings. The duct contains high-pressure steam and condensate mains, chilled and cooling process waters, cold and drinking water supplies, electricity, gas and telephones. Where the duct enters each production building is a service room from which the services are distributed. The manufacturing processes and the heating require a large amount of high-pressure steam which is generated by three oil-fired boilers. There is room for a fourth. Heating is by steam unit heaters or low-pressure radiators, all of which are suspended within the ceilings of the production buildings. The central production block is partly air-conditioned, by plant housed at first floor level.

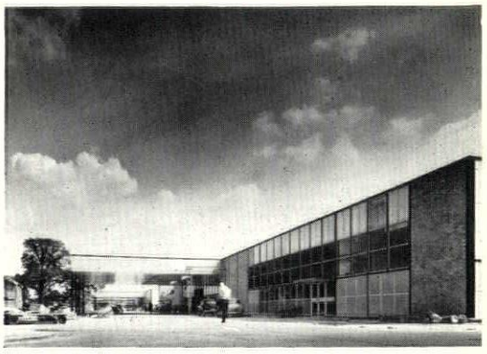
The factory was designed in collaboration with A. G. Horton, chief engineer, Ilford Ltd. Senior architect, Douglas Galloway; group architects, R. S. Chesher, K. L. Abbott, A. P. Rowson, J. Bryon; structural engineers, Ove Arup and Partners; services engineers, Donald Rudd and Partners; quantity surveyors, E. C. Harris and Partners; landscape consultant, Sylvia Crowe.



2, model of the complete factory, seen from over the Southend Road. In the foreground are the projected office and canteen blocks.

3

3, typical staff entrance to one of the production buildings, which has a black steel frame, aluminium windows and trim and grey vitreous enamel infill panels.



4

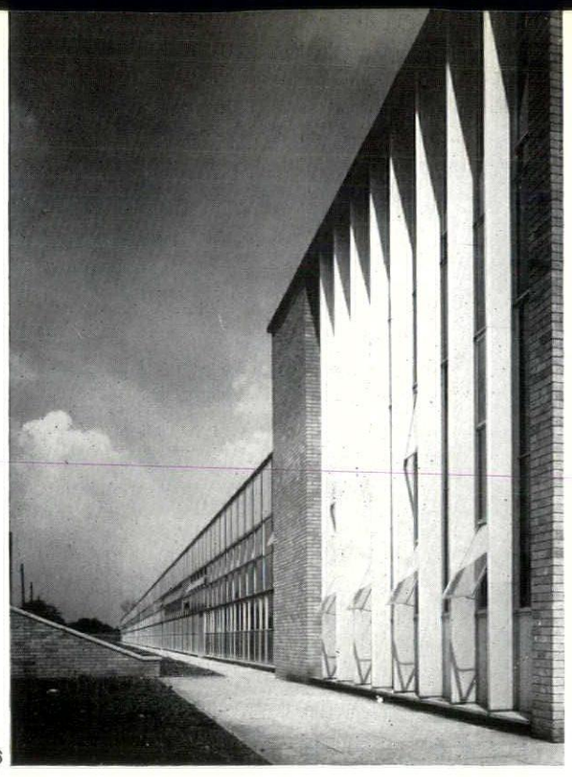
4, production block 2 from the north-west, with its main unloading area and canopy.



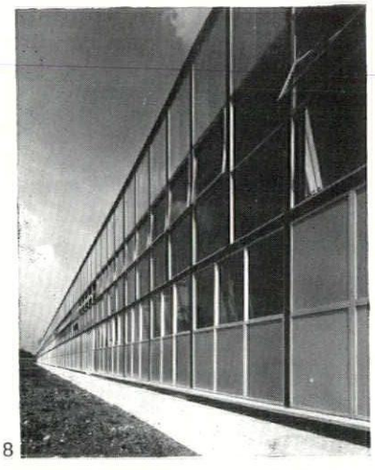
5

5, production blocks 2 and 3 from the south-east. Glass and vitreous enamel panels are interchanged according to the function inside the building.

6, the two-storey office block and production block 3 from the south-west. The office block has golden brown hand-made facing bricks and anodized aluminium fins and windows.
7, typical cantilever canopy over an unloading bay. The fascia is of ribbed aluminium.
8, the west elevation of production block 3.



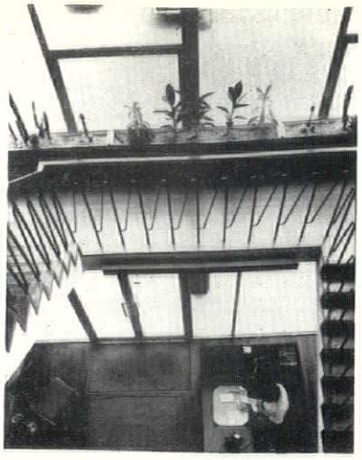
6



8

7





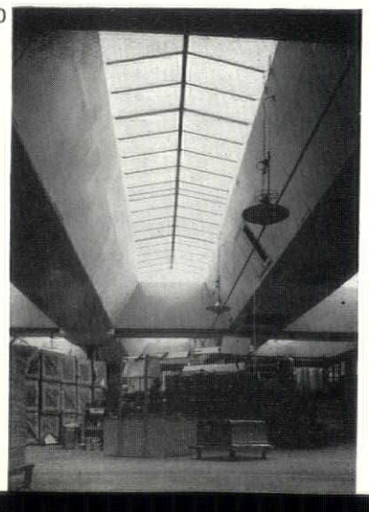
9

9, entrance hall of the two-storey office block from the first floor. The steel treads and floor of the staircase are finished with Rhodesian teak. The black steel balustrade has a teak handrail.

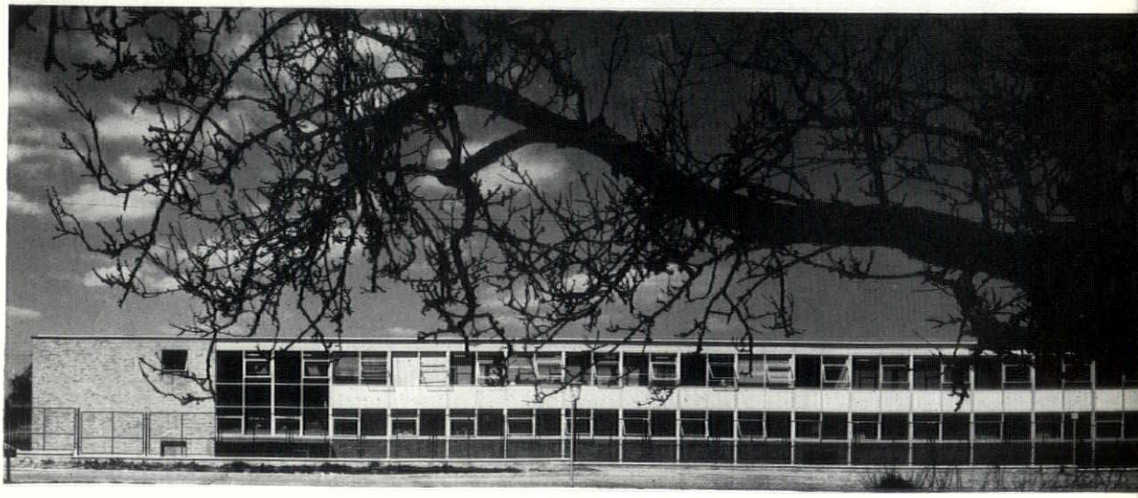


11

10, part of a production area showing the service ways and roof beams enclosed by the ceiling cladding and the suspended humidifiers.
11, the entrance to the two-storey office block, which is at the south end of production block 3.
12, south elevation of the office block.

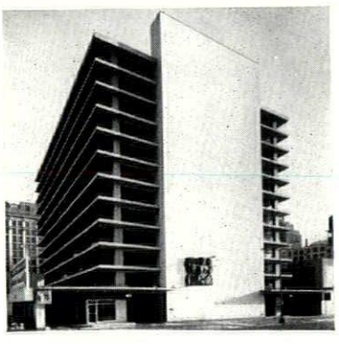


10



12





Chicago's Number 1 City Garage is connected to the upper and lower levels of Wacker Drive, one of the main traffic routes, at its intersection with one of the approaches to the Loop, the city's central area. This is the sort of peripheral and linked location which parking structures must achieve in order to be effective. The building, designed by Shaw, Metz and Dolio, demonstrates also the visual excitement of open decks in the urban scene; the outlook beyond the safety barrier of tensioned stainless steel cables is the motorist-pedestrian's new view-point of the city.

Michael Brawne

PARKING TERMINALS

In most cities, the multi-storey garage is a desperate solution to an intolerable problem—kerbside congestion—and is regarded, at best, in the negative sense of a necessary evil. But if the trend of present thinking can be reversed, so that these garages are not regarded as litter-bins for surplus cars swept off the streets, but as the place where cars naturally come to rest and the motorist willingly becomes a pedestrian, then the parking garage becomes as valid and valuable a contribution to the urbanism and architecture of the town as were the railway terminals—to use the comparison made by Michael Brawne in his article below—that were erected a century ago.

Parking structures are terminals; like the great railway sheds of the nineteenth century, they are points of interchange between two forms of movement—on one side the private motor car, on the other the pedestrian, public transport, lifts, escalators, moving pavements. Car parks are the focal points which must be the origin and destination of private urban motoring. The great Autorimessa at the land end of Venice, now twenty-seven years old, is thus still in terms of location the unsurpassed prototype. Until Fort Worth accepts the Victor Gruen plan, it is unlikely to be equalled.

The detailed design of parking structures demands a certain degree of specialized skill if these are to be efficient and profitable, yet this is, in some ways, a minor problem. There are now after all several inherently simple methods of stowing a motor vehicle which provide adequate and acceptable answers for a range of situations. The difficulty is not the how, but the where.

Location is of course an urban planning decision based on a policy of land use. All planning decisions are, in the last resort, judicial acts: the adjudication between two recognized moral rights, the freedom of the individual and the safety and wellbeing of the community. In this case every individual user wants to get his car to his own particular destination. In terms of the community, however, this may occasion anything from mild traffic chaos to the suicide of the urban core. And unless a planning decision is made, neither right will be satisfied. Failure to determine the position of parking structures in relation to a town's traffic pattern, both on plan and in section, means that the present entrenchment of capital expenditure on these structures may compromise or even make impossible a rational decision in the future.

The necessity for a decision is largely a matter of arithmetic; only, as in the case of budgets or the detonated power of hydrogen bombs, the numbers are so vast as to fail to make an immediate impact. If, for example, we were to attain in this country the



1, *the Autorimessa in Venice is Europe's largest parking structure and the most clear cut in its function. It holds* 2,400 *cars and is the terminal of all vehicular traffic approaching the city. The civilized situation which results needs emulation elsewhere.*

number of cars per person which is conservatively forecast for the United States in 1976, there would be around 22 million registered vehicles. This is roughly four times the current figure and represents a ratio of 1.6 cars per family. The effects of such an increase are barely calculable and almost impossible to imagine, particularly when one remembers that between 1940 and 1956 the number of cars in Britain doubled, from two to almost four million. Yet this rise is only one-eighth of the likely increase. These figures also refer to cars only, the probable users of parking structures, and exclude scooters, motorcycles and commercial vehicles. At the moment this group adds up to another three and a half million. Car production capacity is certainly capable of creating these numbers: an annual increase of three-quarters of a million vehicles could be maintained by the Volkswagen factory at Wolfsburg alone.

No road pattern has enough kerb space to hold this volume of traffic nor should it ever be required to do so. Traffic flow, to be efficient, must in any case be separated from the random traffic stops and starts caused by parking. Nor can there ever be enough off-street ground-level space for cars at rest without both destroying the city and removing the car inordinately far from the driver's destination. Multi-level vehicle storage is thus inescapable.

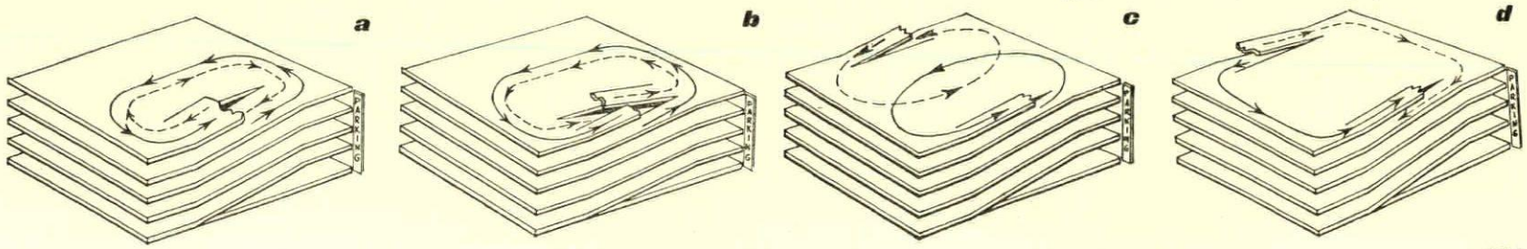
However designed, parking will not be used unless it is free or the charges are considered reasonable. Feelings about reasonableness vary a good deal. They are affected by closeness and length of stay. Sixpence per half-hour next door to a department store seems reasonable; eight shillings a day to park a car while at the office appears outrageous. Such considerations need always to be taken into account when locating parking which is to show a profit.

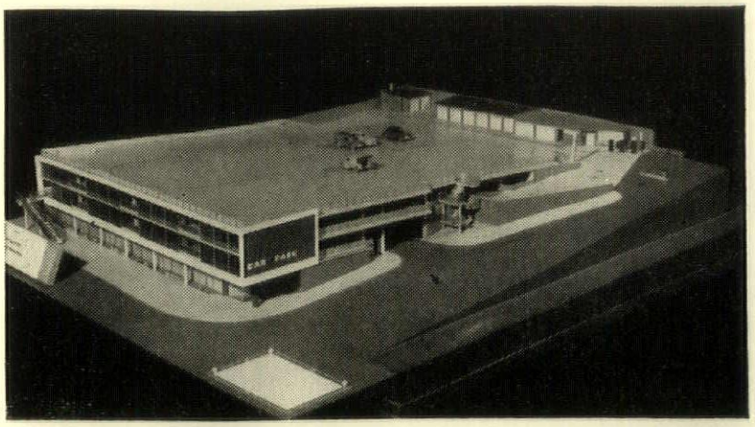
No urban parking is in any real sense free. For a 40-ft. carriageway with parking on both sides, half the cost of construction, maintenance and servicing is properly chargeable to parking. This is quite apart from the hidden cost of traffic delays caused by vehicles moving in and out of the parking lanes. The cost of building parking-structures must therefore be seen in relation to road-costs and especially to road widening programmes. Several possible methods of financing have so far been used.

Parking may be municipally owned and operated and provided free as in the ramp garage at Hemel Hempstead, 2. It is more frequently owned by the municipality and leased to an operator who may however only charge an agreed scale of parking fees. Parking is sometimes also built by the municipality out of profits made from parking-meter revenue, or financed by a rating assessment on commercial properties near the parking facility, which is related to their nearness and size. Alternatively, parking structures are built as ordinary commercial ventures with charges determined by economic considerations. A further refinement of this form of financing is where local shopkeepers validate their customer's parking ticket for a certain length of time at a particular garage in proportion to the amount of goods bought. A five-shilling purchase might give half an hour's free parking for instance.

Both publicly and privately owned parking depends for its success in terms of economics and town-planning on being backed by ordinances which forbid or severely restrict street parking. Even where the demand for parking space is such that a parking structure is certain to be a financial success, street

Diagrams **a** *to* **l**, *drawn by the National Parking Association of Washington, DC, show the wide range of ramped structures from which it is possible to choose. Systems which separate up and down traffic, like* **b** *or* **d**, *are to be preferred. Various*





2



3

2, 3, urban parking is often a local government service. In Hemel Hempstead, 2, it is provided free by the Development Corporation; in Pittsburgh the Mellon Square Underground Garage, 3, in the centre of the town has been leased to private management.

parking should be deliberately limited. Parking facilities should always be considered as means of clearing cars from crowded streets, not as devices for attracting a greater volume of traffic. A few cities like Pittsburgh have seen this clearly and acted on it with commendable consistency.

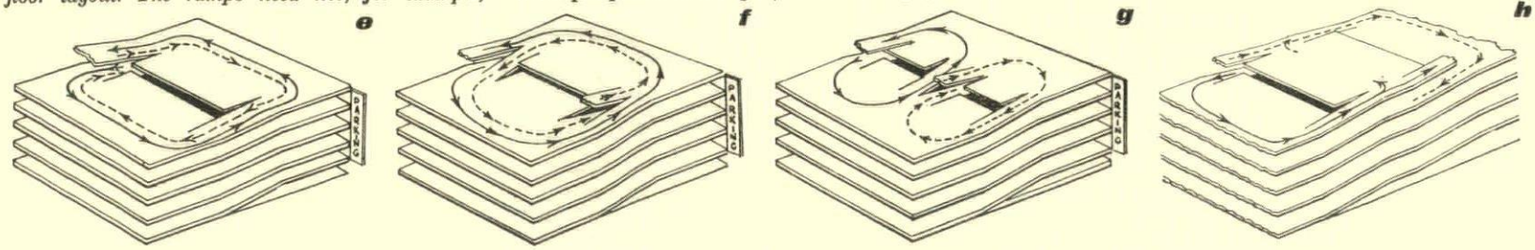
Cars can be stowed aloft under their own power or mechanically positioned. The choice is one of economics. All parking-structure design is a financial balancing act of land values, building costs, labour charges and usable space in terms of possible receipts or public policy. Mechanical handling compresses the operation into a smaller space, since both horizontal and vertical movement is in straight lines and clearances between vehicles, being mechanically predetermined, can be at a minimum. The cost of the equipment is, however, considerable and its use is therefore only justified where land values are high or the plot is so small as to make other parking arrangements impossible. In practice this means the densest central areas of the city. Yet it is precisely in these areas that the location of parking spaces is most questionable. Mechanical parking structures have been a most useful visual demonstration of the extent to which car storage can be reduced to its sparsest elements, 4. This should not, however, be an encouragement or justification of their use in zones where private vehicles have probably no place.

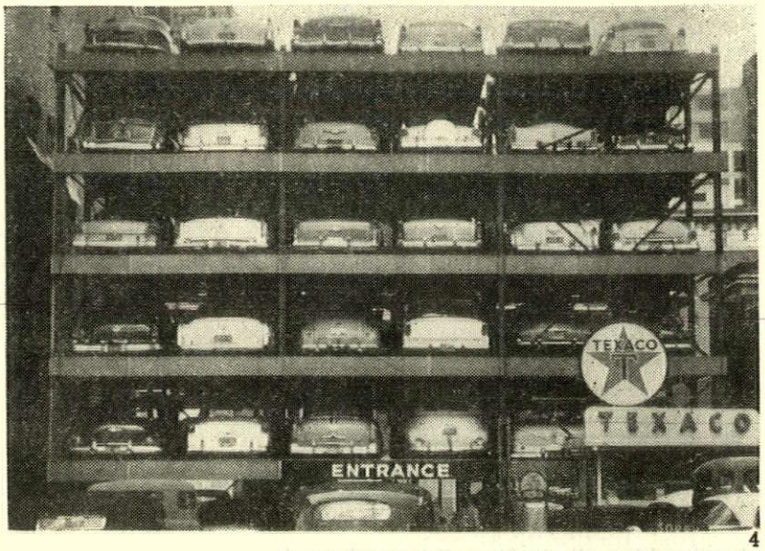
Most mechanical systems consist of a hoist which can also move horizontally, a kind of lift on rails. This moves up, down and sideways in a central aisle, delivering or collecting cars from racks on either side. In the case of the Pigeon Hole system the lift runs on rails on the ground, in the Bowser system it is suspended from the roof. There are at least half a dozen similar patented systems on the market which differ in the degree of automatic control and the design of the dolley which lifts the four wheels of the car off the ground in order to make it a handleable package.

Some of these handling operations can, if necessary, be done manually. The Pearce system, for example, recognizes that in this country cars are still small and labour costs relatively low. A car is therefore pushed by two attendants into a lift which takes it to an upper floor. There it is again pushed by hand on to a trolley which is moved sideways on rails until it is opposite a vacant parking space. All movement is in straight lines and only vertical movement is mechanical. Cars can, as in some but not all mechanical systems, be locked by their owners but are, unlike the cars in all the fully mechanised forms, never lifted off the floor. The Pearce Autopark in Birmingham is, with a daily charge of 5s., the only multi-storey car park in this country which actually claims to make a profit. Whether it will continue to do so as labour costs go up remains to be seen.

When motor cars move to higher (or lower) levels under their own power they may be driven by attendants or their owners. Most early garages were attendant-operated since it required considerable experience, if not daring, to manoeuvre vehicles on the steep ramps and constricted floors which were believed economically necessary. The increased cost

forms of staggered floor parking are illustrated in diagrams ***e*** *to* ***h****. These drawings show, of course, only the system of circulation and not the actual floor layout. The ramps need not, for example, always be peripheral but may have parking on each side of them. The system shown in diagram* ***i*** *can be modified so that the whole structure is a series of sloping or warped planes at a slope* (*continued on page* 128)



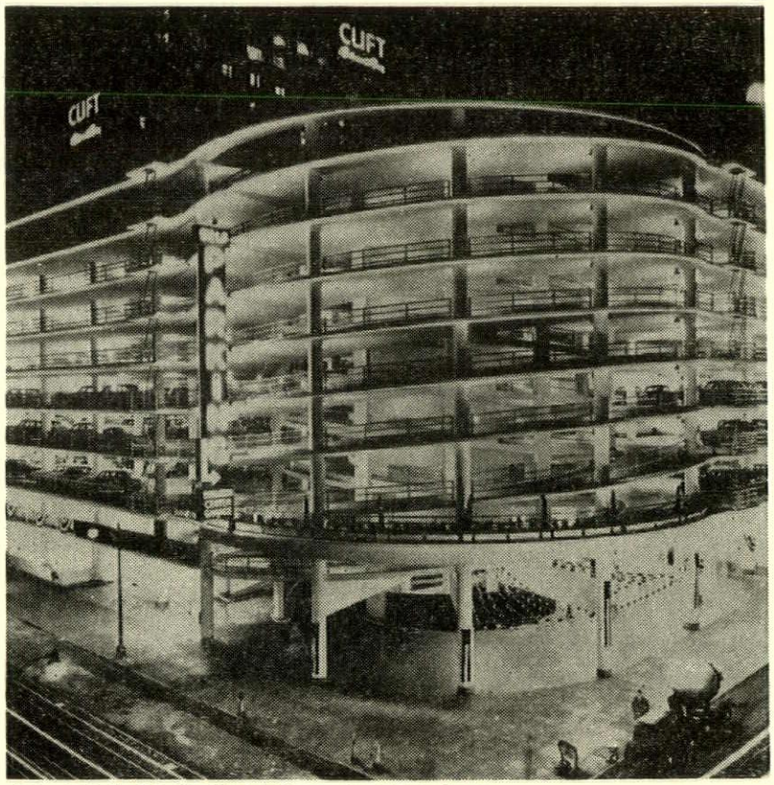


4

4, car storage at its most basic: the steel framing of a mechanical unit using the Pigeon Hole system in Portland, Oregon.

5, the two concentric ramps of San Francisco's Downtown Center Garage at the corner of an L-shaped building. One ramp is for up, the other for down, traffic. The completely open decks of both methods of parking are a new visual form among the sheathed buildings of the city.

5



of labour, especially the necessity for a large staff at peak demand, and the notorious driving habits of attendants, have made such parking structures virtually obsolete. The recently completed garage next to Selfridges is manned by attendants who take the car from the customer at each floor—not at the entrance—and put it into a stall. This is a possible compromise when floor-space is severely restricted.

Self-parking, like the self-service shop, appears to make sense in terms of economics and psychology. Although the amount of area needed per vehicle is greater than for either mechanical or attendant-operated structures, the running costs are considerably lower. A parking structure can be operated by a cashier at the exit only. The driver is issued a time-stamped ticket at the entrance by a machine (one brand in the US goes under the revealing name of 'Ticket Spitter') and then parks his car in the first available space. The ticket and parking fee are collected at the car exit. The ticket machine can be connected to a gate across the driveway which is only raised after a ticket has been issued.

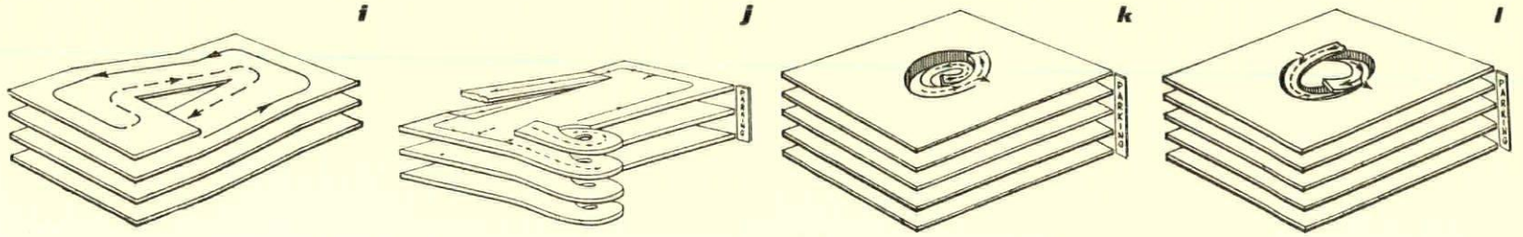
The wider and shallower ramps and the more unobstructed floor spaces needed in this type of parking give a considerable degree of flexibility in use. As cars have got longer in the United States, many structures are now used uneconomically since vehicles no longer fit the divisions assigned to them. This applies particularly to column spacings and aisle widths. Wherever possible floors should be free of columns. This demands spans of about sixty feet. The great virtue of such an arrangement is that as the dimensions of cars change, the angle of parking can be varied. As cars get longer, the angle becomes shallower. The two arrangements for 45° and 60° parking ***m, n,*** taken from Baker and Funaro's book *Parking* are for cars of the same length. Conversely, of course, cars of greater length could be fitted into the 61 ft. wide space at a shallower angle. Over a given length their number would naturally be less.

The further important advantage of allowing generous dimensions, such as a 10 ft. stall width per vehicle, is that parking efficiency is largely measured in terms of time. Unless movement in and out of stalls and up and down ramps can be done speedily, serious hold-ups can occur at times of greatest use. Speed also makes it necessary that all decision-making should be avoided; there ought to be no choice of ramps or exits, traffic flow must be channelled and continuous. Nothing causes greater dissatisfaction among drivers than the inability to leave a garage quickly.

[*continued on page* 133

of 1 : 40 *to* 1 : 25. *Similarly other systems than* ***j*** *may combine two different ramp forms, one for up movement while looking for a parking space, the other for quick down travel. Circular ramps need not, as can be seen from 5, be placed centrally.*

i ***j*** ***k*** ***l***

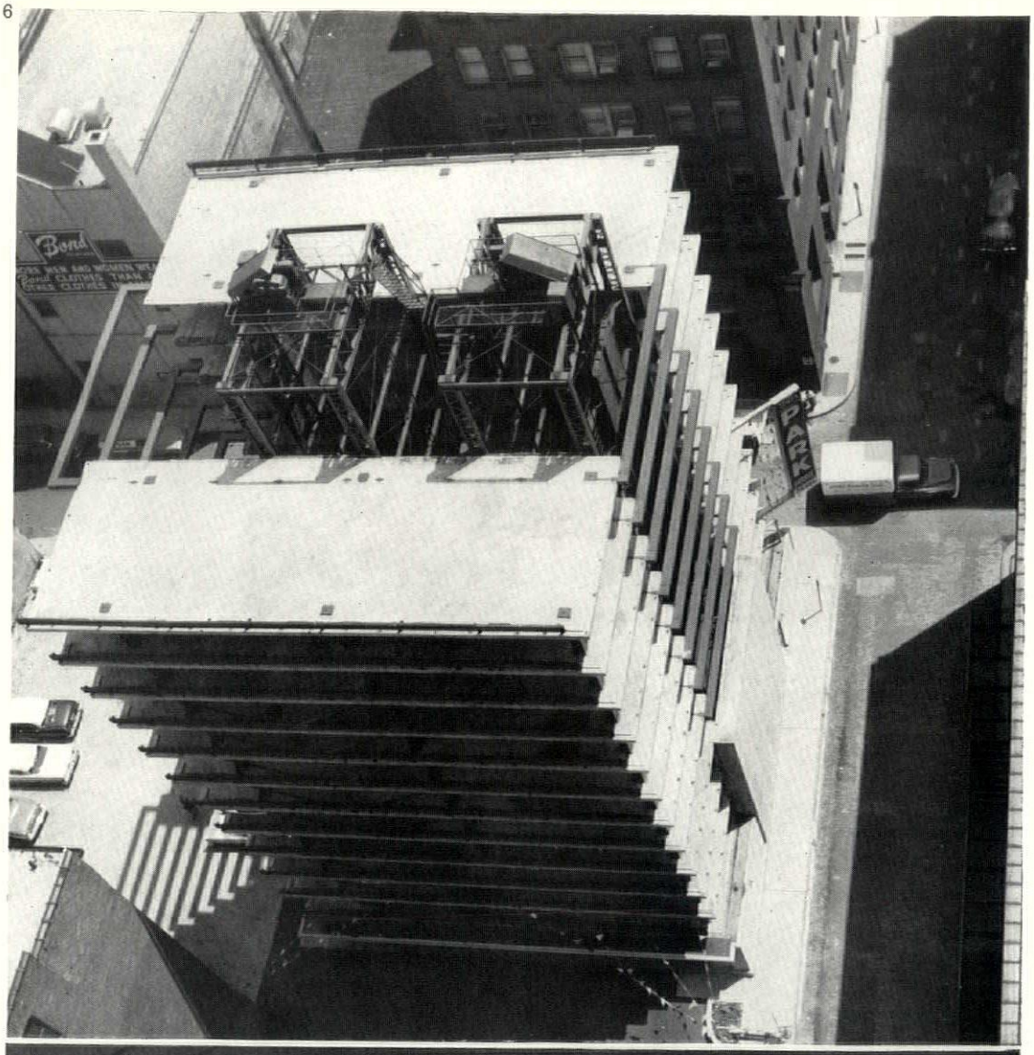


6, the steel shelving of 4 carried out in concrete, in this case a 12-storey lift-slab structure of two towers linked by steel beams at the ends only. The two hoists mechanically park the cars. The building was designed by Tibbals-Crumley-Musson and is in Columbus, Ohio.

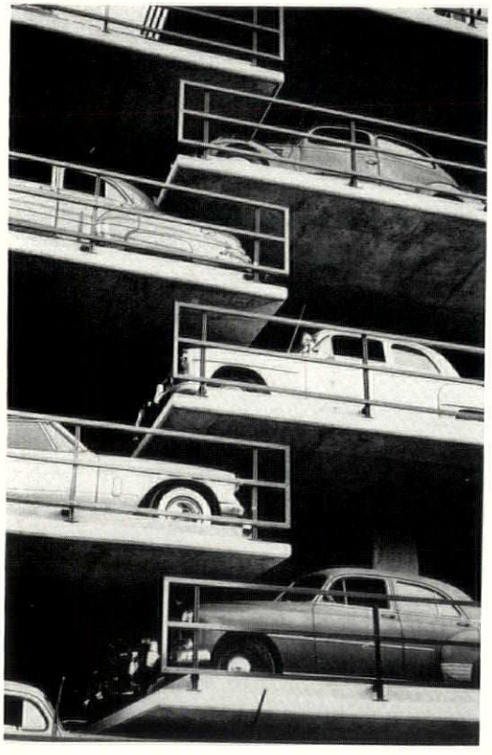
7, the staggering of floors can produce considerable savings of space; this detail at the end of a structure in Atlanta, Georgia, designed by Aeck Associates, clearly shows the amount of overlap possible due to the outline of the typical motor car. It also illustrates the success of the simplest possible detailing.

8, although the floors are staggered in this building in Milan by Varisco, the structure really consists of two sets of parking floors linked by a central ramp. There is thus no saving of space through any overlap; only the length of ramp between floors is shortened. Placing petrol pumps in line with the main traffic flow is likely to cause difficulties at rush hour. Service facilities like fuelling, car washing and minor repairs must never interfere with the movement of cars or need the sort of decision making which reduces the numbers able to enter or leave within a given time.

6



7

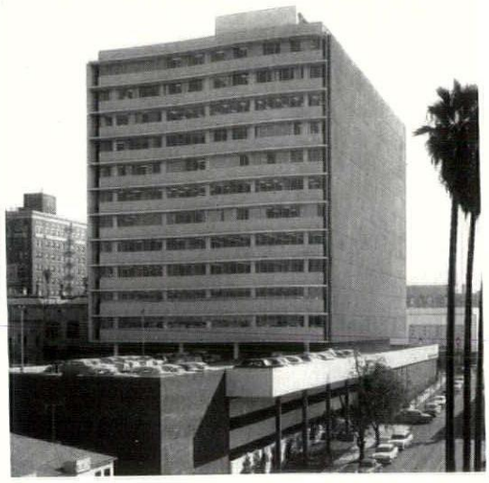




8



9



11

Parking is often linked to other buildings, frequently as a result of planning ordinances demanding a certain number of car-spaces related to the amount of floor area or the number of users. Whether this is always a wise decision is highly questionable. It perpetuates the present road system and scatters the car over the entire area of the town. It may remove the stationary car off the street without requiring a great deal of action or thought, but it does nothing to clear the centre of cities of moving vehicles.

9, *this is a special and probably justified case of linked parking. Philadelphia's Transportation Center, designed by Vincent J. Kling, is part of the new Penn Center and contains, apart from parking for the Sheraton Hotel on the left, a Greyhound Bus terminal and restaurant, an office building, an airline terminal, a bank and other commercial uses and is connected to an underground station, a lower pedestrian concourse and an underground service street. It is a major achievement in the organization of urban land use.*

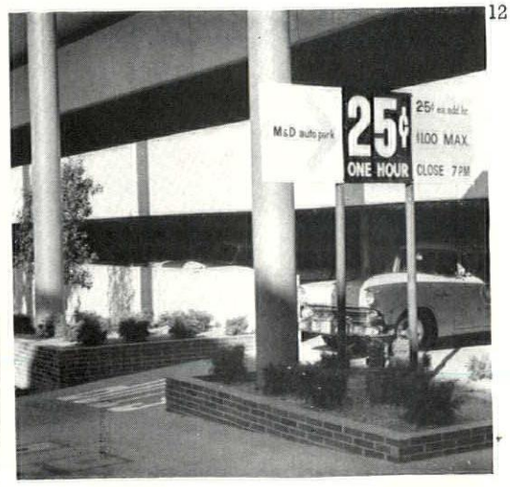
10



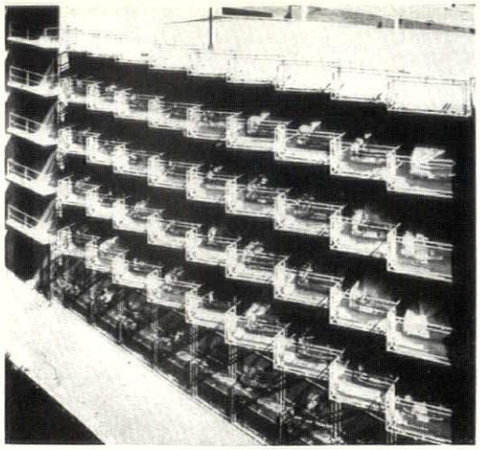
10, *the two floors of parking in the above building are screened by closely spaced precast concrete fins. The spaces between the fins are left open.*

11, *the Tishman Office Building on Wilshire Boulevard in Los Angeles by Victor Gruen has a parking structure to one side. This makes an easier structural connection than if the two were superimposed.*

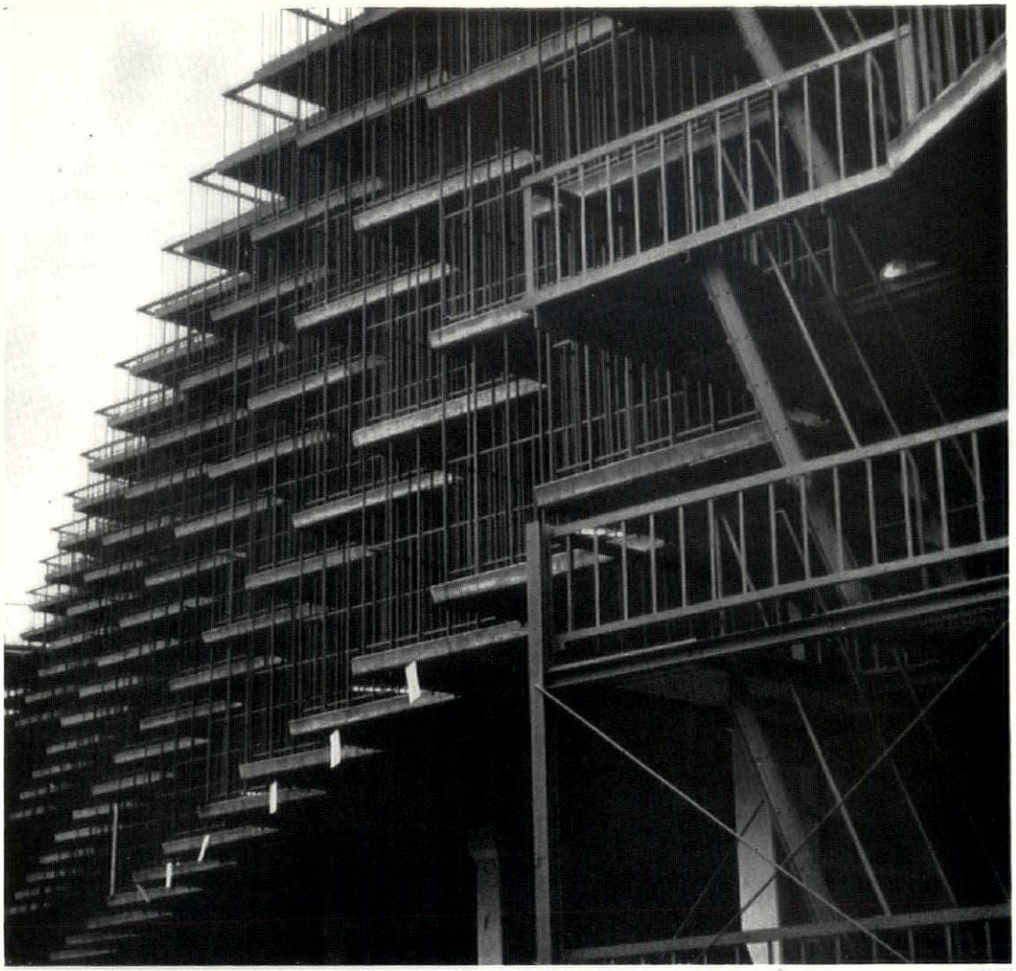
12, *this scheme's civilized entrance and signposting show the concern now given to a building type which has in the past been too often sordid and makeshift.*



12



13



14

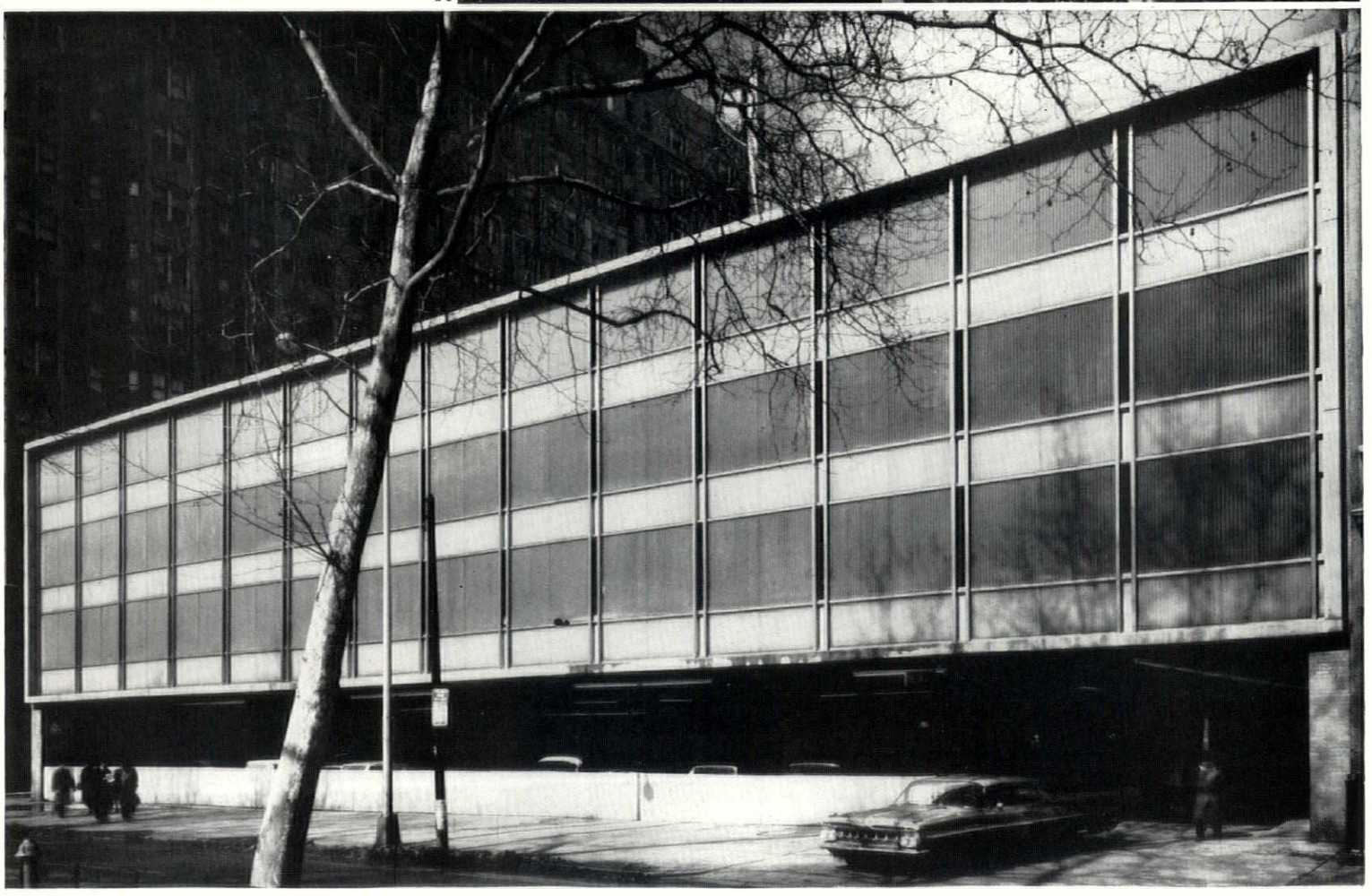
The toothed outline produced by angle parking can become a clear visual signal of the function of the building.

13, *the Kent Street Garage owned and operated by the City of Sydney was designed by D. T. Morrow and Gordon and has tubular steel and wire mesh crash barriers.*

14, *the staggered floor parking which is connected to the store floors of ZCMI in Salt Lake City has a barrier of steel rods painted red oxide. This interesting building, designed by Larry Farrant and Bowen, Rule and Bowen, was built from the top downwards—the shuttering being suspended from the top floor—so as not to stop access to the service entrance of the shop.*

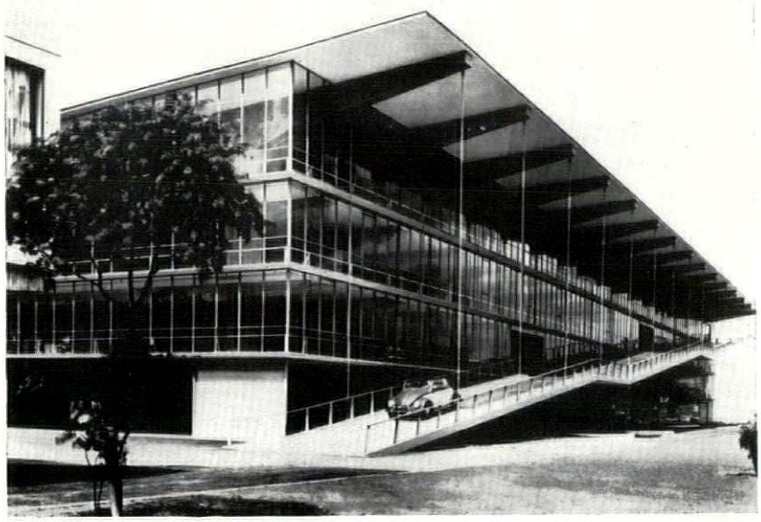
15, *a different but often equally valid solution of the exterior: a smooth mesh veil at the parking structure in Rittenhouse Square, Philadelphia, by Lyle S. Boulware.*

15

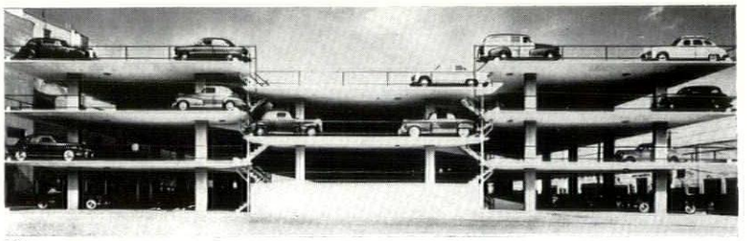




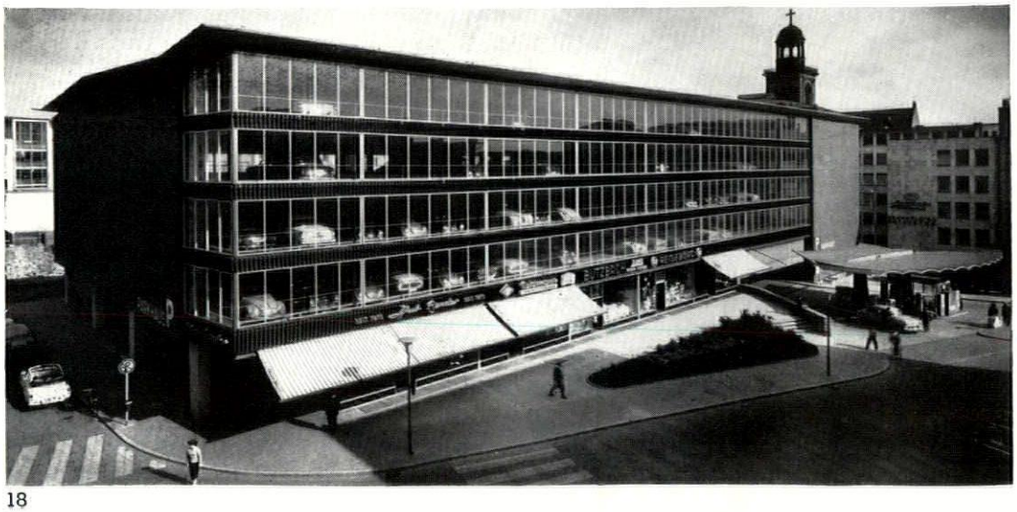
16



17



19



18

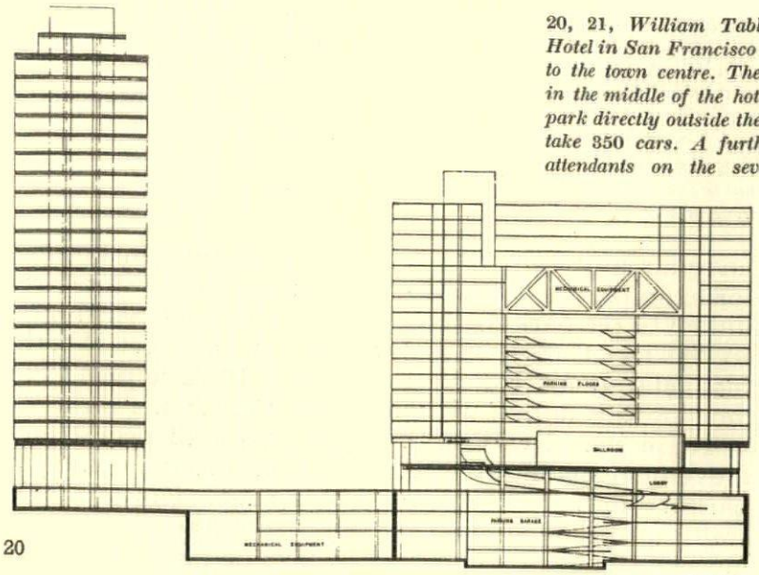
The open parking deck, the most economic and rational solution to the problem of upper level car storage, seems so far to be more frequently used in North America than Europe. Perhaps the motor car is still too precious an object on this side of the Atlantic. The payment of a parking fee seems to carry with it an implied obligation to protect the vehicle.

16, *John B. Parkin Associates designed seven concrete decks with simple parapets and rails for the Parking Authority of Toronto. Cars are mechanically hoisted by one of three lifts and attendant parked.*

17, *the Haniel Garage in Dusseldorf by Paul Schneider-Esleben and Dietrich Hartkopf with its now famous suspended ramps. There is room for 600 cars on the three upper floors; the ground floor has service and repair shops.*

18, *the Parkhaus in Frankfurt combines parking with offices, shops and a service station. The twin helical ramps as at the Downtown Center, 5, are at the far end of the building. It was designed by Max Meid and Helmut Romeick for a building society owned by the Frankfurt city authority.*

19, *staggered floor parking in Miami, Florida, for 560 cars with separate up and down ramps designed by Weed-Johnson Associates. The skeletal simplicity of this building may be less polite than the Haniel Garage or the Parkhaus but it may also provide a more sensible and honest answer. Economics are greatly in its favour: the Miami parking cost £290 per car space, the Dusseldorf building £420. Both figures exclude the cost of land.*



20

SECTION

20, 21, William Tabler's project for the Hilton Hotel in San Francisco brings the notion of the motel to the town centre. There are six floors of parking in the middle of the hotel. Guests drive up ramps to park directly outside their bedrooms. These six levels take 350 cars. A further 350 cars are parked by attendants on the seven staggered floors of the basement. This is one of several recent attempts to integrate motor vehicle storage into urban buildings.



21

continued from page 128]

The need to wait for one's car is one of the serious disadvantages of attendant-operated garages. There is usually a peak demand for cars at some time during the day—when offices or shops close, or after the theatre. However large the staff, cars can only be delivered from the stalls at regular intervals. Customers on the other hand arrive at random intervals so that inevitably a delay develops. Delays moreover tend to be longest at times when tempers are shortest. If cars are collected by their drivers, these are kept busy and the time lag is not nearly so apparent. It may in fact also be less because a greater number of drivers is involved.

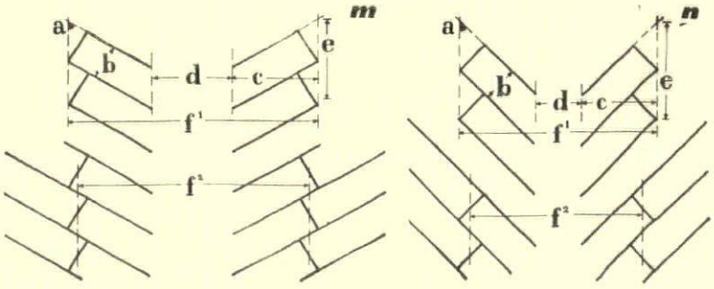
The random times of car arrival cause similar problems and make a reservoir space necessary in all mechanical and attendant-operated structures. The size of this space, in which cars can be left before they are taken to upper (or lower) levels, depends on the number of attendants or the speed of the machinery and the average rate of arrival of cars during the peak hours. The reservoir must not become overloaded or queues will form outside the building, a poor advertisement for a garage at any time. This necessary storage area occurs at ground level where the financial value of space is at its highest and where it might be used more profitably for some other purpose. The need for reservoir space may thus have important economic effects on the operation of a particular parking design.

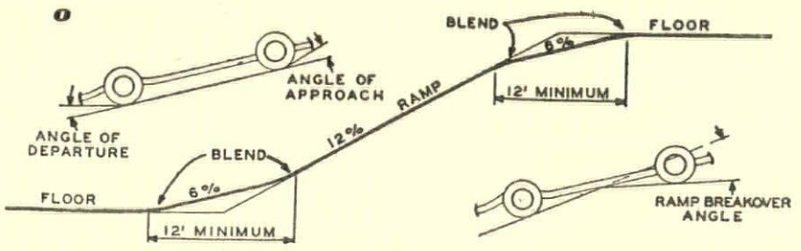
Cars move to higher (or lower) levels on ramps and, doing so within a relatively constricted space, must follow a circular or elliptical path. The various systems shown in the diagrams all conform to this pattern whether the structure is one continuous ramp, the floors are staggered or the ramps become intertwined circles clear of the parking floors. The choice between systems is often a matter of site dimensions and shape and the method of operation. Systems in which cars move up across each floor so that they can be parked as soon as possible and descend down a separate ramp are, for example, particularly appropriate to customer parking.

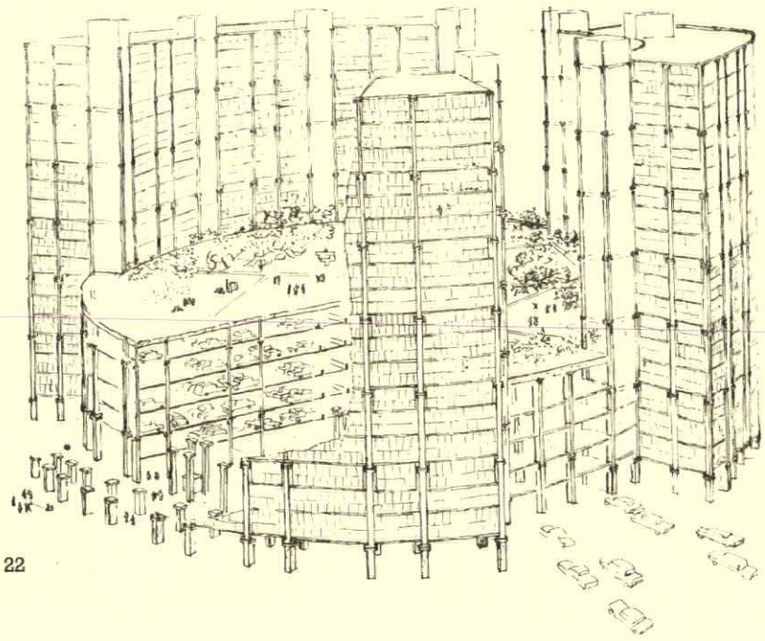
This function of stowing cars at rest also needs visual expression; advertising considerations alone suggest an unequivocal signalling of function. It is a pity, of course, that multi-storey parking was ever given the name garage. There is a certain domestic flavour about the word, a sort of snug stable brought up to date. Urban parking structures need, however, only consist of open decks, platforms at upper levels which, like the street, do no more than provide space. Cost in any case suggests this: one British parking system claims that it can build a structure at £325 per space but that as soon as it becomes an enclosed building needing cladding, ventilation, fire breaks and so on, the cost goes up to £425–£450 per space.

Two distinct building types are emerging in the present townscape—the largely glass enclosed office building and the mainly unpierced department store: Castrol House and the shop portion of Peter Robinson, to take two recent London examples. Both have a high degree of solidity, though one may be a shining

The dimensions in feet assuming a generous stall width, b, of 10 feet are for 60° parking, diagram ***m****,* $c=21.5$, $d=18.0$, $e=11.5$, $f^1=61.0$, $f^2=56.0$ *and for 45° parking, diagram* ***n****,* $c=20.5$, $d=13.0$, $e=14.1$, $f^1=54.0$, $f^2=46.9$. *The 10 feet width allows for easy customer parking and future changes in car size.* ***o*** *shows an important detail of ramp design taken from* Traffic Design of Parking Garages, *a study by Edmund Ricker for the Eno Foundation for Highway Traffic Control.*







22

22, Louis Kahn's drawing is part of his extensive plan for Philadelphia. This, like Victor Gruen's Fort Worth Scheme, reconsiders the whole concept of the town and solves car-storage as part of the total urban plan. Kahn thinks that 'the lower entrances and interchanges, wound-up parking terminals, suggest a new stimulus to unity in urban architecture, one which would find expression from the order of movement'.

mirror, the other an opaque wall. The open decks of multi-storey parking provide a necessary visual contrast to this solidity. Their open skeletal sculpture requires to be exploited consciously so that they both are, and appear to be, the termini of the open channels of the city that are used for movement.

A beginning has been made in such designs as the parking terraces of ZCMI in Salt Lake City, 14, or San Francisco's 'Downtown Center,' 5, or Chicago's No. 1 City Garage, page 124. The last also illustrates the visual drama that can be glimpsed from these upper levels, in this case a view of Wacker Drive and the Chicago Tribune Building in the far distance. Parking structures are part of the design of the city in terms of its section, and within them pedestrians are already at upper levels. They should often remain there and be taken through on high level links to shopping floors, raised pedestrian walkways, upper office floors. Such links to other uses are preferably done laterally rather than vertically so as to avoid complicated and thus expensive solutions of structure, services and fire separation. Horizontal connections have already been designed in a number of instances; for example the floors of ZCMI's department store are linked to the parking terraces as are those of Selfridges to the Lex Garage in London. Both the Fort Worth plan and Louis Kahn's project for Philadelphia, 22, develop this notion within a consistent framework.

These considerations of appearance and pedestrian movement again only emphasize the need for fitting parking into a coherent urban image. The greatest traffic problem in this country is not the absence of motorways, road widening schemes or parking space, but the failure to come to some decisions on the likely pattern. Urban planning has tended to become so preoccupied with the minutiae of elevational control that it has forgotten its basic task of decision-making on land use. The LCC's testimony at the recent Monico site enquiry made this only too obvious. Once the major assumptions on use are made, it becomes possible to choose the individual parking sites in terms of known and projected travel patterns; in terms of neighbouring land use and therefore of likely customers; in terms of public transport facilities and their probable development; in terms of the traffic volume which routes to and from the parking structure are capable of handling.

The parking structure is the first new building type to be produced within the city by the motor age. It thus deserves analysis as a structural type and as a new major component of the urban scene. The horse and carriage gave us the mews, the steam engine the railway terminal—great black smudges on every town map—the motor car the parking structure. Connected as this must become to the three dimensional routes of pedestrian and vehicular movement, its effect on the city may yet be greater than that of either of its traffic predecessors. We neglect it at our peril.



1

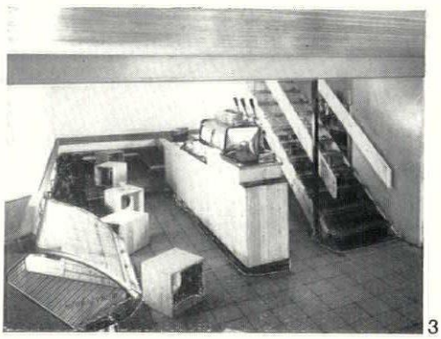
Restaurant and Coffee Bar in Chelsea

Conran Design Group (chief assistant. A. Eldridge)



2

The ground floor restaurant and basement coffee bar both occupy one deep and fairly narrow bay of a nineteenth-century block in King's Road, Chelsea, and have been fitted out in a manner that demonstrates how almost Functional-Tradition sim-



3

plicity can still produce an interior that is suitably smart for such a purpose in such an area.

1, counter at rear of the restaurant, fronted in deal tongued-and-grooved boarding, with two-inch deal top. The rear wall is fairface brick, and what appear to be pizza-oven doors are serving hatches from the kitchen.

2, banquette seating, with over-head framing dividing the main restaurant space into four-seat booths. The tables have oiled teak tops and black enamelled square tube legs. The bent-wood chairs have ebonized black frames.

3, general view of the basement coffee

ID

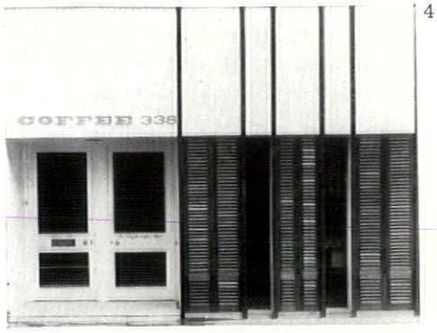
a monthly review of interior design

5



bar, with stairs direct from the street door descending over the serving area. 4, the street front, showing alternating clear and shuttered windows and the

4

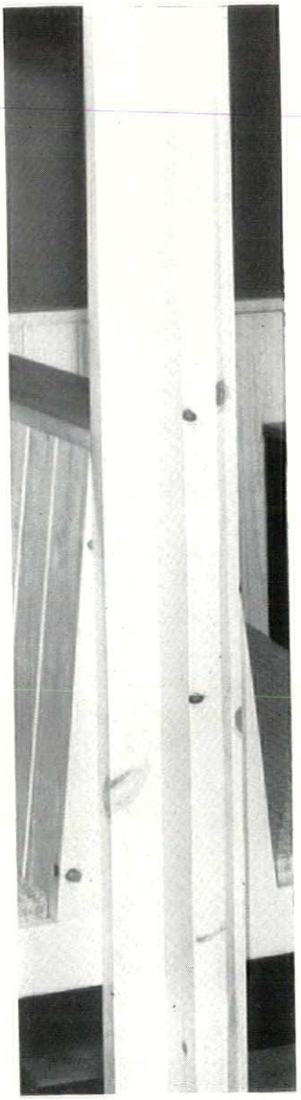


entrance—the left hand door serves the upstairs flat, the right hand one the basement coffee bar, while the entrance to the restaurant is in the return wall on its right, and is seen from inside in 5. The shutters are of varnished mahogany. Each louvred shutter is glass-backed, and can be opened inwards in fine weather, while the clear glass panels are fixed. Both wall and ceiling are in tongued-and-grooved pine boards, the ceiling being painted white.

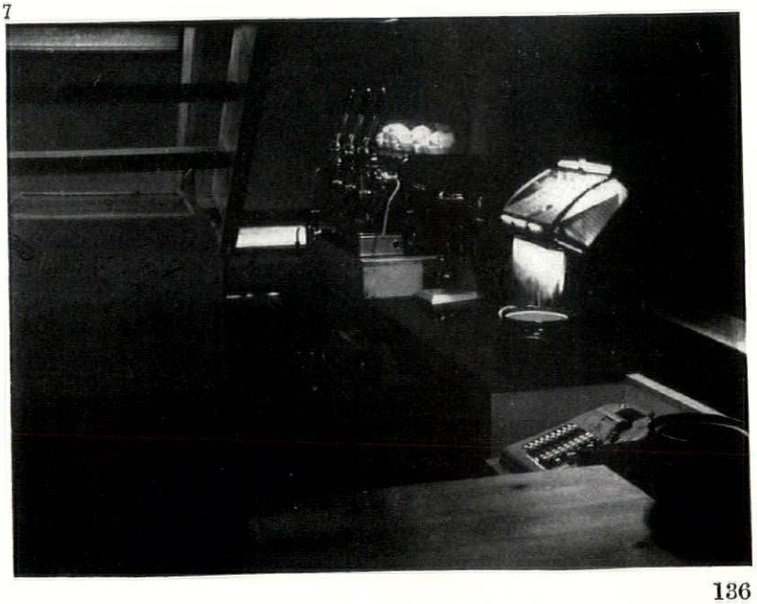
6, detail of one of the uprights of the fixed seating in the restaurant—the banquettes have plain wooden backs, but the seats are upholstered in reversible foam rubber cushions, covered in orange horse-blanket check.

7, in the basement: while the general detailing and finishes are similar to those on the floor above, the atmosphere is completely different, being dominated by the lighting and its sources. Most of the illumination comes from the mechanical appliances, such as the juke box and the espresso-coffee machine, but a variable amount of light filters down the stairs from the street, and a constant band of lighting is provided at low level from behind the seats—see 10, opposite.

6



7

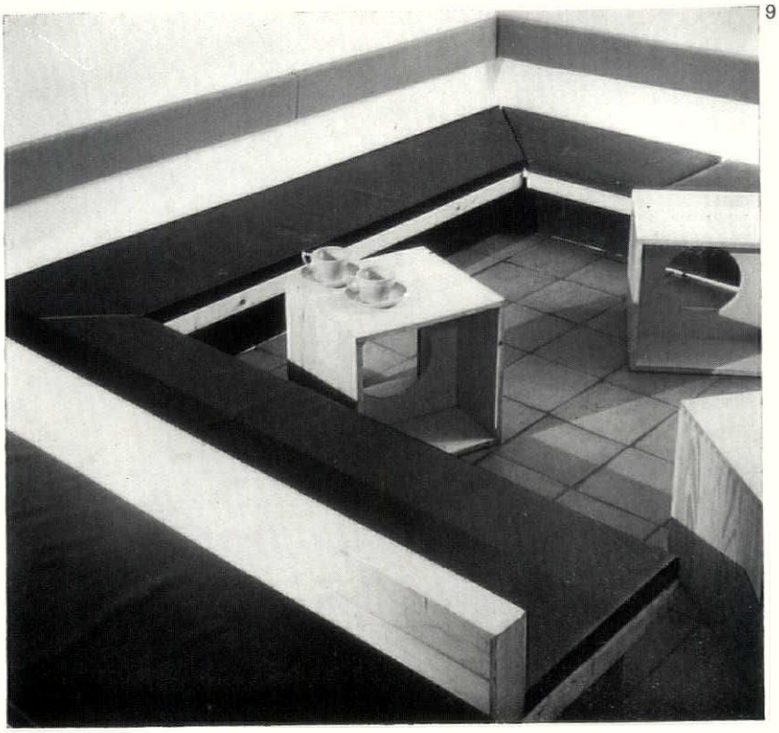


8



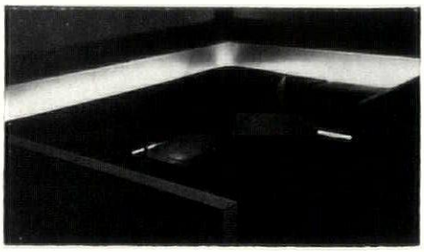
8, relief lettering on the wall above the basement stairs, forming a sign-board, visible only when the street-door is open, for the coffee-bar.
9, corner of the coffee-bar, with quarry-tiled floor, low level seating upholstered in black leather, and general-purpose pine boxes which are used as tables, seats, step-ladders, etc. The level of illumination required for photography is far higher than that normally obtained in this area, 7, opposite, and 10, below, being taken without added illumination.

9



Restaurant and Coffee Bar in Chelsea

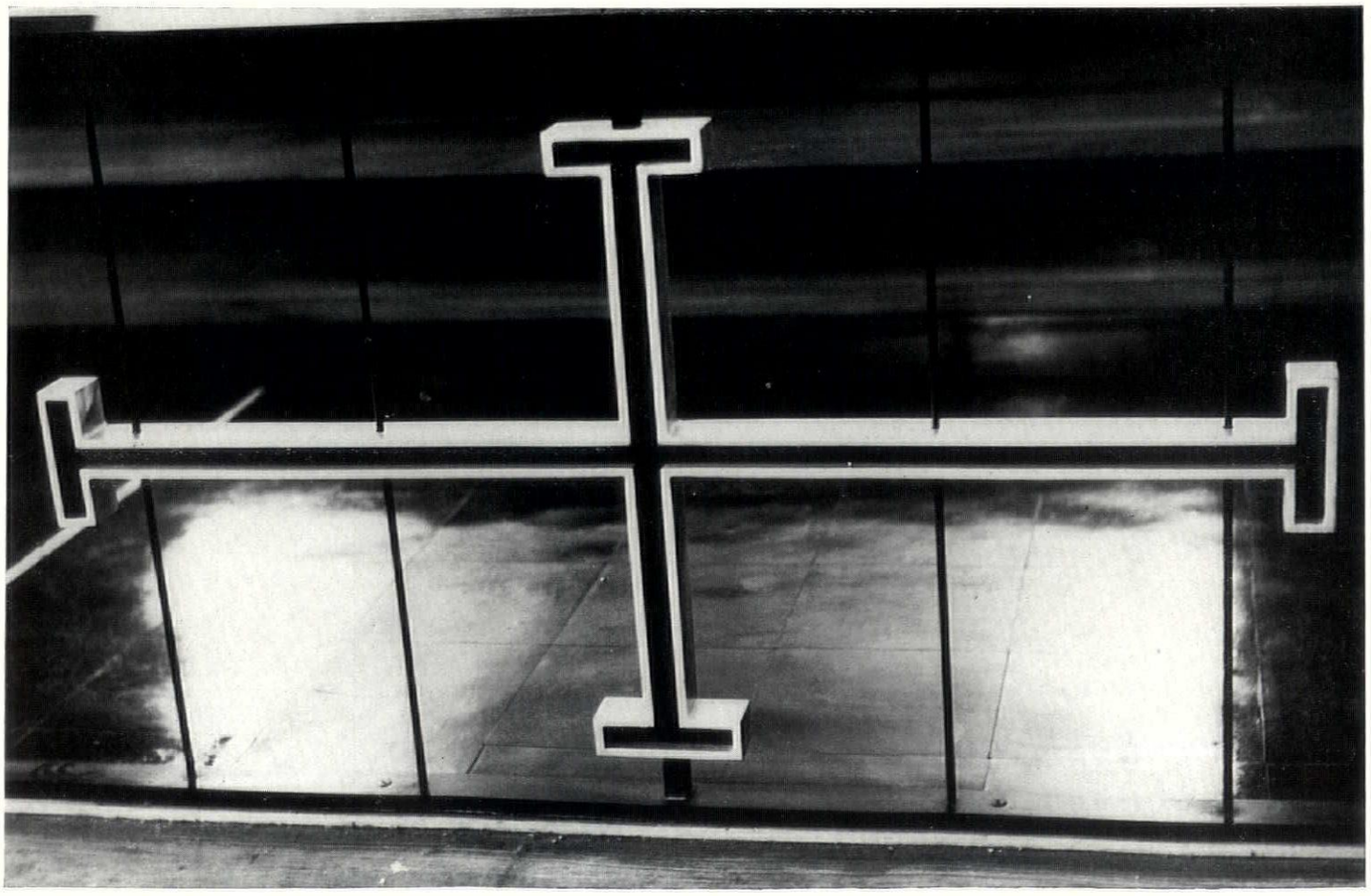
10

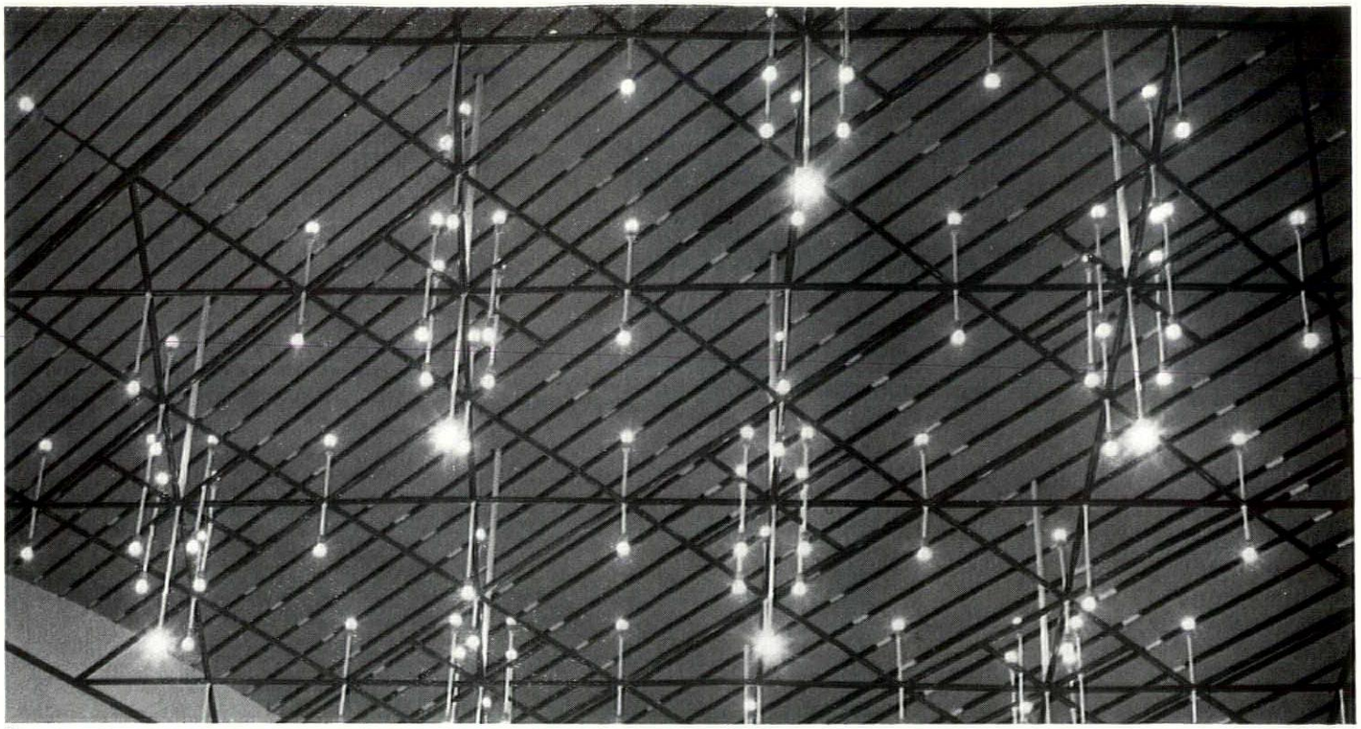


Church of Our Lady of Lourdes: Leeds *architects: Walker and Biggin*

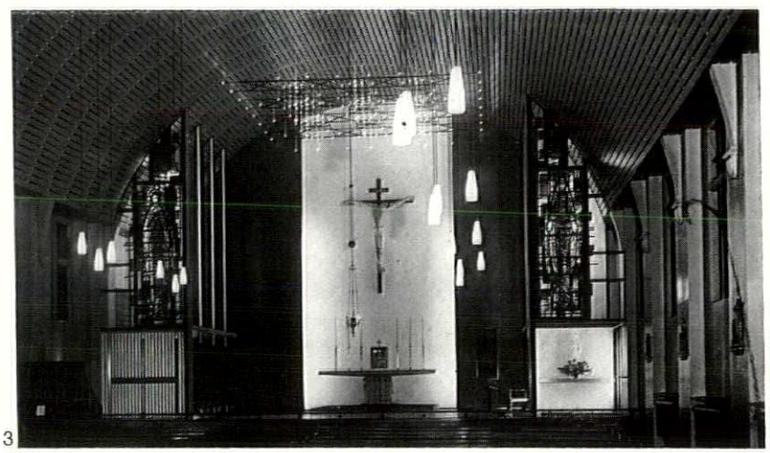
1, enamelled steel cross in the balustrading of the communion rail of the Roman Catholic church of Our Lady of Lourdes, Cardigan Road, Leeds—an ingenious transformation of the spatial qualities and atmosphere of a previously un-church-like building, described and illustrated further on the next two pages.

1



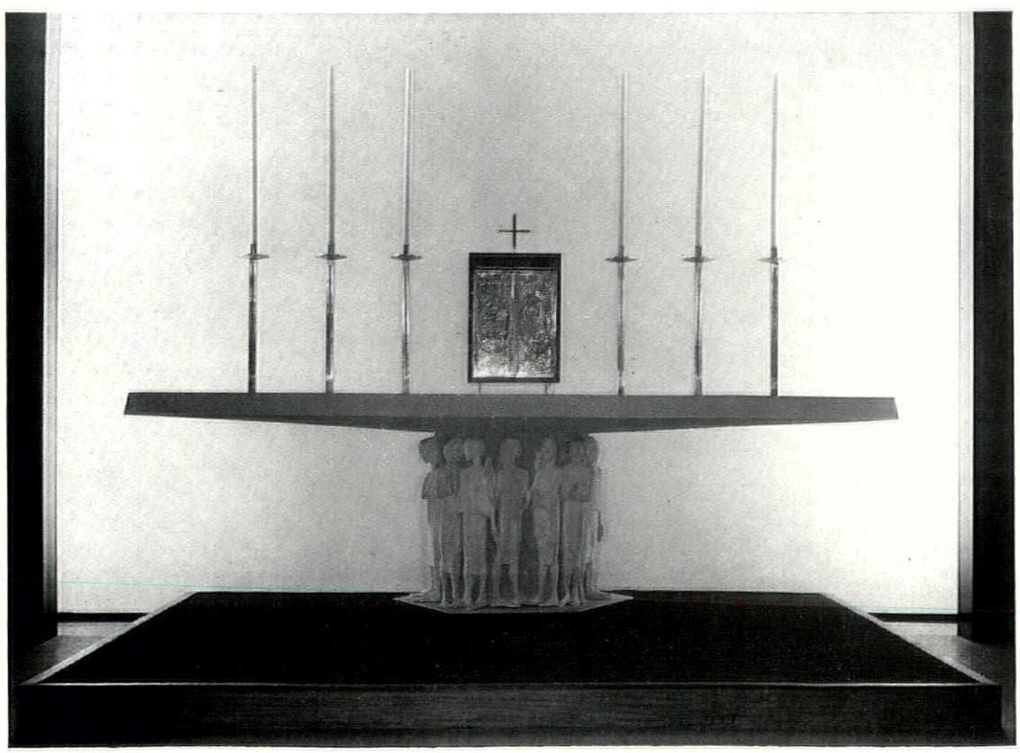


2



3

Church in Leeds

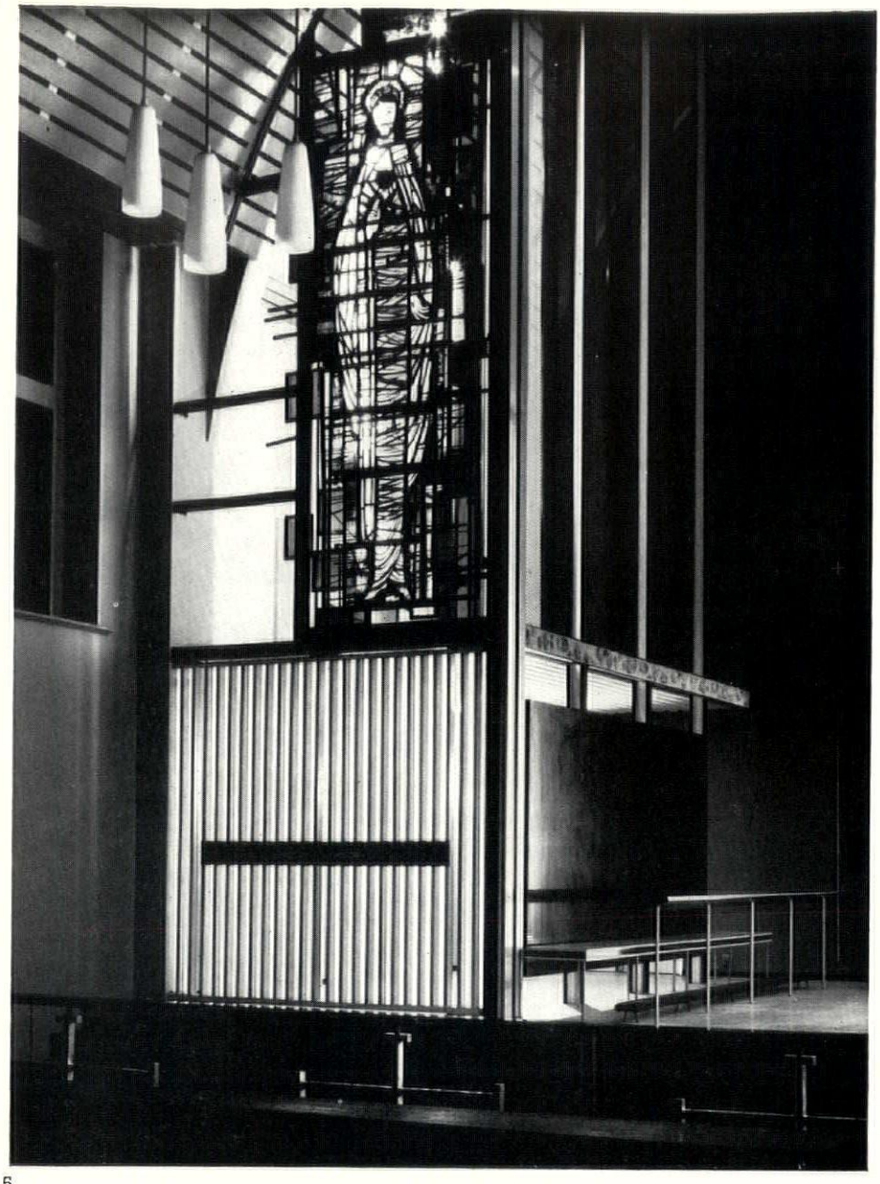


4

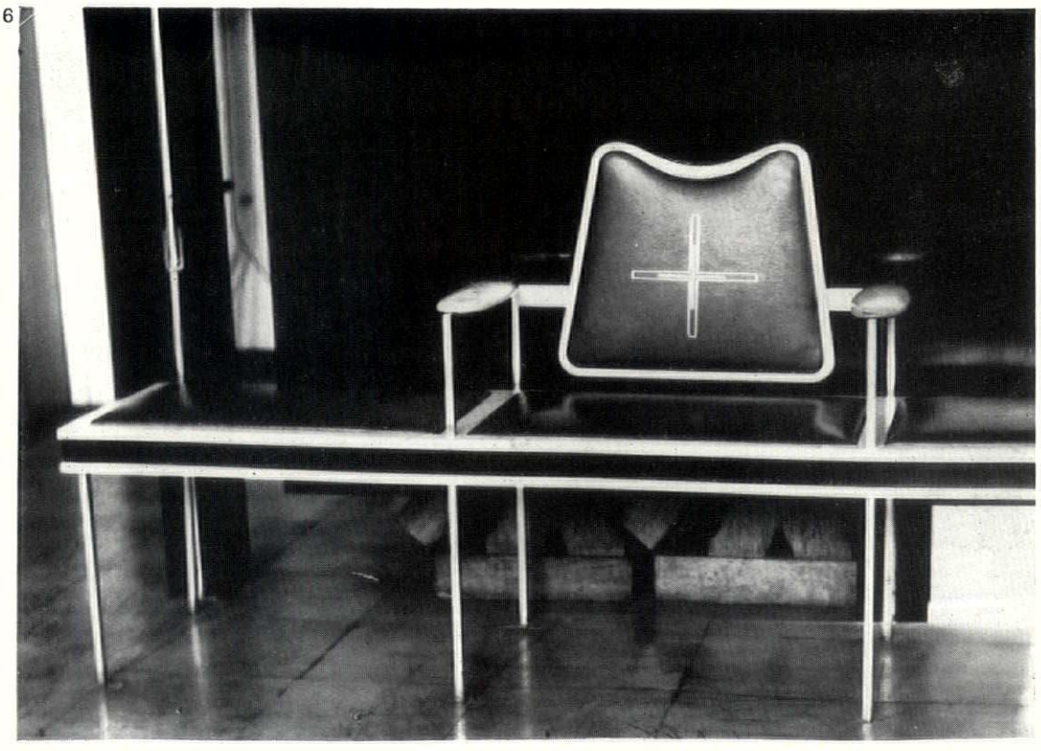
2, the space-frame baldachino over the high altar, seen against the boarding of the vault. The steel tube frame, with its array of lights, forming a kind of contemporary equivalent of the star-strewn blue-painted vaults of earlier churches, is part of a general conversion to artificial illumination at this end of the church, replacing a single window behind the high altar which produced painful glare.

3, the dummy vault of four-inch boards which conceals the roof-trusses of the original structure, designed in the first place as a social hall. Originally, the existing stage had been made into an approximate sanctuary, but this was removed in the process of conversion, and the height of the sanctuary floor reduced to a more normal level.

4, the altar, placed on a free-standing dais in front of a neutral back wall which is illuminated from the sides, stands on a sculptured base by Jill



5

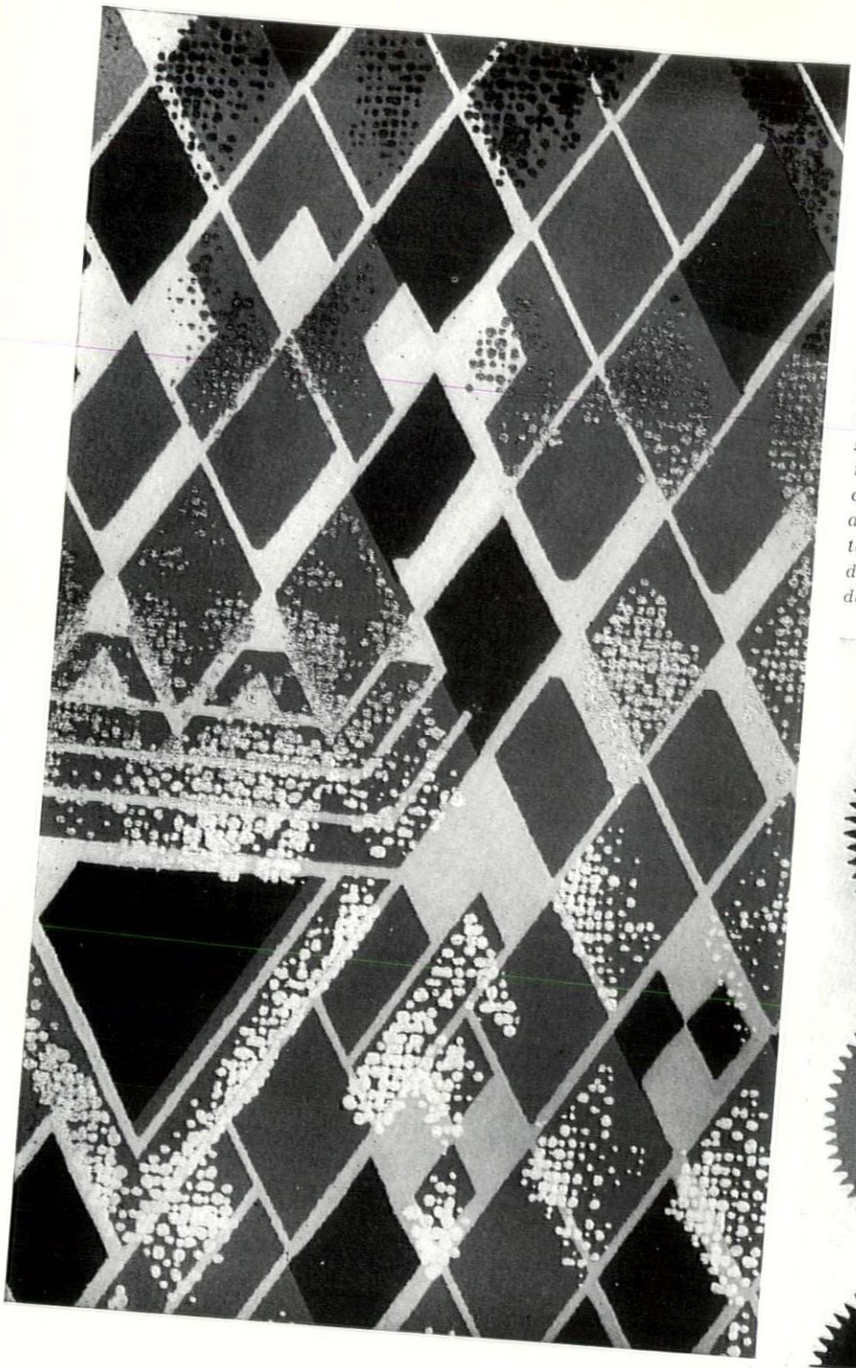


6

Messenger, representing the twelve apostles.

5, the main ingenuity of the conversion lies in the creation of a convincing sanctuary, and a stained-glass atmosphere in spite of an unsuitable structure. Although the new sanctuary extends, in fact, the full width of the church, it has been visually narrowed by a row of stanchions carrying the backs of the choir-stalls. At right angles and above, spanning the space between the stanchions and the outside wall, are screens of metal mesh. The front one on either side carries a three-dimensional stained glass window by Roy Lewis. The whole system of screens and window, lit from behind, creates a very rich illumination.

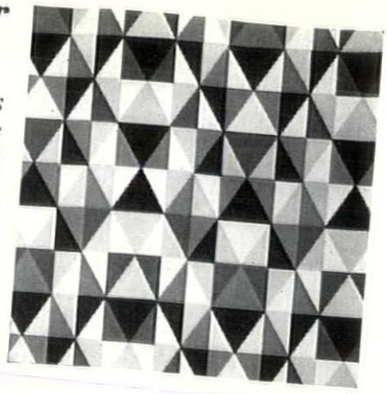
6, the bishop's chair, in stainless steel and purple leather, with polished macassar ebony panel behind it. The same repertoire of materials is used for all the sanctuary furniture.



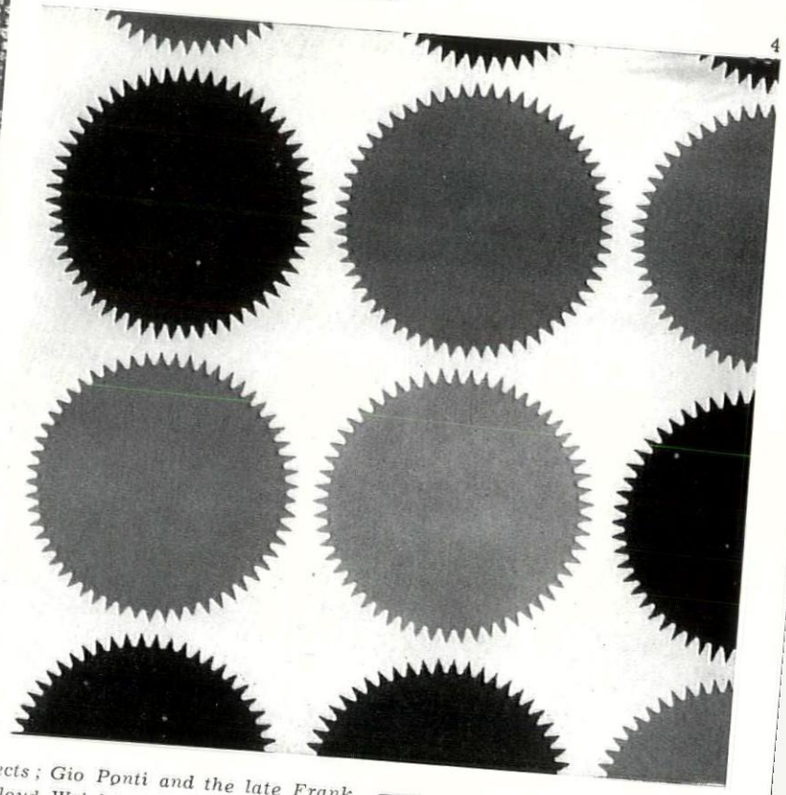
1

Architects as wallpaper designers

Amid the flood of uninspiring US wallpaper designs coming on to the British market at present, there is little to satisfy those who do not share the tastes of the home feature editors of the American women's magazines—currently lagging well behind their British counterparts in matters of interior decoration. However, for those who are prepared to pay the price—up to sixty-six shillings a piece — Sanderson's new range of hand-printed designs includes a number of designs of visually higher quality, and of a character that is a challenge to the interior designer. The four most striking designs are the work of two architects ; Gio Ponti and the late Frank Lloyd Wright.



3



4

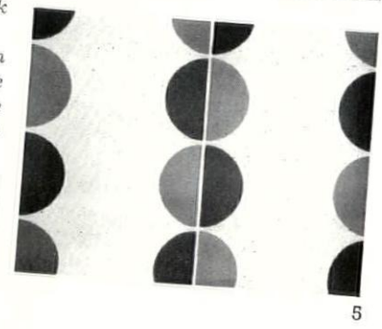
1, *detail (just under full size) from* Design 705, *which might easily have been a Jazz-modern museum-piece had it come from a lesser hand than Wright's.*

2, *a larger sampling from the same design—the lustres are dots of gold on warmer coloured versions of the pattern, silver on the more blue-grey.*

3, Design 706, *a version of an earlier fabric design by Wright, more easily adaptable to conventional ideas of 'contemporary.'*

4, *detail (one-third full size) from* Piumino *by Gio Ponto.*

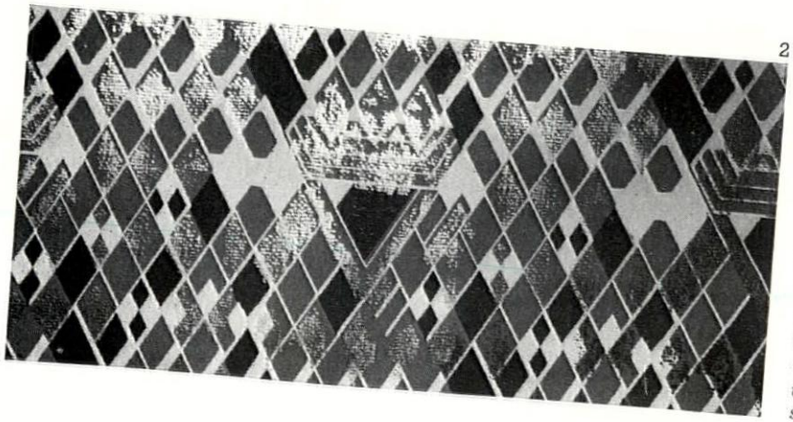
5, Eclipse, *also by Ponti, a design on the same scale as* Piumino, *with the same kind of emphatic character, and therefore equally difficult to use well, though equally rewarding when an effective use for its over-scale quality has been found.*



5

DR

design review



2

Patience Gray

A VOCABULARY OF PLANTS

This article introduces a series of illustrated notes on herbaceous perennial and climbing plants, chosen by Patience Gray as being useful to architects who want to enhance, and achieve some control over, the immediate setting of their buildings. The plant she illustrates and writes about this month is the Heracleum (or giant parsnip); next month it will be the Acanthus. Other plants will follow.

Architects surrender their work to other people to use or misuse. Too often their intentions are misunderstood, outside as well as inside. Outside, the attempt is often made to 'humanize' new buildings by establishing a type of lay-out and a kind of gardening utterly unsuited to the nature of the architecture.

Even when there is only space for minimum planting —the architect supplying outside plant boxes or plant containers—they are instantly used to create a riot of colour. Who has not seen sentinel tulips, grotesque gladioli, fat-faced dahlias clashing and flashing against new brick or exposed concrete, or stalking in livid ranks along the approaches? This is the visual equivalent of a Salvation Army admonishment with timpani and brass.

It is enough to raise that fiery old gardener William Robinson from the dead. In his day the flower gardeners were 'meanly trying to rival the tile or wallpaper men.' His violent vituperations against tasteless excesses—carpet bedding, 'this false and hideous art,' and the deformities of rockwork—produced a gardening revolution in Victorian days. Today his feeling for plant form and natural gardening is quietly reflected in the sensitive planting of a small group of landscape architects, a fistful of architects and the Parks Department of the LCC. But these natural gardeners who are creating new patterns of cultivation appropriate to new architecture are too few to counteract effectively the shock-tactic planting of the floraphiles which crashes so discordantly against the outraged walls of many new buildings.

Architects are hamstrung by circumstances. They are fortunate if they can preserve or plant a tree of some size in proximity to a building, establish an appropriate pattern of planting on a terrace, plant a windbreak, or control the shape of planting areas or the main approaches.

Sometimes they can transfer to the client's mind an idea of the form the surroundings should take. Many provide the principal incidents and outlines in a drawing but without specifying the type of tree, the particular shrub or the kind of herbaceous growth the building needs. Usually they leave a desert at the conclusion of building operations and return to find colourful triviality, a random geometry of flowerbeds, crazy paving and rock excretions already established.

Yet the immediate surroundings of a building are the vital concern of the architect. Arne Jacobsen has demonstrated this better than anyone. His housing projects are planted, screened, one might almost say clothed, with vegetation. In his courtyards he regulates the planting spaces *and* pushes in the appropriate plants. He also furnishes the crevices between the paving slabs. Powell and Moya in their Swindon hospital courtyards have taken a leaf or two out of Jacobsen's book.

No architect should be satisfied with a two-dimensional approach, walking out at the lay-out stage. It is the *vegetable enrichment* related to paved areas and expanses of grass which creates a new pattern and settles the building in the landscape. Some types of vegetation actively stimulate appreciation of the structure and surface of the building by means of textural contrast, plant form, light-catching leaf surface, plant tracery. One fully grasps the immutable qualities of brick, concrete, wood or plate-glass set against the variations and vagaries of plant growth.

Too many architects attempt a permanent solution on the die-hard principle. We will install a few evergreen shrubs, they say, deposit an enormous pebble on a terrace, or fill some concrete boxes with Welsh marble quartz and silver sand. They cannot, they feel, afford to accept the hazards of growth renewed, nor have they the time to examine the performance of herbaceous plants, which astonish in June and decay in December. Maintenance is their bugbear. This is why planting clichés flourish, soot darkens the evergreens, and sub-Noguchis ship tons of rock, basalt, marble chips and pebbles to silt up the office courtyards of W.1.

There is a world of difference between the varied assortment of inert stones, pebbles, rocks, ground-pebble marble and draught-seared planting in the garden of a building in Berners Street (which to me is a skit on landscape architecture executed in deadly earnest and at colossal expense) and the thoughtful and selected elements of stone, pebble and planting which make a distinct and pleasing pattern in the little 'jardin concret' in front of Weeks Hall, South Kensington (Richard Sheppard, Robson and Partners). Mr. Ryder, of Rassall's Ltd., Earls Court Road, was the plant consultant for this garden—stonecrops, houseleeks, dwarf lavender, practically imperishable, Bergenia (Megasea) leather-leaved, to mention two or three examples, were used on this minimum maintenance job. Even so it needs some gardener's attention, or did when I passed by recently.

Sometimes it is possible to lay a groundwork of foliage pattern before the take-over people have time to embark on their colour antics. The plants included in this series have been chosen for their form, foliage and textural interest. They represent merely one element in the composition of appropriate surroundings for modern architecture. The idea could be extended to cover lay-out, trees, shrubs and material for hedges which are, of course, the basic props of garden architecture.

Hillier & Son, Winchester, Hants, and Maurice Prichard & Sons, Riverslea Nurseries, Christchurch, Hants, are two reliable specialists in hardy herbaceous perennials.



The magnificent weed Heracleum, the Caucasian *H. mantegazzianum* in its finest form (see cover), has a splendour seldom found in cultivated plants. Plant edifices attaining a height of eight to ten feet in May, crowned with gigantic white-flowered cartwheels, might seem to provide the perfect contrast in fine-cut leaf form and pyramidal growth to the severities of modern architecture.

But the plant has a major disadvantage. Leaves begin to appear early in March, growth is rapid, the leaves attaining three or four feet in length, but once the plant has flowered in May the foliage yellows and begins to wither. By full summer the edifice has acquired a dried and spectral aspect, and has to be cut down. For this reason, and because like all weeds it seeds lavishly, it has been normally confined to the woodland and the wild garden, to river banks and the edges of ponds (its natural habitat).

My excuse for planting it in the immediate vicinity of an Architects' Co-Partnership house (1 on the facing page) was twofold. The bank on which it is sited sloped steeply away from the house, minimizing the view of the plant in decline, 2, and the soil was unpromising solid clay brought to the surface by building operations, in which the thick roots of the umbelliferous weed could flourish.

Peter Shepheard, chief protagonist of wild gardening to-day, planted specimens in the turf recently near the road frontage of Kinnerton School in St. John's Wood. In May one sees the enormous panicled flowers looming out of the neon-lit night. One can also see another form, *H. giganteum*, on the little hill crowned with Sir William Chambers's Doric temple at Kew, growing in daffodil-planted grass which is scythed, not mown; also growing wild along the banks of the Regent's Park Canal.

Don't plant in ordinary flower-beds; the scale and coarseness, 3, is out of key with garden plants. These weeds should be treated as summer apparitions growing out of the rough, where they can decently decay. In John Aldridge's woodland garden at Great Bardfield they stand, in late summer, like magnificent spectres among the trees, in boggy ground. They are easily increased by division of the roots in autumn or spring, and make rapid growth from seed.

HERACLEUM
OR GIANT PARSNIP

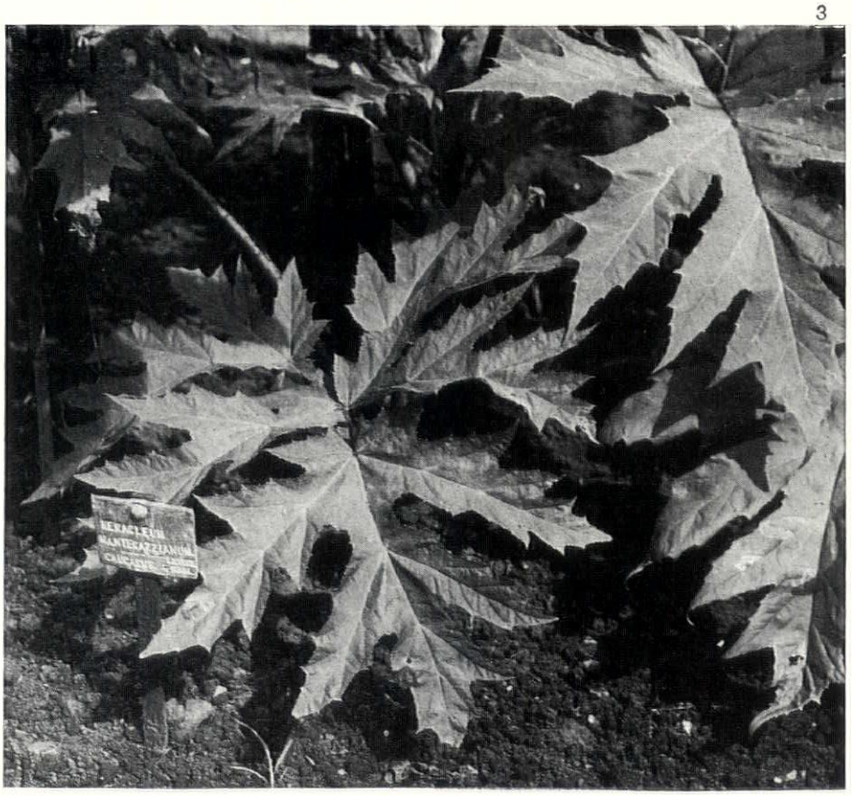
1, Heracleum mantegazzianum *on a steeply sloping bank in front of a house in Hampstead designed by the Architects' Co-Partnership. 2, a couple of specimens of the plant photographed when in decline and illustrating Patience Gray's comments on its inadequacy as vegetable enrichment late in the season. 3, close-up of the leaves, showing their scale and texture.*

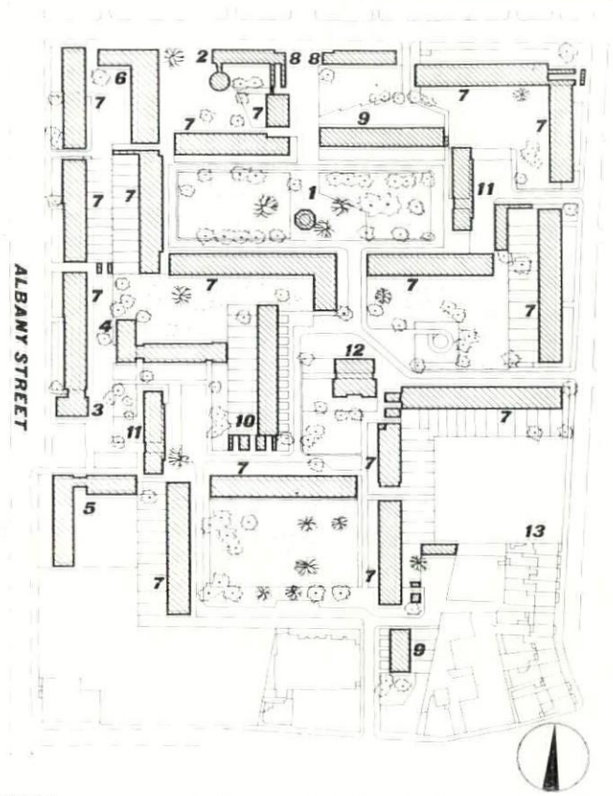
1

2



3





site plan

key 1, clarence gardens. 2, library. 3, public house. 4, mission hall (two-storey flats behind). 5, police station. 6, shops with three-storey flats over. 7, four-storey maisonettes. 8, three-storey flats over library. 9, three-storey houses. 10, two-storey houses. 11, eleven-storey flats. 12, nineteen-storey flats. 13, nursery school.

HOUSING, REGENT'S PARK, LONDON

ARCHITECTS: EDWARD ARMSTRONG AND FREDERICK MACMANUS

This is the first of several areas for which this firm of architects is responsible to be completed in the St. Pancras borough council's Regent's Park redevelopment scheme. Each area is self-contained, and includes shops, a branch library, public houses and accommodation for offices and light industry. The housing layout consists mostly of four-storey terraces surrounding a sequence of linked squares, with a few point blocks (eleven and nineteen storeys). The first of these, known as 'The Combe,' is illustrated here. It is the block numbered 12 in the site plan above. It is sited on the north side of the new Munster Square, which occupies approximately the same position as the Regency square of the same name, badly damaged in the war.

The 10-acre site accommodates 618 families in houses, flats and maisonettes. The whole scheme, of which this is the first section, was fully described in the AR Preview issue, January 1956. It is bypassed by main traffic, only essential wheeled traffic being allowed to use the paved areas between buildings on routes defined by bollards, thus preserving pedestrian priority.

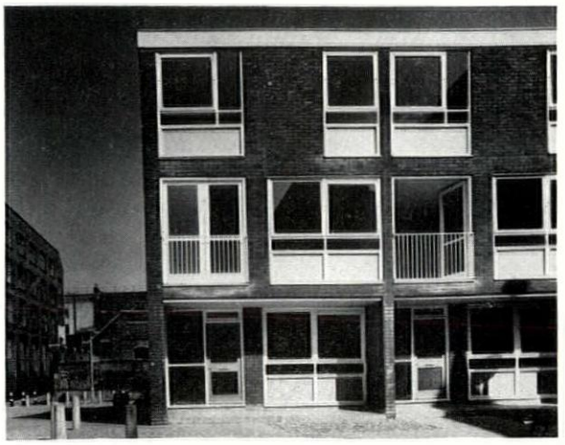
The high block has a reinforced concrete frame and cladding of Uxbridge flint bricks in a light colour. The lower blocks are of cross-wall construction, with reinforced concrete roofs and ground and second floors, the intermediate floors inside the maisonettes being of timber. Facing brickwork is Uxbridge flints in a dark purple colour. Windows are wood, painted white, with spandrel panels of grey porcelain enamelled steel.

Borough engineer, C. S. Bainbridge, M.I.C.E., F.R.I.C.S., M.I.MUN.E.; housing manager, A. W. Davey, A.I.A.S., F.I.HSG., M.R.S.H.

1, *the point block from the south, with four-storey maisonettes on either side.*
2, *front elevation of three-storey houses.*
3 (*opposite page*), *close-up of the point block from the east.*



1



2


3627 HK

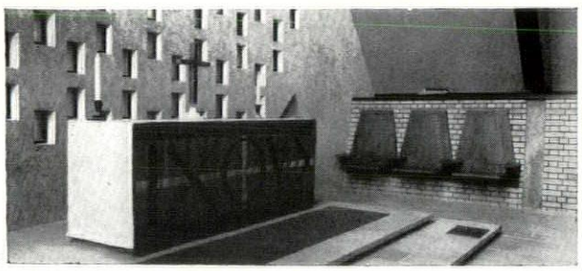
CHURCH AT HATFIELD

ARCHITECTS: LIONEL BRETT, KENNETH BOYD AND PETER BOSANQUET
(*partner in charge, Peter Bosanquet*)

A church for a congregation of 200 and a choir of 50 (in a gallery over the narthex). It is orientated with the sanctuary at the west end because of the sloping ground, because access was from a road to the east of the site, because the best view of the building, the climax of which is the gable wall at the sanctuary end, is from the west and because it was desired to have sunlight in the sanctuary during morning services. A few seats south of the altar, which have an entrance adjoining, allow this part of the building to be used as an independent chapel.

The nave has mainly indirect daylighting, giving a climax of lighting through the sanctuary windows at the altar. Altar, pulpit, font and lectern are more closely grouped than usual, with the intention of symbolizing the unity of the liturgy. An 80 ft. free-standing campanile will be built later between the church and the neighbouring community centre.

Timber roof-trusses with exposed stainless steel connections are supported on reinforced concrete columns and on the gable walls, which are also of concrete with facing brickwork used as permanent shuttering (internal shuttering is concrete blocks). Their curve stiffens them against wind pressure. The roof pitch increases towards the west,



4



5



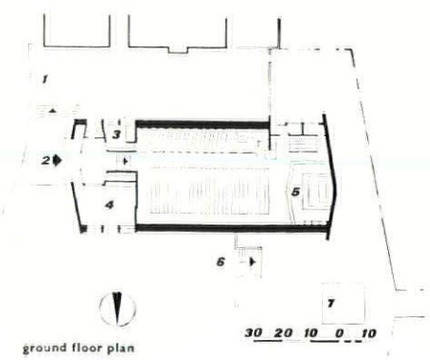
6

4, *the altar and sedilia.* 5, *the sanctuary wall from the west.* 6, *looking towards the choir gallery. The organ is built into the gallery wall.*

giving a sloping ridge and a warped roof-plane. The roof-trusses are exposed either externally or internally, according to whether the roof or ceiling plane is at the top or bottom of each truss. At the point of crossing from one position to the other there are high-level windows illuminating the ceiling planes. Roofs are covered with cedar boarding and tiles. Ceilings are birch-faced plywood.

The church has under-floor electric heating. Artificial lighting is from floodlights at high level, accessible from a catwalk above the main nave ceiling.

key
1. courtyard.
2. entrance.
3. clergy vestry.
4. choir vestry.
5. sanctuary
6. shopping precinct.
7. campanile platform



ground floor plan

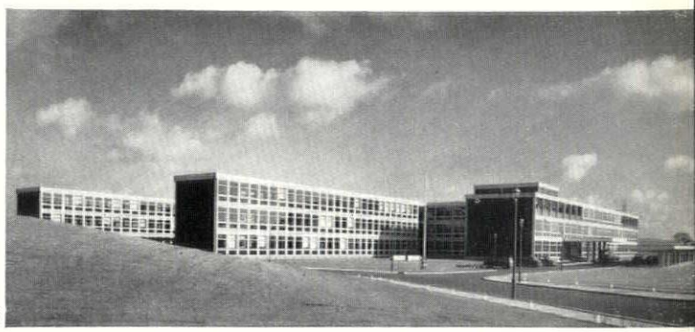
OFFICES NEAR RUNCORN, CHESHIRE

ARCHITECT: FREDERICK GIBBERD
(partner in charge, R. J. Double; associate architects, J. W. Grimes, G. W. Dunton)

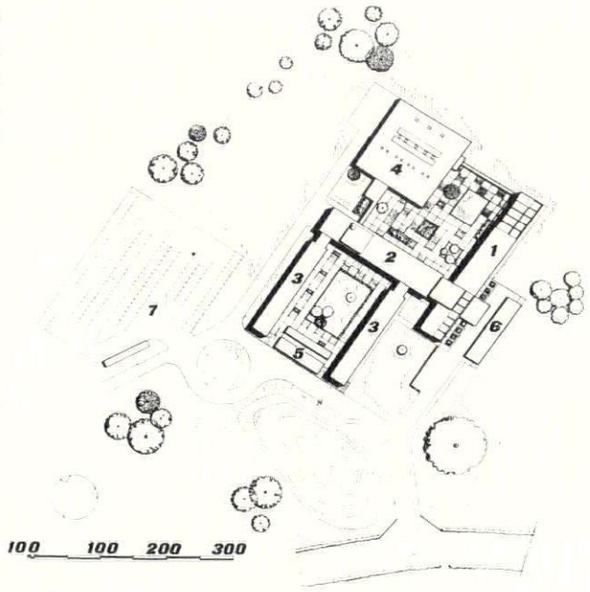
For the Engineering and Power Departments of the General Chemicals Division of ICI, on an open site with splendid views over the surrounding countryside. The bulk of the accommodation required was drawing and administrative offices. This is contained in a group of three-storey buildings, associated with which is a single-storey canteen.

After research into various types of office layout and the construction of prototype standard and drawing-offices, it was decided that the most efficient and economical solution in this case was to break down the accommodation into three distinct types of building: the drawing offices, designed as two identical wings; administrative offices; and a 'service wing' containing all the services such as photo-printing and typing pools common to the rest of the scheme. The two drawing offices and the administrative block are on the north-south axis, with the service wing at right angles forming a link between them. This gave a compact layout and one in which intimate and protected garden courts are contrasted with open landscape.

The three-storey buildings are planned with a standard bay of 6 ft. 1½ in. which gives enough flexibility for the various types of room layout, the difference in function between each wing being taken up by variation in the depth of each building. The drawing offices are planned round the same module, which established the centres for the draughtsmen, each man being situated at right angles



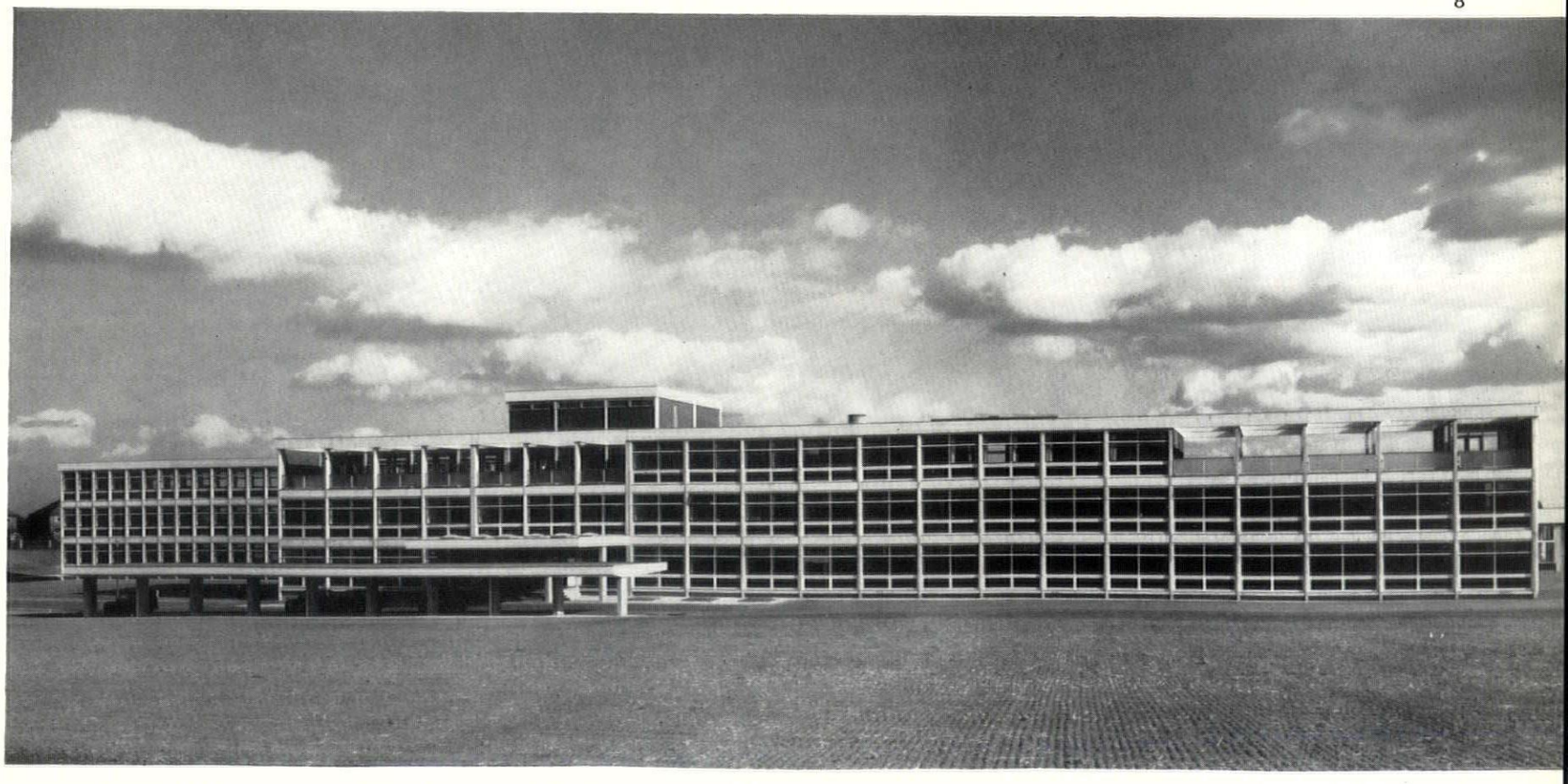
7



site plan
key
1, administration wing. 2, drawing office services. 3, drawing offices. 4, canteen block. 5, cycles. 6, car port. 7, car park.

7, general view from the north-west. Administration wing on right and drawing office wings on left.
8, the administration wing from the west.

8



Offices near Runcorn

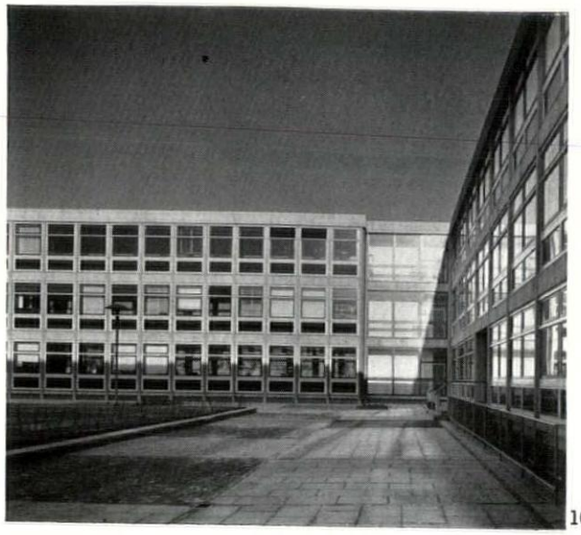
to his own window with which is incorporated a shelf unit for reference books. Glazed offices for senior staff are placed centrally on each floor.

The three-storey buildings have precast concrete columns and beams, with floors and roofs in in-situ concrete. Beams and cornice are faced with Portland reconstructed stone. External walls consist of prefabricated timber units with hardwood push-out sash windows, controlled by remote winding gear, under which are coloured insulated glass panels. The gable-end walls of the offices are faced with hand-made dark purple bricks.

Consulting Engineers, Ove Arup & Partners; Quantity Surveyors, Langdon & Every; Heating, Ventilation and Electrical Consultants, G. H. Buckle & Partners.



9



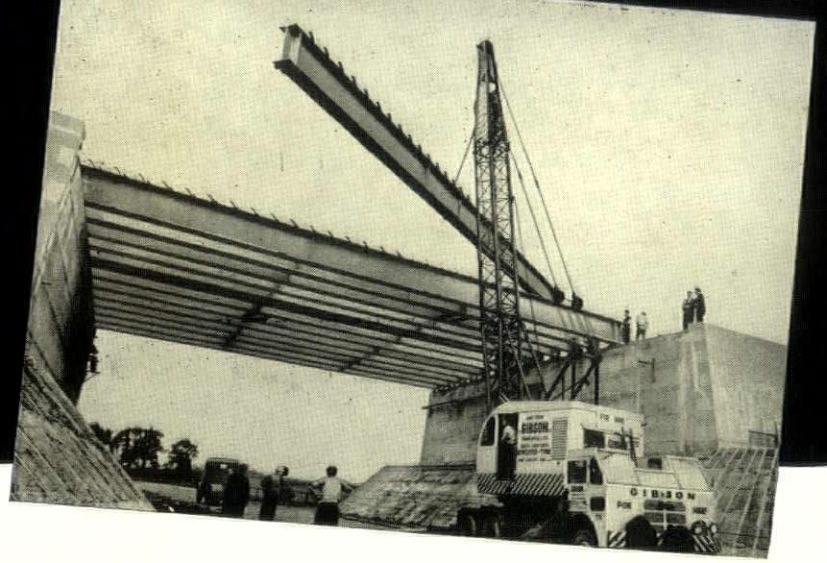
10

9, *main entrance to the administration wing, with the car port on the right.*
10, *the drawing office service wing from the north. The administration wing is on the right.*
11, *view of the courtyard with the drawing office service wing on the left, linked by a covered way to the canteen on the right.*



11





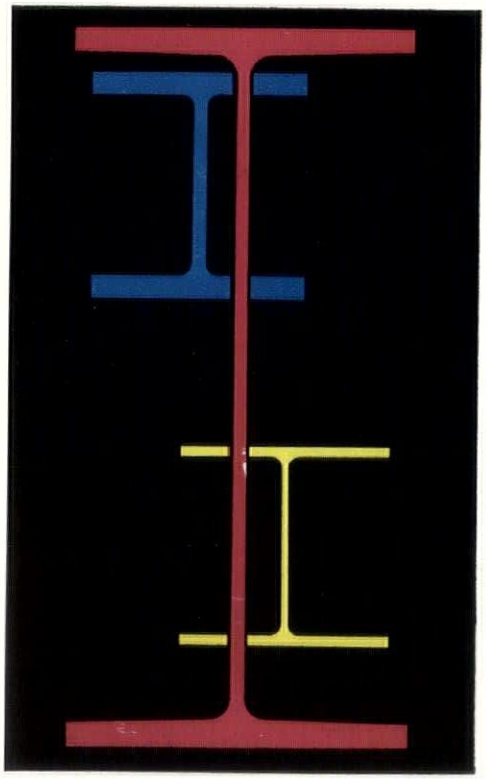
HOW DORMAN LONG UNIVERSAL BEAMS SIMPLIFY FABRICATION

The illustration on the left shows a new extension for Whessoe Ltd. of Darlington, covering an area of 295 ft. by 90 ft. wide, with an eaves height of 57 ft.

The portal-frame roof structure (the central portion being steeper to take glazing) is formed throughout from Universal beams, the vertical members being 36″ x 16½″, weighing 260 lb, per foot, and the central rafters of 24″ x 12″ site-welded to the tapered elbows.

Universal beams, again 36″ x 16½″, were site-welded and support the runways for two 40-ton capacity cranes of 80 ft. span, the columns being connected by tie-beams of 12″ x 12″ universals.

The steelwork was carried out by Redpath Brown & Co. Ltd., Edinburgh, who saved a good deal of time and labour by using universal sections which eliminated the need for compounding.



Dorman Long Universal beams are being used to bridge wide spans hitherto needing built-up girders, thereby saving a great deal of plating, compounding and other labour, in addition to saving steel.

The illustration shows a road bridge in course of construction on the Catterick by-pass (A.1. Trunk road) built for the North Riding of Yorkshire C.C.; in this, D.L. Universal beam sections are employed practically as they left the mill, resulting in a substantial economy in fabrication.

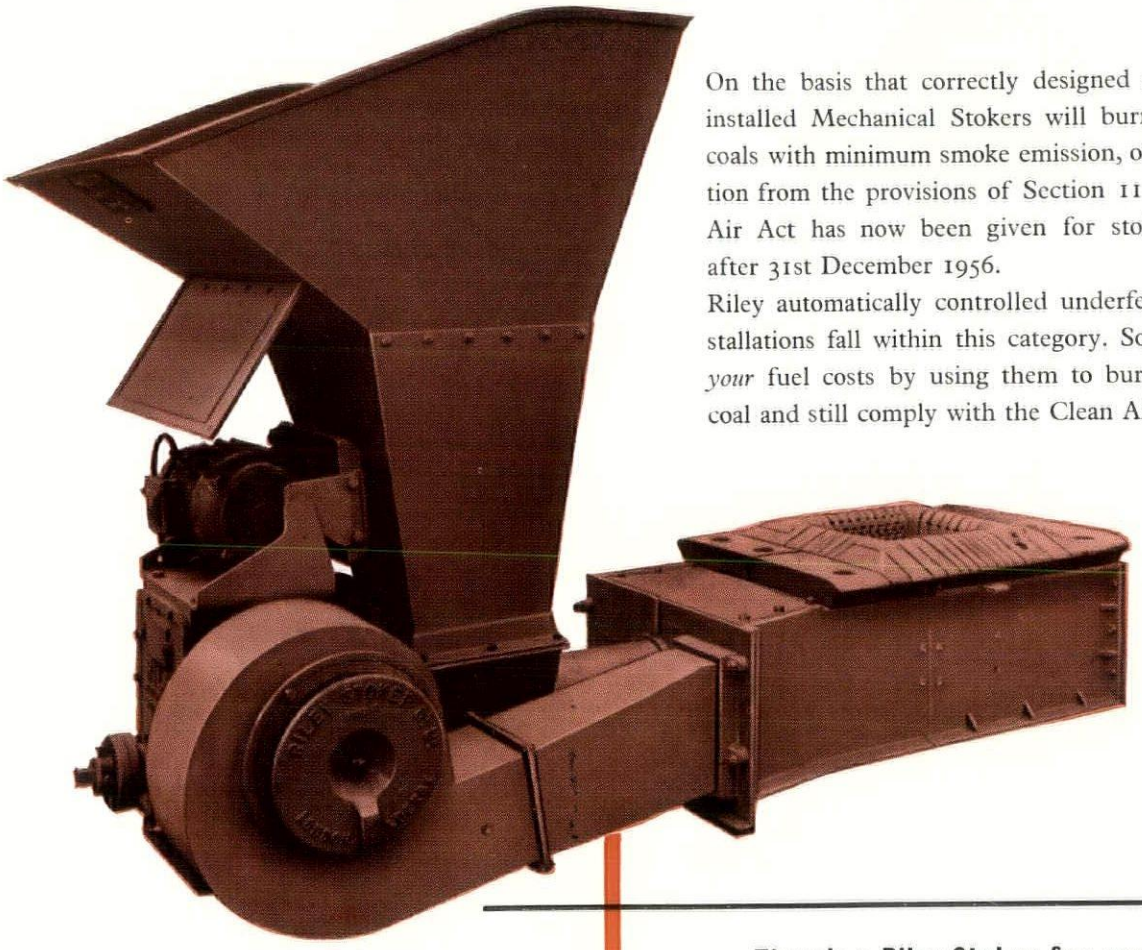
Other sections from the Universal Mill include much-needed H sections; these are available in different weights for columns of multi-storey buildings, thereby avoiding the usual plating at the lower storeys.

EARLY DELIVERY OF THE FULL RANGE OF SECTIONS

DORMAN LONG

Good news for coal users -

Smokeless combustion without smokeless fuels



On the basis that correctly designed and properly installed Mechanical Stokers will burn bituminous coals with minimum smoke emission, official exemption from the provisions of Section 11 of the Clean Air Act has now been given for stokers installed after 31st December 1956.

Riley automatically controlled underfeed stoker installations fall within this category. So why not cut *your* fuel costs by using them to burn bituminous coal and still comply with the Clean Air Act.

The illustration shows a Riley Industrial hopper feed stoker, suitable for vertical boilers for steam-raising, and the larger hot water heating boilers.

There's a Riley Stoker for every need

Riley Robot hopper type and Direkto bunker feed stokers are available for sectional, vertical and water tube boilers and for heat treatment processes, and Riley Class 'B' hopper type machines for Lancashire, Cornish and Economic Boilers. All types are strong and robust, designed to give trouble-free service for many years with low maintenance costs.

For booklets giving full details of these, also Riley Chain Grate Stokers, write to:

RILEY (IC) PRODUCTS LIMITED

One of the International Combustion Group of Companies

NINETEEN WOBURN PLACE • LONDON WC1 • TELEPHONE NO: TERMINUS 2622

Full comprehensive after sales service is available from service depots at BIRMINGHAM · BRISTOL · DERBY · GLASGOW
LEEDS · LONDON · MANCHESTER · MELTON MOWBRAY AND NEWCASTLE-ON-TYNE

TGA R73

EXHIBITIONS

PAINTINGS

The English painter Sickert had a Danish father; the Belgian painter Ensor had an English one. Both painters were born a hundred years ago. Roland Browse and Delbanco, Agnews, and the Tate Gallery in collaboration with the Arts Council have celebrated Sickert's centenary; Marlborough Fine Art has celebrated Ensor's. Sickert was influenced by Degas, and, more reluctantly, by the Impressionists. Ensor was influenced by Turner and, in a stilted sort of way, by the fantastic side of Goya. Sickert evinced a robust interest in the female nude, Ensor a lively concern with the death's-head. Sickert has been called the Degas of Camden Town, Ensor the Goya of Ostend, but this well-meant term of denigration does not allow for their moments of profoundly personal achievement.

Sickert adopted Degas's view of woman as an ill-favoured animal, and in his Camden Town period went one better than his master by giving the creature a suitably squalid setting. Degas's nudes survive his sense of the repulsiveness of the model by turning into athletes of the bath tub: they are among the greatest drawings ever made of what Sir Kenneth Clark calls 'the nude of energy'. Sickert's nudes on the other hand are inactive. They lie puddingy and inert on rumpled beds, and the painter was fond of foreshortening them to emphasize their lumpiness. Yet they are probably the best contribution to the painting of the nude ever made by an English artist. It is rather typical of English criticism that it has not even been hinted that Sickert might have had an erotic preference for the kind of model he used: he is supposed either to have felt pity for them or to have been completely indifferent, but the fact that his vision of the nude is inseparable from its frowsy setting suggests to me that he was attracted by the kind of erotic slumming that was on the mind of many *fin de siècle* writers, and that it was freed from the atmosphere of morbid daydreaming by his partial commitment to impressionist objectivity. To put it another way, these pictures seem to me to owe their vitality to a half-suppressed *nostalgie de la boue*. This way of putting it has the advantage of bringing the content into line with the handling of the paint. When Sir William Rothenstein spoke of Sickert as 'laboriously matching the dingy tones of women lying on unwashed sheets upon cast-iron bedsteads,' he was, I think, confusing the sign with the thing signified. Sickert was not strictly an impressionist, for he liked to paint freely over a carefully prepared drawing and had a romantic feeling for the gleam of light that gropes at dark forms. He seems to have been uneasy when treating subjects exposed to broad daylight. The best of his Venice and Dieppe paintings are low in tone, and for the Camden Town interiors his colours invented a twilight which might at a pinch be described as a poetic equivalent for dinginess but has a richness and depth that is positively sumptuous. The way this dark, rich paint is pushed around by the brush discloses a wonderfully sensuous feeling for the substance itself. It takes account of the drawing underneath as if by an effort of will. One has the feeling that something quite different could have happened, that the figure could have been smeared out of existence, then discovered again in the substance, perhaps more bulging and monstrous than ever, but transformed into a fertility goddess, with all traces of the slattern gone. One is glad that no such thing happened at that point because the tension between drawing and painting in the Camden Town interiors gave Sickert's art whatever unique qualities it has. Afterwards, it couldn't have happened anyway, because drawing gained the upper hand for a time, and in the process the paint went powdery, like mud that's dried out, and it lost all power to seduce.



1

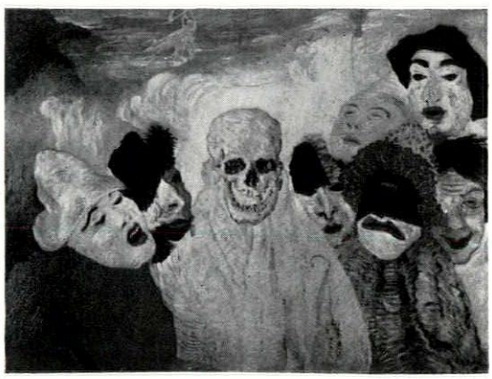
One of the best of the Venetian pictures in the Tate show was 'Le Journal,' 1, whose sombre greens suggest a room shuttered against bright daylight. It captures the emptiness of afternoons and touches on the theme explored in 'Ennui' the most famous of Sickert's works, which depicts two figures back to back—a woman leaning her elbows on a chest of drawers and a man seated at a table, and both of them staring at nothing. If it had been painted freely in the crepuscular tones of the nudes of a few years earlier, it could have been a masterpiece. But the paint is subservient to the drawing, and the juxtaposition of the figures is too



2

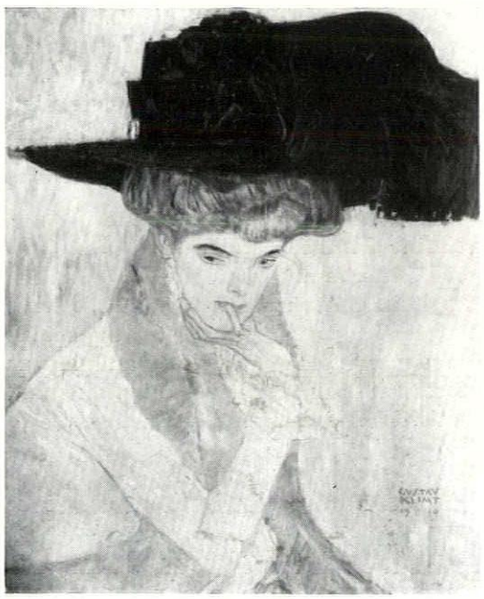
calculated. It should have reminded one of Baudelaire, and if Francis Bacon were to make a paraphrase of it, it might still live the life which Sickert's paint, used merely to colour a drawing, has denied it. (Talking of paraphrases, Roy de Maistre included a picture called 'Variations on a theme by Courbet,' 2, in his Retrospective at Whitechapel Art Gallery which summarized his qualities more effectively than any other picture in the show. The painting he has paraphrased is the glorious *Les Demoiselles des Bords de Seine*. It discloses much more sympathy for the spirit in which Picasso paraphrased the same picture than for Courbet's sense of the marvellousness of living creatures. The plump girls in their flounced dresses simply provide his metallically sinuous line with an unusually complicated meander. It leaves a trail of destruction: the outlining of every bump and hollow cuts the girls into a thousand little pieces of emptiness. These fragments are adorned with cool, decorative colour and, like the Picasso, the picture has a sanitary charm, but I count the total absence of a sense of living substance as a sin against the Holy Ghost.)

James Ensor made monotonous use of the calculated juxtaposition, but when it is sustained by an active hatred of the human race and supported by colour in a high, lyrical key applied with feline finesse, it can produce spine-chilling effects. The masks, which were his favourite properties, appear to represent common humanity, and in the large canvas in which his own likeness is surrounded by a heaving mass of them, each wearing a grin or a sneer like a fixed attribute of character, the proud, Don Quixote-like face of the painter convinces one of the horror of his situation even after it has dawned on one that he is wearing an elaborate feminine *chapeau*. It is a little like being told a heart-rending tale of persecution by someone who, incidentally, claims to be Alexander the Great, and it blurs the frontier between the work of art and the pathological document. Fortunately, several viciously brilliant pictures in the Marlborough show are quite free from the cloudiness of involuntary confession. They follow exactly the same formula, but a death's-head replaces the self-portrait, and an example like *Les Masques et la Mort*, 3, is a clear, sparkling draught of poison. It reminds one remotely of Goya's etching of persons deriding a blind man, less remotely of Bosch's 'Mocking of Christ,' but the central figure, in its soft, creamy shawl, is enjoying the situation. It is possible that the masks think they are jostling a young girl, but all one can say for certain is that, like all his best work, it is beautifully painted and horribly ambiguous.

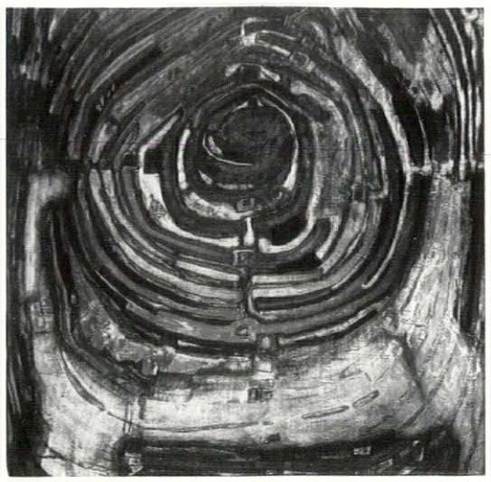


3

Gustav Klimt's were far and away the most remarkable pictures in the interesting exhibition of Austrian painting since 1900, held at the Arts Council gallery. Klimt was one of the masters of the *Jugendstil* movement, and to my mind the greatest exponent of that particular kind of flat pattern and writhing line. His work is practically unknown here, and was judiciously represented at the Arts Council show by an enchanting portrait of a young woman in a very large hat, 4, a lovely landscape, filled with a calm daylight mystery, the 'Danaë,' which is one of his decorative masterpieces, and two graceful drawings of women. He dominated the exhibition, although it included work by the painter Kokoschka and the sculptor Wotruba, and a full-scale exhibition of his pictures ought to be brought to London at the earliest possible moment. Danaë is curled up asleep, all resounding curves and innocent enticement, and the strands of her bright auburn hair fall across her pearly face and shoulder and lap against her equally pearly breast like lacquered Chinese waves. It sounds, I realize, like turn of the century preciosity at its worst, and in a sense it is, but it's also preciosity at its fantastically inventive best, and although modern painters pride themselves on being the very opposite of precious, the astonishing thing about Klimt's elaborate decorative detail is the persistence with which it brings to mind the compositions and textures of the free abstractionists, almost as if he might be the most inclusive automatist of them all. Take just one of many instances—the treatment of the shower of gold in which Apollo hides his identity from Danaë. It has been conceived by Klimt as a God's spermatazoa, and is an intricate raised pattern of little discs and hooks and twigs, which looks like a gilded version of Dubuffet's mud language.



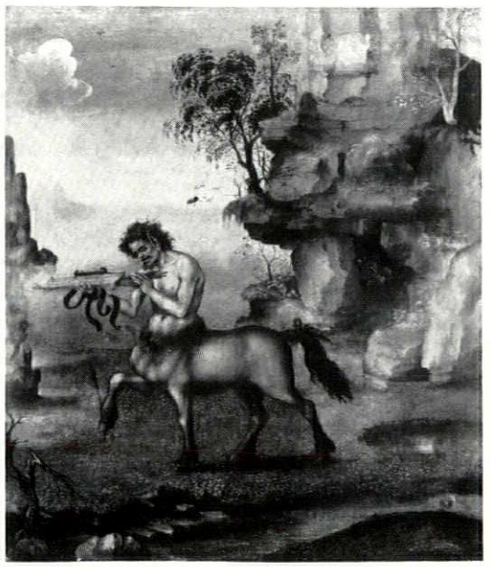
4



5

The two sides of contemporary Austrian art—the fantastic and the abstract—are, at their best, equally in debt to the convolutions of Klimt's *art nouveau*. Fritz Hundertwasser is their outstanding abstractionist. His labyrinthine 'The Asian War,' 5, is a typical example of his work.

The selection of nine paintings and eighty drawings from the collection in the Library of Christ Church, Oxford, recently exhibited at the Matthiesen Gallery provided a very good idea of its

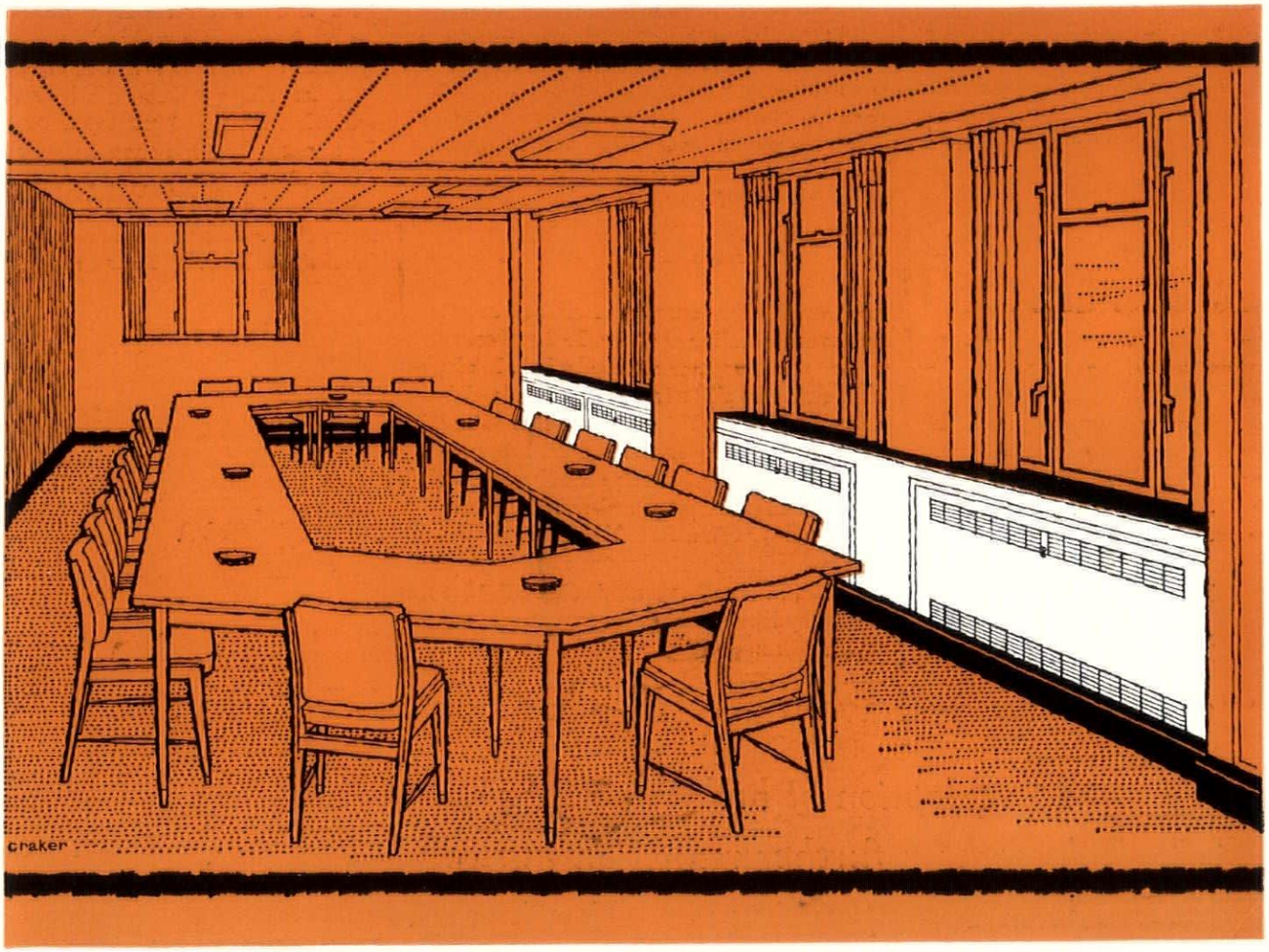


6

BP chose . . .

Copperad *Convectors*

for their new headquarters



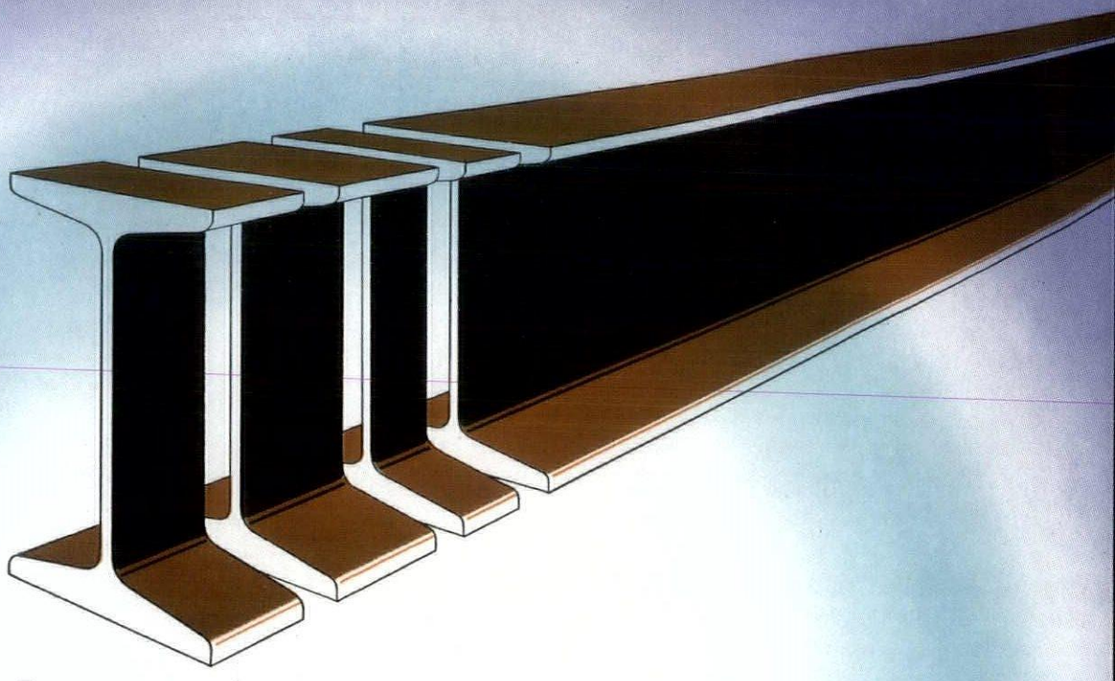
This conference room at BP House shows the good use of unobtrusive COPPERAD Convector heating (specially picked out in white to indicate location). Being an integral part of the building, it wastes no space. As dampers are fitted to each unit, temperatures can be varied to personal taste.

Over 1,000 units have been installed to give

- a natural healthy atmosphere by warmth with air movement.
- economical heat at the normal point of loss on the outside wall.

Architects: Messrs. Joseph, F/F.R.I.B.A.
Heating Engineers: Young, Austen & Young

Copperad Ltd. Colnbrook Bucks
Telephone: Colnbrook 2521
Telegrams: Copperad Colnbrook



...successive cuts in cost

Reductions in the cost of steelwork have recently been made possible by the availability of sections of increased structural efficiency, and new methods of design and fabrication have made further economies possible.

The adoption of higher working stresses has brought a further reduction in steel and labour, with corresponding reduction in cost.

And that is not all. The cost of steel per ton is now lower. So the cost of steel-framed buildings goes down and down.

STEELWORK SUITS EVERY TYPE OF BUILDING AND IS EASILY ALTERED OR ADAPTED

BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION
ARTILLERY ROW, WESTMINSTER, S.W.1

B·C·S·A STEEL STRENGTH SECURITY

richness and variety. The drawings were particularly various, ranging from the great masters, Michelangelo, Leonardo, Raphael, Rembrandt, Durer, and so on, to fascinating oddities such as Jacob de Gheyn's study of a man making love to a witch on the back of an angry monster, and Georg Pencz's brilliant design, for a ceiling, of workmen constructing a ceiling. The painting of a wounded centaur by Filippino Lippi, 6, is a deeply moving example of poetic realism. The contrast between the flesh colour of the human torso and the grey pelt of the horse brings out sharply and unforgettably the pathos of the monstrous.

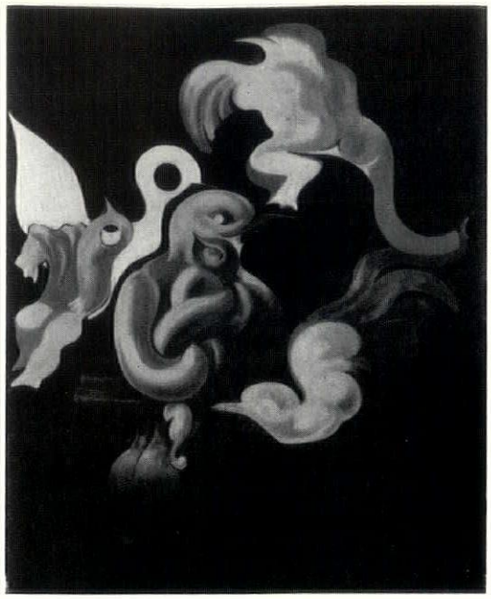
There have been two exhibitions of Dubuffet's work in London recently: an exhibition of paintings of various dates at the Hanover Gallery, and at Arthur Tooth & Sons an exhibition of recent pictures made of dried leaves and other



7

botanical specimens, which demonstrates once again his extraordinary virtuosity in the handling of the materials of his art. The imagery in the leaf pictures is very much the same as in the paintings, but the 'pieces of ground' look, as one would expect, more fertile. He finds it perhaps a little more difficult to convey the impression that the figures and animals *emerge* from his botanical substances and most of the figures are simply ingenious patchworks, but in 'Tigre Fleuri,' which is given a fiery glow by the use of orange peel, he is particularly successful in defining an angry *personnage* without disengaging it from the humus. It is as remarkable in its way as the sinister presence called 'Statue of a Shadow,' 7, which frowned from the walls of the Hanover Gallery.

One of Max Ernst's surrealist masterpieces, the 'Apres nous la Maternité,' 8, of 1927, has recently been on view at the



8

Mayor Gallery. At the time it was painted, Ernst did not have at his command anything like the subtlety of texture that characterizes the Dubuffet, but it has, I think, an even greater apparitional force, and, if anything, the unmysterious way in which it is painted increases its magic.

Robert Melville

TOWNSCAPE

RESTORING THE ROYAL MILE

Considerable progress has now been made in the rehabilitation of the Royal Mile, the street which forms the core of the Old Town of Edinburgh, running down the ridge from the Castle to the Palace of Holyroodhouse.

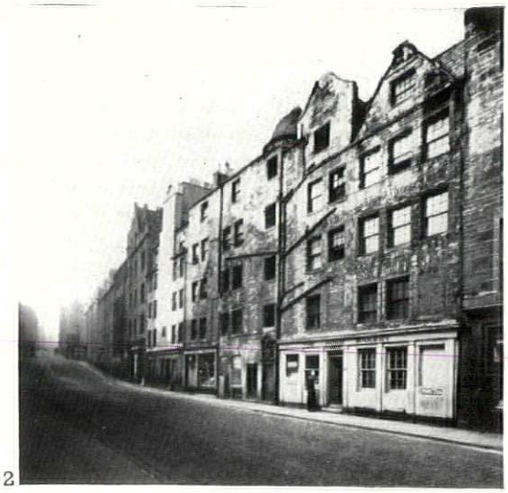
It is a stone-built street of high buildings and great variety, the centre of a community containing, *inter alia*, many houses and shops, St. Giles's Cathedral, the Court of Session, the City Chambers, the Signet Library, the Central Students' Library, three Museums, the Kirk and Tolbooth of Canongate, the Scottish Craft Centre, Patrick Geddes's Outlook Tower, a teachers' training college and school, several breweries and lesser industries, and a large number of public houses. Although in fact it dates from various times between the seventeenth century and the present, to this day it undoubtedly has the ambience of a mediaeval street, romantic in silhouette and interesting in detail.

Formerly a rich microcosm of social classes, it declined sharply in status following the development of the New Town from 1770 onwards, and ultimately sank into appalling congestion and squalor. Although some clearance and good restoration work was achieved before the last war, by the Ministry of Works, Edinburgh Corporation, the late Marquis of Bute, and the National Trust for Scotland, it is only since then that a determined effort has been made by the Corporation to enlist co-operation in rescuing the good traditional architecture that survives, introducing fresh commercial and cultural activity into the area, and—a process still very much in execution—improving housing conditions throughout the Old Town. This is being achieved chiefly by a policy of restoration or reconstruction, but also, where necessary, by site clearance and new building.

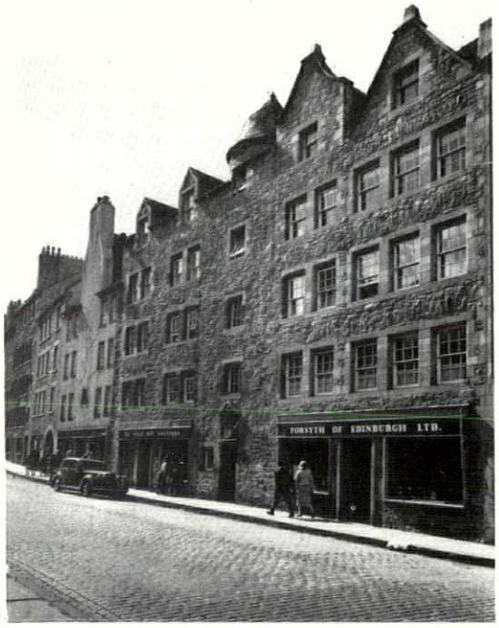
Architecturally this policy poses many problems, technical and aesthetic. In the upper section of the street, known as the Lawnmarket, practically the whole of the south side, consisting of very tall seventeenth-century buildings, has been restored and internally reconstructed for use as housing by the City Architect's department, for administrative uses by Mr. J. Wilson Paterson or for the Central Students' Library (by the Carnegie Trust advised by Mr. James Shearer), making in all a very impressive traditional group.

1, *the Royal Mile from the north, showing the new houses of the Tolbooth scheme, constructed in part behind the 17th century frontages.*





2



3



4

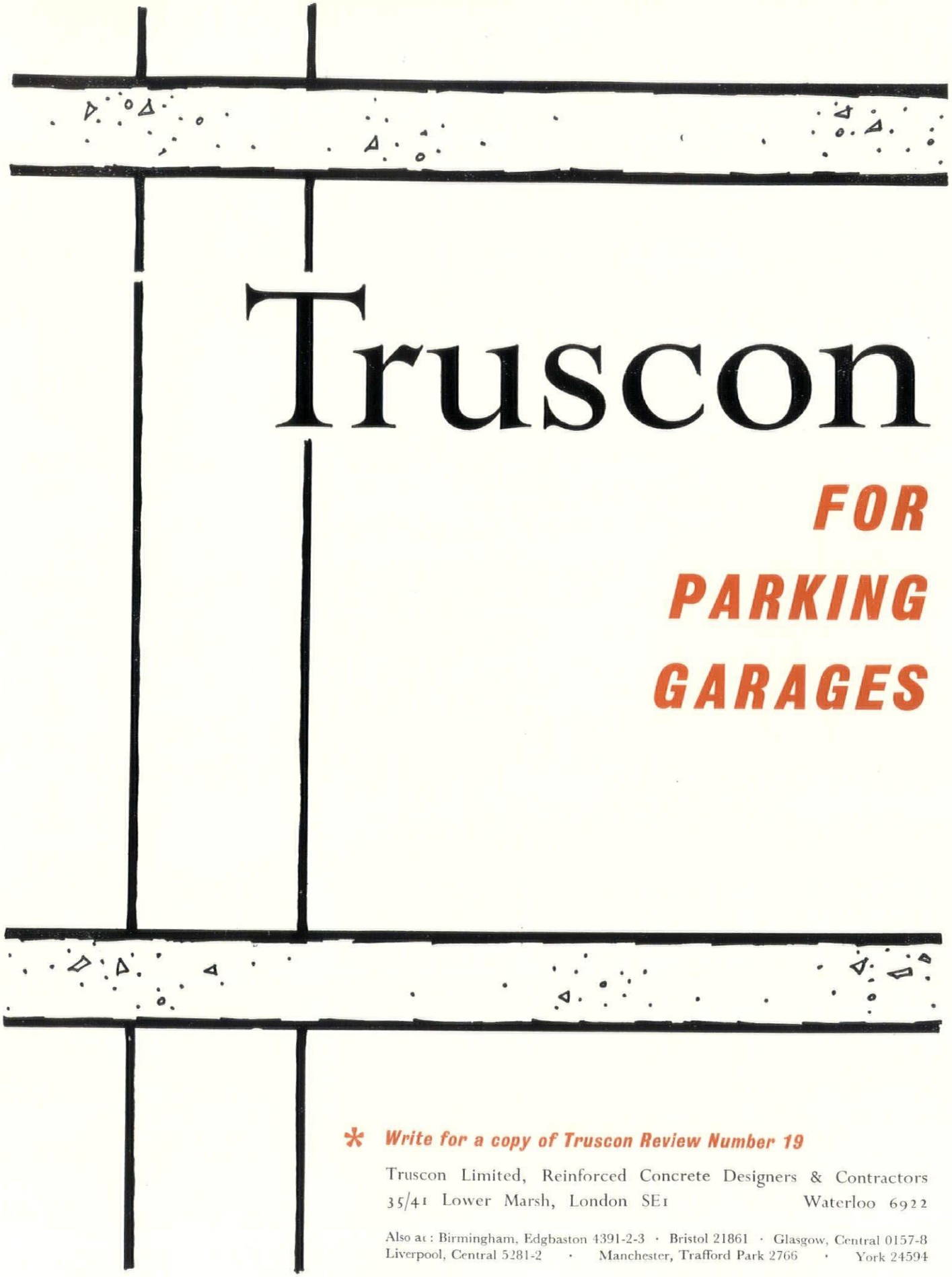


5

2, *Bible Land* (1677) *and adjacent buildings before reconstruction.*
3, *Bible Land restored under the Tolbooth scheme, with remodelled shops and new flats above.*
4, *Canongate, with the restored Shoemakers' Land frontage on the left and the new building alongside.*
5, *the Morocco Land scheme, Canongate, which is an entirely new development on a cleared site.*

The central section, known as the High Street, containing St. Giles's Cathedral and most of the civic and national institutions already referred to, so far remains as it was, although proposed extensions to the City Chambers may soon effect a marked transformation on the north side.

The lower section, known as Canongate, has been the scene of much recent activity. Some years ago the Corporation sponsored three major schemes known respectively as Tolbooth, Morocco Land and Chessel's Court, all designed by Robert Hurd. The first two have been completed. The Tolbooth scheme involved the restoration of two seventeenth-century frontages and one early eighteenth-century frontage, now in each case structurally integrated with completely new housing at the back and thus, with a range of new elevations, forming a



Truscon

FOR PARKING GARAGES

* *Write for a copy of Truscon Review Number 19*

Truscon Limited, Reinforced Concrete Designers & Contractors
35/41 Lower Marsh, London SE1 Waterloo 6922

Also at: Birmingham, Edgbaston 4391-2-3 · Bristol 21861 · Glasgow, Central 0157-8
Liverpool, Central 5281-2 · Manchester, Trafford Park 2766 · York 24594



Well, you can't blame a frisky youngster for being bored with this business-letter dictation stuff—even if he is seated upon TRINASCOLIN—linoleum flooring at its modern best, supplied and laid by Limmer & Trinidad.

Craftsman-installed TRINASCOLIN produces a colourful and resilient floor which is easily maintained. It is available in several thicknesses and a variety of plain and marbled colours. The Limmer & Trinidad Group of Companies are specialists in all types of Decorative and Industrial flooring and have unique technical and practical experience to offer.

Descriptive leaflets are available on request.

THE LIMMER & TRINIDAD LAKE ASPHALT CO. LTD.,
Trinidad Lake House, 232/242, Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.,
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.,
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

MEMBERS OF THE

LIMMER & TRINIDAD

GROUP OF COMPANIES



6



7

6, the Tolbooth scheme; the street has been widened and the new buildings incorporate shop arcades.
7, Gullan's House, Canongate, which has new building behind seventeenth century frontages.

striking feature of the Old Town ridge as seen from the north. Incorporated into this scheme is shop arcading, a feature once known in Edinburgh, but surviving only in one Lawnmarket building.

The Morocco Land scheme consists of modern development of a cleared site, comprising houses and shops, some also in an arcade. Handled more freely than the Tolbooth scheme, the building line here has been changed slightly to allow for housing set back from the street and accessible from a raised footpath, thus breaking the severity of the street. The third and largest scheme, Chessel's Court, is still under construction, only a small portion containing nine houses and three shops (Gullan's Close) on the south side of the street having been completed so far, involving new building integrated with late seventeenth-century frontages. The major part consists partly of restoration work on a large 1746 block containing several good interiors, partly of completely new building on Canongate frontage sites yet to be cleared, and partly of new building in the hinterland. Apart from one shop, a public house and a small nursery school, all this will be for housing. Incorporated in this new work will be an open piazza giving a view through to the gardens of Chessel's Court from the Canongate, while maintaining the essential continuity of the street itself. The introduction of colour on the walls plays an important part in all three Canongate schemes, along with a reduction of all shop frontages to a scale more appropriate to the elevations.

The Corporation is now proceeding to sponsor further new schemes nearer the Palace of Holyroodhouse, one simple and attractive group by Ian Lindsay and Partners adjacent to Queensberry House (the subject of an exhibit in this year's Royal Scottish Academy) and one on a larger scale in the vicinity of Reid's Court by Basil Spence and Partners, details of which are not yet fully settled. In addition to these, the Corporation is being openly encouraged by the Secretary of State for Scotland and the Historic Buildings Council for Scotland to proceed with the restoration and adaptation of the remaining old buildings of architectural or historic interest; so that within a few years the architectural restitution of this famous street should be fully achieved. Already, as a result of this concerted effort over the years, the Royal Mile is on the upgrade socially and commercially, and seems to have come into the current of everyday life in Edinburgh to an extent which has not been known for many generations.

HISTORY

DATING ST. GEORGE'S, HANOVER SQUARE

Recent authoritative source books[1] *give the date of John James's church of St. George, Hanover Square, as* 1712–1724. *The papers of the Commission of* 1711 *for the 'Fifty New Churches' which came to light in* 1954 *show that this date is erroneous.*

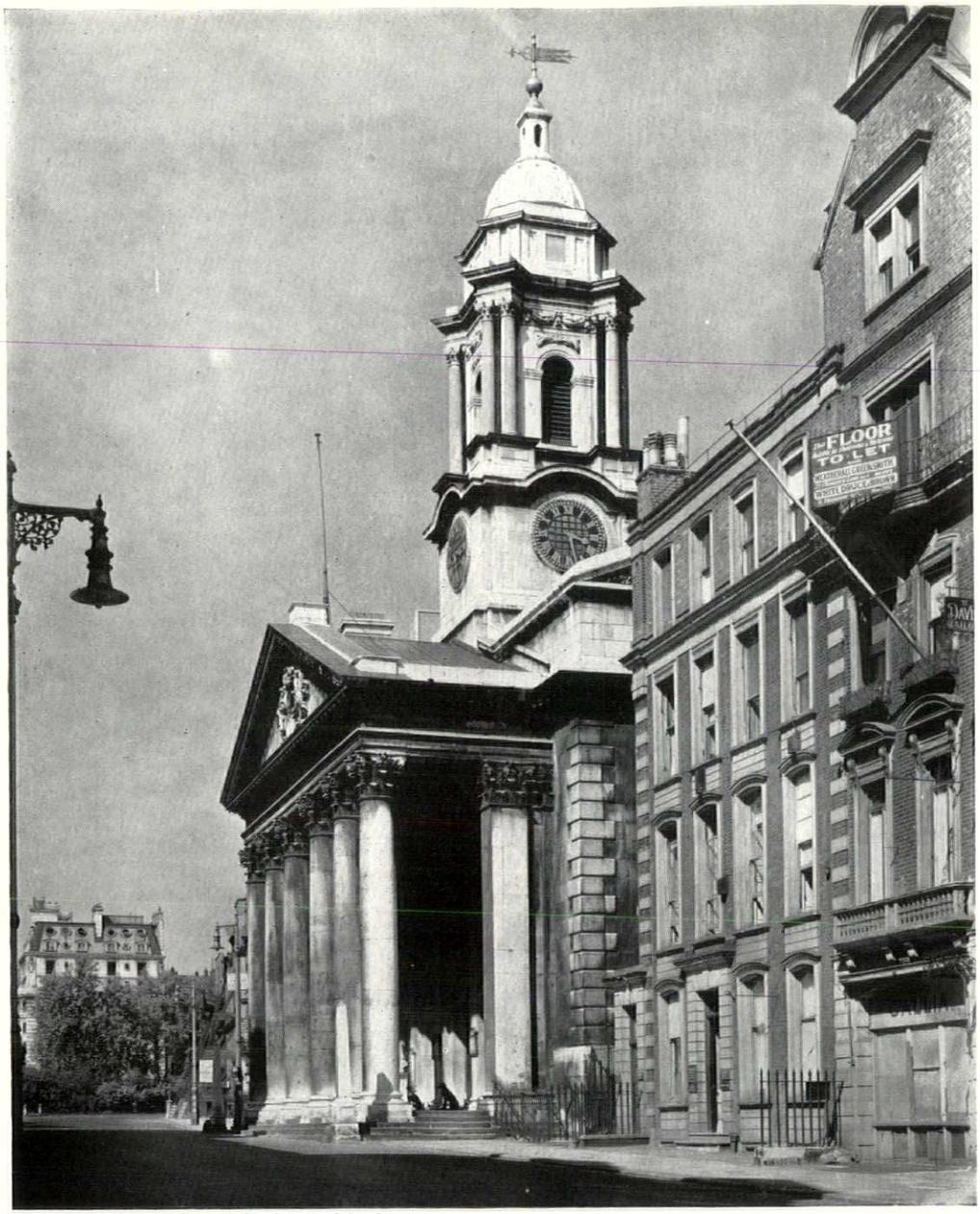
The Minutes of the Commission and the Books of Works reveal that the church was designed during November and December, 1720. Work was started in February, 1721, and the building was ready for consecration in March, 1725.

Among the drawings by James Gibbs in the Ashmolean Museum, Oxford, are two plans for 'the intended Church in Great George street near Hanover Square,' one of which is signed as approved by fifteen local worthies[2]. The explanation is given by a letter to the Commission from General William Stewart (or Stuart) dated December 13, 1720[3], in which it is mentioned that the residents, impatient at the delay in getting a plan from the Commission's Surveyors, Hawksmoor and James, had independently engaged Gibbs to draw up plans. Several of these gentlemen were important members of the separate Commission for rebuilding St. Martin-in-the-Fields, the mother church of the parish[4], and they had been favourably impressed by Gibbs during his successful application for the Surveyorship to St. Martin's (obtained November 24, 1720).

On October 27, 1720, the Commission had ordered the Surveyors to draw up plans for the church and James submitted his plan on November 3. General Stewart's protegé, Gibbs, was invited to show the Commission his designs and estimates on November 16. On December 7 James was ordered to modify his plan in the interests of economy and the following week his plan was approved.

This new dating necessitates a re-appraisal of the relationship of the design to that of St. Martin-in-the-Fields. The discovery that Gibbs had submitted to the Commission designs in the form of peripteral and pseudo-peripteral temples with steeples on their roofs as early as 1713 and 1714 shows that James did not, as previously thought[5], anticipate Gibbs in the composition of a steeple rising out

[1] H. Colvin. *Biographical Dictionary of English Architects, 1660–1840*, Murray. 1954.
J. Summerson. *Architecture in Britain, 1530–1830*, 2nd edition. Penguin Books, 1955.
[2] Ashmolean Museum, Gibbs. Vol. II, folios 37, 38.
[3] Lambeth Palace Library, New Churches Box 11.
[4] The Commission for St. Martin's lent the Commission for 'Fifty New Churches' £2,000 to build St. George's Feb., 1721.
[5] Summerson, op. cit.



St. George's, Hanover Square, London, by John James.

of the main body of the church, behind and above a full-scale, hexastyle portico. This position of the steeple was Gibbs's innovation. The theme of the monumental church portico goes back to Inigo Jones and John Webb. Porticoes and steeples were included in the recommendations to the Commission for 'Fifty New Churches' of both Wren[6] and Vanbrugh.[7]

John Field

COUNTER-ATTACK

CHARLOTTE SQUARE, EDINBURGH

An unusual piece of vandalism is at present being committed in Charlotte Square, perhaps the most prized and most beautiful thing in Edinburgh New Town. For some time now the square, in addition to being the inevitable car-park, has been on a number of city bus routes. (St. Andrew's Square at the opposite end of the original New Town was long ago wrecked by being turned into an annexe of the main bus station.) Traffic now moves one way round the square (clockwise), but until recently the camber, particularly on the north side, sloped the wrong way for traffic, which thus tended to use the part of the roadway nearest to the houses. This alarmed the owners, and though the City Engineer believed that fear for the structure of the houses was groundless, he nevertheless used the occasion to prepare a scheme for reversing the camber so that the slope is into the middle.

On the north side of the square the pavement along the garden is a foot higher than that in front of the houses (and this fall in the land is one reason for the outward camber of the old roadway). Reversing the camber therefore means that the gardens will be several feet above the roadway, and the very subtle relation between the buildings and the central space (which were of course designed together) will be entirely disrupted. The Chairman of the Corporation Works Committee says that 'the gardens will be approached from all sides by steps usual in the Old and New Town of Edinburgh where levels vary,' thus ignoring the fact that in these other New Town schemes the buildings and gardens were designed to incorporate steps and changes of level.

The scheme aroused so much opposition, from both local residents and distinguished architects, that work was stopped for three months. During this time the Corporation have apparently taken no advice or guidance, but they are now happily satisfied that the changes 'will do no harm,' and that when the work is completed 'the results would commend themselves to the unbiased viewer.'

The viewer, biased or otherwise, will have little opportunity to judge when the traffic returns at, presumably, greater speed than before. The lamentable thing is that this particular bit of injudicious juggling can bring no more than temporary relief: the City seems bent on applying one *ad hoc* solution after another, never really meeting the problem, but each time gaining just enough relief to have time to think up the next desperate move. How much of Edinburgh will be ruined in this way, before a really radical approach is made?

Andor Gomme



Work in progress altering the roadway in Charlotte Square, Edinburgh.

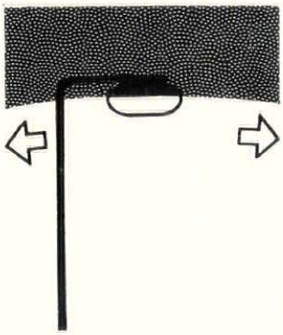
[6] Published in *Wren Society*, IX, pp 15–18.

[7] Published in L. Whistler, *The Imagination of Vanbrugh and his Fellow Artists*, pp 247–252.

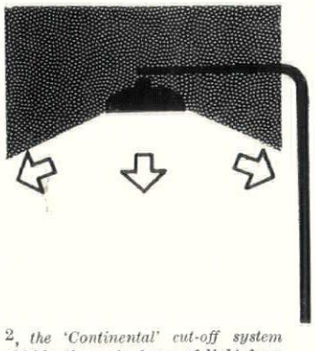
SKILL

STREET LIGHTING

Recent attacks on the unsightly effects of new street lighting have shown the architect and engineer barely able to understand each other's approach to the problem. The object of this article, which is written by an authority on the technical aspects of lighting, is to explain how street lighting works. The author describes the broad effect of the 'silhouette' system developed mainly in this country before the war and of the 'cut-off' system developed mainly on the Continent. He points out that improvements in road surfacing, and the fact that we now have more money to spend on lighting, have together made the 'silhouette' system less favourable and suggests that we should generally go over to the 'cut-off' system—at least outside the built-up area. For motorways he advocates widely spaced lamps mounted high, and for towns some measure of upward light to give interest and reduce glare from other sources.



1, *the 'British' non cut-off system sends the main beam of light out just below the horizontal. This aids the sheen on the road which is the background for silhouette vision.*



2, *the 'Continental' cut-off system shields the main beam of light from the driver's eyes. There is no glare, but good visibility is only possible when there is plenty of light available.*

Many readers may be familiar with a short stretch of the A1 road just by De Havilland's factory near Hatfield. This has been lit for many years by well-shielded lamps in lanterns mounted high in the centre reservation of the dual carriageway. This is an installation which receives almost universal approval from the ordinary 'man in the street,' who wonders why there is so little street lighting in Britain like it. The reason is that this system of lighting contradicts many of the accepted canons of contemporary British street lighting practice.

Until the advent of wide carriageways bearing heavy motor traffic, street lighting could well be a simple matter of a few poles bearing lamps in nothing more than protective glass coverings. Little needed to be done to control the light optically, it just fell where it would. As traffic became more dense, more light was needed on the road, and so simple optical devices—mirrors and the like—were fitted into the lanterns to direct more of the light of the lamp on to the roadway rather than let it be wasted up in the sky. Then in the 1930's the forerunner of the British Standards Institution set up a test of street lighting practice, based on the amount of light measured on the carriageway midway between posts along the road.

About this time, however, it was realized that one saw things on a lighted street more often by *silhouette* against the brighter background of the street surface. This was particularly true from the driving seat of a car. It seems unbelievable that a dark asphaltic street surface will be brighter than a girl in a light raincoat, and that she will be seen in silhouette, but such is the case, and those who do not believe can easily test this for themselves.

This observation of 'silhouette vision' must have been made by someone many decades ago, but nobody seems to have turned it to good technical use until the mid-1930's. About this time, the lamp firms were developing the new discharge lamps (mercury blue-green and sodium orange-yellow) and the engineers working on the application of these lamps to street lighting found themselves with a light source very difficult to tame to the demands of the British Standard Specification. In spite of this, the experimental installations which they put up with the new lamps were superior to those carefully built to the specification. They analysed the reasons for this, and found that the explanation lay in this fact of 'silhouette vision.' The very fact that the new lamps punched out light too high to reach the BS 'test point' on the carriageway was actually an advantage, because it was just this light which enhanced the 'sheen' on the road surface. This 'sheen' in turn provided the bright background for the silhouetting of objects. The brighter the sheen, the stronger the silhouette, and the better the visibility.

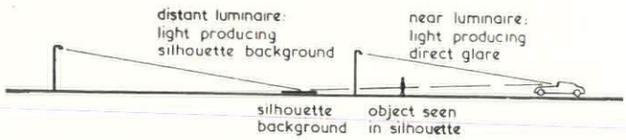
The snag was the glare caused by this high angle light shining straight into the eyes of the driver.

This is the problem which has confronted street lighting engineers ever since that time. If the 'silhouette vision' principle is used, there must be glare. The alternative is to shield the lamps, and forgo the advantages of the high visibility afforded by silhouette vision. In Britain the decision went in favour of the silhouette principle, but on the Continent it went the other way. That is why the great majority of contemporary street lighting in Britain has unshielded lamps.

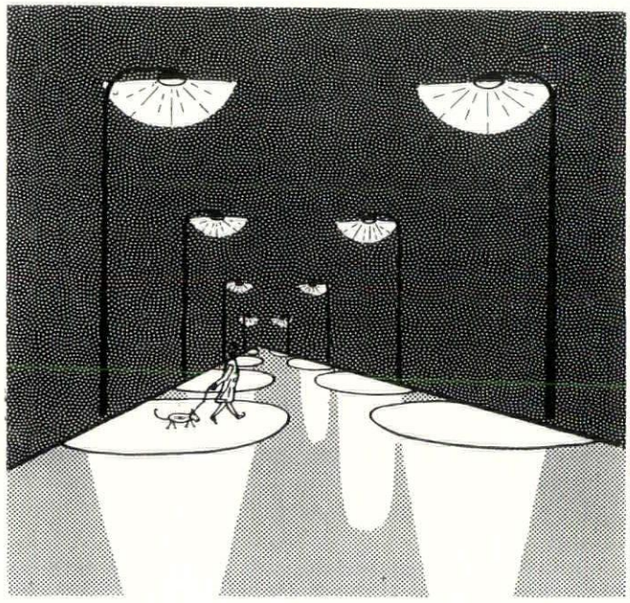
The glare question was not ignored. The disadvantage was well understood, and studies were initiated by the lamp firms at the National Physical Laboratory, and later conducted in their own laboratories, but it was soon recognized that the problem was too difficult to solve quickly. It was decided to go for silhouette vision and put up with the glare.

This decision undoubtedly saved a great many lives on the streets at night. The silhouette system is 'efficient' in the sense that it gives a high degree of visibility for a small expenditure of energy, a matter of great consequence before the war, when money for street lighting was hard to come by. The decision also caused a great deal of annoyance from glare and criticism from those sensitive to glare while driving, who did not understand the advantages of good visibility inherent in the system.

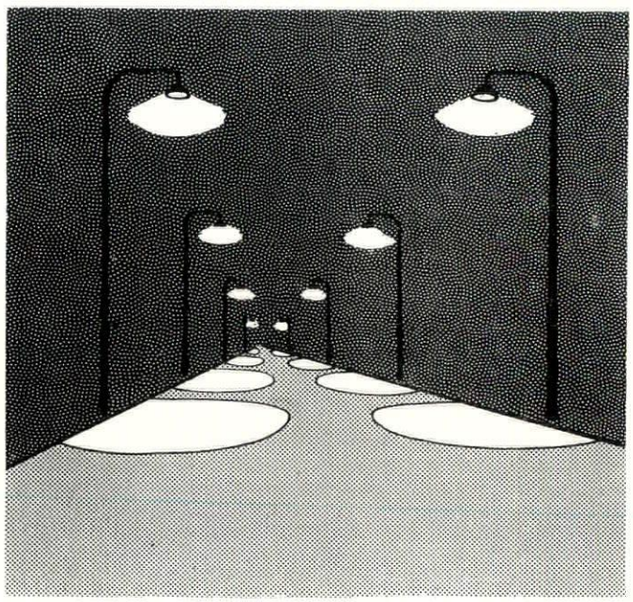
Not all engineers, even in this country, felt that the silhouette principle was the best, and on the Continent they were not convinced that enhanced visibility was the only thing that really mattered in street lighting, and so two schools of street lighting grew up together, the silhouette school in this country, and the 'cut-off' school (so-called because the light was cut off by optical



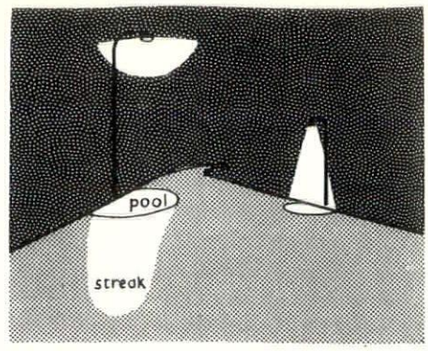
3, *the 'British' system depends on light from distant luminaires, reflected and scattered off myriad elementary 'mirrors' in the road surface, to produce a bright sheen against which objects are clearly seen in silhouette. A high degree of revealing power results from a small amount of light energy. Unfortunately the 'high light which produces the wanted sheen also results in direct glare, which may cause discomfort or distraction, but would normally not impede vision to a serious degree.*



5, *the British 'non cut-off' or 'silhouette' system relies on strong silhouettes of objects against an interlinking jigsaw of pools and streaks. It is easy to get a good bright background, but there must be glare. The more posts and the bigger the lights, the better the background, but glare goes up too.*



6, *the Continental 'cut-off' system has no streaks, only pools. Only if the luminaires are mounted high will the pools join up and make a good road appearance. There is no glare.*





4, *light from a street luminaire produces a 'pool' and a 'streak.' The 'pool' comes from the low angle light: the higher the luminaire, the bigger the 'pool.' The 'streak' comes from the high angle light which also causes glare.*

shielding from dazzling the eyes), chiefly on the Continent. By the time war broke out, in 1939, excellent installations of both types could be seen both here and overseas (the Hatfield installation is typical of the Continental 'cut-off' system as then practised) because in Britain there were many engineers who preferred, or whose Highways Committees preferred, the non-glare system, and equally on the Continent there were those who appreciated the advantages of economy and enhanced visibility of the British system. After the war, we in England continued to install lighting by the silhouette system but a new and important factor was coming in.

This was the fact that, for various reasons including the continual advance in the standard of living, much more money became available for street lighting. Now the silhouette system is essentially an economical system; that is, it squeezes the maximum of visability out of the minimum of light energy. When money was tight it did a good job, but when money became available and people were prepared to pay for the best street lighting, engineers continued to install silhouette lighting, but with more posts and bigger lamps, on the principle that more of a good thing must necessarily be better. But inherent in the silhouette system is glare and dazzle, and more silhouette lighting results in more glare.

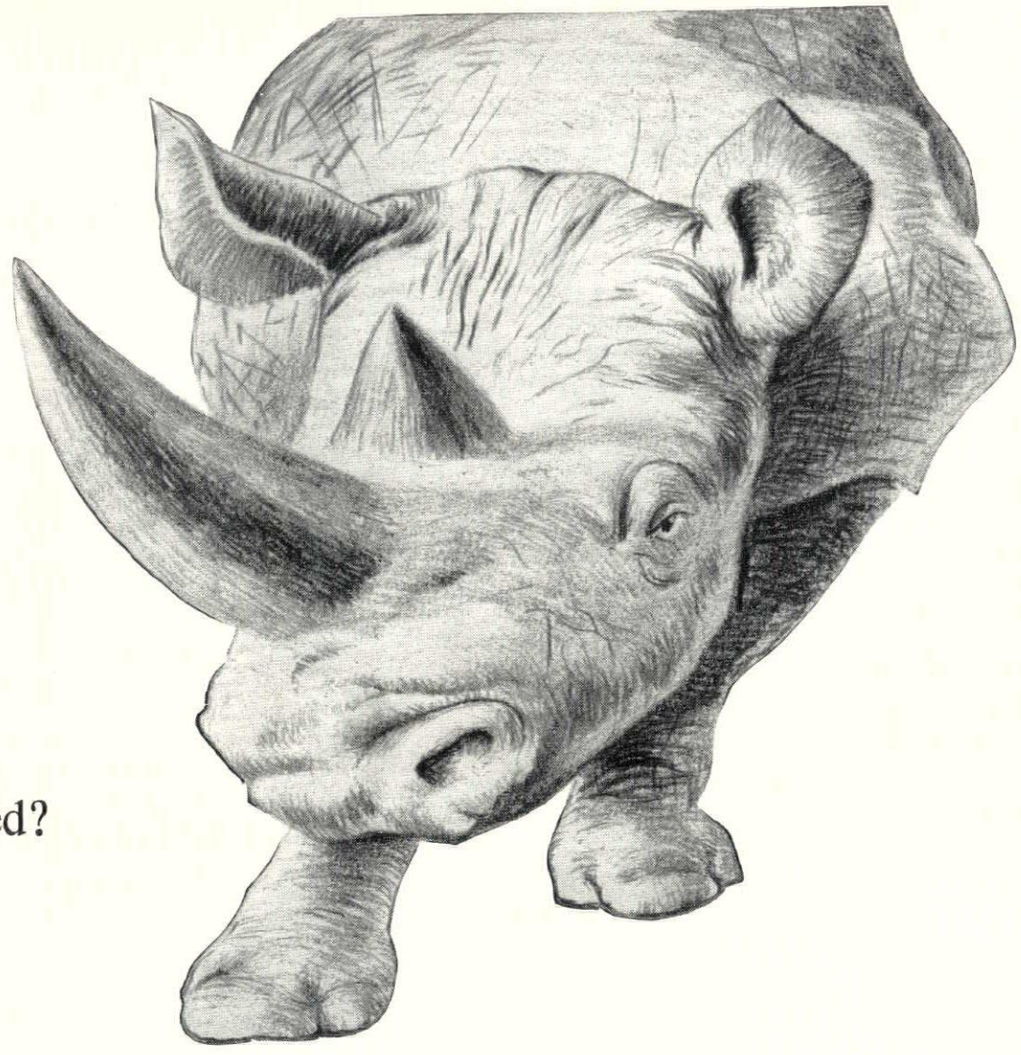
To function efficiently the silhouette system demands a sheen on the road surface. This does not mean that the surface has to be polished; the requirement is rather for a myriad assortment of little mirrors arranged randomly over the road surface, and many pre-war surfaces had just that desirable property. Research on the non-skid properties of road surfaces has, however, led to the development of surfaces which are much 'duller' and which do not produce a good bright background so necessary for silhouette vision. Such a surface may be good for traffic safety because of its non-skid properties, but it reduces visibility at night. Glare becomes a double problem, first because the road brightness, which acts as a buffer to the glaring lights, is not as bright as it should be, and second because the more lavish installation, with more lights on more posts and more powerful lamps, punches a greater amount of light straight into the driver's eye.

The Continental 'cut-off' system, on the other hand, thrives on extra light. Since it prevents any light reaching the driver's eye by means of optical control in the lanterns, all extra light is directed on to the road, to improve visibility without in any way adding glare. So the result is that, whereas post-war British street lighting gives only a little better visibility than the best pre-war examples, and often much more glare, post-war Continental lighting is far and away better than pre-war. This outstanding improvement has inspired Continental lighting engineers to adventures in design which have left British practice behind. Lanterns are now being mounted very high above the roadway, with posts set well back from the edge, and by skill in 'styling' a much more graceful effect is achieved with less obtrusion on the consciousness in daylight.

This is the bare skeleton of the story of street lighting up to the present. It remains only to clear up a few of the doubts that every layman has about systems which engineers consider to be on or beyond the lunatic fringe. Among these are lighting from the kerb, lighting from under the road, lighting from headlamps mounted on poles three-feet high, lighting from shielded lamps on low posts, and so on.

None of these systems works, and it is not difficult to show why on theoretical grounds, but these do not convince the layman, and so the only recourse is to let him see for himself. Consequently, every ten years or so, expensive demonstrations are organized to show one or other of these systems to national or local authority committees and to convince them how disastrous it would be to light our streets in any of these ways. These demonstrations are always completely convincing, and serve their purpose for the time, until a new generation of administrators and politicians takes over, and the whole demonstration has to be arranged yet once more. The situation is unfortunate and expensive, but there seems no way, short of dictatorship, of avoiding it. The experts inevitably feel aggrieved that their advice is not taken before the expense is incurred,

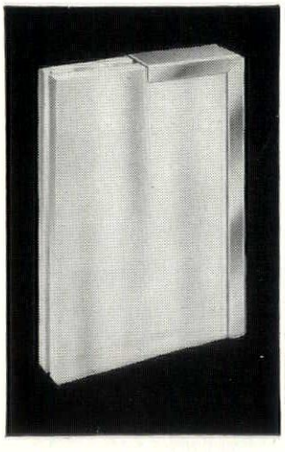
[continued on page 157

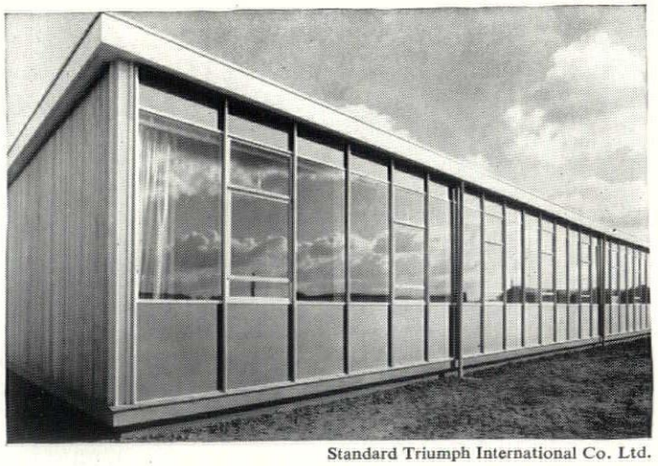


thick-skinned?

It's one way of guarding against heat loss . . . but a better way is the lighter, 'Hilsulate' double glass clear panels. Effective way of improving thermal insulation they reduce transmittance factor from 1.00 to 0.65—comparable to a 4½″ brick wall.

For full information on the range of 'Hilsulate' panels for window and solid wall areas, please contact our Technical Department.





Standard Triumph International Co. Ltd.

HILLS (WEST BROMWICH) **LIMITED**

ALBION ROAD, WEST BROMWICH, STAFFS.
Telephone: West Bromwich 1811 (15 lines).

London: CHAPONE PLACE, DEAN STREET, W.1.
Telephone: GERrard 0526/9.

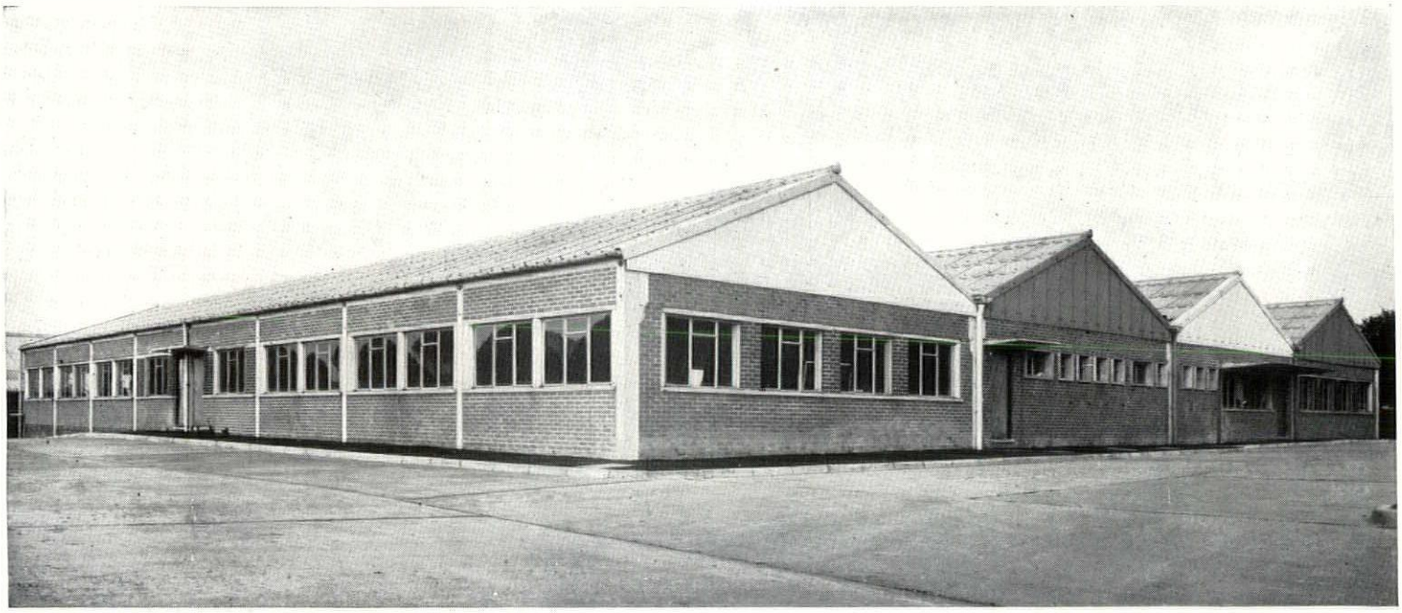
Branches at: Manchester, Bristol, Newcastle-on-Tyne, Glasgow

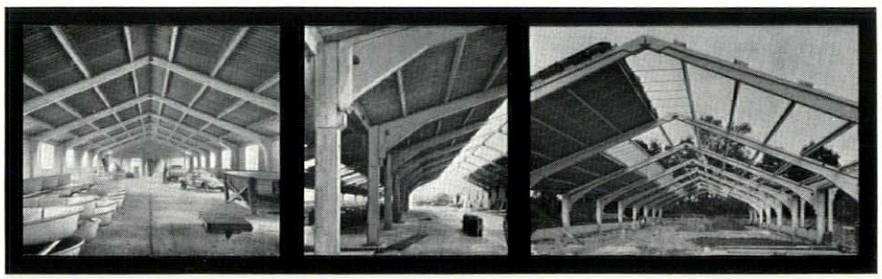
P9

TYLER
TONBRIDGE

We manufacture Precast Reinforced Concrete Units to meet rapid erectional needs for all types and all sizes of industrial buildings. Standard span sizes range from 16′ 6″ to 60′ — made to meet our own exacting technical specifications and we can supply insulation to comply with the Standard of Thermal Insulation for Industrial Buildings No. 1220 of 1958. Tylers' Units combine durability of construction with a special smooth finish that contributes to the attractiveness of all modern concrete elevations completed and erected by our own highly skilled teams.

# of vital interest to you





TYLER precast reinforced concrete **INDUSTRIAL BUILDINGS**

If you have a building problem or an extension to existing premises query—why not get into touch with Tylers of Tonbridge? Our assistance is prompt—and practical—and you have the benefit of actual manufacturer's prices. Send for our interesting literature.

E. W. TYLER & CO. LTD., Verdant Works, Cannon Lane, Tonbridge, Kent. Tel: Tonbridge 4024 (6 LINES)

continued from page 156]

but it is clearly unwise to allow ourselves to be ruled by experts.

Rather more space has been taken up with this matter of 'lunatic' street lighting than its importance merits, because architects are often most insistent that one or other of these methods should be tried, as a means of evading the need for the 'forest of concrete poles' which bedecks the streets of Subtopia. Experiments should certainly continue on new and unorthodox methods of street lighting, but it is less expensive if these are conducted on scale models and proved to work before being attempted on a full scale.

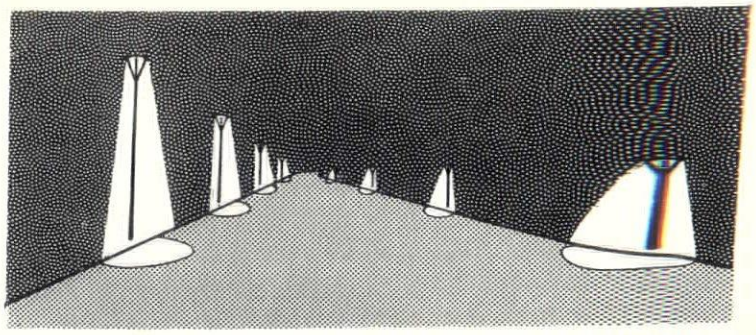
Only a rash man would see any future for these unorthodox methods of lighting traffic ways. Development is much more likely to lie with systems of very high mounting, and architects who feel the need to improve the appearance of our traffic routes would do well to direct their attention there. Very high mounting, of the order of 50 feet high, with powerful luminaires, permits much wider spacing of the units. There can be fewer poles. It would be possible, now, with the newest lamps and techniques, to light a motorway from high mounted cut-off units on poles set only in the central reservation. The hazards of accidents caused by cars running off the carriageway into the reservation must in any case be eliminated, quite apart from the additional problems raised by the presence of the lighting equipment. The experiments in the USA and elsewhere with dense hedges of tangled quick-growing briar would go far to solve the problem of accidents from collisions with the lighting poles. Lighting of this kind would be glare-free, and comfortable for long drives because of the absence of the distractions of bright lights just above the carriageway where one should be looking.

For urban streets the solutions are more varied. In built-up areas, considerations of design should rank at least as high as those of efficiency. Upward light, which is wasted in the open road, illuminates buildings in a city and adds to the background, which helps to buffer any glare present. Complete elimination of all visible brightness of the luminaires is not desirable. There should be no discomfort, but to see the bright lights adds to the interest and attraction of a city area—complete cut-off of the street lights can be deadening. High mounting again can reduce the amount of clutter. Some of the Continental installations have pointed the way—the areas around the forecourts of the railway stations at Zurich and at Eindhoven are two excellent examples of improved urban lighting.

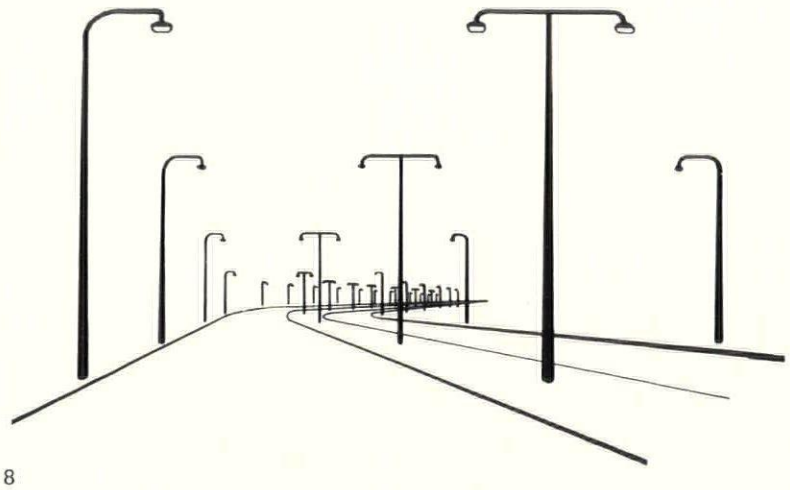
The lighting of residential streets shares some of the problems of the lighting of domestic interiors—people know what they want, and it is not what the technician tells them they ought to want. Local residents are often zealous to maintain the 'character' of their neighbourhood, and lighting appropriate for one neighbourhood may be quite unsuitable for another. Careful collaboration between residents and designers may lead to a more *satisfying* result than could be given by a solution on mere technical grounds. Technical considerations are not entirely negligible, but they may not be all-important. There is clearly some useful work for the architect to do here.

There is much which could be said about the choice of light source. The golden-yellow sodium lamp at the moment carries all before it because it gives so much more light per unit of electric power—recent developments by one firm have achieved the magic figure of 100 lumens per watt, the four-minute mile of the lamp man. Other more efficient lamps with better colour may be developed in the future but nobody outside the lamp firms has heard much about them yet, so it is likely that our traffic ways will be lit by sodium lamps for some time to come. The tubular fluorescent lamp has caught on, surprisingly in view of its enormous size, for shopping centres, but the newer 'compact' colour-corrected mercury lamps may prove more amenable to skilled design of luminaire. The filament lamp and the gas lamp still hold on here and there but they have little future.

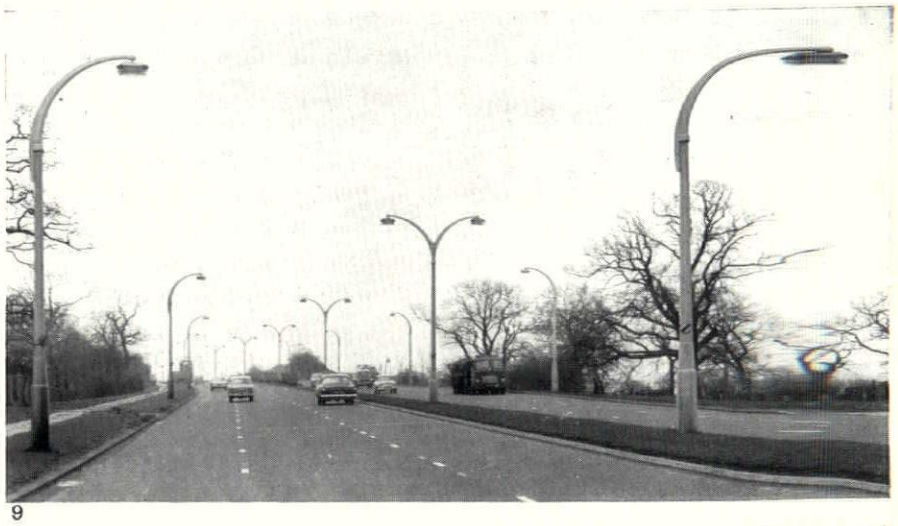
One might conclude with a suggestion that architects and street lighting engineers might get toegther at a summer school, run perhaps by an institution like the York Institute for Advanced Architectural Studies, and put their respective points of view forward for discussion. A great deal of good might come out of such a meeting. It is late to make a start, but not too late.



7, low mounted lamps produce small pools which are insufficient to illuminate the whole road. They will illuminate people, but not very well. Visibility will be insufficient for safe driving without headlights. Left, 10-ft. lamps; right, 5-ft. lamps.

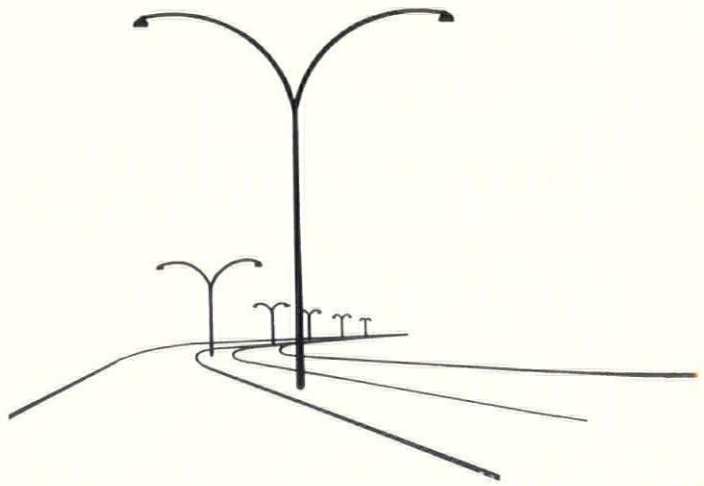


8



9

8, the British system, if carried to the limit of the doctrine that more of a good thing must be better, leads to a forest of poles by day and excessive glare by night. 9, a photograph of the A41 road, shows that the sketch is no exaggeration.



10, perhaps the motorway lighting of the future will be from very high mounted luminaires very widely spaced, with Continental-type anti-glare units. There may be a screen or rose-hedge between the carriage ways. This type of lighting is already successful on the Continent.

THE INDUSTRY

Aluminium wall cladding

A new system of aluminium wall cladding developed by British Aluminium last year has been used for the first time on a major project at Longbenton, near Newcastle-upon-Tyne, 1. The sheets have a bold profile and a cover width of 12 in. Lengths up to 40 ft. are available. Normal fixing is to angle or channel or timber girts and where concealed fixing is required a clip is hooked over the single upstand of the panel and secured to the girt. The double upstand of the next panel, which is filled with caulking compound at the factory, is pressed over the first panel and the three thicknesses of the seam are then clenched with a button punch above and below each clip. No drilling or hole-punching is necessary and the cladding is quickly and simply fixed.
*The British Aluminium Co. Ltd., Norfolk House, St. James's Square, London, S.W.*1. (*Whitehall* 7868.)

Reconstructed stone

Manufacturers of reconstructed stone view with concern the growing tendency over the past few years towards the use of smaller and smaller sections of stone in the design of buildings. The concern is that smaller sections, being less robust, are subject to damage in handling and fixing, resulting in unnecessary delays on site whilst replacements are made.

One of these manufacturers, John Ellis & Sons Ltd., who specialize in reconstructed stone comprising a facing of crushed natural stone and white cement with a backing of granite concrete, has put forward recommendations to architects for suitable minimum sizes of stone. These are that the minimum dimension of any section should be 2½ in. and the minimum cross sectional area of any one piece 11 sq. in. Cross sectional areas determine maximum lengths and these are for 11 sq. in. cross section 3 ft. long, for 30 sq. in. 4 ft. long and for 45 sq. in. 6 ft. long.

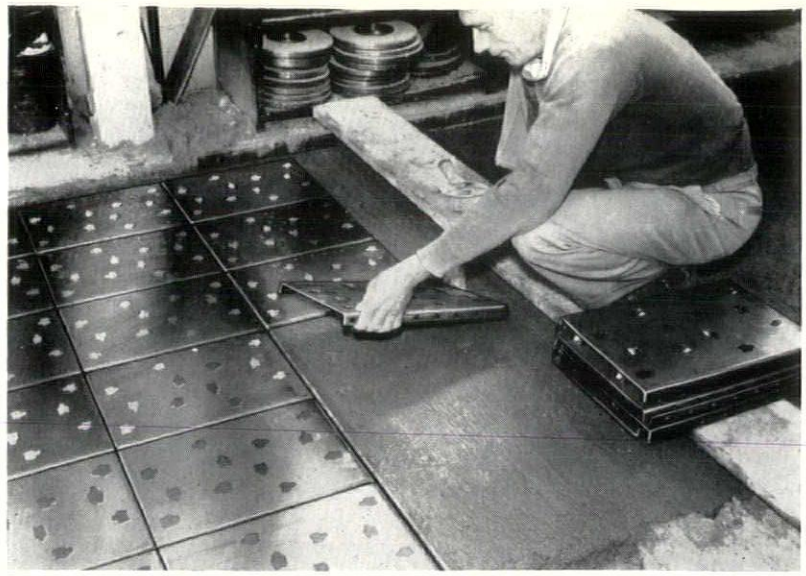
Although this manufacturer points out that he does not wish to dictate to his customers, architects would be well advised to be guided on this by the man who makes the material.
John Ellis & Sons Ltd., 29 *Dorset Square, London, N.W.*1 (*telephone Ambassador* 1141-2).

PVC in floors, windows and handrails

The term pvc, when it is applied to floors, covers a wide variety of products. In this country it is common practice to use pvc in a laminate in conjunction with some cheaper filler. This produces a floor which possesses some of the qualities of pvc (among them easy cleaning), but which is comparatively hard to the foot (pvc is characteristically soft and springy), will show indentations and which has a life limited by the time it takes to wear through the top pvc layer. In Germany (the first home of pvc floors) it is customary not to use filler, but to make floorings which are pvc all through. These are softer, keep their good appearance until the full thickness is worn through (which takes a very long time) and have the advantage that sheets can be welded *in situ* to produce a jointless floor. A German floor of this type, Mipolam, is now available in this country. It can be obtained in two thicknesses, 2 mm. and 3 mm. The 2 mm. is available in seven plain and seven marbled colours and costs in the region of 26s. per sq. yd.; the 3 mm. thickness is available in fifteen plain and fifteen marbled colours and costs about 39s. per sq. yd. This same material, marketed under the same name, is also available from Ideal Casements (Reading) Limited as a covering for plastic covered box section steel window frames, and from Wiggins Sankey Limited as a hand rail covering.
*B. J. Hamlin Limited, Greener House, 66-68 Haymarket, London, S.W.*1.
Ideal Casements (*Reading*) *Limited, Reading, Berks.*
*Wiggins Sankey Limited, Wyfold Road, London, S.W.*6.



1, *Rigidal Seamwall aluminium wall cladding.*



2, *sheet steel floor tiles being laid on a screed. The shaped tangs pressed out of the sheet are embedded in the screed.*

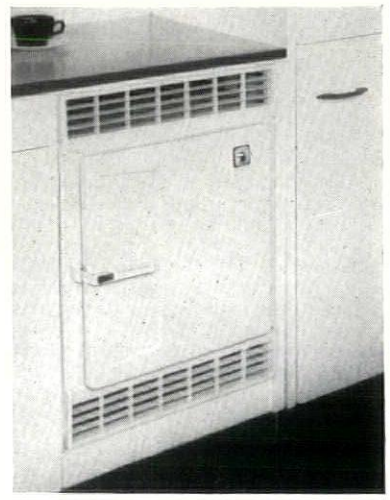
Industrial floor coverings

A suitable floor finish for factories, warehouses or any industrial buildings always presents a problem. The fact that certain parts of the floor, such as truckways and loading bays, receive very much more and heavier traffic than others must be taken into account in considering types of finish in terms of both first and maintenance costs.

The Owen organization has produced a sheet steel floor tile (18 in. by 12 in. by 10 gauge) which is suitable for the heaviest of traffic, 2. The two long edges of the tile are bent downwards and these are embedded in the concrete screed when the tiles are laid. In addition, shaped tangs are stamped in the sheet and these bent downwards to an angle of 45 degrees so that they also are buried in the screed. The idea is that the tiles must be laid on the screed whilst it is still green and pressed into it. The manufacturers recommend that this screed should comprise 1½ parts gravel, 2 parts fine sharp sand and one part cement and that the mix should be plastic and slightly on the dry side. Tiles placed in position should be tapped level with a hammer and surplus cement, which is forced through the tang holes and joints, cleaned off with a damp rag.
Rubery Owen & Co. Ltd., Whitegate Factory, Wrexham, N. Wales.

Refrigerator

It is an encouraging sign that the manufacturers of kitchen equipment —cookers, refrigerators, sinks—and the joinery manufacturers are keeping an eye on the standardization of dimensions in kitchen planning. This means that the planning of a kitchen is considerably facilitated by the interchangeability of elements and,



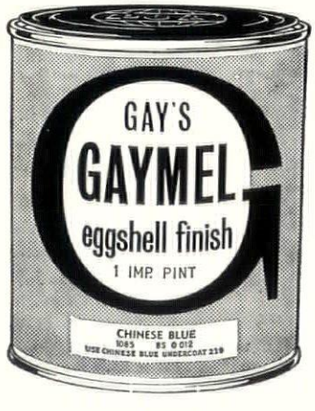
3, *the Electrolux M.B.*16 *refrigerator.*

goodness knows, the kitchen is one place in the house where there is a greater concentration of equipment and gadgets than anywhere else.

The refrigerator, in the popular English size, is suitable for installing under the work bench and the new Electrolux model MB16, 3, is a recent development of this type. It has a shelf area of 3¼ sq. ft. and a capacity of about 1.6 cu. ft. It is available in white or cream high gloss finish suitable for operation by gas or electricity. It is designed to fit into a recess measuring 28¼ in. high, 19 11/16 in. wide and 18 7/8 in. deep, excluding door fittings. Price is £36 13s. 4d. (including purchase tax) for either electric or gas, but they are available only to builders, estate developers and local authorities and not, presumably, to the general public.
Electrolux Limited, 153/5 *Regent Street, London, W.*1. (*Regent* 7252.)

[continued on page 160

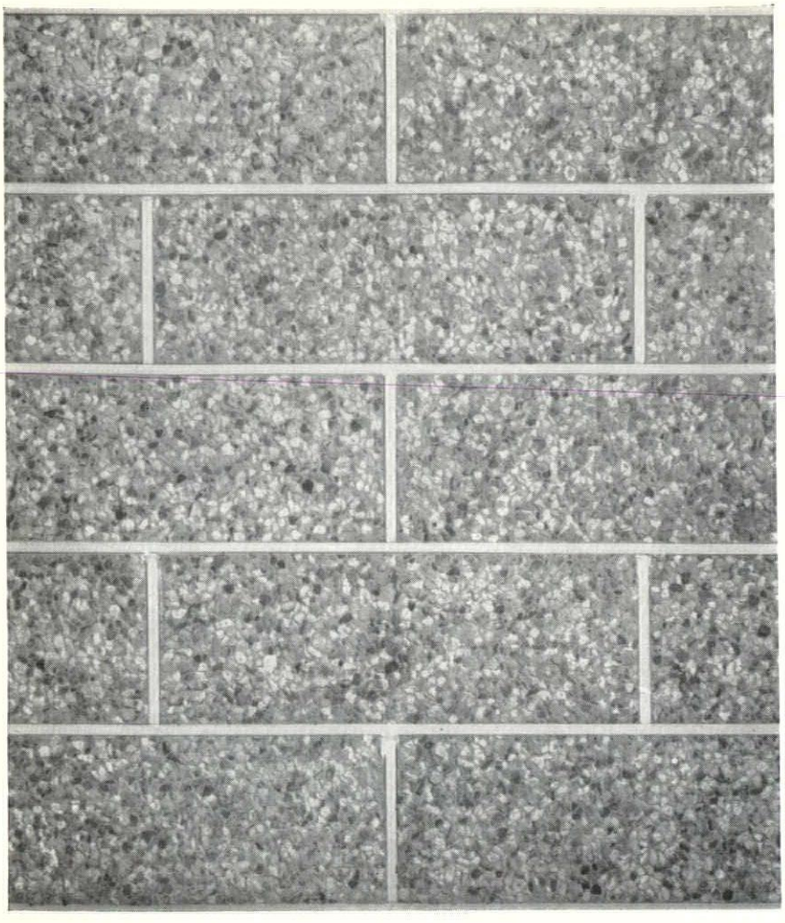




GAYMEL EGGSHELL FINISH

First came Gaymel Gloss Finish, then the new Gaymel Flat Finish and now GAY'S introduce a further addition to their superb range—GAYMEL EGGSHELL FINISH.
This is an exceptionally high quality finish for interior use. It gives a true 'eggshell' sheen with a toughness and durability that withstands frequent washing. Gaymel Eggshell Finish has a semi-paste consistency and can be applied coat on coat—without a separate undercoat—by brush, roller or spray. It is available from stock in 36 intermixable colours selected from Gay's Architect's Range.
For really top class results, with less time and labour,
specify GAYMEL EGGSHELL FINISH, another sound paint by Gay's.

Write for full information and shade cards to:—
R. GAY & CO. *93/97 New Cavendish Street, London, W1*



4, *'Gravatex' exposed aggregate blocks.*

continued from page 158]

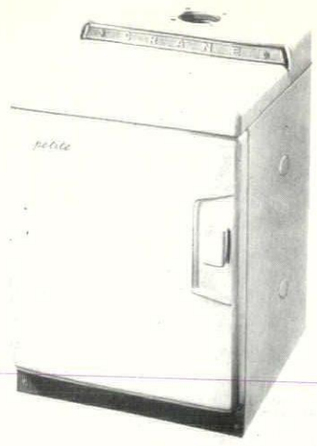
Exposed aggregate blocks

The idea of providing an exposed aggregate finish to concrete blocks has been taken up by Ebor Concretes Ltd., who are producing a standard block, which they call 'Gravatex,' 18 in. long by 6 in. high by 4 in. wide. The facing—a range of prepared aggregates with either natural or coloured Portland cement—is backed with foamed slag concrete to make up the full thickness of the block. The blocks are light (95 lb. per cubic foot) and the manufacturers claim that, used in two thicknesses with a 2 in. cavity for external walling, they have a U value of 0.16. In addition to the standard size unit quoin blocks are made and also rectangular and boot shaped lintols to match the finish of the standard blocks.
Ebor Concretes Ltd., Ure Bank, Ripon, Yorks. Telephone Ripon 1601.

Small boiler

A new small oil-fired boiler called the 'Crane Petite,' 5, has just entered the market. It is designed to heat a storage cylinder of 30/35 gallons capacity which, the makers say, would satisfy the needs of the average family (250 to 450 gallons a week) in the medium size house. In addition it will heat a towel rail and an airing cupboard or one radiator of up to 20 sq. ft. heating surface including pipes.

The oil burner is of the natural draught vaporizing short drum type, gravity fed. It is lit by hand (match or taper) and heat control is by thermostat which regulates water temperature. The manufacturers say that an oil storage tank of 50/60 gallons capacity, costing £5, can be used, but point out that fuel costs reduce with increases in the size of

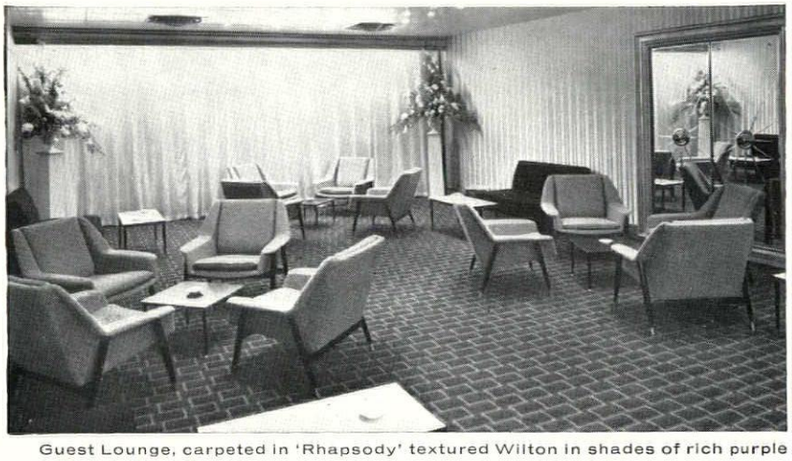


5, *the 'Crane Petite' boiler.*

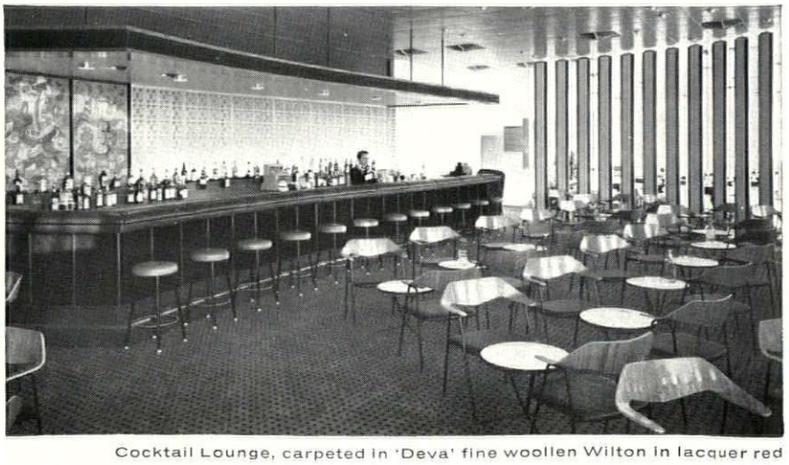
tanks. The oil used is of the vaporizing domestic type costing between 1s. 4½d. and 1s. 8½d. per gallon. Oil consumption varies from one-fifth pint per hour on low flame to three-quarters pint per hour on high flame. Flow of oil is controlled by thermostat. The makers advise that the chimney, into which the flue from the boiler discharges, should be either brick lined or have an insulated precast concrete or insulated asbestos flue. The industry generally has found that problems of condensation have been learned by experience.

In appearance the boiler is very trim and it will be an alert housewife who does not occasionally put a bottle of milk or the week-end joint in it, mistaking it for other pieces of

[continued on page 162



Guest Lounge, carpeted in 'Rhapsody' textured Wilton in shades of rich purple



Cocktail Lounge, carpeted in 'Deva' fine woollen Wilton in lacquer red

Skyway Carpets

All the fine carpets in the new SKYWAY HOTEL at London Airport have been made and installed by Carpet Trades Limited, Kidderminster (supplied through Messrs. Andrew Bruce & Co. Ltd. London).

CARPET TRADES LIMITED
G.P.O. BOX 5, MILL STREET, KIDDERMINSTER

Carpets are supplied only through normal trade channels.

Denison French

and the death of St. Pancras Gothic

Sir Gilbert Scott thought his St. Pancras possibly too good for its purpose—if ever he held its purpose in mind. The dirt and steam of antique locomotives, have buried its Gothic glories under a shroud of grime, and the traveller shivers in the medieval discomfort of a dark waiting room. Steelwork for today's station will give the architect cleanness of line, freedom of form, the opportunity to use light and space. Denison French Ltd., as constructional engineers, contractors and fabricators, knows the capacities of steel and steelwork. Denison French Ltd., work with architect and builder towards the best solution of the problem of steel structure, to save on cost and bulk of steel, and accelerate deliveries. Denison French steel services frequently effect savings of 20% and more for clients. A conversation at the initial design stage can show you the advantages of calling in Denison French.
P.S. May we send you a copy of 'Savings in Steel' for your files.

Denison French Ltd.
Constructional Engineers
67 Chancery Lane, London, W.C.2.
Telephone: HOLborn 2587.



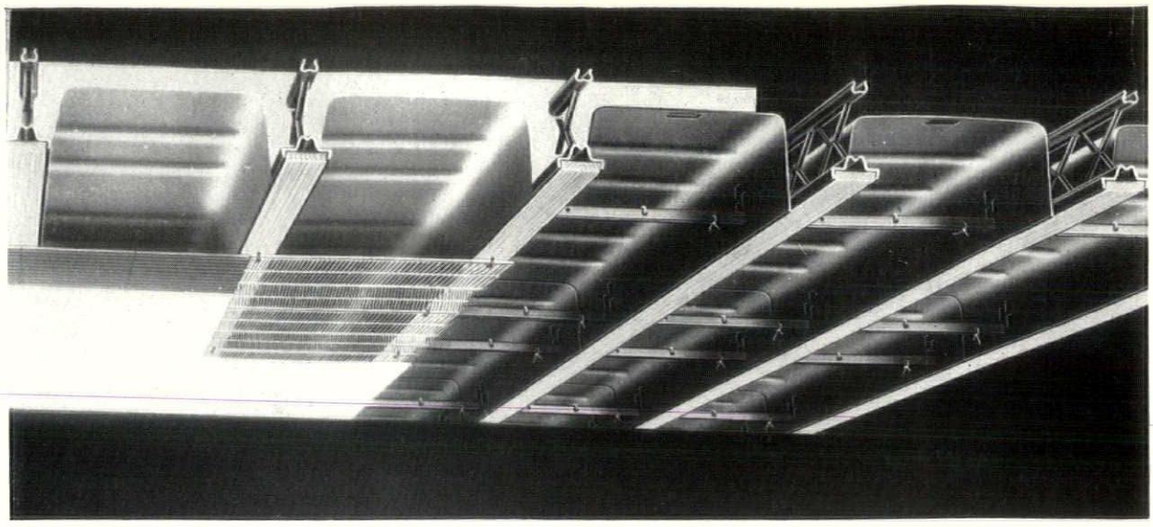
continued from page 160]

kitchen furniture. It is in fact 'petite,' being 18 in. deep by 15½ in. wide by 23⅜ in. high and retails at £45. Bowerbarffed or glass-lined firepots are supplied to order (for soft water districts) costing £3 1s. 6d. and £3 5s. respectively.
Crane Ltd., 118, *Wigmore Street, London, W.*1.

Steel decking

A unique system of steel decking units and lattice beams for suspended concrete floors, known as the Kaiser Flooring System, has come to this country from Germany and British licence rights are held by P.C. Floors Ltd.

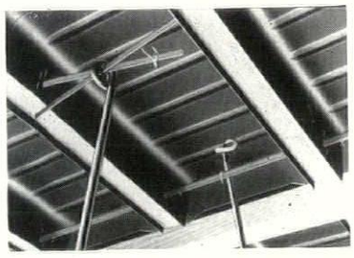
The first element of the system is a steel lattice beam, 6, which is made in three standard sizes according to load and span (maximum span 33 ft.). The depth of this beam is 5½ in. and the sizes refer to the diameters of the two rods which make up the bottom flange of the beam. These are 8, 10 and 12 mm. respectively. This beam is used to support the decking units during pouring and subsequently acts as reinforcement for the ribs of the finished concrete floor. The second element is a 14 gauge sheet steel decking unit of an inverted trough section, which acts simply as formwork for concrete, can be 'struck' two days after casting and, consequently, is reusable. The method of supporting the decking is quite ingenious. Each section of trough has a pair of cross bars inserted through slots on either side before erection. Only one of the pair protrudes through the slot on either side and its end rests on a continuous timber fillet fixed to the underside of the bottom flange of the beam.



6, the Kaiser flooring system. 7 (below), method of removing decking units.

This fillet remains permanently in position and can be used for the fixing of services, false ceilings, etc. To remove the decking unit, 7, a hooked striking pole is looped over the pair of bars together and they drop out of their slots in a scissor action.

Accessories include an end plate for the decking units and a flat plate which may be fixed between beams instead of the decking unit where the additional thickness of concrete is required. Although the decking units are made in one size only, three different thicknesses of concrete slab may be obtained with the units. This is achieved by having the slots for the cross bars at three alternative positions (one above the other) in the sides of the decking unit.

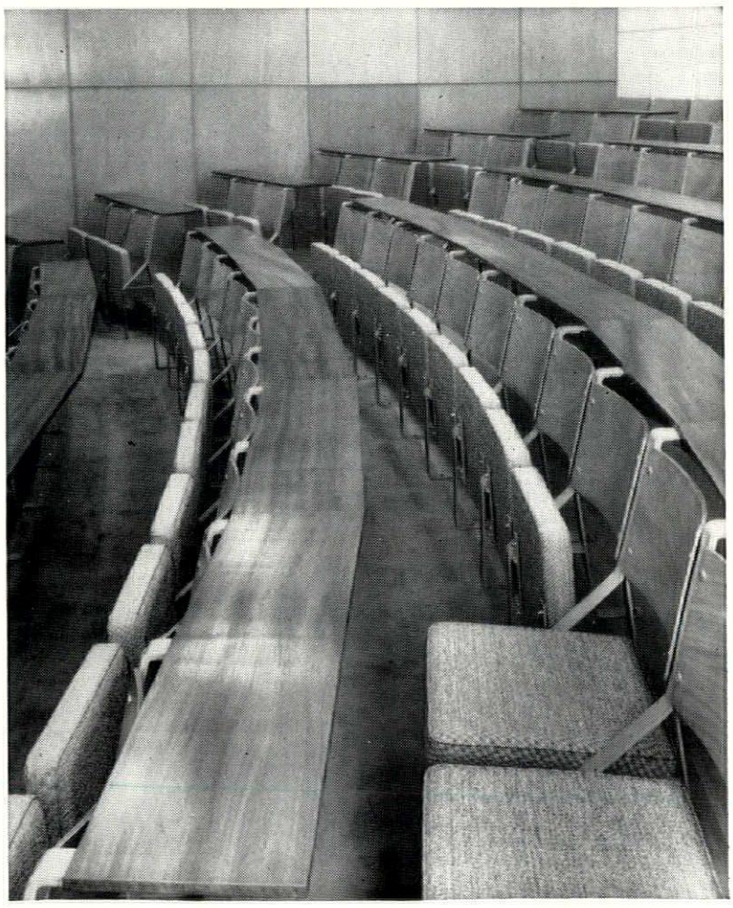


P.C. Floors Ltd. quote for the supply of beams and the hire of decking units, cross bars, end plates, etc. Prices are based on the beam sizes. 8 mm. costs 16s. per sq. yd., 10 mm. 18s. and 12 mm. 20s. These figures include delivery of all materials to the site and collection of the hired items on completion.
P.C. Floors Ltd., 64-66 *Battersea High Street, London, S.W.*11 (*telephone Battersea* 9221).

CONTRACTORS etc

Undergraduate Rooms, Oxford. *Architects:* The Architects' Co-partnership. *General contractor:* Benfield & Loxley Ltd. *Sub-contractors: Mild steel rod reinforcement:* The Helical Bar & Engineering Co. *Asphalt tanking and*

[continued on page 164



RACE
lecture theatre seating

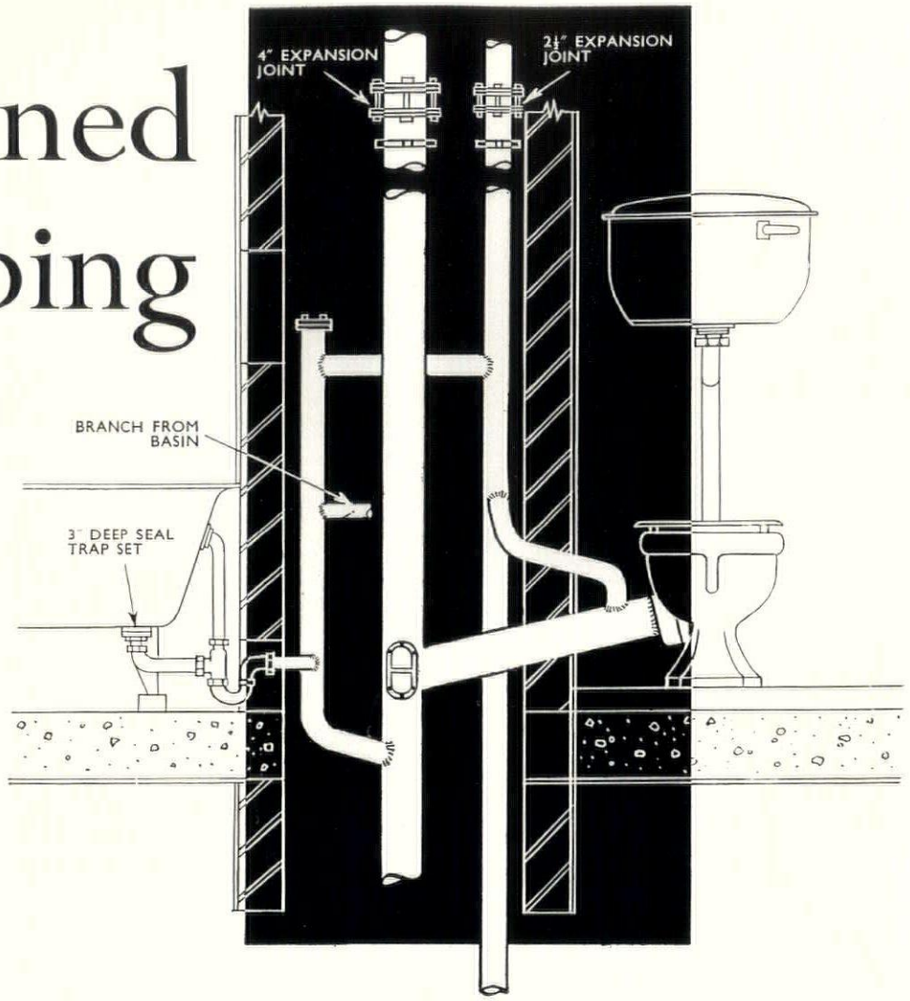
Rows of any length in this seating can be transported economically and assembled on site. It is adaptable to any step height or for fixing to a flat floor; backrests can be adjusted to accommodate a writing shelf at the correct height for the row behind Seats have a simple gravity self-tipping action and are covered in a heavy quality P.V.C. coated fabric. Steel uprights stove-enamelled; writing shelves and pre-formed plywood backrests (upholstered if preferred) of lacquered mahogany

Write or telephone for further information

Race furniture 22 Union Road Clapham sw4 Macaulay 2215/7

Seating in Glasgow University
Architect: Basil Spence & Partners

Planned plumbing



Prefabricated plumbing in smooth bore copper has many advantages in terms of SPEED OF INSTALLATION; ADAPTABILITY TO INDIVIDUAL DESIGN; and long, trouble-free life. Close contact in early stages between the Architect and Econa can relieve even the most stubborn plumbing headache.

ECONA *can help you*

Designers and manufacturers of waste traps in standard and special forms, copper radiators and preformed plumbing

ECONA MODERN PRODUCTS LIMITED, HIGHLANDS ROAD, SHIRLEY, SOLIHULL. Telephone: SOLihull 4981

continued from page 162]

roofing: F. J. Prater Asphalte Co. *Sliding door track:* E. Hill Aldam & Co. *Semi-engineering bricks, sanitary fittings:* Stephenson & Co. (Oxford) Ltd. *Facing bricks:* Hall & Co. *Electrical installations, floor warming:* Lowe & Oliver Ltd. *Water services and fire main, plumbing:* F. Church Ltd. *Ventilation:* Andrew Air Conditioning Ltd. *Balustrading:* The Morris Singer Co. *Metal windows:* The Crittall Manufacturing Co. *Window control gear:* Teleflex Products Ltd. *Aluminium alloy glazed windows:* Quicktho Engineering Ltd. *Timber window frames, bronze finials, staircase handrails:* Samuel Elliott & Sons (Reading) Ltd. *Asbestolux window panels:* Dural Autos Ltd. *Double glazed units, plate glass mirror:* Steeles Ltd. *Roofing slates:* Setchell & Sons Ltd. *W.c. partitions and doors, bathroom doors:* Venesta Ltd. *Dome lights:* T. & W. Ide Ltd. *Lino floor tiles:* Hollis Bros. Ltd. *Lightweight screeds:* Celcon Ltd. *Lightning conductors:* R. C. Cutting & Co. *Terrazzo paving:* Alan Milne Ltd. *Picture rails and curtain tracks:* Silent Gliss Ltd. *Fire extinguishers:* The General Fire Appliance Co. *Flush doors:* F. Hills & Sons Ltd. *Pinoleum and venetian blinds:* London Blinds Ltd. *Ironmongery:* Allgood Continental Ltd. *Lighting fittings:* Fredk. Thomas & Co. *Photo mural:* The Autotype Co. *Stone paving and bollards:* Brooks Ltd. *Bicycle racks:* Le Bas Tube Co. *Granite:* Cornish De Lank Granite Quarries Co. *Stone:* South Western Stone Co. *Reconstructed stonework:* Constone Ltd. *Thermal insulation:* Expanded Rubber Co.

Factory at Basildon New Town. *Architect:* Anthony B. Davies, Chief Architect-Planner, Basildon Development Corporation. *General contractor:* Holland & Hannen and Cubitts. *Sub-contractors: Structural steelwork:* Scaffolding (Gt. Britain) Ltd., succeeded by Constructional Units Ltd. *Windows and external doors:* Crittall Manufacturing Co. *Roof-lights:* British Challenge Glazing Co. *Window control gear:* Teleflex Products Ltd. *Pre-stressed concrete floors:* Pierhead Ltd. (Engineering Division). *Metal decking:* Robertson Thain Ltd. *R.c. chimney stack:* Tileman & Co. *Water tower:* Fredk. Braby Ltd. *Glazed metal partitions:* Sankey Sheldon Ltd. *Terrazzo paving and partitions:* Art Pavements & Decorations Ltd. *Hardwood strip flooring:* Acme Flooring & Paving Co. *Hand-rails and balustrades:* Allen & Greaves Ltd. *Incinerator:* Incinerator Company. *Fencing:* A. J. Binns Ltd. *Main entrance gates and access ladders:* Constructional Units Ltd. *Acid resisting tiling:* Leeds Fireclay Co. Ltd. *Roof ventilators and extract fans:* Brooks Ventilating Units Ltd. *Dome lights:* T. & W. Ide Ltd. *Rubber doors:* W. Langley & Co. *Protective paints:* Evode Ltd. *Decorative paints:* Imperial Chemical Industries Ltd. *Concrete water-proofers:* Sika Ltd. *Sanitary fittings:* Shanks & Co. *Vitreous enamelled panels:* Stewart & Gray Ltd. *Vitroslab and plyglass:* Plyglass Ltd. *Roller shutters and fire doors:* Potter Rax Ltd. *Whitwick facing bricks:* National Coal Board. *Colourglazed ceiling boards:* Turners Asbestos Cement Co. *Aluminium canopies:* Bainbridge Bros. (Engineers) Ltd. *Pressed metal door frames:* Crittall Manufacturing Co. *Woodwool roof slabs:* Thermacoust Ltd.

Restaurant and Coffee Bar in King's Road, Chelsea. *Designers:* Conran Design Group. *Shopfitting work:* Conran Contracts. *Loose furniture:* Conran Furniture, Finmar. *Light fittings:* Danasco, Atlas.

Church at Leeds. *Architects:* Walker and Biggin. *General contractors:* L. Garbutt Ltd. *Sub-contractors: Altar, art stone:* Girlings Ferro-Concrete Co. Ltd. *Furniture, metalwork and cabinet work:* Pickerings (Shopfitters) Ltd. *Decorations:* J. S. Thorpe. *Flooring:* J. H. Hewetson Ltd. *Electrical installation:* Baker and Hyman Ltd. *Sculpture work, decorative frieze bands, crucifix, altar base:* Jill Messenger. *Stained glass:* Roy Lewis.

Regent's Park Housing Redevelopment. *Architects:* Armstrong & MacManus. *General contractors (contract 1):* H. Fairweather & Co. *Sub-contractors: Piling:* Piling & Construction Co. *Facing bricks:* Cape Building Products Ltd. *Heating, ventilation:* Weatherfoil Ltd. *Passenger lift installation:* Express Lift Co. *Wood windows and doors:* John Sadd & Sons. *Roof lights:* Quicktho Engineering Co. *Fire-resistant panels:* Vitreous Enamellers (Slough) Ltd. *Plastic tile flooring:* Marley Tile Co. *Maintenance equipment:* Palmer's Travelling Cradle & Scaffold Co.

St. John's Church, Hatfield. *Architects:* Lionel Brett, Kenneth Boyd and P. H. Bosanquet. *General contractor:* Abbiss & Hale Ltd. *Sub-contractors: Cork tile flooring:* Rowan & Boden Ltd. *Roof structure:* Rainham Timber Engineering Co. *Window control gear:* Arens Controls Ltd. *Altar frontals:* The Warham Guild Ltd. *Steel balustrade:* Best & Lloyd Ltd. *Pulpit, altar and font:* Walker-Symondson Ltd. *Indirect nave lighting fittings:* Holophane Ltd. *Doors:* Woodworth Joinery Ltd. *Aluminium windows:* Henry Hope & Sons Ltd. *Pews:* The Faith Craft-Works Ltd.

Offices near Runcorn, Cheshire. *Architect:* Frederick Gibberd. *General contractors:* Gilbert Ash Ltd. *Sub-contractors: Bitumetal roofing:* William Briggs & Son. *Fibrous plaster acoustic tile false ceiling:* Petradene Ltd. *Steelwork:* Fleming Bros.; S. C. Walmsley Ltd. *Special joinery:* Burkle & Son. *Special joinery to main conference room:* Bath Cabinet Makers Ltd. *Window gear:* Teleflex Ltd. *Roofing:* Ruberoid Ltd. *Venetian blinds:* J. Avery & Co. *Flooring:* Granwood Floors Ltd. *Hardwood floors:* Horsley Smith Ltd. *Cork flooring:* Cork Insulation Ltd. *Balustrade to main staircase:* H. H. Martyn Ltd. *Sanitary fittings:* Adamsez Ltd. *Timber windows:* East & Son Ltd.

Advertisements

ALL-GAS HOUSE ARCHITECTURAL COMPETITION

The Scottish Gas Board invite architects resident in the United Kingdom to submit designs for an All-Gas House which will exploit and demonstrate the possibilities of gas as a means of heating, cooking, water heating, refrigeration and home laundry. Assessor: Professor Frank Fielden, M.A., F.R.I.B.A. Premiums: £250, £150, £75. Last day for submitting designs 26th September, 1960. Conditions may be obtained from The Commercial Manager, The Scottish Gas Board, 1, Rothesay Terrace, Edinburgh, 3. No deposit. An applicant for the conditions must state his registration number.

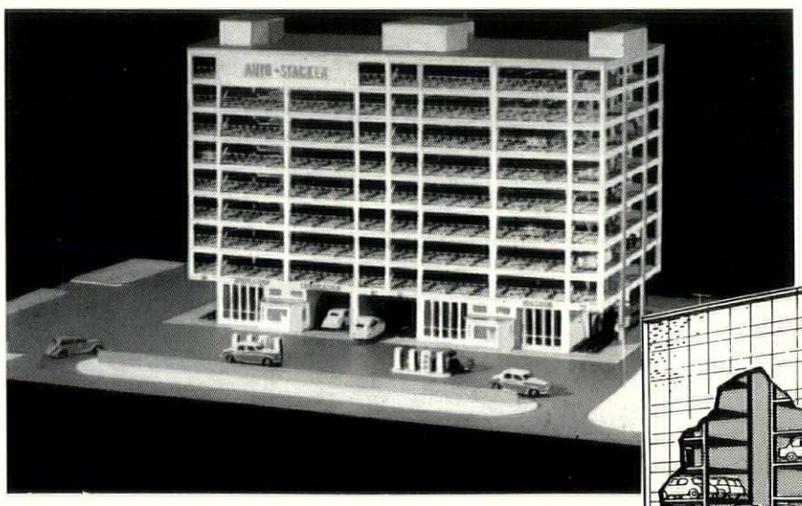
HARLOW DEVELOPMENT CORPORATION

Architect/Planner—Frederick Gibberd, C.B.E., F.R.I.B.A., M.T.P.I.
Executive/Architect—Victor Hamnett, B.SC., A.R.I.B.A., A.M.T.P.I.

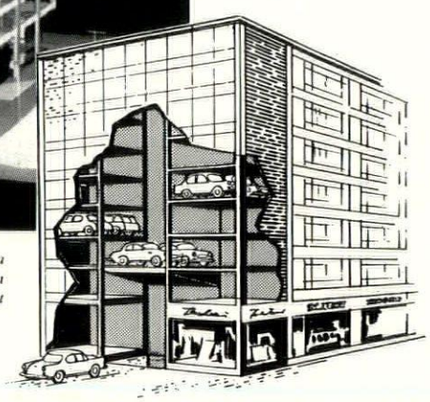
STAFF VACANCIES

Vacancies occur within the following grades for staff to work on industrial buildings, housing, theatre, offices, shops, and similar programme of work in the town of Harlow: Architect, APT.VI, £1,163-£1,390. Architect, APT.V, £1,220 - £1,375. Assistant Architect, APT.IV, £1,065-£1,220. Assistant Architect, APT.III, £880-£1,065. Assistant Architect, APT.II, £765-£880.
A.R.I.B.A. required for Grade III upwards. Housing available.
Applications with full details to be sent, within ten days, to the General Manager, Terlings, Harlow, Essex.

The AUTO-STACKER
key to the parking problem



Cut-away section shows 8-floor Stacker attached to a six-storey building, with room for double parking on each side of the hoist. Cars are turned through 90° at ground level by a turntable on the hoist.



Britain's first fully automatic parking garage

The Borough of Woolwich has placed a contract for the first entirely automatic Multi-Storey Parking Garage in Great Britain. Known as the Autostacker and occupying a ground area of 116' x 54' it will have a capacity for 256 cars which will be parked by the most economical system yet devised and at the lowest capital cost.

We will welcome enquiries from any Authority, Property Owner, or Garage Operator and our Engineers are available for consultation.

A brochure is available upon request.

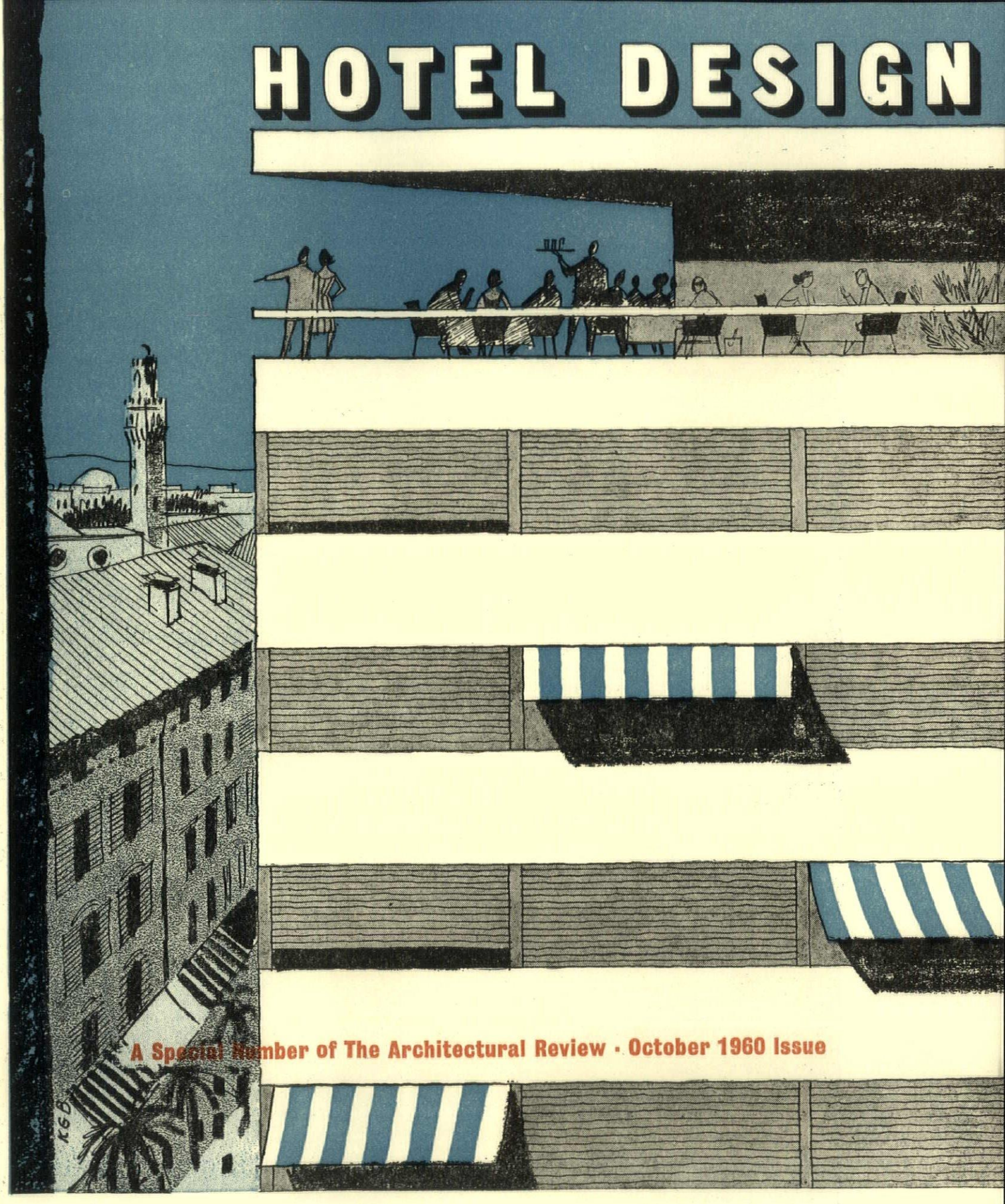
AUTO-STACKERS LIMITED

a company associated with John Brown & Co. Ltd., & Standard Telephones & Cables Ltd.

20 EASTBOURNE TERRACE, LONDON W.2. Telephone: PADDINGTON 3474. Cables: JABEND, LONDON

HOTEL DESIGN

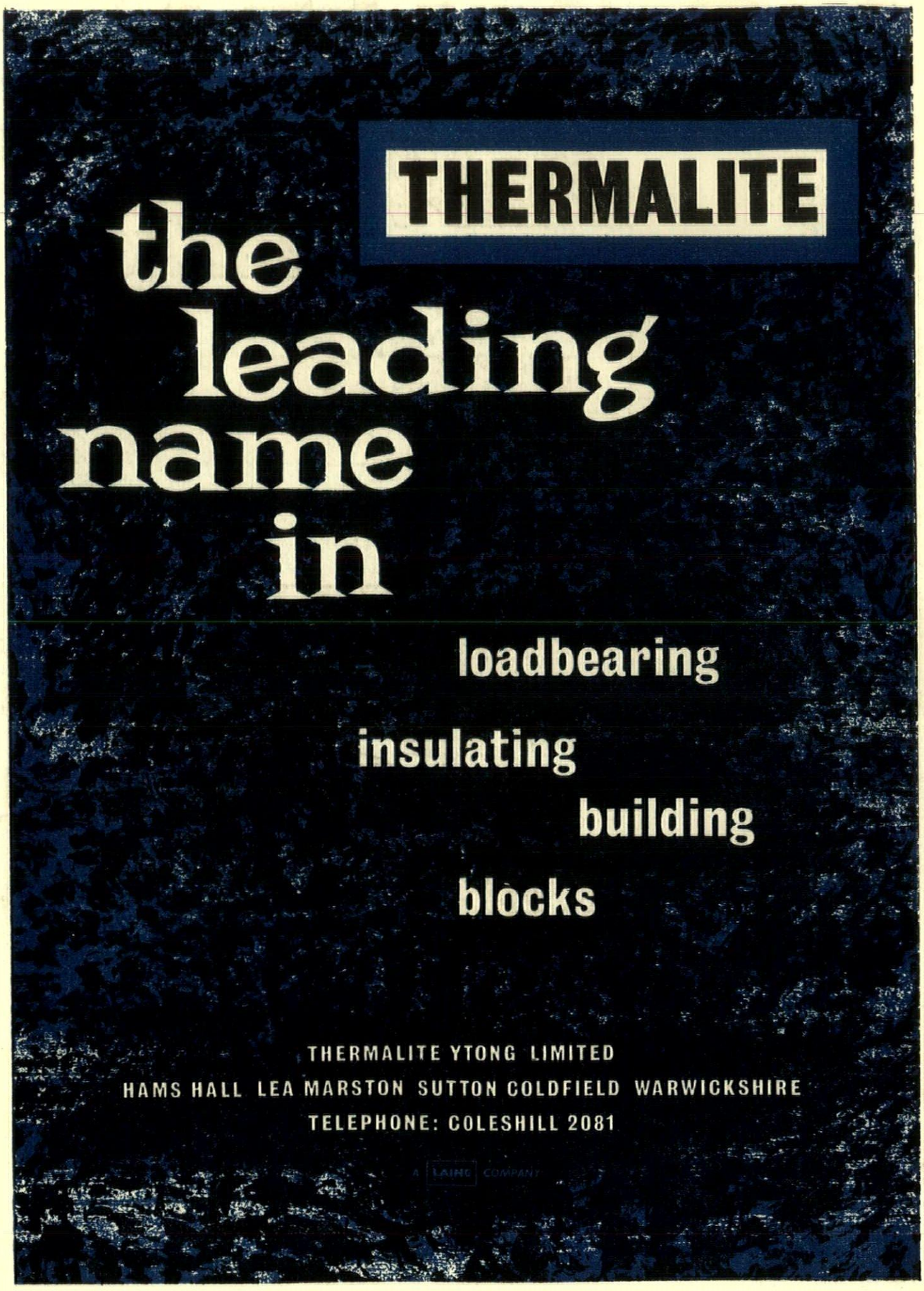
The Planning, Servicing, Equipment and Decoration of the Modern Hotel



A Special Number of The Architectural Review · October 1960 Issue

Advertisers are invited to send for detailed brochure on this special number. Reservations of advertisement space should be made without delay.

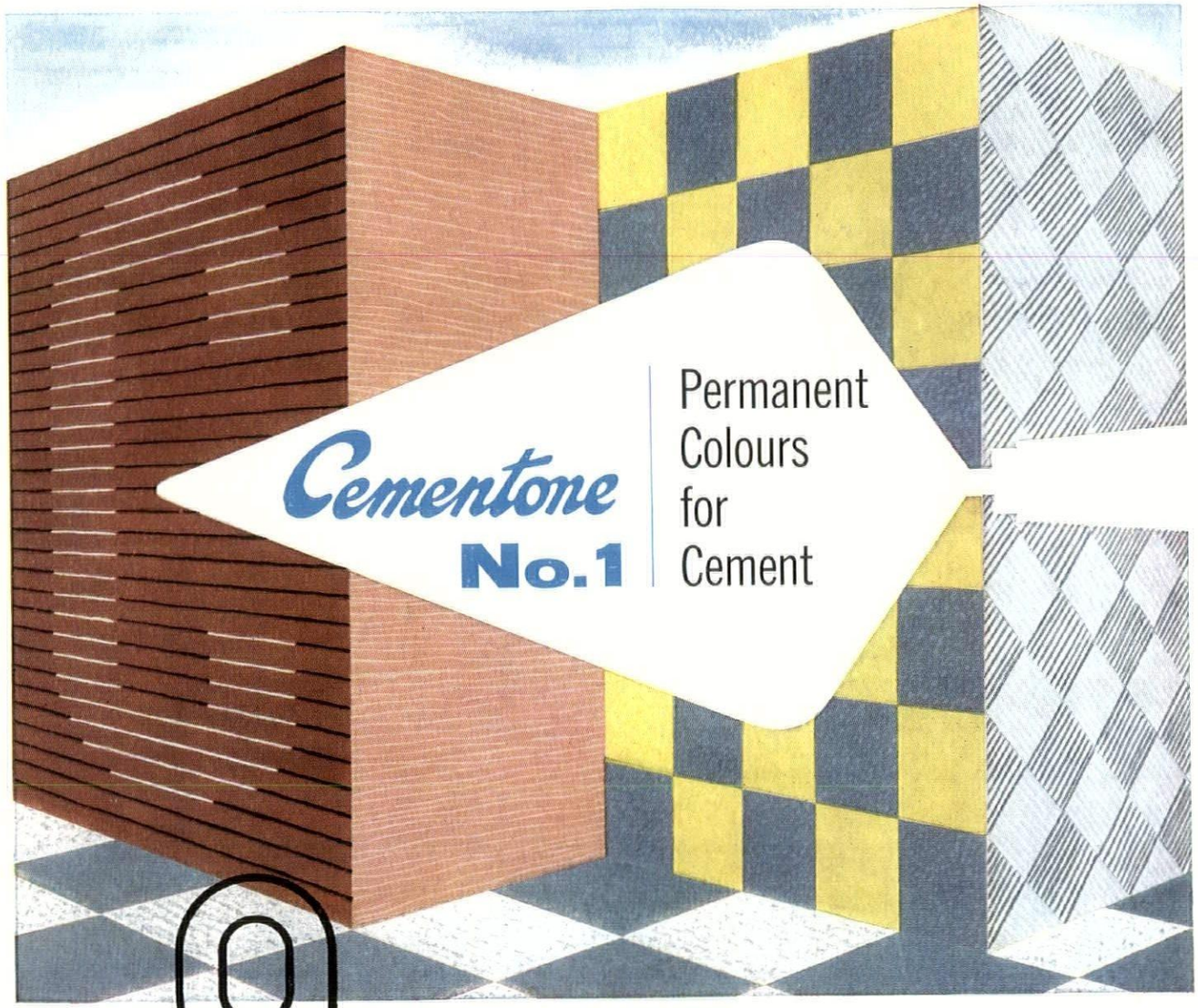
Printed in Great Britain for the Proprietors of "The Architects' Journal," of "The Architectural Review," and of "Specification" (The Architectural Press, Ltd.) 9-13, Queen Anne's Gate, Westminster, S.W.1, by Knapp, Drewett & Sons Ltd., by appointment to Her Majesty the Queen, Printers, Kingston-on-Thames.
Editorial illustrations engraved by The Engravers Guild Ltd., Windsor House, 23/26, Cursitor Street, London, E.C.4.
Entered in the New York Post Office as Second Class Matter


THERMALITE
the leading name in
loadbearing
insulating
building
blocks
THERMALITE YTONG LIMITED
HAMS HALL LEA MARSTON SUTTON COLDFIELD WARWICKSHIRE
TELEPHONE: COLESHILL 2081
A LAING COMPANY

ar



THE ARCHITECTURAL REVIEW VOLUME CXXVIII NUMBER 763 SEPTEMBER 1960 FIVE SHILLINGS



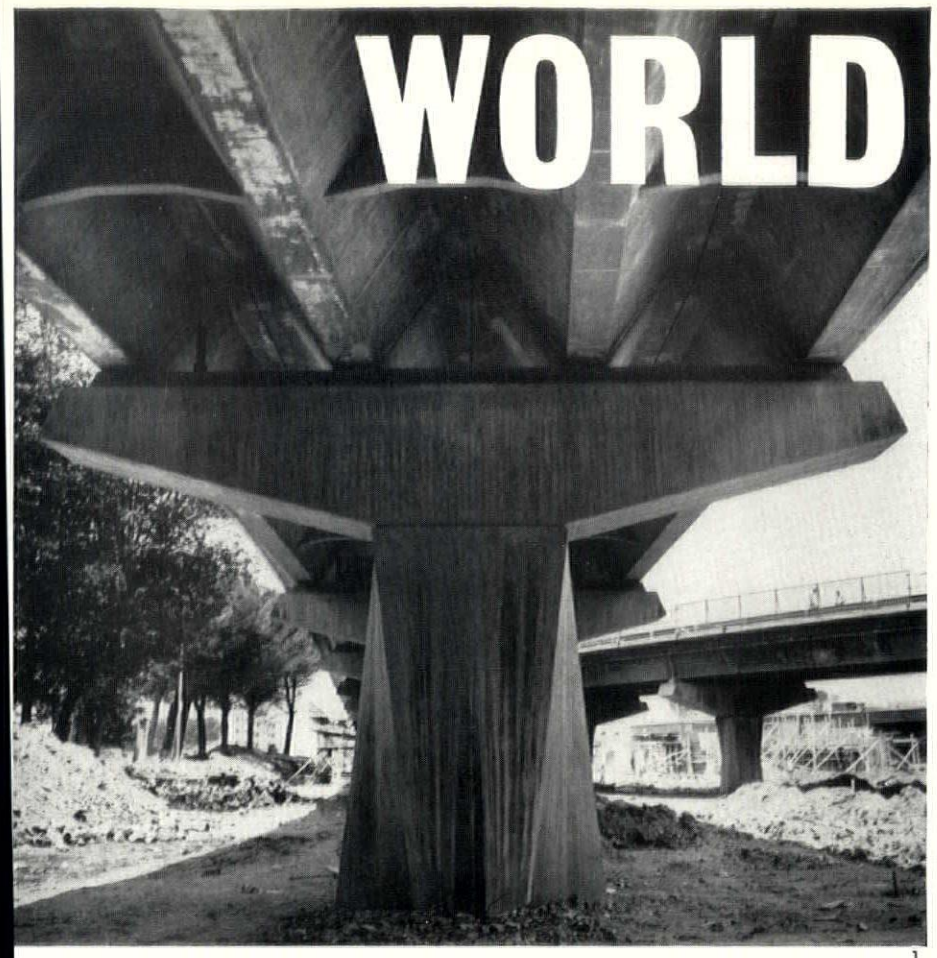
THERE ARE **9** DIFFERENT **CEMENTONE PRODUCTS**

Cementone No. 1 is a Permanent Colour additive for cement and is supplied in eleven standard shades. These shades are intermixable and it is, therefore, possible to obtain an infinite variety of colours. The use of Cementone No. 1 adds new scope and dimension to concrete flooring, rendering, pointing and precast work.

Joseph Freeman
Sons & Co. Ltd.
Cementone Works
Wandsworth
London S.W.18
VANdyke 2432

YOU CAN DEPEND ON CEMENTONE

Cementone **No. 1**	Permanent Colours for Cement
Cementone **No. 2**	Waterproofing Powder
Cementone **No. 3**	Transparent Waterproofer
Cementone **No. 5**	Concrete Floor Binder
Cementone **No. 6**	Waterproof Flat Finish
Cementone **No. 7**	Flat and Gloss Finishes
Cementone **No. 8**	Concrete Hardener
Cementone **No. 9**	Waterproof Stoneface Composition
Cementone **No. 10**	Surface Tinter



1

OLYMPIANA

buildings for the 1960 Games in Rome

Whoever wins what in the Rome Olympics (these words, of necessity, are written before the results are known) there seems a fair chance that, in Italian eyes, one of the gold medals ought to go to Pierluigi Nervi. Not only are stadia and Palazzi (grande and piccolo) dello Sport to his credit, but also the new approach motor-roads by the Ponte Flaminio, stalking briskly cross-country on the T-legs seen in 1, and put together with customary Nervesque ingenuity from in-situ cast uprights and pre-cast, trough-section beams, 3, to carry the road-bed.

In the meantime, the completion of the Olympic village has been greeted with rather mixed feelings. Clearly, Luigi Moretti had a difficult task, in that his brief required the village to be convertible, post-Olympically, into a

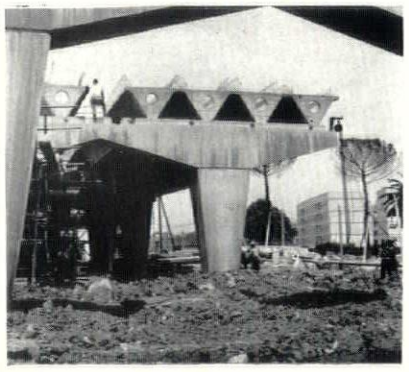
2



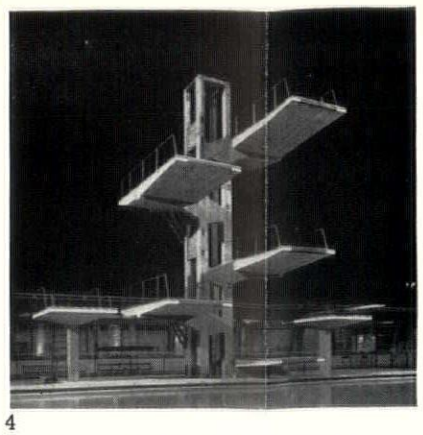
housing estate for bottom-grade civil servants, and—clearly again—this could not be the Moretti of the brilliant luxury one-offs like the celebrated Casa del Girasole. Even so, it is felt that the result is rather hard-faced, ascetic rather than athletic, 2, though the landscaping may do something to soften the effect.

To counterbalance any disappointment that may be felt about the Village, however, there is one part of the Olympic scheme that appears to have turned out better than anyone hoped—the swimming stadium. The basic project goes back to Enrico del Debbio's original, Fascist, conception of the Foro Italico, and one or two depressingly sub-classical buildings flank the enclosure. But the pool, its attendant seating ramps, 5, gardens and children's playground, fitted into a magnificent site, tucked between the Monte Mario and the Tiber, and ringed by Roman pines, seems to be an unqualified success. del Debbio's collaborator on this last work of a scheme he began in 1926, was Annibale Vitellozi, and one wonders which of the two partners was mainly responsible for the diving boards, 5, which are by no means the riot of spatio-sculptural effects that might well have been produced for such an occasion.

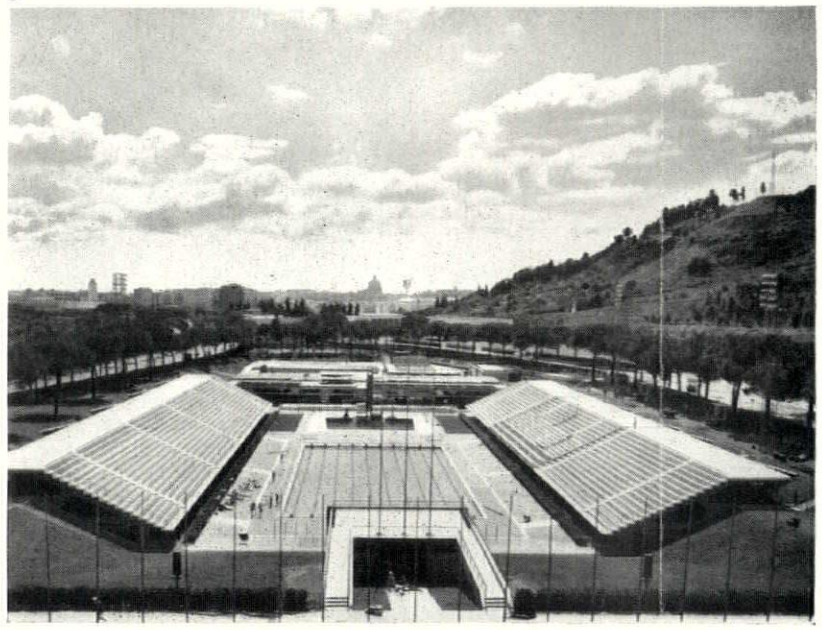
3



4



5



MON ONCLE SAM

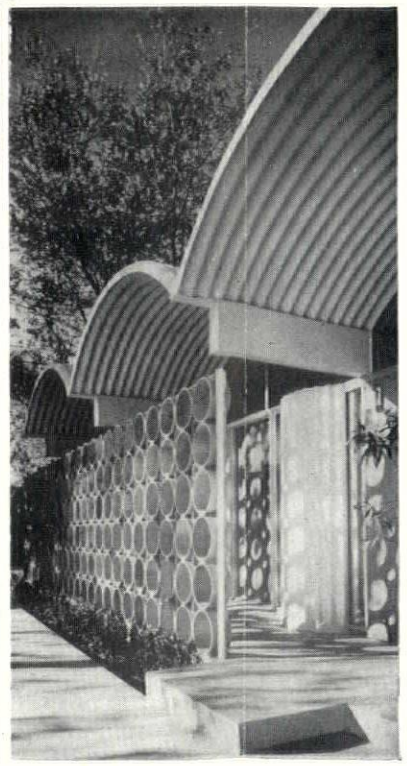
corrugated asbestos house in Oklahoma

One of the key points in the sustained attack on the Anglo-American way of life that ran all through Jacques Tati's brilliant film *Mon Oncle*, was the proposition that everything Anglo-American, including grand pianos, was made of corrugated asbestos. Delighted Anglo-American laughter greeted this obviously absurd proposition, but how is the laughter now, when an all-corrugated-asbestos house, 7, with much the same pretensions as that of Monsieur Hulot's brother in-law, has actually been built in America? The house is described with all the panache of Madison Avenue rhetoric in *Asbestos Cement Quarterly* (3/1, 1960) as a 'significant structure' of the sort that is required if 'Americans are going to remain the world's most comfortably and attractively housed people.' However, examination

6



7



ACKNOWLEDGMENTS

COVER: Galwey Arphot. WORLD, pages 165–168: 1–3, John Donat; 4, 5, *Edilizia Moderna;* 6–8, *Asbestos Cement Quarterly;* 9–13, Arno Wrubel; 14–16, Dennis Cleaver; 17–24, *Deutsche Bauzeitung;* 25–28, *Kokusai-Kentiku;* 32, 33, *l'Architecture d'aujourd'hui.* VIEWS AND REVIEWS, page 169: 1, *Country Life.* FRONTISPIECE, page 172: der Oeffentlichen Kunstsammlung, Basle. TWO GERMAN COMPETITION SCHEMES, pages 176–179: G. E. Kidder Smith. FARM BUILDINGS, pages 180–189: Frontis (top) *The Farmers Weekly*, (bottom) CoID; 1, 17, Entwistle; 3, 12, 13, *Farmer & Stock Breeder;* 4, 15, 21, *Farmers Weekly;* 8, 9, Sweatman Hedgeland Ltd.; 16, Boulton & Paul; 18, Atelier Geist; 20, Geo. W. King Ltd.; 24, Toomey Arphot. THE NEW TOWN VILLAGE, pages 196, 205: 1, 2, 4, 6, Galwey Arphot; 3, V. Hamnett; pages 197–204: 1–7, Galwey Arphot; 8, 10, 12, John McCann; 9, 11, 13–17, Wainwright; 18, 20, 21, 23–26, Toomey Arphot; 19, 22, P. W. & L. Thompson. ALFRED STEVENS AT SHEFFIELD, page 207: 1, 6, R. L. J. Jarmain; 2, Galwey Arphot; 3, 5, Sheffield Corporation Estates Committee; 4, National Gallery of Scotland. INTERIOR DESIGN, pages 208–212: Galwey Arphot. DESIGN REVIEW, page 213: Sonnenburg. ROYAL COLLEGE OF PHYSICIANS, REGENT'S PARK, page 214: Galwey Arphot. CURRENT ARCHITECTURE, pages 217–221: 1–4, Henk Snoek; 5–14, Galwey Arphot. MISCELLANY, pages 222–226: Exhibitions: 1, 2, Henry Moore; 6, Eileen Tweedy. Functional Tradition: 1–3, Galwey Arphot. Plants: 1–3, Toomey Arphot. SKILL, pages 227–230: Toomey Arphot. THE INDUSTRY, pages 230–236: 1, Sound Stills Ltd.; 2, W. W. Winter Ltd.; 4, Wainwright; 5, Everetts Press Service.



This Month's Cover *is a view downwards from the lantern platform of the new Dungeness lighthouse, by Ronald Ward and Partners, the first lighthouse of consequence to be built on the coasts of Britain since the beginning of the present century, and one of the most advanced in the world. This spectacular example of a re-awakened Functional/Nautical tradition is further described and illustrated on page 225.*

THE ARCHITECTURAL REVIEW

9-13 QUEEN ANNE'S GATE, WESTMINSTER, SW1 WHITEHALL 0611 FIVE SHILLINGS

VOLUME 127 NUMBER 763
SEPTEMBER 1960

SUBSCRIPTION RATE:—*The annual post free subscription rate, payable in advance, is £3 3s. 0d. sterling, in USA and Canada $10.50, in Italy Lira 6940, elsewhere abroad £3 10s. 0d. Italian subscription agents: A. Salto, Via Santo Spirato 14, Milano; Librerie Dedalo, Via Barberini 75-77, Roma. An index is issued half-yearly and is published as a supplement to the REVIEW.*

Directing Editors	*J. M. Richards, Nikolaus Pevsner, H. de C. Hastings, Hugh Casson*
Executive Editor	*J. M. Richards*
Assistant Executive Editor	*Reyner Banham*
Assistant Editor (Production)	*William Slack*
Features Editor	*Kenneth Browne*
Technical Editor	*Lance Wright*
Assistant Editor (Counter Attack)	*Ian Nairn*
Staff Photographers	*De Burgh Galwey, W. J. Toomey*
Advertisement Manager	*V. V. Tatlock*

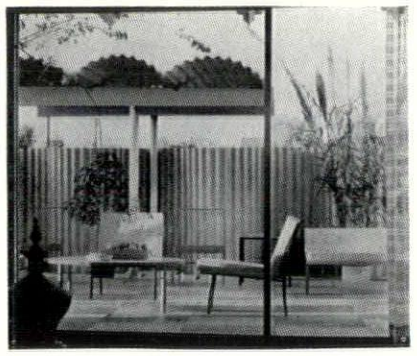
CONTENTS

165 World
169 Views and Reviews
172 Frontispiece
173 Where Are We At?: *Philip Johnson*
176 Two German Competition Schemes
1, Provincial Supply Offices, Munich: *Architect, Wassili Luckhardt*
2, Business College, Heidelberg: *Architect, F. W. Kraemer*
180 Farm Buildings: *John Voelcker*
190 The Traffic Plan: Enemy or Ally?: *Kenneth Brown*
195 The New Town Village: *Noel Tweddell*
206 Alfred Stevens in Sheffield: *Richard Seddon*
208 Interior Design
Bank in Castrol House: *Architects, Hugh Casson, Neville Conder & Partners*
Library in Churchill Gardens, Pimlico, London, S.W.1: *Architects, Powell & Moya*
214 Preview: Royal College of Physicians, Regent's Park: *Architects, Denys Lasdun & Partners*
217 Current Architecture
Miscellany
222 Exhibitions
225 Functional Tradition
226 Plants
227 Skill
Hardwood Flooring, 1: *G. C. A. Tanner*
230 The Industry
236 Contractors

corrugations: USA

of R. Duane Connor's design reveals a house that follows a design trend established for preformed plywood vaulting in the Saul Bass House (Marginalia, May, 1959) and seems to draw little from the nature of its chosen material, except some interior effects surprisingly close to those in *Mon Oncle*, 6, and some garden architecture that it is difficult not to regard as deliberately humorous, 8.

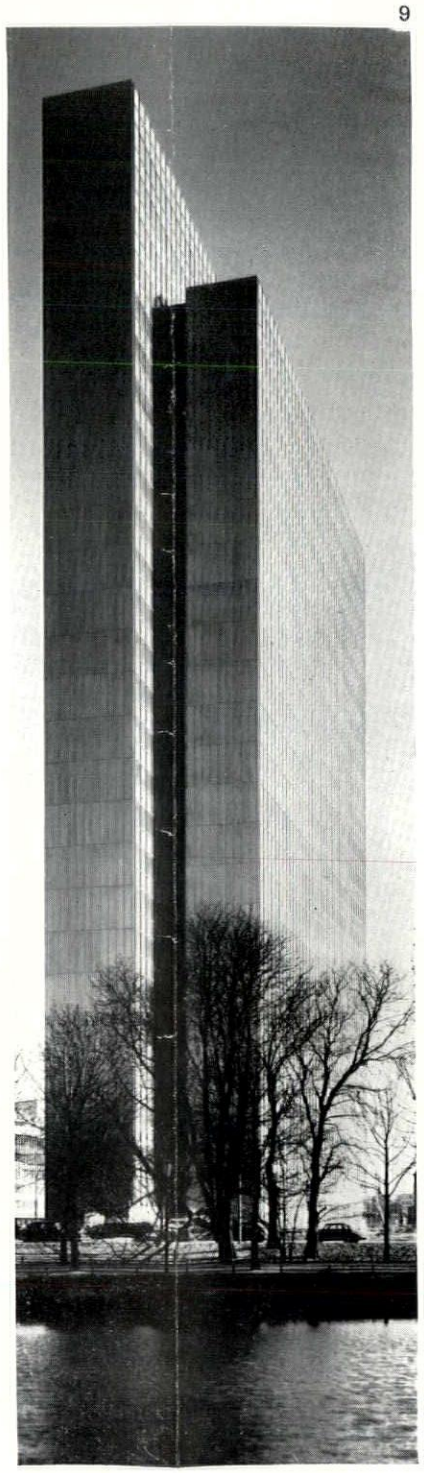
8

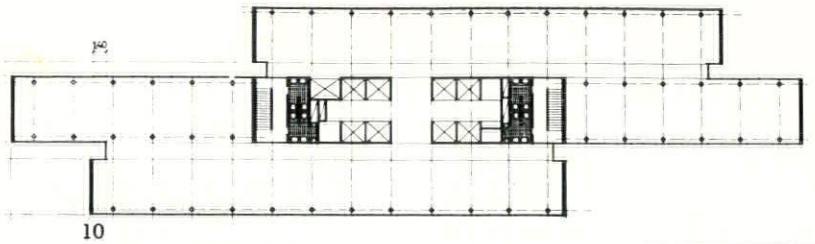


THYSSENHAUS

Hentrich skyscraper in Dusseldorf

9

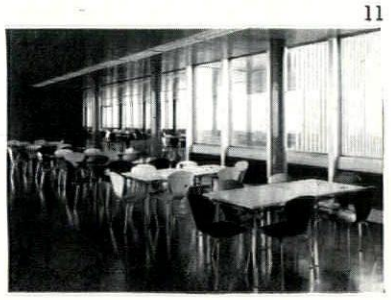




10

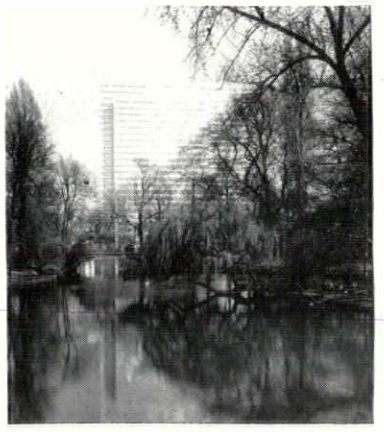
The Phönix-Rheinrohr tower (strictly: Das Thyssenhaus) in Dusseldorf made a marginal appearance in the discussion of German theatres in August *World*, but this building by Hentrich & Petschnigg deserves more than marginal treatment. Its triple-slab form has already been the subject of much comment, 9, though the plan reveals that its layout is not as simple as at first appeared—the central slab is thicker than the two smaller flanking ones, 10, but the structure reverses this situation, and the flanking bays are wider between column centres than those of the central rank. The columns themselves, as is well known, are tubular (thus maintaining the corporate image of the tube-manufacturing company that occupies it) and appear without disguise—as in this view of the cafeteria, 11, which also shows the spatial effect

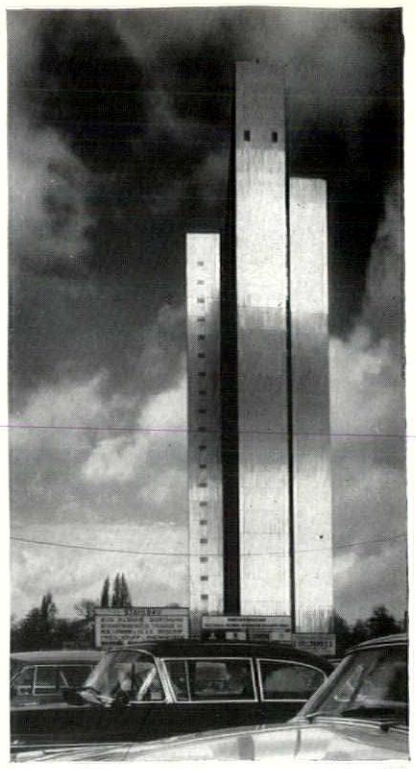
11



of the junction between the central slab and one of the flanking ones, whose end-wall, faced in corrugated material to cover the massive diagonal wind-bracing, can be seen through the window. During the project stage, and the early period of its construction, some fears were expressed in Dusseldorf and the Rhineland generally that the building—in spite of its structural and mechanical ingenuities—would turn out to be just a slab. In fact, most of the flank-wise views that might show its full width are masked by the trees in the Hofgarten, 12, while the end-wise views, 13 (and compare 9, left) are far from slab-like, and reveal a building that seems, in some ways, to fulfil some of the promise of Mies van der Rohe's early projects for skyscrapers in Berlin.

12





13

STUDENTS UNION IN NATAL

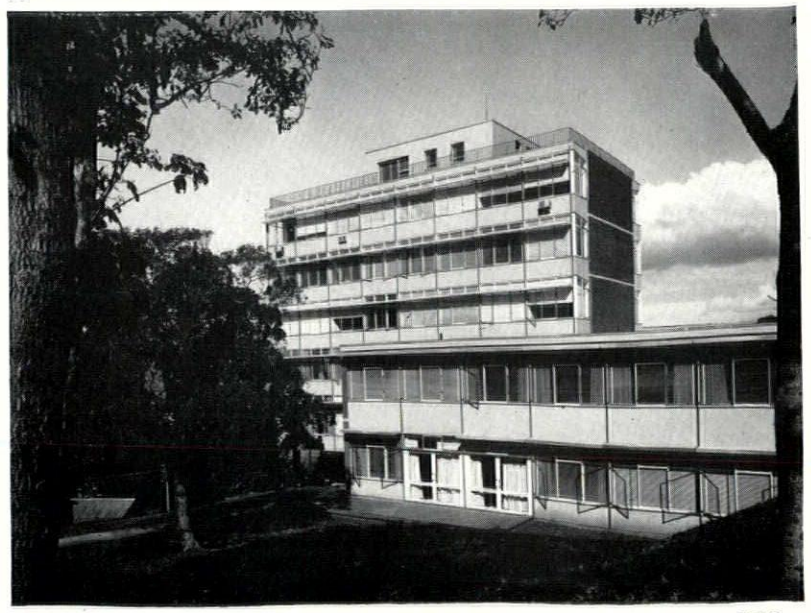
15



British architects who have to grapple with University infill building designs (such as those described in AR August, 1960) may not realize that similar problems occasionally confront architects designing for Universities in 'new' countries, such as South Africa. In the new Students Union for the University of Natal, at Durban, the roof line of the hall, which lies behind the block on the right in 14, had to be kept down as low as possible for the sake of University views from the main access road—and has, in fact, been kept so far down that it is only just visible in this view.

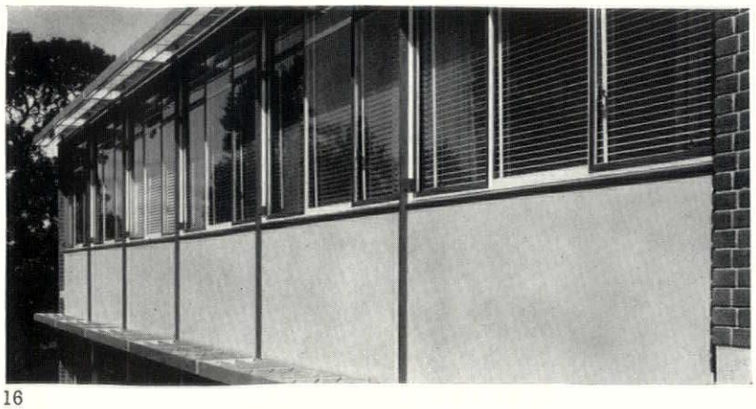
Internally, the resultant problem of creating a flat roofed clear span of sixty feet has been solved by the consulting engineer, J. R. Daymond, with neat, welded steel-tube trusses, 15, that do not impinge too far into the overhead space of the hall, which will have to be used for practically every purpose, serious or sporting, in the academic calendar. Beneath the residential tower visible in 14, the ground floor is given over almost entirely to

14



Natal union

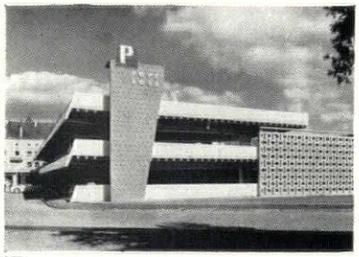
public spaces, hall, refectory, staff dining room and lounge, while externally, the architects Professor P. H. Connell and Alan Williams, have made neat use of aluminium sun-breakers, 16, and internal venetian blinds to secure adequate sun-control on a curtain wall elevation.



16

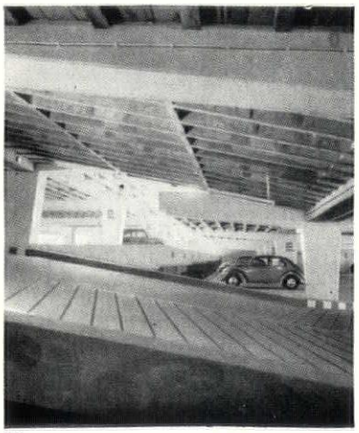
PARK-HAUSER

Barely had Michael Brawne's article on *Parking Terminals* gone to press (AR August, 1960) than *Deutsche Bauzeitung* produced a number (5, 1960) devoted almost entirely to parking and garaging. Most of the schemes shown had not previously been illustrated outside Germany, many were not particularly brilliant, but one or two were well worth noting, some as curiosities—Gerd Wiegand's Parkhaus



17

Grottenau in Augsburg has an Olde-Time Californian Moderne air about it that strikes a weird note in Germany, 17—but others on more solid grounds, and even Grottenau has some striking rampscapes, 18.

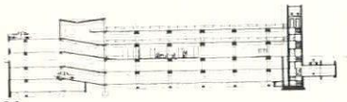


18

Indeed, another scheme by Wiegand, the Breuninger in Stuttgart, 19, gives a



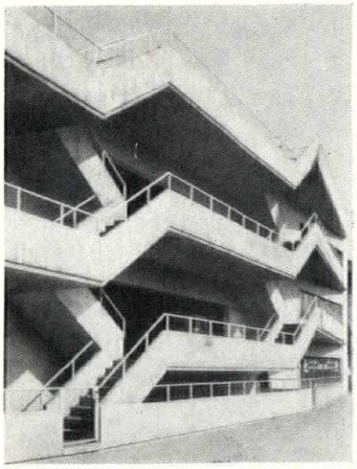
19



20

stylish solution to a project, 20, which calls for two open decks above ground and two closed ones below, with a central control point at ground level. The Parkhaus am Zoo, in Berlin, by

21

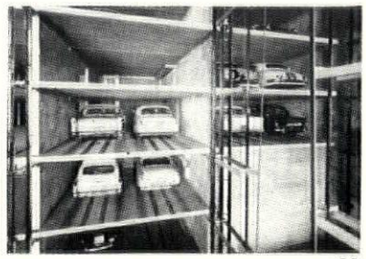


Paul Schwebes, makes an architectural virtue, 21, of its pedestrian access, but is more notable as an integral part,

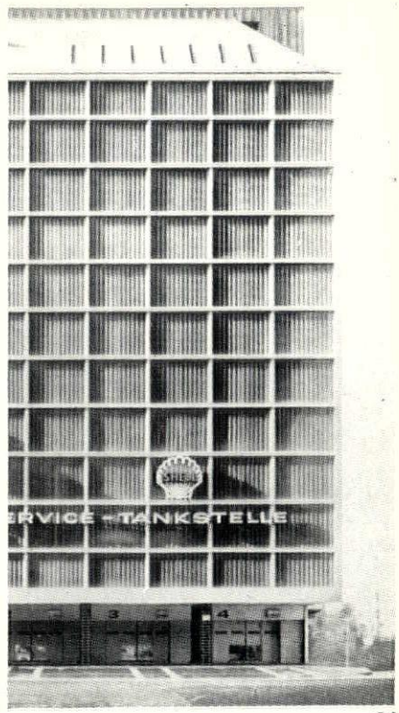
22



and completion, of a large building complex, being tucked under, 22, one end of the huge *Zentrum am Zoo* development. Finally, one should note that there seems a general trend towards treating mechanical parking garages as street architecture with definite façades, and that as street architecture most of these seem to be definitely inadequate. An exception might, however, be made for the Neuer Markt garage, in Vienna, operated on the Austrian Wertheim system, in which cars may be moved sideways on the floor of the lift, so that, in this case, four lifts each fill four stalls (two in front, 23, two behind) on each of fourteen usable floors. However, the external treatment is independent of the system employed, and the architect Karl Schwanzer has simply given every car a bay, 24, and filled it in with corrugated wired Perspex.

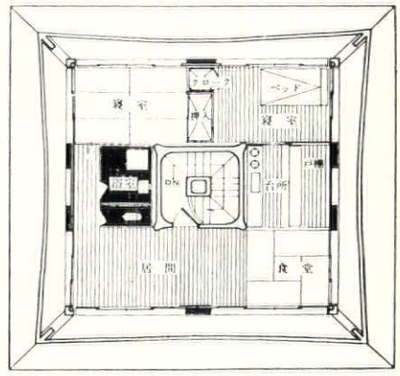


23



24

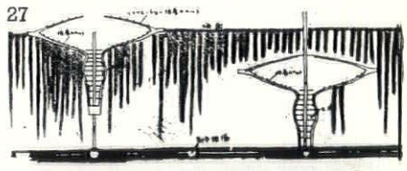
Behind the resoundingly rectangular concrete structures that have brought Japanese architecture up to a position among the world's leaders, there seems to lurk a counter-urge towards forms that can only with understatement be described as 'organic.' Under the top paper of practically every Japanese drawing board there must be projects for ring or mushroom shaped buildings —whole cities even—floating in the sea or anchored to the sides of mountains, to judge from the regularity with which such projects appear in Japanese magazines at present. And it now appears possible that the project phase may be coming to an end—Kokusai Kentiku (4, 1960) has just published a



26

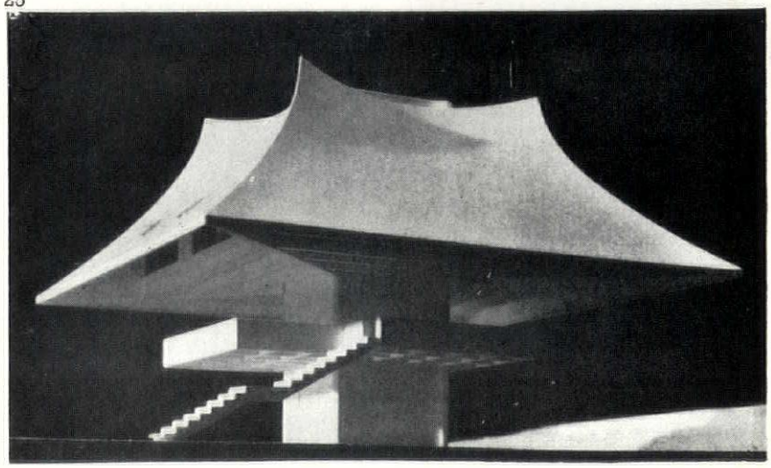
MUSHROOM HOUSE

proposed house by Noriaki Kurokawa, 25, that clearly comes close to a buildable structure of a plausible size and type. If it has lost some of the fine careless rapture of some of Kurokawa's marine proposals, 27, its plan at main floor level, 26, suggests a fairly



27

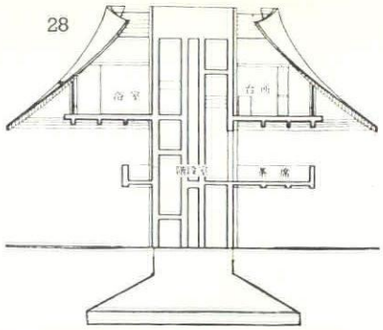
25



mushroom house

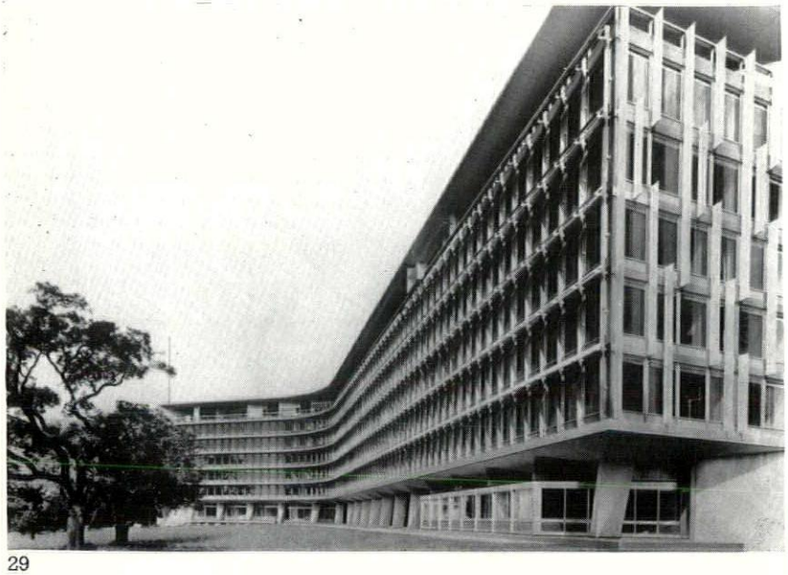
normal domestic plan, though how Japanese residents would take to a house that restricted outward views to sky and ground, is a matter for speculation; as the model shows, and the section confirms, 28, the vault is unpierced and allows only upward and downward views.

28



SUCCESS AND JEAN TSCHUMI

two major awards for Swiss Architect



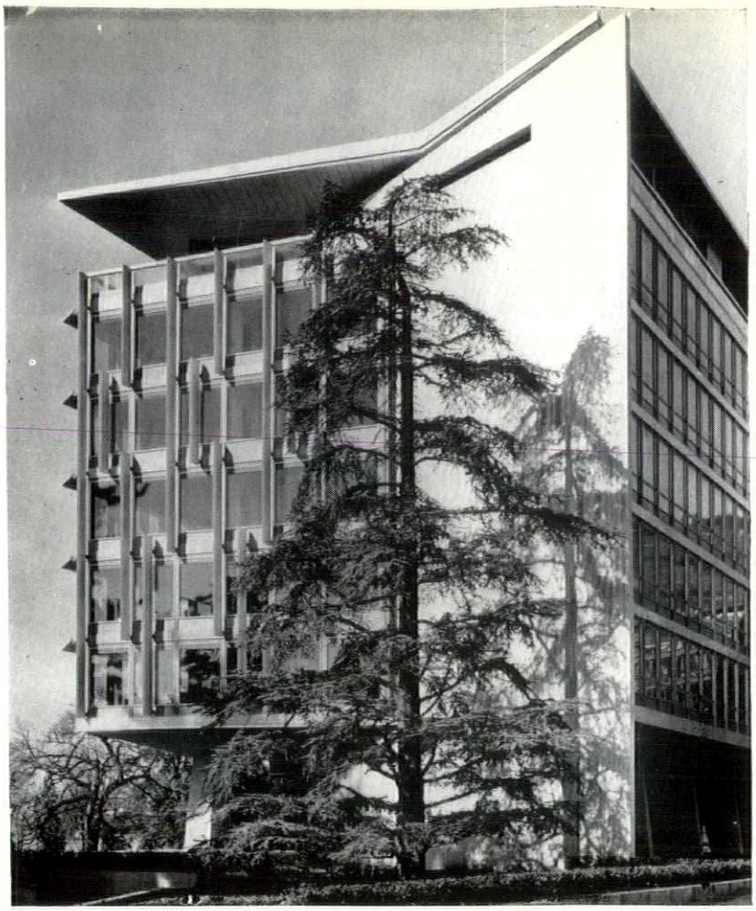
29

The 1960 Reynolds memorial award caught Jean Tschumi at the beginning of a winning streak. The award, made in April, was for his Y-plan office block, 29, for Nestlé International, at Vevey in Switzerland. As usual with the Reynolds awards, it seems to honour the use of aluminium detailing in places where it shows, rather than its radical employment in structure or services. In Tschumi's case, it shows to considerable advantage in sub-structures like the sun-breakers, 31, or the entrance-porch, 30, even though the technical data issued with the assessors' report makes it clear that the 'other materials' employed—reinforced concrete, structural steel and sealed heat-absorbent double-glazing—account for most of the essential structure.

Barely had the applause died away, than Tschumi also collected first prize in the international restricted competition for the design of a new headquarters building for the World Health Organization, Geneva. His design, 32, was a plain, straightforward affair—though no more plain and straightforward than those of Hentrich and Petschnigg, or Jean Dubuisson—that clearly came through on sheer functional and planwise competence and,

30





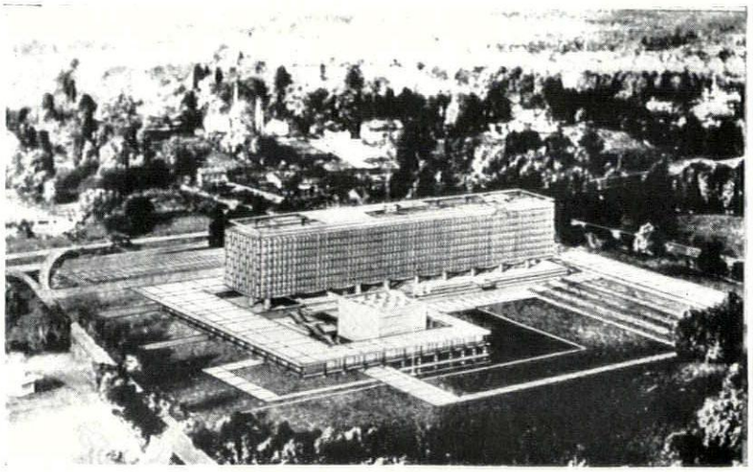
31

no doubt, first hand knowledge of the design of offices for Swiss conditions. Formal bravura collected a second prize for Eero Saarinen, in the shape of a design, 33, for which one would very much like to see the structural engineers' calculations, since it appears to span something like 200 feet unsupported.

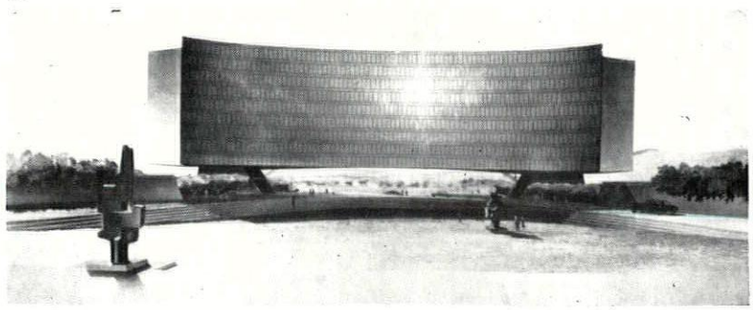
Nestlé office

W H O headquarters

32



33



views and reviews

MARGINALIA

THE TWELFTH TRIENNALE

On July 16, the day of the official opening of the twelfth Triennale di Milano all but a few minor sections were complete—a post-war record on which the organizers are to be congratulated. Among the uncompleted sections, surprisingly enough, was the ALCOA house, designer John Matthias, from the USA. The German and French sections had been completed some days before, and dust-sheeted; the British section had been completed even sooner, but was too big to put under wraps. As was reported in the July *Marginalia*, the British contribution was a complete CLASP/Notts County Council school, the largest single foreign exhibit ever shown at the Triennale, and the largest free-standing pavilion ever put up in the Parco Sempione—where it looked surprisingly at home.

The message of the Notts school, that it was a more-or-less standardized off-the-peg product, has clearly been understood by architectural circles in Milan, who were equally clearly impressed. Whether it will make any equal impression on educational politics in Italy remains to be seen—many hard-pressed Italian educators may well feel that their problems, particularly in the south, are more akin to those intended to be solved by the remarkable part-prefab, part wet-work, part technological/part peasant-handicraft, schools shown in the Mexican section, an inspiring display of radical thinking applied to a desperate problem.

Other visiting nations applied themselves indifferently, sometimes not at all, to the official theme of the Triennale, which was 'The home and the school,' ranging from the French and Belgians who, in rather dull displays, showed some school equipment and components, to the Dutch and Czechs, who made no visible reference to either subject at all. The Dutch, instead, staged a rather gay and inconsequential two-screen slideshow, while the Swiss staged a three-screen film show about their schools.

The Italian section, occupying more than an entire floor of the Palazzo, was largely a display of home and school furnishings; the latter ingenious, straightforward and functional, the former a daunting demonstration of the extraordinary condition into which Italian cleverness in interior design has cornered itself. An illustrated report on the Triennale by Kenneth Browne will appear in the November AR.

SAVING SMIRKE

When the Royal College of Physicians translates itself to its new building in Regent's Park, described on pages 214-216 of this issue, its existing building will be taken over by the High Commissioner for Canada, whose headquarters, Canada House, occupies the rest of the same island site on the west side of Trafalgar Square. The architect of both buildings was Sir Robert Smirke, Canada House being originally the Union Club, and both were completed by 1827. Subsequently, the Union Club side was transformed (if that is not too delicate a word) by Septimus Warwick, to become Canada House in 1925, but the Physicians' side has undergone no consequential conversion or modification, and stands now as one of the best, though least known, of Smirke's surviving works—1 shows the entrance hall and column screen at the foot of the stairs. It is to be hoped that no latter-day Septimus Warwick will be called in to transform this half of the site as well, and that the High Commissioner will be able to use it for some purpose that will not reduce it to the status of a museum exhibit, but alive and in use for some function that gives the public occasional access to it.

LITURGY AND ARCHITECTURE

Peter Hammond's promised book *Liturgy and Architecture** has been awaited with interest ever since his pioneer article (which he modestly fails to mention in the book's bibliography) on liturgical church planning in the AR for April 1958. The book gives—as it should—a far fuller picture of the theological background to the Liturgical movement, and also considers more fully its pastoral implications, so that there is no chance of regarding liturgical planning as something purely internal to churches, and unrelated to the life of the parish outside. A much larger number of individual churches is subjected to critical analysis than was possible in the original article, though its coverage in time it still not quite long enough to include the completion of England's first resolutely liturgical-plan church, St. Paul's, Bow Common. It is hoped, however to publish this church in some detail in a forthcoming issue of the REVIEW, and readers will then be able to judge for themselves the extent to which it has fulfilled the liturgical programme set out *in extenso* in *Liturgy and Architecture*.

*Barrie and Rockliff. 37s. 6d.

OBITUARY

H. B. CRESWELL

The present generation of readers of the AR will remember H. B. Creswell most immediately as the author of a memoir of architectural life in London in the Eighteen-nineties, which appeared in these pages in December 1958 some eighteen months before his death. But his contributions to architecture and its literature are far more extensive than that. As long ago as the May 1942 issue of the AR, Nikolaus Pevsner drew attention to Creswell's part—a factory at Queensferry—in a British modern movement of the nineteen-hundreds that didn't quite come off.

Yet Creswell's main contribution to the architectural thought of the time was conducted at the most purely practical level, though in sufficiently imaginative terms to gain it acceptance as re-printable fiction. These were the Honeywood and Jago 'novels.' *The Honeywood File* was serialized in the *Architects' Journal* in September-November 1929 (reprinted in book form in 1929 and 1943); *The Honeywood Settlement* was in the AJ from May to October 1930 (reprints 1930 and 1944) and *Jago vs Swinnerton and Toomer* was serialized, again in the AJ, from January to March 1930, but reprinted only in 1931. Apart from the last, which was presented in the form of a law report on an arbitration case, these were probably the first English novels of recent times to be presented in the form of *the documents in the case*.

As is fairly widely known, all three treat of disputes between architects, builders and clients, in elaborate and embarrassing detail. In consequence, they have a secure place in the 'how not to' of English architectural teaching, and have formed the basis of mock-arbitrations, etc. However, they begin now to have the air of dealing with a world, of design, of technique, and of architect/client relationships, that no longer really exists—with the result that they must shortly embark on a second career (if it is not already a third) as historical sources, giving a picture of architecture and society as rich and as variously informative as that afforded by mediaeval building account-books.

CORRESPONDENCE

DURHAM ENDANGERED

To the Editors.

SIRS,—The article by Andor Gomme in your June number, entitled 'Durham Endangered,' says that the threat comes from the university. The first, splendid illustration shows the cathedral from the south-east and 'the houses in front of it (for whose retention the article pleads).' The university does not own most of the houses shown. But to my certain knowledge not one of those belonging to the university, and to the best of my belief not one of the others, is under any

1, the entrance hall of the existing Royal College of Physicians.



kind of threat immediate or remote. How can I help supposing that this caption is a deliberate untruth, aimed at damaging the reputation of the university?

There are two illustrations (nos. 11 and 18) of the house in North Bailey from which I write this letter. If the writer besides, photographing the house, had been courteous enough to ring the bell and ask to see me or any other officer of the Durham Colleges we could have pointed out that this house and its neighbour, in the middle of the west side of North Bailey—the area of which he says 'the whole of it is to go'—were reconditioned a few years ago, one of them being gutted and joined to the other internally, without any alteration to the doors, windows or roof facing the street. Bar accidents, the building is now safe for a century or so. The writer may conceivably have been misled by the fact that this building is inside the area, shaded in his map, for which the university has had a complete survey made, to see which houses can and which cannot be preserved. Not all of them can. One house on an important site in North Bailey has its front wall so far out of true that two successive architects, asked to recondition the house, have warned us that if gutted it will fall down. Is that the fault of the university, or of those who built it centuries ago?

I cannot pursue the writer through all his misstatements. I have said that he may have been misled, but he made no attempt, so far as I can ascertain, to ask any single question from anyone connected with the university. He says that Dun Cow Lane (illustration no. 27) is all to go. Quite untrue. He says that the domestic buildings are to be replaced by largish blocks of college buildings. Quite untrue. It has been agreed that where demolition is necessary the new buildings shall maintain the simple, varied, domestic character of the adjoining houses. Experts are still not agreed whether the new houses shall be frankly modern in appearance or not.

For the north side of Owengate, whose reconstruction is the most urgent problem, we have consulted not only the Planning Authority but also the Royal Fine Art Commission and the Society for the Protection of Ancient Buildings. All parties are well aware of the need to preserve the 'dramatic approach' to Palace Green. Incidentally, the Castle Keep (illustrations nos. 4 and 24) was built by the university in the middle of the nineteenth century, replacing a ruinous Norman building.

The one certain way of endangering Durham would be to yield to the sentimentalists who want everything left exactly as it is. That would mean the progressive decay and collapse of outworn buildings.

May I end by referring to the real record of the university's care for its splendid heritage of old buildings, small as well as great? Between the two World Wars the university, then very small and almost desperately poor, by efforts sustained over many years raised the huge sums needed to save the Castle from imminent danger of collapse. That task was successfully completed in 1939. During the war no rebuilding was possible. Since 1945, simultaneously with the programme of new building outside the peninsula, which has trebled the size of the university, we have restored, on Palace Green, the Norman Chapel, Bishop Cosin's Library and the Old Library block; in North Bailey, the so-called Rectory of Hatfield College, the Assembly Rooms Theatre (internally—the ugly nineteenth-century front must wait a while), and this house (No. 38) and its neighbour. Two houses in North Bailey have collapsed. One has been rebuilt, by one architect. The other is about to be rebuilt, by a different architect. In Saddler Street (illustrations nos. 14 and 19) we have recently bought three dilapidated houses, unpretentious but characteristic, have gutted them and brought them back into use. One of them is the house nearest to the camera in illustration no. 14. In that house, and that house alone, we ventured to alter the fenestration, with the result that your caption describes it as 'vernacular street architecture at its best.'

Your article mentions the 'handful of people' who defeated the Kepier power-station plan here in 1946, and compares it to the defeat of Goliath by David. Of those who led that handful, I am the last survivor in Durham. As Warden I bear the chief responsibility for the building programmes of the university in Durham, both those completed during the last twenty years and those now current. Has David really turned into Goliath?

Yours, etc.,

JAMES DUFF.

Durham Colleges Office,
38 North Bailey,
Durham.

Andor Gomme writes—

Sir James Duff is right about the inaccurate caption, which was not my error but was due to an editorial misunderstanding and was certainly not deliberate. Fortunately, however, those who read the article closely will have been able to make the appropriate correction themselves; for the article drew attention to the good work of St. Chad's (only to some extent autonomous) in restoring those very houses.

Responsibility for other inaccuracies must lie partly with the university, which has all along made it so difficult for interested people to find out what is really going on, and seems unable to make any coherent statement of its own intentions, which seem to change so often and so unpredictably. It is excellent to hear that No. 38, North Bailey and Dun Cow Lane (or part of it?) are to be spared, and that the rest (some of the rest?) is not to be replaced by largish blocks. Certainly earlier plans contained no such reservations. And what is proposed now? It is hardly possible to find one positive indication of the university's intentions in the whole of Sir James's letter: what a pity that he concentrates so much on accusations of untruth and yet makes statements that can, after all, be only described as equivocal! Will he not now publish the present plans so that there may be no doubt of what is intended? Otherwise there may well be others beside myself who will suspect that the situation remains very much as described in my article, so little does Sir James's ingenious letter do to remove fears or create confidence.

As for what detailed points can be drawn out from Sir James, how good to know 'all parties are well aware of the need to preserve the dramatic approach to Palace Green': how even better if this awareness could be brought into action to preserve those features which are essential to this dramatic approach but which are just those that the university wants to do away with. I don't think anyone would like everything left exactly as it is: but it is most urgent that the irreplaceable things should not be cast away; and to keep a single house in North Bailey (all that the university has so far admitted to there) is a poor way of paying respect to what it has inherited.

We are all of course grateful that some buildings have been rehabilitated: our complaint is that so many others—essential to the whole architectural complex—have been neglected and are now threatened with demolition. I don't think that it can really be claimed that the university was very small and almost desperately poor between the wars. Durham University was, and is, Durham and Newcastle, and neither particularly small nor notably poor. This may seem a minor point, but Sir James is so punctilious about St. Chad's that he should be accurate here also. (Incidentally, if he had looked closely at the caption 'to illustration no. 14,' he would have seen that it wouldn't really make sense if it referred to that photograph alone: it is obviously concerned with the whole long sequence of buildings in the Bailey and Saddler Street).

But it is Sir James's last paragraph which contains his most remarkable deviations. We cannot here go into the details of the case: I shall leave it to those who know the history of the Kepier project, or are prepared to look through the files, to consider just what part Sir James and the University played in the engagement which ended in the defeat of the scheme. In the present situation there is some piquancy in Sir James's drawing attention to it.

1960 SERIES

To the Editors.

SIRS,—I was much encouraged by your very sage comments on the trying symposia we have been enduring for the past six months. Mr. Nairn's letter in your June issue was also admirable. Both tended to confirm my own feeling that what architectural theory and practice really need is a very long rest from Dr. Banham.

Yours, etc.,

HERBERT HALSE.

Hemel Hempstead.

GREEN BELTS

To the Editors.

SIRS,—Like Ian Nairn, I am sure that Miss MacInnes is right fundamentally in her criticisms of the difficulties raised for a small and remote country town by the allocation of all agricultural land to the green belt. It is certainly a case of appearance without reality for it restricts and hampers the proper evolution and redevelopment of the town. At the same time, it likewise hampers the development of light industries in the countryside and thus adds its support to the general decline of rural communities. Neither the Ulthwatt nor the Scott reports have ever been implemented properly, with the obvious result that rural depopulation progresses apace. One has only to compare the population problems of rural Eire or of the Scottish Highlands to see that the policy of introducing light industries affords the only possible way of preventing death through depopulation. It is too often forgotten that the townsman's playground is the countryman's workshop.

At the same time it would be a retrograde step to approach this problem by a mere attack upon existing green-belt policy. Such an attitude would savour too much of the government suggestion that the present inflation in urban land-values can be met by releasing more land for building. In fact the two issues, that of the countryside and that of land-values, are really two facets of one larger problem. It is comparatively easy to design schemes for redevelopment both urban and rural. But it is almost impossible to put them into practice without some sort of socialized land control. For example, Wren's plan for rebuilding London after the Great Fire was shattered by the opposition of the land-owners, and something of the same kind has affected the redevelopment of the blitzed areas in our own day. At the present time, inflation in land-values is only possible because a conception of private ownership in land-monopoly has been but slightly modified by planning legislation. It is a curious feature of the scene that, whilst in strict English law, there is no such thing as the absolute private ownership of land and the conception is regarded as infringing the final ownership by the Crown, yet for practical ends this wholly ficticious conception of private land-ownership is allowed to dominate the situation.

Both Miss MacInnes and Mr. Nairn call in effect for some all-over land planning. I would like to go further and suggest that, without some form of common ownership in land, all planning, whether urban or rural, is likely to prove abortive or at the least to be badly maimed. The present government obviously shirks the issue despite the many pleas that the unearned increment of land-value produced by general development should be socialized and not belong to the individual speculator. The Labour government of 1945 avoided the land issue in its fundamental form and contented itself with certain planning legislation. As long ago as 1946, in his *City Development*, Lewis Mumford demanded that land-values should be pegged as a requisite of any satisfactory development plan. This has not been done and situations have resulted which are deplored equally by Miss MacInnes on the one hand and the town-planner concerned with vast urban conurbations on the other.

Faced with these results, we have now a narrow choice of free trade in the releasing of more land for building or of a social control which shall presuppose some form of social ownership in land. It is worth recalling that the first policy would go far towards swelling the octopus of which Clough Williams-Ellis wrote as long ago as 1928, or which may be seen in embryo in 'the great wen' against which Cobbett protested. A great deal has been said in praise of town planning within the Soviet Union by those who

are not of necessity Communist in outlook. It is worth recalling that Soviet achievement has only been possible by the use of land which is already in common ownership.

Yours, etc.,

F. H. AMPHLETT MICKLEWRIGHT.

London, S.E.25.

BOOK REVIEWS

INSTINCTIVE REACTIONS

EXPERIENCING ARCHITECTURE. *By Steen Eiler Rasmussen. Chapman & Hall.* 30s.

We have long held Mr. Rasmussen in affectionate esteem as a sympathetic though acute architectural critic, viewing our chaotic English scene through his kindly Danish eyes, judging us with the benefit of every doubt.

In this, his latest generously illustrated book, *Experiencing Architecture*, based on his London lectures of two years ago (and how deft to have found an apt title at the tail of so long a procession of books of similar aim)—he surveys the world at large, though capriciously — Scandinavia, Italy, China, Japan and the USA providing most of his examples; Britain almost none beyond our Hertfordshire schools.

The only British architect mentioned is Hope-Bagenal. in connection with acoustics (to which the author attaches unusual importance)—the Masters of the Italian Renaissance, the modern Scandinavians, Frank Lloyd Wright and Le Corbusier providing most of the evidence for Mr. Rasmussen's case. And what *is* his case? It is perhaps fairly summarized by himself thus:

'Architecture means shapes formed around man, formed to be lived in, not merely to be seen from the outside.

'The architect is a sort of theatrical producer, the man who plans the setting for our lives. Innumerable circumstances are dependent on the way he arranges this setting for us. When his intentions succeed, he is like the perfect host who provides every comfort for his guests so that living with him is a happy experience. But his producer job is difficult for several reasons. First of all, the actors are quite ordinary people. He must be aware of their natural way of acting; otherwise the whole thing will be a fiasco. That which may be quite right and natural in one cultural environment can easily be wrong in another; what is fitting and proper in one generation becomes ridiculous in the next when people have acquired new tastes and habits.'

Though he has much to say on aesthetics, there are those who will dispute certain of his highly subjective pronouncements and doubt the validity of some of his musical analogies.

Le Corbusier's devotion to the Golden Section and *Le Modulor* is considered appreciatively and at length, but where Mr. Rasmussen is perhaps most instructive is in his chapters on daylight and colour, though—as elsewhere—the implication is that for the successful solution of aesthetic problems, rules are no substitute for inspiration.

'Color can be a powerful means of expression for the architect who has something to say. To one it may mean that the ceiling should be dark and heavy, to another that it should be light and airy.'

He is so alertly aware of a sensitive observer's instinctive reactions to interior spaces of varying sizes and proportions that it is surprising to find no reference to Geoffrey Scott's *Architecture of Humanism* where, if I remember rightly, he made many of us fully conscious of this powerful architectural effect for the first time.

Certainly I recall Scott's gestures, as eloquent as his words, as when exploring the churches and palaces of Tuscany together, he would suddenly stand on tiptoe or crouch or throw out his arms in almost automatic response to his spatial setting. It pleases me to picture Mr. Rasmussen reacting to similar spatial stimuli with like uninhibited bodily postures. I feel confident that he does or would like to.

Clough Williams-Ellis

LETTERING TO LIFE

LETTERING ON BUILDINGS. *By Nicolete Gray. The Architectural Press.* 25s.

This is not altogether an easy book to read. Mrs Gray's thought is compressed, its expression spare, and since the text is, in the main, a commentary upon the 269 illustrations printed at the end of the book, one is forthwith engaged in those laborious five finger exercises of keeping as many places marked at the same time as possible. The book could not, in fact, have been presented in any very different way, but the fact remains that it is taxing to follow with concentration for any length of time.

It seems worth saying this lest any potential reader be frightened off an ultimately rewarding experience. In this study Mrs. Gray has broken quite new ground. She makes no claim to comprehensiveness, but for anyone concerned with letter forms she has provided an imagination-stretching exercise. Whether her cool, academic tone will attract those without an existing interest in the subject, I am not sure—architects, by and large, have singularly little feeling for lettering—but this in itself is an indication of how greatly such a study has been needed. 'My hope for this book,' Mrs. Gray writes, 'is that it may help to bring lettering back into the full life of the modern movement.'

She starts off with a healthy side swipe at Establishment Trajan for its claims to exclusive orthodoxy, claims which have led, as often as not, only to insipidity and timidity. She rejects, quite properly, the purely typographical letter as incapable of providing a suitable foil to architecture. By page 20 she has reached the proposition that is central to the whole book: 'With architectural lettering the typographical criteria must be reversed; the dominant factor is design not legibility.' The author's rejection of doctrinaire utilitarianism has been known to us for more than twenty years so it is no surprise to find her putting in a plea for 'patterns which are clever or amusing in themselves, and in relation to the buildings to which they are attached . . . even if they are not read at all.'

Now this, at least in terms of townscape, is much less outrageous than it sounds. Abstract signs, symbols, patterns, signals may not only be pleasing to the eye, but are often likely to function better than our pathetic attempts to spell out logical thought in needless detail (like those Ministry of Transport signs). The trouble is that, away from classical norms, personal taste becomes the arbiter and, until we are all visually literate, personal romanticism can lead to fairly horrid results. Even the sensitive student of these things who seeks above all richness of character contrasts, reverberations of far-off fashions, the whiff of ancient enthusiasms, is apt to end up a collector of quirks and oddities. Mrs. Gray, indeed, has one or two in her collection for which I am unable to share her enthusiasm.

It would be unfair, however, to imply to her catholicism of taste any kind of recklenessness. Her observation is acute, her scholarship—in so far as I am fitted to judge—impeccable, her ability to pin down the intrinsic characteristics and 'flavour' of letters often exact. The first part of the book comprises a historical survey of the traditional letter forms that we have inherited; the second part considers these in relation to their fitness and purpose, their material, the new possibilities presented by illumination and so on. The illustrations range from Burgos to Dublin, Bath to Isfahan, Lindisfarne to Van Doesburg, with not a few surprises like the peach of a bathing hut at Menton.

Lettering on Buildings is not a handbook for a quick crib. There are no rules of thumb here for the chairman of the Planning Committee, or the sign-writer, or indeed the architect. On many of the wider aspects of the subject, from the relationship between different letter forms used in conjunction to the daytime effect of illuminated skyline signs (think of Copenhagen or Mr. Cotton's Piccadilly Circus), the author is silent. On the other hand, if all architects and designers could be persuaded to make it a regular bedside book, costive imaginations would sooner or later begin to work again. In place of the boring and trashy signposting of our environment that we have come to take for granted, we would begin to become aware of a little more robustness, elegance, diversity and wit around us.

Michael Middleton

ROMANO MANTOVANO

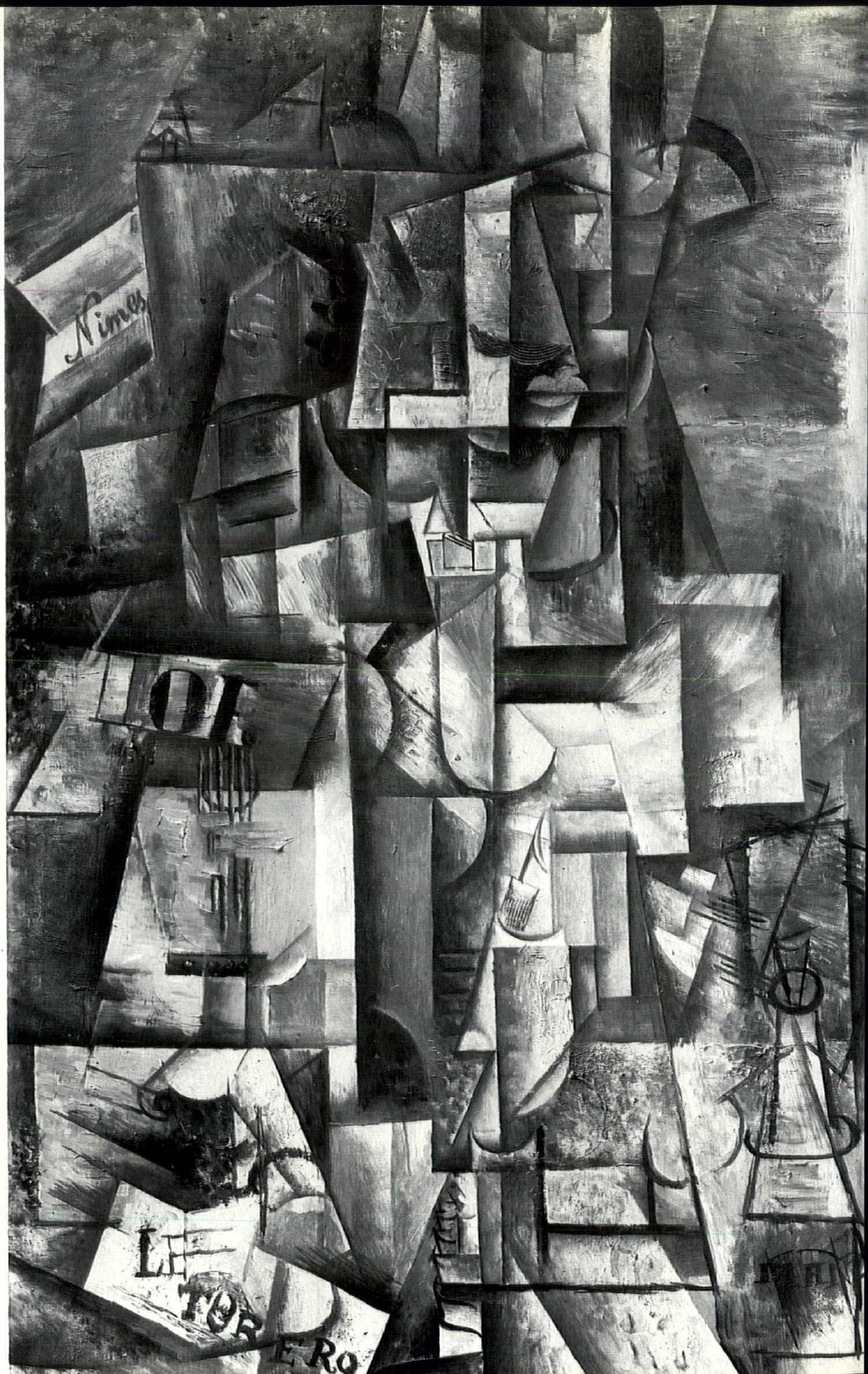
GIULIO ROMANO. *By Frederick Hartt. Yale University Press.* $25.00.

'I confess,' said Father Lavenham to his colleagues from the historians 'conference on the outing to the Palazzo del Te, 'that all this Renaissance paganism is very antipathetic to me. I have neither an aesthetic inclination towards it nor a Warburgian interest in the development of myth. . . . If I am forced to choose a pagan spirit, give me that of the Gracchi rather than of the Gonzagas. But then I'm very English.' Father Lavenham had his own personal reasons for the last remark. Yet it is true that in recent times the Anglo-Saxon attitude towards Giulio Romano, at least as a painter, has not been sympathetic or even respectful; Aldous Huxley, visiting the Palazzo del Te in the 'twenties, regretted that 'the stupid vulgarity of Giulio Romano was permitted to sprawl over its walls in a series of deplorable frescoes.'

Earlier Englishmen took a different view. Sir Joshua Reynolds, as Professor Hartt reminds us in this book, thought that Giulio Romano possessed 'the true poetical genius of painting, perhaps in a higher degree than any other painter whatever.' And to-day he is coming into his own again, even as a painter—a reinstatement which is the less surprising when one considers, with Professor Hartt, that 'the mechanized horror of the Sala dei Giganti has much in common with Cinerama' and that his classicism should 'at so many points, particularly in the more personal fantasy world of his drawings, . . . suggest that of Picasso.' As for his architecture, those undisciplined pilasters, that wilful rustication and those outrageous triglyphs have made the Palazzo del Te, at least, required seeing ever since Dr. Pevsner first spotlighted them for English readers in *The Mint* back in the mid 'forties.

Like other substantial works of art history published recently in the United States, Professor Hartt's book comes in two volumes, the first of text and the second of illustrations (542 of them). As more and more often in such works, the form that the text takes might not unfairly be described as a glorified catalogue raisonné. This form has the advantage of facilitating a complete presentation of the material, but is apt to discourage the non-specialist reader. Here, however, if the latter will bring himself to take the plunge he will soon make a pleasant discovery: Professor Hartt writes not as most art historians write, but very well indeed. His style is precise without being pedantic, admitting on occasion the expressive colloquialism but quite free from that jargon which, since it gives pain to everyone else, must be presumed to please examiners for the Ph.D. (For quick proof of his excellence in architectural description, turn to the account of the great loggia of the Palazzo del Te on page 98.) Certainly anyone planning to visit or re-visit Mantua should consult Professor Hartt. Besides supplying him with all the information he could want about the history of Giulio's chief works there and elsewhere, he will save him from false assumptions about the artist's own house and the Cortile della Cavallerizza (of which the elevations that one normally sees, from the windows of the ducal palace, are not Giulio's at all, it turns out, but Bertani's); he will bring home to him the greatness of the loss that Giulio's façades, and many other Mantuan façades as well, sustained when their original colours faded or were painted over; he will direct his steps in the always fascinating pursuit of minor works. All this and more on the strictly architectural side, to which no one, in Mantua, would wish to limit himself. To do so, indeed, is hardly possible. Mannerist architecture, as Professor Panofsky remarked many years ago (though without citing Giulio Romano, curiously enough), 'represented a rebellion of the non-architects.' In Giulio's work the architecture and the non-architecture, the painted decorations, are so much of a piece throughout that even iconographic subtleties in the latter may have a bearing upon the former. Here, too—perhaps here especially—the most Anglo-Saxon and least Warburgian of readers will find Professor Hartt a lucid and persuasive guide.

Marcus Whiffen



Picasso's *Aficionado*, a high Cubist work of 1912, is one of the many pictures in the Arts Council's great exhibition at the Tate Gallery (until September 18) that testify to the Spanish elements and Spanish interests in Picasso's personality. But, with its controlled shallow space, its sense of having been assembled from discrete and almost tangible planes and blocks, it represents Picasso at a time when his art was about to trigger off a revolution in vision and design that was to be world-wide, not merely Spanish, in its consequences. Among those consequences must be numbered some part in the creation of the Modern Movement in architecture—a part that is discussed, among all the other parts, in Reyner Banham's recently published book, *Theory and Design in the First Machine Age*, which is the subject of the article opposite, by the distinguished American architect, Philip Johnson.

Philip Johnson

WHERE ARE WE AT?

For an American addendum to the soul-searching about 'Whither Away' which THE ARCHITECTURAL REVIEW goes in for every month, I may not be the best one for the REVIEW to hire. There are Scully and Hitchcock and Drexler, McQuade and Jordy to pick from, but I do have one disadvantage-advantage, and that is that unlike the others I do practise—with much difficulty—architecture. I am outside the writing-historical club and I can be as arbitrary as I want; be willing to be labelled—and mislabelled—any way they, the club, want. Although it is never pleasant for a practical person to be pejoratively pigeonholed (one feels caged into a small sub-category that robs one of the self-glorificatory freedom that artists like to boast of), it will nevertheless be fun to be a sub-species for such extremely astute and intellectual categorizers as the English intellectuals.

One of the major keys to any discussion 'Where Are We At?' is Banham's important book *Theory and Design in the First Machine Age**. It is a wonderful and perverse book. I can't follow his *parti pris:* 'What distinguishes modern architecture is surely a new sense of space and the machine aesthetic'. As one minor architect (maybe not even 'modern') I have no new sense of space nor am I encumbered with a machine aesthetic.

Nor can I go along with his title, and I quickly propose another one: 'Architectural Theories of the First Half Century.' It is not that I would have historiographers without a point of view (I like Scully's introduction of Greek topography in his book on Wright), but I find it hard to follow the author when he takes one of the more peculiar beliefs of the twenties, the faith that we live in a Machine Age (note the capitals), and makes it into his criterion for the validity of an architectural style.

Architecture, one would think, has its own validity. It needs no reference to any other discipline to make it 'viable' or to 'justify' its value. We might even question whether words like value or morals are applicable to an architectural style. The International Style, for example, needs no one to say it was good or it was bad. Greek and Gothic styles were loved and reviled throughout subsequent ages and neither opinion

* Reyner Banham, *Theory and Design in the First Machine Age*. London, The Architectural Press, 1960. Price, 45s.

affected the architecture itself, but were comments rather on the state of mind of the lover or the reviler. The International Style is its own justification. We can dislike it, which most of us may to-day, but we are obviously much too close to have any interesting views on its future influence or its position in the history books.

For the sake of the argument let us admit that we do live in a machine age. We can hardly call to question an architectural style that evolved in that age for not expressing it. The International Style 'expressed its age' merely by the fact of being prevalent at that time.

As for the discussion in the book of the fine distinction between the first machine age, which is apparently on the way out, and the second, which is coming in, it is not an interesting dichotomy architecturally, and has only marginal interest as part of an otherwise fine history book.

Once the reader has passed through the machine-drenched prose of the introduction, however, he will find a treat awaiting him. I know of no author but Dashiell Hammett who can keep me more fascinated page by page. Reading as a student who had arrived in 1930 on the European scene, I keep having the feeling 'Oh, yes, I did believe that then,' or 'Now I understand where I derived that idea from.' For example, the preposterous idea that Gothic ribbing carried inert panelling and that therefore it was morally 'good' to separate structure from infill, took up my whole horizon as a young designer. Or when I remember our worship at the shrine of Plato's Philebus because he wrote there of the beauty of the pure mathematical shapes and their solids. I blush at the absoluteness of our beliefs, which Banham makes such intelligent fun of. Again, the keen analysis of Guadet and Choisy as ancestors of our planning and our structural functionalism is a revelation. I did not know before how much that I take for granted came from the prejudices and whims of men so far before our day.

The author's chief interest, however, it becomes clear, is Futurism, and the lyricism about Marinetti is far different from his wry humour about, for instance, Le Corbusier's theories. From Marinetti to Buckminster Fuller represents a line of development outside of what THE ARCHITECTURAL REVIEW would call (in capitals) the Main Stream, a line of technology, a sole god, an autophagous design animal, the story of which in Banham's prose has the exhilaration of a Coney Island roller-coaster. The ride, however, leaves me cold because, as Banham admits, Futurism was more important as ideology than as form.

The Main Stream is more interesting to me: the English influence on the *Werkbund* has never been better brought out, Muthesius better evaluated. (As is often the case in this book, the non-architect talkers: Muthesius, Marinetti and so forth, are more stimulating than the plodding practitioners.) Parenthetically, it is amusing to read an historian of the ideas *about* architecture (Banham) at the same time as an historian of the *forms of* architecture (Hitchcock). They both stimulate; history is after all the story of what goes into the mentality of all of us designers to-day. Both the Banham book and the Hitchcock Pelican volume deal with the architecture of the immediate past; both are brilliant, but since they seem almost not to overlap one should perhaps read one in alternate chapters with the other. If one misses in Hitchcock the broad wit and generalities that Banham serves up, one is grateful nevertheless for the specific story of forms, since forms in design beget more forms, whereas ideas barely have influence on them.

New *aperçus* appear throughout Banham's book: Berlage appears fresh to me, for example. It has always been clear that he was influential (especially to Mies's development) but his work when visited seemed relatively modest, even uninteresting. But with Banham's outline placing him in his Zurich lecture as the bridge between Wright and the European modern movement, all becomes clear.

But even Banham cannot tell us what happened at the Bauhaus. All Bauhaus members deny de Stijl influence in the 1923 revolution against Itten, and yet our eyes tell us otherwise. There is no doubt of the personal battle between van Doesburg and the Bauhaus in Dessau which would cloud the eyes of both sides involved. And there is also no doubt of the Lissitzky influence (which all since admit); but Lissitzky was not de Stijl. Also in Berlin in 1922 there was such a confluence of interweaving streams that perhaps it really was a spontaneous combustion. But can one imagine the interlocking cubes of the Meisterhaus at Dessau or the Bauhaus itself without a direct line from de Stijl?

Thanks to Banham we get a 60's view of the whole German twenties. Mies and Hilberseimer turn out to have been the most perspicacious of the practising architects, Hilberseimer for his books and Mies for his choice of leaders at Weissenhof. Who, with 20-20 hindsight to-day, would pick differently the four leading architects of that year, 1927, to give prominent space to in an international exhibition: Le Corbusier, Mies, Gropius and Oud? It is a pleasure to record that a practising architect, not a critic, was the chooser.

It is especially welcome to-day, to read a book that can be written about the twenties without being propaganda for the International Style. At the time we could not appreciate a de Klerk or a Sant'Elia (I still cannot) or Mendelsohn or even Domenicus Böhm (whom Hitchcock, but not Banham, cites). Even Scharoun and Haering were suspect, so strait was our gate. (Look up who was included in Hitchcock and Johnson's *International Style*, written in 1930-31.) But time makes perspective, and both Hitchcock and Banham can find new ways to look at those dear, dead days.

When the story of Banham's book changes to the emerging critics of the end of the twenties, the names of Giedion and Hilberseimer come up, but what of that American Barr—Johnson—Hitchcock circle that Banham refers to in articles, but not in his book. He makes fun of the propagandist historian Giedion for falling for the functionalist doctrine of the times, but does not mention that Hitchcock did not. Read his *Modern Architecture* which appeared in 1929. It was clear to the author then that the 'New Pioneers,' as he called them in his first book, were doing something radically different and confluent and it had nothing to do with functionalism or for that matter a Machine Age aesthetic. Perhaps I am being US nationalist about this point, but Hitchcock's physical distance

seems to have given him an eye for the form as being more important than the palaver. And, incidentally, the sobriquet 'International Style,' which Banham uses throughout the book, first appears itself in a title of a book by Hitchcock.

Which brings us to the end of the book: the chapter I wish Banham had left out. In it he seems to take the position that the International Style should (morally that is) have symbolized a machine age. Why? After demolishing functionalism through the book as a false propaganda term that was really never practised by the very leaders who used the word, a restricting, negative, unrealistic idea, he now attacks the leaders for not designing buildings according to another belief, that was also mere propaganda and illusion. He does not blame Mies that the Barcelona Pavilion is not functionalist, but he blames him because it is not symbolic of a machine age, or, in Banham's language, a Machine Age. Here is a stray quote from page 325: 'But because of this undoubted success [of the International Style] we are entitled to enquire, at the very highest level, whether the aims of the International Style were worth entertaining, and whether its estimate of a Machine Age was a viable one.' Who cares? The main question is, were the products of the International Style beautiful, and not even eternally beautiful, but relatively beautiful to those of us who enjoy looking at well-designed buildings.

Banham's insistence on the moral demands of the Second Machine Age ends the book. He seems to be a 'beyond architecture' believer. Pure technology will carry us onward and onward. Buckminster Fuller is quoted *in extenso* with a perfectly valid criticism of the architecture of the International Style as being concerned with design, and not with plumbing, chemistry and scientific technology. He was, and is, quite right. *All* architecture is more interested in design than in plumbing. I feel like crying (but not for quotation): Let Bucky Fuller put together the dymaxion dwellings of the people so long as we architects can design their tombs and their monuments.

But once more, whither away? The International Style is dying and THE ARCHITECTURAL REVIEW is looking for 'a new, compelling, unifying slogan.' But if we live in an age when we do not like 'compelling slogans' or styles or disciplines or even capital letters, can't we just wander around aimlessly? 'The world is so full of a number of things': and so forth. I am free to admit that I love in my work to comment on history. The Italians like funny shapes; I don't like them, but who am I? The English like the Jaoul Houses. Paul Rudolph likes Ronchamp. More power to them. We are going through a foggy chaos. Let us enjoy the multiplicity of it all. Let the students have a different hero every year. Maybe it is good for them.

Certainly Reyner Banham's book will further the chaos by analysing away the last of the beliefs (the lovely, helpful beliefs) of the last generation.

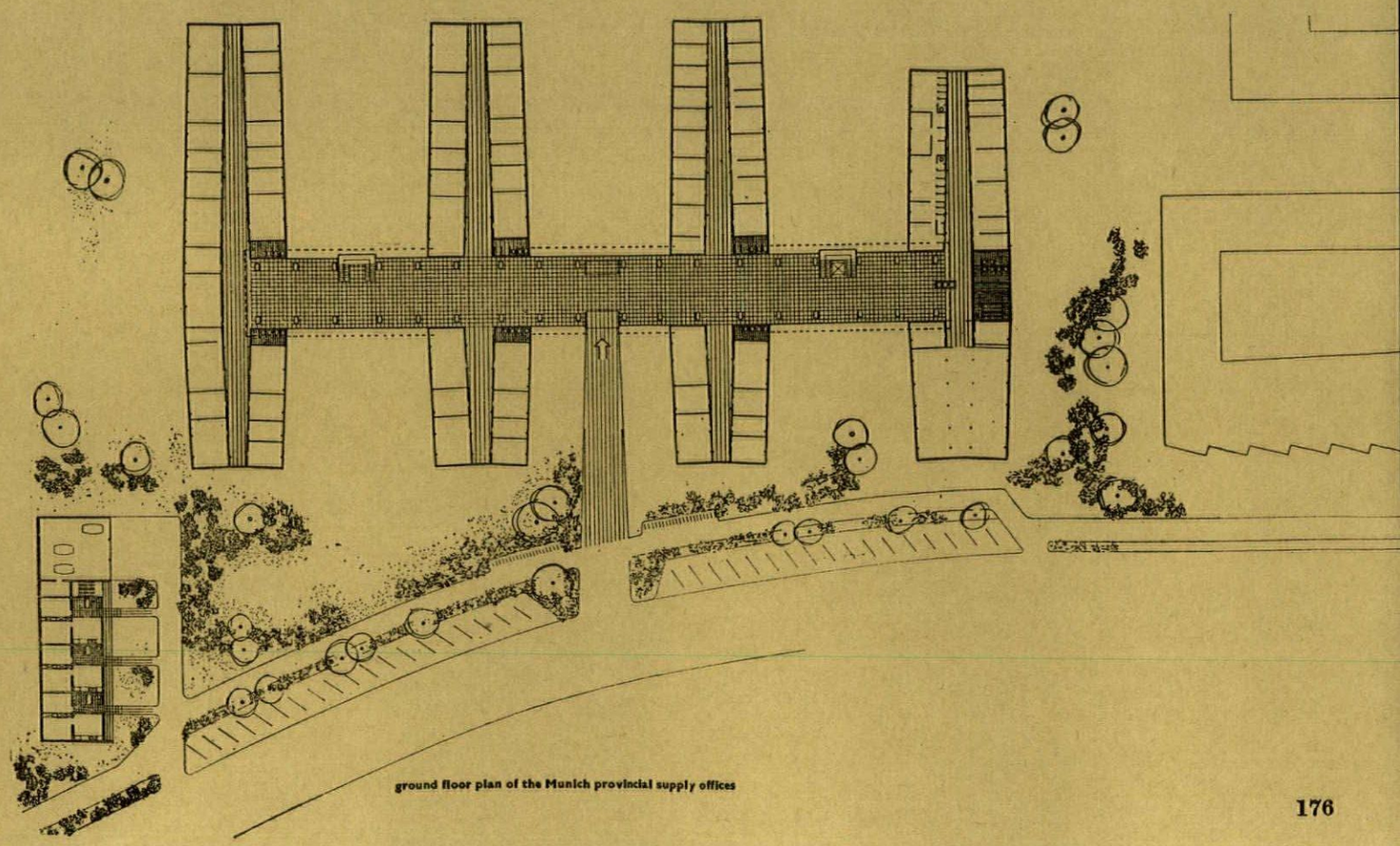
TWO GERMAN COMPETITION SCHEMES

In the German Federal Republic, architectural competitions have established themselves very firmly in the last decade as almost the mandatory method of commissioning the design of important buildings, commercial as well as public. If this has given undue power into the hands of a group of men who could almost be called 'professional assessors' it should be recognized also that some of these men have made themselves available at personal loss and inconvenience in order to ensure that the highest standards of architecture are upheld in the competition system—much of Egon Eiermann's salutary influence on post-war German architecture has been exercised in this way.

Furthermore, one should observe that this high reliance on professional choice from among a number of schemes has resulted in far fewer cautious, committee-minded solutions than might be expected. Equally rarely has a jury divided the prize in despair, and—in such cases as the Düsseldorf theatre competition—usually because it was clearly too much to be asked to choose between a number of projects of equally high quality.

However, the preponderance of the competition system has left its mark on German architecture in other ways. It has perhaps over-developed the German aptitude for ingenious and careful detailing at the expense of other aspects of design, since these qualities are easier than less well-defined ones to seize upon in committee. But, on the other hand, the need to draw up competition conditions has led to the more precise definition of briefs, while the knowledge that judgment rests largely with fellow-professionals, not with the personal tastes of a lay client, has encouraged architects to design up to fairly tough professional standards.

The two schemes reproduced on the next three pages are the sort of works by which the German competition system might, in one sense, be justified. Though neither is the work of a new and unknown designer (the Luckhardt's partnership goes back to the great days of the Berlin School), both represent a level of sheer professionalism of which any country might be proud. Both are well put together, in the sense that they are well detailed, and in the sense that much of the architectural effect comes from the structure and the detailing. But they are also well put together in the sense that they make humane and intelligent provision for the human beings who will have to use them—both buildings serve a public of one sort or another—as well as their permanent staffs of teachers or civil servants, and both contrive to handle the public in a reasonable and uncomplicated way, without fussing about 'humanism' or 'the scale of man.' It is, in the last analysis, an architecture of common sense, refined by high standards of professional competence.



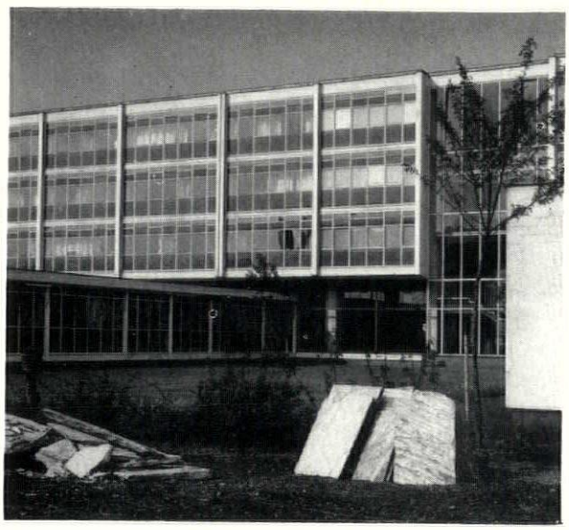
ground floor plan of the Munich provincial supply offices

1, PROVINCIAL SUPPLY OFFICES, MUNICH

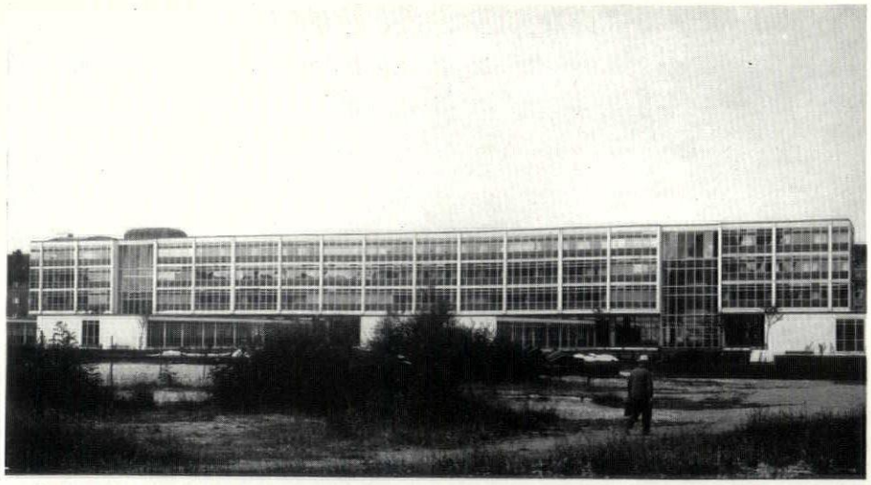
ARCHITECT, WASSILI LUCKHARDT

This office building (see plan on facing page) houses the maintenance and supply departments of the province of Bavaria and of Munich. The site is in the northern suburbs of the city. It is a type of government building that the public has to visit, and since many of the public with business in the building are pensioners, including cripples in wheeled chairs (the orthopædic supply office is one of those housed in the building), the public rooms are planned wholly on the ground floor and can be reached without stairs.

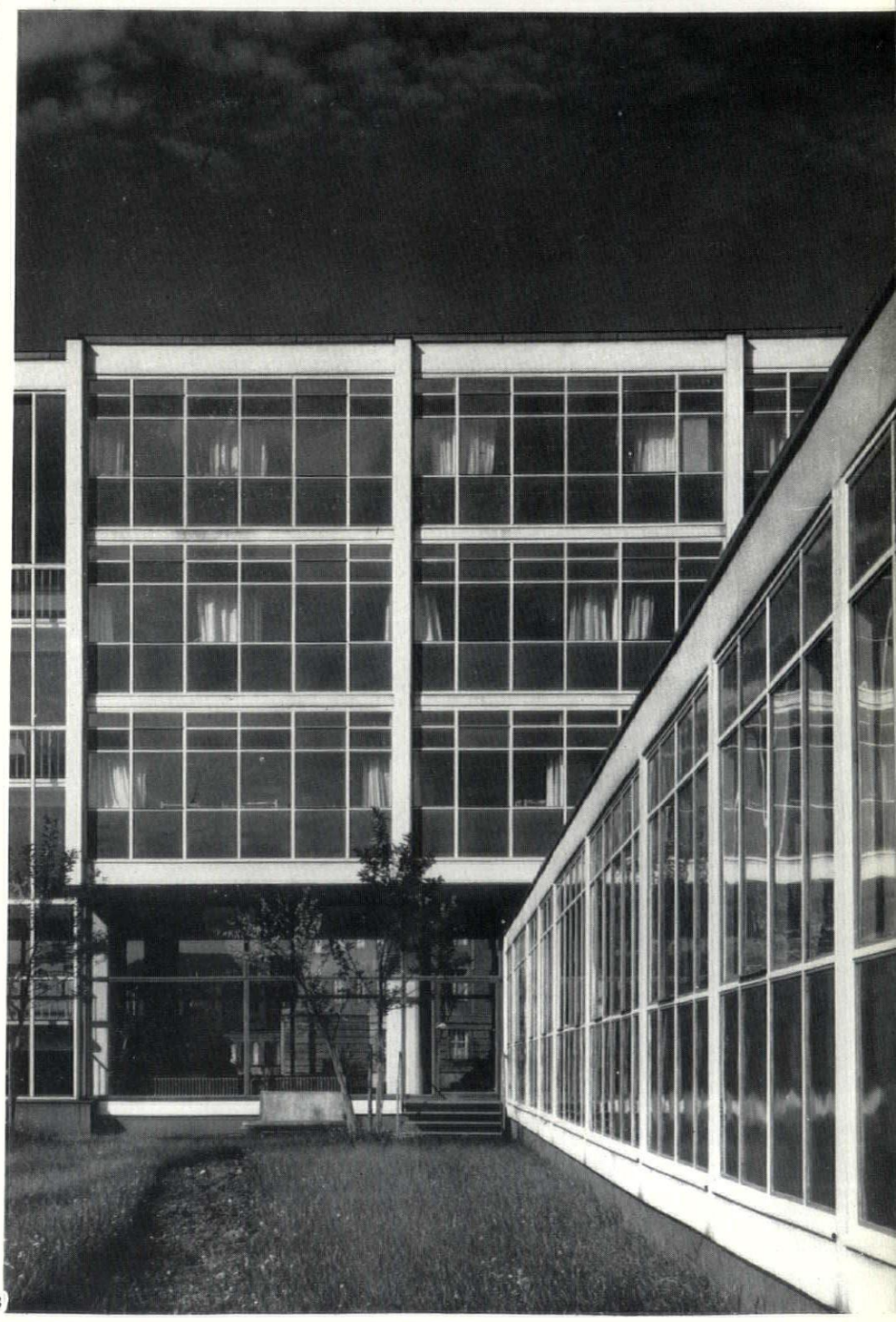
The ground floor of the main block is occupied by a large concourse, with the entrance in the middle.



1



2



3

1, the main office block seen from between two of the transverse wings.
2, from the south-west—the main approach is from the opposite side. The domed roof on the left marks the position of the conference-room.
3, inside one of the courtyards enclosed by the single-storey wings, showing the fully-glazed ground-floor concourse.

From this are reached the four single-storey transverse wings containing the public offices, each of which has a tapering central corridor in accordance with the reduced number of users at each end. The three upper floors of the main block contain the offices the public does not have to visit. They are fully glazed, giving views over the gardens in which the building is set. The narrow space between the first-floor slab and the roofs of the transverse wings is also glazed, letting clerestory lighting into the ground-floor concourse at these points. The third floor has a conference-room at one end.

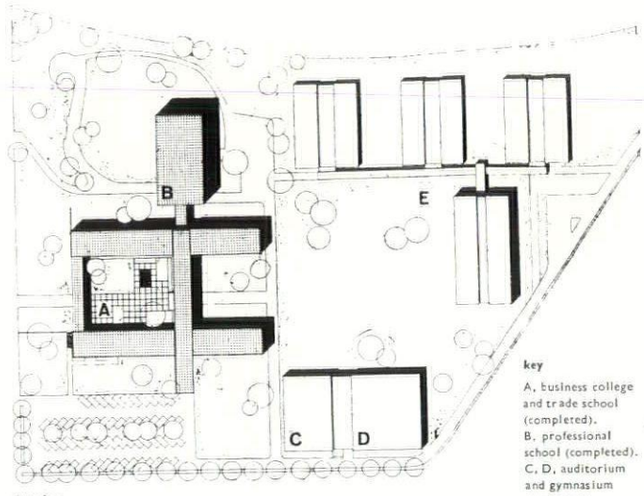
The structure is a reinforced concrete frame with steel curtain-walling. The panels below the windows are of enamelled steel sheet in a strong red colour. The two end walls of the concourse, which is 320ft. long, are faced with sculpture by the Berlin sculptors Hans Uhlmann and Bernhard Heiliger.

2, BUSINESS COLLEGE HEIDELBERG

ARCHITECT, F. W. KRAEMER

The winning design in a limited competition. It consists of two separate departments of the same floor-area: a business school, which occupies a compact five-storey wing (B on the site plan), and an advanced commercial college and institute of economics, linked to it but housed in lower buildings planned round a courtyard (A on site plan). Other educational buildings are to be built later on this triangular, well-planted site outside the town.

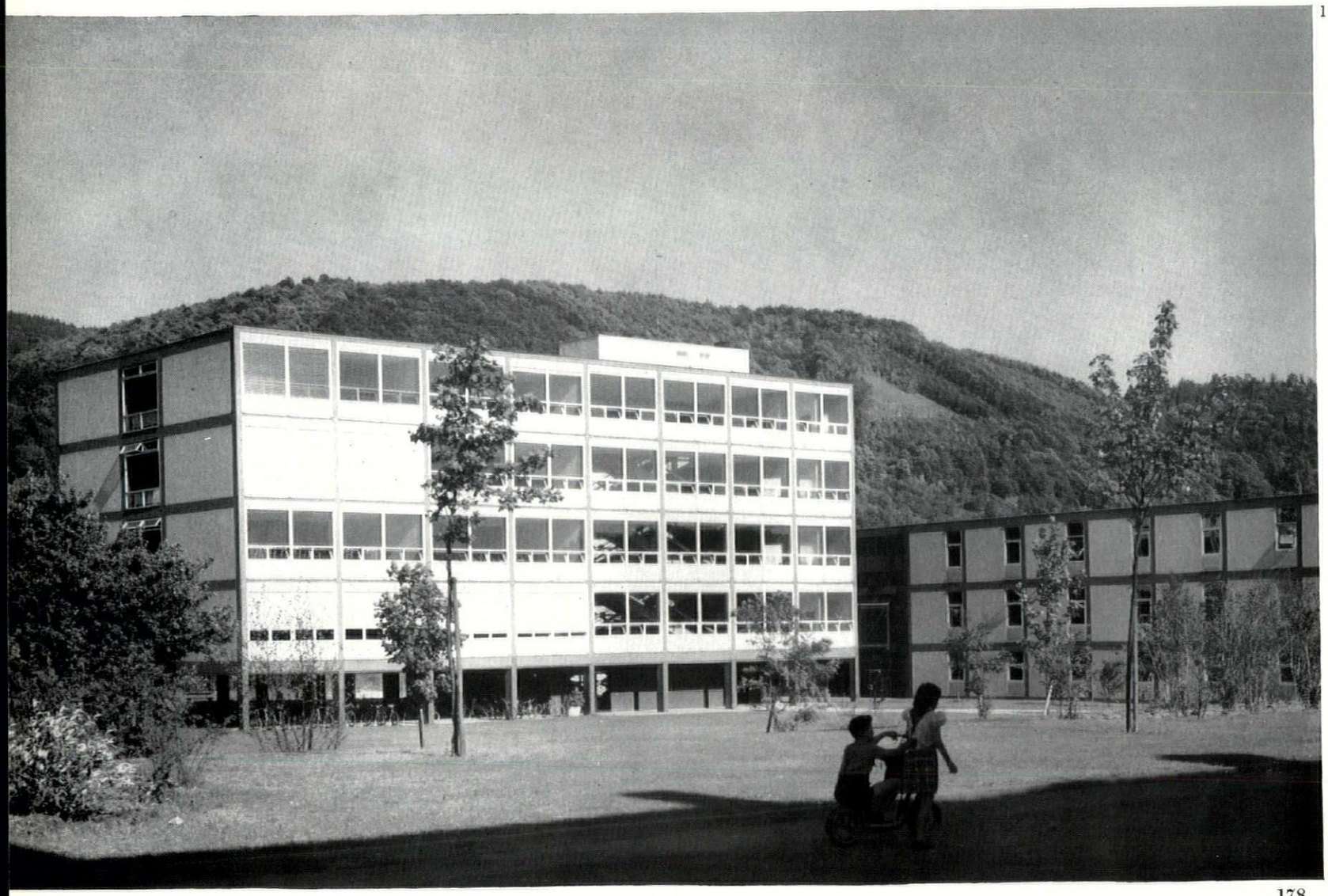
The entrance to both departments is in the long staircase hall, also serving as a general crush-hall, which links the two parallel wings of the commercial college building and closes one side of the paved courtyard. It is on the axis of the five-storey wing. This hall occurs on all three floors, the entrance to the building being on the intermediate floor since the site is 10ft. below the level of the approach road. The five-storey wing has an open play-area and bicycle shed on the ground floor. The building houses 2,500 students. It has a reinforced concrete frame, poured in situ except for the vertical mullions of the entrance hall, which are precast. Infill walls on the corridor side are of masonry, rendered in colour; on the classroom side they consist of a timber frame, glazed above cill-level and filled below with sheet metal panels enamelled blue and yellow. The halls and corridors have exposed



site plan

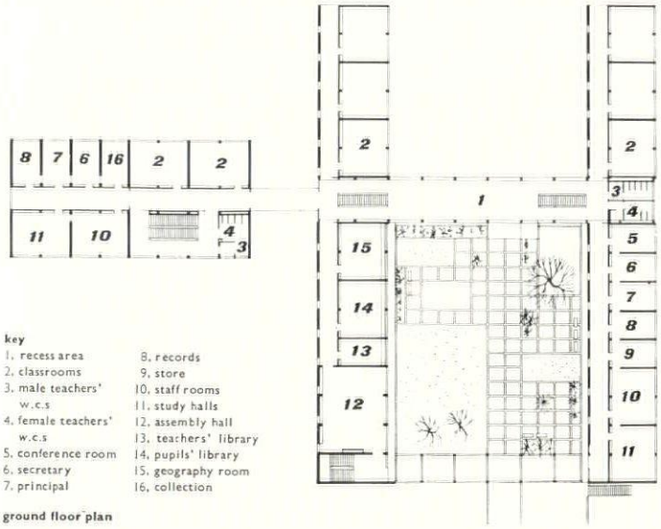
key
A, business college and trade school (completed).
B, professional school (completed).
C, D, auditorium and gymnasium (projected).
E, public school (projected).

1 (below), the five-storey wing housing the business school—B on the site plan. On the right is part of the commercial college—A on site plan.



1

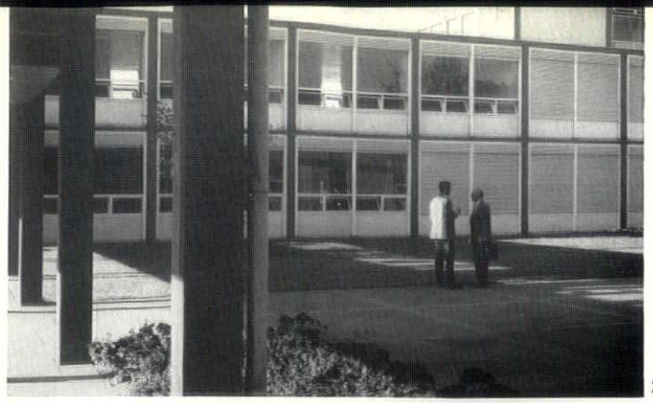
brick walls internally. The classrooms, etc., are lined with built-in cupboards in natural wood. The casement windows are protected against the sun by continuous aluminium blinds, and have permanent air-vents above, a system of climatic control that has proved so successful that, in spite of the large glass-area, this was the only school in the neighbourhood that was not compelled to close during a recent spell of intense heat.



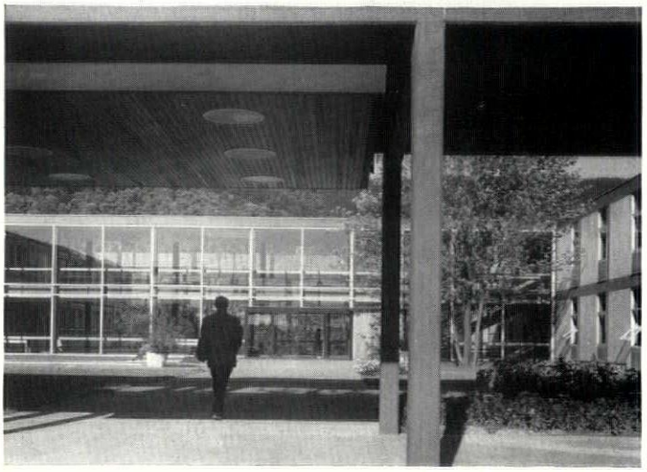
key

1. recess area
2. classrooms
3. male teachers' w.c.s
4. female teachers' w.c.s
5. conference room
6. secretary
7. principal
8. records
9. store
10. staff rooms
11. study halls
12. assembly hall
13. teachers' library
14. pupils' library
15. geography room
16. collection

ground floor plan



2

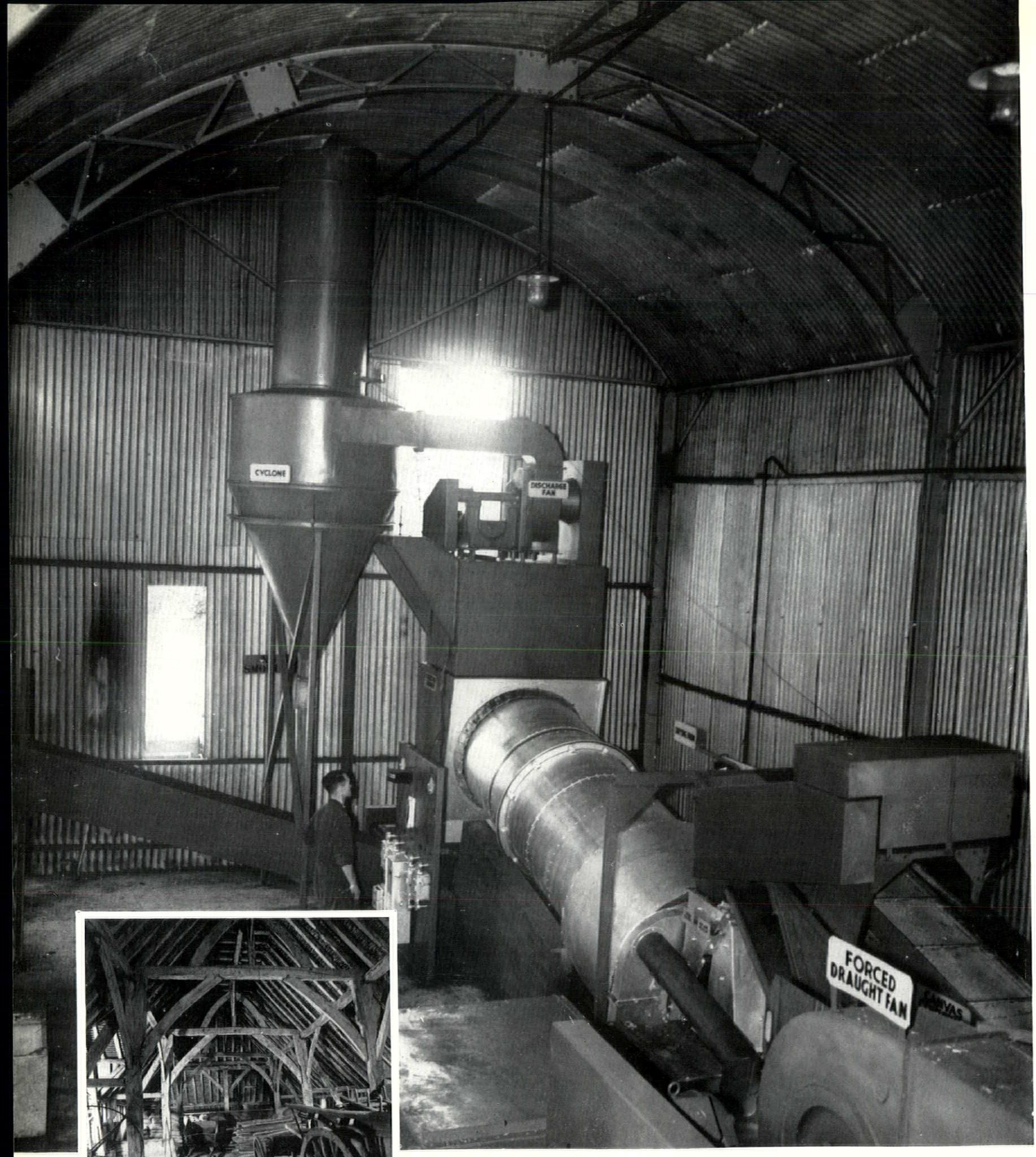


3



4

2, in the courtyard of the commercial college and economics institute with, on the left, part of the open ground floor of the two-storey link between the two wings. 3, looking down the courtyard from the same linking building towards the glazed staircase hall. The ground-level on the far side is a storey lower, this approach being direct to the middle level of the three-storey hall. 4, close-up of part of the two-storey link beneath which the courtyard is approached.



A traditional barn (left) provided all the cover a subsistence farm required, and the need for maximum uninterrupted floor space was achieved by brute force, almost in spite of the materials available. A modern plant building, however, such as this one (above) enclosing an oil-fired grass drier, all too frequently misses the opportunity to relate a building to its function. The result is a reduction in efficiency, heavy maintenance costs for the redundant enclosing surfaces, and—no less important—the building is negative aesthetically since it is neither related to its content nor to the landscape outside it.

John Voelcker

FARM BUILDINGS

Most new British farm buildings are constructed from standardized parts in a very limited range of materials, resulting in structures that are a loose fit on their functions internally, and fail to add up to convincing architecture externally and in relation to the landscape. This situation has a complex history both in farming and the building components industry, and John Voelcker explains in the article below how this situation has arisen, and how ill it suits growing trends in agricultural methods.

But how can buildings be brought into line with demands for constantly improving performance, and yet remain adapted to the peculiar conditions of man and machine-power existing on farms? The REVIEW *proposes to follow the present article with an investigation, also conducted by John Voelcker, into the present state of progressive agricultural opinions on the performance, function, and cost of both buildings and the components of which they are built, leading, it is hoped, to positive proposals for better components and better buildings, functionally and aesthetically.*

Traditional farm buildings are characterized by directness both in the way materials were used and in the way the buildings were planned. For the most part the materials were found locally: clay, stone and slate were quarried and timber was grown and felled, they received little modification before they were assembled. The plan of the farmstead centred round the barn and yard, the smaller buildings were adapted, modified and extended as the need arose and as time passed communicating the delicate equilibrium which is held between the soil, the seasons, animals, and men. Robust as the materials and methods of construction were a century of neglect has left most of them decaying and beyond repair. No less, developments in farming method and changes in the economic circumstances of the country have made many of the buildings which remained in reasonable condition redundant, for their small openings and cumbersome spanning structures are not easily or cheaply adapted to modern needs.

The need to expand and to intensify farming during the war, and the need for efficient farm management since the war both stimulated a great deal of agricultural research. At first this research concentrated on the efficient use of the soil to produce staples such as grain, potatoes and beet, which provided the calorie requirements of the population. Research into the care of livestock for protein followed, and it soon became apparent that the ways in which stock were housed had a significant effect on efficient food conversion. Due to war conditions little practical building research could be carried out but it was apparent that an extensive programme of rebuilding would be necessary if food was going to be produced in any quantity after the war. To this end the Ministry set about a theoretical study of the kinds of buildings that would be required. These would have to be cheap and they would have to serve many purposes. In 1945 the 'Post War Building Study' *Farm Buildings* was published and the Ministry's findings were included. A standardized mass produced building was proposed with main frames at 12 ft. centres providing an eaves height of at least 8 ft. Two spans were recommended one of 16 ft. and one of 33 ft. These sizes were determined in part by the traditionally accepted sizes of livestock buildings and in part by the sizes of equipment which had come into use during the war years. The wider span was considered suitable for covered yards and barns.

Acting on these recommendations the

Architect's department of the Ministry developed a number of related building components known as the MAF system and consisting of precast concrete columns placed at 15 ft. centres and providing eaves heights of 8 ft., 12 ft. and 16 ft. Steel trusses with a pitch of 22½ deg. and spans of 17 ft. 6 in. and 32 ft. 3 in. were available, and the assembled frame was designed to be clad with galvanized steel or asbestos cement sheets. In the course of the next few years many of these buildings, together with a number of older barrel roofed steel buildings were erected. They provided a first-aid remedy to farmers who were without adequate buildings for storage or livestock and who were faced with the frequent need to change their farming programme to make the best use of the subsidies available.

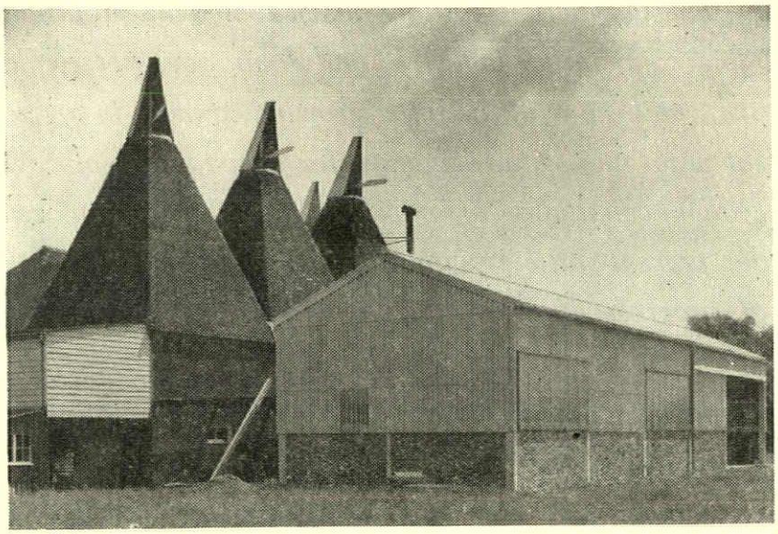
Although farmers are dependent to a great extent on subsidies and credit payments there are indications of market trends which have a more permanent character and therefore provide a basis for longer term planning and investment. Perhaps the most significant of these trends is the consumers' declining interest in staples such as bread and potatoes and an increasing demand for what are known as 'convenience' foods: that is to say, produce or combinations of produce which require very little preparation when they reach the consumer. To satisfy the demands of this market the farmer must be able to do two things: he must produce high quality goods, he must be able to prepare and store certain of these goods until they are needed. Both depend on efficient management and buildings in which the environment can be effectively controlled.

Efficient management and buildings are actively encouraged by the government through direct grants. The Farm Improvement Scheme which is available for ten years under the provisions of the Agricultural Act of 1957 is being used extensively and to advantage. This Act empowers the Minister to make grants of one third of the cost of providing or improving fixed equipment on farms and of making long term improvements to the land. Fixed equipment includes the erection, alteration, enlargement or reconditioning of farm buildings and yards, it includes the provision of permanent services such as water supply, drainage and electricity and includes the construction of roads, pens and fences. The administrative success of the Farm Improvement Scheme has been confirmed by the introduction earlier this year of the Horticultural Improvement Scheme which, among other things, grant-aids the provision of thermal insulation, and a scheme for experimental buildings which will receive an outright grant amounting to half the total cost of the work. It is not yet clear what kinds of experiment will have the Minister's approval but it has been indicated that particular interest will be taken in developments which simplify the feeding and littering of livestock and the cleaning of their quarters since these tasks may occupy as much as 90 per cent of a stockman's time.

During the next decade it is anticipated that a large number of farm buildings will be constructed. But there is a danger that the manufacturers, already well entrenched, will not be sensitive to the changing needs of agriculture. Already many farm buildings are no more than ill-fitting sheds enveloping processes for which an integrated form of enclosure is implicit and potentially cheaper. As a general comment it can be said that the separation of process and cover is only justified when the requirements of a building are so vague or changeable that no relationship beyond the probable maximum limits of enclosure can be found. There are many finely constructed buildings of this kind but their quality will always remain abstract and tentative. If processes with clear articulation and definition, such as many of those to be found in agriculture, are wantonly suppressed the results may sometimes be dramatic but they will always be negative.

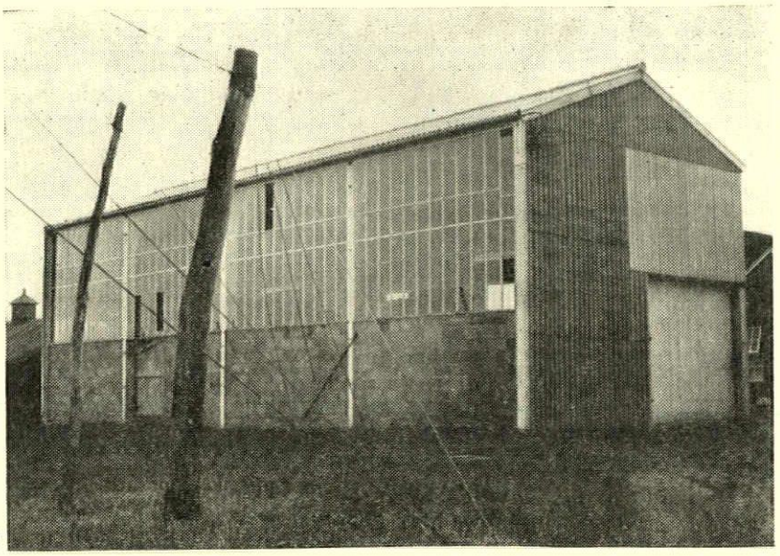
Farm buildings of the past lacked a coherent aesthetic but in its place they revealed strong if primitive characteristics through the use of local materials and crafts which connected them to the land and to the landscape. With the rapid replacement of these traditional buildings the vernacular spirit has died, its return is impossible for local materials are a luxury product and the crafts are dead. An equivalent must be sought in the nature of the processes which underly modern agriculture.

In the last resort there are only two processes. One makes direct use of the soil to raise crops and, because its location is fixed, it corresponds in many ways with heavy industry; the other makes use of animals and since feed can be transported it has similarities with light industry. The soil is used to convert seed, and animals are used to convert feed, into market



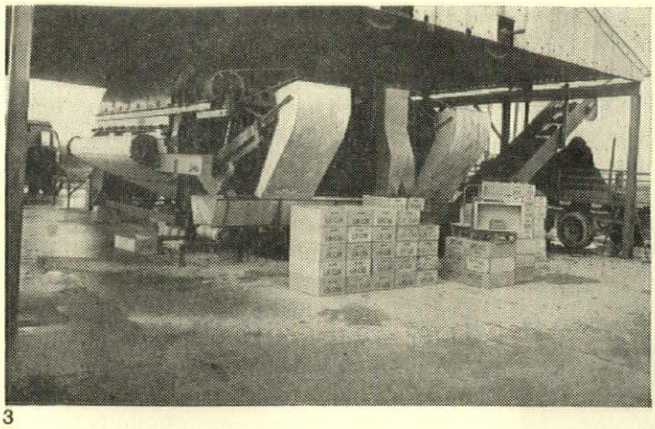
1, *a hop-picking machine-shed connected by conveyor to oast houses behind. Oasts are still used for drying the hops, but the coal furnaces have been replaced by jet oil burners.*

1

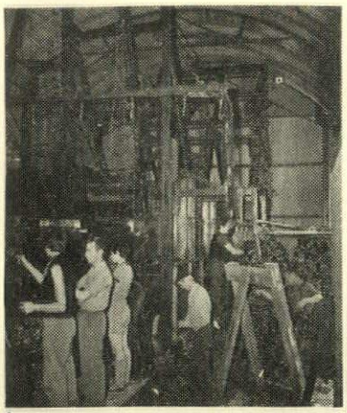


2, *another hop-picking machine-shed partly clad with patent glazing. In both these illustrations the failure to achieve satisfactory detailing in the range of asbestos cement components is apparent, though the degree of agricultural subtopia is still under some kind of control in* 2.

2



3



4

3, pea-vining plant requiring protection from most of the weather. 4, hop-picking machine in which both the plant and the operators need all-round protection. In both cases the initial harvesting process is the same—hop gardens and pea fields are stripped to the ground and the crop is fed into the machine. Hops are separated from their bines, cleaned and taken by conveyor direct to the oasts for drying. Peas are stripped, podded, washed, sometimes chilled, and packed into boxes in bulk containers for transport to a canning or freezing factory.

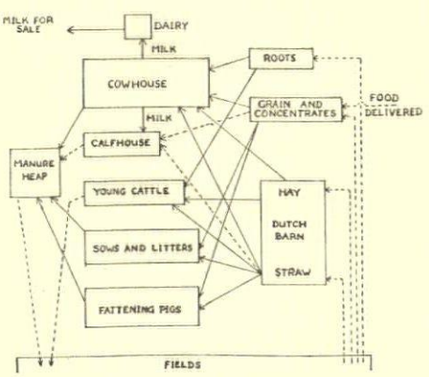
products. By tradition the crop and the livestock processes are combined and complementary to one another, a pattern which provides great flexibility, since the programme of a farm can be adapted year by year to take advantage of changes in the markets and, since the war, changes in the subsidizing policy. It follows that the buildings needed for these mixed farms need to be adaptable and not too specialized, and it is this type of building which is currently encouraged by grant aid. More specialized buildings for production which does not depend directly on the land included on a holding, but on imported feed and keep, seldom receive grant aid.

While the flexibility provided by mixed farming has the advantage of giving security there is no doubt that goods of high quality can only be produced by some degree of specialization. The advantages of specialization are borne out by the successes of intensive market gardening, fruit growing, and (more recently) arable farming where the soil is heavily fertilized and the growing crops are irrigated by a network of demountable pipelines with controlled spray outlets. These crops, although their production is specialized, are subsidized and the buildings are encouraged by the Farm Improvement Scheme or the Horticultural Improvement Scheme because they make use of the land and improve its condition. Buildings are needed for processing crops, sorting and grading, and canning, packaging or freezing the products. Usually production follows a simple linear pattern. The crop is gathered and brought to the buildings in containers hauled by tractors, it is then carried by conveyors of various kinds through the different stages of preparation and finally it is stored in readiness for collection.

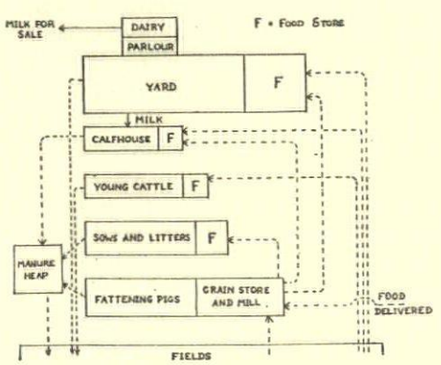
The trend toward specialization in livestock production is hampered by the lack of grant aid comparable with that enjoyed by crop producers. A small farm unit on poor land may receive no grant aid, even though it might be admirably placed to buy-in feed and specialize in, for example, the production of high grade beef or bacon. Despite this initial disadvantage, specialization in stock production is increasing. By 1958 (though in this case aided by special subsidies) 96 per cent of the eggs and egg products required were produced at home in deep litter houses frequently as a specialized venture relying on purchased feed. Broiler production increased by 65 per cent between 1954 and 1958, again a specialized and very vulnerable venture depending on purchased food and high capital investment in buildings containing complicated plant for heating, air conditioning and the general comfort and welfare of the birds. For several years intensive pig production has been a popular if unreliable specialization and there are indications that beef cattle will be the next animals to become industrialized.

While buildings for crop production are seldom more then shelters providing dry storage or providing protection for plant which may be idle for the greater part of the year, the buildings for intensive stock production demand special attention. The conditions which ensure optimum food conversion vary for each kind of animal, the planning of a building depends on the detailed method of stock tending and the success of a building will depend on the elimination of all unnecessary labour. For example, a work study carried out by the Department of Agriculture at Cambridge revealed that distribution of feed and bedding from a centralized store wasted a considerable amount of time and energy, and that modern methods of feed delivery could be used to advantage when storage was decentralized to become part of each stock building. The diagram, 5, shows a typical farm layout, in this instance a mixed farm with a bias toward stock production. Each kind of animal is separately housed and keep is stored in a barn, 27 movements made by the stockman were traced of which 17 were daily and 10 periodic. Three proposals for reducing the time and energy expended in feeding, littering and cleaning were made: firstly it was proposed that a tractor with a trailer should be used for all movements round the buildings; this would involve the continuous use of a tractor and an additional hand to open and close gates. Secondly it was proposed that subsidiary storage buildings should be constructed in strategic positions—an improvement because the tractor would only be required occasionally. And thirdly it was proposed that storage space should be added to each stock building, that feed would be delivered direct to these by the merchant's lorry and that the barn should be put to another use. The second diagram shows that when all storage space was decentralized the number of movements was reduced to two daily and fourteen occasional: the others were completely eliminated. In general, work study shows that it is important to scrutinize the accepted ways of grouping farm buildings and that the replanning of many buildings is no less important than the introduction of mechanical plant.

The replacement of the traditional cowhouse by the covered yard with its collecting pen and milking parlour is an example of radical regrouping. Traditionally dairy cattle were kept in stalls



5

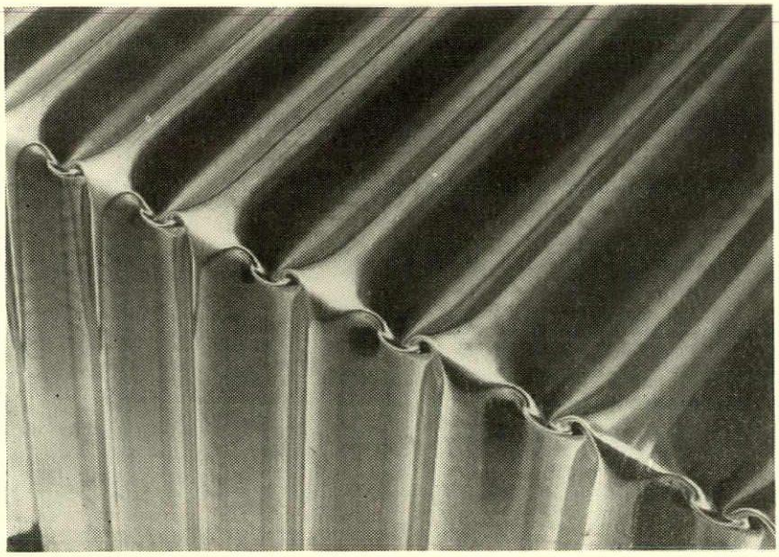


6

5, layout of an orthodox farmyard and the transportation of food, litter and manure—17 daily (continuous lines) and 10 occasional (dotted lines). 6, improved layout with daily movements reduced to two; the occasional ones become 14.

in a cowhouse. In summer they grazed in the fields, and were fetched morning and evening for milking; in winter they were permanently housed. Their bedding and feed were brought from barn or granary, the cowhouse was mucked out daily, and the cowmen milked each cow in her stall carrying the buckets of milk to a separate dairy for processing and canning. In the yard and parlour system the cows are kept loose on straw or timber slats when straw is short. Bedding, when it is used, and silage feed are stored in the yard and the cattle eat direct from the silage face, rationed by means of electric fencing. At milking times the cows pass through the collecting pen to be milked in batches in the parlour where concentrates are also fed. The yards are cleaned out once a year providing valuable manure. By making the cattle move—and they are readily trained to a routine—instead of man, double handling of food, bedding, dung and milk are eliminated and much of the cowman's time is saved.

It seems that farming through subsidy juggling is growing less important as the demands of the consumer market become more clearly defined. A recent number of *Land* (the farm journal of the Shell Chemical Company) analyses market trends over the four-year period between 1954 and 1958, and shows that the demand for milk, bread and potatoes has decreased while the demand for high quality foods such as butter, cream, beef and poultry has increased together with quick frozen foods, canned vegetables and soups, the so-called 'convenience' foods. Economists agree in general that the trend from mixed to specialized farming may be expected to develop irrespective of the present government's agricultural policy. Many of the buildings required will be experimental since plant design and farming methods may develop rapidly and many may need modification or replacement within a few years. No less important are the implications of this trend for planners; positive country planning is an art which has never been exercised but it may need to be soon. Thus American farmers, as dependent on subsidies as farmers in this country, are devising a new economy for themselves known as 'Agribusiness,' within the already highly developed framework of farmers' co-operatives. They have set about making direct contact with the consumer market through the retail trade, with research biologists and the fertilizer industry, and they have built up their own transport services. Co-operation between farmers is known as 'Horizontal Integration,' and the newer interfunctional co-operation is called 'Vertical Integration.' For the planner the combination of the two should provide a coherent programme for country planning in which a sequence of buildings linked by its own communications system reaches from the backwoods to the very centres of the conurbations.



7

7, the eaves detail of the farm building illustrated opposite, 10, the cold bent corrugated aluminium sheeting gives an edge detail that is far more satisfactory than those possible in asbestos.

In Britain since the war a number of industries has been encouraged to specialize in components for farm buildings. Materials were in short supply, cheapness and ease of assembly were the design criteria and very soon a range of components had been defined. Concrete blocks, asbestos cement products and precast concrete structures were the principal components, galvanized steel tubes welded together or jointed with removable clamps were used for fences, gates and internal fittings such as cattle yokes and pen divisions. They were eminently suited to the needs of general purpose buildings and the industries expanded rapidly as the economic benefits of mass-producing multi-purpose components became apparent. The typical building which results from the use of these components, and which can be found in every part of the country, has a precast concrete structure, a roof pitch of 22½ deg. and it is clad with corrugated asbestos cement sheets, concrete blocks, or a combination of the two.

The concrete structures have developed from the MAF frame which consisted of a steel lattice truss, supported at each end on precast concrete stanchions. The steel trusses were surplus stock which had been fabricated for military buildings. The supply soon ran out and manufacturers turned to precast concrete for all structural members. For the most part the structures produced were portal frames with haunched columns, tapered roof members and a pitch of 22½ deg. Roof members were rigidly bolted to the columns and a hinge was formed between the roof members at the apex of the roof. The MAF system's choice of spans and eaves heights has been progressively extended until today the industry will supply any span between 15 ft. and 65 ft., any eaves height below 30 ft. and the spacing between frames can be varied. In addition to the original relatively steep pitch, an 11¼ deg. roof is available and for many purposes it is useful because the volume of roof space is reduced and ventilation can be controlled with greater accuracy. In detail these buildings have been improved, the MAF columns were complicated castings and the trusses were an obstruction when the roof space was needed. One major improvement both structurally and aesthetically has been to separate the joints of the frame from the point of maximum stress between upright and roof member, the uprights are cast with a cantilevered extension and a single roof member is supported between them through bolted scarf joints. A particular advantage of this design is that stresses are evenly distributed over the inclined portion of the frame, the cross section need not be increased as it approaches the eaves, therefore the roof member which determines the span of the building can be cast to any required length by blocking the formwork. This simplified frame is more practical and more graceful than the chunky kneed portals.

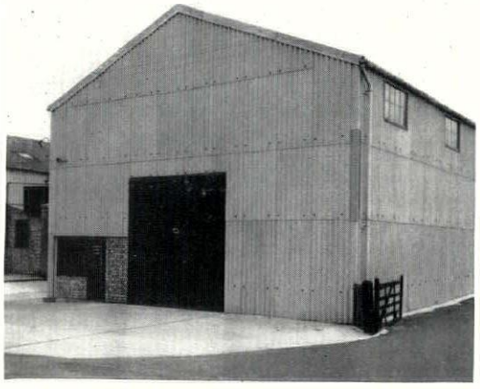
It would seem that the development of precast concrete frames for farm building is reaching its limits, further increases in the sizes of structures are needed but the members would be too unwieldy. It is likely that the manufacturers will have to turn to the design of prestressed concrete structures in which greater spans are practical if they are to maintain their present level of production because timber and steel, their development retarded when they were in short supply, are regaining popularity.

Timber is regaining its popularity because timber construction has been revolutionized. Effective protection against

[*continued on page* 187

8, *the enclosure of frames used for agricultural buildings needs special attention; the illustration shows a standard type of concrete-framed building enclosed with corrugated asbestos sheets.*

9, *the inside of the building, typical of many similar structures, put up for storage purposes and revealing many of the most common faults. In general the sheeting should not extend to the ground; asbestos is brittle and easily fractured. The building has the appearance of an untidy parcel, only the door to the office and the field gate give any indication of its size. The asbestos components used on the gable end and on the corners fail to give adequate definition to the*

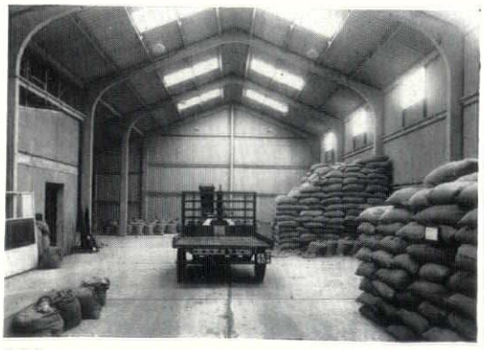


8

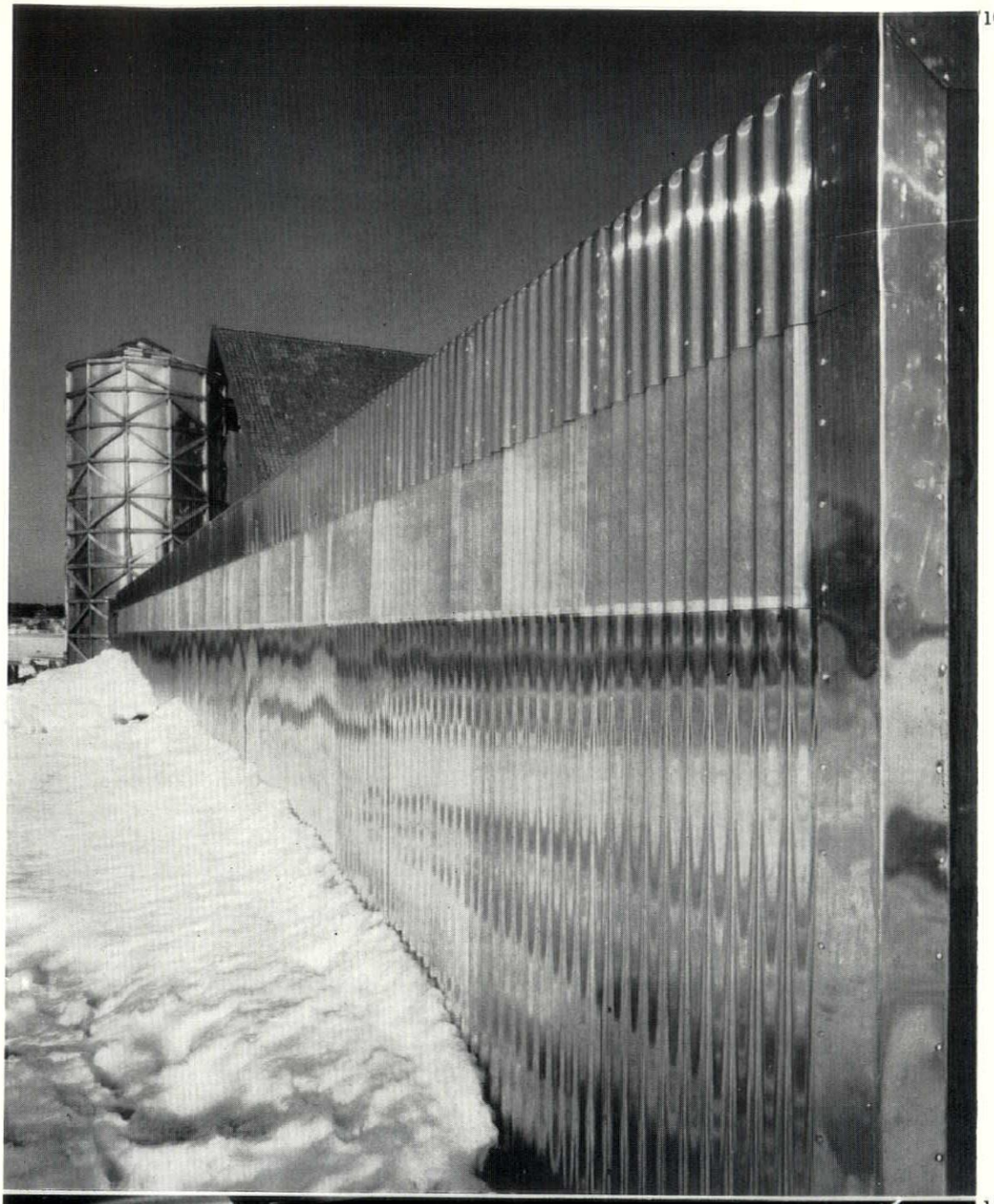
surfaces and the surfaces themselves lack clarity of either single surface, or a banded or panelled surface. The arbitrary character is increased by the lack of correlation between the large door, the brick-panelled office and the layout of the asbestos sheets. The high standard windows would be comic even if they served a useful purpose.

10, *a Swedish farm building in which aluminium cladding fixed to a timber structure is used. Care has been taken with the corner and gable components; the continuous strip lighting and the cold bent eaves (illustrated in detail opposite) show that the use of sheeting has been accepted and rationalized while the qualities of the materials themselves—the highly reflective aluminium contrasted with the matt translucent fibreglass—are very much superior in appearance to asbestos combined with metal windows.*

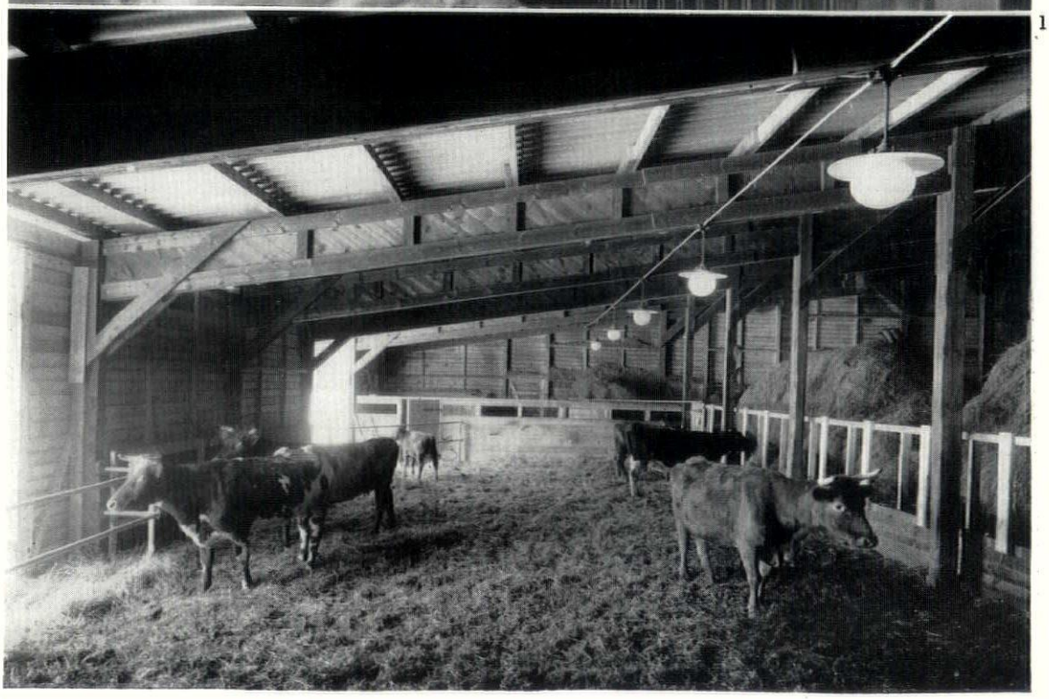
11, *another Swedish example, this time a wooden structure, closely adapted in form to its function, contrasting strongly with* 9, *below.*



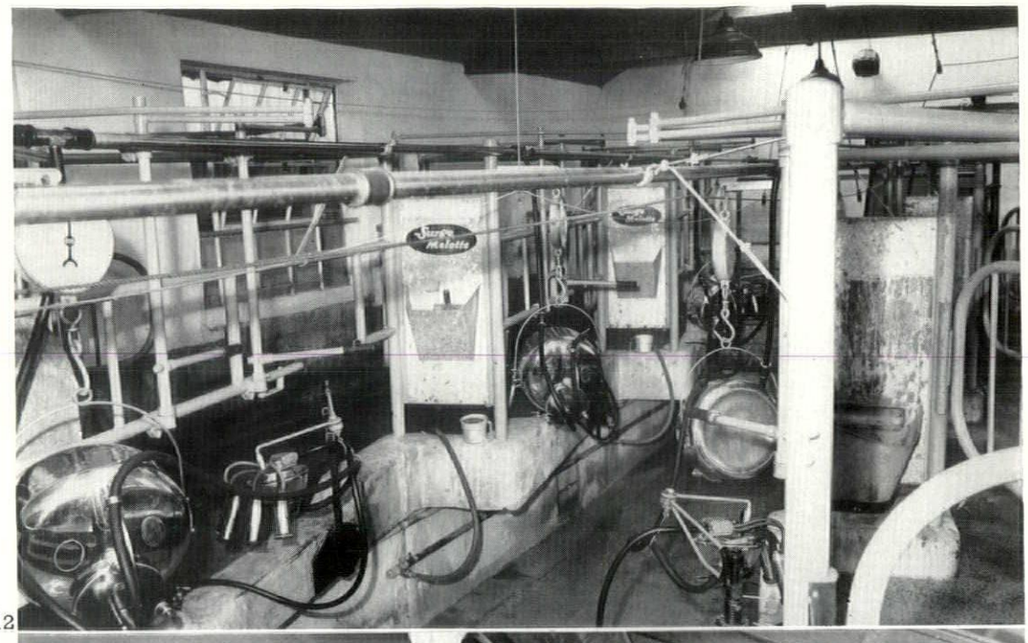
9



10



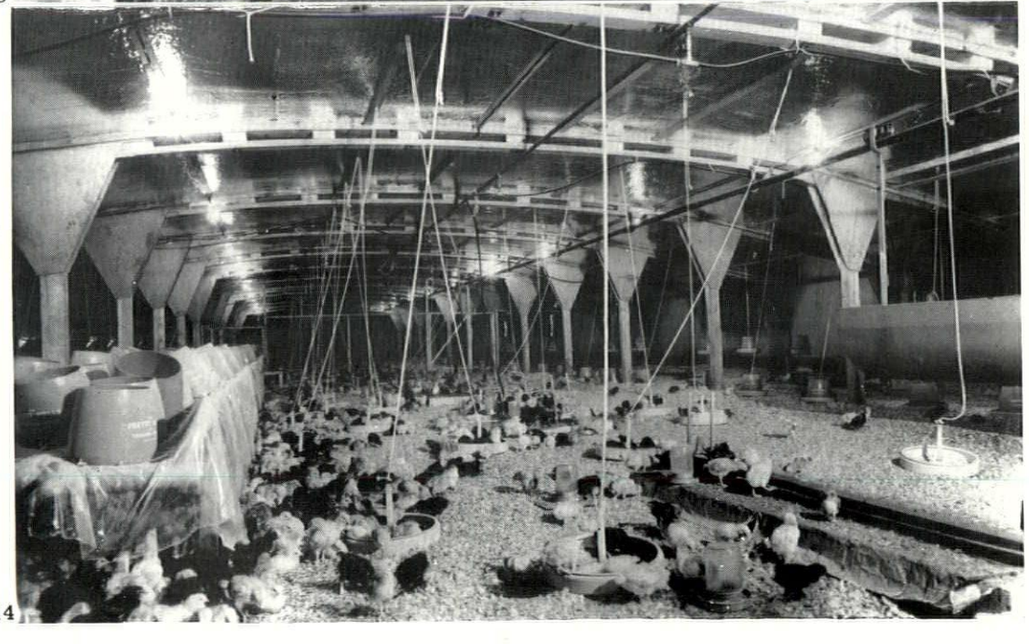
11



12



13



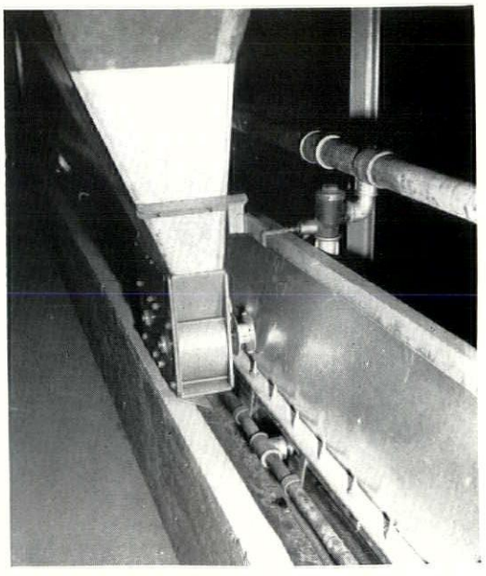
14

12, *a two-level herringbone milking parlour. The cattle are collected in a small yard adjoining the parlour and are automatically milked in batches of eight, while concentrates are fed. The cows are milked into stainless steel containers and the milk is then collected in a bulk storage tank.*

13, *a characteristic of farm building is the continual variation of floor levels. Floors are never level in stock buildings. If draining and easy cleaning are essential, the use of ramps and changes in level can often reduce work considerably. In this pig building for nursing sows, the gangway is raised, providing creeps where the piglets may go to escape being crushed by the sow. Infra-red lamps are fixed on the underside of the flooring to heat the creeps, and access to them is provided by hatches.*

14, *the most intensive type of stock farming practised in Britain is broiler production, requiring plant such as this broiler house designed by the architect Simon Dale. It is constructed of timber and is fully serviced with an oil-fired boiler, complete air-conditioning by means of thermostatically controlled fans, and dimmer-controlled lighting to ensure optimum conditions and check cannibalism.*

Some indication of the complexity to be found in stock buildings used for intensive production is given by these illustrations.



15

15 *shows a travelling hopper which rations out feed into a pig trough. The hopper automatically operates the drinking water supply as it passes each valve mounted over the trough.*

Automatic plant and equipment for milk, broiler and pig production have developed rapidly during the last decade, and there are indications that beef production may be the next to be intensified, by auger-feeding and the use of slatted floors.

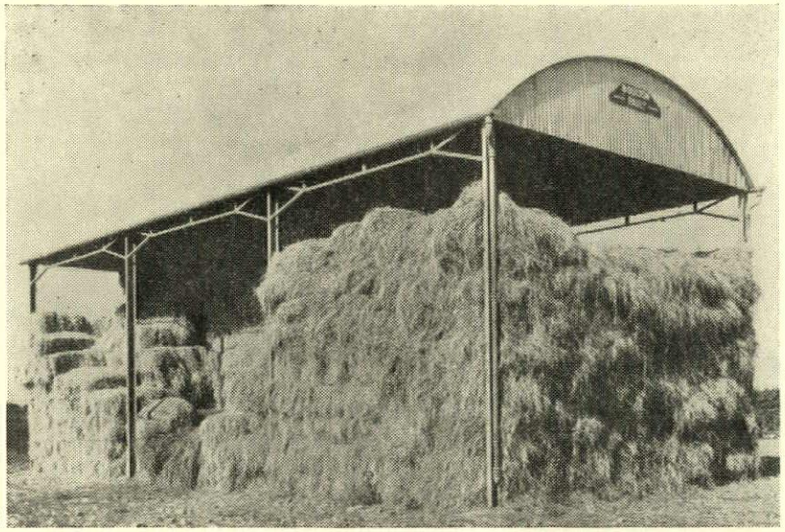
continued from page 184]

rot, the use of metal connectors and synthetic adhesives have made the construction of high strength and lightweight structures with adequate resistance to exposure possible. With the aid of design drawings and instructions which TDA are willing to provide large span structures using readily available scantlings can be built on the site to suit particular needs. While the structural design of the many beams, trusses and frames available is excellent some of the details, particularly the joints of latticed frames, need more careful attention. The overshoot of members and the bracing of main junctions are essential, if their sizes and positions could be disciplined they would contribute much to the aesthetic qualities of timber construction. Steel is regaining its popularity because small members with a high strength are needed to carry the increasing amount of plant needed on farms. This plant may be heavy and may cause considerable stresses because it includes moving equipment such as conveyors or vibrators. In addition to its strength a steel structure is adaptable and old plant can be replaced or modified with ease. Although methods of rust prevention have improved and steel structures themselves have been simplified it is unwise to use steel where condensation is likely or there are concentrations of ammonia in the atmosphere.

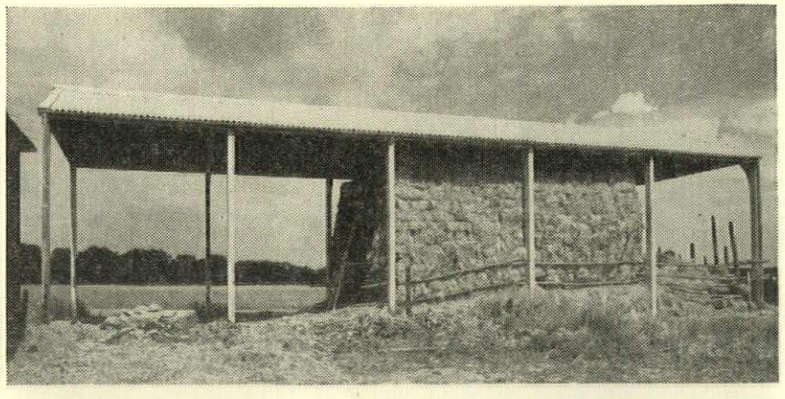
The appearance of concrete, timber and steel structures is satisfactory but the spaces defined by the structure of a farm building rarely bear any relationship to the functions contained within the building. There is little doubt that the standards adopted by the industry are over-simplified. It is becoming increasingly difficult to relate any kind of product to its purpose with precision and it is even harder to relate different groups of products to one another—the most satisfactory agricultural buildings are the dutch barns where the function is general and the minimum number of components is used. The more complicated the requirements of a building become the more confused are the results. The kind of flexibility which industry had provided for general purpose buildings has become a limitation in the design of buildings for specialized farming.

Increasing specialization in farming and the use of expensive plant and equipment is leading to the fuller enclosure of farm buildings. There is little doubt that the materials at present in use, concrete blocks and asbestos cement sheets, will continue to be used extensively, together with other materials such as large concrete infill panels already in demand, plywood, insulating materials, and metal sheets.

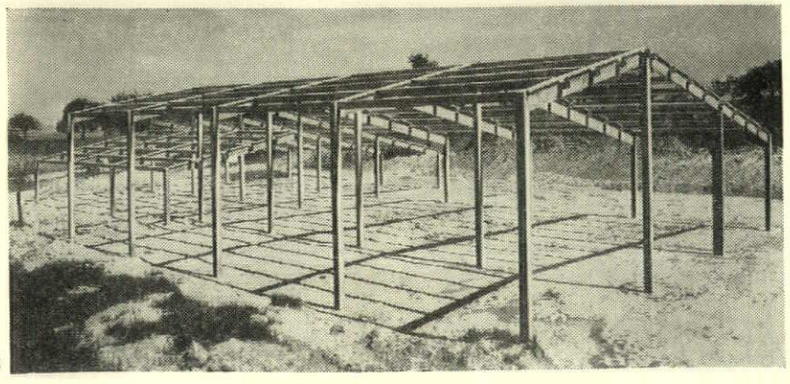
Concrete blocks are used where mechanical damage or damage by stock is likely; the colour depends on the aggregates available to the manufacturers and their surface can be dense and smooth, or coarse. There is usually a choice of blocks in any area, but their appearance depends on the skill with which they are laid. Asbestos cement will almost certainly remain the predominant material because it is cheap, it is versatile and replacement of broken components is simple. The natural colour of these products varies from dark to light grey and although attempts have been made to colour them either during manufacture or by the application of cement based paints no dye or pigment has been found which can resist the chemical action of cement for any length of time. The surface of asbestos is not reflective so that large areas of sheeting are not enhanced in the way metal sheeting is by the effects of light. The sheets habitually used for cladding farm buildings are corrugated in profile and it is indicative of an indifferent if not of a negative attitude to design that the same profile should be used indiscriminately for every sheeted surface, rather than different profiles for roof sheeting and for wall sheeting where the protection required and the stresses are different. Thus an opportunity to articulate the general form of the building in a rational manner is lost and no practical advantage is gained. Since the forms of so many buildings can only be made clear through cladding and most of this cladding is made from asbestos components it is to be regretted that the accuracy and precision with which they are manufactured cannot be maintained when they are assembled—the methods of jointing are



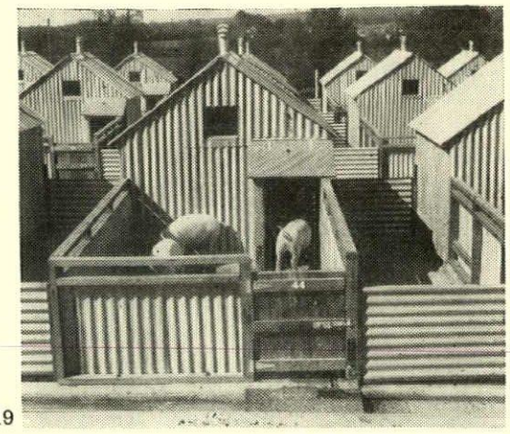
16, *a steel frame in common use for the last forty years. Light lattice arches are braced by the corrugated steel sheeting.*



17, *a precast concrete frame with rigid joints roofed with corrugated asbestos cement sheets.*

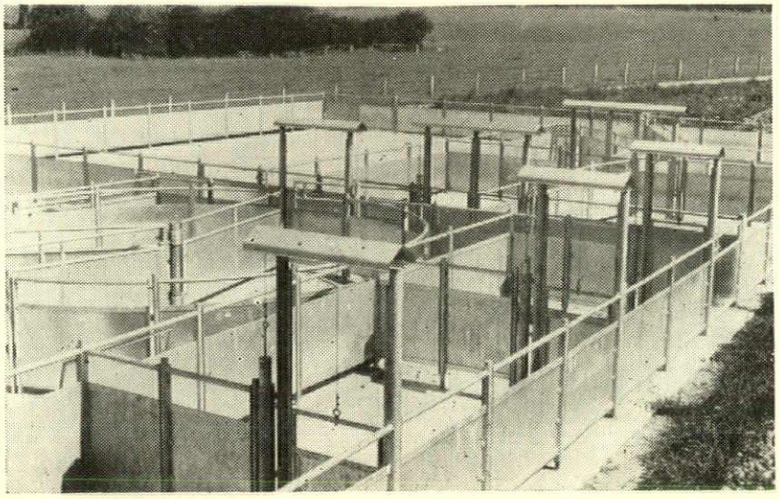


18, *a lightweight prestressed concrete structure manufactured in Germany.*

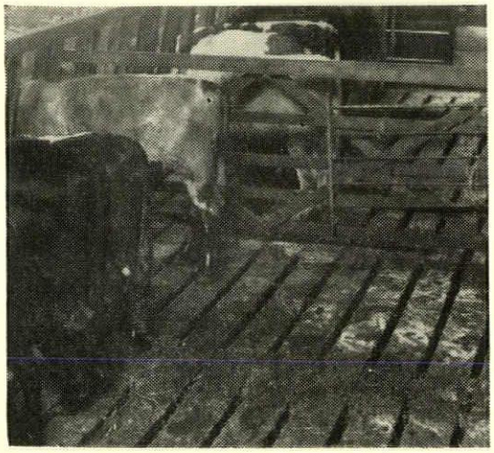


19

19, *a cluster of pig arks constructed of corrugated asbestos cement sheets fixed to timber framing, a direct adaptation of mass-produced materials to vernacular architectural concepts.*
20, *sheep pens with circular dip, footpath, drench and race constructed of galvanized steel tubes and sheets, giving a far more sophisticated design than in* 19.

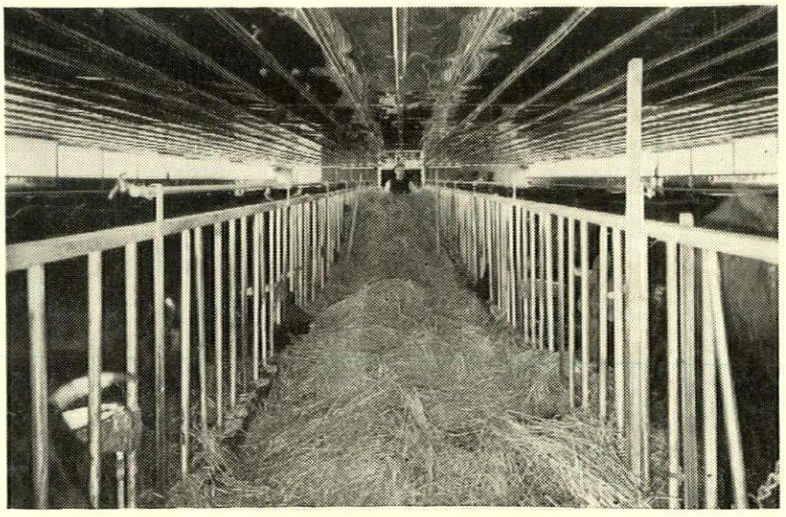


20



21

21, *slatted timber floors have been introduced recently for sheep, calves, pigs and beef cattle. Dung falls between the slats to be collected in semi-solid form.*
22, *a Swedish cowhouse (in fact, the interior of the aluminium clad structure seen in* 8) *in which feed is stored between two banks of cattle yards. Feeding is regulated by the use of remotely controlled yard yokes.*



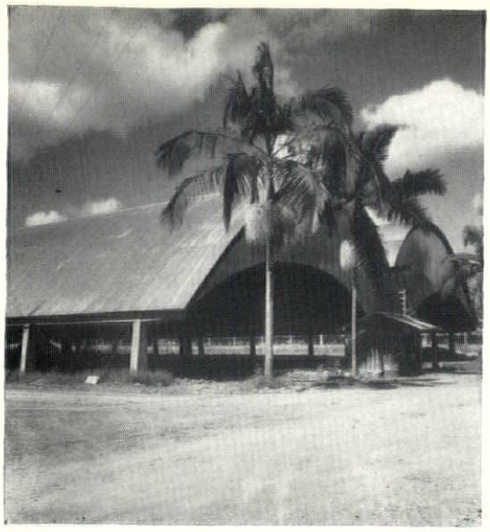
22

neither accurate nor precise. The effects of this shortcoming is most apparent when asbestos is used, as it frequently is, to cover large unbroken areas of wall. A band of corrugated asbestos one sheet deep may have an admirable appearance particularly when the main structure of the building appears above or below it, but an area over which sheets are lapped both vertically and horizontally is much less satisfactory. It cannot be appreciated as a single surface because the lap at the bottom of the sheets and the bolts securing the sheets to the structure are apparent and yet it cannot be appreciated as an assembly of bands because the corrugated line of laps and the scatter of the bolts are too indefinite. This lack of definition might be overcome if the components which cover the boundaries of each surface were designed to give them clearer definition. An improvement of some consequence might be to redesign the joints between the sheets and the structure.

While no very startling advances are to be expected in the design of structures for farm buildings or in their cladding the development of mechanical equipment for handling crops and stock is already having a marked effect on the internal planning of buildings and an even greater effect on the planning of the complete farm unit. The economic need to intensify production combined with the steady rise in labour costs has stimulated the development of installations and mechanical plant for processing crops, feeding stock and for mucking out their buildings. In its simplest form this equipment is no more than the modification of accepted methods: for example the shortage and high costs of bedding for stock has been countered by the introduction of slatted floors through which the dung drops to be collected periodically from the basement below by means of sludge pumps. More complicated installations such as power driven scrapers for cleaning, pipe and valve systems, distributive conveyors and horizontal augers for feeding are frequently used. A characteristic of this mechanical equipment is that straight uninterrupted lines of communication through the buildings are required, this linear characteristic is no less necessary around the buildings where tractors and trailers are used.

It has been noted that the traditional plan of a farm centres round the farmyard, a rectangular court often with a dung stead at its centre. The yard was enclosed on its northern side by the barn, this was full in winter and its height gave protection from the cold winds, the stock buildings were placed on the southern and eastern sides so that the stock benefited from the morning sun and the implements were placed on the western side so that their cover gave shelter from the prevailing wind. Farm work was manual and the short distances between the building saved energy, in fact the concentric plan was ideal. The introduction of the tractor and the dependence of farms on road transport for the delivery and the removal of feed, and products, and more recently the increasing use of mechanical equipment within the buildings have revolutionized the traditional plan.

A wide well surfaced roadway replaces the farmyard, at one end it connects to the public highway and at the other it provides access to the fields. Implements, seeds and crop products are housed to one side of this road ready for use in the fields or for collection, the stock enclosures together with their ancillary buildings are placed on the other side, feed stores are accessible from loading bays adjacent to the roadway, a loop road encircles the buildings and the dung stead is sited at the other end of the buildings, far enough away to allow for the linear extension of the stock buildings. The new mode of modulating the pattern of the countryside which is implicit in this type of planning, deserves to find a convincing expression in the non-vernacular buildings of agriculture's immediate future.



22



23

22, *an umbrella-building from Brazil. Under the local climatic conditions, four production processes and storage can be sheltered by the two open-sided spans. The roof and gables are covered with corrugated metal supported on purlins and lattice trusses.*

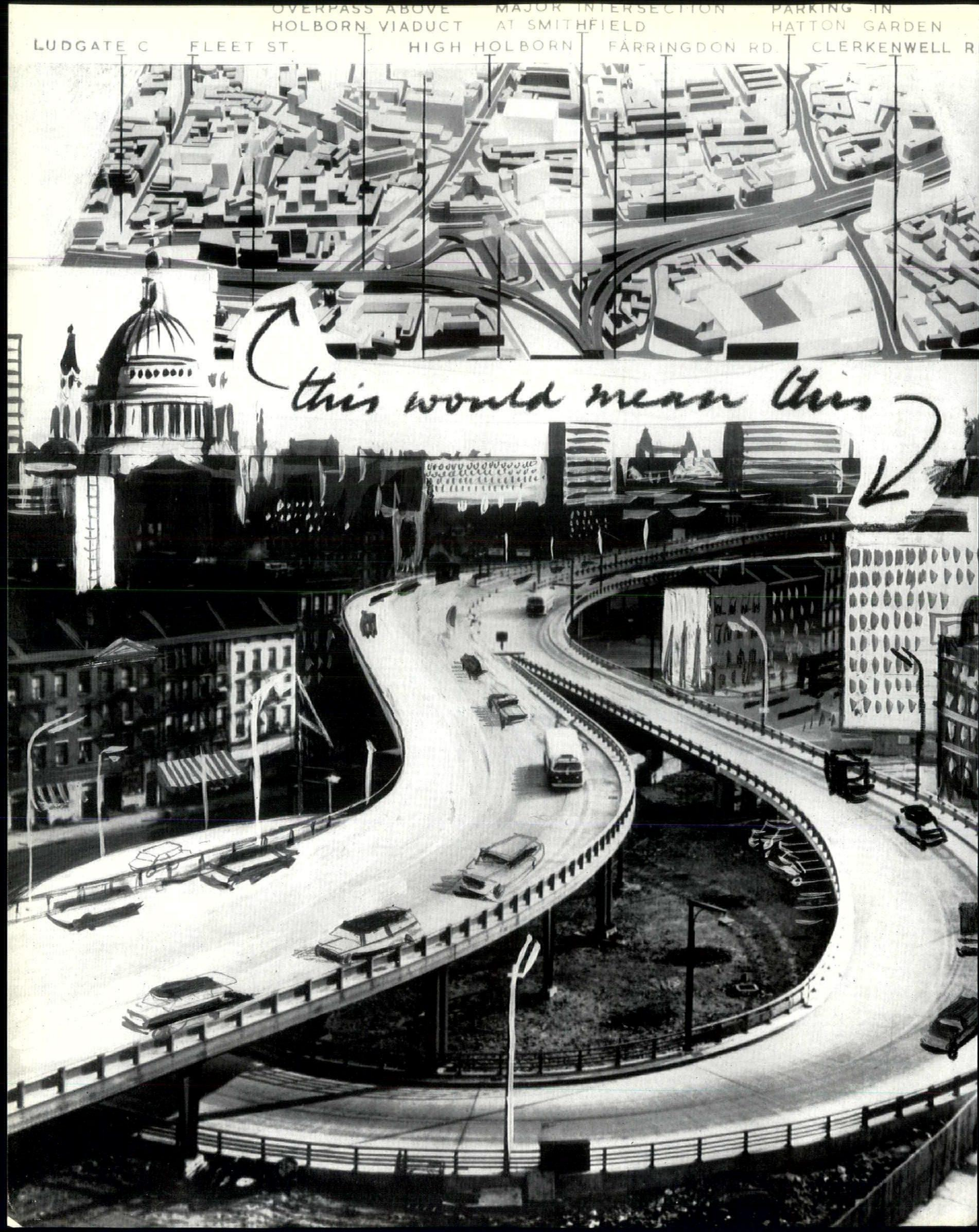
23, *granary and store of a farm at Minety, Wilts, designed by Stillman and Eastwick Field, one of the few leading British offices with extensive experience of farm design.*

24, *a grain-drying shed erected at Wye College. The roofs and gantry housing are corrugated asbestos cement with translucent lights, the walls are constructed of timber battens fixed to rails with air spaces between so that the moisture released in drying can be quickly dispersed.*

All three examples show how much imaginative design, whether by an architect or not, can contribute to the functional rationalization, as well as the aesthetics, of farm design, even when using standardized materials.



24


OVERPASS ABOVE
HOLBORN VIADUCT
MAJOR INTERSECTION
AT SMITHFIELD
PARKING IN
HATTON GARDEN
LUDGATE C
FLEET ST.
HIGH HOLBORN
FARRINGDON RD.
CLERKENWELL R
this would mean this

The horrifying picture opposite gives warning of the destructive effect that new road engineering, planned solely in the interest of traffic movement, might have on a city like London. The prize-winning scheme in the recent 'New Roads for London' competition (opposite, top) suggested such a solution, on lines that have already caused havoc in American cities. But the second prize was won by W. K. Smigielski with a scheme (model below) that showed a quite different approach, one which put the interest of London before that of its traffic. Some points of Mr. Smigielski's scheme are brought out on the following pages in which its impact on the West End of London is illustrated.

TOWNSCAPE

Kenneth Browne

THE TRAFFIC PLAN: ENEMY OR ALLY?

The chief lesson to be learned from the Piccadilly Inquiry was that in future no road improvement programme is acceptable unless it forms part of a comprehensive redevelopment scheme; thus making sure that buildings and roads are considered at one and the same time. No longer can we allow civic values to be sacrificed to the insatiable appetite of the traffic monster by blinkered specialists.

Yet the danger is great. London is choked by traffic and the piecemeal programme of the LCC, merely uncorking the worst bottlenecks, is no answer because it is not related to any up-to-date study of what is wanted. It is geared, and low-geared at that, to the outdated Abercrombie Plan of 1944 when the present increase of vehicles was never imagined. The visual result of this is at best a Hyde Park Corner or Marble Arch 'improvement scheme', neither of which is conceived as civic design but is merely an attempt to glamorize the traffic diagram imposed by the road engineers. Since no one has done the necessary thinking on London's traffic problem, present road works cannot be effective and are continually destroying townscape. Experience in the United States has shown that the mere provision of bigger and better roads is not the answer and only generates more traffic, whilst destroying effectively all the civic qualities which make urban life worth while.

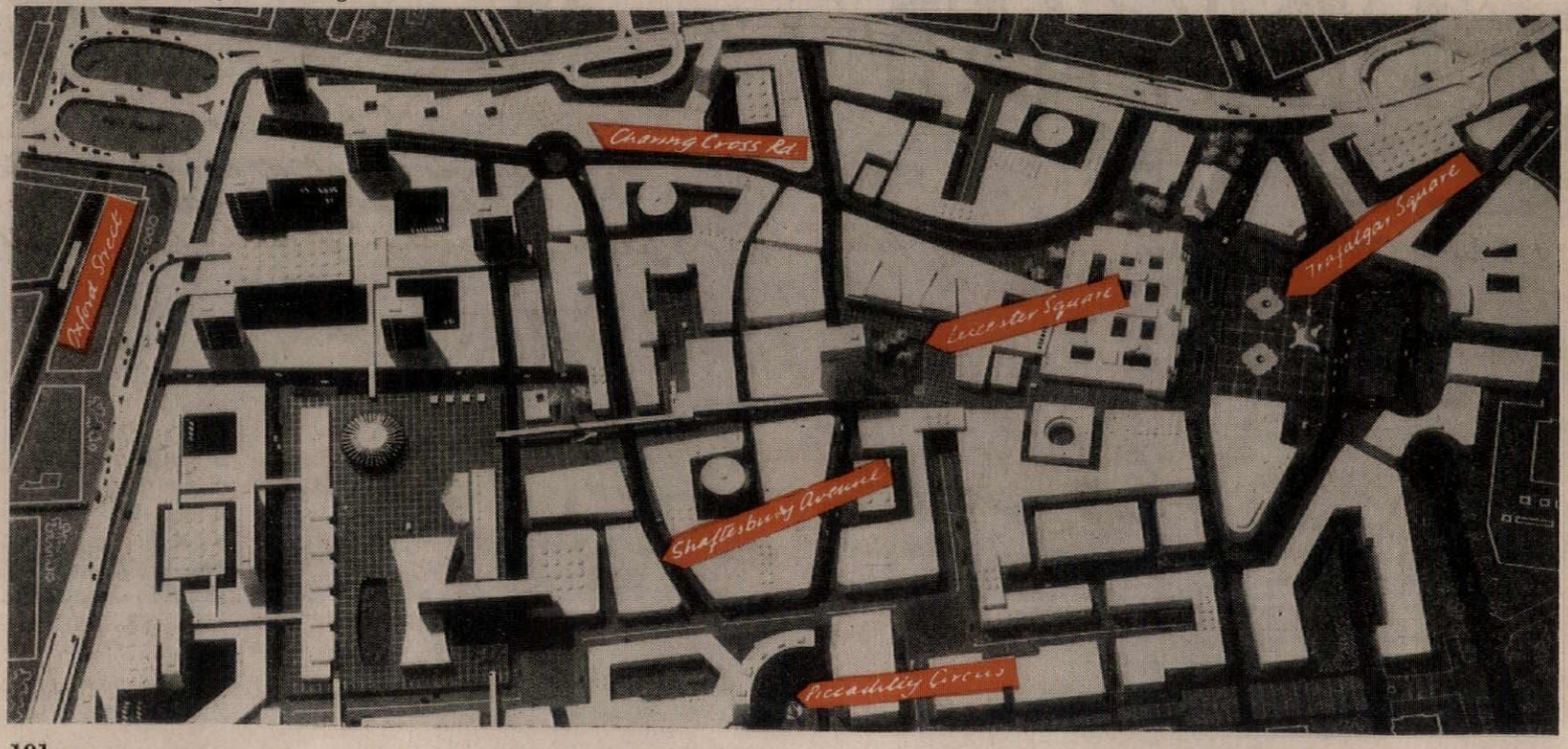
It was in a commendable attempt to draw attention to what could be done, and in the hope of getting government action, that the Roads Campaign Council last year organized their 'New Roads for London' competition—the contestants being asked to provide a plan which would cope with London's traffic problems for the next 20 years or so. Considering the vital importance of the problem, the competition did not arouse the interest it should have done, partly, no doubt, because of the difficulty of showing the layman what each scheme implied. The first flush of mild interest has now been replaced by apathy, typified by the lowest ever turn out of the members of the LCC to hear the plans described. The government does not want to know about it either, presumably because of the vast expense entailed.

However, sooner or later a government will be forced out of makeshift 'solutions' and will have to do something about this problem; there are signs of it already—then perhaps the prizewinning schemes in this competition will be examined. When this does happen, it is to be hoped that the order in which the schemes were placed by the judges will be ignored, for to carry out a road programme for London on the lines of the prizewinning scheme would be disastrous. The engineer* who designed it said in his report that it 'shows that a modern urban motorway need not seriously disrupt an existing town pattern.' In fact his model (top, facing page) shows exactly the opposite, and whatever its merits as a scheme for keeping traffic moving, its effect on London would be chaotic. It would be the U.S. story all over again, with the difference that in our case we have so much more in the way of good urban scenery to destroy. It demonstrates clearly that the wide radius sweeps demanded by a modern 100 ft. motorway, fine in rolling countryside, will slash a tight built city to pieces leaving unusable segments of land marooned between the scything curves.

By contrast, the architect planner's† scheme which came second (shown below) not unnaturally

* J. A. Proudlove. † W. K. Smigielski.

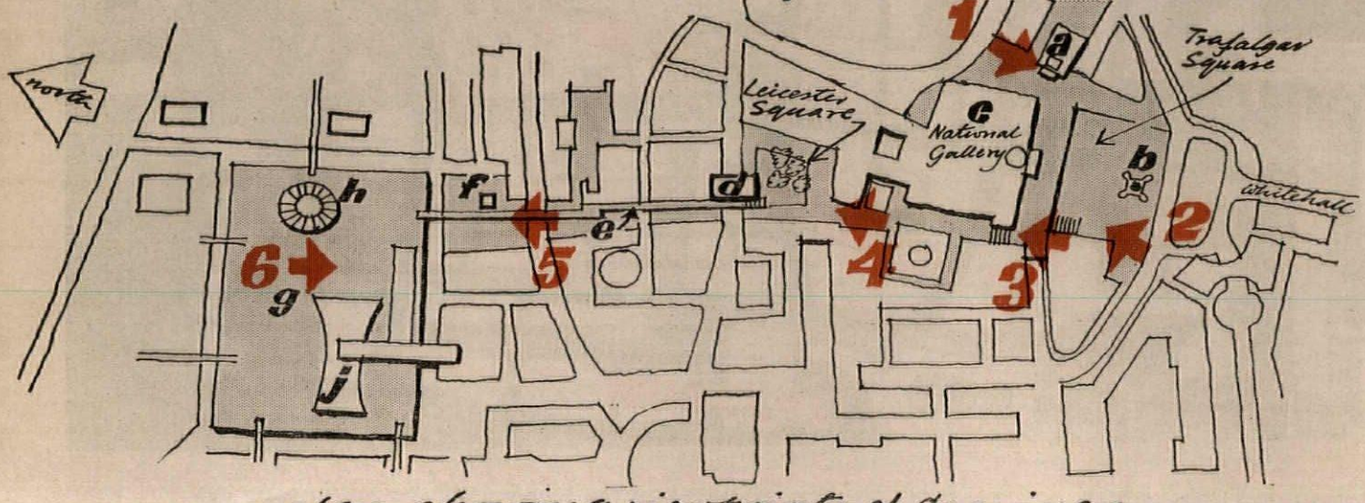
Model of the scheme by W. K. Smigielski.





This is what it could be like
At present the foreground is a seething mass of traffic

1 Looking South towards Trafalgar Square:



plan showing viewpoints of drawings

key

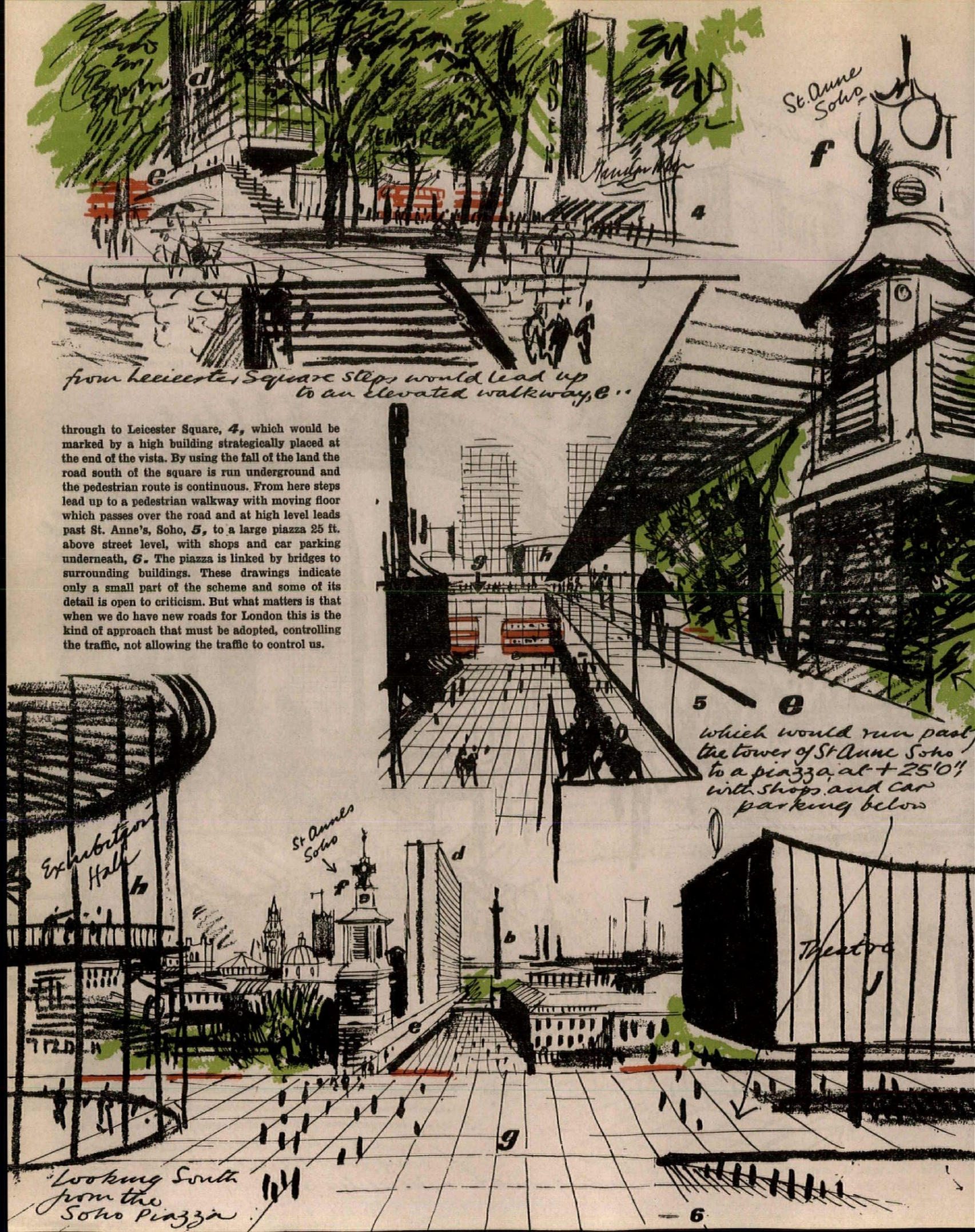
a *St. Martin in the Fields*
b *Nelson's Column*
c *National Gallery*
d *tower block*
e *pedestrian walkway*
f *tower of St. Anne, Soho*
g *piazza at +25 ft. level*
h *exhibition hall*
j *theatre*

Shading indicates areas for pedestrians only.

put the interest of London before that of its traffic. Though the judges considered his answer to traffic flow less effective than that of the winner, his approach to the problem demonstrated clearly the only civilized way to tackle it. Whatever its defects rated in vehicles per hour passing a given spot, its merits as civic design far outweigh them. Not only has he attempted to tackle the problem of traffic movement for a great city but has at the same time endeavoured to make London a better place for the pedestrian. He enhances civic values instead of destroying them, rouung his raised motorways as far as possible through derelict areas at the back of existing thoroughfares and allowing none to penetrate the central area.

An example of his care for the rights of the pedestrian, which once again the Piccadilly Inquiry showed as being a vital element in town design, is worth tracing. Trafalgar Square would be freed from its vortex of traffic by running the road on the north side of the square underground, and making the whole of the Square, including the National Gallery and St. Martin's, pedestrian territory, *1, 2.* From a terrace formed over the road in front of the National Gallery a pedestrian way, *3,* would link





through to Leicester Square, **4**, which would be marked by a high building strategically placed at the end of the vista. By using the fall of the land the road south of the square is run underground and the pedestrian route is continuous. From here steps lead up to a pedestrian walkway with moving floor which passes over the road and at high level leads past St. Anne's, Soho, **5**, to a large piazza 25 ft. above street level, with shops and car parking underneath, **6**. The piazza is linked by bridges to surrounding buildings. These drawings indicate only a small part of the scheme and some of its detail is open to criticism. But what matters is that when we do have new roads for London this is the kind of approach that must be adopted, controlling the traffic, not allowing the traffic to control us.

Noel Tweddell

THE NEW TOWN VILLAGE

For many reasons, good and bad, the residential areas of the new towns and those on the fringes of cities consist very largely of two-storey houses. This has created the wide acres of dreary suburbanization that have been so much complained of on account of their monotony, their visual insipidity and their lack of social coherence. While such houses continue to dominate the scene, an urban environment in the traditional meaning of the term will not be achieved. But where, for the social, economic and other reasons outlined in the following article, this situation has to be accepted, all the greater efforts are needed to plan and group two-storey houses so as to create some of the civilized and visually satisfying qualities, if not of the traditional town, then of the traditional village: its compactness, neighbourliness and sense of enclosure.*

On pages 197-204, some recent schemes are illustrated in which such efforts have been made in two of the new towns (Basildon and Harlow) and on the outskirts of an industrial city (Coventry). Using various techniques of rear and footpath access which have allowed them to reintroduce the closed square and alley, and inspired to some extent by the requirements of car ownership, their architects have made, within the limitations set by the use of this one small dwelling unit, a notable advance over the usual semi-detached or terrace house strung along the wide suburban road.

The illustrations of these housing areas are introduced by an article in which Noel Tweddell, until recently chief architect of Basildon new town, describes the evolution of improved, compact housing layouts in recent years and discusses the pros and cons of the planning techniques that have been employed.

The war left us with a great housing shortage, a scarcity of labour and material, high costs and big housing subsidies; but, more important, also with the guiding hand of the (then) Ministry of Health and of Town and Country Planning.

Nowhere are the results seen more clearly than in the housing programmes of big cities, and of the new towns that were then springing up. Almost for the first time considerable architectural and planning skills were focused on them.

The solution adopted has been governed by the availability and cost of land, as much as by the social habits of the tenants and the economic requirements of the programme. Where land has been scarce and values high the tendency has naturally been to build flats and build high, in spite of the greater costs involved, but where development has taken place on virgin land on the outskirts of cities, on new out-county estates and in new towns, the economic and social forces have led to two-storey house development. In these latter circumstances the land devoted to

* See *Prairie Planning*, AR, July, 1949.

housing may well amount to 70 per cent of the built-up area of the town. Typical land-use figures for a town of about 100,000 people are as follows:

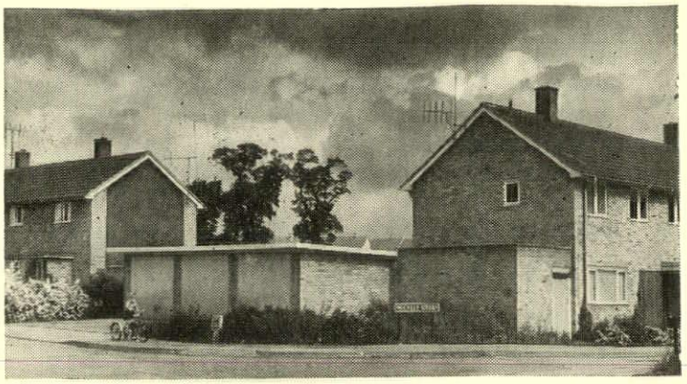
Housing: at a gross average density of 45 persons per acre	2250 acres	70%
Industry (manufacturing and service)	400 ,,	12%
Commerce	75 ,,	2%
Public buildings	75 ,,	2%
Education (including playing fields)	450 ,,	14%
Total built-up area	3250 ,,	100%

The housing figure in this instance includes much pre-war housing at low density.

Land-use zoning has put most of the new industrial acreage on the periphery of towns, leaving the small commercial and administrative core embedded in a sea of housing, broken up by schools, shops, local playing fields, the church and a pub or two. Housing, therefore, becomes the dominating feature in establishing the character of the town. But, however important the architectural treatment of the housing may therefore be, there are many other factors exercising a powerful influence on the form that the housing must take, factors which produce a bias towards the small-scale dwelling unit, the least easy to handle from the point of view of solid architectural form. First, the majority of the houses in these large schemes is of the weekly rented type; second, in new areas, the people most willing to move some distance from their old districts are young married couples whose demand is overwhelmingly for two-storey 3-bedroom houses with gardens. There is a great aversion to flats.

A third factor is that houses are also the most economical type of accommodation to build. Few people would wish to pay the higher economic rent for a flat of smaller floor area, without a garden and with less privacy, than for a house. In later years, as the population structure of the new towns becomes nearer to the national average, demands for other types of accommodation may arise, and it is, therefore, permissible to leave sites for blocks of flats, but until they are built the absence of buildings over two or three storeys in height must strike the visitor as odd, if not unpleasant, in its uniformity.

Fourthly, economy is vital; not only to Government approval of the tender figure, but to enable reasonable rents to be charged in proportion to the wages of the tenants. To charge high rents might well lead to 'arrears' when many tenants are saddled with hire-purchase payments for the furniture and other amenities of their new home. High housing rents can also act as a deterrent to a prospective industrialist who might fear discontent among his work-people, or to a prospective shopkeeper who might think that the spending power of the population was being disproportionately reduced by the amount of the weekly wage earmarked for rent.



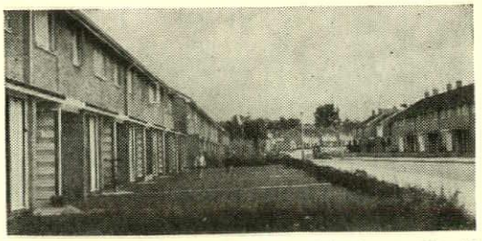
1, the corner left open where two terraces of houses meet at right angles—a frequent but unsatisfactory practice.

Fifthly, there is the problem of constructional output. On large estates it is not a matter of building 200 or 300 houses in a year as a neat and self-contained contract, but of achieving five or six times that output year after year. More standardization and a greater simplicity is required than is necessary where a lower annual output of houses is possible. And finally, as a new factor there is the problem of the motor-car. Who would have thought twenty years ago that council housing would require garage provision on a scale of one garage for every two dwellings? Yet this is necessary to-day, and some authorities are already talking of higher figures. The increase in motor-cars generally also brings with it the desirability of segregating pedestrian and vehicular traffic.

It is no part of this article to argue the rights and wrongs of these social or economic forces, but only to consider their effect on a large-scale housing programme. Subject to variations in detail in different parts of the country, the problem is essentially one of how to group a large number of small and similar units in an efficient, economical and attractive way and so create an environment with as many as possible of the qualities a town should have.

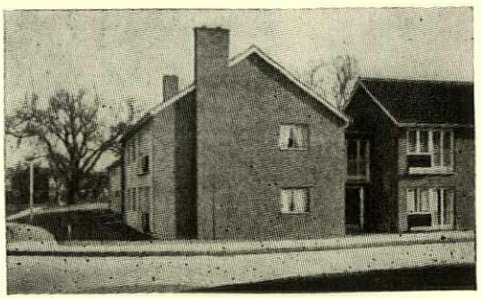
Five years after the war, in the early 'fifties, most layouts were based on a pre-war street pattern: the through road, albeit perhaps a devious one. Zoning had created the neighbourhood, separating residential uses from primarily commercial and industrial ones. Main roads ran between neighbourhoods. But within residential areas the road pattern was still continuous. Although in building terms, the pre-war semi-detached house had given way to the terrace in order to get some architectural form into the scheme, densities were low, partly as a result of the demand for front and back gardens and partly because of the opposition to higher densities by local authorities. Varying building lines only served to some extent to reduce the monotony of the corridor street. The minimum of 15 ft. from the back of the pavement to the house frontage led to streets too spacious and open for the scale of the houses. Adjacent terraces at the corners of two streets, 1, had to be left open to provide everybody with a garden' with considerable loss of architectural quality and waste of road frontage.

Although far removed from the byelaw street in detail, this type of layout suffered (and still suffers, since its use is still widespread) from the same defect of never getting anywhere. There is insufficient enclosure and repose, 2, and this is accentuated by the openness of corners where too much sky leaks in. On the other hand, it is the straightforward solution to the housing problem, and at a time when the country was still recovering from the strains of war, it is perhaps excusable that more creative thinking was not given to the problem.



2, housing layout along continuous road frontages, with wide verges typical of new town and similar practices.

The next phase of development made greater use of the closed corner, both internal and external, and the cul-de-sac. Each arose from economic and architectural reasons. The closing of the corners of terrace blocks, 3, gave better use of street frontage, higher densities and more economical house construction (at the expense of providing some dwellings without gardens). And, similarly, the cul-de-sac increased the number of houses that could be provided for a given length of roads, sewers and services. There was an equal



3, the architecturally improved built-up corner—contrast with 1 above.

[*Continued on page 205*

On this and the following pages are some recent housing layouts, in Basildon and Harlow new towns and in Coventry, in which compactness of grouping and a sense of enclosure have been achieved by the use of rear and footpath access and similar devices, as described in the accompanying article. On each plan the coloured area indicates the area reserved for pedestrians only.

1. BASILDON

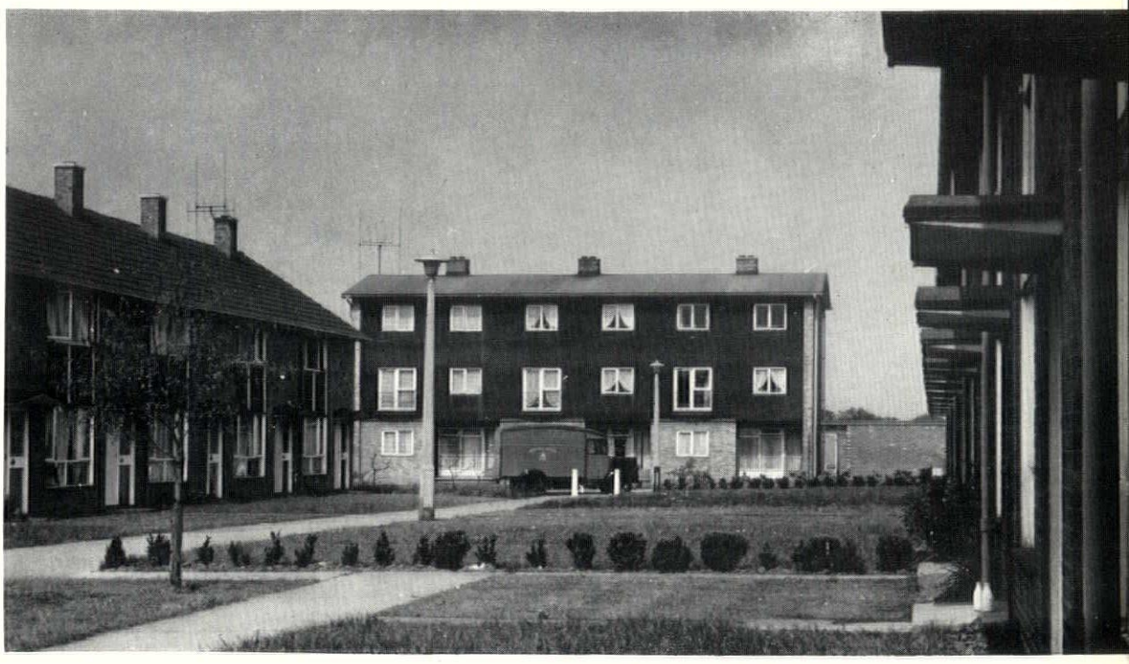
FRYERNS 8

ARCHITECT-PLANNER: ANTHONY B. DAVIES (in succession to Noel Tweddell)

Senior architect in charge: J. Farber. Group leader: M. R. Bool

The design of Fryerns 8 layout was the first limited experiment made in Basildon new town for the separation of vehicles and pedestrians in housing areas. Rear access to houses is mainly from the garage courts (one of which is shown in 6, page 205), but in some cases access is by a footpath at the bottom of the garden, flanked by stores and screen walls. As the demand for garages grew, this latter form of rear access was less used.

1





2

1 and 2, the houses have small front gardens, running down to a single front footpath about 10ft. wide. These are examples of houses grouped round communal greens—see layout plan.





3

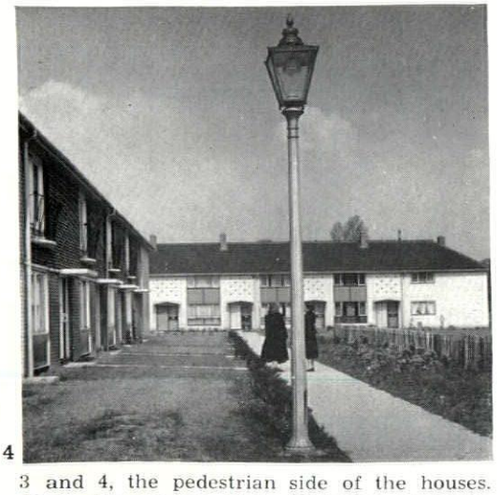
2. BASILDON

BARSTABLE 6

ARCHITECT-PLANNER: ANTHONY B. DAVIES (in succession to Noel Tweddell)

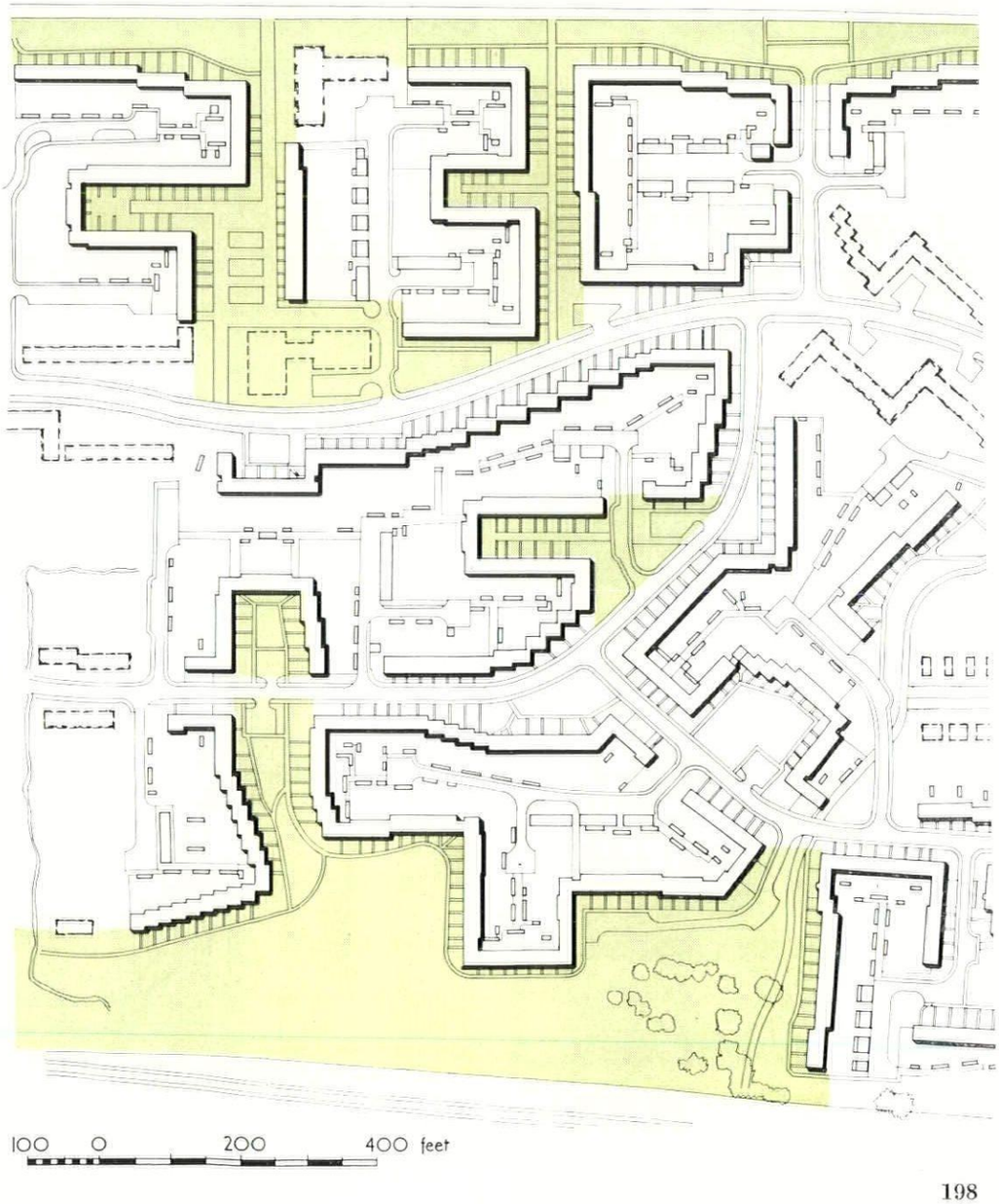
Senior architect in charge: J. Farber. Group leader: M. R. Bool

This layout extends the principle used in the Fryerns 8 area (preceding page). A major road on the north boundary of the site is fenced off but the houses face on to it (avoiding the messy effect of many inward-facing layouts) with footpath access to the front doors. Instead of a service road there is service access from the garage courts. A steep slope over part of the site determined some of the planning. Pedestrian area is coloured.



4

3 and 4, the pedestrian side of the houses. Note the re-use of a Victorian cast-iron lamp-post.



3. BASILDON

FRYERNS 7c

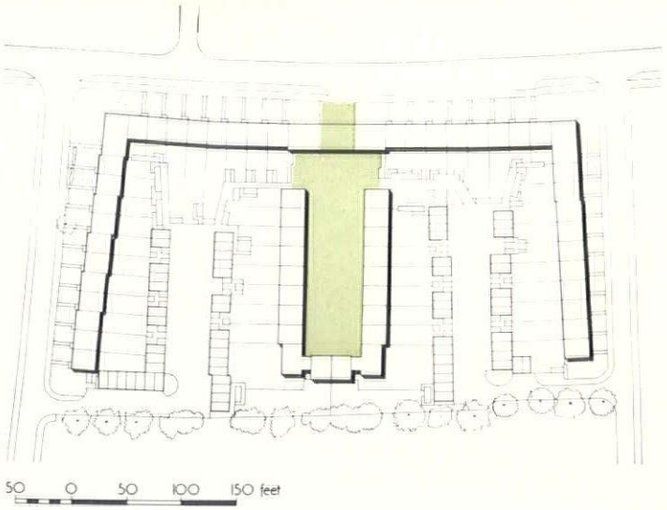
ARCHITECT-PLANNER: ANTHONY B. DAVIES (in succession to Noel Tweddell)

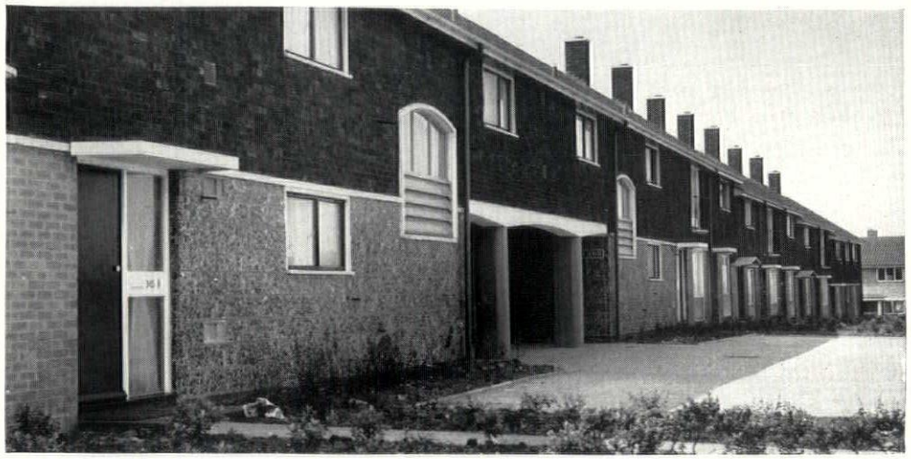
Senior architect in charge: J. Farber. Group leader: M.R.Bool

A 3½-acre layout on the rear-access principle, designed just after Barstable 6 shown on the preceding page. There are 18 dwellings per acre, consisting of 57 houses and 10 flats. There are 63 garages —almost one to each dwelling. The alignment of the three periphery roads was fixed by external considerations.



5





6

7

5, one of the pedestrian courts (see layout plan). The contrast of texture is obtained by cobbles and whitewashed brick. Note the architectural advantage of not having to provide doors in the fronts of the houses for access to stores, refuse bins, etc. 6, outside the pedestrian court, showing the bridged entrance. 7, looking across the court (which is 55ft. wide) from beneath the bridge.



4. HARLOW

RIVERMILL AND HORNBEAMS

ARCHITECT-PLANNER:
FREDERICK GIBBERD

Two housing groups separated by a spine-road running north-south down the centre of the site (see plan below). They include a number of three-storey buildings, giving variety and enclosure to the streets, but 80 per cent of the dwellings are of two storeys. The road pattern is a combination of through streets (short and mostly curved) and enclosed culs-de-sac or squares, with all distant views closed by buildings. Some segregation of pedestrians is obtained by a footpath system between the house gardens (pedestrian areas coloured on the plan), linking certain roads and

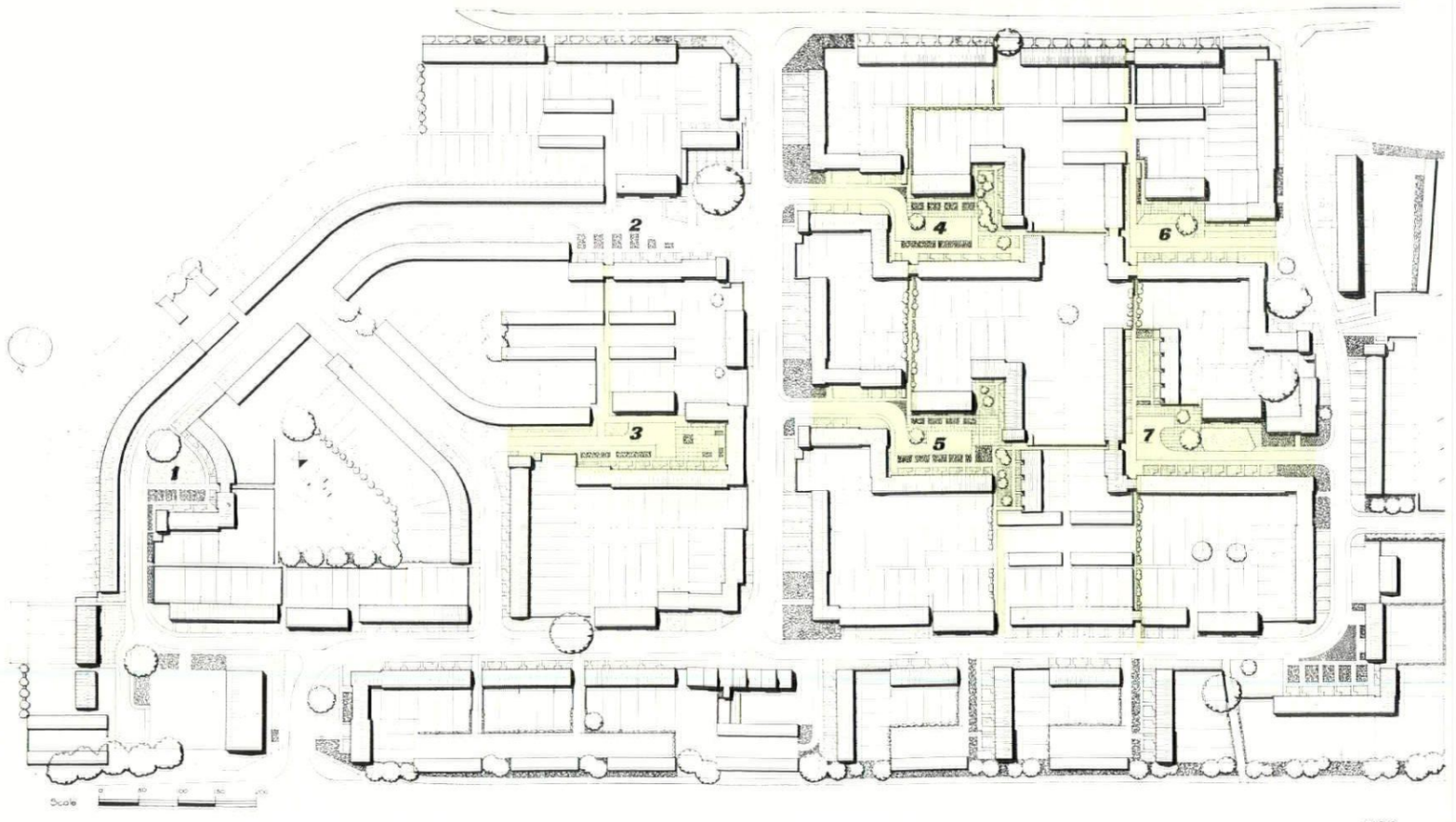
8



9



8, a typical curved street, showing a corner closed by a three-storey house. 9, looking into a curved street from one of the squares (numbered 2 on the plan below); one of the three-storey blocks on the right.



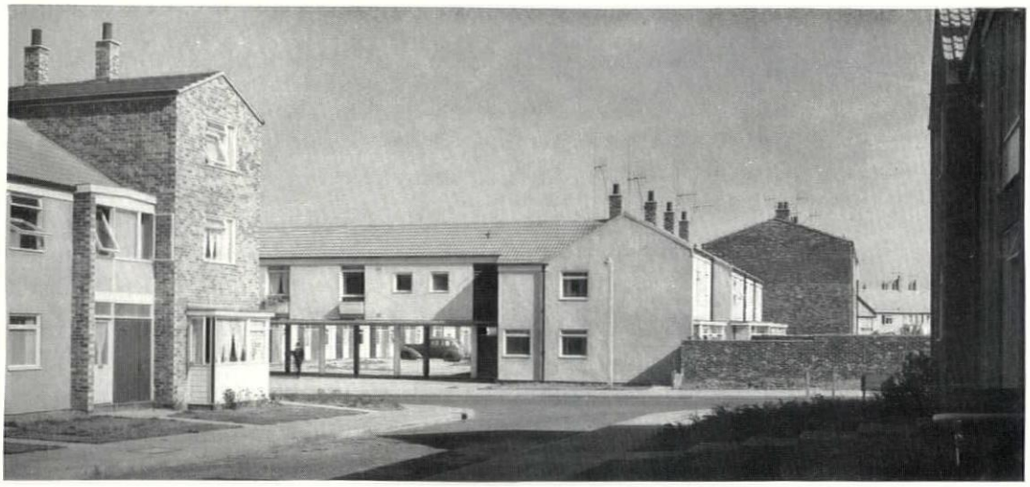
squares. These gardens are dependent for their privacy on screen walls and planting.

As in the Basildon schemes, there are garage courts between blocks of houses, the private gardens and children's play areas also being shut out from the public spaces. On the north side, the gardens of the houses backing on to the main road are partially screened by garage blocks.

The nine identical three-storey blocks, distributed over the site in parallel rows, consist of one-bedroom flats over houses. They also form one side of individual squares. Three-storey houses are used to mark the entrance to squares and to provide dominant elements in localized views.



10



11



12

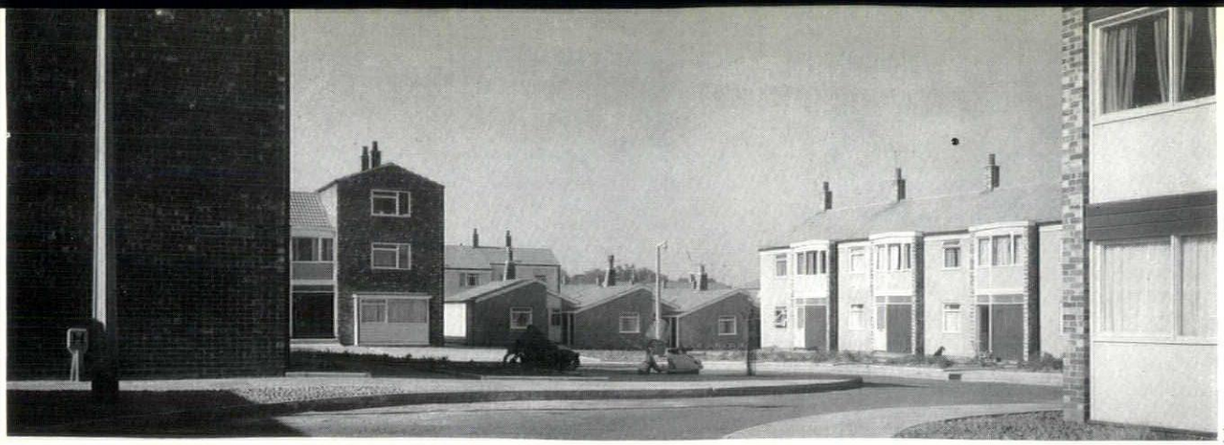


13

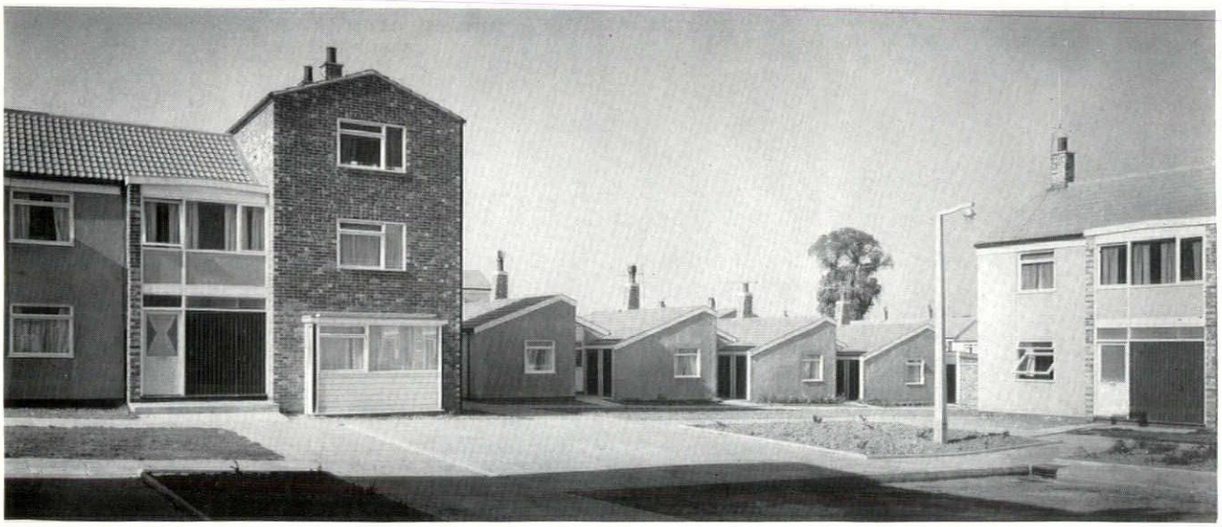
14



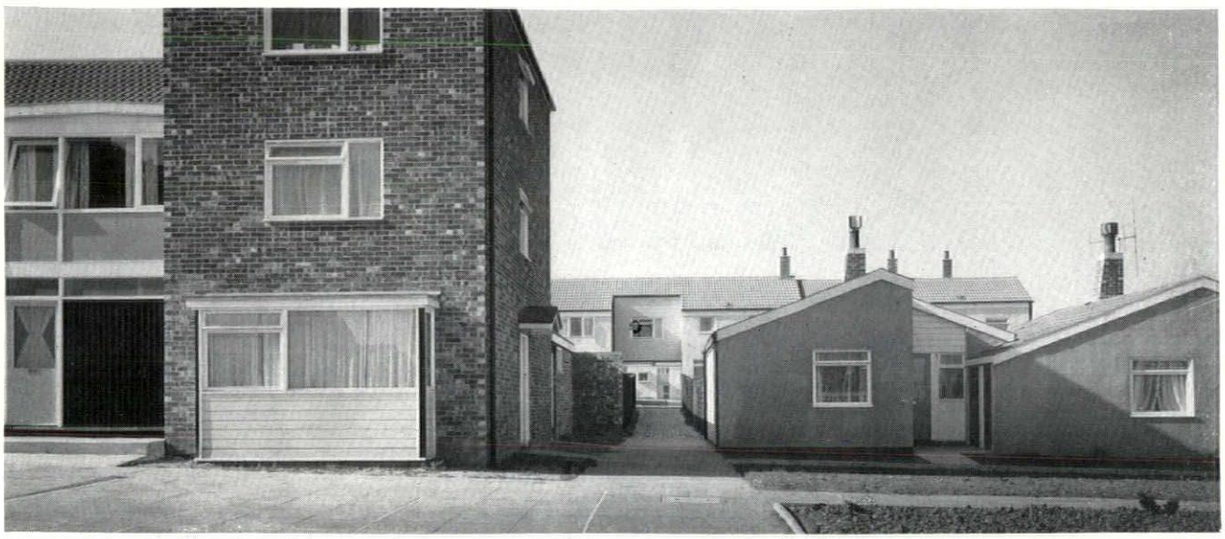
Pedestrian ways through the terraces link one square with another. 10, looking into the square numbered 1 on the plan opposite. Note again the townscape use of the three-storey house. 11, looking from the square numbered 5 (see next page) across the street towards the passage beneath the houses leading into the square numbered 3. 12, close-up of the block of one-bedroom flats which forms the entrance to the same square. 13, closer still: looking into the square beneath the block of flats. 14, two terraces of houses linked by an extra bedroom beneath which is a pedestrian passage.



15



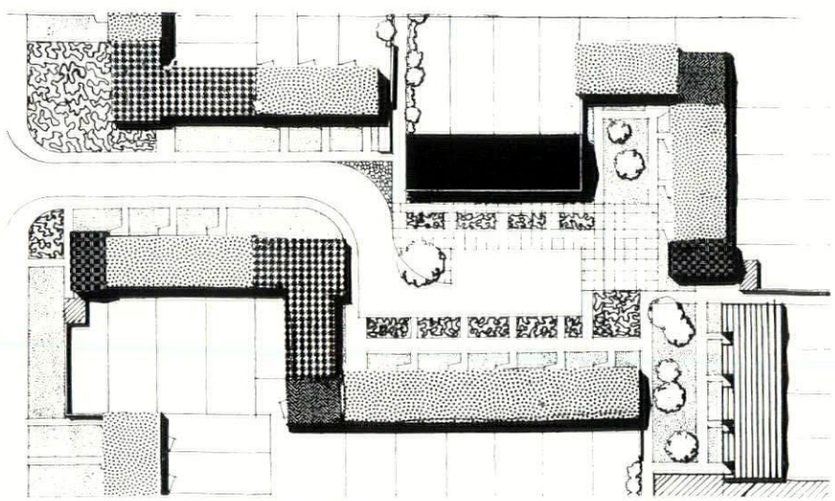
16



17

HARLOW

RIVERMILL AND HORNBEAMS



Above, three views taken inside a typical square, showing the variety of architectural form. The square (detailed plan on the left) is that numbered 5 in the layout plan on page 200). 15, looking into the square from the corner—the road approach. 16, facing the pedestrian exit between the three-storey house and the bungalows. 17, looking down the pedestrian passage.

3-storey flats over houses.

3-storey house.

2-storey corner flats.

large corner house.

terrace houses.

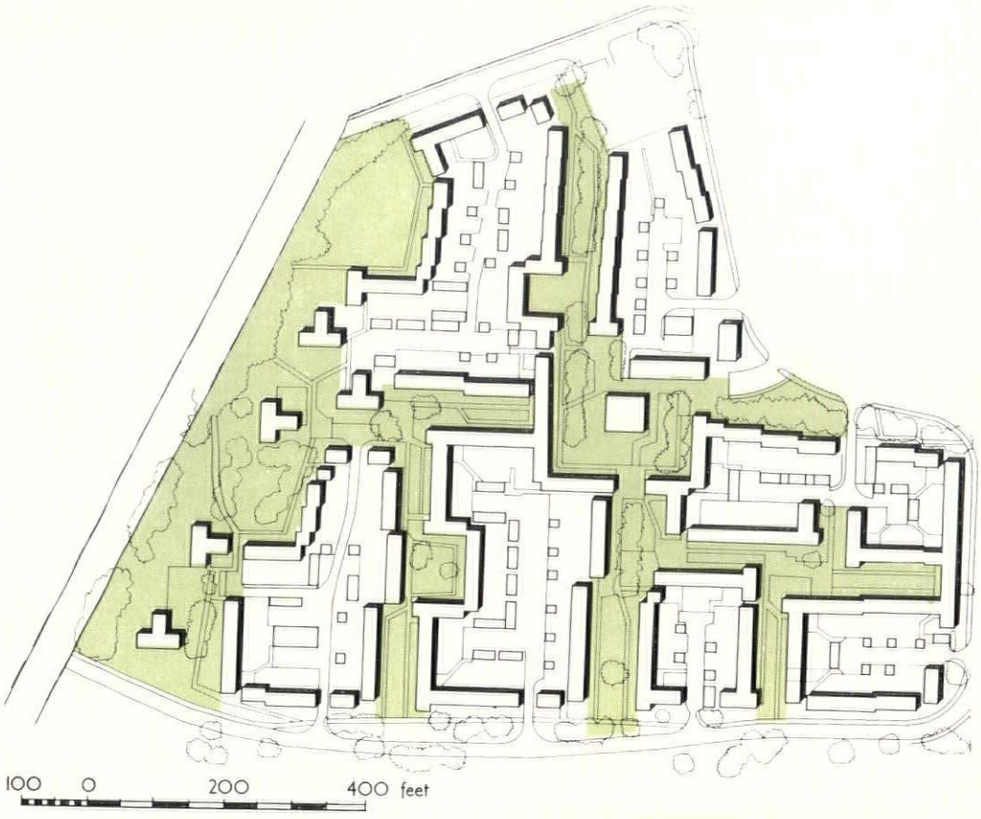
single-storey houses.

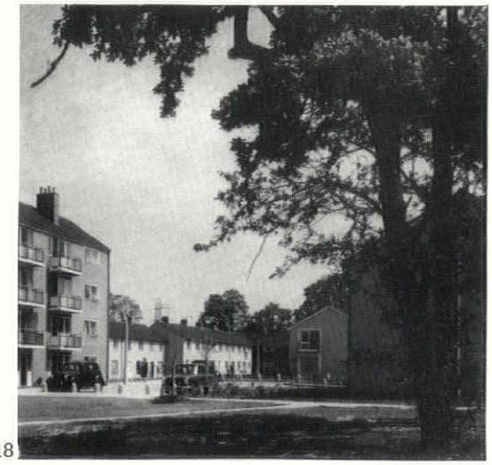
5. COVENTRY

WILLENHALL WOOD

ARCHITECT: ARTHUR LING

An area of 33 acres, bisected by a spine-road and a line of tall trees. The portion to the west of this road, illustrated here (the curving road forms the right-hand edge of the layout plan on the right) is laid out so that all dwellings are approached by footpaths at the front and have vehicular access at the rear—the pedestrian area is coloured on the plan. It is possible to walk from every dwelling to any other dwelling and to the shops, nursery-school and pub in the centre of the area without meeting a traffic road, the only disadvantage of this system being the small amount of front parking-space provided and the long walk in some cases from the vehicular road to the front door. Garages, as in the Basildon schemes, surround courts enclosed by the backs of the houses. Their number is just over 50 per cent of the number of dwellings. To the west is the proposed outer link road, from which there is no access to the houses and flats. These overlook parkland beyond the road but are served by footpaths on the east side. Apart from four-storey flats on the western boundary, the area consists of two-storey houses and a few corner flats.





18



19

18, one of the blocks of four-storey flats on the western boundary and the beginning of one of the green pedestrian avenues leading to the central shopping area (see layout plan above). 19, looking into the central area from the opposite direction. This is a paved square closed by a row of shops (on right of photograph).



20



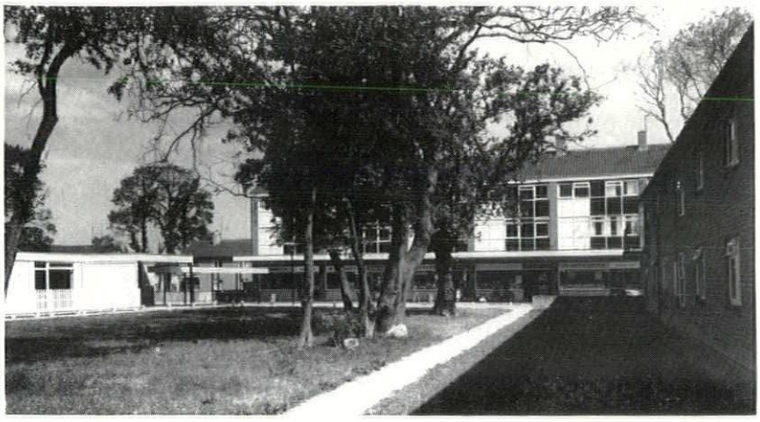
21



22



23

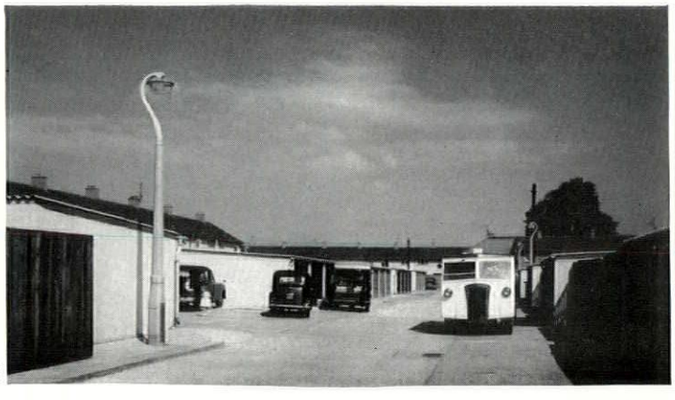


24



25

20, looking west towards the junction between two of the green pedestrian avenues. The avenue with the trees leads, round the corner on the right, to the central shopping area. 21, a group of terrace houses round a small open square off the northern pedestrian avenue. 22, looking outwards down the southern pedestrian avenue towards the perimeter road—two-storey flats on left. 23, looking away from the central shopping area to the four-storey flats on the western boundary. 24, the central shopping area, looking north towards the row of shops. The nursery school is on the left. 25, the northern pedestrian avenue, looking towards the shopping area. 26, a typical access road, surrounded by garages, enclosed by the backs of the houses. The poorly designed lamp-post contrasts with the neat design in the public areas—for example in 23.



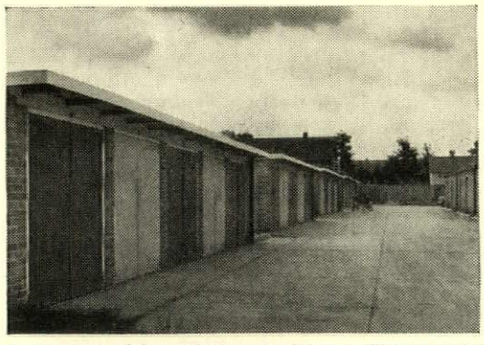
26

COVENTRY: WILLENHALL WOOD

Continued from page 196]

gain architecturally. The corner sky had been lost. Through roads were reduced to a reasonable minimum for adequate circulation and a sense of intimacy was achieved in many of the housing groups.

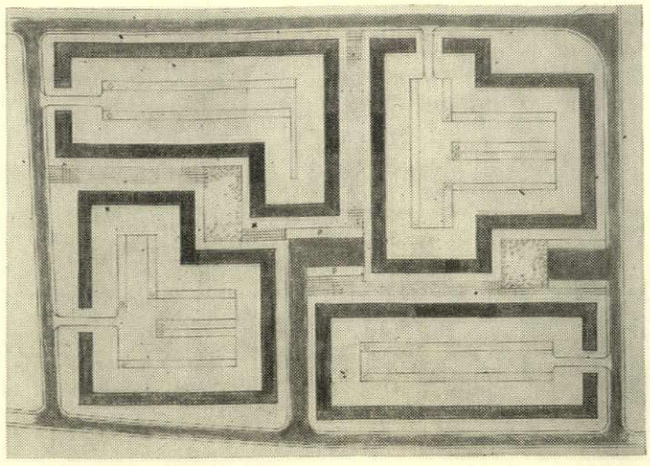
But the garage problem remained, and in tackling it one of the biggest advances has been made. So long as the ratio of garages to houses was about 1 to 5, sufficient garages could be provided in odd corners of the layout to avoid the necessity of special provision being made. This solution was most economical as no special road construction was involved. With the decision to plan for garages on a ratio of 1 to 2, the whole position changed. Casual provision was no longer possible; the garages had to be grouped in quite large courts and these occupied so much area that they became an important element in the housing layout. It was also obvious that for the convenience of car-owners these courts should be as near



4, garage court between the terraces of houses. This example is at Basildon new town.

to the houses they served as possible. The most obvious place to put the large garage court was between the terraces of houses, 4, with the immediate possibility that, in some cases at least, these courts could be used as vehicular access to the houses themselves.

Not every tenant, particularly those with young children, wishes to be dominated by the motor-car, either visually or from the point of view of road safety or noise. With vehicular access already provided at the rear for delivery of heavy goods, such as fuel, and the collection of refuse, a proportion of the roads at the fronts of the houses could be omitted and replaced with quiet pedestrian squares, green walkways or merely footpaths between front gardens. A diagrammatic layout of this type is shown in 5. It will be noticed that in this layout for 340 houses with 170 garages, 86 per cent of the houses abutt on through roads or are within 150 ft. of through roads (a distance normally considered as an acceptable 'carry' on orthodox road layout), and only 14 per cent of the houses are at a greater distance from the through roads, the maximum 'carry' in any case being 200 ft. In almost every case the rear service road is within about 50 ft. of the back of the house or flat.



5, diagrammatic housing layout showing rear-access principle. On a 20-acre site are 340 dwellings, half of which have garages placed between the terraces. 86 per cent of the houses are reached by less than 150 ft. of footpath.

This theoretical layout takes no account, of course, of the physical nature of the ground, or of existing trees or other features. The first practical experiment of this type at Basildon was begun in 1954: the Fryerns 8 area, briefly illustrated on the pages that follow. Its layout was frankly exploratory and does not cover a large area. Later developments of the same principle are also shown in plan and photographically on the following pages. In these a more urban atmosphere has been achieved by reducing the distance between the buildings and by the use of paving rather than grass.

The treatment of houses abutting on to main roads was mentioned earlier. By definition these roads must be wide for traffic reasons: they can be divided into two classes, where access can be permitted,



6, except when relieved by large trees, as here, two-storey housing is too small in scale for the wide roads it is often built along; hence the advantage of the more compact styles of layout exemplified on these pages.[1]

as on the neighbourhood spine roads, and where no access can be permitted, as in the case of Class A roads. Even in the former, two-storey housing is too small in scale for a satisfactory treatment unless relieved by large trees, as in 6. The requirements of the local authority demand a minimum width between building lines of 84 ft. for a road of this class.

The 'no access' road presents a different problem, in which either the houses must back on to the main road and the gardens be screened by garages, as in the Harlow scheme (pages 200-202), or by planting; or, alternatively they must face the main road but be served by roads from the rear. If this latter solution is adopted, the rear access layout can offer many advantages—see the second of the two Basildon schemes (the Barstable area, page 198) and the Coventry scheme (pages 203-204). It must, however, be mentioned that the rear-access solution can cause difficulties unless the principles of this type of layout are fully understood before planning starts. Every effort must be made to encourage small tradesmen and visitors to use the front door of the house in order not to invade the privacy of the back garden. This can be done by restricting the maximum walk from a front road to say 250 ft. and providing adequate parking space at the junction of the front road and the footpath system. The provision of one parking-space to four or five houses is suggested.

A possible difficulty is the naming of streets and numbering of houses. One rear service-road will probably serve two or three front streets or footpaths. If each of these is given a separate name the signposting of the rear service-road will have to contain all these names, and the numbers of the houses served. And there may be a second service-road some distance away with the same names and different house-numbers. This can be confusing to tradesmen, ambulances or fire engines until experience has been gained of how the system works. These problems are, moreover, probably accentuated if front and rear access houses are embodied in the same scheme.

In conclusion it should be mentioned that it is easier to plan a house on a narrow frontage with the rear access layout. It is no longer necessary to provide for access to the dustbin, fuel store and possibly a back door or store on the front elevation, and this can result in a considerable gain in room-widths while achieving an economy in road frontage at the same time. Access is also given to the back of the house for gardening without going through it.

Six examples of Stevens's work, unearthed in Sheffield: 1, a Proserpine fire-grate. 2, brass fire-dogs designed to go with it. 3, iron grate and fender with brass rim. 4, plaster model for the same fender, 23½ in. by 4¾ in. 5, bronze door furniture. 6, one of two oval silver trays.

RICHARD SEDDON

ALFRED STEVENS AT SHEFFIELD

Alfred Stevens, on his return from the eight mysterious years he spent as a young man in Italy, when he acquired somewhere, and somehow, his superb skill and knowledge of stone carving, modelling, metal-casting and the ultimate refinements of the academic techniques of handling oil paint, was brought to Sheffield in April, 1850, by Young Mitchell, the first Principal of the newly-founded Sheffield College of Art, whose wife's portrait by Stevens is in the Tate Gallery (No. 1775).

Stevens found employment as a designer of ornamental castings at the iron works of Henry Hoole & Company Limited, where he had a studio from 1850 to 1852. Almost all Stevens's fire-grates, fenders, door-furniture, and similar things produced by this firm have been lost in the demolition of the houses in which they were used. The Victoria and Albert Museum has a small collection, notably the Proserpine fire-grate, 1, which was, until recently, the only known surviving specimen. None of his industrial design is among the Stevens material at the Tate Gallery, and the Stevens collection at the Walker Art Gallery, Liverpool, possesses none. This lends considerable interest to the examples I have found from time to time since 1948 in Sheffield.

My first discovery was a Proserpine fire-grate in perfect condition in the Lord Mayor's Reception Room at the Town Hall. In early press cuttings, I found mention of this as Stevens's fire-grate; but its authorship had become overlooked in recent years, and although it was regarded as of interest, it was not recognized for what it was. Since then, it has been moved into the custody of the Sheffield City Art Galleries. With this grate is a set of Stevens's brass fire-dogs, 2, which I have not seen elsewhere. They are illustrated in Hoole's handbook of their Stevens products in metal.*

*Notes on Some Works by Alfred Stevens (pp. 16-17).

Plenty became abundance when, on dining as a guest at the Sheffield Club (founded 1843) I observed another perfect Proserpine fire-grate in the Club dining-room. The Club, on learning of the importance of this example, have removed it from the dining-room to a small writing-room where it is preserved carefully, and is no longer plied with coal.

The third discovery of a Stevens fire-grate, 3, was made when I visited the office of the Corporation Public Works manager, which is at a Georgian house in Surrey Street in the row of old houses into which corporation departments have overflowed from the adjacent Town Hall. In his private office, a well-proportioned room on the first floor of the house, I saw a Stevens fire-grate, which is illustrated in Potter's *Notes* (page 8, fig. 2), of which the only other example I know is in the Victoria and Albert Museum. A unique feature of this example is that it is complete with a Stevens fender, in ornamental iron and brass, with reclining figures as shown in Potter's *Notes* (page 21).

So far as I know there is no other Stevens fender surviving. I sent a note on this fire-grate and fender to the Victoria and Albert Museum as of interest relative to their Stevens material; and they immediately borrowed the fender for exhibition with their own specimen of this fire-grate in the Alfred Stevens group in the 1952 exhibition of Victorian and Edwardian design which marked the Museum's centenary. A plaster detail of Stevens's model for the fender, 4, is in the National Gallery of Scotland. The grate and fender are still in place in the manager's office, under his personal care, and it is understood that if and when the Sheffield Central Replanning Scheme involves the demolition of the row of houses for street widening, this Stevens material will be offered to the Art Galleries of Sheffield.

In the same room, another unique surviving Stevens example is the complete set of door-furniture, 5, on the good mahogany door of the room, comprising door knob and upper and lower finger-plates, on both sides of the door.

A collection of Stevens material of great human interest came to my notice in 1951. I met Mr. A. E. Fielding, who stated that, many years ago, when a boy, he had served in Sheffield as apprentice to a successor to Alfred Stevens at Hoole's Green Lane Works. His master, on taking over Stevens's studio, threw out an accumulation of fragments of modelling, and cast-iron prototypes for details of decorative iron-work and similar material. The apprentice obtained his master's permission to take home a bucketful of these, which in 1951 he still possessed.

Among these are the iron prototype casting of the door-knob designed for the dining room of Dorchester House, the prototype casting for the finial of the iron fire-dogs shown at the Great Exhibition of 1862, a water-colour for the painted wooden chimney-piece done in 1851 for Mr. Young Mitchell's house at Meersbrook, Sheffield (now at the Fitzwilliam Museum, Cambridge), and a medallion, with a classical head in profile, modelled one evening when Stevens visited the Sheffield College of Art.

Another discovery concerns Stevens's work in silver. I consulted, through the courtesy of Mr. Senior Atkin, the *Numbers Book* of Messrs. Thomas Bradbury & Sons, Sheffield. This book registered the designs for silver created for the firm, and contains an entry describing Stevens's designs for a 'Florentine Tray.' It states:

'(1856)

5909. *Waiter* 30 *In oval cast, A.S.'s Florentine Pattrn 6 sections, with Figures, Masques and ornaments (Registered October 23rd.* 1856) *Eng. Centre, Thompson Pattrn*

20/–/– *Decr* 1890.'

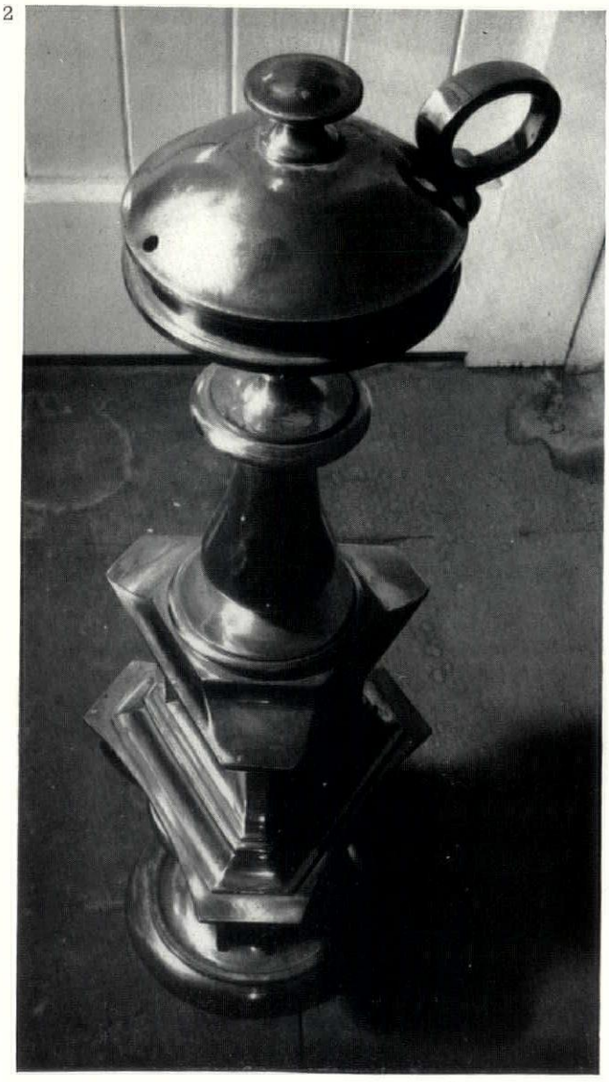
Stevens designed silver from time to time between 1850 and 1856 for Bradbury's. This waiter or oval tray, with baluster rim, stood on four cast feet, and had scroll-end handles. The firm possessed no surviving specimens; but, after long investigation and inquiries in many quarters, I ran to earth two examples of different sizes (one of which is shown in 6), through an article in the *Journal of the Hunter Archæological Society* (Vol. VI, Part I, Oct. 1944).

Both were for sale in a silversmith's shop in Glasgow; they were of silver-plated nickel, oval in shape, one being 24 inches long (not including the handles) and the smaller 19 inches long—both in perfect condition. Each has a cast and pierced swage and scroll-end handles, and the oval plate is, in both instances, engraved by another hand than Stevens's; the whole set on four cast feet designed by Stevens. The models for the scroll-end handles and feet were designed and produced by Stevens; and the brass (or similar alloy) prototypes for the ornamental rim have been in Sheffield City Museum for some years. There is reason to believe that Stevens understood this design to be intended for execution in solid silver, which was not to be; at least in the two examples I found.

It is fortunate that Sheffield possesses the correspondence between Stevens and Joseph Bradbury upon the designing of the tray in silver; the only occasion I know when Stevens's treatment of one of his many media was questioned by technicians, and then only on the grounds of the great expense. They both appeared in the Alfred Stevens section of the Victoria and Albert Museum Centenary Exhibition—'*Victorian and Edwardian Decorative Arts*,' but were declined in 1951, when brought to the attention of Sheffield City Museum. The smaller is now in the National Collection of the Victoria and Albert Museum (Circ.40—1952) and the larger in the Walker Art Gallery, Liverpool.



1



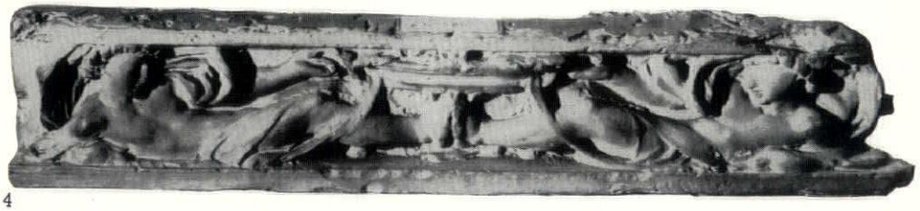
2



3



5



4



6



1

Bank in Castrol House

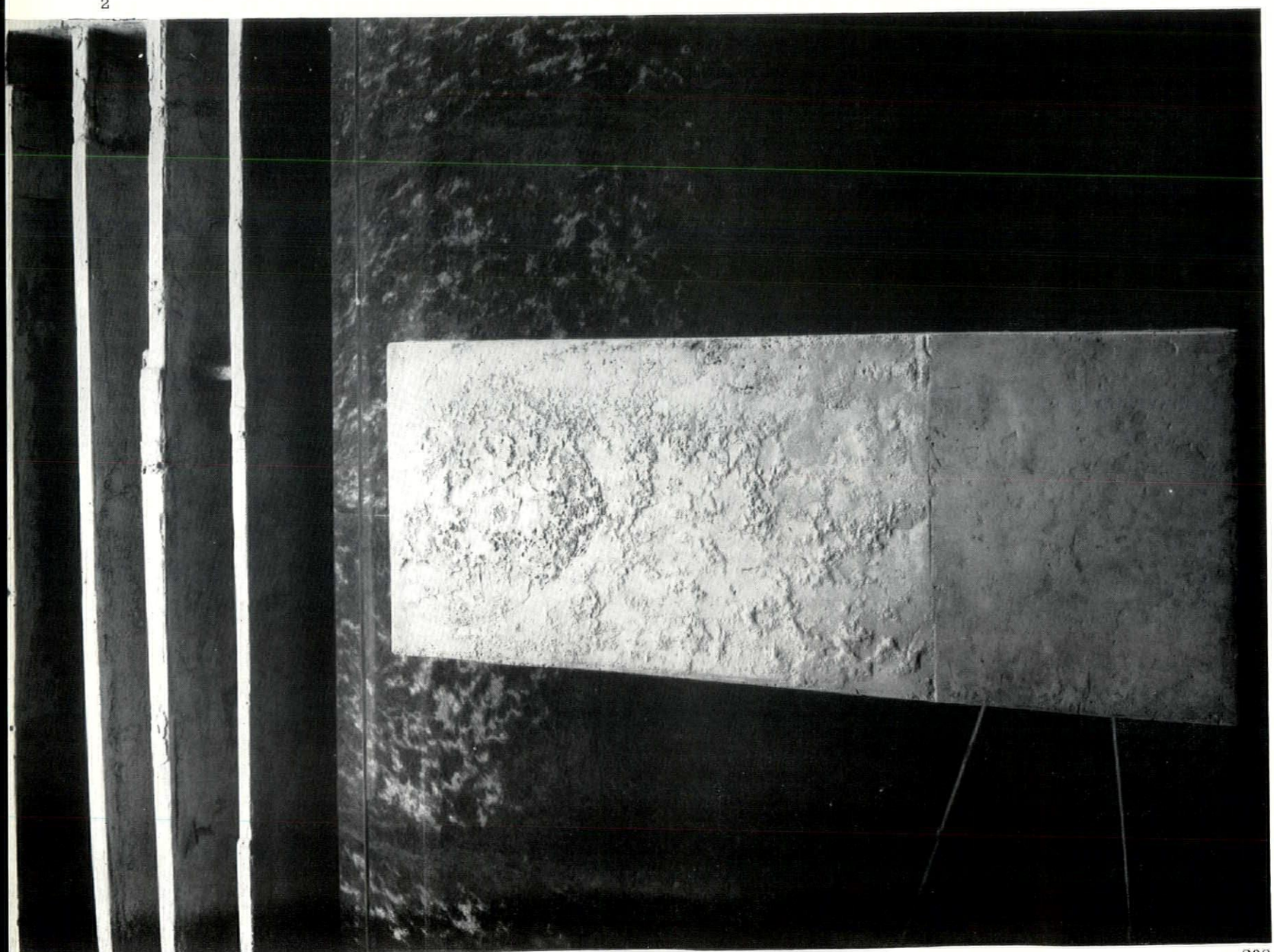
architects : Sir Hugh Casson, Neville Conder and Partners; partner-in-charge : Ronald Green.

This, most recent, addition to the distinguished series of new bank-branches commissioned by Martins, is located on a corner site in the low block of Castrol House, Marylebone Road, London (the main building was described in AR, March 1960). In spite of its corner site, it departs from the worn-out banking tradition of the corner entrance, which would have been structurally difficult in this instance, and no longer makes commercial or functional sense. Instead, the entrance is placed centrally on the main front, and is given due importance by its architectural and sculptural treatment, as these pages show.

1, the silver-leafed grass-hopper, the traditional house-mark of Martins (this is a thirty-year-old example, refurbished) directly facing the entrance at the end of the banking counter.

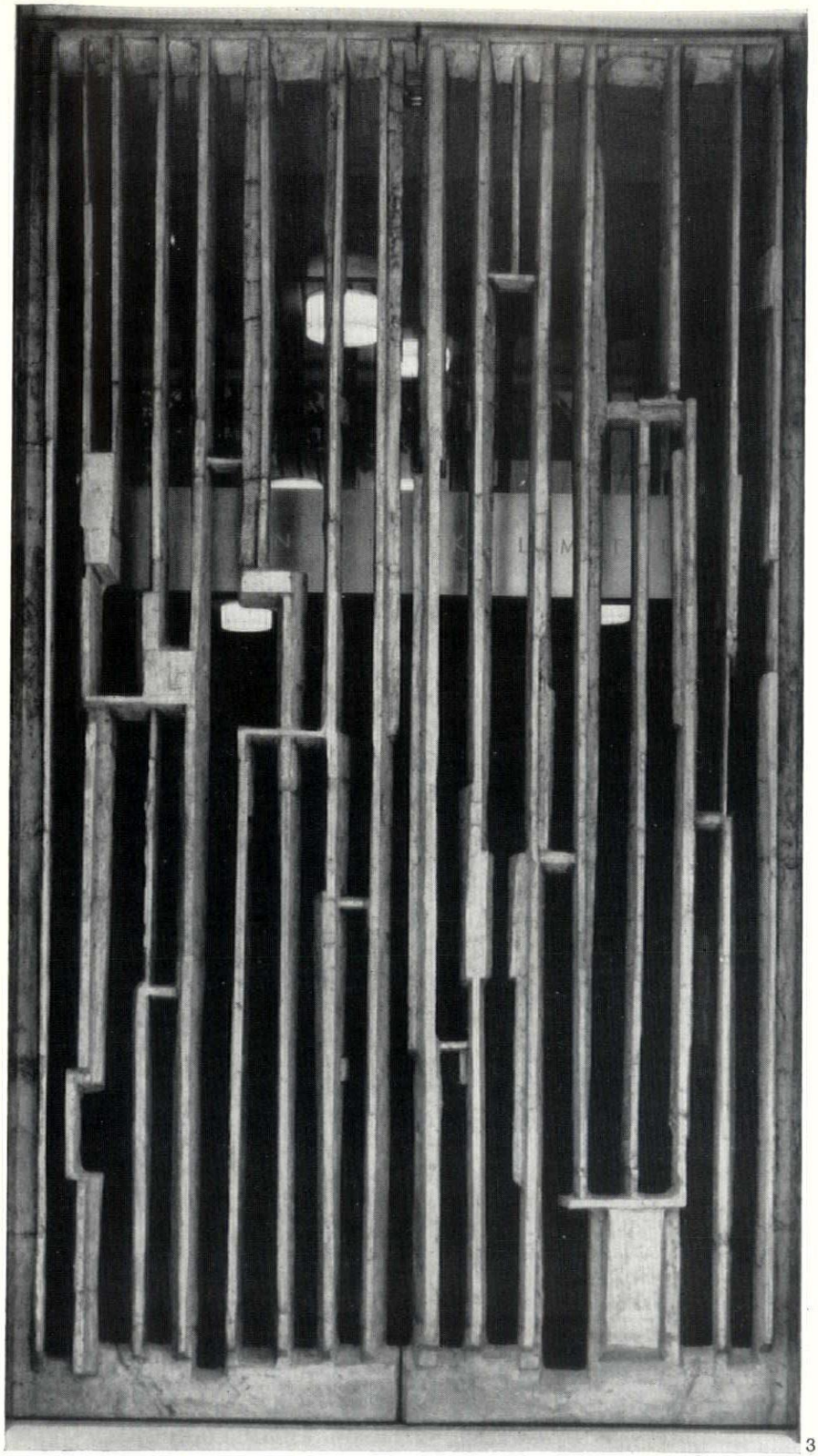
2, cast aluminium push-plate, designed by the sculptor Geoffrey Clarke, on one of the inner glass doors. At the

2

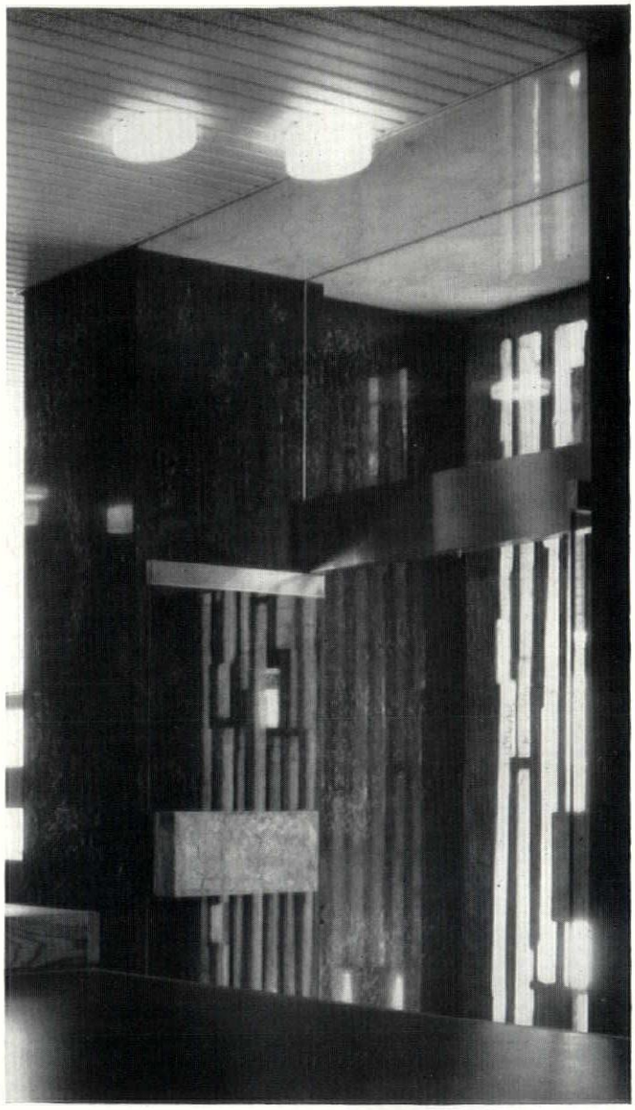


ID

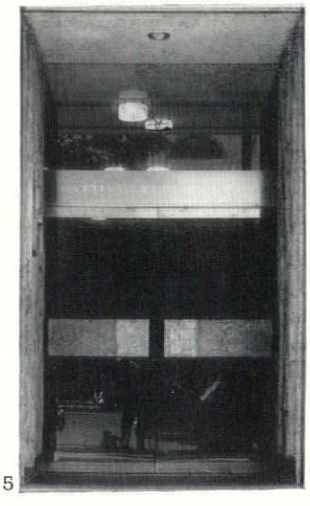
a monthly review of interior design



3

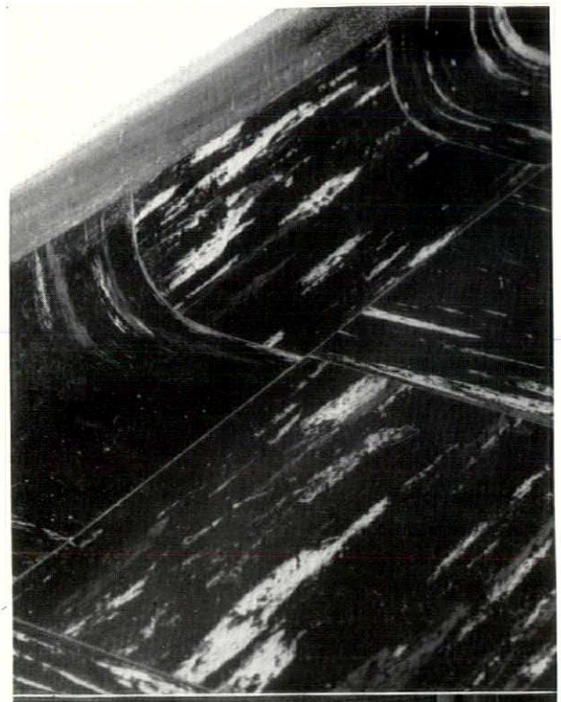


4

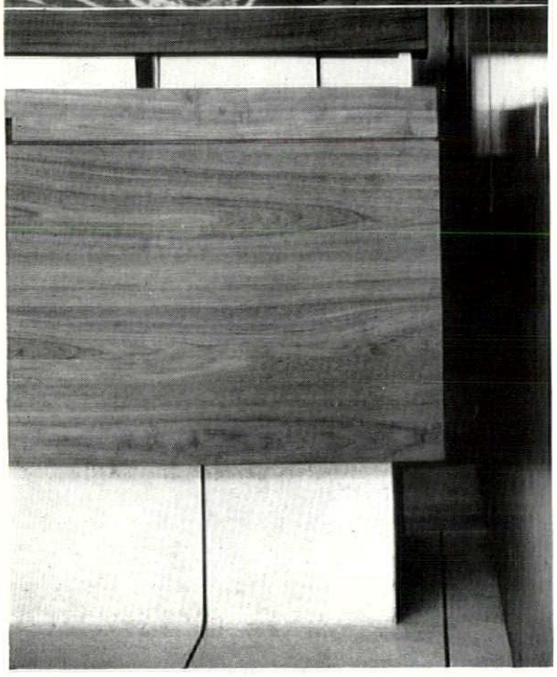


5

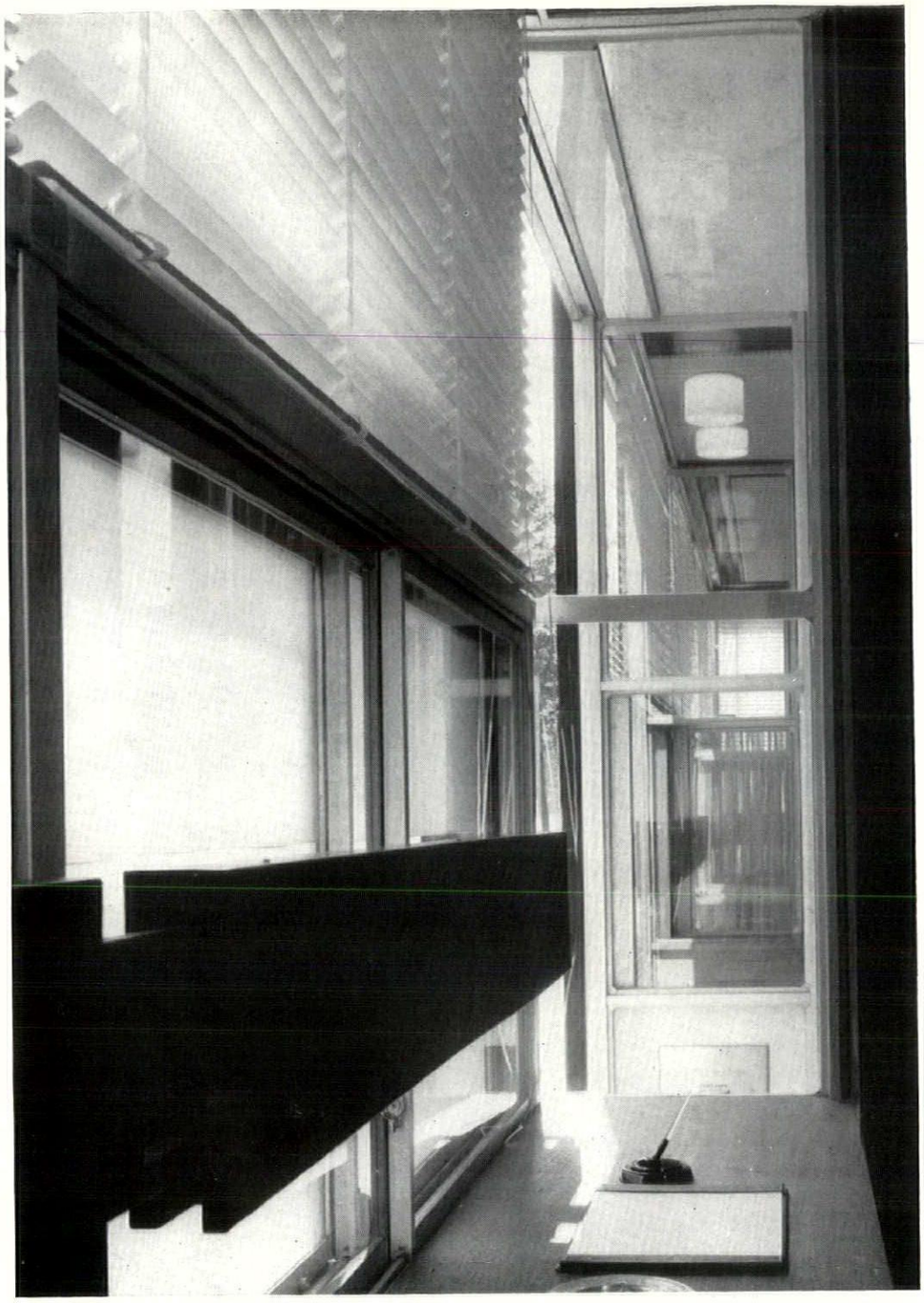
left is seen part of the outer security doors, also sandcast in solid aluminium by Geoffrey Clarke. In 3 they are seen in the closed position, when they form a single sculptural grille.
4, the door-complex, seen from the enquiry desk, showing the relationship of the inner and outer doors, and the recessing of the flank-walls to accommodate the outer doors when in the open position.
5, the complete doorway seen from outside. It occupies one standard bay of the façade grid, but stands back from the façade by the depth of the inward link of the curtain walling which divides all interior partitions from the outer wall (see 8, over page).



6



7



8

Bank in Castrol House

6, continuous cove to basement floor, made by bending thermo-plastic tiles under heat. Together with the skirting strip above, this serves to prevent scuffing and staining of wall surfaces by mechanical polishers.

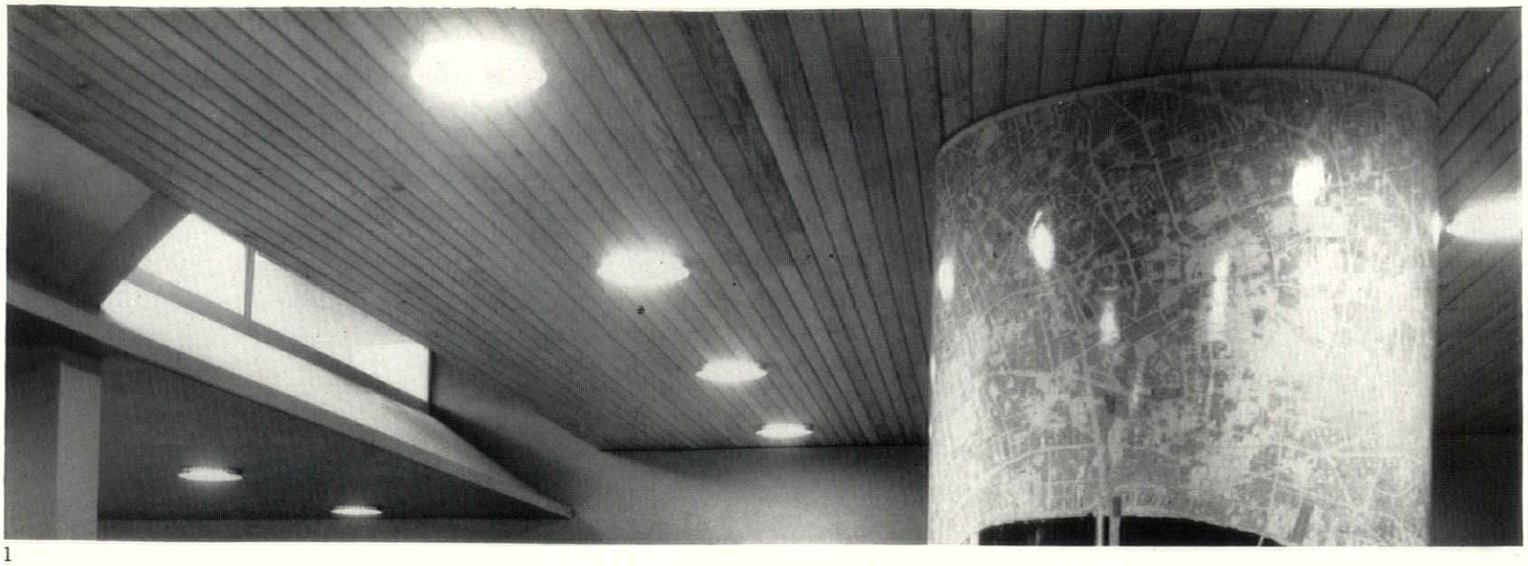
7, one end of the island banking counter—a teak superstructure on a base which is an upward extension of the white terrazzo floor.

8, looking along the vision-strip formed by the inward link of the curtain walling. A standard writing surface exactly fills the depth of this strip in all public areas. The solid black bar is an illuminated sign which is seen from outside through a strip of unobscured glass in the double-glazed windows.

9, a general view of the banking area.

9





1

Children's Library in Churchill Gardens, Pimlico

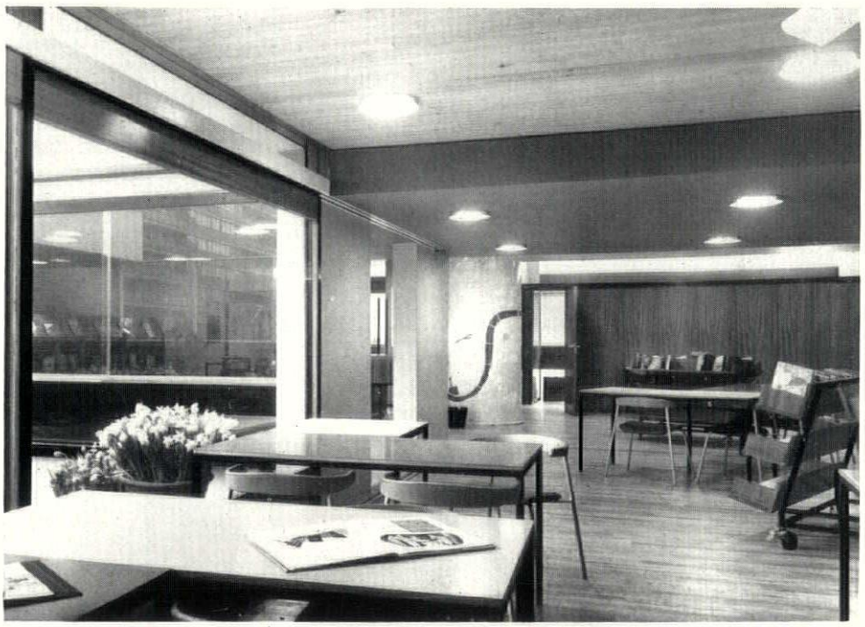
architects: Powell and Moya; assistants, Robert Middleton and J. A. Griffiths.

Occupying two of the ground-floor bays provided for shops in one of the Lupus Street blocks of the Churchill Gardens development, Pimlico (AR, August, 1954) this small branch library offers 'out-of-school-hours' service to the children of families living in, and near, the new development.

1, clerestory lighting (under edge of main structure above), matt-finish, tongue-and-grooved, boarded deal ceiling, and top of map-column—one of the rectangular structural columns of the main block, encased in a fibrous-plastered, expanded-metal cylinder papered with a map of London.

2, general view looking toward the entrance end from the story-telling area, with the paved garden court on the left.

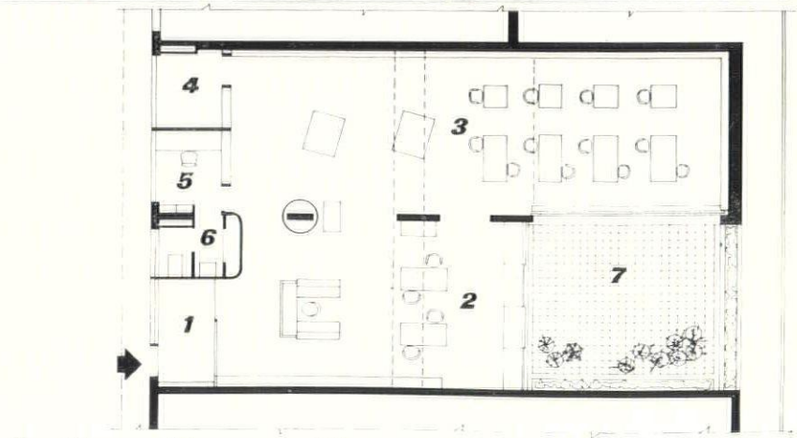
3, the street front, with the entrance at the nearer (left-hand) end.



2



3



plan

key
1, entrance from street
2, reading area
3, story-telling area
4, chair store
5, staff room
6, staff lavatory
7, paved court



4

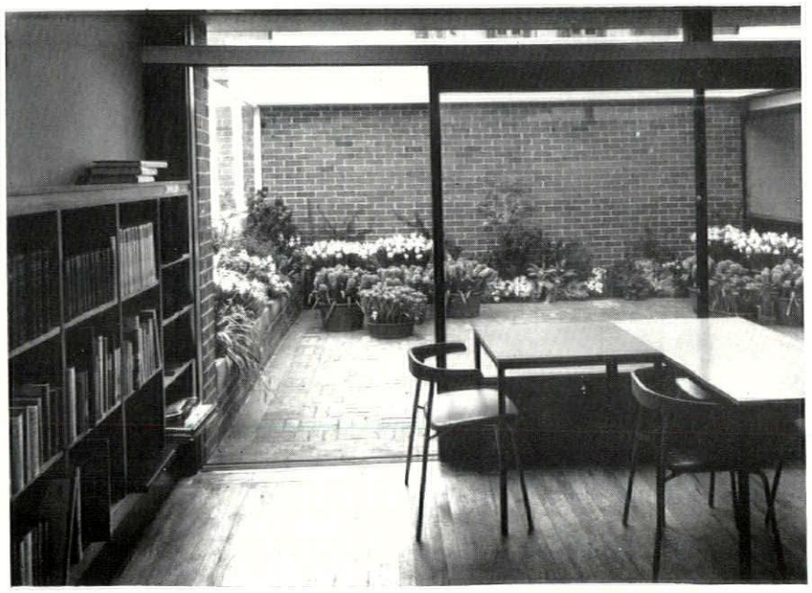
4, movable book trolley designed by the architects—the frame of square steel tubes carries mahogany shelves, and moves on large diameter casters, one of which at each end can be locked with a brake such as that seen in the foreground.

5, the paved court from the story-telling area—the open space is about half the standard 'back-yard' area that would normally be provided for two bays of the frame, the other half having been incorporated into the enclosed volume in order to give sufficient floor area within two bays' width. External paving is brick; internal flooring is maple strip; book-cases are African hardwood.

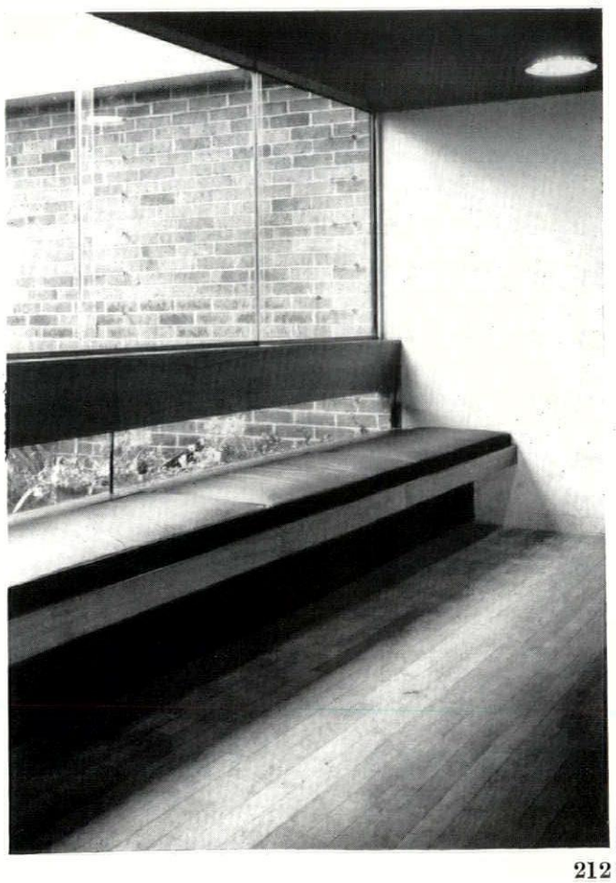
6, upholstered seat under window of reading area—the back is of hardwood, and a concealed run of heating grilles between the seat and the glass protects sitters against cold down-draughts in winter.

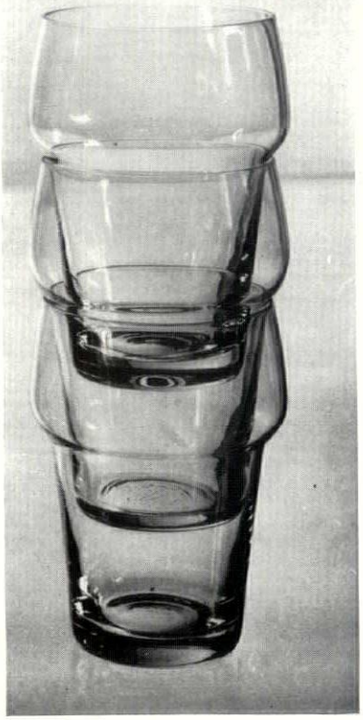
Children's Library in Pimlico

5



6





1



2

glass as a substantial material

Some ingrained prejudice or ancient snobbery in Western culture insists that glass should be—as far as possible—a non-existent material. In architecture only its transparency or reflectivity are prized, not its material qualities, while in smaller objects it is always the fine-ness, thin-ness and general invisibility of the metal that have been admired. More recently, under the influence of Murano and Orrefors, a degree of massiveness has been accepted in glass-ware to be looked at, glass-ware as a branch of gallery sculpture, but only in the past two or three years has massiveness and emphasis on material qualities been acceptable in glass to be used, glass to be handled. The most full-blooded examples of this trend are seen on this page, designed by Hans Hendriksen and manufactured by Kastrup Glasværk.

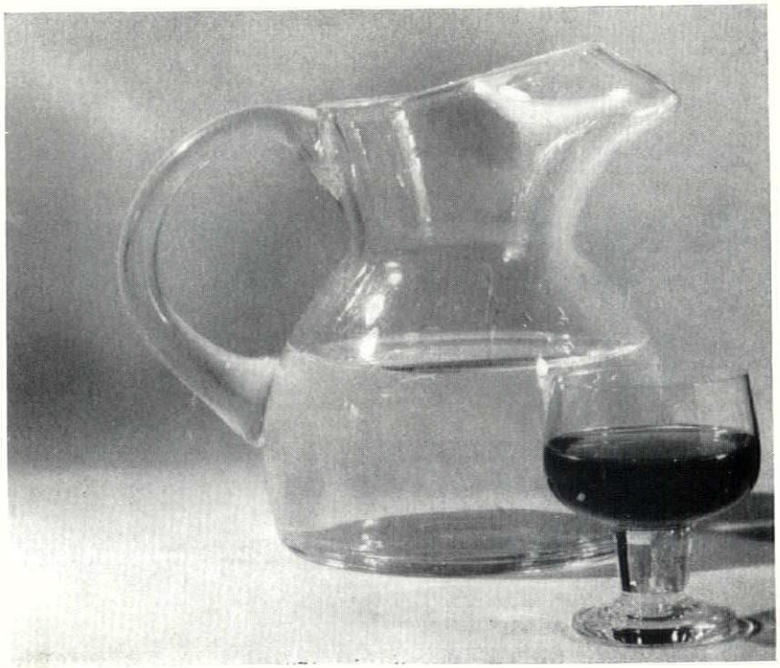
1, *stacking tumblers, the least unfamiliar of the Hendriksen shapes.* ***2,*** *stacking wine-glasses and goblets —quite apart from the visual and tactile qualities of the heavy bases and stems, the weight of glass they contain makes a better-balanced glass for stacking, even when the foot is smaller in diameter than the bowl.*

3, *and* ***4,*** *the complete set of glass designed by Hendriksen also includes decanters, 3, water-jugs, 4, and bowls and fruit dishes in substantially the same idiom as the glasses. Although designed some time ago, they have only recently come into production, and some, if not all, of the pieces will be available in Britain through Danasco.*



3

DR
design review



4



1



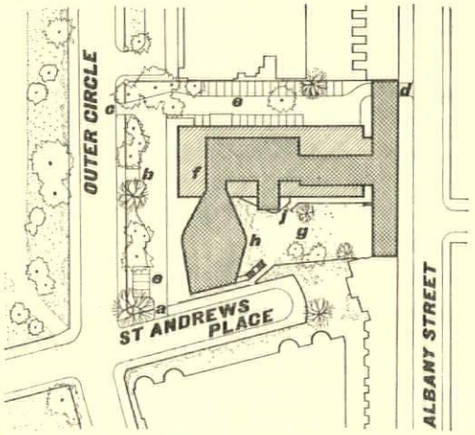
2

Model of the new headquarters building for the Royal College of Physicians in Regents Park, London, on which work is expected to start at the beginning of next year. 1, looking down St. Andrew's Place, with the Long Room windows seen above the single-storey lecture-hall. 2, from across the Outer Circle, with the main entrance in the centre and the wall of the library projecting over it.

ROYAL COLLEGE OF PHYSICIANS, REGENT'S PARK

ARCHITECTS | **DENYS LASDUN AND PARTNERS**

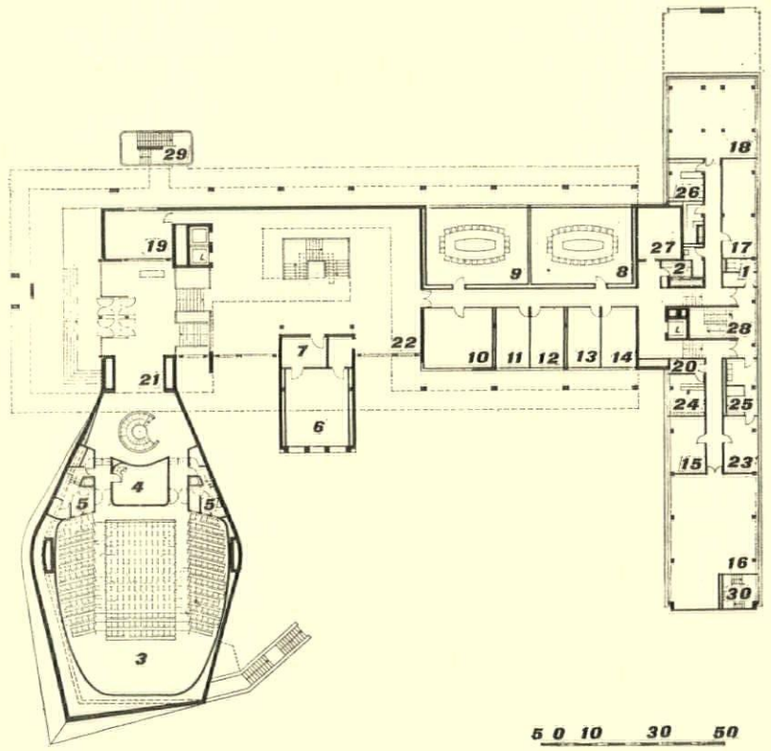
This is to replace the present College premises at the corner of Trafalgar Square and Pall Mall East, a building by Smirke which is to be taken over by the Canadian government. The new site is that of Someries House, at the south-east corner of Regent's Park, designed by Nash but much altered since. Both in the Gorell Report of 1947 and in Government statements about the future of the Nash terraces last year, it was agreed that Someries House need not be preserved, but could suitably be replaced by a new building. The significance therefore of Mr. Lasdun's



key a, main entrance for vehicles. b, main entrance for pedestrians. c, main exit for vehicles. d, service entrance. e, parking area (approx. 40 cars). f, main entrance to building. g, garden court. h, lecture hall. j, pool

project is that it shows how a sensitively designed modern building can take its place as part of the architectural landscape devised by Nash as long as its height, scale and colouring conform.

The building provides accommodation for the College library of historical books, and also includes lecture-halls, committee-rooms, assembly - rooms, dining - rooms, common - rooms and offices for secretarial staff. It is four storeys high and is planned so that the principal rooms are grouped round a garden on the south side, partly enclosed by the projecting lecture-hall. Something of a collegiate character is thus aimed at, expressing the function of the building. Care has been taken to enhance the vista along St. Andrew's Place, a cul-de-sac road off the Outer Circle, and to preserve its atmosphere. The Albany Street elevation is conceived as simple street architecture.

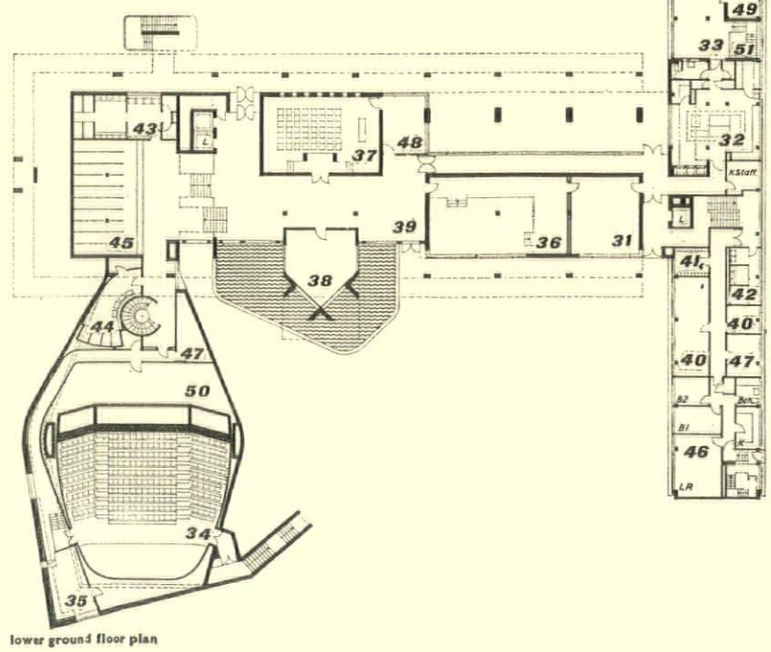


ground floor plan

key

ground floor

1, lavatory for caterer's staff—female.
2, small servery.
3, main lecture theatre (upper part).
4, lecture theatre—projection suite.
5, lecture theatre—translation suite.
6, censor's room.
7, ante rooms to censor's room.
8, council room.
9, large committee room.
10, president's office.
11, registrar's office.
12, treasurer's office.
13, assistant registrar's office.
14, secretary's office.
15, assistant secretary's office.
16, typing pool.
17, accounts office.
18, working room for post, etc.
19, MRCP office.
20, telephonist.
21, entrance hall.
22, main staircase, hall and waiting space.
23, staff rest room.
24, locker space for female staff.
25, lavatory for female staff.
26, storage for filing.
27, strong room.
28, staff staircase.
29, escape staircase from library.
30, escape staircase from president's flat.

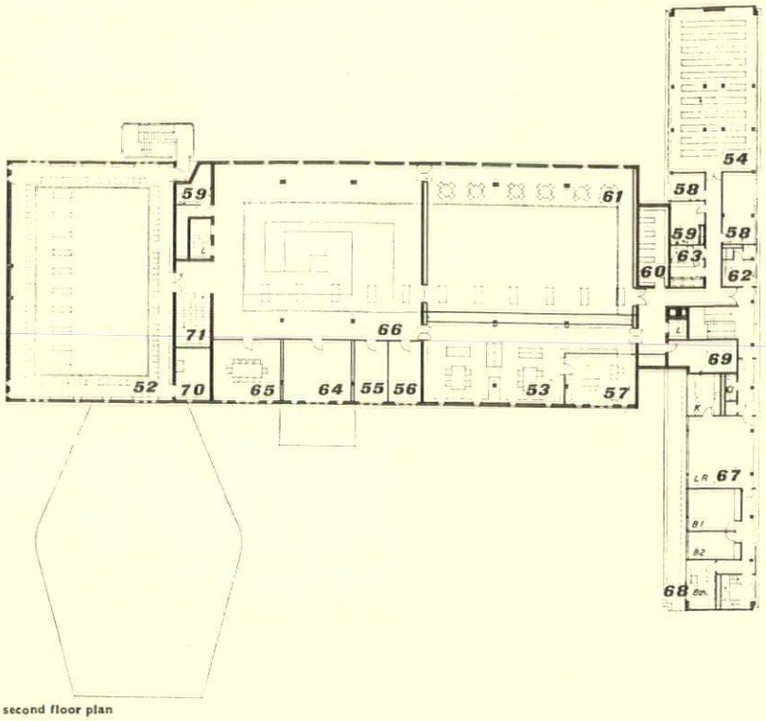


lower ground floor plan

lower ground floor

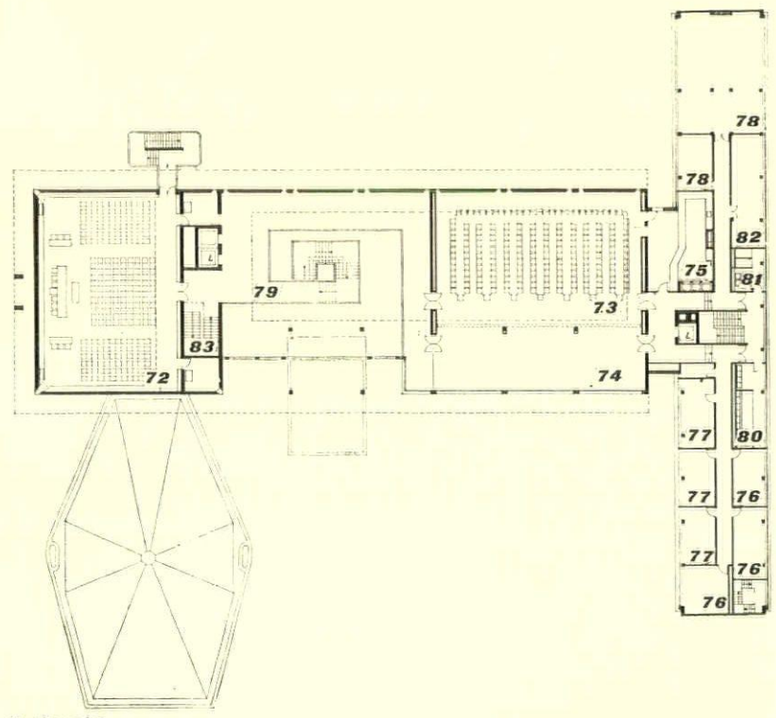
31, secretaries' dining room.
32, kitchen.
33, kitchen yard.
34, main lecture theatre.
35, lecture theatre—preparation room.
36, common room for fellows and members.
37, small lecture theatre.
38, quiet room.
39, lower hall.
40, porters' rooms.
41, locker space for male staff.
42, lavatory for male staff.
43, lavatory for male fellows.
44, lavatory for female fellows.
45, cloakroom.
46, flat for head porter.
47, general storage.
48, storage for chairs.
49, transformer chamber.
50, ventilation plant room and extract chamber—main lecture theatre.
51, escape staircase from boiler room.

ROYAL COLLEGE OF PHYSICIANS, REGENT'S PARK



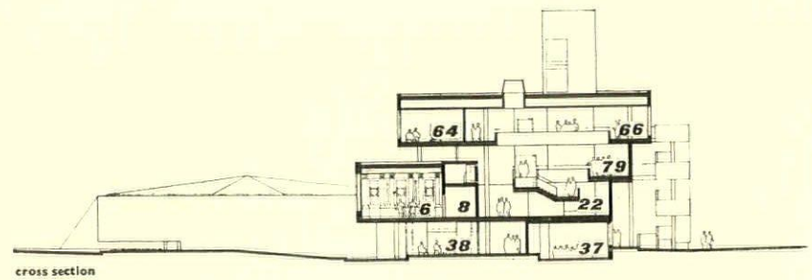
second floor plan

second floor
52, library—gallery.
53, reading room.
54, stack rooms for books.
55, Harveian librarian's office.
56, librarian's office.
57, library general office.
58, room for photography and repair of books.
59, library storage.
60, library strong room.
61, dining room—gallery.
62, lavatory for caterer's staff—male.
63, small servery.
64, sitting room for fellows only.
65, small committee room.
66, upper picture gallery and hall.
67, flat for president.
68, terrace for president's flat.
69, storage for pictures.
70, storage for chairs.
71, main staircase.



first floor plan

first floor
72, library—main floor.
73, dining room—main floor.
74, long room.
75, dining room servery.
76, three small rooms.
77, three professors' rooms.
78, additional office space.
79, staircase, hall and picture gallery.
80, lavatory for male fellows.
81, lavatory for female fellows.
82, storage for chairs and tables.
83, main staircase to second floor.



cross section

cross section
6, censor's room.
8, ante room to censor's room.
22, main staircase hall and waiting space.
37, small lecture theatre.
38, quiet room.
64, sitting room for fellows only.
66, upper picture gallery and hall.

The building has a reinforced concrete structure, the upper floors and columns of which will be faced with ivory-coloured vitreous mosaic. The lower floors, the main lecture-hall and the rear part of the building along Albany Street, will be faced with dark blue Baggeridge facing bricks. The colours of these facing materials have been chosen to identify and harmonize the building with the cream-painted stucco and slate roofs of the Nash terraces. The main entrance is at the west end facing Regent's Park. Cars will approach from St. Andrew's Place past the lecture-hall, the facade of which will appear as a high raked garden wall leading in to the entrance.

The College library is on the upper floors immediately over the main entrance, and is reached by way of the main staircase which rises from a hall in the centre of the building. Portraits from the College collection will hang on the walls of the surrounding galleries. The library will contain the important collection of historical books which was started by the College after the Great Fire of London. Meetings will also be held in the library, and the room will then be able to accommodate 400 people. Facing the library, at the head of the main staircase, is the dining-room for over 200. This also may be used for lectures and meetings, when it will hold 350. Separated from the dining-room by a hydraulically operated movable partition and looking out over the garden is the 'Long Room' which will be used for receptions and committee meetings.

Both the library and the dining-room are two floors high, with galleries at the upper level. To avoid deep overhangs within the rooms, these galleries have been projected outwards, giving the building its stepped section. This is reflected in the central circulation space which grows upwards and outwards from the main staircase. Opposite the foot of this staircase, also overlooking the garden, is the 'Censor's room,' used for meetings and examinations. It will be lined with the original Spanish Oak panelling which was part of the building in Warwick Lane designed for the College by Wren, and was moved to the present College building in 1825. The room is symbolic of the long history of the College and has, therefore, been placed at the heart of the new building.

Beyond the Censor's room to the east are the principal officers' rooms and the main committee and council rooms, and beyond them again, in the part of the building fronting on to Albany Street, are the secretarial offices. The top floor is mainly occupied by library offices, bookstacks and a reading-room.

Running south from the entrance foyer towards St. Andrew's Place is the main lecture-hall, which will hold 300. It has a stepped floor and will be equipped for showing films and slides. There will be soundproof booths for five translators at the back of the hall. The roof will be covered with copper. On the lower ground floor at garden level will be a smaller lecture-room holding approximately 50 people. Facing the garden at this level are also the staff dining-room and common-rooms for members and Fellows. There will be direct access between the main lecture-hall and the cloakroom accommodation beneath so that the lecture-hall can be sub-let as a self-contained unit.

OFFICE BUILDING, MANCHESTER SQUARE, LONDON

ARCHITECTS: GOLLINS, MELVIN, WARD AND PARTNERS

In the north-west corner of the square, comprising two blocks, six and eight storeys high. The L-shaped plan lent itself to centralizing all the main circulation and service areas, and made possible a link between the two blocks where a change of fenestration takes place. The eight-storey block was envisaged as a complete building, and the external column and wall treatment is returned into the building to emphasize this. The link between this and the six-storey block has been achieved by setting the lobbies back from the clear glass wall, which rises above the main entrance. The existing elevation to No. 15 Manchester Square was extended to meet the LCC town-planning requirements, which called for a 'completed' frontage.

Clerestory lighting is introduced into the basement office by dropping the roof-slab over the front area. The

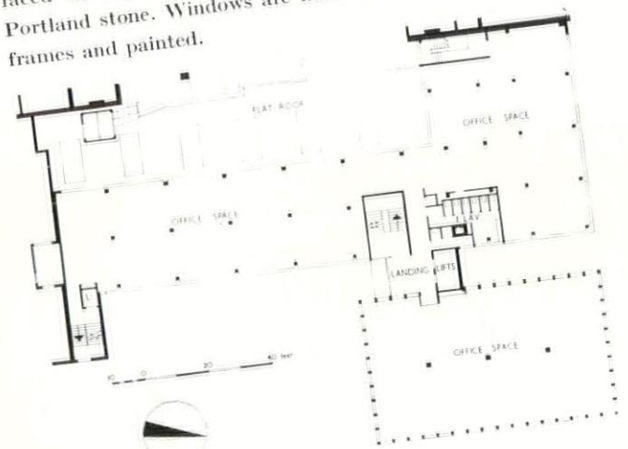
1, *east elevation of six-storey block, with eight-storey block on right.*



cantilevered entrance bridge is 3 ft. clear of this roof, which is tanked for use as an ornamental pool 80 ft. long by 10 ft. wide extending beneath the bridge to the line of the main entrance. Provision has been made for continuous submersible fluorescent lighting along the front edge. The lower front area is laid out as a formal garden, at the foot of the circular escape staircase.

A difference in level between Manchester Square and the mews at the back enables cars to run direct into the basement garage. In the upper office floors only 13 per cent of the total floor area is occupied by circulation, including lifts, lavatories and main and escape stairs. The top floor of the eight-storey block is recessed, providing directors with a terrace, entered through a full height glazed wall comprised of sliding doors and sashes.

The building has a framed flat-slab reinforced concrete structure with hollow pot floors. Spandril walls are concrete clad with brickwork between steel channel mullions. In the eight-storey block floors are supported at the perimeter on concrete mullions and spandril walls are faced with grey granite slabs. Columns are faced with Portland stone. Windows are mounted in hardwood subframes and painted.



upper floor plan



2



3

2, distant view from Manchester Square.
3, detail of window of eight-storey block.
4, the completely-glazed link between the six- and eight-storey blocks, with the main entrance on the ground floor.



4

SERVICES BUILDINGS, LONDON ZOO

ARCHITECT : F. A. STENGELHOFEN

Consultant: Sir Hugh Casson;
Assistant in charge: D. I. Bathgate

A group of buildings designed to accommodate the various services connected with the running of the Zoo. They face the Outer Circle at the back of the Mappin Terraces, an area which is not suitable for displaying animals. The first buildings of the group to be built were the boiler-house and incinerator (the former supplying high-pressure hot water throughout the grounds in insulated ducts, and the latter designed to burn 18-20 cubic yards of refuse in one day, and also used for the destruction of animal carcases by means of four gas burners) and the hospital and quarantine station containing animal dens, food preparation rooms, operating theatre, X-ray room, high temperature animal rooms, post-mortem department and offices.

The most recently constructed buildings of the group illustrated here, are:

The Works Department, built to house the Society's maintenance staff who, under the Clerk of Works, carry out general repairs, special constructional work and small works in the grounds. The accommodation consists of woodworking, metalworking and paint shops, administration offices, stores and mess room facilities.



5

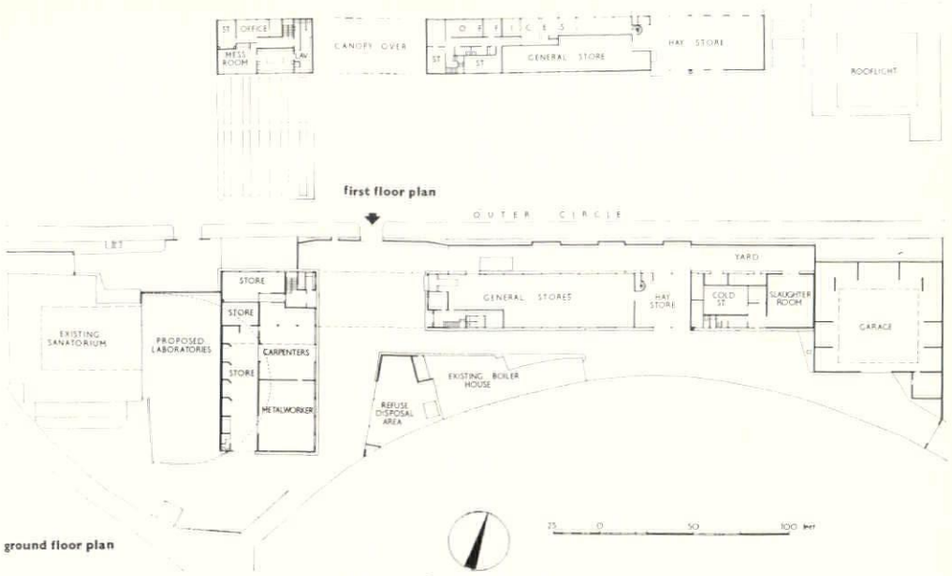
5, view from the Outer Circle. 6, the Supplies Department from the south; the general stores are behind the louvres.

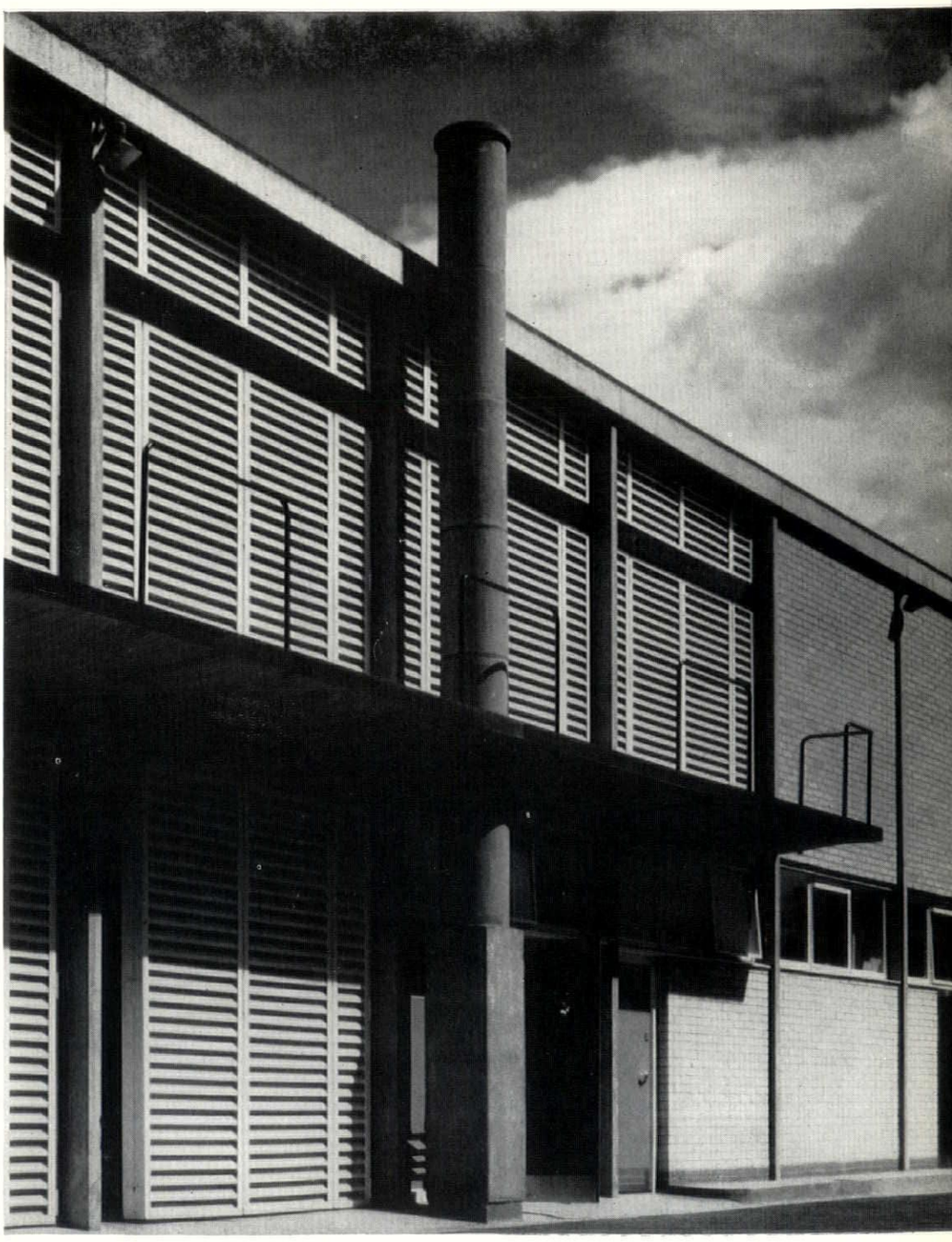
The Supplies Department, which deals with animal feeding stuffs and general stores required throughout the grounds. The building contains facilities for storing 'packed' and 'sacked' food stuffs, the preparation of special foods and storage and preparation of meat, having large refrigerators for storing meat and fish and a slaughter-house for animal feeding; also a large hay store, mess room accommodation for staff and offices for running the department, together with offices for the transport executive, the Society's engraver and the architect's department.

The garage, formed by converting what used to be the pony stables, which had been designed with this in mind. The building will house the Society's vehicles, trailers and trucks.

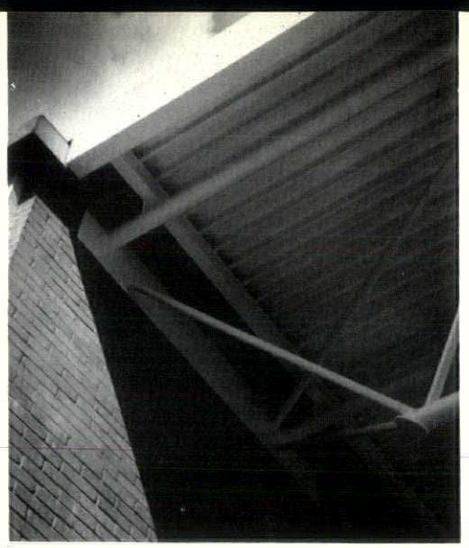
The last building, to complete the group, and soon to be constructed between the Hospital and Quarantine Station and the Works Department, will contain Research Laboratories.

The Works Department and Supply Department

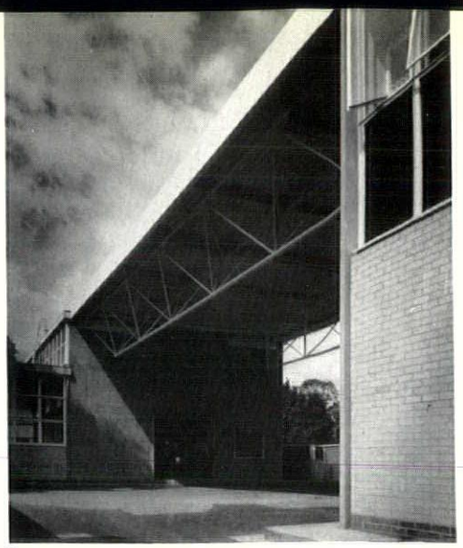




6



7



8

Services buildings, London Zoo

building, which forms the largest part of this development, is a precast concrete structure with precast concrete slabs with in-situ topping. The internal partitions and external panel cavity walls are of brick. Windows are aluminium. There is a 60 ft. span covered way between the two departments, which forms the entrance to the whole area. This is constructed of tubular steel space frames supporting an aluminium roof.

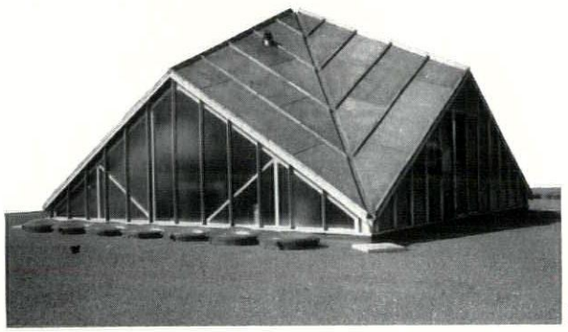
7, detail of the tubular space frame supporting the aluminium roof of the covered way between the Works Department and Supplies Department, shown in 8.

OFFICE BUILDING, BOURNEMOUTH

ARCHITECTS: FARMER & DARK

Partner in charge, Edward Butcher; assistants, Ian Case and Trevor Kidd

For Max Factor & Co., on a site to the west of the company's old offices, adjoining a golf course. The office space is planned round the perimeter of the building, with all stores and services in an artificially lit and ventilated central core. The building is designed on a 40 in. module.



10

9, view from the approach road. 10, zinc-covered roof structure housing water tanks and air-conditioning plant.

9





Drawing by Eric Thomas

WPM

MORTIMER STREET

A place for Wallpaper

THE FOLLOWING COLLECTIONS
ARE AVAILABLE FOR ARCHITECTS CONCERNED WITH THE
SPECIFICATION OR DIRECTION OF
DECORATIVE SCHEMES

PALLADIO, HAYWARD, THE ARCHITECTS BOOK

AND MAY BE SEEN AT

The Architects' Department The Wall Paper Manufacturers Limited
19/21 Mortimer Street London W 1
or King's House King Street West Manchester 3



Alright; so it's a wonderful building. I can see that. (But I bet it's more fun outside.) And it's a wonderful floor—TRINASCOLIN linoleum flooring by Limmer & Trinidad. I *know* that. (But I *still* bet it's more fun outside). Oh, come *on* . . .

Craftsman-installed TRINASCOLIN produces a colourful and resilient floor that is easily maintained. It's the 'modern' flooring, available in several thicknesses and a variety of plain and marbled colours.

The Limmer & Trinidad Group of Companies are specialists in all types of Decorative and Industrial flooring and have unique technical and practical experience to offer.

Descriptive leaflets are available on request.

THE LIMMER & TRINIDAD LAKE ASPHALT CO. LTD.,
Trinidad Lake House, 232/242 Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.,
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.,
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

MEMBERS OF THE

LIMMER & TRINIDAD

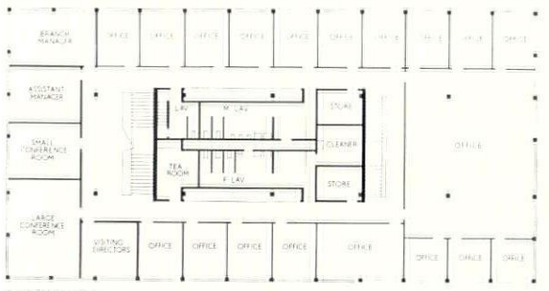
GROUP OF COMPANIES

Office building, Bournemouth

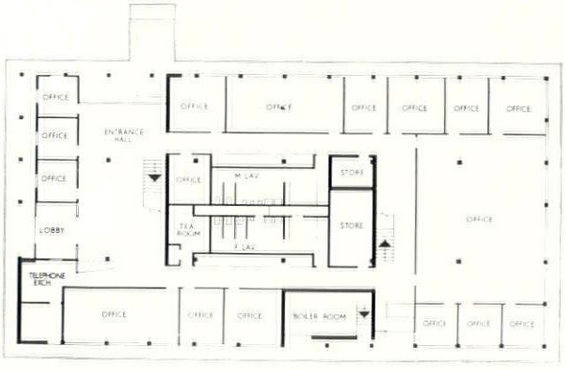
Office partitions are demountable and interchangeable. Corridor ceilings are lowered to contain ventilation ducts. The main entrance lobby opens into a reception and staircase hall, adjoining which is a glazed waiting space with sliding doors opening on to a covered terrace, with a fountain and pool. There are also three small waiting and interview rooms.

The building is concrete framed, into which are set aluminium wall frames, glazed or with solid panels faced with either blue-black Eternit or with silicon grey aluminium. The opening windows are flush with the face of the concrete column, and either side of them are fixed glazed and solid panels set back 4 in. The columns are capped by a precast concrete fascia with a diamond pattern cast into the face. Ground floor walls are faced with Wessex bricks or blue glass mosaic.

The staircase, of terrazzo, is cantilevered from a brick wall. The floor of the staircase hall is random marble slabs. All woodwork is natural parana pine or afrormosia



first floor plan



ground floor plan



11



12



13



14

11, *the entrance hall on the ground floor.*
12, *the free-standing boiler-house flue.*
13, *typical first floor corridor.*
14, *glazed demountable office partitions on the first floor.*

EXHIBITIONS

PAINTING AND SCULPTURE

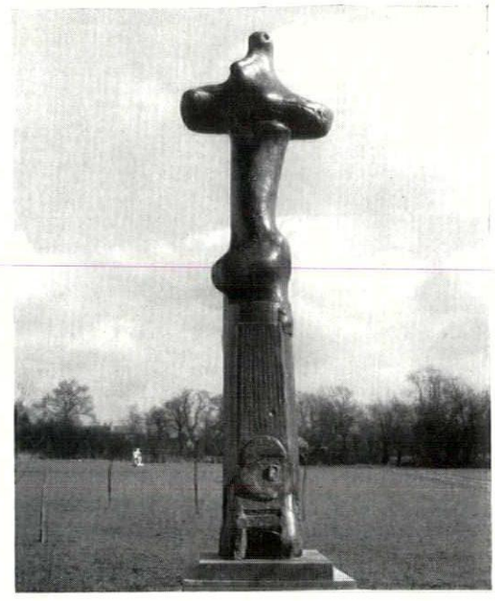
The LCC, persisting in its policy of neutrality, and aided and abetted by the usual group of ill-assorted 'specialists' nominated by the Royal Academy, the Royal Society of British Sculptors, the Arts Council and the ICA, has staged another fun-fair of sculpture at Battersea Park. Mr. Philip James, writing in the catalogue, excuses it in the name of democracy. His argument is horribly familiar: 'Committee art spells compromise, and compromise is part of the price that must be paid when the patronage of art passes from private hands to public bodies.' It isn't. The LCC could appoint a Director.

One sculpture, Henry Moore's 'Glenkiln Cross,' 1, taller than the rest, literally rose above the confusion. No 'specialist' should try to take credit for 'choosing' it, for it didn't save the show. It is 11 ft. high, and, as 2 suggests, when one looked up at the figure it was *above* the show, not *in* it. It stood apart and aloof, estranged by its tallness and its incomparable grandeur.

The Glenkiln Cross seems to me to be at least the equal of the greatest of Moore's pre-war stone carvings, and probably the finest monumental bronze sculpture made in this century. It gets its name from Glenkiln Farm at Shawhead in Scotland, where the first cast stands. Moore says that it is 'meant to be a rudimentary worn-down cross—the cross and the figure on the cross being merged together,' but I do not think he really means to imply that he started to make this piece of sculpture with ideas about a crucifixion in mind; I think he is simply telling us what the finished work suggests to him. The tall, squarish pillar which lifts the modelled figure into the air brilliantly solves the problem of the sculpture base. It is itself an abstract sculpture, and in this sense the Glenkiln Cross is in line with other recent sculptures in which Moore is putting organic and abstract forms into an intimate relationship. But I think that if Moore had had a kind of crucifixion in mind when working on the Glenkiln Cross the idea would have compelled him to effect a more drastic interpenetration of figure and pillar. As it is, I do not think I have ever seen a more perfect relationship between a statue and its pedestal.

Moore's preoccupation with a torso-like mass is evident in several recent bronzes (his armless 'Woman' in the Marlborough Gallery's summer show is another superb example), and anything but short thick appendages would weaken the conception of a single, self-sufficient mass. So the protuberances near the top of the figure, from which the notion of a cross-piece arises, are vestigial arms which have become identified with the torso.

I would not wish the Glenkiln Cross to be given another name. Its Celtic ring seems singularly appropriate. But I have to admit (with pleasure and relief) that this wonderful bronze does not contain for me the intimations of a crucifixion which Moore himself finds in it. It seems to be quite free from ideas about suffering, sacrifice, death or life after death, and although in a different social climate it could arouse reverence or veneration or even fear, it is first and foremost a monu-



1



2



Fishnet designed by Ronald Grierson F S.I.A.

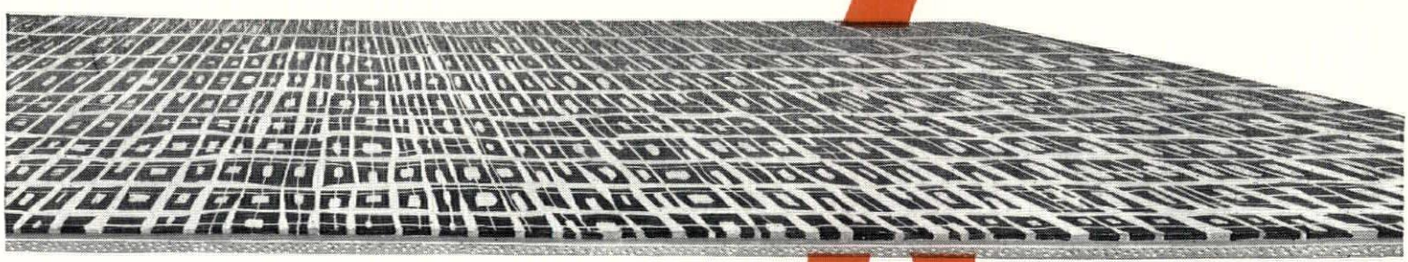
BRĪ-NYLON

Shildon

— the carpet of the future

TODAY!

1960



Townscape designed by Ronald Grierson F.S.I.A.

1978

Architects, Designers and Furnishing Contractors who keep abreast of the times specify Shildon—the world's most advanced carpet.

Intensive research and development have resulted in the perfect Nylon carpet. Almost every leading store in this country has tested the wearing and other qualities of Shildon carpets to their satisfaction. For instance, more than two million pairs of feet failed to wear out a Shildon carpet in a leading Manchester store. Quality plus the best design features and the most modern production methods have gained recognition for Shildon carpet as a product in keeping with the finest traditions of the British carpet industry.

Shildon carpet comes in exciting new designs, rich colours, and with its own foam rubber underlay. And Shildon is washable and stain resistant too, which means that the carpeting will always retain its beautiful look and luxurious feel. Yet all this luxury costs (including underlay) no more than ordinary carpet. This is why more and more Architects, Designers and Contractors include BRI-NYLON Shildon carpets when planning floor coverings.

BRĪ-NYLON Shildon CARPETS

Expert advice on any carpet problem is always available. Designs can be planned to your specification. You are also invited to visit the BRI-NYLON Shildon Carpet Centre at 60 Berners Street, London, W.1. Tel: LANgham 0471

BRĪ-NYLON *is the Registered Trade Mark of British Nylon Spinners Limited*

THE ALFRED MORRIS GROUP OF COMPANIES AM

The ceiling that lights



A Lumenated Module installation in the showroom of Middlesex Motors, Stanmore. ARCHITECTS: *Tubbs, Duncan & Osborn,* A.R.I.B.A.

Lumenated Ceilings are precision made. They arrive on site ready for immediate erection — using a minimum of skilled labour. They are covered by a comprehensive guarantee and a full maintenance service is provided. Expert co-operation on design and installation can be given by our experienced staff. Most Lumenated Ceilings diffuser designs have been accepted by the Council of Industrial Design. Please write for full details.

LUMENATED CEILINGS LIMITED

A member of the Hall-Thermotank Group.

ALLIANCE HOUSE, CAXTON STREET, LONDON SW1. TELEPHONE ABBEY 7113

TGA LBS



3

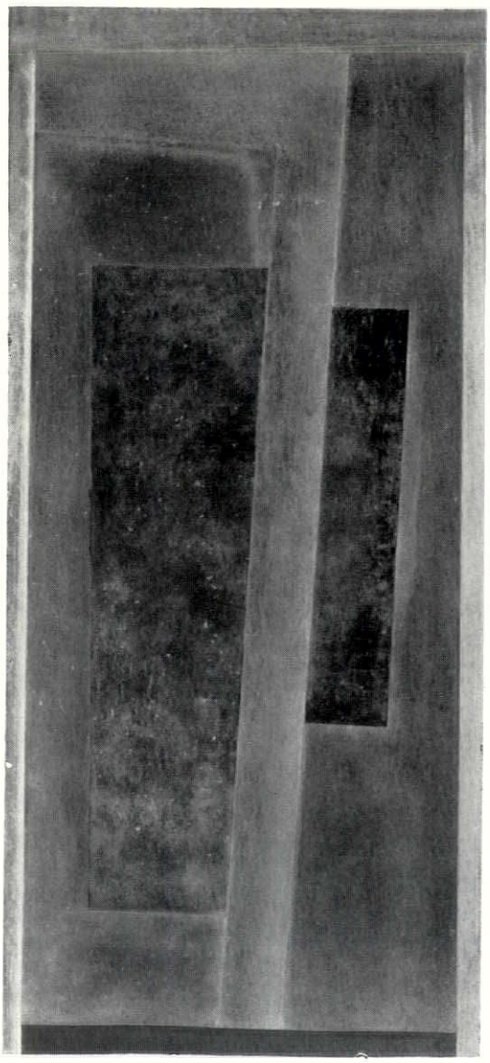
ment to that sense of the life of forms to which so many artists refer when they say with Monet, 'I have no other wish than a close fusion with nature,' or with Cézanne, 'an ideal of art—that is to say, a conception of nature.'

When I went to Gimpel fils to look at the new paintings by Ben Nicholson, I saw there one of Anthony Caro's ponderous female figures. It is much smaller than his 'Woman's Body' at Battersea, but struck me as being an even finer example of his ability to turn the piling up of raw material into a kind of creative cataclysm, 3. He is peculiarly responsive to the rawness and weightiness of impacted clay, and his modelling is so compulsively a matter of kneading the clay into organic-looking protrusions that there's no point in wondering which part of a woman a particular lump might stand for: the outcome is a spontaneous expression of creative personality. Like so many good English sculptors, he has worked in Moore's studio; like Moore himself, he has an innate feeling for mass, and his work promises great things.

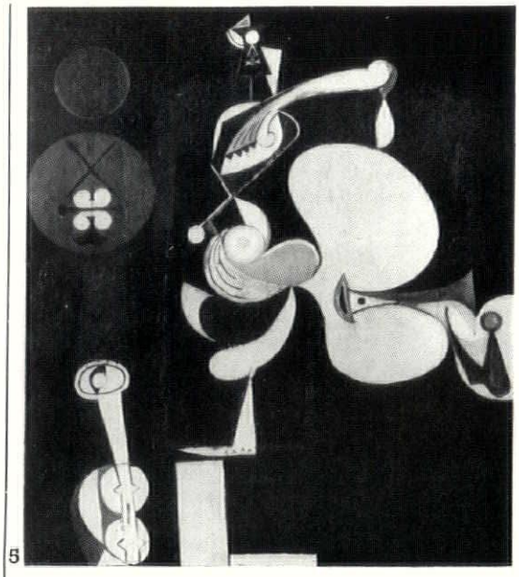
The new Nicholsons suggest a *fin de siècle* sensibility that's been passed through a fine mesh to remove all reference to organic matter. His off-ice-blue and near off-ice-blue geometries, 4, are wintrily Whistlerian; his line describes, with the remote refinement of a reformed Beardsley, curves that might once have been feminine. He is a kind of voluptuary of the inexpressive, and has given a new savour, carefully calculated to verge on savourlessness, to what Mario Praz somewhat slightingly calls 'the well-known feast of the senses.' It is a remarkable achievement: he has taken pure abstraction into the realm of dandyism, and in time to come he will probably be recognized as one of the really outstanding eccentrics of English painting.

I quoted Praz just now because, having Nolan's Leda in mind, I took down *The Romantic Agony* to see if it contained a chapter on sexual love between human beings and animals: but apparently the nineteenth century wasn't as interested in this theme as our own, for Praz doesn't mention it at all.

Actually, apart from Picasso's memorable studies of Pasiphae as a female matador, and Masson's remarkable painting of a woman being ravished by a bull-piano, even twentieth-century artists have concerned themselves more with the outcome of such unions than with the love-affairs themselves—with the minotaur rather than with Pasiphae and the Bull, with bird-men rather than with Leda and the Swan—and this in its turn is an aspect of that general interest in metamorphosis with which the twentieth-century artist



4

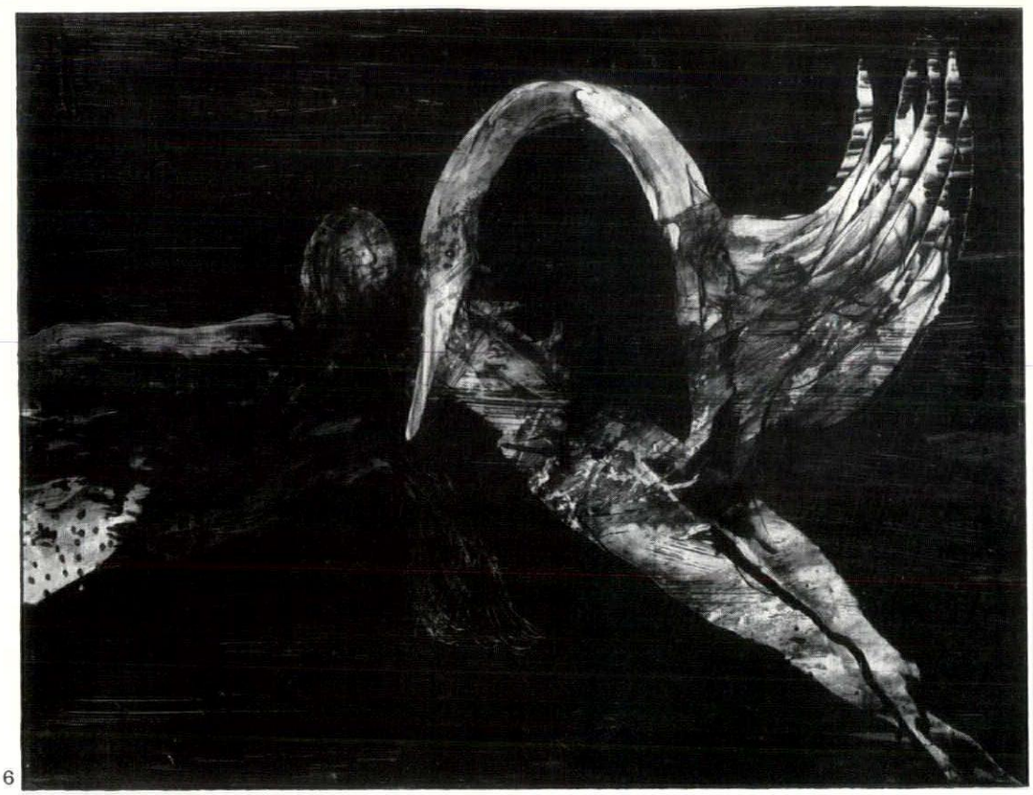


5

has symbolized his sometimes melodramatic sense of the transforming power of art.

Ceri Richards has yielded to the influence of several artists in the course of his career, but his continual concern with metamorphosis has given his retrospective exhibition at Whitechapel a remarkable unity. It is an even more constant factor in his work than the comma-like arabesque which runs like a signature through so much of his work. It brings such things as the closely-textured rock paintings, and the large sober abstracts called 'La Cathédrale Engloutie' which contrast so sharply with the arabesques on the same theme, into the main stream of his development. At his best, he has something of Picasso's power to create new and personal images by saturating himself in the atmosphere of another man's pictures. He has done this with Ernst, Miro, Matisse and Picasso himself, and the painting he calls 'The Female contains all Qualities,' 5, is a comment upon Picasso's moon-faced nudes of 1932 as brilliant and original in its way as Picasso's graphic comments on Cranach's standing Venus.

Sir Kenneth Clark, discussing the pastorals of Giorgione and the early Titian in his famous book on the nude, spoke of 'the inspired idea that naked beauty could be a natural feature of the landscape,' and of how the idea was lost when Titian acceded to his employers' demand for nudes in their 'proper place,' on beds and couches. There is a very faint reference to this lost idea in one of the paintings of Leda and the Swan in Sidney Nolan's extremely successful exhibition at the Matthiesen Gallery (only very faintly, because the landscape has not been thoroughly visualized and the picture conveys no sense of that spirit of place which was the special quality of Nolan's early work.) In any case, it was out of key with the other variations on the theme, and was very properly hung



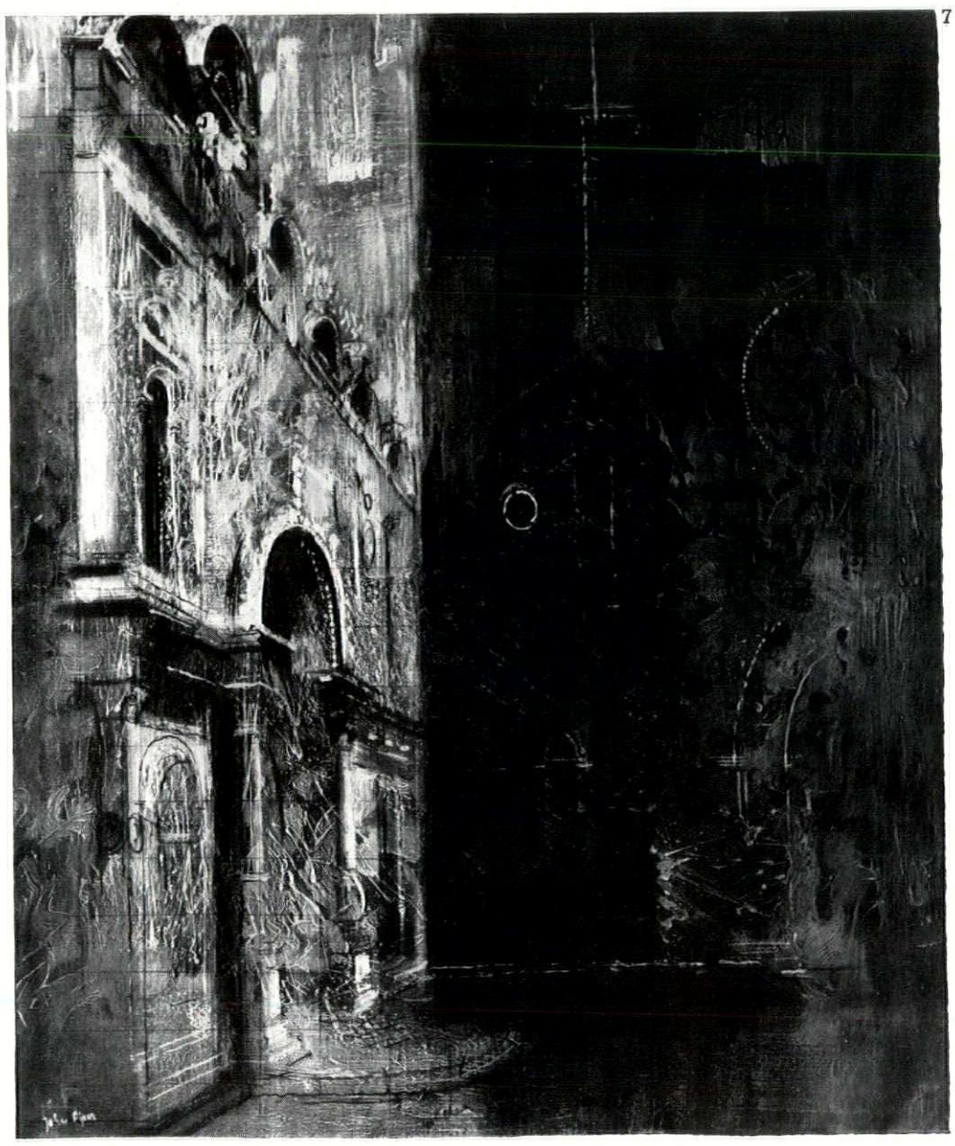
6

in the basement, away from the main group. For the twenty or so large variations, the artist seems to have visualized a kind of film ballet in the dark, with the woman and the swan picked out in coloured lights. Each variation has the look of being a single 'frame' from a long action sequence. In the picture reproduced here, 6, the colours run in strips across Leda; blue on the head, red on the breast, blue on the stomach, red on the thighs, blue above the knees, yellow below, and blue again on the feet. There is a similar compartmenting of colours on the swan, with a red splash on the breast and feet which ties up symbolically with the red on Leda's thighs. To be quite frank, I'd like to own this picture, but I fear that it's only because I find it easy to treat paintings as extensions of real life, and I suspect that I'd like to be the one who comes to this particular Leda's aid when the swan flies away.

In this Leda series, Nolan takes a further step in the process of de-nationalizing his art which he started in the 'Mrs. Fraser' series. The pictures of Mrs. Fraser and the convict making their way through a jungle of semi-automatic textures were Australian in theme but international in treatment. The new pictures deal with a theme which has a higher cultural status whilst remaining basically the same daydream. ('If you were the only girl in the world and I was the only boy'), and the treatment suggests that Nolan continues to want to be the Max Ernst of the free brush stroke. An international style plus an international theme has turned Nolan into an international figure, which must be very nice for him. But I still think that there's a painter with exceptional potentialities hiding behind this curious and clever façade, and I hope that he will find a way out of his highly successful impasse.

Contrariwise, I hope that John Piper's equally successful exhibition at the Arthur Jeffress Gallery of paintings of Venice will not deter him from continuing his study of the Venetian scene. I think it could easily do so, since he might well feel that Venice is almost too obviously a place in which his art finds its appropriate imagery. But so far he has only produced a very small number of oils of Venice and they are among his finest achievements in this medium. The large 'Scuola di S. Marco and SS. Giovanni e Paolo,' 7, with its rich, sombre colour, its free textures which so effectively associate themselves with architectural ornament, and its measurable yet mysterious space, takes its place among the most splendid tributes that English painters and writers have paid to the loveliest of cities.

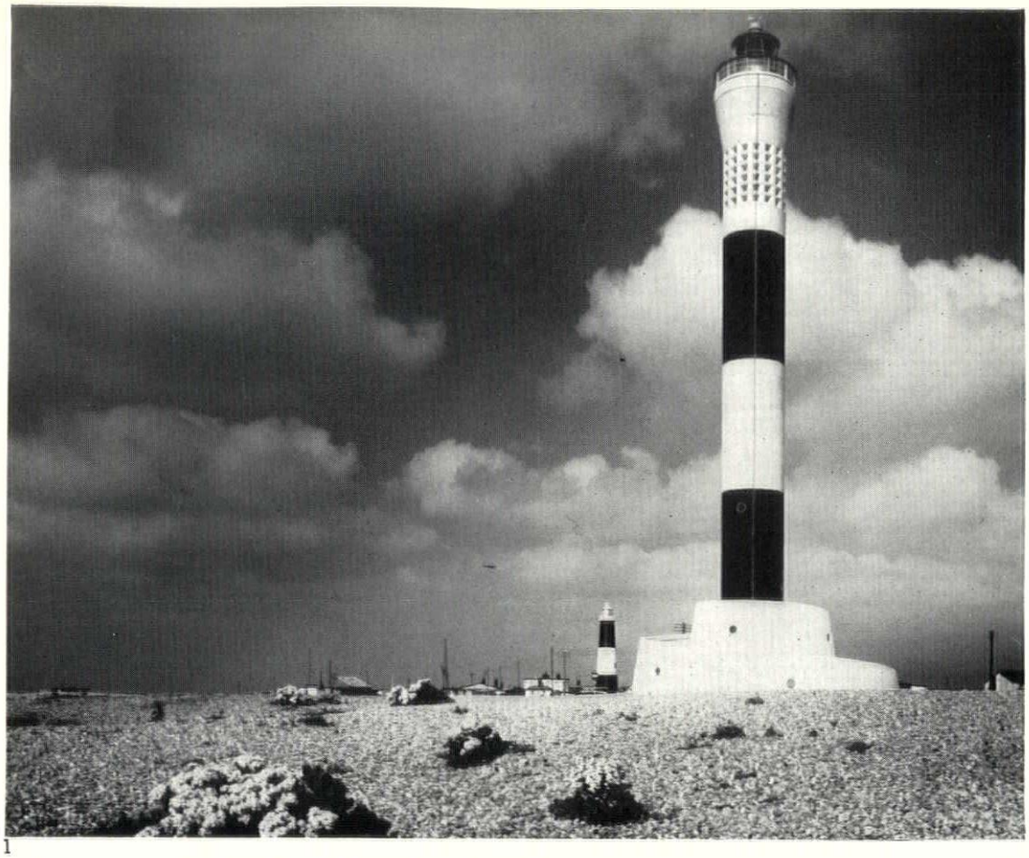
Robert Melville



7

DUNGENESS LIGHTHOUSE

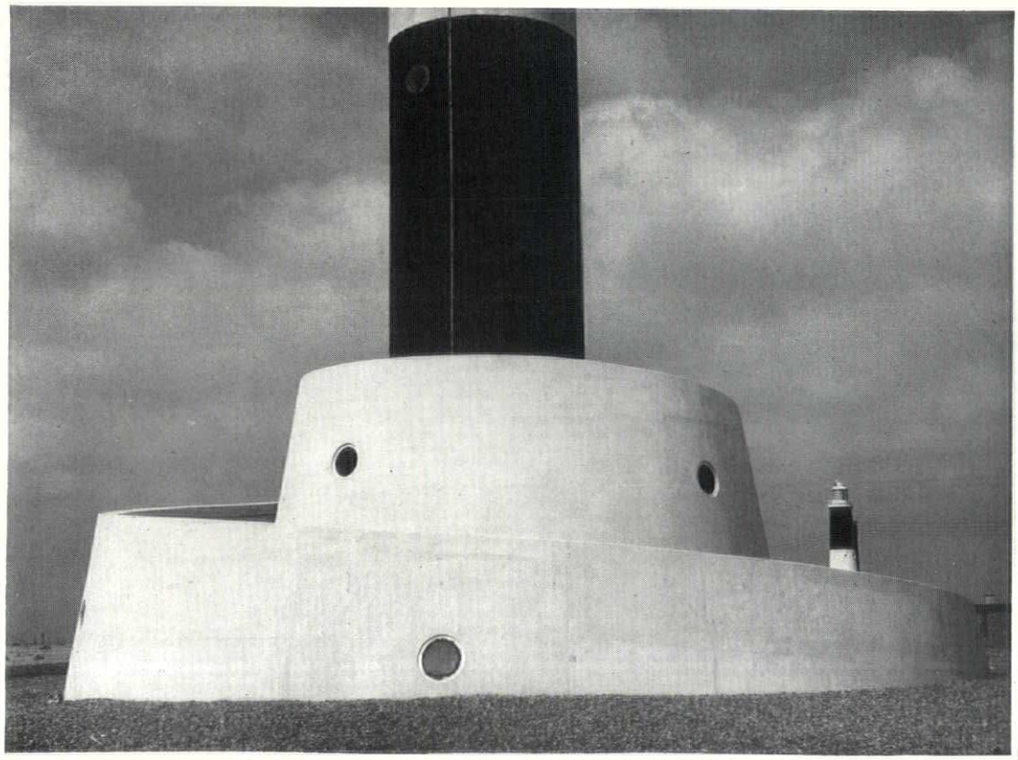
Throughout the REVIEW'S *researches into the Functional Tradition, and its campaigns to get a similar quality into town-detailing, vernacular seaside equipment has been constantly held up as exemplary.* Its value as a guide to design, a school of method, was first significantly observed by John Piper, in his now historical article on 'The Nautical Style' (AR, January 1938), and ever since then, architectural consciences have been haunted by the clear cut forms, tough detailing and crisp paintwork of seaside objects. They have, inevitably, tended to be objects of uncertain or considerable age, because modern equipment seemed to have lost in appropriateness what it had gained in sophistication. Now, however, the new Dungeness lighthouse, 1, offers a high degree of sophistication with a degree of visual appropriateness comparable to the best work of the past.

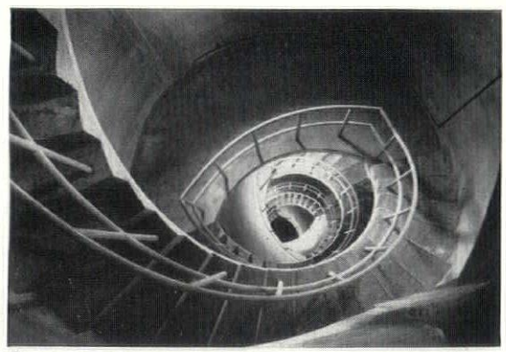


1

Structurally, it differs from the older Dungeness lighthouse, visible in the distance in 1 and 2, in having no external taper. Modern techniques of prestressing have enabled the architects, Ronald Ward and Partners, to achieve the object of the traditional taper—greater strength towards the base—while building their tower of pre-cast concrete rings of standard diameter, the greater strength being derived from an increased frequency of stressing cables towards the base. The black and white banding of the exterior—for visibility and recognition—is permanently cast into these rings by means of coloured aggregates, and thus needs no repainting. At the base of the tower, a spiral ramp, 2 (seen also on the cover of this issue), leads up to the entrance and gives a structurally—and visually—firm footing, while at the head, beneath the miniaturized 600,000 candlepower lantern, are six bands of acoustically shaped apertures for the fog-horn. The tower itself is empty apart from stairs, 3, since there is no need at Dungeness for living accommodation, and all the machinery, electronics, etc., are housed within the spiral ramp at the base.

2





3

In its over-all form and in its detailing, this is one of the first substantial buildings of purely functional intent in Britain that lives up to the standards established by Orebro water-tower, illustrated as the frontispiece to last month's REVIEW. The more credit, therefore, is due to the architects, not previously connected with this kind of work, for having done simply what many architects, without the guidance of any live tradition, might have been tempted to over-do and over-design.

C. Forehoe

PLANTS

ACANTHUS

This is the second of a series of herbaceous perennial and climbing plants,* chosen as suitable for the external embellishment of buildings.

Anyone who has forgotten what the acanthus has to do with architecture has only to look up Vitruvius, Book IV, Chapter 1. (Fifth century BC, young Corinthian girl's grave, nurse fills basket with sweets and toys, places a tile on top, indigenous plant, acanthus sprouts up and round the basket, architect Calimachus catches sight of accidental spectacle, Corinthian Order is born.) The stone flowering of this Mediterranean plant is probably to be seen at its finest in Diocletian's Palace at Split. There is a living plant lurking I am glad to say in Sir John Soane's Museum.

Its effect in gardens is often underestimated, as the plants take three or four years to develop their characteristic form. Then they provide a rich fountain of dark arching glossy vegetation crowned in summer with spires of curious flowers.

The most valuable varieties are *Acanthus spinosus*, shown here properly established, 1, with elaborate cut leaves, *A. mollis var. latifolius*, 2, which has a broader leaf with a bold outline and wine-coloured flowers (the leaf has a highly polished surface of a deep lustrous vegetable green), *A. spinossimus*, which is darker still, spiky, more compact, and more rarely flowering, and *A. perringei*, 3, which is thorny.

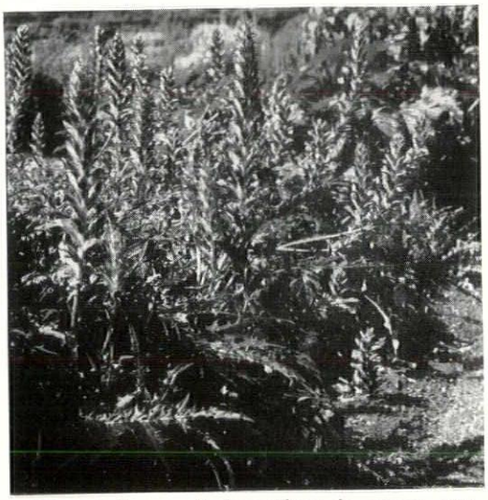
*The first in the series, illustrated and described by Patience Gray in last month's issue, was the Heracleum or Giant Parsnip.



1



2



3

The foliage of Acanthus is more persistent than in the majority of herbaceous plants. Even when cut back by frost new growth appears at once. They should be planted at 3-foot centres in deep well drained soil enriched with rotted compost at the time of planting. Once settled they should be left undisturbed. Give a top dressing of compost in early spring. Acanthus flourish in London gardens. They can be planted in semi-shade, but in my opinion prosper better in full sun, when they flower more freely. They increase by new shoots springing up from the spreading roots. These root 'offsets' can be severed from the parent and replanted in spring.

Clumps of Hostas associate well with these plants, and white flowered campanulas (*C. persicifolia* 'Snowdrift') though neither should be planted too close or they will be covered by the arching leaves; also the biennial giant silver thistle, onopordon. An acanthus group is particularly suited to planting in an irregular space left in terrace paving. Isolated in this way the particular fountain form of growth, which attains 3 feet in height (flower spikes can reach 5 feet) can be appreciated. I have also seen them planted among old-fashioned Gallica and Rugosa rose bushes in full sun, and lurking with ferns and trailing ivy in deep shade.

Patience Gray

SKILL

HARDWOOD FLOORING 1

G. C. A. Tanner

As a finish which endures heavier punishment than most others in a building, the floor deserves careful consideration in design. Its prominence in maintenance problems suggests, however, that it does not always get this. This is the first of two articles on hardwood flooring and in this article an attempt is made to present a background picture of the trade, to trace the development of the raw material from log to strip or block and to underline the problems posed by modern standards of heating in buildings.

Hardwood is a high quality flooring material demanding a standard of preparation and workmanship in its laying which will justify its cost and ensure that full advantage is obtained from its inherent characteristics—a hard wearing surface, a pleasing appearance, warmth and quietness. Traditionally it is laid by specialist sub-contractors who are often, though not always, manufacturers as well as contractors. The rapidly broadening field of new materials and techniques within the building industry to-day makes the architect's task of keeping abreast an onerous one. The tendency to know less about specialist work and rely more on the know-how and advice of the specialists themselves is a regrettable concomitant of this. Whilst no architect is expected (even by his client) to know everything, and whilst the integrity of manufacturers and contractors in the trade generally is not in question, a working knowledge of hardwood flooring, its characteristics, its drawbacks and advantages, is important if the architect is to take it into account at the design stage (as he should do) and fully exploit its possibilities.

The trade

As timber is a traditional material it is not surprising that the timber trade retains, as one writer put it, '. . . a nineteenth-century atmosphere to a greater degree than do most other sections of the building industry.' This is not to say that it is inefficient or behind the times. Its links with the past are found in such things as the use of water transport for raw materials. Most large timber-yards adjoin a canal or river and timber is shipped to them by barge from the ports.

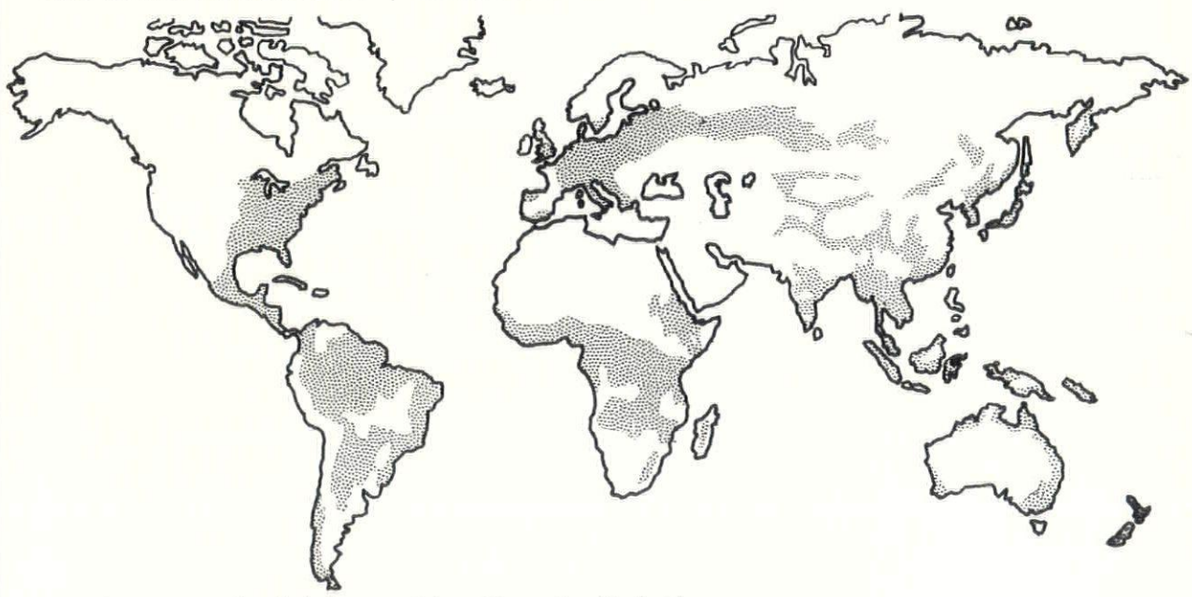
The hardwood flooring trade is divided into two parts—manufacturers and contractors. The term *manufacturer* in this context simply means one who takes the raw material and converts it, by a sequence of machining operations and by air- and kiln-drying, into flooring blocks or strips. Many manufacturers do not specialize in flooring, but are importers and/or merchants of timber for other uses—joinery, the furniture trade and such-like. The larger manufacturers usually are in the contracting business as well, but there are many hundreds of contractors throughout the country—some of them quite small firms—who do not manufacture flooring but merely obtain their supplies from manufacturers in this country or occasionally from abroad. The reason for this is self-evident. Before even it is put into the kilns hardwood should be air-dried for at least a year. This means stock-piling in the yard at least a year's supply of timber, requiring not only capital resources but a fairly large area of land for the stacks. Few small firms can contend with this.

There are three associations primarily concerned with the trade. The Hardwood Flooring Manufacturers' Association is what its name implies, although, as mentioned above, many of its members are contractors also. The association concerned solely with contractors is the Association of Flooring Contractors and the predominant membership is drawn from small firms who are not manufacturers as well. The British Institute of Hardwood Flooring Specialists is an association of firms who are both manufacturers and contractors.

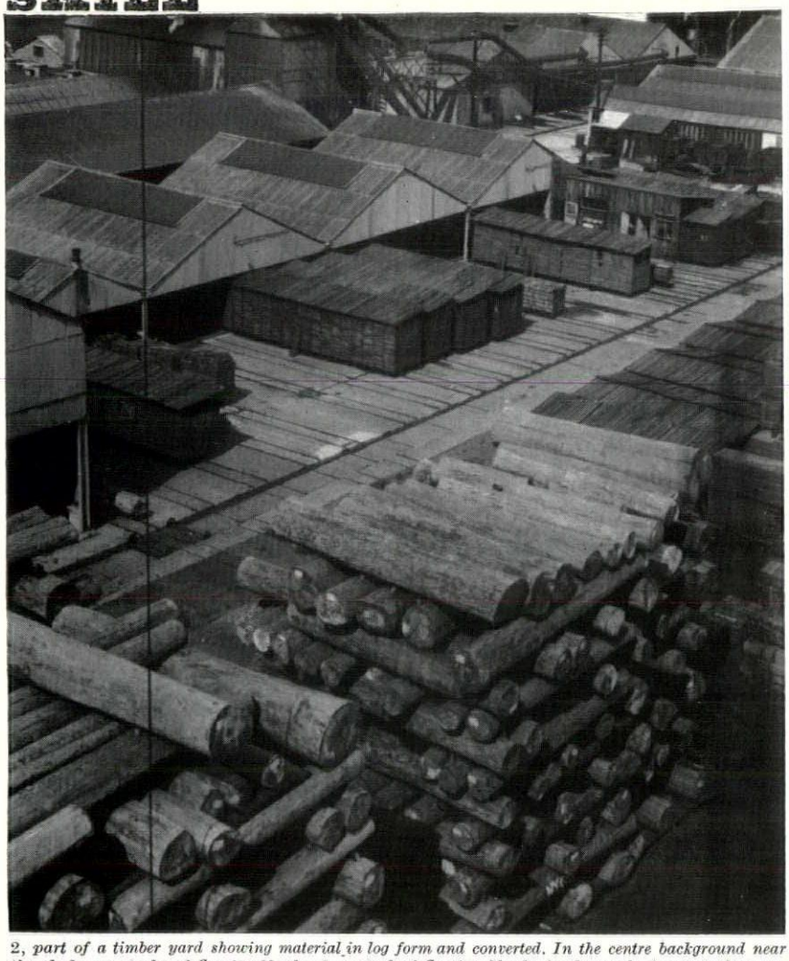
Unlike the Timber Development Association, whose brief is to popularize the use of wood in general and who publish voluminous technical information, these associations exist primarily to present a united front on behalf of all their members and, as associations, they are represented on the advisory committees of the TDA, the British Standards Institution and other organizations whose purpose it is to publish codes, standards and other information on the subject. Most of the prominent members of the three trade associations belong to the TDA.

The timber

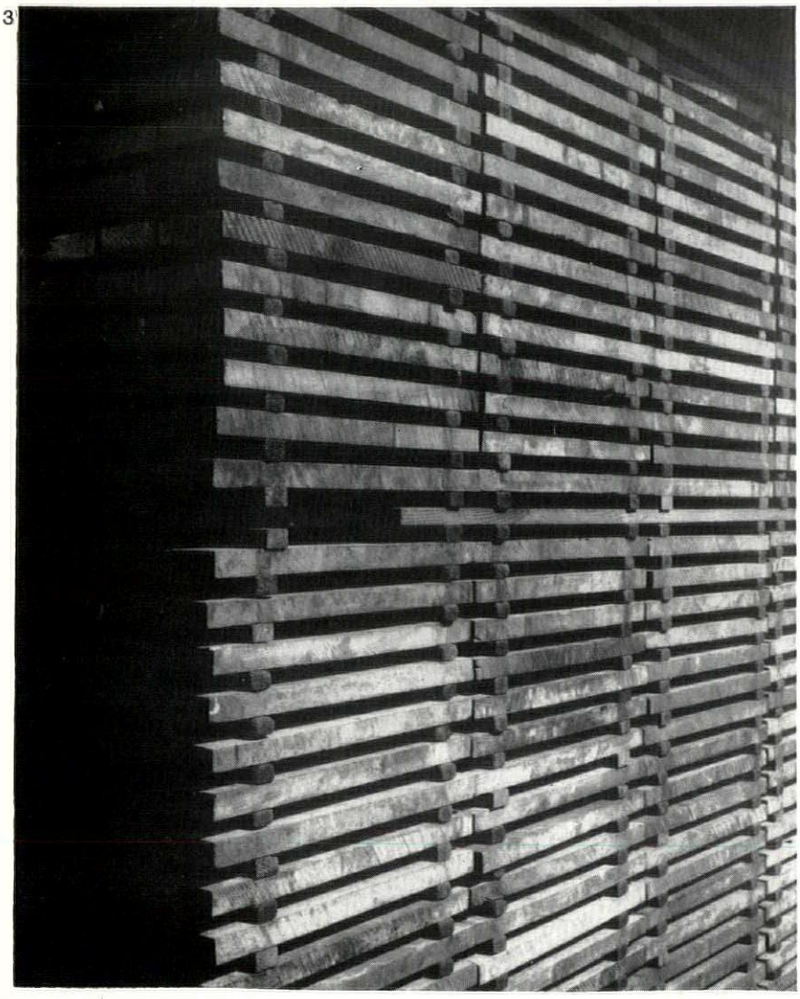
Hardwoods are imported into this country from many parts of the world, 1, a large proportion coming from the tropical and near-tropical areas. At the time of writing and for some years now, the hardwoods of Africa represent a fairly high percentage of imports. Whether the gradual and inevitable emergence of independent states in this part of the world will have an effect on the supply of hardwoods to this country only time can tell. Certainly there is no likelihood of the forests being exhausted by our demands in the foreseeable future.



1, *the hatched areas represent the principal sources of the world's supplies of hardwood.*



2



3

2, part of a timber yard showing material in log form and converted. In the centre background near the sheds are stacks of flooring blanks. 3, a stack of flooring blanks in the yard of a manufacturer.

Hardwood which is to be used say for joinery or in the furniture trade, often comes into this country in log form, 2. Otherwise it is imported in *boules*, which are logs cut through-and-through, reassembled and tied by means of steel straps. When imported for flooring, however, it is more likely to be in the form of what is known as *flooring blanks*, 3, which are pieces of timber, sawn from the log to a nominal size (usually 3 in. by 1 in.) and, when intended for block as distinct from strip flooring, in random lengths up to about 3 ft. but in multiples of 9 in. The sections to which flooring is machined are directly related to the methods of laying. Apart from traditional techniques there are many patent systems on the market. These and the machining of traditional sections, therefore, will be discussed in the second article.

A certain amount of hardwood flooring is imported into this country in manufactured form. This means that it has been kiln-dried to a specific moisture content and machined to its finished section as a flooring block or strip in its country of origin. Most imported manufactured flooring comes from the USA or Canada, though a certain amount comes from Japan and Scandinavia. The implications of this practice are discussed under the section on seasoning.

There is a saying in the trade that the timber used for flooring blanks is the 'offal.' What this means is not that it is poor quality material but that it is what is left over after the larger sections have been cut from the log. Often a species will come into demand for a specific use, such as railway sleepers. The effect of this may be to bring this species on to the flooring market. The log is converted by taking first the lengths suitable for sleepers and utilizing the balance for flooring lengths.

Converting the log

Conversion, according to BS 565 (1949) (*Glossary of Terms Applicable to Timber, Plywood and Joinery*) is the process of sawing timber from the log.

Basically there are two ways in which logs can be converted into sawn boards, which is the first stage of their evolution from log to floor. The method most widely used is sawing through-and-through. Approximately two-thirds of the saw cuts will be tangential to the growth rings of the log. The remainder are known as radial cuts, 4. Tangential cuts produce *flat-sawn* boards and radial cuts *quarter-* or *rift-sawn* boards.

The second method of conversion, which is less common, is intended to produce virtually only quarter-sawn boards. The reason it is less popular with sawmillers is that it involves considerably more handling during sawing as the log has to be turned many times.

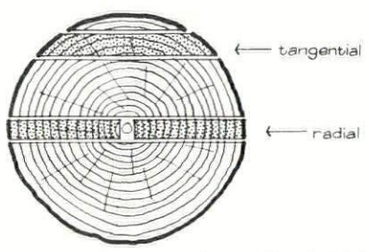
Whilst, in theory, quarter-sawn boards are more desirable, it is unreasonable to demand that all timber for flooring be converted by the second method above. In softwoods quarter-sawn material is essential to increase wearing life, but the difference in structure and wearing qualities makes it unnecessary for hardwoods.

Seasoning

It is, or should be, well known that the effect of temperature and humidity change on timber is to cause expansion and contraction. Needless to say, this movement is greater in timber than in most other building materials and, unlike certain of these materials, such as steel, for example, timber does not allow the amount of movement to be determined accurately beforehand.

When a piece of timber—whether flooring, joinery or movable furniture—is fixed in a building and a constant condition of humidity and temperature is eventually obtained, it will reach a level of moisture content at which it neither gains nor loses moisture. This is known as its *equilibrium moisture content* and varies slightly with the species. The object of seasoning is to reduce its moisture content to this level before it leaves the yard. Normally this is done in two stages. The first is called air-drying and involves stacking the flooring blanks on battens, usually out in the open yard, for a period of a year or more, an old 'rule-of-thumb' being to allow one year air-drying per inch thickness of timber. Stacked in the yard in this way it is known as being *in stick*, 5. The idea of keeping the individual blanks apart and on battens is to permit free circulation of air round the timber. Newly-felled timber contains a very high proportion of water which, in damp conditions, may remain in the wood for a long time. Air-drying is a natural process which causes the water to be gradually dried out until the timber attains a moisture content in balance with that of outside conditions in this country, which will be between 15 and 20 per cent. There is a difference of opinion within the trade on the necessity for air-drying over a period of time as long as this. Those who argue against it claim that it is no longer necessary as intelligent kiln-drying will ensure that timber reaches the consumer in a satisfactory condition. On the other hand, those in favour insist that air-drying is just as essential as it was before the development of kiln-drying. They point out that, in addition to removing moisture, it assists in stabilizing the other constituents such as starch, sugar, resin and tannic acid, many of which are of a hygroscopic nature and will remain unaffected if kiln-drying only is carried out.

The second stage of seasoning is to bring the timber down to a moisture content suitable for inside conditions. This is done by the process of kiln-drying, an operation which will take from one to three weeks and some-



4, cross-section showing tangential and radial cuts produced in a log sawn through-and-through.

times more according to the species and thickness of timber and the conditions of the building into which it is going.

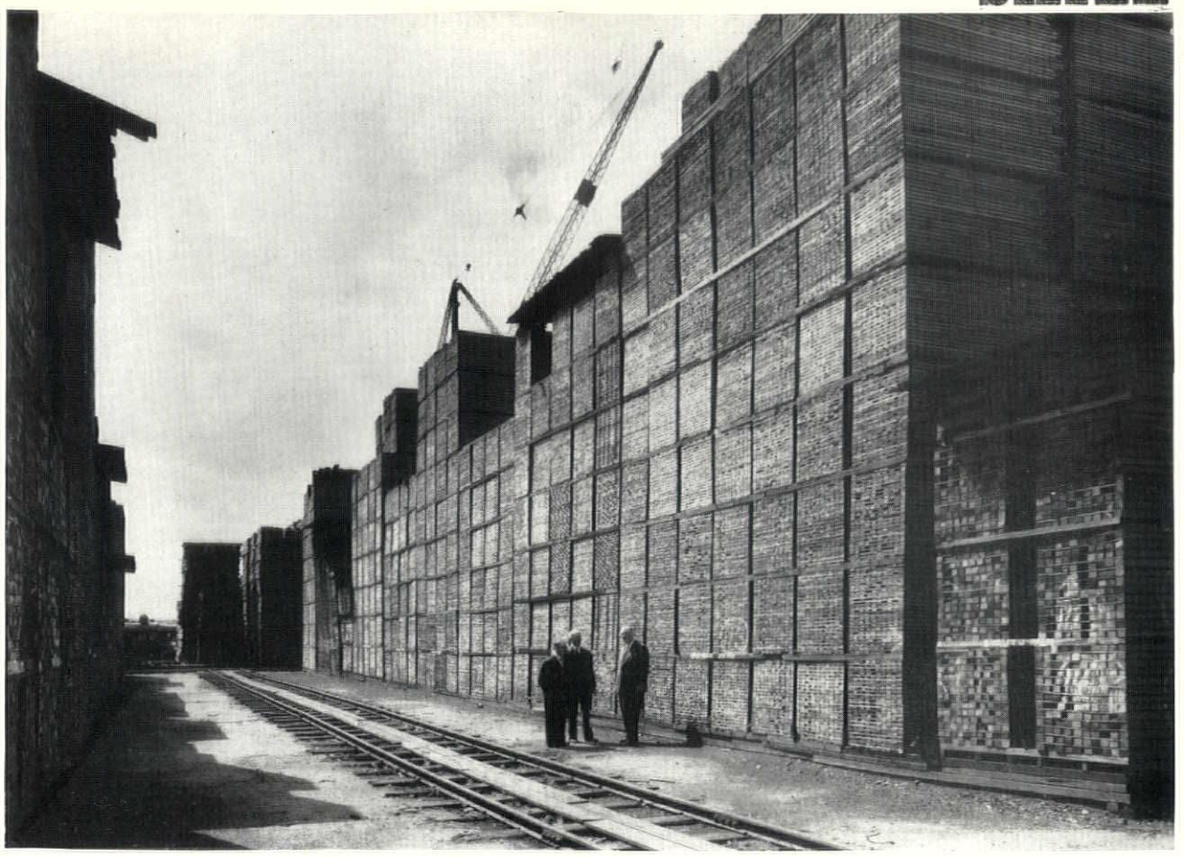
A kiln, 6, is simply a sealed room or compartment in which the timber, stacked in the same way as when air-drying in the yard, is exposed to controlled conditions of temperature and humidity. Basically there are two kinds of kiln, the one in which air is circulated by the natural tendency of hot air to rise and cold to fall, known as a Natural Draught Kiln, and the other in which fans are employed to drive the air, known as a Forced Draught Kiln. Speedier drying occurs than in air-drying because conditions are strictly controlled and higher

[continued on page 229

continued from page 228]
temperature and a positive circulation of air maintained. The process of heating, of course, merely draws moisture from out of the timber. To avoid evaporating the moisture from the surface of the timber more rapidly than it moved there, in which case there would be a risk of peripheral shrinkage and splitting of the timber, it is necessary to humidify the circulating air by live steam or some other means in order to maintain the rate of evaporation at a safe level.

Large manufacturers of flooring have their own kilns and often kiln-dry timber for other merchants. They are very likely to be members of the Kiln Owners' Association. Kilns are, or should be, controlled by a skilled operator who works by authoritative kiln-drying schedules, such as those published by the Forest Products Research Laboratory.

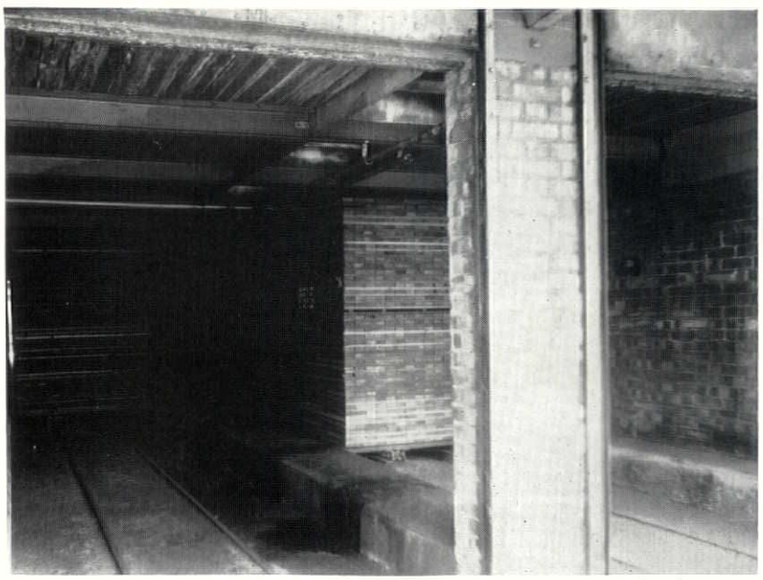
The moisture content to which flooring should be kiln-dried will vary with conditions within the building. For this reason alone it is essential for the flooring contractor to be informed at the letting of the contract of the conditions which will obtain. This means that he must be told what, if any, heating will be used in the building, so that he can ensure that the flooring is kiln-dried beforehand to a suitable level. Table 1, which is extracted from B.S. 1187 (1959) *Wood Blocks for Floors*, gives levels of moisture content under various conditions. This standard relates to wood blocks but the figures apply equally to strip flooring.



5, *timber* in stick—*air drying in the yard.*

table 1

type of building	ranges of moisture content at time of delivery
buildings without heating subject to day-to-day fluctuations in atmospheric conditions	14 to 18 per cent
buildings with intermittent heating, such as from open fires	12 to 16 per cent
buildings with central heating	10 to 14 per cent
buildings with high degree of central heating, such as in hospital wards	8 to 12 per cent
Note: where heating panels are embedded in the floors or ceilings it is necessary to kiln-dry wood blocks to a moisture content lower than the minimum of the lowest range given above.	



6, *a forced-draught kiln partly filled with trolleys laden with flooring blanks. All the photographs in this article were taken at the Barking yard of The Acme Flooring & Paving Co.*

Heating

Whilst we do not yet accept North American standards of heating, the extent to which we heat buildings to-day is very much greater than it was ten years ago and makes pre-war standards appear quite primitive in retrospect. Buildings are warmer and drier than ever they were and, as far as hardwood flooring is concerned, the implications, generally, are not fully appreciated.

Most heated interiors impose conditions which must be taken into account in the selection of a flooring timber, its kiln-drying and its method of laying. It is highly desirable that only the more stable hardwoods be used, and it is essential that, whatever the timber, it be kiln-dried to a lower moisture content than otherwise would be necessary. The influence on the sub-floor and on methods of laying will be discussed in a second article. It cannot be overstressed that both the fact of heating and also details of the installation must be transmitted to the flooring contractor when the contract is let. Failure to select a suitable timber or to bring it to the correct moisture content may produce trouble in the finished floor which can be expensive to rectify. Expansion in flooring which has been dried to a correct moisture content will occur only if it is exposed to damp conditions. It can be rectified fairly easily. Timber which has not been brought to a sufficiently low moisture content, however, will shrink. This is much more serious since the shrinkage will not be uniform.

The need to take account of heating is even more critical whea floor warming or ceiling panel heating is used. When electrical cables are embedded in a screed on which hardwood flooring is laid, the temperature of the floor will probably be in the region of 75 deg. F. and that of the screed 90 deg. F. It must be remembered that, compared with other floor finishes, hardwood has a relatively high resistance to the transmission of heat, the effect of which is to produce higher temperatures within the screed itself. It is not suggested that hardwood flooring is an unsuitable finish over floor warming. There is no reason for it not to be entirely satisfactory provided (*a*) a stable timber has been selected, (*b*) the timber is kiln-dried to a suitable moisture content (6 to 8 per cent, but it can vary with the species—the advice of the flooring contractor should be sought) and (*c*) the heating system is sensibly controlled. This means avoiding the temptation suddenly and rapidly to raise room temperatures, as when a cold snap occurs, or having room temperatures which are excessively high.

The acceptance of a reasonable standard of heating in buildings has, of course, made kiln-drying even more essential. But the important point is not that timber should be kiln-dried but that it should be kiln-dried to a moisture content suitable for the conditions within the building when occupied. In fact it is this point which presents the problem with imported flooring. A good deal of Canadian maple flooring strips, for example, as well as material from the USA, Japan, Sweden and other parts of the world, comes into this country every year. Generally it is good quality material, but it has already been kiln-dried in its country of origin. As the result there is no means of adequate control, particularly during transit, and it cannot be put into the kilns in this country. Imported flooring, though it is stocked by most of the large manufacturers, should be treated with caution.

Sources of information

There is no dearth of information on the subject of hardwood flooring, but it is scattered amongst many

books and pamphlets, and is often presented in a way which does not make it easily digestible for the architect. Textbooks on building construction devote some space to it usually as part of a section on floor finishes. Some textbooks, however, are still showing methods of laying floors which are not now (if they ever have been) practised by the trade or recommended by people with a sound knowledge of the subject both in and out of the trade.

A British Standard Code of Practice, CP 201 (1951) *Timber Flooring*, deals both with softwood and hardwood in its various forms—board, strip, block and parquet. The Code sets out recommended practice for the laying of the sub-floor as well as the finished floor, and discusses seasoning, preservative treatment, sequence of operations and so forth. Revision of this nine-year-old Code is due shortly, however, and items which should receive attention will include, no doubt, the wider range of hardwoods available for flooring and a rationalizing of recommended methods of laying to bring them into line with those practised to-day and with the many patent systems now on the market.

The selection of a timber is not just a matter of deciding what colour or figuring is desirable for the floor. Of the several factors which influence the success of a hardwood floor by no means the least is the selection of a timber suitable for the traffic which the floor will receive. British Standard 1187 (1959), *Wood Blocks for Floors*, catalogues species of hardwood and softwood suitable for different uses. These include floors designed primarily for pedestrian traffic, graded as light, normal or heavy, and floors designed for specific uses such as industrial, gymnasium, ballroom or skating-rink.

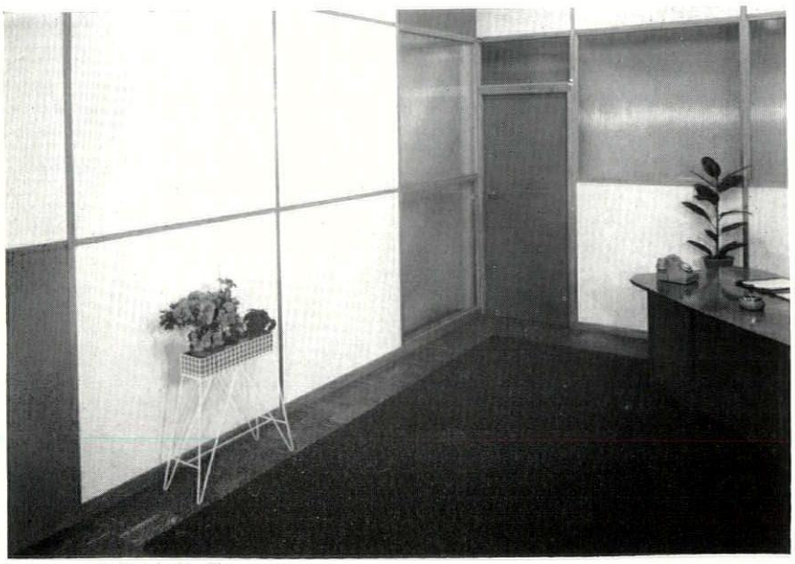
By far the most prolific source of information is the Timber Development Association. It publishes a series of red books on subjects such as timber seasoning, timbers for house building, timber and fire protection and many others. Its issue on wood flooring has recently been revised. In addition, it publishes pamphlets and leaflets and has recently revised its booklet entitled *Wood Floors* (price 3s.) which is a useful little handbook containing diagrams showing alternative methods of laying all types of wood floor. It contains a full bibliography of official publications on the subject.

The Forest Products Research Laboratory devotes several of its bulletins to the subject. Needless to say, both the Forest Products Research Laboratory, which is a division of the Department of Scientific and Industrial Research, and the TDA undertake to give information and advice.

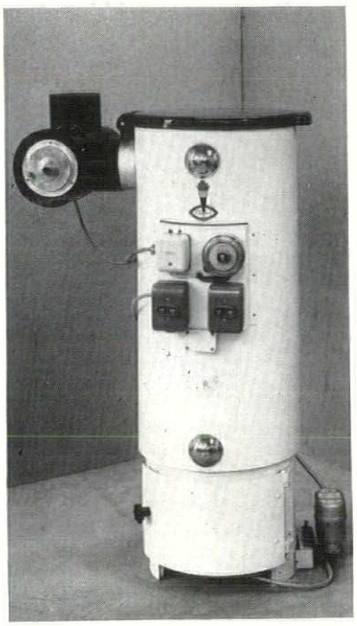
THE INDUSTRY

Office partitions

Current practice in the design of office buildings is to provide large areas of undivided space so that the occupant, who is often a tenant of the building owner, can sub-divide it to suit his needs. The result has been to make the movable partition, like the desk and the telephone, a piece of office furniture. Manufacturers of office equipment have worked on this assumption for some time anyway and most large manufacturers market patent systems. Shannons have just announced their own latest contribution to this field, which they call 'Interlock' or 'Modular Partitioning,' 1. Unlike many of their competitors who pin their faith on metal construction, they have chosen timber as the basic material. 'Interlock' is a 'post and infill' system (see Skill article, AR, May, 1960) which means that it is built up on site with timber posts and cross members of the same section and a floor plate. The posts and cross members are fitted together by means of a simple keyhole locking device and the infill panels are held in the groove formed by the floor plate and skirtings and locked by the cover strips on the posts and cross members. These panels are made in three standard sizes, 8 ft. by 4 ft., 4 ft. by 4 ft. and 2 ft. by 4 ft., and are finished in a wide range of coloured vinyl plastics or light oak, teak or mahogany veneers. Provision is made either for single or double glazing. Pre-cut lengths of beading are pinned to the posts and cross members and the glass held in position by setting it in plastic. Levelling adjustment is achieved by means of jacks built into the posts at the top. The floor plate is grooved to house electrical wiring.
The Shannon Limited, Shannon Corner, New Malden, Surrey.



1, *Shannon's 'Interlock' office partitioning.*



2, *Perkin's induced draught boiler.*

Induced draught boiler

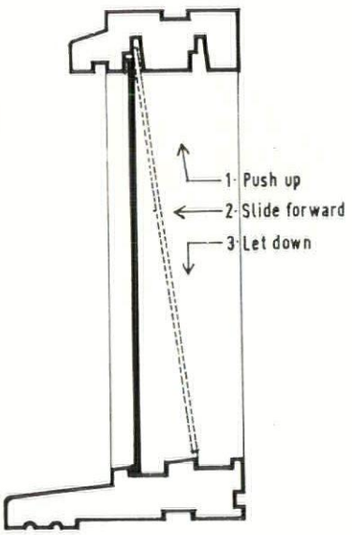
An oil-fired boiler usually operates in one of three ways: natural draught, forced draught or pressure jet. A new boiler, 2, has recently been introduced by Perkins which uses another principle: induced draught. In this model an electrically operated fan is mounted on the outside of the boiler casing near the top and draws air from the fresh air inlet at the base up through the boiler. The makers claim that this method is a highly efficient way of maintaining a constant, regular supply of fresh air through the boiler which is the secret of satisfactory combustion. Good combustion by oil, they say, is clean, which means that a minimum of fumes and smoke passes through the flue. A short flue is all that is required with this boiler, passing straight through the roof or, alternatively, through an external wall and fitted with a T-piece outlet.

By comparison with other types of boiler on the market, the Perkins model is not particularly good looking, a deficiency due almost entirely to the external mounting of fan, time switch, transformer, controls, cables and so on. It is true that unmistakably it looks what it is—a boiler—and the makers apparently had in mind discouraging householders from installing it in the kitchen. They believe that an outhouse, for example, or a former coal bunker, where a constant supply of fresh air will be available, is a better place for their boiler. None the less, the principles of sound design which seem to be behind the mechanical elements of this boiler probably could be applied to the casing with good effect.

The boiler is made in three sizes with the following capacities in B.t.u.s. per hour: 35,000 (£90), 45,000 (£95), 50,000 (£99), 60,000 (£110) and 70,000 (£115).
Perkins Boilers Ltd., Mansfield Road, Derby. Derby 48235.

Sashless windows

Jayanbee Joinery are marketing a range of sashless windows, 3, designed and patented in Canada where they have enjoyed considerable success over the past five or six years. As will be seen from the sketch the principle is simple and in practice works very well. The glass is $\frac{3}{16}$ in. thick with ground edges and this slides along the groove in the sill. A slight slope to this groove towards the outside plus the weight of the glass itself, which is otherwise held only at the head, ensures that it will slide evenly and not jump out of the groove. The system of double grooves at the head enables easy insertion or removal of the glass from the inside. The frame is constructed in West African Utile and neat attachments are provided for guides or locking. The 'Pierson' window as it is called



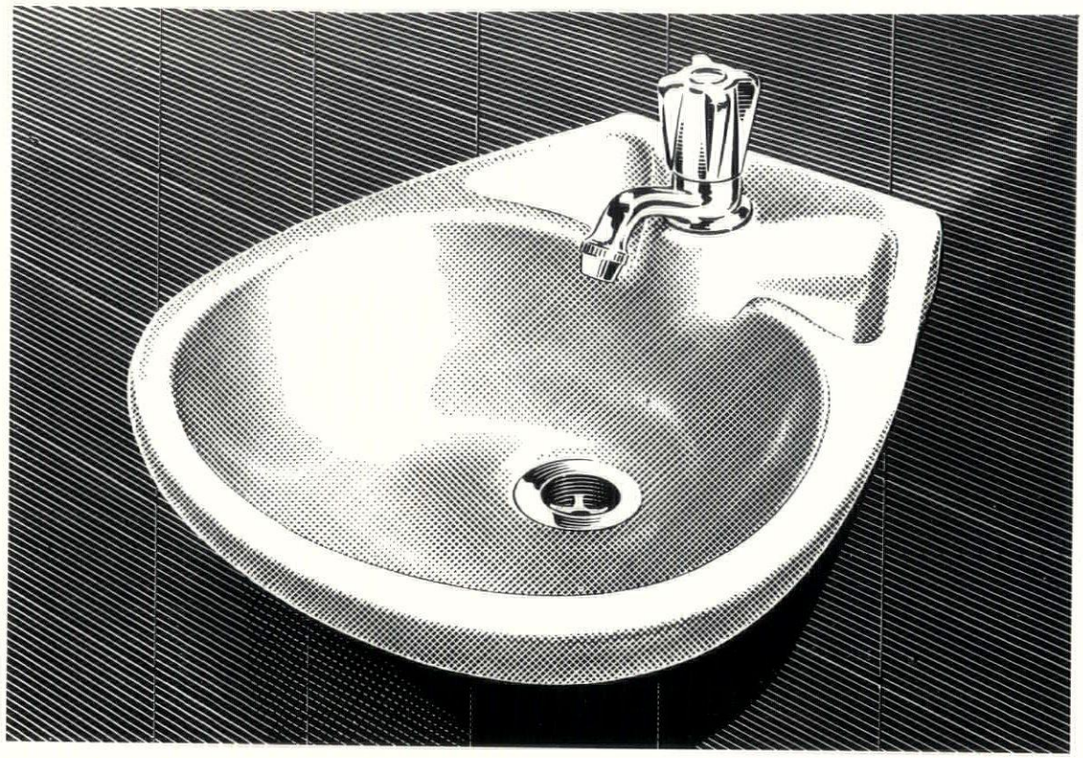
3, *section through a Jayanbee sashless window.*

is manufactured in a wide range of standard sizes based on brick dimensions and includes combinations of fixed and sliding sashes in single and double glazing. Costs, including the supply and installation of glass, are between 8s. and 9s. 6d. per square foot for the single glazing and 12s. 6d. and 14s. 6d. for double.
Jayanbee Joinery Ltd., Uxbridge, Middlesex. Uxbridge 8222.

Double and multiple glazing

Architects are wary of using technical information supplied by manufacturers unless it is merely information concerning that manufacturer's product. Even then they tend to treat cautiously the data pertaining to inherent qualities of the product—

[continued on page 232



a spray basin made in Vitreous China

The 'Standard' Handspray is designed to take full advantage of the economies of a single spray tap. Though intended mainly for schools, it is equally suitable for offices, shops, factories and cloakrooms in houses. The Handspray is symmetrical, compact and aesthetically pleasing. It is made in 'Standard' vitreous china. This material is hygienic because it is non-porous and it has the strength to resist rough treatment. For fine design in the most suitable material, specify 'Standard' vitreous china.

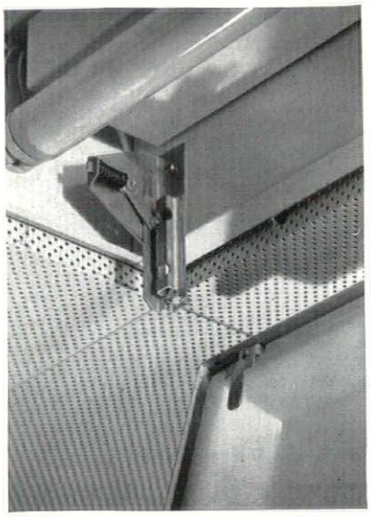
Handspray basin by Standard

478

MANUFACTURED BY IDEAL BOILERS & RADIATORS LIMITED · IDEAL WORKS · HULL
Visit our Stand No. 29 at the Building Trades Exhibition, Manchester, October 11th—22nd.

continued from page 230]
its resistance to fire or its impermeability, for example. This may seem unfair, but the fact is that, by and large, a manufacturer is bound to take an optimistic view of the potentialities of his product and the architect, if he is wise, has no alternative but to adopt a cautious attitude. Nevertheless, there is technical information published by manufacturers which is every bit as useful to the architect as the information from impartial sources—research organizations, the BRS, the Forest Products Research Laboratory. This information does not aim to sell a product although it will usually concern itself with the range of materials and its techniques within which that manufacturer's product comes. Such a publication is *Daylight with Insulation*, an elegantly produced book by the Pilkington organization. The author is Thomas A. Markus, an architect who has interested himself in this subject for some time and who was responsible for a series of articles on the glass curtain wall published in *The Architects' Journal* in 1957. As the name of the book indicates, Mr. Markus's aim is to emphasize the improved conditions of natural lighting, sound and thermal insulation in buildings which can be obtained by a rational approach to the design of the window and to glazing in general. Parts of the book are somewhat superficial. They do not tell you anything which the intelligent architect should not already know. The section on daylight, for example, aims only, in the author's own words, '. . . to draw attention to the *principles* of daylight improvement by means of double glazing.' On the other hand, such principles are clearly expressed and illustrated with pleasant, simple drawings, making the book a quick reference for the busy architect who either does not know or wants to refresh his memory about a point. The sections on heat transfer and the problems of heat loss, humidity and sound are dealt with in some detail and useful tables, graphs and working examples are also provided. The author has gone into the economics of fuel savings obtaining from the use of double or multiple glazing, and supports his arguments by quoting figures based on actual examples. The book concludes with a brief, but useful, set of drawings showing glazing types for double and multiple glazing and an annotated bibliography. *Daylight and Insulation* does not break much new ground, but its virtue lies in the fact that it brings together in one slim volume a number of subjects which have in common their application to one important element in the building. The publication, which is primarily intended for architects, is available from Pilkingtons.

Pilkington Brothers Limited, St. Helens, Lancashire.



4, locking device on the Allom Heffer recessed ceiling light fitting.

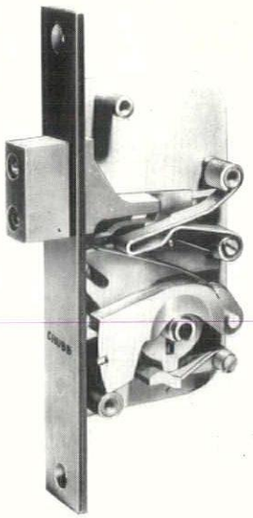
Recessed light fittings

Towards the end of last year a range of recessed ceiling fittings was put on the market by Allom Heffer which is one of the simplest and neatest of its type currently available. The fittings are made in five sizes—2 ft. by 2 ft., 4 ft. by 2 ft., 6 ft. by 2 ft., 4 ft. by 1 ft., and 5 ft. by 1 ft.—and have either a plain perspex diffuser or metal louvres or egg-crate polystyrene louvres. A feature of these fittings is the locking device, 4, at the four corners of the fittings. A metal tab is fixed to the four corners of the diffuser or louvre panel and this engages a slot in the sliding bracket attached to the fitting itself. The panel can then be sprung up into position.

Allom Heffer & Company Limited, 17 Montpelier Street, Knightsbridge, London, S.W.7. Knightsbridge 6897.

New range of locks

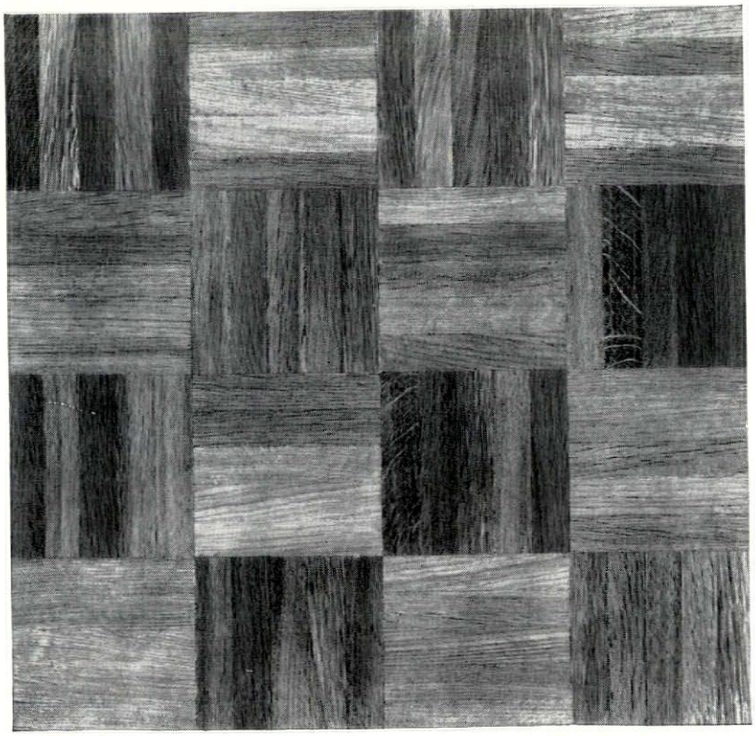
Chubbs have introduced to the market a new range of locks. The range includes a 2¾ in. mortice deadlock, 5, a 3 in. mortice locking latch and a 2¾ in. two-bolt upright mortice lock. In addition new designs include an hotel lock, a rim lock, a locking bar and sliding door locks.



5, cut-away of Chubb's 2¾ in. mortice deadlock.

Chubbs lay great emphasis on the high degree of security achieved by these locks. The mechanism permits a large number of key variations and includes three security devices to frustrate 'picking' of the lock. In addition it is claimed that skeleton keys cannot open any of these locks. The mortice deadlock (ref. 3G110) has a solid steel bolt (reinforced with har-

[continued on page 234



Windsor PREFABRICATED OAK MOSAIC FLOORING

The Windsor Floor
PATENT No. 544228

The above device is printed in bronze blue on the sheet of paper protecting the upper surface of every *genuine* panel of "Windsor" floor and is your protection against unsatisfactory imitations.

THE FIRST——
——THE BEST

The illustration depicts "Windsor" standard oak floor. "Windsor Royal" with dark oak contrasting inserts, and certain exotic timbers, are also available.

For full particulars and the address of your nearest approved laying specialist, write to:

WINSORFLOR LTD.
ENHAM ARCH WORKS
NEWBURY ROAD
TELEPHONE ANDOVER 3092
HANTS



We are proud to announce that THE WESTBURY, London's newest luxury hotel, is equipped with Still's Floor Service Unit. Measuring only 7′ 6″ x 2′ 6″–easily installed in floor pantries—these units incorporate a complete range of services, enabling a full breakfast menu to be served independently of the main kitchens. The facilities of the Floor Service unit include: Sink, water boiler, automatic egg cooker, boiling rings, toaster and griller, refrigerator, storage cupboard and utensil shelf.

For full details write for leaflet

W. M. STILL & SONS LTD

29/31 Greville Street, London, E.C.1
Tel: HOLborn 3744

Manufacturers of fine kitchen equipment for over 80 years.
Branch Offices at
Manchester, Bristol, Glasgow.

AP310

continued from page 232]
dened steel rollers to resist the hacksaw) which engages in a steel box plate to prevent attack on the head of the bolt. It is suitable for either 'hand' of door and can be made to operate under master key en suite with other locks in the range. Standard finish of key plates is BMA or polished chromium plate. Price 39s. 6d. The mortice locking latch (ref. 3R35) 'deadlocks' automatically every time the door closes. An extra turn of the key locks the handle on the inside and double locks the bolt. A snib catch holds back the bolt if the door is left ajar. Finishes for the door handle and key plates are aluminium (75s.) or satin nickel bronze, polished or satin chrome and BMA (all 80s.). The two bolt upright mortice lock (ref. 3K70) is priced at 45s. All the locks can be made to operate under master key en suite with other locks in the range and are available for pairs of doors with $\frac{1}{2}$ in. or $\frac{5}{8}$ in. rebate. Standard finish of the forend is light bronze.

Chubb & Son's Lock & Safe Co. Ltd., 14-22 *Tottenham Street, Tottenham Court Road, London W.*1. *Museum* 5822.



6, *the Crabtree domestic circuit breaker.*

Circuit breakers

The irritating experience of being plunged into darkness in the middle of entertaining the boss to dinner or watching the telly is one enjoyed, apparently only by British householders. For some time now householders on the Continent and in the USA have ensured immunity from the little game of finding the fuse in the dark and groping for fuse wire in a kitchen drawer full of sharp knives, by dispensing with the rewirable fuse and using instead a circuit breaker. At last domestic type circuit breakers are coming on to the market in this country. The unit manufactured by J. A. Crabtree & Company Limited, 6, is of neat appearance and looks, in fact, like any other lighting switch. When overloading occurs the switch for the appropriate circuit automatically goes off. If you switch it on again it automatically goes off again and is quite prepared to keep up this little game until you go and unplug the faulty appliance or switch off the extra appliances which have caused overloading.

J. A. Crabtree & Co. Ltd., Walsall, Staffs.

Bituminous waterproofing handbook

Though architects are in the main well informed about the laying of sheet metal roofs, the same cannot be said of bituminous roofing systems. Yet the requirements of these last are in their own way as exacting. To correct this, Evode have produced a booklet not only explaining which of their systems to use in different circumstances and for different types of construction, but also giving very clear instructions on how the work should be carried out. The booklet is intended primarily for overseas use and for this reason combines information needed by the architect, by the contractor and by the operative. Also it gives data on the roofing of comparatively out-of-the-way structures such as hyperbolic paraboloid timber and concrete roofs. To the best of our knowledge no other manufacturer of roofing materials has got round to that one yet. We have one criticism to make: this booklet is more concerned with giving information than with selling a product. For this reason we suggest that it should be more sober in appearance and that it should conform to the A4 size.

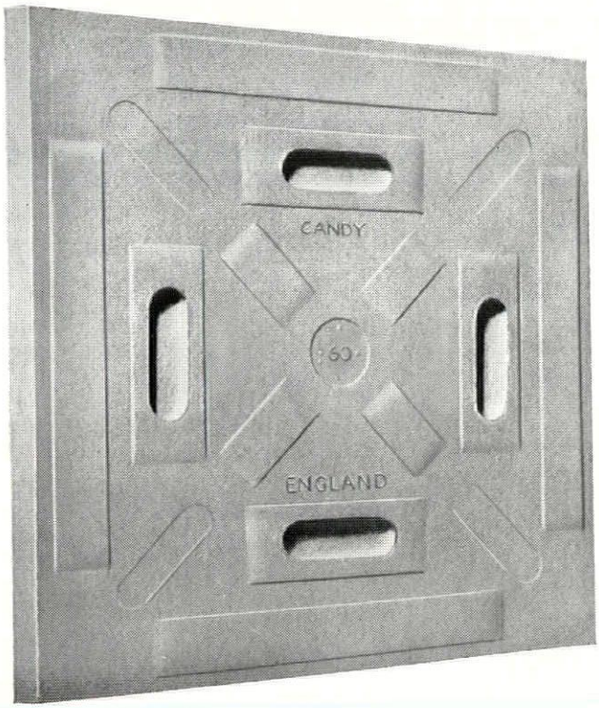
Evode Ltd., 82 *Victoria Street, London, S.W.*1.

Technical data sheets

The Patent Glazing Conference, which describes itself as one of the older trade associations (it is an association of some twenty specialist firms) recently produced the first of a series of Technical Data Sheets. In the foreword it is pointed out that whilst there is a BS Code of Practice for patent glazing (CP 145.101 (1951)) there is as yet no British Standard. Thus, whilst the code specifies re-

[continued on page 23

NEW FORMULA *Devon Tiles cut moisture expansion*



Crazing. Adhesion failure. This is what high moisture expansion can do to a tile in service. No more of that. This new Devon Wall Tile formula combines, for the first time, a high strength, low porosity tile with the control of size and shade which gives a guarantee of easy fixing and a perfect job.

In addition to all this, there's a glorious new range of colours (many of them to B.S. 2660), and an inspiring variety of patterns to choose from. Both the glazes and the tile are suitable for exterior use. What more can a tile offer?

Remember, the back of a wall tile is as important as the front.

DEVON WALL TILES

Made by Candy & Company Limited,

the sole manufacturers of the Devon Fire.

Write for Catalogue to:

Department R.1,

Candy & Co. Ltd., Newton Abbot, Devon.

Put the sun into your ceilings



BOARD ROOM for the British Cycle & Motor Cycle Industries Association Limited, Coventry
Architects: Messrs. W. S. Hattrell & Partners, Coventry
Heating & Ventilating Engineers: Messrs. Young, Austen & Young Ltd., Leicester

STRAMAX

RADIANT HEATING & ACOUSTIC CEILINGS

STRAMAX CEILINGS (G.B.) LIMITED
19 Rea Street South, Birmingham 5

Telephone: MIDland 4674/5/6 Grams: STRAMAX Birmingham 5

LONDON OFFICE:
170/172, Falcon Road, Battersea, S.W.11 *Telephone: BATtersea 2587*

continued from page 234]
quirements which are generally recognized as good practice, it does not cover specific technical requirements, dimensions, thicknesses, etc., which are more appropriate for a BSS. One of the objects of these data sheets, therefore, is to provide information for architects normally set out in a BSS.

The two sheets so far published are concerned, one with aluminium alloy patent glazing bars and the other with lead-clothed steel. They set out technical information such as the precise composition of the material, structural limitations, accessories, and include a brief specification. It is all information which the architect needs to know and is presented in a clear, concise form. It is reassuring to know that the members of the PGA listed in the preamble all, presumably, produce an article which satisfies the precise requirements set out in these data sheets.

Patent Glazing Conference, Burwood House, Caxton Street, S.W.1. Telephone Abbey 5051.

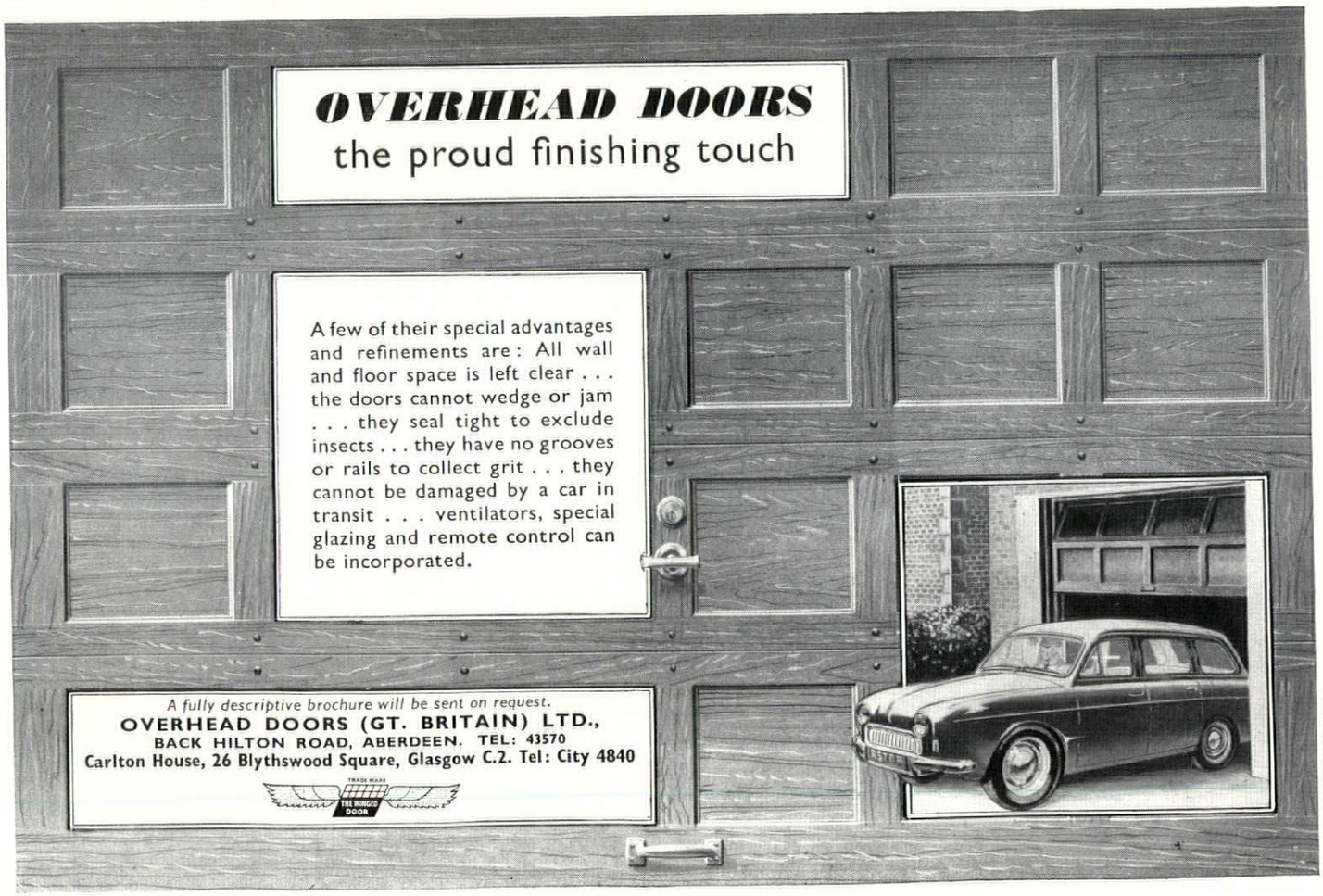
CONTRACTORS etc

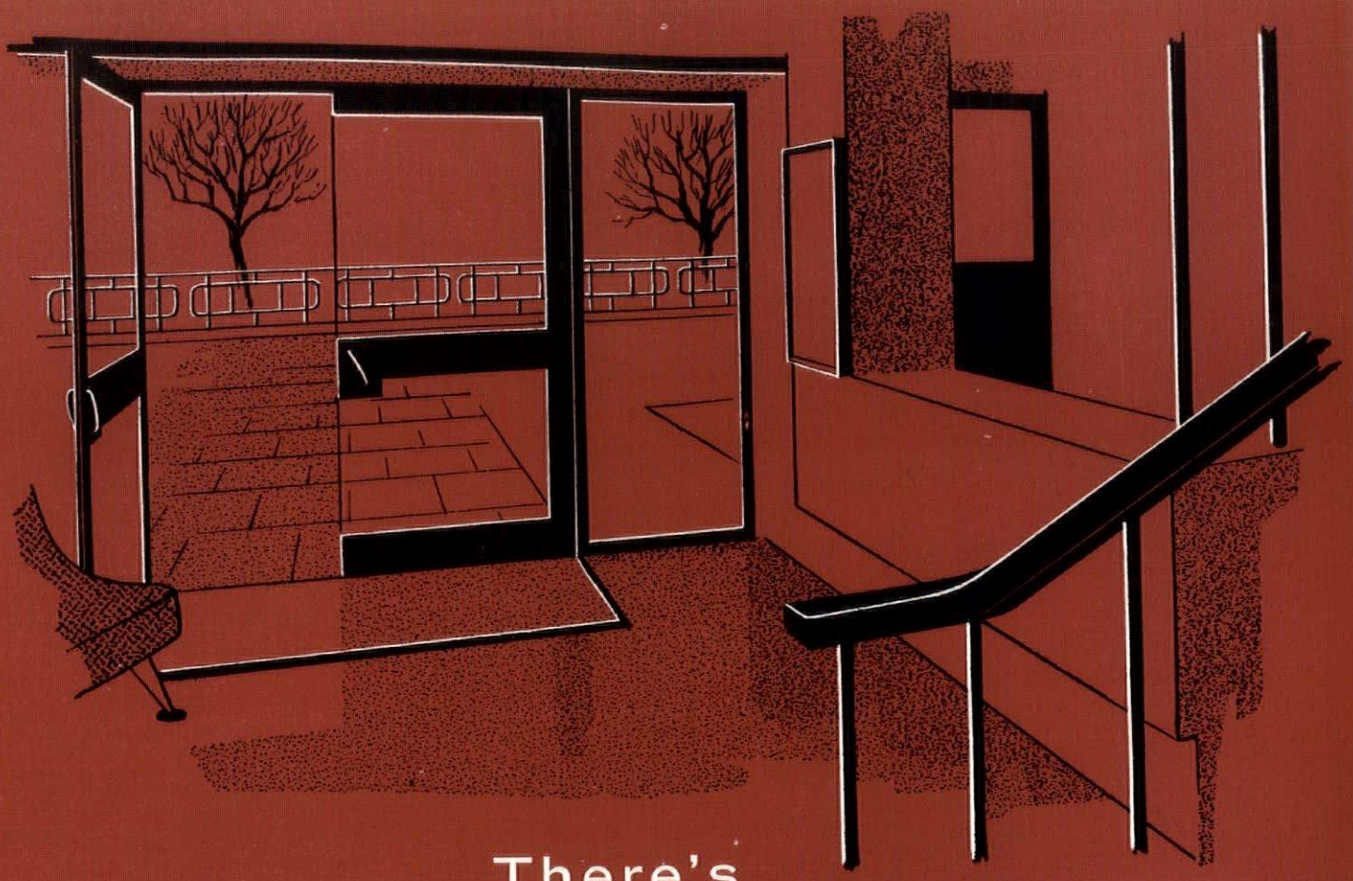
Martins Bank, Marylebone Road, N.W.1. *Architects:* Sir Hugh Casson, Neville Conder & Partners. *General contractor:* Sir Robert McAlpine & Sons. *Sub-contractors: Joinery:* Shapland & Petter Ltd. *Terrazzo:* Alpha Mosaic & Terrazzo Co. *Signs:* Pearce Signs Ltd. *Lift:* Hammond & Champness Ltd. *Windows:* Williams & Williams Ltd. *Acoustics:* Hermeseal Acoustics Ltd. *Metalwork:* Grundy Arnatt Ltd., Courtney Pope Ltd., H. & C. Davis Ltd. *Ceiling:* Dampa. *Flooring:* Korkoid Decorative Floors. *Marble:* Walter W. Jenkins & Co. *Venetian blinds:* J. Avery & Co. *Veneers:* William Mallinson & Sons. *Night safe:* Chubb & Son's Lock & Safe Co. *Clocks:* Baume & Co. *Light fittings:* Frederick Thomas & Co. *Carpet:* Afia Ltd. *Furnishing:* Catesbys Contracts & Export, Conran Contracts, Hille of London Ltd.

Office Building, Manchester Square, W.1. *Architects:* Gollins, Melvin, Ward & Partners. *General contractor:* Tersons Ltd. *Sub-contractors: Piling:* Cementation Ltd. *Mechanical and electrical services:* Matthew Hall Ltd. *Lifts:* Otis Elevator Co. *Windows:* Mellowes & Co. *Portland stone:* South Western Stone Co. *Granite panels:* Art Marble & Mosaic Co. *Special joinery:* Samuel Elliott (Reading) Ltd. *Sanitary goods:* Stitsons Sanitary Fittings Ltd. *Mosaic:* Alpha Mosaic & Terrazzo Co. *Terrazzo:* Art Pavements & Decorations Ltd. *Woodblock flooring:* Hollis Bros. *Ironmongery:* G. & S. Allgood, W. N. Froy & Son. *Garage sprinklers:* Mather & Platt. *Internal and external balustrading:* S. W. Farmer & Son. *Circular staircase:* Wessex Guild Ltd. *Suspended ceilings:* J. Avery & Co. *Precast granolithic paving:* F. Bradford & Co. *Brickwork:* Richard Parton Ltd. *Slate copings:* Setchell & Sons. *Domlights:* T. & V. Ide Ltd. *Cradle suspension:* Cradle Runways Ltd. *Special stainless steel cladding:* Grundy Arnatt (Teddington) Ltd. *Lobby lighting:* R. & A. G. Crossland Ltd., Courtney Pope (Electrical) Ltd. *Tank room cladding:* Robertson Thain Ltd.

Services Buildings, London Zoo. *Architect:* F. A. P. Stengelhofen. HOSPITAL AND QUARANTINE STATION: *General contractor:* Rush & Tomkins Ltd. *Sub-contractors: Structural steelwork:* C. A. & A. W. Haward Ltd. *Reconstructed stone:* Atlas Stone Co. *Laboratory fittings:* Baird & Tatlock London Ltd. *Heating and ventilating:* Barret & Wright Ltd. *Lift:* Bennie Lifts Ltd. *Door tracks:* British Trolley Track Co. *Ironmongery:* James Gibbons Ltd. *Cold storage:* J. & E. Hall Ltd. *Remote control gear to den doors:* C. A. & A. W. Haward Ltd. *Aluminium roof:* Industrial Engineering Ltd. *Aluminium windows:* James Gibbons Ltd. *Handrails:* Marley Tile Co. *Flush and special den doors:* Veneercraft Ltd. WORKS DEPARTMENT: *General contractor:* Marshall Andrew & Co. *Sub-contractors: Reinforced concrete structure:* Diespeker & Co. *Ironmongery and aluminium windows:* James Gibbons Ltd. *Storage racks, spiral staircase and locker room hanging rail:* C. A. & A. W. Haward Ltd. *Heating and ventilating:* Hope's Heating & Engineering Ltd. *Sliding door gear:* E. Hill Aldam & Co. *Granolithic floors:* Prodorite Ltd. *Wood-wool slabs:* Thermacoust Ltd. *Incinerator:* The Incinerator Co. SUPPLIES DEPARTMENT: *General contractor:* Yeomans & Partners Ltd. *Sub-contractors: Covered way (structural steelwork):* The Derry Engineering Co.; *(roof decking):* William Briggs & Sons. *Bricks:* Cape Building Products Ltd. *Reinforced concrete structure:* Diespeker & Co. *Roof lights:* Faulkner, Greene & Co. *Ironmongery and aluminium windows:* James Gibbons Ltd. *Refrigeration plant:* J. & E. Hall Ltd. *Special louvred doors, spiral staircase:* C. A. & A. W. Haward Ltd. *Flush doors and joinery doors:* Hitchins Flush Woodwork Ltd. *Heating and ventilating:* Hope's Heating & Engineering Ltd. *Internal joinery fittings:* Knowles Woodworking Ltd. *Cagework and balcony rails:* Light Steelwork (1925) Ltd. *Roller shutter:* Potter Rax Ltd. *Granolithic floors:* Stuart's Granolithic Co. *Platform hoist:* Vaughan Lift Engineering Ltd. GARAGE: *General contractor:* Yeomans & Partners Ltd. *Sub-contractors: Structural steelwork:* The Derry Engineering Co. *Roller shutters:* Haskins Roller Shutters.

Office building, Bournemouth. *Architects:* Farmer & Dark. *General contractor:* James Drewitt & Son. *Sub-contractors: Reinforced concrete frame:* Mears Bros. (Contractors) Ltd. *Precast concrete staircases and vitreous mosaic wall finish:* Art Pavements & Decorations Ltd. *Bituminous felt roofing:* Permanite Ltd. *Suspended ceiling:* Hermeseal Acoustics Ltd. *Internal partitions:* Holoplast Ltd. *Venetian blinds:* J. Avery & Co. *Curtain walling:* Williams & Williams Ltd. *Vinyl asbestos flooring and rubber tile flooring:* Marbolith Flooring Co. *Heating installation:* James Combe & Son. *Electrical installation:* Aish & Co. *Zinc roofing:* Holloway Metal Roofs Ltd. *Plenum chamber steelwork:* Bourne Steel Ltd. *Lettering:* Ward & Co. *Landscape gardening:* Stewart & Son. *Facing bricks:* Charles Mitchell & Sons. *Strong room door:* Chubb & Sons. *Aluminium blind boxes:* Ford Vincent & Co. *Dome roof lights:* James Clark & Eaton Ltd. *Sanitary fittings:* Stitsons Sanitary Fittings Ltd. *Sliding door gear:* P. C. Henderson & Son. *Under floor ducting:* The Key Engineering Co. *Cloakroom fittings:* James Seiber Equipment Co. *Staircase balusters:* Savack Service Ltd. *Steel cycle holders:* Le Bas Tube Co. *Street light standards:* The North Midlands Engineering Co. *Circular concrete roof lights:* Sharp Jones & Co. *Concrete (structural) waterproofer:* Tretol Ltd.





There's Beauty in Bronze

There is a certain quiet dignity about bronze which imparts a permanent and constantly fashionable beauty to traditional or contemporary design.

"Delta" Bronze No. IV, with its great strength and high resistance to corrosion is also the architects most practical material. The advantages in the form of extruded sections are numerous. The surfaces are always smooth and clean and do not require machining. Angles and lines are clearly defined and display the architects designs to their best advantage.

"Delta" No. 2 Silver Bronze, a silver white alloy particularly suitable for ornamental work, is superior to the best nickel silver in strength, toughness and resistance to atmospheric or other corrosive action. It is ideal for the ornamental work in ships and is employed by most of the leading passenger lines.

We have comprehensive literature on the use or both these alloys. Why not send for your copies?



Bronze Balustrading at British Challenge Glazing Co., Stratford High Street, London.

The Delta Metal Company Limited

TUNNEL AVENUE, EAST GREENWICH, LONDON, S.E.10

Telephone: Greenwich 0123 Telegrams: Delta London SE10

SM/DG-DM 6113

Printed in Great Britain for the Proprietors of "The Architects' Journal," of "The Architectural Review," and of "Specification" (The Architectural Press, Ltd.) 9-13, Queen Anne's Gate, Westminster, S.W.1, by Knapp, Drewett & Sons Ltd., by appointment to Her Majesty the Queen, Printers, Kingston-on-Thames.
Editorial illustrations engraved by The Engravers Guild Ltd., Windsor House, 23/26, Cursitor Street, London E.C.4.
Entered in the New York Post Office as Second Class Matter

Reinforced Concrete for flexibility in design

BRC

Specialists in Reinforced Concrete Design and Suppliers of Reinforcement



THE BRITISH REINFORCED CONCRETE ENGINEERING CO. LTD., STAFFORD

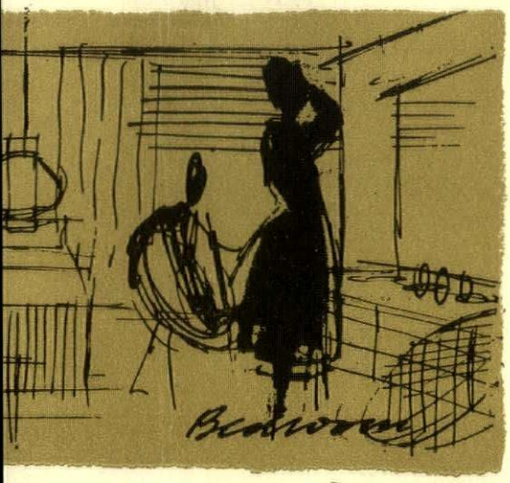
London, Birmingham, Bristol, Leeds, Leicester, Liverpool, Manchester, Newcastle, Cardiff, Glasgow, Dublin, Belfast, Bulawayo, Calcutta, Johannesburg, Singapore, Vancouver.

Export Sales: 54 Grosvenor Street, London W.1

VOLUME CXXVIII NUMBER 764 FIVE SHILLINGS

ar









Special Issue of The Architectural Review. October 1960

HOTELS



dma

DAWNAYS
specialists in the design
fabrication & erection of
STEELWORK

DAWNAYS LIMITED STEELWORKS ROAD BATTERSEA SW11 TEL: BAT 2525
and at Welwyn Garden City Swansea Cardiff Norwich & Hull. Offices at Southampton Romford & Victoria Street SW1

views and reviews

MARGINALIA

RESTORATIONS AT GREENWICH

In two contemporaneous, but otherwise unrelated campaigns, the Ministry of Works has completed the restoration of the Painted Hall at Greenwich Hospital, and Flamsteed House at Greenwich Observatory. The former was an immense labour, occupying a devoted team of technicians for almost three and a half years, working under the most difficult conditions caused by the double exigencies of keeping the hall continuously in service, and the use of modern, fume-producing solvents to remove the varnish. Either would have been sufficient trouble, but the fumes, in a six-foot headroom above what was virtually a false ceiling rather than a scaffolding, were nearly too much, and emergency ventilation had to be introduced.

However, the restorers were clearly sustained by their sense of being explorers in a forgotten land—the land of Baroque iconography. Sir James Thornhill was probably the last man to use Ripa's emblems as if they meant something, and the 1956–60 MoW team were probably the first group of restorers to care what the emblems meant. As a result, the photographic record of the ceiling includes not only the faces and gestures of the great and mighty, but also the emblems of greatness and might. In 1, Minerva with owled helmet is visible at the bottom right, and above her Architecture, with attendant geometrical putti, indicates the dome of the hall, as a compliment to (presumably) Nicholas Hawksmore.

Flamsteed House is—in an unavoidable metaphor—the reverse of the medal, a monument to modern man's first faltering steps away from the classical tradition, towards the scientific future. The architecture of this first observatory of the first Astronomer Royal is persistently attributed to Wren, but it is too much country-style, 2, to bear comparison with the great Wren-school works of the Hospital at the foot of Observatory Hill—between Flamsteed House and the Painted Hall is the chasm between vernacular and high-style. But it is a workmanlike building with a decent sense of space, both apt attributes for a building that housed the stick-and-string beginnings of English astronomy. The observatory room, 3, is an airy octagon, with tall windows on four alternate sides (originally intended to give directly to true North, East, South and West but built a few degrees off orientation). If it contains little original Flamsteediana, it still gives something of the appearance shown in contemporary engravings, with a great quadrant set up at the North window, and the ladder and elevating traverse, such as Flamsteed used to carry his telescopes, set up to the East.

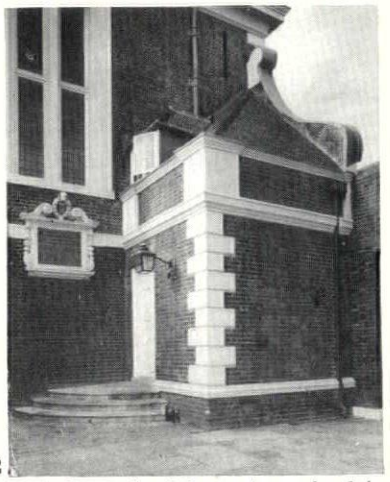
The lower parts of the building house exhibits dedicated to other Astronomers Royal, such as Halley and the Herschels, and a number of their telescopes in varying states of repair and restoration, as well as a great quantity of earlier navigational and time-telling instruments. It might be argued that such exhibits ought to be at the Science Museum in South Kensington, but it seems not at all a bad idea that those wishing to study the early hardware of astronomy should have to make a pilgrimage to what is, in fact, one of the holy places of English, if not of world, science.



1

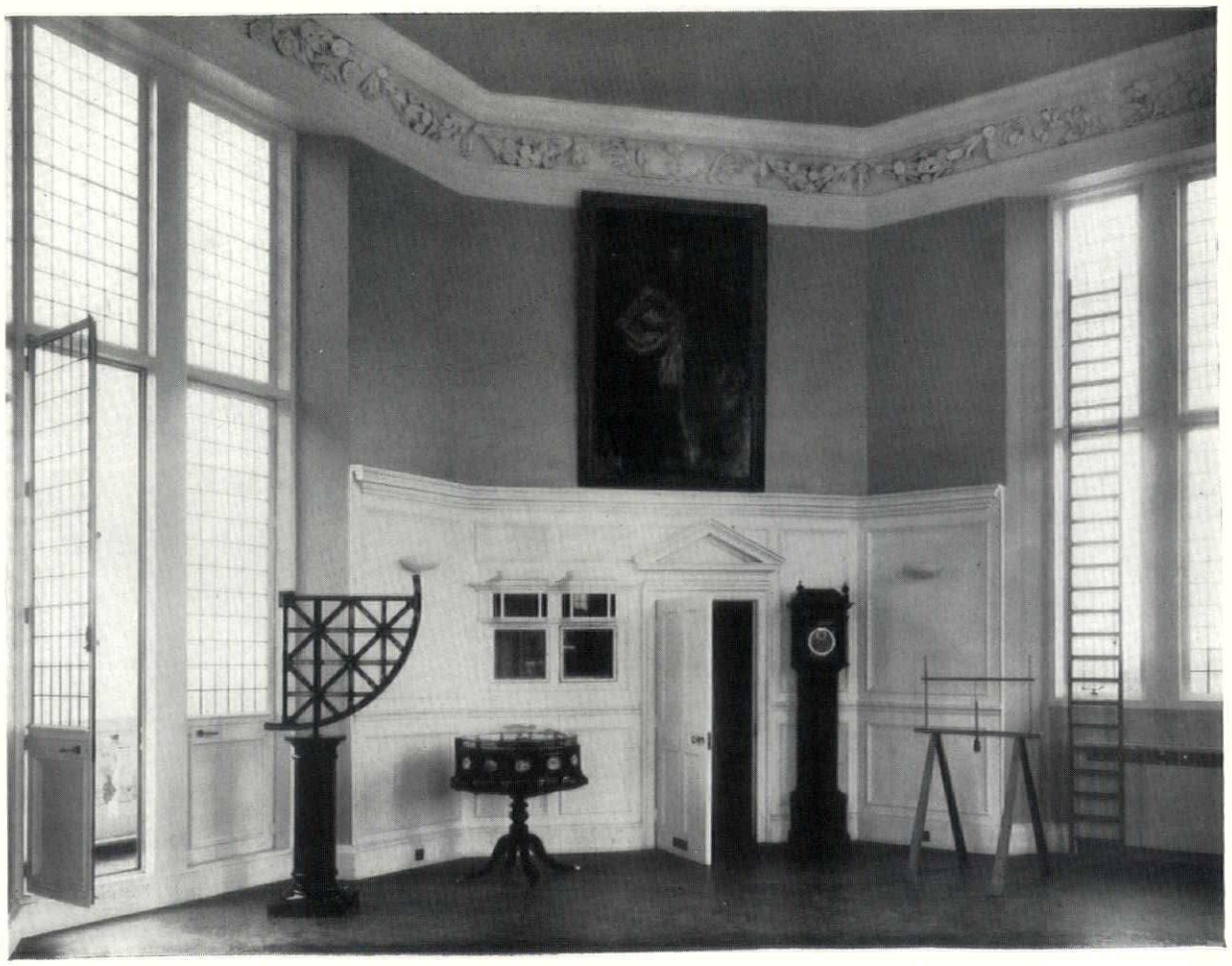
IUA CONGRESS 1961

The annual congress of the RIBA will be combined next year with a full scale Congress of the International



2

1, *'Architecture' pointing at the cupola of the Painted Hall at Greenwich Hospital.*
2, *the main entrance of Flamsteed House, after restoration.*
3, *the Octagon room at Flamsteed House.*



3

ACKNOWLEDGMENTS

VIEWS AND REVIEWS, pages 237–239: 2, 3, 7, 8, MOW. FRONTISPIECE, page 240: bottom, *Radio Times* Hulton Picture Library. AN EXPANDING INDUSTRY, pages 243–248; 4, *Architectural Forum.* THE LAST TEN YEARS, pages 249–260: 1, 28, Ezra Stoller; 2, Comptoire International; 3, H. Urbschat—H. J. Fischer; 4, Anthony Blake; 6, Galwey Arphot; 9, *Design*; 10, Camera Hawaii; 12, 13, Guy Lagneau-Michel Weill; 15, Estudio Leit; 16, Caravete Avaiveitex Brasilia; 17, Leonar; 18, J. Taira; 19, Casali; 20, James Gibson. 21, 23, Neutra and Alexander; 27, Wm. Langley; 30, Inge Holm; 31, Foto-Müller; 32, Foto Tomek; 33, J. R. Pantlin; 34, Empire Studio. FUNCTIONS AND ORGANIZATION, pages 261–266: 1. *Bauen & Wohnen;* 2, Ezra Stoller; 3, Flandrin; 4, Holland & Hannen and Cubitts Ltd., PUBLIC AREAS, pages 271-278: 1, 2, 17, 20, 21, Lennart Olsen; 3, 8, Ezra Stoller; 4, 5, Henk Snoek; 6, Galwey Arphot; 7, Mario Gottardi; 9, Fotobureau Roovers; 10, Sam Lambert; 15, H. Urbschat—H. J. Fischer; 18, Julius Shulman; 22, 27, Casali; 23, Thompson; 25, 35, Yoshio Watanabe; 26, A. O. Avedissian; 28, Ateljé Sundahl; 29, Keld Helmer; 30, Else Tholstrup; 31, *Irish Times*; 33, 34, J. R. Pantlin; 36, Toomey Arphot; 37, Erik Willumsen; 40, James Vincent. BEDROOMS, pages 279–287: 1, 8, 10, Ateljé Sundahl; 2, Thompson; 4, Hilton Hotels International; 5, Sam Lambert; 6, Studio Diaphragma; 9, Svante Erixon; 11–13, Lennart Olson; 19, Foto Tomek; 20, Ben Schuler; 21, Cowderoy & Moss Ltd.; 22, 23, 28, H. R. Clayton; 24, Estudio Leit; 25, Else Tholstrup; 26, 48, LPE; 27, Guy Lagneau; 29, 37, 40, Galwey Arphot; 30, 32, Ezra Stoller; 34, 45, J. R. Pantlin; 35, 36, Casali; 38, Fox Photos; 41, Foto Henried; 42, Foto Bureau Roovers; 44, Holland & Hannen and Cubitts; 47, Stereograms Ltd.; 50, Yoshio Watanabe. LUXURY SUITES, pages 288–289: 1, Richard J. Neutra; 4, Julius Shulman; 5, P. W. & L. Thompson; 8, 10, J. R. Pantlin. DINING ROOMS, pages 290–293: 1, *Radio Times* Hulton Picture Library; 3, Ateljé Sundahl; 5, Galwey Arphot; 6, Neutra and Alexander; 8, 15, Empire Studio; 9, Publifoto; 10, Guy Lagneau; 14, H. Urbschat—H. J. Fischer; 16, British Transport Commission; 17, 18, Henk Snoek. BARS, pages 294–296: 1, Kurt Blum; 2, 3, John Maltby; 4, Empire Studio; 6, 7, Toomey Arphot; 8, Stewart Bale; 9, Galwey Arphot; 10, Foto Dert. THE IMMEDIATE PROSPECT, pages 299–304: 1, Rosetta Desbrow; 3, Sam Lambert; 4, 5, James Cubitt & Partners; 8, E. J. Studios; 12, Spenser-Morris Ltd.; 13, 14, Peter Carapetian 'Novum' Group; 15, Larkin Bros. Ltd.; 16, J. W. Kitchenham; 17, Fox Photos Ltd.; 18, Studio Briggs; 19, Turners (Photography) Ltd. A TECHNICAL POSTSCRIPT, pages 305–309; 2, 3, Empire Studio; 4, C. Edwards & Son Ltd.

Cover designed and drawn by Kenneth Browne.

HOTELS

a special issue of

THE ARCHITECTURAL REVIEW

9-13 QUEEN ANNE'S GATE, WESTMINSTER, SW1 WHITEHALL 0611 FIVE SHILLINGS

VOLUME 128 NUMBER 764
OCTOBER 1960

compiled by

Stephen Garrett

Directing Editors	*J. M. Richards, Nikolaus Pevsner, H. de C. Hastings, Hugh Casson*
Executive Editor	*J. M. Richards*
Assistant Executive Editor	*Reyner Banham*
Assistant Editor (Production)	*William Slack*
Features Editor	*Kenneth Browne*
Technical Editor	*Lance Wright*
Assistant Editor (Counter Attack)	*Ian Nairn*
Staff Photographers	*De Burgh Galwey, W. J. Toomey*
Advertisement Manager	*V. V. Tatlock*

CONTENTS

237 Marginalia
240 Frontispiece
241 From Grand to Fabulous
243 An Expanding Industry
249 The Last Ten Years
261 Functions and Organisation
267 Interior Design
271 Interiors Illustrated
297 The Immediate Prospect

A Technical Postscript

305 Legal Aspects of Planning and Management of Hotels: *Eric Jackson*
306 The Ventilation of Hotels: *L. J. Schwarz*
308 The Hotel Kitchen *G. C. A. Tanner*
309 Index of Hotels Illustrated
310 The Industry

SUBSCRIPTION RATE:—*The annual post free subscription rate, payable in advance, is £3 3s. 0d. sterling, in USA and Canada $10.50, in Italy Lira 6940, elsewhere abroad £3 10s. 0d. Italian subscription agents: A. Salto, Via Santo Spirato 14, Milano; Librerie Dedalo, Via Barberini 75-77, Roma. An index is issued half-yearly and is published as a supplement to the REVIEW.*

Union of Architects, to be held in London from July 3 to 7, preceded by a meeting of the IUA Assembly, and supported by an Arts Council Exhibition of 'British Architecture Today.'

The theme of the congress is to be *New Materials and Techniques—their Impact on Architecture*. Professor Henry-Russell Hitchcock is to speak on their historical background, Pierluigi Nervi on the influence of reinforced concrete and advanced techniques on architecture, and Dr. Jerzy Hryniewiecki (Poland) on technical aspects more generally. The rapporteur responsible for the general summary at the end of the congress will be J. M. Richards.

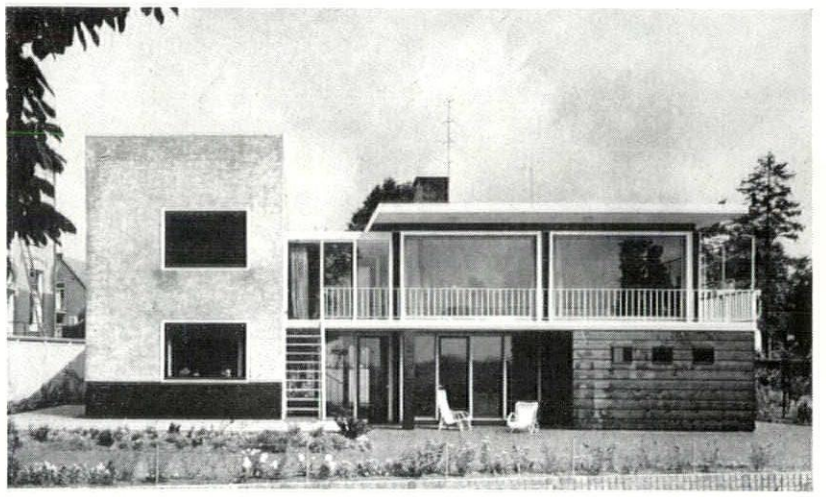
The congress deserves maximum support from British architects, not only in the sense of massive enrolments, but also on more technical matters—the RIBA, as the host organization, will not only need a great deal of administrative and clerical assistance, but there is also the problem of languages. The interpretation of technical discussions is often beyond the capacity of professional translators, whereas someone armed with a good technical vocabulary and a fund of good-will (rather than linguistic flourish) can often make a vital, if amateur, contribution to international understanding. The RIBA already has this problem under consideration, and it is to be hoped that whatever calls for help they issue will be answered by everyone in a position to assist. The vitality of the IUA is one of the few remaining links between East and West that has never been broken and patched up for political reasons, and must be maintained for the good of the world as well as the architectural profession.

GUIDE TO DUTCH MODERN

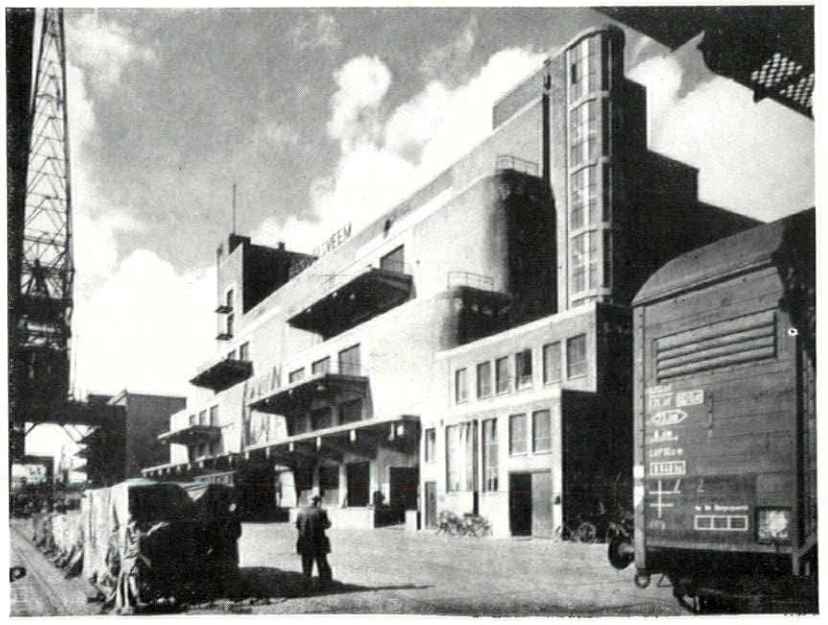
Apart from a rather insular British interest in the work of W. M. Dudok, most writing on Dutch architecture loses interest around 1925, when *de Stijl* ceased to be a major contributing force. This, unfortunately, leaves a great deal of ingenious and often impressive architecture unrecorded, and leaves the visitor to Holland short of guidance on what to look out for, and what to specially seek. The publication of R. Blijstra's *Netherlands Architecture since 1900* (*de Bezige Bij*, Amsterdam, no English price given) goes a long way to mend this gap. The introduction gives a useful historical summary of the Dutch Modern Movement, with particular emphasis on those who are alive and active at the moment; the photographs, after a rather eccentric historical opening (no Schröder house, no Zaanstraat), settle down to a compact survey, catholic in its terms of reference, of post-war work in various sub-species of modern; and finally a gazetteer, by towns, of all post-war buildings of note. The book is of small format, small enough for the brief-case if not the pocket, but sufficiently well presented to find a respectable place on the bookshelf, like Gio Ponti's *Milano Oggi*. It is a worthwhile addition to Europe's small register of 'modern Cicerones.'



4



5



6

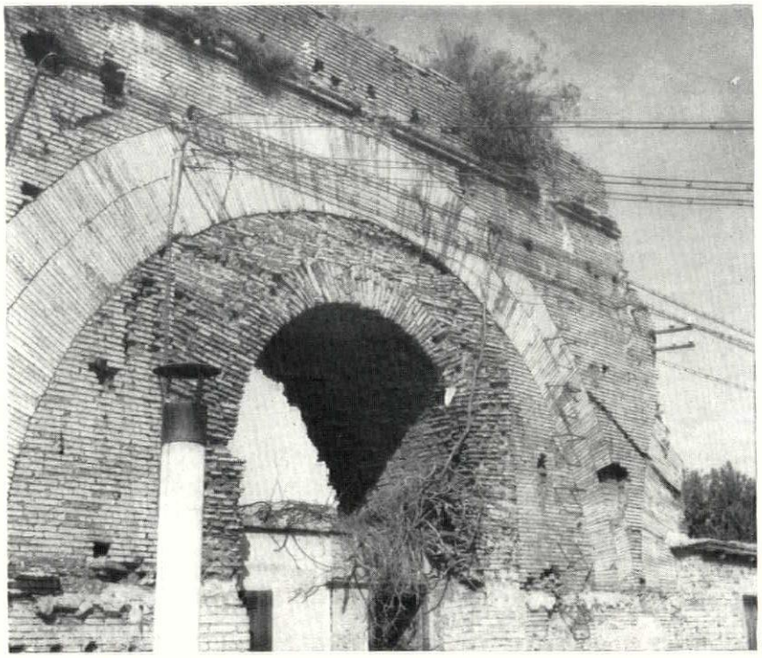
Three illustrations from Netherland Architecture since 1900: 4, *department store in Rotterdam by van den Broek and Bakema.* 5, *house in Arnhem by Rietveld.* 6, *warehouse in Rotterdam by de Ruyter and van den Graaf.*

BRITAIN'S NEW SCHOOLS AND ITALY

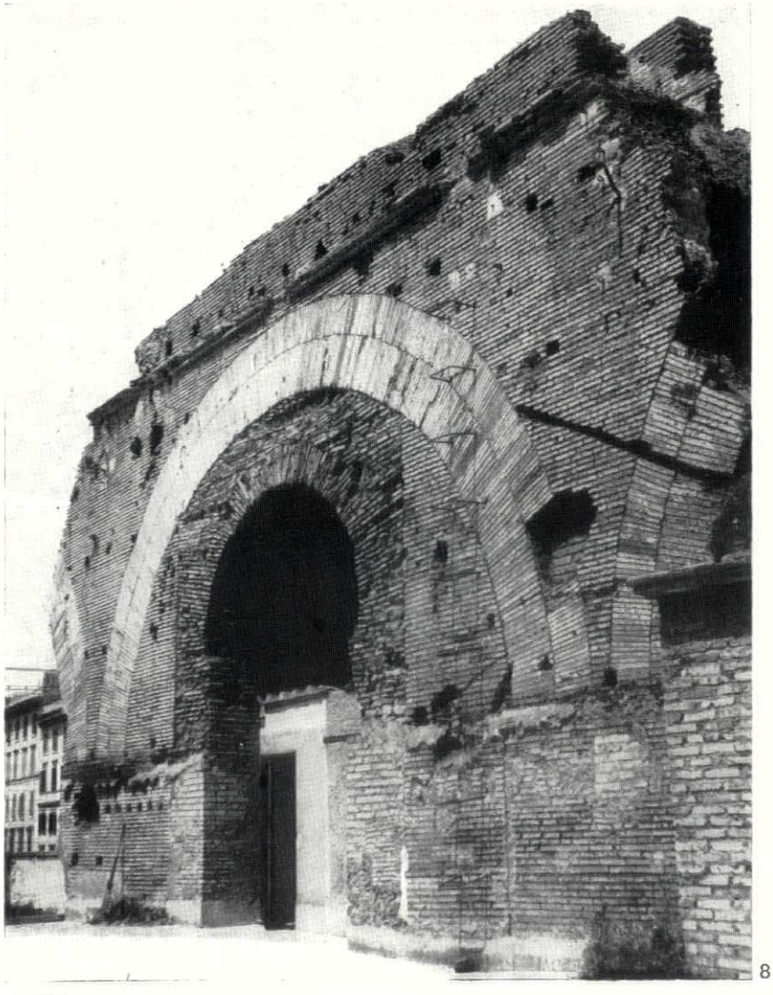
The brochure issued at the Triennale as background reading to the Notts/CLASP school exhibited there —*Britain's New Schools*, by D. H. Morrell and Anthony Pott—is now available as a booklet (British Council/ Longmans Green, 2s. 6d.) and will give stay-at-homes an idea of the line we adopted in presenting our educational achievement in Italy, a country which has an educational crisis just around the corner. The argument presented by Morrell and Pott is almost exclusively statistical: place requirements, time factors, space standards (superficial and cube) and cost levels. The achievement is estimated almost exclusively in those terms as well, except that the place/cost/time figure is tempered by some reference to revised teaching methods. Architectural quality, as such, is dismissed to a half-page sub-section near the back of the booklet, and the contributions of individual architects in private practice is not discussed at all—neither mention nor illustration of Clarke-Hall, Cubitt and Partners, Smithsons, Lyons-Israel-Ellis or any of the others who have contributed planning-concepts or put a shine on the finished product.

As an argument addressed to Italy, this seems both right and wrong. The emphasis on the value of centralized, government-sponsored research is precisely the weapon that progressive Italians need in the current debates, and a high degree of prefabrication of components and structures may be the only way to make up Italy's building backlog and/or replace unsuitable accommodation. But while Italy's progressive architects remain so convincedly individualistic, a word about the contribution of individuals might have given encouragement where it

would help. As Vigano's Istituto Marchiondi proves, individual enterprise can make a great contribution in Italy. But as Marchiondi also shows (*AR World*, August-September, 1959) individual enterprise needs something new and constructive in the way of a teaching programme as a stimulus and support. The Italian educational crisis, when it breaks, will not only be a matter of places and staff, but of pedagogical method as well, and *Britain's New Schools* might have engaged the sympathies of an Italian audience more closely had it paid more attention than two and a half pages to an intellectual and social revolution without which History would write off several million cubic feet of British post-war schools as wasted ingenuity.



7



8

7, section of the Claudian Aqueduct above the roof of the Visa Office at the British Embassy in Rome, as it was before restoration by the Ministry of Works.
8, the aqueduct after restoration; the service wires have been relaid underground.

CLAUDIO-NERONIAN RESTORATIONS

Comment on the restoration of the branch of the Claudian aqueduct that runs through the gardens of the British Embassy in Rome has tended to concentrate on the uniqueness, or even the poetic justice, of the task facing the Ministry of Works in repairing it, and has said little about the archaeological, technical, and aesthetic aspects of the work.

Clearly, the restoration of a Roman monument in the well-spring of Roman civilization is a work of which the Ministry might well be proud, and has doubtless provided a unique opportunity for British and Roman restorers to compare notes on technique. Though lovers of the picturesque may, conceivably, regret the passing of the aqueduct's rather Letarouillesque, bush-headed appearance, 7, as it stood before restoration, the removal of the quasi-historical wirescape (much of it dating from the period when the Villa Wolkonsky was the German, not British, Embassy) and other recent clutter has produced an undoubted visual gain, 8, in rendering the Roman structure more clear and comprehensible. The arcading, as it appears here, represents the upper tier of arches of Nero's extension of the Aqua Claudia, while the infill and buttressing presumably date from the repairs of Septimus Severus, Caracalla, or later Emperors—at any rate, to this list of names of Imperial restorers may now be added those of Sir Ashley Clarke, the Ambassador, and Thomas Bailey, Senior Architect of Ancient Monuments at the Ministry of Works.

BIRMINGHAM: LIVERPOOL: MANCHESTER

In Ian Nairn's article under the above title (AR August, 1960), Stephenson, Young and Partners were referred to as Manchester architects. Their office is in fact in Liverpool.

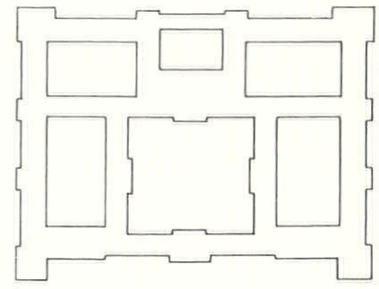
FLATS AT KUALA LUMPUR

The flats at Kuala Lumpur, Malaya, illustrated on page 61 of the July 1960 AR, should have been credited to Mr. Vernon Z. Newcombe as well as to Mr. R. H. H. Davis of the Federation of Malaya Housing Trust.

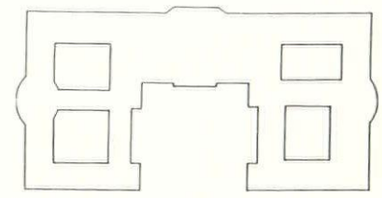
CORRESPONDENCE

To the Editors

SIRS,—English eighteenth century classicism and South German eighteenth century Baroque are accepted to be about as distant from one another as any two trends of the same period can be. It is for this reason that the fact must be of considerable interest which I want to communicate to your readers. Not that it is I who found it; it was published thirty-two years ago. However, somehow no one seems to have taken any interest in it, as Dr. von Freeden who ought to know, recently confirmed to me. The fact is simply this: In June, 1928, Herr L. R. Spitzenpfeil of Kulmbach published in the *Bamberger Blätter für Fränkische Kunst und Geschichte*, Vol. 5, a paper to make it known that Neumann owned a copy of *Vitruvius Britannicus* and made use of it. The copy is of Vols. I and II, that is those published in 1715 and 1717, and is now owned by the Würzburg University Library. It has on the title page of Vol. II the entry 'Balthasar Neumann Oberistlieut' in Neumann's own hand. Spitzenpfeil, who is no longer alive, suggested that one of the Inigo Jones plans for Whitehall (*Vit. Brit.* Vol. II, plates 2 and 3) was a contributing source to the general shape of the Bishop's Palace at Würzburg as designed by Neumann. The diagrammatical drawings which are attached to this letter show that there might well be something in the German architect's suggestion.



9



10

9, Inigo Jones' plan for the Palace of Whitehall.
10, Neumann's plan for the Bishop's Palace at Würzburg.

Yours, etc.,
N. PEVSNER.

London, W.C.1.

BOOK REVIEWS

PRIORY PICTURE-BOOK

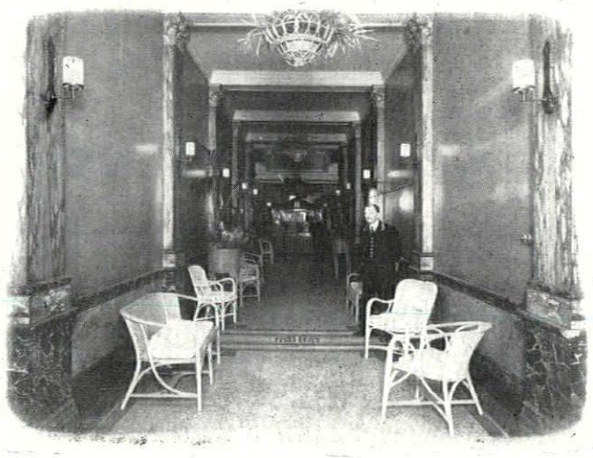
ENGLISH ABBEYS AND PRIORIES. *Text by Olive Cook. Photographs by Edwin Smith. Thames & Hudson.* 50s.

There seems to be no end to these handsomely produced architectural picture-books. Their quality varies, but a book that has pictures as skilfully taken as Edwin Smith's (there are 136 in this volume—mostly full page—with four in colour, of which three are of stained glass) and text as sensitively and knowledgeably written as Olive Cook's, is never to be despised. This one is for popular consumption, so it would not be fair to complain that the scope of the introductory and descriptive text (56 pages) is too small to make any serious contribution to the subject. So lavish a book as this should, however, include more than two plans of the buildings illustrated.

BOOKS RECEIVED

THOMAS JEFFERSON'S ARCHITECTURAL DRAWINGS. *By Frederick Doveton Nichols. Boston, Massachusetts, Historical Society.* $1.25.
DECORATIVE ART 50. *Editor: Terence Davis. Studio Books (Longacre Press Ltd.).* 42s.
USING CENTRIFUGAL PUMPS. *By E. Allen. Oxford University Press.* 30s.
SURVEYING. *By A. H. P. Gillett, M.A. The Sunday Times.* 3s. 6d.
YOUR BOOK OF HERALDRY. *By Richard Slade. Faber & Faber.* 10s. 6d.
CITTÀ DI CASTELLO. *Scuola Tecnica Statale Per Le Arti Grafiche.*





from Grand to Fabulous

This special issue deals with the aftermath of a revolution as thorough as that which has affected any class of buildings at all since the war. The concept of a hotel has been revolutionized structurally, spatially and functionally. The *Grand* type of hotel, epitomized by a corridor at Alderton's, Fleet Street, London (left), recently destroyed, was a European/American concept imposed on the world by nineteenth-century trade. It offered a slow-moving clientele illusions of palatial splendour in spaces that perpetuated the long, narrow and tall volumes of the masonry tradition. The *Fabulous* hotels of the Hilton epoch are as global as the air-travel net that connects them, and offer their jet-speed clientele efficiency and elegance in spaces whose low-ceilinged width and all-glass perimeters would be impossible without modern framed construction. The example above is the lobby of the Kowaki-En at Hakone, Japan, but the illustrations in this issue will show that the style is fast becoming universal, and its problems will soon be confronting architects in all parts of the world.

HOTELS from grand to fabulous

Hotels have become one of the outstanding building-types of our time. From being an ill-esteemed necessity indicated on master-plans by a block model that no one could be bothered to detail, the hotel has advanced in little more than a decade to the status of a key building in every new capital city, one of the approved settings for films and fashion photography, a hot proposition in real-estate, a five-star design subject for fifth-year students, a symbol of expanding democracy and distributed wealth, a fit vehicle for the leading architectural talents of the day.

Furthermore, it is a new kind of hotel that has come to the fore in the process. No longer the plush and palm-girt baroque palaces of Edwardian novels, tied to a ponderous and cigar-smoking concept of pullman travel, the jet age hotel has become one of the main instruments in popularizing the clean, crisp businesslike aspects of modern architecture all over the world. Unlike the Grand Hotel of the past, which had symbols of luxury cluttering every space or surface, and gigantic public halls in which guests were dwarfed and even lost, the Hotels Fabulous of today derive their reputation from the speed, precision and unobtrusiveness of their services—both human and mechanical, public and private—and from a famous and fast moving clientele of film-magnates, oil-millionaires, foreign secretaries and the rest of the international headline set.

The glamour of the Hilton world may be one of the reasons for the currently high esteem of hotels as architecture; another may be that hotel space-requirements—part cellular, part spectacular—lend themselves to fashionable post-Corbusian solutions, but over and above any matter of fashions, there is a pressing, world-wide need for more and better hotel accommodation. Britain

feels this need more than most other countries but, in the past fifteen years of peace, financial restriction and commercial caution have combined to prevent anything significant being done to remedy the situation.

Only now, with hotel projects coming up at the rate of ten to fifteen a month, does it appear that any serious attack will be made on the problem. As a result, many architects are liable to find themselves launched in the near future, without previous experience or adequate mental preparation, in a field of building design that is intricate and complex at every level from the choice of site to the choice of carpets, a field where a terrifying gap yawns between the most admired international masterpieces and what is likely to be capable of achievement on some awkward parcel of land in a provincial British city. While there is no substitute for experience and ability in this field—any more than any other branch of architecture—this special issue of THE ARCHITECTURAL REVIEW aims to make its own contribution to the process of mental preparation. By reviewing the needs, achievements, special problems and forthcoming projects of world and British hotel-building, it aims to give an idea of the range of requirements that an architect may have to face in designing and equipping a hotel, and to present the wide variety of solutions that have been brought forward.

No cut-and-dried philosophy of hotel design can emerge from such a study, however thorough, because the term *hotel* covers a multitude of differing establishments, but a pattern of architectural responsibilities will be seen to emerge, responsibilities that must be resolutely and intelligently faced if the impending hotel-boom is to live up to the standards already established for mid-century hotels.

The Editors acknowledge with gratitude the work done in the preparation of this special issue by ***Stephen Garrett,*** ARIBA in planning its general form, in research, in gathering material, and writing most of the text.

The text and illustrations describe or comment on some seventy hotels in all parts of the world. In order to facilitate cross-reference an ***index*** to the buildings mentioned in this issue appears on pp 309-310, with the names of the architects in each case.

HOTELS

an expanding industry

The architect's work in designing a hotel is set against the background of a huge and complex industry—an industry of particular fascination and complexity, now faced with urgent problems of expansion and adjustment. The solutions of these problems affect a host of other industries and are of major national importance.

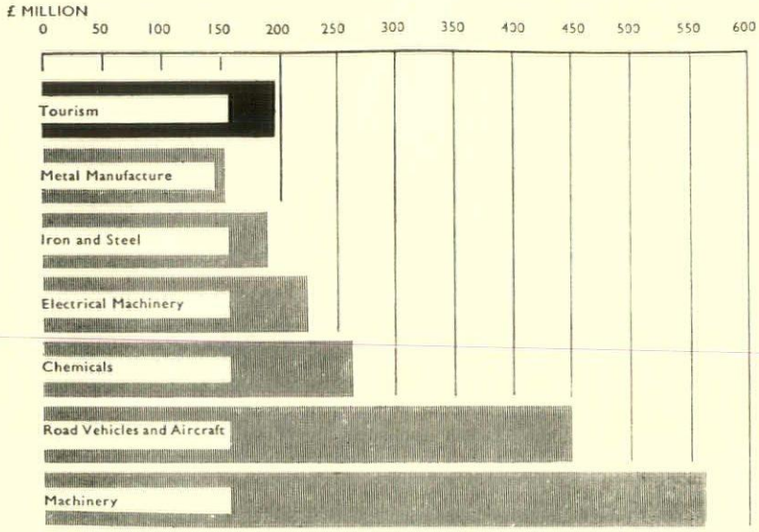
The hotel industry is one of Britain's most vital industries:

Viewed as an employer—more people (643,000) are employed in the hotel industry than in the motor and aircraft industries *combined.*

Viewed economically—the tourist industry is our *biggest* dollar earner and our fifth most valuable export. Our earnings from visitors last year were worth over £200m and of this over £100m went direct to hotels. Of the visitors that come here, over half a million come from dollar areas, 670,000 from Europe and 200,000 from Commonwealth countries other than Canada. As a nation we earn more proportionately from tourism than the more accepted tourist countries such as Switzerland, Austria and France.

British Hotels Today

What hotels have we? This is difficult to assess as there is no accepted definition of a hotel. It is impossible to know whether to draw a line (and if so, where) between Claridges and 'Seaview' which lets off a room during the season. There are 3,625 hotels in the British Isles listed in the Guide-book published by the British Travel and Holidays Association. This is as accurate a figure as one can get; it includes all



1. *figures for 1958 show that the tourist trade (black bar at top of table) was already Britain's fifth largest 'export' as an earner of foreign currency. It is not likely to drop below that figure unless the shortage of hotel space should divert a substantial proportion of the traffic to other countries.*

major hotels—but may include one hotel in a place that would otherwise show none worth the name, and omits some in places which have a large number.

Hotel building has always been related to transport; thus a coaching inn would have rooms available for visitors—but it was with the development of the railways that hotels as we know them really came into existence. A mainline terminal would include, usually as part of the station structure, a hotel designed with a magnificance in keeping with the great adventure of railway development. This results in our present legacy of vast hotel buildings which provides the British Transport Commission with the considerable problem of converting them into economical hotels.

Abroad, countries have differed very much in the rate at which they have been building hotels: Switzerland was not affected by the war and has built few new hotels since; France lost over 20 per cent of her hotels and has been slow to rebuild; in America there was no appreciable restriction on hotel building during the war and a number of big new hotels were built. The effect of this has been that when hotel projects have been discussed elsewhere, the American examples have tended to be copied as being the only recent hotels available for comparison—an influence that is discussed in more detail later.

Owners

The biggest international operator of hotels is Hilton, described in his own hand-outs as 'head of the world's leading hotel organization, a room-rent dynasty built of concrete and vision.' Hilton hotels in the United States and abroad contain 32,000 bedrooms. Apart from the American chains, he operates hotels in Spain, Turkey, Cuba, Canada, Germany, Egypt, Puerto Rico, Panama and Mexico. Also, under construction, are hotels in Britain, Trinidad, Holland, Greece, Italy and Ceylon.

No British hotel owners approach this scale—in fact there are very few foreign hotels owned by British companies. Of hotels in Britain by far the largest single group is Trust Houses, who own 230 hotels, chiefly small town and country inns. Other principal groups are Lyons (including Regent Palace, Strand Palace and Cumberland hotels), giving them a total of about 3,000 beds: Associated Hotels (including Kensington Palace, Eccleston) totalling about 2,000 beds: Grand Hotels (Mayfair) Group (including Washington, St. Ermin's) with over 3,000 beds: the Savoy Hotels group (Savoy, Claridge's, Berkeley and Connaught Hotels) with over 1,000 beds: and the British Transport Commission with station hotels throughout the country totalling about 3,000 beds. Over half the licensed hotels are owned by members of the Brewers Society.

Grievances

Yet for all this it is hard to see the hotel industry as a whole. Although hoteliers have their own trade associations they have not come together to present a public image in the way that other industries have done. They have felt no need to advertise collectively abroad, and thus have given themselves no common front.

The main point on which hoteliers unite is in a sense of grievance (perfectly justified), that they have not had the assistance they deserve from the government as a major dollar-earning and export industry. They are particularly irked that there should be no easement of purchase tax on hotel equipment and furnishing—the tools of their trade—the Chancellor of the Exchequer saying only last May that there was 'no case for assistance from public funds or changing of purchase tax arrangements.' Hotels in other countries have received government assistance and hotels have been built abroad with Marshall and foreign aid, and most foreign hotels operate under more favourable conditions than our own.

For years the British Travel and Holidays Association (government subsidized) has been urging that there should be Treasury encouragement given to the hotel industry and for years the Treasury has been refusing this. Ministers speak piously at conferences, all stressing how vital hotels are to our economy, but nothing materializes. This gives to an industry (already prone to introspection) a rather morbid outlook—which the Stock Exchange figures do not appear to justify.

Need for New Hotels

With these facts in mind, is there a need for new hotels in Britain? It is firmly held by the British Travel and Holidays Association that there is—that we need at least 5,000 more beds in London alone and a further 5,000 outside. 5,000 beds is the equivalent of about 3,000 more bedrooms. Equally clear-cut is the view of many hoteliers that there are already sufficient hotels. This point of view is held particularly by London hoteliers, but, on the evidence available, there appears to be not the least justification for it.

Understandably hoteliers would like to be 100 per cent full at all times, but this would be as unsatisfactory from the tourist's point of view as it would be from the country's to have every factory in the land fully employed. Some degree of empty hotel space, and some degree of underemployment, are

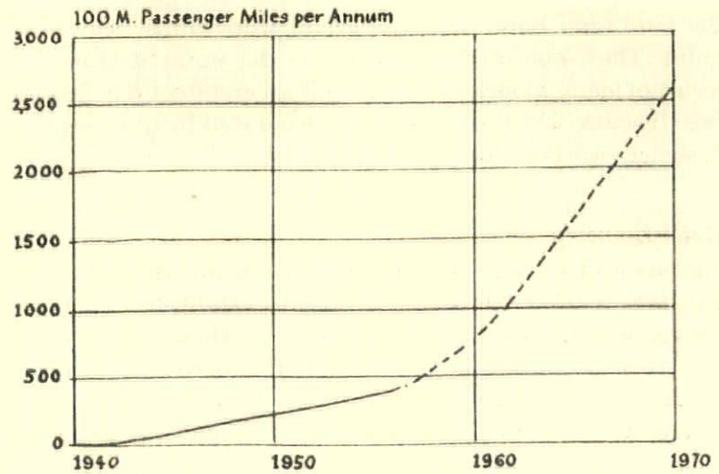
essential for efficient working. What matters in the case of hotels is that the occupancy should not fall below an economic figure. In the case of London there is absolutely no danger of this—though the case of seaside hotels is more difficult.

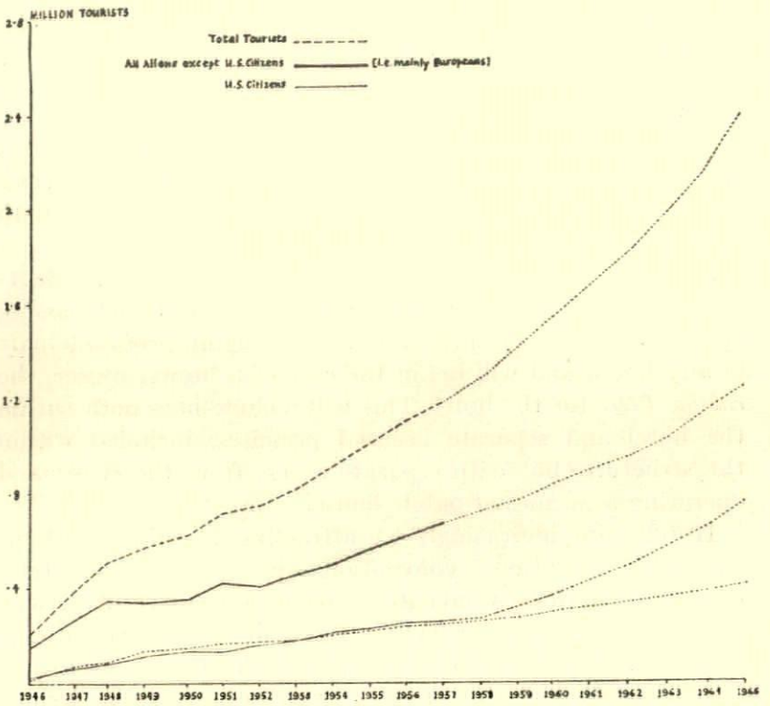
An assessment of whether new hotels are needed should not be based on what hoteliers say but on the figures of present and future demand. These figures are alarming, as the tables show, and clearly indicate that a really large increase in hotel accommodation is needed. Last year 1,394,605 tourists came to Britain. This year the figure will certainly exceed 1½ million and it will only be a matter of a few years before the figure will be over 2 million (including 1 million dollar-spending Americans). Short of war there is no reason why this trend should not increase. Put it another way, over the past 14 years there has been an increase of almost 200 per cent in tourists to Britain.

The reason for the vast increase in tourist traffic is that throughout the world more people have more money to spend on travel abroad. Also they have both longer and paid holidays. A trend like this is cumulative: more people doing it: more advertising to do it: easier ways of doing it: 'everyone else is doing it so everyone has to do it.' Coupled with this is a break-down in the idea that foreign travel is hazardous, even freakish. In America, often a forerunner in trends of this kind, foreign travel has achieved status value. At a time when everyone has a car, a refrigerator, a television set, you can now be one-up only if you can say that you've 'done' Europe as well.

Our hotels at present are simply not capable of dealing with this demand. The growing shortage of hotel accommodation has very serious consequences for us if not remedied quickly. Already American travel agencies are having to advise potential tourists to England that they will have difficulty unless their rooms are already booked. Travel agencies have said that they feel certain that unless there is more room within the next three years they will have to recommend tourists to by-pass Britain and go elsewhere where rooms can be assured. BOAC, with orders out for £150m worth of passenger aircraft, as well as other airlines are afraid that their progress is so far outstripping the hotel industry that they will find passengers unwilling to travel.

2, *measured and extrapolated increase in world passenger air traffic, most of it directly dependent on the availability of hotel-space at terminal and stopover points.*





3, *measured and extrapolated increases in tourist traffic to Britain from different overseas sources. The sharply up-curving third line represents a rapid increase in the proportion of the total made up by US citizens.*

This shortage is not only critical to our tourist trade, but is affecting us internally as well. One of the main reasons given for the failure of the British Industries Fair at Birmingham is that there was insufficient hotel accommodation, and the Leofric, Coventry, is fully booked and already accepting bookings for 1962 and beyond.

Turn in the Tide

This demand for more accommodation has not arisen suddenly, though the increase has certainly swung up faster than most expected. Even so, it is hard to escape the feeling that hoteliers may find themselves caught with their striped trousers down. Since the war only five new hotels have been built in Britain—The Westbury; in London: The Leofric, Coventry; The Skyway, London Airport; The Dover Stage, and The Keirby, Burnley. To these should be added The Tavistock, London, which was built on foundations laid before the war. There have been a small number basically remodelled internally, principally The Londoner, London, and some extensions to The Washington, also in London.

But as far as London is concerned, new building, extensions and modernization have provided only 800-1,000 additional bedrooms against the 5,000 which BTHA reckon are needed immediately as a minimum to keep pace with the increasing demand.

This does not amount to very much in view of the pressing need. But the tide has turned, in intention if not in fact. The idea of building an hotel is now news—over *seventy* new hotels have been projected for building in Britain during the last six months. The ice is broken and, without doubt, a number of new hotels will get built within the next few years. Of these several are already under construction and are illustrated in a later section. One of these is the Park Lane Hilton, financed by Charles Clore—lesser men

may take heart: Mr. Clore is unlikely to be making a mistake. The City pages are aglow with intrigue.

Non-Bed Demands

It is clear that a modern hotel is very much more than a rooming house. It is a complex variety of different services which must entwine and relate efficiently if the whole is to work economically.

No hotel will want to limit its services to the residents alone and every inducement will be made to attract passing trade of all kinds. Liquor sales form a highly profitable part of any hotel, and will be, in the case of a brewer-owner, the *raison d'être* for the hotel. This will include bars both within the hotel and separate licensed premises, included within the structure, but with separate access from the street and operating as a normal public house.

Hotels aim increasingly at attracting functions such as banquets, receptions, conventions, press shows and temporary exhibitions. Conventions are a particularly American occupation, and one which is increasing here. The design of any large new hotel will provide for this with a number of rooms of different sizes, or rooms which can easily be divided as required.

Shops will also be included in a modern hotel complex. Hotels in the past made a small profit from allowing local shopkeepers to put showcases in the entrance lobby—often of a depressing drabness. But new hotels will have shops with entrances from both the hotel and the street. This gives the ground landlord a section over which he will retain control and a stabilized return which is not affected by the success or failure of the hotel itself.

But while these facilities will now be included in a hotel, and will form variations on the economics of the whole operation, they are an extension of service and no radical change. Where there has been a real change is not in the services provided but in the very thinking behind the building of a new hotel.

In the past hotels will have been built by private interests hoping to make a profit. They will have received little encouragement from the Government or local authorities who will have viewed the venture as another form of shopkeeping. This outlook has changed, particularly in hotels being built abroad in countries about to receive independence. For there a hotel is seen as a symbol of progress—the new country wishes to attract foreign business men, and how are they to do this unless they have accommodation up to western standards? This is the background to new hotels being built throughout Africa today.

Here in Britain, from Plymouth to Prestwick, mayors and town councillors are on their feet proclaiming how their town cannot progress without a new hotel (and then leaving it to their Borough Surveyor to 'choose some architects to put up a few ideas'). It goes without saying that nearly all of these are stillborn—the harsh facts of the finance involved, difficulty of obtaining good sites and the complexities of running a modern hotel economically tend to sabotage what was conceived in pride and hope.

Financing New Hotels

No hotel today will be built by an individual hotelier. The size of the venture, and the very specialized risks involved, can only be undertaken by financial groups accustomed to speculation and investment (a stratum of activity which few architects or members of the public know anything about, only occasionally sniffing the gunsmoke from a Clore or Grunwald front page report).

The most interesting example of hotel finance, as in many other aspects of hotel operation, comes from Hilton. The basic pattern upon which his operations work was established in connection with the Caribe Hilton, San Juan, Puerto Rico. Here the hotel was built by the Puerto Rico Industrial Development Company, the agency of the Puerto Rican Government, following a contract with Hilton Hotels International.

This pattern has been adopted throughout the Hilton overseas ventures—the hotel being built and paid for by local finance (usually with government backing). The hotel is then leased to Hilton Hotels International at a percentage rental for a period of twenty years, with renewal option. Two thirds of the gross profit go to the owners and one third to Hilton.

In the realization of how much new hotels help to attract tourists and dollars, many foreign governments go further and extend special benefits such as tax exemption up to ten years, guaranteed return to investors, donation of site, waiver of import duties and other incentives. In return they get from Hilton expert advice on the design of the hotel from the beginning, and in leasing it Hilton provides efficiency of operation, managerial controls and techniques and working capital. If this co-operation between an American operator and local government is to work, great tact must be exercised with local pride—it is for this reason that Hilton has been careful to ensure that local architects, craftsmen and designers are employed as fully as possible. This is important for national feelings, and for tourists who do not want to see a satellite from Dallas.

The participation of government departments, and particularly the concessions which are made to these hotels, make the operation of a single hotel, by a private owner, all the more difficult, and the pattern of hotel operation in the future will be by groups of hotels.

The complex financing of hotels has a particular disadvantage as it affects the architect—for it means that he will be working for a committee rather than one man. Further, there may be a number of committees—the group who own the land (and build) and the group who will be leasing the hotel. Thus, one of the reasons for the unsatisfactory final result of many modern hotels is that an architect has designed the structure which has then been decorated by quite separate designers working for different clients.

Hotel Economy

Just as no two hotels are the same, nor are the opinions of any two hoteliers. It is impossible to establish any definite rulings on what will make a hotel pay, although a very great deal of thought has been given to the matter, particularly by American operators.

The usual yardstick is 'hotel occupancy'—that is the number of bedrooms occupied and given as a percentage

of the total. Pre-war it was possible for a hotel to break even at 40 per cent occupancy, but increased costs have made this now ridiculously low. The figure will, of course, relate to the efficiency of the hotel, and an old hotel with uneconomical conditions will need a higher occupancy than a new hotel, but for a normal UK or USA hotel the occupancy must not be below 60 per cent to 65 per cent, and in the case of an older hotel may well have to be up to 85 per cent to keep above danger line.

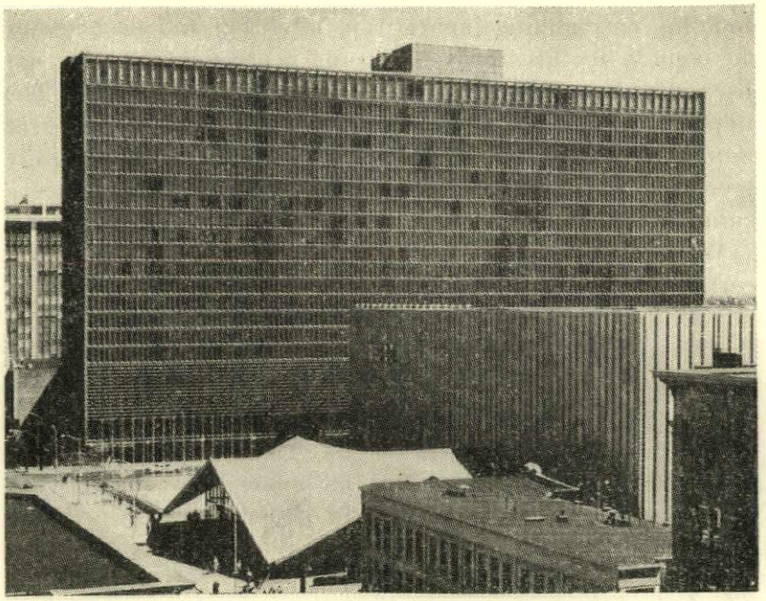
A survey carried out by the British Travel and Holidays Association in 1958 showed that for London hotels the average occupancy throughout the year was 80 per cent. The majority of London hotels are reasonably modern and this figure clearly refutes the London hoteliers' continual assertion that there is no need for further London hotels. The hoteliers may not want them—but they are not able to cope with the demand themselves.

But London is a special case. London is not affected by *seasonal trade* to anything like the same degree as elsewhere. It is at seaside resorts that the seasonal problem is most acute, with occupancy swinging between 100 per cent and none, from summer to winter. It is for this reason that the BTHA stress that holidays must be staggered, the holiday season extended at both ends and large organizations encouraged to hold their conventions at seaside resorts in out-of-season periods. Of course a number of hotels do close during the winter—and this is normal practice for many Swiss and other foreign hotels—but often English hotels try to stick it out, which results in an almost empty hotel which appears both cheerless and inefficient to the guest.

The way in which a hotel makes its money must affect the way in which it should be designed, to ensure that those sections that make money get the space and facilities they need. Expressed as a percentage of the running costs involved, the hotelier may expect to make a 70 per cent profit on letting rooms, 50 per cent on drinks served, 20 per cent profit for letting out rooms for conferences, and possibly no profits from food service to guests.

From this it is clear that a profitable hotel should include as many bedrooms as possible, serve drinks as vigorously as its location (and the law) permits, and include provision for attracting conventions, receptions and public functions. The dining rooms for residents, which clearly have to be included, may well be relegated to the basement (as in the new Londoner Hotel, in London). These various forms of profit earning are, of course, closely related. Thus, one of the main advantages of catering for businessmen's conventions is that a great deal will be drunk—and in fact conventions have proved to be the backbone of the American hotel trade for some time.

Another key factor in hotel operation is the cost of maintenance. It is reckoned that today 12 per cent to 15 per cent of the annual turnover has to be allocated to maintenance of the building. One of the chief incentives towards modernizing hotels, and building new ones, is that this figure can then be reduced. Today about £60m is spent annually on hotel maintenance in England. It is an inherent part of the architect's job in hotel design to ensure that this running cost can be kept to a minimum.



4, US super-hotels have set, for better or worse, the standards and methods of post-war hotel operation. The latest expression of that standard is also a classic exposition of the methods—the Denver-Hilton, promoted by the famous real-estate operator, William Zeckendorf, but now owned by the Alleghenny Corporation; operated by the Hilton chain; designed by one of the best commercial offices available, I. M. Pei and Partners; and seen almost as a piece of civic improvement—it is part of the down-town redevelopment started by Pei's Mile High Centre, in Denver, Colorado.

Occupational Diseases

While hoteliers may like to appear as rational accountants to each other, they are, like actors, acutely subject to what they consider to be the wishes of their customers. They are prone to voodoo-fears of an apparently illogical kind which no rational argument will dispel. A dictum picked up in Switzerland in their early days will stay with them for ever. This can make them both fascinating and infuriating clients.

For example, a hotelier on the south coast holds that it is essential for any public room to have 'some work of art, preferably ugly modern, to provide a talking point for guests, whose indignation will then break the ice.' In fact they all look out of the window at the sea and complain happily about the weather. The very proximity of the hotelier to his consumers makes him extra sensitive to the show that he is putting on. Hoteliers tend to be finicky, for ever moving pieces of furniture, rearranging the artificial flowers and have difficulty in focusing on the appearance of their hotel as a whole.

An expression of the short-sightedness of much of the hotel trade is seen in the Hotel and Catering Exhibition which bi-annually covers a huge area at Olympia. The emphasis of the exhibition is on the minutiæ of the industry, with demonstrations of fabulous iced cakes, competitions in decorating hams, and 'works in pulled and soufflé sugar.' Included in this year's exhibition was a suite of demonstration rooms, designed and installed by furnishing contractors, comprising bedroom, restaurant and lobby. The quality of interior design in these rooms was acutely depressing, and clearly their principal use was for bedmaking competitions and demonstrations by waiters and reception staff. There were no displays or lectures on recent hotel

building or planning (apart from kitchens) and no attempt to include features of a non-trade general interest, as has been done so successfully at the Furniture Exhibition. The impression is of an industry led by a few hoteliers of great perception and acumen, but with its sights more generally levelled at the 'average trimming wastage in preparing summer cabbage.'

Whatever may be the internal ills of the industry, it is certainly hampered by other, external, difficulties. Lack of government support has already been discussed, and a further difficulty is the shortage of staff. Staff can make or break a hotel, almost irrespective of the quality of the building. It is the friendliness or indifference of the staff which the guest remembers longest. The industry has woken up to this, and there is now an increasing concern with recruiting young people who will be properly trained and qualified. Obviously there are great opportunities for them.

The Future

This issue deals mainly with new hotels—ones that have been built during the last ten years and projected for the near future. But the fact remains that the bulk of our hotels for a long time to come will be those that we have inherited. Many of these, built when the railways were born, are now quite unsuited to economical hotel running without very drastic modification. The principal changes involved are discussed later, but it should be noted here that any effort to increase the total amount of good hotel accommodation should by no means rely on new hotels—but concern itself very much with the adaptation of what we have already.

Such briefly is the hotel industry. Its national importance is seldom appreciated and it is now faced with problems of expansion and adaptation of a far more urgent kind than ever before in its history. Upon the successful outcome rests much more than the welfare of the hotel industry itself.



British needs and achievements must be seen against a background of world achievement in the field of hotel design. The next twelve pages show all but one of England's worthwhile post-war hotels in the context of what the rest of the world has achieved in the last ten years. The record is by no means a disgrace in terms of comparative quality, though we have much to learn still—it is in sheer quantity of accommodation that we have farthest to go.

HOTELS

the last ten years

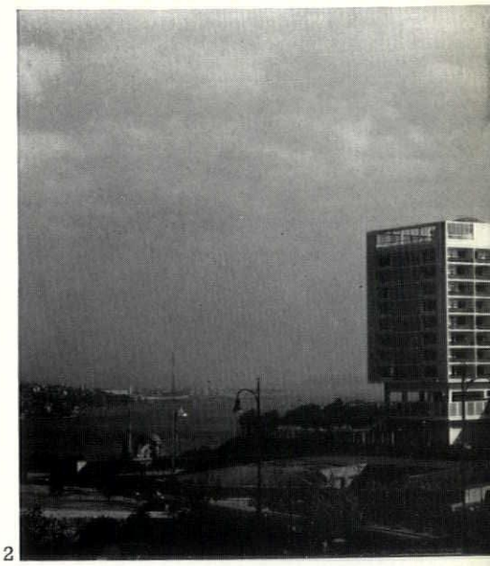
During the past ten years—in effect since the war—hotels have been built throughout the world which cater for new needs, operate in new ways, and must satisfy new conditions.

The hotel may be built at the insistence of the government—particularly in the case of a new nation anxious to have a symbol of progress and to attract business men and tourists. Again, air travel has both vastly increased the demand for hotel rooms, and has meant that hotels are being built near airports—outside towns on open sites. The sharp division between luxury upper-class hotels and the commercial hotels is breaking down. More travel means more comparison, and the expectation of higher standards by the traveller. The result has been considerable fresh thinking about the design of hotels.

On this and the following pages is a selection of the most interesting recent hotel buildings in many parts of the world.



1



2

1, 2. *Istanbul Hilton, Istanbul. Architects: Skidmore, Owings and Merrill, associated with Sedad H. Eldem. This hotel, owned by the Turkish government, and operated by Hilton Hotels International on a 20-year contract, was opened in 1955. It has 11 storeys and 300 rooms and is in a section of a public park high above the city. The views from the hotel over the Bosphorus and the town have become a travel agent's legend, but the rigorously cellular elevations testify to an emphasis on function without which such hotels could not prosper, whatever their site.*



3

3, *Berlin Hilton Hotel, Berlin. Architects: Pereira and Luckman (New York) and Schwebes and Schoszberger (West Berlin). Completed last year, this is Berlin's largest post-war hotel, with 327 rooms, four restaurants, and ballroom to take 1,100. The hotel is approached by the Hilton Colonnade, containing 24 shops with offices and exhibition space over.*

4, *Skyway Hotel, Heathrow, London. Architects: Fitzroy Robinson and Partners. Opened last January, this 160 room hotel is designed to serve short stay guests from London Airport. Special care had to be taken to insulate the building from aircraft and traffic noise.*

5, *Beverly Hilton, California. Architects: Welton Becket and Associates. Opened in 1955, this 450 room hotel is set on triple-wing plan, radiating from a central core. Considerable research into the planning of the hotel was made, and into the servicing, and the results have had a big influence on hotel design since.*



4

5

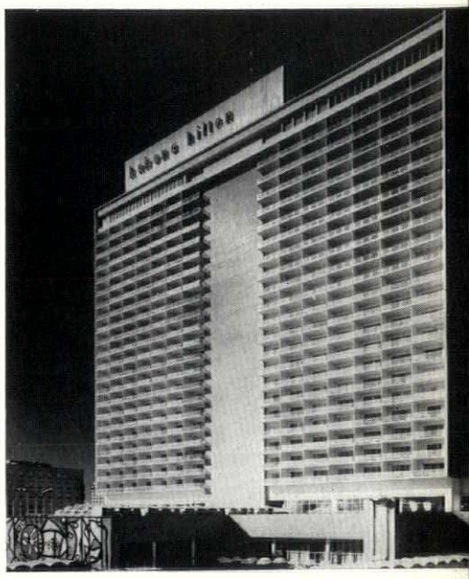
the last ten years





6

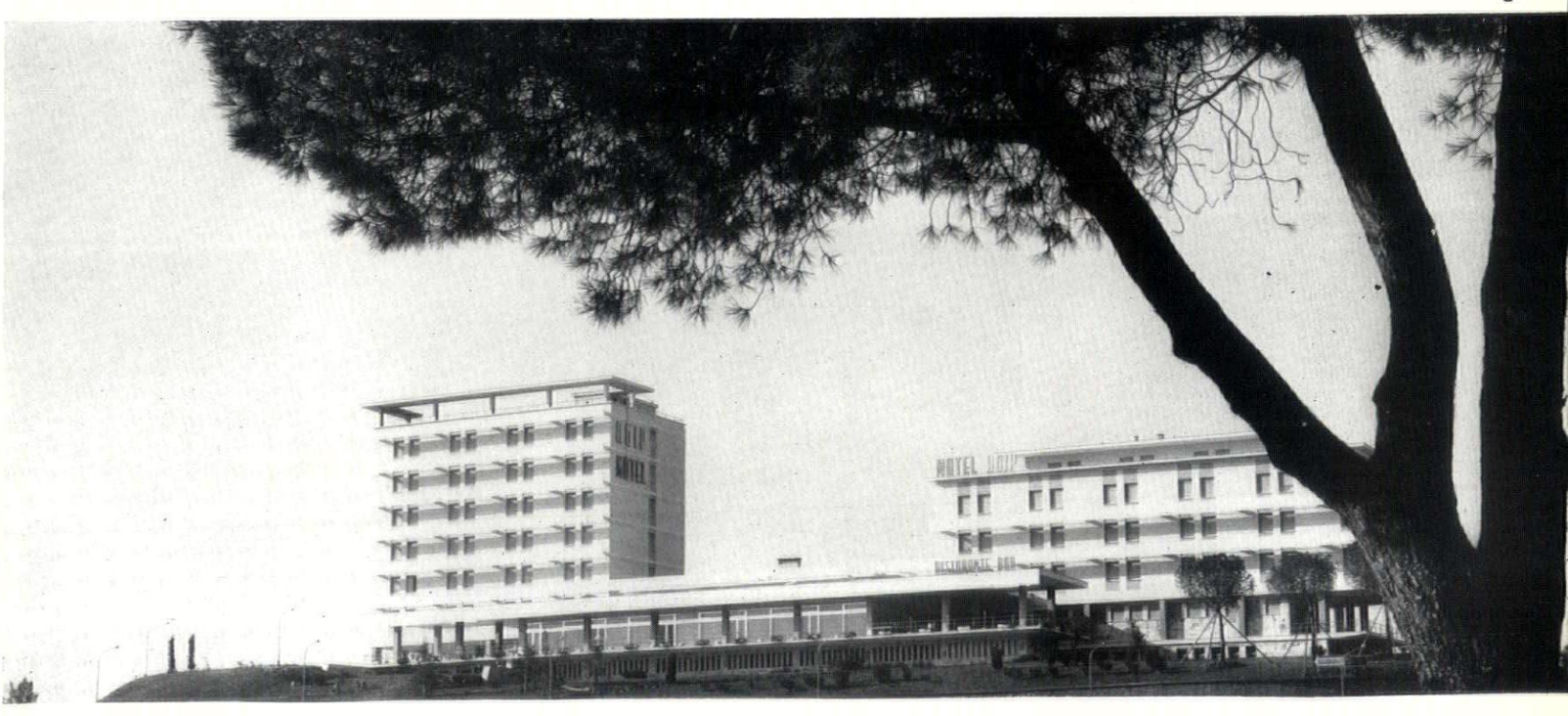
6, *The Dover Stage, Dover. Architect: Louis Erdi. Even more of a staging port than the other hotels on these two pages, the Dover Stage was specifically designed to deal with one of the characteristic products of an affluent, travel-minded society—overseas coach tours.*
7, *The Habana Hilton Hotel, Havana, Cuba. Architect: Welton Becket and Associates. Opened in 1958, this 630 room hotel is sited in the main business area of Havana. Each bedroom has a private balcony over the Bay and city. The hotel is air conditioned throughout with local control in each room, and follows the normal Hilton pattern, both in operation (here Hilton advised on design and operates it for the owners) and in the attempt to infuse local character into the interior design.*



7

8, *Motel Agip, Rome. The standard of tourist hotel design in Italy is particularly high—as this example from the Agip group, specialising in motels, which has begun to rival the Jolly chain in introducing advanced standards of service.*

8





9



10

11



the last ten years

9. *Caribe Hilton, San Juan, Puerto Rico. Architects: Toro, Ferrer and Torregrosa. Its site and its relation to the sea and the off-lying subsidiary buildings make this one of the archetypes by which the Hotel Fabulous concept is defined—the resort super hotel par excellence.*

10. *El Panama Hilton, Panama. Architect: Edward D. Stone. The hotel, completed in* 1951, *is sited some miles west of Panama City and near the airport which acts as junction between north and south American flights. Its special feature is the honeycomb design, substituting louvres for doors and windows, which allows the trade winds to pass right through the* 271 *rooms; thus, air conditioning is only required for the main public rooms, in spite of average year round temperatures of* 80 *deg.*

11. *Ocean Tower Hotel, Hawaii. The hotel forms the main building in the Hawaiian Village Hotels group, which includes a further small hotel, beach cottages and huts with a total of* 700 *rooms.*



12



13

14



12, 13. *Hotel de France, Conakry, Guinea. Architects: Lagneau, Weill and Dimitrijevic. The hotel, opened in 1954, is one of the most interesting of the many new hotels built in Africa following the increase in air traffic and the development of national status. The hotel has five floors of bedrooms, each containing six double, eight single rooms and two suites. The aspect of the main elevation is placed to gain the full advantage of the prevailing wind. 13. The circular restaurant, set in front of the main building, seats 100 and is connected to the bedroom block with a linking unit including the bar. Throughout the hotel aluminium has been used considerably, as in the glazed and louvred hinged double doors to the circumference of the dining room.*

14. Nile Hilton Hotel, Cairo, Architects: Welton Becket and Associates. Opened last year, this 400 room hotel is set on a 6½ acre site on the east bank of the Nile. To the east it faces the Citadel and to the west looks towards the Pyramids. The building is owned by Egyptian investors, and is operated by Hilton on a 20-year lease. The main bedroom block, 200 feet high and capped with a precast concrete grille, is in the shape of a flattened V on plan, with shops and lobby on the ground floor and the main public rooms on the floor above. On the roof are restaurants and bars. Dominating the entrance elevation is the world's largest mosaic mural—280 ft. by 25 ft., based on Egyptian motifs.

15



16

the last ten years

15. *Hotel Humboldt, Caracas. This recently completed 14-storey circular reinforced concrete hotel stands 7,000 feet above sea level with views over the Caribbean and the surrounding country. The circular form was adopted to make the most of these views, and the only approach to the hotel is by a cable railway. There are 70 suites, which all contain a sitting room, bedroom, dressing room, bathroom and private balcony. The public rooms are set clear of the bedroom tower.*

16. *Palace Hotel, Brasilia. Architect Oscar Niemeyer. It has played a vital role in handling the conferences and visits that have helped to stamp on the public mind the image of the new capital.*



19



17

18

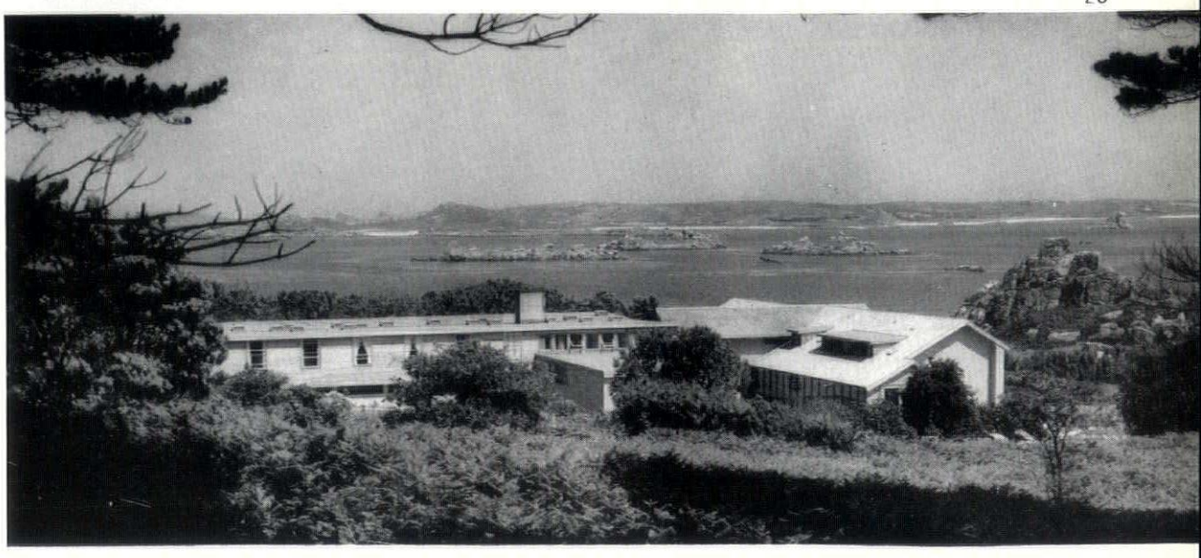


17, *Laponia Hotel, Lapland. Architect: Ole Helweg. A simple wood-construction hotel, used as a base for walking, climbing and winter sports.*

18, *Hassho-Kan Hotel, Nagoya, Japan. Architect: Sutemi Horiguti. One of the beautifully designed new hotels in Japan, set on a wooded sloping site. The structure is in reinforced concrete.*

19, *Casa Albergo, Lignano Pineta, Italy. Architect: Gianni Avon. The elevations are strongly articulated by the open ducts formed in the floor thickness. These permit natural ventilation in the floor, which both keeps the rooms cool and acts as a sound barrier between storeys.*

20

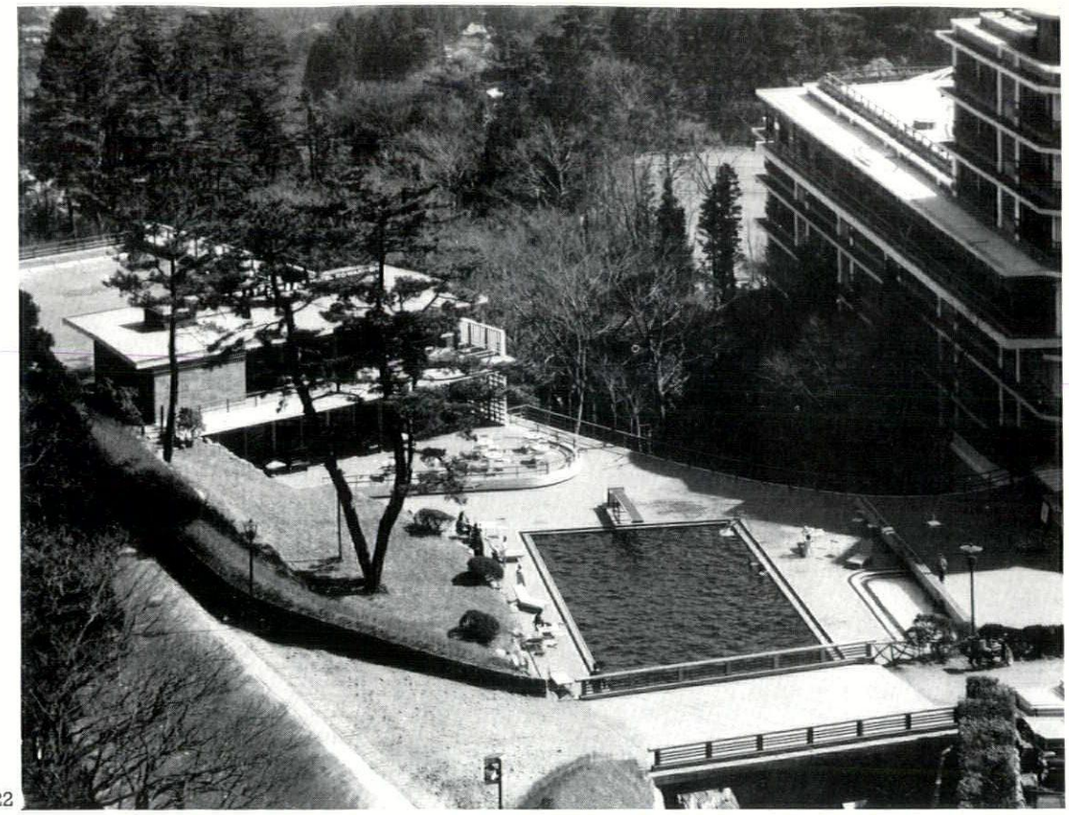


20, *Island Hotel, Tresco, Scilly Isles. Architect: John Strubbe. Completed earlier this year, this hotel is of simple wood construction with robust detailing, providing unsophisticated holiday accommodation. Like the others on this page, it accommodates itself to its surroundings, instead of dominating them, Hilton-style.*

21, 23, *San Pedro Hacienda Hotel, California. Architects: Richard Neutra and Robert Alexander. This hotel is set in a fifty-acre site, which includes a golf course, and acts as a community centre for the district as well as a normal holiday hotel. The 80 rooms are arranged in groups, placed down the slope and reached by a driveway which allows each guest to park his car behind his own room. Each has a private patio with a view over the sea. The groups have been arranged so that those behind can see the sea over the roofs of those in front. In addition to the bedroom groups there are several public rooms.*
22, *Hotel Kowaki-En, Hakone, Japan. Architect: Junzo Yoshimura. This 164 room hotel is set on an undulating site. In the foreground are the approach road and swimming bath which is supplied with hot water from a nearby spring. The hotel also includes sports rooms and a turkish bath.*



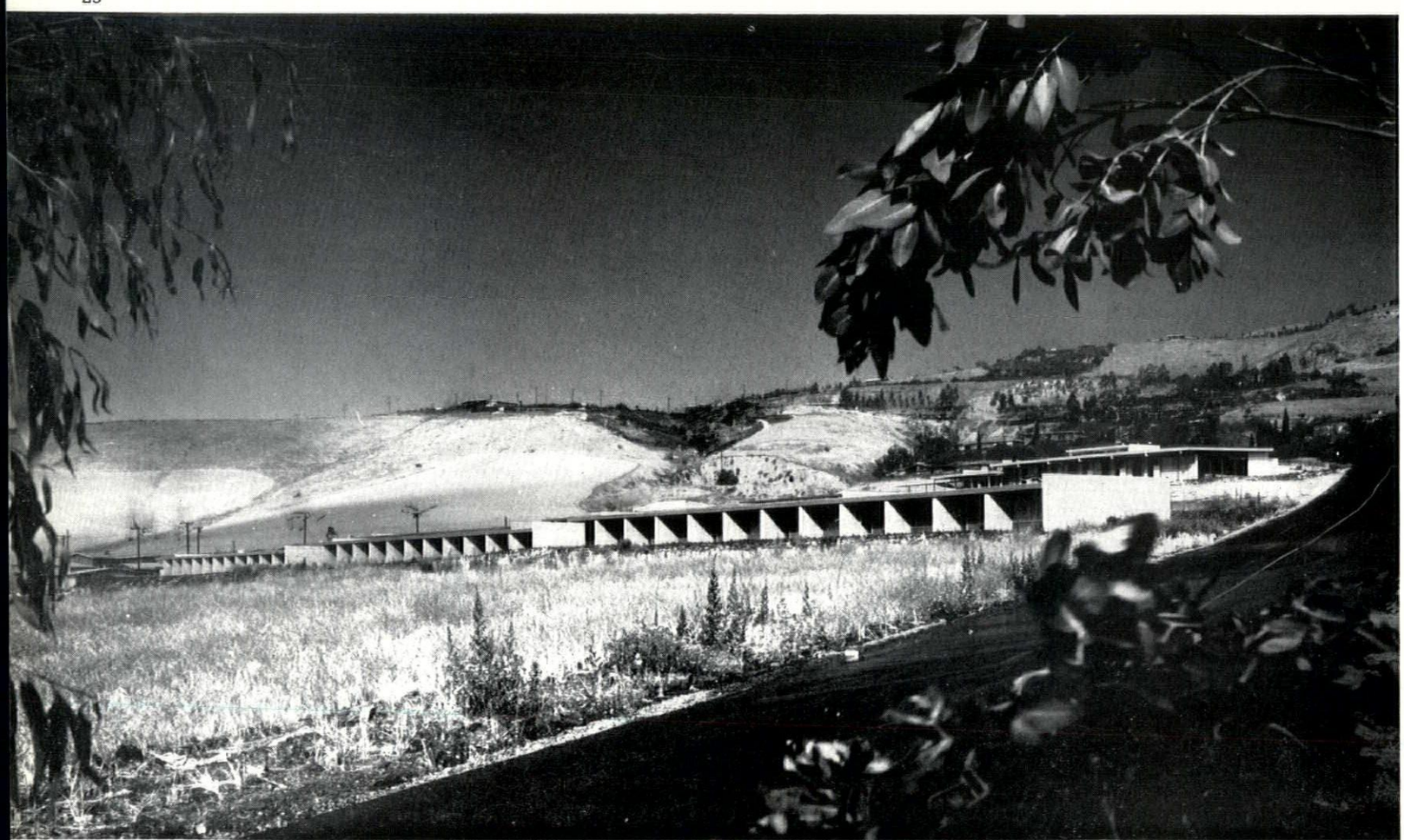
21



22

the last ten years

23



24, *Grand Hotel, Osaka, Japan. Architect: Takenaka Komuten Co. The new Asahi building includes this hotel, offices, banks, broadcasting and TV studios, a large concert hall, garages and a heliport on the roof. There are two basement floors with 13 storeys above. When built this was the highest building in Japan. The entrance leads to the hotel floors which occupy a full vertical section of the building. There are 368 rooms (667 beds). The elevation is curtain walled and the infill panels are in aluminium.*

25, *Hotel Nikko, Tokyo. Architect: Yoshinobu Ashihara. The hotel is in the centre of Tokyo on a corner site. There are 112 rooms, all with private bathrooms, and there is a restaurant on the roof under cantilevered eaves. The block is constructed in two-floor units supported on perimeter beams which decrease in depth as the building rises. All services are run within the depth of this beam. The curtain walls are faced in charcoal grey porcelain enamel steel plates.*

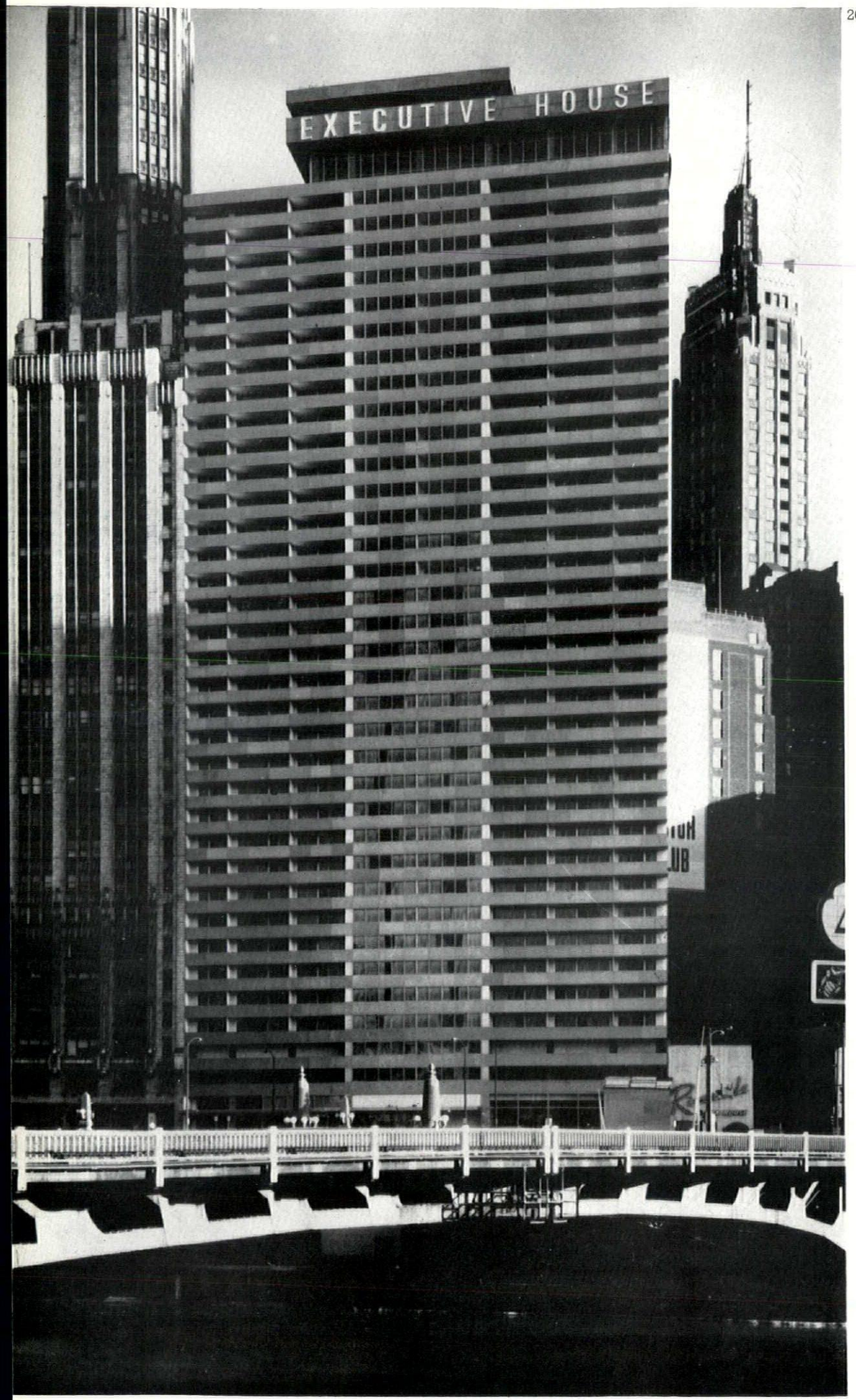
24



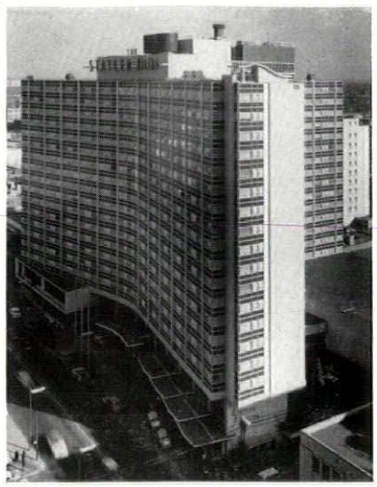
25



26



27



26, *Executive House, Chicago. Architect: Milton M. Schwartz and Associates. This 40-storey hotel, started in 1957 and completed in December, 1958, has 488 rooms available for short-stay or long lease letting. The 'studio units' are 20 ft. by 12½ ft. and the suites have sitting room, bedroom, kitchenette. Most studios and all suites have balconies. Also included are restaurants, bars and a 200 car garage. The building is 371 feet high and is the tallest reinforced concrete building in the USA. Four feet high steel banding is taken round the perimeter of the building at floor level with windows above to the centre section and balconies behind to the sides. Floor to floor height is 8 ft. 10½ in. and the plan is set on a 4 ft. module. The columns are spaced 8 ft. and 16 ft. transversely and 20 ft. longitudinally.*

27, *Statler Hilton, Dallas. Architect: William B. Tabler. This is a 20-storey, Y-shaped building with 1,001 rooms, a huge ballroom, night club, 17,600 sq. ft. of shops and 10,500 sq. ft. of club premises. The hotel opened in 1956, taking 2¼ years to build. Apart from its sheer size, the hotel is of interest for the great care that went into it considering the services and the ways in which the vast public areas could be subdivided as required for different types of function. The reinforced concrete columns are spaced well back from the outer wall line which is faced in aluminium.*

28, *Sheraton Hotel, Philadelphia. Architects: Perry, Shaw, Hepburn and Dean. Opened in 1957, this hotel has 21 storeys and 900 rooms, with an 800 car garage. On the roof the service structures have been formed into a species of abstract sculpture, with functional-traditional striped and banded paintwork.*

28





29



30

29, *Pittsburgh Hilton Hotel, Pittsburgh. Architect: William B. Tabler. The hotel tower is 24 storeys high, and is supported by 20 columns, without exterior load-bearing walls. The hotel is completely air conditioned, has 800 bedrooms, and has one of the world's largest ballrooms, capable of seating 2,000 persons at a banquet.*

30, *Hotel Malmen, Stockholm. Architect: Georg Varhelyi. This hotel is 11½ storeys high, of which 3½ storeys are underground. It has 288 bedrooms — approximately the same number as the Westbury Hotel, London—and these are on six floors. Of these, 158 have an ordinary bed and a reversible sofa, thus being capable of serving one or two people. The chief consultant architect was Sven Wallander, and Carl-Axel Acking was responsible for the interior design.*



31

31, *Amelia Earhardt Hotel, Weisbaden. Architects: Professor Herbert Rimpl, and Horst Niessen. The eight-storey building has 400 rooms with each room capable of being used as a single or double room. All the suites have their own sitting room, kitchenette and bathroom and balcony.*



32

32, *Hotel International, Basle. Architect: Marcus Diener. The block also includes a parking garage, which—as indicated in Michael Brawne's article in the August AR—is rapidly becoming an essential hotel provision.*



33

33, *Extension to the Washington Hotel, London. Architects: Katz and Vaughan. It provides 53 additional bedrooms (all with bathrooms), lettable space at ground level, a revised hotel entrance, and penthouse suites on the roof. The reinforced concrete frame is faced with glass mosaic and windows which stretch from wall to wall in the bedrooms.*

34, *The Keirby Hotel, Burnley. Architect: M. Hubbard Ford. Completed this summer, this hotel has 46 rooms (38 single and eight double) and will cater for business men and tourists travelling to the North. The eight-storey building is brick faced and includes a ballroom, and public bars (in foreground).*

In any survey of recent hotel building in Britain mention should be made of the Leofric Hotel, Coventry, completed in 1955 with approximately 100 rooms and considerable public spaces. Its siting does not permit a satisfactory external view and that is the only reason it is not shown here for it remains one of the few worthy examples of a new hotel that have been built in Britain since the war.



34

HOTELS functions and organization

A hotel is an amalgam of industrial and domestic architecture, and it is in the serving of the one in terms of the other that success or failure lies. Contrasting functions and scales must be given a comprehensible organization.

The public notice the quality of staff service, the food and the accommodation provided—in that order. The architect can provide the facilities wherein the first two can happen: he has far greater influence over the third.

In terms of accommodation the guest will remember the bed first. After this will come miscellaneous things—mainly ones which display some thoughtfulness on the part of the hotelier (or the architect)—drying rails for nylons, a convenient dressing table, and good bedside lighting. Further, the guest will notice if there is *not* good sound insulation, good central heating, and really hot water.

For the fact is that while the average guest will happily spend the day visiting thatched cottages and second best beds, exploring olde curiosity shops, and being cheated on the fair ground, he will not be amused by 'quaintness' in the hotel. While guests may be willing to enjoy a small amount of stage setting in the interiors (a matter discussed later) they will brook no interference with the fundamentals of food, light, heat and noise—and why should they?

The fact that the user of his building is more concerned with the temperature of his soup and the resilience of his

bed springs than with the quality of the architecture should not depress the hotel architect any more than it may do in respect of any other building. His job is to create a building which may operate efficiently and economically for the hotel owner, which will satisfy the public who use it.

Hotel Building

There is a danger when considering any building type in isolation in suggesting that it has radical differences from all others. In more ways than not, hotel building is similar in construction to a block of offices or flats. The method of design will follow the pattern of brief, planning and adjustment common to any architectural problem. However, there are certain aspects of hotel design arising from the nature of the requirements which should be mentioned.

Hotels and offices, similar in many ways, differ principally in two particulars. Office floors will be designed with clear floor space which can be subdivided by moveable partitions as required by the eventual occupier. In the case of hotels, a large number of separate small rooms will be required as bedrooms from the outset, and adaptability is seldom a requirement. The number of bedrooms will have been an essential factor in the assessment of the hotel's success before building was ever started. This gives the hotel block a cellular formation which may well guide the structural form adopted—a matter discussed later.

Further, hotels differ from offices and all other buildings in the sheer amount of plumbing and services required to a large number of individual outlets. In this their nearest equivalent are hospitals. It is these large arteries of plumbing which will form the major problem to the architect—and the way in which they will disgorge from the bedroom block through the lower public rooms.

Hotels have unique 'traffic' problems. Fifty people may arrive by airport bus at the entrance at the same time. There must be facilities for their registration, and for getting to their rooms: also off-loading their baggage, handling it at the entrance, and moving it to their rooms must be worked into a confined but publicly exposed area. Again there must be separation of lifts and facilities for staff and guests.

These differences between hotels and offices make it impracticable to design a hotel which could easily be converted into office space should the hotel fail. The possibility of later conversion is often considered by building owners when assessing the risks that will face their hotelier-lessee. But the transition is costly in wasted plumbing, and the hotel cannot be designed in any other way.

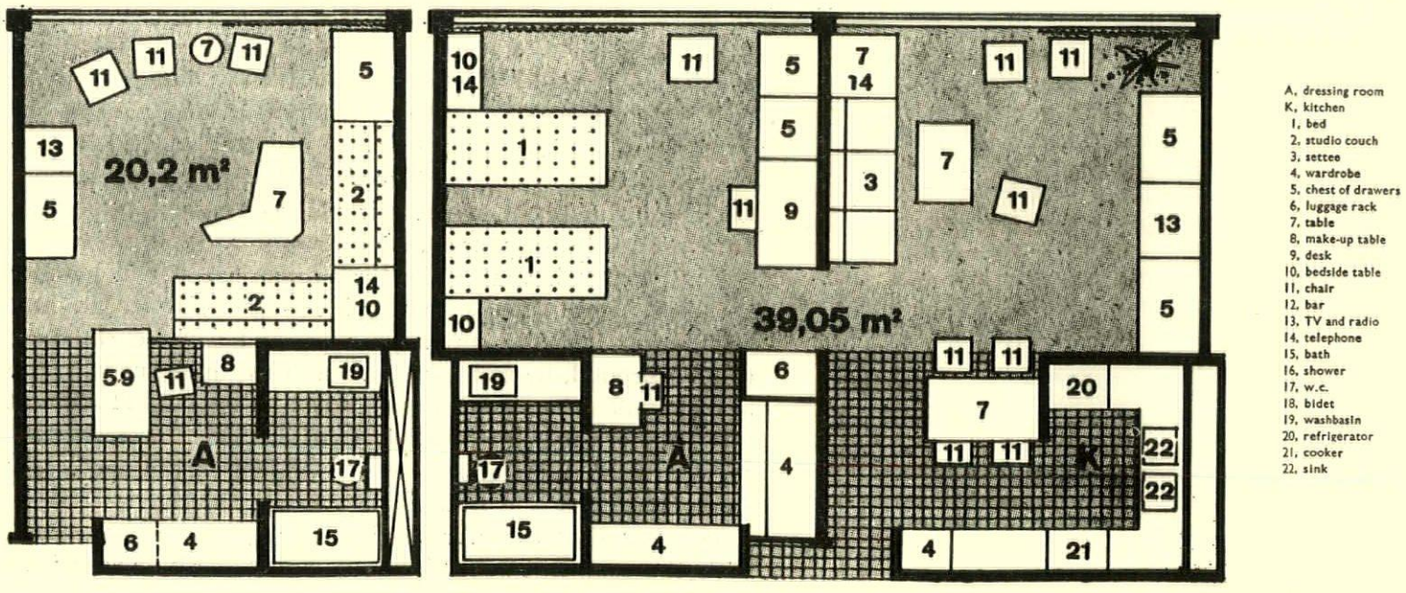
Siting

The siting of a hotel is conditioned by many factors. The choice will be a compromise between what land is available, the cost of land, the 'character' of the neighbourhood, the chance of the hotel fronting on to a well-known street, the view, the proximity of airport and other transport, the scope for the inclusion of shops, the chances of attracting conventions and passing trade, traffic congestion and town planning regulations.

In weighing these factors it is economic rather than architectural considerations which will decide. For example, even if the cost of sites on Piccadilly and Earls Court were roughly comparable, it would be possible to charge at least twice the amount for bedrooms in the Piccadilly hotel. Again, there is a very considerable advantage in a hotel being located on a well-known street. (Thus the Westbury, London, with entrance and 175 ft. frontage on to Conduit Street, and 65 ft. elevation to Bond Street, gives its address as Bond Street.)

For a hotel built on an open site, considerations of aspect, prevailing wind, direction of main approach and staff entrances will predominate, but in the case of a hotel built

1, *bedroom suite, left, and luxury suite, right, to current US standards—both from the Beverly Hilton and designed to fit into the same module, not only of structure, but also of bathroom and service duct. In the luxury version the second bathroom/service module becomes a kitchen/dining unit.*



A, dressing room
K, kitchen
1, bed
2, studio couch
3, settee
4, wardrobe
5, chest of drawers
6, luggage rack
7, table
8, make-up table
9, desk
10, bedside table
11, chair
12, bar
13, TV and radio
14, telephone
15, bath
16, shower
17, w.c.
18, bidet
19, washbasin
20, refrigerator
21, cooker
22, sink

within the existing town, the architect will have to accept the site as he finds it. He must ensure that there is drive-in space to take cars and taxis clear of the main road, and room at the rear for deliveries. The bedrooms should be placed to get the best view, and for this reason it seems the greatest pity that the proposed Park Lane Hilton on Park Lane, London, designed with bedrooms in a Y-shaped tower, has only the windowless foot of the Y facing the park. There will always be an advantage to a hotel being centrally placed within walking distance of the town centre, but the fact that guests arrive by car or taxi, from airport or station, allows greater freedom of location, and has broken the tyranny of hotels having to be near railway termini.

Block Planning

The accommodation required by a hotel splits into two main parts—bedrooms and public areas.

The bedrooms must be placed, particularly in a town, well above ground level, probably not lower than 3rd floor, to avoid disturbance from noise. The nature of the services and the cellular quality of the accommodation clearly suggests that the bedrooms be carried up in vertical blocks. In contrast the public rooms (lobbies, bars, dining rooms and so on) requiring access from ground level will form themselves into a horizontal block. A complication will arise over the interruption of the public rooms by the structural framework supporting the vertical block above and so the larger public rooms, which need clear spans, should be taken clear of the vertical block. The area under the vertical block can be utilized for lift lobbies and small rooms. The height of the bedroom tower block may be affected by considerations of national (or local) prestige, or by a desire to gain maximum cross ventilation. There may also be an advantage in designing the upper bedroom floors so that they can be completely shut off when the hotel is relatively empty (as at The Dover Stage). The way in which these broad principles are interpreted will depend upon the accommodation required and the nature of the site.

Local conditions may also require additional accommodation to that mentioned above. For example, both in Africa and the Caribbean, hotels may require groups of separate chalets in which families can live. In developing areas these chalets serve as temporary accommodation for the European or American employee for whom there is no permanent house available. The chalet will be serviced by the hotel where meals will be taken.

Structure

This survey cannot hope to deal fully with the various structural problems involved in hotel design which in any case differ little from those of an office block or flats. However, certain particular points should be mentioned.

The width of each unit of the structural module adopted for the bedroom block will depend on the sum of duct + bathroom + entrance lobby + possibly cupboard. Across the section of the block the structural columns may fall in the outer wall-line, or be set back within, on the line of the bathroom or corridor. This in turn will be affected by whether the block has a central corridor with bedrooms on both sides or rooms to one side only.

The sum of duct + bathroom + lobby will usually work out at about 11 ft. 6 in., which gives a column spacing of 23 ft., assuming two rooms per bay. This might appear to restrict the provision of variety of room size, but in fact many hotels want to have up to 80 per cent of their rooms as small double studio type rooms. At the ends of bedroom wings rooms can be taken across the end and formed into bedroom and sitting room suites.

As an alternative to the normal beam and column grid, the cellular nature of the bedrooms blocks suggests a reinforced concrete structure with load-bearing cross-walls; where this has been adopted, it results in considerable saving and neat planning.

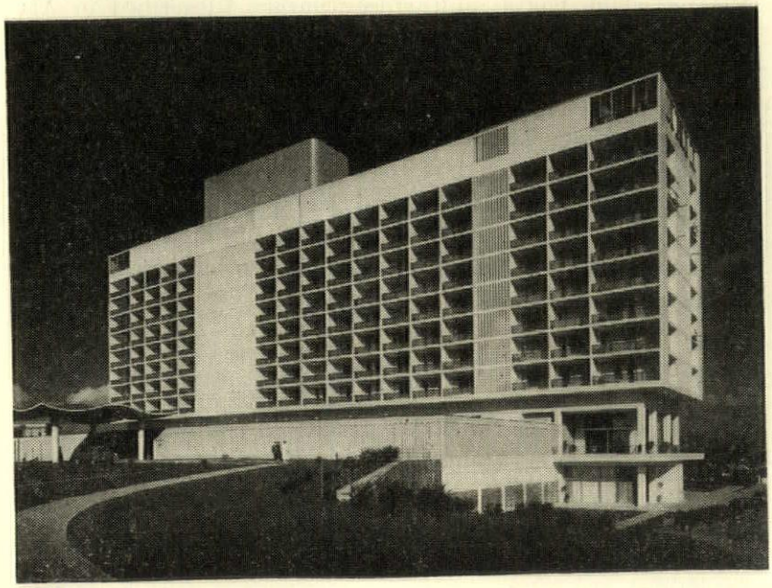
Allocation of Space

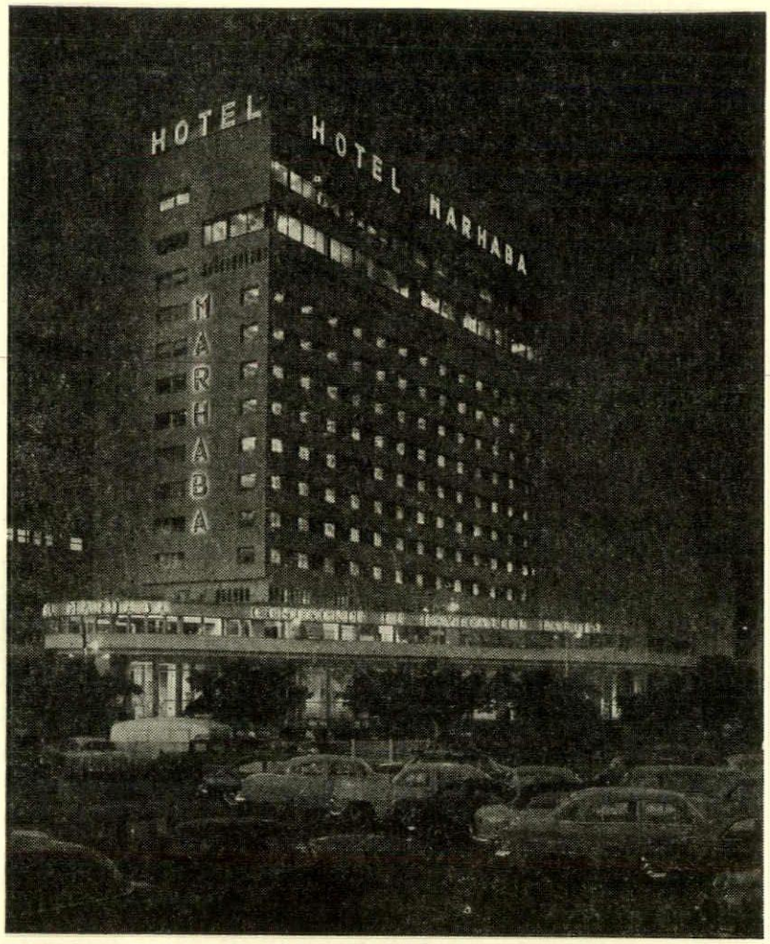
The disposition of floor space has to be considered in relation to the earning capacity of respective areas.

One of the chief differences between the planning of a Victorian and a modern hotel is in the present reduction of space (and grandeur) given to the public areas. Unless the space can be put to some financial advantage—such as the sale of drinks—the hotelier sees it as wasted. To this is coupled the increasing preference by the public for using their own rooms rather than public sitting and writing rooms.

There are considerable advantages—particularly on town sites—in the lower floors being designed as lettable shop space. Remembering that hotel rooms are nearly all booked in advance, there is now little need for a grand entrance. Even so there is an attraction in a brightly lit concourse with shops, coffee bars and advertisements, and a hotel such as the Nile Hilton, Cairo, which is set some five miles outside the town, has a large part of the ground floor set aside for

2, the Istanbul Hilton remains a post-war classic because it exemplifies practically every leading feature of the modern hotel-type. Here, the contrast between domestic and public scale, the cellular and the spectacular, is brought out by the contrast between the regular grid of the façade and the gold-mosaic roof-top structure.





3, the congestion and confusion that can be precipitated by a hotel inadequately provided with car-parking accommodation, particularly at hours of maximum social activity, are demonstrated in this evening view of the Marhaba, Algiers.

shops surrounding the hotel entrance, leading to the reception lobby at first floor level.

The demand for facilities serving conventions—a requirement which will certainly increase here—requires a considerable amount of space on the lower floors. An indication of this trend is the inclusion in the Park Lane Hilton of a ballroom to hold 1,200 people. These public rooms may be reached via the hotel lobby or, where it can be arranged, by separate entrances.

The relation of public to bedroom areas differs with each hotel. But bearing in mind that the bedrooms are the most profitable aspect of hotel business, the aim will be to increase the proportion given to them. In the past public areas might well account for 60-65 per cent of the total floor area—the aim will be now to equalize or reverse this.

Bedroom Planning

The planning of bedroom wings will stem from two factors in addition to structural considerations. Firstly, whether the bedrooms shall be placed to both or to one side only of a common corridor, the chief advantage of the latter being that it allows for cross ventilation. Secondly, the number of bedrooms that can be serviced by one maid. It is generally accepted that one maid can deal with 16 to 17 bedrooms, and there is an obvious advantage in units of this quantity being easily separated. (This factor is known in America as a 'maid-module').

The provision of bathrooms is accepted as obligatory for any new hotel aiming at even a fair standard of quality. Travel agents say that they have increasing difficulty in letting rooms without bathrooms. The detailed design of bedrooms allows for the current change in use. Increasingly bedrooms are being used by guests as sitting rooms and by business men as offices. This does not necessarily mean larger rooms, but that the selection and arrangement of furniture must be made with this in mind. The bed should be arranged for easy conversion into a settee and ample writing space provided. The effective size of the bedroom is largely governed by the layout of the furniture, which should be done to allow the maximum clear floor space. The basic dimension of the bedrooms will be affected by many factors, but the normally accepted minimum sizes (exclusive of bathrooms and lobby) are 90-100 sq. ft. for a single room, 130-150 sq. ft. for a double room, and 160-180 sq. ft. for a twin-bedded room. A ceiling height of 8 ft. is found to be too low and of 9 ft. found to make the room look too small. A composite height of 8 ft. 4 in. is normal with a floor to floor height of 9 ft. 6 in. For luxury hotels these figures are low and would normally rise to 9 ft. minimum ceiling height. Normal corridor width is 6 ft. Bathrooms have been designed as small as 27 sq. ft. (with bath recess extra) but 35 sq. ft. is more usual.

Garages

The provision of garage space for use by hotel guests is an essential requirement. It proves to be a considerable item in the design of a new hotel. An indication of the amount of space needed is given by the London County Council requirements that there shall be garage room for 1 car per 5 rooms, with additional space in relation to the amount of accommodation included within the hotel for public functions. In town hotels where the basement space is already sorely needed for services, stores and staff rooms, the inclusion of garage space is a highly priced and sizeable requirement. An interesting example of getting round this difficulty is the co-operative effort between a hotel in the Neuer Markt in Vienna which has a multi-storey garage (described in AR, September, 1960, p. 167) next door. The garage serves both residents and public and there is a communicating door to the hotel. Direct communication is important in any hotel garage planning. At the Terrace Plaza, Cincinnati the hotel is placed at 6th floor level over shops below. The original intention was that the 6th and 7th floors should be given over to garage space, but this was abandoned and garage room found a short way from the hotel, which is said to be a serious disadvantage to the hotel.

Roof use

The use of the roof for dining rooms and observation areas in high hotels offers tremendous possibilities to the architect and can serve as an exciting feature anywhere. The possibility has been exploited in a number of hotels, but there are many difficulties to be overcome. The restaurant will

require adequate public, staff and goods lifts taken to the roof level. There must also be sufficient escape stairs and these will considerably increase the staircase area that would otherwise be serving top floor bedrooms.

However it is clear that every effort should be made to see if these difficulties cannot be overcome. A high hotel block, whether in the town or country, may well command views which will provide a superb setting for a restaurant.

Staff

An item which cannot be forgotten is the accommodation for staff. While this may be included within the main building—and usually was in an old hotel—it is normal now to provide this separately. Good staff relations are essential, and no manager can afford to ignore any way of achieving it. In addition to sleeping accommodation there must be staff dining rooms, rest rooms and locker rooms.

A luxury hotel, such as the Imperial at Torquay, which can hold 200 guests, has a staff of about 180 of whom about half sleep in. These figures are modest compared with an old-style luxury hotel where there might be twice as many staff as guests. A normal figure, and one to which the operator of a new hotel will try to work, is 0.6 to 0.8 staff per guest.

The hotelier will in any case be anxious to reduce the number of staff to the minimum and the design of the hotel should allow for this. Whereas a waiter might be paid £1 per week before the war (plus tips), he will now get a minimum wage of over £6.

Plot Ratio

The factor which may well determine the ultimate size of any hotel being built in London (and this applies elsewhere though with different figures), is the plot ratio.

The legislation aims at maintaining a balance between the size of the hotel (and consequently the congestion that it will cause in surrounding streets) and the area of the site. Thus the official plot ratio for London is 2—but permission is always given in excess of this as the LCC wish to encourage hotels and realize that a hotel has to be a fair size to be profitable—a new hotel, Carlton Towers, is now being built in London with an agreed plot ratio of 5.7.

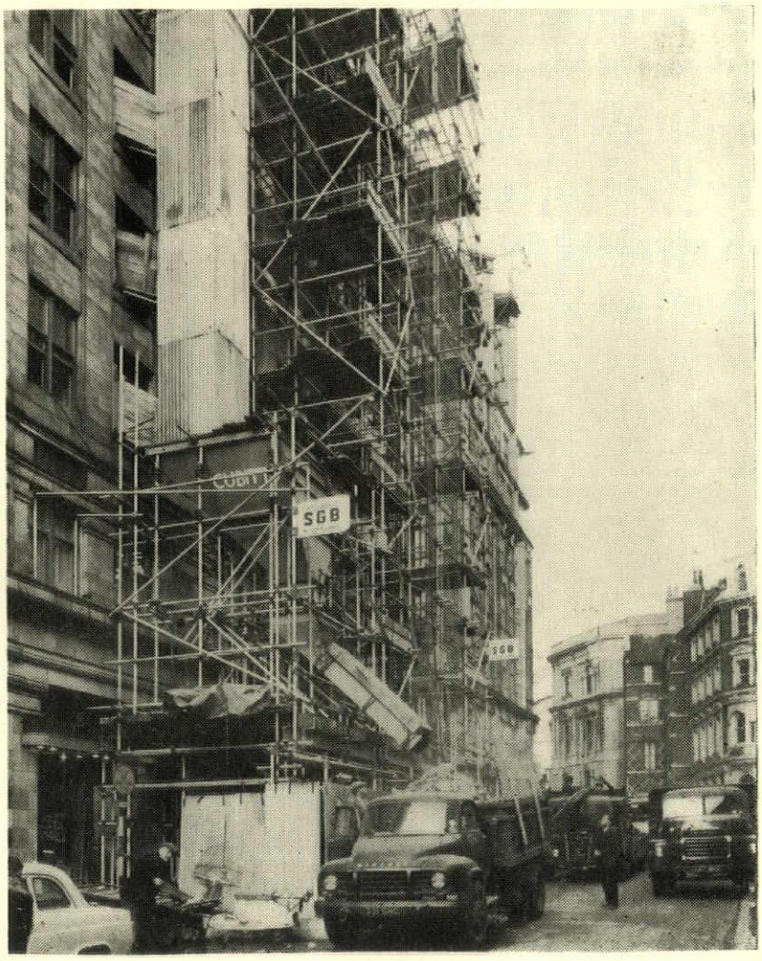
When Clore-Hilton submitted the first design for the proposed Park Lane Hilton they applied for a plot ratio of 8. This was not allowed and the design has since been amended. It is doubtful whether this plot ratio yardstick is the best method. Clearly there must be control—but the influence of this system on hotel planning is to force the architect to design very small bedrooms in an effort to squeeze as many as possible into the space available. It appears more logical to suggest that the ratio should be related to the number of people who will in fact be using the hotel (i.e., the number of beds) which then has a direct bearing on the amount of congestion that will be caused.

Costs

General considerations of hotel finance and operation were discussed earlier and, while a full analysis of this subject is not possible here, some further figures should be given to provide focusing points in a subject where the large sums involved can easily dazzle.

One way of trying to calculate the cost of a hotel is on a cost per bedrooms basis. This is a rough and arbitrary method when the real cost of a hotel depends to such a large extent on quality and location. In the case of the Westbury, London, the addition of 18 new bedrooms to this luxury hotel, now in hand, will cost £200,000, which includes £18,000 for furnishing. The Dover Stage, with 50 rooms, cost £65,000. The newly completed Keirby Hotel, Burnley, with 46 bedrooms, cost a bit over £275,000. Ind Coope and Allsopp recently considered a new hotel proposed for a new town. It would have contained 33 bedrooms and cost £180,000, and it was decided that this was 'utter nonsense' economically. It may be possible, say, for a 100 bedroom hotel to be built for £2,500 per bedroom (excluding furnishings, but including all public rooms) but this would be a considerable achievement, and £3,000 per bedroom is a far more likely minimum with furnishing added, and this could easily go up to £5,000 in a high-class hotel.

4, *the annual British expenditure on new hotels is minute when compared to the £60m. spent on repairs and conversions. Alteration work has often to be done under conditions whose difficulties cause disproportionate increases in costs. Below is the external scaffolding and rubble chute required to convert* 111 *bedrooms to bed/bath units in* 96 *days at the Strand Palace, London.*



It will be seen that the cost-per-bedroom basis can be more misleading than helpful. A hotel is a complex of accommodation (shops, ballroom, garage, etc.) each compartment of which can radically affect the overall cost. The root cost in hotel construction is plumbing, bathroom fittings and room services. In fact up to half the cost of a hotel can be accounted for in this way. Economy in overall cost will come from direct and careful design of plumbing runs and ducting.

In assessing hotel costs care must be taken to allow a realistic sum for the finishes and furnishing. The Leofric spent £300,000 on these items alone, and in American practice up to 75 per cent of these costs can go on the public rooms. But it must be stressed again that, to the hotel operator, a hotel project involves far more than pure building, and his assessment of the economic feasibility of the scheme must encompass the project as a whole. By way of example of the complexity of hotel finance (and the subtlety) it may be noted that the Leofric occupies 80 per cent of the cube of its property, the remainder being let as shops. But the Leofric only pays 20 per cent of the rent of the building. So work the mirrors of the showman's booth.

Conversions

The number of new hotels which will be built over the next few years is small in comparison with the publicity which they will get. But continuously there is the relatively unnoticed work of conversion, adaptation, and improvement being carried out to existing hotels. The problems involved differ radically in every case, ranging from the Londoner, which was virtually gutted and rebuilt inside, and the Strand Palace, where recently over 100 bedrooms were converted to include private bathrooms to all, to the small country inn which quietly improves itself as conditions permit.

HOTELS interior design

A modern hotel may sleep 1,000, *be capable of holding* 10,000, *and have a laundry capable of serving a town of* 25,000 *inhabitants. It will have the circulation problems of a major terminus, the housing problems of a dormitory suburb. The interiors wherein this huge industry operates can be superb, are often banal, sometimes ridiculous, and may be remembered only for a wardrobe door that won't close properly, or a pretty chambermaid.*

It is as well to start candidly by stating that British architects on the whole have contracted right out of interior design. They will explain that a building is an entity within which all parts relate, and that therefore as captains of the building team they should design everything. Given the right man this is abundantly true—but he is mighty hard to find. Due to a variety of factors—post-war drag, fear of appearing non-*brut*, pressure of getting the building to stand up at all, and personal preference for cool texture-to-texture interiors—architects today are given to scorning the very idea of decoration, embellishment and stage setting for an occasion. The very word 'decoration' is said with a twisted lip and the mention of interior decorators treated with derision (though RCA-sponsored interior *designers* may be viewed differently).

Thus while many architects may lack the skill to create successful interiors, they are even further handicapped by a mental antipathy to dealing with interior problems in the way that they require and deserve. This means that interiors, of hotels in this case, are all too seldom executed by the architects, and the vacuum is filled by other designers of all kinds.

Interiors

What is required of a hotel interior, and what should it be like? As has already been discussed in the earlier pages, a hotel splits naturally into two distinct types of accommodation—the public areas and the bedrooms.

In the public areas the design must accept that the building is a hotel. It must avoid introducing into the entrance lobby, for example, a scale of furnishings appropriate to a domestic front hall. The entrance areas must have the scale, the significance, and the *presence* which they require. The guest expects something larger than his own home; if he meets his friends there he wants to impress them with the hotel he chooses—but equally he does not want a vaulted temple where he will feel adrift and compelled to seek the sanctuary of his room.

Dining rooms must be designed in keeping with the type of service which they provide. If the menu is long the seats should be deep: the couple dining out want a stage setting for the occasion and planned seclusion. In a ballroom, even more so, there must be a 'sense of occasion.' Clearly this can be done in a modern idiom without resorting to period trappings, but it calls for an interest on the part of the architect in the *feeling* of the interior—of space as seen primarily from a position of rest, not movement—and a concern with small scale detail and enrichment. There should be variety, within the overall pattern, to the various public areas. Lobbies and corridors require a simpler, more direct, treatment than dining rooms and sitting areas where greater visual interest is reasonable.

Bedrooms need a clear, crisp, simple treatment where the guest can be himself. The character of the room should come from the sane choice of furniture and fabrics appropriate to a hotel bedroom, and colours which aim to please and not merely to be inoffensive. The case of luxury suites is different, and anyone who stays, for example at the Mayfair, London, in the Maharajah Suite (50 guineas a day) may want his money's worth of onyx and brocade.

Failings

The most common failings of the interiors of public areas are half-hearted attempts at grandeur which do not relate to the hotel as a whole, and are blatantly applied rather than arising out of the space concerned. There arises a mix-up between pomposity and domesticity which only a rigid respect for the scale of all items within the area will avoid. It is worth noting how little standard furniture there is available of a *scale* suitable for use in public areas. Within the bedrooms the most common mistakes are inadequate furniture, fittings unsuitable for continual use, decoration of an assertive and self-conscious kind with bits of morbid 'art' tacked on.

How It Gets Done

The chance of success in the interiors largely depends on the way in which the design is conceived and who is then responsible for putting the work into effect.

In the case of small hotels, decisions on the decoration and furnishing, which may well be done piece-meal as money permits, will probably be made by the manager himself (usually abetted by his wife; the deference of the British male to the woman's supposed superior knowledge of taste is a fact which cannot, unfortunately, be examined here). Working on a tight budget can have the advantage of leading to simplicity and the selection of robust furniture. On the other hand it can result in a galaxy of wall-papers and colours in an effort to avoid any appearance of cheeseparing. A recent survey showed that in the case of carpets the British public buy more patterned carpets than plain simply because they feel that they are getting more for their money, and not because they will not show marks.

A method frequently employed in major conversions is to give the whole job to a firm of furnishing contractors. The contractor will submit the designs, samples and quotations, and then carry out the work. This can prove completely satisfactory when one of the few firms is employed, which has its own studio of trained designers. But more normally it leads to a complete poverty of ideas, with the designers possibly never seeing the hotel, and getting their instructions from a go-getting sales manager who has strong views of his own. The designer's function of assessing the problem from scratch is reduced to drawing up the selected style.

While some groups of hotels will wish to give freedom to their individual managers, others will have staff architects by whom all alterations and redecorations will be done. Trust Houses and the brewer-owners have their own architects with considerable experience in this type of work. By centralizing their design they can build up an experienced team.

In other cases free-lance qualified designers have been called in for special work. At the Caledonian Hotel, Edinburgh, the Nicholson Brothers were responsible for the redesigning of the dining room and lounge, and at Grosvenor House, London, R. D. Russell designed bedrooms and a cocktail bar. These designers, who are highly qualified in intricate interior design work, have provided interiors of considerable charm and quality. Mention should be made here of the upper-crust decorators—used where luxury suites require a certain touch. Oliver Messel worked on the penthouse suite at the Dorchester, London, and Norman Hartnell, the Queen's dressmaker, has created a suite at the Westbury, London. These are complete stage sets carried out with varying skill: the former with considerable creative, if misapplied, wit: the latter with the triviality of decorators' glossies.

Coming to the problems of the interior design of new hotels, the attitude of the Hilton group is clearly seen in the hotels already built and projected. Hilton is concerned that his hotels shall reflect the character of their locality on the grounds that 'people travel to see places' not Hilton hotels. For this reason, his overseas hotels aim at employing both local architects and local designers and craftsmen of all kinds. The descriptions of his hotels glow with tales of long-lost crafts which have been revived, and the pleasure of the tourists who find their Hilton ticket leads to strange (though air-conditioned) lands.

The Hilton aim is right. A hotel must be part of its surroundings. But the approach plays for high stakes, and some of the examples show the pitfalls. What is clearly wanted is that the best local designers should design as best they can within

their own medium. This may not lead to reviving traditional crafts—may not produce hieroglyphic patterns in Cairo or columns in Greece—but it might lead to some really fresh designing. Even so it is preferable that the interiors of these hotels spread throughout the world—most of which are excellently conceived throughout—should sometimes savour of Gilbert and Sullivan rather than be prefabricated Pittsburg models.

Real co-ordination of all the designers involved in the building of a new hotel is rare. It worked at the Leofric, Coventry, but the complex financial background to hotels usually leads to a division of responsibility, with the architect working for the ground landlord and the hotelier-lessee employing separate interior designers. This accounted largely for the tragedy of London's first post-war hotel, the Westbury, where the ground landlord (Pearl Assurance) employed the architect Michael Rosenauer, and the lessees (Knott Hotels) sorted out the interiors themselves. At the Carlton Towers Hotel, again with Rosenauer as architect, acting for the ground landlords, the lessees (Hotel Corporation of America) are employing their own Miami-based interior decorator, Henry End. Such a policy leads to considerable duplication and a building which is 'done up' inside in a way that may be quite alien to the structure itself.

The hotelier, on his side, must realize that the architect needs a manageable client with whom to deal, rather than a numberless committee. The besetting trouble with interior design is that everyone thinks that he knows something about it. An example of the lengths to which committee work can go is the Queen Elizabeth Hotel, Montreal, who were clearly concerned to tap every possible authority. Their own description reads:

DECORATION ADVISORY COMMITTEE

Joseph Huston, New York consultant in interior decoration, was responsible for the decoration of the Queen Elizabeth Hotel, while carrying out the details of decoration and furnishings was the Montreal firm of Lamartine and Beaulac.

In the interests of maintaining an atmosphere essentially Canadian, with special emphasis on a decor distinctive of Montreal and the Province of Quebec, a committee of qualified citizens was appointed to act in an advisory capacity to the architects and designers.

Appointed by Donald Gordon, Canadian National Railways president, they were: Wilfrid Gagnon, CBE, a member of CNR board of directors, as chairman; Mrs. Georges P. Vanier, wife of the former Canadian Ambassador to France; Dr. Jean-Marie Gauvreau, founder and director of L'Ecole du Meuble, the provincial school of applied arts in Montreal; Dr. Paul Gouin, LL.D, technical adviser on art to the Executive Council of the Province of Quebec and President of Le Conseil de Vie Française; A. L. Sauviat, assistant director of public relations for the CNR who is widely known in the field of industrial art, and Robert Ayre, also a member of the public relations department, art critic and editor of the magazine, *Canadian Art*.

At the opposite extreme, and one where the architect commands an abnormal respect, is the Beverly Hilton, whose design operation is described as follows:

The Beverly Hilton is a prime example of the architectural system of 'total design,' the technique integrating every factor in a building scheme from the shape of its structural steel to the weave of the carpeting. The technique is exceedingly complex and taxing, requiring long and extensive research and the full range of architectural knowledge, skills and talents. At one time or another, every one of the 320 employees of Welton Becket and Associates, Architects and Engineers, who occupy most of a five-storey Wilshire Boulevard building several miles east of the Beverly Hilton, has been actively engaged in fashioning its design. Finally, to subject the design to the ultimate test of livability, test rooms were built and occupied by members of the Hilton and Becket staffs. Important refinements resulted.

The Beverly Hilton's often-remarked-on air of graceful unity is directly traceable to this system of total design—the co-ordination of all architectural elements—on which Becket is a leading exponent.

These examples show the wide variety in which interior design work to hotels, big and small, new and alteration, may be carried out. Becket's 'total design,' even allowing for the language, is obviously ideal. It does not follow that good work will result, but it gives it every chance.

Inns

Mention must be made of the heritage which we have of country inns. Gradually these will have to be modernized or abandoned. The example of Trust Houses here is generally excellent, showing that they have respected the character and quality of the old building and made no attempt to trick them up. Certainly, they have a 'Pickwick Room' at the Great White House, Ipswich—but they have not included electric candles, and the room with its four-poster bed has gaiety and charm.

Furniture and Fittings

There is very little standard furniture available in England which is suitable for use in hotel bedrooms. In both America and Canada there are writing and dressing tables, bedside tables combining wireless speaker and telephone, and other off-the-peg fittings which have been designed with hotels in mind. Their absence is a serious handicap to the small hotel which has to resort to standard domestic furniture, which is often too weak and too fussy for the purpose. In larger hotels, of course, the quantities involved usually allow for purpose-made fittings to be designed and ordered.

The design and construction of hotel furniture must be strong enough to resist abnormal heavy use, staining from alcohol and cigarette burns. Wherever possible, fittings should be built in, both for increased strength and to allow minimum obstruction to the room. Fittings should be fixed to the wall, rather than on legs, to permit easy cleaning.

Television sets are becoming common requirements in bedrooms. In some cases these can be built-in, with easy removal for maintenance, otherwise a socket outlet must be provided to which a portable set can be connected when hired. A suitable space must be allowed where the set can be placed.

The deciding consideration in choosing furniture and fittings should be that they will stand up to use by all sorts of people, who are not used to them—and may well treat them far more roughly than they would in their own home.

Maintenance

The running costs of a hotel are very considerable, and form a large factor in hotel economy. The architect must ensure that the finishes and furniture are designed and chosen with this in mind, and decisions made which will allow a reasonable life.

This reasonable life is not always an easy matter to assess. Take carpets as an example. In considering the interior design of the cabins for the new P and O liner, *Canberra*, it was decided that it would be better to have cheap rather than expensive carpets. In the past, best quality, hard wearing

carpets were chosen which lasted for a number of years, but it was found that whatever colour and pattern was selected, the carpet looked shabby after a short time due to things being spilt on it. Thus, there is often a case for buying cheap materials (carpets, curtains, etc.) which will then be replaced at short intervals.

The real test of an architect's design is not on the first day when the cloud-filtered photographs are taken—but after five or ten years. It is more important that his work still looks well then, than for it to have a transitory sparkle on opening day.

House Style

The hotel guest will probably remember small isolated things about the hotel, set within a general impression. In the creating of this general impression every facet of the hotel's visible appearance is important. The guest will react to whether the interiors have generally made him feel good, sense that it was a hotel worth staying at, with general areas that pleased him, dining room that satisfied him and bedrooms that made him cheerful and at home. The impression must go further than just the interior design of the rooms.

The character of the hotel must run through the notepaper, the signposting, the menu, porter's uniform, and sticky baggage labels. Many hotels have taken considerable trouble over this. The new Keirby Hotel, Burnley, has a complete range of stationery, leaflets and labels specially designed. Scandinavian hotels excel in the literature which they send out with booking notices. This type of public relations outside, and character-forming within, contributes a great deal to the guest's image of the hotel.



The principles of hotel interior design are exemplified on the next 26 pages by illustration and critical commentary. Since such design must be derived very directly from the physical and psychological functions of the different types of rooms, the argument is divided into six headings, each a basic room type, distributed as follows:

Public areas	*page* 271
Bedrooms	279
Bathrooms	286
Luxury suites	288
Dining rooms	290
Bars	294

interiors: public areas



1

The hotel entrance does not normally have to attract passing trade—most people will have booked in advance—but clearly it has still to be inviting and set the tone for the hotel as a whole. While this may not affect the resident, the public areas in most hotels also serve banquets and dances. Thus the degree of importance given to these areas is in relation to the type of hotel.

The entrance of the Hotel Foresta, Stockholm, 1, is set back within its own forecourt, allowing the frontage to be opened up (which would not be desirable if it was set direct on to the street). Lettering is by Lars Johanssen. There is a small amount of seating (plus TV) on the left, with reception



2

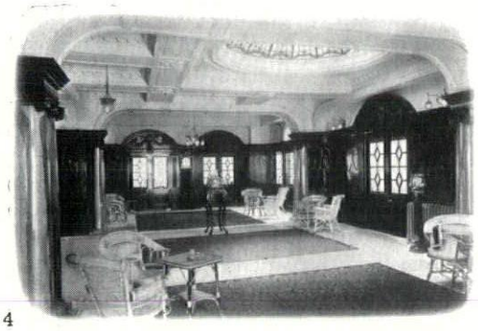
desk to the right, and marble cantilevered stairs leading to the bedrooms rising behind a screen, 2, of rectangular stainless steel bars. Fabrics by Astrid Stampe.

3



3, on a larger scale is the Istanbul Hilton. This entrance lobby, 25 feet wide with floor in travertine, has black marble reception desk on left with lifts and bar beyond : to the right windows look over an inner patio and pool with sitting area beyond, and at the far end over the Bosphorus.

public areas



4



5

The problem inherent in many old hotels and the possibilities of conversion are shown in the reception lobby of The Londoner, London, 4 and 5, seen before and after conversion. A suspended ceiling formed in acoustic tiles provides space for services. The doors to the banqueting room are revised to form a semi-transparent dividing screen. To the right, the old partition wall has been removed and a reception desk fitted. The floor has been resurfaced in black and white terrazzo tiles. Heating and ventilation grilles have been set into marble faced column casings.

The design of the reception desk itself will be largely conditioned by the size of the hotel. In most hotels the reception section and cashier will be side by side, with office space behind. There must be provision for keys, visitors' letters, guide books and information, and space to sign in.

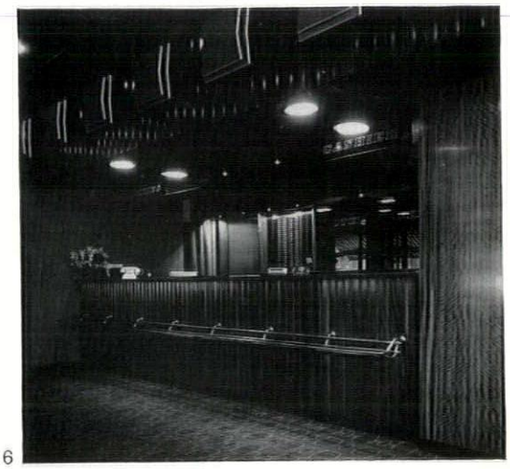
6, the desk at The Leofric, Coventry, is panelled in veneered walnut, with solid timbers in African walnut. The counter has a black hide top with bedroom plan inlaid in gold. The lettering, although unnecessarily large, is neat, and the room index file fits neatly at the rear. The luggage rack is a useful idea.

7, the hall porter's desk at the Albergo Europa, Verona. The counter is in walnut topped with black laminate, and the shaped panel in yellow laminate. The whole desk is set on a raised plinth.

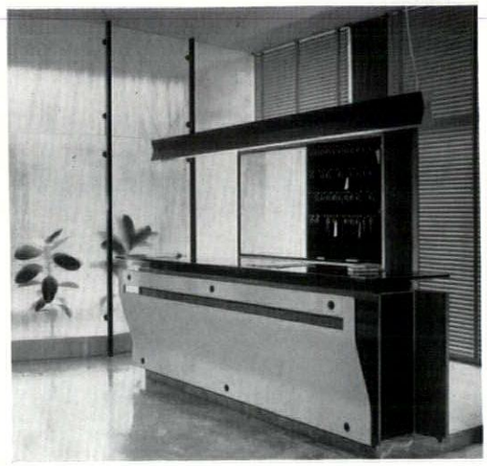
On a different scale is the 70 ft. by 54 ft. reception lobby to the Sheraton, Philadelphia, 8. Even allowing for its size (900 bedrooms) and a maxim—'a hotel is a machine for making money' there is no excuse for the banality of conception.

A typical small hotel, The Delta, Vlaardingen, Holland, 9, has its reception desk set at one end of the entrance lobby. The general effect of trim boarding, simple colours and furnishings is spoilt by clutter on the desk top. While this is something over which the designer will have no control, he must make it clear to the manager what a damaging effect these tit-bits can have. An example where careful attention to this sort of detail has worked is at The Green Park Hotel, London, 10. Neat lettering (illuminated from the back) and adequate cupboard space have been provided. The desk front is fitted with leathercloth panels.

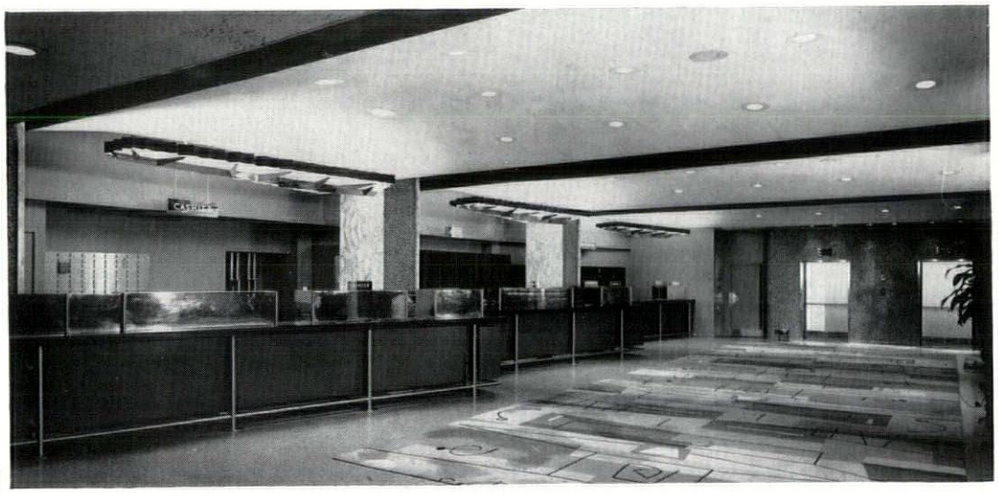
11, entrance stair, Hotel Nikko, Tokyo. From street level a staircase rises to the hotel entrance and descends to public restaurant and bar set behind a glass brick screen wall. Above, the stairs lead one directly to the reception desk and through to the waiting lobby seen through the windows.



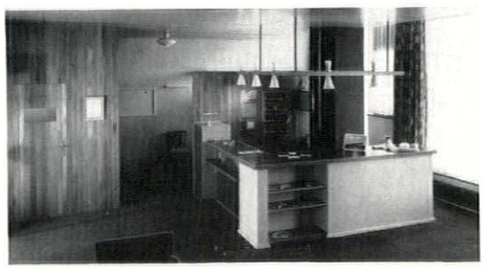
6



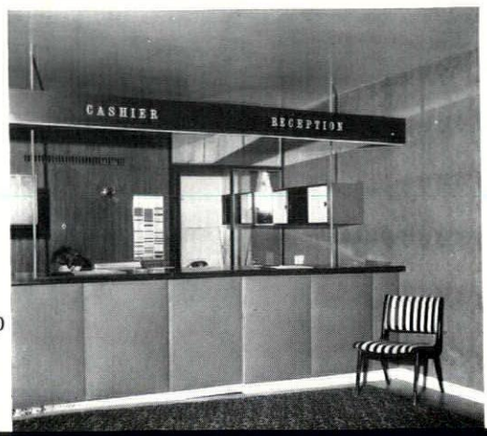
7



8



9



10



11



12



13



14



15

As with so much Japanese work, the design of the Osaka Grand Hotel, 12-14, is precise and carried through with considerable skill both in the general effect and in small details. Pillars are faced in walnut and marble. The seating area, 12, to the side of the main entrance way has special carpet of three colours. The ceiling is boarded in white lauan wood, clear lacquered. The side wall to the lobby, 14, leading to the grill room is faced in stone.

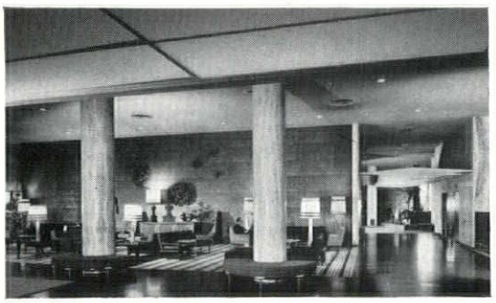
15, the lobby of the Berlin Hilton lacks the simple elegance of the Japanese examples. One reason is the hotelier's disease of filling every spare corner with furniture and plants.



16



17



18



19

public areas

General public space—beloved in the past as somewhere to see others and be seen—may become a roost for tired passers-by with no benefit to the hotel. While some general seating will be required, the hotelier will prefer it if he can hear the sound of money in the clatter of teacups or the chink of glasses. The planning of service areas adjacent to public areas is, therefore, essential. There is now less demand for writing/reading rooms because guests prefer to use their own rooms.

The lounge of the Hotel Kowaki-En, Hakone, Japan, 16, *is reached from the entrance hall on the left. At the far end is the way through to the dining room and the big windows on the right lead to a terrace.*

17, *in the Istanbul Hilton the lounge area leads off the main entrance lobby,* 3, *at the rear. The main block of the hotel rises on the columns above this area. As in most Hilton hotels, an attempt has been made to infuse local colour into the design and this has been done here by the use of rich colours—chairs in green, violet, yellow and white : green carpet : bronze colour ceiling and curtains, set against white polished artificial stone column casings, and white window soffites.*

The lounge area of the Beverly Hilton, California, 18, *is seen from the reception desk. Here is no niggardliness on the part of the client—black terrazzo floor : gold colour carpet : beige, black, brown and and gold hand woven carpets, walls and columns in travertine marble and hand-block printed paper. But the result lacks any of the direction that the problem requires. A pleasant seating area is not made by simply planting domestic scale furniture and American-scale light fittings into a large concourse. The shape of the area—and not just the furniture in it—is necessary to provide the correct background.*

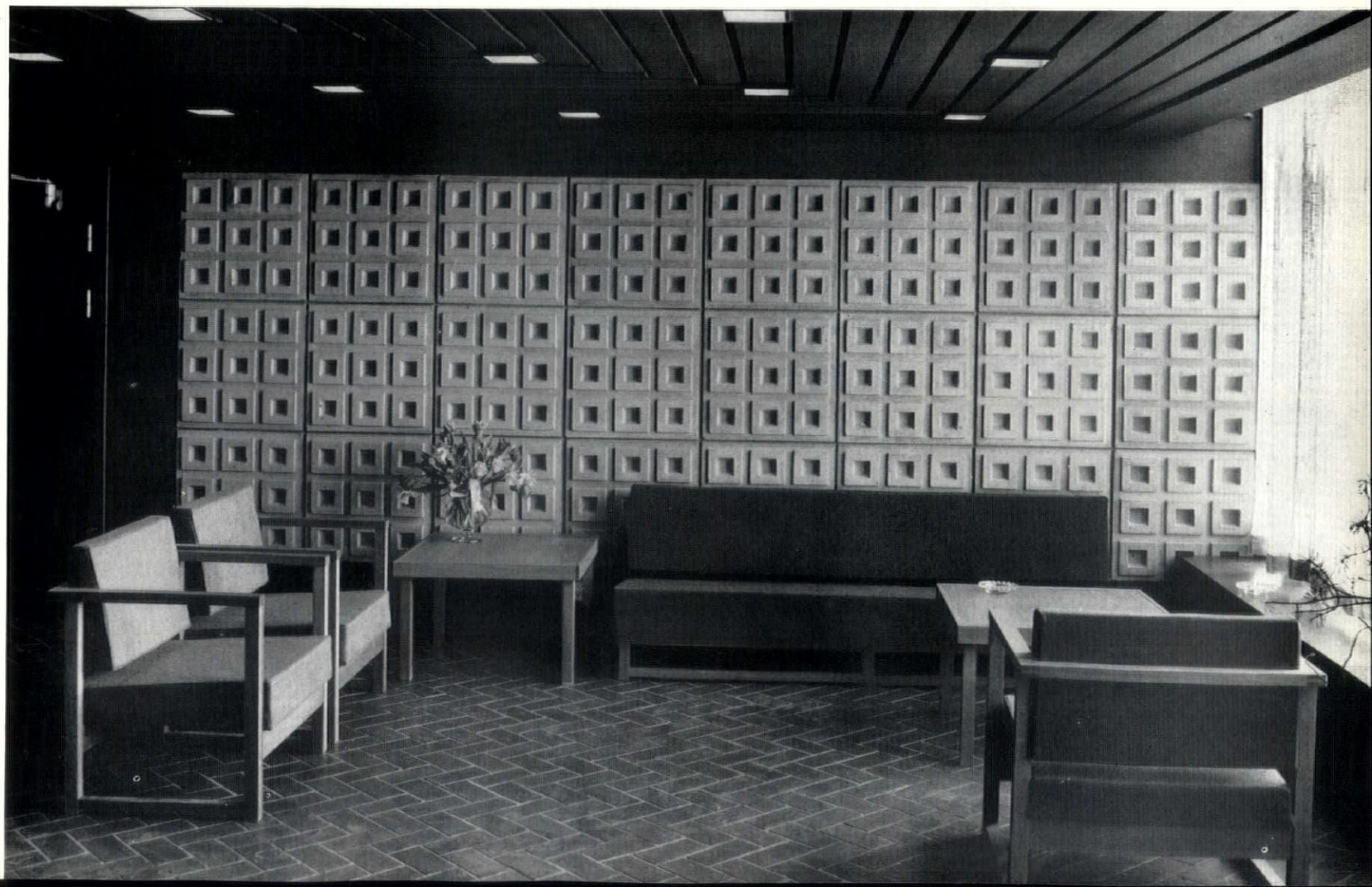
19, *the lobby of the Habana Hilton, currently re-named the Habana Libre by Fidel Castro. Walls in Cuban marble : mahogany handrail with plastic guardrail : columns faced in strips of rough cleft Cuban marble : ceilings in acoustic tiles, and dome of plastic bubbles set in concrete, plastered and painted yellow. This either forms a background to an inflated ego—or makes one feel very insignificant indeed.*

20, *the Laponia, Arvidsjaur, Lapland, opposite, top, has the simple and thoughtful quality of so much Swedish design. This room serves general purposes for meetings and club activities. Throughout the hotel two timbers have been used—oak for wearing surfaces, and pine elsewhere.*

21, *opposite bottom. In the same hotel, a sitting area near a bar. Simple furniture with brick floor, timber ceiling and embossed block wall treatment. A good example of the rich effect obtainable by the careful choice and contrast of materials, smooth and textured, natural and manufactured, and a small range of colours.*



20



21

public areas

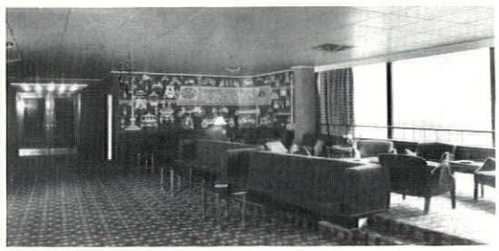


22

The general seating area of a moderate sized hotel: the Grand Hotel Pineta Palace, Lignano, Italy, 22.

23, *in the Leofric, Coventry, the furniture in the main lounge area is arranged to separate the various types of seating required. The triple settee unit in the front faces the stairs from the main entrance, and so is useful for people meeting others. Behind is an enclosed seating area where drinks can be served from the adjacent bar.*

24, *Borgafjall Hotel, Lapland, catering for sportsmen, mountaineers, fishermen and skiers. The hotel can hold 70-80 guests, and most stay for one to two weeks. This suggests a hotel with a club-like atmosphere, and this idea has been expressed in the choice of materials (principally timber and local slate stone) and the robust detailing. The lounge is in the form of a balcony set over the kitchens, and reached by stairs 'winding like a mountain road.' The dining room is at the lower level past the stairs. All timber has been left as sawn and stained with acid stains in three shades or gassed with ammonia.*



23

25, *the Hasso-Kan Hotel, Nagoya, Japan, is sited on a wooded slope. Maximum advantage has been taken of this beautiful site as seen looking over the terrace from the Chrysanthemum Suite. If the most is to be made of natural surroundings, nothing should be done to compete with it—flower boxes here would have ruined the transition from house to forest.*

While the dominance of the main staircase has declined, it is still an important feature when public rooms are placed on the first floor. Such a staircase will then be used, instead of the lifts, for those attending banquets and conventions.

Such is the case at the Nile Hilton, Cairo, 26, *where the main staircase leads from the entrance lobby (containing coffee house, shops, and reception desk, right) to the upper floor containing the major public function rooms, including the Jewel of the Nile dining room, located behind the wooden screen made of intricately patterned strips of dowel.*

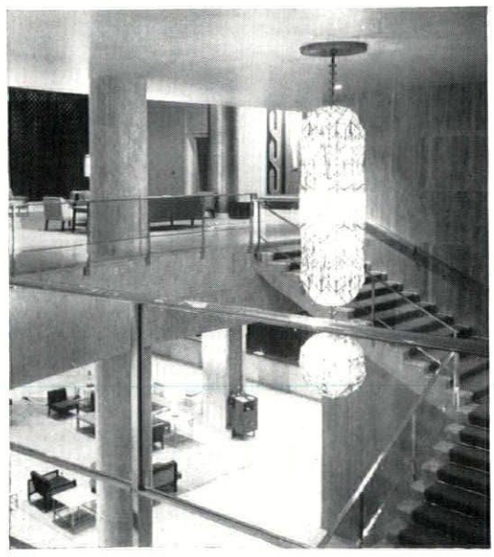
27, *the simple staircase, at the Grand Hotel Pineta Palace, Lignano, Italy.*



24



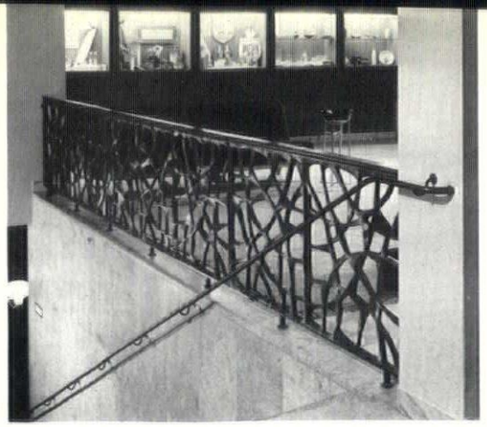
25



26



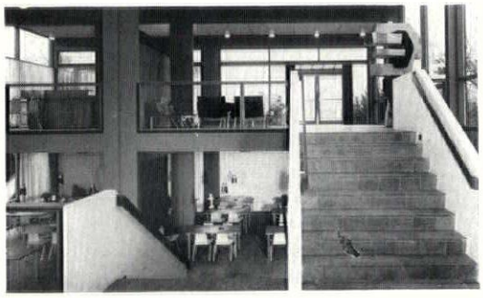
27



28

At the Hotel Malmen, Stockholm, 28, there is direct access from the underground railway to the hotel reception lobby by this elegant staircase, with special cast metal balustrade. The display cases at the back are let under concession. To many hotels this forms a useful small additional income —though this advantage is often off-set by the poor quality of the display. Here the display is clearly an added attraction.

29, 30: in 1955 a fifth of the Hotel Osterport, Copenhagen, was burned down and a new wing built containing a reception lobby.



29

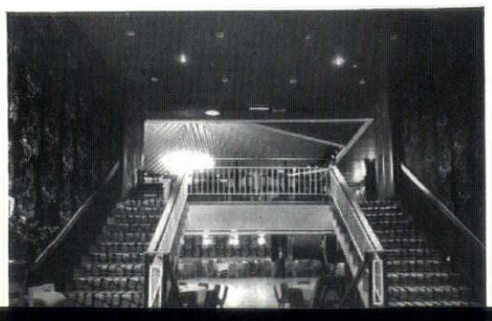


30

The main street entrance is at the upper level with a quick service bar to the left. The abstract sculpture is by Soren Georg Jensen. The reception desk, with bedroom access behind, is from the half landing. At the lower level is a 100-seat restaurant. To one side of the extension runs the railway track (not visible in the photograph) and the architects have provided large windows allowing this to become a changing background scene. This is not a luxury hotel, and simple robust materials have been used throughout, but they have been used with considerable skill.

At the Shelbourne, Dublin, 31, the architect has tried to give to the ballroom entrance and the ballroom itself a ' sense of occasion.' The ballroom has a tented ceiling in bold stripes, and tables can be placed on the balcony, which is tiered, for large dances. 32, a closer view of the main staircase of the Hotel Kowaki-En, Hakone, Japan, in the reception lounge already seen, 16. Due to a sloping site, the lounge is placed on the fifth floor with this staircase leading to bedrooms both above and below.

31





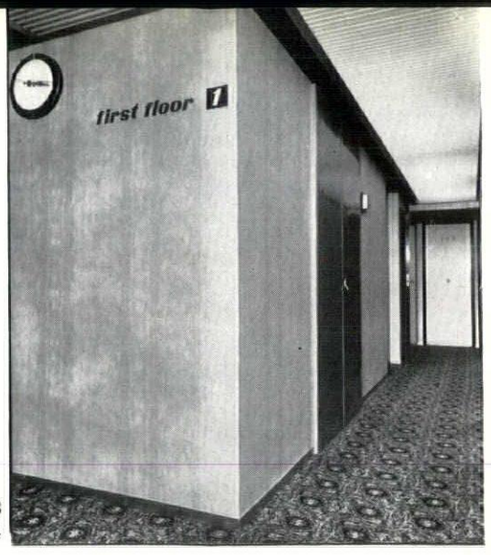
32

public areas

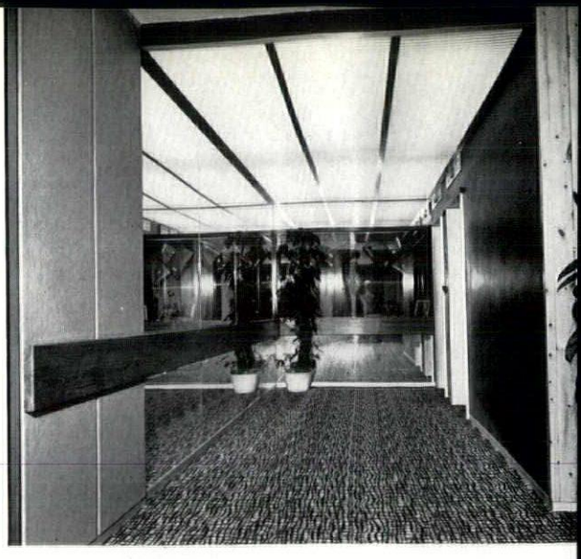
If the hotelier uses his architect correctly he will get him to include within the design as many of the incidentals of hotel working as possible—signposting, furniture, fabrics, chinaware, notice boards, display cases, ashtrays and so on. Sometimes these items may be chosen from stock, or they may be specially designed by the architect or other specialist—but what matters is that there should be a coherent and apparent house-style *throughout. The guest will carry away with him one general impression, and this is conditioned not so much by the magnificent stairway as by the memory of a thoughtful hook for drip-drying over the bath. These small details, when away from home, matter very much.*

33, in the Washington Hotel, London, the passages received equal attention to the bedrooms. Clear lettering is set on walls finished in light grey patterned vinyl plastic: suspended ceiling of corrugated plastic with fluorescent lighting over: floor is close carpeted with electric heating embedded in floor below: the lift lobby, 34, has walls finished in vinyl and mirror.

35, the marble mural by Michio Ihara is set on the screen wall dividing the entrance from the reception lobby at the Hotel Nikko, Tokyo. Rich materials are used in a simple yet sophisticated way. At Grosvenor House, London, care has been taken with the lettering, 36, to the new doors from the converted bar area.



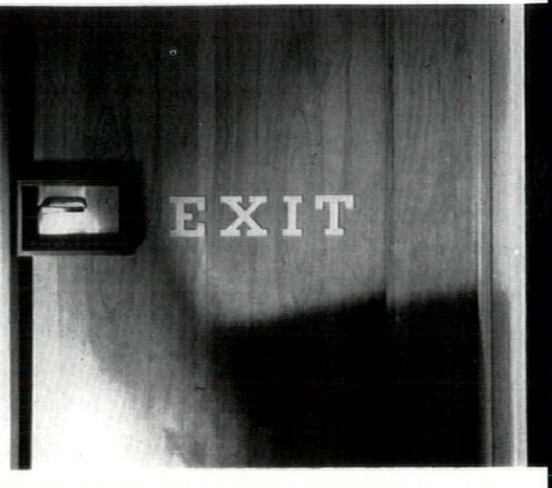
33



34



35



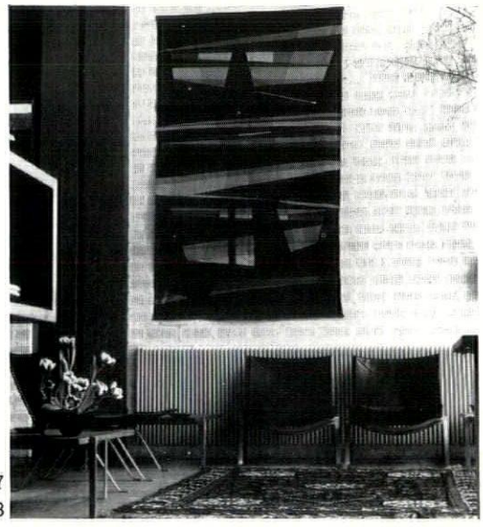
36

SUMMARY

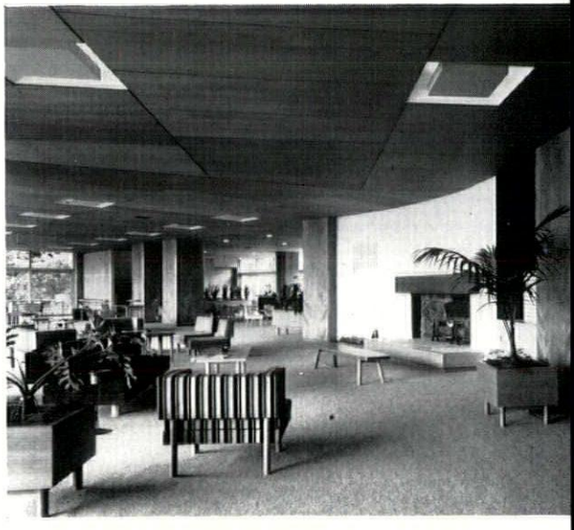
What conclusions can be drawn?

Certainly it is in the public areas that the most difficult problems in hotel interior design arise. They will be used both by residents and people entering casually for a drink, a meal, a dance or banquet. Thus to some these are transit areas on the way to their bedrooms, while for others these areas are where they have come to enjoy themselves—they are not looking for a home from home. On the one side an almost domestic background is required, and on the other a stage setting for an occasion. The most successful public interiors are those where the scale is right—where the design has been able to combine public and private size, separating movement and rest areas, and decorating in a way appropriate to the room without recourse either to monumental 'effects' or domestic bric-a-brac.

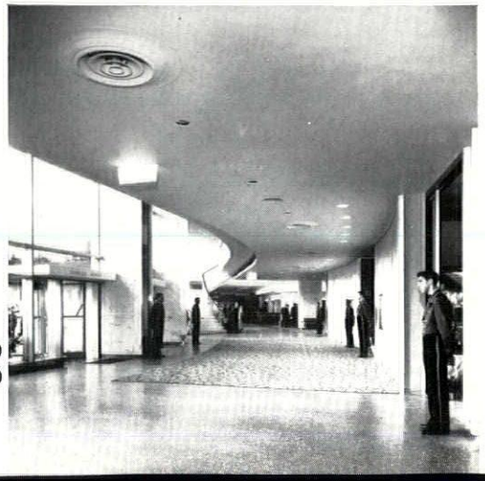
In this the Hotel Osterport, Copenhagen, 37, and the Hotel Kowaki-En, Hakone, Japan, 38, succeed. There is no lack of richness and 'occasion.' These are obviously not private houses, and both possess a relaxed, yet positive, background. In contrast, the entrance lobby of the Statler Hilton, Dallas, 39, must surely give a chill to even the most experienced traveller. Aiming to 'make something of it' the Queen Elizabeth, Montreal, 40, adds electric chandeliers. As discussed earlier—if fancy dress is required, it must be done at full blast with no holds barred. Some people will hate it. But those that do like it will think it is terrific.



37



38



39



40

interiors: bedrooms

Second to the quality of the service, it is the bedroom which matters to the hotel guest. Exactly what is expected will differ from guest to guest—but it is hard to believe that opinions could differ as much as the examples on this page suggest.

The hotel bedroom has changed considerably over the last ten years. Various factors account for this, but principally the fact that the bedroom is increasingly seen as a bed-sitting room. By encouraging this—and designing for it—a great deal of the space which was formerly occupied by public rooms is no longer needed and can either be omitted (in the case of a new building) or put to use in some directly profitable way.

This double use of the hotel bedroom does not mean that they are appreciably bigger—in fact every trend is towards making them smaller.

The provision of private bathrooms—now accepted as essential in any new hotel—avoids the awkward inclusion of a wash basin. In many cases the dressing table can be incorporated within the bathroom.

While there are countless variations in the design of hotel bedrooms, these examples serve to show the main types :—

1, *Apollonia, Stockholm (80 rooms) is a good quality, but not luxury hotel. It has simple rooms equipped with sturdy furniture and fitted out to provide the guest with what he will need in a pleasantly quiet and relaxed way.*

2, *The Leofric, Coventry (100 rooms), remains the best, out of the few examples, of modern British hotels. The bedrooms are well equipped and given a degree of decoration not seen in the Apollonia.*

3, *The Queen Elizabeth, Montreal (1,216 rooms). This is the living room of the Royal Suite which includes a maid's room. It is hard to say whether this is 'home from home' for royalty—or even for the President of Pepsi-Cola. There is a demand for this type of enriched accommodation but it might equally well be satisfied by saner, modern means.*

4, *The Continental Hilton, Mexico City (400 rooms). All Hilton hotels contain a variety of bedroom suites. This is the Chapultepee suite, complete with service pantry. The decor, based on the old imperial castle adjacent to the hotel, aims to be mighty impressive and to allow the guest to think that he is in Mexico and not just another Hilton hotel.*

5, *Cadogan Towers, London (320 rooms). Due to open before Christmas. Here the aim is 'to make the guest feel at home' and 'the designer has chosen furniture which would be found in a gracious contemporary home.' The result is that, while it may not actively offend anyone, it achieves only a rarified neutrality.*

6, *Grand Hotel Pineta Palace, Lignano, Italy (90 rooms). Reasonable accommodation, catering mainly for tourists. Money has gone into good finishes and furniture.*

7, *Westbury, London (270 rooms). The design of internal areas including this bedroom, falls below the visual standards for a hotel of its class.*



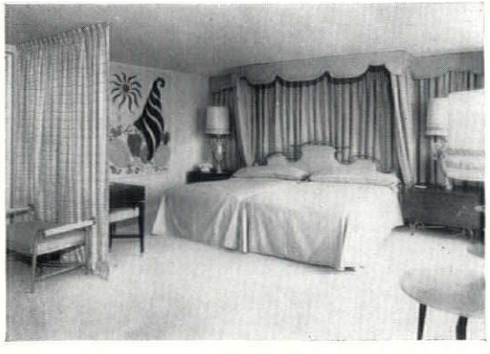
1



2



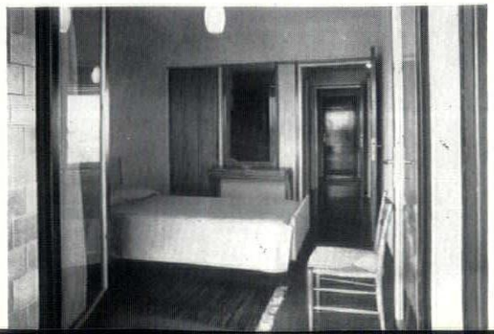
3



4



5

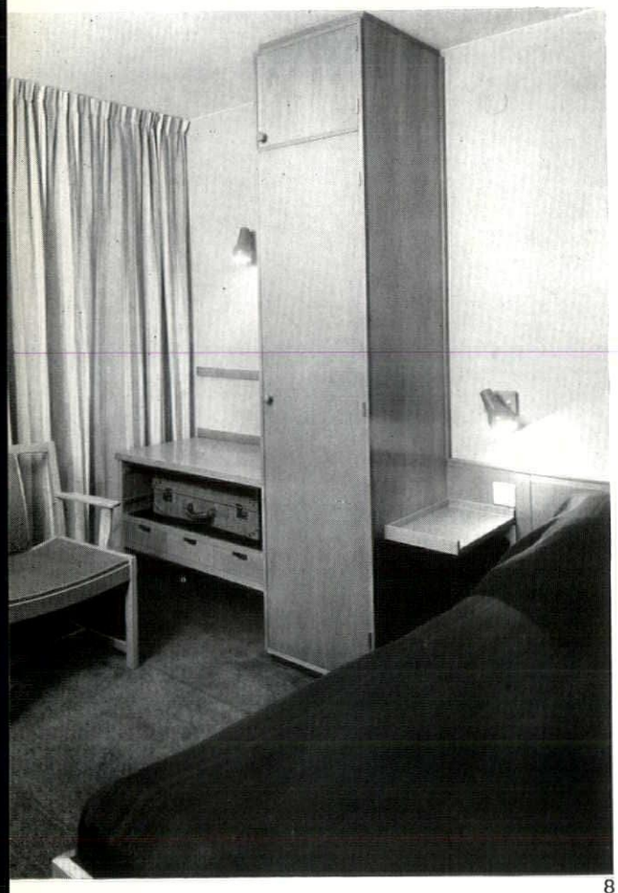


6

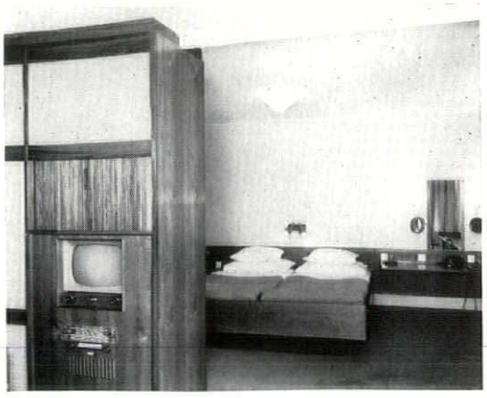


7

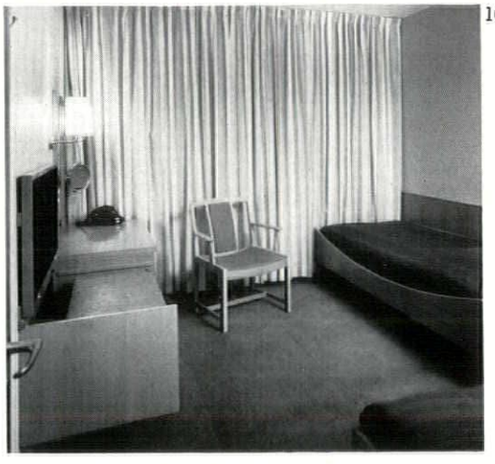
bedrooms



8



9



10

8, 9, 10, *The Apollonia, Stockholm. The hotel contains the usual variety of bedrooms (single, double and double suites), but no luxury suites. The same quality of finish and equipment has been carred through all rooms—which vary only in size and special fittings. Thus, the single rooms have bathrooms with shower only, double rooms have bathroom with bath, and the double suites have bathroom with bath and separate w.c. and basin. As the plans (below, left) show, the double suites have a sitting area separated from the beds by a storage unit housing TV.*

Throughout robust materials have been used, and no decorative effects added—the character of the rooms coming from the use of natural timber set against walls with a slightly textured finish, quiet colours and simple printed fabrics. All fitments are fixed, the majority cantilevered from the walls, allowing for easy cleaning underneath. The beds are set on fixed plinths which will again reduce cleaning, but mean that the making of the beds is more difficult.

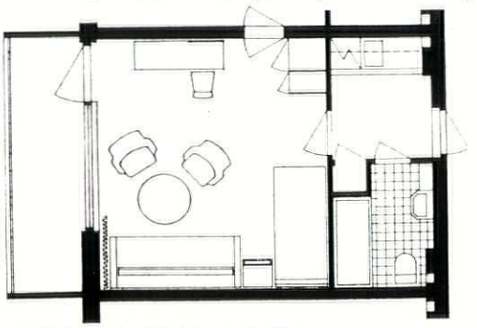
11 (opposite page, top), The Laponia, Arvidsjaur, Sweden: a typical double bedroom showing how attractive an effect can be obtained using units of simple construction and precise detailing. The bench is upholstered in a bright striped woven fabric. The built-in dressing table is arranged to form an abstract design on the wall, combining light, mirror and guard rails, which protect the wall from suitcases when opened on the special end section of the table.

12 (opposite page, bottom), Hotel Kowaki-En, Hakone, Japan. Standard double bedroom. Walls finished in two types of wallpaper, and window fitted with sliding screens. This shows how a sense of elegance and quality can be obtained with simple, almost rugged, elements when they are carefully chosen and arranged.

13, Hotel Foresta, Stockholm: a typical double bedroom with bathroom (plan below). The beds, which convert to settees during the day, have backs fixed to the wall and lower parts sliding forward. The built-in bedside unit includes radio, telephone and automatic alarm clock. The carpet is brown with the symbol of the hotel used for pattern. The curtains run from floor to ceiling



bedroom plans: the Apollonia, Stockholm



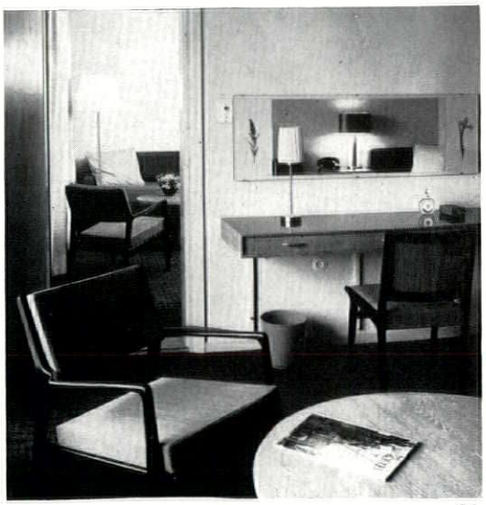
typical bedroom plan: Hotel Foresta, Stockholm

and are interlined with black material as a protection against the light northern summer nights.

14, a two-room suite in the same hotel, with double and single rooms connected. The same carpet runs throughout the hotel, as well as a standard cantilevered dressing table, surfaced in olive green plastic.



13



14



11

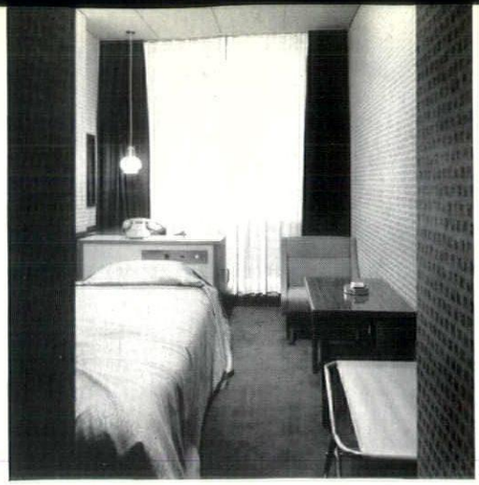


12

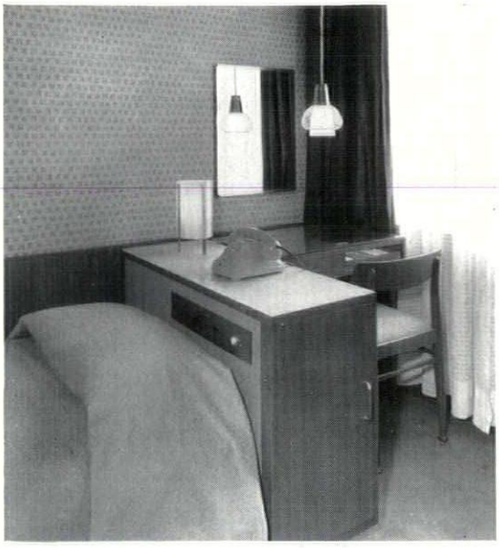
bedrooms



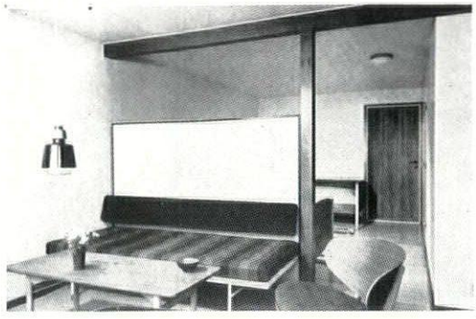
15



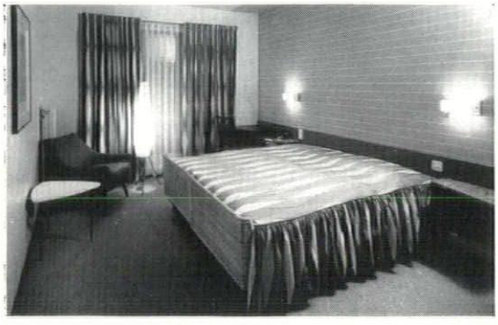
17



16



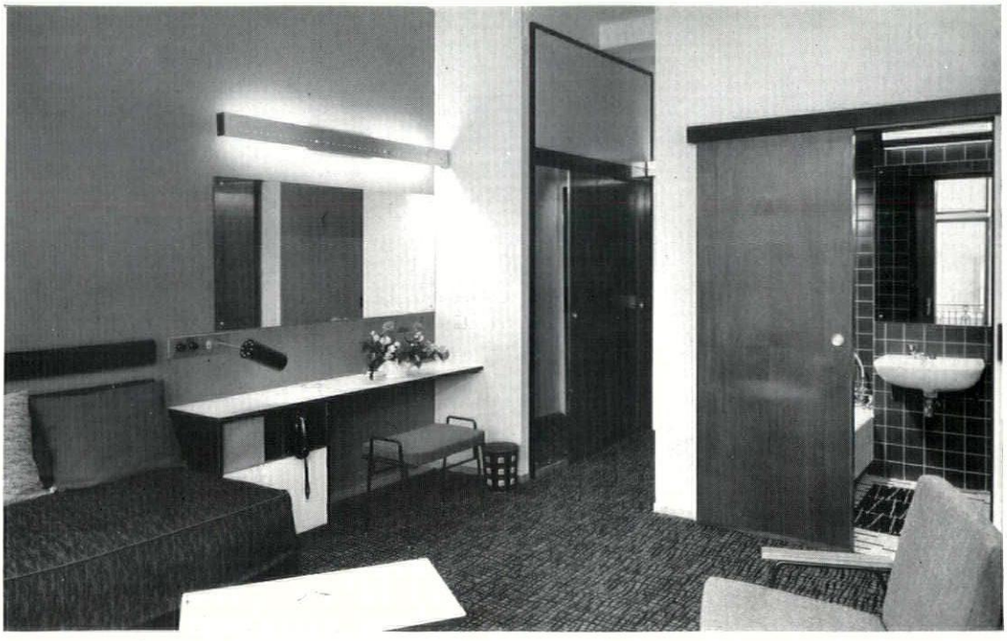
18



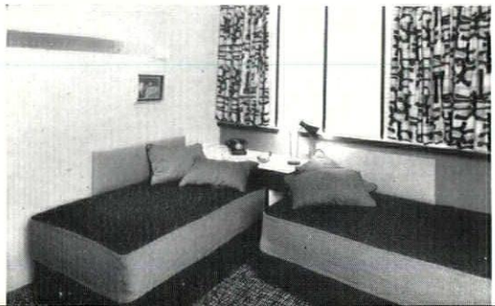
19



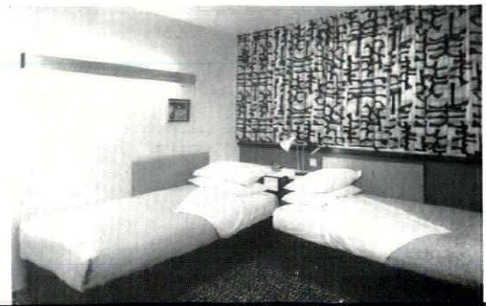
20



21



22



23

The previous examples, mainly Swedish, have shown how a hotel bedroom interior can be designed so that it will be able to please everyone, while being in no way insipid. This is not easy. The designer must exercise control and the furniture in the room must look intended and not merely deposited there. The small bedroom which aims at enrichment can easily become over-elaborate, and lose a sense of space which a simpler treatment would have allowed. These examples aim to outline these points.

15, The Osaka Grand Hotel, Osaka, Japan: a standard twin bedroom with walls finished in a small patterned wallpaper. The furniture, including the luggage rack, is well chosen.

16, 17, a standard single bedroom in the same hotel. To the hotelier the advantage of wallpaper is that it is simple to apply and gives him the satisfaction that he feels he has 'done something' about the walls. It is a tight fit, however, to include all the necessary furniture, and the wallpaper here merely makes the room look smaller. The well-designed bedhead unit includes wireless and service bell-push, together with a storage cupboard. The loose table lamp will prove easy to knock off.

18, The Jantzens Hotel, Gudhjem, Denmark. The sleeping area is separated from the sitting room by a low screen wall. Pine flooring with coconut matting covers the sitting area, with bright coloured upholstery.

19, The International Hotel, Basle: a typical double bedroom. The beds, with woven cane ends, are loose and set against a fixed bedhead panel running the length of the room. The horizontally patterned paper aims to increase the apparent size and length of the room (though this would have been more effective if it had not bled on to the ceiling).

20, Berlin Hilton, Berlin: bedroom suite (not luxury) arranged for use as an office and for entertaining. One of the principal differences between British (and Scandinavian) rooms compared with other countries is the height that is thought desirable for the bedrooms. To most British guests this room will seem unnecessarily high, but it is standard American and European practice.

21. The Londoner, London. The walls are painted and a good deal of pattern introduced in carpets, curtains and fabrics. The effect is 'busy' and not sufficiently controlled by the strong black framing to the cupboards and door pelmet. The doors, to bathroom and cupboard, run on top track which holds them clear of the floor carpet.

22, 23, The Washington, London. A double bedroom by day and night. By arranging the twin beds from the corner in this way clear space is obtained in the middle of the room. During the day, and while undressing, this will prove a considerable advantage. But it is not an arrangement that guests like. They are prepared to accept it as a necessity of cramped hotel planning, but would prefer to have their heads backing on to a wall in the normal way.

The right choice of furniture for the hotel bedroom is essential. When even a small hotel is built, the quantity involved justifies purpose-made pieces. The furniture must be robust and designed to accept what would be regarded as abnormally heavy use in a domestic interior.

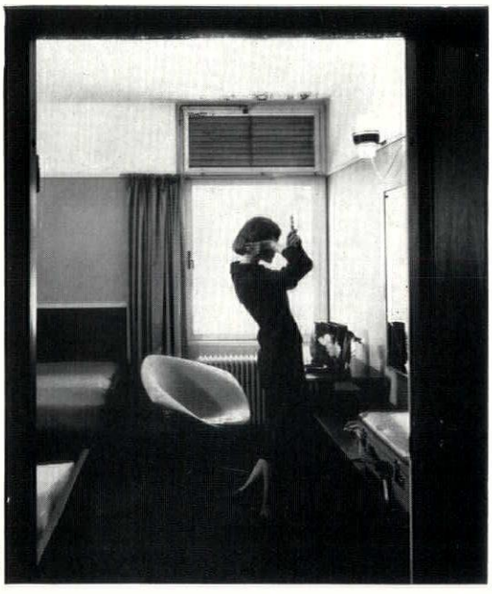
As far as possible, surfaces should be proof against cigarette burns and damage from alcohol. Handles and locks must be particularly sturdy. Cupboards should be designed to allow the guest to see easily if anything has been left behind.

24, *Humbolt Hotel, Caracas. The bedrooms are set in a circular tower block—each bedroom occupying a segment of one of the circular floors. The bedroom and sitting room are separated by a folding screen which is suspended from the ceiling.*

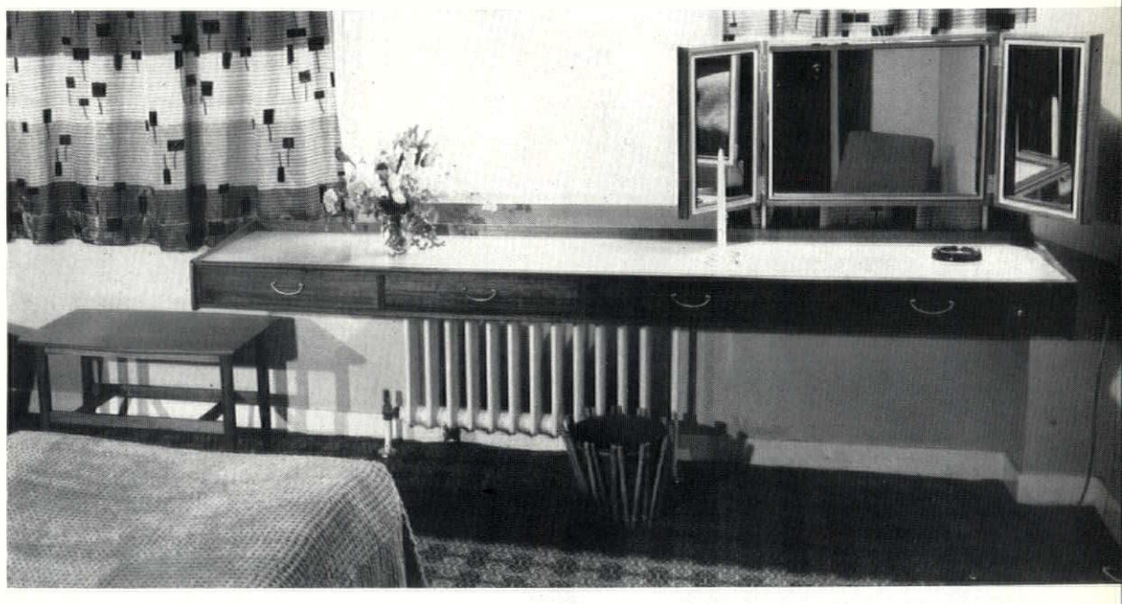
25, *Hotel Osterport, Copenhagen. Fitted luggage rack, low make-up shelf and desk surface are fitted between cupboard and window wall, all cantilevered clear of the wall.*

24





25
26

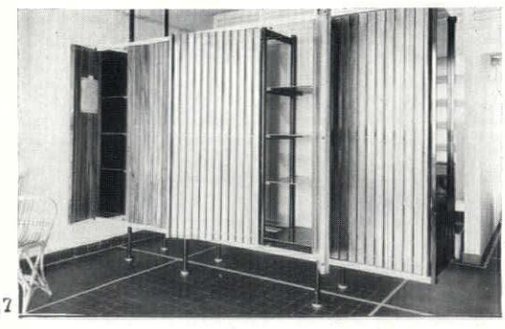


26, *The Leofric, Coventry. This unit, 7 ft. 6 in. long, serves as a dressing table and desk. The whole unit is cantilevered 4 in. from the wall, allowing the curtains, which run the full length of the room, to fall behind. The side mirrors can be folded over the centre mirror when not in use: top surface in plastic board.*

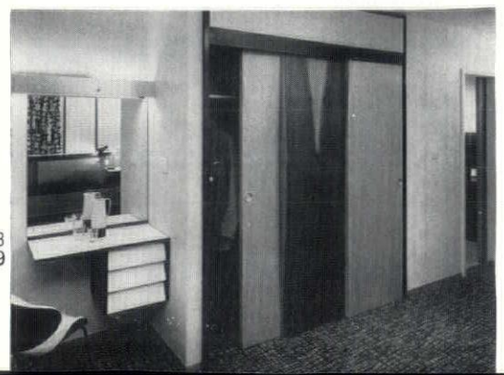
27, *Hotel de France, Conakry, French Guinea. This wardrobe unit divides the bedroom from the bathroom, and the tiled floor is carried through. The unit has a metal framework, back panels in obscured glass, and doors formed in slats of colonial wood. By having the unit free standing, cross ventilation is possible.*

28, *Washington, London. Top hung doors allow the carpet to run through. The centre section, in African stinkwood, is fixed. In the corner is a small make-up table with overhead light and adjacent razor point.*

29, *Grosvenor House, London. Dressing table unit with fixed back mirror and hinged side mirrors.*



27



28
29





30

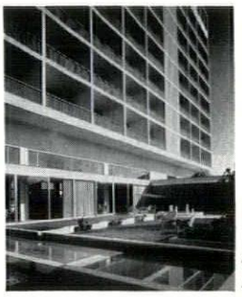
bedrooms

With guests' growing preference for sitting in their own rooms rather than in public areas—and in many cases wishing to have their meals in private as well—a balcony becomes a common addition.

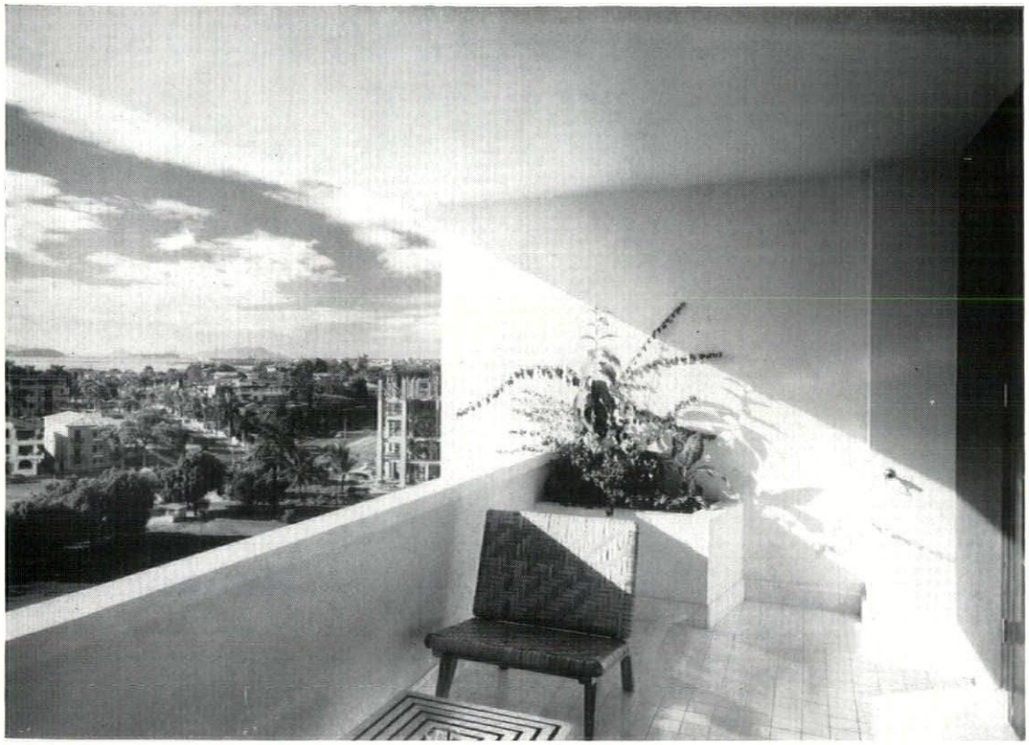
For hotels in the tropics there is the advantage that rooms can be fitted with French windows and shaded by the balcony above. The elevations shown earlier also indicate how valuable balconies are in giving interest to hotel elevations.

On the debit side, the space given to a balcony is lost to the bedroom itself. Thus if the balconies are set within the structure, the overall size of the building will be appreciably increased. Then two small, but important, managerial disadvantages: the increased danger of theft when continuous balconies are employed and the difficulty of restraining guests from hanging towels and





31
32



33

bathing costumes over the balustrade to dry. Notices can forbid this but it is still difficult and tiresome to enforce.

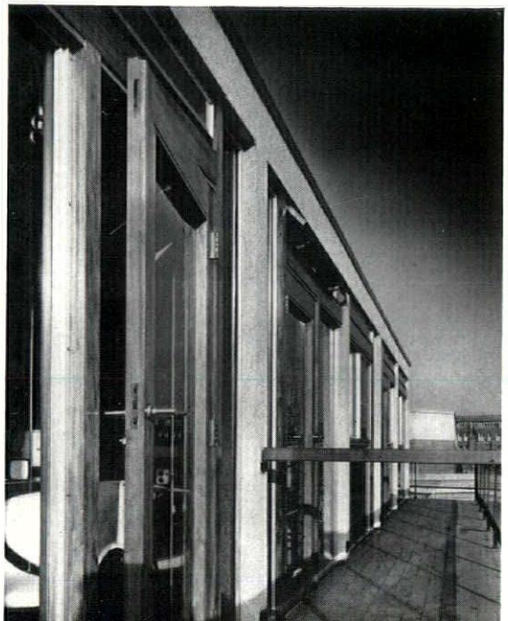
30, 31, Istanbul Hilton, Istanbul. The balconies are 6 ft. 4 in. by 13 ft. 6 in. and the bedrooms 14 ft. by 16 ft. and 8 ft. 6 in. in height from floor to (suspended) ceiling.

32, 33, El Panama, Panama City. The main bedroom block has been turned to face the trade winds, and designed one-bedroom thick. The bedrooms are separated from the access balcony by louvred screens which permit cross ventilation.

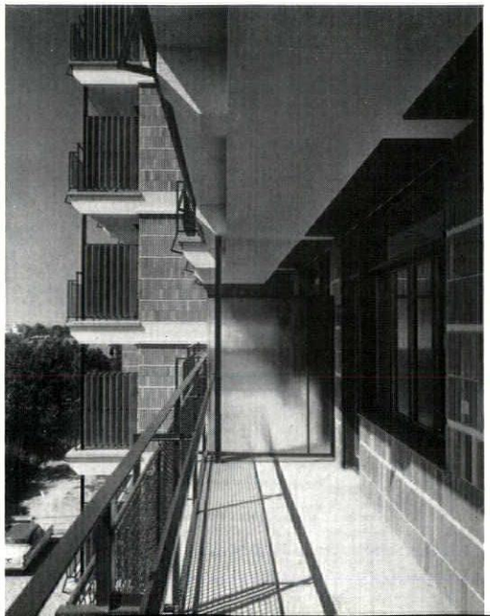
34, Washington Hotel, London. The eighth floor containing four penthouse suites has the glazing set back 5 ft. from the main



36



34
35



building line, allowing a continuous balcony.

35, Casa Albergo, Lignano, Italy. A continuous balcony, 6 ft. wide, divided by obscured glass, gives private balcony space to each bedroom.

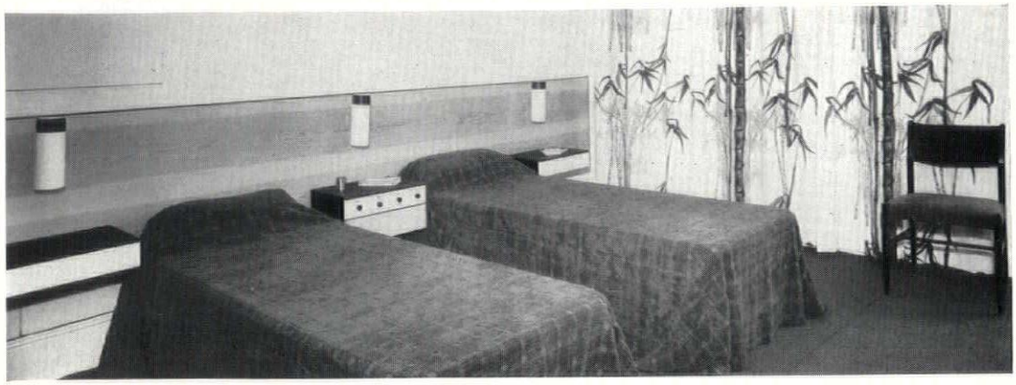
36, Pineta Palace Hotel, Lignano, Italy. A continuous balcony surrounds the public rooms, set on the first floor. The bedrooms above each have their own balcony, 4 ft. 6 in. deep, and fitted with sunblinds.



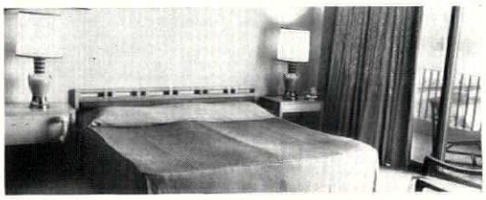
37

A comparison of British and American interiors reveals that one of the most striking differences is in the scale of table (and standard) lamps. To British eyes the American fittings usually look elephantine and our own, when looked at again, pimply. It is more important that bedside lights should give good light than have foolproof screening to the other side of the double bed. The position of the fitting must avoid danger of damage.

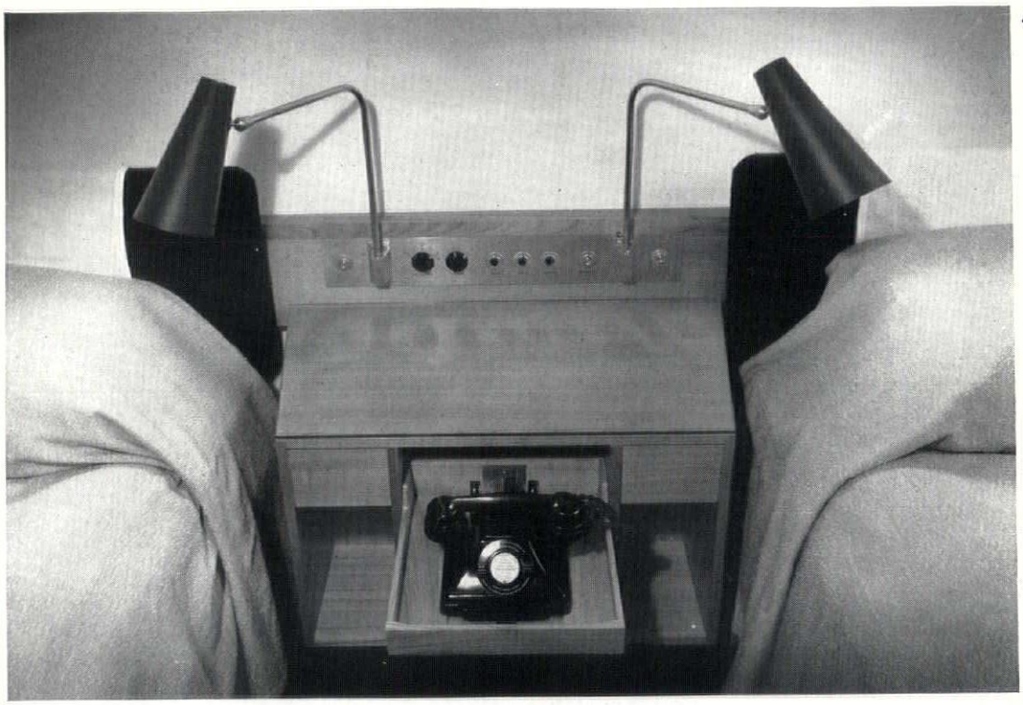
37, at the Leofric, Coventry, a bedhead unit is taken from wall to wall and accepts cantilevered bedside cabinets, incorporating control panel and housing for the radio speaker.



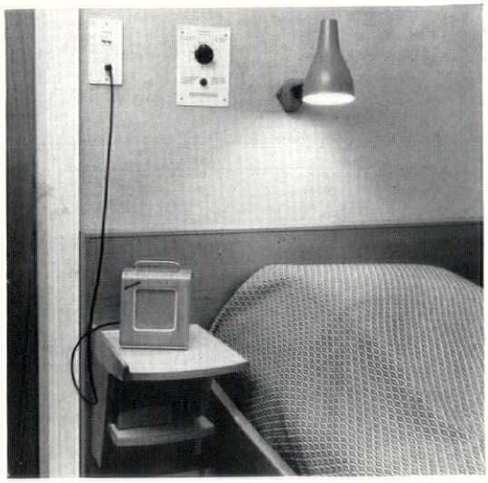
38



39



40



41

38, a prototype room for a projected hotel in the Bahamas has a continuous bedhead in polished pine with special lights with plastic shades.

39, a double bedroom in the Nile Hilton, Cairo, with bedside lamps of the usual large American size. Fittings of this kind occupy space that would be better clear.

40, a special unit, at Grosvenor House, London. The lights, on swivel arms, are liable to damage and it is unlikely that there is any real advantage in having them adjustable.

41, Hotel Malmen, Stockholm, has an individual time-clock alarm system which can be pre-set as required. It appears that the height of these has been carefully assessed to ensure that the sleeper is well out of bed before being able to turn off.

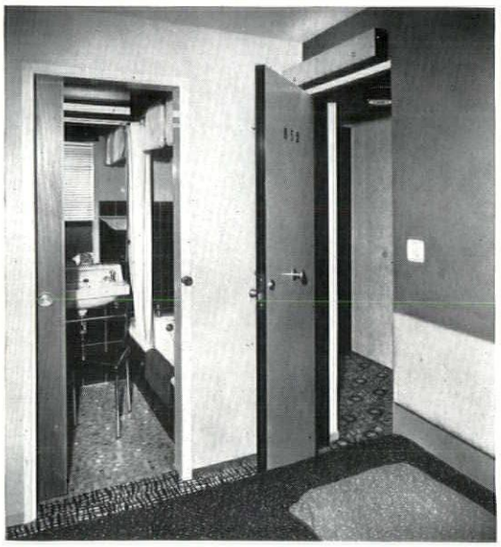
42, The Delta Hotel, Vlaardingen, Holland. By taking the glass to floor level, these small bedrooms with no balconies appear much larger than they are.

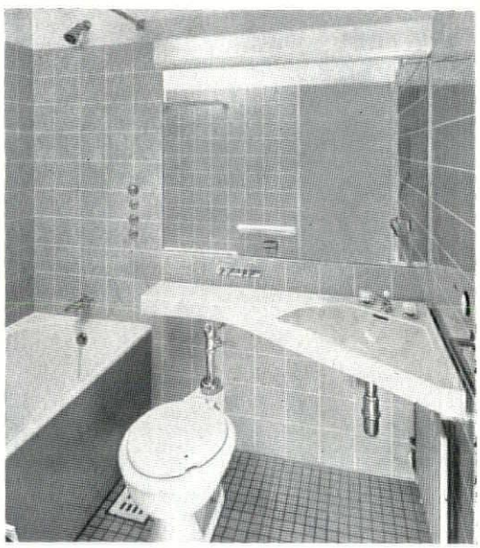


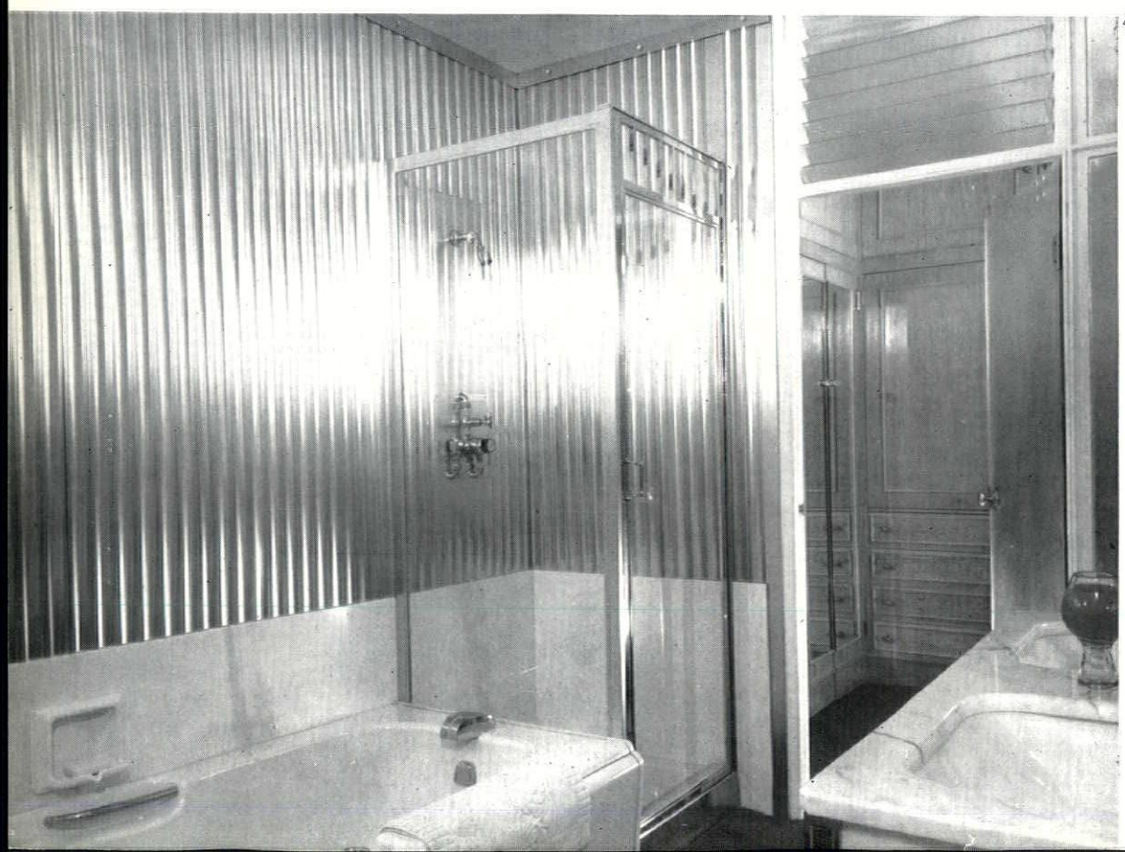
42











HOTELS

interiors: bathrooms

The standard bedroom width in a slab block is controlled not so much by the desirable bedroom size as by the sum of bathroom, plus lobby (plus cupboard), plus ducts. This means that economical planning of 43 *bathrooms is essential to achieve the maxi-* 44 *mum number of bedroom units.*

It is important for the bathroom to be equipped with accessories, such as razor points, hanging rails for drip drying and uncluttered space for toilet accessories.

Showers, in place of baths, have particular advantages in tourist hotels, for they give an appreciable saving in space. Alternatively showers can be fitted over baths, though it is difficult in a small bathroom to make proper screening to prevent wetting the floor.

When the hotel is catering for American visitors there are advantages in having showers instead of baths since Americans often prefer showers, feeling that baths are unhygienic.

43, Grand Hotel, Osaka, Japan: the 45 *standard bathroom with floor finished in* 46 *mosaic tiles with waste outlet. Walls throughout tiled and ceiling finished in* 47 *waterproof plywood panels.*

44, Strand Palace Hotel, London. Recently over 100 bedrooms were converted and individual bathrooms added. Each bathroom has a heated towel rail, shaving cupboard with adjacent strip light, and multi-point razor socket. The w.c. pan is corbelled out from the wall, allowing clear cleaning space below. Lino floor tiles.

45, Washington Hotel, London. The bathroom is 6 ft. 6 in. by 4 ft. 6 in. with a recess for a 5 ft. 6 in. bath. Wash basins have spray mixing taps. The floor is surfaced in unglazed mosaic and the sliding door in flush veneer is top hung with no floor track.

46, first used in America and shown here at the Berlin Hilton are purpose made combined wash basins and make-up shelves, extending over the back of the w.c. It is likely that in all but luxury suites the practice of fitting waste outlets to floors will grow to prevent damage from overflowing and permit easy cleaning. The outlets shown here appear unnecessarily large.

47, Mayfair Hotel, London: luxury suite bathroom with walls finished in corrugated anodized aluminium sheeting. The floor is carpeted and the shower fitted within an enclosed glass cubicle.



48



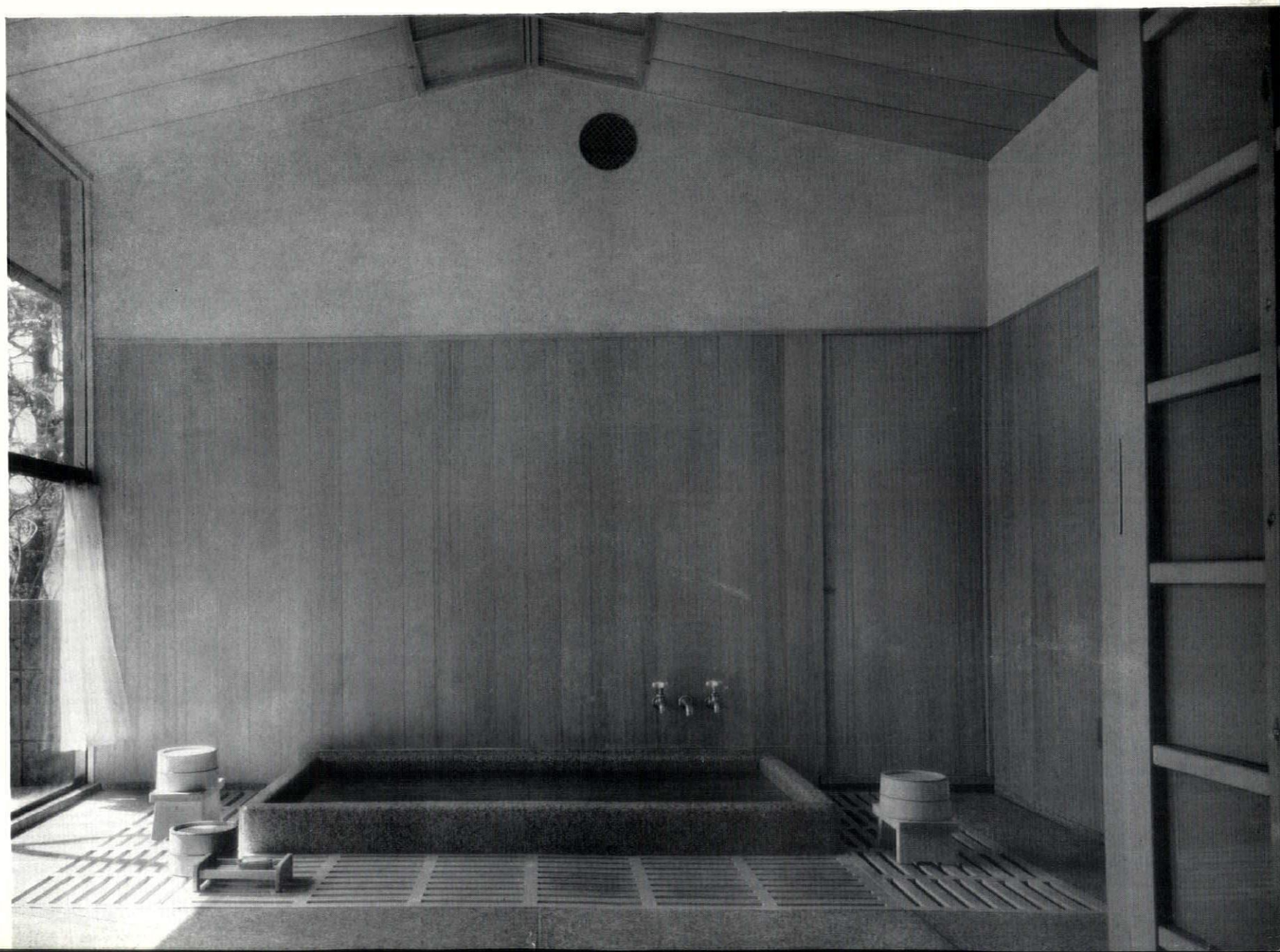
49

48, *Leofric, Coventry. The shower, fitted to a mixing valve above the taps, can be fixed to a clip at high level when required. Over the bath is a nylon rail for drying nylons. Floor is thermoplastic tiles.*

49, *Kowaki-En, Hakone, Japan: a Turkish bath, served with hot spring water, looks through a screen of concrete blocks to the sloping site outside. Adjacent are games rooms, beauty salon, barber, shower and dressing rooms.*

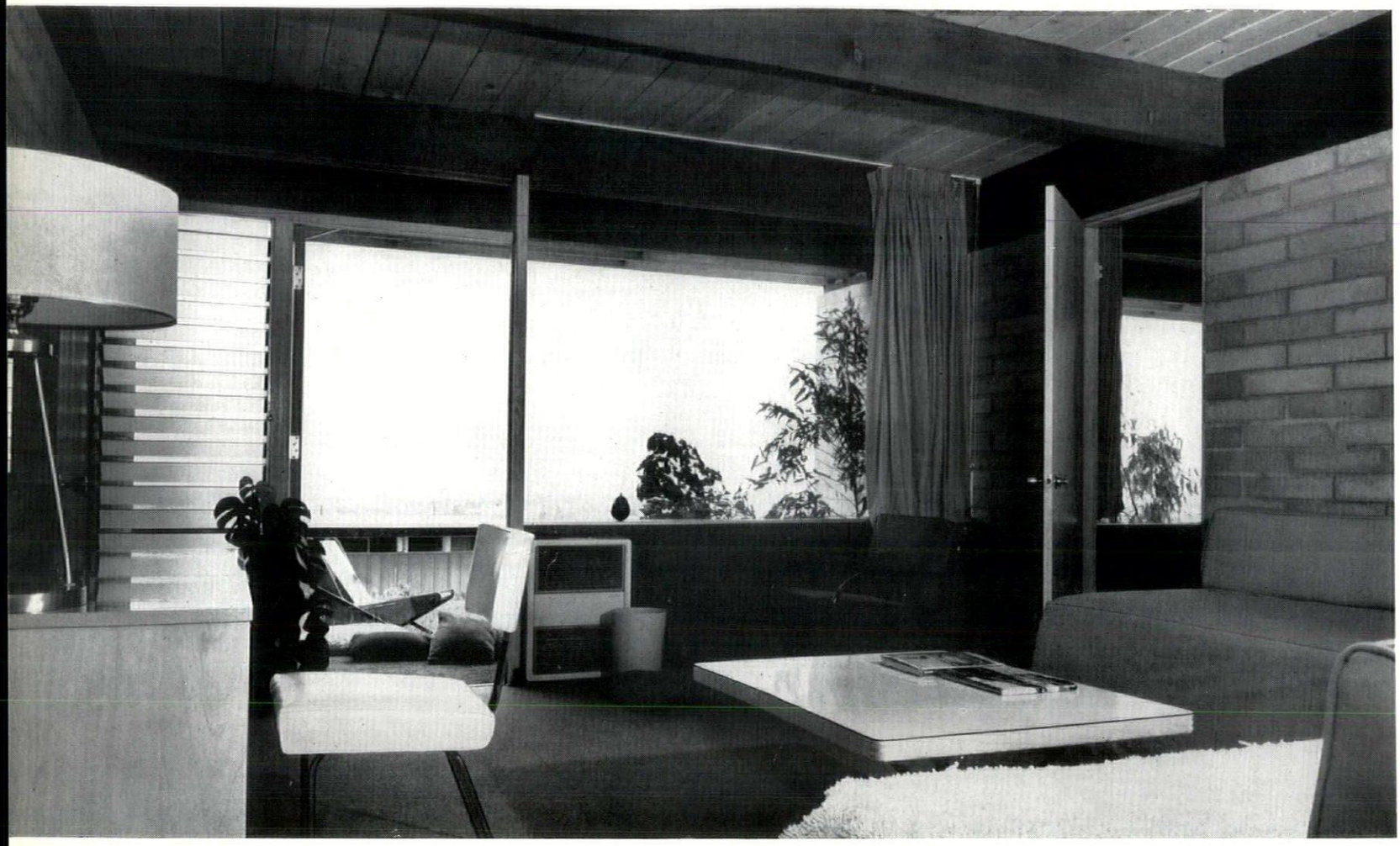
Not strictly relevant to Western hotels is 50, *Hassho Kan Hotel, Nagoya, Japan—the open women's bathroom. Glass doors open on to an enclosed court. Bath sides and paving are in granite with removable duck-boards surrounding the bath; an ingenious adaptation of Japanese tradition to modern architecture.*

50



HOTELS

interiors: luxury suites



1





2,3

The need for luxury suites has not so much changed as extended. Instead of one or two 'queen bee' suites, hotels find now that they need a number of luxury suites which will be obviously superior to the general standard of their rooms. The reason for this is a change in economics. With the increased mobility of senior executives, there is a growing demand for a class of impressive (often ostentatious) accommodation which can be charged to an expense account and used for a temporary office, or a setting for a press conference.

1, San Pedro Hacienda Hotel, California. The rooms contain twin couch beds, writing desk, easy chair, private dressing area and bathroom. The external door leads to a private seating space with glass louvres.

2, Osaka Grand Hotel, Japan. Living room of Royal Suite with hardwood panelled walls and crumpled silverfoil finish to the ceiling: and 3, the sitting area of a Class A bedroom suite at the Osaka with wall finishes in cloth and ceiling in painted plywood panels.

There are two positions in a new hotel where these luxury suites may be placed. They may be either on the top floor where they can be freely planned without reference to the standard bedroom layout below—or at the corners of slab blocks, allowing external walls on two sides and a break from the standard bedroom width.

4, Beverly Hilton, California. The terrace on two sides can be reached by sliding glass panels. A dining table is in the far corner.

5, The Leofric, Coventry. This hotel has a care and sanity throughout which is sadly lacking in many hotels. In this double bedroom (not truly a luxury suite—but vastly superior to most more opulent examples) the wall is panelled in polished elm and contains mirrored recesses comprising writing desk, dressing table, and cocktail cabinet. It is a feature of this hotel that items such as these have been integrated into the design by the architects and their collaborators—not just deposited in the room.

6, Mayfair, London. A twin bedroom suite with beds set in a recess off the main sitting area with curtain to separate the two areas. A mixed-up, pretty scheme where the effect comes from delicate colours and general 'freshness.'

7, Habana Hilton, Havana. The master bedroom of the Castellana Suite. Marble floor, marble bedhead, fancy metalwork and the stage set.

9, Westbury, London. In their concern to ensure novelty, hoteliers have called in decorators of all kinds. Here Norman Hartnell, the Queen's dressmaker, has created the Hartnell Suite. White cockatoos, and the bookcase concealing the modernistic TV and cocktail cabinet.

8, 10, The Dorchester, London. Oliver Messel's penthouse suite in Decorator's Decorated. No opportunities have been missed.



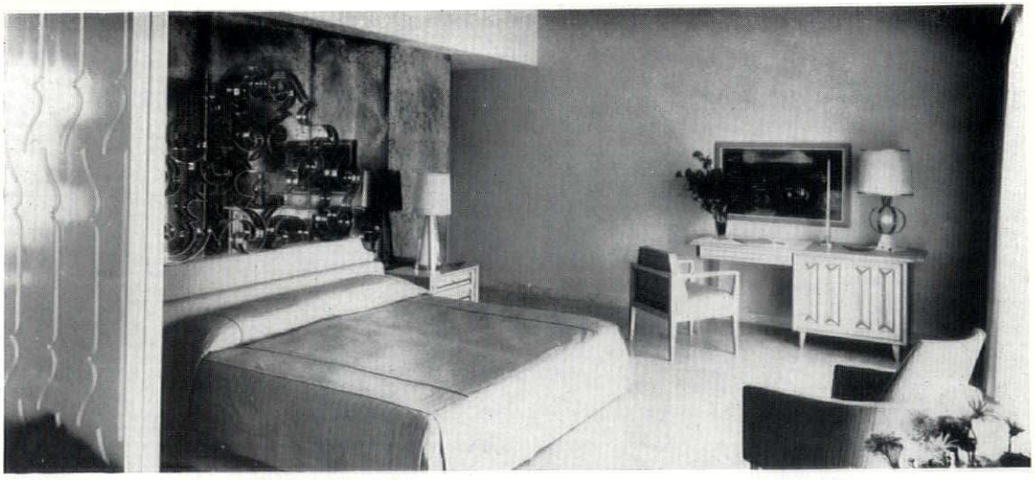
4



5



6,7



8





9,10



HOTELS interiors: dining rooms



1

The hotel dining room may be just that—or it may have to be adaptable for a variety of different purposes. It may serve residents only, or outside visitors only, or both. It may be required as a conference room, or used for a press reception (with bar), cinema, ballroom or exhibition hall.

Whenever possible, the hotel design will provide separate accommodation for these different functions—but with his ever-present concern to utilize his space to the maximum, the hotelier is likely to require a high degree of adaptability. Thus, to quote an extreme case, at the Statler Hilton, Hertford, Connecticut, there is a ballroom and assembly hall, each capable of seating 600, which can be combined into one, or subdivided into a total of 12 smaller rooms—and this in addition to snack bars, bars, private dining and conference rooms provided elsewhere in the building.

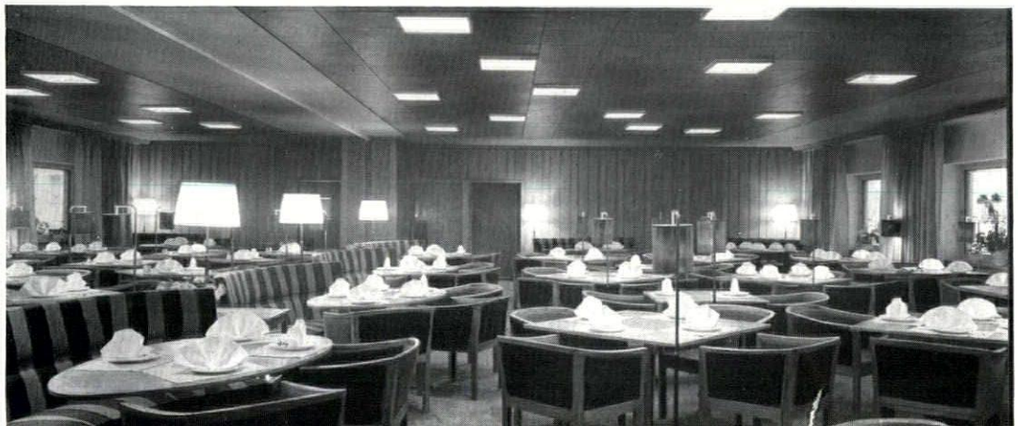
Today, with big hotels requiring large rooms so that they may cater for conventions, the dining room for residents and general use tends to get smaller in scale. Eating out is no longer the gastronomic ritual which it was when the Cecil, London, 1, was built.



2

The examples that follow are all modern dining rooms and the difference between them and the Cecil should not be overlooked. If the hotel aims to encourage its customer to be conscious of the quality of the food provided and impressed by the general élan *with which it is presented, then the background effect is as important as the timing of the soufflé. The hotelier is not simply a cook, a bedmaker, a hostel keeper, an efficiency expert—but an entrepreneur—a showman—dealing with a public concerned to enjoy itself. The total effect of the dining room is all important. The designer called upon to design a dining room is on the brink of stage design, and if this frightens him he should refuse the job. One of the main challenges to architects and designers today is in the field of enrichment—and how this can be done in a way true to our times.*

2, the backdrop may be provided by the setting of the hotels themselves. It would have been a mistake to embellish the interior of the dining room of the Hotel Kowaki-En, Hakone, Japan, with its superb view of the surrounding National Park of Fuji-Hakone. The big windows allow little obstruction to the view and lead, at the far end, to a terrace with access to ground level. Timber has been used throughout, principally for the ceiling and column casings—with the only colours coming from carpet and upholstery.



3

Similar in character, but with a sense of enclosure due to its town site, is the Apollonia Hotel, Stockholm, 3. Again, wood has been used extensively, providing a robust background enlivened with striped upholstery, textured carpet, curtains and standard lamps.



4



5



6

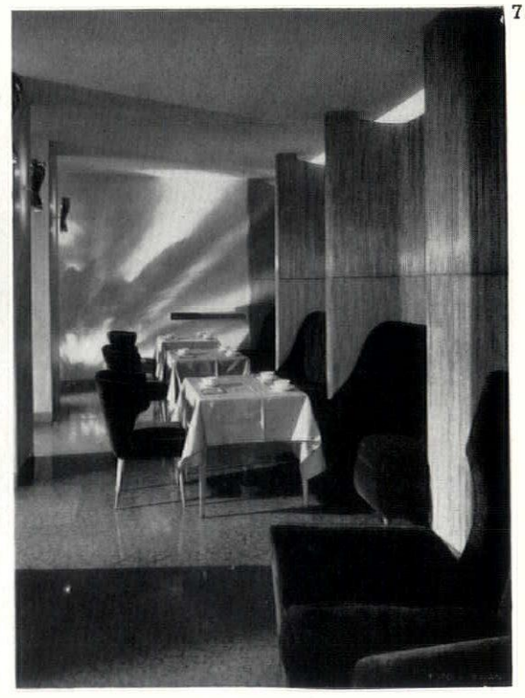
Easy service requires that the tables be spaced well apart with room for public, staff and serving trollies to pass. While achieving this, the designer has to watch that the dining room does not appear a purely food-service area, but is given a feeling of intimacy (friendliness, in fact) which anyone who intends to enjoy his meal will require.

This effect can be obtained in a variety of ways. In the grill room of the Osaka Grand Hotel, Osaka, Japan, 4, it has been achieved by the careful interplay of materials. The floor is in wood strips, ceiling in V-jointed pine boarding, wall and column casings in pine wood panels with flanking wall areas surfaced in coloured ceramic tiles.

5, the grill room of the Royal Hotel, Cardiff, redesigned in 1955, when steps were taken to create intimacy and richness in the interior. The ceiling was lowered, painted red, and curtains concealed cornice lighting and point lights added, some slung low, over the tables—achieving a generally subdued light. Walls generally are panelled in machine moulded afrormosia. On painted wall panels are original paintings selected by the designers. The table arrangement provides both island tables and side tables with banquette seating.

Any table layout must accept that the public prefer to sit with their backs to the walls—in fact the more seating that can be 'located' either on to a wall, column or low partition wall the better.

6, the San Pedro Hacienda Hotel, California, where tables with banquette seating have been set against a wall separating the dining room from the bar. This three-sided seating allows easy service. The dividing wall has been opened up to include a glass sided fish-tank where fish and (not easily distinguishable) bar customers can be seen. At the Grand Hotel, Verona, 7, the locating of tables has been taken further by forming recesses in the timber-faced wall finish. The floor is in red marble with chairs and benches upholstered in velvet.



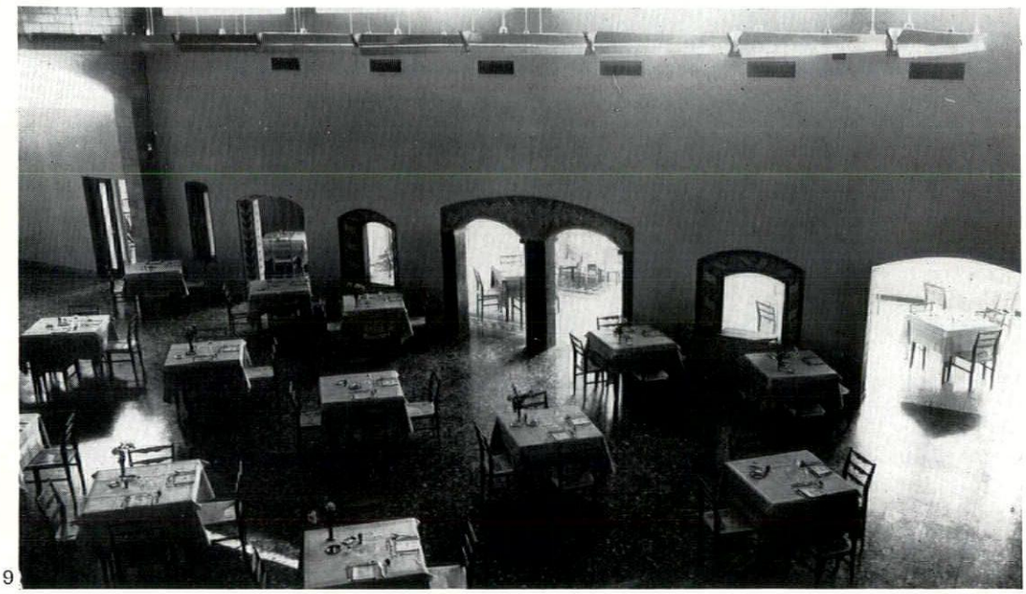
7



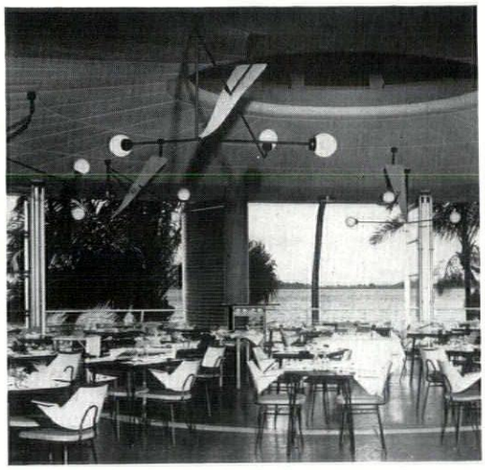
8

dining rooms

8, the 69 ft. by 18 ft. dining room in Britain's modest, but newest, hotel—The Keirby, Burnley — caters for both resident and passing trade. The entrance on the right leads to a waiting area in the foreground. Tables can replace the settees if there is sufficient demand. Banquette seating has been taken down the outer wall with curtains arranged so that when closed they will run full length of the wall. All upholstery is in replin. Service doors are at the rear, right hand side. Generally the effect is cheerful and pleasant—employing fresh colours and slight textures (though the 'pimpliness' of domestic light fittings shows up when used in public areas). The location of the hotel will attract only a limited tourist trade, and it will cater mainly for business men with a 'no nonsense Lancashire cuisine as well as Continental dishes.'



9



10

9, the problem is clearly different for the Motel Metanopoli, Milan, where a high ceiling, plain walls, terrazzo tile floor leading to external terrace and wide table spacing permit an openness suitable to the climate and the passing tourist.

A most interesting dining room is attached to the Hotel de France, Conakry, 10, on the French Guinea Coast. The circular room, 65 feet in diameter, is set at first floor level and placed separate (though connected) from the main hotel building. The room seats 100, with dance floor in the centre, and for more than three-quarters of the way round views of the Atlantic. Glazed and aluminium louvred screens are fitted and a centre ceiling section opens for ventilation. The chairs are by Hille, London.

11



11, the sukiyaki restaurant, in The Sky Room, of the Hotel Nikko, Tokyo, on the eleventh floor of this new hotel. Terraces are placed at opposite sides and laid out as Japanese gardens. To the side wall is a concrete sculpture (by Miss Toko Shinoda). The ceiling has been left exposed concrete with timber suspended framing, cane seats and stone tiled floor. Service and entrance doors are to the left.

Banqueting rooms and ballrooms prove to be far more difficult to designers than smaller, domestic scale, dining rooms.

12, a good example, though not on a large scale, the Osaka Hotel, Tokyo, where a quiet, almost clinical background sets off carefully laid and decorated tables. The floor is carpeted, the walls finished in wood panels and stone blocks, and the ceiling, which includes recessed lighting, panelled in wood.

13, typical of the big hotel approach, the Medallion dining room of The Americana, Miami. Here 'inspired by the Colonial period . . . a huge velvet curtain is used as a background for the official seals of the 21 nations of the Western Hemisphere.' Here is stage setting with a vengeance—where even the most nondescript convention will feel uplifted (or meagre?)

A better example, though still basically a shell with decoration tacked on, is the Berlin Hilton, 14. With space for 1,000 seats, the colours are gold, white and green with illuminated panel to the far wall. To the left are service doors, and public access on the right. The room can be subdivided for smaller functions with large sliding partition walls which disappear when not in use.

15, the ballroom of the Keirby, Burnley, with tables specially designed to allow for a variety of different arrangements. The curtains run full length of the room and the rosewood screen at the far end conceals a chair store. The floor is sprung maple, and the ceiling, finished dark blue flock, is fitted with 800 bulbs arranged in the different groups of constellations in the Northern Hemisphere, in addition to perimeter lighting and eight coloured glassware pendants.

16, a strikingly conscious effort to create atmosphere is the redesigned dining room at the Caledonian Hotel, Edinburgh, where murals, light fittings, upholstery, mirrors and patterned carpet have all been worked—with considerable skill—into a lively and attractive setting.

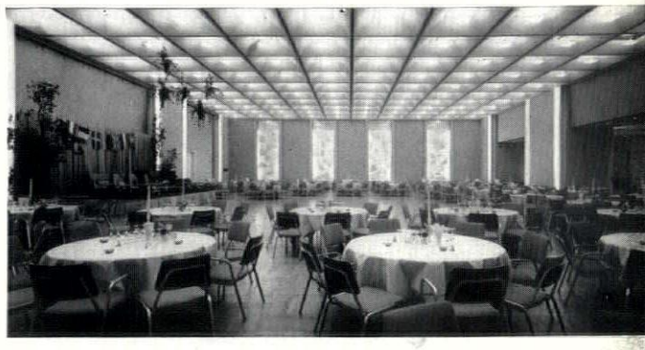
17 and 18, the Londoner, London, was recently converted from an encrusted Victorian hotel into a spanking, clean limbed, eye catcher. Certainly it is an improvement—but it is not completely satisfactory. It is the 'sense of occasion' which is lacking. It will permit for quick change acts from press reception to exhibition hall to banqueting hall—but as a banqueting hall it misses a good deal of the importance of its Victorian predecessor. It serves well to high-light a nagging problem.



12



13



14



15



16

17



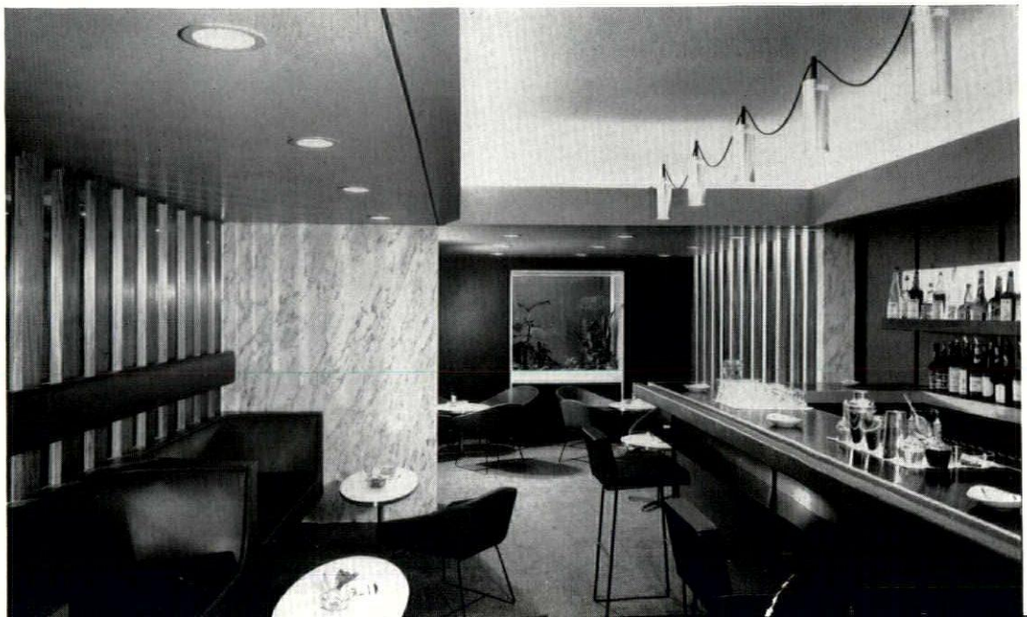
18



1

The design of a hotel bar is no different from any other. But bars form a vital part of hotel economy, being one of the most profitable sections of hotel business—far more profitable than food. With brewer-owners the bars may be the raison d'être *for the hotel.*

1, the bar of the Metropol, Wengen, Switzerland, is on two levels. At ground level there is direct access from the hotel and street to a balcony, from which a staircase leads to basement level. Support needed for the floor above is provided by pine posts. The walls and ceiling are panelled in pine, and carved wooden birds hang from the ceiling. Lamp shades are in split cane.



2

2 and 3 (opposite) the cocktail bar of the St. Ermin's Hotel, London, with access from the dining room corridor, designed to be easily seen and yet not too exposed. The bar section with banquette seating to one wall is screened from the corridor by a wall of stained afrormosia and clear glass strips. Over the bar the suspended ceiling is omitted to provide housing for lighting and extract grilles. The screen wall by the door is in Piastraccia marble: door frame in black anodized aluminium with grey anodized glazing beads: the high ceiling is painted white, and the suspended ceiling and the carpet greenish fawn. Walls and banquette are faced in leathercloth.

over **900**

hotels installed





equipment—

The basic central control unit is as shown and this unit can be arranged in multiples if necessary or installed with the top section situated on the reception desk. The base units house the recording and replay equipment. Both cabinets are finished in ' Formica.'

sizes:—

base unit	height 29½ in.	width 29 in.	depth 19 in.
top cabinet	height 12 in.	width 29 in.	depth 14 in.

The sub-station speaker/receiver unit carries the service selection switches and two fire detector caps.

The cabinet is usually wall mounted and is constructed with light oak or walnut veneers, finished in polyester.

sizes:—

height 8½ in. width 14 in. depth 4½ in.



SOUND DIFFUSION (AUTO-THERMATIC) LIMITED

243-247 Coastal Chambers, Buckingham Palace Road, London, S.W.1
Telephone: Sloane 0707/8

comprehensive hotel service

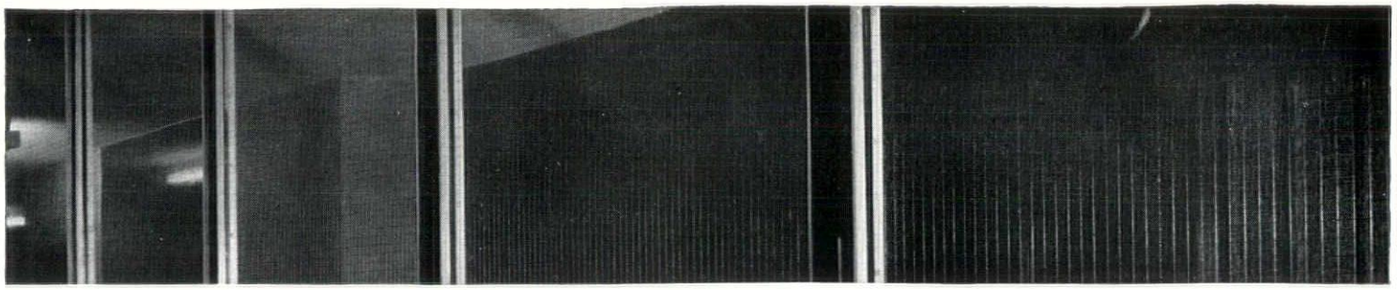
The ' radiotel ' system this year features continental styling architecturally blended with the hotel of the future in mind. 'Radiotel' serves the Hotel Industry throughout the United Kingdom and Channel Islands.

Both the Royal Hotel, Cardiff, and the Dover Stage, Coachotel, which are featured elsewhere in this issue have the system installed. Each installation is tailored to meet specific requirements and can offer seven services: magnetic-tape replay and recording, two way intercommunication, paging and announcements, child-listening, automatic fire detection, two-programme radio and auto-change gramophone.

The services provided are those on which management spend most time, thought and money —improved guest facilities.

The system cabling can be installed by the Electrical Contractor or our own highly skilled engineers and does not require any special arrangements to be made.

We shall be pleased to supply details of our Industrial automatic fire detection system ' auto-thermatic ' and our tailor-made comprehensive public address systems for schools.

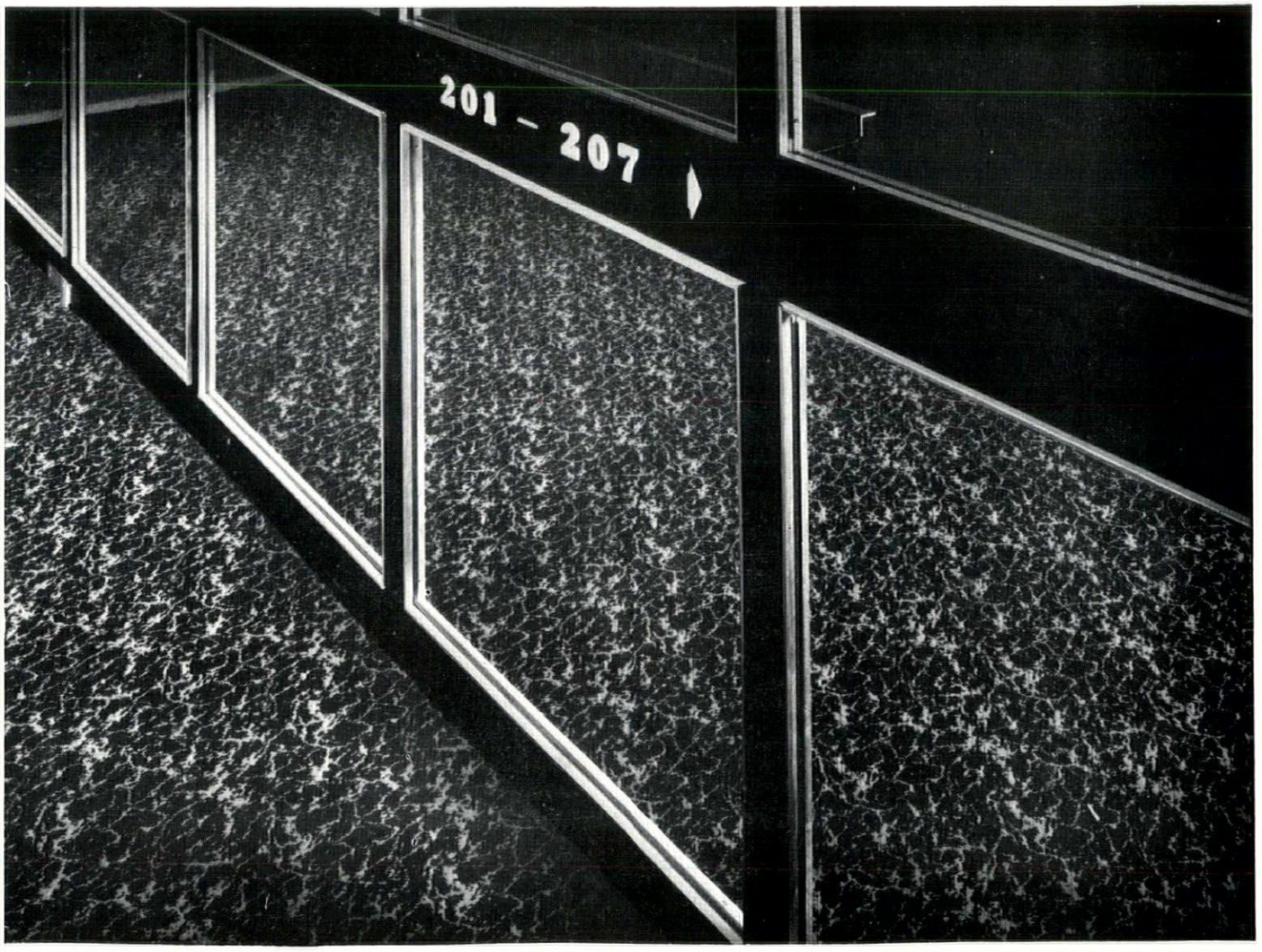


Over ten miles
of Stockwell Carpets have been specified in recent years for service at the following hotels featured in this issue of "Architectural Review"

Dorchester
Kierby
Leoffric
Londoner
Mandeville
Royal (Cardiff)
Washington

stockwell carpets

S. J. STOCKWELL & CO. (CARPETS) LTD
16 GRAFTON STREET. LONDON W.1
GROSVENOR 4161 (8 LINES)
Originators of British Mothproof Carpets



Stockwell carpets, exclusively, were specified for service in the Londoner



bars

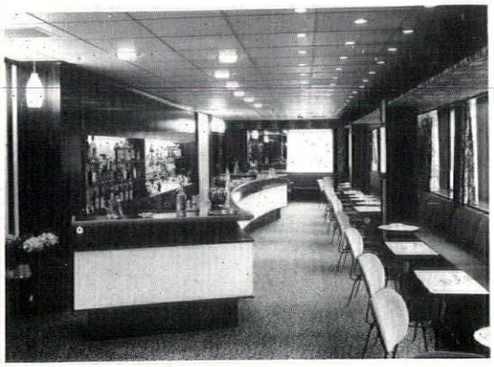
4, *the Long Bar at the Keirby Hotel, Burnley, is shaped to form a bottleneck and force the public past to the main section of the bar. The bar is faced in rosewood and plastic laminate.*

A rich effect has been obtained in the bar of the Osaka Grand Hotel, Osaka, Japan, 5. *Straw mats on the wooden floor: ceiling finished in wooden strips: walls faced in glazed ceramic tiles.*

6 *and* 7, *Grosvenor House, London, has neat detailing to the cash register casing, and the alcove seating is ample and inviting. The wall veneers and bar woodwork are in Brazilian rosewood.*

The stools of the bar at the Metropole Hotel, Brighton, 8, *are set on a raised tiled plinth, and the bar is set in a rosewood surround, framed in an ebonized moulding.*

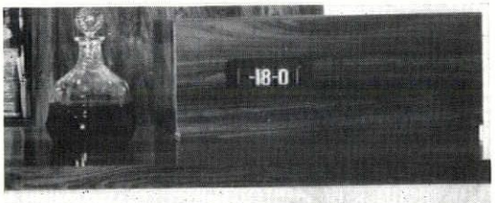
9, *at the Royal Hotel, Cardiff, a canopy was dropped over a new bar and the entrance generally revised. Walls and ceiling are finished in a gold moire paper with wall mirrors to increase the apparent size of the room. A regular feature of many foreign hotels is the bar terrace—as at the Britannia Hotel, Flushing,* 10.



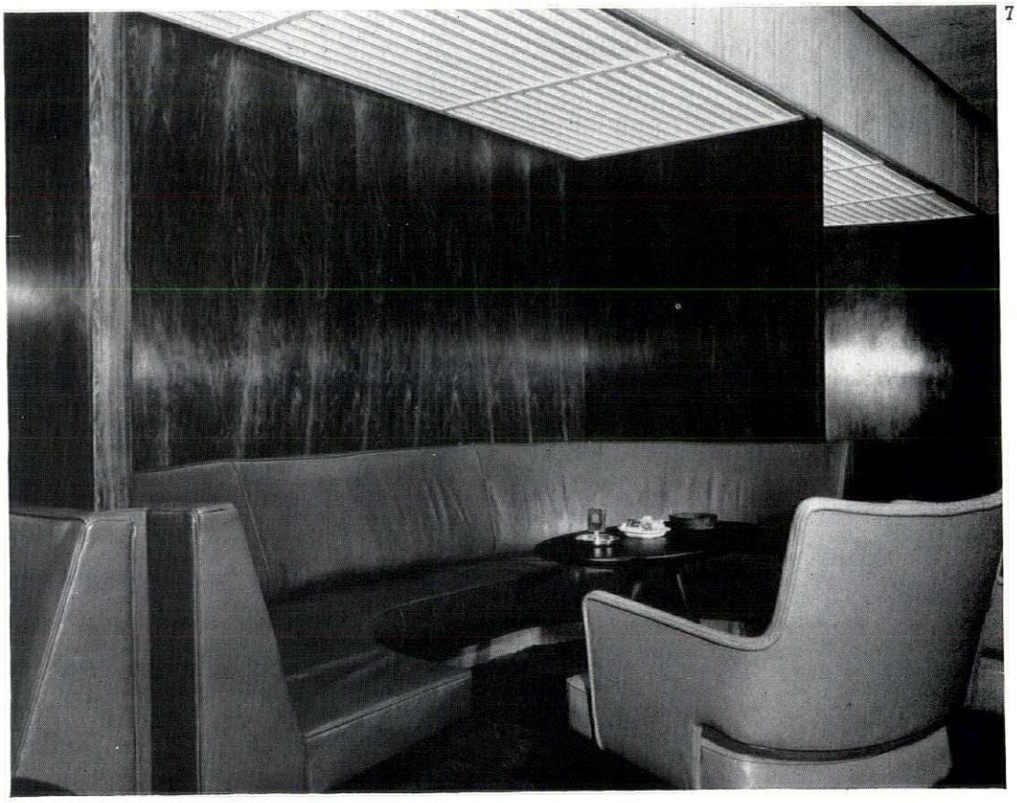
4



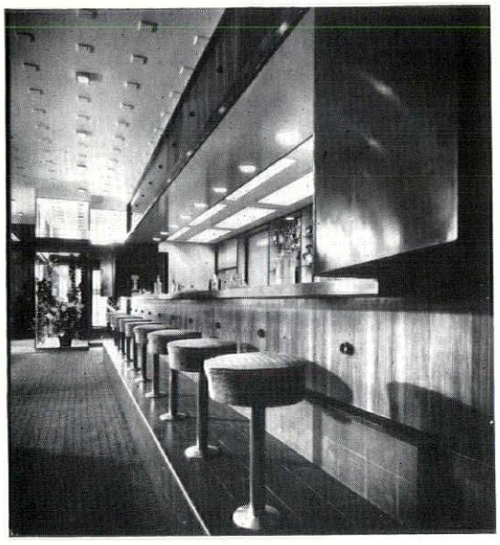
5



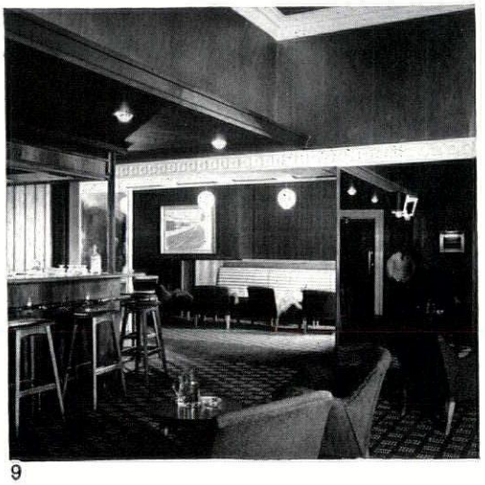
6



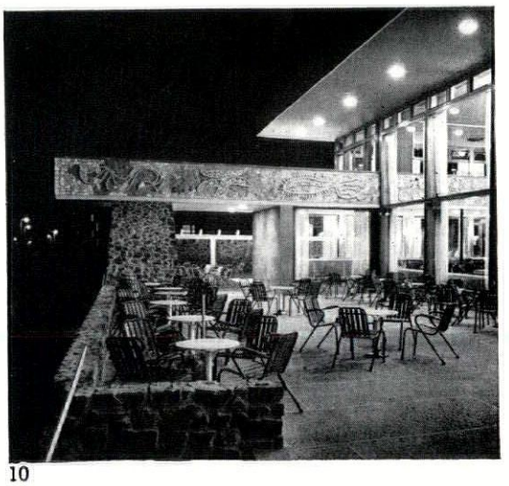
7



8



9



10



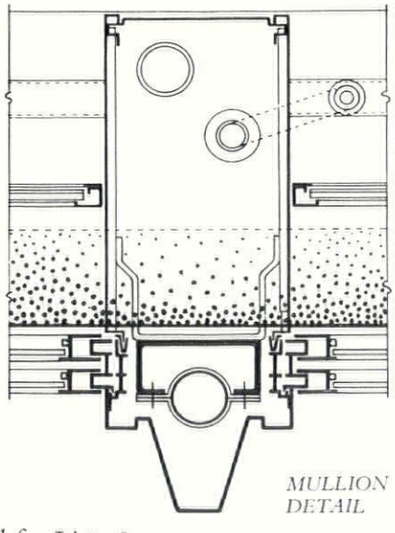
A new development in curtain walling

HOPE'S

WINDOW WALLS in the SANDERSON BUILDING

Berners Street, London, W1

are complete window walls, finished inside and out with concealed rainwater, heating and sprinkler pipes, ducting and convectors

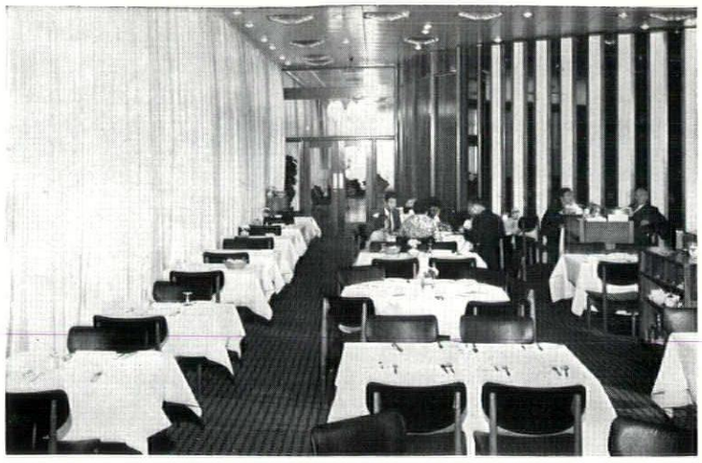


MULLION DETAIL

Send for List 383

HOPE'S WINDOWS
The Name Guarantees

HENRY HOPE & SONS LTD
SMETHWICK, BIRMINGHAM
LONDON: 17 BERNERS ST., W.1





★★★★★★★★ **IN THE SKYWAY HOTEL**—a whole constellation by Hille. In the main lounge, above, exhilarating Coconut chairs (clip-on upholstery over steel shells with rod bases) are paired with special Gatwick settees. The dining room tables and Albany chairs, top photo, the moulded-back armchairs in the bar, and easy chairs in the bedrooms are all by Hille. In the bedrooms, compact dressing table units and the matching headboards were specifically designed for this contract. All the fabrics used for the upholstery and the curtains came from the extensive and original Hille range. Next time you can, visit the Skyway and see how handsome and appropriate an all-Hille contract can be. Or see the individual pieces in our showrooms, 39/40 Albemarle Street, London, W.1, Hyde Park 9576, or 24 Albert Street, Birmingham 4, Midland 7378, or write for brochures.

hille
CONTRACT DIVISION

Internationally-honoured furniture for homes and offices

HOTELS

the immediate prospect

During the past six months over 70 hotels have been projected for building in Britain. It is unlikely that more than ten of these will be built.

The extraordinary number of still-births, in an industry where there is a desperate need for expansion, arises from the peculiar circumstances that surround the inception and birth of any hotel project.

Take the civic side first. Here the mayor and council may feel that the town needs a new hotel if it is to keep up with its neighbours, to bring tourists and convention trade to the town, to provide local employment, to give good accommodation to visiting notables and encourage itinerant businessmen. Against this will be the resistance of the local hoteliers, who may well be vocal councillors and see their trade being affected.

The council may also see the hotel as part of a larger redevelopment scheme. They may, as in the case of Bournemouth recently, ask contractors to submit proposals for the replanning of a section of the town, together with costs and glossy perspectives. The briefing may be so vague (again, the example is Bournemouth) that the schemes put forward do

not even cover the same site. But on such plans the word *Hotel* looks good, adding a touch of drama and imagination which no number of office blocks will ever do. The danger is that a hastily blocked-in hotel may become stuck and the resulting siting lack the consideration which further time and study would have given it.

And then the public. A reading of press reports on recent hotel projects makes it clear that hotels arouse feelings in a way that one would more normally expect from projected race-tracks, abattoirs and amusement parks. It is obvious that to a small, but highly articulate, section of the public hotels still retain the stigma of theatrical raffishness. Objections are raised that the hotel will lower the character of the town, will encourage drinking and fast driving (and living?) and perhaps even speed the decay of the well-loved local inn. There is also often a hint that the mayor is getting too big for his boots in suggesting a hotel and that he only wants it as a memorial standing long after he has hung up his chains of office. Experienced hotel operators know that, like turtles, they should keep their unhatched children underground until the last possible moment. Michael Rosenauer, the architect who has designed a number of hotels, has said that as soon as he reads of a projected hotel in the newspaper he doubts if it will ever get built.

But behind the platitudes of the local authority, and the doubts of the residents, will be the one person upon whom will rest the real decision of whether there shall be a hotel or not. As discussed earlier in this issue, hotels today are built by development companies for lease to a hotel operator Remembering that the interest of the developer will clearly be with ensuring that his building can be leased at the highest and safest profit—it is a really encouraging sign that many of these companies are prepared to put their money into hotels. This will mean that we *shall* get new hotels—something that would never come from the lamentations of the British Travel and Holidays Association bemoaning the lack of accommodation.

The way in which the marriage between the developer and the hotel operator is arranged will differ in every case. But clearly for the success of the design the sooner that it happens the better. But in many cases this is not so. The developer is anxious to get his project under way—at any rate to the extent of getting all preliminary permissions. This means that the operator may well take on a scheme which he wishes to alter in a number of ways, all of which would have been easy during the preliminary design stages but get increasingly difficult as time goes by. Hotel operators have very strong views on the way that a hotel should work and the architect is under a severe handicap if he has not been able to discuss his project with the eventual users from the beginning.

The developer will be faced with the problem of finding a suitable site. In London this can prove to be particularly difficult. Having found the site there will be the long series of negotiations with the planning authorities over height, plot ratio, garages and so on. An example of the amount of time taken in finding a site and planning negotiations is the London Hilton where this has taken seven years and involved buying out the interests of 170 people in the site.

It is against this background that the architect will be working. If he is lucky he will have one client. If he is unlucky he will have a committee to work for, whose decisions are confused by the requirements of a late-appointed hotel operator who may well in turn appoint his own interior designer to 'finish off' what the architect has been doing.

It is not surprising that so many hotel projects fail to materialize. Possibly no developer will be interested in the council's idea: or if he is then he may not be able to find a hotelier to accept the lease. Or there may be no suitable site: or when a site is found the planning regulations—and this is the most common death warrant—restrict the size of the hotel below a point where an economic number of bedrooms can be included.

In spite of all, new hotels are being built. The following section records some that are already under construction in Britain (plus two in Africa by British architects) and also projects for hotels in Britain which are likely to materialize.



the immediate prospect

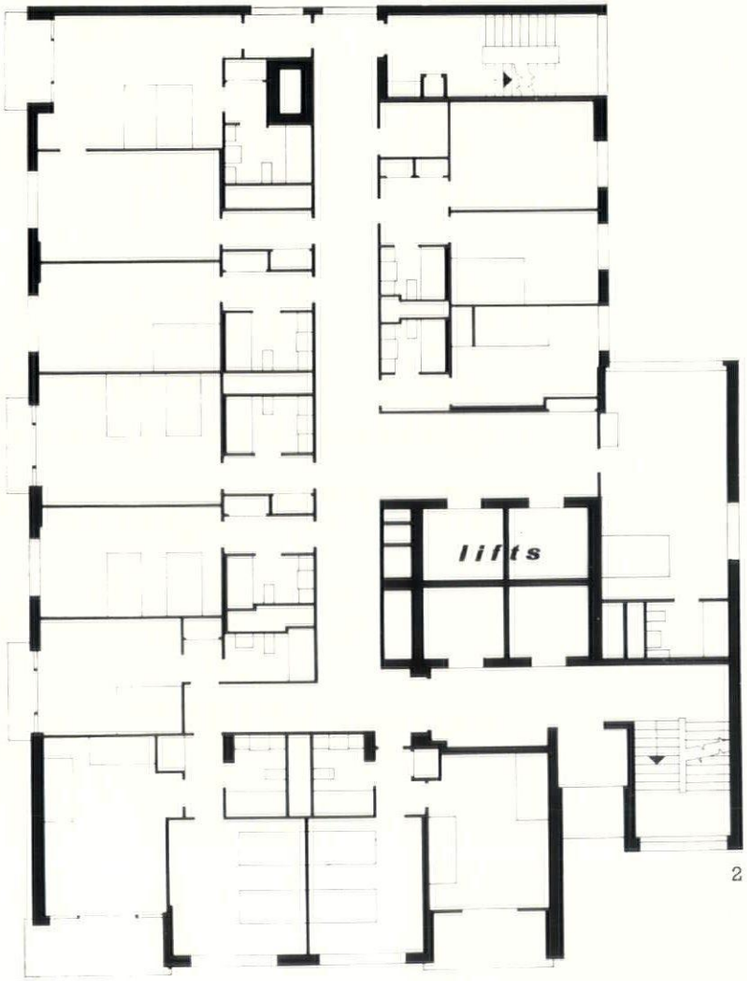
HOTELS

1, *Carlton Towers; architect, Michael Rosenauer. A complex group of high and low buildings on the north side of Cadogan Gardens, London, adjoining Sloane Street. The structure is now complete and full operation is expected by Christmas, 1960. Maximum occupancy is expected to be 550 guests in 328 rooms, disposed in 64 suites, 145 doubles and 119 singles, all with private bathrooms. Restaurants on ground and first floor, the upper one seating 120; the kitchens on this floor also serve a ballroom which can seat 400 banqueters. Finance follows the common pattern—the hotel is owned by one company and operated by another, a subsidiary of the giant Hotel Corporation of America.*

2, *typical floor-plan in the eighteen storey tower-block of the Carlton Towers. The foundations of the tower are taken down fifty feet into the London clay. Construction is concrete frame, with flat slab floors and flush soffites, while vertical members have as far as possible been lost in the outer walls or load-carrying slabs. In any case, the tall tower with relatively small floors and good ratio of corridor space to external walling, offers considerable advantages in terms of freedom of planning over a slab-form bedroom block, since a deviation from the regular planning grid can be multiplied vertically, from floor to floor, with less disturbance to the structure than when several have to be fitted into a single larger floor.*



1

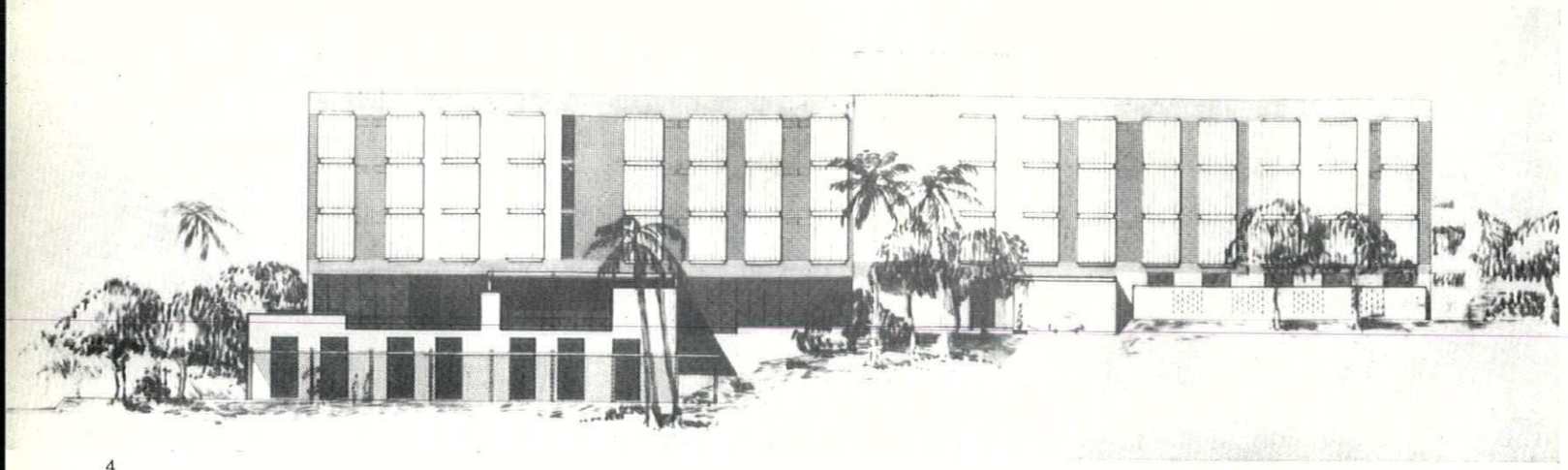


2

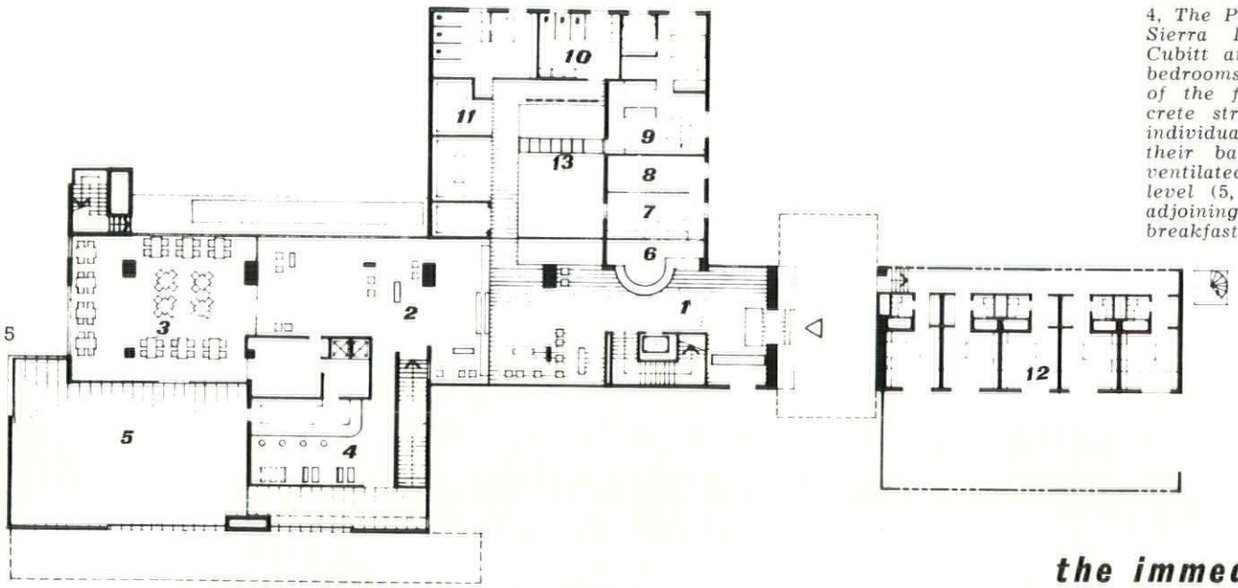


3

3, *mock-up bedroom, designed by Henry End. Whatever the use of such operations in working out furnishing schemes and colour/texture relations, a mock-up also shows the shareholders what they are getting for their money, and provides the press with useful advance copy.*



4

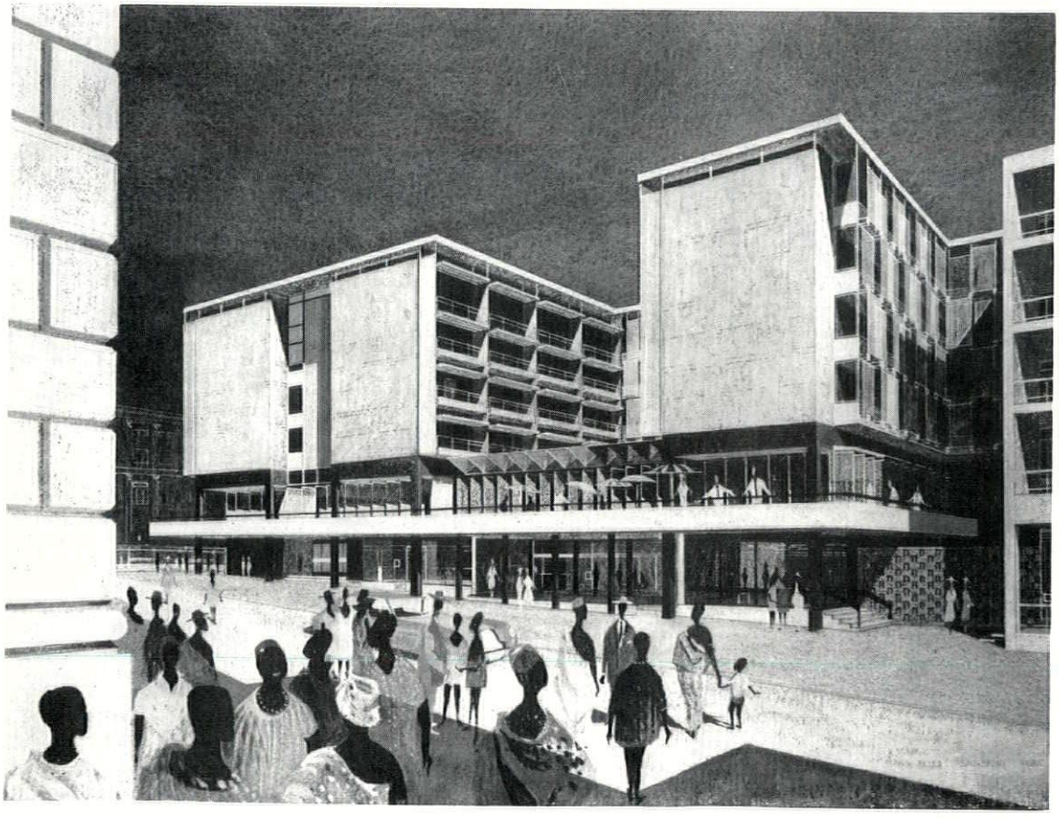


5

key to entrance floor plan
1. entrance
2. lounge
3. breakfast room
4. main bar
5. terrace
6. reception
7. accounts office
8. manager
9. manager's suite
10. w.c.'s
11. concessions
12. European staff
13. interior court

4, *The Paramount Hotel, Freetown, Sierra Leone; architects, James Cubitt and Partners. There are* 48 *bedrooms on the three upper floors of the five-storey reinforced concrete structure. All bedrooms are individually air-conditioned and their bathrooms are mechanically ventilated. On the entrance floor level* (5, *below*) *is a lounge with adjoining terrace and* 60-*guest breakfast room, with restaurants,*

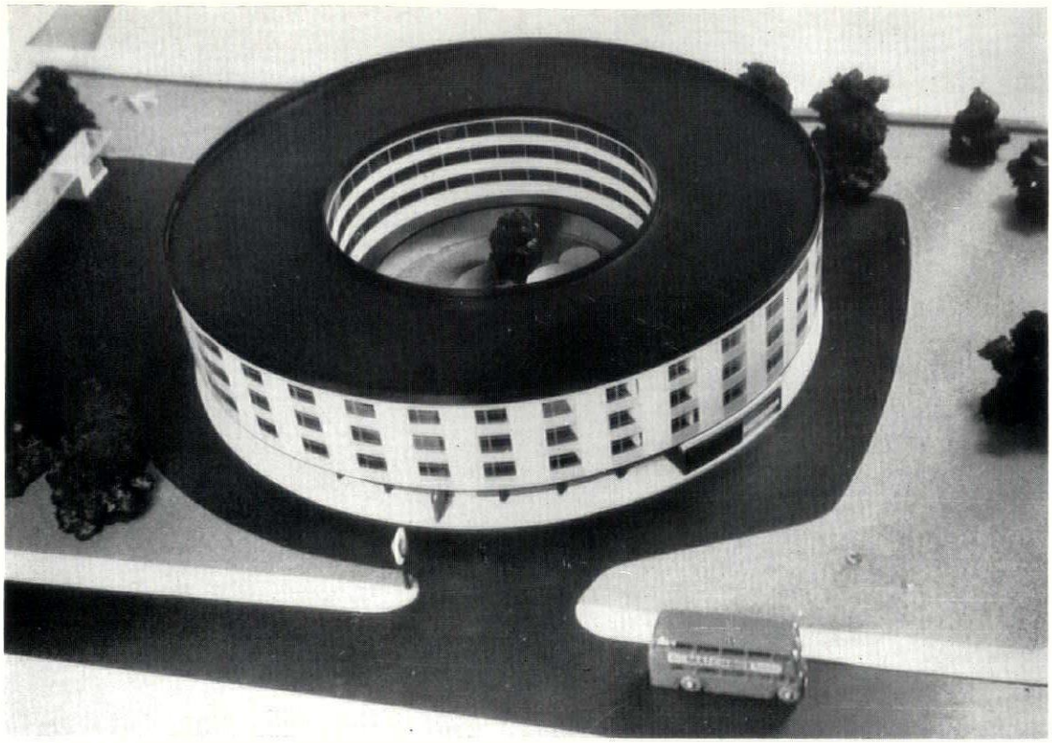
the immediate prospect



6

which can be combined into a single space holding 120 *for banquets, on the floor below. The hotel is scheduled to be opened on December* 15.

6, *Bristol Hotel, Lagos, Nigeria; architects, Architects' Co-partnership. On a compact site, facing a main traffic route in the built-up centre of Lagos. Plot ratios and heights for the area give a maximum of* 68 *bedrooms, of which four are pent-house suites; all have bathrooms and private balconies. The bedroom blocks are grouped round three sides of the first floor dining-terrace, the double-bedroom block being oriented to catch south-westerly breezes. Up to first floor level the structure is a reinforced-concrete frame carrying a table-slab, and the space under this has been let off for shops, etc., because of the high land values. Above the table-slab, construction of the bedroom wings is in load-bearing block-work cross-walls. Completion is due in August,* 1961. *The owners are the Investment Property Company of Nigeria; the operators, Nigerian Hotels.*



7

7, Ariel Hotel, London Airport; architects, Russell Diplock Associates. As the model shows, a circular hotel with its central court slightly off-centre. 186 guest rooms on three floors above a first floor of public rooms and services (see plans, 9 and 10, below). Again, a concrete frame up to first-floor slab, above which load-bearing cross-walls are arranged radially. The resultant tapering sections naturally accommodate double rooms on the outside of the drum, single on the inner face. After some research, it was decided to use double windows of special noise-proof construction because of the high level of mechanical noise (from road traffic as well as aircraft).

The owners and operators are Palace Hotels, who intend to maintain full twenty-four hour service (essential for a hotel serving an airport) and for this reason there is accommodation such as flats and recreation rooms on the ground floor for living-in staff.

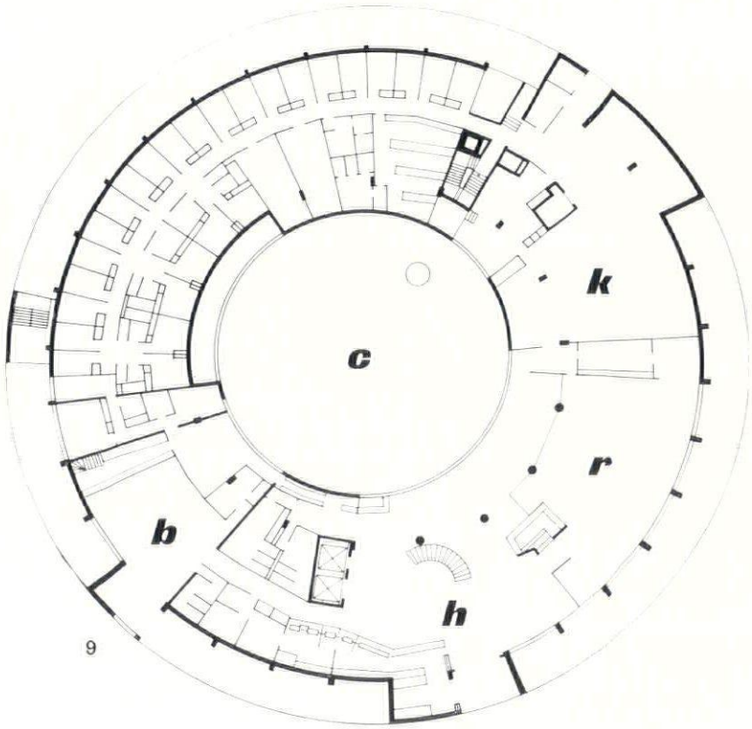
8, progress photograph shows the state of the works at mid-summer, 1960; completion is expected by Christmas. When the two-acre site has been tidied up and landscaped it will provide parking for 120 cars.

8

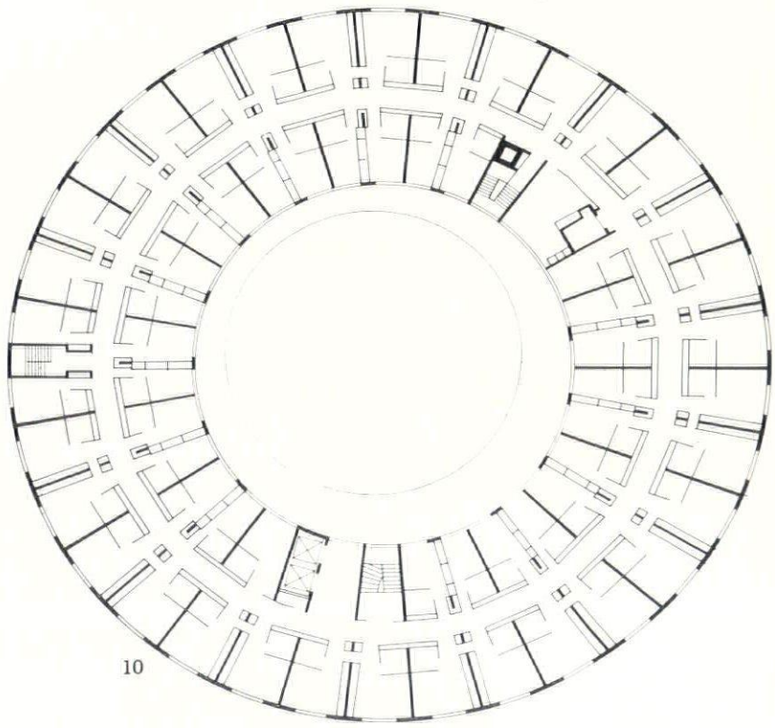


the immediate prospect

key
b. bar
c. central courtyard
h. entrance hall
k. kitchen
r. restaurant

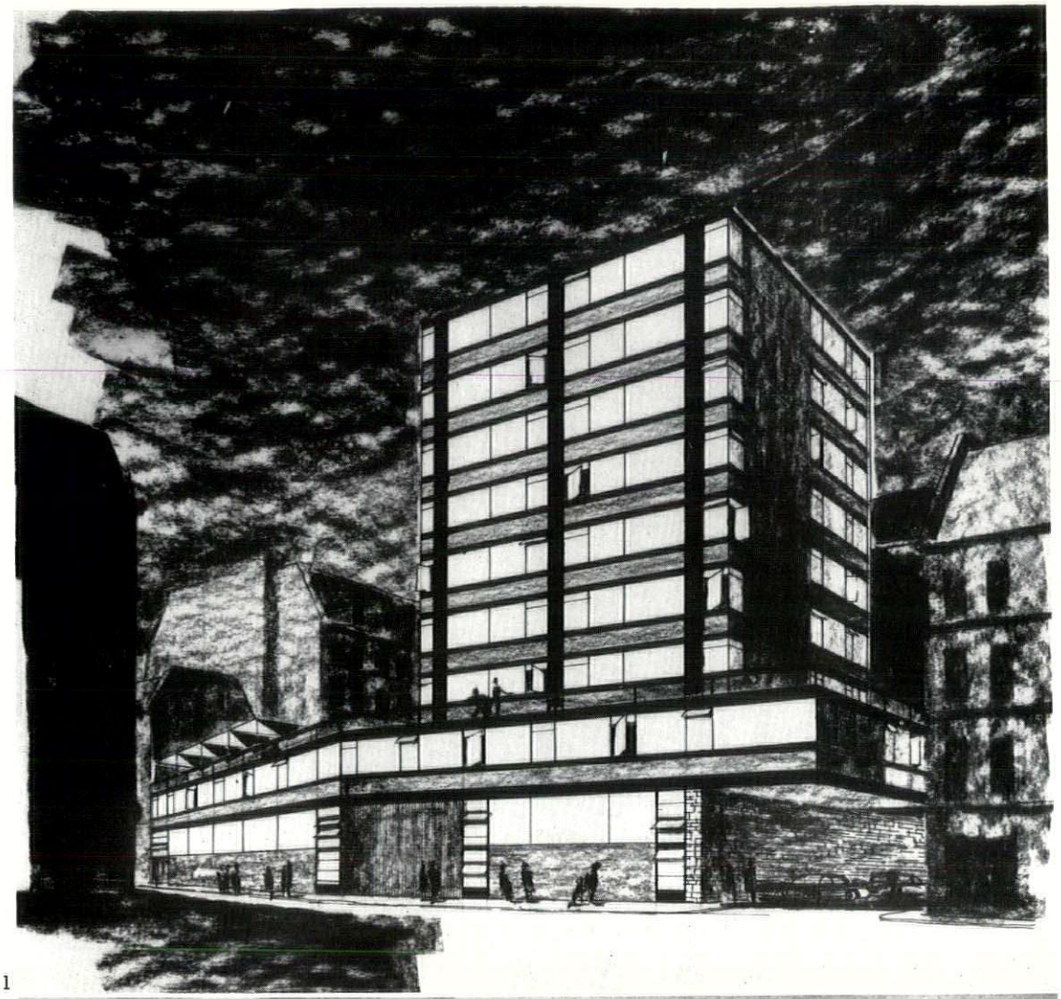


9



10

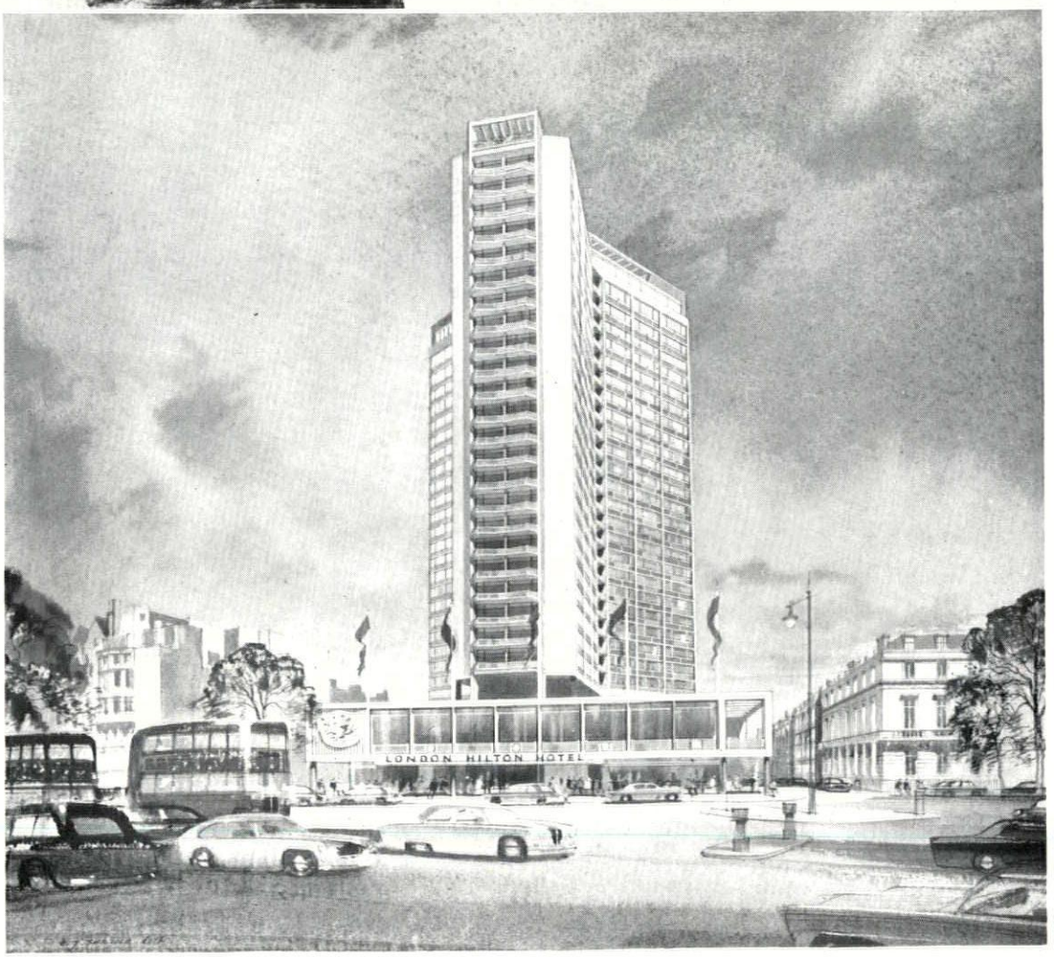
11, *Mandeville Hotel, London (extensions); architects, Katz and Vaughan. A 73-room addition to an existing 120-room hotel, one-third of the new rooms to be singles, the rest doubles and twins.*
Ground floor to be let off as shops; dining-room for private parties and receptions in basement; bedrooms at first-floor level and in seven-storey tower. The balcony around the foot of the tower becomes a partly canopied second-floor garden terrace (just visible to left of tower).
Work on this extension is due to start early in 1961, and completion is expected in about twelve months.



11

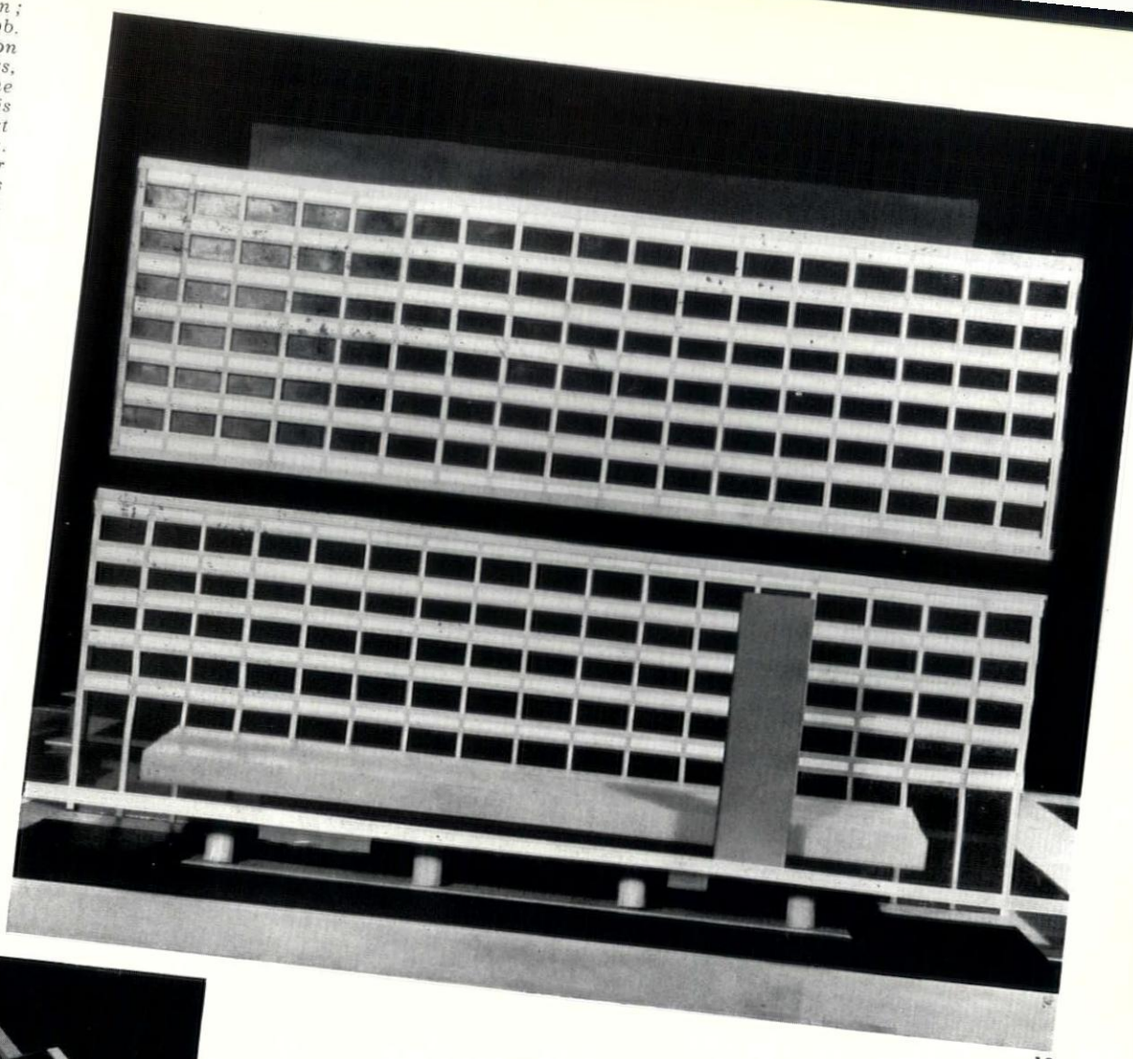
the immediate prospect

12



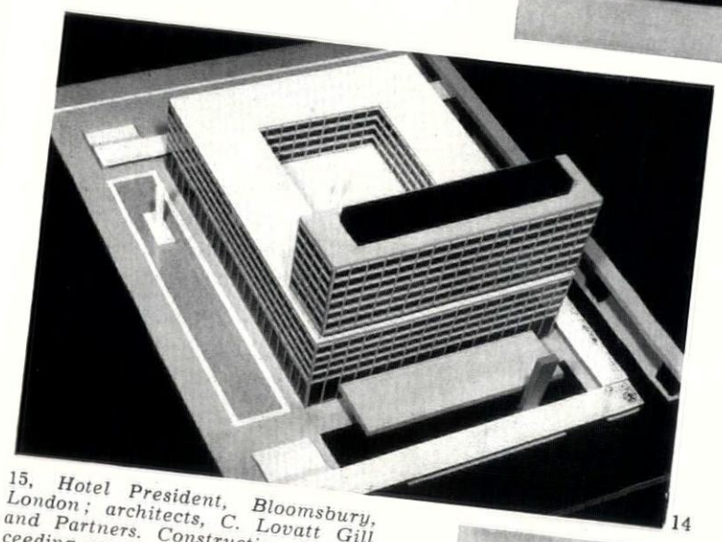
12, *the London Hilton, Park Lane; architects, Lewis Solomon, Kaye and Partners. Demolition work is in hand on the site for this long-awaited, much-discussed addition to London's roster of super-hotels.*
The 530 bedroom project illustrated here, which is now to go ahead, represents a considerable cutting-down on the original scheme which called for 700 bedrooms and suites, but was rejected on town-planning grounds.
The bedrooms are to be housed in the 24 storeys of Y-shaped tower rising above the podium which will include four restaurants, space for 1,400 banqueters, and parking space for 360 cars. A rooftop night-club is also under consideration.
The most ambitious of London hotel projects, the Hilton has required eight years of negotiation and the buying-out of 170 miscellaneous interests. The operators will, of course, be Hilton, who will furnish and equip the structure on lease for twenty-five years from one of the Clore group of companies.

13, South Bank Hotel, London; architects, George, Davies and Webb. Still in the planning-application stage at the time of going to press, this project for a site adjoining the Shell tower on the South Bank is architecturally one of the most promising schemes under discussion. Car-parking, kitchens, and other services are to be in three storeys of basements below the main podium. Above this, ground-floor restaurant and cocktail bar, entrance and reception, lounge and coffee-room; at first floor, banqueting accommodation in various sized rooms for almost 2,000 persons. At this level also, lounge bar and high-level access to Waterloo station. From the second floor up, 620 rooms with bathrooms, giving a total occupancy of over 900. There may be a night-club at the sixth floor where the plan-form changes from a hollow-square to a single slab.



13

the immediate prospect

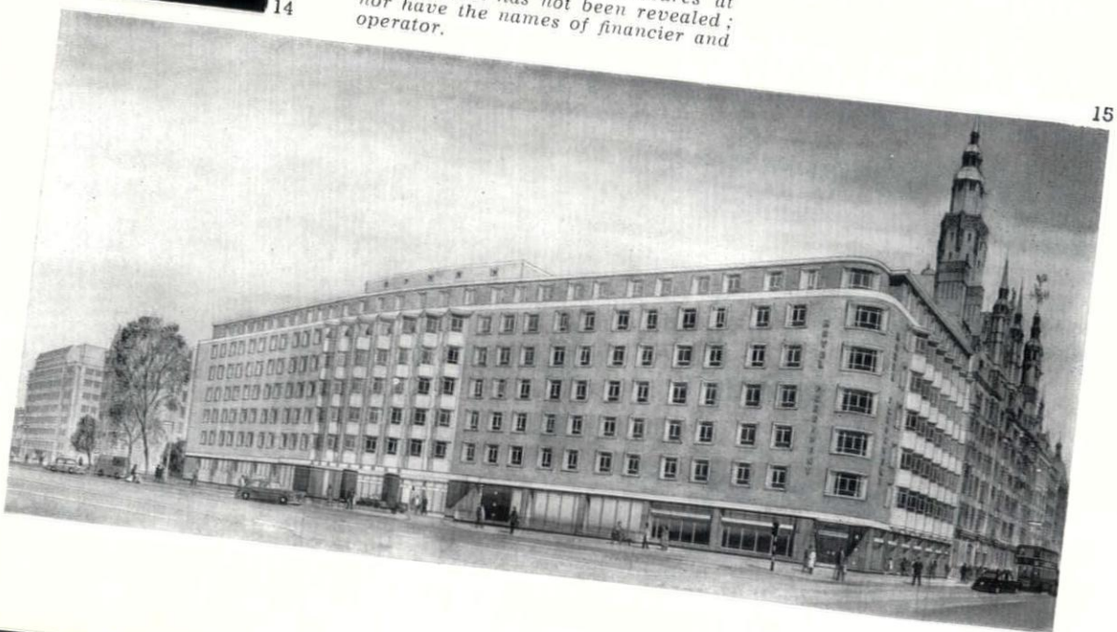


14

14. bird's eye view of the model of the South Bank hotel. The high slab will be on the side farthest from the Thames, overlooking Belvedere Road. The precise function of the various ancillary structures at ground level has not been revealed; nor have the names of financier and operator.

15, Hotel President, Bloomsbury, London; architects, C. Lovatt Gill and Partners. Construction is proceeding on the site (corner of Russell Square and Guilford Street) and full operation is expected for the summer of 1961. As the perspective shows, the site is in the heart of Bloomsbury's hotel belt; its promoters and eventual operators are the Imperial Hotels group who already operate a number of hotels in the district. Occupancy is expected to come largely from transient travellers from the main railway termini, and the proportion of single rooms is therefore unusually high—390 out of 450.

It is to be regretted that this radical assessment of hotel function has not been matched by an equally radical architectural treatment; the marked difference in style between the President and the other hotels in this issue serves as negative proof of the revolution that has taken place.



15



16



17

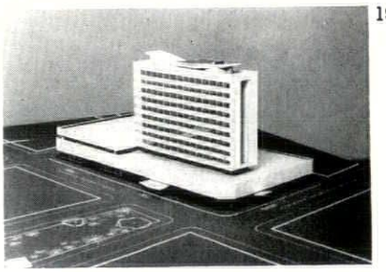
16, *un-named project, Bournemouth; architect, Ronald Sims of Genns and Cross. An 18-storey project with 640 rooms, replacing the Royal Exeter Hotel on the same site. Eight shops are proposed at street level with underground parking, but the bones of this project are to be found in the conference hall to hold an audience of 1,750, with overflow accommodation for another 1,500. In other words, this is a bid for the big congress trade.*

17, *un-named project, Kensington High Street; architects, R. Seifert and Partners. A four-hundred room project still in the planning application stage, for a site near the entrance to Kensington Palace Gar-*



18

the immediate prospect



19

dens. The ground floor will be given over largely to shops, displacing the reception area to the first, which will also have restaurant and banqueting rooms; second-floor roof-garden above restaurant. The module of the window mullions is the ever-popular 40-inch, which apparently suits hotel planning as well as it fits so many other things.

18, *project, Newcastle upon Tyne; architects, Cotton, Ballard and Blow. Outline planning permission has been granted and design is proceeding. 200 rooms of which only a quarter are to be doubles; one part of the ground floor to be rented off as shops, part (together with most of the first) to be the hotel public rooms, etc. 200-car parking garage takes in all three lower levels at far end of the site.*

19, *project, Plymouth; architects, Vincent Burr and Partners. Also designed with the congress trade in mind; an assembly hall big enough to hold 400 diners or an audience of 700. The site, on the Hoe, would clearly favour conference use. The tower block is to contain 156 bedrooms with private bathrooms. As well as congress facilities, the low block will have the usual shops and 4,000 square feet of office space.*

Every building type has its own technical problems. Those of the hotel are many, and to consider any one of them in the necessary detail would take more space than we can give here. To give readers an introduction to this technical labyrinth we have chosen three: the legal aspect, reflecting the English hotel's heritage from innkeeping; ventilation; and the hotel kitchen; because these offer key functional and environmental problems.

HOTELS a technical postscript

LEGAL ASPECTS OF PLANNING AND MANAGEMENT

On the assumption that most hotels of any size these days will want a licence, the author of this article, W. Eric Jackson, a barrister with special experience in this field, discusses the immense influence on hotel planning exercised by the local justices.

To a great extent the laws which affect the planning and management of hotels are of local application. This means that, although Parliament has, by various Acts, prescribed generally what shall be done, the details of how it shall be done are left to authorities in each locality.

The Licensing Act, 1953, for instance, makes it an offence to sell liquor without a licence, and provides that there shall be various types of licence, such as an off-licence or an on-licence, which may authorize the sale of 'sweets' (cider and perry) or beer, or wines, or spirits, or combinations of these. These are issued by the local licensing justices for the local licensing district. A justices' licence, when obtained, authorizes the holder to obtain an excise licence, on which the appropriate licence duty has to be paid.

Section 6 (3) of the Act of 1953 provides that licensing justices shall not grant a new on-licence unless the premises are in their opinion structurally adapted to the class of licence required. Moreover, under section 6 (2), the justices may attach to the grant of a new on-licence such conditions governing the tenure of the licence and 'any other matters as they think proper in the interests of the public.'

It will be seen, therefore, that the local justices have a very wide discretion conferred by Act of Parliament. Decided cases in the courts of law have shown that this discretion is virtually unfettered. The phrase 'interests of the public' has been held to include part of the public only, so that the justices may, by conditions in the licence, limit the sale of liquor to a particular class of person, or limit sales to particular parts of the licensed premises.

As a result of this local discretion it may happen that in some localities a new licence is very hard to get, while in other areas licensed premises are numerous. Some local justices require a saloon bar, a private bar, a public bar, as well as a separate counter for sales by 'bottle and jug' for consumption off the premises. Some justices make it a condition that sales of liquor shall be to residents only, or with meals only. Some justices frown on 'perpendicular drinking,' that is, drinking at a bar standing up. There seems to be an idea that a bar encourages drinking or makes the locality less respectable, and that table service of liquor by waiters in a lounge is more socially desirable. There is today, however, a growing tendency towards the 'classless' hotel without separate grades of bar.

Accordingly, when planning a new hotel, it is essential to get some idea of the attitude of the local licensing justices. The question of excise duties is no longer important. At one time these duties depended on all sorts of factors including the type of liquor sold, the annual value of the premises, and the relationship between the receipts from sales of liquor and the receipts from other activities of the hotel. The licence duties were, in some cases, so very high that they were a factor to be considered in planning a new hotel. The Finance Act, 1959, section 2, however, reduced the maximum duty to £5 for a full on-licence; accordingly the licence duties are no longer a serious factor to be taken into account.

The conditions which the justices may impose, however, can vitally affect planning, as will readily have been seen from the examples mentioned above. Section 10 of the Licensing Act, 1953, enables local licensing justices to grant a provisional licence in respect of premises not yet constructed. Plans have to be deposited and the provisional licence is granted on condition that the premises shall be constructed according to the plans. This method of getting the plans approved in advance is useful, of course, but, to avoid waste of time if the plans are disapproved of, it would be as well, before drafting any plans, to obtain if possible some informal hint from the clerk of the local licensing justices as to the likely attitudes and opinions of the justices, or to consult some local architect, surveyor or solicitor who has experience of the local licensing court and can forejudge what the justices are likely to concede.

Somewhat similar considerations apply to alterations. Section 133 of the Licensing Act, 1953, makes it an offence to make or use any internal communication between licensed premises and any other premises used for public resort. Section 134 requires that the prior consent of the justices shall be obtained to any alteration in licensed premises which gives increased facilities for drinking, conceals from observation any part of the premises used for drinking, or affects the communication between the part where liquor is sold and any other part or any street or public way. Plans may be required to be deposited in order that the justices can decide whether or not to give consent; and if, before the plans are drafted, some idea can be obtained of the likely attitude of the justices, so much the better.

Certain provisions of the Act of 1953 are of general application and require no local decision. Under section 32, a new on-licence for spirits cannot be granted unless the premises have at least two public rooms; or if the on-licence is for other liquors, at least one public room. Moreover, the premises to be licensed must have a certain annual value varying (as prescribed in the Fifth Schedule to the Act) according to the type of liquor to be sold and the type and population of the local government area in which the premises are situated; this annual value varies from £12 to £50; it is not therefore a factor of any great weight.

Section 126 of the Act of 1953 prohibits the admission of children under 14 to the bar of licensed premises during permitted hours for the sale of liquor, unless the child is resident on the premises, is the child of the licence holder, or is merely passing through from one part of the premises to another. To avoid trouble or question it is therefore advisable, in planning premises, to arrange matters so that a child can get about the premises without having to go into the bar at all.

It is a well-known provision of the licensing law that no sales of liquor may take place in licensed premises outside permitted hours, except to residents. The actual permitted hours are fixed by the local justices within certain prescribed limits. In certain cases the justices may extend the evening hours by one hour. This is commonly known as the 'supper hour' extension, and can only be granted if the justices are satisfied that the premises are structurally adapted and used for providing refreshment to which the supply of liquor is ancillary. In other words it applies only to dining rooms and restaurants on licensed premises. During the 'supper hour' liquor may be supplied only with a meal, and any bar on the premises must be closed.

There is a common misconception that, outside permitted hours, all the licensed parts of premises must be closed. Many licensees of public houses close their outer doors and forbid any entrance to the premises outside permitted hours. There is no legal need for this. All that the law says is that liquor must not be sold outside permitted hours. The law does not forbid the sale of non-alcoholic liquor outside permitted hours. Even children can be served with tea or soft drinks, in a bar, outside permitted hours. There may, however, be a reluctance on the part of their parents to allow this because of the association of ideas that seem to cling to the notion of a bar.

It will be seen that if the premises are likely to be used for a 'supper hour' extension, or if sales of teas, ice-cream and other non-alcoholic refreshments are contemplated in parts of the premises where there is a bar, it would be useful if the bar, when not in use, could be shuttered off, or disguised so that the room can be transformed into a simple dining room or tea room and so avoid any difficulty with the law or any misgiving on the part of customers.

Hotels are, in common with other buildings, subject to the requirements of town planning and the local building by-laws. Here again the law is largely of local application, and prior consultation with the officers of the local planning authority is desirable before plans are finalized. One of the important factors to which local planning authorities today give consideration in relation to any building of public resort is that of car-parking. At one time car-parking was a particularly troublesome matter for the hotel-keeper. Until the Hotel Proprietors Act, 1956, came into force, the courts had held that a hotel keeper was liable for the loss of a guest's car even though the guest was only a casual customer who had dropped in for a drink. Naturally hotel keepers were hesitant in providing any parking facilities while this liability hung over them. The Act of 1956, however, clearly provides that a hotel keeper is now no longer under this liability (unless, of course, the loss of the car were due to his own deliberate act). There need, therefore, be no longer any

a technical postscript

hesitation on this score to the provision of parking space for the use of a hotel.

Another important legal consideration to be borne in mind in planning and managing a hotel is that of hygiene. Under the Food and Drugs Act, 1955, regulations were made relating to the cleanliness of premises, personnel and equipment in any 'food business,' that is, any business in which food is handled (including hotels). These regulations deal with such obvious matters as drainage, lighting, temperature, ventilation, water supply, the siting of sanitary conveniences, the provision of wash-hand basins, and accommodation for clothing, but also provide specifically that no food room shall be used as a sleeping place, and that no food room which communicates directly with a sleeping place shall be used for the handling of open food. Local councils are given power to enforce these regulations, and to grant exemption in special circumstances. So here again, prior consultation with officers of the council is desirable before any construction or re-construction of premises is carried out. It should be borne in mind, however, that the local authority for this purpose may not be the local planning authority.

Bibliography

Paterson's Licensing Acts (Butterworths).

Hotel and Catering Law, by Frank J. Bull and Colin Richardson (Practical Press Ltd.).

The Food Hygiene Regulations, 1955 (Statutory Instrument 1955 No. 1906) (H.M. Stationery Office).

THE VENTILATION OF HOTELS

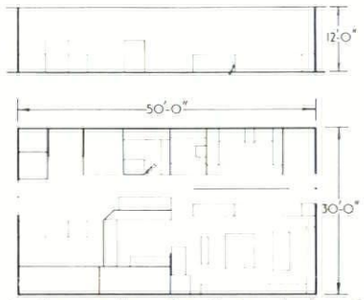
The sudden onset of intense heat, a thick fog of tobacco smoke and, at unfrequented hours, a smell of cabbage and stale beer, all of these are the hallmark of the traditional English hotel. In this article L. J. Schwarz, a heating engineer, describes how to avoid them.

Modern hotels can be divided broadly into two classifications: the metropolitan hotel with limited site area, often upwards of seven storeys high, and the hotel near airports where more site area is available and construction is often of two or three storeys. The problems of mechanical ventilation are generally the same in each with the exception that the need to keep out noise from aircraft at night affects the general construction of the airport hotel and such construction often calls for full air-conditioning of bedroom areas.

The use of insulation and double glazing, although primarily for acoustic reasons, make air-conditioning both desirable and economical. The methods of applying air-conditioning and the factors governing the choice of the best method to be employed are too extensive to be covered in this article which deals with more general aspects of ventilation in hotels.

Kitchens

In the early design and budgeting stage of the project it is necessary to assess the probable ventilation



1, *diagrammatic section (top) and plan of kitchen.*

rate and size of plant room required to deal with the kitchen. In estimating the amount of air to be extracted the rates of air change per hour given by various authorities must be used with care. The correct air quantity to be moved by the plant is not related merely to the dimensions of the kitchen.

To illustrate this point, the Institution of Heating and Ventilating Engineers Guide to Current Practice, 1959, recommends for hotel kitchens above ground 20 air changes per hour. Applying this rate to the kitchen in 1 the fan duty is

$$\frac{50 \text{ ft.} \times 30 \text{ ft.} \times 12 \text{ ft.} \times 20}{60}$$

6,000 cubic feet per minute.

If the same kitchen layout were used, but the ceiling height reduced to 10 ft. the fan duty, maintaining the same hourly air change rate becomes 5,000 c.f.m. But, on reflection, it will be obvious that the quantity of air extracted *should* be the same for both kitchens if the equipment and usage is identical (the Guide does recommend that the rate be related to hood design).

Since the tendency is towards lower ceilings the architect, if assessing the equipment needed without the assistance of a consulting engineer, should try to avoid this pitfall when arriving at sizes of plant for ventilating equipment.

Hotel kitchens differ from other kitchens in that their 'use factor' is more variable. Apart from the normal residents meals and public restaurants they have also to deal with intermittent requirements such as luncheons and banquets. The ventilation of grills, café sets and fish fryers is best dealt with by individual fan systems. This will save running costs by obviating the need to run the whole of one large plant to deal with small intermittent loads.

Before leaving the ventilation of kitchens, and at the risk of stating the obvious, it must be mentioned that all the air extracted by the ventilation plant must be replaced and, in the winter, must be heated. If this is not done by means of an air input plant, extra heating must be provided in the rooms adjacent to the kitchen to allow for the air being drawn from them into the kitchen.

Dining rooms

Factors influencing the ventilation of dining rooms are usage and location. If the dining room is for residents' use only its total occupancy is probably about six hours per day, and will only call for mechanical ventilation if its physical location prevents the use of windows for ventilation.

When the dining room is to be used also as a restaurant by the general public the occupancy rate is increased and extract ventilation is required for the removal of smoke. Background radiant heating is recommended, the input air being tempered to prevent the feeling of cold draughts. It is not recommended that the fabric heat losses be dealt with by the input plant, for though saving in the first cost by dispensing with the need for background heating installation, the running and maintenance costs would increase.

2, *residents' dining room at the Keirby Hotel, Burnley. The background heating is provided by radiant panels flush with the ceiling over the windows. The input and extractor grilles are square adjustable louvre type designed to fit into the ceiling tile module.*



Banquet and ballrooms

Mechanical ventilation is a necessity in ballrooms. Apart from keeping the atmosphere fresh during dancing, the after-dinner announcement '. . . you have your chairman's permission to smoke' can lead to a smog ten minutes later, and this is to be prevented if the speakers are to be seen as well as heard!

Apart from the obvious need for mechanical ventilation careful thought should be given in the design stages to the desirability of cooling, or full air-conditioning. To illustrate this point, consider a typical example —a luncheon for 250 people.

The heat given off by each adult person can be taken as 500 Btu's per hour, thus 250 × 500 = 125,000 Btu's per hour, or putting it simply, when 250 people collect for lunch, *it is the equivalent of* 40 1-*Kw electric fires being switched on!*

This sudden heat load is additional to gains from lights and solar radiation.

If air-conditioning or cooling from the main plant room is ruled out on economic grounds then consideration should be given to the use of local self-contained air cooling units which can be brought into operation as the need arises.

Bars

A high proportion of new hotels are sponsored by breweries and, in addition to the normal cocktail bar, public bars are insisted upon. These latter, though part of the hotel, are not accessible direct from the hotel and open and close in accordance with local licensing custom.

Mechanical ventilation is necessary if natural ventilation is not available, or if the positive advantages of controlled ventilation are demanded by the quality of the project. The problem is to keep the atmosphere free from smoke.

The elimination of smoke can be achieved by air extraction but all the air replacing this must be heated in winter and in certain special cases it may be more practical, and more economical in running costs, to keep ventilation to the minimum and instal a recirculating filtering unit.

A unit of this type is illustrated in 4. The unit is usually mounted at high level and can be switched on as required. Air is drawn from the room through a high efficiency filter which collects the smoke particles and returns the cleaned air to the room. No fresh air is introduced and, by this means, heating running costs are kept down.

The cocktail bar presents an additional problem if it adjoins the ballroom. When a dinner is concluded the diners leave the ballroom and, whilst the tables are removed and the floor made ready for dancing, usually congregate in the cocktail bar. (This congregation also occurs before dinner or luncheon). The sudden fluctuations thus caused in ventilating and heating, or cooling, load have to be taken into account when designing for these areas.

Bathrooms

The metropolitan hotel, to make the best use of available perimeter, locates bedrooms externally and bathrooms internally, making mechanical ventilation essential.

The bathrooms are usually grouped in pairs around a vertical service duct. The ventilation ducts have to 'compete' for best position with the plumbing and other services and, if the shape and size of the main duct is not correct, the ventilation ducts must give way. Since the ventilation ducts will tend to transmit noise from one bathroom to another, a compromise of this sort may make it impossible for the designer to adequately prevent the travel of sound.

The simplest method of providing an acoustic barrier, 5, is to enlarge a section of the input and extract duct to each bathroom and line it with sound absorbent material. Another method, 6, is to divide the false ceiling over each bathroom into two sections, for input and extract respectively. The outlet grilles are located on the ceiling and the main ducts have branches to each section, so that the false ceiling void acts as a sound absorber. The disadvantage of the second method is that if the division between the two voids is not air tight short circuiting will take place between the two sections.

Care is needed in the selection of types of air outlets in bathrooms,



3

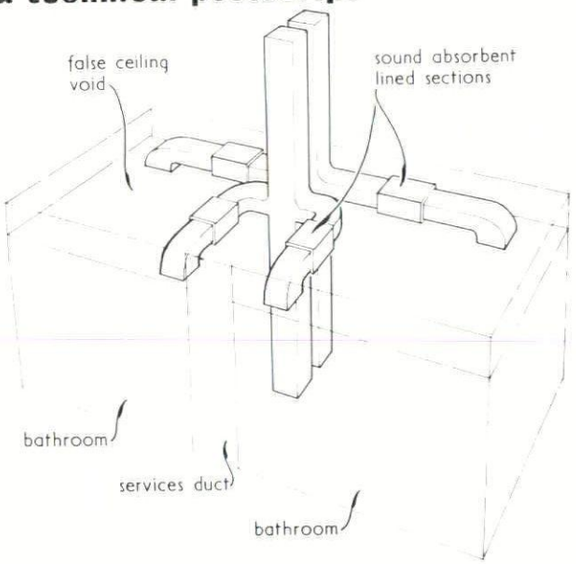
3, part of the banquet and ballroom at the Keirby Hotel. The background skirting heating is located beneath the windows. The ventilation grilles (not pictured) are in the high-level false ceiling blended with the flock sprayed background to the 'night sky' lighting effect.

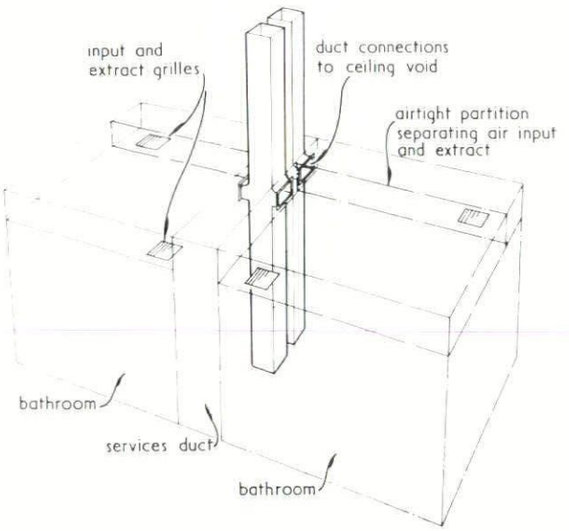


4

4, floor-mounted recirculating filter unit (Vokes Ltd.). The unit can also be supplied for high-level operation.

a technical postscript





5, a simple method of providing an acoustic barrier by enlarging a section of the input and extract duct and lining it with a sound absorbent material. 6, an alternative method of providing an acoustic barrier by sub-dividing the false ceiling space.

velocities which are acceptable in other areas can produce discomfort when encountered by a naked wet body. The input air should be heated *even in summer* to prevent discomfort due to the increased latent heat loss by moisture evaporation from the skin.

General installation

In choosing equipment for ventilating it should be borne in mind that the engineering maintenance in the hotel will not be as complete, or as continuous as, for example, in a modern factory. Equipment should be as automatic, and controls as simple, as possible. It should not be necessary for the head waiter to go to a plant room possibly seven floors above the ballroom to switch off the ventilation, the plants should be controlled by push-button stations in the area being served by each plant (with the obvious exception of bathrooms and internal toilets).

Air filters should be as nearly automatic as costs will allow, and should not be the sort that require a periodic manometer reading to check when attention is needed. There are, for example, several first class roll type filters being manufactured in this country which automatically feed new filter media as the old media is saturated and incorporate a remote warning that the last section of filter has been exposed and a new roll is required.

Grilles and air outlets have to be chosen with the architect's general interior scheme in mind as well as their functional requirements and no hard and fast rule can be made. However, to prevent streaking of decorations caused by air leakage in reception and other similar areas gaskets should be specified behind the flanges of the outlets to overcome possible air leaks.

Mechanical ventilation in all its aspects plays a large part in the successful operation of the modern hotel. It affects, and is affected by, the layout and construction of the building to such a degree that the architect will need specialist advice at the planning stage if installation and running costs are to be kept to the economical minimum.

THE HOTEL KITCHEN

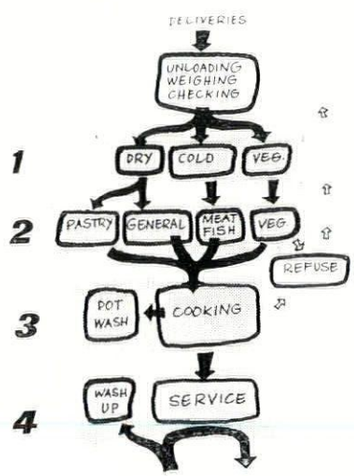
However varied the results, the broad functional data on hotel kitchens have of late years been standardized and reduced to quantitative terms. In this last article G. C. A. Tanner sets down what these are.

The basis for planning a hotel kitchen does not differ from that of any other kitchen. The difference lies in the complexity, rather than in the nature of the planning problem. Firstly, a hotel kitchen almost certainly will be called upon to provide the whole range of meals—breakfast, morning coffee, lunch, afternoon tea, and dinner, as well as occasional banquets and special functions. In the case of large and multi-storeyed hotels where a room service is provided, a separate area may have to be allocated on each floor to cater for this. Secondly, the kitchen in a first class hotel normally will be expected to provide a quite varied menu. It may be called upon even to cope with specialized menus, such as Chinese or Indian food. Thirdly, it will be more difficult to assess the peak load in the dining room, not only because the serving of meals will be spread over a greater period than in, say, a works canteen, but also because the general public as well as hotel patrons must be provided for.

In a short article such as this it is not possible to do more than outline the broad principles of kitchen planning and make recommendations for preliminary assessment of areas required.

Assessment of areas

There are no hard and fast rules for determining the area required for the kitchen and its ancillary accommodation. However, it is essential for the architect to be able to allocate a broad area for this purpose at sketch plan stage. A rule-of-thumb allowing 6 sq. ft. of floor area per person accommodated in the dining room is recommended. This is arrived at by assuming 50 per cent of the area allowed in assessing the size of the dining room (i.e. 12 sq. ft. per person, which includes tables, passageways, etc.). In fact this figure for dining room accommodation varies from as low as 10 sq. ft. recommended by some authorities to 18 sq. ft. for a luxury hotel. It may be noted that the Gas Council makes more detailed recommendations,* but for the purposes of preliminary planning the above figure is adequate.



7, a functional flow diagram for a large kitchen, key: 1, storage, 2, preparation, 3, cooking, 4, service.

It is worth remembering that too much space in the kitchen area is almost as bad as too little. It involves the staff in excessive walking, which means time and money, and it creates the temptation to fill excess space with non-essential equipment which has to be cleaned.

When food arrives at the hotel it goes into storage after checking and weighing. As it is required it is taken from storage and prepared for cooking and serving, after which it is cooked and then served. These processes are basic to the working of any kitchen, whether hotel or domestic, and the allocation of space within the general kitchen area of the hotel is broken down according to these functional requirements.

Storage

In kitchens catering for more than 50 meals a day it is desirable that a separate area be allocated for the bulk storage of food and that, in addition to this, sufficient space be allowed at or near the point of entrance for the temporary storing of food whilst it is weighed and checked. Space also should be allowed for empty containers and this can usually be done by providing high level shelving in the dry store. The storage area is roughly made up of three parts—vegetables, dry goods store and cold store.

Space does not always permit a separate vegetable store and, even if one is provided, it is advisable to provide storage space, in addition, within the vegetable preparation section of the kitchen. As a guide in allocating areas 0.2 sq. ft. per person† (accommodated in the dining room) should be allowed for the vegetable store. Metal or hardwood slatted shelves or wire mesh racks are most suitable for storage.

Dry goods stores need floor racks and slatted shelves as well as space for bins. Allow 0.4 sq. ft. per person for the area. Good ventilation, of course, is essential as with vegetable stores, though the latter do not need natural light.

Cold storage arrangements are of three types—'reach in' refrigerator cabinets containing a maximum of 100 cu. ft., 'walk in' cabinets and specially constructed cold stores. In the latter case a rough guide to area can be based on 1½ to 2½ cu. ft. per person, allowing a ceiling height of 7 ft. within the cold store.

Preparation

From the stores, food goes to the preparation area which, again, is roughly sub-divided into vegetable, meat and fish and general preparation areas. Whilst it is not necessary to provide full height partitions between the various areas, it is desirable, certainly in the case of the vegetable preparation area, to have low partitions or dwarf walls which will prevent the spreading of spilt water or vegetable peelings to other departments. The vegetable and meat and fish preparation areas must contain sinks for the washing of food prior to its preparation.

Cooking

The cooking area must house a variety of equipment which will include oven ranges, fryers, boiling pans, bains-marie and so forth. It is beyond the scope of this article to

*See *The Architects' Journal* 14.1.60.

†This and subsequent figures are based on those recommended by the Gas Council.

deal in detail with the equipment, which is a subject on which the architect must seek expert advice, both on type of equipment and its layout.

Service of food

Broadly speaking there are two ways in which food may be served, either by waiter or self-service. Needless to say, waiter service should be the rule with hotels. The actual area allotted for this should be generous with clearly defined points of access and exit.

A counter is provided within this area. At this point the various kitchen sections portion and place their products in an appropriate dish on the counter where it is collected by waiters. A kitchen clerk is normally stationed here to receive and pass on the orders and to control and record portions served. Within this area hot cupboards should be provided accessible both by kitchen staff and waiters.

Washing up

Though important, this should not be regarded as a fifth process within the kitchen. In larger establishments it is essential that separate washing up facilities be provided in the service area and in the preparation and cooking areas.

The use of glass- and dish-washing machines is increasing. These may be either manually or automatically controlled. It is obvious that the difficulty of obtaining staff will encourage the development of automation.

Staff accommodation

In small hotels goods and staff entrances may be combined, but in larger ones these should be separate. Control must be provided to check persons and goods entering or leaving the premises. In the interests of hygiene it is necessary that changing and washing facilities be provided for staff and it is as well to bear in mind that, at a time when competition for staff is keen, the nature and adequacy of staff facilities could be a deciding factor in obtaining good staff. Obviously the actual extent of the facilities and the number of lockers and sanitary fittings will relate to the number of staff employed, but should take into account serving as well as kitchen staff.

Fuels

Solid fuel: This, of course, is the traditional fuel and many chefs still claim to prefer it. It is economical, particularly in areas of local coal supplies, and very good where continuous heat is required over long periods. It has, however, certain disadvantages. Firstly, solid fuel cooking equipment requires more space than other types and extra space is needed for storage of the fuel. Labour also is involved in refuelling and removing ashes. Secondly, the nature of the fuels means that the equipment cannot so easily be kept clean and there is a tendency for it to overheat the kitchen. Thirdly, whilst such equipment as ovens, etc., can be heated by solid fuel, other appliances used in modern kitchens require alternative means of heating.

Gas: This can be used for all equipment, is simple to operate and easily controlled to give any required temperature. Also it can be adjusted immediately to meet changed needs.

Electricity: As with gas, this fuel can be used for all equipment. It is clean, does not need flues or fuel storage, is efficient in its use of heat and does not cause overheating in the kitchen. It does, however, require skilful handling if it is to be used to full advantage.

Steam: This can be an economical source of heat for boiling, steaming, etc., especially where it is already available in the building. It cannot cope with all types of equipment, however (such as roasting and grilling appliances).

Oil: Oil is a possible alternative source of heat. Appliances are similar to those for solid fuel.

Comparative costs: Choice of fuels cannot be made on the basis of cost of fuel alone. Availability of a particular fuel, ease of operation and cleaning, and space requirements must be considered. In comparing costs, one therm of gas is roughly equivalent to twenty units of electricity and 100 therms to one ton of solid fuel. The capital cost of gas appliances is often lower than electricity, but this may be offset by the omission of flues when electricity is used. It is worth bearing in mind that gas and electricity undertakings normally give cheap rates for catering consumers based on a sliding scale which gives reduced prices per unit as consumption rises. Full advantage is taken only if one fuel is used throughout.

Services

Apart from the cooking fuel, the following services are essential to the kitchen.

Water: The local water authority should be consulted on such matters as the size of cold water storage cistern. Hot water should be supplied at about 140°F. for washing up, although local heating of water up to 180°F. should be arranged for sterilizing. Apart from this, connections usually will be needed at the vegetable and meat and fish preparation areas to take the chill off the water in cold weather, at suitable points for general cleaning and for filling certain vessels such as saucepans, boiling pans and bains-marie.

Drainage: It is highly desirable to avoid internal manholes and access to the drains. In the case of vegetable preparation equipment long runs and shallow falls should be avoided.

Ventilation: The subject of ventilation is dealt with in the article on page 306.

Information

There is very little up-to-date detailed information on the subject in this country probably because there has not been much hotel building in Britain since the war. As a result there are no discernible trends in kitchen planning which are away from what might be described as traditional.

On the other hand competition is keen in the catering equipment trade and manufacturers are in a position to give advice on choice of equipment and general layout based on their experience and expert knowledge. The architect should not hesitate to call in a reputable manufacturer to advise him on the problem once it has got past the preliminary sketch plan stage.

Organizations such as the Gas Council will also advise on layout and equipment. The fact that they have a vested interest in gas as a fuel does not invalidate their advice in the least and their recently produced *Catering Handbook* is a useful guide. A 'Gas supplement' relating to this subject was published in *The Architects' Journal* of January 14, 1960, and the annual *Specification*, published by The Architectural Press, contains a section on equipment.

Index of hotels in this issue

Hotel	*Architects or designers*	*pages*
Agip Motel, Rome	Agip staff architects	251
Albergo Europa Hotel, Verona	Mario Gottardi	272
Amelia Earhardt Hotel, Wiesbaden	Prof. Herbert Rimpl and Horst Niessen	259
Americana Hotel, Miami	Lapidus, Cornblath and Harle	293
Apollonia Hotel, Stockholm	Bengt Gate	279, 280, 290
Ariel Hotel, London Airport	Russell Diplock Associates	301
Berlin Hilton Hotel, Berlin	Pereira and Luckman with Schwebes and Schoszberger	250, 273, 282, 286, 293
Beverly Hilton Hotel, Los Angeles	Welton Becket and Associates	250, 274, 289
Borgafjall Hotel, Lapland	Ralph Erskine	276
Brasilia Palace Hotel, Brasilia	Oscar Niemeyer	254
Bristol Hotel, Lagos	Architects' Co-Partnership	300
Britannia Hotel, Flushing	Boks, Eijkelenboom, A. Middelhoek	296
Carlton Towers Hotel, London	Michael Rosenauer Interior designer: Henry End	279, 299
Caledonian Hotel, Edinburgh	Robert and Roger Nicholson	293
Caribe Hilton Hotel, San Juan	Toro Ferrer and Torregrosa	252
Casa Albergo, Lignano Pineta	Gianni Avon	255, 284
Continental Hilton Hotel, Mexico City	Fernando Parra Hernandez Decorator: David T. Williams	279
Delta Hotel, Vlaardingen	J. W. C. Boks, W. Eijkelenboom, A. Middelhoek	272, 285
Denver Hilton Hotel, Denver, Colorado	I. M. Pei	247
Dorchester Hotel, London	Interior designer: Oliver Messel	289
Dover Stage Hotel, Dover	Louis Erdi	251
El Panama Hilton Hotel, Panama City	Edward D. Stone	252, 284
Executive House, Chicago	Milton M. Schwartz and Associates Inc.	258
Foresta Hotel, Stockholm	Susanne W. Tucker Interior designer: Maurice Holland	271, 281
Grand Hotel, Osaka	Takenaka Komuten Co.	257, 273, 282, 286, 288, 291, 293, 296
Grand Hotel, Verona	Mario Gottardi	291
Grand Hotel Pineta Palace, Lignano Pineta	Gianni Avon	276, 279, 284
Green Park Hotel, London	Diamond, Redfern and Partners	272
Grosvenor House, London	Gordon Jeeves. Interior designer: R. D. Russell	278, 283, 285, 296
Habana Hilton Hotel, Havana	Welton Becket and Associates	251, 274, 289
Hassho-Kan Hotel, Nagoya	Sutemi Horiguti	255, 276, 287
Hawaiian Village Hotels, Waikiki	Welton Becket and Associates	252
Hotel de France, Conakry	Lagneau, Weill and Dimitrijevic	253, 283, 292

Index of hotels in this issue: *continued*

Hotel	*Architects or designers*	*pages*
Hotel President, London	C. Lovatt Gill and Partners	303
Hotel Humboldt, Caracas	Thomas José Sanabria	254, 283
Hotel International, Basle	Marcus Diener	259, 282
Island Hotel, Tresco	John Strubbe	255
Istanbul Hilton Hotel, Istanbul	Skidmore, Owings and Merrill Interior designer: Jane Kidder	249, 271, 274, 284
Jantzens Hotel, Gudhjem	Tim Monies	282
Keirby Hotel, Burnley	M. Hubbard Ford	292, 293, 296, 306, 307
Hotel Kowaki-en, Hakone	Junzo Yoshimura	240, 256, 274, 277, 278, 281, 287, 290
Laponia Hotel, Lapland	Ole Helweg	255, 275, 281
Lecfric Hotel, Coventry	W. S. Hattrell and Partners Architect in charge: G. W. Hammond	272, 276, 279, 283, 285, 287, 289
London Hilton Hotel, London	Lewis Solomon, Kaye and Partners	302
Hotel Malmen, Stockholm	Georg Varhelyi	277, 285
Mandeville Hotel, London	Bronek Katz and Vaughan	302
Hotel Marhaba, Casablanca	Emile Jean Duhon	264
Mayfair Hotel, London	G. H. Beech	289
Motel Metanopoli, Milan		292
Hotel Metropol, Wengen	Hans and Gret Reinhard	294
Metropole Hotel, Brighton	Interior designer: John Carter	296
Hotel Nikko, Tokyo	Yoshinobu Ashihara	272, 278, 292
Nile Hilton Hotel, Cairo	Welton Becket and Associates Interior designers: Cornell, Bridges and Treller	253, 276, 285
Osterport Hotel, Copenhagen	Erik Friehling	277, 278, 283
Paramount Hotel, Freetown	James Cubitt and Partners	300
Pittsburgh Hilton Hotel, Pittsburgh	William B. Tabler Interior designers: Ernest Wottitz, David T. Williams	259
Project—Plymouth	Vincent Burr and Partners	304
Project—Bournemouth	Ronald Sims of Geens and Cross	304
Project—Kensington High Street	R. Seifert and Partners	304
Project—Newcastle upon Tyne	Cotton, Ballard and Blow	304
Project—South Bank, London	George, Davies and Webb	303
Queen Elizabeth Hotel, Montreal	Canadian National Railways Architectural Department Consultants: Holabird and Root and Associates Interior designer: Joseph Huston	278, 279
Royal Hotel, Cardiff	Interior designers: Morton and Lupton	291, 296
St. Ermin's Hotel, London	Diamond, Redfern and Partners	294, 295
San Pedro Hacienda Hotel, California	Richard J. Neutra and Robert E. Alexander	256, 288, 291
Shelbourne Hotel, Dublin	Michael Scott	277
Sheraton Hotel, Philadelphia	Perry, Shaw, Hepburn and Dean	258, 272
Skyway Hotel, London Airport	Fitzroy Robinson and Partners	250
Statler Hilton Hotel, Dallas	William B. Tabler	258, 278
Strand Palace Hotel, London	F. J. Wills and Son	286
The Londoner Hotel, London	Glen Rees	272, 282, 290, 293
Washington Hotel, London	Bronek Katz and Vaughan	260, 278, 282, 283, 284, 286
Westbury Hotel, London	Michael Rosenauer Interior designer: Norman Hartnell	279, 289

THE INDUSTRY

Choice in carpet ordering

John Crossley & Sons have invented a system of carpet selling which appears to give architects a wide choice as between colour, pattern and quality than was available before. Their carpets are Wiltons and are made in three main groups: five frame, three frame and two frame. The number of frames necessarily limits the number of colours you can have, the normal being one colour per frame. The number of frames is also an indication of quality. One difficulty which Crossley have overcome is that which arises when the architect wants, say, a two colour pattern, but in a five frame quality. Crossley overcome this by so ordering their loom that the three other frames weave yarn into the back. They hold fifty-seven colours and a very large range of patterns, going back to the firm's origins over 150 years ago. The upshot of this is that they can offer the architect a better chance of getting what he wants than heretofore.
John Crossley & Sons Ltd., Dean Clough Mills, Halifax.

Information on acoustics

An amusingly illustrated little booklet on the subject of noise and the principles of insulating against it has just been produced by the Bowater group as a companion to an earlier one entitled *The Heat Barrier*. This one is called *Quiet Please* and sets out in simple terms the fundamental principles of acoustics. It goes on to describe effective means of dealing with it and, if this results in the reader having the virtues of Bowater's products rammed down his throat, it really is a small price to pay for the useful information which makes up the bulk of the publication.

Available free, primarily to architects, surveyors and builders.
The Bowater Organization, Bowater House, Knightsbridge, London, S.W.1. Knightsbridge 7070.

Reinforced plastics

Fibreglass Limited have brought their trade literature up to date by issuing three new brochures. Between them they provide as complete a picture of a product as may be found anywhere. The first brochure is entitled 'Introduction and Materials' and is devoted to a description of the characteristics, properties and chemical composition of fibreglass reinforced plasties. It concludes with a classification of glass fibres within the two principal types, continuous filaments and staple fibres. The second brochure concerns itself with moulding techniques and design and fabrication, and the last of the three catalogues properties (physical, mechanical, thermal, electrical, acoustic and optical) and lists suppliers. The list of suppliers is sub-divided according to the end product they supply. These are woven cloth and tape, woven roving fabrics, knitted fabric, polyester resins, epoxide resins, and so on.
Fibreglass Limited, St. Helens, Lancashire. St. Helens 4224.

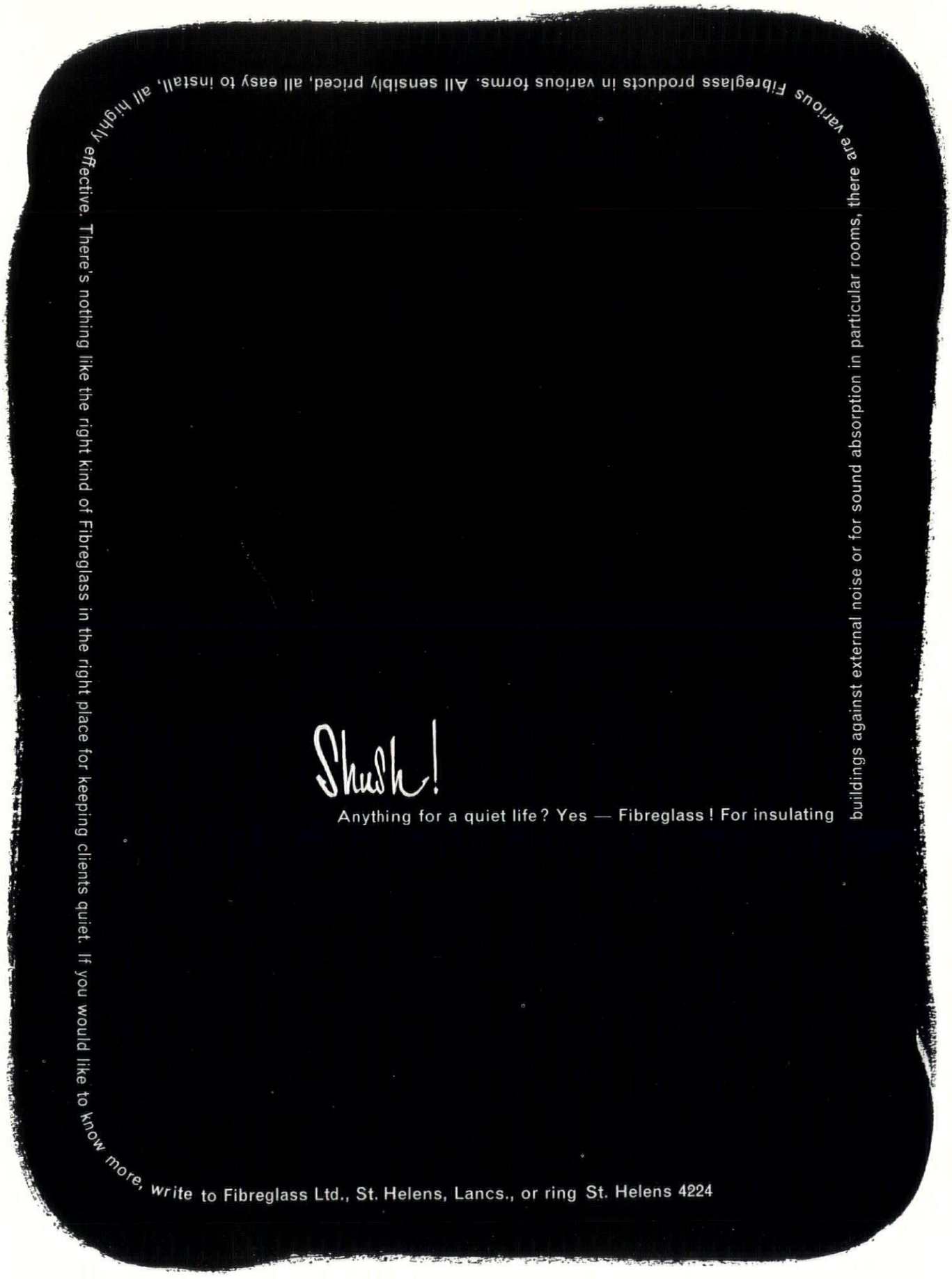
Wall fabric

A woven fabric designed as a wall covering and costing 7s. 9d. per yard has come on to the market under the name 'Duracour.' It is made in 24 in. widths and is hung by applying a special paste to the wall, *not* the fabric. Its colour cannot be destroyed as the yarns are dyed before weaving. The manufacturer states that water-borne stains, such as fruit juice, wine or ink, can be sponged off with a cloth wrung out in water mixed with a little mild detergent. Duracour is claimed to be impervious to the effects of damp in walls and to have no attraction whatsoever for moths, insects and other household pests. It is manufactured in 102 patterns all of which are available in three or four colours. The patterns range from 'traditional' (i.e. based on the patterns of old Flemish and French tapestries) to 'contemporary' as produced, we are told, 'by the best modern British and Scandinavian designers.'
John Line and Sons Limited, 213-216, Tottenham Court Road, London, W.1. Museum 3300.

Sun control

Venetian blinds are not as popular in this country as in other warmer climates. Some architects, conscious of the visually deadening effect venetian blinds can have on façades, probably consider this a blessing. Usually, however, the worst cases occur when the architect has no control over the subsequent fixing of blinds. Taken into account as part of the design they need not detract from the architecture. Luxaflex, which is the trade name of the

[continued on page 312


Shush!
Anything for a quiet life? Yes — Fibreglass! For insulating buildings against external noise or for sound absorption in particular rooms, there are various Fibreglass products in various forms. All sensibly priced, all easy to install, all highly effective. There's nothing like the right kind of Fibreglass in the right place for keeping clients quiet. If you would like to know more, write to Fibreglass Ltd., St. Helens, Lancs., or ring St. Helens 4224

continued from page 310]

Hunter Douglas Group of Companies, held an exhibition at the Building Centre earlier this year, obviously aimed not only at introducing new products but also at trying to show the possibilities for both awnings and fixed sun control arising from the use of their standard aluminium sections or slats. These are of spring-tempered aluminium coil strip $4\frac{3}{8}$ in. wide by 0.025 in. thick. This is normally cold-rolled to a section $3\frac{5}{16}$ in. wide, given a priming coat and a stove enamelled finishing coat. It is available in this country in eleven colours. The illustration, 1, shows an intelligent Continental example of the use of this material for fixed sun control.

Luxaflex, 33, *Sloane Street*, *London*, *S.W.*1. *Belgravia* 6275.

Ceiling panels

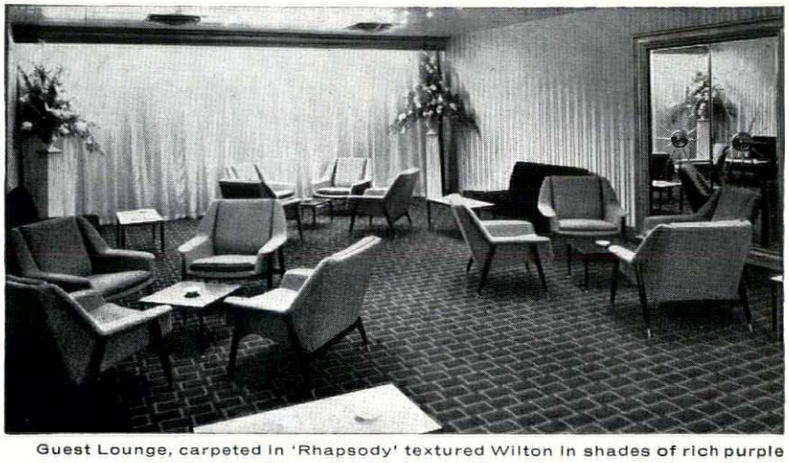
Some six years ago Lumenated Ceilings Limited introduced to this country a form of false ceiling comprising an aluminium grid frame suspended on hangers from the structural ceiling and containing translucent panels of corrugated p.v.c., so that fluorescent tubes mounted above the false ceiling produced an overall diffused light. The company has now produced a similar ceiling using, instead, a flat sheet of p.v.c. on a standard 3 ft. by 3 ft. grid. It is known as the Lumenated Westminster Ceiling, 2. Another well-known firm introduced a ceiling of this type at the last Building Exhibition, but the Westminster Ceiling differs in some respects.

The panel itself consists of a flexible p.v.c. film (either white or

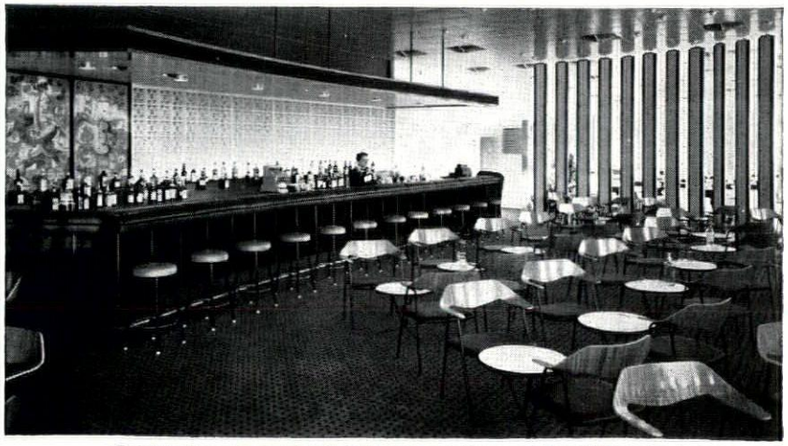


1, *the Luxaflex aluminium sun-control pergola.*

[continued on page 314



Guest Lounge, carpeted in 'Rhapsody' textured Wilton in shades of rich purple



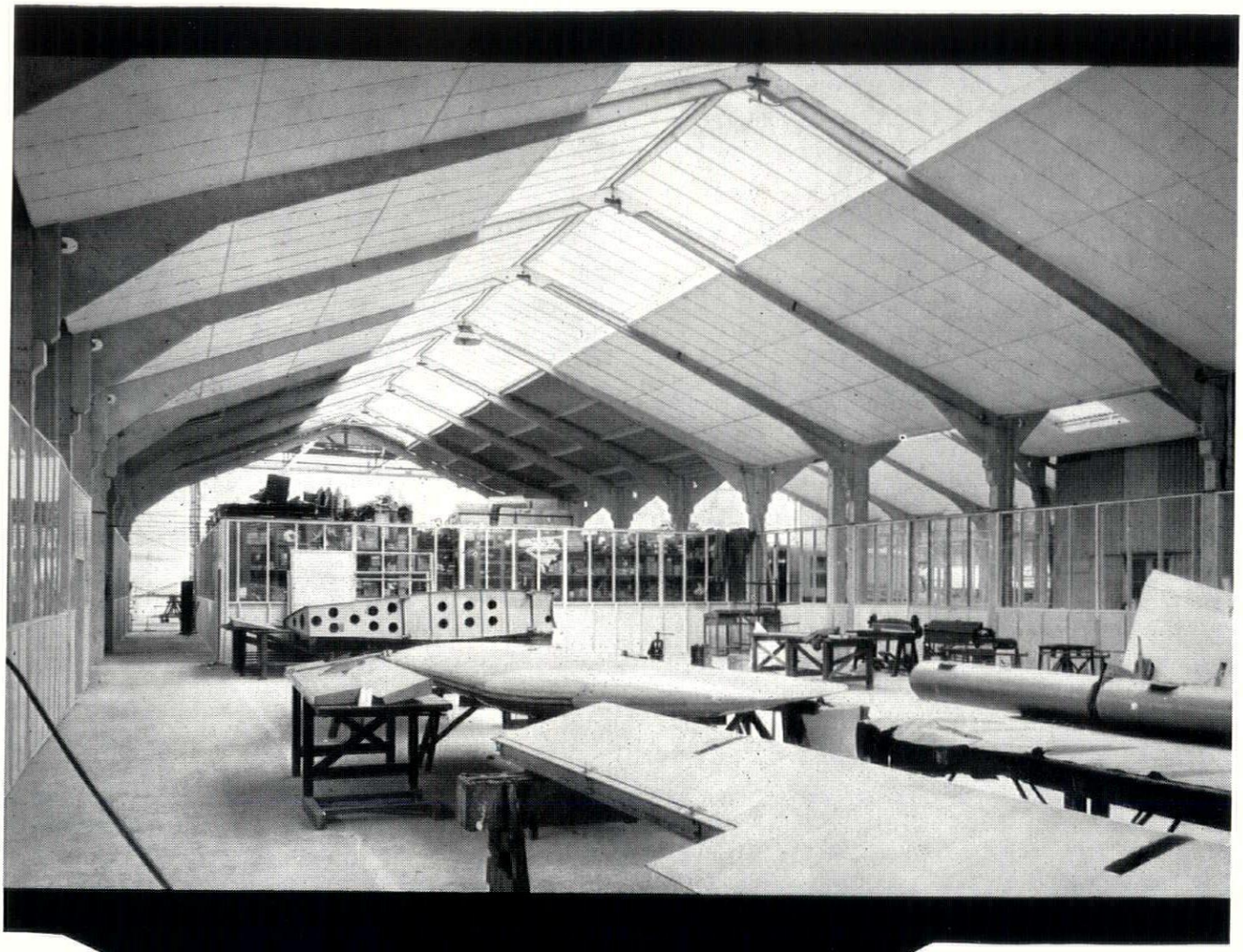
Cocktail Lounge, carpeted in 'Deva' fine woollen Wilton in lacquer red

Skyway Carpets

All the fine carpets in the new SKYWAY HOTEL at London Airport have been made and installed by Carpet Trades Limited, Kidderminster (supplied through Messrs. Andrew Bruce & Co. Ltd. London).

CARPET TRADES LIMITED
G.P.O. BOX 5, MILL STREET, KIDDERMINSTER

Carpets are supplied only through normal trade channels.



The interior of one of the workshops built by Tyler for Aviation Traders.

TYLER
can
accommodate
you

Whether you are erecting a complete new factory or merely extending existing premises, Tyler can supply your needs. Tyler are specialists in precast reinforced concrete structures — easily the most convenient and economical type of structure for every industrial requirement.

TYLER

E. W. TYLER & CO. LTD.

Dept. I-31, Cannon Lane, Tonbridge, Kent · Tonbridge 4024 (6 lines)
Dept. I-31 5, Queen Street, Manchester, 2 · Blackfriars 0680

Manufacturers and erectors of precast reinforced concrete structures

continued from page 312]

coloured) stretched over a welded aluminium alloy channel frame and held in position by means of a polythene strip. Panels are supported on an aluminium alloy inverted T section frame at 3 ft. centres in both directions which is itself supported from the structural ceiling on adjustable aluminium alloy hangers. The total weight of the ceiling is less than 7 oz. per sq. ft. Panels are easily removed for cleaning. Average price is about 5s. 6d. per sq. ft. supplied and fixed.
Lumenated Ceilings Limited, Alliance House, Caxton Street, London, S.W.1. Abbey 7113.

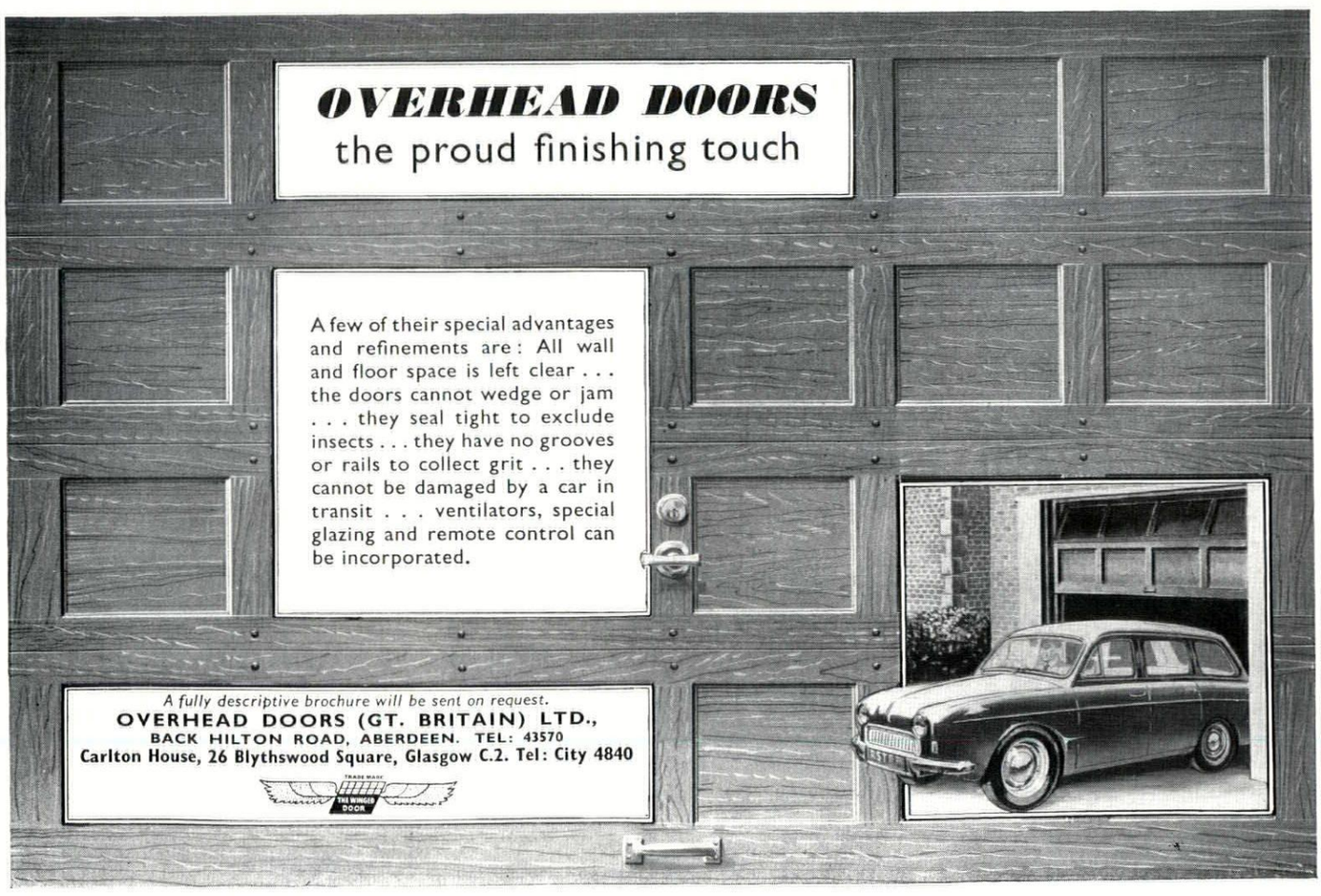
Useful brochure

It is well known that there are two kinds of trade literature. One is designed to arouse interest in the product, the other to provide technical information. Generally speaking the architect has no use whatsoever for the first type (though manufacturers persist in sending it to him) because it is devoted to stating how beautiful or how useful is the product in question. Such conclusions he is supposedly equipped to draw for himself, and no amount of eulogizing on the part of the manufacturer or his advertising agent should influence him. Notwithstanding this, there is room for the type of brochure or leaflet which, whilst it wastes no time over the visual possibilities of the product, does not go so far as providing the full data necessary for specifying or for incorporation in working

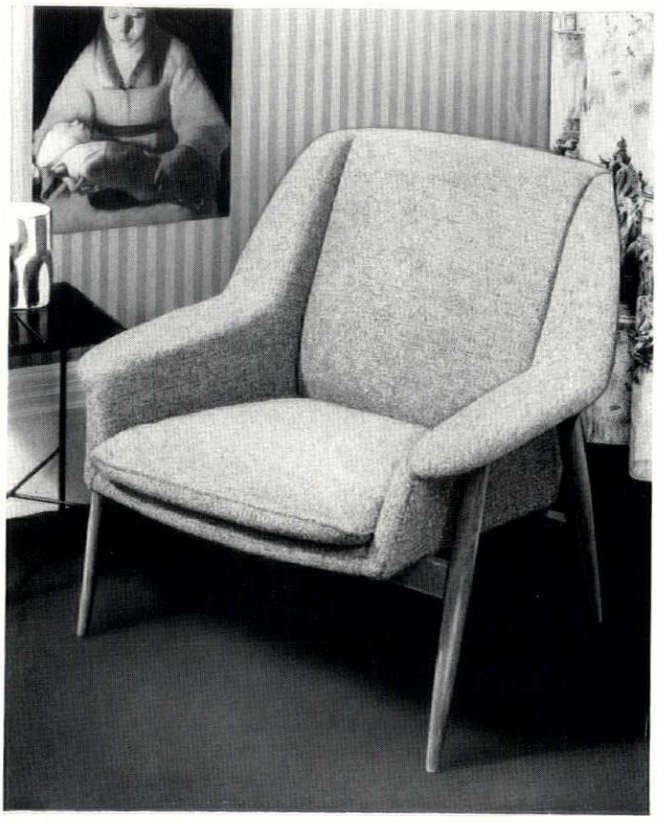


2, *the lumenated Westminster lighting system, covering 1,000 sq. ft., installed in the mixing room of a food factory in Plymouth.*

[continued on page 316



PARKER-KNOLL
comfort
at special contract prices



THE 'NEW MENTON'. Here is a splendid example of traditional Parker-Knoll comfort and quality, allied to a design as up to date as the morning's news. From £24.15.0 to £29.10.0 according to cover.

Those responsible for the interior decoration and furnishing of hotels, restaurants, clubs, hospitals, government departments, etc., will be glad to know that Parker-Knoll chairs and settees are frequently available at special contract prices.

PARKER-KNOLL

Please write for details to:
PARKER-KNOLL LTD., CONTRACT DEPT., HIGH WYCOMBE, BUCKS.
Showrooms: LONDON: 234 Tottenham Court Rd, W.1. MANCHESTER: 33 King St.
BRISTOL: 35 Park Street. BIRMINGHAM: 43 Temple Street.
HIGH WYCOMBE: The Courtyard, Frogmoor.

CVS-464



Whatever the view . . .

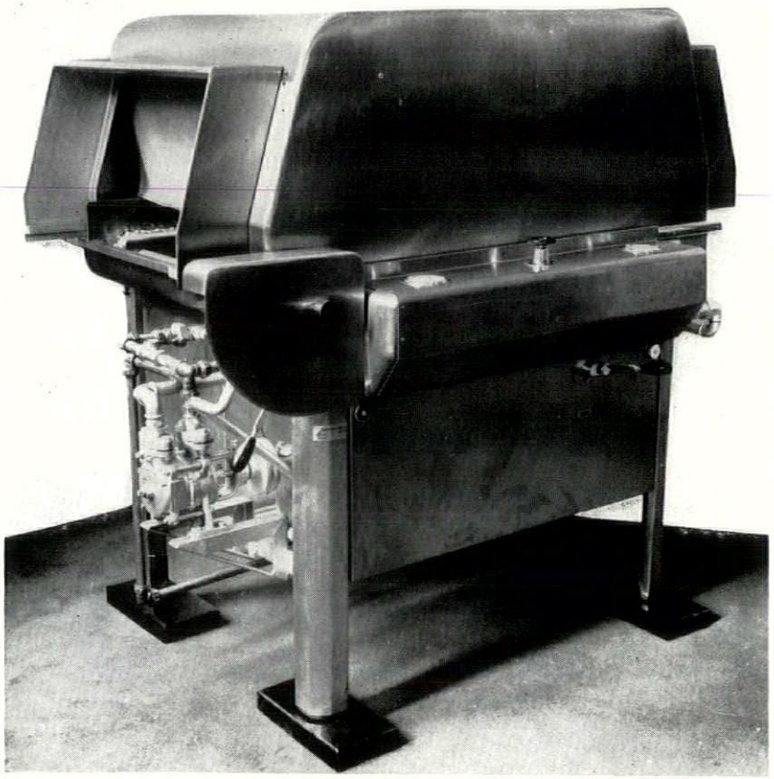
Sunway blinds can enhance it. Or intensify it. Or obliterate it. They can do much more besides: Sunway blinds soften and diffuse light. Or colour it. Or translate mere lumens into radiance.
In fact, they can establish the very climate of a room. They conserve heat in winter and keep rooms cool in summer. Sunway blinds let you choose the weather! Sunway are the blinds **without tapes**—an enormous improvement. The slats are virtually indestructible, and the colours (20 to choose from) permanent. Think seriously about using Sunway in offices, factories and showrooms as well as in the home.

your home deserves

SUNWAY *BLINDS* REGD

VENETIAN VOGUE LIMITED
SLOUGH · BUCKS

Serial No. ★ 2590
BRITISH
GOOD HOUSEKEEPING INSTITUTE
GUARANTEES
REFUND OF MONEY OR REPLACEMENT IF NOT IN CONFORMITY WITH THE INSTITUTE'S STANDARDS



continued from page 314]

drawings. Its aim is to give sufficient technical information about the product to enable the architect to decide whether it is the sort of thing he is after. Just such a brochure is the one produced by Booth & Co. (Steel Structures) Ltd., on the Met-Ram system of structural components. The system consists of angles, channels, Z sections and strips in high tensile steel, all of which are perforated with circular holes spaced to suit a module of 6.3 in. (16 cm.). The sections are cold rolled manufactured in standard lengths, and the perforations are intended to provide maximum flexibility in fabricated steel construction. The brochure is well produced. Its cardinal sin is that it is not A4—a failing which the manufacturers no doubt will remedy in due course.
Booth and Co. (Steel Structures) Ltd., Vincent House, Dorking, Surrey. Dorking 4631.

Catering equipment

The automatic dishwasher, 3, is one of the new Rotex range of glass and dishwashing machines introduced by the Kenwood-Peerless and Ericsson group of companies. This one, model KPA 50, is the smallest of the automatics, but capable, according to its manufacturers, of coping with the dishwashing requirements of most of the larger hotels, restaurants, and canteens catering for up to 500 meals per session. Rack size for dishes is 22 in. square and output is 125 racks per hour. The wash pump has a capacity of 140 gallons per minute approximately. Wash tank capacity is 28 gallons. Controls are mounted on a console type panel in the front and the machine is started by push button. Fully automatic temperature control is provided for both wash and rinse.
Peerless and Ericsson Ltd., 1 Carlisle Road, The Hyde, Hendon, London, N.W.9.

3, *the model KPA 50 Rotex dishwasher, by Peerless & Ericsson Ltd.*

Advertisement

CENTRAL SCHOOL OF ARTS AND CRAFTS

The Council will shortly proceed to appoint a PRINCIPAL of the Central School of Arts and Crafts who will be expected to begin his duties in January, 1961, if possible.

The Central School admits students for advanced courses only. It is organized in seven departments :—

(i) Drawing, Painting, Modelling, Etching and allied subjects
(ii) Book Production and Graphic Design
(iii) Interior Design and Furniture
(iv) Textiles
(v) Theatrical Design
(vi) Silversmith's work and allied crafts
(vii) Industrial Design

More ample accommodation which will include a working theatre is now being built.

An artist or designer of repute or an architect practising as an industrial designer, with teaching and organizing experience and a wide knowledge of the place of art in education and industry is looked for. Industrial experience will be an advantage.

Salary scale £2,500 × £100—£2,800 plus London Allowance (£38 or £51).

Further particulars and application forms from the Education Officer (FE3a/AR/2004/9), The County Hall, London, S.E.1, to be returned by October 17.

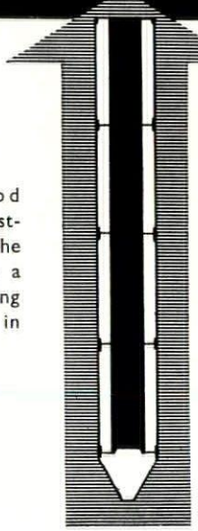


SOUND PLANNING IS SECURELY BASED

ON

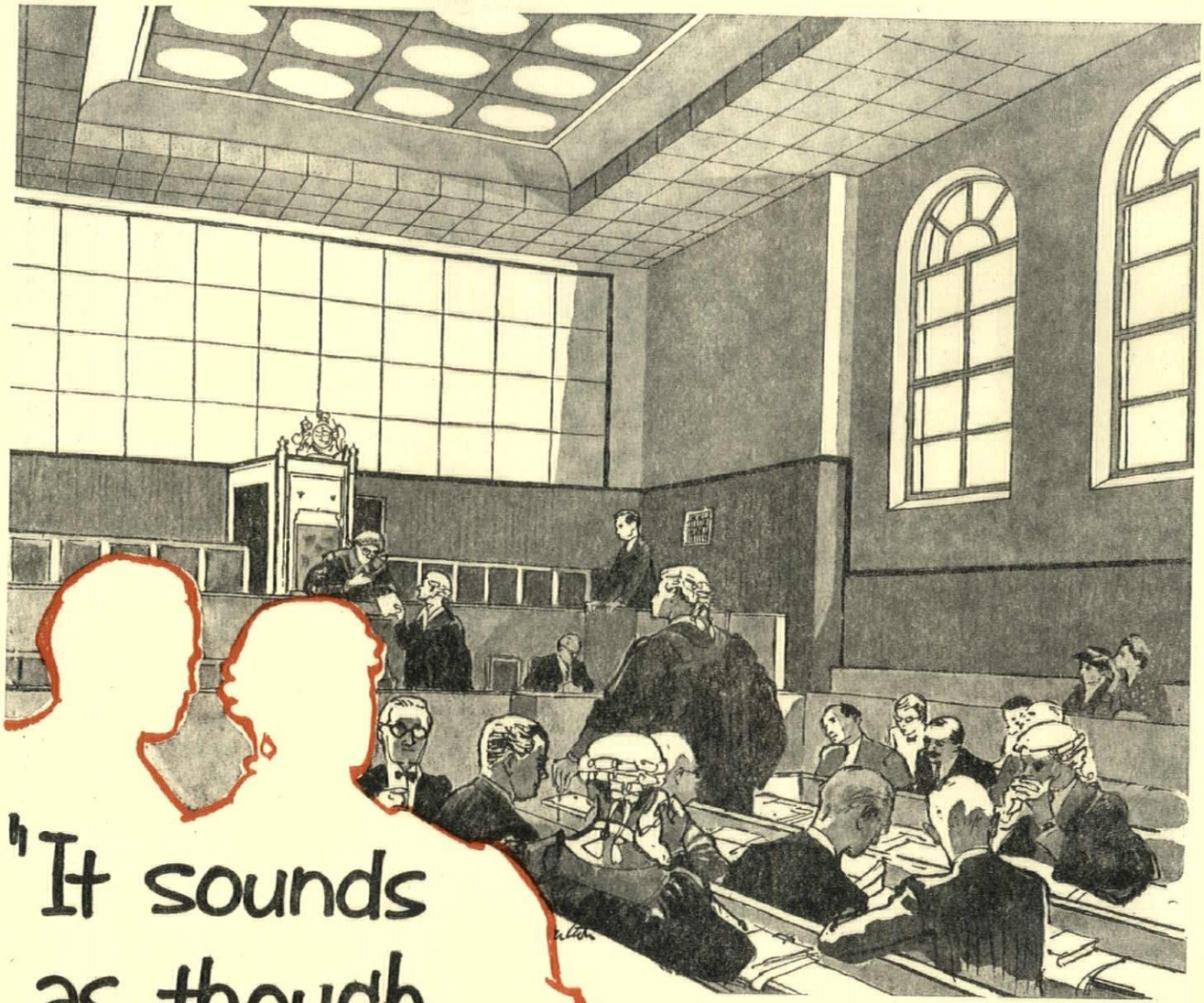
WEST'S *SHELL* PILING
SYSTEM

The modern method combining pre-cast and cast-in-situ piling, in which the pile is firmly driven to a secure set in the load-bearing stratum, without fatigue in the pile core.



Write for full details to:
WEST'S PILING & CONSTRUCTION CO. LTD.
Foundation Specialists · Design and Construction in Reinforced Concrete
BATH ROAD · HARMONDSWORTH · MIDDLESEX · TEL.: SKYPORT 5222
Branches in London · Bristol · Birmingham · Manchester · Glasgow
Australasia: West's Shell Piling (A/sia) Pty. Ltd., Melbourne, Sydney, Adelaide & Wellington, N.Z.
France: Compagnie Générale de Construction de Fours, Paris
A MEMBER OF WEST'S GROUP OF INDUSTRIES

W P&C CO
A8



"It sounds as though they called in Cullum"

Silence in Court! And there really is silence. Peace and quiet. No echoing footfalls, no undercurrent of unwanted noise. Wonderful! And all achieved by consulting Cullum. Cullum cannot eliminate noise, but they can control it. If *you* are bothered by noise call in Cullum and hear the difference.



PROGRESS WITH QUIETNESS

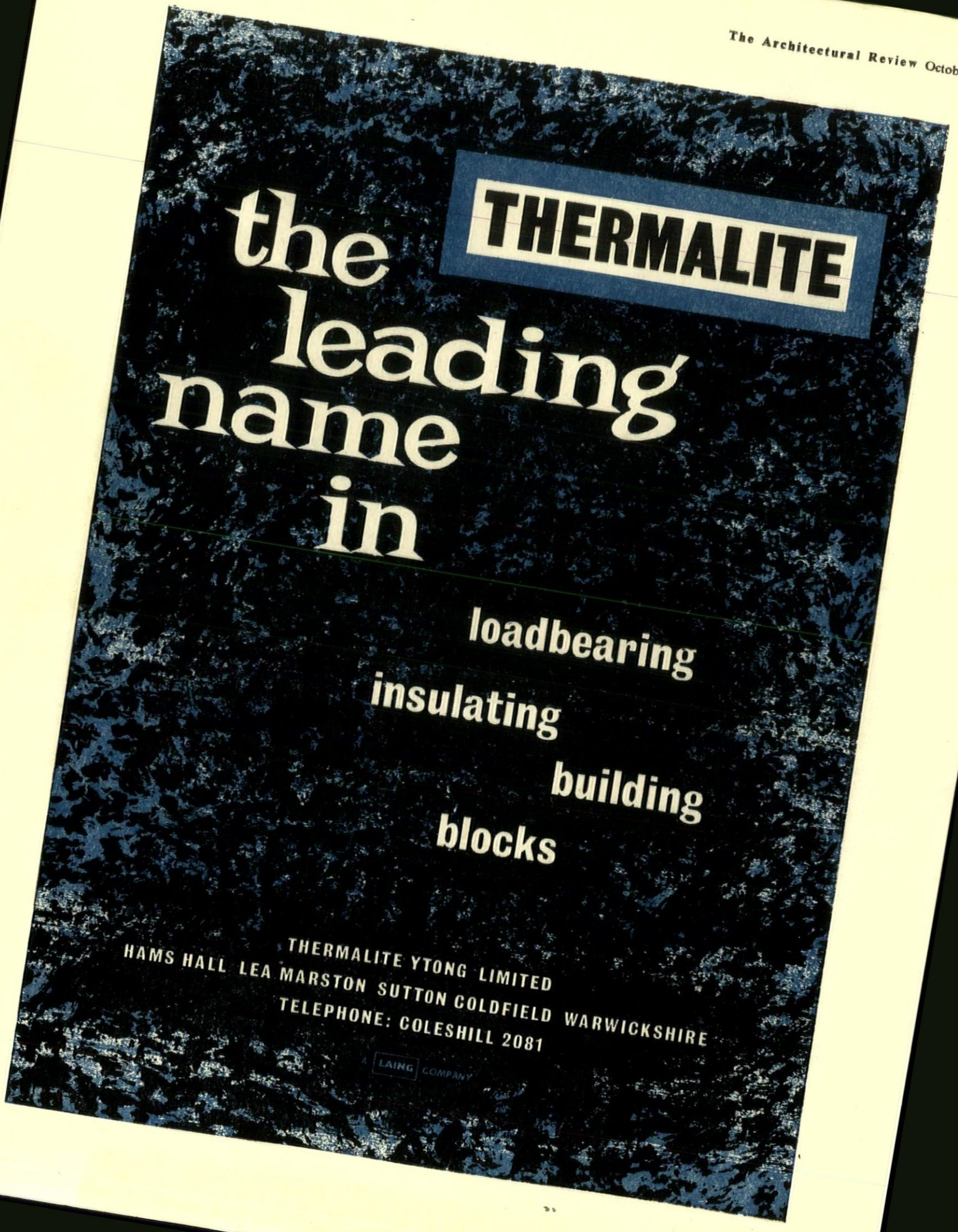
Sound control by CULLUM

BRITAIN'S MOST EXPERIENCED ACOUSTIC ENGINEERS

CONCESSIONNAIRES FOR ACOUSTI-CELOTEX AND BURGESS ACOUSTIC TILES

HORACE W. CULLUM & CO. LTD • The Acoustic Centre • 58 Highgate West Hill • London N.6 • *FITzroy 1221 (P.B.X.)*

Printed in Great Britain for the Proprietors of "The Architects' Journal," of "The Architectural Review," and of "Specification" (The Architectural Press, Ltd.) 9-13, Queen Anne's Gate, Westminster, S.W.1, by Knapp, Drewett & Sons Ltd., by appointment to Her Majesty the Queen, Printers, Kingston-on-Thames. Editorial illustrations engraved by The Engravers Guild Ltd., Windsor House, 23/26, Cursitor Street, London, E.C.4.
Entered in the New York Post Office as Second Class Matter


THERMALITE
the leading name in
loadbearing
insulating
building
blocks
THERMALITE YTONG LIMITED
HAMS HALL LEA MARSTON SUTTON COLDFIELD WARWICKSHIRE
TELEPHONE: COLESHILL 2081
A LAING COMPANY



THE ARCHITECTURAL REVIEW VOLUME CXXVIII NUMBER 765 NOVEMBER 1960 FIVE SHILLINGS

ar

where weight matters

LYTAG

Lightweight aggregate gives...

Maximum workability

LYTAG gives greater workability for a particular mix than any other lightweight aggregate, because its spherical particles present the minimum surface area to be wetted.

Minimum shrinkage and high early strength

The low water contents of LYTAG concretes lead to reduced drying shrinkages and give high early strengths. Surface finishes obtained on precast concrete units are smooth and pleasing.

High fire resistance with low 'U' values

The combustible content of LYTAG is less than ½%. It will withstand temperatures of up to 1,000°C without damage. At the same time, it provides a 'U' value well below that of ordinary concrete. For example, the 'U' value of a 6″ LYTAG structural concrete element would be less than a half that of the same element in dense concrete.

60% Air—100% efficient

LYTAG is produced from pulverised fuel ash by a carefully controlled sintering process. Spherical in shape, it has a slightly roughened surface so providing an excellent key for the adhesion of cement.

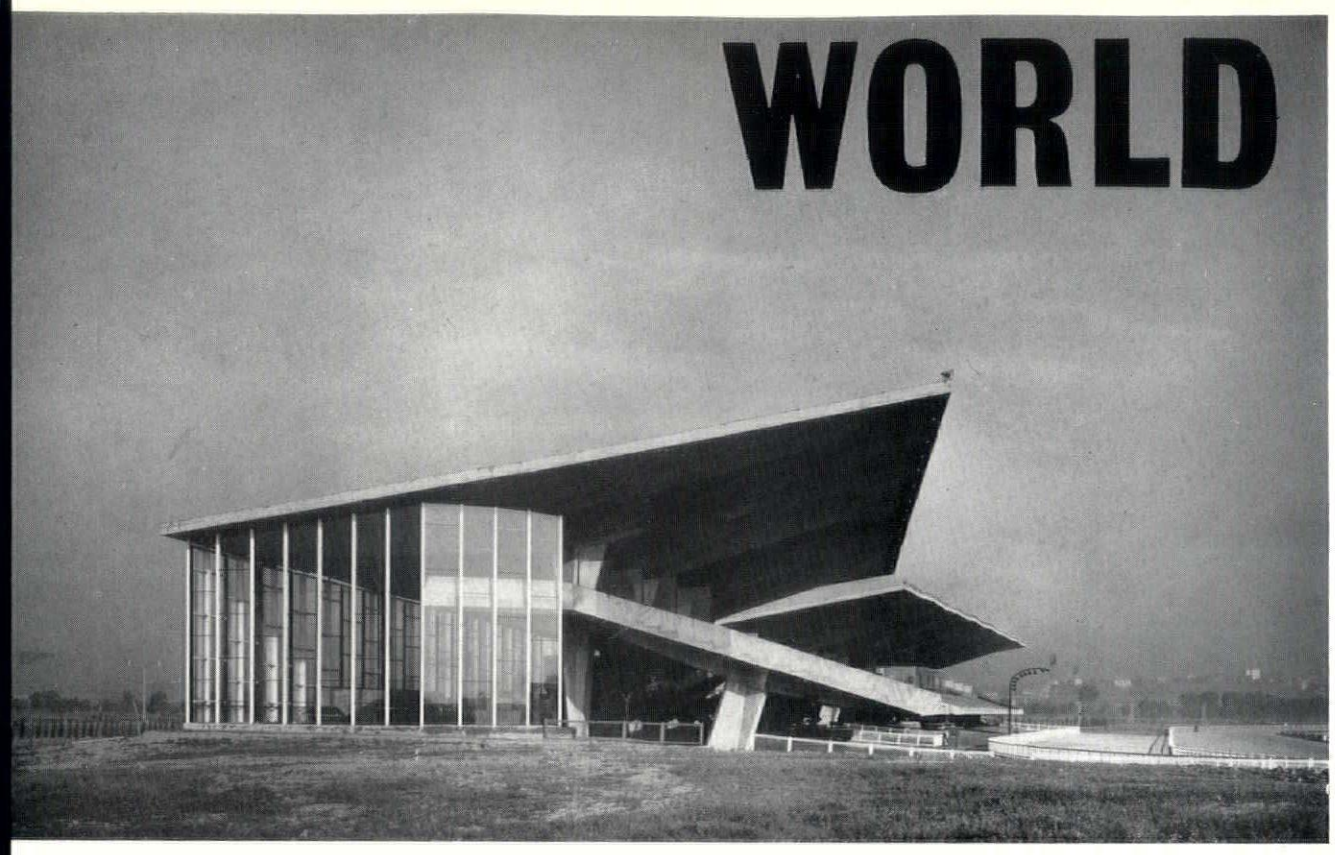
Technical literature covering all aspects of LYTAG will be forwarded on request. Write to:

LYTAG LIMITED

MANOR WAY, BOREHAM WOOD, HERTFORDSHIRE.
Telephone Elstree 2854

A LAING COMPANY

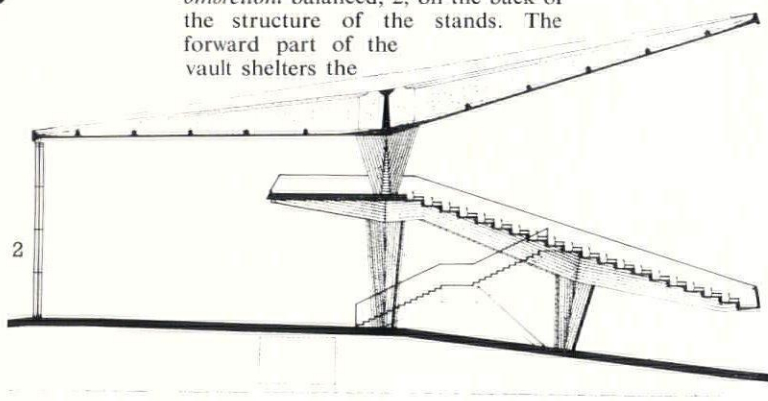
WORLD



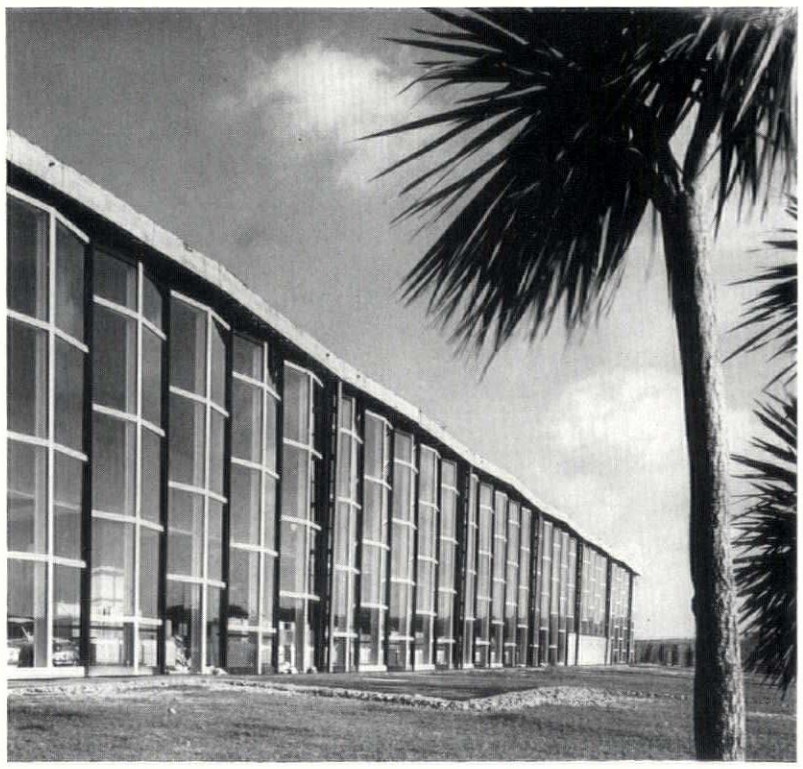
IPPODROMO

The buildings for the Olympic Games have somewhat monopolized interest in the architecture of Italian sport of late, and one or two works of considerable merit have gone unnoticed in the flood of praise (all of it justified) for Nervi. One that certainly deserved more notice that it has yet received is the grand-stand complex, 1, for the trotting track at Tor di Valle, designed by Aicardo Birago, Julio Lafuente and Gaetano Rebecchini, with Calogero Benedetti as engineer for the concrete-work.

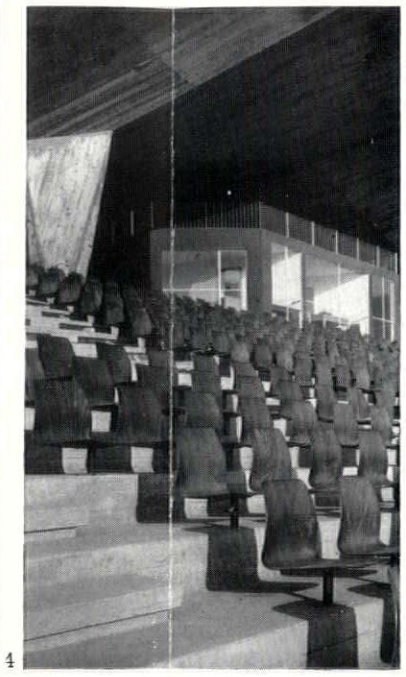
The basis of the scheme lies in its section, which has a system of concrete *ombrelloni* balanced, 2, on the back of the structure of the stands. The forward part of the vault shelters the ramped seating, the rear forms the roof to a large concourse, enclosed by a glass wall, 3, which houses all the subsidiary services, such as betting counters. In effect, the roof, glass wall (whose uprights serve as steadies for the roof) and the floor of the concourse form a continuous space-box, open toward the track, in which the stands, proper, are suspended. The



2



3



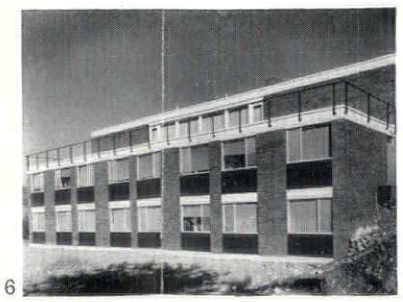
4

detailing throughout is commendably straightforward, with simple moulded-plywood seats, 4, disposed so that the gangways lie parallel with the ribs of the main structure, 5, underneath.

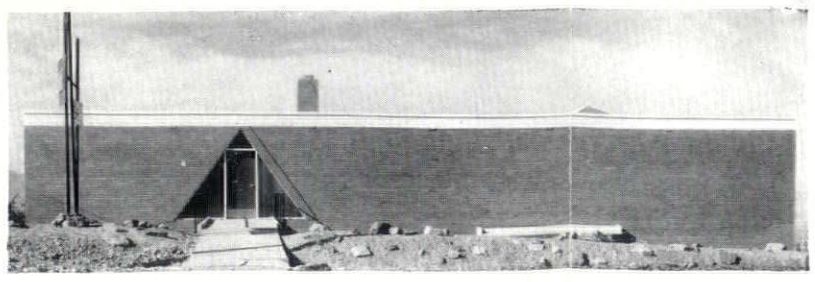
5

ΣΦΕ

Deceptively English-looking on its garden side, the Sigma Phi Epsilon fraternity house for Utah State University, 6, is a remarkably calm solution to a building programme which presented the architect, Eric Defty, of St. Louis, with a tight budget and a precipitous site. The steep fall of the land, however, enabled him to give practically every usable room spectacular valley views across to the Wasatch mountains, while presenting to the public street a façade which expresses, firmly but politely, 7, that



6



7

ACKNOWLEDGMENTS

WORLD, pages 317–320: 1, 3, 4, Laboratorio Fototechnicho Industriale; 2, 5, Oscar Savio; 9–12, *Arhitectura RPR*; 13–15, *Arkkitehti Arkitekten*; 16–18, *Deutsche Bauzeitung*; 23–28, *The Japanese Architect*. NEWS AND REVIEWS, pages 321–323: 1, Eric de Maré; 4, Galwey Arphot. FRONTISPIECE, page 324: Eric de Maré. FOUR FOREIGN HOUSES, pages 329–340: 1–5, Foto Brehme; 6–15, Mark Strizig; 16–18, Pertti Ingervo; 19–24, J. Moscardi. SCHOOL IN ST. MARYLEBONE, LONDON, pages 346–353: 1, 3–19, Galwey Arphot; 2, Toomey Arphot. 12TH TRIENNALE, pages 354–361: frontispiece, 1–5, 7–11, Kenneth Browne; 6, Publifoto Milano. ID, pages 362–367: 1–5, Cunard Line; 12–14, Nicolas Breton. EXPLORING EYE, pages 368–369: Ava Guler. CURRENT ARCHITECTURE, pages 370–372: 1–4, Toomey Arphot; 5, MOW; 6, Galwey Arphot. EXHIBITIONS, pages 373–375: 1, 3, 5, 7–9, Arts Council; 2, 6, Museum of Modern Art, New York; 4, Charles Uht. PLANTS, pages 375–376: 1–3, Toomey Arphot. HATS OFF, pages 376–377: 1–3, John Maltby; 2, Ronald Chapman. SKILL, pages 379–382: 6, Beringer & Pampatuchi; 10, Paris-Photo.



This Month's Cover *takes a model view of the roof-pattern of one of the most remarkable buildings due for completion in 1961—Pierluigi Nervi's prize-winning scheme for the Palazzo del Lavoro at the exhibition in Turin which will celebrate the centenary of the unification and pacification of Italy after the Risorgimento. The Palazzo is to house an international exhibition on the theme of Labour, and will cover a square with sides of just over 500 feet. The project is described and illustrated on page 319.*

THE ARCHITECTURAL REVIEW

9-13 QUEEN ANNE'S GATE, WESTMINSTER, SW1 WHITEHALL 0611 FIVE SHILLINGS

VOLUME 128 NUMBER 765
NOVEMBER 1960

SUBSCRIPTION RATE:—*The annual post free subscription rate, payable in advance, is £3 3s. 0d. sterling, in USA and Canada $10.50, in Italy Lira 6940, elsewhere abroad £3 10s. 0d. Italian subscription agents: A. Salto, Via Santo Spirato 14, Milano; Librerie Dedalo, Via Barberini 75-77, Roma. An index is issued half-yearly and is published as a supplement to the REVIEW.*

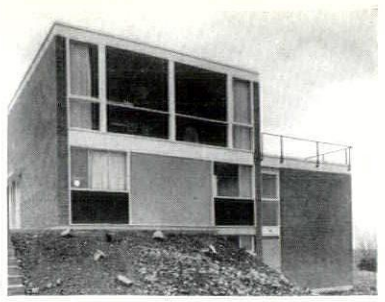
Directing Editors	*J. M. Richards, Nikolaus Pevsner, H. de C. Hastings, Hugh Casson*
Executive Editor	*J. M. Richards*
Assistant Executive Editor	*Reyner Banham*
Assistant Editor (Production)	*William Slack*
Features Editor	*Kenneth Browne*
Technical Editor	*Lance Wright*
Assistant Editor (Counter Attack)	*Ian Nairn*
Staff Photographers	*De Burgh Galwey, W. J. Toomey*
Advertisement Manager	*V. V. Tatlock*

CONTENTS

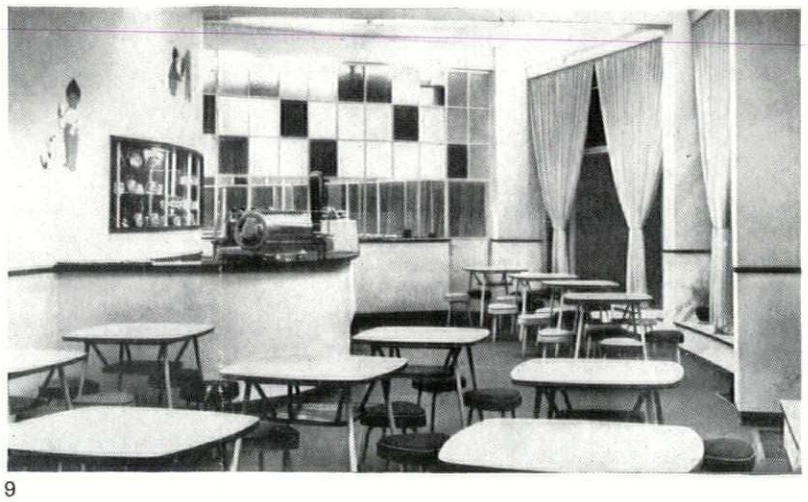
317 World
321 Views and Reviews
324 Frontispiece
325 P. Morton Shand: *John Betjeman*
329 Four Foreign Houses
1. House at Cuernavaca, Mexico: *Architect, Arnold Wasson Tucker*
2. House at Melbourne: *Architects, Grounds, Romberg and Boyd*
3. House near Porvoo, Finland: *Architect, Bertel Saarnio*
4. House at Sao Paolo: *Architect, Rino Levi*
341 Cities on the Line: *George R. Collins*
346 School in St. Marylebone, London: *Architects, Leonard Manasseh and Partners*
354 12th Triennale: *Kenneth Browne*
362 Interior Design
The passengership: backward or forward?
368 Exploring Eye
The Forgotten Monastery of Sumela: *George Zacos*
370 Current Architecture
Miscellany
373 Exhibitions
375 Plants
376 Hats Off
377 Counter-Attack
379 Skill
Hardwood Flooring 2: *G. C. A. Tanner*
382 The Industry
388 Contractors, etc.

Utah fraternity

this is a private club. What the photograph does not show is that this is in fact a two-storey frontage, with the members' main entrance at the upper level reached by a bridge over a dry moat which acts as a service area for the dining room on the floor below, thus giving the overlapping two-storey step-down in the section that is revealed, 8, by the end elevation.



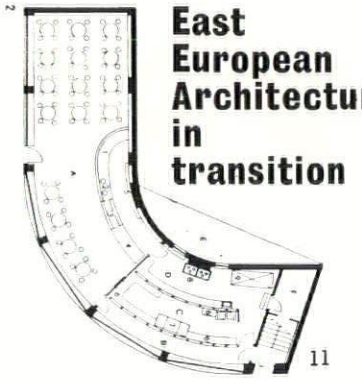
8



9

RUMANIA 1960

East European Architecture in transition

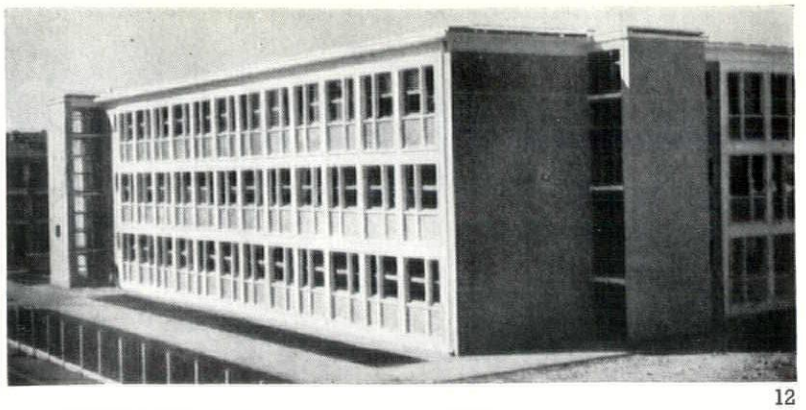


11

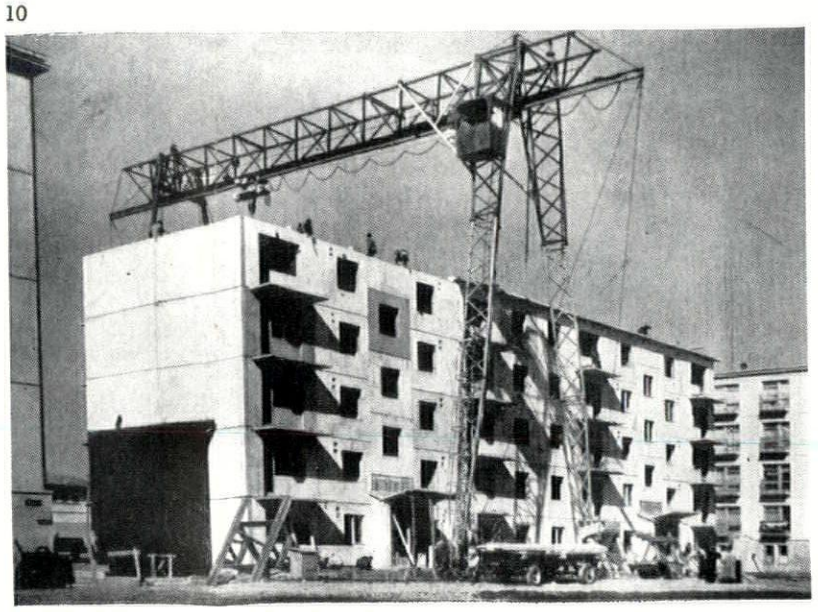
It may seem perverse to single out so minor a work of architecture as the Dorna coffee bar, 9, to introduce the architecture of Rumania, but there are good reasons. One of the missing links in the chain of communication between Eastern and Western architecture—quite apart from language and the regrettably poor paper-stock on which illustrations in East European magazines are commonly printed—lies in the relative emphasis on different building types. At present, overwhelming value is still placed on giant developments of prefabricated flat-blocks, such as the experimental scheme in Bucarest, 10, designed by Drimer, Kereaski, Lazar and Popescu, a type of building of which the West, generally, has little or no experience, and therefore finds it difficult to judge.

Dorna, on the other hand, complete with an espresso machine that is closely related to Gio Ponti's pioneer *Pavoni*, and fitted into a corner of an existing building in Bucarest (see plan, 11) is a familiar functional type in a familiar setting. What is remarkable in Western eyes is that the general style of the solution, with its stools, quartic-shaped table tops and that old stand-by, the atom-orbit diagram used as a decorative motif (on a wall not shown in this picture) should be equally familiar.

Indeed, it is clear that apart from the concrete super-block, to which an unmistakable aura of pre-Thaw aesthetics persistently clings, East European architecture is dramatically less alien to Western ideas than it has been. Recent issues of the Rumanian bi-monthly *Arhitectura RPR* have carried an increasing number of buildings that cannot be located by their style—12, for instance, which might easily have appeared in *Current Architecture* in recent years, is in fact a school in the Floreascu district of Bucarest, designed by the architects Bacalu and Cristea, with the engineers Vasilache and Marcovici. It is one of a series of ten semi-standardized schools built in various quarters of the city, as part of a programme initiated in 1959, and should be capable of comparison with recent British school building programmes. There is, again, something reassuringly familiar about the claim that in spite of new teaching requirements, unit costs (measured here by class-rooms, not places) have dropped from 130,000 lei to 90,000.



12



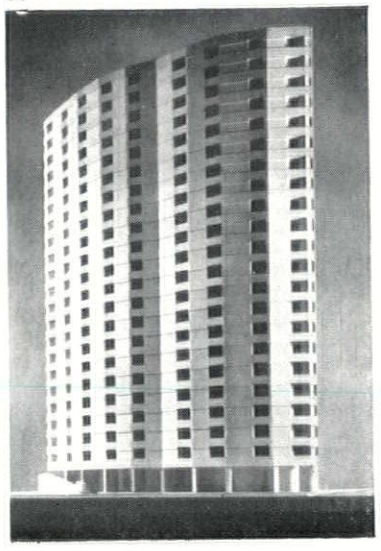
10

FAN-PLANS

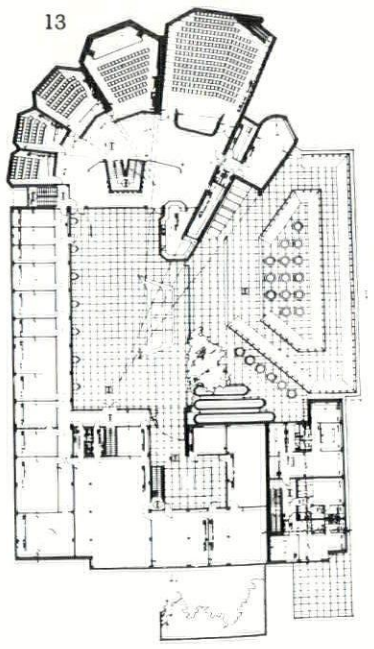
Aalto in Germany

One of the least expected developments in Alvar Aalto's richly continuing development as an architect is the trend to fan-planning that has emerged in his recent work. It began, presumably, to take its characteristic asymmetrical form with his design for the Soviet House of Culture in Helsinki (AR, Marginalia, May, 1959) but two new projects of Aalto's for sites in Germany, published along with the House of Culture in *Arkkitehti-Arkitekten* (12, 1959), take the idea much further.

Putting these two schemes in order of progressive development of the idea (not necessarily the order of date) the *Kulturzentrum* for Wolfsburg, the Volkswagen city, has a fan of progressively smaller auditoria, 13, closing one end of a square block of educational facilities, and promising to present a remarkably effective and craggy façade on the side flanking the new town hall square.



14



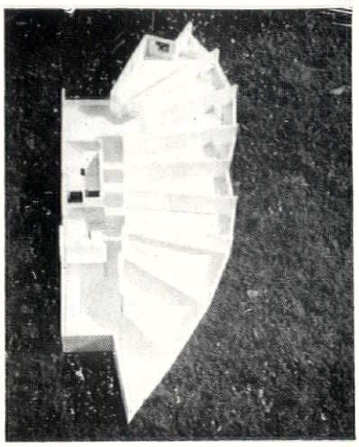
13

The other German project, a block of flats for a site in Bremen, is much more remarkable. The fairly bland undulating façade, seen in model form in 14, gives no real hint of the way in which nine flats on each floor are splayed out, 15, from a rectangular block of lifts and services which can be regarded, to judge from the observations made in *A-A*, as a drastically shortened version of the access corridor of a normal slab block. The wedge-shaped plans of individual flats were anticipated in the rooms in the sinuous parts of Aalto's Baker House

Aalto

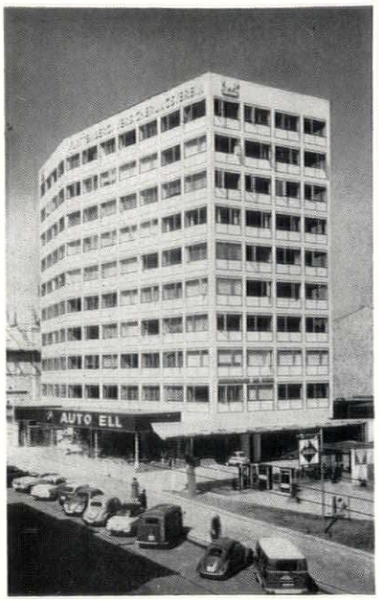
at MIT, but there offered no gains in corridor length. Here, given uncommonly drastic plan-wise organization, Aalto has achieved the equally uncommon feat of producing what is virtually a point block with all its rooms facing in the same direction—the actual difference in orientation of the windows between one end of the façade and the other is less than forty degrees.

15



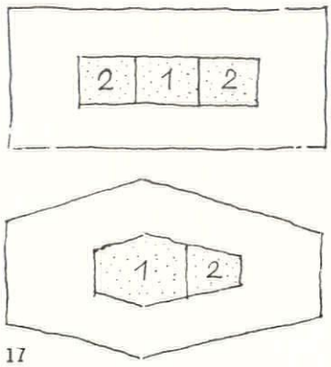
HERZOGBAU: *Stuttgart*

16



While slabs, stars, Y-plans, point-blocks and other tower-plans come and go, the so-called lenticular plan bids fair to become the one real constant among tower forms, persisting from one generation of office-blocks to the next. Among the most interesting recent examples of the type is the cleanly-detailed *Herzogbau*, 16, in Stuttgart, designed by Otto Jager and Werner Muller. The plan, in this case, must be the tubbiest and fattest yet built, but the justification for the form, is—as ever—internal circulation, as the architects' sketches make clear, 17 (1, circulation; 2, service spaces).

However, the *Herzogbau* has the added interest of being fully motorized—admittedly it has a commercial garage and car-sales agency occupying most of the enclosed volume at ground level, which is clearly a special case, but this has been extremely well handled, 18, and there is parking for thirty cars in the basement.



17

18

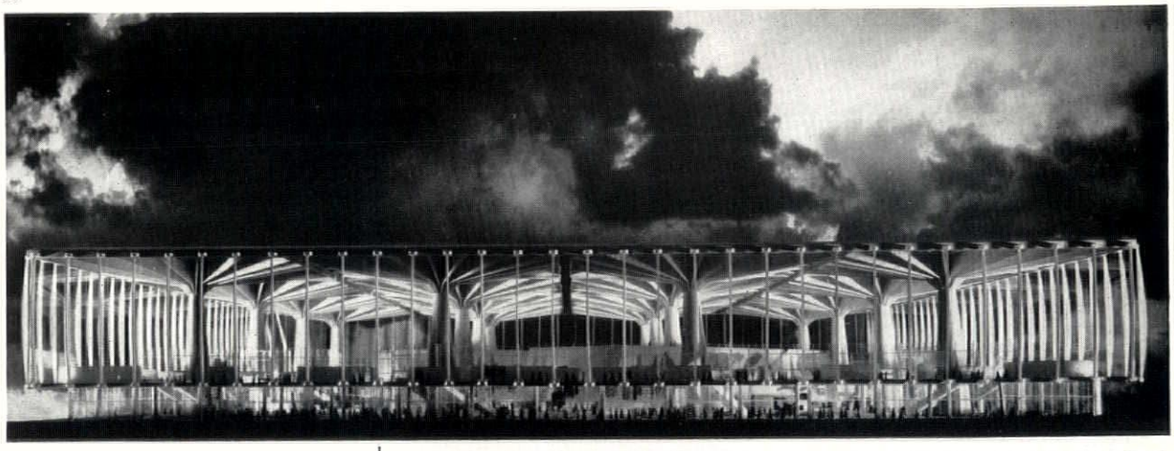


E.I.L.

Congress Hall in Turin

Nervi's design for the Palazzo to house the Espozione Internazionale del Lavoro at Turin '61, marks his full entry into the realm of representational architecture, the kind of ceremonial buildings by which a culture asks to be judged. His scheme, seen on the cover of this issue and in a suitably stormy neo-Classical-type perspective in 19, was unanimously acclaimed by the jury, which is hardly surprising, since what has been seen of the other entrants suggests that those that were of any architectural merit at all were mostly afflicted with that involuted and introverted cleverness that increasingly confuses Italian design today. The Nervi project, on the other hand, offers a comprehensible structure and space,

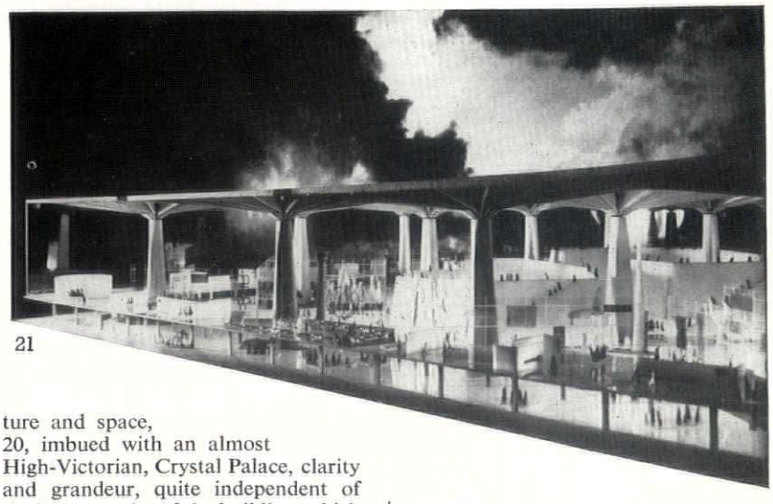
19



20



21



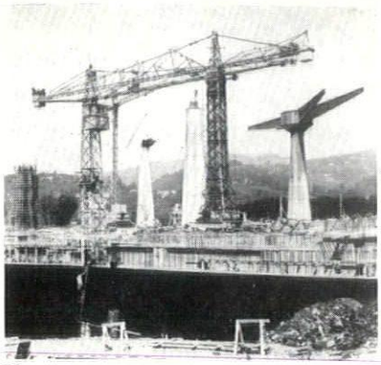
20, imbued with an almost High-Victorian, Crystal Palace, clarity and grandeur, quite independent of the immense size of the building, which will outbulk either St. Peter's or the Coliseum.

Conversely, one must hope that the final disposition of the exhibition structures will do less to confuse the interior, 21, than the model suggests—the lesson of the Dome of Discovery still remains to be learned, it appears, even ten years after the event.

However, it also appears that Nervi is far from too old or set in his ways to learn and experiment structurally. For the great umbrellas that form the roof he has departed even from the pretence of reinforced concrete that goes by the name of *ferrocimento*,

Nervi

and has used nakedly apparent steel, 22, for which the engineer was Gino Covre. This mixed construction—concrete columns, steel beams—is justified by Nervi on the grounds of simplicity and speed of erection as compared with any system of homogeneous concrete construction. No system of vaults or saucer-domes, or even of pre-cast elements requiring grouted joints, could have been hoisted and placed with the ease of these nearly-flat cantilevers.



22



23

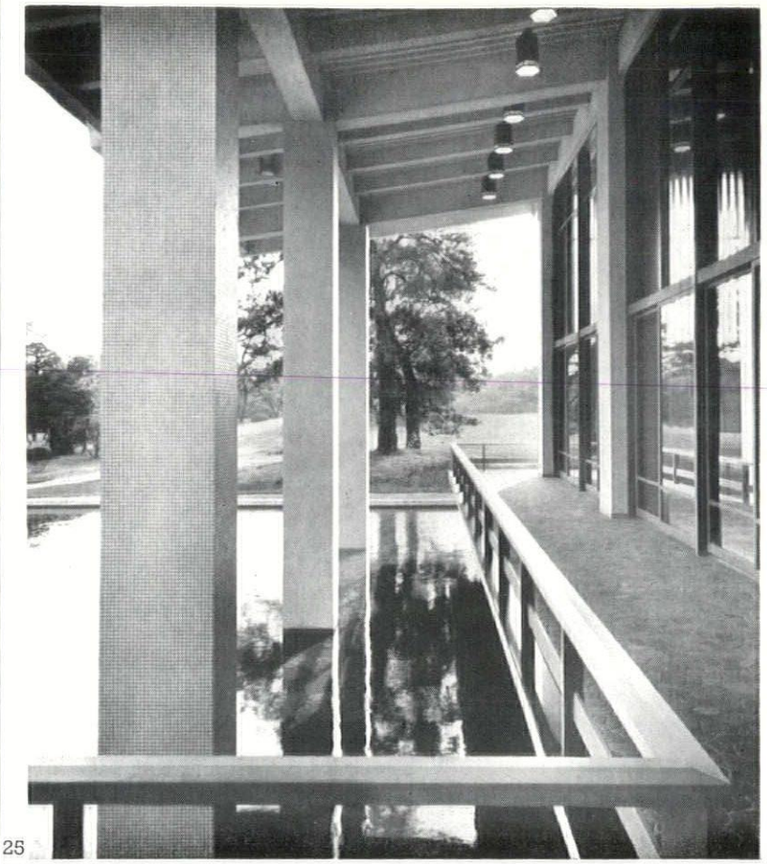
JAPANESE PALACE

Taniguchi and domestic monumentality

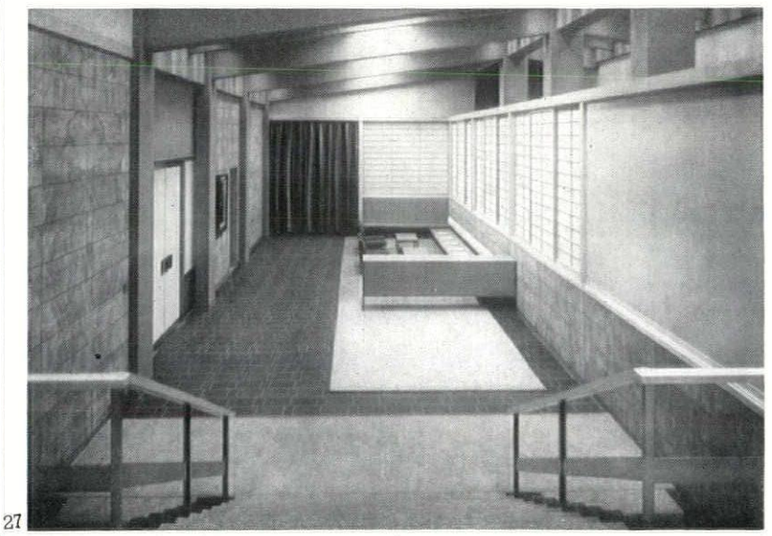
If ever a man had a delicate design problem on his hands, it was Yoshiro Taniguchi when he was entrusted the task of designing the new palace of Prince Akihito of Japan, 23. The building, as completed, may not strike Western eyes as immediately remarkable, but set it against even the little that an educated westerner knows about the cultural background, and it becomes remarkable that he was able to design any building at all. Here is a building to house a Prince of a line that is still, in some way, divine and eternal to the bulk of its subjects, yet has decided to modernize and democratize itself by permitting a Prince of the blood to marry a commoner—a Western equivalent could not even be found by making scandalous proposals about the College of Cardinals.

Taniguchi, who is a sophisticated designer with a live sense of the rhetorical and symbolic qualities of monumental themes (AR, Marginalia, March, 1959), appears to have made his basic approach a mating of the monumental and informal aspects of traditional Japanese architecture, plus those refinements of Western technique that such a theme can absorb. Thus, many of the individual elements of the building have symmetrical façades, structures clearly echoing the massive posts of the temple tradition, and monumental steps and entrances, 24, yet a view along the balcony at the top of the steps immediately, 25, recalls the informal *sukiya* tradition that we know best from the Katsura Palace.

Internally, again, the formal halls, 26, resume the monumental tradition, while the more domestic parts take on an almost Western informality, 27. Nevertheless, it must be underlined that the general handling of the structure departs further from the monumental tradition than a superficial examination might suggest—particularly if one compares it with Isoya Yoshida's handling of traditional monumental structure in the Goto Museum of Art, 28, which is little more than the Japanese equivalent of Neo-Georgian, when it is confronted with Taniguchi's square, tile-clad piers standing directly in the reflecting pool.

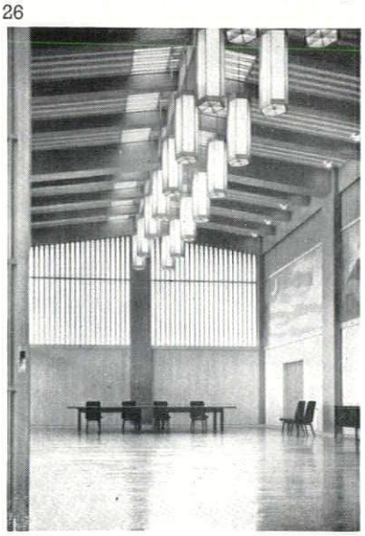


25

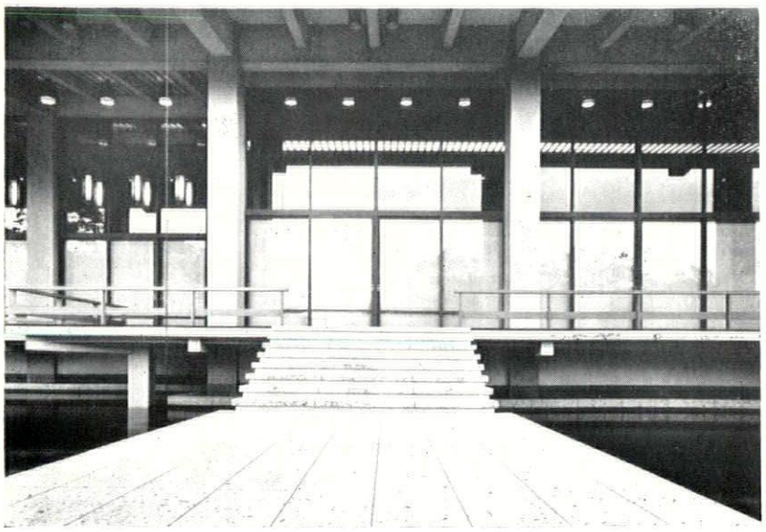


27

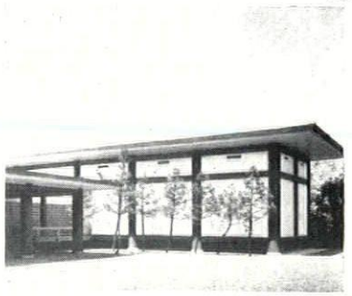
26



24



28



views and reviews

MARGINALIA

REITH LECTURES, 1960

It is welcome news that the BBC's Reith Lectures for 1960 will return to the visual arts, a subject not touched on in the series since Professor Pevsner's *Englishness of English Art* five years ago. This year's lecturer will be Professor Edgar Wind, expert in both Renaissance and eighteenth-century studies, and the general title of his lectures will be *Art and Anarchy*. Only the tentative titles of the individual lectures are known as yet, but of these, two which may well have some bearing on recent architectural discussions in Britain, are *The Fear of Knowledge* and *The Mechanization of Art*. The series will, as usual, run through the autumn on the Home Service, from November 13 to December 18 inclusive.

EUSTON ARCH

The preservation of a monument the size of the Euston Propylaeum—which appears as this month's frontispiece and in another Eric de Maré photograph below, 1—could never be a casual undertaking. It is one of the largest purely ceremonial monuments in the country, outbulking Marble Arch, for instance, by a comfortable margin, and thus gives a valuable insight into the degree of importance that our ancestors attached to the adventure of rail travel. It also stands in the way of the present plans for rebuilding Euston Station which makes its preservation difficult, though one must recall that the designers of Rome railway station had no difficulty in dealing with a large chunk of Roman wall that was equally badly in the way of their circulation re-planning.

The British Transport authorities began by saying that they would re-erect the arch as a new entrance to the station, but later announced that they would not themselves meet the cost of doing so, which they put very high. It appeared from a Ministerial answer given in the House of Commons on July 19 of this year, that the government were not legally empowered to finance such an operation either. Further homework by the legal advisers of the Ministry of Works has now shown that there are, in fact, no legal objections under the Historic Buildings and Ancient Monuments Acts to a government grant being made for the work. A realistic appraisal of political probabilities does not inspire much confidence that such a grant will be made willingly, but it is, at least, reassuring to know that the question is in the field of policy now, rather than law, and that pressure can therefore have some effect. That being so, pressure must be applied at once and kept up until the future of the arch is secure.

APPOINTMENTS

Promising outcomes to originally unpromising commercial-developer schemes are suggested by two recent appointments in Britain. Justifiable apprehension over the outcome of putting a large area of Brighton front out to tender for comprehensive re-development by commercial bidders will be considerably allayed by the news that Sir Hugh Casson has been appointed town planning adviser to Brighton Corporation for the whole front and central area. This follows a recommendation by the Royal Fine Art Commission that the area to be re-developed commercially was too small.

At the same time, the first positive results from the Minister's firm and detailed refusal of the original Cotton Ballard and Blow scheme for Piccadilly (Marginalia, July, 1960) have appeared in Walter Gropius's provisional acceptance of the position of consultant for a new scheme. This acceptance is conditional on the outcome of Sir William Holford's re-planning of the whole Circus, but if and when it is finally taken up, Dr. Gropius's British collaborator will be Richard Llewelyn Davies, architect of the new *Times* building and newly appointed Professor at the Bartlett school of architecture, University College, London.

COID ANNUAL REPORT

The Council of Industrial Design has just issued its annual report*—the fifteenth, which means that the Council is out of the pioneer phase where it could look for spectacular results and the indulgent support of those who were prepared to ignore any faults for the good of the cause. The Council is now in the phase of hard slogging, sniping and occasional outbursts of direct frontal criticism, in the face of which it must expect to justify itself by works rather than faith.

The report gives some facts by which the works can be judged. On the one hand, the figures for attendance at the Design Centre have recently dropped towards 600,000 per annum. They have since built up again slowly, but still do not reach 700,000—astonishing figures in view of the general impression that attendances were increasing massively. They suggest that the Centre may already have 'found its public' and that influence via that arm may have almost reached saturation point.

* HMSO, 2s. 6d.

On the other hand, the graph of the paid circulation of *Design* magazine needs no tricks like logarithmic scales to make it appear impressive—circulation has increased almost exactly nine-fold in the ten years since 1949. This again is contrary to impression, which was that resistance to the magazine among some sections of design-business was increasing. The annual report attributes the magazine's success 'largely' to the quality of the photographs, but the contrast between the Design Centre attendance and the circulation figures suggests that it may not have anything to do with visual qualities at all, but be much more largely due to something that the magazine occasionally gives and the Centre does not—facts and figures on the performance of products, detailed analysis of their construction and functioning, appraisals of the way they compare with other products in the field. In other words—the non-aesthetic aspects of design.

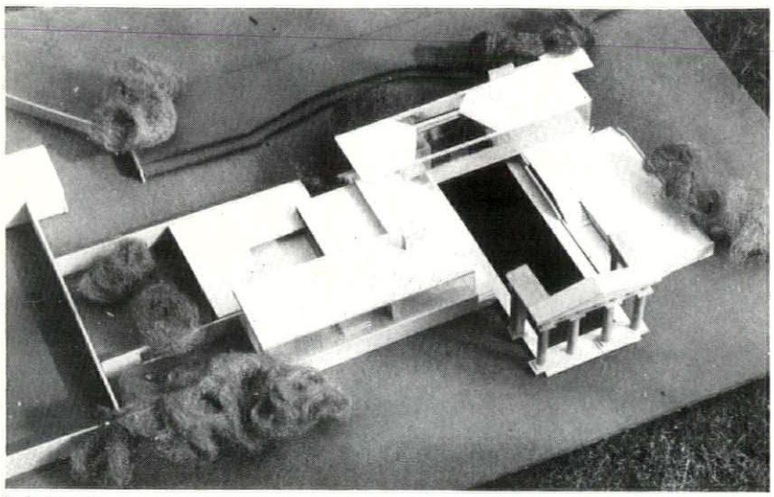
PRESERVED PORTICO

'Where else in Short Hills,' enquired the caption to one of Charles Addams's earliest gibes at suburbia 'would you find a house with a moat?' And



1, *the threatened Euston Propylaeum seen from the approach to the station.*

where in Hampshire would you find a modern house with a Doric portico? At Stratton Park, but the portico is no mere estate agent's gimmick, it survives from an earlier house (one of the last by George Dance) on the site, and is to be integrated into a new work by Stephen Gardiner and Christopher Knight in the manner shown in 2. The basic *parti* is to link the portico to the house by a long



2, *looking down on the model of the house at Stratton Park, showing the relation between the preserved Doric portico and the new house.*

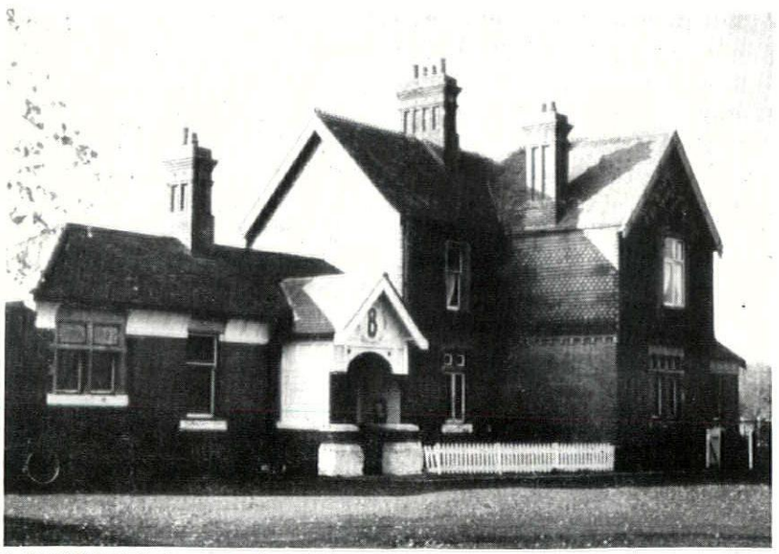
reflecting pool passing under the drawing room, but the operation is rendered visually workable by the client's insistence on unusually high ceilings by current standards in the main rooms (twelve feet) which thus gives the whole design a vertical scale that is comparable to that of the portico, especially as these parts of the house are also raised on a tall white-painted brick plinth.

The scheme naturally invites comparison with Ignazio Gardella's retention of an incomplete colonnade on the spa buildings on the isle of Ischia, but where Gardella simply used the columns and their entablature as a kind of sun-screen to a flat wall, the portico at Stratton Park is given full value as an independent and free-standing element in the composition.

BLUEBELL REDIVIVA

Although it is not an example of the restoration of economic life to a moribund branch-line, on the pattern recommended by SRUBLUK (AR, Marginalia, November, 1955), the rescue of the 'Bluebell Line,' which was a branch off the main line at Horsted Keynes in Sussex, from dismantlement, does show that it is possible for amateur enterprise to preserve choice samples of railwayana under conditions more instructive than fragmentation into isolated museum exhibits. Although the four-and-a-half miles of Bluebell Line does not connect actively with the British Railways network, it has one complete station of its own, at Sheffield Park, and the structure there is in process of being restored, 3, to its original condition and colour scheme (London, Brighton and South Coast Railway, 1882) which in itself is a useful work of industrial archaeology.

No doubt, various sections of opinion will brush off the whole enterprise as 'grown up men playing at trains,' but quite soon school parties will be visiting it to see what railway operation looked like in the heyday of steam, and film and television companies will be queueing up to use it as background for Sherlock Holmes and other period pieces. Indeed, such organizations might do well to invest a little goodwill in the Bluebell Line by helping it to find some of the missing pieces of equipment, such as platform lamps, that it needs in order to make archaeological accuracy complete.



3, *Sheffield Park Station, on the Bluebell line.*

LIBRARY IN PIMLICO

In the ID feature on the children's library in Churchill Gardens, Pimlico (AR, September, 1960), the name of the assistant architect should have read Robert Huddleston, not Middleton.

OBITUARY

G. H. CHETTLE

British architecture lost a man of history in more than one sense in the recent death of George Chettle. Born in 1886, he worked first in the Chipping Campden office of C. R. Ashbee, now firmly ensconced as a historical figure in books on the origins of modern architecture. Later, from just before the beginning of the second world war, he worked as an Inspector of Ancient Monuments at the Office of Works, becoming involved in many ways with the care and preservation of ancient buildings. With John Summerson he was instrumental in the establishment of the National Buildings Record; he served on Ministerial and other committees in connection with the scheduling and preservation of historical architecture; wrote histories, varying from the definitive (on the Queen's House, Greenwich, for the Survey of London) to guide books (on Hampton Court and Kirby Hall), and numbered among his last works the restoration of a monument whose historical importance has only been fully recognized in recent years, Chiswick House.

CORRESPONDENCE

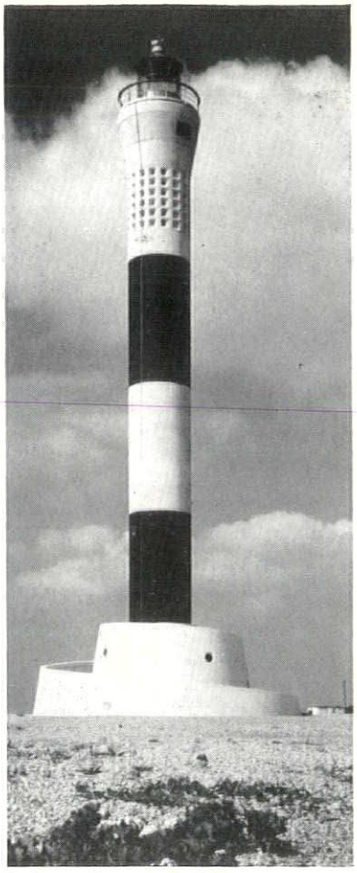
DUNGENESS LIGHTHOUSE

To the Editors.

SIRS,—The 'Nautical Style' discovered to architects by John Piper in 1938 has been pushed into all manner of inland architectural projects, schools, housing estates and midland towns. It is all the more distressing to read your description of the new Dungeness lighthouse as 'this spectacular example of a reawakened Functional Nautical Tradition,' when in fact Messrs. Ronald Ward and Partners have introduced a certain amount of Inverse-Piper-Nautical into their design.

Mr. Forehoe's article is deceptive and inaccurate in so far as the ramp at the base does not lead up to any entrance whatever and is in fact a pleasant architectural folly spiralling precisely nowhere in the wet whatever the prevailing wind, justifying its existence only as a promenade vantage point. The actual entrance is more sheltered and direct at shingle level unrelated to the ramp.

'This first building of purely functional intent in Britain' also discards function in favour of contemporary decoration in the fog-horn grille where the sound is, of course, projected in a semicircle towards the sea and not on the landward side all over Kent as the grille pattern would appear to indicate.



4, *the new Dungeness Lighthouse.*

Recognition and visibility of the lighthouse would be improved if the black aggregates were painted white and the whites black in keeping with Nautical Functional Tradition. Black should be at the top.

Mr. Forehoe does no justice to the Trinity House tradition of providing navigational aids which are functional and visually more effective than British air-port, road and rail equivalents.

Sir, flatten the ramp to shingle level, paint the stripes in accordance with maximum visibility and you will have quite a good pole.

Yours, etc.,
GERALD HOLTOM.
Twickenham.

NO TREES IN MANCHESTER

To the Editors.

SIRS,—Mr. Ian Nairn, in his interesting article on 'Birmingham: Liverpool and Manchester,' shows seventeen views of Manchester (including an aerial view), in not one of which is it possible, I believe, to find . . . a tree!

As one who worked in this city during the last war, and who grew to love it, in a queer incomprehensible way, I think that the City Fathers might be persuaded to do something to repair this omission, seeing that their predecessors failed so dismally years ago to plant trees, which by now would have mitigated the 'inhumanness' of its streets which Mr. Nairn mentions —especially Albert Square.

I am sure the plane tree would flourish in Manchester as well as it does in London.

Yours, etc.,
E. A. ENTWISLE.
London, W.1.

COVENTRY HOUSING

To the Editors.

SIRS,—I notice that on page 203 of your September issue you have printed my name only as architect for the Willenhall Wood housing area. It is my policy to give credit to all the architects who have been concerned with a particular job, and I should be obliged if you would find space for the following:

Principal architect (Housing): Gwyn Morris; job architects: D. Lyddon and C. Griffiths; electrical consultant: Granville Berry (City Engineer and Surveyor).

Yours, etc.,
ARTHUR LING
(City Architect and Planning Officer).

Coventry.

BOOK REVIEWS

INTERMITTENT ENTHUSIASM

COLLINS' GUIDE TO ENGLISH PARISH CHURCHES. *Ed. by John Betjeman. Collins Ltd.* 30*s.*

BUILDINGS OF ENGLAND: YORKSHIRE WEST RIDING, LEICESTERSHIRE AND RUTLAND, BUCKINGHAMSHIRE. *By Nikolaus Pevsner. Penguin Books Ltd.* 10*s.* 6*d.*

The extreme tardiness of this review is the result of trying out each book on the spot. I have now used Collins's Guide in half the counties of England, and each of the Penguins on their home ground. And from all that labour comes one pathetically trite conclusion: that granted accurate detail and a good prose style, the *only* quality that can make a guidebook fulfil itself is enthusiasm.

All four books share the first two qualities; all four books are, patchily, enthusiastic. This is more noticeable in the Collins Guide, because there the only aim was to stimulate enthusiasm, to get people out of the car seat and into the church porch. Wherever John Betjeman touches the descriptions—and particularly in his long, loving introduction on the five ages of the parish church—then the leaven starts working. The same applies to some of his collaborators, notably Frank Singleton (Cumberland), W. G. Hoskins (Devon and Rutland) and G. G. Pace (North Riding). But too many of counties have dry little entries like '15th century font cover' or '14th century chancel' and we are really back in the atmosphere and inadequacy of the nineteenth-century guidebooks.

In one sense, we are worse off, because an understandable reaction has made us almost impervious to medieval buildings. When an entry about the magnificent Marshland church at Pinchbeck reads simply 'restored by Butterfield, 1863,'a ridiculous inversion has taken place—and an unjustified one, because these medieval buildings were deeper, subtler and more elegant than anything we have done since. Maid's Moreton in Bucks is a nightmare of a church, a Bosch dream in architectural terms. Collins calls it simply '15th cent' which wouldn't get people within a mile of it, and the Buildings of England, although the description is fuller, gets no further into the building—again, a non-committal phrase like 'the outcome of great zest and generosity' is really no better than Kelly's 'large edifice in the Perp. style.'

Wherever the particular county author in Collins's Guide is enthusiastic, whatever his viewpoint, the result is worth reading. If all the authors had written about only the churches that really interested them, not necessarily keeping to strict county boundaries, the result might have been enthralling; doubly so if two authors contradicted one another—the impetus to go and see would be even stronger. If someone tells me that a church as near the end of the world as England gets (north-east of Hull, in Holderness) is a 'quite lovely fragment of a priory of Cistercian nuns . . . ,' etc., I wander there regardless of what I ought to be doing. And I do not feel cheated if when I do it does not seem to me to be as nice as all that: if I cannot see the loveliness fully, then it is probably my loss. The name of this particular place, improbably enough, is Swine.

The Buildings of England series are intended to be textbooks as well as guidebooks. But a textbook without guidance and illumination might as well be Banister Fletcher or the Ministry of Housing scheduled list. Too often that is the case: Markenfield Hall in the West Riding, Church Langton in Leicestershire, Bierton in Bucks (where Collins on Church Langton tempts you, and the twelve-year-old Betjeman-Piper Murray's Guide compels you to have a look at Bierton's crossing piers which it says rightly 'transform this village church into noble architecture'). Many more buildings have what seem to be one of a standard set of adjectives—fine, handsome, dignified—applied without any attempt to discriminate the specific qualities of the building, though admittedly the English language is not much help here. It needs about another thousand words to convey shades of approval: it already has so many to convey shades of disparagement.

And yet, as REVIEW readers well know, Dr. Pevsner does care about buildings, and can express that care better and with greater pan-European perspective than anyone else, when he is moved to. Intermittently, in these volumes, he is so moved, and things like the new Eton College vault, St. Peter at Leeds, the whole of the description of Doncaster (where the Great North Road lorries must clearly have been what the Americans call a traumatic experience) are beautifully done. Why is it intermittent?—the answer, I suppose, is in the tempo of the series, presupposing a month's visit only, rain or shine. This haste would account equally for the lack of detailed discussion of what seems very perplexing on the spot—such as the little nonsense in St. Margaret Leicester where the fifteenth century, unable to know what to do with a thirteenth-century respond, left it and popped their own on top, and also for things like the attribution of Donington Hall to Wilkins as 'an early work.' As he was aged fifteen at the time, it would have been early indeed, and Donington in fact was the principal work of his dad.

I am sure, in this case, that more haste is less speed, and that a guide or textbook which cannot fire the imagination might as well not be written. My case rests on the Roman Catholic church at Eton. The Buildings of England volume says '1914, by Alfred Lord Braye. Small, of stone, with a Continental Baroque front and no tower.' Murray's Guide said 'an interior of unexampled miniature splendour done after the style of a Southern Italian Baroque church.' Murray's sent me there, and Murray's was right, but it did not give the architect. The Buildings of England volume gives me the architect but would never send me there unless I was waiting for the pubs to open. What I want is a guide which will combine both and then tell me a bit about the obviously rather unusual Alfred Lord Braye. Am I asking for the moon?

Ian Nairn

CURACAON CLASSICISM

DE MONUMENTEN VAN CURACAO IN WOORD EN BEELD. *By M. D. Ozinga. Stichting Monumentenzorg, Curacao,* 1959.

POLLACK MIHALY. *By Anna Zádor. Akadémiai Kiadó, Budapest,* 1960.

Neo-classical pediments and giant pilasters are at home in Russia as well as the United States—in the former more German, in the latter more English in derivation, but both essentially the same. Neo-classicism was the last wholly international style, until that of the early twentieth century had spread in the 1930's. So it is only what one expected, to see it illustrated in books from outlying countries—outlying for reasons of distance or politics. Miss Zádor shows that Michael Pollack practised Schinkel's brand of classicism ably and extensively in Budapest and the Hungarian countryside, and Professor Ozinga that Dutch classicism characterizes the official architecture of Curaçao, the Dutch island off the coast of Venezuela. Pollack was born in Vienna in 1773 and learnt from his half-brother Leopoldo in Milan. He remained a confirmed classicist in the 1850's and only once seems to have strayed into the Gothic. The Ledoux-Boullée style, Gilly and more obviously Schinkel must have impressed him, as both his large public buildings and his country houses show. He also designed a number of blocks of flats at Budapest, dignified and restrained, and sometimes interestingly planned.

The Curaçao story is more complex. The Dutch captured the island in 1634, and Professor Ozinga's survey covers building from the late seventeenth century onwards. He also continues his story into the late nineteenth century, and it is not always quite easy to decide whether the houses illustrated belong to a classical survival or a re-revival. More interesting, however, than the official classical buildings are the vernacular ones and especially the houses at Punda with their shaped gables—Cape Dutch, we would call them—and their odd and attractive colonnades on two or even three floors, mostly with homely, stubby columns. They look seventeenth century, though they turn out to be of the mid-eighteenth and later. Curaçao also has a big synagogue of 1732, a Lutheran church of 1763 and a Masonic Lodge by an architect with the English name Chapham.

That Professor Ozinga is fully aware of international literature goes without saying, but it is highly remarkable that Miss Zádor working in Hungary should be able to quote in her ample footnotes articles and papers published in all countries and with an impressively large number of journals (including THE ARCHITECTURAL REVIEW). Her book has at the end a summary of twenty pages in Russian and another equally detailed one in German. The book on Curaçao has summaries to the individual chapters instead. They are in English and amount to well over twenty pages. The book should be of interest to anyone over here who has felt the fascination of Colonial architecture in the British West Indies.

N. Pevsner

SHORTER NOTICES

THE ARCHITECTURE OF JOHN NASH. *By Terence Davis. Studio Books.* 50*s.*

The excellent photographs collected by Mr. Davis make his book the most complete visual record of Nash's work up to date. Unfortunately, however, the catalogue accompanying the plates, while admirably wide in scope, is rather sketchy and disappointing in its lack of depth. This one defect is more than adequately counterbalanced by Sir John Summerson's critical essay which is not only interesting and informative but is also freshly written and pleasantly readable. The book is, on the whole, an attractive and welcome one. It is hoped that Studio Books will continue their venture in architectural biography.

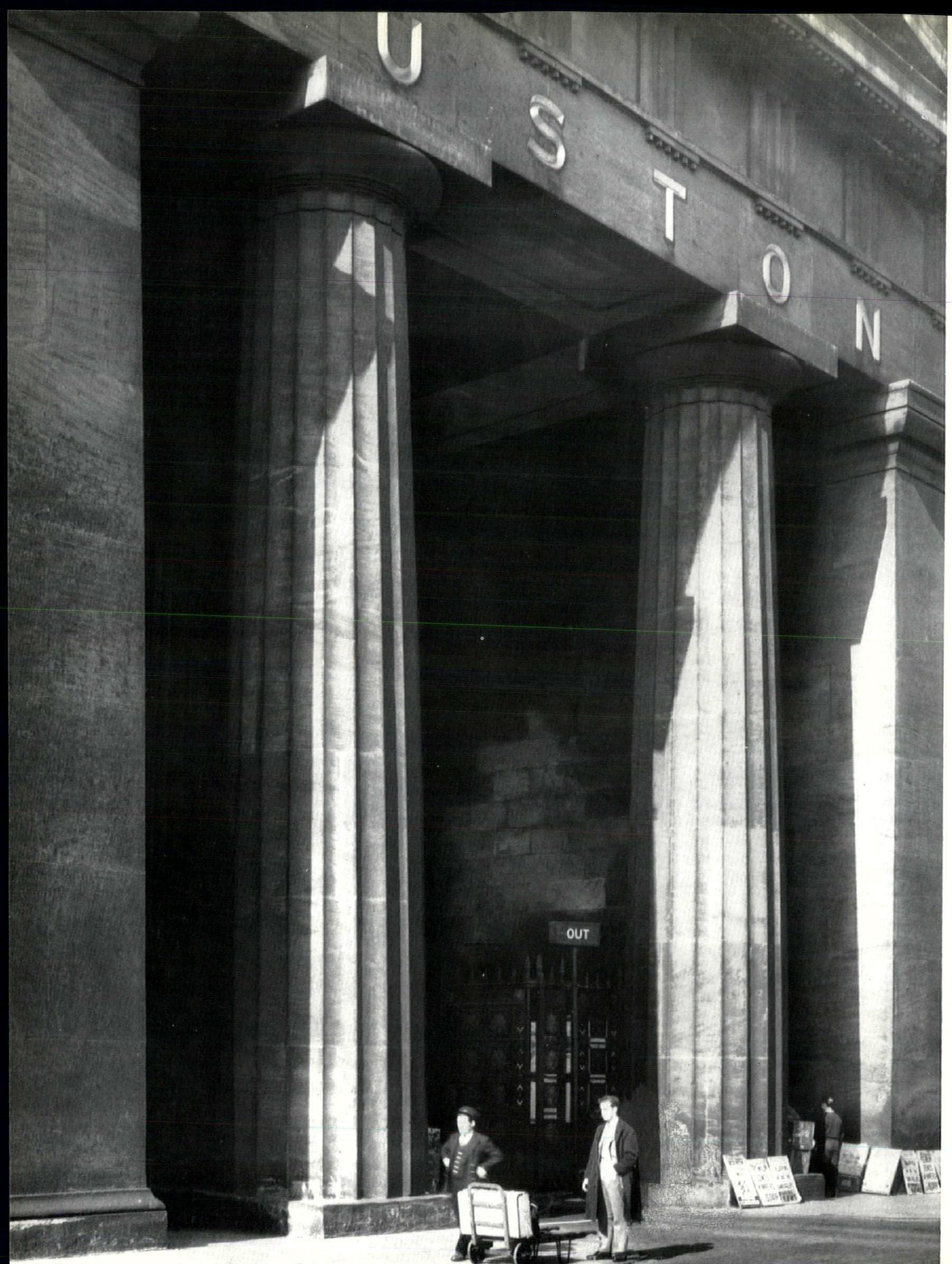
DECORATIVE CAST IRONWORK IN GREAT BRITAIN. *By Raymond Lister. G. Bell and Sons, Ltd.* 35*s.*

A companion to Mr. Lister's previous book on wrought ironwork. It is a rich and comprehensive encyclopedia of information about the making of cast iron and its use as a decorative medium. The book fully reveals Mr. Lister's deep-seated interest and years of practical experience in the field of metalwork. Although factually it improves upon the publication of Messrs. Gloag and Bridgewater, it lacks their concordance of visual material. This is regrettable since ironwork is an especially photogenic subject.

ENGLISH STAINED GLASS. *Introduction by Herbert Read. Text and comments by John Baker. Photographs by Alfred Lammer. Thames and Hudson.* £5.5.0.

A sumptuously produced volume containing 137 photographs, mostly of details, of which 34 are in colour. These are first rate; the text less so, since it lacks scholarship and puts forward uncertain and unenlightening comparisons. Mr. Baker discusses the early history of English glass without reference to its French origin and seems to imply that stained glass was developed in the eleventh century, whereas references to it exist at Werden in the ninth century and at Dijon in the year 1001.

On the other hand Mr. Baker—and his illustrator—properly put a higher value on English twelfth and thirteenth century glass than on the technically more highly developed products of three hundred years later.


U
S
T
O
N
OUT



The fate of the famous Doric arch at Euston Station, one of the most impressive nineteenth-century monuments in London, symbolic of the power and vision of Britain's early railway enterprises, is still uncertain. Plans have been made for re-erecting it elsewhere on the station site when Euston is rebuilt, but the railway authorities say they are not prepared to meet the cost of doing so which they put very high. The arch was designed by Philip Hardwick in 1836. *The photograph (and another on page* 321) *is by Eric de Maré.*

John Betjeman

P. MORTON SHAND

P. Morton Shand died last May at the age of 72. *He was one of the true pioneers of modern architecture in Britain, since it was his writings (for the most part published in* THE ARCHITECTURAL REVIEW) *that introduced to British architects the ideas that were flourishing on the Continent in the nineteen-twenties and 'thirties. They also introduced the work of many great men—Maillart, Gropius, Aalto—who were later to bear household names. Shand was the translator of Gropius's own writings and was the first English critic and journalist to concentrate on modern architecture. Below is a personal memoir by Mr. John Betjeman. At the end is printed a list of the most important articles P. Morton Shand contributed to the* REVIEW, *from which (and from the special issue of the AA Journal on him, for January,* 1959, *where many of these were reprinted) a clear picture can be obtained of his convictions about modern architecture, and his services to it.*

The contradictory notices that appeared in the obituary columns of *The Times* about P. Morton Shand would have delighted and amused him. He was not self-revelatory. I am grateful for this opportunity of writing about one who led the way to my own generation in the appreciation of good wine, food and architecture. In my mind's ear as I do so, I hear his chuckle and the click of those ill-fitting false teeth, followed by some sharp remark ending characteristically with 'What? What?' Below the outward grumbling there were underlying affection and integrity—and always humour. The more one got to know him the more one came to admire and love him.

We never called him 'Morton' nor had heard of his Christian name Philip. He was always addressed by his initial and full name as though it were one four-syllabled word. His father, Faulkner Alexander Shand, was a well-known pioneer of psychology, a branch of learning which his only child, P. Morton Shand, did not admire. He was brought up in an atmosphere of plenty of capital cautiously expended. His mother was descended from the Hopes of Liverpool and he was a cousin of Sir Howard Robertson.

There were other unexpected things about him. No one would have thought that this nonchalant, tall man with his fair hair, distinguished nose and elegant manners was a conscientious and reliable journalist. He was always punctual with his copy. He never demurred when asked to do humbling tasks such as supplying captions for some dreary series of photographs of, let us say, door handles in the 'Craftsman's Portfolio' in THE ARCHITECTURAL REVIEW of the 'thirties. The copy arrived dead on time in single-space typing with corrections neatly made by thick block-

ings-out in ink and substitutions in his minute flowing script which, like his appearance, never changed throughout his life. Though he had been educated at Eton and King's and spoke French and German well, he preferred quantity surveyors to architects, craftsmen to designers and simple peasants to complicated suburbanites.

His two outstanding characteristics were a God-given sense of quality and a complete, almost childlike, honesty which prevented him from earning a comfortable living. He would not have liked that phrase 'God-given.' 'I have never been an atheist, as you described me to your charming former secretary,' he wrote, 'but I cannot stomach the idea of worshipping a deity who expects to be praised like a present-day politician.'

His sense of quality is shown in his writings. Mr. Ronald Avery, the Bristol wine merchant, was amazed to hear that I knew P. Morton Shand. 'Is he still alive? He is a man I want to meet more than anyone else. His book on wine is the best that has been written, and we wine merchants use it as a standard work.'* His appreciation of the qualities of architecture came from an early interest in civil engineering, in railways, bridges, cantilever constructions and the use of new materials. He made extensive tours in France after the '14 War, the country which he preferred to all others and where he had some interest in a silk factory in Lyons. He also visited Holland, Switzerland, Finland and the Germany of the Weimar Republic. Wherever he went he liked to find out the engineers of structures he admired, and later he came to study architects whose work had affinities with civil engineering. Fluent French and German brought him into touch with them. Thus he obtained the copyright in England of photographs of the work of Continental architects who were building in a manner which had not yet been seen in this country. He was a pioneer in England of the interpretation of the work of Gropius and his colleagues in the Bauhaus. His acquaintance with Alvar Aalto first made that architect's work known over here, and P. Morton Shand came from Finland with the first specimens of Aalto's bentwood furniture. He never saw architecture in terms of movements and trends. He was interested in the personalities of the men whose work he knew and the less they said about themselves the more he liked them.

At the time when P. Morton Shand started to write for THE ARCHITECTURAL REVIEW, in the late 'twenties and early 'thirties, it was ceasing to be the organ of the neo-classic school which it had been under the able editorship of Sir Mervyn MacCartney. The reticent guiding genius of H. de C. Hastings was turning it into the pioneer periodical of what has come to be called 'contemporary' architecture. There was a noticeable difference between the illustrations in the advertisement pages—which were still of classic banks and bronze doors—and the editorial pages which were full of austere Continental photographs, the copyright of P. Morton Shand, and accompanied by his articles and captions. At this time P. Morton Shand's friends were Paul Nash, Frederick Etchells and Osbert Burdett, and their work, too, appeared in the REVIEW'S pages. *The Architects' Journal* was then a less adventurous weekly edition of the REVIEW. *The Builder* under Mr. Plume remained the repository of the old school, and *The Architect and Building News* tried to be a half-way house. P. Morton Shand remained loyal to the REVIEW. Soon we had our own young architects building in the new manner. Many of your more elderly readers will recollect how what Auden, Spender and Day Lewis were to poetry, Wells Coates, Serge Chermayeff and Raymond McGrath were to architecture in the REVIEW. The Modern Architectural Research Group was formed with P. Morton Shand as its first secretary, doing all the translation and organizing. Indeed, if it had not been for him the group could not have come into existence, and Gropius, at the dinner given to him on his arrival in England, paid tribute to P. Morton Shand.

When the new fashion spread through the architectural schools, ousting the taste for Stockholm Town Hall and making even Heal's shop seem old fashioned, and when Hitler's activities in Germany brought Bauhaus architects to England as partners in progressive firms, P. Morton Shand began to exercise that discrimination which always got him into trouble. He was no Fascist or Communist: he was a strong individualist. 'Impersonalism kills every human value it touches,' he wrote. But he objected to those he thought were cashing in on the new movement and invented devastating nicknames for them. His sense of quality made him look for the personal note in an architect's style, and he was very suspicious of the user of slick phrases.

His prejudices were thought by some to be unreasonable. They generally had an understandable basis. For instance, his dislike of port was because he thought that, being mixed with brandy, it was a doctored wine. Old architects like C. F. A. Voysey who were being heralded, to their dismay, as pioneers of modern architecture, could not understand P. Morton Shand's rooted objection to Gothic. This was because he had reacted from the taste of his parents' generation which favoured this style on picturesque grounds. On the other hand he was interested in the Morris movement and particularly in the work of Norman Shaw, Lethaby and Philip Webb. He continued this interest at a time when, remember, we believed that handicraft was out for ever and that the new beauty could only be created by machines. His taste in the architecture of the past was for the Regency and Napoleonic periods. Like Gropius, he thought that modern architecture was the heir of the later work of Soane and Schinkel. Towards the end of his life he began a study of the Romanesque in France, the nearest he could bring himself to Gothic. His other strong prejudice was against America, not against the fine new architecture of that country, but against its way of life, its standardization and its influence for the bad on the English language.

His prejudices were part of his honesty and integrity. He had an exciting eye for picking out simple and well-proportioned buildings and increasingly appreciated what remains of English country building. In 1956 he wrote to me 'Do you know—but I'm sure you must—the College of St. Mark at Audley End? I discovered it purely by chance last Saturday

*Republished and revised 1960 *A Book of French Wines*. Cape 30*s*.

when I went to see the (rather disappointing) former palace at Audley End—but it has one of the loveliest parks in England. The "College" must be almost unique, and I am hoping that it has not been discovered. Two tiny totally enclosed garden courts in simple, and apparently untouched, fifteenth century brickwork provide separate "flats" for the aged clergy and their wives in decently human and moderately dignified surroundings. It is reached down a narrow village street, presumably of the same period, consisting of identical plastered cottages on each side. I was entranced with it. The place is as remote as a hermitage.'

His respect for the individual quality of design made him an advocate of regionalism. 'The trouble is that so much is offered to our eyes, or rather forced under them, that we no longer know how to use them for *ourselves*. The films and motor cars have accustomed us to see everything in motion, which means not even partially, and always with the distortion lent by speed. We are no longer able to *stand* and look long and deeply, still less patiently and with the sort of mental coaxing necessary for seeing the intrinsic quality of anything underlying its "humdrum" appearance. And the result is we no longer know what we want to look at, or can select for ourselves, unless we consult a guide book.

'Also the territorial uprooting we have all suffered—consciously or not—has blunted our sense of locality; we can no longer "read" places or tracts of country to our own imaginative glosses or evocations. It is strange but true that there is less regional literature in England than in almost any other country. Blackmore is always quoted as the outstanding exception—or rather was—before Hardy became known.

'But (merits apart) Blackmore is hardly more truly regional than the Brontës. Both wrote about wild rugged country, but their wildly rugged country might have been almost anywhere else than Exmoor or the wolds. I ascribe this to the curious timidity of nineteenth-century English fiction which so studiously disguised the names of towns and counties described—those "Oxbridges" and "Loamshires"—perhaps from dread of the incalculable repercussions of the English law of libel. It thus did incalculable harm by generalizing our visual perception of county towns and rural districts, and making a common denominator of them such as has been realized in post-1918 large-town suburbs. Hence we have lost our sense—and relish—of the individual features of each, and are no longer willing to believe that they exist, or, if so, are worth nosing out. Chatham (I mean apart from Rochester, which is purest Dickens) is one of the most individual towns I know. But the only description of its wild military violence and licentiousness in Victorian days (and it's a wonderful one) is by the French "collaborationist" author Céline.

'I remember during the first decade of the "discovery" of William Blake (about 1904 I suppose) being immensely struck by a line in one of the Prophetic Books "*the corner of Poland Street weeps.*" An enthusiastic young don explained genially "of course you understand that all that sort of imagery of his is purely metaphorical." It is nothing of the sort; it is directly factual in an imaginative sense. Go and look at the corners of Poland Street even to-day, and you will see that they do weep, or at any rate that Blake felt and believed that they did weep. And isn't the name *Poland* an evocation of continual historic weeping in itself? Blake and De Quincey evoke the essential atmosphere of those sordid brick-built London streets as no one before or since has come anywhere near to.'

P. Morton Shand (whether as a result of his experiences with the British Reinforced Concrete Co. and the Design and Industries Association, I never discovered) took great exception to Public Relations Officers, 'Executives' and all the jargon of advertising. He saw in newly coined words like 'cladding,' 'floorscape' and phrases like 'blue print for betterment,' the unseeing slickness of those who follow a fashion merely to get for themselves power or money. He himself never had either, nor particularly wanted them. His sense of the goodness at the heart of what was well made enabled him to see through the 'streamlining' and other dodges of 'industrial designers' such as three-cornered tea pots and square kettles. Neither did he like the language of art historians. Some of the last letters I had from him indicate his state of mind:

'The coolies' compound which is to be built round the amputated stump of the old Imperial Institute is, I am informed, considered an outstandingly progressive advance in contemporary design. There can be no question of monotony or bareness about it because "richness will be imparted throughout by ingenious variety in the 'cladding.' " Let no one in future dare to cast a stone at the Victorian speculative builder.

'I have frightful nightmares, and no wonder, for I am haunted by a gnawing sense of guilt in having, in however a minor and obscure degree, helped to bring about, anyhow encouraged and praised, the embryo searchings that have now materialized into a monster neither of us could have foreseen: Contemporary Architecture=(the piling up of gigantic children's toy bricks in utterly dehumanized and meaningless forms), "Art" and all that. It is no longer funny; it is a frightening, all-pervading menace.'

He was one of those unlucky people who, with an intense interest in the visual arts, had no proficiency in them. His fastidiousness, born of his sense of quality, is shown instead in his writing. 'I wish you would write or broadcast on the horrors of reviewing. How strange it is the way, after a couple of years or so at the job, one at times suddenly finds it impossible to think of anything else sensible or honest to say—or cannot complete a sentence without tumbling into horrible clichés or use of the most banal and threadbare adjectives, which invariably sound forced, flattering, insincere or patronizing when one reads them. Add to that the harrowing restrictions on length, and the nightmares which the proper and improper use of those inescapable words "it," "this," "that," "which" "and," present as one grows older and tries to be more careful and precise. Has it struck you that nearly all of us use our prepositions more and more vaguely, and as often as not incorrectly, because idiom more and more ignores the proper one to use? And it has become almost impossible for one adjective to say what one means without others to qualify it. Modern writing is a

string of strung-out adjectives held together by unending "ands." On top of which I gather one is supposed to keep abreast of the "schematic" literary work poured out by American university presses. Oh God, oh "literary work." '

These extracts of letters written to me in the last years of his life may give the impression that P. Morton Shand became embittered. This was not so. Mr. J. Craven Pritchard recalls travelling with him to Estonia in 1932 or 1933 when they had to go through the Polish corridor and Lithuania and Latvia. He insists on getting out of the train in each country and telling the customs and other officials how delighted he was to be in their wonderful country, but each time referring to the wrong one, causing great fury. His last years were made happy by his living in France, the country he liked best, near Montpellier, and visiting Romanesque churches and looking at trees. I have had to leave out the many funny things he said because of the law of libel. I have not mentioned either his generosity with his time and with his pen on behalf of those whose works he admired. He was saved from bitterness by his essential humility. When his contemporaries had handles added to their names or letters put after them, he rejoiced. He should at least have been made an honorary member of the RIBA. He would have been invaluable on the Royal Fine Art Commission as one who stood above the opposing cliques of architectural schools of thought, and saw architecture with learning and affection, and who was never taken in by pretentiousness. But it never occurred to him that he deserved such recognition and employment of his talent. He was content to remain to the last without letters or titles—P. Morton Shand.

P. Morton Shand's writings in 'The Architectural Review'

His two most substantial contributions to the REVIEW were a special number on the architecture of iron, steel and concrete (November, 1932) and a series of articles under the general title 'Scenario for a Human Drama' published between July, 1934 and March, 1935. The former, for which he wrote most of the text (including two important historical articles) and supplied many of the illustrations, came at a key moment when the impact of these materials on modern architecture was beginning to be appreciated. It introduced the achievements of the great European civil engineers, the bridges of Maillart and the work of some of the leading modern architects to English readers.

'Scenario for a Human Drama' was designed to fill the gap between F. R. S. Yorke's book *The Modern House* (published in 1934) and the standard books on the history of house architecture, such as Nathaniel Lloyd's, which stopped early in the nineteenth century. In fact the series did more than this, for it traced modern architecture's basic concepts back into the work of the nineteenth-century pioneers, anticipating the more detailed studies such as those of Dr. Pevsner. Shand worked in anti-chronological order. After the foreword to the series (July, 1934), there appeared 'Immediate Background' (August, 1934), 'Peter Behrens' (September, 1934), 'Van de Velde to Wagner' (October, 1934), 'Glasgow Interlude'—about Mackintosh and his influence—(January, 1935), '*La Machine à Habiter* to the House of Character'—dealing with Berlage and Frank Lloyd Wright—(February, 1935) and 'Looping the Loop'—going back to Voysey, Webb and Morris and eventually to Soane—(March, 1935).

It was through Shand that the work of several foreign architects was first made known in England, notably Aalto, and he wrote the notes accompanying the photographs of successive Aalto buildings (Turun Sanomat building, Abo, September, 1931; Paimio sanatorium, September, 1933; library at Viipuri, March, 1936). He similarly annotated the Frankfort central markets by Martin Elsaesser (February, 1932), Peter Behrens's villa near Cronburg (October, 1932) and Le Corbusier's flat in the Parc des Princes, Paris (February, 1935).

His other contributions were mostly on the smaller scale of book-reviews and the like with the exception of two important articles: one (November, 1929) entitled 'Underground,' was a full-scale appreciation of the influence that London Transport, inspired by Frank Pick, was then exercising on design, and the other (May, 1941) an obituary article on the Swedish architect Gunnar Asplund.

FOUR FOREIGN HOUSES

As James Gowan observed (AR, December 1959) 'The house is deeply rooted in traditionalism' and nothing, in retrospect, makes this more clear than the would-be anti-traditional houses of the early Modern Movement, in which—despite the radical enthusiasms of their designers—the domestic functions were still crammed into built receptacles as boxlike and rectangular as those of the eighteenth century. The dissolution of the house-as-box has been astonishingly slow, but where it persists now, as in Mies van der Rohe's Farnsworth house, or Bertel Saarnio's at Porvoo, illustrated on these pages, it is usually for conscious and clearly understood reasons of function or aesthetic intent, not out of cultural inertia. The alternatives, as the other three houses on these pages show, two being unusual variations on the patio plan, are now as various as circumstances permit and imagination demands: the destruction of the Box, as Frank Lloyd Wright demanded.

1. AT CUERNAVACA, MEXICO architect, Arnold Wasson Tucker

1, the approach to the house between guest-house and garage. Beyond is a covered way leading to the living-area.

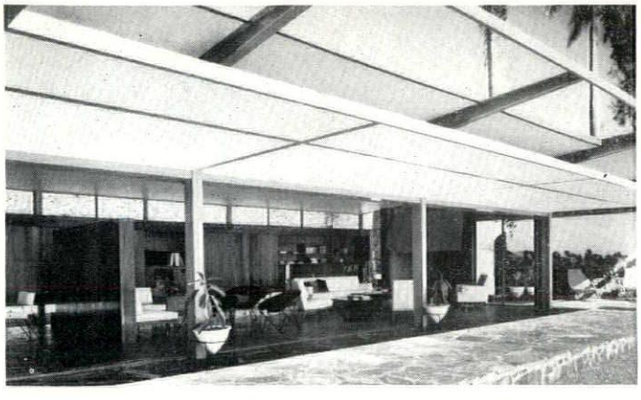


HOUSE AT CUERNAVACA, MEXICO

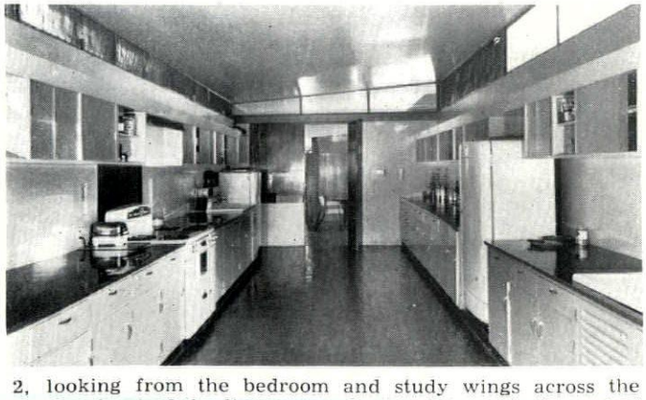
photographs by Brehme



2



3

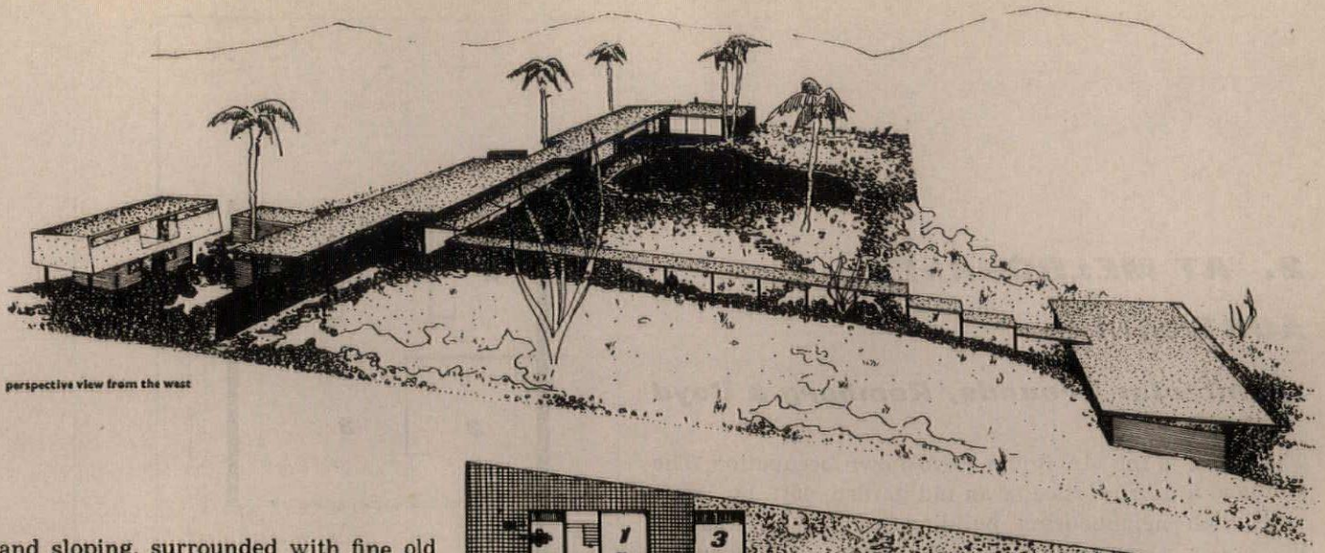


4



5

2, looking from the bedroom and study wings across the garden front of the living-area. In the distance is the end of the covered way leading from the entrance—see preceding page.
3, the dining-living area from the terrace.
4, the kitchen, which has screened, adjustable windows at ceiling level.
5, looking across the living-room terrace towards the study wing; that is, in the opposite direction to 2.



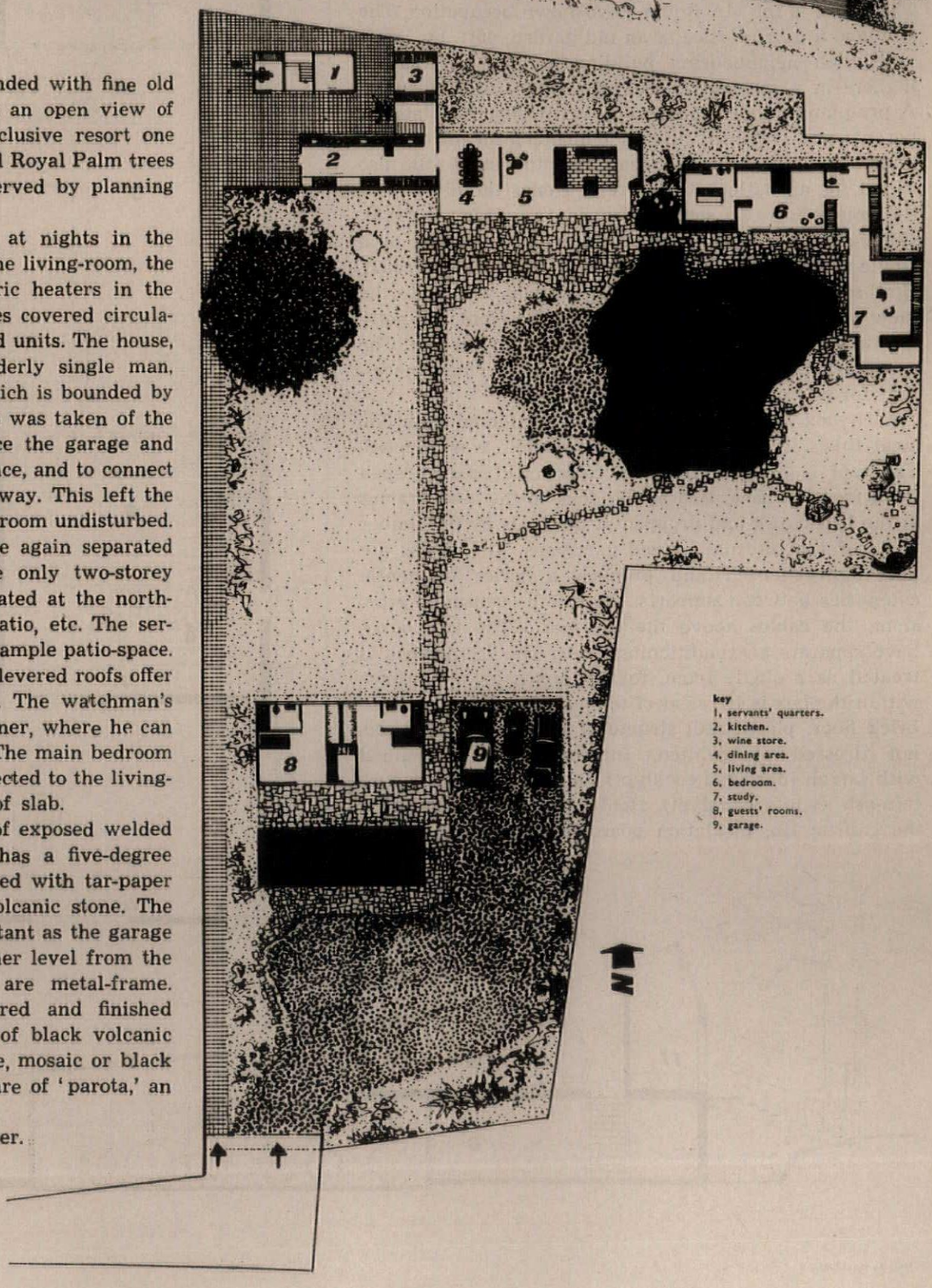
perspective view from the west

The site is large and sloping, surrounded with fine old trees except to the south, which has an open view of the mountains at Cuernavaca, an exclusive resort one hour's drive from Mexico City. Several Royal Palm trees growing on the site have been preserved by planning the house round them.

The climate is semi-tropical, cool at nights in the winter; hence the large fire-place in the living-room, the smaller one in the study, and electric heaters in the bathroom. Heavy summer rain dictates covered circulation to connect the somewhat scattered units. The house, which has been designed for an elderly single man, sprawls round the rim of the site, which is bounded by a beautiful old stone wall. Advantage was taken of the ground dropping to the south to place the garage and guest house squarely across the entrance, and to connect this to the main house by a covered way. This left the panoramic view south from the living-room undisturbed. The elements of the main house were again separated to preserve the existing palms. The only two-storey element is the servants' quarters, located at the north-west corner with a private service patio, etc. The servants' bedrooms were elevated to give ample patio-space. A series of covered passages and cantilevered roofs offer protection against the seasonal rains. The watchman's quarters are in the far south-west corner, where he can effectively control the entrance gate. The main bedroom wing is a complete unit in itself, connected to the living-room only by continuation of the roof slab.

The house has a framed structure of exposed welded steel, painted. The roof-slab, which has a five-degree slope, is of reinforced concrete, covered with tar-paper and 'tezontle,' a soft rust-coloured volcanic stone. The surface treatment of the roof is important as the garage and guest house are seen from a higher level from the main living terraces. All windows are metal-frame. Exterior walls are plastered, rendered and finished white. Contrasting garden walls are of black volcanic stone (piedra china). Floors are of tile, mosaic or black Taxco stone. All the built-in fittings are of 'parota,' an oily tropical wood.

The assistant designer was Colin Faber.



key
1, servants' quarters.
2, kitchen.
3, wine store.
4, dining area.
5, living area.
6, bedroom.
7, study.
8, guests' rooms.
9, garage.

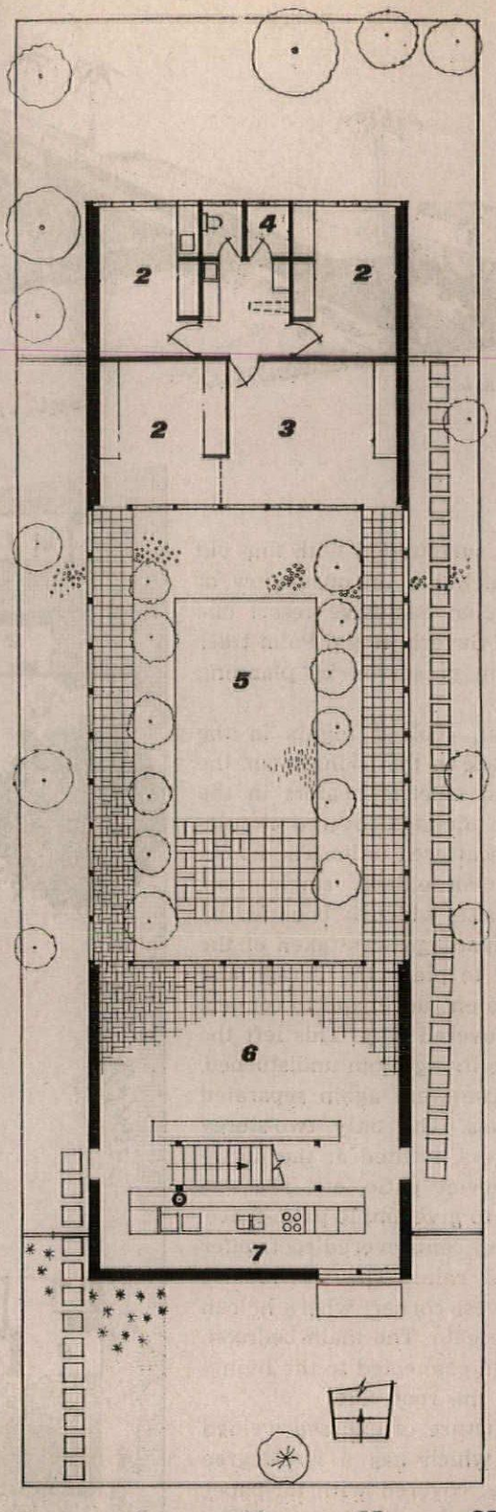
ground floor plan

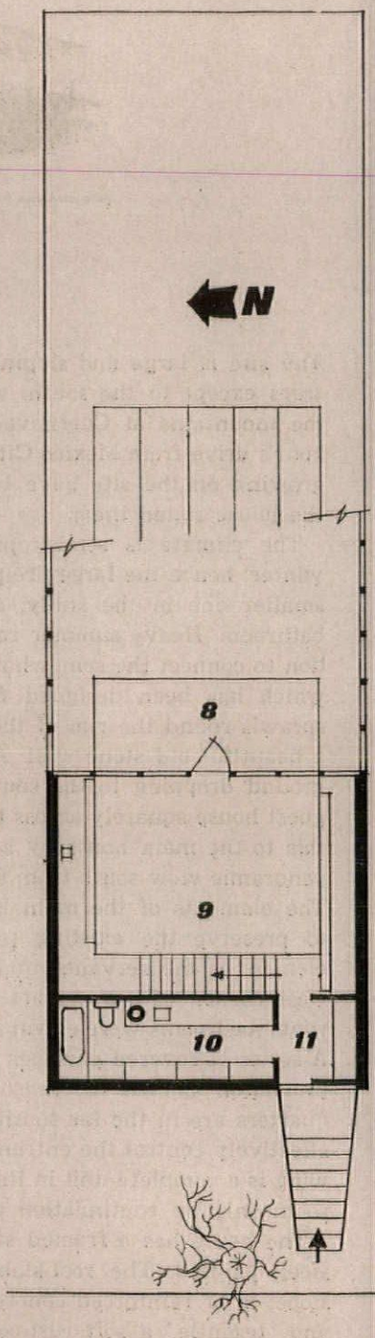
2. AT MELBOURNE, AUSTRALIA

architects: Grounds, Romberg & Boyd

The house is for Mr. Robin Boyd's own occupation. The site was a narrow slice of an old garden, 40ft. by 126ft., with high neighbouring buildings—and the threat of higher—in a residential area of the city of Melbourne. A pre-planning decision was virtually separate flats for parents and children. Privacy demanded an introverted plan, but a view over suburban roofs to distant hills also called for an outlook to the rear. Hence the division of the house into two separate boxes, two-storey in front, single-storey at rear for the children, tied together by a single roof in which a hole is cut over the central court. Both sections look inward to the court as well as to the view at the back, the upper level of the front box gaining its view through the hole in the courtyard roof. The courtyard has glazed side walls, obscured where necessary for privacy.

Each box has cavity brick walls reinforced with 3in. steel tubes in the cavities. A 4ft. module was adopted. The roof is carried on 3/4in. cables 4ft. apart draped from front to back, tied at the ends to the steel frames in the brickwork and propped at intervals by the timber posts of the internal, glazed partitions. The cables are not highly tensed and produce a series of gentle catenaries between supports. Vines will eventually grow along the cables above the courtyard. The two boxes have separate air-conditioning units. The front block is treated as a single room, for the upper-level platform within the box is 4ft. clear of the walls. Other materials: brick floor, plasticized; structural timber preservatized, not dressed or painted. Internal walls are lined with jarrah (dark red eucalypt). Joinery timber is mountain-ash (white eucalypt). Roof: 1in. decking between the cables; 1in. insulation board; built-up felt.





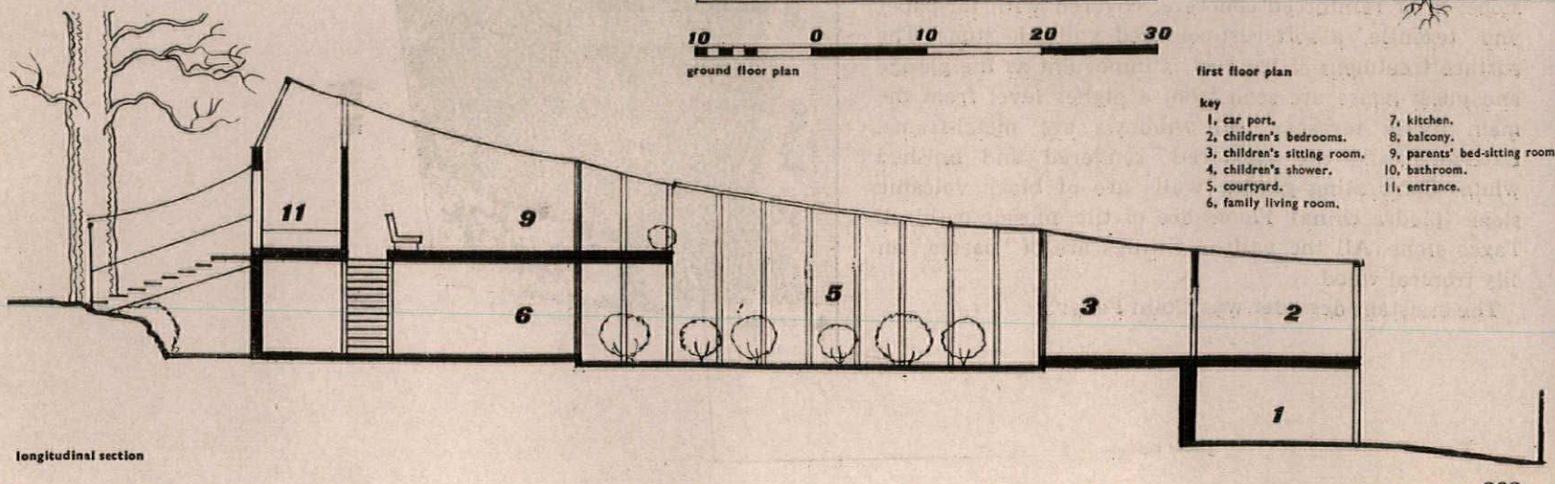
10 0 10 20 30

ground floor plan

first floor plan

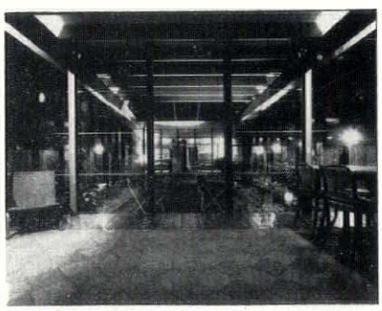
key

1, car port.
2, children's bedrooms.
3, children's sitting room.
4, children's shower.
5, courtyard.
6, family living room.
7, kitchen.
8, balcony.
9, parents' bed-sitting room.
10, bathroom.
11, entrance.



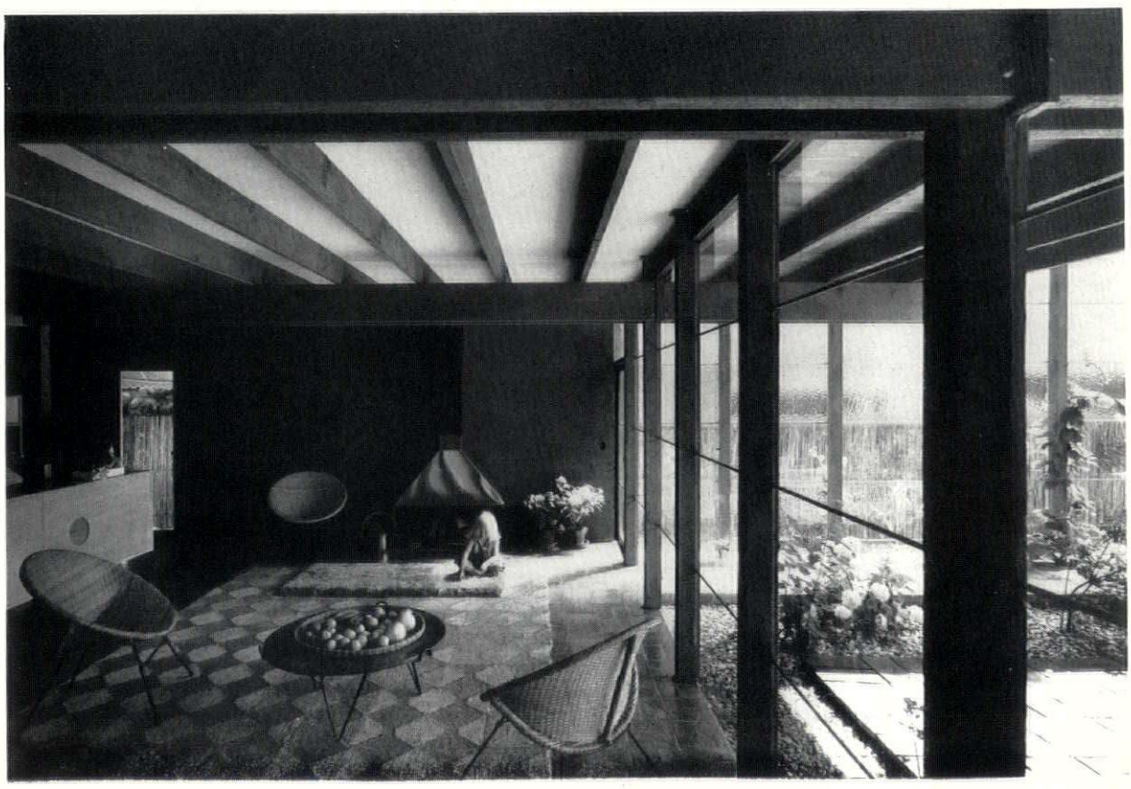
longitudinal section

1



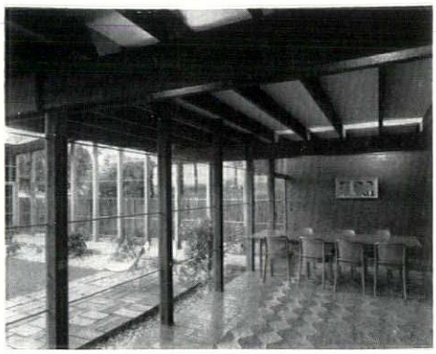
2

3

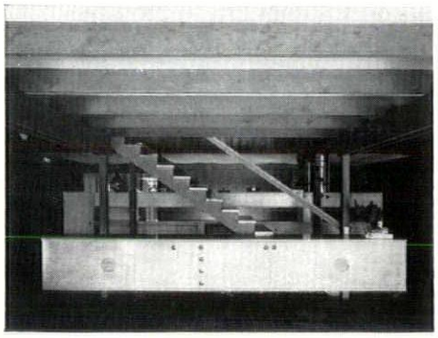


1, looking towards the two-storey end of the house (family living-room below; parents' bed-sitting above) from the central garden court. The glazed screen on the right of the court has its upper panels obscured to hide the view of a tall adjoining house.
2, looking in the opposite direction to 1: from the family living-room across the court to the single-storey children's wing.
3, inside the family living-room.

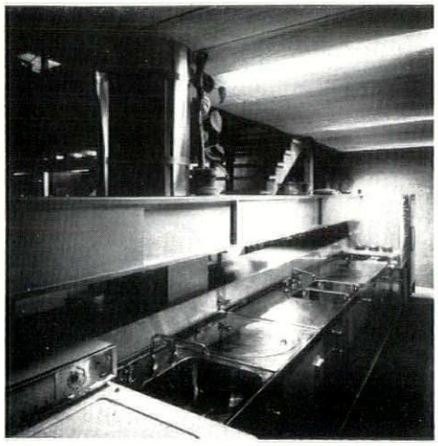
HOUSE AT MELBOURNE, AUSTRALIA



4



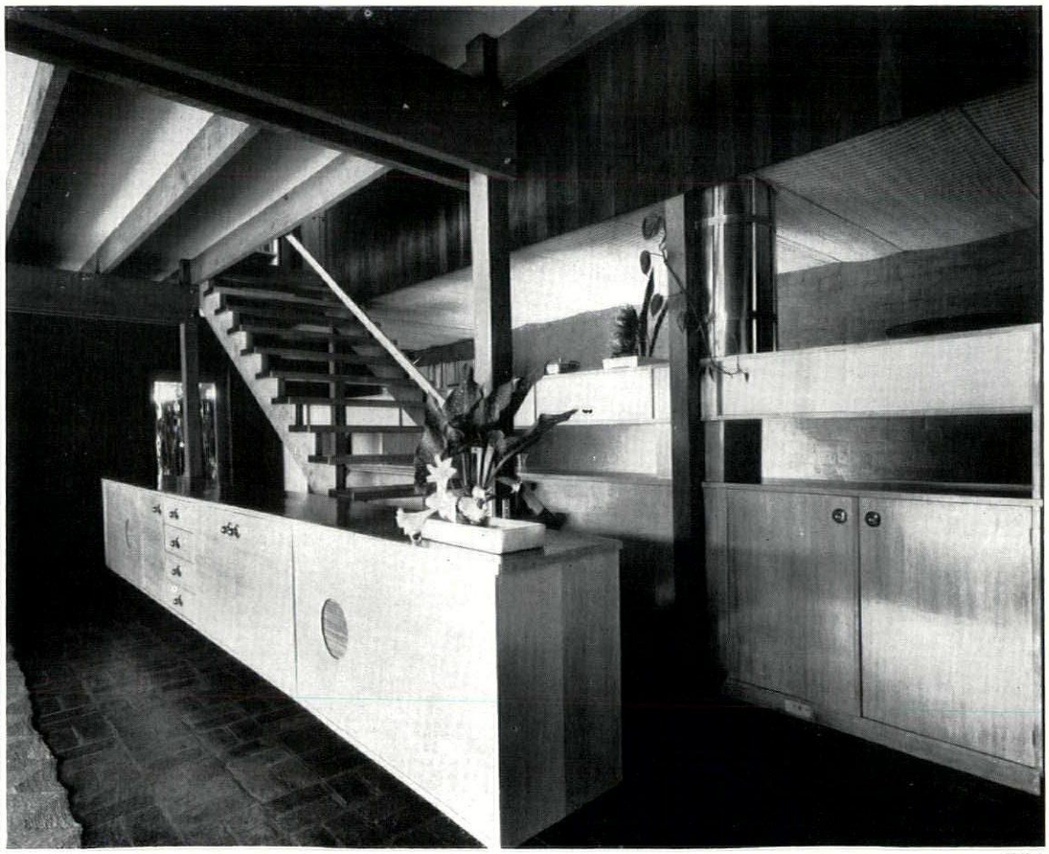
5



6



7



8

4, the dining end of the family living-room; painting by John Brack.
5, inner wall of family living-room, with staircase beyond the built-in buffet-radiogram fitment and kitchen beyond that.
6, the kitchen. All equipment is in one island fitment which partially screens the kitchen from the staircase and living-room.
7, living-room from beneath the staircase, looking over the top of the fitment shown in 5.
8, close-up of living-room and kitchen fitments, with staircase between.



9, the parents' bed-sitting room on the first floor above the family living-room, with balcony, right, projecting into the courtyard. A built-in upholstered seat protects the edge of the staircase well, at the foot of which, left, is the front door. The bathroom is behind the timber-faced wall on the left, above the kitchen.
10, the other side of the parents' bed-sitting room, showing the balcony and the timber-lined roof supported on steel cables.

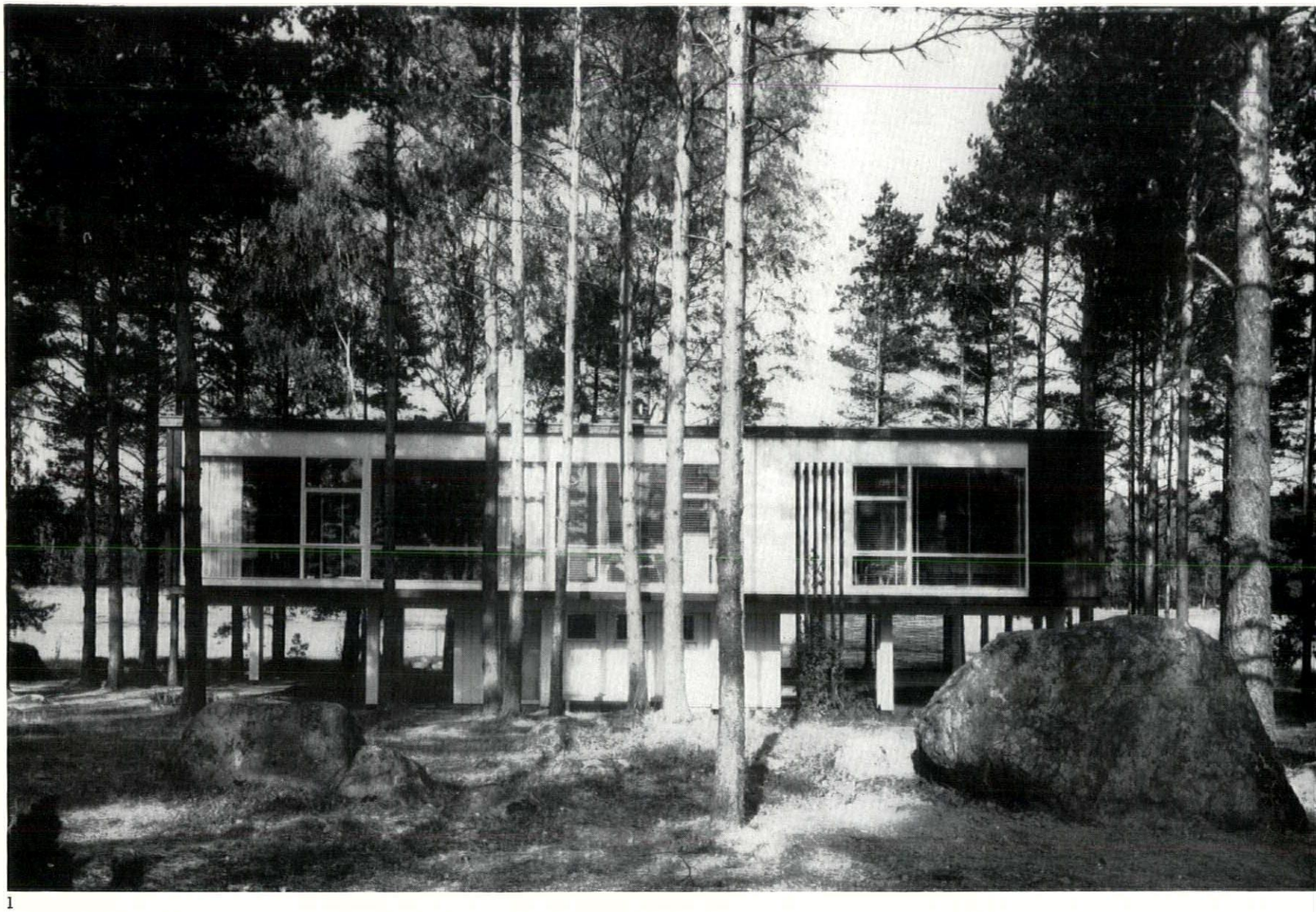
9



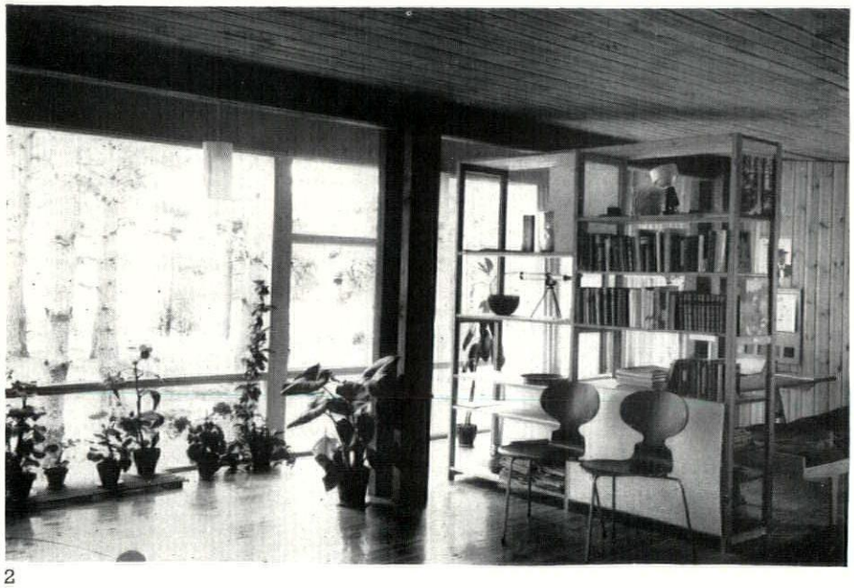
10

photographs by
Mark Strizio

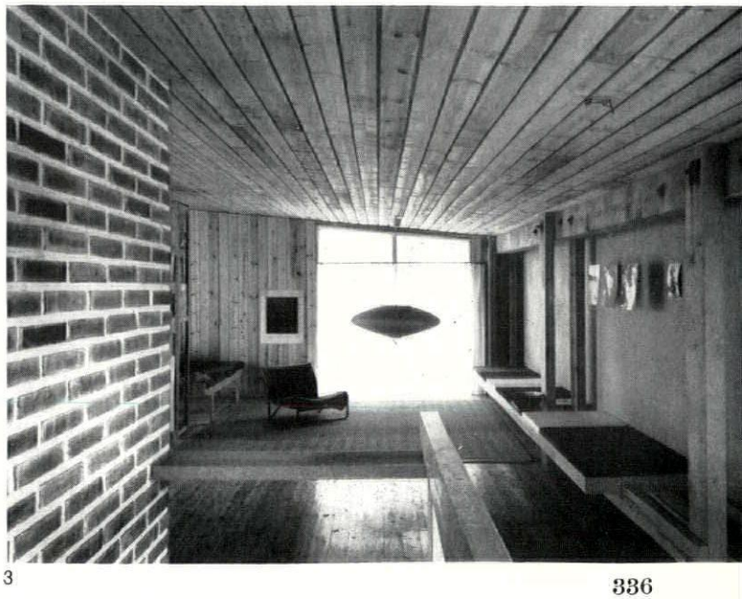
3. NEAR PORVOO, FINLAND architect, Bertel Saarnio



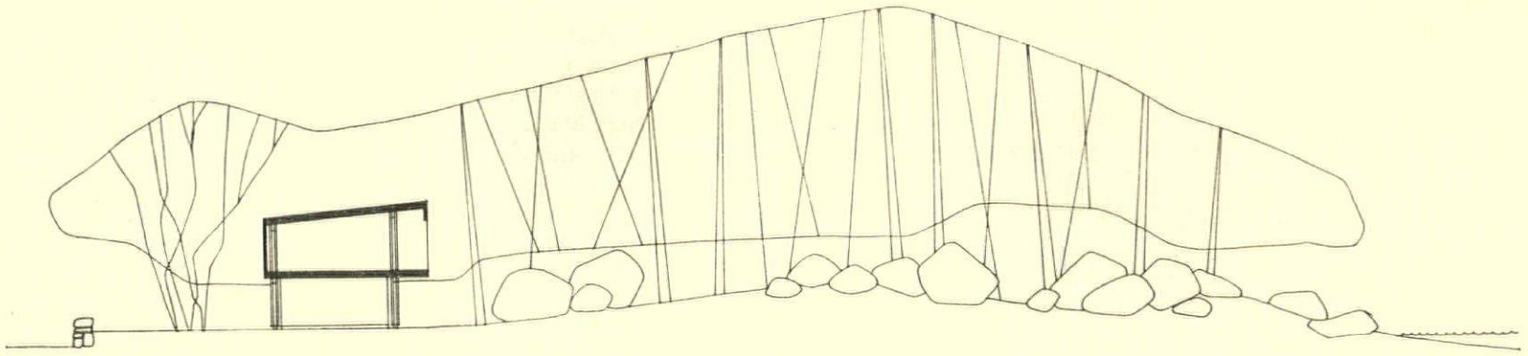
1



2



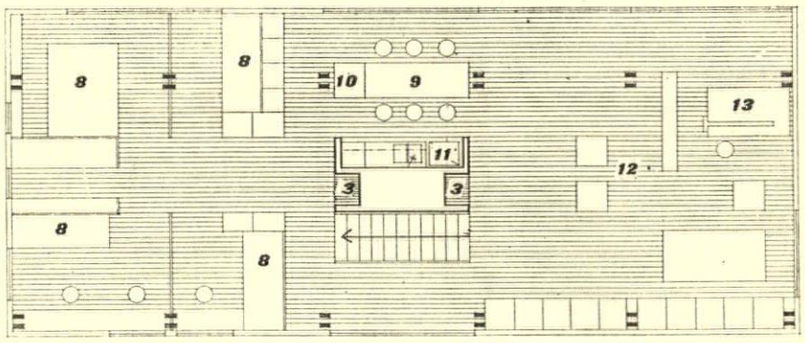
3



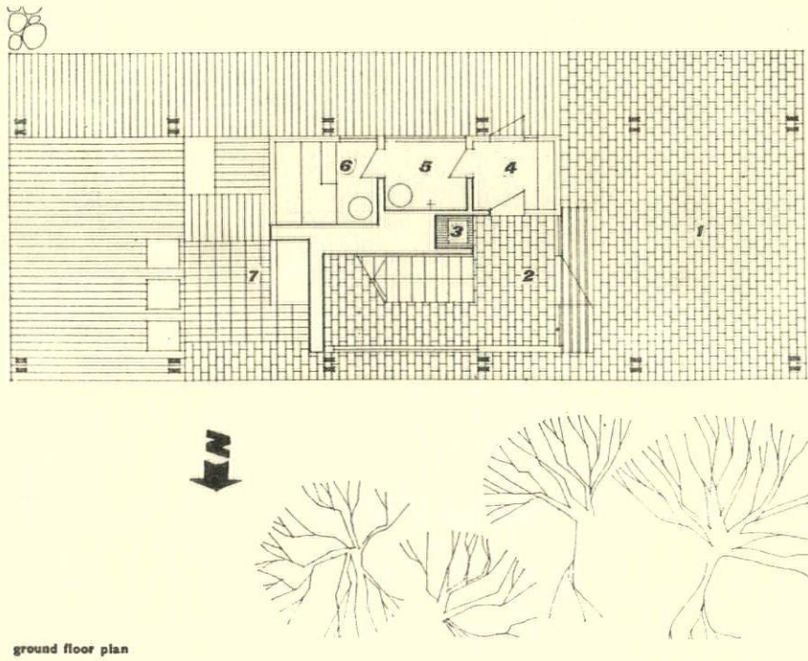
cross section

The site is close to the sea, thickly planted with pine trees and grassed, with outcrops of rock. The house has trees close around it but their foliage is high above roof level. All living-rooms and bedrooms are on the first floor to give them a view of the sea. The ground floor is partly open, providing a covered garden and car-port, and contains also a small entrance and staircase hall and a *sauna* (Finnish steam bath).

The structure is entirely of timber, except for the central core of fireplaces and flues which is of brick. Outside, the vertical timber boarding is creosoted; the windows and their surrounds are painted white. Inside, walls and ceilings are lined with timber, unpainted, with either a planed or a rough sawn surface.



first floor plan



key
1, car port.
2, entrance.
3, fireplaces.
4, dressing area.
5, washing.
6, sauna.
7, open-air fireplace.
8, beds.
9, dining table.
10, refrigerator.
11, cooker and sink unit.
12, living area.
13, work table.

ground floor plan

On the facing page: 1, from the south. The entrance to the house is underneath the living-room on the left.
2, the first-floor interior, which is planned as one continuous space, the bedrooms being separated by partitions which stop short of the ceiling. The photograph shows the living-area screened from the working space for shelving. In the centre is one of the double timber columns on which the house is supported.
3, looking across the stairwell into the living-area, with the central brick chimney on the left.

photographs by Pertti Ingervo

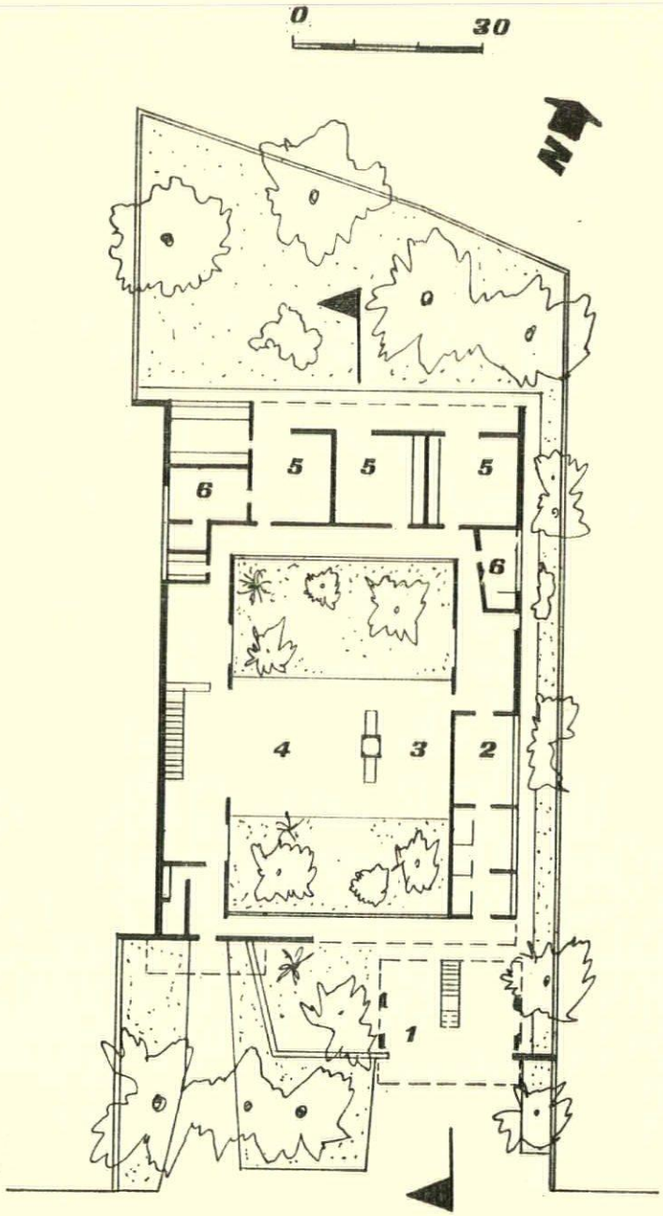
4. AT SAO PAOLO, BRAZIL *architect, Rino Levi*

The site was relatively small, with a street frontage of about 60ft., in a residential area of the city. It was flat, and therefore offered no distant views, and was overlooked by nearby buildings. The house has therefore been planned so that the rooms face inwards on to patios, which serves as outdoor living areas, It presents high blank walls or perforated screen-walls to the public view and that of the neighbours. The house was designed for a couple with two children.

There are four patios: a service patio in front, one on to which the bedrooms open at the back and two in the centre for the living-rooms. The latter are covered by a concrete pergola at the same level as the living-room ceilings, designed to unite visually the indoor and outdoor areas. The main living-room, which is 18ft. wide, thus becomes part of a living area nearly 60ft. wide. The pergola also serves to control the heat and glare of the sun, and the two shaded patios act as a buffer between exterior and interior, keeping the rooms fresh in the summer and warm in the winter. Bedrooms in Sao Paolo require maximum sun, and they are therefore placed at the back of the site. The servants' rooms are above the car-port and are reached from the service patio.

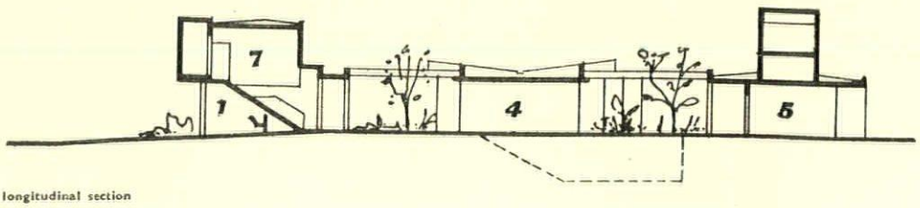
The structure is a reinforced concrete frame with brick walls, and a roof with a five-degree slope covered with corrugated asbestos-cement tiles. Ceilings are hollow tile to give good insulation. Floor-finishes are wood in the bedrooms and white ceramic tile elsewhere. The walls of the living-room patios are faced with pink glass mosaic. The main living-room is divided into dining and sitting spaces by a built-in unit combining fireplace, bar, radio, gramophone and bookcase.

The associate architects were Roberto Cerqueira Cesar and L. R. Carvalho Franco.



key
1, service patio and car port.
2, kitchen.
3, dining area.
4, living area.
5, bedrooms.
6, bathrooms.
7, servants' rooms.

ground floor plan

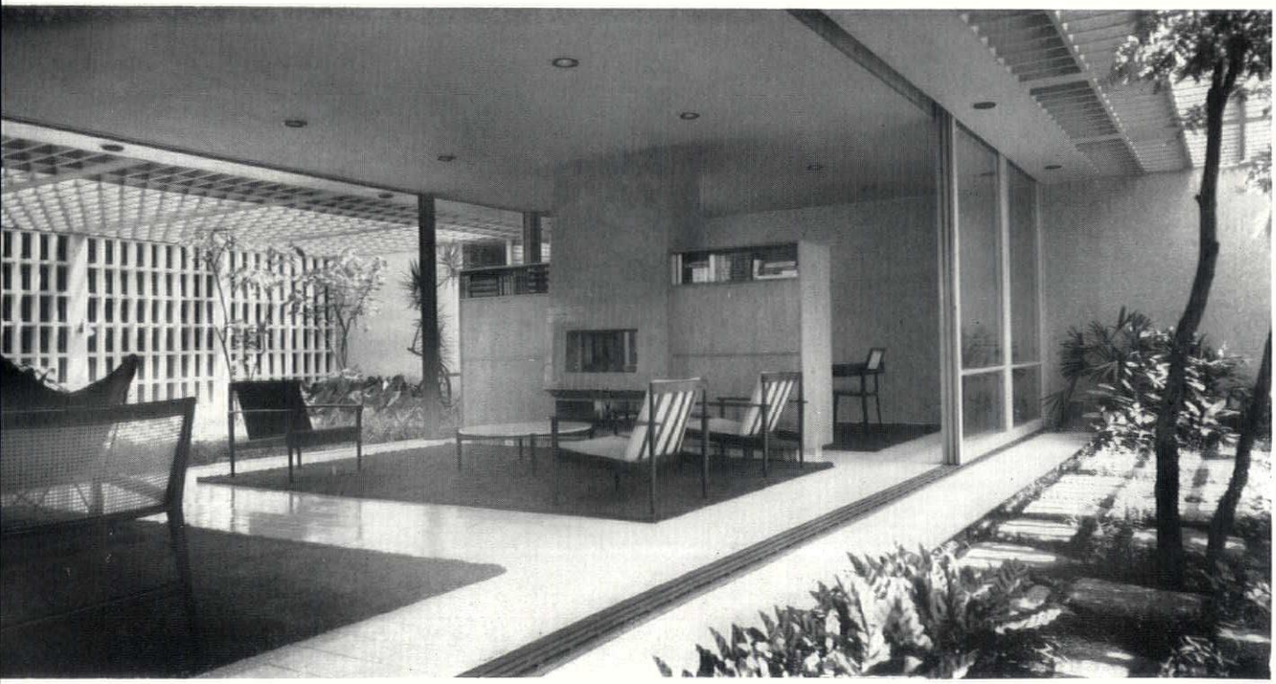


longitudinal section

On the facing page: 1, the screened entrance from the street. On the right, above the garage, are two servants' bedrooms.
2, the living and dining area, which has an enclosed patio on either side, seen from the entrance. Glazed screens slide the full length of the room. The living-area is separated from the dining-area (at the far end) by a combined fireplace, bar and radio and gramophone unit.



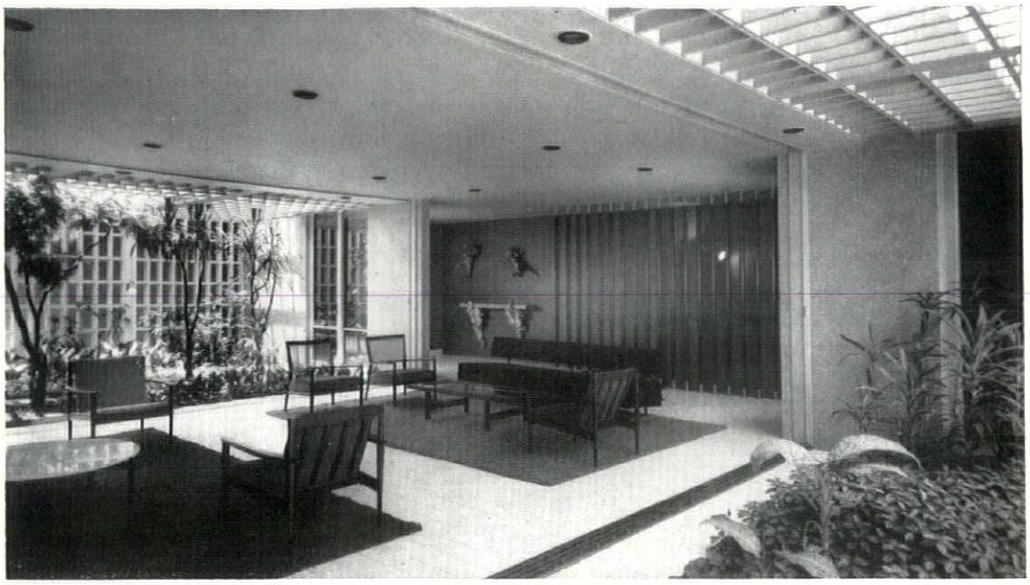
1



2

photographs by
J. Moscardi

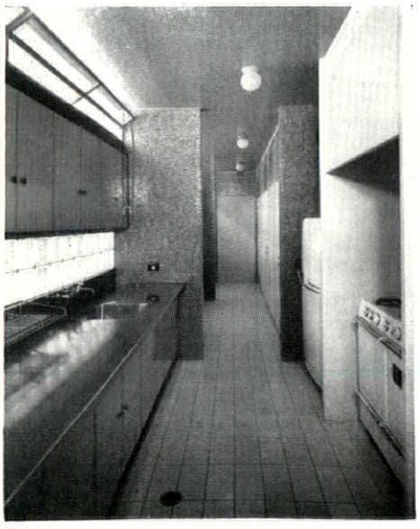
HOUSE AT SAO PAOLO, BRAZIL



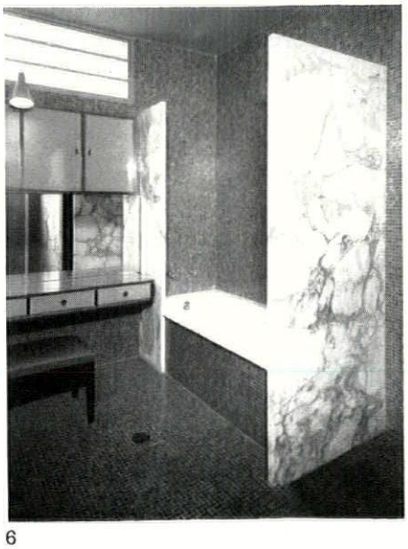
3



4



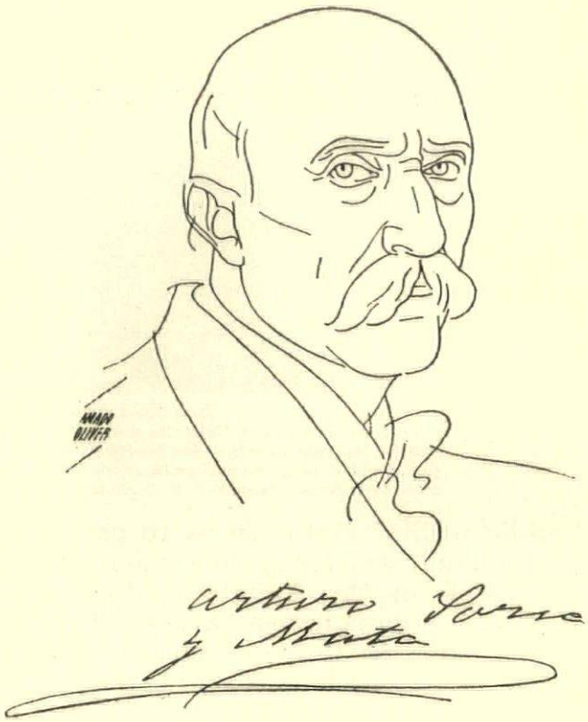
5



6

3, the living-room, looking in the opposite direction to 2 on the preceding page. The tubular screen in front of the far wall protects the stairs to the cellar. The tubing is black and the wall covered in grey ceramic mosaic.
4, from one of the patios, with an end view of the fireplace - furniture partition. The fireplace has an opening on both sides.
5, the kitchen, with glass-brick lighting to working surfaces and clear clerestory window. Walls are faced with brown glass mosaic.
6, the bathroom, with marble partitions and walls faced with brown glass mosaic.

George R. Collins



The portrait on the right is that of Arturo Soria y Mata (1844-1920), *the founder of modern linear planning. In the following article Professor Collins, of Columbia University, New York, beginning with Soria's pilot project, the Ciudad Lineal at Madrid and his ambitious ideas for solving both urban and agrarian problems by means of linear settlements along transportation routes, describes the various subsequent theories of linear planning that have been put forward in Europe and America. He concludes by drawing attention to the actual, though unplanned, growth of cities in linear form in recent years, which gives a continued relevance to these theoretical studies.*

CITIES ON THE LINE

Linear planning of cities and regions is a well-known but little studied subject. It is generally acknowledged that the ancient custom of building settlements along transportation routes was first given modern rational form by a Spaniard, Don Arturo Soria y Mata, at the end of the last century, 1. But it is not generally realized how prophetic Soria was, how many current planning ideas can be traced to his example, nor indeed what a variety of linear schemes have arisen in the past seventy-five years.*

Soria devised his Ciudad Lineal, as he called it, in the course of writing a column about municipal reform in the radical and short-lived Madrid newspaper *El Progreso*. Amongst nineteenth-century planners he was one of the first to see that the ills of Europe's big cities should be met on a regional level, and that in cheap high-speed surface transportation lay the possibility of a remedy. He wrote on March 6, 1882:

'A single street of 500 metres' width and *of the length that may be necessary*—such will be the city of the future, whose extremities could be Cadiz and St. Petersburg, or Peking and Brussels.

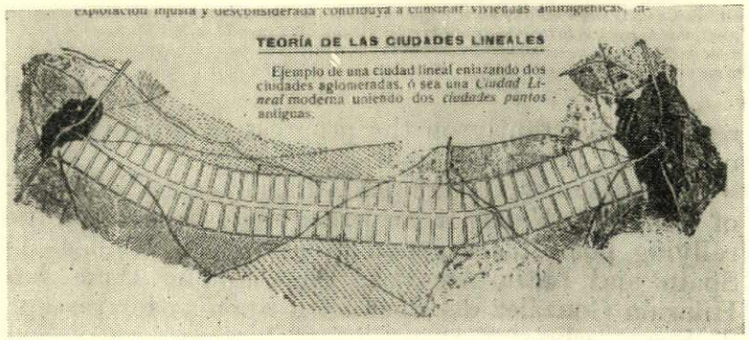
'Put in the centre of this immense belt trains and trams, conduits for water, gas and electricity, reservoirs, gardens and, at intervals, buildings for different municipal services—fire, sanitation, health, police, etc.—and there would be resolved at once almost all the complex problems that are produced by the massive populations of our urban life.

'Our projected city unites the hygienic conditions of country life to the great capital cities and, moreover, assumes that the railways, like to-day's streets and pavements, will carry free or for little all citizens.'

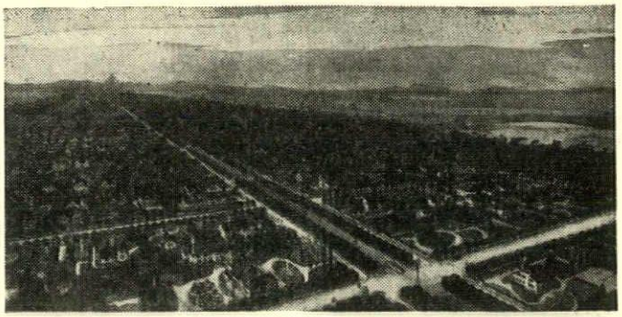
Soria's planning ideas are illustrated in 2, 3 and 4. A man of indomitable will and of staunch Republican principles, he attempted in the 1890's to organize a limited company in order to put his plan into effect in the environs of Madrid. Drawing on his considerable experience in the management of municipal railways, he secured a licence for a ring railway well outside the city, 5, along which he designed a utopian linear community of 55 kilometres' length that anticipated many of Ebenezer Howard's famous reforms. 'For every family its own house; for each house an orchard and garden,' was the slogan of Soria and his associates.

Soria's Compañía Madrileña de Urbanización met with only limited success. It was never able to obtain

* Since this article was written, the first publications in many years devoted to the Ciudad Lineal have appeared in three different countries:
G. R. Collins, 'The Ciudad Lineal of Madrid,' *Journal of the Society of Architectural Historians* (USA), XVIII, No. 2 (May 1959), pp. 38-53;
Ivan Boileau, 'La Ciudad Lineal: a critical study of the Linear suburb of Madrid,' *Town Planning Review* (Liverpool), XXX, No. 3 (Oct. 1959), pp. 230-238;
Various participants, 'Sesión sobre la Ciudad Lineal,' *Arquitectura* (Madrid), I, No. 11 (Nov. 1959), pp. 2-17.



2, *the regional layout of a Ciudad Lineal connecting two old 'point-cities' as Soria called them. He envisaged continents criss-crossed by vast webs of such* 500*-metre-wide settlements. Compare fig.* 14.

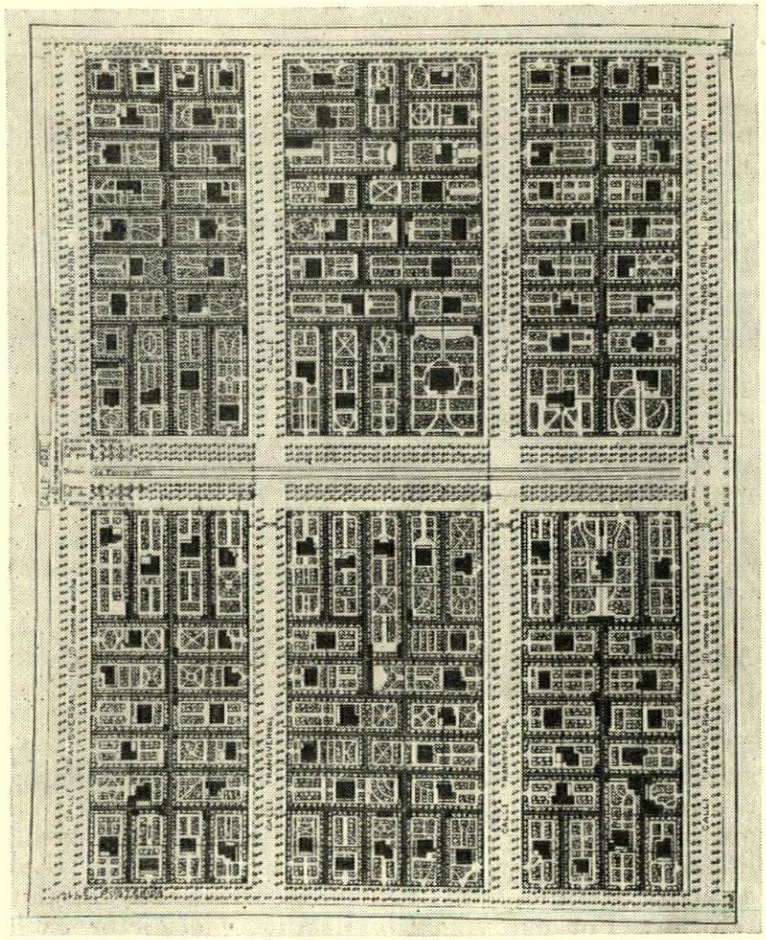


3, *bird's-eye view of Soria's Ciudad Lineal stretching into the distance, laid out in this case with a buffer zone of vegetation along both sides (a later garden-city intrusion). A boulevard 40 metres wide, tree-lined and with double car tracks, forms the axis of this continuous community. At 300-metre intervals were to be 20-metre cross-streets forming superblocks of 40,000 to 60,000 square metres.*

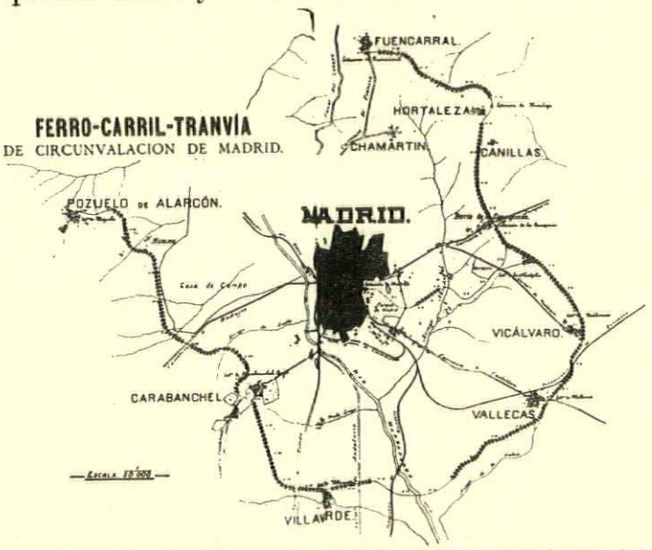
'public utility' status so as to condemn and expropriate land, and each concession was an ordeal to extract from the Ayuntamiento of Madrid, which *Figaro*, the Paris newspaper, called 'always refractory with regard to the beautification of the city.' Nor could he secure large capital, but had to settle for small subscriptions in instalments and at murderous rates of interest. Only 22 km. of the intended 55 km. circuit was ever planned, and only a quarter of that actually built up. Thus he was, in practice, restricted to a tiny residential suburb that demonstrated much of his idealistic community spirit, but hardly his great industrial and regional ideas.

In the face of many obstacles the Company slowly improved its financial position, and it was in the midst of an ambitious expansion of its public works when a crisis brought on by World War I caused it to suspend dividend payments. Soria died in 1920, probably from overstrain, and his sons, who inherited the enterprise, made a superficial recovery in the boom days of the 1920's. However, labour troubles during the young Republic, coupled with outright destruction in the Civil War, withered the enterprise. About 1940 the Company fell into the hands of speculators who proceeded to dismember it. To-day the Ciudad Lineal with its archaic trolleys seems shabby and abandoned in comparison with its hopeful bustle in former times, but it is still, as always, a pleasant retreat for *Madrileños* on a hot Sunday in the summer, 7.

Arturo Soria y Mata was both an active and an intellectual type. His accomplishments included a youthful political career which involved him in the abolition of slavery in Puerto Rico, as well as many years of journalistic activity and a devotion to philosophical studies that led to his founding a Neo-Pythagorean school in Madrid. As a planner he quoted extensively from Spencer and Darwin and was well acquainted with the publications of Reclus, Geddes and Ebenezer Howard. His Ciudad Lineal theory he boiled down to ten basic principles, beginning with '1, From the problem of locomotion derive all the other town planning problems,' and concluding with '10, The linear city will accomplish an equitable distribution of land. It is a complement to the doctrine of Henry George.' His periodical, *La Ciudad Lineal*, quoted heavily from the American economist and reported constantly on the progress of the single-tax movement in the Peninsula.

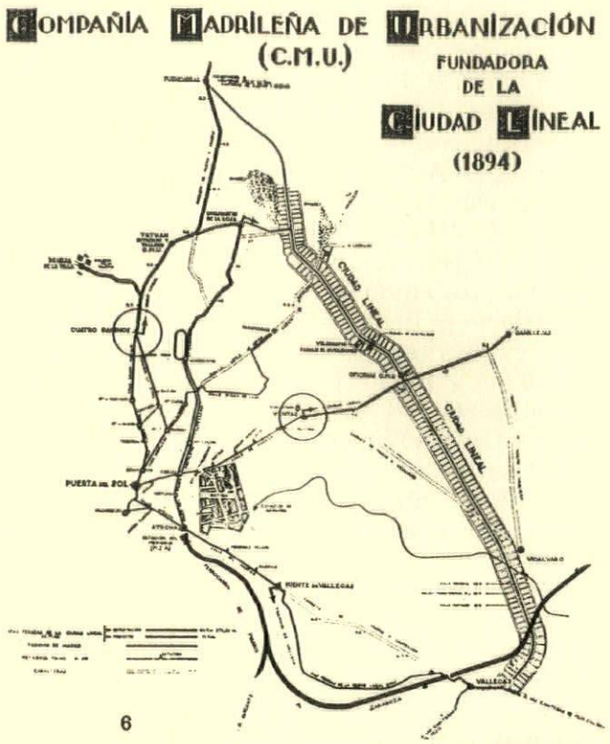


4, *a site plan showing the block layouts in an ideal Ciudad Lineal. The larger, more expensive, homes were to face on the grand central boulevard, smaller homes on the transverse streets and the most modest on the rear parallel streets. Soria prided himself, however, on the proximity of the rich and poor in his utopian garden city. At intervals along the central avenue were to be kiosks, police posts, refreshment stands and the like for the service of the residents. At intervals spaces were set aside for industrial purposes.*

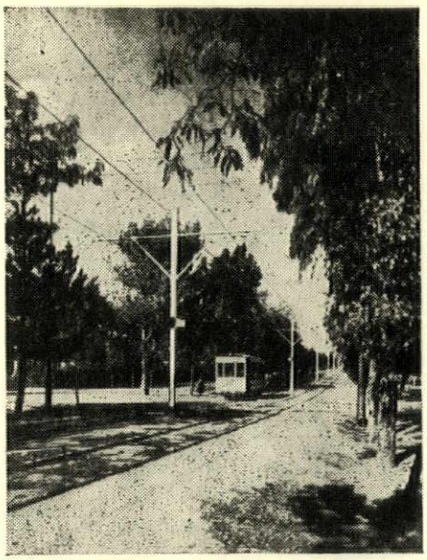


5, *the original plan of Soria's concession* (1892) *for a railway and Ciudad Lineal of 55 kms. length surrounding Madrid. Linear communities can be seen laid out along most of its length. The connection with Madrid was to be from a position midway between Canillas and Vicalvaro where a line, with a short Ciudad Lineal on it at one point, was to reach in to the city. It was to enter Madrid underground as Spain's first subway. The underground terminus near the Prado, although replanned several times to meet their specifications, was never allowed by the city fathers.*

Soria assumes, then, a place in the venerable lineage of Utopians. Nor is it surprising that he became the rallying point for a group of idealistic urbanists in Spain and Latin America. First among these was Hilarión González del Castillo, a Spanish lawyer and diplomat who for many years lectured and pamphleteered throughout the world on the theory of the



6



7

6, a map of the Ciudad Lineal as finally laid out. Only an upper quarter, represented by a solid track in the centre, was actually constructed. The circled arrows indicate the starting points of the Company's own trolley-lines which made a circuit through the Puerta del Sol in old Madrid. The circuit was completed in 1904, *electrified in* 1909 *and functions to this day between the arrows.*

7, the main avenue, calle Arturo Soria, *in the heyday of the Ciudad Lineal. Tree planting was one of the major activities of its residents, and in the early days Arbor Day, which Soria helped launch in Spain, was the occasion of important annual festivals and games. Visiting urbanists have always commented on the green and sanitary oasis that the Ciudad Lineal has seemed to be in comparison to the rest of the parched Castillian capital. Soria's first great triumph was his bringing the waters of Lozoya to his community in* 1897.

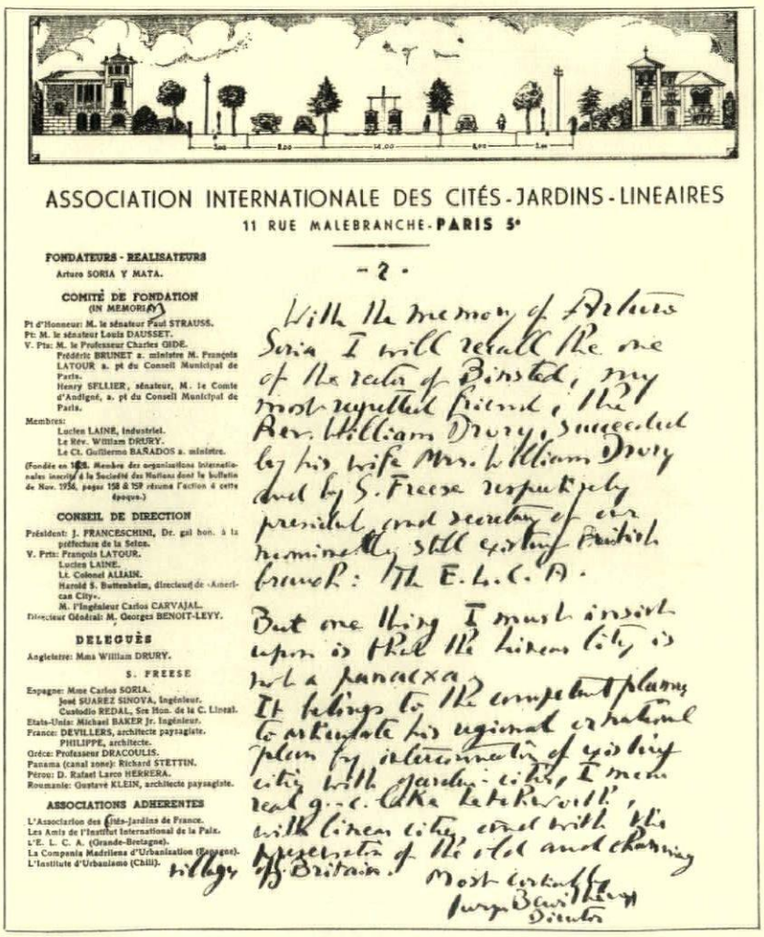
Linear City. He did much to refine the theory, introducing modern zoning principles and attempting to consolidate its community life by interspersing large plazas and by restricting the length of each settlement. He incorporated these and some Garden City ideas into his Belgian Linear City of 1919. González del Castillo carried on a long polemic with the protagonists of the English Garden City, and he insisted that the Ciudad Lineal was actually a garden city, earlier and superior to the English type. He wrote often on the virtues of linear cities as modern colonizing devices, e.g. in Spanish Africa, and also attracted considerable interest by his suggestion that London's problems be cured by surrounding it with a network of linear and garden cities.

Soria's first international connection was established when in 1907 the Chilean engineer and urbanist Carlos Carvajal Miranda discovered his publications. Carvajal became convinced that linear planning was the solution to his country's need for better transportation and systematic agricultural colonization. He spent a lifetime on his campaign for linear planning, which was almost accepted as governmental policy on at least two occasions—in 1924 and 1939.

But the most vigorous associate of Soria was the French promoter of garden cities, Georges Benoit-Lévy. From the early 1920's until to-day M. Benoit-Lévy has championed linear planning at congresses, through his International Association of Linear Cities, in professional publications and in the press. His viewpoint is a supra-national one, and for many years the meetings of his Association were reported officially by the League of Nations. His most explicit linear plan, that for Paris in 1927, anticipated the parallel bands of industry, greenery and residence, 8, which were used by the Russians in their later industrial linear cities.

Meanwhile abroad other plans that could be called linear were elaborated; all of them seem characteristic of their day in their emphasis on utopian, pat economic theory and on the exploitation of high-speed surface transportation. Such schemes became most plentiful in the 1930's and 1940's, seeming to culminate in Le Corbusier's linear regional planning.

England and the United States led off. The earliest linear planner independent of Soria seems to have been Captain J. W. Petavel, an English engineer, who felt, as Soria had, that decentralization by means of cheap and rapid commuter trains could relieve urban congestion. In 1909 he first published his plan, which called for four populated ribs radiating out along transport lines from a central city. This prefigured



ASSOCIATION INTERNATIONALE DES CITÉS-JARDINS-LINEAIRES
11 RUE MALEBRANCHE-PARIS 5e

FONDATEURS-REALISATEURS
Arturo SORIA Y MATA.

COMITÉ DE FONDATION
(IN MEMORIAM)
Pt d'Honneur: M. le sénateur Paul STRAUSS.
Pt: M. le sénateur Louis DAUSSET.
V. Pts: M. le Professeur Charles GIDE.
Frédéric BRUNET s. ministre M. François LATOUR s. pt du Conseil Municipal de Paris.
Henry SFLLIER, sénateur, M. le Comte d'Andigné, s. pt du Conseil Municipal de Paris.
Membres:
Lucien LAINE, Industriel.
Le Rév. William DRURY.
Le Ct. Guillermo BAÑADOS s. ministre.
(Fondée en 1925. Membre des organisations internationales inscrite à la Société des Nations dont le bulletin de Nov. 1926, pages 158 à 159 résume l'action à cette époque.)

CONSEIL DE DIRECTION
Président: J. FRANCESCHINI, Dr. gal hon. à la préfecture de la Seine.
V. Pts: François LATOUR.
Lucien LAINE.
Lt. Colonel ALLAIN.
Harold S. Buttenheim, directeur de «American City».
M. l'Ingénieur Carlos CARVAJAL.
Directeur Général: M. Georges BENOIT-LEVY.

DELEGUÉS
Angleterre: Mme William DRURY.
S. FREESE
Espagne: Mme Carlos SORIA.
José SUAREZ SINOVA, Ingénieur.
Custodio REDAL, Sre Hon. de la C. Lineal.
Etats-Unis: Michael BAKER Jr. Ingénieur.
France: DEVILLERS, architecte paysagiste.
PHILIPPE, architecte.
Grèce: Professeur DRACOULIS.
Panama (canal zone): Richard STETTIN.
Pérou: D. Rafael Larco HERRERA.
Roumanie: Gustave KLEIN, architecte paysagiste.

ASSOCIATIONS ADHERENTES
L'Association des Cités-Jardins de France.
Les Amis de l'Institut International de la Paix.
L'E. L. C. A. (Grande-Bretagne).
La Compania Madrilena d'Urbanisation (Espagne).
L'Institute d'Urbanisme (Chili).

-2-

With the memory of Arturo Soria I will recall the one of the vicar of Binsted, my most respected friend, the Rev. William Drury, succeeded by his wife Mrs. William Drury and by S. Freese respectively president and secretary of an eminently still existing British branch: the E.L.C.A.

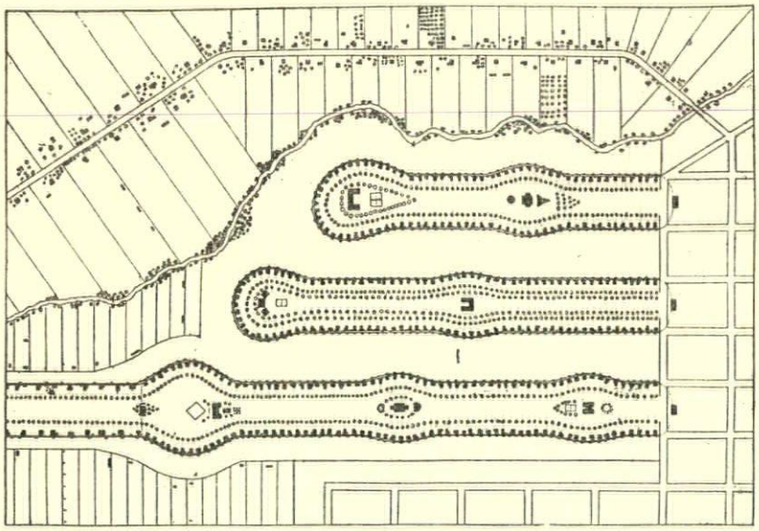
But one thing I must insist upon is that the Linear City is not a panacea. It belongs to the complete plans to articulate big regional or national plan by determination of existing cities with gardens, cities, I mean real garden cities like Letchworth, with linear cities connecting the different centers of the old and charming Isles of Britain.

Most cordially yours
Georges Benoit-Lévy
Director

8, a page from a message in his own handwriting sent to the REVIEW *last year by M. Benoit-Lévy. Note the letter-heading depicting a cross-section through a linear route.*

somewhat the more comprehensive ribbed plan prepared by the English MARS group in 1938. Petavel was in touch with Soria from about 1913 when his plan was discussed in the magazine *La Ciudad Lineal.*

Early American plans that could be called linear were more technologically romantic than any of those we have seen so far. The American writer Milo

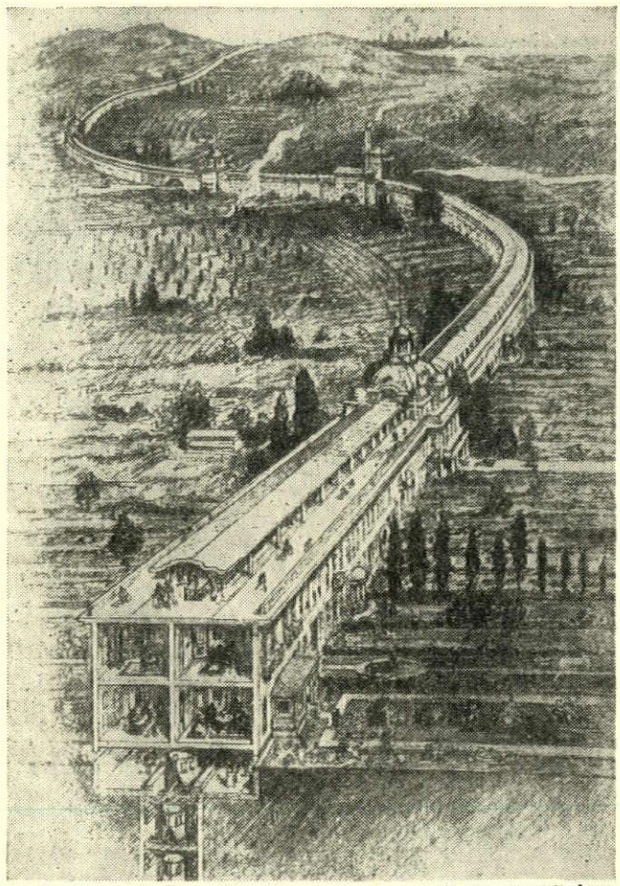


9, *Milo Hastings's method of linear community planning, for which he received a prize from the American Institute of Architects* (1919). *Houses are attached at the rear to their street, but face on to inner parks which contain the public buildings. The service streets were to provide all manner of modern conveniences, including piped vacuum for cleaning. By courtesy of the* Journal of the American Institute of Architects.

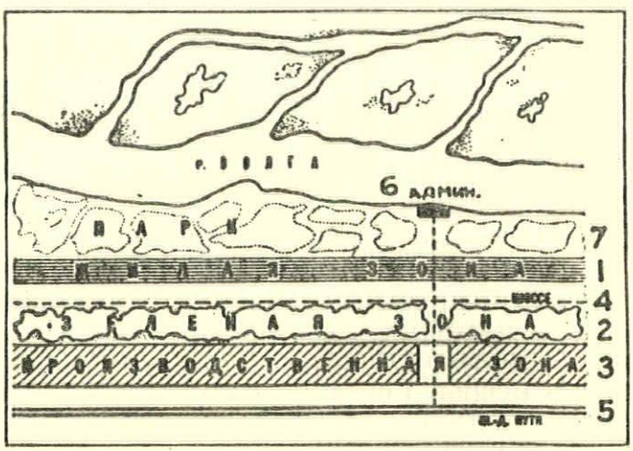
Hastings worked out from 1909-19 an arrangement of linear loops of housing, 9, which enclosed parks and was serviced by mechanical utilities piped and tracked along the loop itself. One of the most fantastic linear schemes to date was dreamed up in 1910 by Edgar Chambless. Called Roadtown, 10, it was to be a continuous concrete house, indefinitely long, snaking across the countryside with its own rapid trains in the basement. An analogous linear plan called Metro-Linear was worked out by Reginald Malcolmson of Illinois Institute of Technology in the 1950's.* Arthur Comey of Harvard was the most influential American planner to engage in linear schemes. In 1923 he published a highly rationalized regional plan as a counter-proposal to English Garden City theories.†

The only linear planning other than Soria's to be actually carried out was that in the Soviet Union during the early part of its first five-year plan (1928-33). For a time linear planning of the most radical sort became an instrument of Soviet decentralization policy in a drive to break down the distinction between urban and rural proletariat. Linear strips of indefinite length were to be combined with a type of collective housing and living aimed at eliminating the family as a social and economic unit. This point of view was soon abandoned for a number of reasons, including the absence of that very industrial might which it had been designed to service, but a type of linear planning was continued for single cities.

An example is the well-known plan for a factory town at Stalingrad by Professor N. A. Miliutin, 11. Miliutin's theory, which seems to derive somewhat from Tony Garnier's *cité industrielle*, and aimed at limited settlements of 100,000 to 200,000. He called for a separation of parallel bands of residence, industry and transportation by greenery in a fashion that has led to much later imitation. It would seem to be Miliutin's plan, which was much published, that has led to the popularity of linear layouts among modern industrial planners, Soria's Ciudad Lineal having been



In Roadtown, 10, *Edgar Chambless proposed a continuous concrete house (Edison patent) with promenade on the roof, high velocity trains in the basement. He felt that such compact housing would avoid what we now call 'urban sprawl' and permit the efficient cultivation of the small farm holdings through which it threaded its way.*



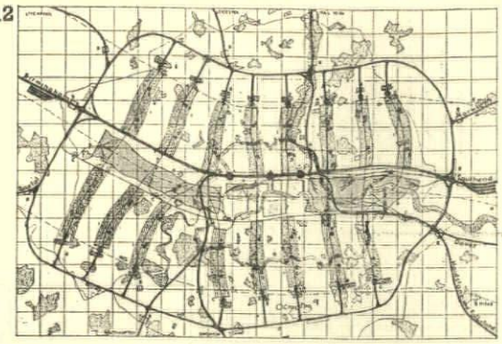
11, *Miliutin's schematic plan for Tractorstoi at Stalingrad. Ranged along a park* (7) *on the Volga bank, it consisted of a Palace of the Soviets at* (6) *and the following segregated activities, arranged in bands:* (1) *residential,* (2) *green belt including arterial highway* (4), (3) *factory zone alongside its railway* (5). *Agricultural land was to bound the unit on both sides, its workers attending the same technical schools in the city as the industrial workers. From Thomas Adams's* Design of Residential Areas (*Harvard University Press,* 1934).

mistakenly considered as a residential or suburban device, which was all that history had allowed it to become in Madrid. Other than Le Corbusier's *cité linéaire industrielle*, the scheme that would seem to be

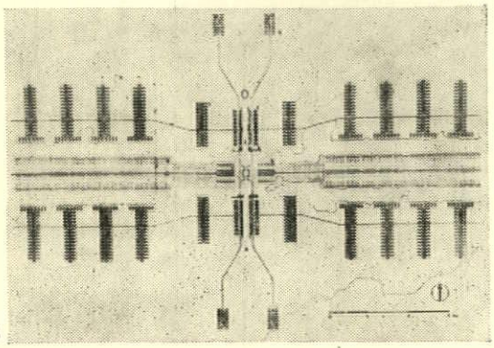
* First published in *Dimension* (Univ. of Mich.) II, No. 1 (1956), pp. 16 ff., and in *Architectural Design* (London) for Oct. 1956, p. 317, it has received considerable attention in a number of countries. A model of it is currently featured in the exhibition of 'Visionary Architecture' at the Museum of Modern Art in New York City (Sept.-Dec. 1960).

† *Landscape Architecture,* XIII, No. 2 (Jan. 1923), pp. 81-96.

12



12, *the MARS Group plan for the London region, a model of urbanistic and statistical research for its day, developed by a team of modern specialists. The purpose: to redistribute all but the ancient core of London so that open country would be within walking distance of all residents, and transportation would have unencumbered access to the heart of the nation. The result proved to be a linear axis of main arteries with verdured residential strips (one mile wide) branching off like ribs, the whole organism serviced by a circumvallating artery of local traffic. Apparently the first urbanist to unite systematically the technological advantages of linear planning with the homely virtues of modern 'neighbourhood' planning was Otto Ernst Schweizer, the German architect-planner, in about* 1931. *His 'comb-satellite' plan,* 13, *was further developed theoretically by Schweizer after he was forced to abandon his active practice in* 1933.



13

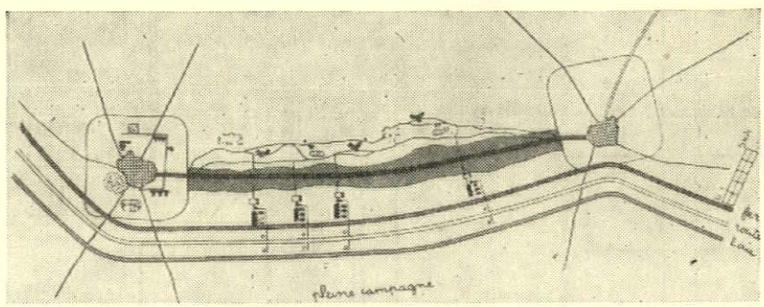
closest to the Soviet's was that suggested by a Belgian at the London Congress of 1935.*

Moving back to England, there was organized in 1933 the ELCA or English Linear Cities Association. The prime movers were the Rev. William Drury, a writer on economics who believed that towns should be organized on assembly-line principles, and Stanley Freese, an artist. The group was loosely associated with Madrid and with Benoit-Lévy and knew of Petavel's ideas and the Russian experiments. Freese had written a futurist novel in 1932 called *The Ten-Year Plan, a dream of 1940* in which he proposed that complex assemblages of transport slash through England's cities and countryside in deep cuttings.

England's most renowned contribution was, however, the MARS (Modern Architectural Research) group plan for London of 1938, worked out by a committee headed by Arthur Korn, himself a linear planner. Both its form, 12, and its details are well-known from Thomas Sharp's *Town Planning* (Penguin Books, 1940), which printed the plan on the cover and attacked it strongly inside. Owing to the interruption of the War, the plan did not receive complete publication until 1942 when THE ARCHITECTURAL REVIEW presented it as a 'Master Plan for London.'† However, it was eclipsed by the County of London and the Greater London plans of the following years. The architects of the MARS plan have acknowledged their debt to many sources, from Geddes to Le Corbusier, but undoubtedly the thinking was dominated by Korn who had, in 1928–29, independently of Miliutin, worked out a collective plan for Berlin not unlike the Russian's scheme for Stalingrad.

The herringbone or branched linear layout represented by the MARS plan became a popular device in the 1930's and 1940's as a number of town planners sought to convert the strung-out linear or even rampant ribbon developments into neighbourhood units of small coherent communities. In these cases the residential settlements would not run parallel to the main artery, but would be on secondary roads, often in cul-de-sac fashion, each element separated from the next one by open countryside. Examples are Schweizer, 13, Hilbersheimer‡, Sert§, and Reichow‖.

There remain to mention only two giants of our time, Frank Lloyd Wright and Le Corbusier, both of whom have toyed with regional planning on occasion, and both in linear fashion. Though Wright's Broadacre City, of the 1930's, is vague and schematic in many respects, it is based on his conviction that every man should drive his own vehicle as a complement to working his own plot of ground, and that our life should be spread out alongside great belt arteries. Le Corbusier's regionalism of the 'four routes' and 'three establishments' is known to all, thanks to campaigning by ASCORAL since he formulated the scheme in 1942. His *cité linéaire industrielle*, 14, is clearly the Soviet linear city serving as connector between old 'concentric cities' as Soria would have advised. However, ASCORAL's map of Europe criss-crossed by linear cities neglects, ironically, to include a Spanish terminus! Actually Le Corbusier may have been inspired by individuals closer at hand than Soria—such as Benoit-Lévy—or by such French handbooks of town planning as Jean Raymond's, which since the early 1930's had illustrated 'rail



Set in the middle of agricultural lands, Le Corbusier's linear industrial city, 14, *performs several functions. It may, as here, unite radiocentric cities of exchange and culture; it parallels three of the four routes—rail, truck and canal—and possesses a super-highway in its green belt. Attached like dry cells to the routes are the industrial units that make up this* Usine Verte. *Across the green belt are residences (vertical and horizontal garden cities) and civic buildings, connected largely by footpaths.*

cities' designed for a variety of uses, including trans-Saharan development.

Although the linear planning of cities has never won popular support among professional planners, it has, paradoxically enough, been the natural pattern of growth of our great urban regions. In the USA a pernicious type of uncontrolled 'linear' or ribbon growth has occurred, extending in some cases for as much as 600 miles. And as a recent study¶ predicts 'The highway program of the next decade and a half will certainly promote this type of growth by stretching urban development along the routes of expressways.' Thus linear growth receives acceptance as a fact, but not as a theory.**

* Renaat Soeteway: 'L'aménagement positif en Belgique,' in International Federation for Housing and Town Planning, *14th International Housing and Town Planning Congress: London, 1935*. Part I, Papers and General Reports, pp. 74-79.

† When in April 1943 the REVIEW dealt with the MARS plan a second time, attempting to 'humanize' it, there occurred a discussion of the virtues of concentric and linear plans that reminds one of the antidotes recently advocated by the Editors of the REVIEW for America's 'Exploding Metropolis' (October 1958, p. 217).

‡ Ludwig Hilbersheimer: *The New City*, Chicago, 1944.

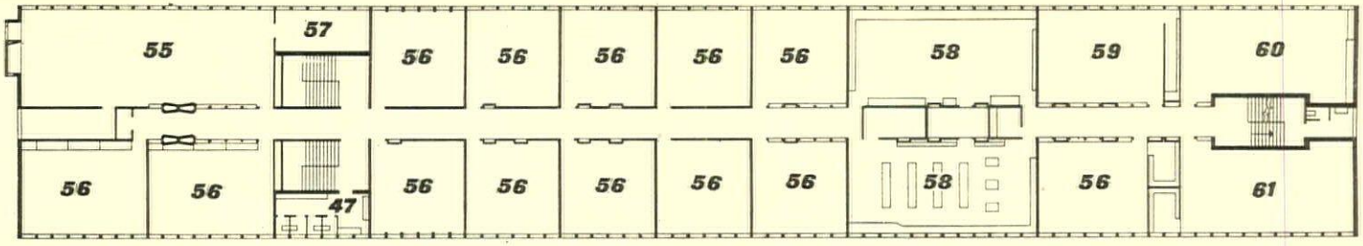
§ José Luis Sert: 'The Human Scale in City Planning,' in Paul Zucker: *New Architecture and City Planning*, New York, 1944, pp. 392-412.

‖ Hans B. Reichow: *Organische Stadtbaukunst*, Braunschweig, 1948.

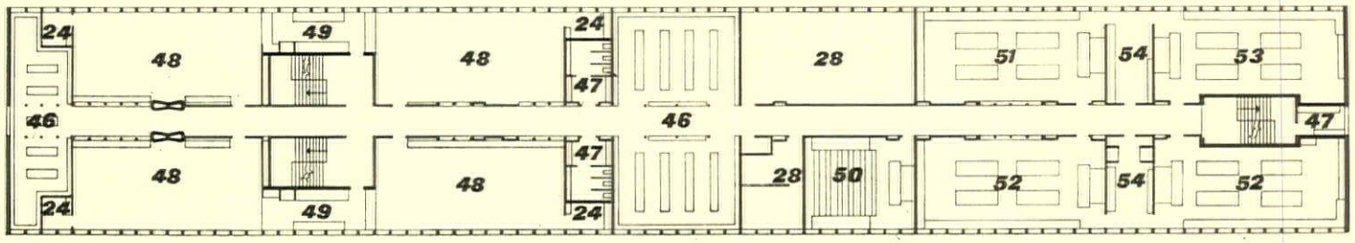
¶ W. Owen: *Cities in the Motor Age*, NYC 1959, p. 122.

** An exception to this statement would be the new linear replanning of Oxford as suggested by Tom Hancock and associates in *Oxford: Proposals for the future City*, London (Townmaker Limited) 1960, and in articles in *Architectural Design*, XXX, No. 6 (June 1960), pp. 224-25, and *The Architects' Journal*, CXXXII, No. 3407 (Aug. 4, 1960), pp. 170-77.

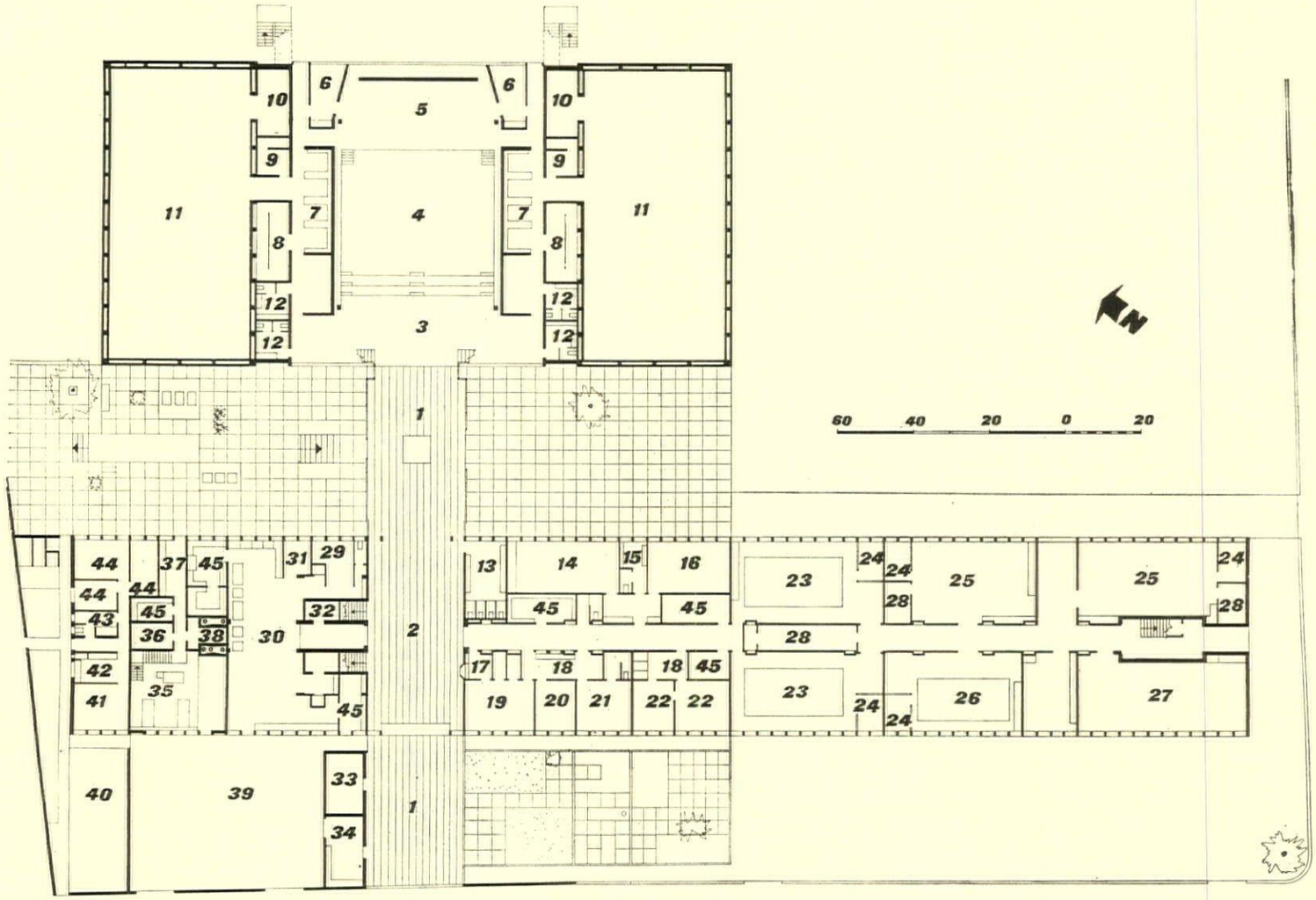
SCHOOL IN ST. MARYLEBONE, LONDON



second floor plan



first floor plan



ground floor plan

key

1, covered way.
2, entrance hall.
3, foyer.
4, assembly hall.
5, stage.
6, music rooms.
7, changing rooms.
8, showers.
9, instructors.
10, apparatus.
11, gymnasia.
12, cloakrooms.
13, pupils' cloakroom
14, common room.
15, staff cloakroom.
16, marking room.
17, school keeper.
18, waiting rooms.
19, school office.
20, deputy headmaster.
21, headmaster.
22, medical rooms.
23, metalwork.
24, masters' rooms.
25, woodwork.
26, fitting shop.
27, engineering.
28, evening institute stores.
29, kitchen staff dining room.
30, kitchen.
31, office.
32, cleaners.
33, electrical intake room.
34, transformer chamber.
35, boiler room.
36, gas meters.
37, workshop.
38, pumps.
39, yard.
40, caretaker's yard.
41, ,, living room.
42, ,, kitchen.
43, ,, bathroom.
44, ,, bedrooms.
45, stores.
46, cloakrooms.
47, pupils' lavatories.
48, house rooms.
49, servery.
50, lecture room.
51, engineering science laboratory.
52, general science laboratories.
53, biology laboratory.
54, preparation.
55, library.
56, classrooms.
57, study room.
58, art rooms.
59, history.
60, drawing office.
61, geography

With a few exceptions, British schools since the War have worn a vernacular air and made a virtue of ineloquence—an effect that has probably had a number of causes, among them a desire on the part of architects working for economy-dedicated public bodies to make their work manifestly appear economical, as well as actually being inexpensive. The triumph of this attitude was the British school exhibited at Milan (see page 358). But every architect is not under the same psychological pressure, and the vernacular has been prevented from hardening into a set style, partly by changed Ministry recommendations, partly by the experiments of private architects. A new and important private contribution to the enrichment of educational architecture is the Rutherford School by Leonard Manasseh and Partners, shown on these eight pages.

SCHOOL IN ST. MARYLEBONE, LONDON

ARCHITECTS | ***LEONARD MANASSEH AND PARTNERS***

associate, Bryan P. Field; assistant architect, Nicholas Quennell

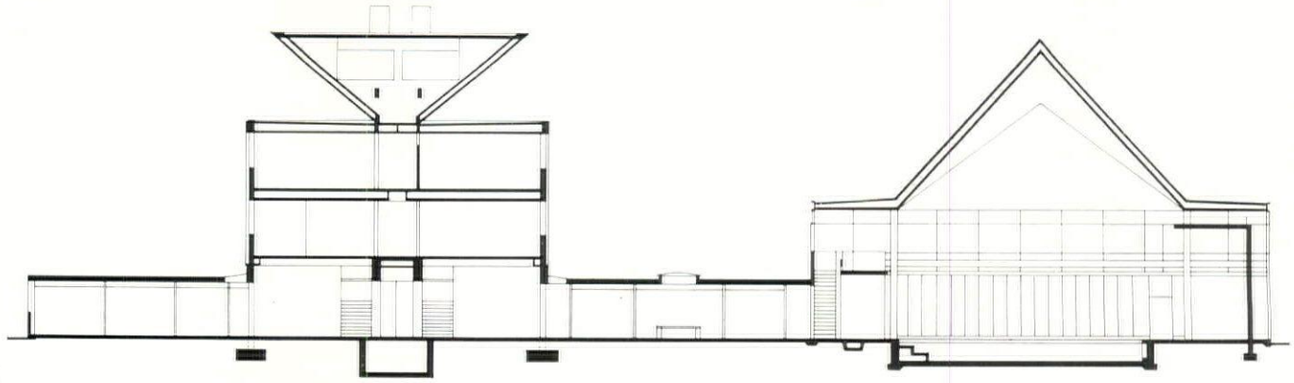
1, the school from beyond the rear boundary wall, looking south, showing the pyramidal roof to the assembly-hall and the inverted pyramid (containing water-tanks) on the roof of the teaching block —see section on page 348.





2

2, air view. The long teaching block is linked on the axis of its entrance hall to the rear block containing a central assembly hall flanked by gymnasia. This view shows how the layout of the buildings was dictated by the presence of an old school on the corner of the site. This is now being demolished to make way for a playground.



cross section through teaching block and assembly hall

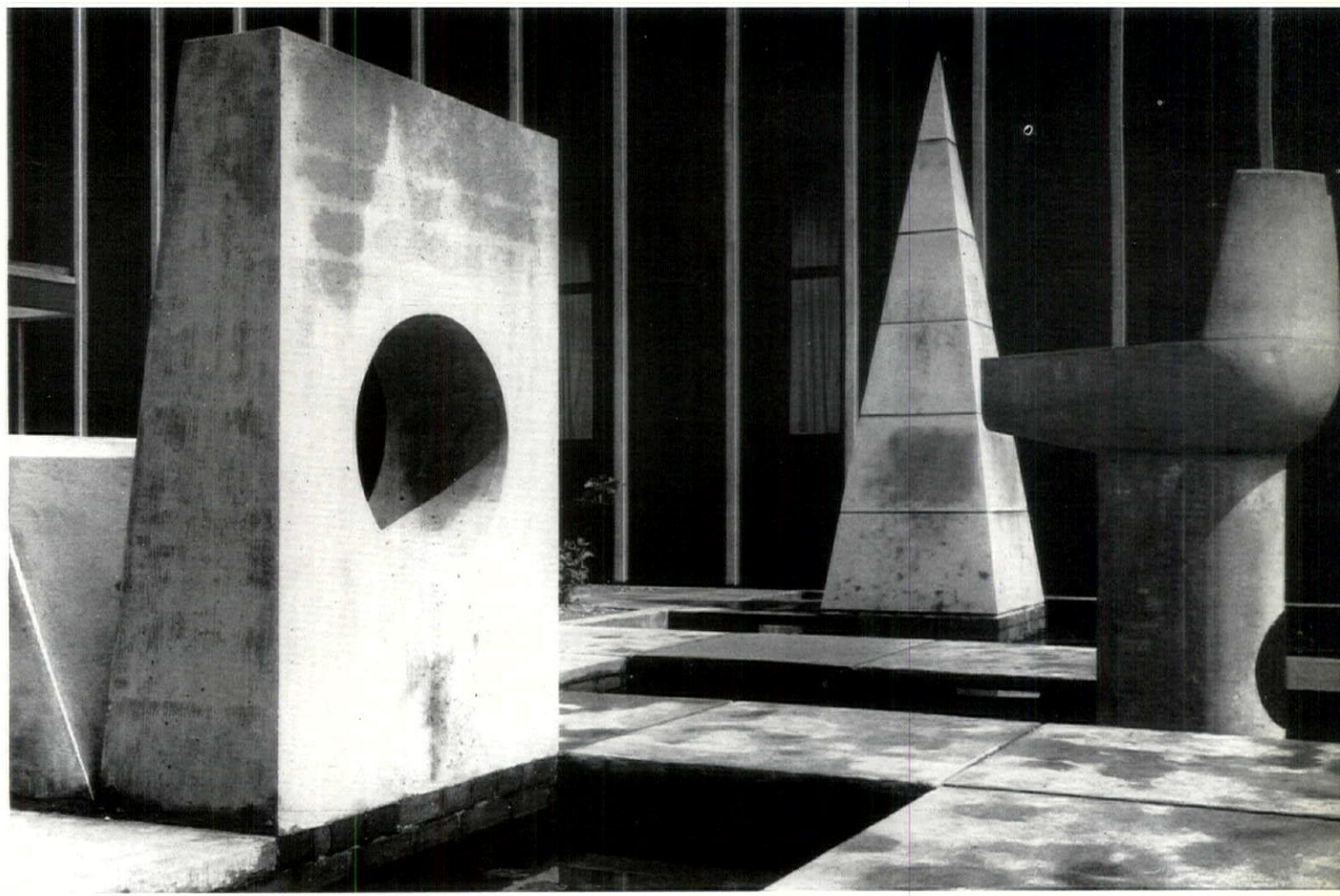
SCHOOL IN ST. MARYLEBONE, LONDON

This new secondary school for 780 boys, designed for the London County Council, has been given the name of Rutherford School. It lies east of Edgware Road (near the old Metropolitan Music Hall) and north of Marylebone Road. The plan was completely dictated by the site: an old LCC school, Bell Street Co-Educational School, occupied a quarter of it at the south-east corner until it could be demolished on the completion of the new one (its area becoming the new school's playground), and there was little alternative to the L-shaped layout adopted.

The assembly-hall and two gymnasia form one block, and everything else—even the caretaker's house—is contained in a three-storey teaching block, nearly a hundred yards long. The two blocks are connected by a covered way, which continues through to the entrance-hall and the canopy over the main entrance.

This is one of the schools to adopt the decentralized 'House' system of organization. There are four house-rooms located on the first floor. House activities take place in these rooms and meals are eaten in them. There are two serveries, each serving a pair of house-rooms by lift from the ground-floor kitchen. The ground floor, reading from north to south, contains the caretaker's flat, the upper part of the two-storey boiler-room, the kitchen, the main entrance-hall with twin staircases leading out of it, the administration area with staff-rooms and, separated by a baffle lobby and a 4½in. brick wall, the metal and wood workshops, with their stores and separate goods entrance. There is a third stair-

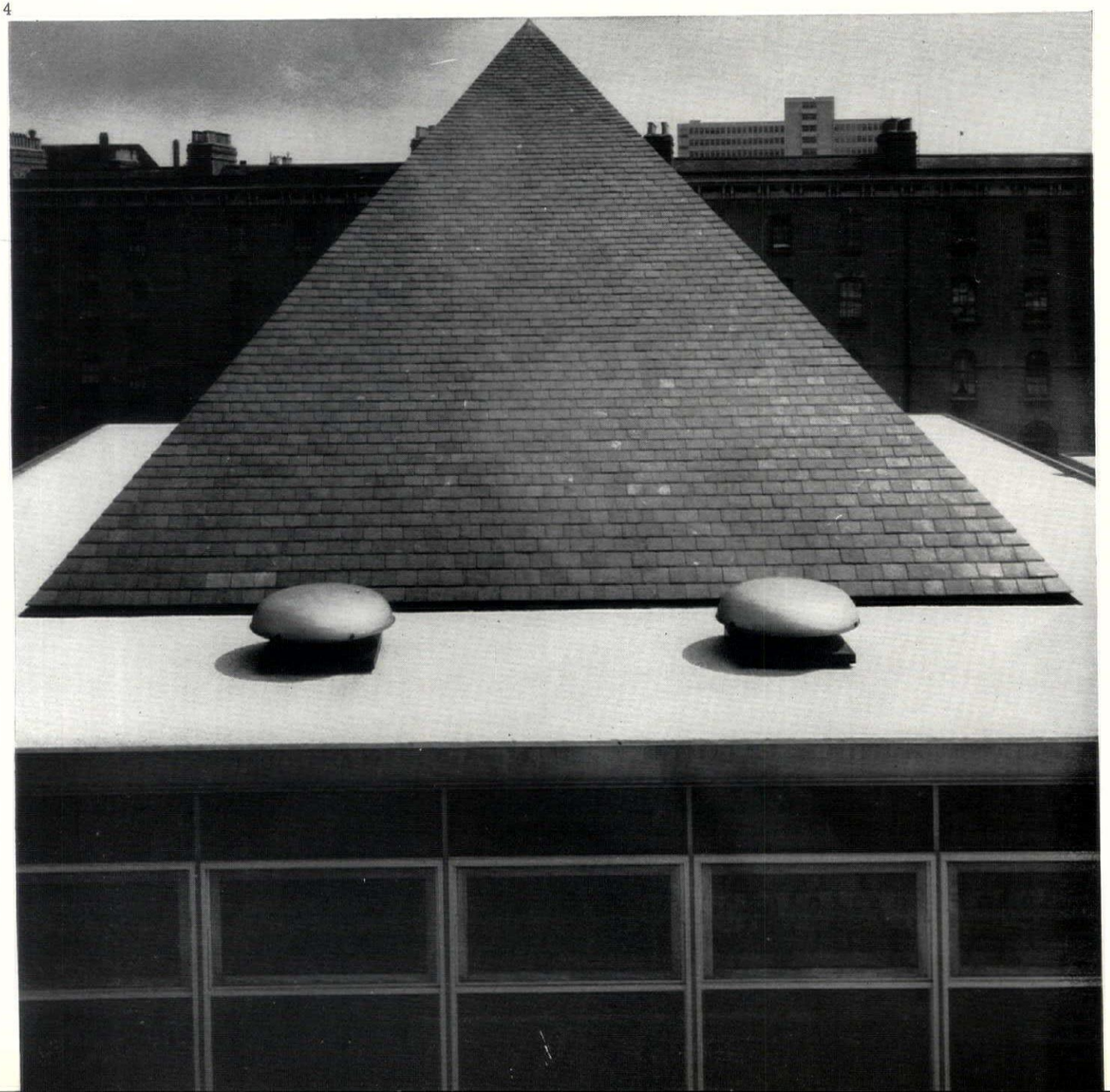
[continued on page 350



3

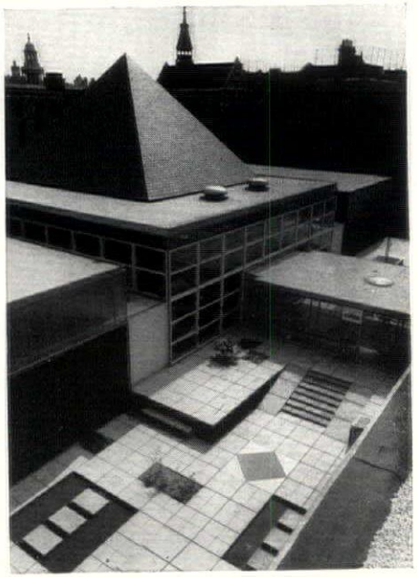
3 (facing page), a sculptural group, designed by the architect, in the paved garden between the teaching block and the street, alongside the main entrance. The objects are in precast concrete, except for the tip of the pyramid which is of granite. The object on the right houses a jet of water which, with the aid of a pump, circulates the water in the garden pools.
4, the slate-covered pyramidal roof of the assembly-hall (see section on facing page) seen from the teaching block.
5, street frontage of teaching block, looking towards the entrance.
6, paved garden between the two blocks, with glazed link on the right.

4





5



6

case at the south end of the teaching block, with lavatories on the half landing.

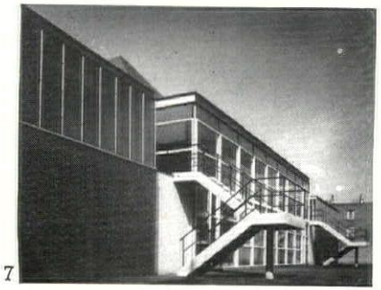
The first floor contains the house-rooms and serveries already mentioned, the main cloakroom accommodation, an Evening Institute and, above the workshops, all the laboratories. On the top floor are the library (with a projecting window facing north and west), the classrooms and the art room with a pottery kiln. On this floor, the central corridor is top lit for most of its length. The south staircase continues up to the biology greenhouse on the roof.

Changing-rooms on each side of the assembly-hall separate it from the two gymnasia. The changing-rooms can be used as dressing-rooms when the stage is used for public performances, and to this end the partitioning in the lavatories is adjustable. The assembly-hall has gallery seating in addition to the main seating, which is sunk 3ft. 6in. below the stage, instead of the stage being raised up.

The very simple elevations are relieved only by the pyramid roof over the assembly-hall and the inverted pyramid of the water-tanks on the teaching block. The teaching block is supported by a system of precast reinforced concrete structural mullions and beams at 3ft. 8½in. centres with projecting nibs to the mullions. Each mullion was cast in one lift about 40ft. high, and taken finished straight from the mould. Apart from a plastic varnish inside and silicone treatment outside, no further finish was applied. 15in. deep floor-beams at each mullion span back to columns at similar centres on each side of a central corridor. The teaching block is virtually two buildings—lengthways—as the beams are not continuous over the corridor. All services are taken down the central corridor at each level, and fan out to the rooms at each side, with the exception of the radiators under the windows, which are served continuously through prepared pipe chases in the structure. Floor slabs are also precast and are 3ft. 6in. square and 2½in. thick. A variety of suspended ceilings is slung under the beams. This system of structural mullions and beams is continuous over the three floors, and is broken only where large openings occur such as the main entrance and the goods entrance for the workshops.

The main entrance hall is faced in marble with the structure exposed above it. Here there are large precast

[continued on page 353



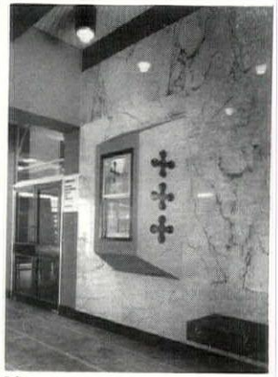
7



8



9



10

7, rear of assembly-hall block showing the two escape stairs.
8, the glazed link between the two blocks, looking from the entrance-hall in the teaching block towards the assembly-hall.
9, one of the two staircases leading from the entrance-hall to the teaching rooms above.
10, the opposite wall of the entrance-hall, faced with white marble, with window to the school-keeper's office.
11 (facing page), the two parallel blocks—teaching block on left—and the glazed link between them.



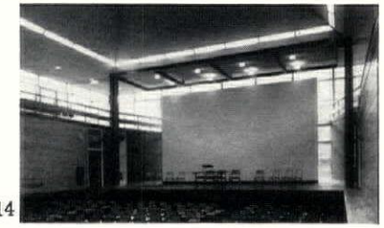


13

Photographs by H. de Burgh Galwey

12 (facing page), the assembly-hall, looking from the stage towards the entrance on the main axis of the building. The central floor is sunk. The stairs lead to galleries round three sides of the hall.

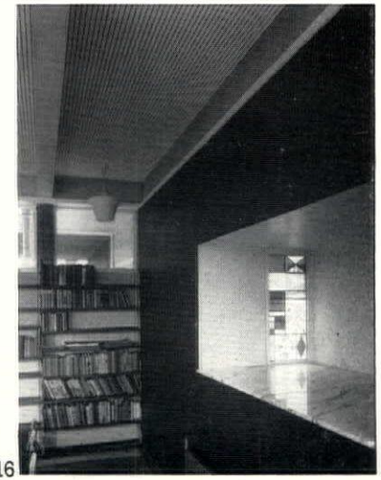
13, the two stairs leading to the assembly-hall galleries. The roof of the link building can be seen through the glazed wall on the left.
14, the assembly-hall looking towards the stage (photographed before the curtains were installed).
15, the rear gallery of the assembly-hall, forming a bridge across the entrance.
16, the end wall of the library on the top floor of the teaching-block, with display recess lit by a stained glass window.
17, one of the two gymnasia.
18, a typical craft room in the teaching block.



14



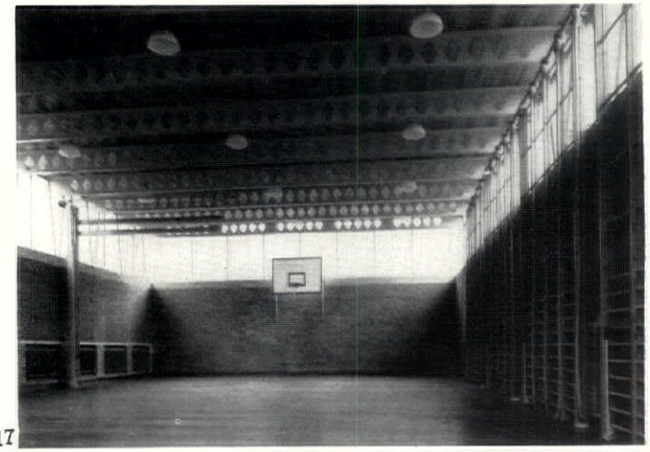
15



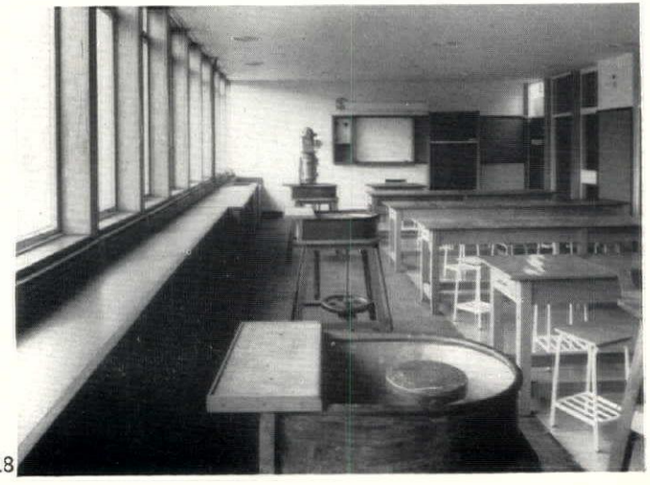
16

beams, necessitated by the break in the grid and the load of the water tanks, which is brought down at this point. Lateral stability is given by the staircases and surrounding brick walls and the grouting-in of the floor slabs; transverse stability likewise, as well as by certain solid brick transverse partitions and the white glazed brick end walls.

The gymnasia are of a wide cavity-brick construction concealing 18in. by 9in. brick piers, which support short-ended portal frames of cut and welded steel beams holding up the roof. They are lit by clerestory windows. The assembly-hall is a steel-frame structure. Four cranked raking beams, which form the pyramid and the flat roof, are supported by four steel box columns. Intermediate supports bear on the four rakers. The glazing is in heavy section timber frames which take part of the wind load. The pyramid is faced with green slates, mitred and secretly flashed at the angles.



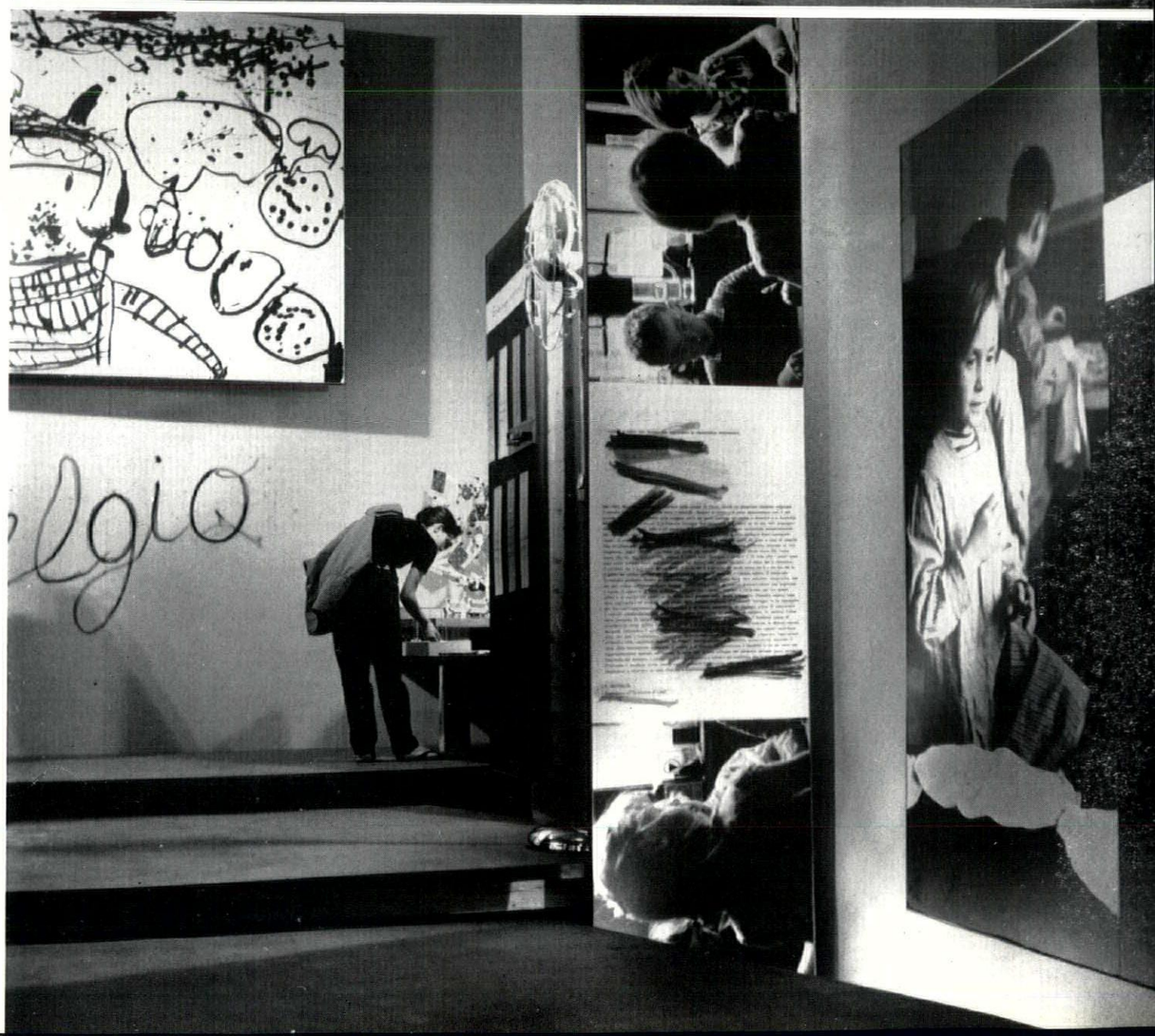
17



18



One of the more interesting aspects of this year's Milan Triennale was the manner in which the foreign exhibitors responded to the theme of 'the home and the school.' For instance the down to earth simplicity of this Mexican school, top, cleverly prefabricated for out-back conditions (designer J. Salazar Portillo), was in marked contrast to the sophisticated display technique of Belgium, below (designer M. A. Constant) with its giant photostats of children and child art.



12th Triennale

On the following pages Kenneth Browne records in sketches and photographs some of the outstanding exhibits at the twelfth Milan Triennale, which closes this month.

After the last exhibition, in 1957, the committee decided that the Triennale was in grave danger of stagnation. Though universally regarded as the most exciting design show in the world, that was not enough. Future Triennales must come to grips once more with the basic problems confronting humanity. The resulting theme for the 1960 exhibition was The Home and the School.

A bold decision in view of the popular appeal of the existing type of Triennale, it resulted, perhaps inevitably, in an exhibition more interesting for what it had to say than the way it said it. However, what was encouraging from the British point of view was the appearance of the first official British exhibit at any Triennale, a full size CLASP* primary school (***a*** on plan; also page 358) which proved to be one of the high spots of the show, and, thanks to good landscaping, looked perfectly at home in the English-style Parco Sempione. The only other exhibit housed in a separate structure outside the Palazzo dell'Arte, was that of the United States (***b*** on plan; also page 359) contained in a cruciform aluminium house.

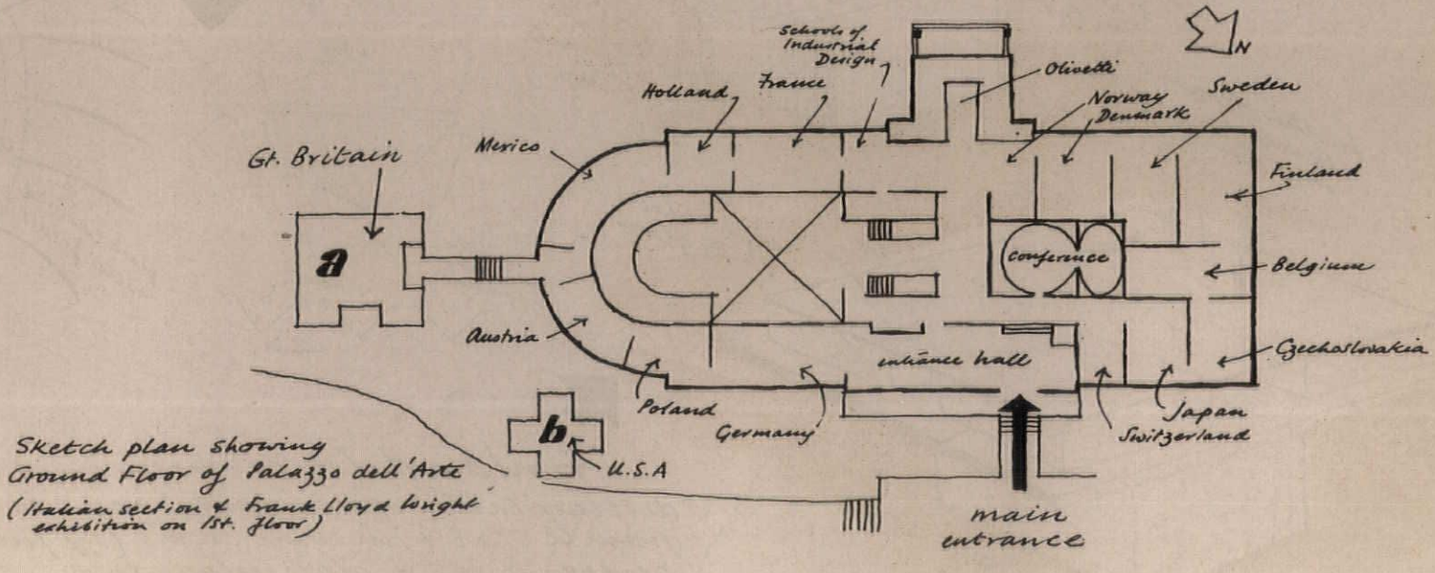
Unfortunately, the only foreign exhibitors who took the theme of the exhibition as a challenge were Britain, Switzerland, Mexico, Belgium and the USA. Nearly all the others (with the exception of Holland which had a fascinating lantern slide show but nothing to do with the subject) were content to stick to a showroom type of display and a visitor not knowing the theme would be unlikely to guess it. All the same, visually the Finnish and Danish sections were outstanding.

The Italian section which occupied nearly the whole upper floor of the Palazzo was a strange mixture. A nightmare introductory room with bilious green lighting and the most menacing looking chairs imaginable was followed in the main galleries by a serious study of the problems of housing and education in the varying contexts of rural, suburban and urban living conditions. These were illustrated by a clever use of rooms sunk below the level of the spectator. Another most successful device was the illustration of a Milanese townplanning scheme by the use of a large suspended model viewed through periscopes from below (page 361).*

On the subject of the school the Italian thinking was clear and up to date with some good furniture and equipment on show, but home was a different matter altogether. In neo-liberty style with everything heavy, dark and done in the hardest and most

*Consortium of Local Authorities Special Programme of School Building: a development group led by Nottinghamshire County Council.

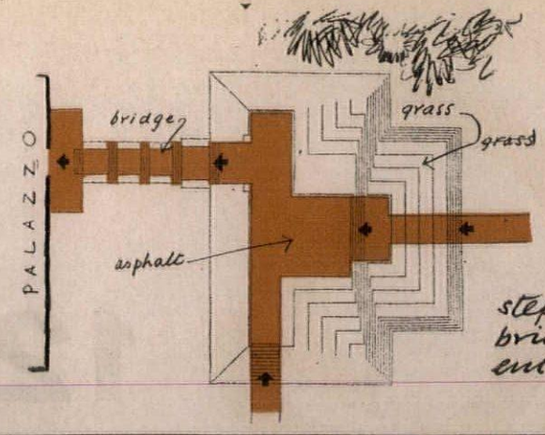
*It is hoped to give some attention to this promising exercise in townscape, by Francesco Gnecchi, with Mori, Santi and Borachia, in a later issue.



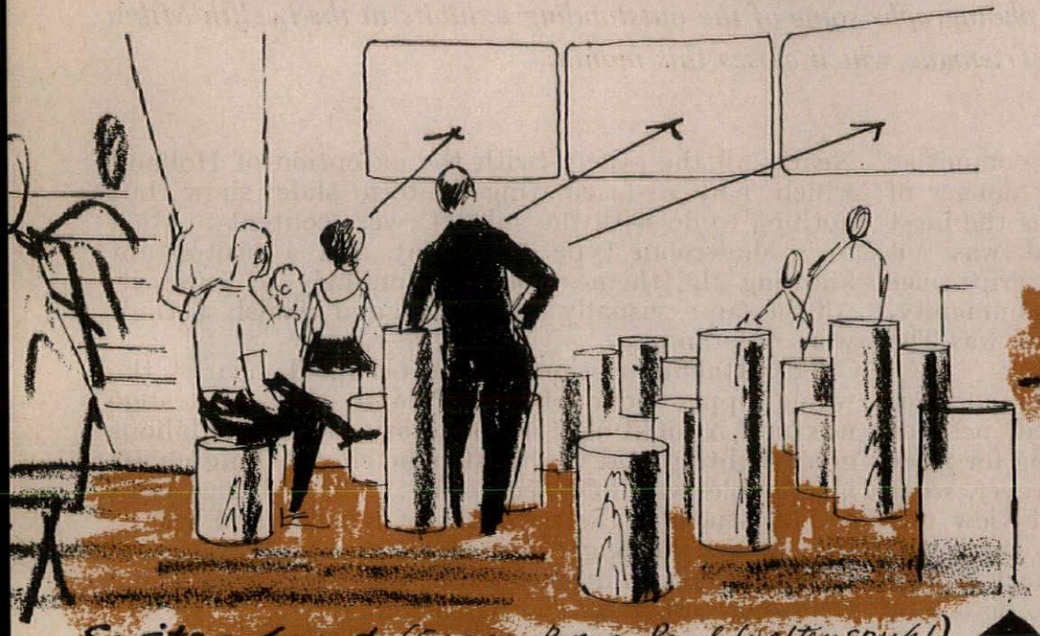
Sketch plan showing Ground Floor of Palazzo dell'Arte (Italian section & Frank Lloyd Wright exhibition on 1st. floor)

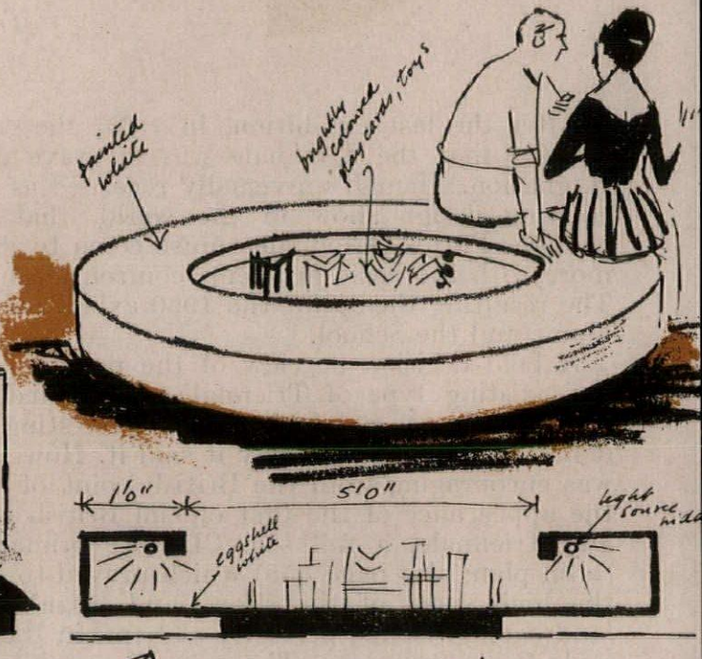
expensive way, most of the interiors harked back to around 1910 and the last two, millionaire class, had to be seen to be believed. In addition there was a large commemorative exhibition to Frank Lloyd Wright and smaller ones to Adriano Olivetti and Paolo Venini; also a display of the work of eight living Italian architects.

This year the entrance to the Palazzo was moved to the opposite side of the building and to reach the required level an ingenious stepped mound ☛ (see photographs on facing page) part grass, part asphalt, had been built. A timber bridge linked it to the main entrance.

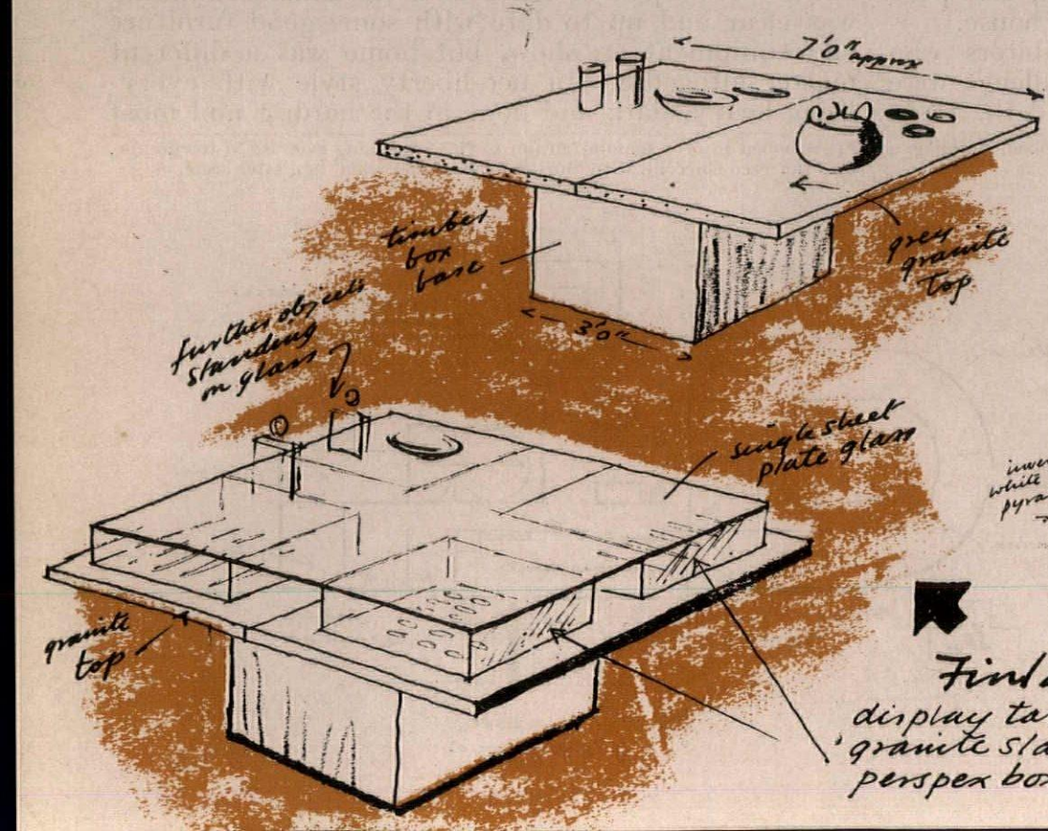


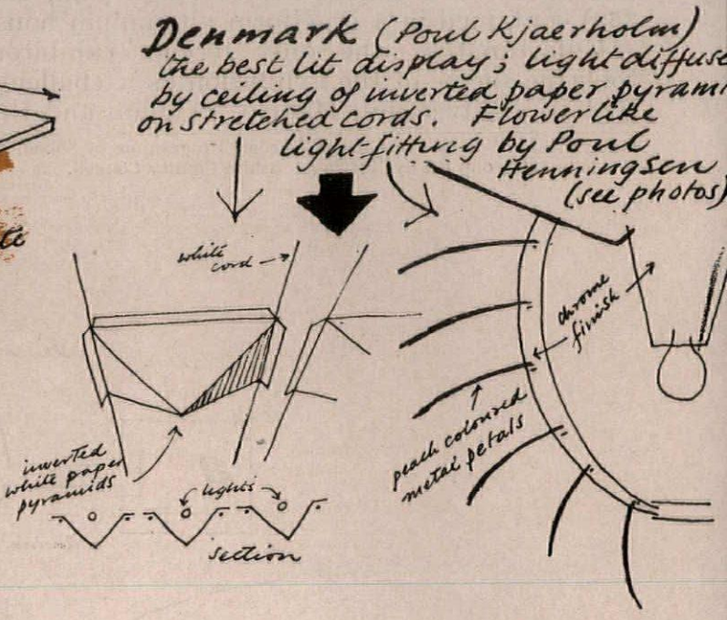
stepped mound with bridge leading to entrance hall





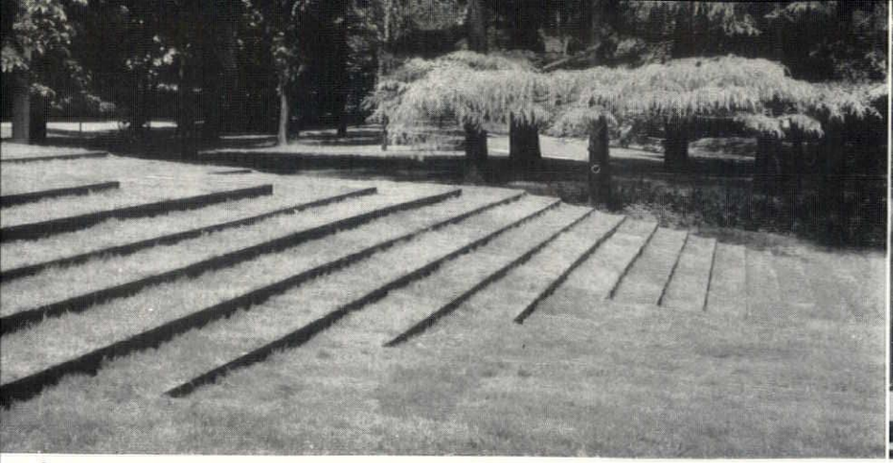
Switzerland (Georges Brera, Paul Waltenspuhl) Informal cinema with 3 screens. Brilliant film about Swiss schools. Audience sit or lean on "logs" of varying height. Note also display case/seat ↑ (see photo opposite)

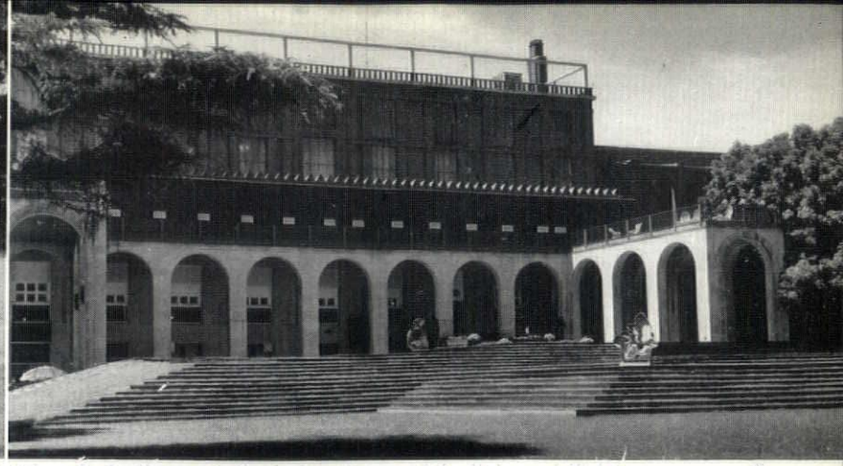




Denmark (Poul Kjaerholm) the best lit display; light diffuse by ceiling of inverted paper pyram on stretched cords. Flowerlike light-fitting by Poul Henningsen (see photos)

Finland (A. Narmesniemi) Very neat display tables of standard size. Box base, granite slab +, in some cases (see photo) perspex boxes & plate glass top.

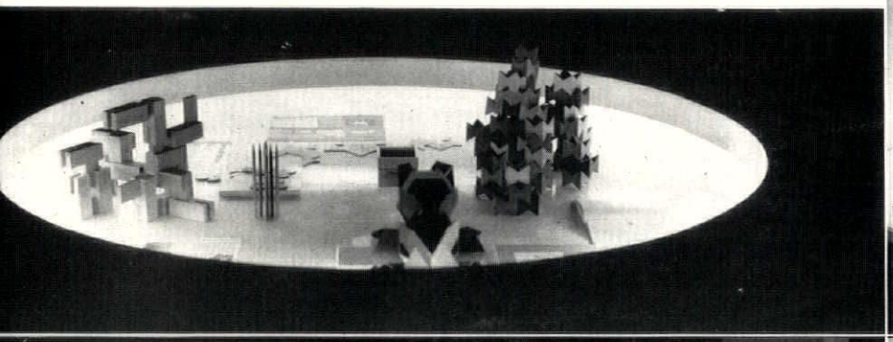


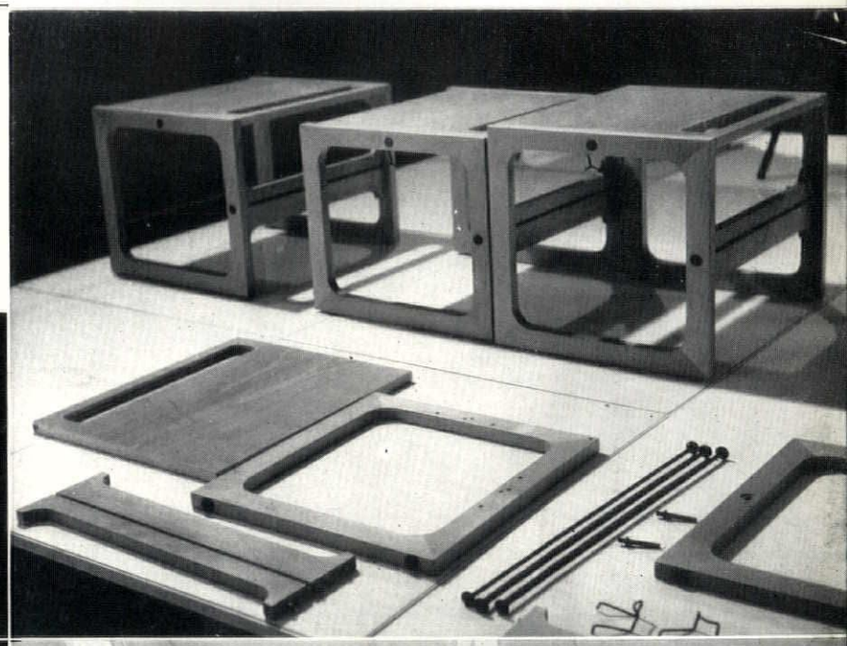


1 *1 and 2, the artificial mound (see plan opposite), with grass steps edged by black metal angle, leading up to the main entrance of the Palazzo dell'Arte.* 2

3 | 4
5 | 6

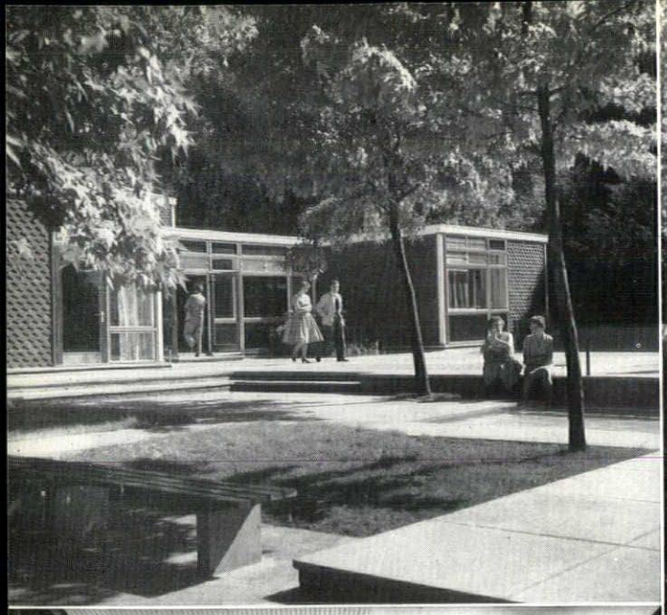
3, circular display case in the Swiss section (see sketches opposite).
4, demountable Italian school desks. The height can be varied according to which way up the side frame is fixed.
5, display tables in the Finnish section (see sketches opposite). A very impressive display achieved by ruthless simplicity. The lamps are by Yki Nummi.
6, this ingenious false ceiling of inverted paper pyramids accounted for the extraordinarily soft and even lighting in the Danish section. The exotic light fitting was designed by Poul Henningsen.

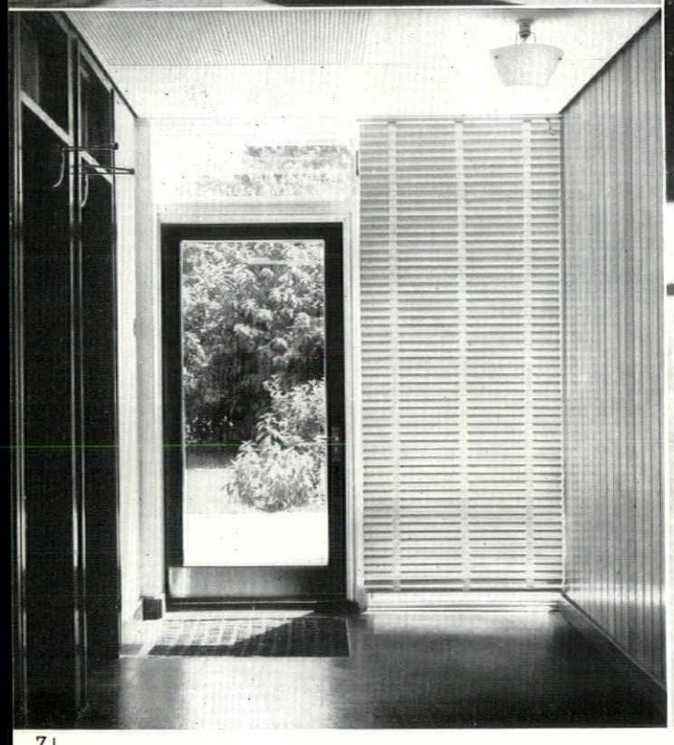














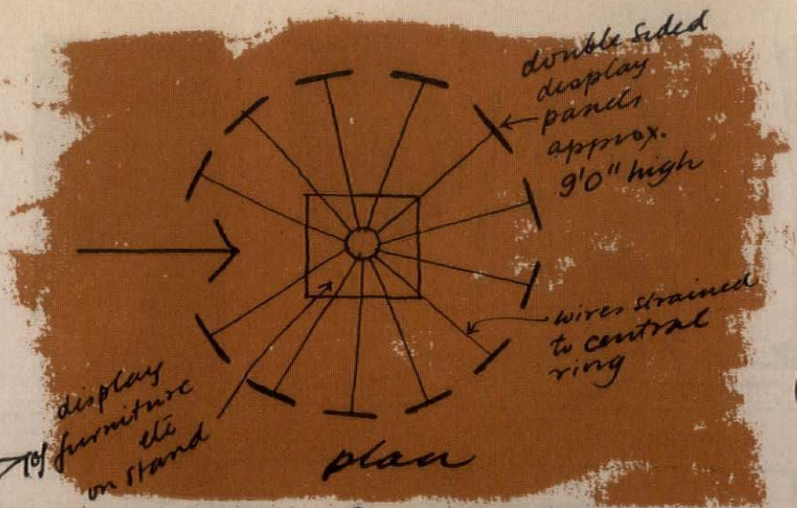
7 | 9
8 |
10 | 11

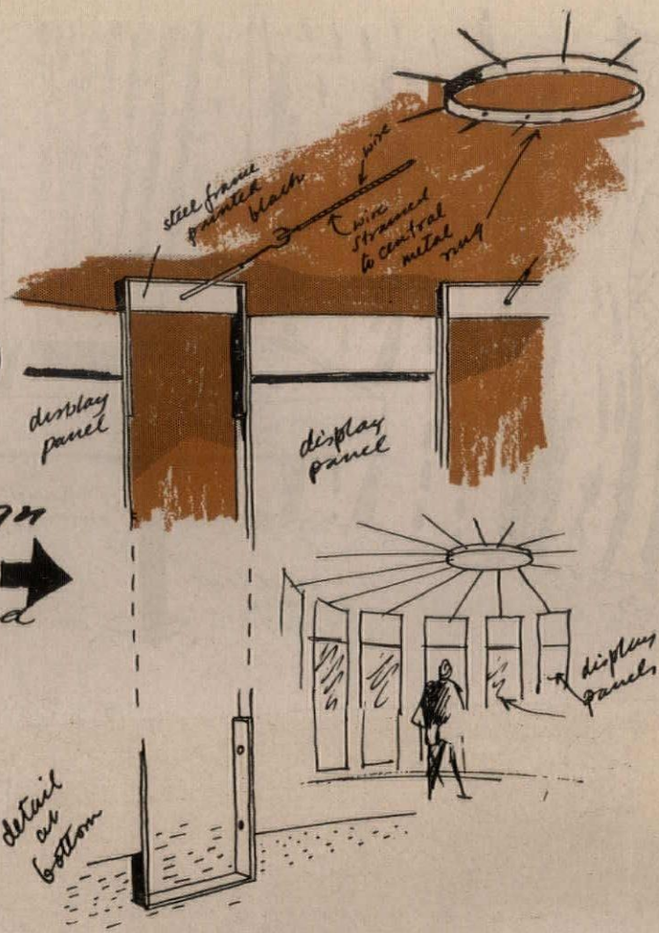
7, the entrance to the British school (architect W. D. Lacey) showing the treatment of the forecourt. The detailing was trim both inside, 8, and out, 9.

10, the prefabricated house (see plan opposite) built to contain the American section.
11, neat display shelving in the German section (sketch opposite).

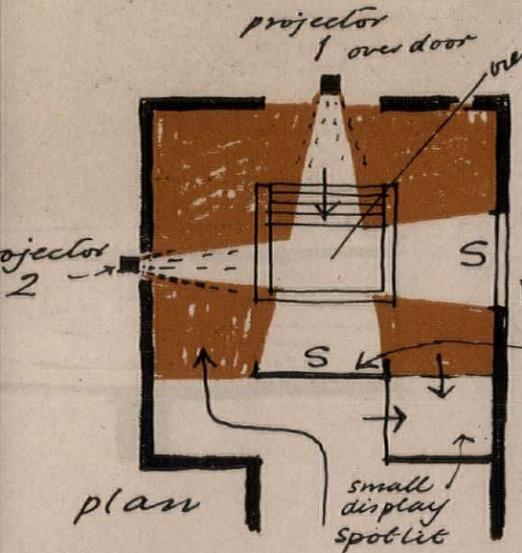




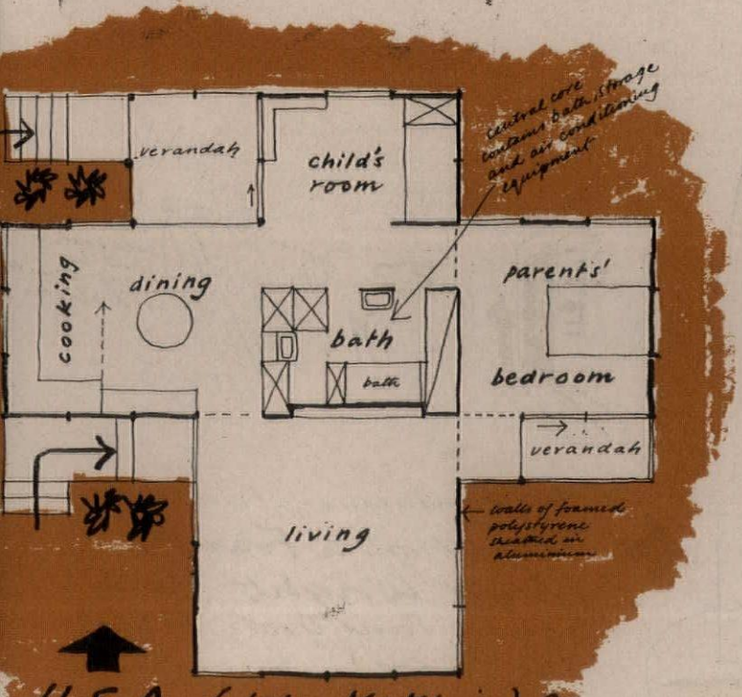




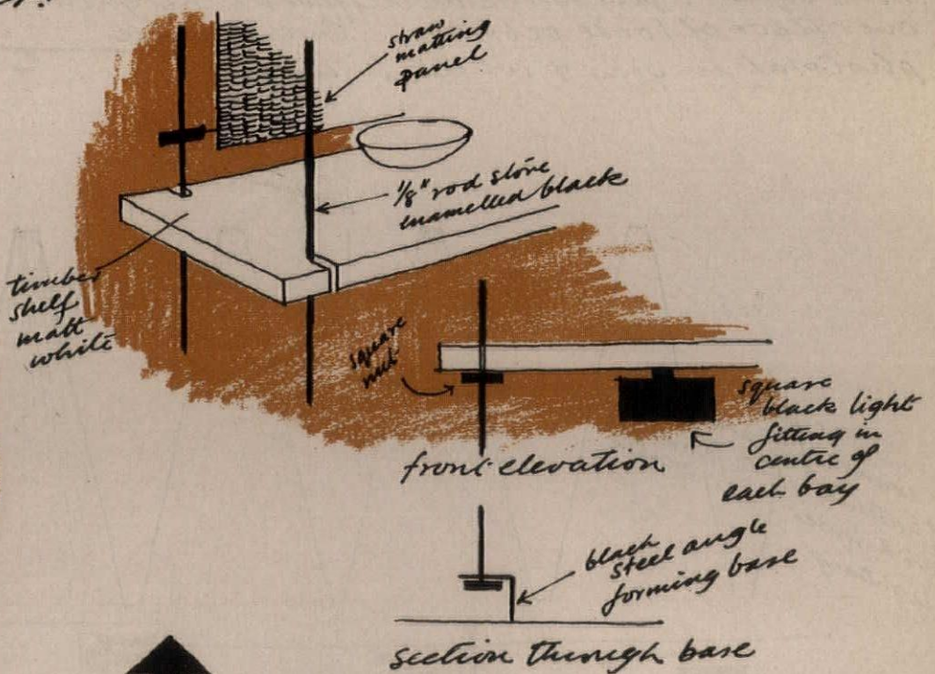
The section on **Schools of Industrial Design** consisted mainly of a stand by the Royal College of Art: a circle of display panels spider web braced to a centre ring. Manufactured articles on platform centrally placed



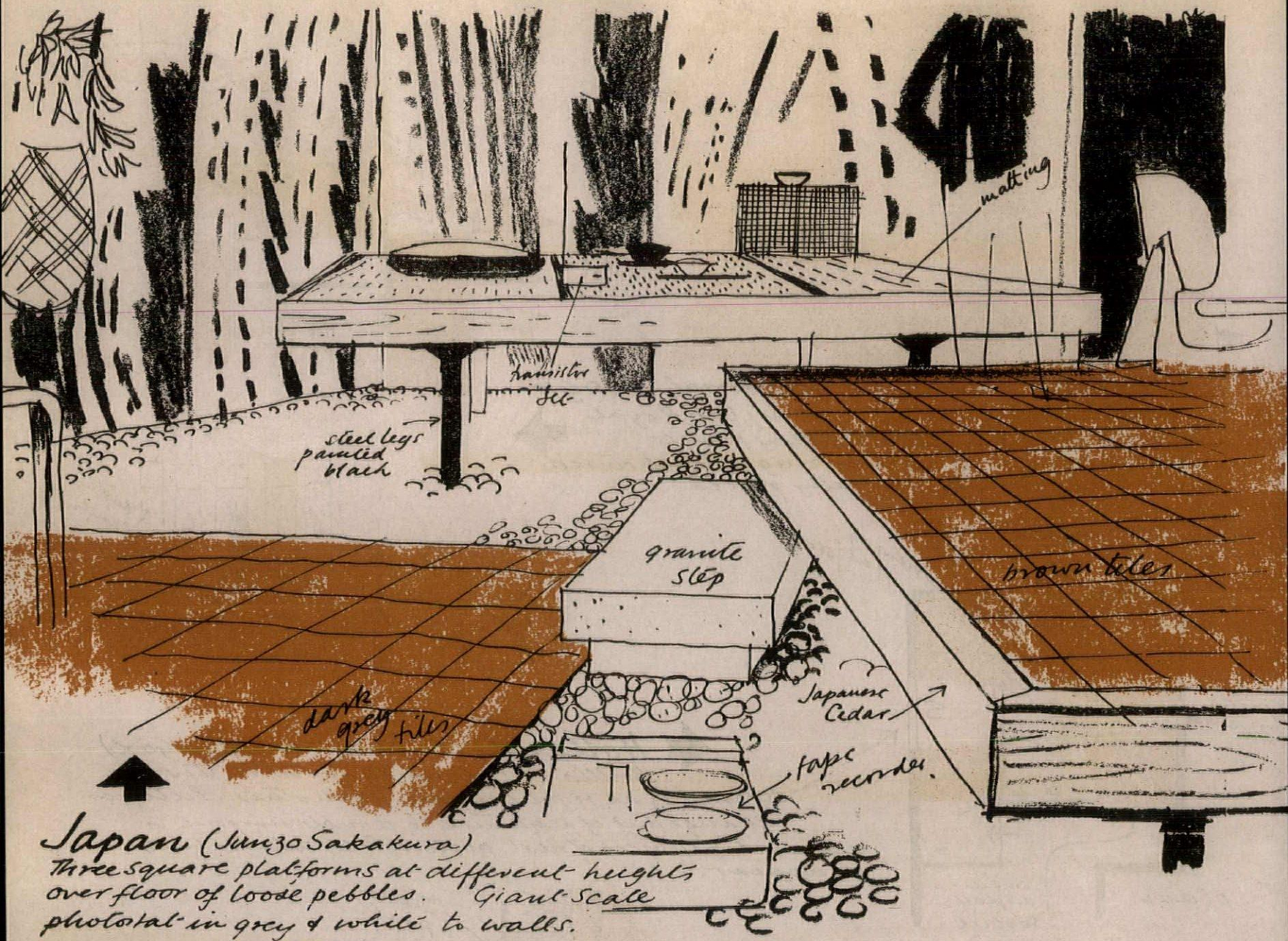
Holland (Oyevaar, Stolle, Van Good) Brilliant colour slide show. Two screens (S) at right angles to each other. Pictures change out of sequence so double surprise is achieved 1. subject of next picture? 2. where will it appear?



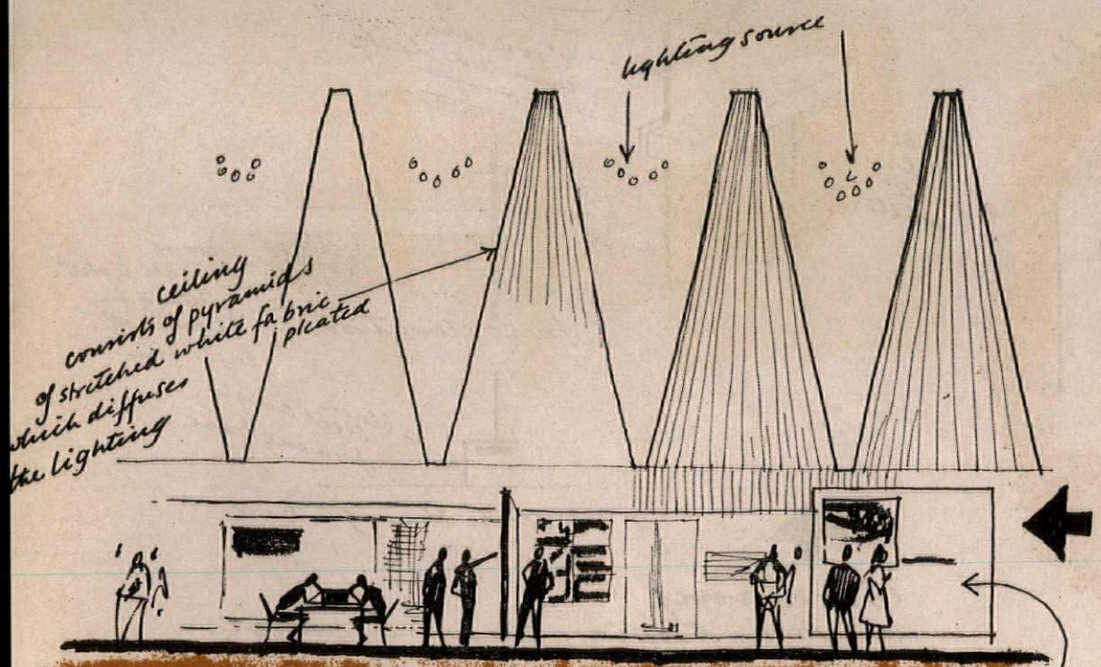
U.S.A. (John Matthias) An ALCOA aluminium house of cruciform plan: central service core contains storage, bath, air conditioning plant.

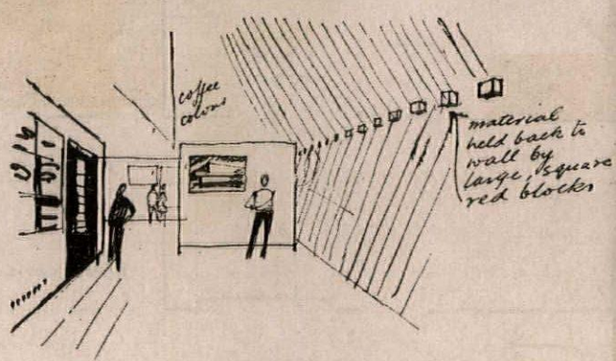


Germany
Uniform display shelving crisply designed and, most important, equally crisply made. (see photo)

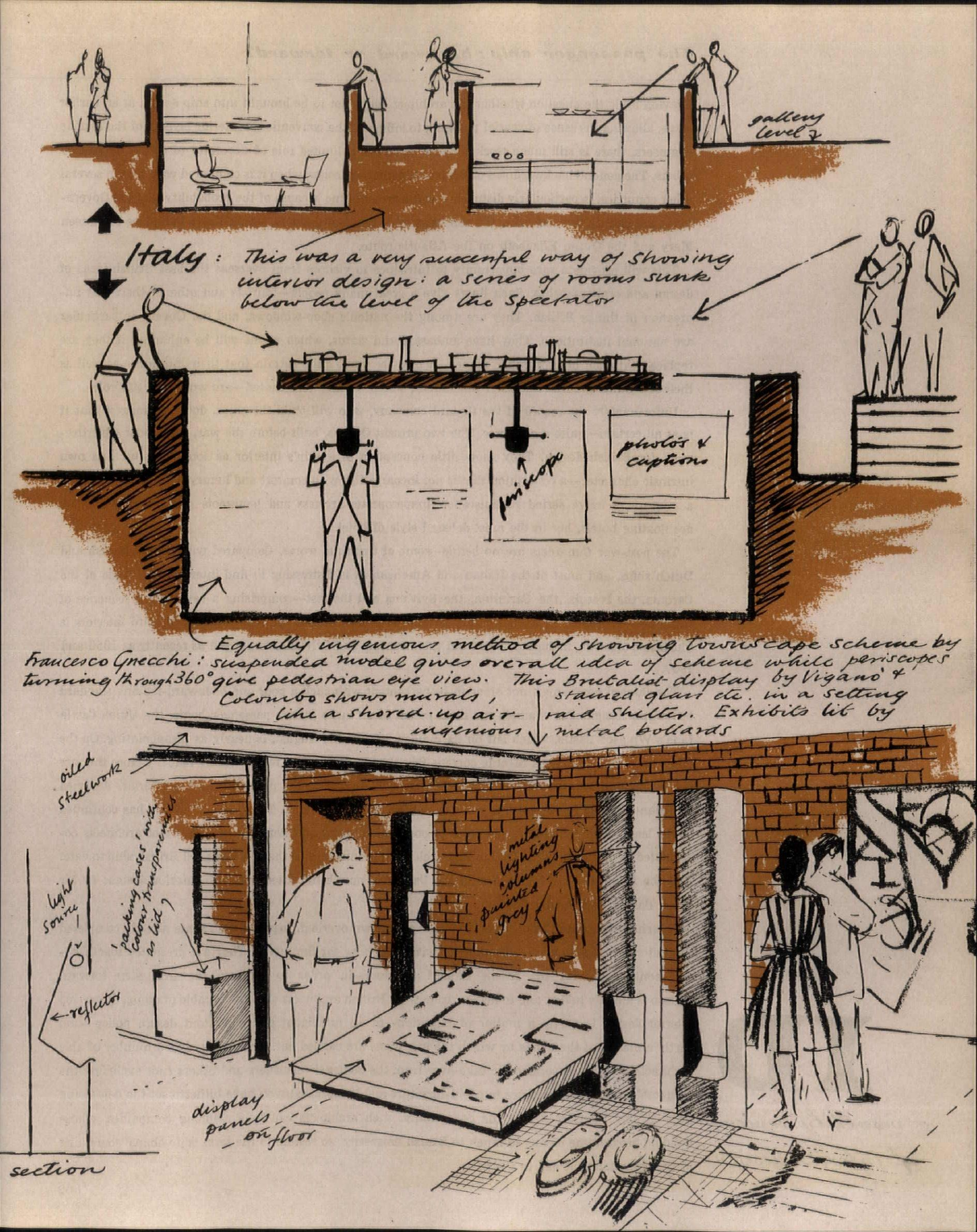


Japan (Junzo Sakakura)
Three square platforms at different heights over floor of loose pebbles. Giant scale photostat in grey & white to walls.





The commemorative exhibition to **Frank Lloyd Wright** (Carlo Scarpa, Paul Grotz, Walter McQuade). Impressive photographic display on panels + stereo. colour slides & a small cinema. Soft, even light due to tented muslin ceiling.


gallery level
Italy: This was a very successful way of showing interior design: a series of rooms sunk below the level of the spectator
periscope
photos & captions
Equally ingenious method of showing townscape scheme by Francesco Gnecchi: suspended model gives overall idea of scheme while periscopes turning through 360° give pedestrian eye views.
Colombo shows murals, like a shored-up air-raid shelter. This Brutalist display by Vigano & ingenious stained glass etc. in a setting of metal bollards
oiled steelwork
'packing cases' with Colony transparencies as lids
metal lighting columns painted grey
light source
reflector
display panels on floor
section

Leaving aside the question whether the architect ought not to be brought into ship design at an earlier stage, allowing his sense of spatial planning to influence the conventional interior layouts of the marine engineers, there is still much work for him to do in his limited role of decorator of spaces devised by others. The general backwardness of British ship interior design, when it is compared with that in several other countries, is particularly disturbing at the present time because of the probability that the Government will shortly be subsidizing the construction of two new giant passenger liners to replace the Queen Mary and the Queen Elizabeth on the Atlantic route.

This will provide a rare opportunity to introduce to visitors from overseas the best British ideas of design and craftsmanship. Such liners give a great many people—tourists and others—their first impression of things British. They are among the nation's shop-windows, and the Queens in particular are national institutions. They have ambassadorial status, which status will be enhanced if they are replaced with the help of public money. It must be made quite certain that their interiors—as well as their sea-going qualities and their machinery, which we take for granted—are worthy of this role.

Unfortunately the record of the Cunard company, who will build the ships, does not suggest that it is at all certain—quite the reverse. The two present Queens, built before the war, are a poor advertisement for British design. They show little conception of a ship's interior as something with its own intrinsic character—a conception that is not incompatible with comfort and luxury—and display instead a mixture of naive period reminiscence, inappropriate artiness and bourgeois pretentiousness. They are floating hotels, but in the most debased style of hotel.

The post-war Cunarders are no better—some of them are worse. Compared with recent Danish and Dutch ships, and most of the Italian and American, it is distressing to find interiors like those of the Caronia, the Ivernia, the Carinthia, the Sylvania and the rest—comprising a bewildering sequence of banalities—representing contemporary British design. A number of typical recent Cunard interiors is illustrated opposite, including some from the Carinthia and Sylvania, completed as recently as 1956 and 1957.

The Cunard company is not alone in being content with such a poor and backward-looking standard of interior design. For example the most recent of all large British passenger boats, the Union Castle Line's Windsor Castle, which left on its maiden voyage this August, is nearly as disappointing. On the other hand the picture, as regards current British ship decoration, is not wholly black. Before the war the Orient line was the only one to seek a sensible answer to the problem and the interiors designed by Brian O'Rorke for Orient line ships were pioneers of their kind. Today the same line has continued in the lead; their Oriana, on the point of completion, designed internally by a group of architects co-ordinated by Misha Black of Design Research Unit, promises to be the best-designed British ship to date. And the P and O have followed with the Canberra, now being fitted out with interior designs by Sir Hugh Casson and Neville Conder.

Sketches of interiors from these two ships are shown overleaf, together with some already completed ship interiors on a smaller scale that likewise offer hope for the future. They are presented together—and contrasted with the recent Cunard interiors—in order to indicate the firm step forward Britain is already taking and to demonstrate what British architects are now capable of doing. Improved interior design is partly a matter of intention—of an intelligent and consistent design policy—and partly a matter of the hands by which the intentions are carried out. Britain now has a number of able architects with the experience to take over from the contract furnishers and others (not excluding the directors' wives when it comes to cabin-furniture and bedspreads) who have hitherto set the depressing style of ship interiors. Given the opportunity, such architects can help shipping companies, whose building programme means so much to British prosperity, to restore to the term 'ship-shape' something of the connotation it had in the past.

ID

a monthly review of interior design

BACKWARD: SOME RECENT CUNARDERS

The interiors of the ships built since the war by the Cunard company, of which the photographs on this and at the top of the next page are typical, show but little appreciation of the principles of good design or the rich and varied resources of modern designers. With their over-elaborate mixture of pretentious decorators' styles, they present a depressing backward-looking picture of British ship architecture which is somewhat relieved, fortunately, by a few attempts by other companies to look forward instead, illustrated on the following pages.



1

1, the first-class restaurant in the Sylvania (built in 1957), reproduced large to show in all their horror the decorator's mixture of reminiscent styles in which this latest Cunarder is fitted out. 2, the first-class lounge in the Carinthia (1956), based on a different period but no more shipshape than the other. 3, the Balmoral restaurant in the Caronia (1948): modernistic instead of period, but no more agreeable or appropriate.



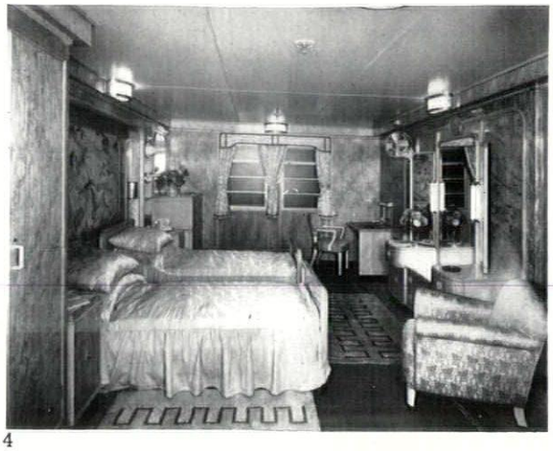
2



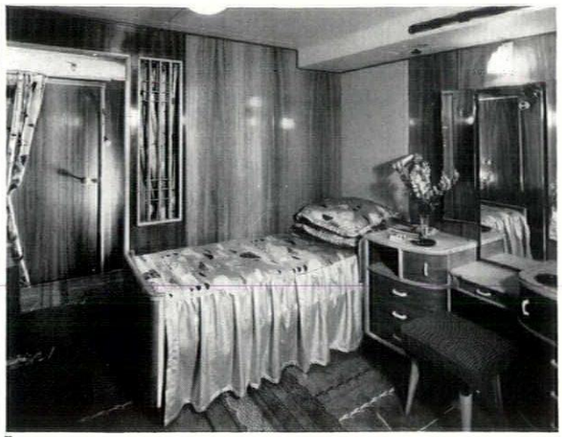
3

BACKWARD: SOME RECENT CUNARDERS

Two first-class cabins: 4, in the Caronia (1948); 5, in the Sylvania (1957). Their heavy, tasteless and over elaborate styling can be contrasted with the nautical simplicity (which does not destroy, but rather enhances, the feeling of luxuriousness, in the Canberra's cabins at the foot of the opposite page.



4

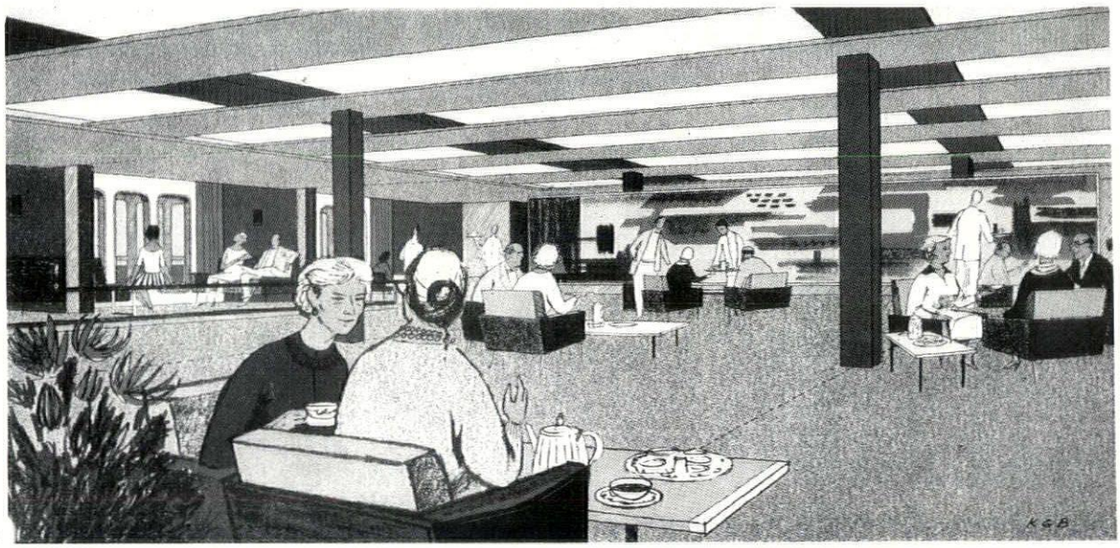


5

FORWARD: THE ORIENT LINER 'ORIANA'

This ship, of 40,000 *tons, carried forward the good work that the Orient Line began almost alone in the nineteen-thirties. Design Research Unit have been in charge of her interior, with several other architects (see caption below) working in association with them. Wall decorations, paintings, textiles, china and every detail have also been considered with an unusual degree of care and enterprise. Oriana leaves on her maiden voyage on December* 3.

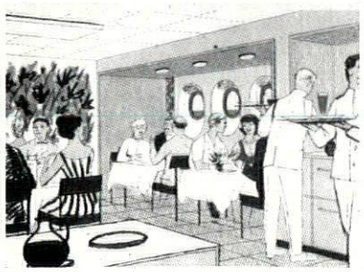
6, the Princess Room (first-class lounge and library) by Design Research Unit. Dividing the two parts of the room (background of picture) is a 30 ft. long wall painting by John Piper. 7, first-class restaurant by R. D. Russell and Partners. The ceiling is lined with ash boarding and acoustic tiles. The timber is Brazilian rosewood. Curtains are Thai silk. 8, a first-class double cabin, also by R. D. Russell and Partners. The timber is natural mahogany. 9, the tourist-class restaurant, by Ward and Austin, with a wall decoration of plastic panels by Anthea McNish. The timber used is Indian silver greywood.



6



8



9



7

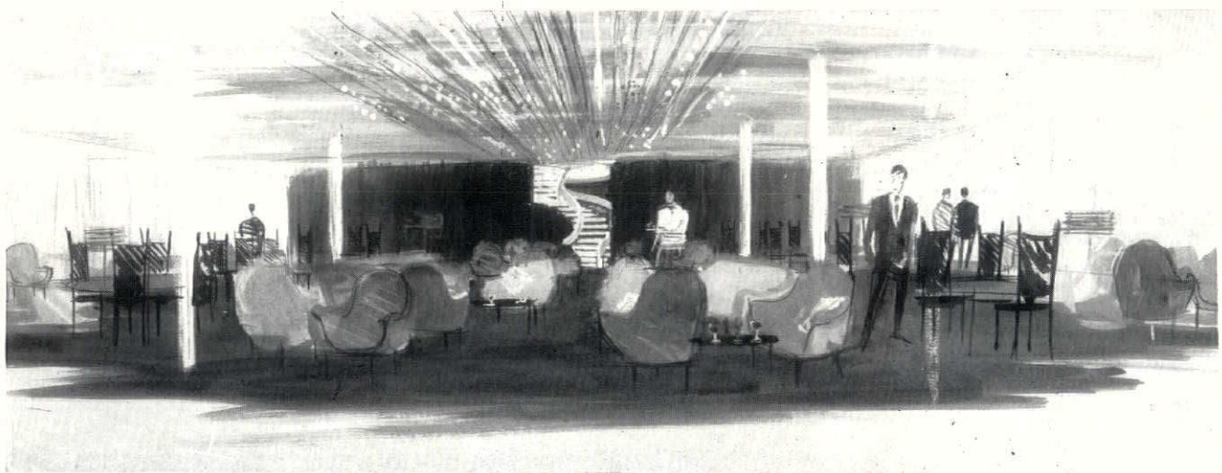
FORWARD: THE P & O LINER 'CANBERRA'

This ship, of 45,000 tons, launched in March, is the first large passenger liner for which the interior architects (Sir Hugh Casson, in association with McInnes, Gardner and Partners) were appointed early enough to be given some say also in the silhouette and other exterior aspects of the design and the general use of interior space. As in the Oriana, the interiors of the Canberra (with which John Wright is also associated) are not only wholly modern in feeling but are designed so that every detail shall possess a consistent handwriting.

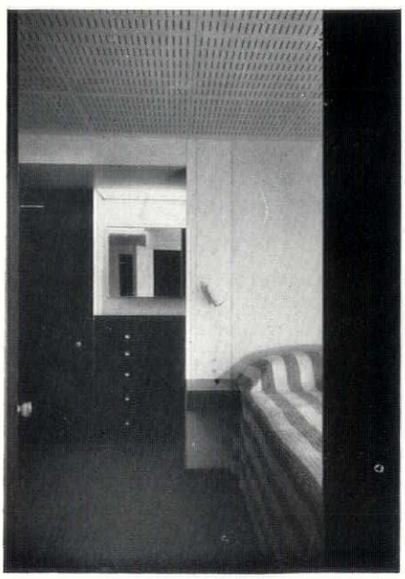


10

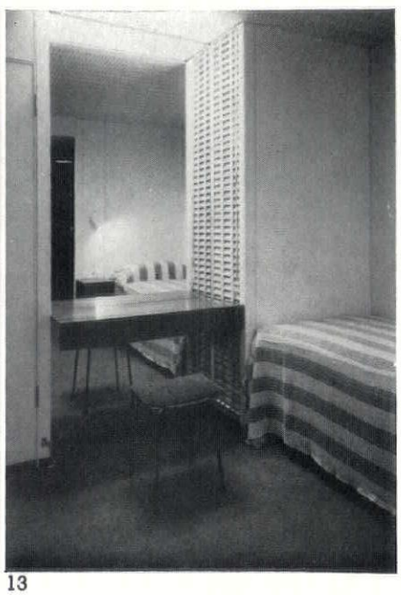
10, the first-class dining-room. Changes of ceiling and floor level and banquette seating break up the great area of the room, which extends the full 100 ft. width of the ship. Materials are mainly natural wood and leather. 11, the first-class lounge, designed as one space with ancillary areas such as the bar, writing-room, library and staircase separated off by curved walls that stop visually short of the ceiling. These walls are of dark woods. The lounge chairs—a contrast with the traditional club-type chairs—have upholstered plastic shells with brightly coloured removable covers.



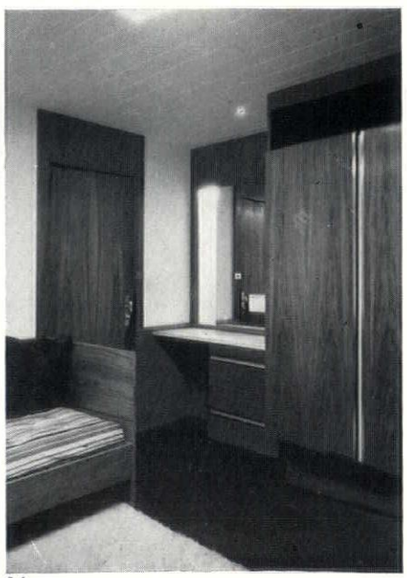
11



12



13



14

The Canberra's cabins are by Barbara Oakley. On the left are three prototype cabins (associate designer Timothy Rendle), photographed inside the full-size samples that were built up for experimental purposes: 12, showing standard duct panel and perforated acoustic ceiling which also serves as a ventilating grille; 13, showing standard bay with writing/dressing table; 14, showing drawer and wardrobe detailing. These cabins should be contrasted with those in recent Cunarders, facing page.

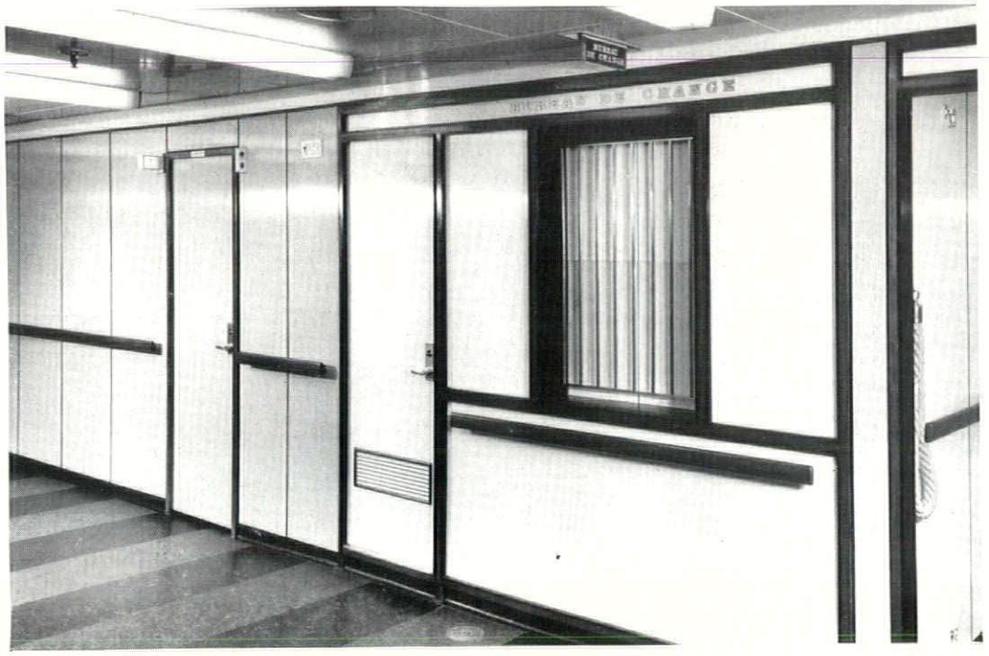
FORWARD: BRITISH RAILWAYS 'MAID OF KENT'

Though on a far smaller scale than the liners just illustrated, this ship of 4,400 tons, which entered the car-ferry service between Dover and Boulogne in May, 1959, yet marks a significant stage in the slow improvement of British ship design. For the first time in a vessel of this type, the interior was put in the hands of forward-looking architects, Ward and Austin, who have set throughout the ship an appropriately workmanlike but graceful style. The same architects have designed the interior of a second ship for British Railways (Southern Region) which is now under construction.

15, self-service tea-lounge in the Maid of Kent. The furniture is ebonized timber with yellow leather upholstery. 16, below-decks lobby and money-changing office, unobtrusively but gracefully detailed in plastic-faced panelling with a slightly ribbed surface, framed in mahogany.



15



16

FORWARD: BALLROOMS IN THE 'ORSOVA' AND 'ORONSAY'

The earlier Orient liners, the Orsova and the Oronsay, have recently had ballrooms added, utilizing a covered deck space, open at the sides, which was used as a dance square. The room is designed for use also as a cinema. The interiors, by George, Trew and Dunn, are another illustration of the contribution the modern architect can make to the improvement of ship design—contrast this completed interior with that of, say, the Carinthia, page 363.

17, ballroom on the Orsova. Seating is planned so that either a small square can be left for dancing or the whole area cleared except for the carpeted sitting-out areas at the sides. The lighting can correspondingly be concentrated on one area or be of general intensity. A problem with this kind of addition to an existing ship is the short time available for the work; in this case the contractor had only eight weeks for the whole operation.



17

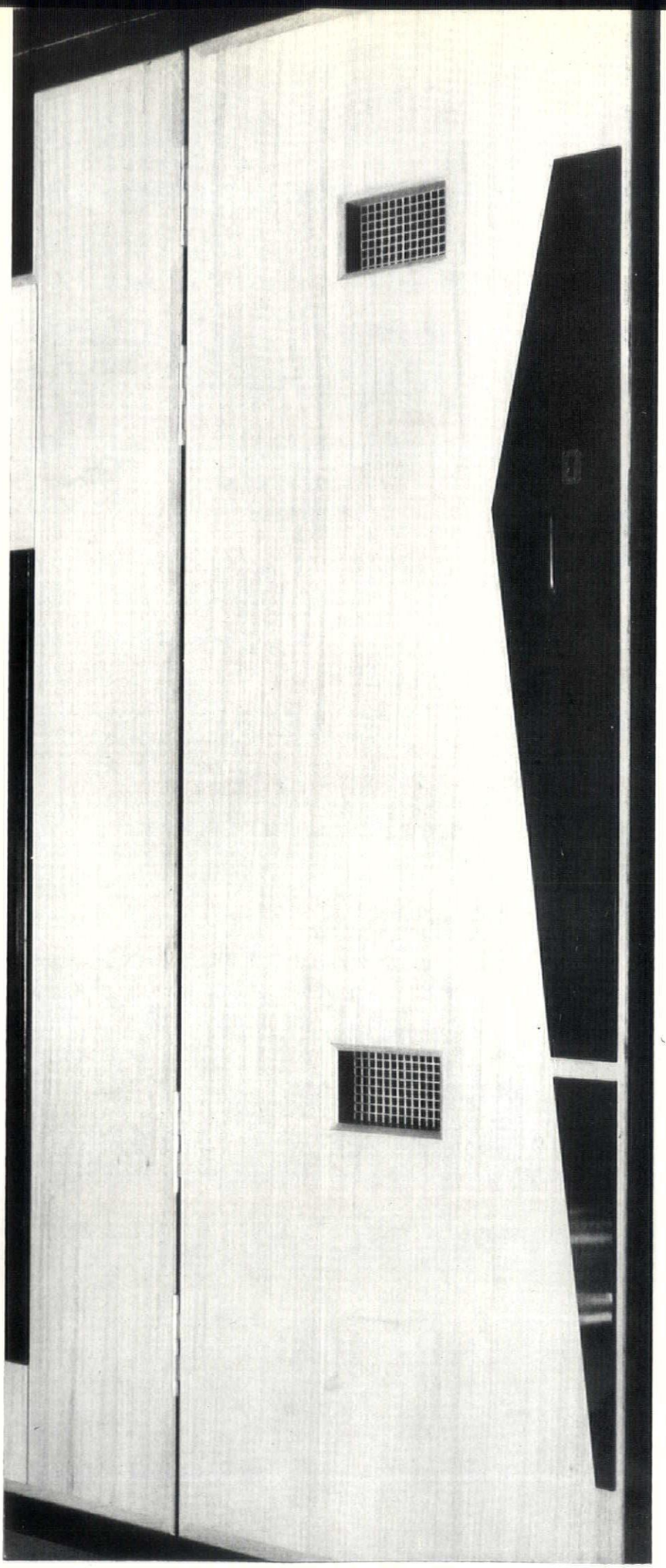
18





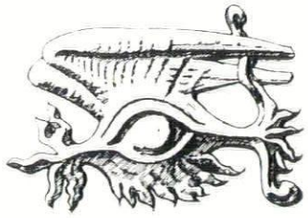
19

18, detail of the central light fitting, composed of identical units of moulded fibre-glass, in the Orsova ballroom—see facing page. 19, a column fitted with crash-barrier and bell-bush. The surface of the column is painted black with the inside of the slot red. 20, detail of the polished cedar wall-panelling in the Oronsay ballroom, which includes locker-doors with black plastic finger-plates. 19 and 20 are first-rate examples of the functional tradition used as a basis for ship decoration where it is highly appropriate.



20

the exploring eye



Mr. Ara Güler, the Turkish photographer, while touring in northern Turkey, came across the ruins of an almost forgotten monastery, with buildings, rich in frescoes, dating mostly from the thirteenth, fourteenth and fifteenth centuries. Mr. George Zacos has identified it as the Monastery of Sumela, said to have been founded in the fourth century, and Mr. Güler's photographs, the first ever published of the monastery, are here accompanied by Mr. Zacos's account of its history, of the treasures it contained and of frescoes that still survive in a partly ruined state.

THE FORGOTTEN MONASTERY OF SUMELA

The Monastery of Sumela, also called 'Büyük Meryem Ana Manastiri', is located twelve miles south-east of Trebizond Macka in the valley of Altindere, on the side of Mount Mela, a steep mountain about 1,000 feet above a rushing stream. The narrow terrace where the monastery is built has been hewn out of the rock and the church occupies the innermost recess of the cavern.

The monastery was dedicated to the Panagia and is said to have been founded in the fourth century by Varnavas (Barnabas) and his nephew Sofronios, natives of Athens. Legend has it that they had a vision of the Panagia who instructed them to become monks and found a monastery on Mount Mela and place there the icon of the Panagia, painted by Saint Luke, which was in Athens. The two monks arrived by sea in Trebizond and went to Mount Mela where they built a small sanctuary in the rock. The monastery proper was erected in the fourth century and soon gained fame. In 1340 Alexios III Comnenos of Trebizond selected it for his coronation. In 1366 he endowed and rebuilt the monastery.

Before the war there was a large library containing eighty-four manuscripts, a number of fine icons and other treasures. The most famous of these were the Golden Bulla of Alexios III, written in

1, interior of the church showing the east end of the north wall. The frescoes show apostles and saints in cloudlike frames supported by angels. Below them is the burning bush with the Panagia and Moses. 2, another fragment of the frescoes. At the top are medallions portraying the prophets, at the bottom scenes from the life of Christ: from left to right, the Adoration of the Magi; the Flight into Egypt; the Purification. 3, the eastern external wall of the church showing the remains of frescoes. The barely decipherable subjects include the Creation, the Expulsion of Adam and Eve from the gates of Paradise, the Resurrection, the Incredulity of St. Thomas, the Pentecost, the Transfiguration and the first Council of Nicea.

1



2



3

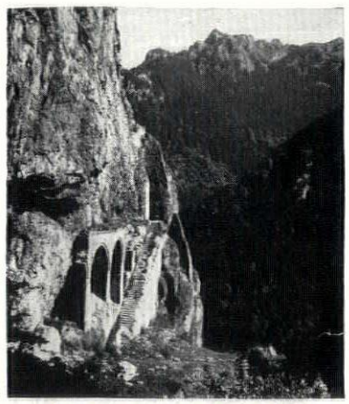


1340, a chased silver casket containing relics of Saint Barnabas, a manuscript of Saint Christophoros, a fragment of the Holy Cross given by Manuel II, a pair of candlesticks presented by Yavuz Sultan Selim I, a firman presented by Fatih Sultan Mehmed II, and the miraculous icon painted by Saint Luke.

At the time of the exchange of populations, the monks of the monastery hid three of these relics in a small chapel of Saint Barbara just over a mile from the monastery: the icon of the Panagia, the fragment of the Holy Cross and the Gospel of Saint Christophoros. In 1930, the Turkish Government permitted a monk of the monastery to come back to Sumela and take away the relics. They were in good condition except for the Gospel, some of whose pages had been destroyed by moisture, and are now in the Byzantine Museum in Athens.

In past centuries the monastery was greatly venerated both by Christians and Moslems, and pilgrims came there from all over Anatolia and the Black Sea coast. The pilgrims who came seeking a cure were placed on the 'Phiale' or water fountain to the west of the main court. This was open at the top to catch a perpetual drip from the rock which overhangs about 100 ft. The 'Phiale' is still in use today and many pilgrims come to it.

The buildings of the monastery are laid out along one side of a narrow rectangle, the back of which is formed by the mountain. The only entrance is at the south end of the rectangle at the top of a long narrow platform reached by a stair on its eastern side which dates from 1860. The steps continue along the east side of the main court, on the west of which is the rock-cut



4

4, the long staircase up the face of the mountain. 5, the monastery seen from across the steep mountain valley.

church. To the north-east are living rooms which constitute the oldest part of the monastery. Among these is a small chapel containing the remains of frescoes of the fourteenth and fifteenth centuries. Most of the frescoes, however, belong to the year 1740, but are, as usual, copies of earlier models. They are derived from such middle period (i.e. 9th to 12th century) frescoes as those of the rock-cut churches of Cappodocia.

BIBLIOGRAPHY:

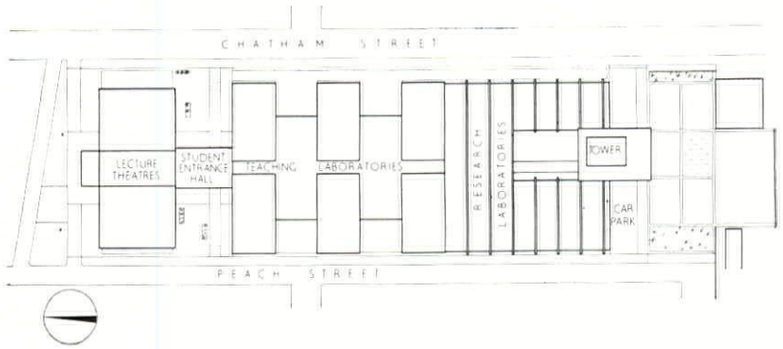
Archeion Pontou—Vol. IV and V Athens 1933.

Byzantion — Revue Internationale des Etudes Byzantines. Bruxelles, Vol. V 1930 P. p.72 seq. 'Religious Buildings at Trebizond' by D. Talbot Rice.

Constable and Talbot Rice—*Byzantine Paintings at Trebizond*, London 1936.

Miller W.—*Trebizond: The Last Greek Empire*—London 1926.

5



site plan

1, *aerial view of the physics building from the north-west.*
2, *the east side of the lecture theatre block, with the students' entrance hall on the left.*
3, *the main lecture theatre, which is completely artificially lit and ventilated.*
4 (*opposite page*), *view from the north-east, with the single-storey research laboratories in the foreground and the nine-storey tower-block behind.*

PHYSICS BUILDING, LIVERPOOL UNIVERSITY

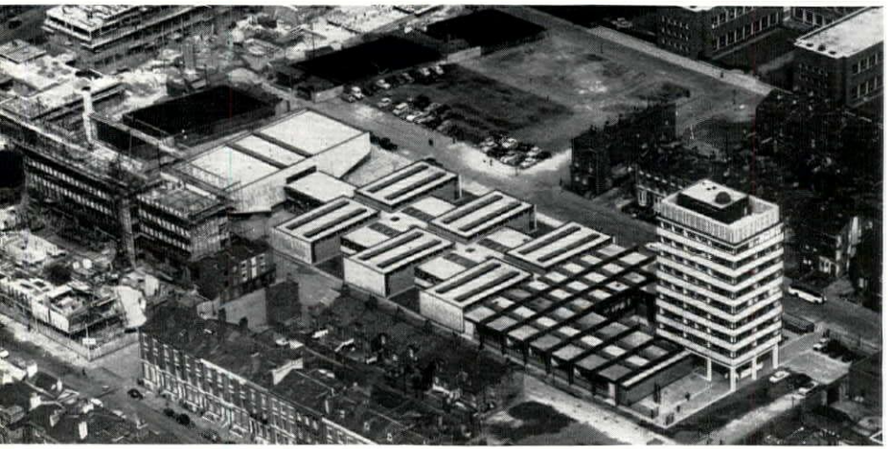
ARCHITECTS: BASIL SPENCE AND PARTNERS

Known as the Chadwick Laboratory, the building consists of a lecture-theatre block, a series of one-storey teaching and research laboratories and a nine-storey tower block containing further laboratories, libraries and administrative and other accommodation. The low building height over most of the site was determined by the nature of the ground.

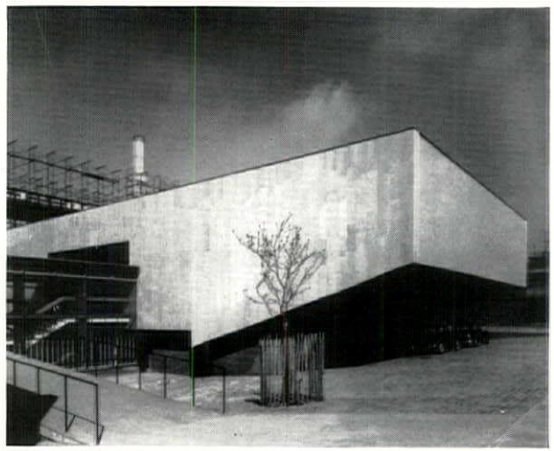
The lecture-theatres, artificially lit and ventilated, occupy two cantilevered wings, the largest theatre (seating 300) being balanced by the two smaller (seating 100 and 80), with preparatory and store-rooms between them. They have a reinforced concrete frame and pre-stressed panel walls faced with Derbydene stone. The main students' entrance is in a glazed link between the theatres and the remainder of the building.

The six main teaching laboratories, arranged in pairs with small laboratories between, on either side of a central corridor, have load-bearing brick walls faced at the ends with Derbydene stone and steel roofs. Between them and the tower are the single-storey research laboratories with brick walls and with roofs suspended from exposed reinforced concrete frames. The tower block, which is linked to the laboratories on the ground floor only by an open-sided glass-roofed corridor, has its reinforced concrete frame recessed inside a thin curtain wall. Spandrels are of precast concrete faced with blue-grey mosaic.

The building forms part of a district heating scheme supplied by a boiler-house on an adjoining site.



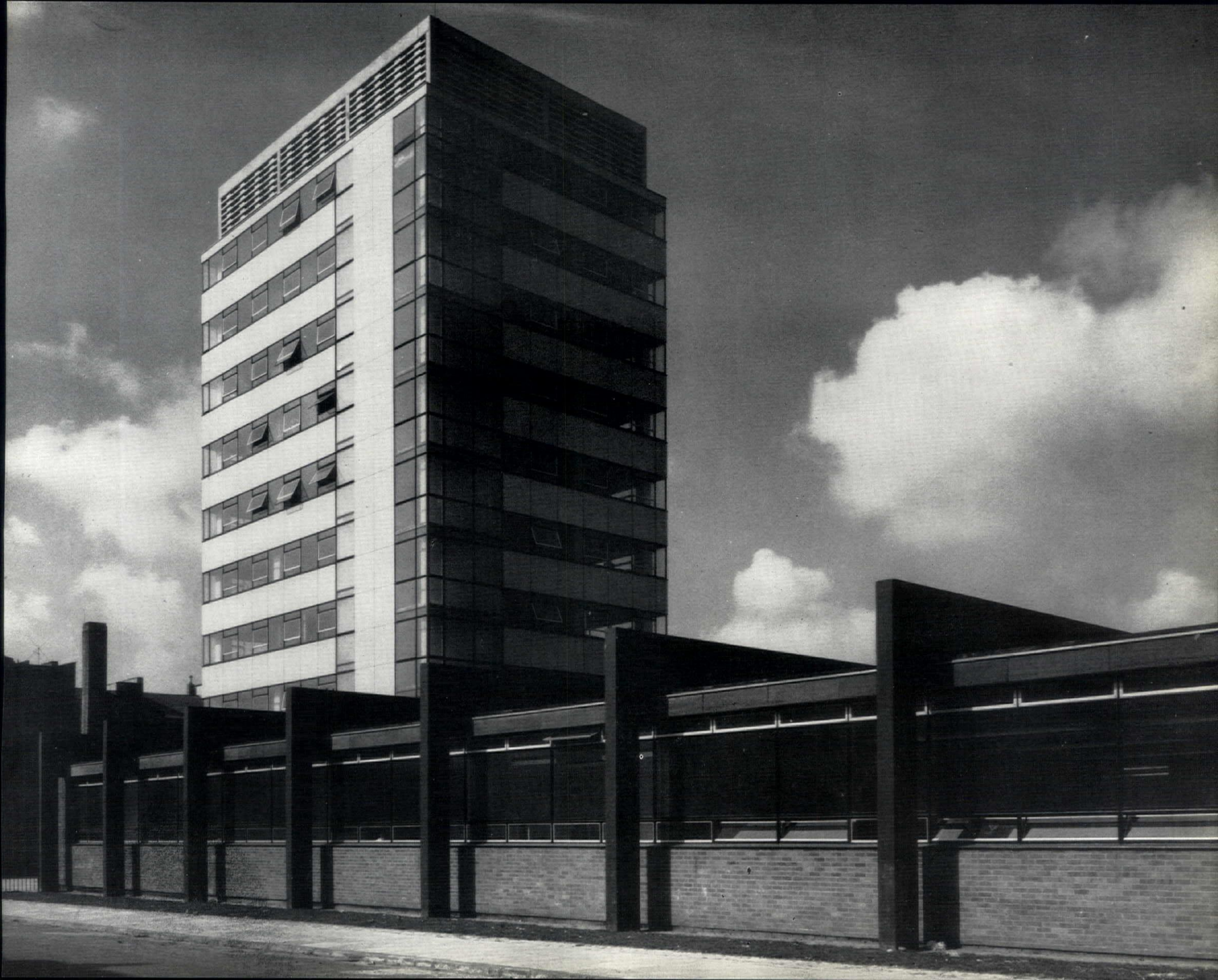
1

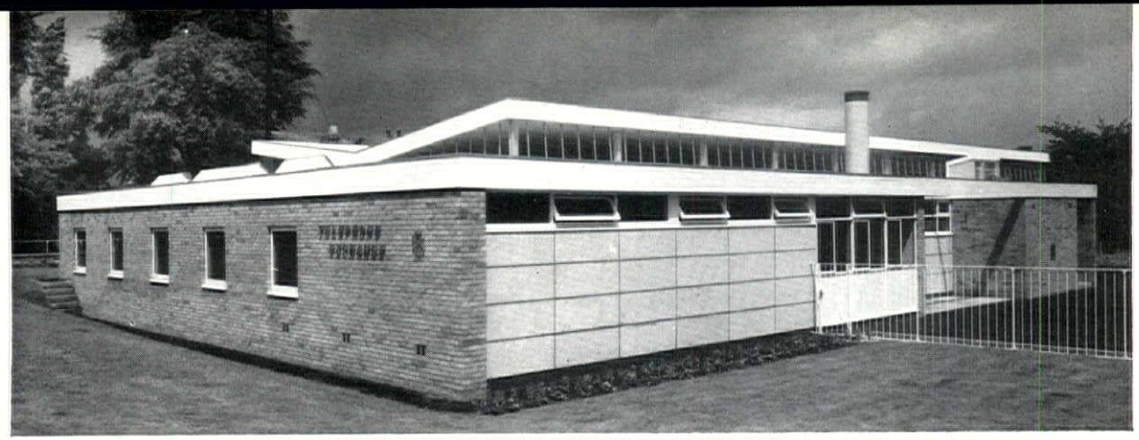


2

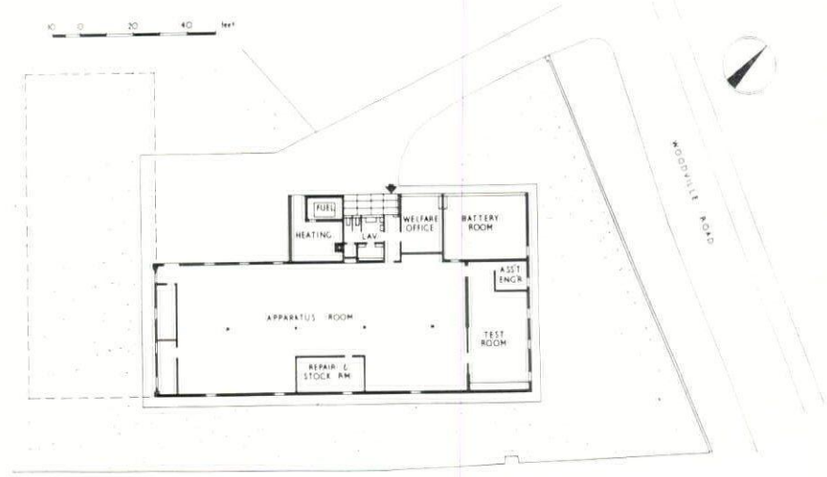


3





5, *the telephone exchange from the north.*



ground floor plan

TELEPHONE EXCHANGE, ALTRINCHAM, CHESHIRE

ARCHITECT: MINISTRY OF WORKS

A 10,000-line automatic exchange, which accommodates the equipment in about 60 per cent of the area previously needed and at less than half the cost. It is the work of a joint Post Office/Ministry of Works research and development group set up in 1957 under J. O. Stevens, one of the Ministry's superintending architects. Innovations are made in layout and in the use of new techniques of telecommunications engineering.

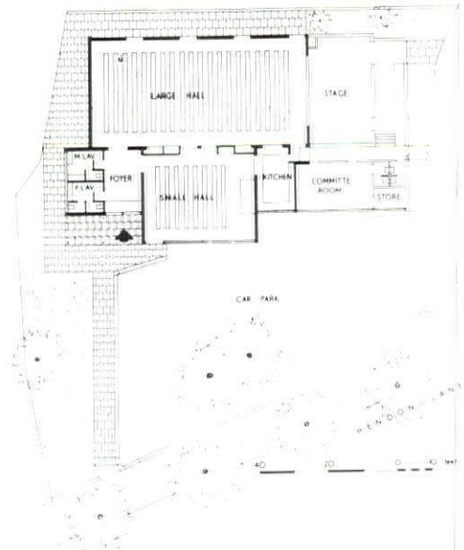
The main equipment area has high-level lighting round all sides of a butterfly roof supported on a central row of columns. Construction is reinforced concrete, the ancillary wing having brick end walls and concrete infill panels.

PARISH HALL, FINCHLEY, LONDON

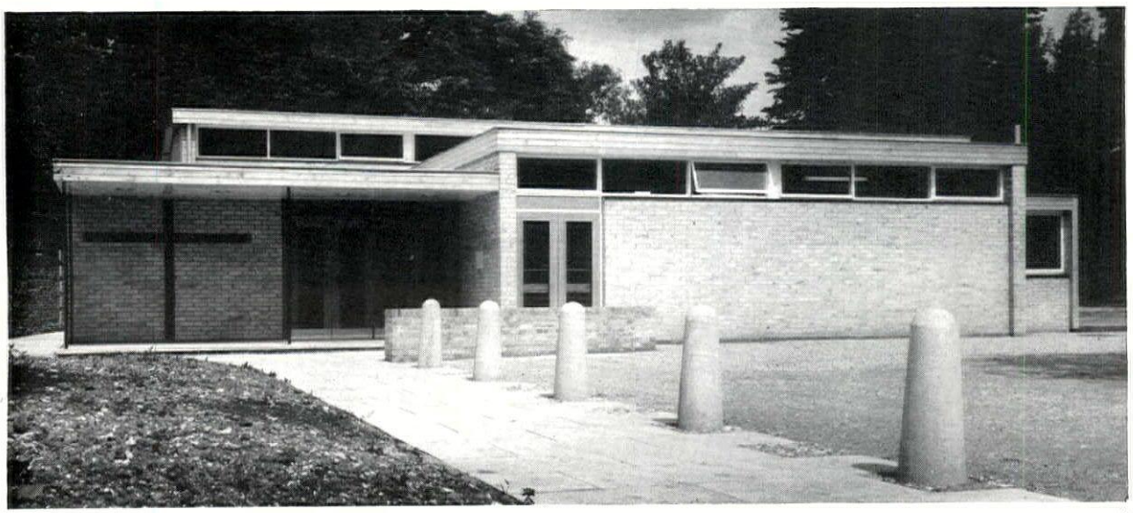
ARCHITECT: KENNETH WOOD

This consists of a main hall seating 300 people and a small hall seating under 100, which share a kitchen and service. The main hall is designed to be suitable also for badminton. A second phase (shown in outline only on the plan) will provide a stage to the main hall, with back-stage access and storage, and committee rooms designed to be used also as dressing-rooms. Although the small hall is planned to serve on occasion as an ante-room to the large, it is partly insulated from it by full-height storage fitments which also contain fire-fighting equipment.

The structural frame consists of laminated hardwood columns with stressed skin box-beams supporting a timber roof covered with aluminium. Walls are cavity brickwork on load-bearing concrete blocks. Fascias are boarded in cedar.



ground floor plan



6, *entrance to the parish hall from the south.* 7, *the large hall.*





FOR FIRM FOOTING AND COMFORT

You can't put a foot wrong with

LINOLEUM

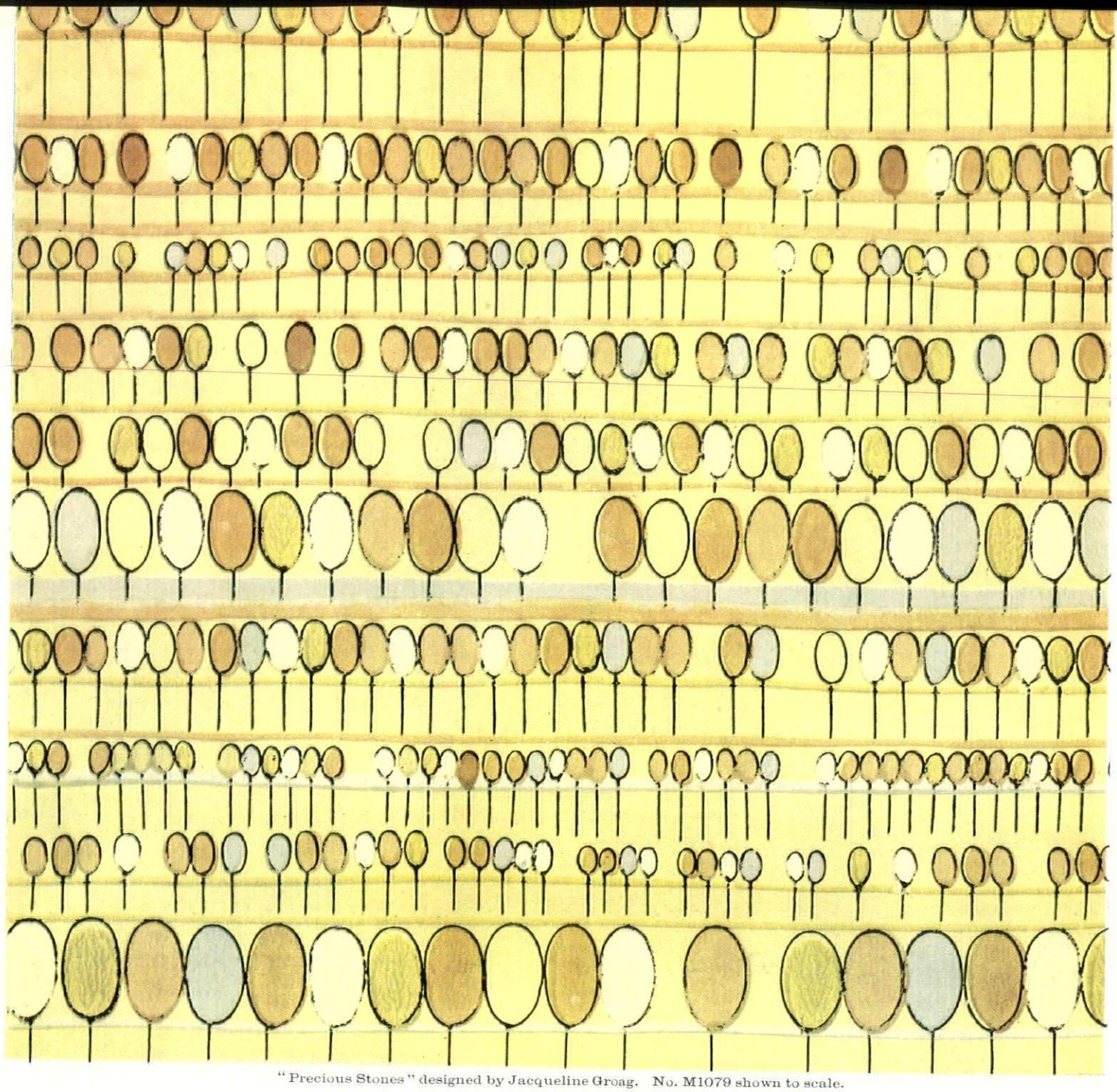
Safety is nowadays a prime consideration in the design of all buildings, from the small bungalow to the most splendiferous hotel.

So a linoleum floor covering, correctly maintained, with its sure grip under foot, is the obvious choice. An agreeable choice too, for modern linoleum offers a wealth of colours, patterns and effects, to set off any chosen decorative scheme.

Linoleum does much to brighten life in the home—and its long life brightens the appearance of the household budget! Always plan your flooring with linoleum in mind.

THELMA

"THELMA" stands for THE LINOLEUM MANUFACTURERS' ASSOCIATION, 127 VICTORIA STREET, LONDON, S.W.1.
For further information write to the Association or to any of the following members: **BARRY OSTLERE & SHEPHERD LTD.**, Kirkcaldy · **DUNDEE LINOLEUM CO. LTD.**, Dundee · **LINOLEUM MANUFACTURING CO. LTD.**, 6 Old Bailey, London, E.C.4 · **MICHAEL NAIRN & CO. LTD.**, Kirkcaldy · **NORTH BRITISH LINOLEUM CO. LTD.** Dundee **SCOTTISH CO-OPERATIVE WHOLESALE SOCIETY LTD.**, Falkland, Fife · **JAS. WILLIAMSON & SON LTD.**, Lancaster



"Precious Stones" designed by Jacqueline Groag. No. M1079 shown to scale.

A new collection of machine printed wallpapers has just been compiled by the London Office of
The Wall Paper Manufacturers Limited 19/21 Mortimer Street, W.1.
and is now available through wallpaper suppliers. Many prominent designers are associated with this collection
among them Lucienne Day, Jacqueline Groag, Terence Conran, Joyce Storey and William Gear.
Modus wallpapers, because machine printed, are moderate in price,
and in order to increase their usefulness to Architects and Interior Designers
all these papers have been treated with a special protective coating.

YOU ARE INVITED TO VISIT THE EXHIBITION OF THESE WALLPAPERS AT MORTIMER STREET (FIRST FLOOR).

WPM

MODUS

19/21 MORTIMER STREET LONDON W1

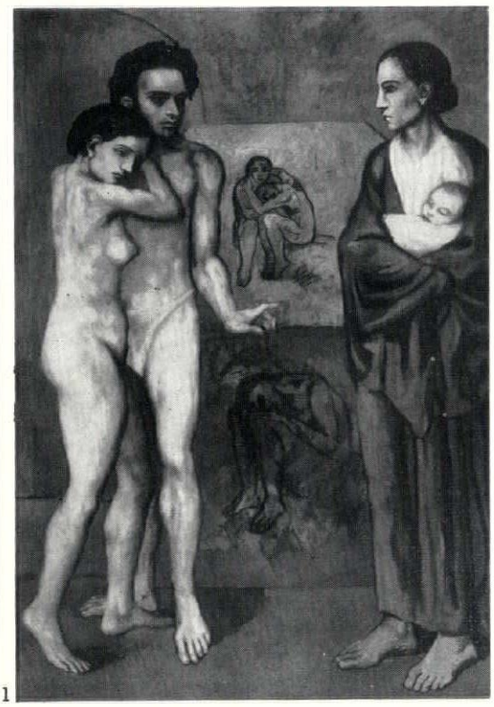
EXHIBITIONS

AFTERTHOUGHTS ON THE PICASSO EXHIBITION

The critics who went to the press view of the Picasso exhibition at the Tate Gallery and had to write their notices the same day, or before the week-end, were still intoxicated, and their enthusiasm was more faithful to what Lawrence Gowing called the infectious life of the paintings than the speculations of those who had time to wonder whether Matisse was a greater artist or Braque a better cubist.

At the back of Roland Penrose's biography of Picasso, published in 1958, there is a forecast of the choice of paintings which he made for the Art Council. Some of the works in those twenty-four pages of miniature illustrations were not available —the portrait of Gertrude Stein, for instance, and the first of his paintings of massive nudes, done in 1906—and others were not in the right medium, but as far as possible, Penrose followed that already thoroughly-planned survey. Every phase of Picasso's work as a painter was represented, and at the same time it expressed Penrose's particular kind of 'engagement' to Picasso's art. By speeding up the changes that occurred in the first forty years of his art and by devoting relatively more space to the work done after 1936, when the innovations begin to be eccentrically violent and the act of painting a kind of incontinence, he turned the exhibition into a vindication of his belief that Picasso is an artist in a state of perpetual rejuvenation. In view of the fact that the effect produced was one of superhuman vitality, it would seem to be a valid enough thesis; but by the time one was halfway through the exhibition one began to lose the sense of being in the presence of great paintings and to feel instead that one was witnessing an Amazing Natural Phenomenon, a sort of geyser, constantly throwing up jets of boiling paint.

The exhibition renewed, of course, the old and never very rewarding discussion of the relative importance of the parts played by Braque and Picasso in the evolution of Analytical Cubism, but it's difficult not to take sides, although one's reasons for doing so are probably a matter of temperament. The disorderly appearance of the room at the Tate devoted to Picasso's cubism was strikingly in contrast to those two long rows of grey, sombre, faceless paintings which comprised the cubist section of Braque's show. Braque was more consistent and aesthetic, Picasso more inventive and lively. Another important difference is that Picasso took a much more varied and complex experience of pictorial problems into the Cubist adventure than Braque



1

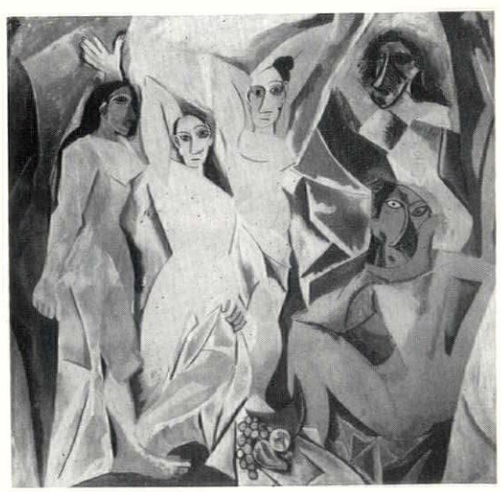
did. He had, for instance, made heroic efforts to resolve the problem of organizing figures in depth, without ever quite succeeding. There is a distinct uneasiness about the disposition of the figures even in the splendid 'Family of Saltimbanques' which inspired one of Rilke's Duino elegies. The woman in the foreground seems to have been pushed over to the extreme right in order to intercept the glances of two of the other figures—incidentally turning the composition into one of the most poetic 'problem' pictures in the world. In most of the early compositions, he instinctively arranged the figures against closed backgrounds, and stood them in more or less the same plane, as in the famous 'La Vie' of 1903, 1; *single* figures simply emerged from a tonal paint texture.

He was able to turn his back on the problems of deep space with a good conscience when the painters of his generation began to investigate and conceptualize Cézanne's attempts to bring all the elements of a landscape close to the picture surface. The grandeur of Cézanne's obsession gave the notion of shallow space the status of an ethical imperative. The shallower the space, the more ethical the painter, and the most ethical of all are the young men of today who claim that their large rectangles of flat colour send space sideways.

Picasso brought his figures on to a narrow ledge just behind the picture surface, but under the lash of a kind of aesthetic sanctimoniousness the ledge had to go on getting narrower, and finally this squeezing out of space came into conflict with his predilection for large, simple volumes.

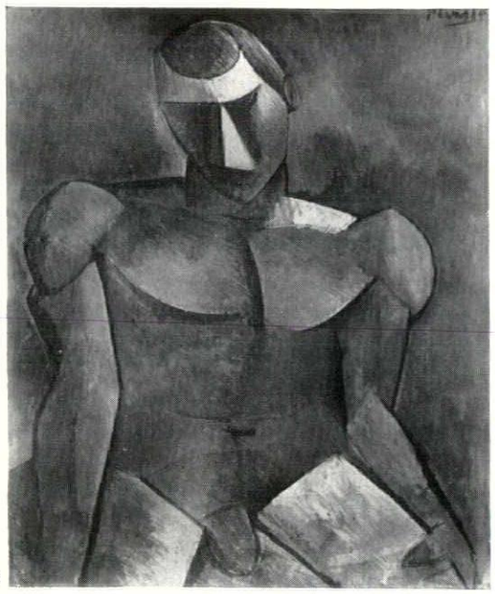
In the study of two massively contoured nudes which he painted before embarking on the 'Demoiselles d'Avignon,' Picasso aligned himself with Berenson's Florentines: these nudes are powerful carriers of those 'tactile values' which Berenson declared to be 'life-enhancing,' and although I don't know why they should be, I derive so much pleasure from the illusion of physical tangibility that I agree with him. There's no doubt at all that Picasso has, or had, a very strong compulsion to emphasize volume. Many of his greatest works arise from, and dramatize the conflict between, volume and shallow space, and his most daring flights of inventiveness have been provoked by the need to find potent substitutes for volume.

In the 'Demoiselles,' 2, he has flattened all the girls, but draws upon negro carving for an alternative way of making the two most notorious figures in twentieth-century art 'stand out,' for they are given tribal marks or scratches in various places where a modelling shadow would isolate volumes. But he became so interested in



2

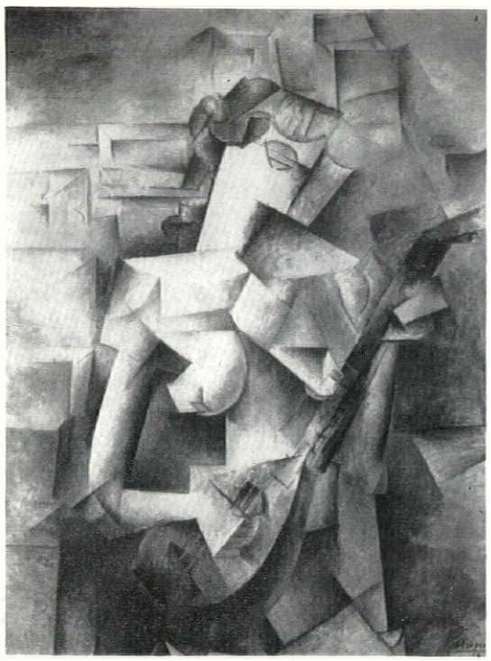
the large, simplified planes of negro carving that he let space look after itself in the works that followed. The 'Male Nude' of 1908, 3, with its emphatic angular planes and feeling for solidity, is a superb example of the work of this 'negro' period. But its sharp planes led into 'facet' cubism, where he con-



3

sidered, more systematically than in the 'Demoiselles,' ways and means of finding an effective substitute for volume in figures flattened to fit into shallow space.

Reyner Banham describes a notable example of Picasso's use of facets in an article on the exhibition called 'Portrait of the Artist as a Retired Spaceman.'* After pointing out that Cézanne half solved the problem of rendering his sense of the reality of the Montagne Saint-Victoire as a flat pattern on a picture



4

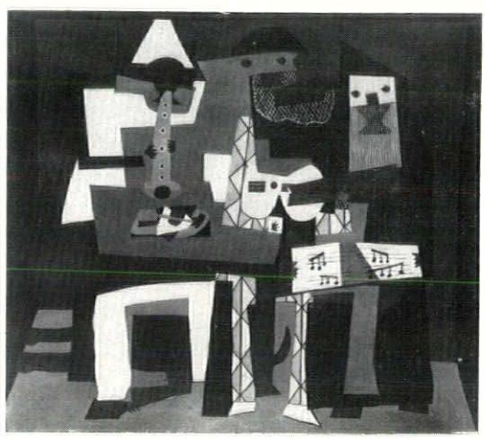
surface 'by dropping skies as solid as plastered walls on top of mountains whose verticality had been exaggerated by suppressing their foothills,' but that he could go no further because his 'fetish-mountain' was too real to him to be subjected to any more manipulation. Banham goes on to suggest that Picasso had no such regard for the reality of his subjects, and cites his treatment of 'Girl with a Mandoline,' 4. 'Here,' he says, 'desperate surgery has been done to breast and face. (This really is the "Trunk murderer aesthetic" at its most literal) and the Mandoline has had its neck broken a couple or three times to keep it within bounds. Along the way, Picasso in one small passage, beats Cézanne and the Quattrocento Florentines at their own game and, in the upper right arm, makes a statement about volume in space that is a feat of overpowering virtuosity. You could put your hand round this arm, so decisive is its form and so certain the amount of space behind it.'

I apologize for quoting at such length, but Banham's description is brilliantly accurate, and even his reference to the trunk murders is appropriate enough to the view that Picasso did not feel much responsibility towards the real presence of the subject. Yet Picasso has so strong an attachment to the female of the species that she can be called his 'fetish-mountain.' She has always prevented him from becoming non-figurative, and the influence she exerts over him may well account for his desire to confuse the sign with the thing signified. It is true that he is the most radical manipulator of her appearance, but his manipulations are inextricably involved in his self-imposed task of glorifying the desirability of her various attributes.

The 'Girl with a Mandoline' is a transition picture, situated midway between the 'facet' and the 'hermetic' phases of Analytical Cubism. The faceting of the portraits of Fernande which preceded it is one of his most potent substitutes for the fully modelled head. Instead of giving one the sense of being able to go round her, he cuts steps in her likeness and presents her as a scaleable rock face. This attribute of climbability is even more evident in 'Girl with a Mandoline.' Like the 'Demoiselles' it dramatizes a conflict between mutually exclusive pictorial devices, for in both works one such device is so to speak caught in the act of taking over from another. In the 'Demoiselles' one feels that the three figures on the left will in due course be infected with the rash of stripes on the figures opposite. In 'Girl with a Mandoline' one sees that the breast, still soft and vulnerable, is nevertheless already involved in the process of hardening and angularizing that has turned the shoulder into a shelf on which the mountaineering eye can rest and, if need be, pitch its tent. The figure is becoming part of a wall, and only the right arm, as Reyner Banham points out, remains a volume totally isolated in space. Space has solidified and become a precipitous rock-face furnished with handholds, and the figure, on the way to being completely identified with it, spreads out to compensate for losses of volume.

Picasso persistently makes a virtue of such anachronisms, and the process of transformation at work in 'Girl with a Mandoline' leads in the long run to the heads like 'Crying Woman,' painted twenty-seven years later, in which a profile has been widened to contain all the features of the face, and bring the back to the front.

The pictures in which the thirst for volume cuts across the shallow space-concept are among his most magical works, even when they verge on the farcical. For instance, the painting in the exhibition which is sometimes known as 'The Woman with the Golden Breasts' is a fantastic, collage-like work which crazily combines flat angular shapes for the head and parts of the body with dangling breasts like segments of whipping



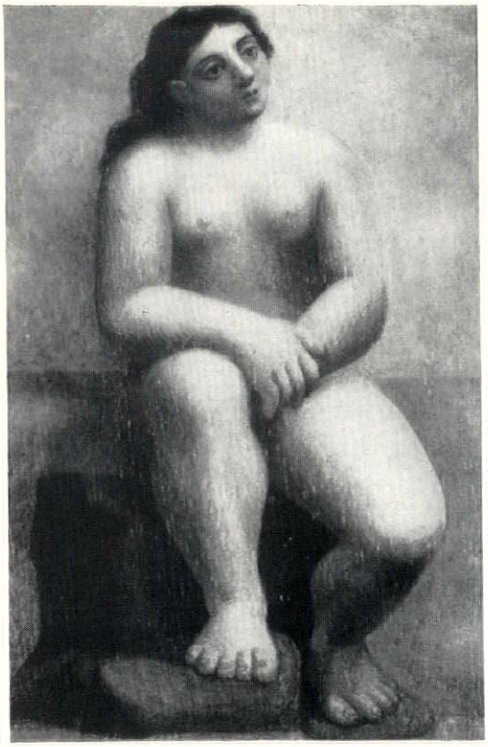
5

tops and trompe l'oeil effects of rumpled underclothes; and the whole contraption sits in a realistic-looking armchair; but Roland Penrose rightly describes the result as 'a new and disquieting relationship between abstraction and sensuality.'

It was noticeable that some examples of the flat-pattern figures which began to appear a couple of years later, in 1915, and were quite free from anachronisms, produced the dullest patch in the exhibition. It was not until Picasso closed off this aspect of his work with the 'Three Musicians,' 5, that the magic reappeared. In this picture, the elaborate montages of flat shapes like coloured paper cut-outs cast long black shadows, and suddenly and delightfully make a joke of flat space.

During the period from 1917 to 1924, Picasso made many majestic studies of the rotundities of women that took no account whatsoever of contemporary notions about the rights and wrongs of pictorial space. He gave free rein to his delight in the illusion of volume, and created images of ten foot tall goddesses which take to themselves Adrian Stokes's fine description of Ingres' conception of form: '. . . a great draughtsman's conception,

Art News and Review, August 27, 1960.



6

something far clearer than life, an idol expelled from the mind. . . .' The description fits 'Seated Nude on a Rock,' 6, like a glove, although the canvas only measures $5\frac{7}{8}$ in. by $3\frac{7}{8}$ in. She is a giantess for the pocket. The 'Still Life on a Chest



7

of Drawers,' 7, which belongs to the same period and discloses a similarly explicit modelling, was one of the most beautiful still lifes in the show. The forms give the impression of having been handled and kneaded by the painter, and have the immensely satisfying look of being the property of his warm and solid goddesses.

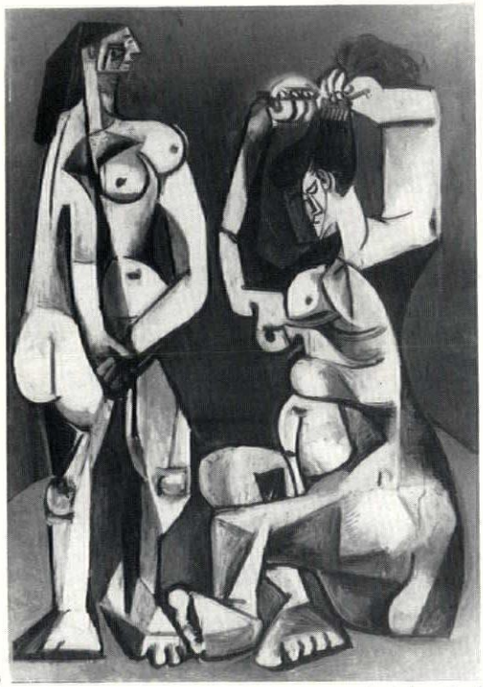
It's probably true that I myself have something of an obsession with paintings devoted to the illusion of expansive volumes, for I am delighted by Picasso's most outrageous and comical inflations of the female body, as in 'Bather playing with a Ball,' 8, where the girl takes on the appearance of those large rubber animals which holiday-makers play with in the sea.

But I am sure I am far from being alone in thinking that one of the wonders of the exhibition was a recent painting



8

which was a kind of grand summation of those aspects of Picasso's art that I have been extolling. It is a picture of two



9

nudes painted in 1956, 9, and islanded between the series of 'Studios,' in which he paid homage to Matisse, and the fifty-eight canvases connected with his curious attempt to take over Velasquez' 'Las Meninas.' These two nudes have been splayed out to make room for the buttocks fetched round from the back. At the same time, they have the sharp planes of the Negro period, and are as emphatically modelled as the neo-classical goddesses. They have been placed in a space box just large enough to suggest that one can squeeze past and look at them from the back wall, but since everything has been brought round to the front there would be nothing to see if one did so. Picasso is one of the greatest illusionist painters of all time. I hope he is not the last of them.

Robert Melville

PLANTS

FEATHERY PLANTS

There are many more herbaceous plants with interesting leaf form and with glossy, spiky or velvet textures than there are plants with a light feathery quality, a pluminess which makes such a valuable contrast to heavier foliage, solid paving or structure. Some of these plants have been too often confined to kitchen gardens in the past. They need recapturing for modern planting. For the third article in this series describing plants that are useful to the architect in embellishing his buildings, I have therefore chosen fennel which, even the common kind, when properly established makes a group of filmy fronds that looks marvellously insubstantial against the light, or when lit up at night on the margin of a terrace.

Fennels require good garden soil; the fresh fronds appear very early (February, sometimes January), and for best foliage persistence the flower stalks which bear yellow umbelliferous flowers in July and August should be cut out, as soon as they appear. The plant in flower, nevertheless, has a fine effect. Fennel is extremely hardy, standing up to the severest cold. The varieties in cultivation besides the common herb, 1, (shown here in the first year of planting) are *Ferula gigantea* (6-8 ft. high, 4 ft. spread when established) from Asia Minor, now rare (Maurice Prichard & Sons can supply), and *Foeniculum vulgare* '*Black form*,' which has rust dark fronds, very metallic.

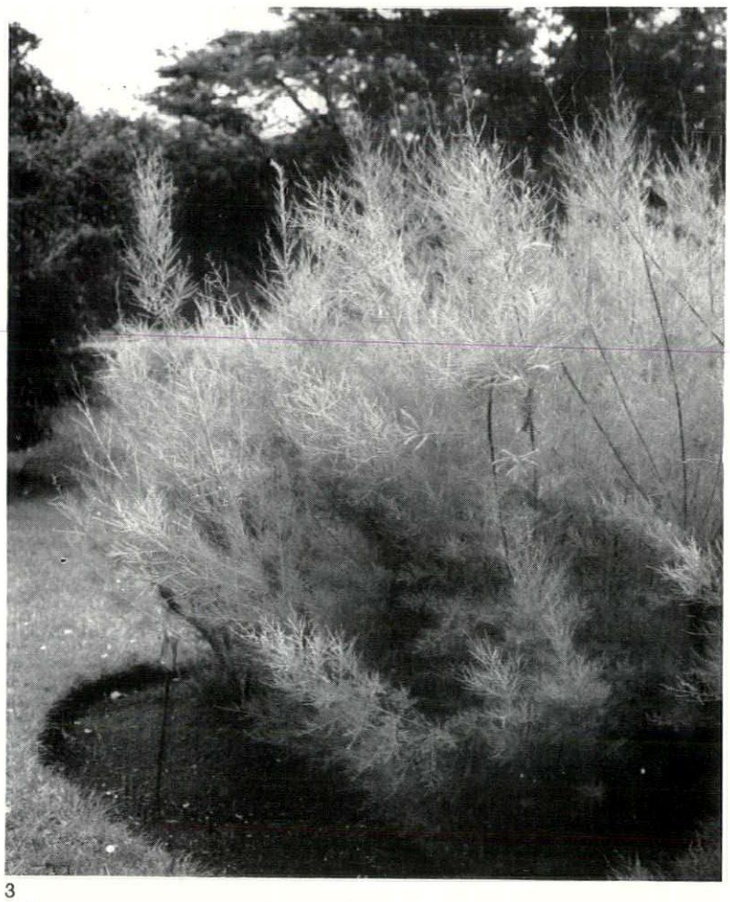
Asparagus is another kitchen garden plant which has an elegant feathery appearance and attractive green bullet-like seeds, attaining to 2-3 ft. Normally the foliage is only seen when an asparagus bed has run to seed. But in some French



1



2



3

gardens it is used, two or three roots at a time, among garden plants. Asparagus could be used in conjunction with plants like hostas and lilies to whose family it belongs. It requires the same light well-drained soil and is encouraged by organic manuring in autumn. But it will grow in almost all soils except chalk. Dig in some peat, rotted leaf mould and sand when planting these rhizomes. Feed with bone-meal and potash. Varieties: 'Martha Washington,' 'Argenteuil,' 'Connover's Colossal.'

A Chinese plant which produces plumy panicles of flowers and at the same time has a beautifully cut and rare leaf form is *Bocconia cordata*, 2, the Plume Poppy, now called *Macleaya*. This almost comes into my category of weeds as it is a tremendous root runner, and needs space. Confined in paving or allowed to flourish in the neighbourhood of dark-leaved glossy plants like Acanthus or *Crambe cordifolia* one can appreciate more the strangeness of its grey-green fine-cut leaves (pale copper on the underside), which look as if someone has been at them with a pastry cutter. Or one could use the plant as a summer screen of 5-foot foliage along a narrow border path. *Macleaya* (Bocconia) Kelway's Coral plume has coral pink flowers.

A sowing of annual opium poppies (*Papaver somniferum*) close to these plants produces a charming effect, automatically repeated by self-seeding. The interest of such a group would be heightened by planting hardy perennial Oriental poppies whose pale green furry foliage, sharply cut, would set off the greys of the taller plants and produce an added brilliance in early summer. They have flaming papery flowers with purple-black stamen-studded centres.

The idea of associating plants of a single family was often put forward by Gertrude Jekyll, and is commonsense from the point of view of cultivation. The interesting possibilities can best be studied in the Order Garden at Kew, now made hideous by a monstrous pergola. There the least botanical-minded person can inspect specie plants of a single family growing in the same bed.

The feathery plant par excellence is the tamarisk, which I must mention although it is a shrub. It has no equal. It is of maximum value in sandy seaside gardens where little besides grasses can be made to grow. In exposed positions it provides, planted in groups, an effective windbreak. The Caucasian tamarisk *T. tetranda* has pinkish white flower plumes. There is a group at Kew, 3. In a suitably exposed position it flourishes regardless of the distance from the sea. Plant fairly close, at 3-foot centres.

Artemesias and Santolinas have a feathery quality, but I shall discuss them with a group of grey and silver leaved plants. The pampas grass 'waving the burial plumes of summer' deserves a mention. It needs a much richer soil and preparation than it normally gets, a mild climate, and protection from the wind.

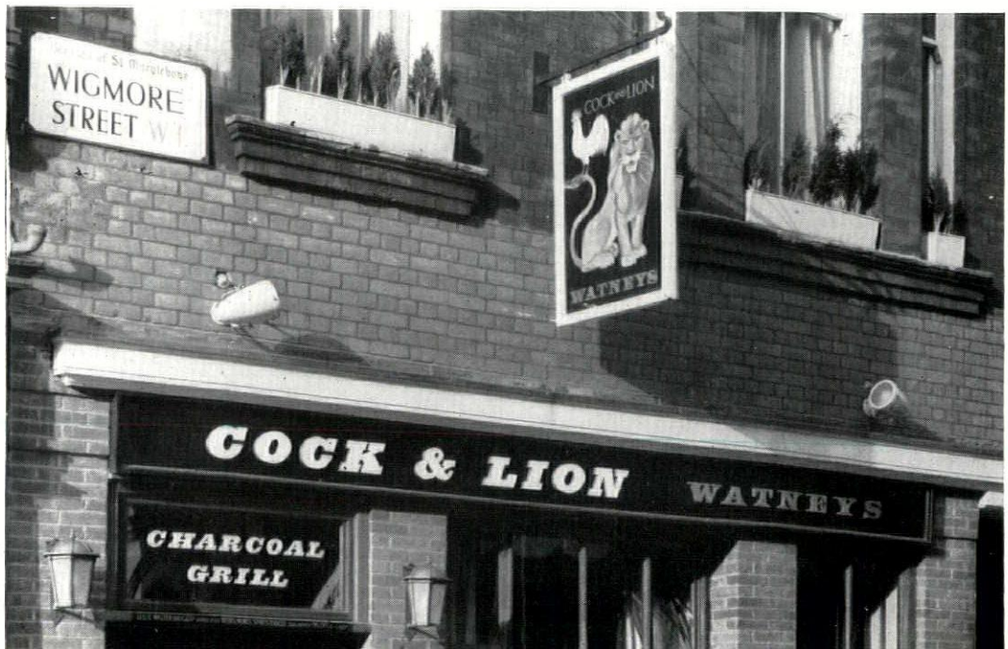
Patience Gray

HATS OFF

WATNEY'S LETTERING

The columns of the REVIEW *inevitably contain many grumbles*—grumbles about mistaken policies, about unimaginative, rule-of-thumb applications of acceptable policies and about sheer bad design; which is right and proper in a magazine with a critical attitude to the visual arts. But credit must also be given where it is due. Sometimes there occurs a refreshing exception to practices that normally have to be grumbled about, and under the self-explanatory heading 'Hats Off,' the REVIEW will regularly draw attention to them.

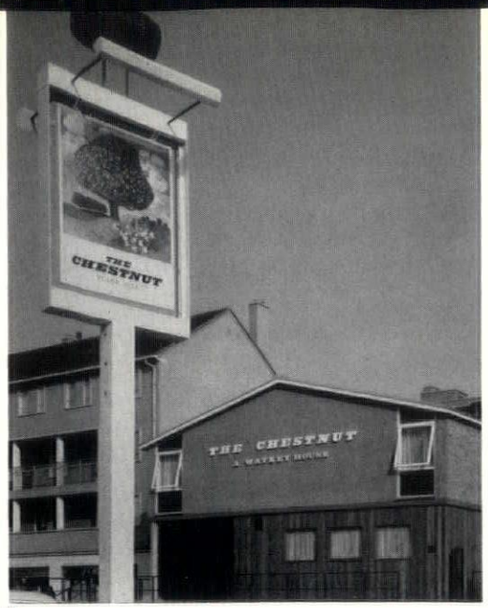
Lettering on buildings has been much criticized in the REVIEW and elsewhere, and the first entry under the 'Hats Off' heading can appropriately be the one recent enterprise that has encouraged



1



2



3

people who mind about good lettering: that undertaken by Watney, Mann Ltd., the brewers. In 1956 Design Research Unit were commissioned by these brewers to create a 'house identification scheme' which should, in the words of the brief given to the designers 'effect a breakaway from the rather frigid atmosphere of public-house architecture, furnishings and accessories, developed in the years between the wars, and to re-establish the atmosphere of comfort and conviviality epitomized in Dr. Johnson's testimonial that "there is nothing which has yet been contrived by man by which so much happiness is produced as by a good tavern or inn."'

Obviously this precept could be variously—and, indeed, disastrously—interpreted. But DRU (in the person of Milner Gray as consultant designer, assisted by Ronald Ingles and John Bruckland) have used it as an opportunity to create a house-style that combines freshness and sparkle with a proper respect for what is still alive in the pub tradition. As a result Watney pubs all over the country have become a pleasure to come upon, and a refreshing contrast to the usual brewers' alternative of signwriter's commercial or period imitation.

The house-style they have prescribed for Watney's affects architecture, colour-schemes, delivery-vehicles, interior and exterior decoration, bottle-labels, stationery, advertising, bar-equipment and the famous Watney trade mark—the red barrel—which DRU have redesigned. But here we are concerned with the lettering that they have standardized for use in all Watney pubs—which is immediately recognizable, possesses style without affectation and is adaptable to the variety of situations and architectural settings it has to serve, as the accompanying illustrations show.

It is basically a Clarendon Bold expanded letter. It is applied to fascias, signboards, etc. on a gloss black ground in red, white and gold, and its use, as recommended in DRU's report to the brewers, is accompanied by intelligent but flexible recommendations as to the colours that should be chosen for wall-surfaces, door and window frames and the like.

The illustrations show: 1, a London pub (the Cock and Lion, Wigmore Street), relettered and redecorated in conformity with the house-identification manual provided by DRU; 2, a small-scale town pub (the Druid's Head, Brighton) similarly dealt with, but with subtle and appropriate differences of treatment; 3, the same style of lettering on a new suburban pub (the Chestnut, Upper Tulse Hill). J.M.R.

COUNTER-ATTACK

WEST CUMBERLAND 1

'*1595: West Cumberland.*' *The road-sign in Carlisle looks like a piece of Ministry of Transport steamrolling—a lot of towns lumped into the bureaucratic tidiness of a geographical area. But for once the Ministry of Transport is right.* West Cumberland, as anyone must realize as soon as he gets there (and he will certainly know when he does), is essentially a *place*, with its own intense local life and customs derived from the nature of the country and built into its towns and villages.

No one goes to *visit* West Cumberland (one can tell that from the hotels). And yet—while it remains—it is, socially and architecturally, one of the most fascinating parts of England. One must make the qualification, 'while it remains,' for the future seems all in doubt, economic conditions fluctuate, and there is far too little evidence that the extraordinarily interesting architectural heritage is valued for what it is.

West Cumberland was, so they will tell you, the home of the Industrial Revolution. At any rate it began to develop as an industrial region nearly 300 years ago, when the coalfield started to be worked on a large scale: Whitehaven, built by the Lowther family as a coal port, was already a considerable town by the end of the seventeenth century. (It is still, for all its industry, predominantly a seventeenth and eighteenth century town—and a very notable one.) In the eighteenth century new towns and villages appeared to the north, and later iron-mining was developed to the south and east. Today West Cumberland is a substantial industrial area, while remaining an astonishingly individual one. There are minor conurbations round Workington, and in the triangle formed by Whitehaven, Frizington and Egremont, but the towns, and even the villages between, retain very marked identities. And yet all is not well: the coalfield is being worked out and now only one pit (at Whitehaven) is working economically. The whole area north of Workington through Maryport to Aspatria is depressed and badly needs new industry. Farther south things are quite different. Workington is now a big engineering centre; the iron-mining towns of Cleator Moor and Egremont are flourishing, and so, after being wretchedly hit in the slump, is Whitehaven. Prosperity, from being all in the north, is now all in the south, and so far there has been no success in attempts to improve the balance.

Poverty and riches are the two worst things that can happen to old towns: in West Cumberland they are both happening at once; and results can be compared, though not, alas, always contrasted. The absence of an architectural conscience is as marked in Whitehaven as in Maryport, and evidence of depressed standards prevails throughout. The two photographs of Parton, a mining village now submerged in outer Whitehaven, show one side of the trouble. No one knows what to do with Parton—so no one does anything. A few remaining bits (already obviously doomed) suggest that at one time it must have had much quality, 1. The sturdy vernacular of West Cumbrian Georgian, with its bold treatment of detail,


1

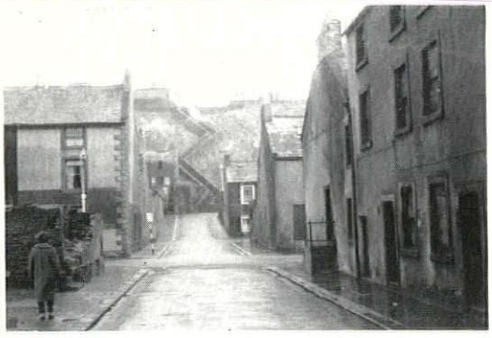

2

its general sense of a tough individuality, is all there—now in apparently irretrievable decay: turn any corner and one comes upon a depression which looks like—and is—a real survival of the 30's, 2.

On a larger scale, and more seriously—for there is more to lose—Maryport tells the same story. It looks as if no one knows what to do with Maryport either. Recently an unpredictable return of the Solway shrimp beds made Maryport look up a bit; but the town can hardly live on shrimps, and in any case no one knows when they may disappear again. For those who can see the quality under the drabness and decay, Maryport is still an extremely striking and handsome town; but all the signs are that it can hardly last much longer. It is built on a very unusual site and—in the circumstances—to an unusual plan. A severe grid of streets was laid out in the eighteenth century on a steeply sloping ridge above a narrow flat strip by the harbour. There are thus plenty of exciting contrasts of levels, sometimes contrived by steep streets running down to the harbour, 3, sometimes by zig-zagging stairs, 4. In the upper part



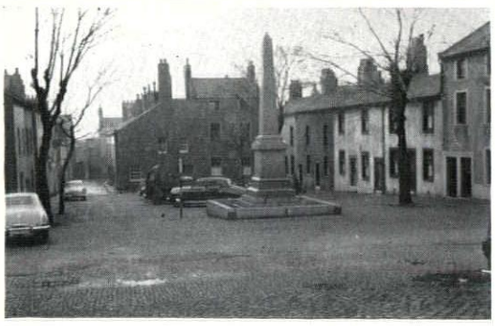
3



4



5



6



7



8

of the town, the grid comes formally to a halt at the top of the hill in a large square, 5, which has apparently always been residential, never a market place. Here the houses, some of them, look as if they are in fair condition; down below, more and more are becoming unoccupied and almost all are condemned. But if Maryport is to regain a proper life, this part of the town must be brought alive again, too. Given a little encouragement Maryport could be one of the most exciting places to plan for—surely town designers must pray for such a site. If and when the fortunes of the town look up, it will need all the genius we can find—and probably more—to grasp the opportunities offered.

At the moment, of course, no opportunities *are* offered: Maryport is decaying because there is not in the present general situation a reason why it should do anything else. The general situation then needs urgently to be changed, which means a good deal more active Government interest in keeping such towns industrially vigorous. With the loss of their natural resources they cannot do it alone: and if Maryport has given England its coal, England owes a return. Maryport, though only five miles from Workington, has now become rather isolated—a point which could work to its advantage if only an organized return to prosperity could be managed: the dangers of a *dis*organized return are being only too well illustrated further to the south. Maryport has all the elements needed for a first-class town: one can see the harbour, with the cliffs above, as an excellent setting for really good industrial buildings and warehouses, and of the domestic architecture quite enough remains—one would hope—to compel respect for the local dignity that created it.

The contrast with Workington, five miles to the south, is extreme. Workington is now, after Carlisle, the largest town in Cumberland, a huge, ungainly sprawl with no recognizable centre—only a meeting-place of several ill-defined open spaces lined with vaguely contemporary buildings. There is a large church at each end of the town, one medieval, one a handsome early Commissioners' church, with a magnificent baldacchino by Comper. Near this are the remains of an old centre, with the particularly delightful Portland Square, 6, spoiled by the crude obelisk and by being used as a car-park. Looking on to the dingy estuary of the Derwent is another set of nice houses on Brow Top with a poor man's version next door in Derwent Street. All these should certainly be preserved, for Workington has nothing else, not even a decent sea-front.

Elsewhere in the town there is plenty of busy activity and more or less nothing else: wholesale reorganization is obviously needed, both to cheer up and eventually replace the endless rows of little nineteenth century cul-de-sac streets, 7, that look and feel quite desolate (why not a tree at the end of each?) and to try and give some coherence to the dreary mess that passes for the middle of the town, 8. This task the County Planning Department is struggling with now, though it is hard to see what can be done while so many new (and characterless) buildings are going up with so little attempt to arrange them in any sort of seemly or meaningful order. Only a complete redevelopment of the whole centre could make the transformation needed: no doubt this will demand a fine tact and courage to deal with vested interests.

To the south again, east and south-east of Whitehaven, are the iron mines. The area is littered with little patches of houses (once no doubt attached to mines), which, because the architecture is placid and decent, are quite pleasant. Still, there is much scavenging to be done of these scrabbles by the larger settlements to give the region more precision—and more air. In fact a major need in West Cumberland, especially in the south, is for a concentration of both population and industry in the larger centres. Only in this way will they—and the region as a whole—get enough dignity and breathing space. Unfortunately the present trend seems to be in the opposite direction: among the sporadic housing which litters the countryside, new factories are being built—notably around Distington, a one-time village halfway between Workington and Whitehaven which now threatens to link the two.

This policy of covering even what ground is left virgin is highly reactionary, particularly when one considers the needs of Maryport and the places further north. It should certainly be halted, and an attempt made to restrict outward growth in the south to those towns which have or might achieve recognizable shape and unity. When the houses in smaller settlements like Rowrah, Arlecdon and Cleator become outworn, as they must, there should be no attempt to replace them on the spot: rather they should go to give coherence to the larger places, and their own sites be reclaimed for agriculture. In particular, new factories should in no case be established far outside the existing built-up areas.

These are concentrated (so far as anything is in West Cumberland) round Egremont, Cleator Moor and Frizington, a group of towns lying along the valley of the river Eden facing Dent Fell, the last outcrop of the Ennerdale mountains. Of these only Egremont, the most southerly, has real distinction: its feel is almost of a foreign element, a market town strayed by chance into an industrial environment. Clearly it was a town before the others existed, and there is much to be said for leaving it as it is, while giving it every encouragement to become the prosperous small shopping centre that it is well suited for. The main change needed would be the re-routeing of the A.595 further to the west, so that Egremont's good-looking main street could retain its quality and the agreeably narrow and winding Bridge Street its domestic scale.

Frizington, the most northerly of the three, is an unexpectedly gloomy straggle along a main road, finishing only a mile or so away from Cleator Moor; and it is here, in the more or less derelict land between the two, that existing housing could most fruitfully be consolidated. Cleator Moor is a not particularly well designed town, but it is comparatively compact and would not suffer from expansion in the right directions. These are to the north (especially in the small parcel of land between the present town and the railway) and, more doubtfully, a short way to the south, particularly if dismal Cleator could be done away with. On the east the hills fortunately make building impracticable. What there is some danger of, and what must not happen, is any further sprawl to the west, where Cleator Moor's rather frayed edges are already disagreeably close to Hensingham, an interesting early suburb of Whitehaven. At present Cleator Moor is doing some infilling on the south side of its long main street (where some naïve attempts at house-painting enliven the rather drab scene); the principle is certainly a good one (though the closely built rows of houses might come uncomfortably soon to look like bits of nineteenth-century bye-lawism), but a larger view will be needed if there is any chance of clearing up some of the mess: almost perhaps a closing—a well-planned closing—of the gap between Cleator Moor and Frizington. It would be a small price to pay if one could eliminate the thin dribble of houses and derelict mines which now stretch halfway from Egremont to Cockermouth.

Andor Gomme

P.S. The recently announced closing of Maryport Harbour marks a further (if regrettably logical) step in the town's decline. But this makes it more, not less, important that new industry be brought in to give this very genuine community something to live on.

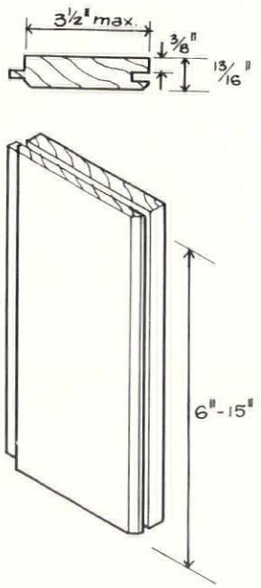


1, *the lower foyer at the Royal Festival Hall. The floor is* $\frac{13}{16}$ *in. thick muhimbi strip.*

HARDWOOD FLOORING 2

by G. C. A. Tanner

This is the second of two articles. It describes contemporary fixing methods for the traditional strip, block and parquet floor and a few of the patent flooring systems at present on the market. It discusses a patent process for stabilizing timber and also the need for preservative treatment. Finally it considers the question of costs.*



2, *hardwood flooring block showing basic dimensions and typical profile.*

In the first article it was pointed out that the choice of a hardwood for the floor is not just a matter of deciding which species will provide the colour and figuring to suit the overall scheme of decoration. This, of course, is important and one should expect to exploit the decorative qualities of the material. But the resilience of hardwood, its long life and its resistance to heavy wear make it well suited to industrial use and to such specialized uses as dance floors, 1, and skating rinks, and the designer should ask himself two questions in making a choice: (i) the purpose of the floor, to which is related intensity of traffic, and (ii) the desired appearance. Bulletin No. 40, *Timbers for Flooring*, issued by the Forest Products Research Laboratory, groups species according to the traffic they will take. The same grouping is reproduced in BS 1187 : 1959 and the TDA *Wood Floors*. It will thus be possible to short-list species which will satisfy the functional requirements. The final choice may be made from the short-list by visiting the TDA, the Building Centre or the yard of a manufacturer. Cost probably will be another factor in the choice and this is discussed later.

The traditional floor

The demand for the traditional hardwood floor does not appear to have diminished in spite of the increase in patent systems on the market.

*AR, September, 1960.

There are three main categories of hardwood floor:

Strip: a piece of timber with a maximum nominal width of 4 in. (widths exceeding this are referred to as *boards* and run usually only in softwood), a maximum nominal thickness of $1\frac{1}{4}$ in. (usually 1 in.) and a minimum length of 3 ft. It is tongued and grooved and generally end-matched, that is one end grooved and the other tongued. This means that it is not necessary for joints to occur over battens or joists.

Block: a piece of timber, 2, with a finished width not exceeding $3\frac{1}{2}$ in., a finished thickness not exceeding $\frac{13}{16}$ in., a clear wearing thickness of $\frac{5}{16}$ in. above the interlocking system and a length not less than 6 in. nor more than 15 in. Most common lengths are 9 in. and 12 in. Interlocking systems vary, many being mere refinements of the tongue and groove. Traditional block floor patterns are shown in 3.

Parquet: BS Code of Practice CP 201, *Timber Flooring*, describes parquet flooring as consisting of hardwood strips of various sizes and shapes usually $\frac{1}{4}$ in. thick and in various decorative patterns, and inlaid parquet flooring as consisting of small blocks of wood, $\frac{3}{16}$ in. to $\frac{7}{8}$ in. thick, glued together to form a panel which may or may not be backed by canvas, plywood or solid wood. When laid on a joisted floor the parquet must be fixed to a plywood or hardboard underlay, and it is desirable that an underlay be used even when parquet is laid on a solid floor. The usual method of fixing parquet to underlay is by gluing and pinning.

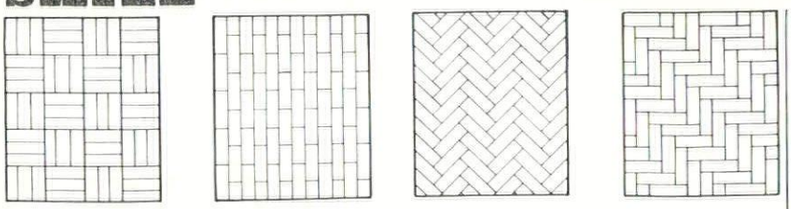
Methods of fixing

The sub-floor involves construction principles which should be basic knowledge to the practising architect, and it is not the purpose of this article to explore the subject in detail. It is sufficient to say that the implications of sub-floor ventilation and damp-proofing are of utmost importance to a sound floor, and attention is drawn to BRS Digest No. 1, *The Design of Timber Floors to Prevent Dry Rot*, which is as good a guide to this aspect of construction as any currently available.

Possibly the point most difficult to grasp is that, once kiln-dried, flooring must be stored in conditions of temperature and humidity which are the same, or as nearly the same, as those of the completed building. Flooring should not be laid until such conditions exist in the building and contractors usually try to arrange to do their work when everything else virtually is finished. This means windows (including glazing) and doors fixed, plastering finished and painting and decorating completed as far as possible, though skirtings should not be fixed until after the flooring is laid.

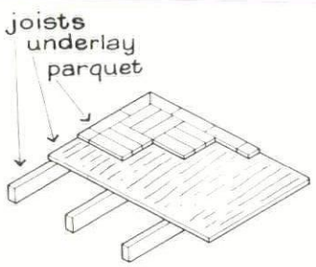
The following points should be borne in mind.

1. Only block or parquet should be fixed with an adhesive. Strip should always be nailed.

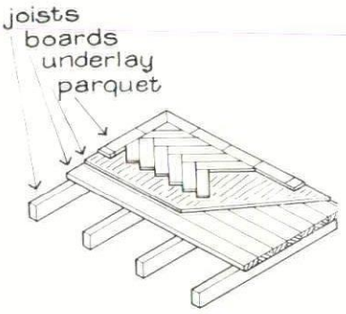


a b c d

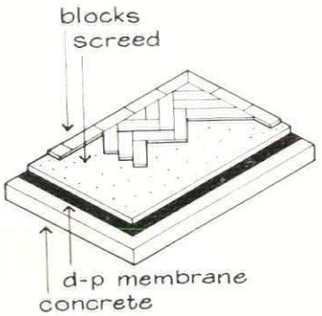
3, *some traditional patterns for laying out block floors: a, square basket; b, brick half bond; c, herringbone; d, square herringbone.*



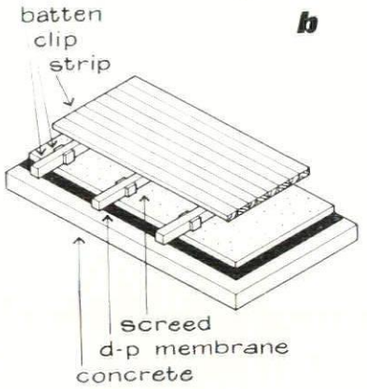
a



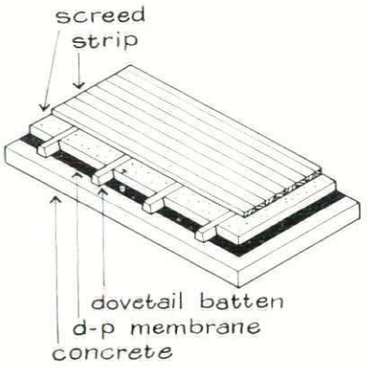
b



c

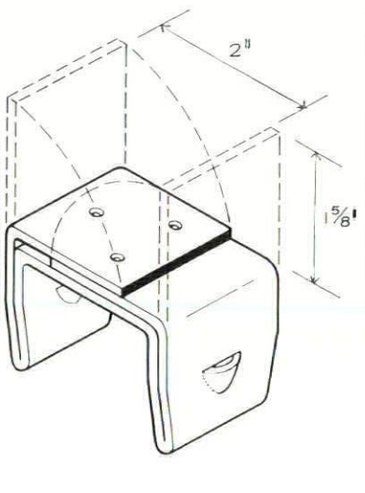


d



e

4, *traditional fixing methods:*
a, parquet on joisted floor with a plywood underlay;
b, parquet on a joisted and boarded floor with a plywood underlay;
c, wood block on screed;
d, strip on battens fixed to clips set in screed;
e, strip on dovetail battens embedded in screed.



5, *a batten fixing clip (bulldog type). The legs are set into the screed whilst green. When the battens are laid the flaps on the clip are prised up and nails driven through them into the battens.*

2. Fixing by nail into a nail-holding concrete or screed is definitely not recommended.
3. The surface of a solid sub-floor must be finished with a sand cement screed, at least 1½ in. thick, on which the flooring is laid.
4. The damp-proof membrane on a solid sub-floor should not be pierced either by the nails with which strip flooring is fixed to battens or by patent batten-holding clips embedded in the screed.

Ventilation: It goes without saying that a joisted timber floor must be adequately ventilated. Provision should be made for air bricks or other openings which will ensure a positive air flow between oversite concrete and the underside of the floor. A rule-of-thumb given in the BRS Digest is to allow 1½ sq. in. of open area of vent per foot run of external wall. On the other hand where strip flooring is nailed to battens embedded in a screed it is important that no air spaces be left between the top of the screed and the underside of the flooring, and it is necessary that the surface of the screed be absolutely dead level. As this is difficult to achieve in practice, a hot bitumen compound, complying with BS 743, *Materials for Damp-proof Courses*, should be spread over the screed and battens, as a gap filler. Positions of battens may be marked on the walls.

Damp-proof membrane: Where flooring is laid on a solid sub-floor at ground level it is necessary to use a damp-proof membrane. Common types are asphaltic bitumen and coal tar pitch, at least ⅛ in. thick. The ideal arrangement is a sandwich construction in which the membrane is between two thicknesses of concrete slab. It is more usual, however, to place the membrane between slab and screed, an arrangement which has its disadvantages. For example, where flooring is nailed to battens secured to clips, the legs of the clips embedded in the screed will pierce this membrane.

Nailing battens: It will be seen from drawing, 4, that there are two ways of supporting the nailing batten. One is to embed it in the screed, in which case it should be of dovetail cross-section. The second method is to fix the batten with patent fixing clips which are embedded in the screed whilst green. There are several quite satisfactory proprietary makes available, 5, usually made in sherardized sheet steel. Clips improvised on the site should never be used, as squeaking floors too often result from clips working loose from the screed. They should be spaced at 12 to 24 in. centres. Battens should be a minimum of 2 in. by 1½ in. (preferably 2 in. by 2 in.) and may be softwood, but certainly should be pressure-impregnated with a preservative beforehand.

Screed: should be 3 : 1 sand/cement. It is imperative that the screed be bone dry before the floor is laid. BRS Digest No. 1 describes one or two methods for testing the dryness of a screed. A wet screed is probably one of the greatest single causes of failure, next to incorrect moisture content. If the screed has not dried out thoroughly before laying, the process will continue and inevitably cause expansion of the flooring itself. To avoid this the screed should be laid at least two to four weeks before the flooring contractor comes on to the site. It is not wise to incorporate waterproofers or rapid hardeners in the screed as this considerably delays drying-out time. The screed should be levelled and brought to an even surface with a wood float and should be hard, dust free, and devoid of cracks or hollows. Where electric floor-warming is embedded in it the manufacturer will stipulate a minimum thickness (usually 2½ in.). Otherwise it should be not less than 1½ in. thick or 2 in. where battens are embedded in it.

Underlay: Where block flooring is to be laid over joists or on an existing board floor the most satisfactory underlay is a resin-bonded plywood. When used under parquet flooring and fully supported (i.e. on boarding) plywood ¼ in. thick is satisfactory. When laid over joists it should be ⅜ in. thick over 12 in. spans and ½ in. over 16 in. Sheets should be butt-jointed with an expansion joint filled with mastic between them. Joints must occur over joists or bridging-pieces. Nails or screws should be fixed not less than ¼ in. from the edge of the sheet and at 12 in. centres. Screws should be ½ in. longer than plywood thickness.

Expansion: To cater for the inevitable movement in the floor (which, however, should be small if correct moisture content and good practice have been observed) expansion strips or gaps should be provided around the perimeter of all rooms and across doorways. Usual methods of doing this are either to leave a space between floor and wall masked by the skirting or to insert a strip of cork, the full thickness of the floor, between floor and wall.

Adhesives: used by the trade for wood block floors are either a hot or a cold type. Primers should be used with hot adhesives, and according to CP 201, may be of two types—(*a*) adhesive thinned to brushing consistency with a thinner such as creosote, and (*b*) black varnish. Hot adhesives stipulated in the Code are—(i) asphaltic bitumen or (ii) coal-tar pitch. When a hot adhesive is used the screed is first coated with the primer and each block dipped into a bath of the adhesive and laid in position. There are several bituminous emulsion cold adhesives on the market. Mixed with rubber latex these tend to restrain the blocks should they attempt to move. Cold adhesives of this type do not require priming of the screed. Blocks are usually chamfered or sometimes rebated along the bottom edges to permit adhesive to work up between them when the flooring is laid.

Some patent systems

In recent years more and more patent systems have appeared on the market and a few are described here. No attempt is made to review the quite wide field but as, inevitably, they will take their place alongside traditional forms, the object here is to outline the range of systems by citing typical examples.

The Windsor Floor: was the first of its type on the market, having been developed as early as 1949. It consists of five little fingers of hardwood each ⅜ in. thick, fitted together side by side to form a 4½ in. square. Squares are put together to make up a panel 18 in. by 18 in. with the fingers of one square running at right angles to those of the adjacent one. A sheet of tough paper is then glued to the *top* face of the panel. Each panel is laid in a bitumen/latex emulsion adhesive on the sub-floor and the paper is stripped off, 6. It is a similar process, in effect, to the laying of mosaic tiles. (Winsorflor Limited.)

Aluflor: Superficially this is similar to the Windsor floor. Five little fingers of hardwood, having a

[continued on page 381

continued from page 380]

thickness of $\frac{3}{8}$ in. are fitted into a square and 16 squares form a panel, 18 in. by 18 in. The difference, however, is that the panels have a perforated aluminium foil sheet on the *underside*, 7. Otherwise it is laid in a similar manner. (Calders (Southern) Ltd.)

Feltwood is the same principle as *Aluflor* in that it comprises 18 in. by 18 in. panels made up of small fingers of hardwood laid in squares. The difference is that the permanent backing is bitumen felt bonded to the underside of the panel. (Vigers Brothers Ltd.)

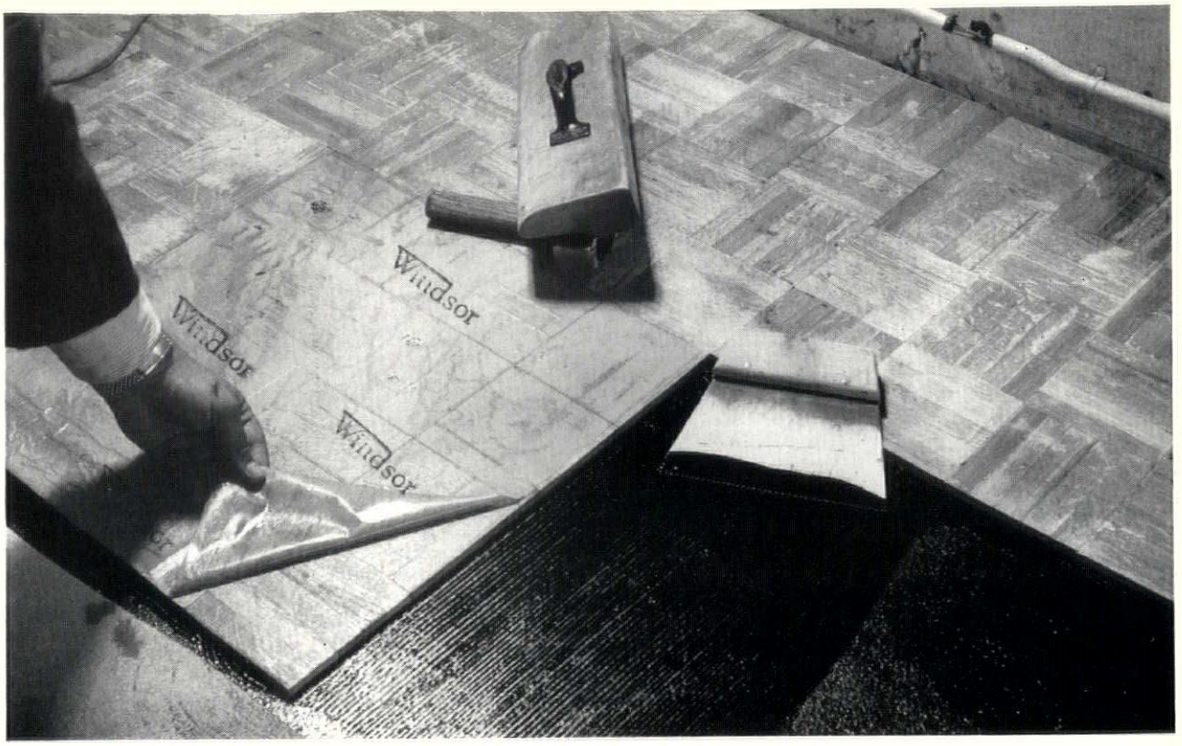
All three systems, of course, are laid in adhesive on a previously prepared screed.

Lynx Parquet Panels, 8, are a form of laminated construction made up of three layers in thickness. The bottom and middle layers are softwood, the latter providing end-grain wedge-shaped tongues. The top layer is hardwood. All three layers are bonded together with a waterproof resin adhesive and each panel is $8\frac{5}{8}$ in. by $8\frac{5}{8}$ in. by $\frac{1}{2}$ in. thick. The floor is laid dry with no adhesive, nails or other fixing. (Horsley, Smith and Company (Hayes) Ltd.)

Durabella flooring. The idea of dimensionally stabilizing timber by processes which would render it inert or at least bring it to a condition in which subsequent movement was substantially reduced has fired the imagination of many people connected with the trade. So far as the writer knows, however, only one such process is practised in this country, the one used in producing Durabella flooring. This process was originated by a French cooper named Jeantelot some years ago in Paris and involves immersing the flooring blocks in tanks containing oil at a temperature of 300 deg. F. to 400 deg. F. depending on the species of timber. Residual moisture is expelled from the wood fibres and replaced with the impregnating oil. Once this occurs moisture cannot re-enter. The manufacturers state that tests have shown that the process results in a hardening of the fibres which makes the wood impervious to staining by cement and lime.

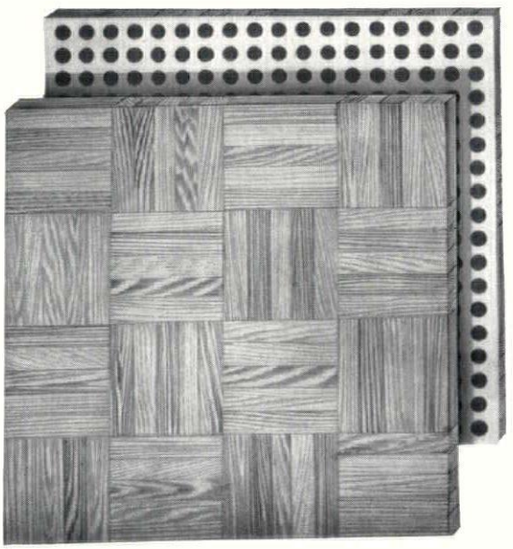
Prior to the stabilizing process the timber is manufactured on more or less traditional lines. It is kiln-dried then passes into the factory where the blanks are dressed down to 'fingers' $\frac{1}{2}$ in. thick by 1 in. wide by either 8 in., 10 in. or 12 in. long. Four fingers are placed side by side to form a block, 9, and held together by three rows of three corrugated galvanized steel fasteners which are driven into the underside of the timber and project $\frac{3}{8}$ in. below it.

In laying, the essential point of difference is that Durabella is bedded in *a wet screed*, 10. There is no adhesive. When the screed sets the corrugated fasteners are firmly embedded in it. This means that the flooring can be laid during the construction stages of the contract, eliminating the usual problem of getting a screed down early enough to dry out before the floor is laid but not so early as to risk damage during construction. Sanding and finishing take place at the end of the job. The flooring should not have traffic over it for three or four days after laying, a condition which necessitates careful site programming and which could be a disadvantage if the floor is to be laid as a replacement for another covering in an existing building. The virtue of immediate laying, however, coupled with relative immunity to the abuse which subsequent site



6

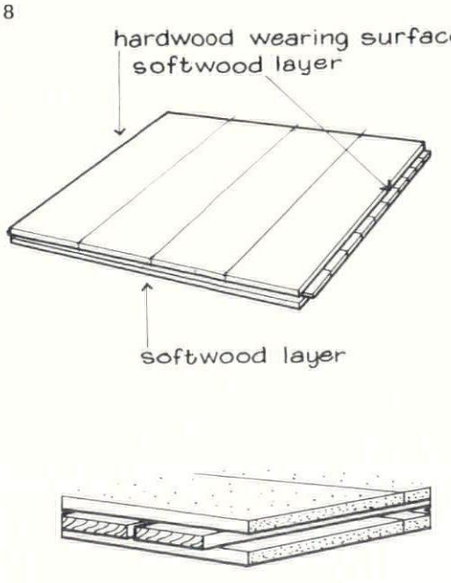
6, *the Windsor floor. The* 18 *in. by* 18 *in. panels have been set in adhesive and the paper is being peeled off the wearing surface.*



7

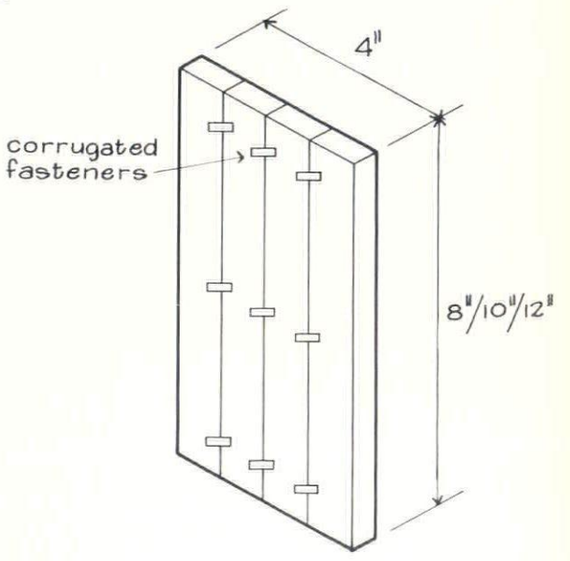
7, *Aluflor panels showing the wearing surface, left, and the underside.*

8

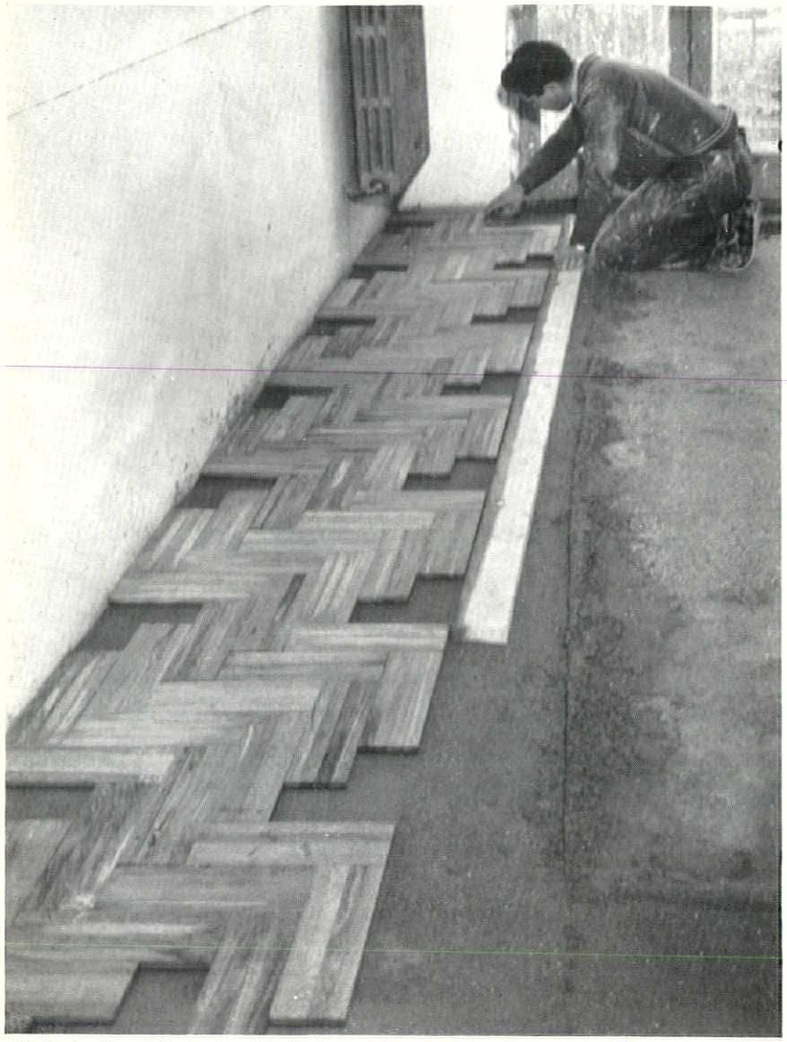


8, *top, Lynx parquet panel; bottom, detail showing laminated construction.*

9



9 *Durabella block.*



10, *laying Durabella flooring. The blocks are being set out to pattern on top of the green screed.*

work may offer, opens up great possibilities in the direction of prefabricated construction.

Tests carried out by the Centre Technique du Bois in Paris in 1954, some of which subsequently were repeated by the research laboratories of the TDA, show that Durabella has an impressive resistance to climate changes, the reports from tests stating that complete stability in overall dimensions and freedom from detachment under conditions ranging from 45 to 85 per cent relative humidity and 25 deg. C. to 50 deg. C. temperatures were observed. These and other tests show that it is eminently suited for use with electric floor warming. (Barnes and Fletcher Ltd.)

Treatment of timber

Stabilization: The stabilizing process used in producing Durabella flooring seems to be the only one practised in this country, a fact which is hard to credit if one accepts that movement in timber due to variation in temperature and humidity conditions is at the root of most failures in floors.

Fungal and termite attack: It is often necessary to treat timber to resist fungal and termite attack. It has been stated already that nailing battens should be pressure-impregnated with preservative. Joists, wall plates, bearers and other timbers below ground floor level should also be protected if permanently damp conditions are likely. Dry rot fungi do not attack timber which has a moisture content below 20 per cent, and adequate cross-ventilation in the sub-floor space should be the first line of defence. The use of a preservative is a good insurance policy, however. BRS Digest No. 1 recommends impregnation in preference to brush application, which, it claims, does not afford penetration into the timber exceeding $\frac{1}{64}$ in. The Digest describes the method of 'open-tank' treatment. Reference should be made to CP 112.100, *Preservative Treatments of Timber in Buildings*, BS 1282 : 1959, *Classification of Wood Preservatives and their Methods of Application* and to *Timber Preservation*, a booklet published jointly by the British Wood Preserving Association and the TDA.

Surface treatment

Once flooring is laid the surface should be rubbed down thoroughly, using a coarse grade and finishing with a fine grade abrasive paper. This may be done by hand over small areas, but contractors are equipped with machines which can cover all but the most inaccessible parts of the floor. In the SKILL article for June, 1960, *Designing Floors for Cleaning*, Lance Wright discusses the use of button polish and wax and of floor seals and of their implications in terms of cleaning and maintenance. Readers are referred to this article. It is understood that the British Standards Institution is at present preparing a BSS on the maintenance of floors.

Costs

The laying of hardwood floors is specialists' work and quotations will have to be obtained, either by the architect if the flooring contractor is to be a nominated sub-contractor, or by the main contractor. Prices for different jobs will inevitably vary according to the species of timber, the location of the job, the area of flooring and such things as whether the total area is a clear area or made up of several smaller or awkward shaped rooms, in which case laying costs will be higher. With the exception of Durabella flooring quotes generally do not include the screed, which is builder's work. Strip flooring fixed to battens set in the screed usually includes the cost of the battens. In fact there is little difference between strip fixed in this way and block, the range being (for 1 in. nominal thickness in both cases) 45s. to 55s. per yard super. Hardwood strip with a nominal thickness of 1 in. fixed to joists generally costs less, its range being 40s. to 50s.

Conclusions

The floor surface in a building is a finish. It is regarded as such by the architect and quantity surveyor and often suffers the fate specially reserved for finishes in cost planning. When savings must be made they are the first to be reduced. As far as the floor is concerned this is false economy. It must be remembered that the floor is the only finish which is walked on, and the hard wear that it gets during the life of a building may mean that any savings made in the first cost at the expense of quality will be lost two or three times over in maintenance and repair.

There are a few points which always should be borne in mind during the design stage in selecting a floor finish. They are even more important now that standards of heating are improving and the use of floor-warming and ceiling-panel heating increasing.

1. It is essential that flooring be kiln-dried to its correct moisture content.
2. This means informing the flooring contractor in good time of the means of heating the building and the conditions of temperature and humidity which will prevail.
3. It is important to select the right floor for the right job. Apart from appearance a hardwood floor has qualities which suit it to specialized uses. It is not suitable for every circumstance and the building owner is not necessarily getting the best floor because he is paying the most for it.

It is encouraging to know that a BSS on the maintenance of floors is being compiled and that the appropriate Code of Practice on timber floors is scheduled for revision. Its endorsement of the use of a nail-holding screed and its recommendations on damp-proof membranes are two subjects in need of reconsideration.

One further point is worth observing. The trade is rather cautious in its reactions to stabilizing processes such as that used in Durabella flooring. But the increasing advent of patent systems, such as Windsor Floor, Aluflor and Feltwood, point strongly to the fact that all are aware that some attempt to solve the problem of movement in timber is worth making. The future progress of the trade in this direction will be of considerable interest.

THE INDUSTRY

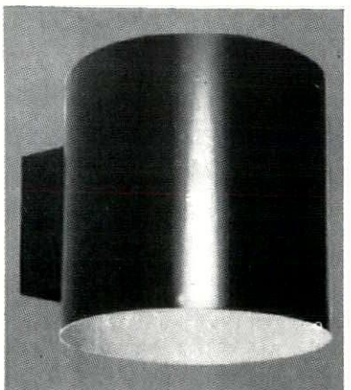
Light fittings

Frederick Thomas's catalogue 'R' is remarkable for the large number of light fittings shown which are architect designed. The two which we show on this page are specialized fittings for hospital wards designed by the Division for Architectural Studies of the Nuffield Foundation, but there are also fittings designed by John Bickerdyke, the Architects' Co-Partnership, Eric Lyons and several others. A price list is also issued with the catalogue.
Frederick Thomas, Everton Buildings, Stanhope Street, London, N.W.1.

Acoustic materials handbook

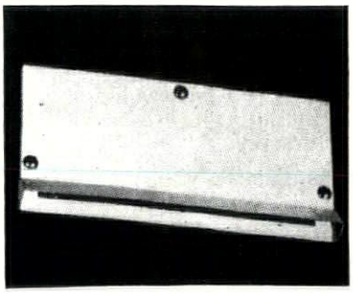
Armstrong Cork have just issued a first rate handbook on their acoustic materials. This begins by lining up their three main products: Cushiontone (in four varieties), Travertone and Corkoustic, and gives their sizes, their noise reduction, how to instal them, their cost with different fixing methods and how to maintain them. There is a good section on installation which makes (among other matters) the often forgotten point that acoustic ceilings should be fixed after the building has been enclosed and when the heating system has been operating for at least a month. Another section discusses maintenance and repainting (spray is better than brush or roller) and yet another gives detailed sound absorbence figures for different wavelengths. In all this gives a very high

[continued on page 384



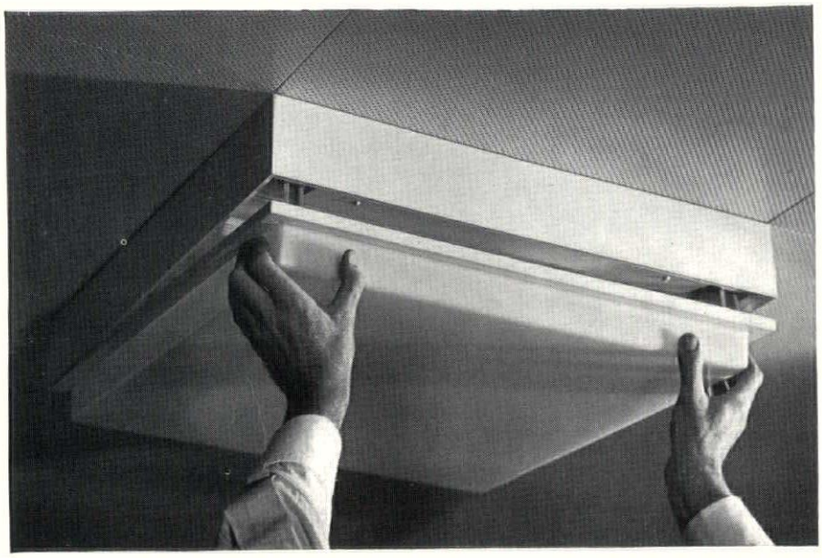
1, *the bedhead light fitting from the range designed for hospital wards by the Division for Architectural Studies of the Nuffield Foundation, and made by Frederick Thomas.*

2, *the low level unit for night lighting, from the same range.*



ALLOM HEFFER

AND COMPANY LIMITED

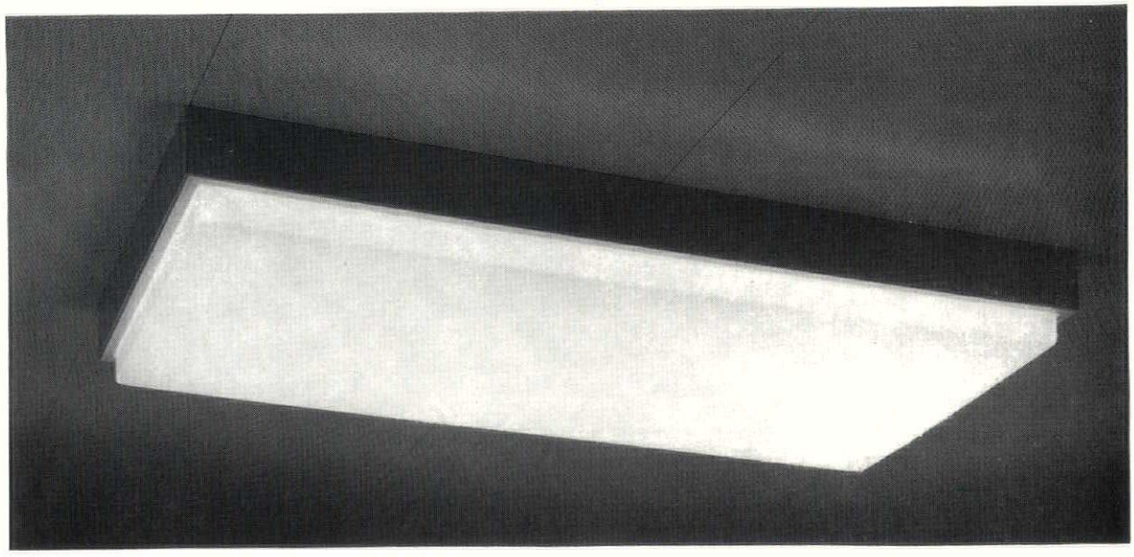


The Modular fittings illustrated made in various sizes are designed for surface mounting where space for recessing is not available.

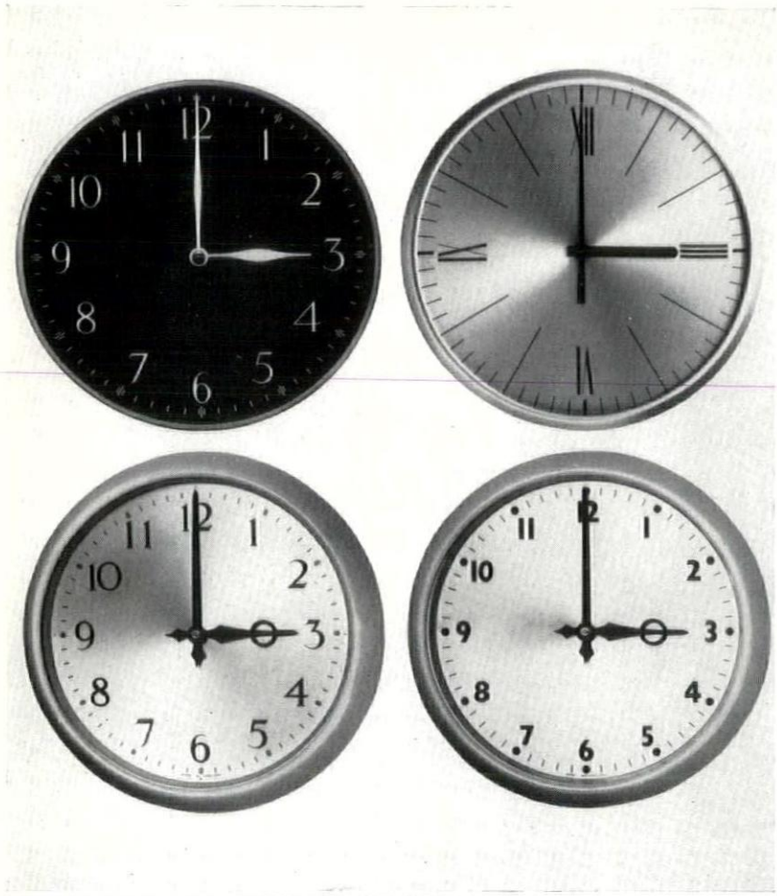
These fittings incorporate a completely new method of securing simple maintenance by means of the Allom Heffer patent locking device (Patent application No. 32933/59) which provides:

- A positive method of opening and shutting on a pull-push principle.
- Hinging on either side of the fitting when fully clear of the ceiling.
- Complete detachment of the diffuser when required.

Apply for leaflet series 707S



17 MONTPELIER STREET · KNIGHTSBRIDGE · LONDON · SW7 · TELEPHONE KNIGHTSBRIDGE 6897-8



3, *four dials from the new range of Minipulse slave clocks.*

continued from page 382]

level of both scientific information and practical guidance.
Armstrong Cork Company Limited, Kingsbury, London, N.W.9.

Slave clocks

The new 'Minipulse' slave clock system claims a number of advantages over the ordinary run of slave clocks now on the market. The chief of these is that the slave dial mechanism is sufficiently small to be accommodated within the depth of the bezel. Each dial, therefore, is 'surface mounted.' Other claimed advantages are that the slave movement itself operates without the customary 'click' and that the master clock has a movement which is unaffected by temperature difference or by falling voltage. Dial sizes vary between 6 in. and 18 in. and there is a considerable range of styles. Some are illustrated here.
Minipulse Clocks Limited, 10 Storeys Gate, London, S.W.1.

Glass doors

Pilkingtons have issued a very handsome looseleaf booklet on their glass doors. This gives full data on all standardized detailing for both ½ in. armourplate and ⅜ in. armourcast and armourplate. The former is available up to a maximum size of 96 in. by 36 in. per leaf, with rails top and bottom, with a rail at the bottom only and with patch fittings. The maximum size for ⅜ in. doors is 78 in. by 30 in. and these are normally supplied without rails. The handbook is an essential reference



4, *the Desomatic Super '40' vaporizing oil fired boiler.*

for ordering and appears to give all the technical information wanted.
Pilkington Brothers Limited, St. Helens, Lancashire.

Oil fired boiler for indifferent chimneys

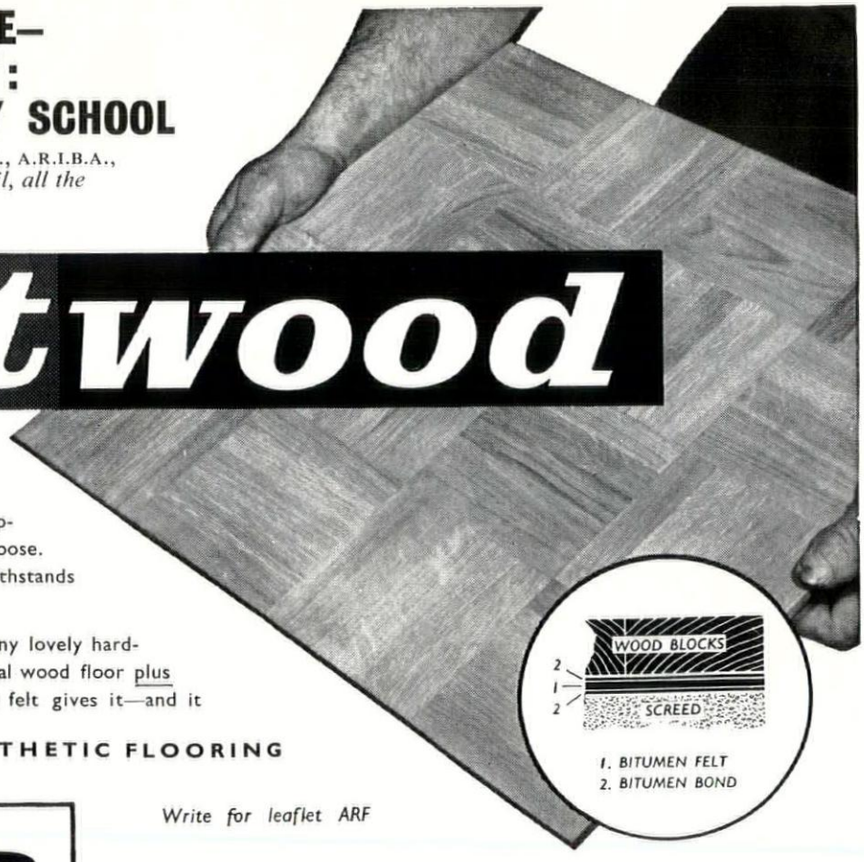
The advantage of a vaporizing oil fired boiler over a jet type boiler is that it is silent running. A common disadvantage is that the vaporizer requires rather special chimney conditions and needs frequent attention. D. E. Stuttard Limited have put a new model on the market named the Desomatic Super '40' which is

[continued on page 386

1960 MILAN TRIENNALE— MAIN BRITISH EXHIBIT: THREE-CLASS PRIMARY SCHOOL

In this school, designed by W. D. LACEY, ESQ., A.R.I.B.A., A.M.T.P.I., *Architect to Notts County Council, all the wood flooring is*

Feltwood



FELTWOOD is real wood flooring—in ready-to-lay panels of ⅜" hardwood blocks indissolubly bonded to an underlay of damp-resisting felt. The mosaics cannot work loose. A heated building is not required, yet it withstands all forms of under-floor or ceiling heating.

FELTWOOD is easily laid, is available in many lovely hardwoods, has every single advantage of a traditional wood floor plus the damp-resistance and extra resilience the felt gives it—and it

COSTS BARELY MORE THAN SYNTHETIC FLOORING

MANUFACTURED BY
VIGERS

Write for leaflet ARF

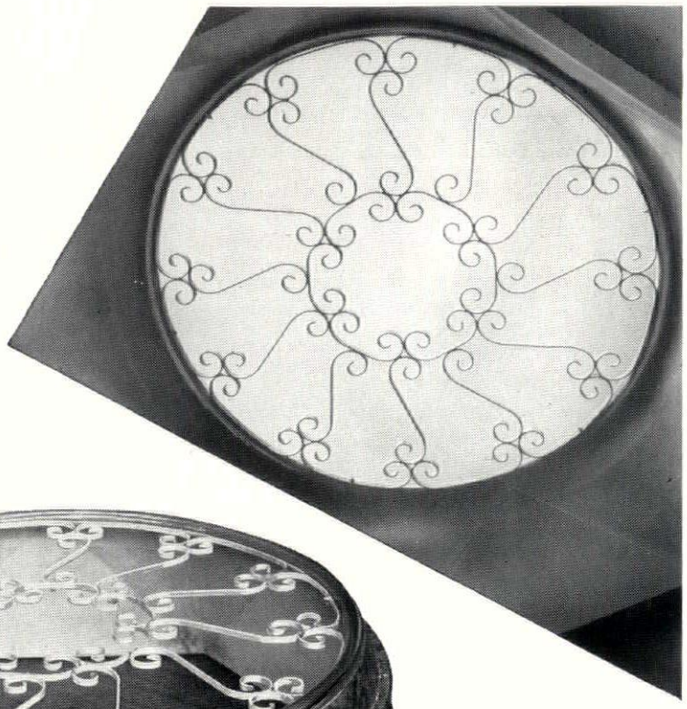
VIGERS BROS. LTD. LUDGATE BROADWAY, LONDON, E.C.4
AND AT BELFAST—EXETER—CARDIFF—BIRMINGHAM CITy 2111

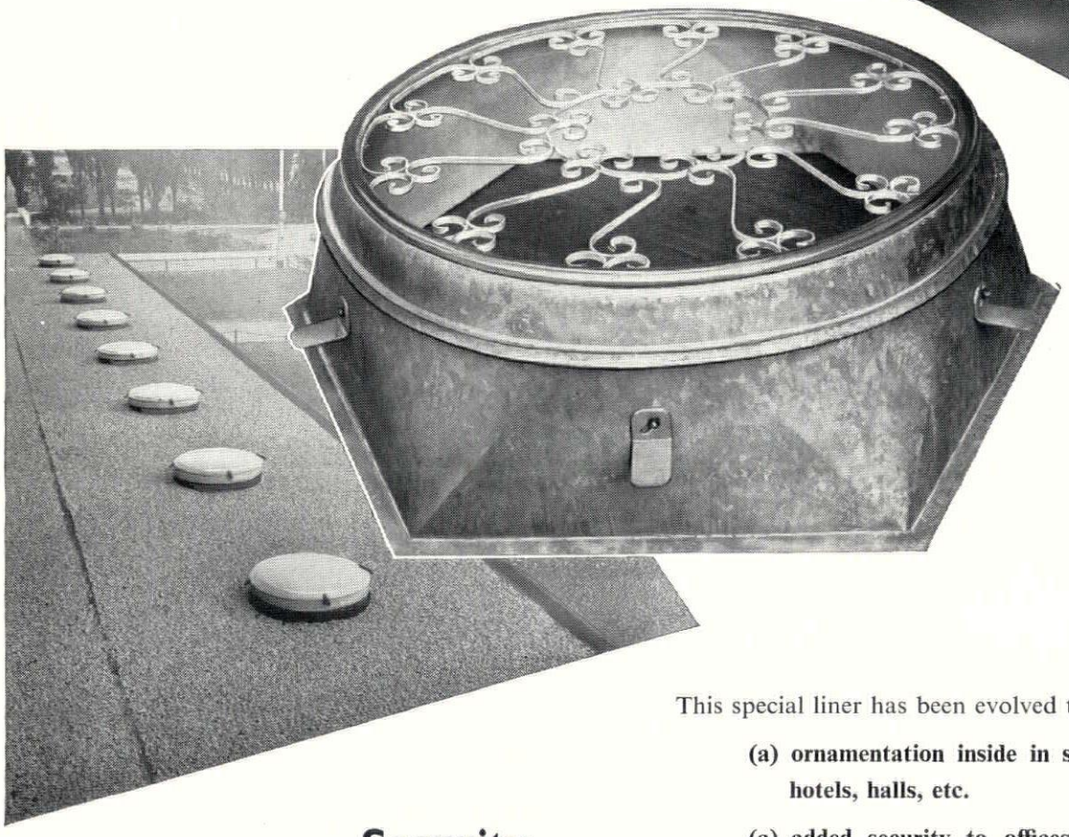
Ornamental "anti-burglar"

NEWDOME

TRADE MARK

LINER





Security *plus* improved appearance with negligible loss of light transmission

This special liner has been evolved to give both

(a) ornamentation inside in such places as hotels, halls, etc.

(a) added security to offices, banks, post offices, shops, etc.

The wrought iron circle can be had either as a fixture or can be made removable if so desired. The liner is hexagonal at its base which also gives a very pleasing decorative effect from inside the building.

Member of the GLASS BENDERS ASSOCIATION

G. & B. GARDNER & NEWTON LTD

17 GEORGE STREET · ST. HELENS · LANCASHIRE

Telegrams: Bender, St. Helens *Telephone: St. Helens 3042*

GLASS BENDERS FOR OVER A CENTURY

continued from page 384]

claimed to have overcome these defects. Rated at 40,000 B.t.u., it is fitted with a patent burner which cuts carbonization to a minimum and with a fan which, by switching on in advance of the lighter, creates the right draught conditions and makes the boiler independent of chimney draught. The efficiency of virtually all central heating appliances diminishes to some extent as a result of carbon forming on the heating surfaces of the combustion chamber. The Desomatic Super '40' can be bought with an extra named a 'money miser mint' which makes a noise when the escaping flue gases rise above a predetermined temperature.
D. E. Stuttard Limited, Jack Bridge Mill, Colden, Hebden Bridge, Yorkshire.

New overhead door gear

P. C. Henderson Limited announce a new overhead door gear set in their 'Ultra' range which has been designed for double garages. Named the 'Ultra 325,' it is provided with precision needle roller bearings at all pivot points and can cope with doors up to 17 ft. wide and up to 325 lb. weight. The gear costs £34 complete and Espagnolette locking can be obtained for 58s. extra.
P. C. Henderson Limited, Tangent Works, Harold Hill, Romford, Essex.

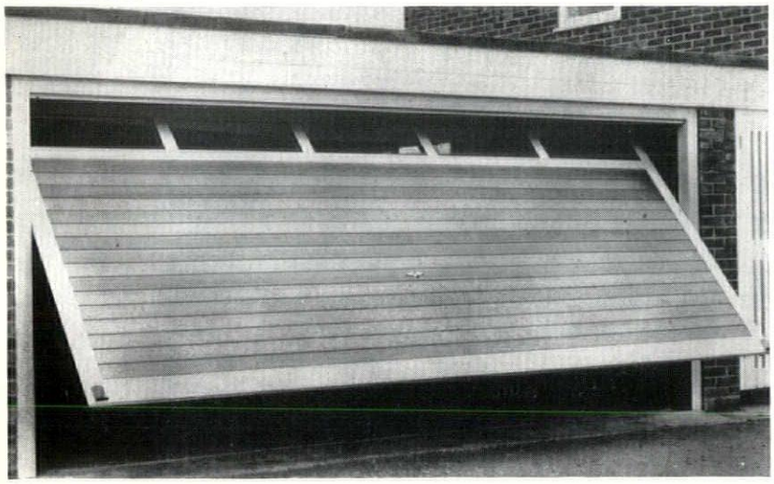
New wallcovering

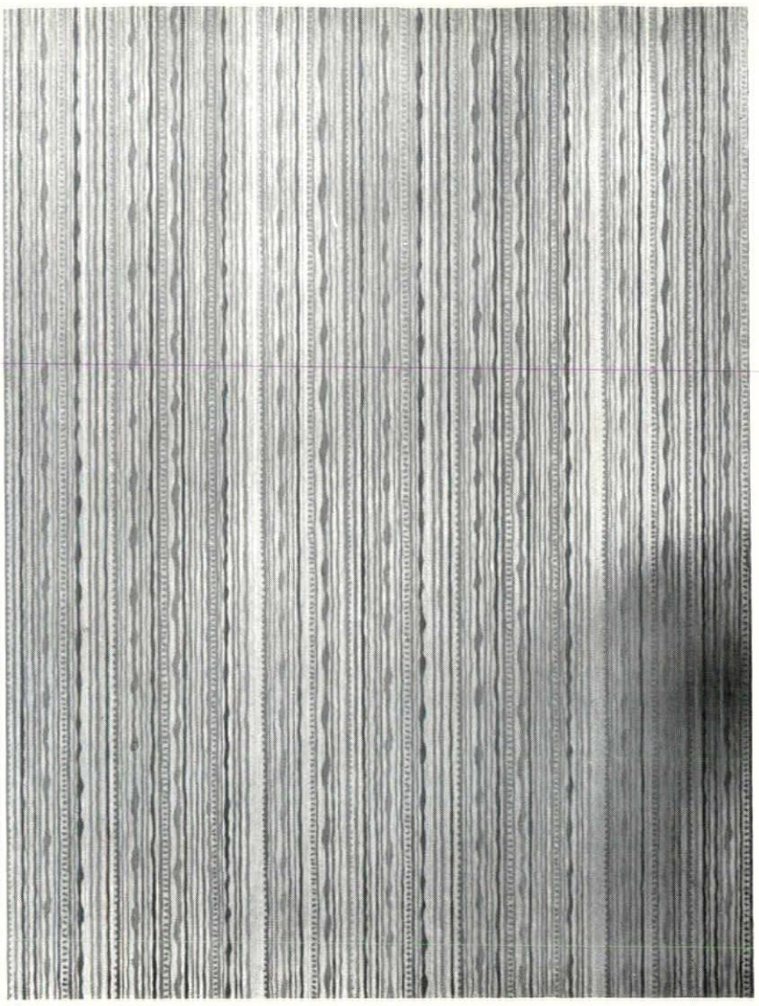
John Line are offering a new vinyl wallcovering named 'Balacuir' which comes from Holland. Being, in general, harder and far more resistant to wear than wallpaper (or indeed than almost any other wall surfacing)

[continued on page 388

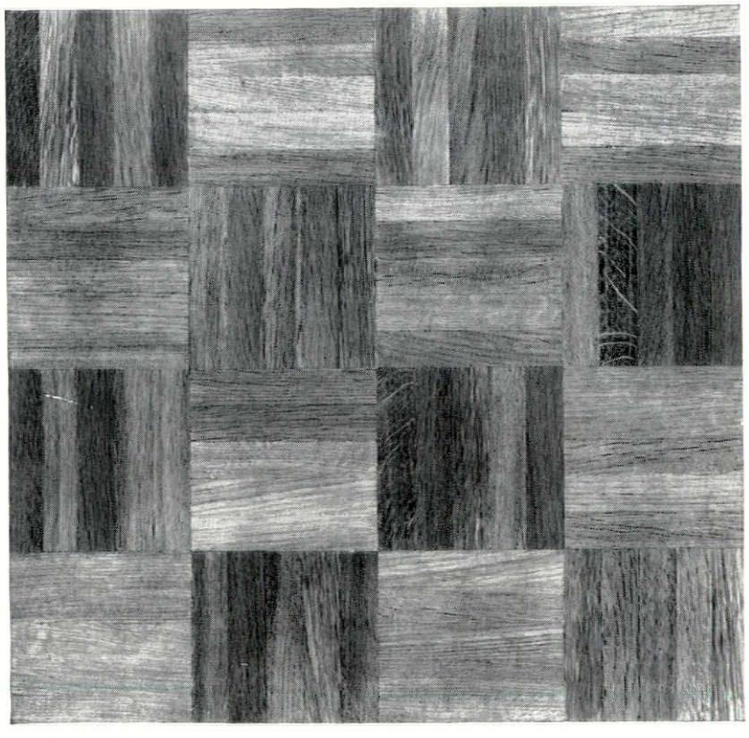
5, the 'Ultra 325' overhead door gear for double garages. 6, 'Balacuir' vinyl wallcovering by John Line & Sons Ltd.

5





6



Windsor PREFABRICATED OAK MOSAIC FLOORING

The Windsor Floor
PATENT Nº 544228

The above device is printed in bronze blue on the sheet of paper protecting the upper surface of every genuine panel of "Windsor" floor and is your protection against unsatisfactory imitations.

THE FIRST —— ——THE BEST

The illustration depicts "Windsor" standard oak floor. "Windsor Royal" with dark oak contrasting inserts, and certain exotic timbers, are also available.

For full particulars and the address of your nearest approved laying specialist, write to:

WINSORFLOR LTD.
ENHAM ARCH WORKS
NEWBURY ROAD
TELEPHONE ANDOVER 3092
HANTS

PARKER-KNOLL
comfort
at special contract prices



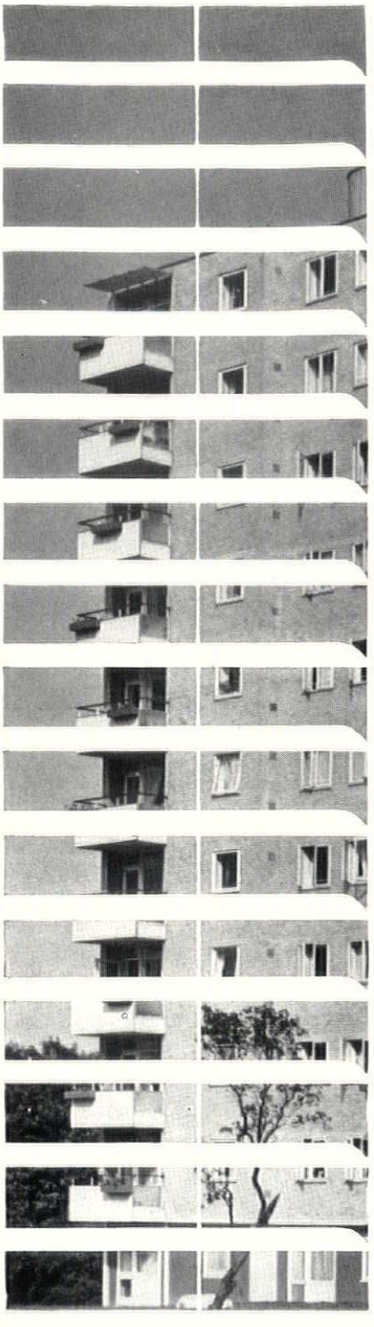
THE 'NEW MENTON'. Here is a splendid example of traditional Parker-Knoll comfort and quality, allied to a design as up to date as the morning's news. From £24.15.0 to £29.10.0 according to cover.

Those responsible for the interior decoration and furnishing of hotels, restaurants, clubs, hospitals, government departments, etc., will be glad to know that Parker-Knoll chairs and settees are frequently available at special contract prices.

PARKER-KNOLL

Please write for details to:
PARKER-KNOLL LTD., CONTRACT DEPT., HIGH WYCOMBE, BUCKS.
Showrooms: LONDON: 234 Tottenham Court Rd, W.1. MANCHESTER: 33 King St.
BRISTOL: 35 Park Street. BIRMINGHAM: 43 Temple Street.
HIGH WYCOMBE: The Courtyard, Frogmoor.

CVS-464

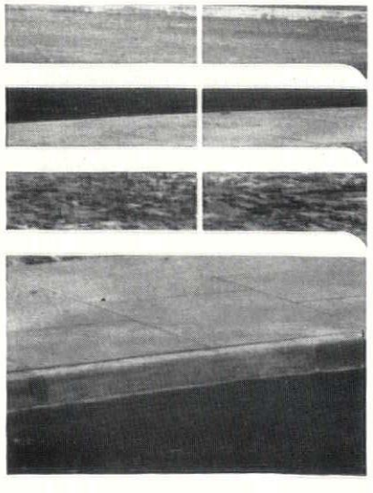


Whatever the view . . .

Sunway blinds can enhance it. Or intensify it. Or obliterate it. They can do much more besides: Sunway blinds soften and diffuse light. Or colour it. Or translate mere lumens into radiance.
In fact, they can establish the very climate of a room. They conserve heat in winter and keep rooms cool in summer. Sunway blinds let you choose the weather! Sunway are the blinds **without tapes**—an enormous improvement. The slats are virtually indestructible, and the colours (20 to choose from) permanent. Think seriously about using Sunway in offices, factories and showrooms as well as in the home.

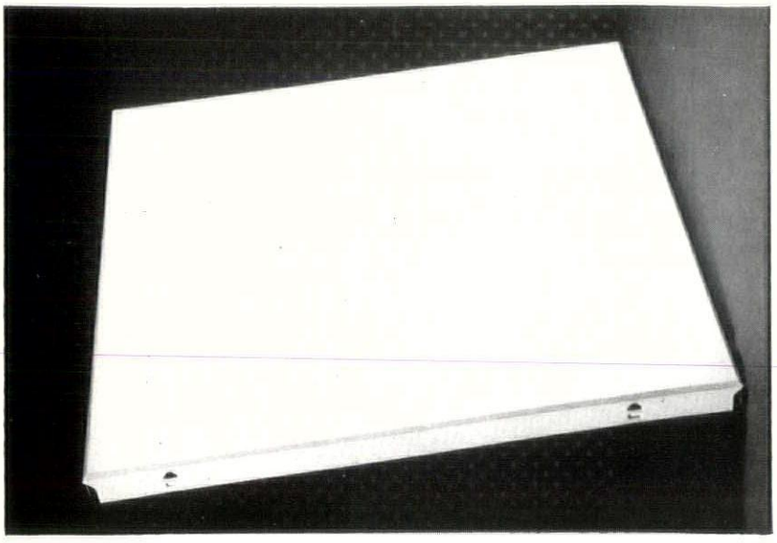
your home deserves

SUNWAY *BLINDS*
REGD



VENETIAN VOGUE LIMITED
SLOUGH · BUCKS

Serial No. ★ 2598
GOOD HOUSEKEEPING INSTITUTE
GUARANTEED
REFUND OF MONEY OR REPLACEMENT IF NOT IN CONFORMITY WITH THE INSTITUTE'S STANDARDS



7, *a fireproof acoustic ceiling by Burgess Products Co. Ltd.*

continued from page 386]

vinyl seems likely to occupy a place in decorating similar to that of lincrusta. Balacuir is supplied in sixteen patterns which are divided fairly equally between textural and design patterns and most of them can be provided in about half a dozen shades. A striking feature of the range is the presence of a large number of metallic finishes. The finished width of 'Balacuir' is 39½ in. (i.e. after trimming). It is sold by the linear yard. Prices range between 8s. and 17s. 6d. but, unlike wallpaper, there is no purchase tax to be added to this.
John Line & Sons Ltd., 213-216 *Tottenham Court Road, W.*1.

Fireproof suspended ceiling

Burgess Products now market an acoustic ceiling which has a fireproof rating of two hours. The ceiling comprises 24 in. by 24 in. metal trays in which is laid a 1 in. slab of Stillite mattress. The ceiling can be supplied, delivered and fixed at prices ranging from 39s. per square yard.
Burgess Products Company Limited, P.O. Box 11, *Hinckley, Leicestershire.*

CONTRACTORS etc

School at St. Marylebone, London. *Architects:* Leonard Manasseh & Partners. *General contractors:* Gee, Walker & Slater Ltd. *Sub-contractors: Precast concrete structure:* London Ferro-Concrete Ltd. *Structural steelwork:* Matthew T. Shaw & Co. *Mechanical services:* Benham & Sons Ltd. *Metal windows:* Crittall Manufacturing Co. *Slate roofing:* Roberts Adlard & Co. *Felt roofing:* William Briggs & Son Ltd. *Patent glazing and lantern lights:* Faulkner Greene & Co. *Electrical installation:* Buchanan & Curwen Ltd. *Window gear:* Teleflex Ltd. *Marble wall linings:* J. Whitehead & Sons Ltd. *Lightning conductors:* W. J. Furse & Co. *Acoustic ceilings:* Petradene Ltd. *Wood flooring:* Vigers Bros. Ltd. *Tarpaving:* Wainwright Paving Co. *Vinyl tile flooring:* Holmsund Flooring Ltd. *Lettering:* The Lettering Centre Ltd. *Landscape work:* Landscape & Public Works Ltd. *Precast concrete sills:* Cowley Concrete Co. *Sanitary fittings:* B. Finch & Co. *Flue linings:* True Flue Ltd. *Wood wool slabs:* Thermacoust Ltd. *Preformed wastes and traps:* Econa Modern Products Ltd. *Terrazzo partitions:* Zanelli (London) Ltd. *Flush doors:* Thames Plywood Manufacturers Ltd. *Painted asbestos panels:* Universal Asbestos Manufacturing Co. *Sliding windows:* P. G. Allday Ltd. *Casement doors and folding partition:* Morgan & Partners Ltd. *Ironmongery:* Alfred G. Roberts Ltd. *Sliding door gear:* P. C. Henderson Ltd. *Railings and gates:* Light Steelwork (1925) Ltd. *Venetian blinds:* London Blinds Ltd. *Facing bricks:* J. & W. Henderson Ltd. *Coloured glass windows:* James Clark & Eaton Ltd. *Wood windows:* Gee, Walker & Slater Ltd.

Physics Building, Liverpool University. *Architects:* Basil Spence and Partners. *General contractors:* Holland & Hannen and Cubitts (North West) Ltd. *Sub-contractors: Piling:* Cementation Ltd. *Metal windows and rooflights:* The Crittall Manufacturing Co. *Stone facings:* The Nine Elms Stonemasonry Works. *Electrical installation:* B. French Ltd. *Structural steelwork, steel roof trusses, purlins and bearers:* R. Smith (Horley) Ltd. *Precast concrete paving:* Mears Bros. (Contractors) Ltd. *Wood block flooring:* Bennetts Wood Flooring (Tungit) Co. *Spiral staircases and fire escape ladders:* S. W. Farmer & Son Ltd. *Staircase balustrading:* George Lowe & Sons Ltd. *Mosaic wall tiling:* Proctor & Lavender. *Mechanical services installation:* C. Seward & Co. *Lift installation:* Marryatt & Scott Ltd. *Soundproof rooms:* Soundproof Construction Ltd. *Steel sliding doors:* Potter Rax Ltd. *Precast concrete cladding:* Naybro Stone Ltd. *Precast concrete roof slabs:* Celcon Ltd. *Precast prestressed roof beams:* Pierhead Ltd. *Westmorland slate paving:* Setchell & Sons Ltd. *Ironmongery:* Quiggen Bros. Ltd. *Lecture theatre seats:* Race Furniture Ltd. *Sanitary fittings:* Musgrave (Liverpool) Ltd. *Steel wall channels:* Metal Sections Ltd. *Armourplate glass doors:* James Clark & Eaton Ltd. *Cement glaze:* John Ellis.

Parish Hall, Finchley, London. *Architect:* Kenneth Wood. *General contractors:* Dove Bros. Ltd. *Sub-contractors: Structural units:* Kingston (Architectural Craftsmen) Ltd. *Roofing:* British Aluminium Co.; Excel Asphalte Co. *Slate cills and cross:* Bow Slate and Enamel Co. *Hardwood flooring:* Acme Flooring Ltd. *Sanitary fittings:* Adamsez Ltd.; Alfred Goslett Ltd. *Door furniture:* Allgood Continental Ltd. *Window gear:* Teleflex Ltd. *Paints:* Thos. Smith & Son Ltd. *Wallpaper:* Arthur Sanderson & Son Ltd.

DESIGNED FOR THE DESIGNER



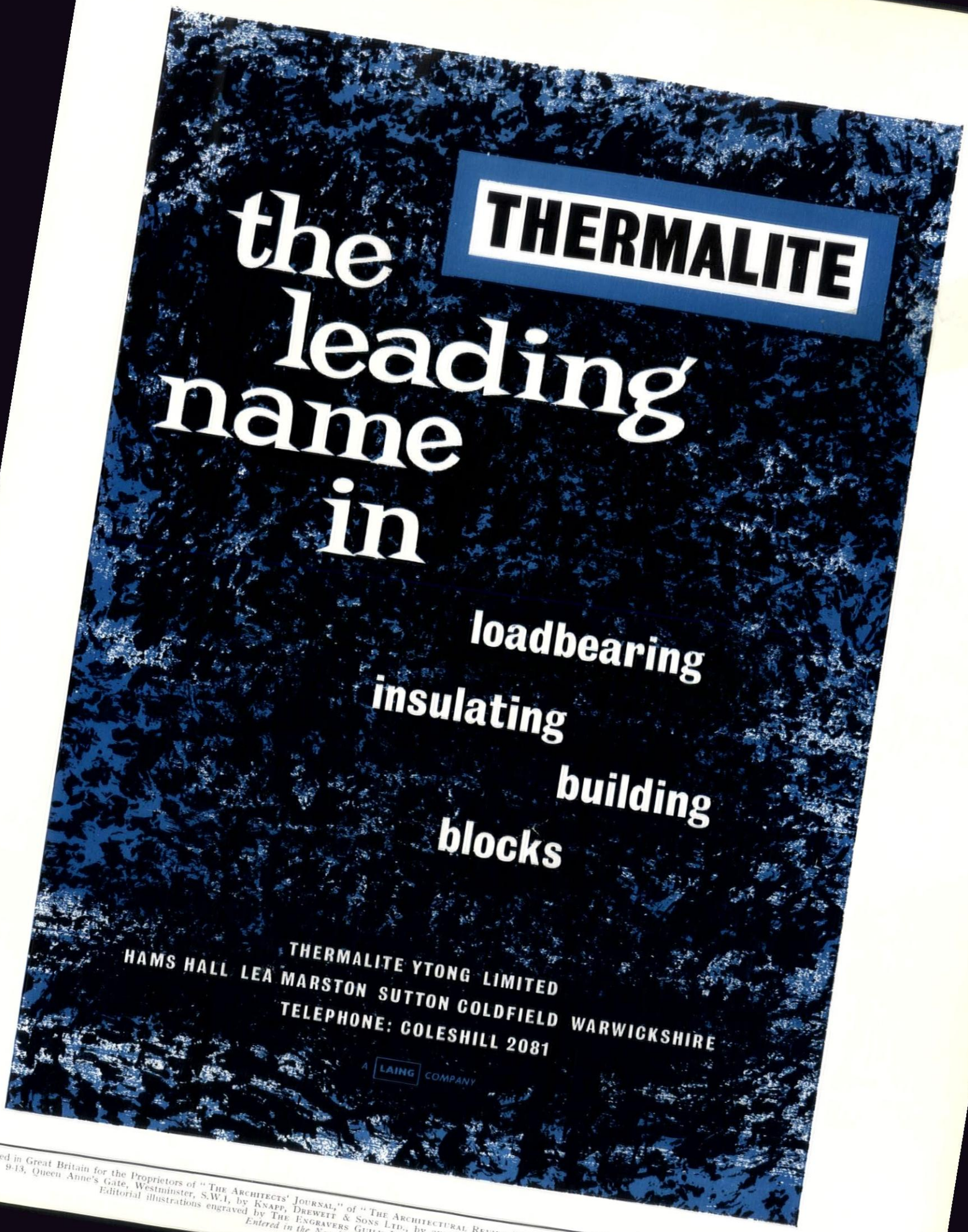
Devon Wall Tiles were used most effectively in the Imperial Hotel, Torquay.



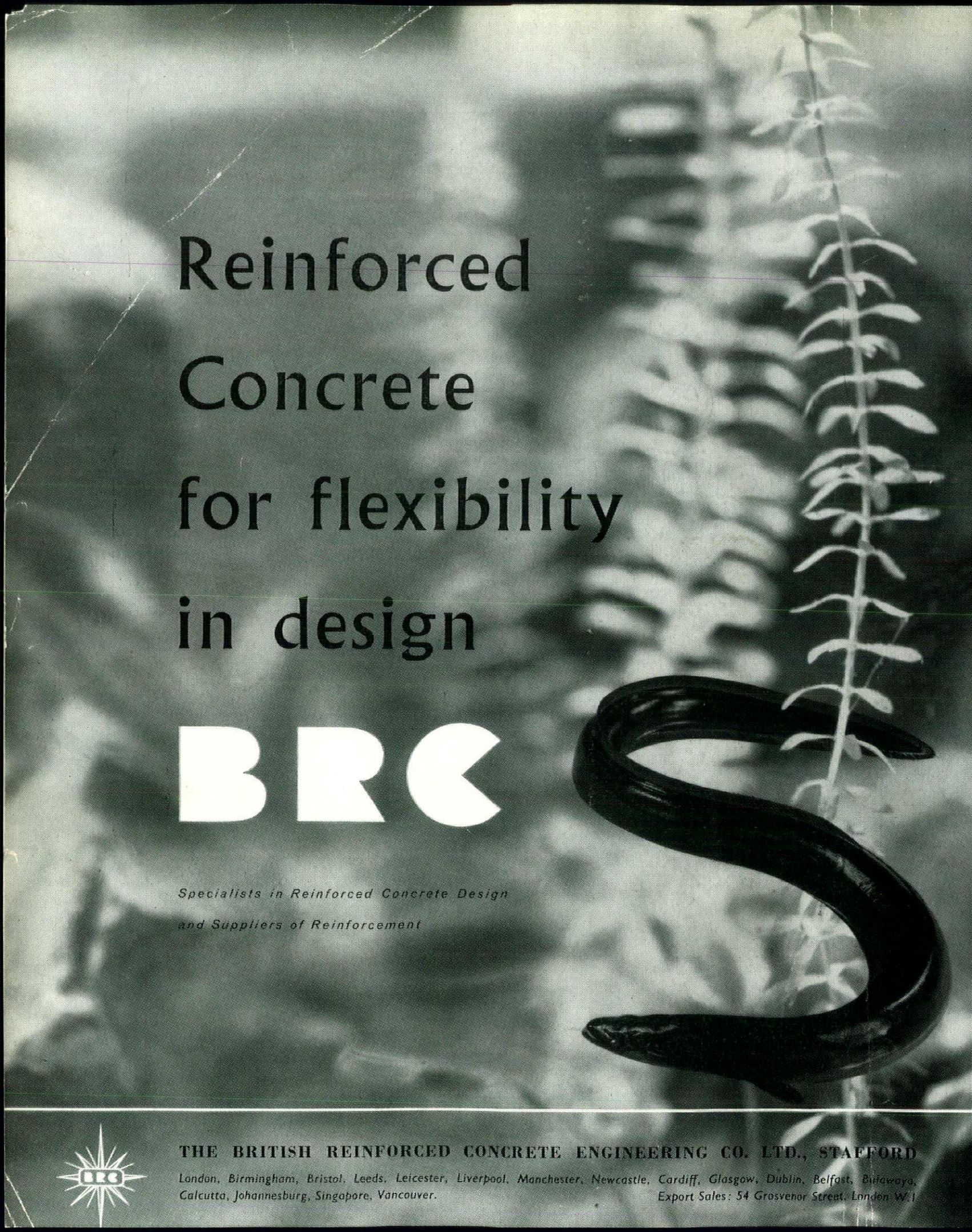
More and more architects and designers are discovering the rich variety of patterns and colours of Devon Tiles. Plain, glazed and embossed tiles. Attractive mosaics. Texurtiles (designed by Tibor Reich) based on fascinating, rhythmical motifs. Extra strong, frost-proof tiles for outside use. There's every kind of tile for every possible need. And they're *all* long-lasting, hygienic and easy to keep clean. Yes, these are tiles to fire the imagination.

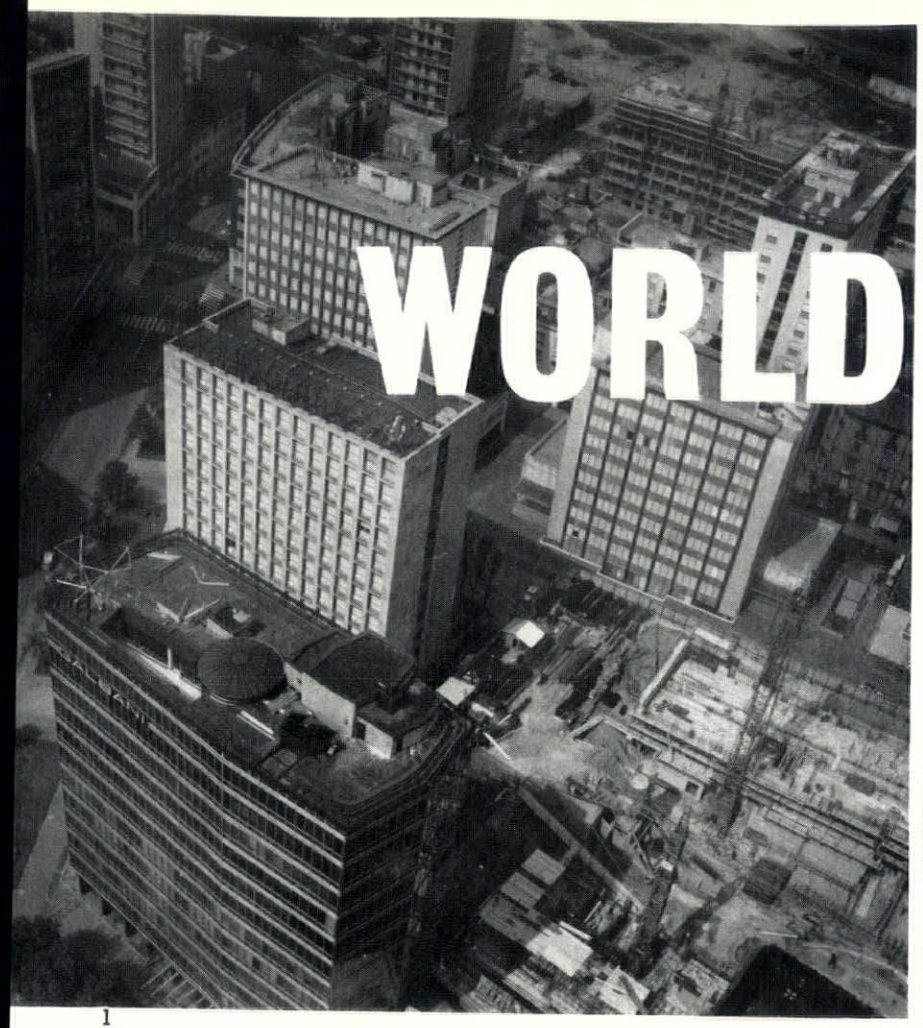
DEVON WALL TILES

(by the makers of The Devon Fire)
For catalogue of the full range, write to:
Department R3,
CANDY & CO. Limited
Heathfield, Newton Abbot, Devon



Printed in Great Britain for the Proprietors of "The Architects' Journal," of "The Architectural Review," and of "Specification" (The Architectural Press, Ltd.) 9-13, Queen Anne's Gate, Westminster, S.W.1, by Knapp, Drewett & Sons Ltd., by appointment to Her Majesty the Queen, Printers, Kingston-on-Thames. Editorial illustrations engraved by The Engravers Guild Ltd., Windsor House, 24-26, Cursitor Street, London, E.C.4.
Entered in the New York Post Office as Second Class Matter


Reinforced
Concrete
for flexibility
in design
BRC
Specialists in Reinforced Concrete Design
and Suppliers of Reinforcement
THE BRITISH REINFORCED CONCRETE ENGINEERING CO. LTD., STAFFORD
London, Birmingham, Bristol, Leeds, Leicester, Liverpool, Manchester, Newcastle, Cardiff, Glasgow, Dublin, Belfast, Bulawayo,
Calcutta, Johannesburg, Singapore, Vancouver.
Export Sales: 54 Grosvenor Street, London W.1



1

machine aesthetic

GALBANI: MILAN

The Pirelli Building (of which a critical study will appear in the AR early next year) has been described as the most conscientiously modern in Milan. But when the Pirelli-visitor looks down from its high attic into the bustling Quartiere Direzionale, 1, immediately behind it, he sees at least one building that can claim to be more slick, more smooth, more Ivy-league—the polygonal Galbani building, bottom left. Designed by Ponti's one-time partner, the redoubtable Soncini, its curtain walling in satin-finish aluminium and tinted, glare-resisting glass, 2, gives it a smartly sombre glitter that recovers, in a suitable up-to-date way, the mechanistic, impersonal slickness that was the aim of so much architecture (Eric Mendelsohn's department stores, for instance) in the late Twenties. But there is nothing period about either the conception or the details of Galbani; it wears its name like the logotype on a refrigerator or office machine, 3, rather than the inscription on a monument, and—as one visitor to the Triennale observed—you look for a slot to put a *gettone* in and make it work.

2



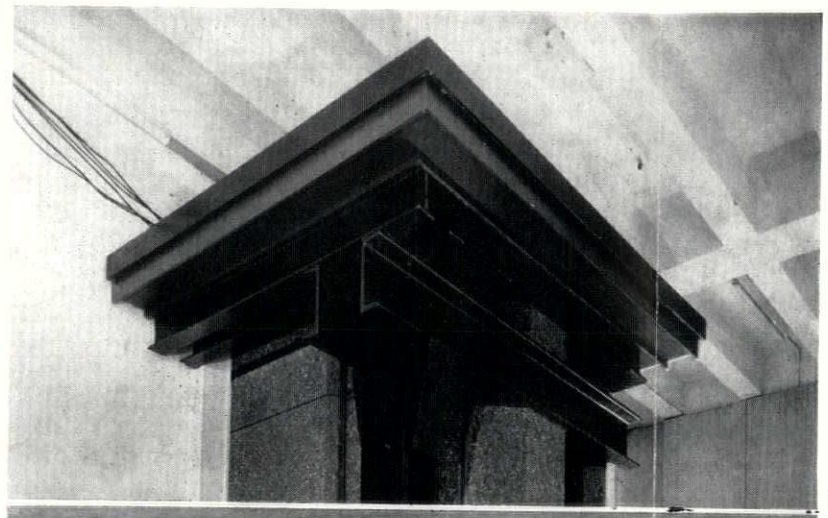
3



machine aesthetic

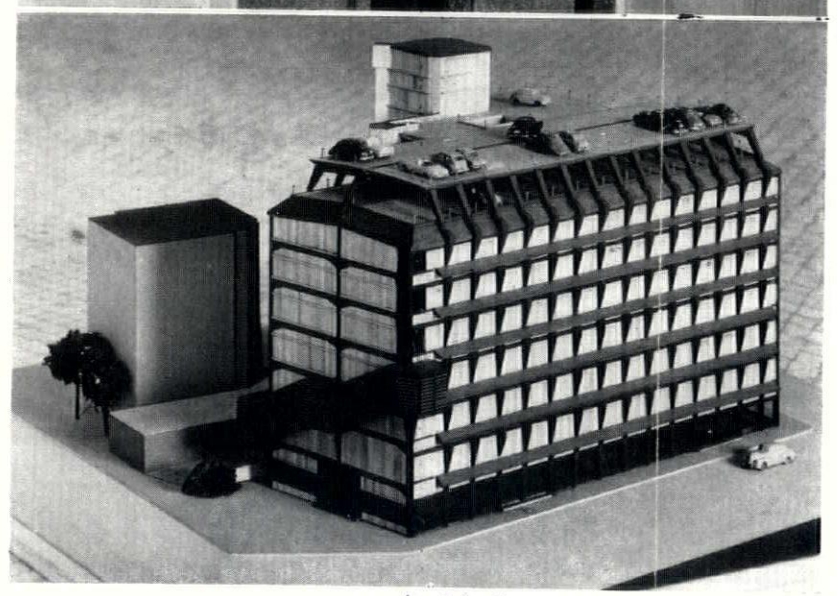
RINASCENTE: ROME

Visitors to the Triennale will also have observed an almost overpowering full-size mock-up of some welded steel detailing, 4, from a very different machine-aesthetic building, Franco Albini's project for a branch of the Rinascente store on the via Salaria in Rome. It might not be thought that anything so aggressively mechanistic could be an exemplar of Italian defeatism and historicism, but Albini (plus some unfortunate circumstances beyond his control) have made it so. This is a detail from the second version of the project; the first, seen in 5, was a most remarkable invention, the plastic image of a selling factory, with a structure of exposed portal frames, rooftop car-parking served by a lift tower, and an external staircase, 6,



4

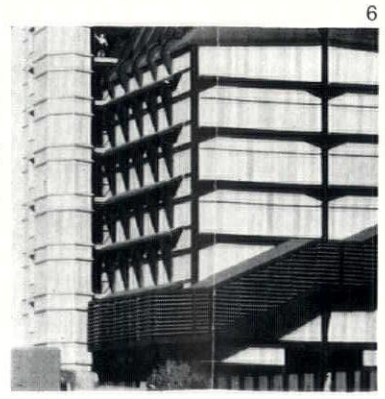
5



↑ RINASCENTE

GALBANI ↓

6



ACKNOWLEDGMENTS

WORLD, pages 389–392: 1–3, Banham Arphot; 4, 5, 7, Publifoto Milano; 6, *Casabella*; 8–11, *Deutsche Bauzeitung*; 12–16, *Byggnads Ingenjören*; 17–20, *Arkkitehti Arkiteckten*; 21–24, *Bauwelt*; 25–27, *Arts & Architecture*; 28–34, *Architectural Record*. VIEWS AND REVIEW, pages 393–395: 1, Warburg Institute; 2, National Buildings Record; 3, 4, The Zoological Society of London; 6, J. M. Cryle; 7, Anthony Panting. FRONTISPIECE, page 396: British Council. CHURCH AT BOW COMMON, LONDON, pages 400–405: Galwey Arphot. ROAD-STYLE ON THE MOTORWAY, pages 406–419: Frontispiece, Galwey Arphot; 6, Toomey Arphot; 21, Sam Lambert. LA VALLE DEI TRULLI, pages 420–423: Mimmo Castellano. PALACE IN THE PERSIAN GULF, pages 424–428: Galwey Arphot. INTERIOR DESIGN, pages 432–435: 1, 3, 4, Henk Snoek; 5–8, Alfred Cracknell; 9, Galwey Arphot. CURRENT ARCHITECTURE, pages 440–443: 1, 3, Sam Lambert; 2, Toomey Arphot; 5, Norman Brown & Co.; 6, Angus Photos; 7, John Maltby. MISCELLANY, pages 444–451: Exhibitions, 1, 2, 4, 8, Corry Bevington; 3, Marlborough Fine Art Ltd.; 5, R. B. Fleming & Co. Ltd.; 6, James Mortimer. Obituary, 2, Cedric Barker; 4–10, 12, Toomey Arphot; 11, LTE. Townscape, 1–7, DRU. THE INDUSTRY, pages 454–460: 2, Freddie Squires Ltd.; 3, Nevin D. Hurst (Advtg.) Ltd.



This month's cover was designed by Philip Thompson.

THE
ARCHITECTURAL
REVIEW

9-13 QUEEN ANNE'S GATE, WESTMINSTER, SW1 WHITEHALL 0611 FIVE SHILLINGS

VOLUME 128 NUMBER 766
DECEMBER 1960

SUBSCRIPTION RATE:—*The annual post free subscription rate, payable in advance, is £3 3s. 0d. sterling, in USA and Canada $10.50, in Italy Lira 6940, elsewhere abroad £3 10s. 0d. Italian subscription agents: A. Salto, Via Santo Spirato 14, Milano; Librerie Dedalo, Via Barberini 75-77, Roma. An index is issued half-yearly and is published as a supplement to the REVIEW.*

Directing Editors	*J. M. Richards, Nikolaus Pevsner, H. de C. Hastings, Hugh Casson*
Executive Editor	*J. M. Richards*
Assistant Executive Editor	*Reyner Banham*
Assistant Editor (Production)	*William Slack*
Features Editor	*Kenneth Browne*
Technical Editor	*Lance Wright*
Assistant Editor (Counter Attack)	*Ian Nairn*
Staff Photographers	*De Burgh Galwey, W. J. Toomey*
Advertisement Manager	*V. V. Tatlock*

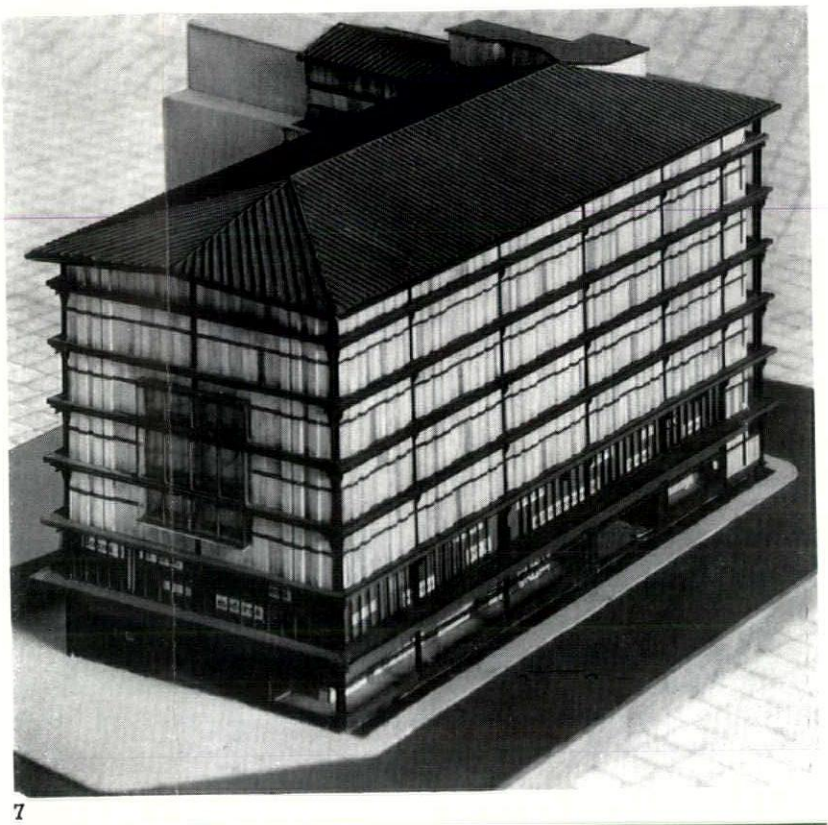
CONTENTS

389 World
393 Views and Reviews
396 Frontispiece
397 Be Thyself: *Ian Nairn*
400 Church at Bow Common, London: *Architect, Robert Maguire*
406 Road-Style on the Motorway: *Raymond Spurrier*
417 A Model Service Area on M1: *Architects, Leonard Manasseh and Partners*
420 Exploring Eye: La Valle dei Trulli
424 Palace in the Persian Gulf: *Architects, Farmer and Dark*
429 Mackmurdo Gleanings: *Edward Pond*
432 Interior Design
Two Business Interiors
Architects: Michael Lyell Associates
Staff Restaurant and Coffee Bar in Westminster: *Architect, David B. Rock*
Dining Room in Lincoln College, Oxford: *Architects, The Architects Co-Partnership*
436 Design Review
437 Fix: *Alison and Peter Smithson*
440 Current Architecture
Miscellany
444 Exhibitions
446 Obituary
448 Townscape
450 Counter-Attack
452 Skill
Climatology and Architecture: *Thomas Markus*
454 The Industry
460 Contractors, etc.

Rinascente

that put it in a class with the exposed-circulation architecture of Lou Kahn's 'topological' projects.

The second version is still the image of a factory, but a primitive, historical factory, 7, with a distinctly Boulton-and-Watt air, like an illustration from the middle chapters of *Space, Time and Architecture*—a nonsensical situation since this is, in one way, a more advanced building: the corrugations of the windowless wall contain the air-conditioning ducts.

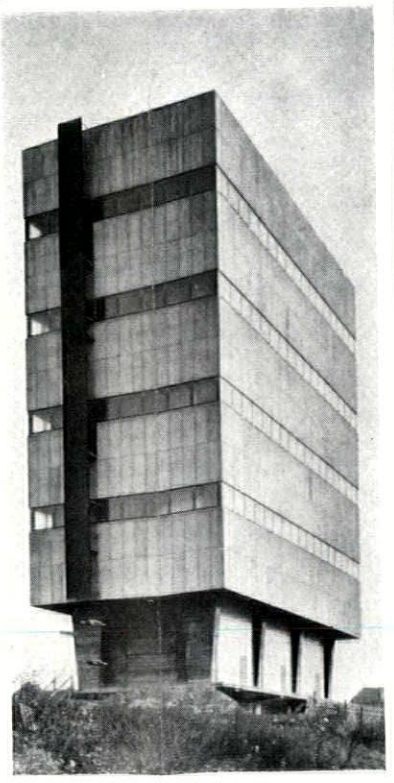


7

GERMAN SUBSTATIONS

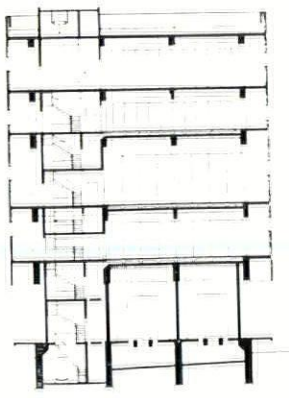
Saarbrucken & Ulm

8



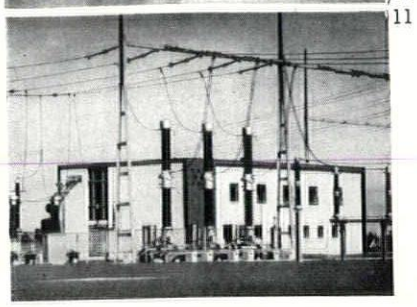
Very neat, and unmistakably German, the Hochstrasse electricity substation at Saarbrucken, 8, conceals more than its regular exterior suggests. The architect, Peter Paul Seeberger, city architect of Saarbrucken, has located all the heavy plant at ground level between the pilotis of the concrete frame construction. Above this, the corrugated asbestos exterior, with its regular storey-heights to the window-strips, shelters, not four *equal* floors of equipment, but two double-deck switching installations, each with unequal storey-heights, as the section shows, 9. Though purists would doubtless object to this 'dishonesty,' it causes no functional difficulties, since the only really awkward window height occurs on the lower, cable-deck of the upper installation, where fenestration is less critical since this level is less inhabited. And again, the visual improvement that results from thus regularizing the outward face of a building whose section is apt to relapse into half-storeys, is formidable. The opposite solution may work for other types of building, p. 392, but for power stations the result, it could well be argued, is far better architecture than another, similar installation illustrated in the same number of *Deutsche Bauzeitung* (9, 1960) outside Ulm, which has a rather grandiose control room, 10 (in the wooden space-ship style), but fails, for all the architect Hanns Klatz's efforts to make a coherent image out of its buildings and open-air plant, 11.

9





10



11



12

PROGRESS ON THE HELICOID

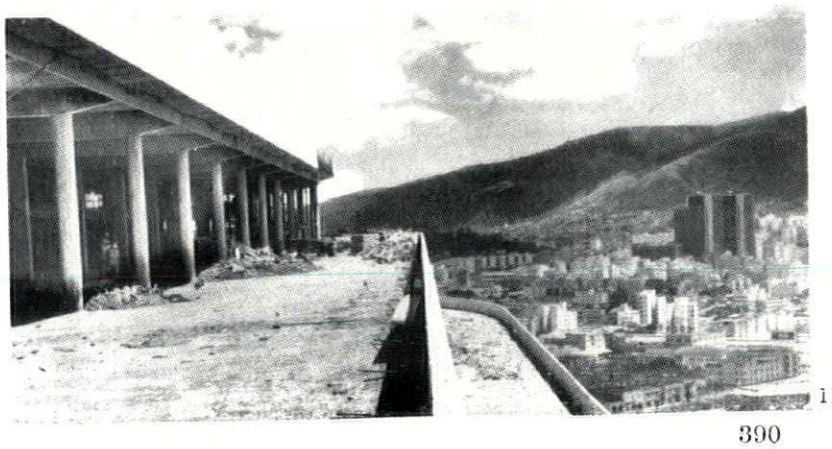
The shopping centre to end shopping centres, the *Helicoide de la Roca Tarpeia*, Caracas, which was discussed in AR October, 1957, as something of a visionary project, deserves our apologies—it is being built, and is well advanced, 12, though some gaps in the construction remain to be closed. The Swedish magazine *Byggnads Ingenjoren* (8, 1960) has recently published extensive progress shots of this fantastic and highly Venezuelan structure, showing, among other things, sections already in use, 13; approach bridges carried on asymmetrical half-portals, 14; stupendous views from its upper decks, 15, which in their unfinished condition suggest rather forcibly the kind of equally stupendous ruins that

13



14



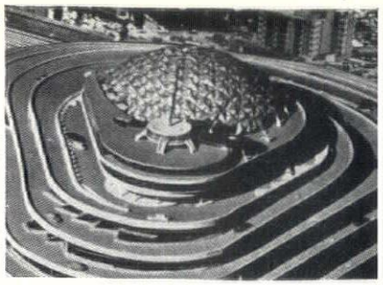


15

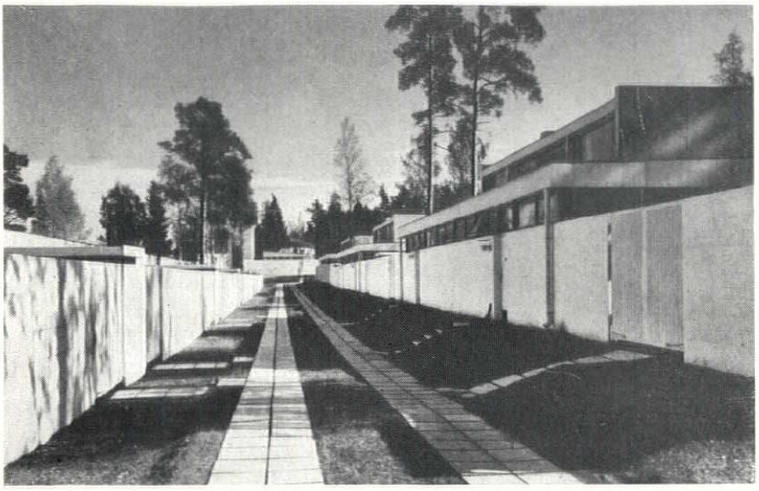
Helicoid

this machine-age Praeneste will make —if it is allowed to stand long enough. It is also to be noted that the most recent version of the project-model, 16, shows a Kaiser/Fuller dome in aluminium, not a ribbed concrete one, as the crown of Jorge Romero Gutierrez's design.

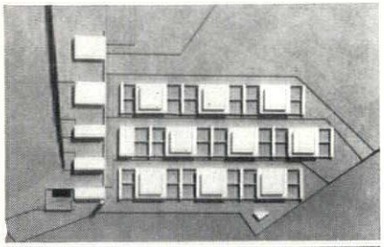
16



FINNISH PATIOS



17



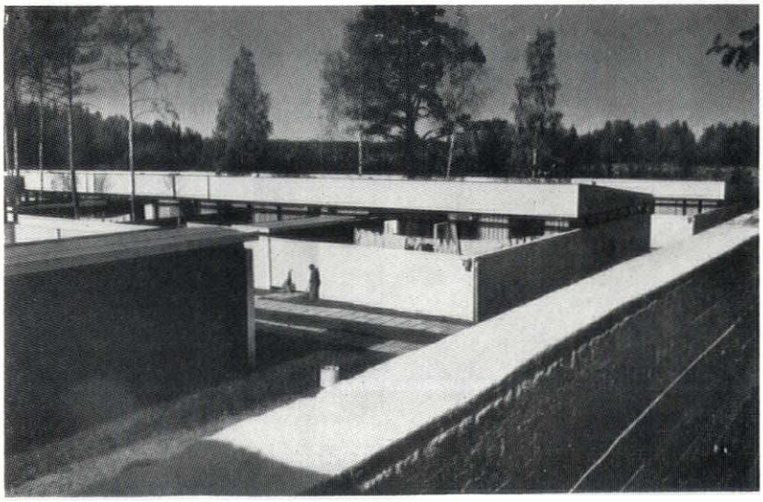
18



19

The relentless efflorescence of supposedly Mediterranean themes in Northern architecture persists. After much sun-baked discussion at CIAM (and projects for North Africa) high density, *low*-rise, 'pompeian' town planning has finally appeared in Finland, 17. These patio-houses at Esbo, by Toivo Korhonen and Jaakko Laapotti, were originally intended to answer to the ideal, diagrammatic plan shown in 18, in which each house-block was to contain four dwellings, two facing each pedestrian lane, and opening on to a garden court at each side. In fact, this two-storey concept was realized only in one row of houses (to the right in 17), and the rest of the development was completed in single-storey, single-sided blocks, 19. Although this lowered the overall density and the amount of traffic in the lanes, the internal townscape of the scheme maintains the original intention, 20.

20



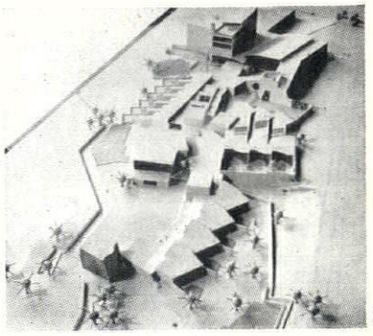


21

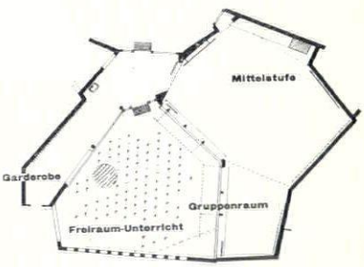
SCHAROUN SCHOOL IN LUNEN

Those who have followed the history of German architecture since the late War can hardly fail to be moved by the sight of a *completed building* by Hans Scharoun, the Geschwister-Scholl high school for girls, 21, hard up against the Old Town at Lunen. Revered as a teacher, admired beyond measure by his fellow-professionals, courted by Brutalists and Informalists from outside Germany, but ever the second prizeman in competitions, Scharoun has now been given a chance (by the same foundation that supports the *Hoch-schule für Gestaltung* at Ulm) to realize the much discussed school design, 22, he showed at the Darmstadt-Gesprach as long ago as 1951. The Lunen version has less sectional interest than the Darmstadt project because its only vertical development is the location of the upper grade class rooms on the roof of the long 'halle' that serves the school as a multi-purpose space for eating, circulating, library, keeping tropical fish and group activities generally.

But if the section disappoints, the plan triumphs, 24. Rarely has informality, 23, verging on apparent vagueness, made such strict practical sense—nor, alas, produced interiors so incomprehensible in photographs. Rarely has standardization looked less uniform—yet all class-rooms, including those of the upper grades, are identical in form and construction, and their external class-spaces are identical for each class-room in any grade, near enough. Whatever may be said about

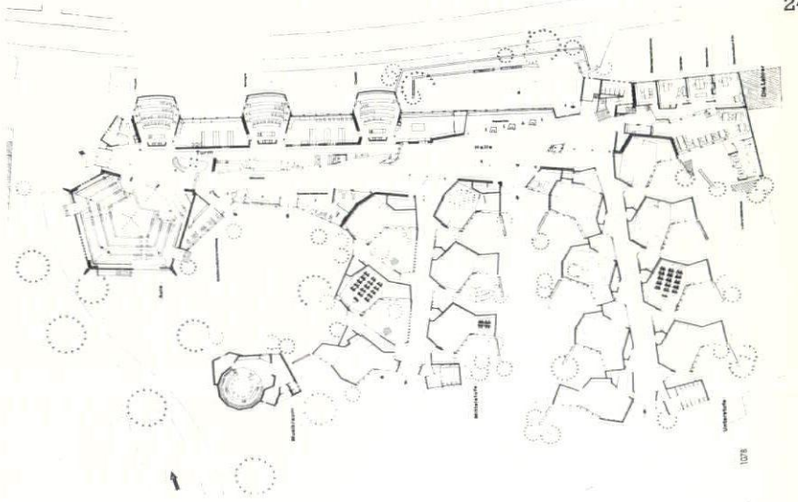


22



23

24



Scharoun

the special circumstances behind the commissioning of this design, and the generous budgets (including a generous heating allowance) it remains one of the most original post-War schools in Europe, and will give Formal/Aformal arguments a new lease of life.

DIAGRAM

The US magazine *Arts and Architecture* seems to have a knack of finding strangely diagrammatic buildings, or else its photographers have a way of bringing out the diagrammatic qualities of otherwise straightforward ones. Its recent publication (August, 1960) of the Gibraltar Savings Building in Houston, Texas (architects, Greacen and Brogniez) produced, 25, a text-

25

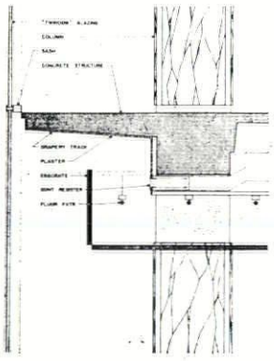


book example of a sky-cube picture of curtain-wall as reflector, and 26, an exterior night shot that carries the 'inhabited grid' aspect of glass-walled buildings to an almost ultimate condition—were the floor-slabs and mullions

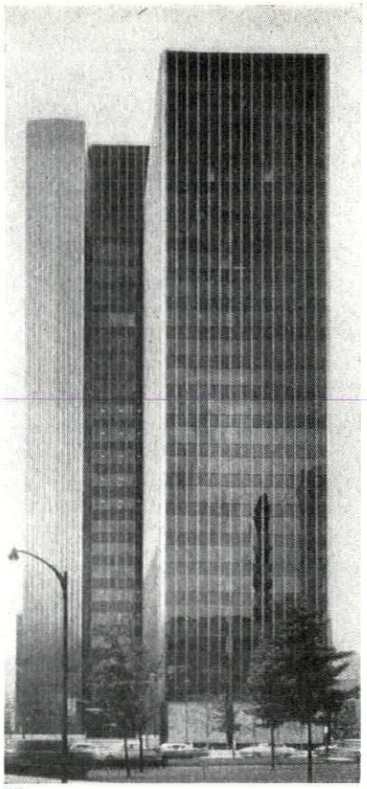
26



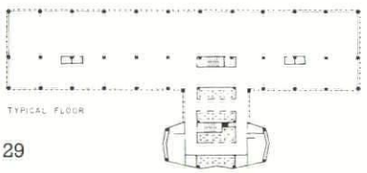
any thinner the grid would disappear. Two further points are worth noting, however. Firstly, the device used to reduce the floor edges to almost nothing, in spite of the fact that deep suspended ceilings are used, revealed in the detail, 27; and secondly, the way in which variations of floor-height are here used and put to work visually, in contrast to their concealment in the sub-station illustrated on p. 390.



27



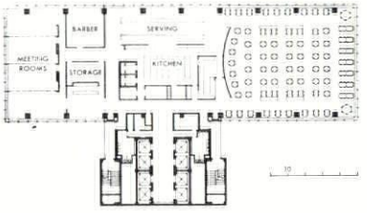
28



29

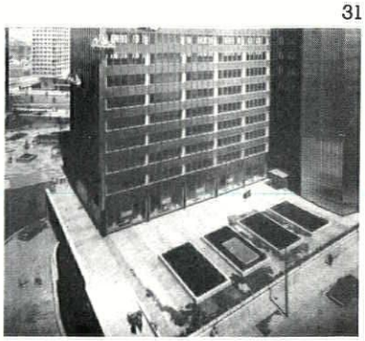
GOLDEN TRIANGLE

30 CROWN ZELLERBACH



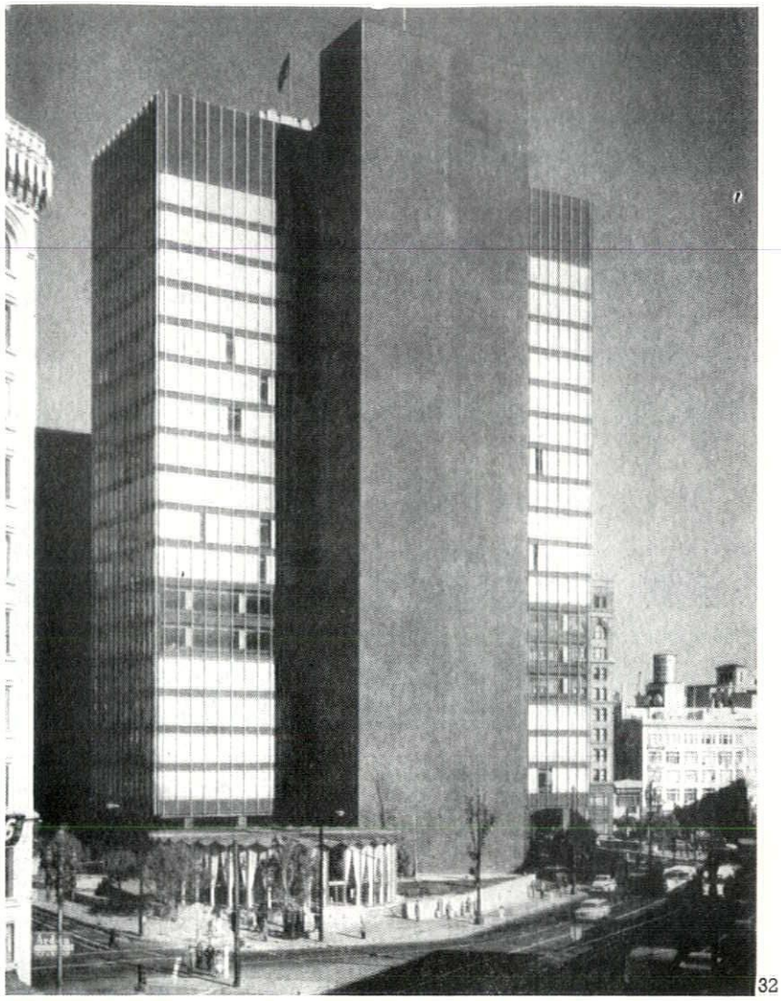
The idea of making services into a major external feature of a building is not a Lou Kahn speciality alone—the idea goes back to Le Corbusier's *Pavillon Suisse*, and has erupted also in one or two recent US office blocks. Harrison and Abramovitz's latest contribution to Pittsburgh's Golden Triangle is a 'normal' curtain walled slab standing 22 storeys high, 28, with its elevator stack not buried in the core of the building, but turned at right angles to one of its exterior walls, 29, and housed in a projecting wing of

31



FEATURED SERVICES

two recent US office towers

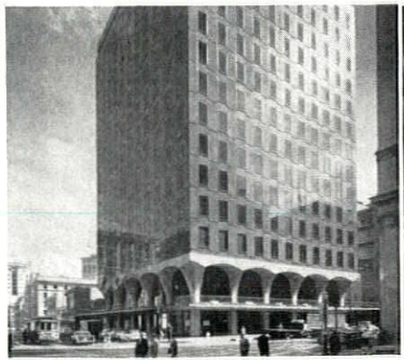


32

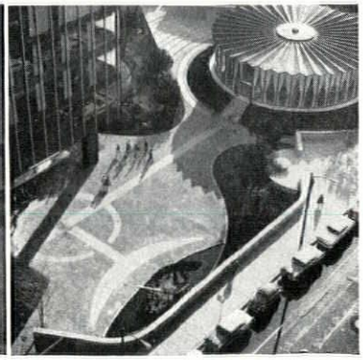
hammer-headed plan, the head of the hammer being clad in stainless-steel in such a way as to make it almost impossible to tell from outside what is going on inside. The impression, certainly, is that the elevator stack lies parallel with the main block, separated from it by the entrance lobby. Be that as it may, the stainless cladding is extremely handsome in its own right, and the projecting service tower gives partial enclosure, 31, to a piazza like that at the Seagram Building, with the advantage that here the enclosing element is within the architects' control and not, as at Seagram, at the mercy of flanking developers.

The same conflict between the implications of a hammer-headed projection and the orientation of the lifts is seen in the more modest Crown-Zellerbach Building, 31, 32, in San Francisco (SOM with Hertzka and Knowles) though here, again, the separation of services from work-floors is clearly made. However, this aspect of Crown-Zellerbach has been overshadowed in the US Press (e.g. *Progressive Architecture*, April 1960) by the eccentricities of Skidmore, Owings and Merrill's other San Francisco office block, the arcaded, small windowed, John Hancock Building, 33, and by Crown-Zellerbach's own, much-admired piazza, 34, landscaped and made partly sunken by exploiting the slope of the surrounding streets to give access at various levels.

33



34



views and reviews

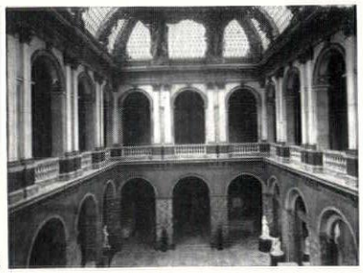
MARGINALIA

SIR CHARLES BARRY: 1795-1860

One hundred years after Barry's death we can safely state that his Palace of Westminster is established as the most popular building in Great Britain. The sightseers and the picture postcards show this beyond any doubt. It may be the most popular building in the world and its clocktower alone has an emotional connotion equal to that of the Statue of Liberty.

For this the architect is to a large extent responsible. The silhouette is varied and delightful, the river front splendid, the broken Abbey front charming. The plan was sufficiently good to be exported to places as far apart as Budapest and Tokyo. The style—and this was not the architect's choice—was a happy piece of inspiration. Classic is inevitably associated with autocracy and aristocracy and the fire which occasioned the building occurred after the passing of the Reform Bill. Of Barry's contemporaries only Cockerell could have provided a building of greater distinction, but it would never have been such a popular one. The Ashmolean may be, building for building, finer than anything of Barry's, but it will never be liked without question. Cockerell was the Marvell to Barry's Dryden.

Two qualities made Barry an outstanding figure—a very exact sense of what would go and an exceptional professional competence. The Travellers Club was the production of a sensitive man who more quickly than any other felt the change in the social air (his personal background may have been partly responsible for the prescience), and the Reform Club was the production of a man who knew he had found what answered. His work for the aristocrats was similarly apt. They were on the point of degenerating into the Arnoldian barbarians, but enormously enriched by the minerals under their lands or by simply having a head start in the race to Victorian wealth. Barry gave them bold, rich, and admirably contrived accommodation. His houses are really wearing their jewels. Bridgewater House, 1, the last remaining great Victorian town house, is a good example of the manner, and it adds an ironic twist to Barry's centenary that it should now be attracting the attention of the speculative developers.



1

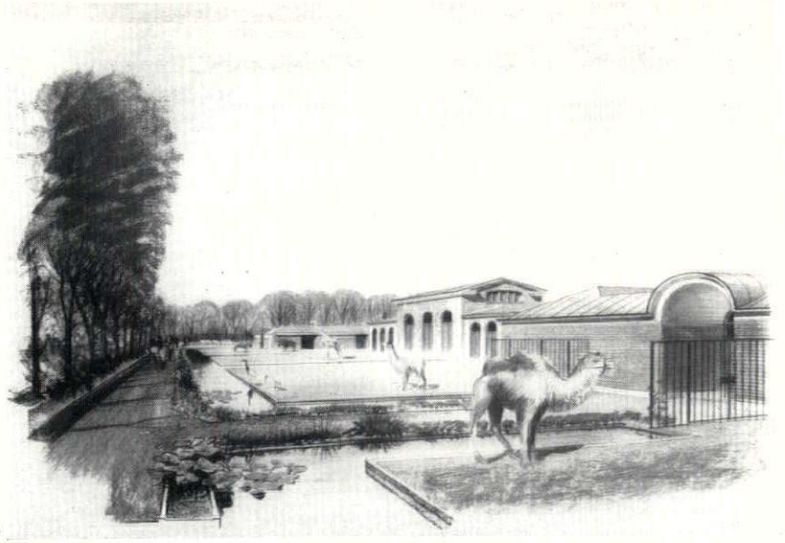


2

Two buildings by Barry whose future is in doubt: 1, the Hall at Bridgewater House, St. James's and, 2, Felix House tower at Walton-on-Thames, Surrey.

Of Barry's competence there can be no question; he was pre-eminent. The Palace of Westminster was built under appalling difficulties at a time when there was no experience or office organization for a job of this magnitude. It took a man of firmness, agility and fortitude to do the immense amount of work. Everything went against him—the MPs subjected him to spiteful attacks, his technical advisers let him down, the bell cracked, the painters couldn't manage fresco. Not many men could have seen it through, and for having done so all subsequent architects in private practice owe him a debt. The competence went much further than the professional life. He made his buildings fire-proof. He laid out Trafalgar Square in such a manner that London should have had at least one grand enclosure. He designed greatly impressive formal gardens when nobody else could. In great and small things he was splendidly efficient.

Peter Ferriday



3



4

3, moated paddocks for camels, giraffes and cattle, part of the proposed Canal Bank section at the London Zoo. 4 shows the new layout of the Middle Garden and Canal Banks.

ZOO RECONSTRUCTION

The work of rebuilding, re-equipping the London Zoo, and bringing it up to international standards of display is now out of the planning stage, at least as far as the north-western part of the Gardens is concerned. This phase of the work, to be carried out with the money recently donated to the Zoological Society by Mr. Jack Cotton, consists largely of terracing and landscaping the banks of the Regent's Canal to a scheme devised by Peter Shepheard, creating paddocks for deer, etc., which may be viewed either from the canal bank, or the high walk behind, at park level. Houses for the animals will be built under this high walk, and visitors will be admitted to the lower level to view them in the winter quarters at the appropriate times of the year.

On the higher level, Decimus Burton's Giraffe House is to be re-built with new wings added in a sympathetic style, by the Zoological Society's own architect, Franz Stengelhofen. The outdoor paddocks for the animals in this section will not be fenced, but surrounded by narrow moats, 3. Further terracing and landscaping will be done on the other (north) bank of the canal, and a new bridge is being designed by Sir Hugh Casson, Neville Conder and Partners. The complete new works are seen in the view of the model, 4. In this the famous Gorilla House, one of Tecton's pre-war designs for the Zoo, is on the left.

IUA PROGRAMME

The organizing committee of the Sixth Congress of the International Union of Architects has now issued the detailed programme of the Congress which will take place in London in July next, as announced in the AR for October. The programme is detailed even to the extent of giving information about London weather, as well as a full time-table of the Plenary Sessions, meetings of Working Groups, etc., announcements about supporting exhibitions, tours, receptions and visits, and registration information. A point that needs to be drawn to the attention of non-members of the IUA is that, if they attend the congress as Observer Members, they do so at the same fee as Full Members, and enjoy all the

same rights and services as full members except the right to vote. The term 'observer' is interpreted to include practically every class of person and profession with a bona fide interest in architecture, so that there is unlikely to be anybody with a real desire to know more about current international views on the influence of new techniques and materials who will not qualify.

Applications for membership, which should arrive before January 1, 1961, and other enquiries, should be sent to: the Organizing Secretary, Sixth Congress of the IUA, Royal Institute of British Architects, 66 Portland Place, London, W.1.

INDUSTRIAL ARCHAEOLOGY

A midsummer event for which delegates to the IUA Congress might well wish to stay on in England after the Congress and its supporting activities are finished, is the pioneer Summer School in Industrial Archaeology to be held under the sponsorship of Manchester University from July 15–29. The director of studies will be E. R. R. Green, secretary of the Industrial Archaeology Research Committee, and the subjects to be included cover canals, mining, waterpower, survey and research techniques, Dr. Raistrick on Coalbrookdale and C. T. G. Boucher on John Rennie. There will also be a series of visits to sites within reach of Manchester. Application forms may be had from the Department of Extra-mural Studies, University of Manchester.

DESTRUCTION AT ABERDEEN

Judging from the wanton destruction of every piece of Victorian furnishing and decoration in St. Mary's Roman Catholic cathedral at Aberdeen, it looks as if Aberdonians still hold the belief that anything built between 1840 and 1900 is automatically ugly. It is doubtful if any place of worship in Britain erected in the last century has been purged so thoroughly as this fine example of Gothic Revival, designed by Alexander Ellis (1830–1917), and opened in 1860. Ellis may not have been an architect of the first rank, but the many churches in the north-east of Scotland for which he was responsible often show an originality not found in the work of some of his contemporaries; e.g. John Henderson, Alexander Ross, and Mackenzie and Mathews.

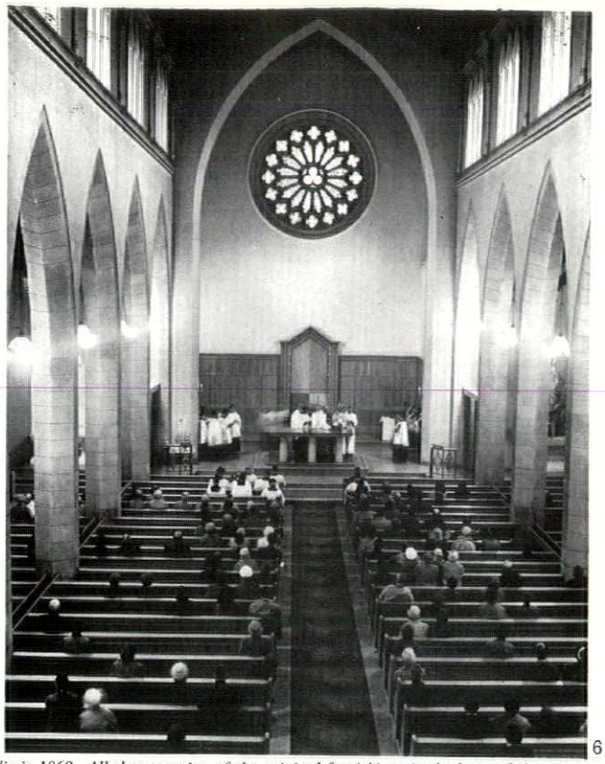
It has been stated that the purpose of this ambitious and costly renovation scheme was to make the cathedral a model of community worship in the diocese. Elsewhere we are told that it was impossible to make of the building 'a cathedral conforming to modern liturgical law and practice' without replanning and refurnishing the interior, lock, stock and barrel. An objective observer might be inclined to say that the real urge was to conform to what is nothing more than a fleeting phase of ecclesiastical fashion.

The font was removed from its structural baptistery and put against the wall at the back of the nave. The baptistery was turned into a Lady Chapel. The curved rood beam with its crucifix and statues (reminiscent of the one designed by George Gilbert Scott junior at St. Agnes, Kennington) was hauled down. The mouldings of the lofty chancel arch were taken off or filled in with cement, and its bosses hacked away, so that a streamlined effect could be achieved. The high altar and its carved stone reredos were smashed to atoms, just as were the reredoses of the two side altars. The canopied pulpit, bishop's throne, the marble communion rails with their wrought iron gates, the Stations of the Cross, and every statue were cast out. Even the marble pavement in the chancel fell under the ban.

The replanning and refurnishing must have cost much less than the destruction. All that has been done is to erect a plain grey granite holy table between the nave and the chancel, so arranged that the celebrant at Mass may face the people. The new bishop's throne stands on a platform against the east wall below the rose window, and dominates the interior. The yellowish brown oak panelling around the lower part of the walls helps to create the illusion of being in a typical modern Presbyterian kirk. Oak floor boards have been substituted for marble. The colour scheme of the interior is composed of vivid forget-me-not blue walls in the aisles, bright grass green in the chancel, and pale purplish grey in the nave. It is high time that good Victorian churches were given the official protection already afforded to buildings of earlier date.

Peter F. Anson





5, *St. Mary's Cathedral, Aberdeen, as planned and furnished by Alexander Ellis in* 1860. *All that remains of the original furnishings is the base of the pulpit, removed to St. Peter's Catholic Church, Aberdeen.* 6, *the interior as it is now, with its Victorian furnishing stripped away.*

GAUDI'S HOUSE

The house in which Antoni Gaudi lived the last twenty years of his life —seen in 7, beyond the 'ramparts' of the Parque Güell, which he also designed—is to become a personal museum of Gaudi's life and work, and a hostel for foreign students visiting Barcelona. While this is the highest point to date in Gaudi's dizzy rise to posthumous eminence as a rediscovered pioneer of modern design—what architecture students visited Barcelona ten years ago?—it is also, in a quieter way, a triumph for the Amigos de Gaudi, who purchased the house and established its new role, and part of a general quickening of local activity connected with his architecture—there are strong reports of major developments towards the completion of the Sagrada Familia, and some work is being done on its site again.

WASHINGTON HOTEL, LONDON

The caption to the picture of this hotel in the October AR described the concrete frame as being faced with glass mosaic. It is now learnt that the material is a glazed ceramic mosaic, imported from Italy.

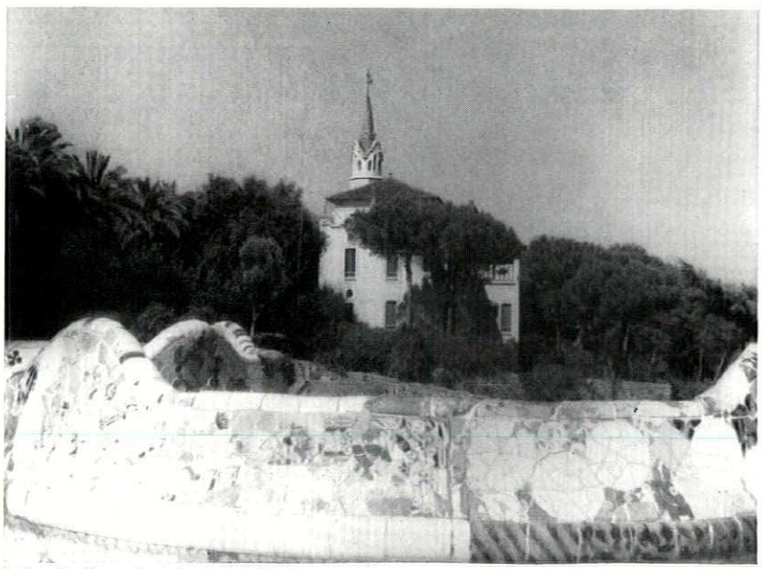
CORRESPONDENCE

THE GREENWICH LAYOUT

To the Editors.

SIRS,—The subject of 'The Greenwich Layout' of Inigo Jones, dealt with in your May issue by Mr. Octavius Wright, and referred to in your August number by Mr. John Harris, is of deep interest in the study of seventeenth and eighteenth century architecture.

When the problem of the Queens House is approached from the angle seen by the architect, the initial task is clearly to provide the suitable accommodation that would fulfil the practical needs, as well as the Royal apartments, of a diminutive palace. Inigo Jones undoubtedly understood that even a *petite* royal residence would



7, *Gaudi's House from the Parque Güell.*

have to provide wing accommodation for a considerable entourage of Ladies in Waiting and officers holding personal appointments as well as the even larger number of servants and domestics.

The first sketch plan of Inigo Jones assigned to the year 1630–31 (Fig. 3, page 30, of George Chettle's *Queens House*) shows the four wing pavilions of a scheme which is clearly intended for the Queens House. Each of these wings provides some four apartments on each floor, each with staircase and having an equal number of storeys to that of the house, namely three levels. In result, this scheme of Inigo Jones provides auxiliary accommodation for the Royal entourage of quite forty-eight rooms or twelve rooms in each wing.

To the mind of an architect this accommodation contained in the wings was essential for the practical working of the establishment, and makes a very strong case for the correctness of the claim that the original intention of the design for the Queens House included these four pavilions. Furthermore, the sketch elevation given by Inigo Jones, and shown in Fig. 3 quoted above, is an important architectural unit, each of the four faces presenting three classical porticoes and pediments grouped together surrounding a large formal open court.

This architectural conception of Inigo Jones's, as shown by Fig. 3, can hardly be characterized as 'a small and original "conceit" '; when placed on its dominating site at the highest level of the whole Greenwich layout it fulfils its purpose as a focal unit in the larger conception of a grand palace layout that was doubtless in the mind of Inigo Jones.

It was the intention of Charles II in 1661 to rebuild the Royal Palace at Greenwich as a large and magnificent scheme of buildings between the waterfront and the Queens House, and there seems little doubt that a plan for such a palace then existed, for the king took special care to commission Webb, by royal decree, 'to become Surveyor Assistant for the *erection and building* of our palace at Greenwich.' It should be noted that the explicit directions are confined to 'erecting and building' (vide page 183, J. Lees-Milne's *Inigo Jones*).

That Webb's plan for the new palace was based upon an earlier original by Inigo Jones agrees with the known loyalty of Webb for his master, Inigo Jones.

Such a probability is in close accord with Webb's action in following Inigo Jones's design for the Queens House in 1661-63 when Charles II decided to repair and enlarge it (vide plate 21 showing plan derived from Inigo Jones —Chettle's *Queens House*).

The early siting of the Charles II block in the position adopted close to the waterfront and having an axial balance with other obviously projected units of a palace layout, points to the fact that its siting conformed to an ordered formal plan for the whole palace scheme and the Charles II block was not an isolated 'Kings House' but clearly was the first unit of the palace to be built according to a sumptuous plan and this plan was created at an early stage long before Sir Christopher Wren undertook to complete the scheme.

All these connected facts go a long way to sustain Mr. Octavius Wright's theme.

Yours, etc.,
W. Braxton Sinclair
(Hon. architect,
The Blackheath Society).

BOOK REVIEWS

ARTISTIC AUTONOMY

THE DEVELOPMENT OF THE ARCHITECTURAL PROFESSION IN BRITAIN. *By Barrington Kaye. University College of Ghana and George Allen and Unwin.* 1960. £1 1s.

The author, who is not an architect, began this work as a research study for a Ph.D. thesis presented to London University in 1951. It attempts to answer two main questions: why did professionalism develop among British architects when it did, and why has the profession come by its present form.

I found the wealth of quotations and the vivid examples which the author cites in support of his main thesis the most fascinating part of this book. I am less happy about the thesis itself. He writes good and succinct English, with considerable erudition. The twelve bibliographies, occupying twenty-two pages at the end of the book, are first-rate, and the text is fully cross-referenced to them.

A good part of the book is necessarily taken up with the history of the profession in the nineteenth century. As the author describes the malpractices of the times, the arguments advanced by apologists of the various factions, lay and professional, one's mind is led inevitably to make intriguing comparisons between the past and the present day. So many of the old sins are still with us, although perhaps only as peccadilloes, lying quietly just beneath the 'professional' veneer. For example, in Dickens's day, the close association between many architects and the interests of the trade was an open scandal. Today we still have our black sheep quietly preparing speculative schemes for development on sites they do not own, which they hawk round the trade fraternities. In the last century, the opposition to the idea of schools for architectural education was based openly not only on philosophical grounds but also on the acknowledged fact that pupilage was a major source of revenue for many practices. Today the backwoodsmen rely publicly on philosophical grounds. Again what a topical note is struck by the account of the 'art or profession' controversy at the turn of the century, and by the reference to Norman Shaw's treatise 'That an artist is not *necessarily* impractical' (my italics).

The author starts from the point of view that professionalism arises from the need to establish guaranteed standards of competence and of integrity, both in the interests of the public and of the professionals themselves. Architecture, he says, is different from any other profession in being also an art, and he discusses, in some detail, the dilemma of 'artistic autonomy' which architects face in relation to their clients. His analysis of the battle of the styles throws interesting light, from this particular angle, on the growth of professional organizations in the last century. In the last few pages, however, he refers to modern architecture and concludes that because architecture can now satisfy 'both sets of criteria,' functional and aesthetic, 'no dilemma arises.' Again, after the second world war 'for the first time since . . . the first half of the eighteenth century, the architect and his client shared the same taste.' How one wishes this theorizing were, in fact, borne out by post-war experience.

When I say I am not happy about the author's main thesis, I do not mean to question his main point that professionalism arises from the need to establish, in a free market, guarantees of professional competence and integrity. Historically, he has demonstrated this well enough. I question very much, however, his last few pages, and feel he would have done better to have omitted these and to have left the profession—where it obviously is—still groping.

He seems in these to imply that with the achievement of registration, and the setting up of the Board of Architectural Education, the profession has achieved its ultimate goal. Certainly these were significant steps, but they were achieved only at the level of the lowest possible common denominator. The profession has hardly begun, as an organized body, to put guts into the meaning of the word 'architect'—that is, to step up the level of professional competence and of integrity to a point where the 'artistic autonomy' of the architect will become automatically recognized by the public on merit, and as a result of service given and respected. I doubt whether any legislation can achieve this, in advance of performance.

Mr. Barrington Kaye, in his final chapter, states that once full closure of the profession is achieved, it is difficult to see what advantage membership of the RIBA will hold out. He asks what the function of the Institute will now be. The avowed object of the RIBA is to advance the art of architecture. I have no doubt that, under this broad umbrella, the functions of the Royal Institute must be two-fold—both to advance the levels of education and of performance by its members, and to safeguard their professional interests (remuneration and 'artistic autonomy') whether they are employed on a salaried basis or for a fee. The role of the RIBA within the Architects' Registration Council, is analogous to that of the BMA within the General Medical Council, with the important distinction that the RIBA has also to fulfil the educational and academic functions of the Royal Colleges and other examining bodies.

In an appendix Mr. Barrington Kaye gives figures of RIBA membership as a percentage of the total number of architects in the country. He may have been influenced in his doubts about the future of the RIBA by the fact that his statistics stopped at 1941. I give below figures extracted from the RIBA Kalendar and from the Register of Registered Architects for the years 1950 and 1960, together with extracts for earlier years from his own table. The consolidation of the RIBA's position is interesting. I regard also the recent Council decision to make major constitutional changes, the reform of the RIBA Board of Architectural Education and the two 'A' level qualifications for entry, as good auguries for the future.

Year	*RIBA Membership*	*Total Profession*	*Percentage*
1841 ..	153	1,675	9
1881 ..	787	6,898	11
1921 ..	4,538	9,412	48
1931 ..	6,591	9,246	71
1941 ..	8,874	14,648*	61
1950 ..	12,052	17,422*	69
1960 ..	19,687	19,183*	100

* Registered architects.

Cleeve Barr

ULSTER IMPRESSIONS

THANK YOU NOW: AN EXPLORATION OF ULSTER. *By Oswell Blakeston. Anthony Bond.* 25*s*.

This is an engaging if superficial blend of travel and guide book. The author was driven on a rapid tour of Northern Ireland by a friend named Max Chapman, and has recorded his impressions for their own sake and for the benefit of tourists. He concludes with railway fares and an incomplete index of place names 'as a key guide for holiday makers.' None the less, Mr. Blakeston is not only informative but diverting. He excels in recording the local talk (often the talk of the local), and traditions that seem to him memorable; but that does not distract his sensitive attention from the character of the landscape nor the flavour of the architecture. The photographs, some of which appear to have been taken by Max, though no attribution is given, are also to be commended.

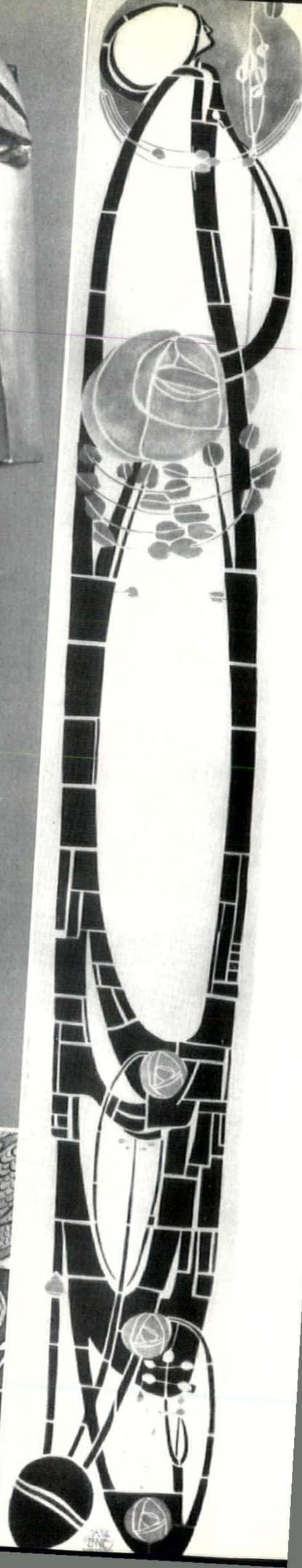
But there are some oddities of approach. The rest of Ireland is virtually ignored, and even blacked out on the map so that the reader cannot see the geographical relation of places in the North to those in the Republic. Customs and traditions common to the whole of the island are mentioned as though limited to Ulster. It is surely impossible to write convincingly of one part of Ireland without some knowledge of the remainder. Such knowledge might have deterred Mr. Blakeston from giving as *the Ulster toast* a garbled version of *the Connaught toast* in which he substitutes for the concluding line *And death in Erin* the poetically feeble alternative of *May you die in Northern Ireland.*

One is led to question the accuracy of some of Mr. Blakeston's information by his statement regarding the lighthouses on the rocks called the Maidens. These, he says, 'have a lighthouse each. When the older one needed repairing they just left it and built another on the second island.' The word 'they' refers presumably to the Commissioners of Irish Lights. It did not perhaps occur to Mr. Blakeston that his book would be reviewed by one of them. In fact the lighthouses in question both came into operation in 1829. In 1903, when a new light was exhibited on the eastern tower, the second light was discontinued. If it be argued however that travel books are concerned with Travellers' Tales rather than facts, then why omit the romantic story of the lighthouse keeper's son on one of the Maidens who wooed the lighthouse keeper's daughter on the other by signalling and eventually eloped with her in a rowing boat?

Bryan Guinness







The exhibitions of the Council of Europe have become an institution. The Rococo at Munich (1958) was followed by the Romantic Movement in London (1959). Now it is the turn of Paris and the Sources of the Twentieth Century. This exhibition, which opened on November 4th, is fascinating but very confusing, as these samples show. Can a coherent story be presented round them and Cezanne and Kokoschka? Some notes next month will deal with this problem. Here are three items from the exhibition: above, Epstein's 'Rock Drill' of 1913-1914; right, Voysey's 'Dragon' wallpaper of c. 1893; far right, Mackintosh's banner hanging of c. 1900.

Ian Nairn

BE THYSELF

SOME THOUGHTS ON A JOURNEY ACROSS THE UNITED STATES

Ian Nairn, who has recently travelled across the United States of America and back, driving his own car and examining the American scene at the closest possible quarters, here discusses an aspect of territorial character and planning that applies to all countries, Britain not excluded, but is most clearly illustrated in the newer, more vigorous and fastest developing countries where the process of change is visible to the naked eye.

I have recently driven ten thousand miles in America. The end of San Diego looked like the beginning of Philadelphia, and both looked awful. So any article on it could legitimately be a howl of rage; yet it could, with such a slight change of emphasis, be a Sandburg-like celebration of America, or rather of America's potential, the America that could be—not less American than it is now, but more.

For the local differences in America are immense; intensely felt, yet completely unexpressed in visual terms, as differentiation between places. They are unexpressed in the one sphere where differentiation could have most effect, where places could react on people and make them more individual, and so on in a kind of ascending spiral. Go out fifty miles from Chicago into Illinois and you see identical towns with identical outskirts (identical, also, with towns in New England, Oklahoma or even Southern California) yet incredible local feeling. Go anywhere off the main US highways and airways—and this applies, oddly enough, to the exurban hinterland of New Jersey as well as the complete isolation of New Mexico—and the country is immediately full of idiosyncrasy and individuality. It is expressed verbally—an American local paper, of which there are thousands, is the most local thing I have ever seen—but visually it is inarticulate except in the feeblest, weakest kind of way, the way of state badges and nicknames, of the biggest this and the widest that, of Babbitt's naïve love affair with Zenith. At that level it is childish and laughable, but only by a hairsbreadth. It could so easily be splendid and noble.

What has gone wrong, and how has America got itself landed by such a narrow margin with this bill of goods? There are dozens of reasons—one of the most obvious is the doctrine of overproduction, of having several where one will do—but the real problem in America is not mess but the lack of visual

individuality and differentiation. If all the mess were cleared up, there would still be something wrong. And I think the reason for this, basically, may be a philosophical accident: that history gave a particular pattern of freedom to the one nation which wanted it least.

Here I want to use terms which first appeared in the REVIEW eleven years ago* in one of the best articles it has ever printed. There it was suggested that there were two principles of liberty: the rational principle, in which everyone was free to come to a common conclusion, and the radical principle, where each individual person was free to be himself, and the truth was a harmony or concordance of different opinions, and hence varied from place to place. The rational principle was equated with France, intellectual man, written constitutions, penal codes: the radical principle meant England, natural man, common law—and, translated into terms of the environment, be-thyself applied to places: the *genius loci* or townscape.

Now rational freedom can do very well, but the essential it must have is that everyone is like-minded, is going to come to the same conclusion. Otherwise it ceases to be freedom. And this presupposes either a small homogeneous society or the sort of cynical tolerance given by Frenchmen to their civil law today. Historical accidents—the accidents of 1776 and then 1789—ensured that America got the rational freedom to end all rational freedoms, the most eloquent written constitution, the most complicated system of democratic franchise; in town-planning terms, the most regular and rational of all town plans—the gridiron—and geometrical systems for laying out the countryside. It was all conceived in terms of like-minded New Englanders; and over the next century it was applied to what has become the most polyglot nation the world has ever seen. Politically, this has meant that the nation which is most concerned with liberty is in some ways less free than any other—because there is only one conception of liberty you are free to adhere to. Hence the American way of life, which should be such a splendid, free-ranging, paradox-encompassing thing, has somehow become a symbol of conformism which is no less effective because it is not overt, like Communist, Fascist or Catholic conformism. The Civil War was fought not over slavery but over secession.

Observe, now, the town-planning consequences that flow from this rational principle applied in such inappropriate circumstances. (This is not intended to be the whole truth. It may, however, be an aspect of it; and in any case Be-Thyself admits of the coexistence of several truths about the same set of circumstances, which is handy.) The rational principle had at that particular time been identified with geometrical patterns of streets and squares. In New England it corresponded to a yea-saying community—I don't mean conformist, I mean a community of parallel thinkers. But look at what happened: where law and government become Penal Code and Constitution, town-planning became Established Tradition, the equivalent of law. Hence geometrical plans everywhere, first by imitation, natural though inappropriate, and then, in the nineteenth century—and this is the fatal thing—as a matter of simple commercial expediency. This is the fundamental flaw of the rational principle: that once it is on paper or established, it cannot change its goal and it cannot distinguish motives—the law is the law. Be-Thyself, by the exercise of common sense, can discriminate, and its law is not inflexible. All of America's subsequent planning troubles can be expressed in terms of this—that, being inflexible, the rational way of thinking could only deal with mass production in the existing framework—by treating a group of ten thousand as though it were ten thousand individuals, possessing by right ten thousand individual freedoms. Of course, it is not; it is a different animal altogether, and a very dangerous one. This is not to say that Be-Thyself or radical thinking will automatically recognize this, but at least it has the chance.

The connection between this and billboards or gas stations is absolutely direct. For one man to advertise his goods on his own land is legitimate: it makes direct sense, the doer cares about the thing done, account is taken of the environment. For ten thousand men, organized as a corporation selling petrol, to put down ten thousand signs on other people's land is by rational thinking treated as being the same thing. What else can it be?—$10{,}000 \times 1 = 10{,}000$; q.e.d. Hence, by analogy, every kind of mass-produced mass-disseminated dumping on the landscape is treated in men's minds as though each were a separate, individual act—rather like struggling in the clutch of a super-octopus yet treating each tentacle separately.*

And what is true of one person as against ten thousand people is true of one thing versus ten thousand. Ten thousand things have an economic life of their own, represent an investment which is not equivalent to the sum of individual units and cannot be dealt with in individual terms. To argue that a certain cake-mix or soup-powder is going to give you an individual cake/soup is immoral as well as incorrect. What it gives you is a constant, X, which is quite different from what you would make yourself, but may be bad or good. To inflate this constant into a norm for individual cooking is a process perfectly logical by extension of rational thinking, perfectly absurd in fact. Similarly, if you like, to inflate the (quite rational) responses of a particular type of Viennese to be a national standard of psychoanalysis. Similarly also, though this is a world-wide failing, to inflate a certain very specific pattern of urban living, the block of flats surrounded by green space, into a pattern to be applied to urban renewal everywhere.

And if the inflation of ideas in good faith is bad enough, what can be said for the deliberate creation of ideas in bad faith, or at least with the deliberate intention of raking in the lolly? Ranch-type houses make sense in the ranch country, *haciendas* in California, saltboxes in New England, each called forth by an individual response to climate and conditions.

* Townscape, by I. de Wolfe, AR, December, 1949, page 355.

* I am writing this in a pub. Around, two dozen people are having conversations, leading no doubt to mutually contradictory conclusions, and I with my writing pad am non-conforming to a fearful degree, if we were living under a rational law. But English pubs, with limits of the anti-social assessed as carefully as a Solomon (different pubs, different limits) are apotheoses of Be-Thyself.

To offer this kind of spurious choice to a customer in Indiana—which could be justified by the rational principle, one-for-all, all-for-one, and so on—is an act which debases the originals, debases the recipient, and, dear God, how it debases the landscape. Radical thinking would say: X doesn't fit this particular set of circumstances, let us evolve our own alternative. In just the same way, mechanical air-conditioning is one mass-produced solution applied universally—what is needed is a dozen kinds of air conditioning, some mechanical and some natural, according to the different conditions of site, climate, diurnal and annual variation. In general what is needed is choice, is liberty —true Be-Thyself liberty, not a paper ideal imposed alike on cultivated Bostonian and illiterate redneck from Mississippi.

Easy to say, and hard to do: it could be argued that the Puerto Rican gangs in New York are being themselves as hard as they can. But they are being themselves outside the law only because the existing pattern will not let them be-themselves inside it—all they can be is, really, all-Americans, the final debased end product of the rational principle. True Be-Thyself carries its built-in discipline. For if you are yourself to the nth then other people must be too: so must be the hillside at the edge of town where the supermarket went, the nigras down the road, the bum on the bar steps. Social limits become not a duty laid down by law (or class or tradition or whatever word you want to use to describe the face of falsehood) but natural reciprocal limits to your actions. Radical freedom was not built in a day—what there is of it in England took about a thousand years to create —but a little of it goes a long way.

So finally, to stop being an unqualified philosopher and start being an unqualified land-planner, my plea to the American environment is—be yourself. Be yourself, in all your glorious potential variety, individuality, multiformity. To the little Panhandle towns sheltering under their splendid elevators—shake off the dross put on you by those who neither know nor care about you, make up a pattern appropriate to your site and purpose. To the little dour country towns in Wisconsin, to the city-of-towers of Chicago, or the city-of-terraces of Baltimore; to Salem, Missouri, a hillbilly town and proud of it, and Salem, Massachusetts, a patrician town and proud of it—each be yourselves, to the limit of your ability. In character you are so already: give the character visual form, and hence enrichment, roots, continuity. To the suburbs of New Orleans—stop looking like Detroit: to the suburbs of Detroit—stop looking like New Orleans. To everyone, select your own particular pattern, fulfil it as far as you can. The more you deviate from a statistical norm, the more you will be really and truly American, citizens in the real sense of the land of liberty.

A MODERN CHURCH ON LITURGICAL PRINCIPLES

To regard the Liturgical Movement as a most promising new source of valid forms in church architecture, is to miss its point completely. It is clear that many entrants in the recent Liverpool Cathedral Competition did regard it in this light, and adopted what they believed to be liturgical forms. But, as readers of the Reverend Peter Hammond's pioneer article in AR April 1958 will know, even without reading his more recent book *Liturgy and Architecture*, nothing formal or stylistic is advocated by the Liturgical Movement.

Rather it postulates a complex of spatial and functional relationships between priest and congregation, the ritual and the instruments of ritual. It sees the liturgy as an exchange of actions between priest and people, not as a passive spectator/actor relationship such as is implicit in arena planning of the sort often mistaken for liturgical. If there is a tendency to centralized planning under liturgical leadership, it derives simply from the difficulty of taking an active part in anything if one is too far away from it. The church of Saint Paul, Bow Common, the first notable representative of liturgical planning in Britain, illustrated on the next five pages, has a roughly centralized space only, and is planned in concentric zones, within which the congregation can almost be regarded as mobile, since the seating is not fixed.

The Liturgical Movement does not offer the architect forms, it sets him a double functional problem to be resolved in a single solution: to create a functional space—part of the usable space of the parish—to house the priest and congregation in the celebration of the ritual, and a symbolic space—part of the universal space of the kingdom of God—to house the altar, the symbol of Christ's presence among God's people. This double objective might be achieved by applying symbols to a functional structure, but that would simply be window-dressing. The outcome is only architecture if the functional and symbolical are indissoluble.



A service in progress at St. Paul's, Bow Common, showing the central altar, raised on three steps, corresponding to the liturgical hierarchy of priest, deacons and people.

The visitor—better, worshipper—can be left to judge for himself how far this is true of St. Paul's; the reader who must judge it by photographs and plans may need some guidance. The building offers a space which gives the congregation freedom, but without being imprecise or vague. The structural form that houses the space is at one with its symbolic meaning. Thus, the outer ambulatory is defined by the row of columns that support the lower roof, and by the brick paving laid to withstand the wear caused by ambulation. The central space, for worship, is defined by the columns and the higher roof; the seating is movable, but the altar, properly, is fixed, within a sanctuary defined by the hanging corona and the great skylight above. The altar is raised, not only for sight-lines but also on steps that correspond to a liturgical hierarchy, but there is no altar rail—the zone where communicants kneel is indicated by brick paving, once more, laid to withstand the wear caused by kneeling.

Usages such as this accord very well with the dictum that well-designed objects contain, in their very forms, instruction about their mode of use, and these changes of floor-surface make St. Paul's recognizable as a well-designed artefact even by those who know nothing of the Liturgical Movement. The point is worth making, because it underlines once more that the Liturgical Movement relieves the architect of neither functional nor formal responsibilities. It sets a programme, and the architect's task is to make a building to satisfy the programme, and his building will be architecture, or not, in accordance with the way he satisfies it.

The justifications of the Liturgical Movement are religious. Its interest for the architect lies in the kind of brief it will give him when he is asked to design a church—not vaguely emotive in the recent atmospheric manner, not fanatically precise over trivia, as with the Ecclesiologists of the last century, but concerned with functions and people.

Such a brief, while in no way impairing the religious qualities of the building—quite the other way about—puts the conceptual stages of church design on the same intellectual and imaginative footing as applies in the most forward areas of secular architecture at present. Peter Hammond, in *Liturgy and Architecture*, makes a specific comparison with the post-war schools building programme, but he might, with even greater force, have cited the Nuffield Trust's work on hospital planning and design, where psychological, if not spiritual, considerations have been given their due at last, alongside the functional and mechanical.

To propose such comparisons may seem shocking to some sincere churchmen and religious architects, but the liturgical approach does enable today's architects to tackle church design without feeling—as has so often been the case—that they are abandoning the moral fundamentals of their architecture, based on truth and honesty in material and function, and relapsing into a theatrical pseudo-mysticism. As a result, St. Paul's can serve the needs of the Church without ceasing to be a modern building. Modern, that is, not in terms of current decorative clichés, structural acrobatics or fashionable formalisms, but modern in the sense of the hard core of moral conviction that holds together any number of formal and structural concepts on the basis of what Lethaby called 'nearness to need.'

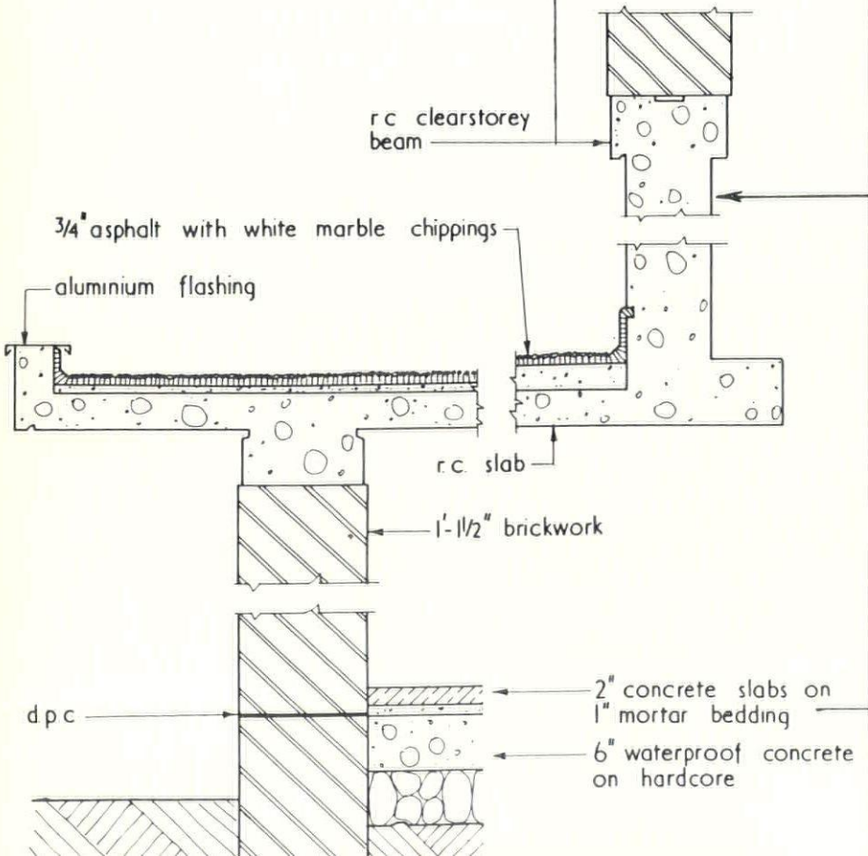
The drawing below is a detail of the wall and roof construction of the church: at the bottom a section through the outside aisle wall, then through the outer wall of the central area, then through the upper roof and lantern. The photographs show the same walls and roofs from the outside in 2 and from the inside in 3.
4 (facing page) from the south-west. The entrance porch, with its inscribed roof-slab, is on the extreme left.



2

3





CHURCH AT BOW COMMON, LONDON

ARCHITECT | **ROBERT MAGUIRE** *(associate designer, Keith Murray)*



1. looking north-east from inside the west door. The free-standing altar, underneath a high glazed lantern, is just out of the picture to the right. The clerestory walls are purple-grey brick, resting on the aisle roofs composed of a folded concrete slab.

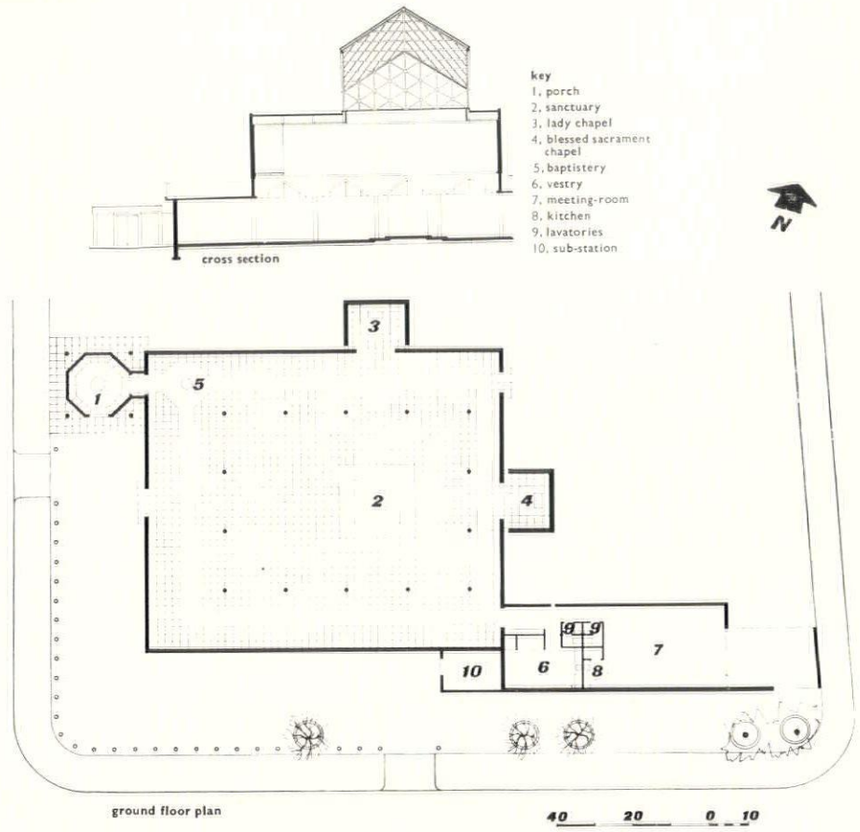
photographs by H. de Burgh Galwey

CHURCH AT BOW COMMON, LONDON

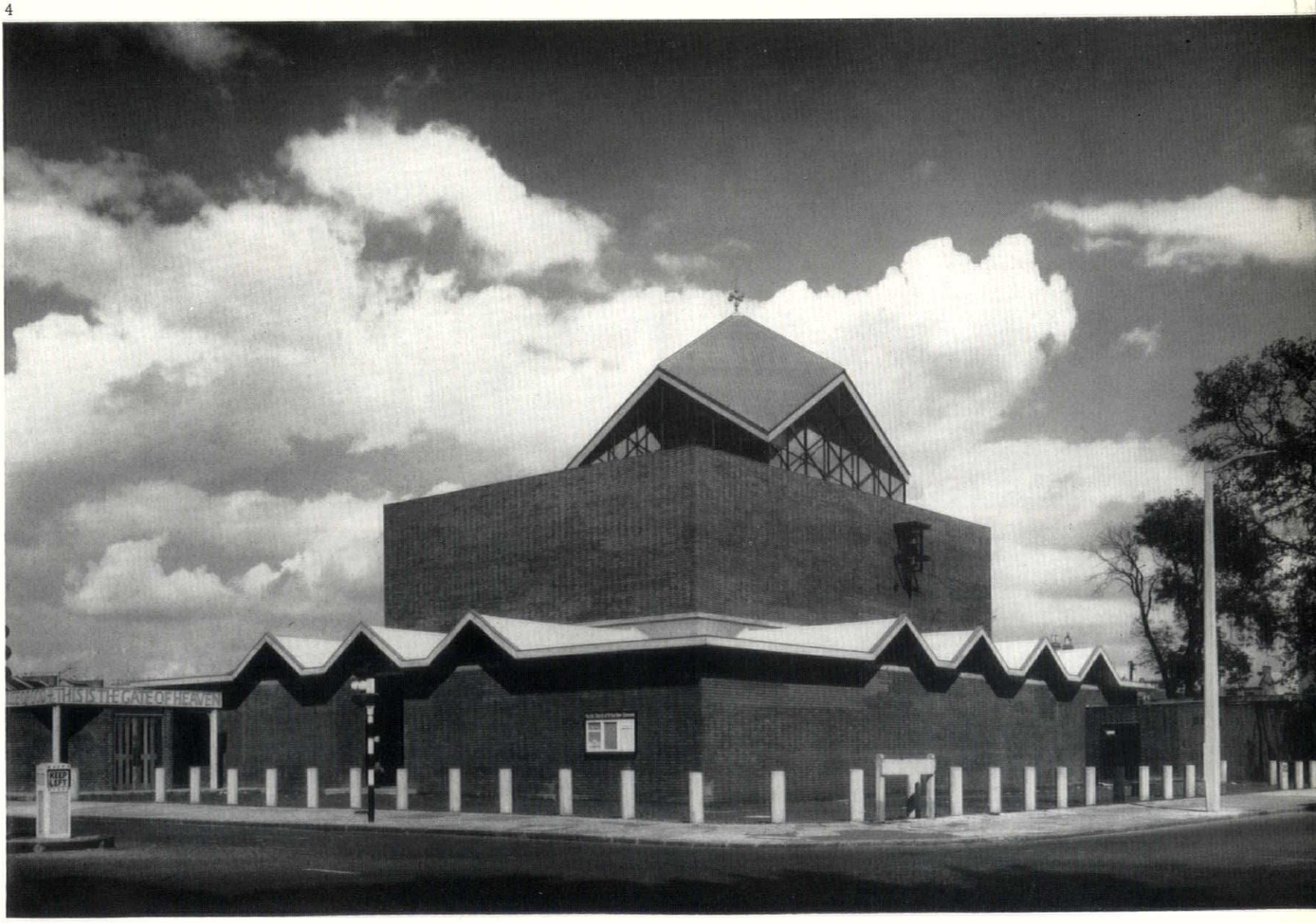
St. Paul's, Bow Common, is a parish church built on the site (in Burdett Road, Stepney) of a Victorian Gothic church destroyed in the war. It is within a LCC comprehensive development area, and most of the two- and three-storey terrace houses near the church are due to be redeveloped, in part by multi-storey flats, and the fact that the church will eventually be overtopped by neighbouring housing was borne in mind by the architect when determining its scale and character. The latter is designed to possess some of the toughness of traditional East End building and townscape.

The area across Burdett Road from the church will become a public open space and it is probable that St. Paul's Way (bounding the site on the south) will at this point be closed to traffic and remain as a paved pedestrian street. Later, a church school will be built to the east of the new church. Leopold Street, at present forming the eastern boundary, will then disappear. A new vicarage has also still to be built alongside the church, near the north-east corner.

The church is designed to suit the requirements of a parish that had already developed a strong liturgical



4



tradition and had experimented with various internal arrangements in two buildings which it had previously occupied temporarily. The whole shape and character of the interior, considered three-dimensionally, were evolved from the church's liturgical practice (see the introductory article on page 400); in particular the placing of the altar within the high central space beneath the lantern with seating on three sides of it. This seating is in the form of portable four-seater benches, which allow the arrangement to be varied. A small congregation can fill the central area and avoid a feeling of numerous seats being empty; larger congregations can expand into the surrounding, lower-ceilinged areas as required.

The free-standing sanctuary is defined by a hanging corona of black-painted rolled steel sections, bearing candles; also by a change in floor-texture from precast flags to white flint bricks. A path of similar bricks also marks a processional way round the perimeter of the building outside the columns that support the clerestory wall. The altar is raised on two steps, creating three levels corresponding to the hierarchic distinctions within the Anglican church, and the font is placed in its traditional symbolic position near the entrance used by the congregation. This is at the north-west corner, by way of an octagonal porch with a square roof resting on four external columns. There are also large sliding doors at the west, for the congregation leaving church and for wedding and other processions.

There are two small chapels (a Lady Chapel on the north side and another on the east), both outside the main liturgical space. An organ on the west clerestory wall will later replace the temporary instrument seen in 8 (page 405), but the console will remain in the position of the latter. The sacristy occupies a low wing projecting from the south-east corner of the building. This also contains a parish meeting-room with kitchen recess, lavatories and an electrical sub-station.

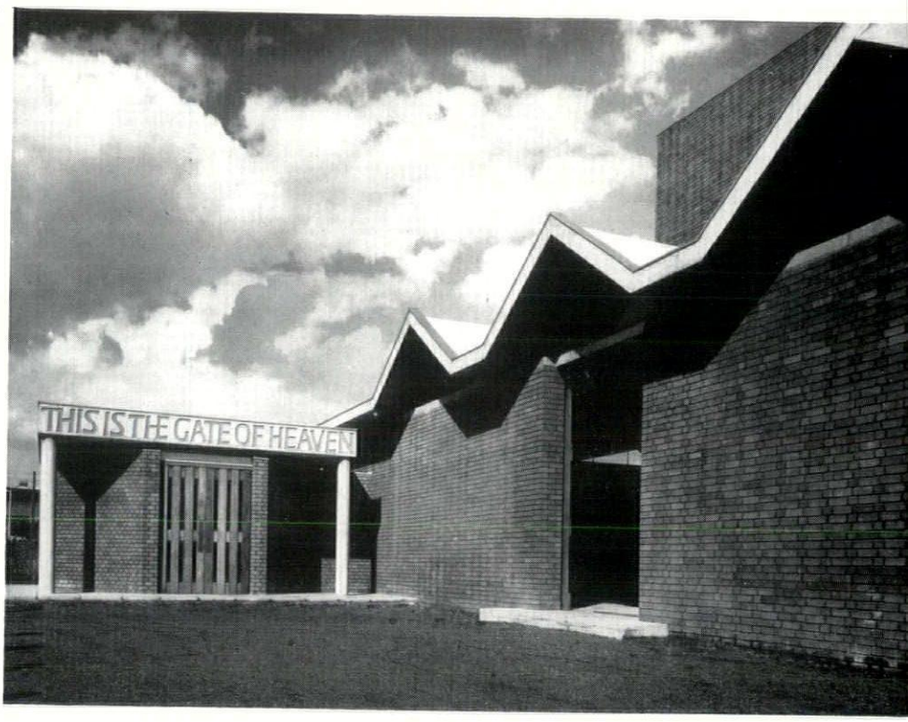
External walls are of load-bearing purple-grey Uxbridge flint bricks with recessed joints, laid in Monk bond which, with a 13½in. wall, provides continuous rectangular vertical spaces in the thickness of the wall. The rainwater drainage is contained in these spaces, so that no plumbing appears on the face of the building. The internal columns are 12in. diameter reinforced concrete, cast in cardboard tubes. The aisle roofs are also reinforced concrete, fairfaced from plywood shuttering in 4ft. squares. These conform to the 4ft. module on which the whole plan is based, enabling the 2ft. paving squares, for example, to meet the walls without cutting. The aisle roofs take the form of folded slabs 4in. thick, resting on a continuous concrete sill on top of the aisle wall, which also acts as a tie. The clerestory beam is an upstand from the aisle roofs, and consists of a series of linked double cantilevers. A groove in its upper surface takes electric cables with outlets to the nave light-fittings.

The nave roof has steel lattice-beams (a diagrid concrete structure was first chosen but steel was substituted in the belief that it would be more economical), and a timber ceiling faced with white-painted asbestos acoustic tiles. The roof covering is asphalt with marble chips and aluminium flashings. The lantern is of welded steel, painted dark blue and double glazed. It has a ceiling of wood-wool painted green and an aluminium-covered roof. Aisle windows are steel, also painted blue, with clear sheet glass. The porch has a frameless plate-glass strip between the brick walls and the concrete slab roof. Heating is by forced warm air from 16 electric heaters in eight pits sunk in the floor, each pit having an inlet and an outlet grille.

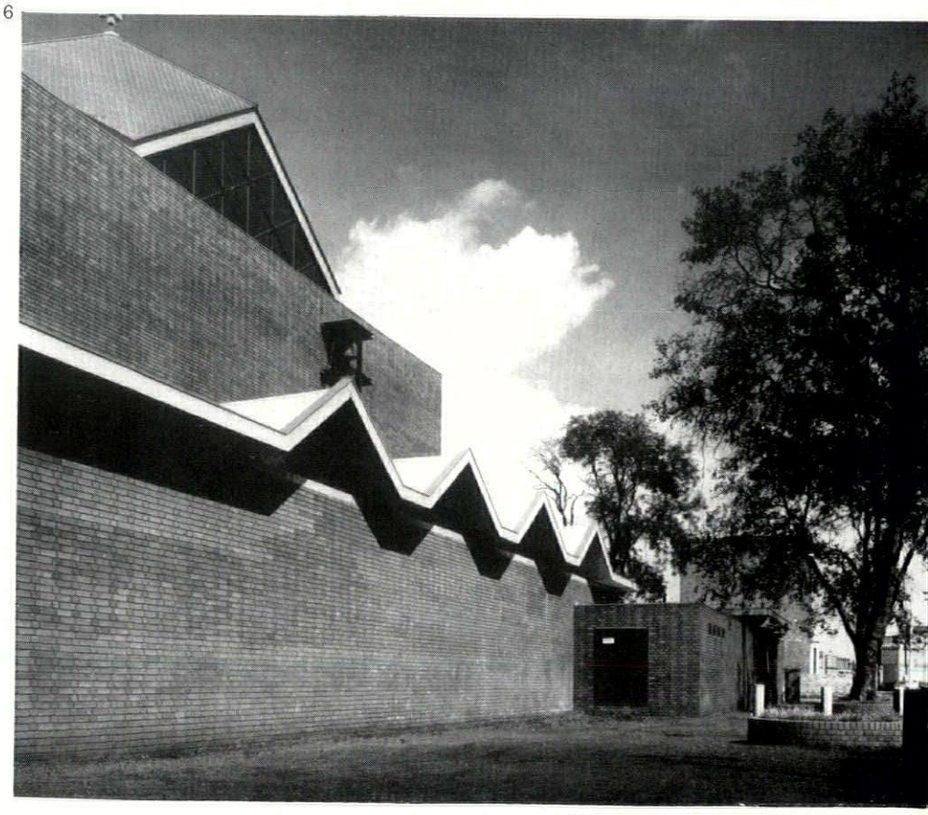
Consulting engineer: Richard Birch. Quantity surveyors: Fleetwood, Buss and Anns. Electrical and heating consultants: Peter Jay and Partners.

5. the entrance porch and west door; lettering by Ralph Beyer. 6. the south side of the church with the sacristy wing beyond.

5



6



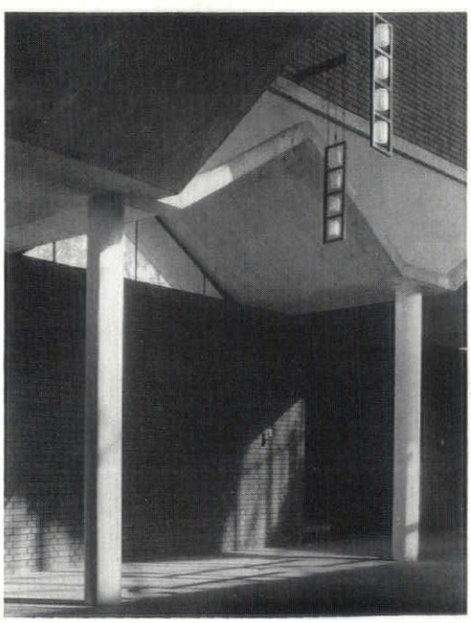
CHURCH AT BOW COMMON, LONDON



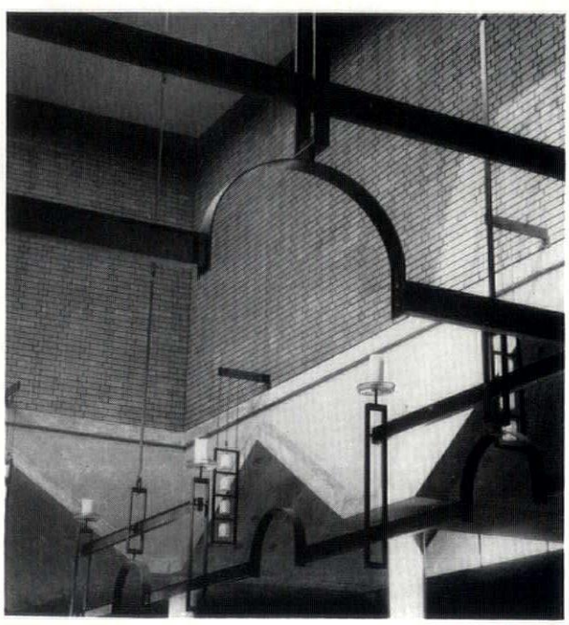
7. the high central portion of the interior crowned by a glazed lantern. The area of the sanctuary is defined by a hanging corona made from rolled steel sections, welded and bolted and painted black. It carries candle sconces of amethyst-coloured Venetian glass. The furniture is in afrormosia, with red hide cushions on the benches.



8



9



10

8, looking towards the sanctuary from the direction of the porch, with the font in the foreground. This was made from a standard 19-gallon industrial 'copper' cast into an octagonal block of concrete. Beyond the altar (frontal embroidered by Jessie Harrison) is the entrance to one of the chapels. 9, detail of aisle roof and light-fittings. 10, close-up of corona of rolled steel sections surrounding the sanctuary—see 7 above.



The promise of an heroic, functional and appropriate road-style implied by this sand-hopper tower is one of the most exciting aspects of the present programme of motor-way development. But is it a promise that will be fulfilled? The air-photograph of the Newport Pagnell service area on M1 (page 409) with its nondescript buildings and irresolute planning, suggests that the sand towers may well be disgraced by the service areas in which they stand, unless positive steps are taken to remedy a situation in which official drift and the chances of commerce threaten to produce their usual subtopian results. In the study of motor-way service areas which begins opposite, Raymond Spurrier discusses the problem at the levels of style, planning and legislation.

Raymond Spurrier

ROAD-STYLE ON THE MOTORWAY

The current programme of motorway construction and major road improvements is perhaps the biggest step to be taken since the Romans gave us the basis for our present trunk road network. It is a step likely to have enormous visual consequences which could either perpetuate the present muddle we have grown used to and no doubt deserve, or it could set the highest standards that would eventually filter down to other roads and other places and help create a new awareness everywhere of what design is all about. For the road cannot be considered in isolation. It is not just a track for motorists; it is an all-embracing, all-penetrating network which together with the vehicles on it, the signs, the bridges, and the roadside ancillaries—whether we like it or not—is an integral part of our life and landscape.

This study of the service area problem is in three parts: the first, by Raymond Spurrier, considers the general problem of visual appropriateness in roadside structures; the second, also by Mr. Spurrier, beginning on p. 411, deals with service areas specifically; and the third presents a model service area (pp. 417–419) designed by Leonard Manasseh and Partners.

Other forms of transportation have evolved an acceptable, comprehensive, and often delightful æsthetic which has grown out of their own particular functions; as a result, they manage to be compatible with their surroundings. The railways for example, built at a time of engineering innovation, set down some large-scale structures in the landscape which must have seemed at the time unlikely components for the native scene. Yet ruthless alignments and hard functional engineering have become embedded in small-scale scenery as easily as pretty wayside stations. The canals, too, with some exacting engineering limitations, covered the countryside with an intricate network that is a pleasure to look at; problems were tackled boldly and ingenious solutions found using indigenous materials to create exciting though functional forms entirely at home in the land or townscape. The nautical tradition, even older and more firmly established, maintains a sparkling visual style that is instinctively right, and in many ways an equally appropriate aeronautical tradition is evolving with the windsock giving way visually to the radar machine and those chequerboard-painted vans parked around perimeter tracks. Windsocks or buoys, radar grids or lighthouses, flags, railway signals, or the bright colours of canal boats—are all part of a clear, crisp, robust, almost gay visual vocabulary of clean colours and bold patterns that form decorative elements against a tough basic functionalism common to all forms of transport except motoring. And it is the motor habit which has wrought most havoc with the environment—no doubt because it has hitherto

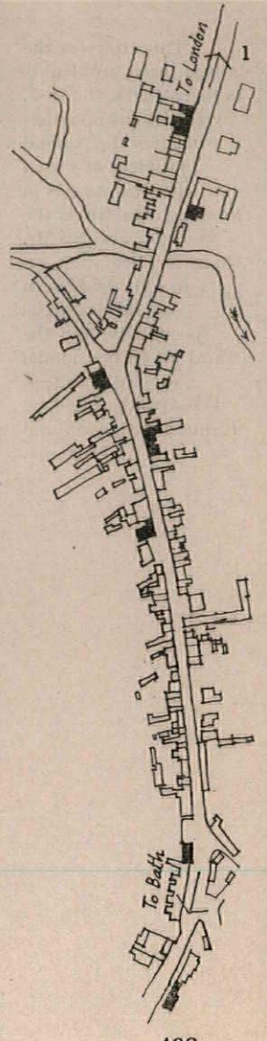
been a footloose kind of activity. That was its early attraction: the open road, go where you like, stop where you like and when you like; no more fixed points of embarkation, no terminus. And as a long-term result nowhere to go because of universal subtopia and nowhere to park when you get there.

And so we are becoming increasingly aware of the need for a stronger discipline—the town and country planning discipline of recrystallizing a fragmented environment into a more logical, organized pattern with building and open uses sorted out in sensible contradistinction. The road network acting as articulator could thus help to restore a fair face to Britain as well as an even traffic flow.

It was a step in the right direction when a previous Minister of Transport, in promoting the motorway programme, restricted access and thereby the spawning of ancillary development along the new routes. Only essential services such as refuelling and refreshment are to be given access, and these, to quote official wording 'will be on sites specially set aside for the purpose which will be acquired by the MoTCA under s.10(i) of the Special Roads Act and leased to private operators on terms which will ensure the provision of facilities to specified standards.'

This is indeed progress. We are, by controls, accepting the position that was obvious in the eighteenth century and adopted by common consent then, of grouping staging facilities at sensible intervals. In the eighteenth century taste in building was such that the essential services were offered in modern buildings that have stood the test of time. Many of them are so meritorious as to be worthy of preservation and are so listed under s. 30 of the Town and Country Planning Act 1947—more than their successors the road house and the filling station of the thirties and forties are ever likely to achieve. Filling station design has improved since then because the major oil companies have seen to it; one of them has gone so far as to adopt a consistent design policy covering not only garages but product packs, vehicles, and all 'corporate visual activities' so that at least in a limited way some sort of appropriate motor car æsthetic is beginning to emerge.

1, Colnbrook village, a staging-post for coaches on the Bath Road, surviving inns shown in solid black. Serial planning in time and tune with horse-transport—see 5, opposite, for the appropriate detailing, and 6 for the modern contrast.



But what is important now is whether the service areas on motorways will be as felicitous in design as they were in the stage coach era—a time when all kinds of objects, furniture, buildings, vehicles—as well as being embraced by a coherence of style—were informed by a common visual excellence. Will the service area at Watford Gap, M1 be as fine as Colnbrook village (1, 5) was on the old Bath Road; do the MoT 'specified standards' ensure this or is the specification limited in terms of ingress, egress, fire risk, fuel and ham roll throughput.

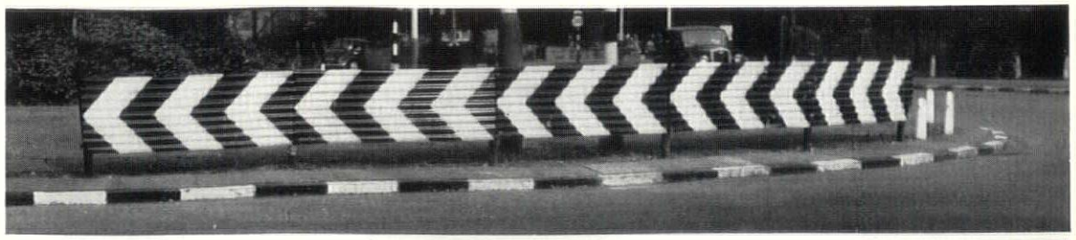
Good design is important, even for purely motoring reasons. It is not for the fun of it that shipping and flying have adopted measures that are æsthetically satisfying; crisp edges, clear colours, bold patterns, and unequivocal signals are vital in these more elemental modes of travel where there is so little room for error.

The margin of error is getting less and less on the crowded roads of today, and there is now only one answer to the confusion through which the driver must at present navigate: it is the guidance of a master eye trained in the art of arranging and organizing shape and colour and pattern—if not for beauty's sake, then at least for the sake of survival.

The road problem is visual no less than vehicular and the Minister of Transport

[*Continued on page* 411

road-style



2

2, black and white paint-work—natural both to the functional tradition and to the countryside—combined with forms of a scale and shape appropriate to motorized transport.

3 and 4, overhaul of the design of filling stations, such as has followed the change-over to solus sites (selling only one brand of petrol) has shown how traditional vernacular usages can combine with the commercial need to create a clear brand-image, and make useful suggestions towards a developed road-style for the motorway.



3

4



5

5, traditional black-and-white road-style in Colnbrook village.

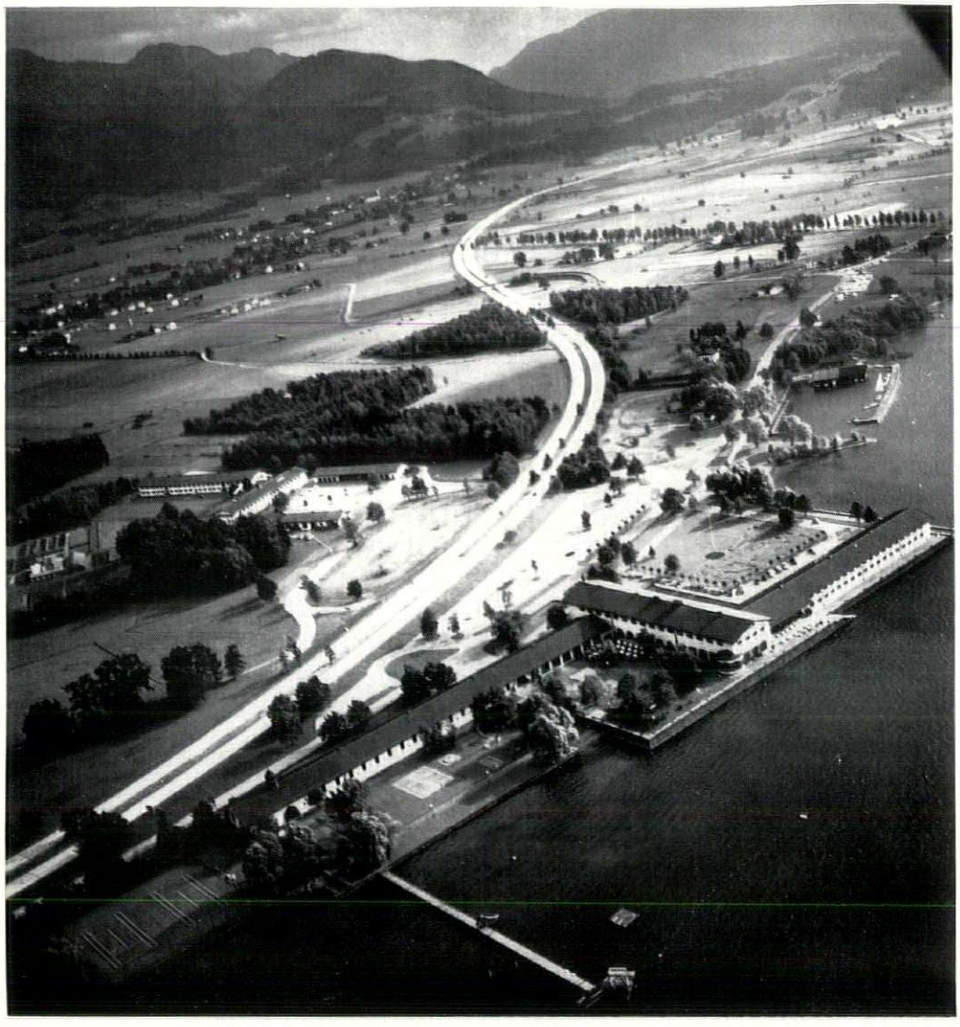
6, Newport Pagnell service area, on the M1, seen from the air. This view brings out only too clearly the disintegrative, centrifugal effect, completely out of harmony with the flow characteristics of motorway traffic, that stems from the use of radial planning of the type set out in Sir Owen Williams's first diagrammatic projects for service area layouts.



6

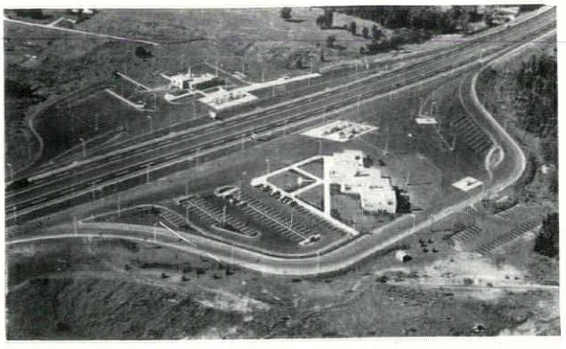


service areas



7

7, lakeside service area at Bad Reichenau on the Chiemsee (Munich-Austria Autobahn). Though a special case, this shows how the siting and design of a service area can exploit, even enhance, its natural setting. Something more positive than simply fitting-in may frequently be required.

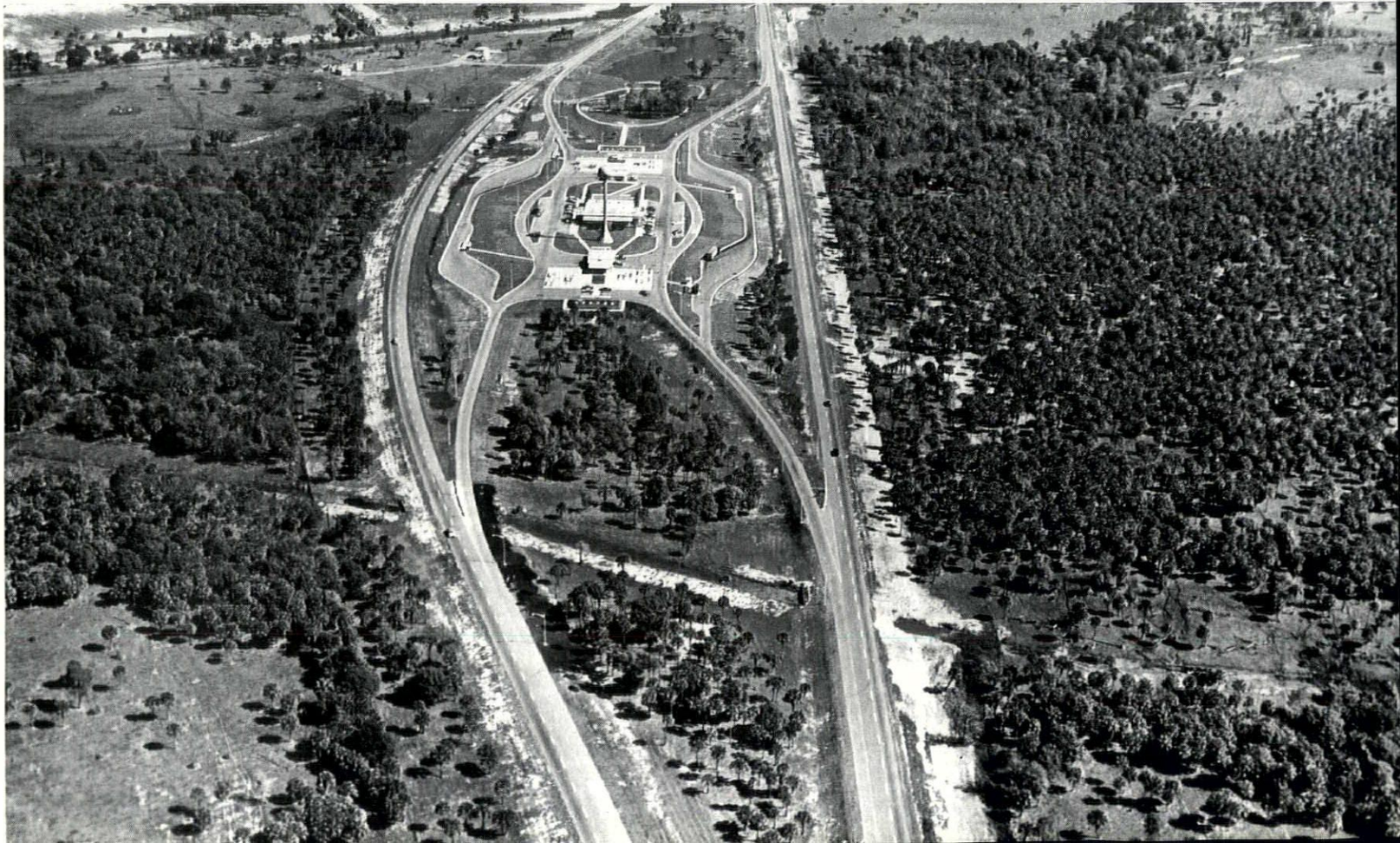


8

8, an uninspired and inadequately landscaped service area on the Connecticut turnpike—ill-defined in form, exposed, and smudged off into its surroundings.

9, Pompano service area on the Sunshine State Parkway, Florida. The centrally placed service area becomes a major feature, because at least one carriageway will have to be curved around it, but this is service area design on a grand scale—another example from the same highway, giving an idea of the architecture and detailing involved, is seen in 19, *p.* 416.

9



...ve and positive design policy now. A good start
...motorway service areas which are a convenient microcosm of t
...question of roadside design. We might then, as a by-product, achieve a
vernacular, fitting for this half of the century. The result might be as functiona
railways and as pretty as the canals.

THE SERVICE-AREA PROBLEM

The comprehensive service areas that will soon be available at regular intervals along British motorways are new to this country, as indeed are the motorways themselves. Clearly there is a need for radical thought to be applied to their problems, firstly perhaps in terms of basic arithmetic. E.g. a vehicle consuming petrol at 20 miles/gallon from a 10-gallon tank will travel 200 miles between refuelling stations; a driver consuming food at say 3-hourly intervals and driving at 50 m.p.h. would expect restaurant facilities every 150 miles.

What follows is not a substitute for radical thought but an attempt to indicate a few fundamentals. It must be stressed though that the items set out under the four headings below are to a large extent interdependent and overlapping, variations of one causing modifications in another. Obvious perhaps—but is it obvious to the Ministry of Transport that different types of landscape require different types of layout and design? A service area in the Fens could be quite a visual event whereas too much of an event on the Ross Spur might be disastrous.

1. *SITING:* Under this heading come items which are part of a wider process—that of town and country planning (which must include road planning)—and include the basic decision of how far apart; the relationship with the normal road network and nearby settlements; the relationship with the landscape and its contents, e.g. houses, farm unit boundaries, hills and valleys, woods and open country. The existing town and country planning system can prevent bad siting and design; ideal siting is less likely unless county planners are given the opportunity to choose rather than comment on the already chosen.

What might be termed development requirements include: ease of acquisition, availability of main services, physical characteristics, suitability of contours. The recreational facilities of the lakeside obviously governed the choice of the site in 7 whereas the arrangement in 14 depends on the road being in a cutting, although one feels here that things have been done backwards: an artificial cutting has been contrived to bolster up a preconceived design.

2. *ARRANGEMENT:* Despite the rigid limiting factor of an unbreachable centre reservation facilit... can be arranged in a number of ways without inte... rupting the free flow of twin carriageways. Thes... illustrated diagrammatically, 10, 11, are:

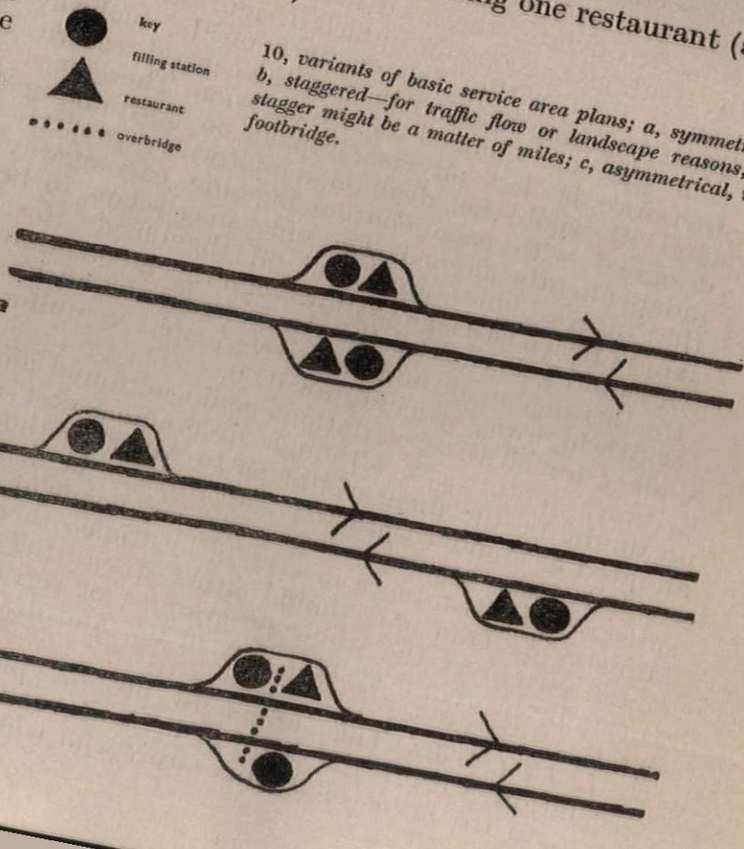
(*a*) twin areas, each self-contained,

(*b*) staggered areas, each self-contained

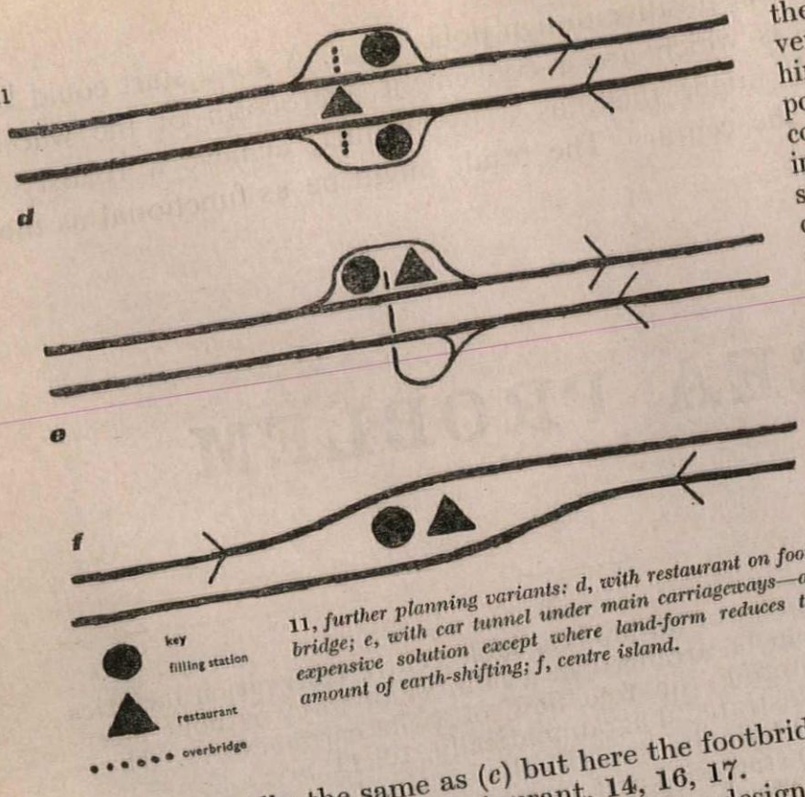
The pros and cons of each of these seem fairly evenly balanced; (*b*) is a smaller unit to absorb in the landscape and makes for easier siting, but if some disamenity is going to be caused it might as well be concentrated in (*a*) and thus more widely spaced.

If the two halves of (*a*) are run by the same operator some connecting link is desirable in the form of at least a pedestrian bridge or tunnel. This suggests:

(*c*) which is a twin area sharing one restaurant (as at Newport Pagnell)



10, variants of basic service area plans; a, symmetrical; b, staggered—for traffic flow or landscape reasons, the stagger might be a matter of miles; c, asymmetrical, with footbridge.



11, *further planning variants: d, with restaurant on footbridge; e, with car tunnel under main carriageways—an expensive solution except where land-form reduces the amount of earth-shifting; f, centre island.*

(*d*) is virtually the same as (*c*) but here the footbridge serves double duty as restaurant, 14, 16, 17. This provides opportunities for exciting design as well as scope for confusion, especially at night.

(*e*) one single area on one side only, reached from the other by bridge or tunnel. Against the obvious advantages must be offset the cost of land and construction for link roads which nevertheless, if cunningly designed, could serve a useful purpose in the process of deceleration.

(*f*) one single area between carriageways. This seems on the face of it the best method of all. It allows an economic grouping of buildings and services, obviates the need for structures bridging the road, gives scope for unified design; the installation is kept within the confines of the highway limits by being in effect part of the central reservation, specially widened for the occasion. There need therefore be less adverse impact on surrounding land. It would be ideal on a motorway properly designed with each contour-hugging carriageway independently aligned. The only snag seems to be that access lanes must run off the offside (fast) lanes of each carriageway although this is something we could get used to; the Americans have adopted the arrangement and, moreover, split a uniform width highway specially for it, 9.

A place for all these variations could be found along Britain's motorways, although in practice cost will no doubt be the final arbiter as to which method is adopted as standard practice. But if it can be demonstrated that a more expensive arrangement has substantial advantages in certain locations, then the Ministry of Transport should either spread the additional cost over the whole programme or retrieve it through the rental system now in use and described later.

3. *LAYOUT:* This refers to ground plan and circulation within the service area. It must pay regard to the needs of the operator, who will expect easy working and economic maintenance, and those of the motorist, who will expect quick service, convenience, and a logical sequence, so that he will find himself in the place he wants to be. A few obvious points are: a decent view from the restaurant (this could be of traffic from the bridge, 15, but should not include petrol pumps or car park), separation of motor smells from kitchens and dining areas, segregation of pedestrian traffic from vehicular manoeuvring, adequate room to manoeuvre but no deserts of tarmac and windy spaces, 8, separation of lorry and bus park from private car park.

Many of these considerations will be taken care of if it is remembered that motoring is a means of progression; the dispersal patterns evident in a number of schemes might appear effective, but they are minimal attempts; the superiority of adopting a linear concept is demonstrated visually in 12, 13. Other advantages are: less of a bite into surrounding land, flow lines echo those of the predominant road, expansion if necessary later is easier and probably less damaging to the efficiency of the scheme.

4. *DESIGN:* Items under the preceding three headings will determine what sort of an element in the landscape the service area becomes even before it is designed in detail. The architecture of the place, right down to the design and placing, colour and texture of signs, oil cans, pumps, bollards, fences, lighting, paving, and—very important—the assimilation of the parked vehicle, will influence to a considerable extent the efficiency of the service and the pleasure in using the area.

As the motorway network spreads, journeys will become longer and service areas will be the only link with life that the traveller can enjoy without leaving the system. They will therefore have to take the place of the towns and villages that have hitherto provided contrast, relief, shelter, refreshment, and change of scale. Psychologically, and perhaps physically as well, their effect could be much the same as that experienced at a staging inn after a blustery day on top of a coach. There will be the opportunity to climb down from the cinerama views and get back to the human scale for an interval.

The first problem is therefore one of adjustment—how to reduce speed and stature. Deceleration lanes will be provided but something more effective than a GO SLOW sign is needed for reducing from 80 m.p.h., such as markings getting progressively closer, allied to a synchronized noise rhythm from expansion joints.

The next need is to be shown where the componen parts lie without recourse to a multitude of signs The self-revealing layout where alternatives are pr sented in sequence is likely to be the most effectiv In this too a linear pattern would seem best. Refuelli should be a simple in and out process; anyone wanti more should find himself at the car park and then foot to other facilities—and it should be clear fr the design, which is motorist, and which pedestri territory.

Parking is a major architectural problem. military camouflage method of dispersal under trees (a genuine car *park*) is suitable for picnic a

but for the more conventional parking lot some other method of disguise is necessary. Earth banks might be one solution, depending on site contours; or a simple bold pattern of rail fences, etc., can unite many elements.

Having left his vehicle where he can find it again, the driver and his passengers will need to be led on to the other facilities and the art of townscape needs harnessing to this apparently simple task if there is to be any enjoyment from the stop.

Whether you get a seven-course meal from a suave waiter or a double-deck motorburger from a dusky girl in a frilly apron depends on the catering installed behind the architecture. There is room for a choice, but no place for gimmicky caterer's architecture, 22. Colour too is an important element. Black and white is a suitable basis for any colour scheme, and as abstract pattern it has long been acceptable in the countryside (half timbering, Friesian cattle). Broad expanses of colour should be low in tone—note the restfulness in 20. This leaves the way clear for bright colours to be used functionally in small doses—fire buckets, petrol brand images, telephone booths, doors; and on edge definitions where white then becomes a positive colour.

The great thing to remember is that the whole installation, despite its varying functions, should be designed as a piece with a definite shape and clean edges—no trailing off at the boundaries, 8; no insensitive lumping together of stock units surrounded by chain link fence; no after-thoughts.

Service areas are placed alongside motorways. They are also placed in the countryside. To which do they belong? The thatched garage of the thirties was presumably an attempt to belong to the countryside. The road too—any road, including a motorway—ought to belong, even though motorway scale is different. A motorway designed sensitively could both be itself and be embedded in the landscape. A service area could be part of both. It must look right from the road, from the landscape, and from within itself. The whole ensemble must have style—motorway style. Unfortunately this is something we haven't yet got in the sense that there is a canal style or a nautical style. But service areas, properly conceived, could help to bring such a thing into being.

The point has been made that each of the four considerations listed above—siting, arrangement, layout, design—are to some extent interdependent, which points to the need for the conception to be, ideally, in the hands of one controlling person, body, or team—or if this is not possible then for close liaison to be established between the designer and the promoting department, in this case the Ministry of Transport.

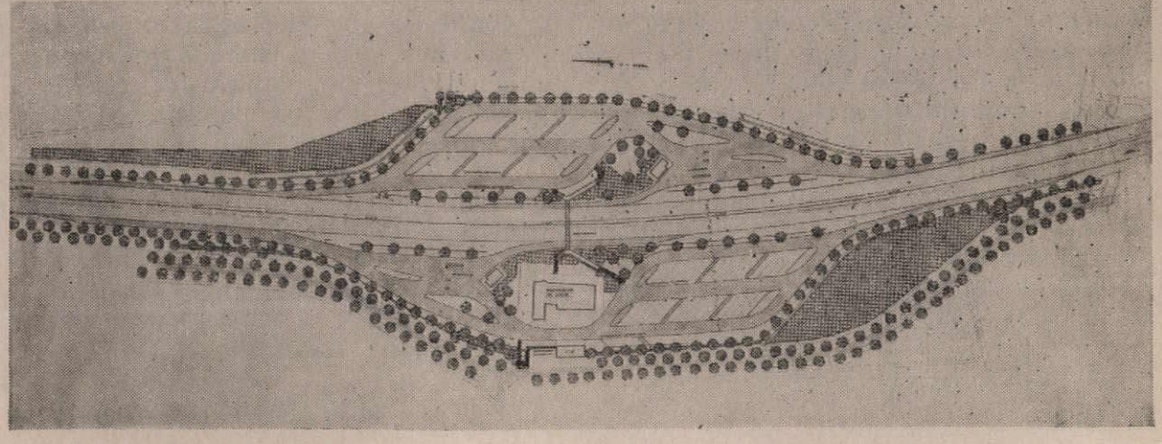
What happens at present is that the Ministry of Transport selects twin sites totalling about 11 acres at approximately 12-mile intervals. Limiting factors in this selection are flatness, availability of main services, agreement with the planning authority, and ease of acquisition (that is to say agreement is preferred to compulsory purchase).

Present policy on M1 is for a maintenance depot and police post (if necessary) at each site, with full scale service areas including petrol stations and catering establishments at alternate ones. These latter are offered in competition to concessionnaires. The successful competitor then enters into a building agreement with the Minister of Transport; the general effect of this agreement is to license the contractor to enter the land to erect filling stations and catering establishments at his own minimum cost of £50,000. The Minister, for his part, constructs to the developer's layout requirements certain roadworks, vehicle parks, and a footbridge spanning the motorway to join the two halves of the site; he then grants a 50-year lease to the contractor when the buildings are completed. The 50-year lease is at a fixed rent plus an additional rent based on a percentage of the gross takings from the filling stations and restaurants.

In inviting applications from potential concessionnaires, the Minister makes it clear that he will consider them in the light of the fixed rent offered, the percentage of the gross takings offered, and the merits of the layout. Not less than two brands of fuel and oil must be sold; details of these must also be submitted. The Minister then investigates the financial stability of the applicants, and considers the financial merits of the offers and the suitability of the site layouts submitted to a scale of 1/500, together with a note of the materials to be used in building.

Originally no other design details were submitted at this stage, and provided the layout was workable and the other considerations are satisfactory, the assessment was a financial one; the best financial offer was accepted although the highest offer was not automatically chosen. As a result of experience of M1 however, elevation drawings will be required in future, and

12



12, service area planning as a function of traffic-flow—a project, such as might be impracticable except on the flat lands of Holland, for a service area at s'Hertogenbosch. Vehicle movements are lucid and simple, involve no backing or sharp turns.

preliminary approval by the Ministry's landscape advisers, even before obtaining approvals from the Ministry's engineers and the local planning authority and the views of the Royal Fine Art Commission.

Such a procedure is no doubt democratic and fair to the applicants, the Ministry of Transport, the trade, the motoring public, and the public in general. It takes into account central and local planning, the rights of individuals and political implications. The latter for instance are no doubt the ruling factor in framing policy—in deciding whether service areas should be developed entirely by private enterprise, by the present method, or by the Ministry itself developing and leasing to individuals. It is presumably the deciding factor in creating one sort of monopoly (of site) whilst preventing another (of brand goods). It is unfortunate however that the process does not and cannot automatically ensure first-class design. Moreover it precludes the excellent design potential of the few oil companies that have troubled to think hard about the question.

In fact, design is barely mentioned in the conditions or contract documents. A procedure in which the main considerations still appear to be financial is the more likely to encourage mediocrity. The Minister has no sure way of getting anything better until he has fuller drawings to judge from. And the safeguards of official procedure are scarcely sufficient at a later stage. Most planning authorities, when faced with fuller details, would be unlikely to refuse consent to a scheme unless it was downright ugly or incompetent, otherwise the standard of design throughout the country would be better than it is. The RFAC similarly cannot, by its observations alone, ensure excellence. Perhaps it would be unreasonable to expect these bodies to raise their standards for a particular type of development and even if they did there is no guaranteeing that decisions would be upheld by other bodies to whom appeals might be directed.

From the evidence all around us on the roads of Britain it might be assumed that the Ministry of Transport does not care about visual design—understandable enough when the majority of engineers look upon design as the manipulation of slide rules—but odd nevertheless in view of official assurances and pronouncements from at least as long ago as 1943.

Of course, an awareness of the desirability of good design is one thing; the appreciation of what good design is, and how it can be ensured, is another. It might be more charitable, in the light of the few improvements that are evident, to look upon the present era as one of transition. Only time and Mr. Marples will prove whether this is right or wrong.

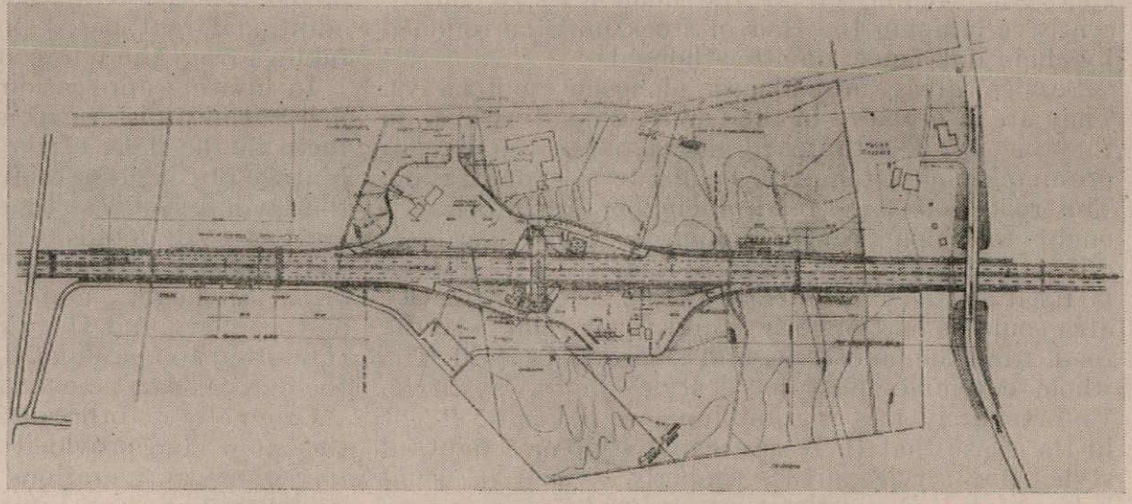
Good design is possible and has been achieved in Government departments where the initiative has come from within. Mr. Marples set an excellent precedent in the Post Office; our suggestions to him at the Ministry of Transport are therefore twofold:

1. to initiate good design and insist on getting it throughout the whole of the road programme, not just to hope for the best and put up with mediocre results.
2. to alter the tendering process for motorway service areas. This need not reduce the Treasury income. It need not be less democratic. It need not depart from the monopoly policies. There is no reason why it should not be just as efficient.

Here are three ways in which the process could be amended so as to shift the emphasis from money to architecture:

1. is to appoint top designers, develop, and lease to the best bidding concessionnaire.
2. is to hold architectural competitions and then proceed as above.
3. is to hold architectural competitions, the winner to proceed as at present but on the basis of a fixed rental (which could surely be assessed by the Ministry from experience already gained).

There is no reason why all these methods should not be tried as the motorway programme progresses. With them there is nothing to lose and everything to gain, particularly (*a*) excellence of design, (*b*) a reputation for excellence of design and (*c*) a yardstick by which other road design problems may be measured and which will set standards for the sorely needed enhancement of roadside environment. As the work proceeds there is no knowing what fresh ideas architects might not bring to the notice of highway engineers to assist them in their exacting and important task.



13

13, a less idealistic scheme than 12 *(see previous page) at Firenzuola on the Autostrada del Sole, Italy. Flow is more complex, parked cars will have to back in or out of their bays (not unreasonable when they will stand for an hour or more during meals) but the layout is still related to the idea of forward flow.*

model service area scheme follows on page 417

14

14, *overbridge restaurant—one of five—on the Illinois Tri-state and Northwest Tollway system. The building itself is commendably simple (contrast* 16 *and* 17, *right) and there is straightforward logic in its planwise relation to the car-parks and filling stations, but the amount of earth-moving involved in creating an artificial cutting in an embanked road, clearly needs exceptional justification.*

15, *view from the interior of a restaurant on the same Tollway system.*

15

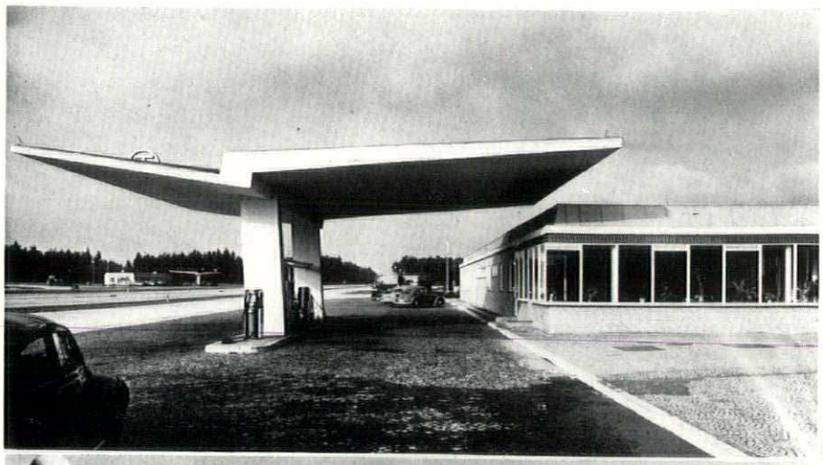


service areas



16
17

16, 17, *over-elaborate treatments of the overbridge theme, at Firenzuola,* 16, *on the Autostrada del Sole (an otherwise well laid-out site, see* 13, *opposite) and at Vinita,* 17, *on the Will Rogers Turnpike in Oklahoma—any structure spanning the carriageways should be an incident, not a distraction.*



18, *clean, straightforward road-style in a service area at Allertal on the Hamburg-Hanover Autobahn. The two halves of the scheme are almost identical, but staggered, each being placed upstream of the other in relation to its own traffic lane—English readers should be on their guard for the consequences of driving on the right in judging all overseas examples.*



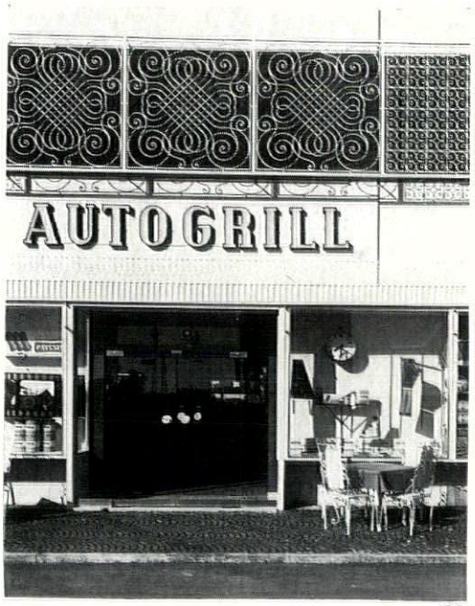
19, *more elaborate, but not fussy, treatment of a centre-island scheme at West Palm Beach on the Sunshine State Parkway—see also* 9, *p.* 410. *The ball-headed water-tower is an extremely apt skymark for such a motorway oasis.*



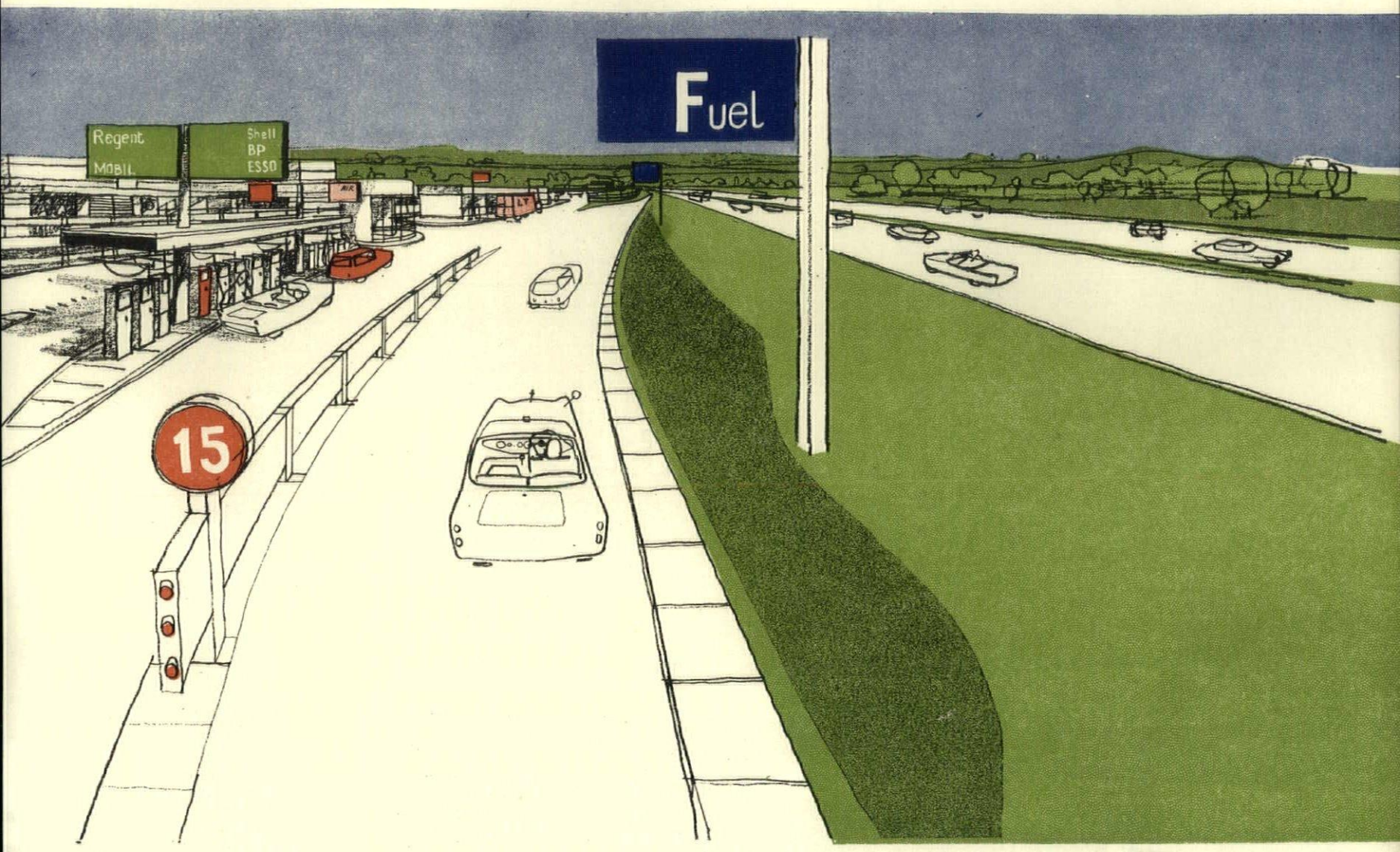
20, *alternative German treatment, a country-style intrusion on to the road, not vice-versa, at Feucht on the Munich-Berlin autobahn. The choice of style seems hardly appropriate to the motorway, but the general air of repose and calm is doubtless welcome.*



21, *though abused on gastronomic grounds, the* Ox in Flames *restaurant on the Farnborough by-pass, Kent, is one of the few acceptable roadside buildings erected in England recently, the reformed design-policies of some petrol companies always excepted.*



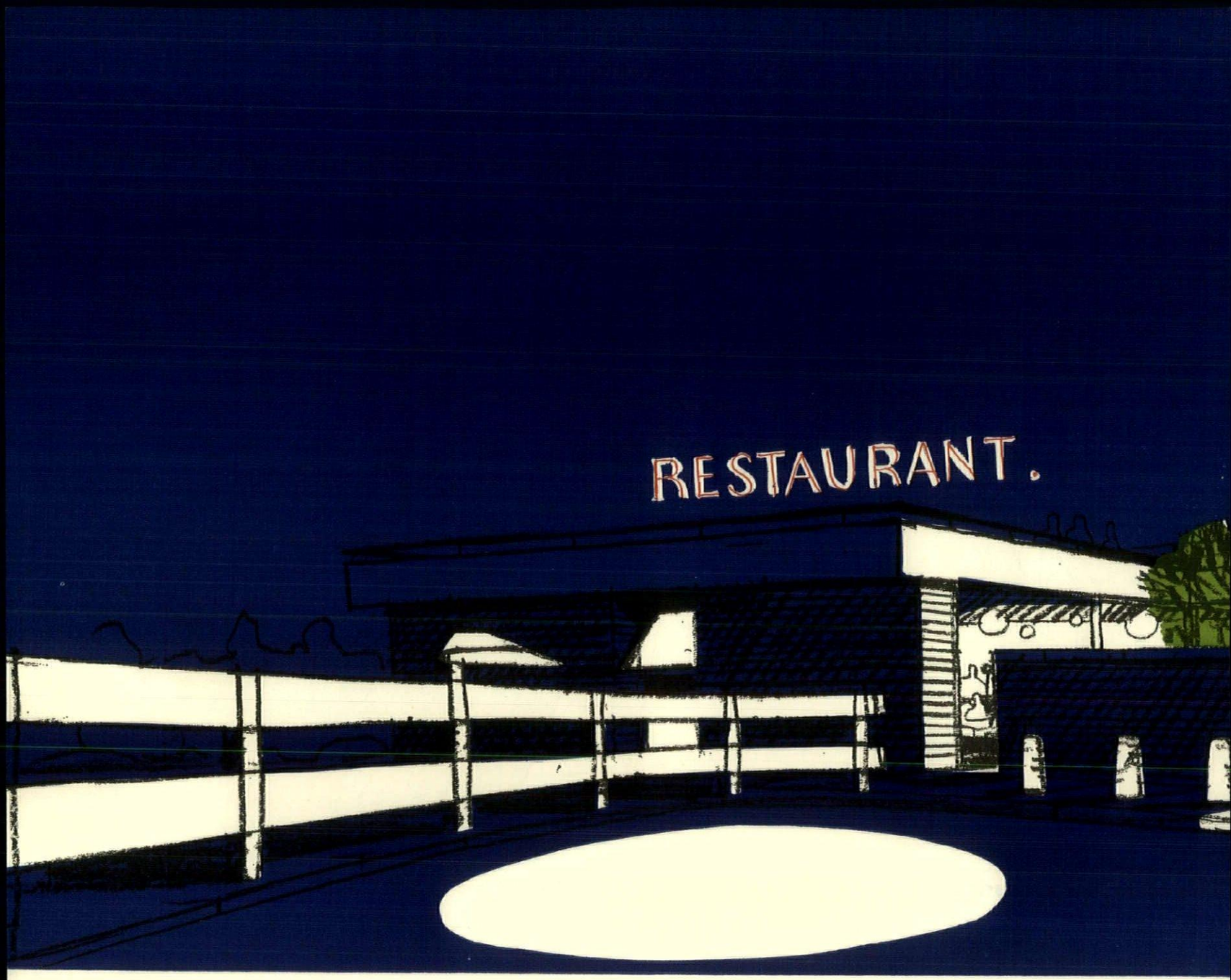
22, *decorators' frenzy at the Pavesi Autogrill at Bergamo on the Milan-Brescia autostrada—a tendency that needs to be checked if for no other reason than that it leads to dangerous distractions such as* 16, *p.* 415.



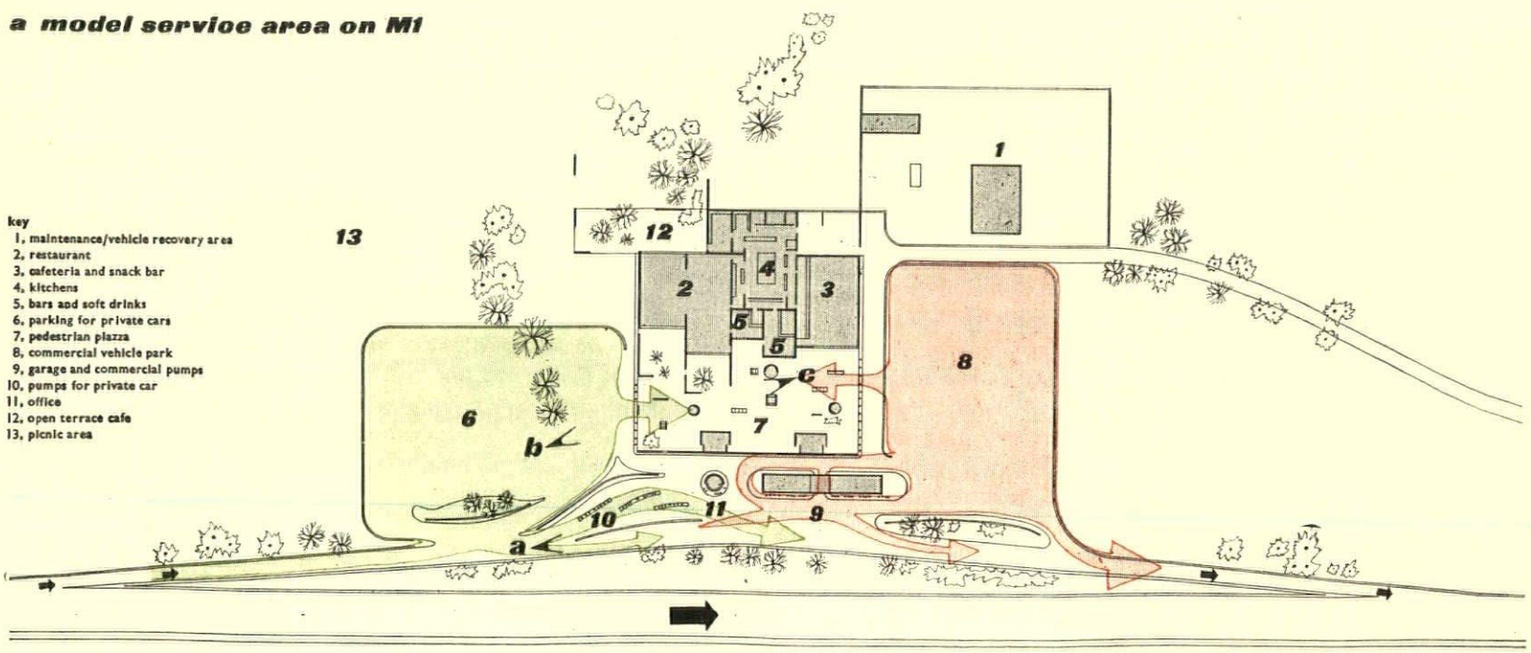
a model service area on M1 *project by Leonard Manasseh and Partners*

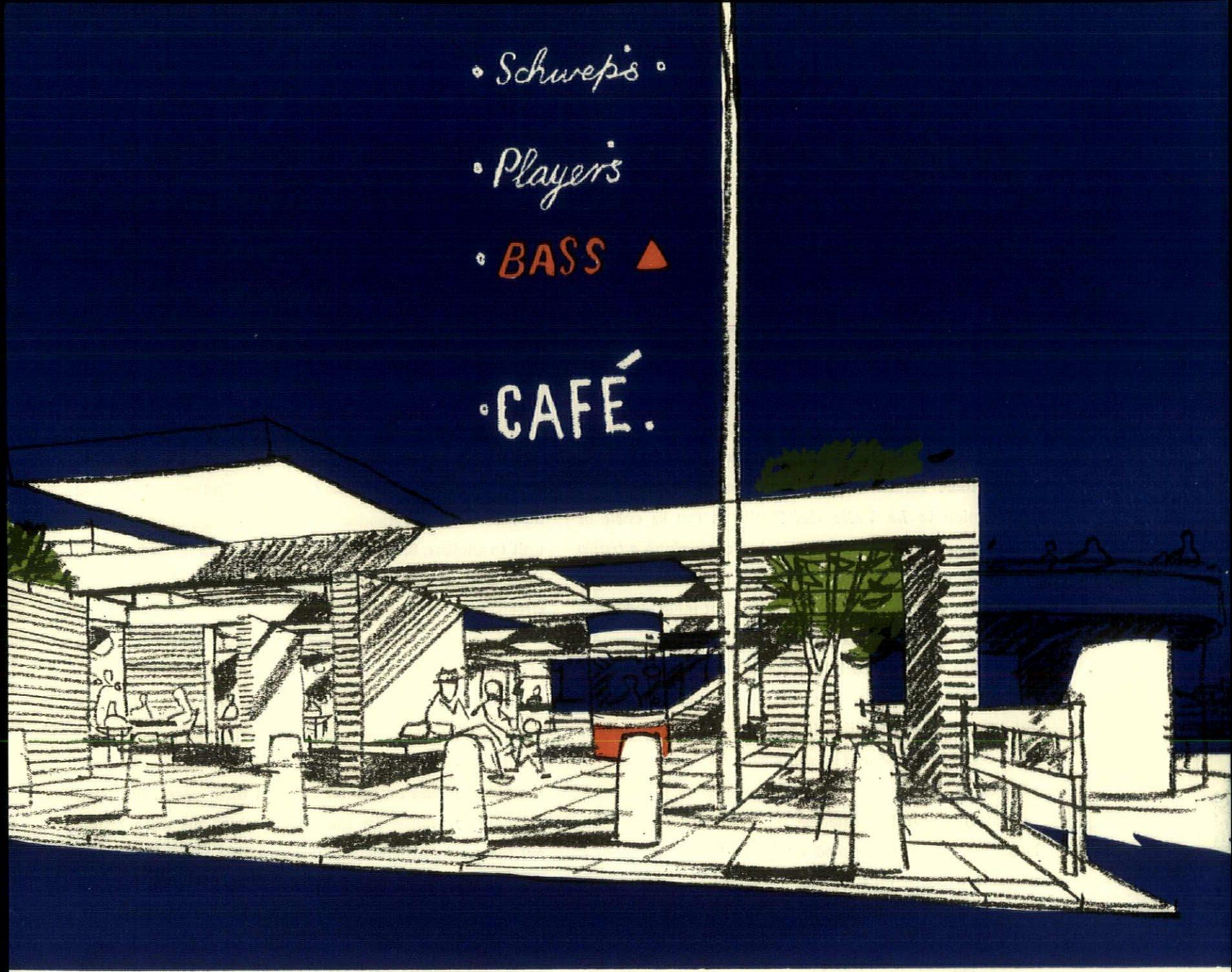
To illustrate and clarify the points made by Mr. Raymond Spurrier in his article on the preceding pages, the Editors of the *Review* commissioned Messrs. Leonard Manasseh and Partners to design a model motor-way service area. Their design, which is illustrated herewith and overleaf, is based on an examination of the possibilities of an actual site on Britain's first large-scale motor-way, M1. This site has already been designated for future development as a service area.

It was felt that a realistic appraisal of motor-way needs, arising from distances travelled from likely starting points, made insistence on symmetrical planning unnecessary—this service area serves only one carriage way, though it might, in time, become one half of a staggered pair; in the plan, over page, it is shown only in relation to its own half of the motorway. Seen above (viewpoint **a** *on plan) is the loop road, deviating only slightly from the line of the motorway, from which it is separated by a grassed bank. Filling station services are provided on subsidiary loops, all planned to give as far as possible easy and continuous through flow. The parking areas, however, are pools of separate circulation outside this flow system, and separated from it by distinctive fencing (see over). Between the two parking areas (private and commercial) is the restaurant and its ancillary facilities, to which drivers have pedestrian access without crossing traffic lanes. The buildings for the restaurant, etc., are grouped around a pedestrian piazza (illustrated over page) and are of a simple load-bearing brick construction with built-up timber roofs—the small numbers and varied siting of service areas make it unlikely that any purpose designed prefabricated system would justify itself economically. The most promising structural solution is to use available materials—if possible, local materials—in a direct and simple way, to extend and fulfil the promise of a vital roadstyle already beginning to appear in other roadside constructions. See pages 406–409 of Mr. Spurrier's article.*

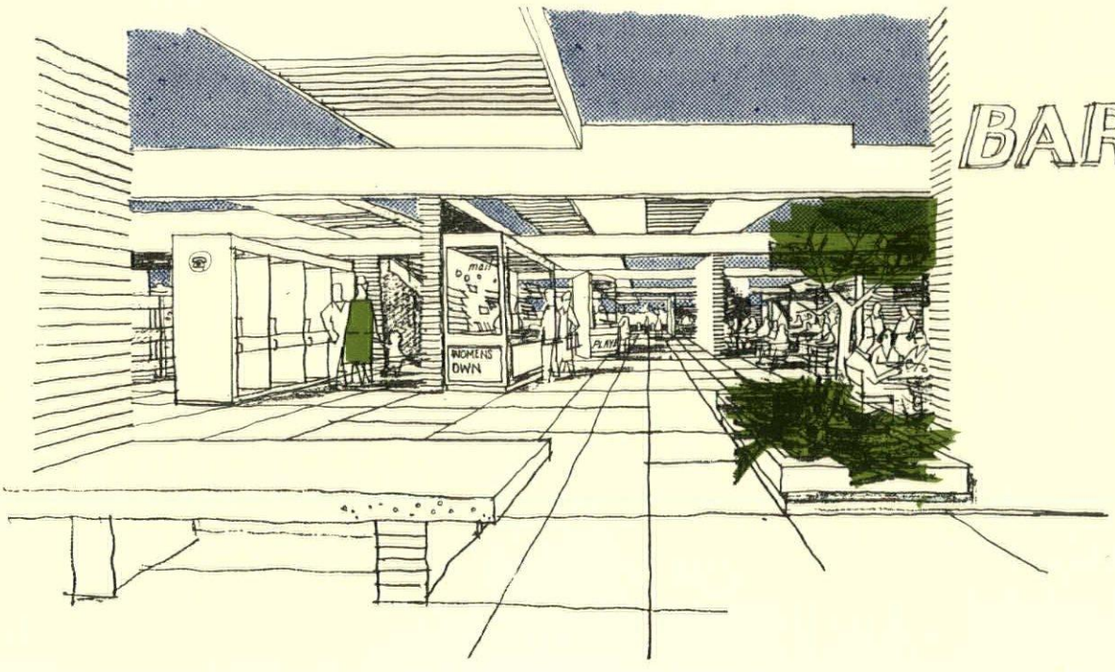


a model service area on M1





Above, a night view of the piazza and buildings from the private car park (viewpoint **b** *on plan on facing page). The parking area is fenced by the rugged wooden fence seen on the left, while car and pedestrian areas are separated by a kerb and bollards. Within the partially roofed piazza there are free-standing kiosks, etc., for papers, tobacco, while the main restaurant lies at the back, behind the screen walls that provide shelter, a feeling of having come to rest, without too much enclosure.*



Right, looking through the piazza from the commercial park side (viewpoint **c**). *The piazza is an environment in itself, not just a space at the side of the motorway, and concentrates in itself nearly all the non-motorized activities of the service area.*

LA VALLE DEI TRULLI

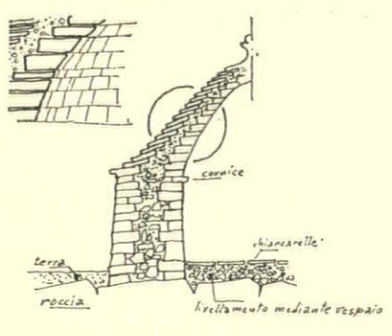
A trullo is a method of construction, not a type of building, nor, strictly, anything more particular than a family of architectonic forms. As Leonardo Sinisgalli says in his introduction to *La Valle dei Trulli** it can be cubic or parabolic or cylindrical or spheroidal. *Costruzione a trullo* is a technique—found in various parts of the world at different epochs—in which thick walls, composed of inner and outer faces of stone with earth between, are capped with pseudo-vaults with an inner, corbelling structure and an outer skin of flat stones laid like tiles, again with earth or rubble between. This construction is shown in, 1 (below), one of three sketches reproduced herewith from the Italian book just referred to.

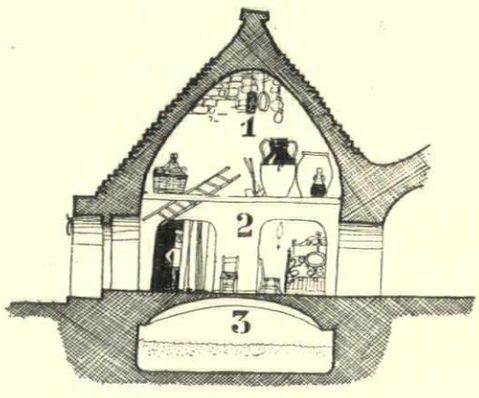


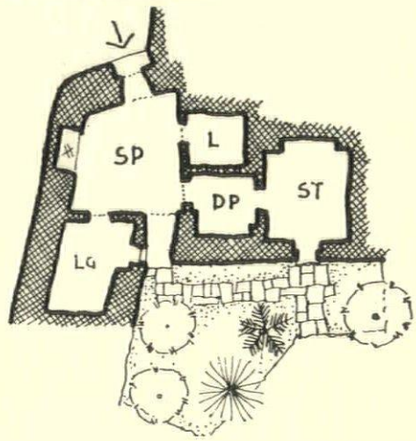
In Italy, *trulli* dominate the landscape and have created a unique townscape most noticeably in the area around Locorotonda, Alberobello and Martina Franca, between Bari and Taranto, at the top of the 'heel' of the southern peninsulas. There, the system of construction has elaborated into a complete architecture, an unwritten rule-book that gives standard plan-types—square or circular outside, but almost invariably a square with apses or alcoves within—standard sections—a cistern below, a granary above, 2—standard elevational treatments—whitewashed stone—standard patterns of floor-stones, standard finials to the *trulli*, standard symbols painted on the outer tiles, standard ways of attaching one structural unit to another, 3, so that the way in which a house is related to its outbuildings is the way in which towns build up and streetscapes are developed.

The result is a vernacular that borders on a universal style, with a visual character as pronounced as that of the vaulted vernacular of Santorin (*Exploring Eye*, AR, December, 1958). It has attracted, inevitably, the attentions of numerous photographers, but Mimmo Castellano, who took the pictures that appear on the next three pages, has been particularly praised for the way in which his work brings out the special architectural flavour of the *trulli*. It has also attracted the attention of the Italian authorities, but whether in time, or in the right way, is difficult to say. As with all such vernaculars, its future is threatened, and the preservation of the Rione del Monte in Alberobello, 9 (page 422) as a national monument is the least that any government could do. The structural technique is still used, but often to roof buildings that are nothing to do with the vernacular, and one hopes that it will not require some natural disaster, as at Santorin, to revitalize this unique architecture.

*By Mimmo Castellano, Leonardo da Vinci Editrice, Bari.

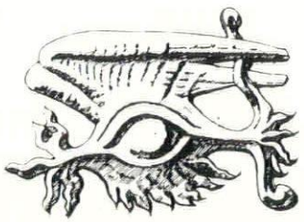












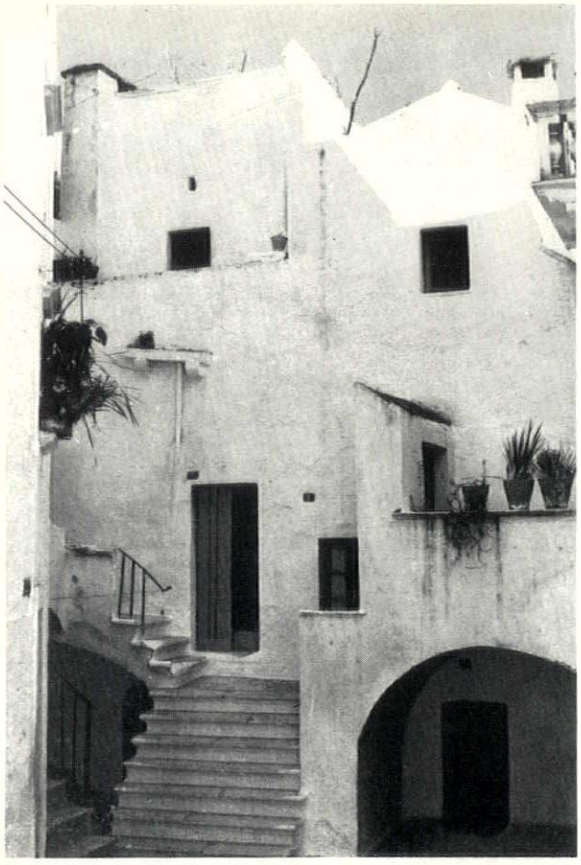
4, the classic free-standing *trullo*, with its massive walls giving protection from heat and cold, but here enriched with external stairs for access to ledges for drying fruits and vegetables.

5, suburban street in Alberobello, where the classic *trullo* form begins to adapt itself to problems of urban neighbourliness.

4

5

Photographs on this and the following pages by Mimmo Castellano, from La Valle Dei Trulli.

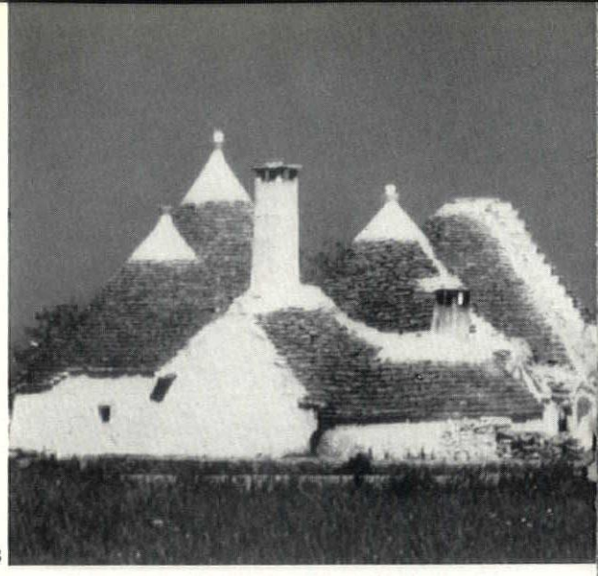


6

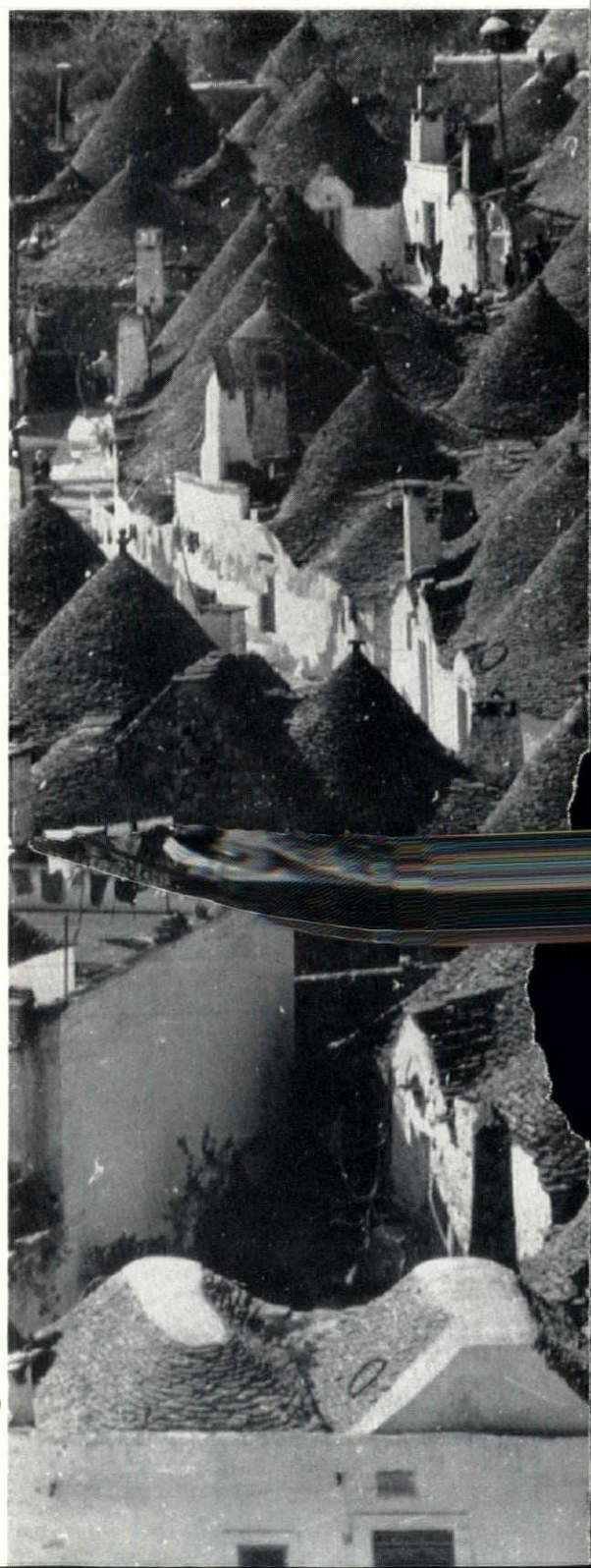


7

6, urbanity in Martina Franca—at first sight the generalized town vernacular of the Mediterranean, but with a certain massiveness of the *trullo* showing through.
7, religious and family images in an interior in Alberobello; together with the straggling electrical conduit, they give a fairly accurate estimate of the technical and cultural condition of the Alberobellans, balanced between the old and the new.
8, the beginnings of *trullo* agglomeration, a patriarchal cluster near Castellana: family history in stone, building types with their characteristic methods of grouping built into their very structure.
9, the *trullo*-city, an air view of the Rione del Monte area of Alberobello, with the adaptability of the *trullo* structure still not exhausted by the need to accommodate itself to a fairly regular urban street pattern. The area has, justifiably, been scheduled as a monument of national interest.



8



9

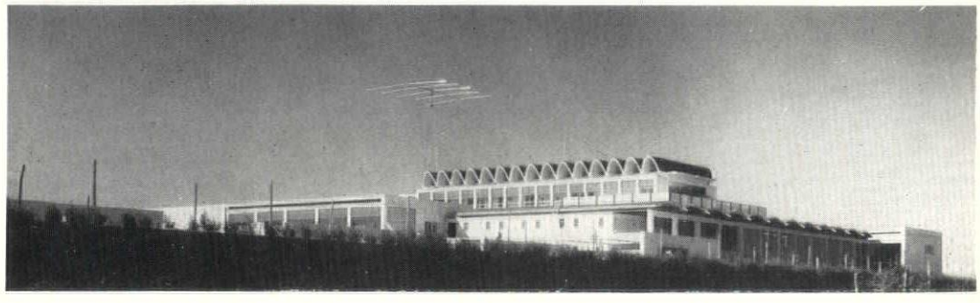
PALACE IN THE PERSIAN GULF

ARCHITECTS | **FARMER AND DARK (partner in charge, John Barton)**

Traditionally, palaces were the pace-setters of domestic architecture. The architect of the palace might build subsidiary houses, masons might pirate his details, guests from the palace might be inspired, perhaps, to commission work from the architect or his imitators. But now, the only patrons who can afford to commission a palace from a British architect are the oil-rich rulers of the Middle East, and the rest of the architect's clientele will see the work only in magazine publications such as appear on the following pages, while their own conditions of life make it unlikely that they will ever commission similar work from him. A palace thus becomes a work of absolute uniqueness—unique opportunity in any architect's career, unique in that it is unlikely to have significant influence on other buildings, unique in the conditions that caused its erection. The only other newly-built palaces that have been illustrated in the AR in the last thirty years are the President's palace at Brasilia, and Prince Akihito's in Japan, neither of which is comparable to this one.

2



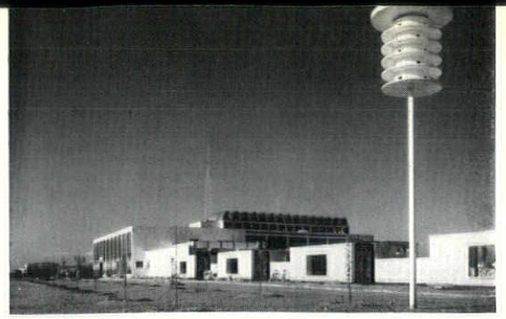


1

1, distant view from the north-east. 2 (opposite page), the guests' wing from the west. The balcony grilles are of blue anodized aluminium ; the teak shutters slide back in the winter. 3, the main courtyard from the west, with the entrance porch on the left and the servants' entrance on the right.

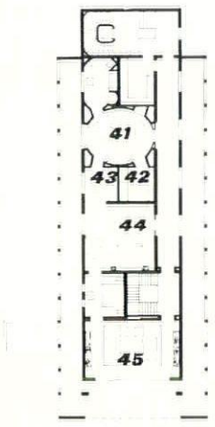
3

PALACE IN THE PERSIAN GULF

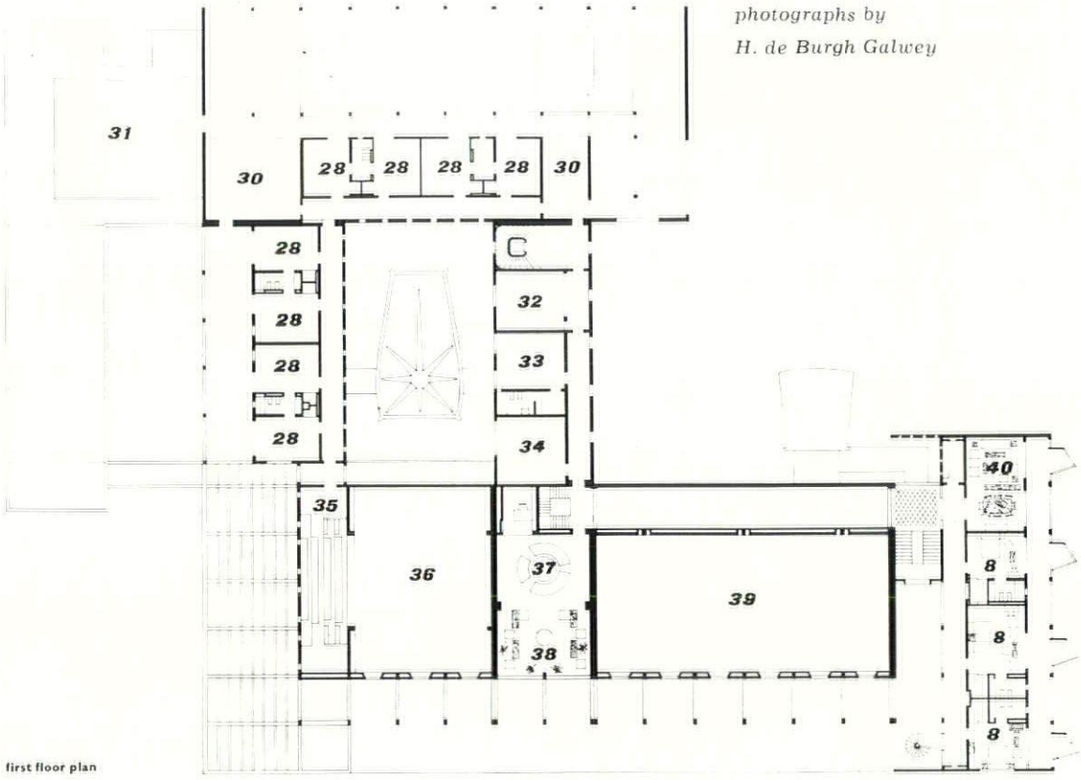


4. the harem wing and garden from the south-east.

photographs by
H. de Burgh Galwey



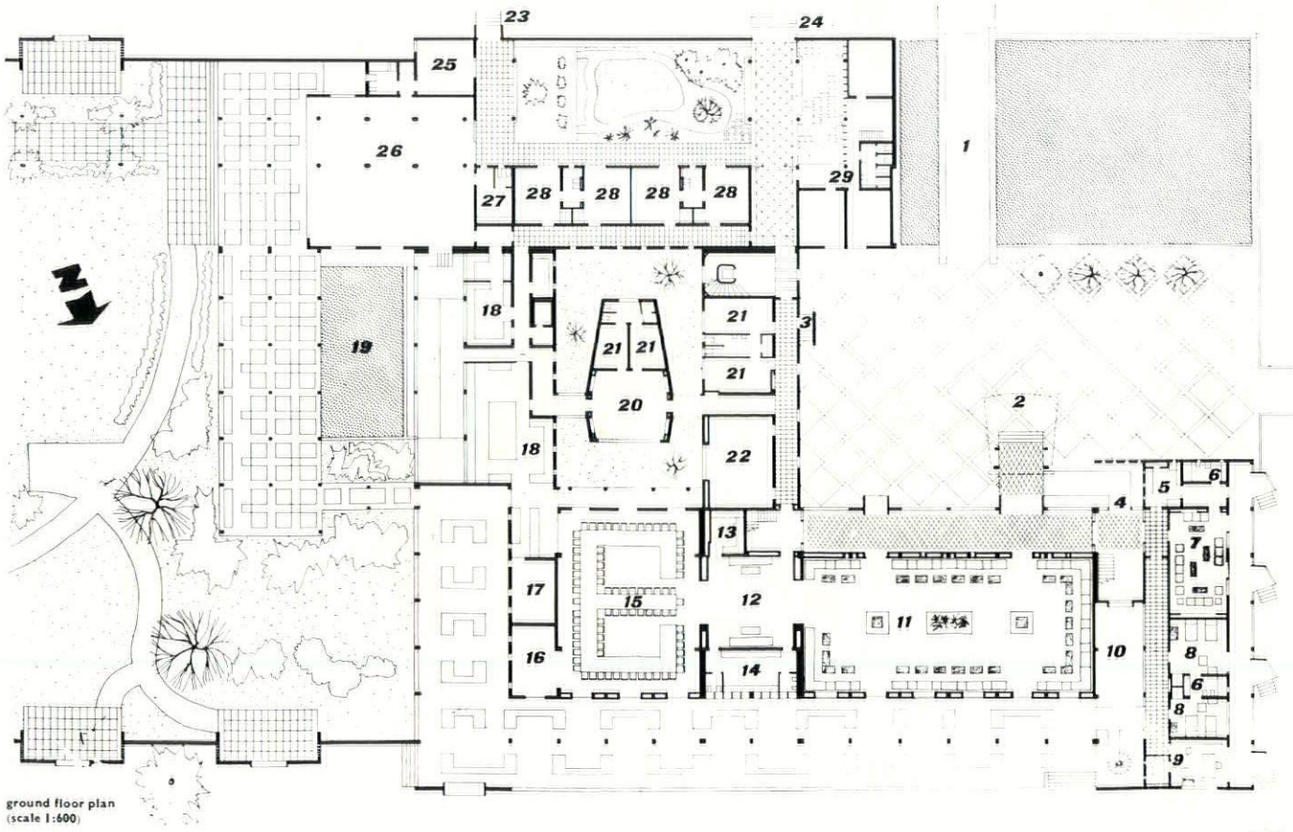
second floor plan



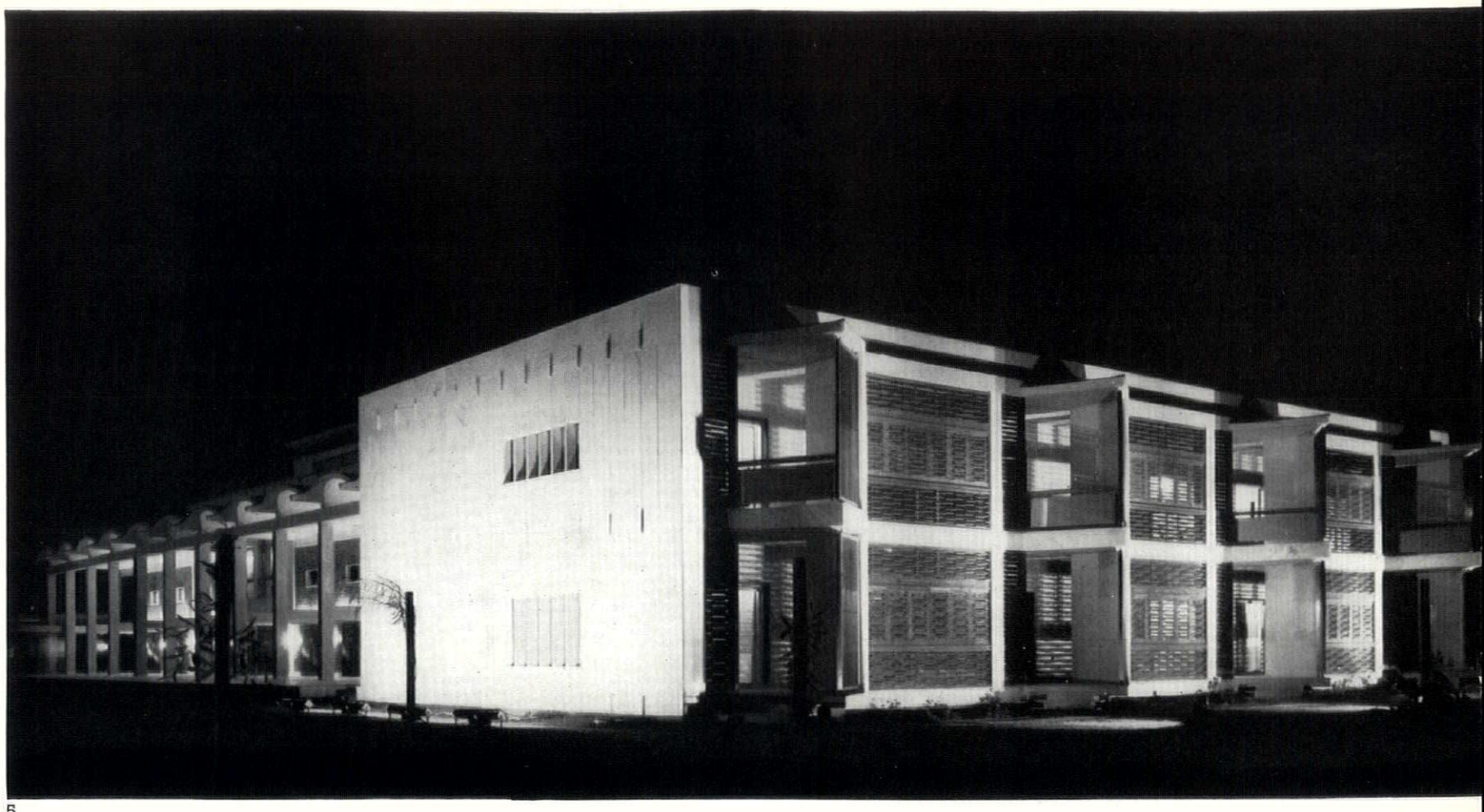
first floor plan

key

1. bridge.
2. entrance porch.
3. servants' entrance.
4. guests' entrance.
5. guests' kitchen.
6. guests' bathroom.
7. guests' reception.
8. guests' bedrooms.
9. office.
10. patio.
11. salon.
12. ante room.
13. coffee kitchen.
14. wash room.
15. banqueting room.
16. furniture store.
17. projection room.
18. kitchens.
19. swimming pool.
20. servants' dining room.
21. servants' bedrooms.
22. servants' sitting room.
23. entertaining entrance.
24. harem entrance.
25. reception.
26. sheikh's dining and sitting room.
27. wash room.
28. bedrooms.
29. family servants.
30. sitting rooms.
31. sleeping decks.
32. air-conditioning plant.
33. oriental sitting room.
34. radio room.
35. cinema balcony.
36. upper part of banqueting room.
37. office.
38. winter garden.
39. upper part of salon.
40. guests' living room.
41. sheikh's bedroom.
42. sheikh's dressing room.
43. sheikh's dressing room.
44. sheikh's bedroom.
45. sheikh's sitting room.

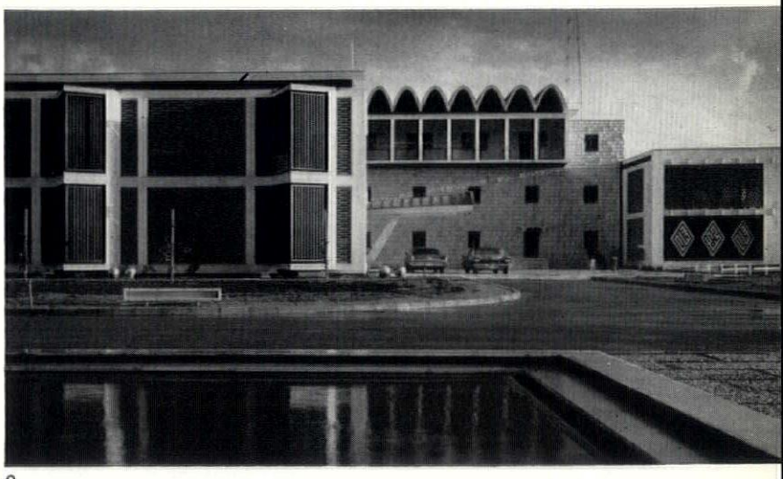


ground floor plan
(scale 1:600)



5

5, the guests' wing from the north-west at night.
6, the main entrance courtyard from the west with the guests' wing on the left. The paraboloid roofs of the three-storey main block house a water tank at low level ; the upper part is hollow, lined with mosaic, and is floodlit at night.



6

The site, an isolated one in the desert, is a small hill which had been previously levelled, providing a plateau about 25ft. high above the surrounding land. The slopes of the hill have been terraced and planted with a large number of trees and shrubs to relieve the aridity of the surrounding landscape. The gardens are watered from a half-million gallon reservoir, sunk in the terracing. The terrace walls are of black aggregate facing blocks, forming a dark plinth to the polychromatic facades of the building above.

Cars visiting the site pass a gatehouse and control point at the foot of the hill and enter through electrically operated gates. The road ramps up below the north front and swings round into the main entrance court.

The building is planned in accordance with the traditional way of life, the women's quarters being separated from the men's. The 'harem' (or family quarters) is in the south and east wings, with its own entrance, screened from view and looking on to a patio and the main harem garden. In deference to purdah, service access to the kitchens is through a tunnel under the garden from the service block at its east end, where bulk supplies are kept. This block also contains servants' quarters, air-conditioning plant, garages and quarters for livestock.

The 'public' entrance to the building is on the south side, through a courtyard approached by a bridge over a large pool. This contains four large fountains designed to give a feeling of coolness to the courtyard. From here an entrance gallery gives on to the reception suite consisting of a large salon, ante-room and dining-hall, which is also used as a cinema. In the west wing are guest bedrooms with bathrooms en suite and living-rooms for the use of the Sheikh's male guests. The central three-storey block links the two main sides of the building and contains, on the top floor, the Sheikh's personal rooms (from which he can reach all parts of the building) as well as personal servants' and guard rooms. In general, to suit the climate and the way of life, the rooms are laid out in a cellular and somewhat formal manner.

To the west of the main building is a prayer room and quarters to house visiting Bedouin followers of the Sheikh.

The extremity of the climate (this area of the Middle East has an ambient temperature range of 150°F.) and

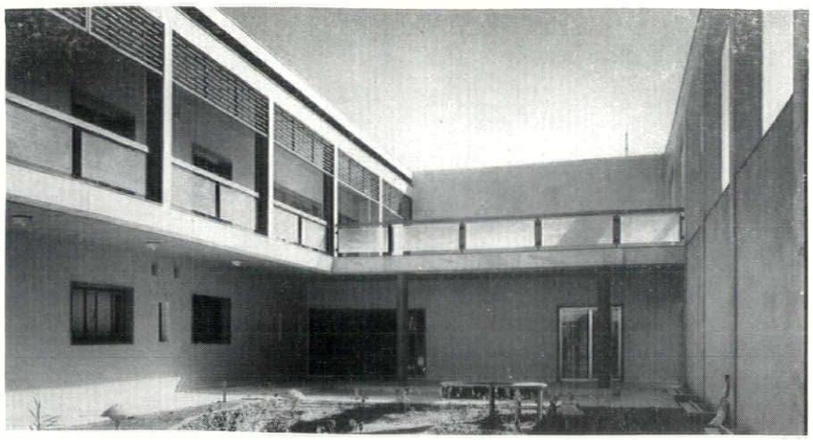
the corrosive action of blown sand posed considerable problems. Cooling is required during six months of the year, but for a short time in the winter the weather can be very cold. The building is therefore fully air-conditioned, and this has made possible the use, contrary to traditional local practice, of large full-height windows in all habitable rooms, enabling the verandahs to be used in the few temperate months. Relatively large windows are in fact needed in the winter when the sky is overcast. Care has been taken, however, by using teak and anodised aluminium louvres, to prevent sun (excepting the low-angle winter rays) from touching the windows. The louvres have been fretted and pierced in various ways to give shadow relief externally and to cast sunlight patterns on the floors internally when the sun angle is low. To break the sun heat on the ceilings, all blocks of the buildings have double concrete roofs with a minimum of 12in. air space between, open to the air.

The more important elements of the building have upper roofs arched and paraboloid in form. The soffits are lined with coloured mosaic and floodlit from the inside at night. In an area still in process of industrialisation it was especially difficult to achieve the required feeling of opulence with relatively unskilled labour. It was necessary to avoid elaborate detail and to allow great tolerances in all finishes. Great structural dexterity is not possible and therefore the building has been designed with a simple reinforced concrete frame filled in with concrete blockwork and applied finishes.

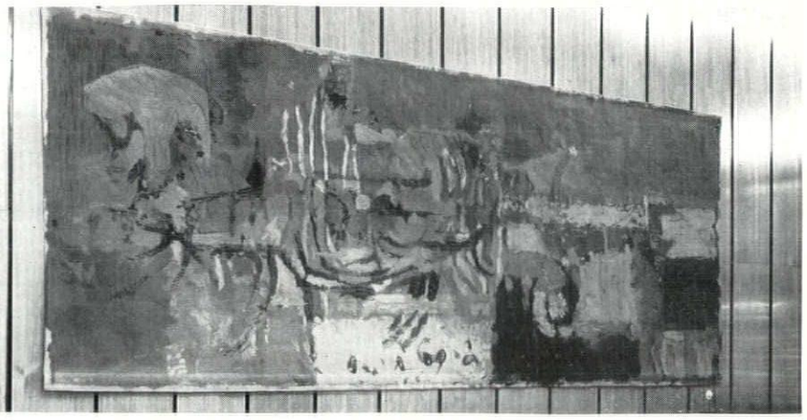
The sophistication of 'beton brut' is not appreciated in the Gulf, where a prosperous economy merely regards it as a sign of poverty. Further, due to the strong sun and the corrosive effect of salt-laden sand, only the most permanent finishes have a chance of survival. Therefore hard finishes incorporating permanent colour which have been traditionally used in the Orient for important buildings—ceramic tile, mosaic, marble—were used extensively.

The building is predominantly faced in white granitello marble with infilling panels in scarlet, grey and blue relief tiles. Only the strongest colours register in this light and provide the necessary contrast to the monochromatic grey-brown landscape. Balcony balustrade panels are of coloured armoured glass. Subframes, doors and sun louvres are generally teak. The curved roofs are finished in copper.

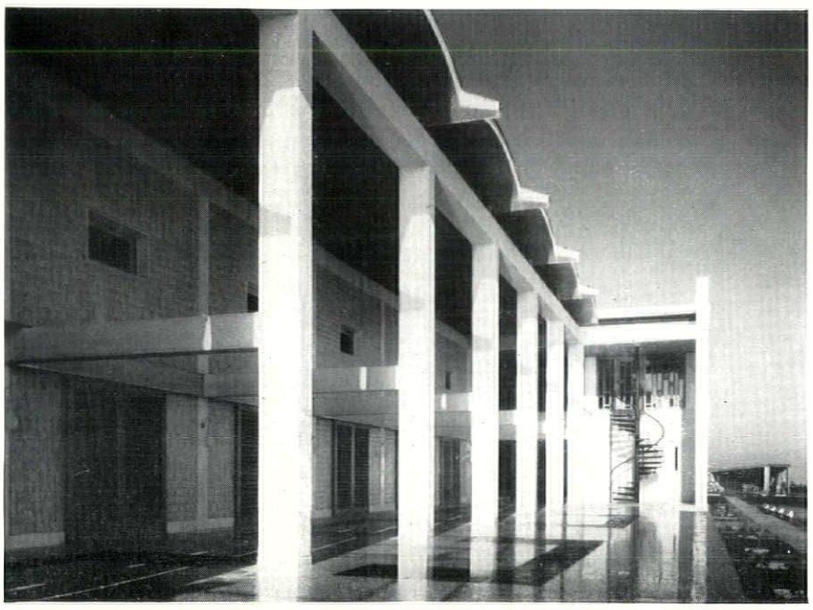
The site architect was Gordon Jones. Assistant architects: A. J. Reid, M. J. Russ, P. K. Khaw, D. Armstrong, J. Lidster and H. Schwab.



7

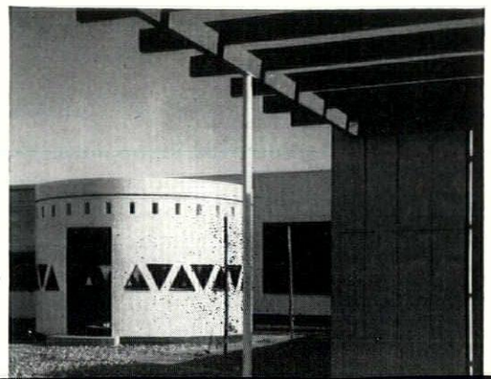


8



9

PALACE IN THE PERSIAN GULF



10

7, the harem courtyard; balustrades are of teak with coloured armoured glass. 8, 'marine study,' a tapestry by Geoffrey Clarke in the main salon. The walls are panelled in teak with black anodized channel strips inset. 9, the covered terrace on the north side of the main salon. The vault soffits are of blue mosaic and the wall is of orange and grey patterned tiles. The sliding teak grilles conceal the french doors of the main salon. 10, a garden house of black and white glass mosaic.

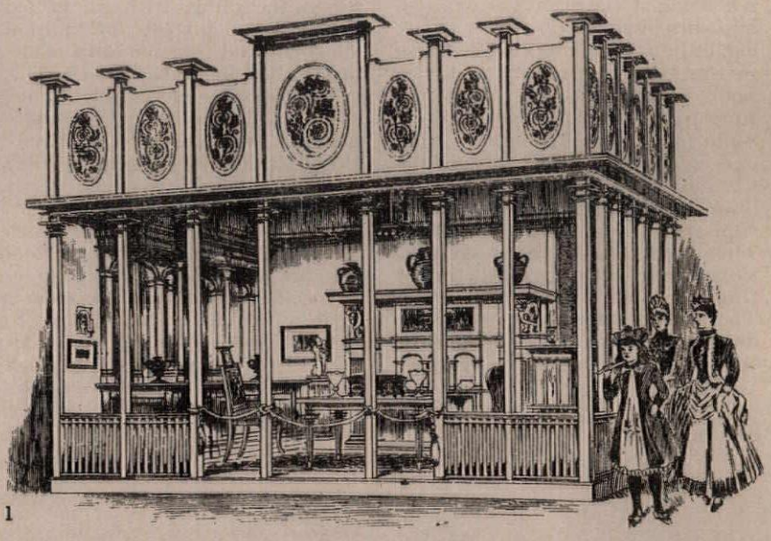
EDWARD POND

MACKMURDO GLEANINGS

The results of Professor Pevsner's pioneer paper on Arthur H. Mackmurdo, published in THE ARCHITECTURAL REVIEW, vol. 83, 1938, have been taken over fully by recent literature,* but have not been added to. The intention of this article, based on a thesis for the Royal College of Art, is no more than to contribute information on certain points.

Mackmurdo, it will be remembered, was born in 1851. Beyond what Professor Pevsner has written it must be recorded that his mother was a Carte—hence his connexions with D'Oyly Carte and the Savoy Hotel—that he went to Felsted School, and, after about one year with T. Chatfield Clarke, to Oxford, where he was not attached to any college and underwent the influence of Ruskin whom he knew personally and with whom he travelled in Italy in 1874. He had meanwhile exchanged Brooks's for Chatfield Clarke's office, but set up in practice on his own in 1875.

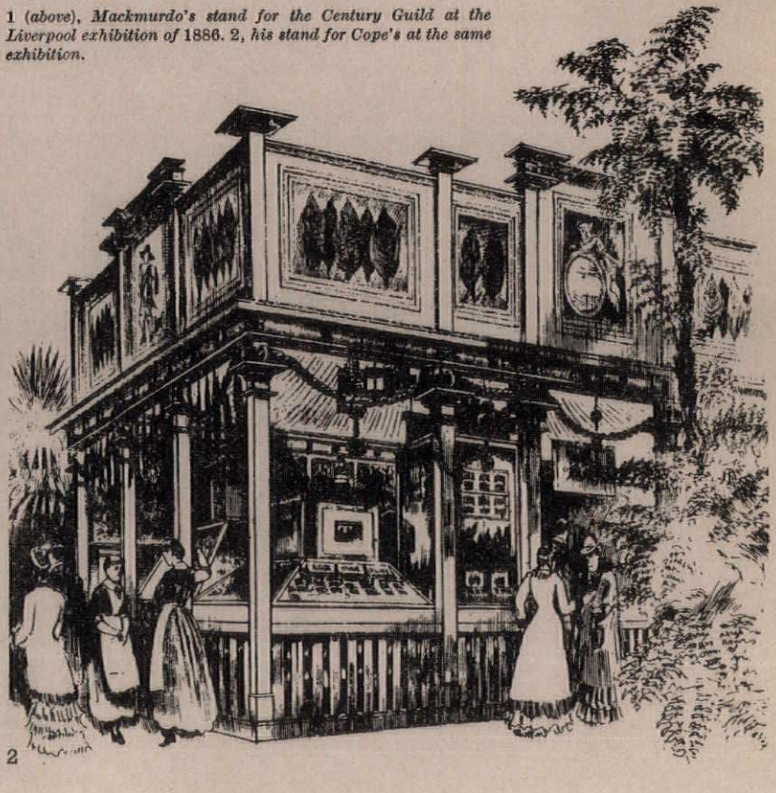
His two earliest houses, both illustrated by Professor Pevsner, were built at Enfield. Their addresses were unknown to Professor Pevsner, nor was he aware of the survival of drawings for them. These are now at the William Morris Gallery at Walthamstow. Both houses are in Private Road. The earlier one, 5, called Halcyon House, is No. 6 in the road and was built for his mother; the later one, 6, called Brooklyn, is No. 8 and was built for his brother. Their exact dates are still a mystery. Mackmurdo told Professor Pevsner that they were done about 1873 and about 1887. The drawings for Halcyon House have a handwritten note by Mackmurdo: 'The first house I designed, 1871,' but also a signature: 'John Bentley, 1876.' On the other hand, Brooklyn, or a design almost identical with it, was published in *The Hobby Horse*, No. 5, in 1887, and so it may be more likely to have been designed shortly before that date. In that case one would have to reckon ten or more years between Halcyon House and Brooklyn. Brooklyn is characterized by a total absence of the Shavian trappings of Halcyon House, by a remarkable emphasis on horizontals and by the overhang of the upper storey carried on verticals which are set slightly in front of the wall of the ground floor. Judging by the sparing classical details the house might be closer in date to the design for a house for an artist published in *The Hobby Horse*, No. 1, 1884, than to the revolutionary designs of 1886 which are known and which culminated in the exhibition stand for the Century Guild at the Liverpool International Exhibition, 1. This is illustrated in Professor Pevsner's article as well as in his *Pioneers*.



1

The British Architect, in illustrating it, calls it 'a pretty strong protest against the redundant vagarisms of modern Renaissance,' and the protest must have been even stronger when the little building was new; for it was painted a bright yellow to set off the rich, dark colours of the furniture and fittings. Less familiar are the exhibits of Cope Bros., the tobacco importers, at the same exhibition, also designed

1 (*above*), *Mackmurdo's stand for the Century Guild at the Liverpool exhibition of* 1886. 2, *his stand for Cope's at the same exhibition.*



2

*e.g. H. Tschudi Madsen: *Sources of Art Nouveau*, Oslo, 1956; *Jugendstil*, edited by H. Seling, Heidelberg, 1959; also in THE ARCHITECTURAL REVIEW itself in the papers by R. Schmutzler, vols. 117 and 118, 1955, and by R. Baurmann, vol. 123, 1958.

by Mackmurdo. They had an exhibition stand, 2, similar in design and painted light lemon yellow, and, in addition, an outdoor pavilion called Cope's Cabin, 3. This was of wood framing, faced with zinc and strips of redwood, and had a strangely horizontal superstructure on the same thin posts with far projecting thin abaci as the two exhibition stands. The interior, 4, is worth recording too, with its exposed and unrelieved timbers.

Of about the same time as these revolutionary structures at Liverpool is Sandhill, a cottage at Formby, outside Liverpool, 7, built for Albert Crompton, founder of what called itself the Church of Humanity. The exact date is not recorded, but it is supposed to be of before 1890.* This is a much more conventional job, with exposed timber framing and a long verandah. The only unusual thing for its date is perhaps the long narrow shape of the house. The verandah posts have curious bulgy shapes almost reminiscent of Dietterlin, and the eaves of the verandah are wavy.

1890 is the date of the Gymnasium, 8 and 9, which was incidentally not at Liverpool, as Professor Pevsner says, but at St. Helens. It was demolished a few years ago. Its interior is illustrated in Professor Pevsner's article, but its exterior also deserves recording, with its reeded brick strips instead of normal pilasters and its naughty shortened pilasters on the door lintel.

The last date of these buildings in Lancashire has taken us actually beyond the date of the Savoy Hotel, which was begun in 1884 and completed in 1889. That Mackmurdo had something to do with it seems certain, both from his own remarks and from his family relation to D'Oyly Carte, but Professor Pevsner is entirely wrong in attributing to him the architecture of the building; that is, the river range, which was the original part. He may, on the other hand, well have advised on such features of furnishing as are described in Professor Pevsner's *Building of England, London: The Cities of London and Westminster.*

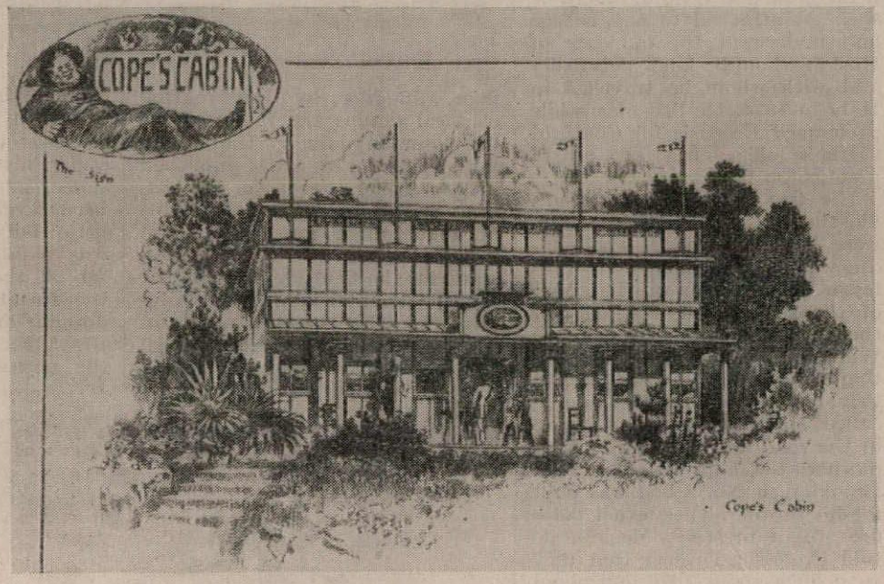
Of Mackmurdo's work in London during the nineties the houses at No. 12 Hans Road (1891) and No. 25 Cadogan Gardens (1899), 10-12, are known. In the mid-nineties a much less attractive building went up, the Olde Swanne in Sloane Street, close to the corner with the tube station. This is in a neo-Wren taste with detached giant columns. The house in Hans Road is of course distinguished from its neighbours by Voysey by its heavy, classical pedimented doorway and other classical details. The very elongated oriel window through two storeys is, on the other hand, a Norman Shaw motif, and this is repeated in the house in Cadogan Gardens. The general tenor of this, and especially its mansard roof with dormer windows, connects this house with another, so far entirely unknown: No. 12 Redington Road, 13. This comes fairly close to the neo-Georgian façade conventions then gradually being developed. It was built for a Mrs. Geddes, no doubt a relative of Patrick Geddes with whom Mackmurdo was in touch over his plans for building 'regional communities,' i.e. something like New Towns or at least New Villages. Mr. John Brandon Jones possesses drawings for this house and helped me to trace it. It was occupied later by Hamo Thornycroft, the sculptor.

Mackmurdo's turn from the innovations of the 1880's to the safer ground of Italian styles is also obvious in the Chapel of the Ascension, Bayswater Road, 14, built in 1890–3 for Mrs. Russell Gurney as a chapel for quiet worship. Professor Pevsner attributes the building to Mackmurdo's partner and friend Herbert Horne, who later lived in Florence and whose collection is now the Horne Museum there, but correspondence published in the parish magazine shows that Mackmurdo certainly claimed it as his own. The façade is in a pure Quattrocento style; the interior was burnt out during the war.

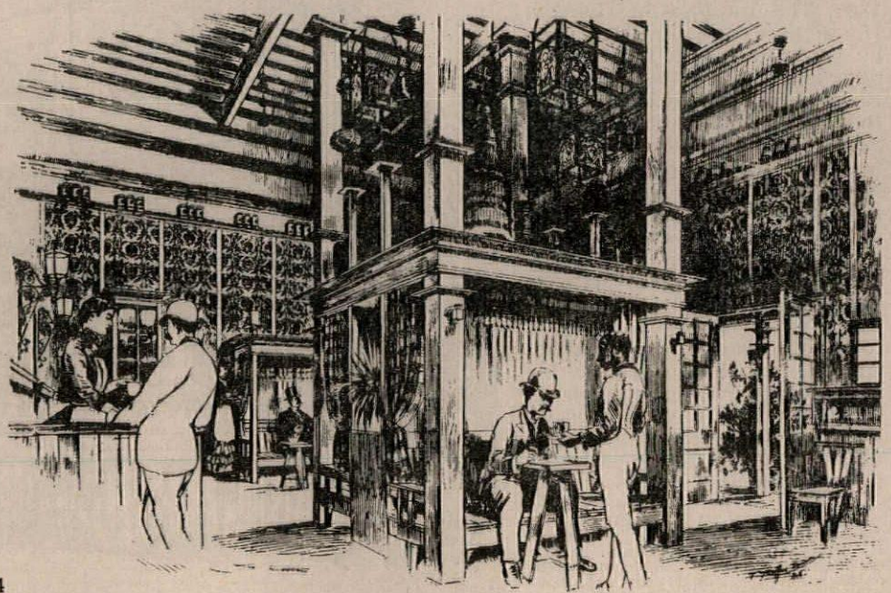
With the Cold Storage Warehouse at 109–113 Charterhouse Street, 15, the year 1900 is reached, and a job in a very restrained Wren style with giant pilasters, little garlands above the windows and an attic curving up towards the centre. Mackmurdo was proud to relate that this had been the first cold storage warehouse in London. Shortly after this building had been designed Mackmurdo bought himself an eleven-acre estate at Wickham Bishops in Essex. His house—or intended house—Great Ruffins, was ready only in 1904, but already by about 1900 he had built Little Ruffins as stage one of his plan. Great Ruffins, 16, was everything that Mackmurdo had dreamt of. It had seven bathrooms and as many changes of floor-level between what, from the outside, are the ground and first floors. The lantern overlooks the estuary of the Blackwater for miles and was intended to hold cupboards for charts where Mackmurdo could pursue his hobby of astronomy. However, as is known, Mackmurdo at this time lost most of his money and had to go on living at Little Ruffins (and later in a yet smaller cottage, now called Mackmurdo's.)

He built little after that. Beacons at Wickham Bishops of about 1920 is no more than a hotch-potch of motifs, although a lodge belonging to it, 17, is simple, straightforward and has remarkably fine proportions. The Village Hall at Bradwell, Essex, built in 1932 or thereabouts, is the only late design of personal character. It was built under the Essex Rural Community programme and, with its brick piers supporting the roof, is reminiscent of his very early work of nearly fifty years before.*

*I owe this information and the photograph to Mrs. Webb who now lives at Sandhill Cottage.



3



4

3, *exterior, and* 4, *interior, of the outdoor pavilion, called Cope's Cabin, designed by Mackmurdo at the Liverpool exhibition of* 1886.

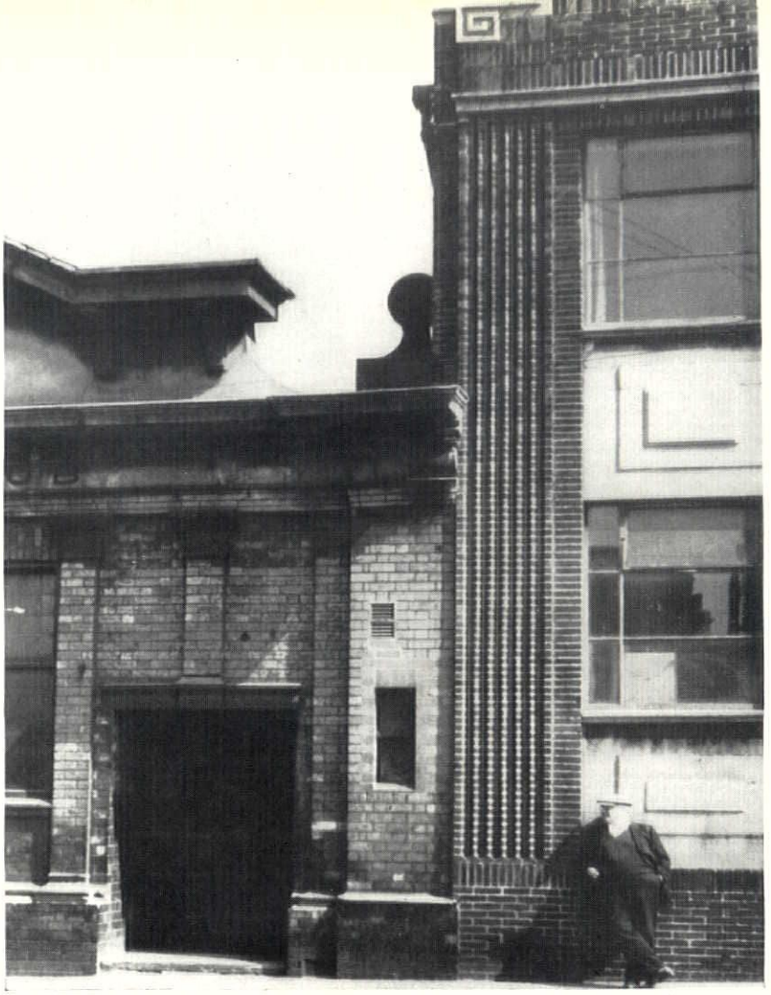
*My thanks for help are due to Miss Elinor Pugh, Mackmurdo's niece, and to Miss Bridget Goshawk of the William Morris Gallery.



5



6



9



7



8

5, 6, *Halcyon House and Brooklyn, both in Private Road, Enfield.* 7, *a cottage at Formby, Liverpool.* 8, 9, *the Gymnasium at St. Helens.* 10, 11, *house in Hans Road;* 12, *house in Cadogan Gardens;* 13, *house in Redington Road, all in London.* 14, *the Chapel of the Ascension, Bayswater Road.* 15, *Cold Storage Warehouse, Charterhouse Street, London.* 16, *Great Ruffins, at Wickham Bishops, Essex.* 17, *the Lodge at Beacons, also at Wickham Bishops.*





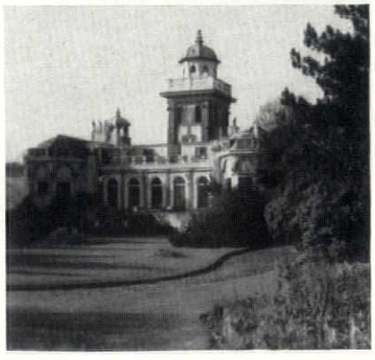




10
11
12
13









14
15
16
17

ID

a monthly review of interior design

Two business interiors

architects: Michael Lyell Associates

One of these works is the interior arrangement of part of an existing building to make offices for a contracting company in Euston. The other involved the creation of additional accommodation on the roof of an existing structure in Millbank for a leading tobacco manufacturer.

1, reception area of offices in Euston. The bare shell into which the interior had to be fitted included the suspended ceiling with heating above, and lighting and flooring were provided to the tenant's requirements. The partitioning was designed by the architects, using standard aluminium sections stocked by the sub-contractor. Solid panels in the partitioning are polished Sapele veneered, flush doors are hardwood veneered.

2 (opposite), storage unit designed to take advantage of, and regularize, a structural recess in the corner of one of the directors' offices.

3 (opposite), staff recreation room, office extension in Millbank. The ceiling is made up of acoustic panels and recessed light fittings, all specially made to fit a module fixed by the existing structure. The rhythmic alternation of colours in the whole-wall curtain-

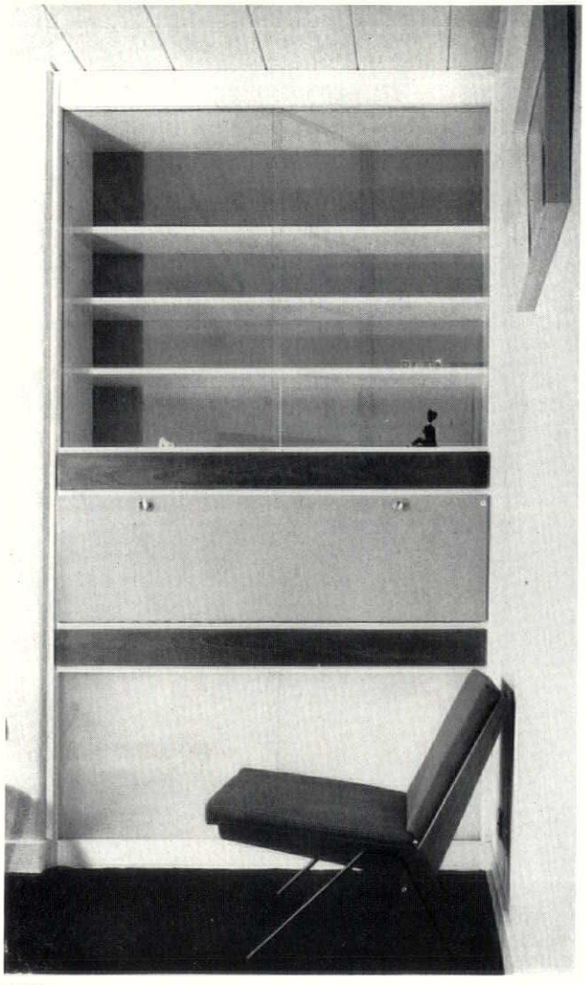




3

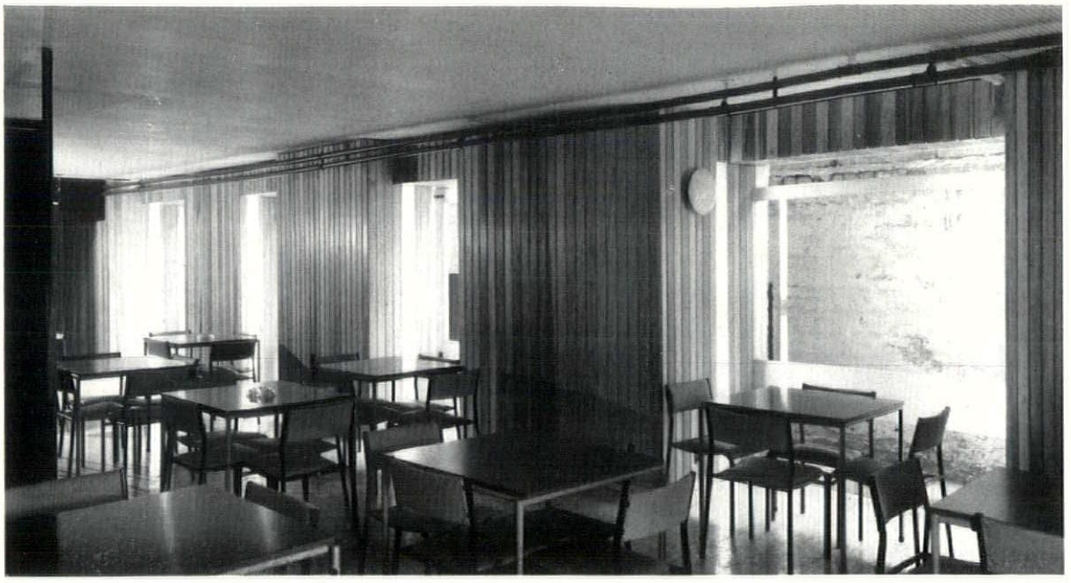
ing helps to give order and interest to what might otherwise be a visually over-long wall.
4. the recreation room, looking toward the marble fireplace in the oak-panelled end-wall.

2



4





1

Staff restaurant and coffee-bar in Westminster

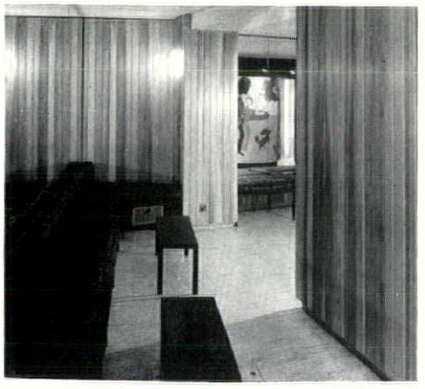
architect : David Rock

The architect's problem was not only to make a physical conversion of a group of basement rooms, but also to make the necessary conversion of atmosphere to change a canteen into a restaurant. Most of the given walls were structural, and the physical form of the spaces could not be altered significantly.

1, general view looking back towards entrance. The walls are panelled out in parana pine boarding to conceal an untidy array of buttresses, while the vertical emphasis of the boards increases the apparent height. Vertical strip lighting in the window reveals illuminates the wall of the basement area and prevents any feeling of underground murkiness.

2, the coffee area seen from the service bar, with the entrance 'cylinder' reflected in a wall mirror.

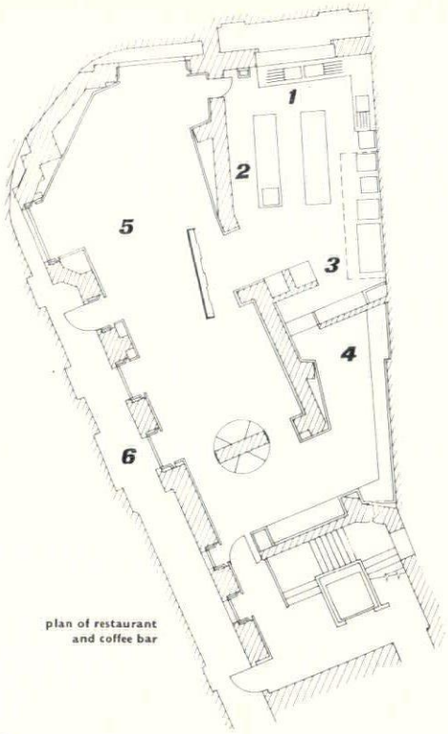
2





3

3, a corner of the coffee area, showing the effective multiplication of the real space by mirror-to-mirror reflections. Ventilation extracts are stowed neatly under the black plastic upholstered seats. All boarding stops clear of the floor, leaving a 'negative detail' to avoid scuffing of the wall surface by mechanical polishers.



plan of restaurant and coffee bar

key
1. washing up
2. servery
3. kitchen
4. coffee bar
5. restaurant
6. basement area



4. the entrance cylinder, formed to create a sense of a unified space with a free-standing object in it, rather than a wall with two doors pierced in it—the wall, being structural, had to remain and can be seen in the plan, left. The mural was painted by William Lane.

Dining-room, Lincoln College, Oxford

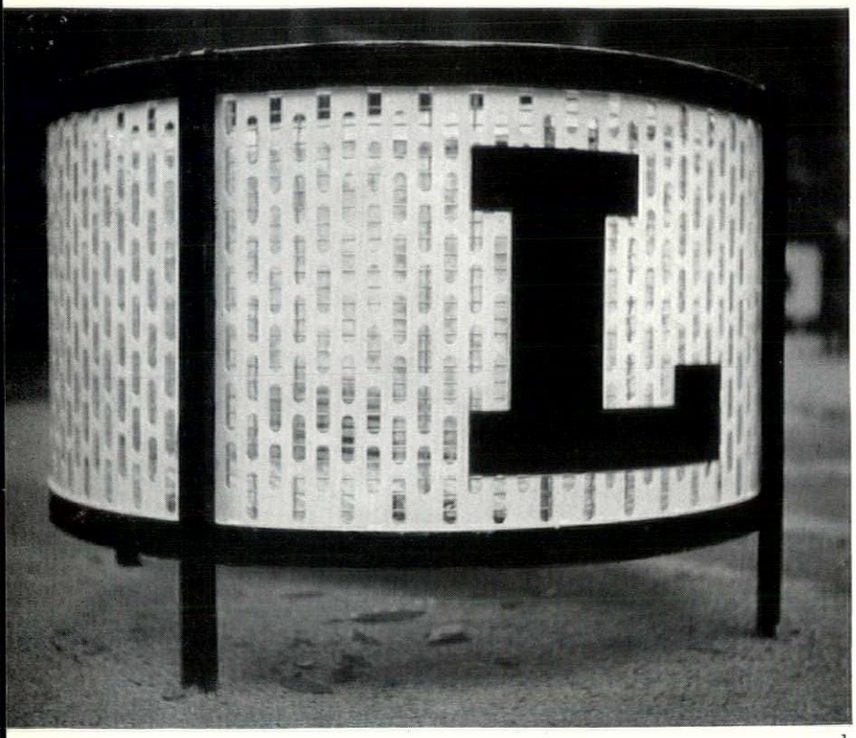
architects: Architects' Co-Partnership

Another contribution to the problem of collegiate infill by Architects' Co-Partnership (cf. AR, August, 1960) but in this case an interior whose only source of natural light would give windows with an unsatisfactory aspect, the whole to be fitted in between existing walls, buttresses, etc. It is, however, an entirely new structure, though approached through a common-room formed out of existing eighteenth-century interior.

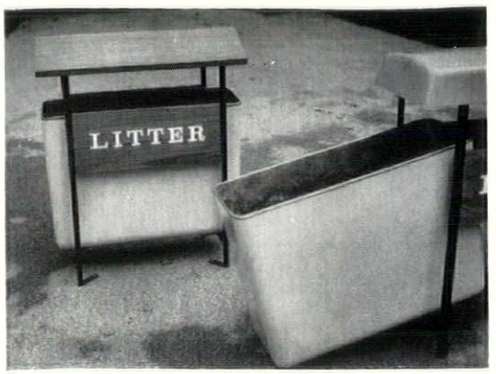
1, the undergraduate dining-room, looking towards the entrance from the lobby. Entrance wall match-boarded in timber, ceiling of varnished beech battens, wall at right plastered and painted grey, curtains covering glazed screen (instead of a window) on left. The tables were purpose-designed by the architects and the cock over the door was among the entries from Royal College of Art students in a competition for a suitable object to occupy the display case which serves as an over-door in the thirty-nine-inch wall.



1

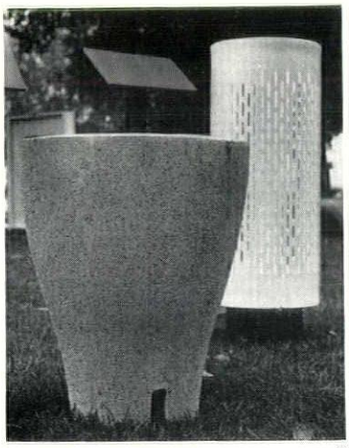


1



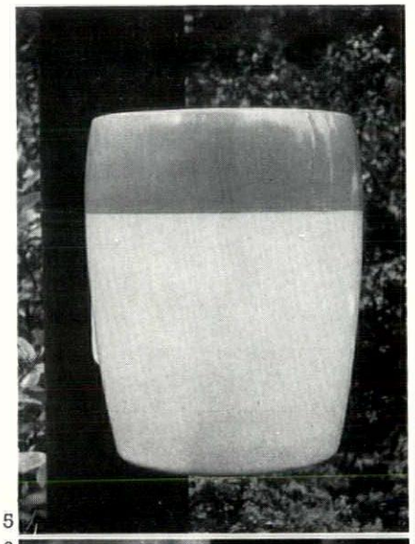
4

Litter-bins on parade

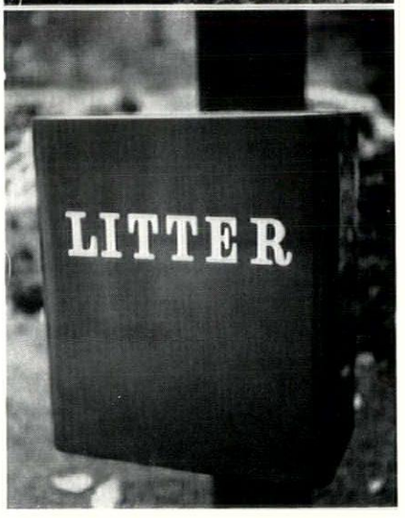


2

1, such triumphs of the Functional Tradition as this generously-scaled metal bin, designed by Dereck Goad and John Hicks (manufactured by G. A. Harvey & Co.) were unfortunately rare among the diploma-winners at the Council of Industrial Design's recent Litter Bin exhibition. A straightforward welding job in standard metal sections and perforated sheet with separate inner baskets, each occupying half its nearly three feet of overall diameter, it is intended to be seen in wide-open spaces without disgracing them.
2, in contrast, many of the exhibits seemed to be self-consciously simple art-objects: this small cast concrete example (Kenneth Grange for Henry Hope & Sons) looks unlikely to survive, visually, outside a garden setting.
3, wall mounted fittings, ranged on parade, emphasize the independent art-object quality of the bulk of the designs, and the failure of most to communicate any information visually about their function.
4, over-elaboration was—fortunately—not a common fault. These complicated examples, in which every bin is a sort of vest-pocket Festival of Britain and difficult to use because one has to bend down and insert one's hand under an overhang, were criticized only on the grounds that they were a comfortable height for sitting on.
5, 6, absolute simplicity, by contrast, paid off handsomely in designs clearly intended for urban use because lamp-post mounted. 5, by John and Sylvia Reid for Elton Civic Supplies, in fibre-glass; 6, in steel, by DRU for Burnham & Co. The modish lettering on the latter, can at least be painted out and re-done, unlike the modish tricks of some other entries.
7, the ultimate threat, designed by John Morgan for Cartem Engineering. The technical arguments in its favour are overwhelming: intended for temporary use at, e.g., fairs, race-meetings, etc., it collects the litter in disposable bags of high-wet-strength paper, clipped up to a steel ring and lid, an hygienic solution that will be hard to better. But the paper bag looks like litter in its own right, even when new and dry. The situation seems to be the perfect argument for making expendable equipment bright, even gaudy, to counteract the visual depression these objects will surely bring.

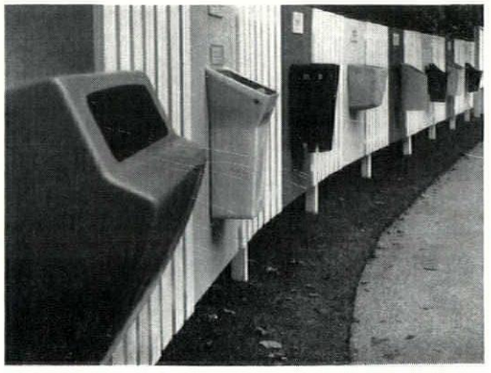


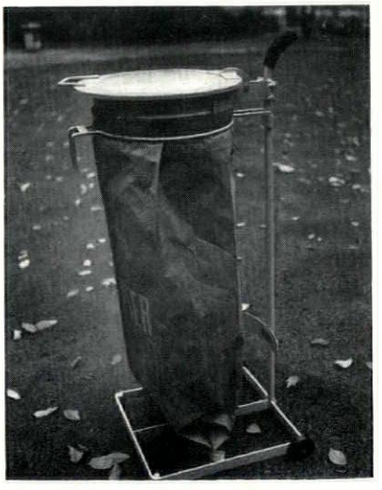
5



6

3





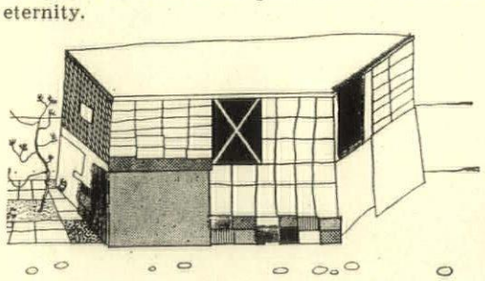
7

DR
design review

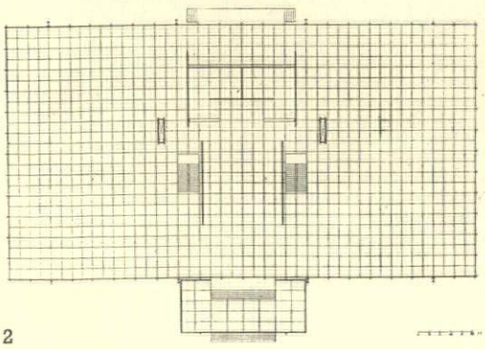
Alison & Peter Smithson

f i x

Transience and permanence are in the conception of a building as much as its material structure. Charles Eames's house, 1, though built of steel is conceived as a transient, almost casual, structure; Mies van der Rohe's Crown Hall, 2, with its formal plan makes claims on eternity.



1



2

Architecture must focus on to the problem of how the community structure can be made more comprehensible; and this is not only a matter of 'city planning,' but must inevitably alter the nature of architecture—at least as far as the nature of architecture has been understood since the Renaissance.

permanence and transience

Just as our mental processes need fixed points (fixed in the sense of change over a relatively long period) to enable them to classify and value transient information, and thus remain sane and lucid, so too, the city needs 'fixes'—identifying points with a long cycle of change, by means of which things changing on a shorter cycle can be valued and identified. With a few things fixed and clear, the transients no longer menace the sense of urban structure or the citizen's sanity, but can uninhibitedly reflect short-term needs and moods. If this distinction between the changing and the fixed were observed there would be less need for elaborate control for which no good case can be made and legislative energy could be concentrated on long-term structure.

In the related cycles-of-change of a community, historical buildings are often regarded as fixed in perpetuity, others—like law courts and municipal buildings—have almost unchanging functions, or—like power stations and heavy industrial plant—represent investments too massive to be altered frequently. These are the architectural fixes; the architectural transients are the small buildings—particularly shops and houses—that are added to, altered, or completely rebuilt on a short term cycle of change.

The buildings in an urban environment should reflect the appropriate cycle of change. 'Fixes' should look fixed and 'transients' transient, *even if their actual life as a building* (so called permanent construction) *is the same.* Thus Mies van der Rohe's Crown Hall at IIT, 2, is a *fix*, and looks it, while Charles Eames's own house, 1, is a *transient*, and manages to look it, even though it too is built of steel and glass, and has roughly the same standard of permanence.

road as town-maker

The non-architectural environment is increasingly transient; posters change on a monthly cycle, sky signs change every six months, and shop windows, clothing, magazines, and so on, arrive and disappear with great rapidity, on cycles related obscurely to each other.

The main structure of the urban environment to which all this activity can be related, could be a special sort of road system. Such a system, designed to act as a structure for the whole community, neutralized by a green strip or built landscape, need not in fact be very large in relation to the town—two or three great highways are almost sufficient to serve even Los Angeles, where motorization is gradually approaching its saturation point of one car to every two persons, and motorway patterns of this size may already be approaching the stable condition of the railway system. Like them, it will probably then go into a slow decline.

This road system is a 'fix' for movement, running throughout the whole community,

but the big motorway intersections, like the Los Angeles 'Mixmaster,' or the San Francisco Skyway take-off for Oakland Bay Bridge, 3, are more like traditional architectural fixes, and could be properly associated with existing architectural fixes, as suggested in 4, where motorways serve, and ring, an historical centre. A whole network of motorways related to existing fixes in this way, 5, could serve not only for the purpose of travel, but also define the areas into which the urban region is divided. In this way the road-system would keep our apparent level of mechanization under control—since we no longer need to play it up for formal reasons, we can channel noise and excitement where they are needed, and create pools of calm where they are not.

An 'aesthetic of change' paradoxically, generates a feeling of security and stability by supplementing our ability to recognize the pattern of related cycles, and already we can also recognize that an adequate urban motorway system is a psychological as well as a functional requirement of an urban region—it offers the possibility of escape.

the road as liberator

Within 10 or 15 years most people will have reached an optimum consumer capacity for all the portable material appurtenances of the old way of life. How then are they to use their extended leisure?

To help them enjoy their spare time the densely populated areas will have to be able to empty a large proportion of their population into the surrounding countryside and, where possible, on to the nearest coast, pleasantly and within reasonable time, each week-end and on summer evenings.

There will be a vast need for an increase in the number of week-end caravans, huts, etc. In response to this demand our coastline, for example, will have to be reorganized in order to keep some parts without people, and to cope with the influx on the rest.

But the force of the need when it becomes apparent—not in penny packets confined to pockets of a class structure—but universal in magnitude—will make certain that the problem can no longer be tackled by simply multiplying the most attractive solutions that have been produced elsewhere for other places, at other times.

pattern of dispersal

Some parts of a solution are already obvious:

1. A general system of motorways, which besides being a fix, provides access to the countryside and to the sea. (At which points proper vehicle and people-handling facilities need to be provided, more or less on the model of Jones Beach which is part of the New York Parks Service.)

2. An increase in mass-transit facilities, particularly to existing resorts, whose major features, promenades, piers, etc., are already incapable of handling motorized holiday-makers.

3. Protection of areas of great natural beauty.

What is less obvious is the form that dispersal communities must take so that they will not become merely low amenity suburbs or stuffy townships.

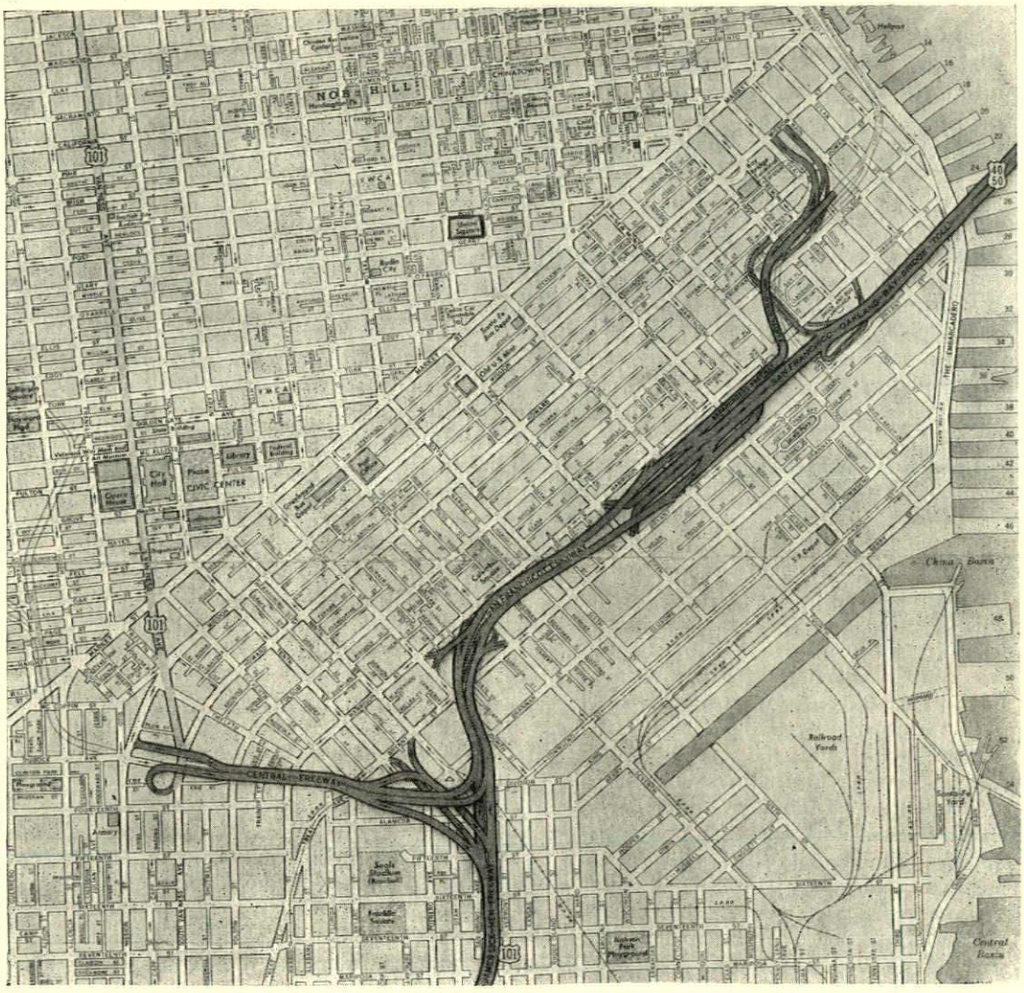
People want a country retreat so that they can live closer to nature and in a more disorganized way (or in a more organized but quite different way, should they choose to go up a mountain or into the arctic for rigorous physical/manhood-test conditions). To really provide these conditions, the shack has either to be by itself out of sight of other shacks (minimum 2-5 acres) or there has to be a pocket of shacks crowded together but surrounded by 'real country.' It is this latter condition that makes people unashamed of the squalor of the caravan site and the army camp—the feeling that all around is the wild which was only a short time ago where one stands, and quite unrepentant because nature can come

3, San Francisco Skyway take-off to Oakland Bay bridge; such constructions have now become the largest permanent structures—urban fixes—in the motorized town-pattern. Their scale is heroic, but no town is likely ever to need more than a handful to serve its two or three urban motorways; the rest of the road pattern is left undisturbed.

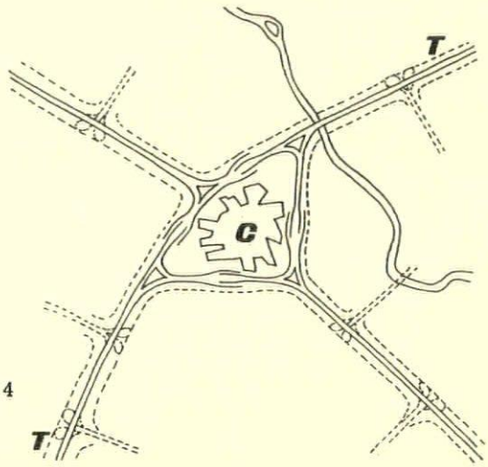
4, the authors' proposals for relating the new motorway fix to the existing fix of an historical or other area of permanent importance, C., and to the pattern of urban motorways and trunk route, TT.

5, the pattern extended to include subsidiary urban centres.

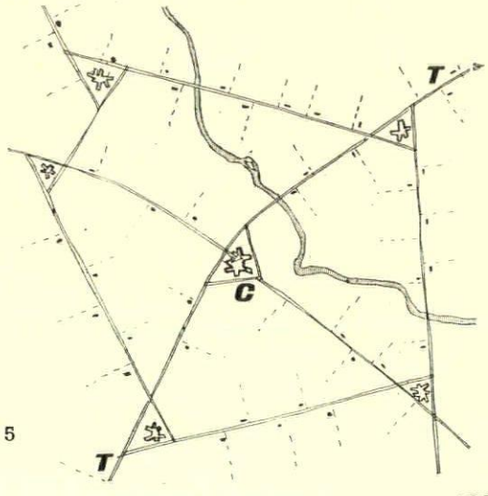
3



4



5



back and wipe out the mess. (It is only when the camp is as large as Catterick, or as permanent as Chicago, that real despair sets in; nature will never get back.)

The consequence of leisure dispersal in the built-up city may well be to stimulate a demand for maximum-convenience town apartments (no maintenance, no outdoor space to keep up, maximum anonymity, maximum ease of servicing, and so on) and this usually means high density blocks of 300 persons to the acre and up—something like the new Commonwealth Apartments in Chicago. Wide dispersal, and its corollary localized high density, are part of the general Cluster City concept (cf. AR, November, 1957).

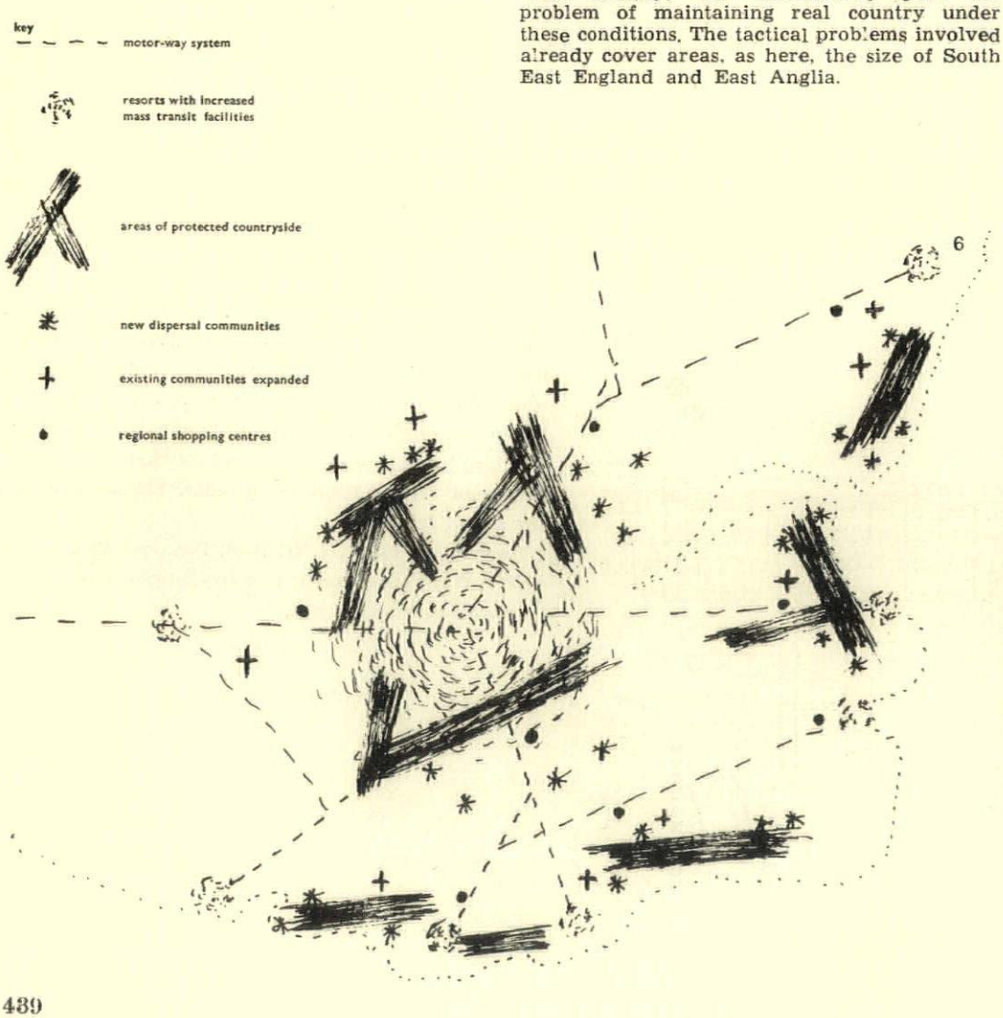
What can definitely be said about caravan sites, groups of holiday bungalows, extended villages, and so on, is that they must be kept small (150 to 200 families) and well dispersed (3 miles apart or so) and the inhabitants of these dispersed groups should use the existing regional towns or newly created out-of-town shopping centres (linked to the motorway system, since leisure-dispersal assumes motor cars) to do their shopping, and they should NOT be built up into mechanically tidy satellite communities.

These sorts of ideas are, of course, the result of thinking about human agglomerations, and cities in particular, as *places*—the principle already at work in the creation of fixes, and the architect's discipline.

The sort of redevelopment needed (because of the size and nature of modern communities) needs to be big in scale to be effective. Very large pieces of architecture NOT small pieces of architecture co-ordinated by planners. And it needs to be a special sort of engaged architecture in which the parts and the whole have their grouping characteristics built into them. This is not a 'matter of fitting into the environment,' but of buildings creating a special sort of environment through their human and formal organization. This is why we, and others, have for some time been agitating for the opportunity to develop an area in which the grouping characteristics can be carried from building to building into a freely organized whole, where the general objective is an active environment and not the creation of individual monuments, Renaissance-style (as in the Hansaviertel).

But if any of the ideas are to be realized, they have to be introduced, legislated for and administered, in the field of politics.

There is at present in England no arm of government really interested in environment at the theoretical and strategical level. And in consequence the results of action at the tactical, or local government level, lack conviction.



6, the tactics of population dispersal around a major urban nucleus: the motorway system, and mass transit facilities, make it possible for the population to disperse to resorts and 'real country,' but immediately pose the problem of maintaining real country under these conditions. The tactical problems involved already cover areas, as here, the size of South East England and East Anglia.

conclusion: a strategy for the next twenty years

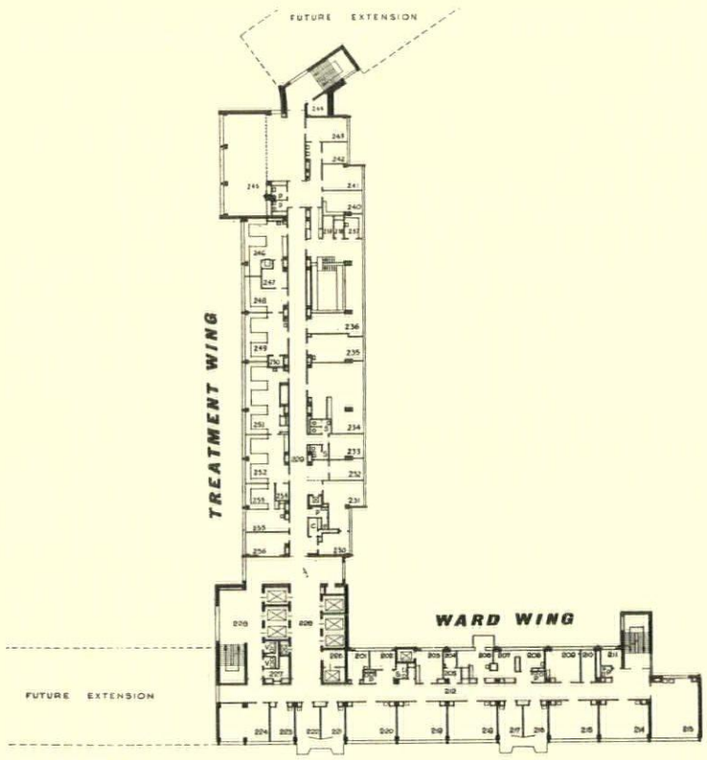
What seems to be needed is an independent body—a sort of cross between Chatham House and The Economist's 'Intelligence Unit,' which can both carry out independent research (the findings of which could be bought by the Government), or which could be set a task to assess, much like the War Office planners.

Such an institute could finance itself and its role would resemble that of planning consultants in the immediate post-war period. But unlike the old independent consultant planner, a lot of its work would be the collection and analysis of information which would be done by geographers, mathematicians, statisticians, actuaries—that is providing the raw material of planning for bodies that need it.

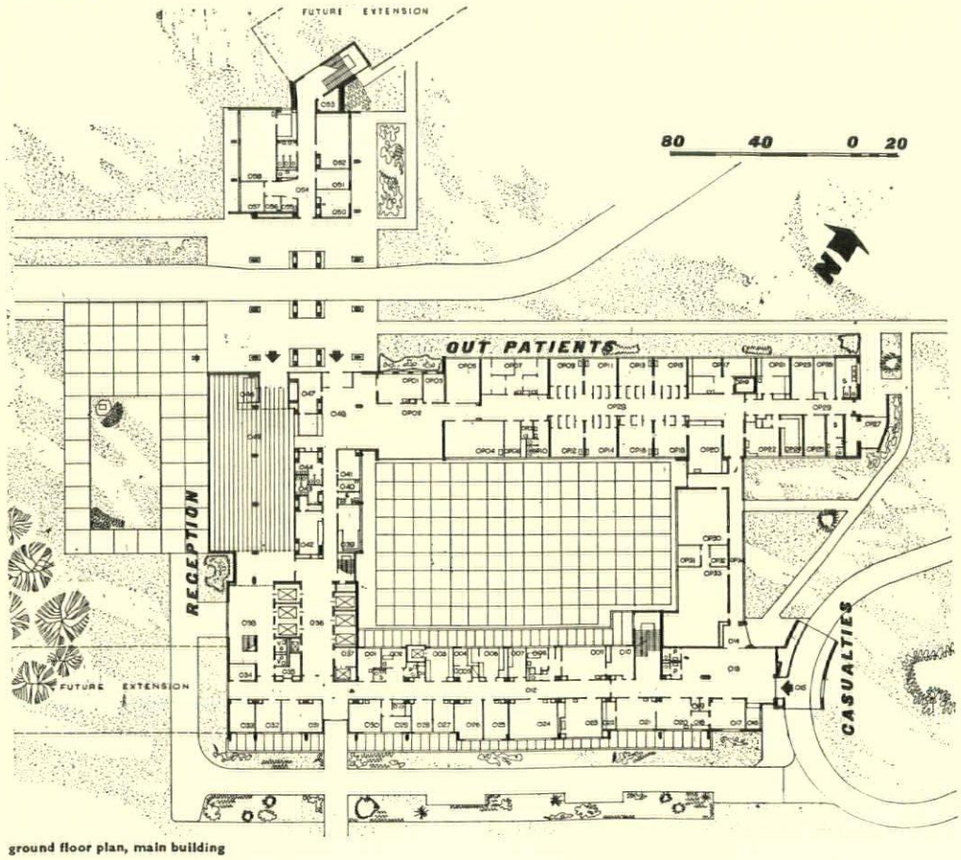
There is evidence that the role of consultant planner is reviving; for example, dissatisfied with the official plans they were getting, six Burgomasters in Holland commissioned Van den Broek and Bakema to prepare a scheme for the redevelopment of their villages and their joint region.

Such an independent body should, however, have the ear of the government, be capable of *initiating* large scale experimental schemes or of piloting development projects and be able to publish community studies—the work of the research unit, the universities, or individuals. It should be the 'ideas machine' or intellect behind a new sort of planning authority which should replace the present county and county borough set-up where these have been rendered irrelevant by the new sort of communities which have grown up. The work of this authority and the independent body could be co-ordinated by a Ministry of Communications and Communities which could also handle the economic, industrial and agricultural side of things at inter-Ministry level. This new Ministry would make it its job to *sponsor* large scale development projects.

This is not a plea for a National Planning Board with direction from the top; but rather for *dissemination of ideas and backing from the top*—the function one assumes of government in an open society.



second floor plan



ground floor plan, main building

HOSPITAL, ALTNAGELVIN, LONDONDERRY, N. IRELAND

ARCHITECTS: YORKE, ROSENBERG AND MARDALL (in association with H. W. Scatchard, Chief Architect, Northern Ireland Hospitals Authority).

As built, the hospital (the first new general hospital to be completed in Britain since the war) provides 390 beds, but it may later be extended to provide 600. The main building is multi-storey to concentrate services and consists principally of an 11-storey ward wing, facing east and west, at right-angles to an 8-storey treatment wing. A single-storey out-patients' department joins the ends of the two wings and encloses a paved courtyard.

The ward wing has ten identical floors above the casualty department, varied only in the case of children's and maternity wards. The treatment wing has administration on the first floor, operating theatres on the top floor with laboratories, x-ray, sterilizing, maternity and physiotherapy departments between. In separate buildings are the kitchens (from which food-trolleys are taken by tunnel and then by lift to the ward kitchens in the main block), laundry, mortuary, workshops, boiler-house and staff housing and nurses' hostel. The latter has an assembly hall adjoining.

The structure of the main block is reinforced concrete on a 22 ft. 6 in. grid. Vertical ducts adjoin all columns in the ward wing and pairs of columns in the treatment wing, and connect with the service tunnel in the basement. External walls are of precast concrete slabs with exposed aggregate using local materials. End walls are brick panels and there is some stone walling. Windows are steel with aluminium cills. The smaller buildings are also concrete framed, with external walls of coloured concrete bricks and precast slabs, except the nurses' hostel which has load-bearing cross walls and concrete brick walls with some vertical boarding in cedar. The assembly hall has a steel frame.

Associate architect, J. R. B. S. Penoyre. Architects in charge, W. G. Lucas and A. R. Parry. Structural engineers, Clarke Nicholls and Marcel.

1



2

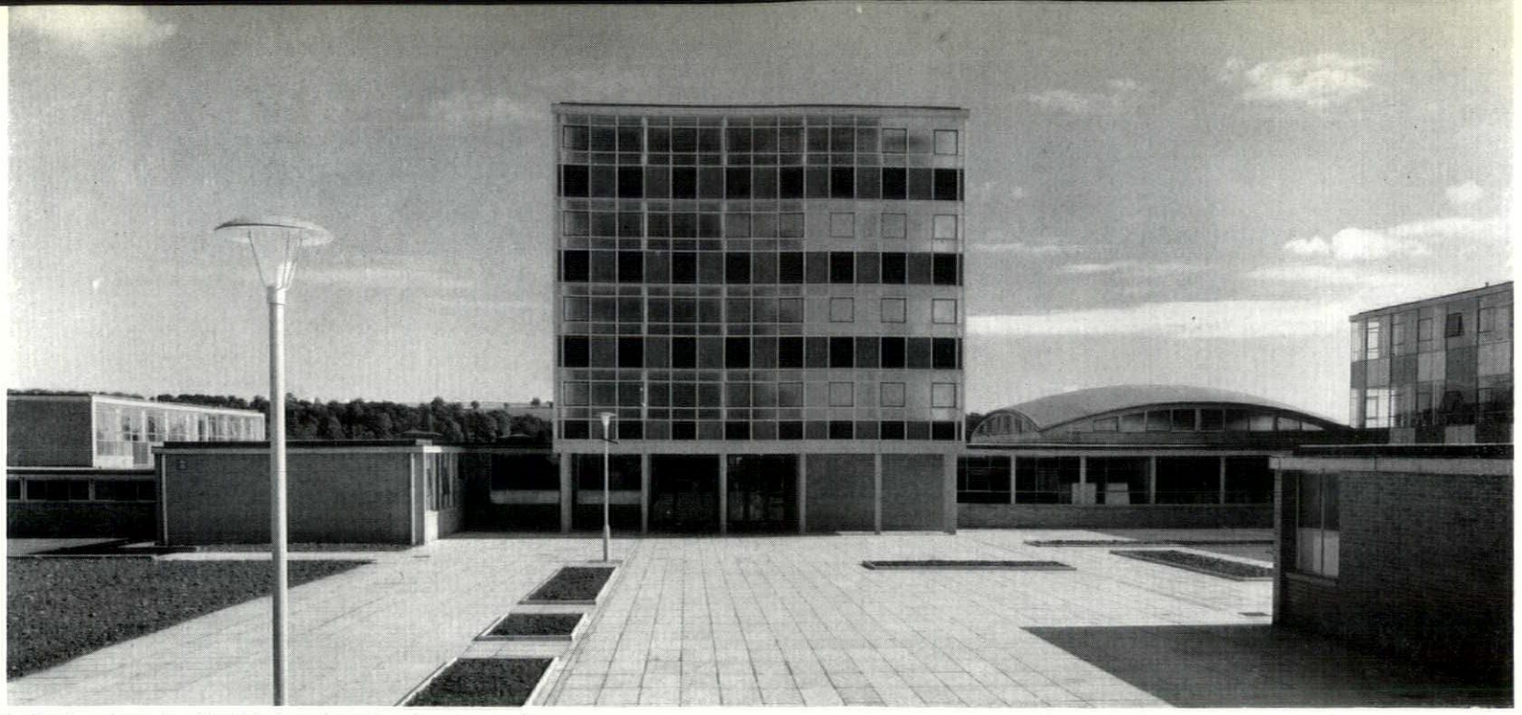
1, *the ward wing from the south-east, with administration offices on the ground floor.*

2, *aerial view from the north. In the foreground is the single-storey out-patients' department, with the ward wing on the left and the treatment wing on the right of the main building behind.*

3, *the entrance hall on the ground floor.*



3



4, the five-storey teaching block and main entrance seen from the central area, with the assembly hall on the right.

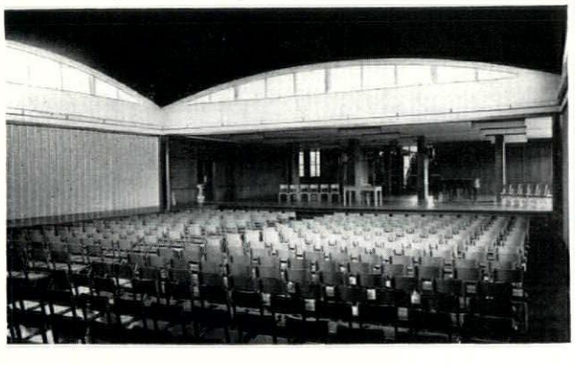
SECONDARY SCHOOL, DUNDEE

ARCHITECT: ROBERT DRON (city architect)

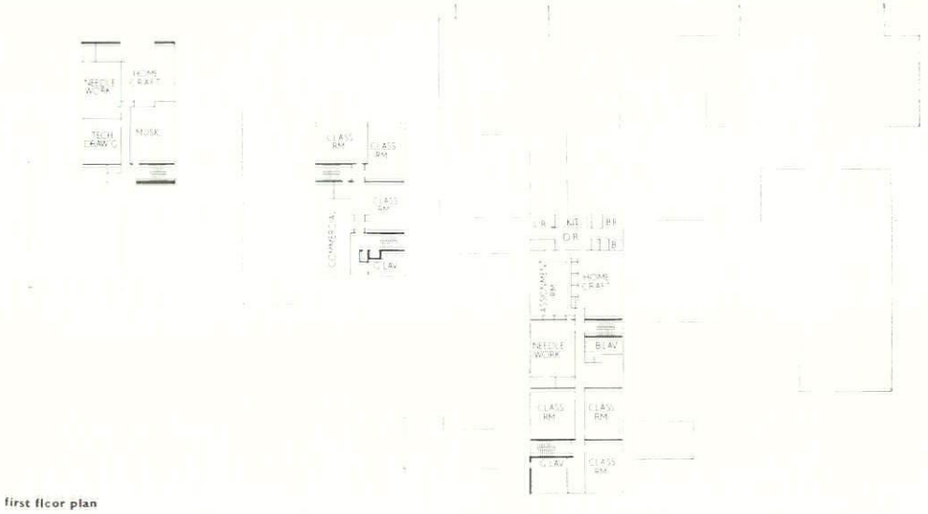
Kirkton High School is a comprehensive secondary school sited on the northern boundary of Dundee. The accommodation includes 32 classrooms, 38 specialist teaching rooms—such as laboratories, domestic science rooms, music rooms, etc.—two gymnasia, assembly hall, dining hall, library and swimming pool. Assembly hall, dining hall and main entrance occupy an openly planned central



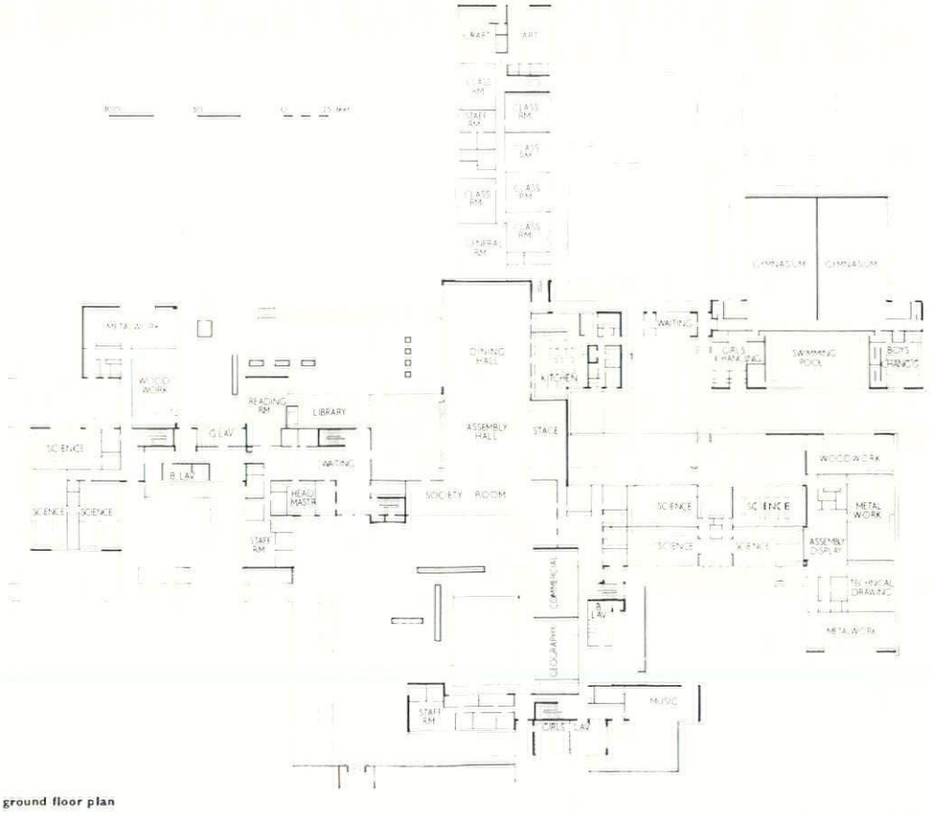
5, the rear of the five-storey teaching block.



6, interior of the assembly hall.



first floor plan



ground floor plan

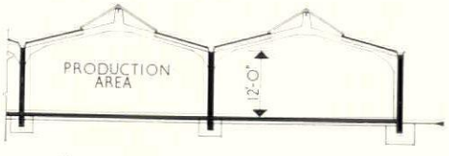
area round which are disposed three teaching blocks of five, three and two storeys. The assembly hall, which has a paraboloid shell-concrete roof, is planned on two levels, the lower of which extends into the dining-space from which it is separated by a folding screen. The upper level is similarly linked with the school's social rooms, giving a large uninterrupted floor area that can be flexibly used. The kitchen is designed to serve 750 meals a day in two sittings.

The structure is a precast reinforced concrete frame, with prestressed ribbed floors and roofs. Cladding is curtain walling with infill panels of various materials and brick. Heating is by a floor-warming system using stored off-peak electricity.

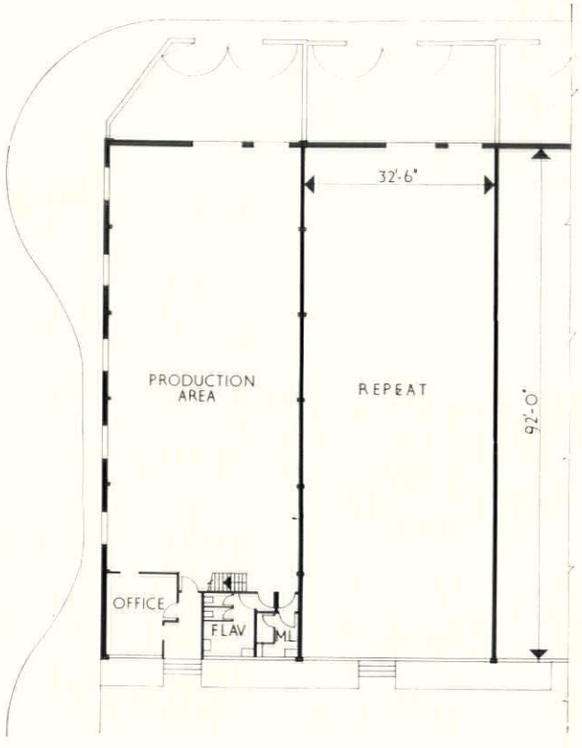
TERRACED FACTORIES, BASILDON NEW TOWN

ARCHITECTS: J. M. AUSTIN-SMITH AND PARTNERS

A row of nine identical small factories, designed for letting by the Development Corporation, singly or in groups. They have been built at minimum cost (about 33s. per sq. ft.), leaving the tenants to provide their own heating and light fittings. A small office and lavatories are included within the main roof area, with storage space above them. The ground floor area is 27,000 sq. ft. The building is designed to be seen in silhouette, being sited at the top of a slight rise. There is an access road at the back, with sliding doors into the production area. The structure is a reinforced concrete precast frame with purlins and ridge, spanning 33 ft. 6 in., and timber beams. External walls are brick, with wood-framed windows. Lighting is from a continuous central rooflight.



cross section



typical floor plan

7, *typical front elevation*



EXHIBITIONS

PAINTING AND SCULPTURE

The exhibition of Nigerian tribal art organized by the Arts Council to celebrate Nigeria's entry into the Commonwealth as an independent nation was drawn mainly from the British Museum's 'study collections.' This is a gentle way of saying that they rarely 'make' the display galleries and that many of them are of no great aesthetic value. There was nothing awe-inspiring about the show, but it was filled with tokens of the life lived by many different peoples and cultures which taxed one's objectivity to the utmost. It was more like being in a reading-room than a gallery, a reading-room full of three-dimensional pictograms which were perfectly legible as things and obscure as ideas. Nevertheless, one found oneself taking sides; accepting this object and rejecting that; finding one tribe lovable and another hateful.

Some small, vividly modelled terracottas from the vanished Nok culture are supposed to have influenced the naturalistic, passive-looking Ife heads. But there's a faint smell of the mortuary about the Ife heads, very different from the archaic warmth of the Nok things.

There were of course a large number of Benin bronzes in the exhibition, distinguished by brilliant craftsmanship but heavy with the atmosphere of militarized court life. Benin must have been as rigid and stifling as Potsdam.

Among the wood carvings there were certain things that gave one the impression that there must have been a sprinkling of self-taught sculptors in some of the tribes; men who carved things in their spare time, possibly to amuse the children or brighten up the hut, but just as possibly in the hope of being able to give up whatever else they were doing and make carving their full-time occupation. Their work is the equivalent of the pictures which in our own society are called 'Sunday paintings.'

One such naïve and ambitious work was the Ibibio 'ceremonial canoe' containing several figures. The figures were nicely carved but the 'canoe' was a cheap wooden packing case, painted up a bit and with a piece of carved wood attached to serve as a prow. It was engagingly primitive; but I can't imagine that a fully-trained Ibibio sculptor could countenance such a juxtaposition.

An even more naïve example from the Ibo tribe, a group of wooden figures jumbled tightly together and painted with reckitts blue, looked as conspicuously vulgar beside a tall, elegant Ibo shrine as a Bombois nude would do beside a Modigliani.

The work of the Ekoi was competent but struck an unpleasant note. Its masks of the human face are carried out in a tidied-up naturalism, with the teeth bared in a cold snarl. The carvings are covered with real skin, and the large horns which surmount some of them also appear to be real. If they are carved, they are meticulously faithful copies of real horns. Either way, they have the dead and fusty look of Victorian hunting trophies.

The Yoruba would seem to be a much more pleasant and relaxed crowd. Their typical stylizations are not perhaps among the greatest contributions to African wood carving, but their work has zest, warmth and humour. There's no doubt about the humour, even if it is on the rough side. A very recent example is a stately and absolutely impassive study of violent action. A large animal has been seized from behind by another of the same size, and although all that remains of it is its head and forelegs, it stands as peacefully as its devourer, whose behind is being pierced by the weapon of an equally placid warrior. This three-dimensional comic strip could be extended indefinitely, but it has been given a curiously haunting quality by the presence of four seated figures who have their backs turned to the action, as if unaware that anything is going on.

The Yoruba piece illustrated here, 1, is an Olojufoforo mask, whatever that may mean. (The catalogue could have done with a glossary.) It is neatly spotted all over with white paint, which gives it the same sort of 'bank holiday' look as the regalia of a Pearly King. I suspect that if the Olojufoforo is a dance society it's a pretty gay one.

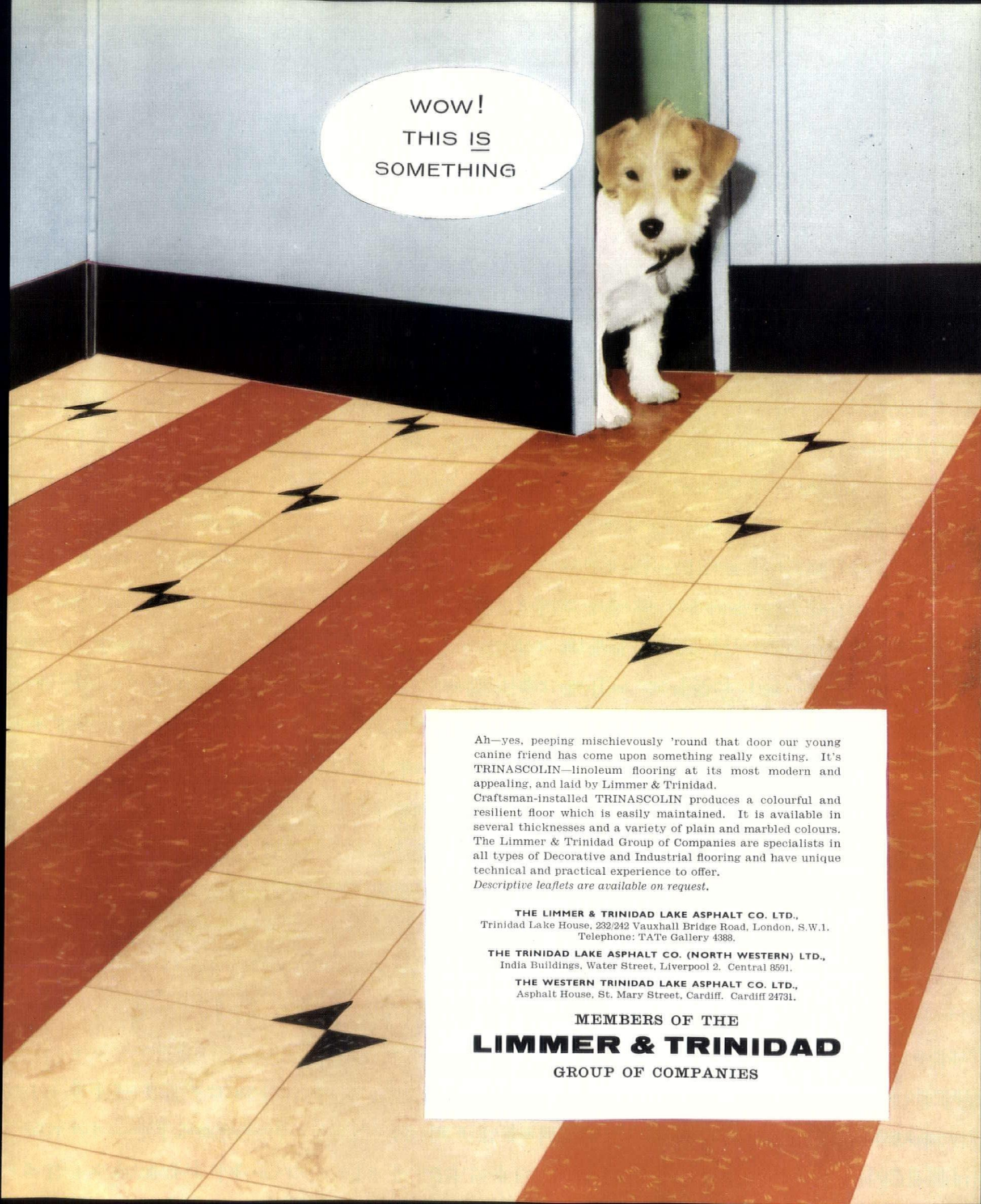
The carving of a mother and children (the child you can't see is clinging to the mother's back), 2, was lent by the Horniman Museum and was one of the finest works in the exhibition. It was made by a member of the small Afo tribe and a similar work is still in one of their cult



1



2



Ah—yes, peeping mischievously 'round that door our young canine friend has come upon something really exciting. It's TRINASCOLIN—linoleum flooring at its most modern and appealing, and laid by Limmer & Trinidad.

Craftsman-installed TRINASCOLIN produces a colourful and resilient floor which is easily maintained. It is available in several thicknesses and a variety of plain and marbled colours. The Limmer & Trinidad Group of Companies are specialists in all types of Decorative and Industrial flooring and have unique technical and practical experience to offer.

Descriptive leaflets are available on request.

THE LIMMER & TRINIDAD LAKE ASPHALT CO. LTD.,
Trinidad Lake House, 232/242 Vauxhall Bridge Road, London, S.W.1.
Telephone: TATe Gallery 4388.

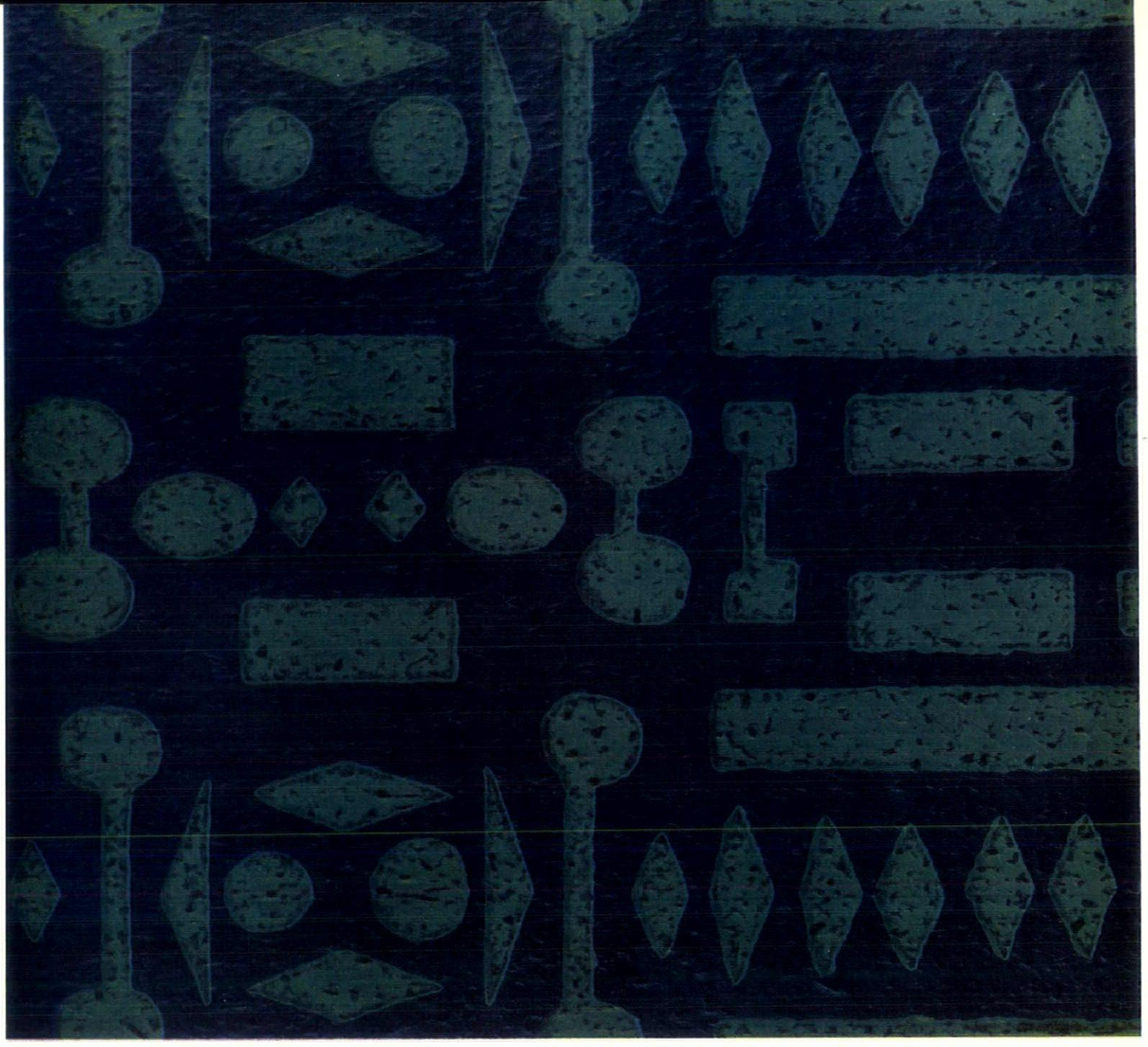
THE TRINIDAD LAKE ASPHALT CO. (NORTH WESTERN) LTD.,
India Buildings, Water Street, Liverpool 2. Central 8591.

THE WESTERN TRINIDAD LAKE ASPHALT CO. LTD.,
Asphalt House, St. Mary Street, Cardiff. Cardiff 24731.

MEMBERS OF THE

LIMMER & TRINIDAD

GROUP OF COMPANIES



"Cut Out" designed by Terence Couran. M 1083 shown to scale.

A new collection of machine printed wallpapers has just been compiled by the London Office of
The Wall Paper Manufacturers Limited 19/21 Mortimer Street, W.1.
and is now available through wallpaper suppliers. Many prominent designers are associated with this collection
among them Lucienne Day, Jacqueline Groag, Terence Conran, Joyce Storey and William Gear.
Modus wallpapers, because machine printed, are moderate in price,
and in order to increase their usefulness to Architects and Interior Designers
all these papers have been treated with a special protective coating.
YOU ARE INVITED TO VISIT THE EXHIBITION OF THESE WALLPAPERS AT
MORTIMER STREET (FIRST FLOOR)

WPM

MODUS

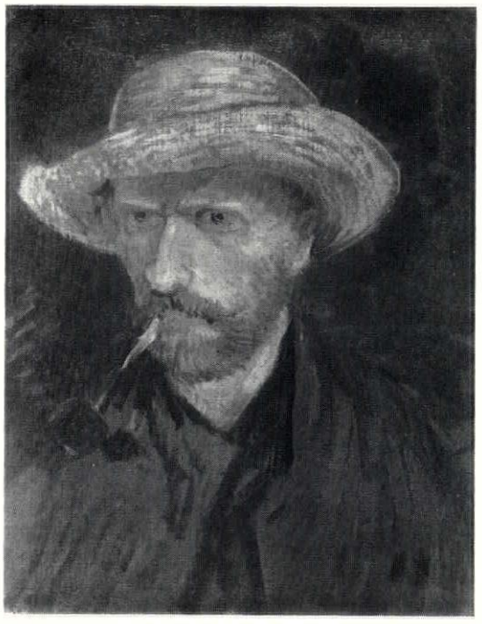
19/21 MORTIMER STREET LONDON W1

houses. The catalogue says that it is one of the most sacred objects of the tribe and 'the supposed source of increase and well-being.' I fancy that the only object in our society that would fit the last phrase is Ernie the computor.

Three other recent exhibitions were arranged to celebrate special occasions within the art world. Self Portraits by Van Gogh for the opening of the Marlborough Gallery's new premises in Bond Street, and exhibitions of Jawlensky at the Redfern and Gabriele Münter at the old Marlborough Gallery to link up with the Blaue Reiter exhibition at the Tate.

The exhibition of Self Portraits by Van Gogh was perhaps a curious choice for the inaugural show at the new Marlborough Gallery (the old one is to be called the New London Gallery), but no doubt the insistence on black ties for gentlemen attending the opening evening party had a symbolic significance.

Most of the self-portraits were from the



3

Paris period, 3, and didn't look particularly tragic or distraught. Some were 'piercing,' others melancholy, and the majority of them returned one's stare. They filled me with the utmost gloom. The closed world where a man stares and stares and sees nothing but his own image is a glimpse of hell, and to turn about in that rather small gallery and see nothing but the same face gazing from the walls was like being shut up in a cell lined with mirrors. It didn't matter that it wasn't one's own likeness. It was the kind of reflection one knew only too well. Sad and disillusioned, of course, and a bit concave from too much thought and too much anxiety, but strong, too, with a gaze that pierces the pretentions of others, and yet at the same time it's a kindly face, the face of a man who . . .

But at least one knew that the effect was produced by a sinister trick of juxtaposition, and that it could have been instantly mitigated by the presence of a few landscapes. It would be difficult to know how the effect produced by the Blaue Reiter exhibition at the Tate could have been mitigated. This thorough and well-docu-

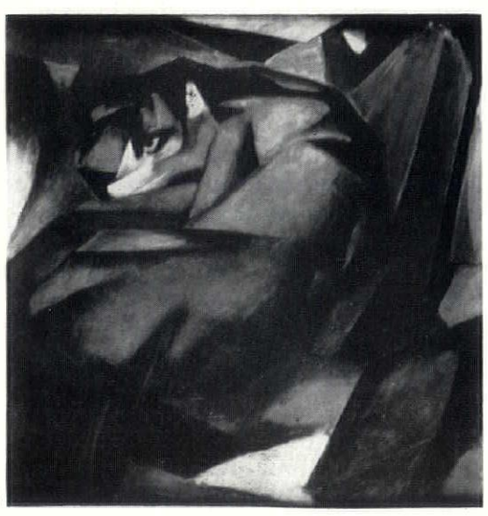


4

mented exhibition put before us what its members had to give. A few more pictures by one of them, a few less by another would have made no difference.

They seem to have wanted to put Fauvism on a worthy philosophical basis. Kandinsky and Marc set the pace without having emerged from what one can only think was delayed adolescence. Kandinsky's 'Improvisations' are brightly coloured lyrical effusions which stem directly from romantic dreams about riding off on a galloping charger with a woman clinging to him. Beyond the flapping hill in the present example, 4, you can see the castle emerge, as if by magic. He achieved freedom too soon: even in the best of these Improvisations there is a kind of flabbiness and romanticized sensuality.

Marc was equally romantic and sentimental, but a little less highflown. He was not so much reaching for the stars as for a place in Rousseau's jungle heaven. He illustrates his sense of being a 'fauve' by his reverence for the beasts, 5.

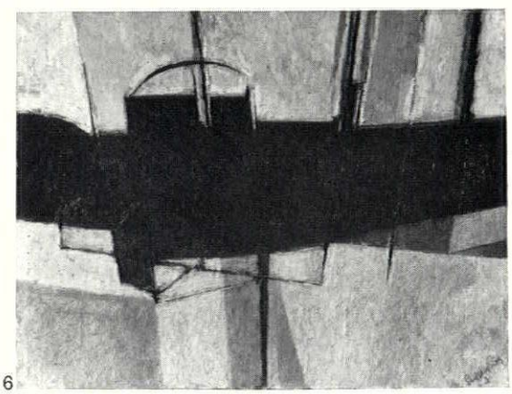


5

The other members were smaller fry at the time. Afterwards, Klee grew immensely in stature; Macke would have done if he had lived. The rest stayed smaller fry.

Alan Reynolds has returned to the Redfern Gallery and recently held a show of abstracts there. They are very decorative and many of them are in the colours which one associates with his landscapes, 6. But they seem to me to be too neat. One would have thought that the feeling for light and movement which had shown itself in his treatment of skies might have led to much freer abstractions and an interesting contribution to *tachisme*.

'Situations,' at the RBA Gallery, was arranged by a committee of young painters and critics, and consisted of very large pictures by English abstract artists who have been influenced by recent developments in American abstraction. Roger Coleman wrote a fascinating introduction to the show, in which he stated that the



6

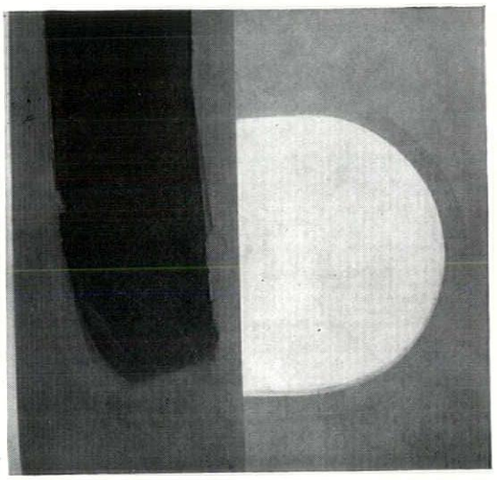
exhibitors paint on a large scale because current insistence on flatness 'denies the picture its traditional space backwards' and space therefore has to extend vertically and horizontally. He then went on to claim that 'this environmental definition of painting removes the case that the large picture needs a lot of room.' This claim, which is not altogether without foundation, is probably based on his experience of the way a large Jackson Pollock seems to envelop the spectator when he is only a yard or two away and becomes a decorative wall surface at a distance. But a Pollock needs a large space for the two-way action to operate, and to be forced to stay close to one for a long time would be a pretty daunting experience.

Many of the paintings in 'Situations' were far too restless to lend support to Coleman's contention. On the one hand there were the abstract expressionists with their turbulent and ragged textures, and on the other, certain hard-edge abstractionists whose rigid bars of colour flickered when one stood too close to them, and appeared to change position at the slightest turn of one's head. The latter would be

particularly maddening to live with in a small room. It's possible that these optical flicks were deliberately arranged as the next best thing to spitting in the spectator's eye, but the show was impressive, and the playboys only spoilt their own pitches.

Other works tended to support Coleman's claim: Gwyther Irwin's gigantic colleges, with their soft, hazy, melting surfaces, and hard-edge paintings by Peter Coviello, William Turnbull and John Plumb, all of which were distinguished by a large, cool graciousness. Brian Young neatly combined hard-edge with a carefully calculated passage of free abstraction, 7.

Four of the bronzes had not arrived from Italy when I went to see the Manzu show at the Tate. They included the still life reproduced on the cover of the catalogue, a rush-seated chair bearing an apple, a

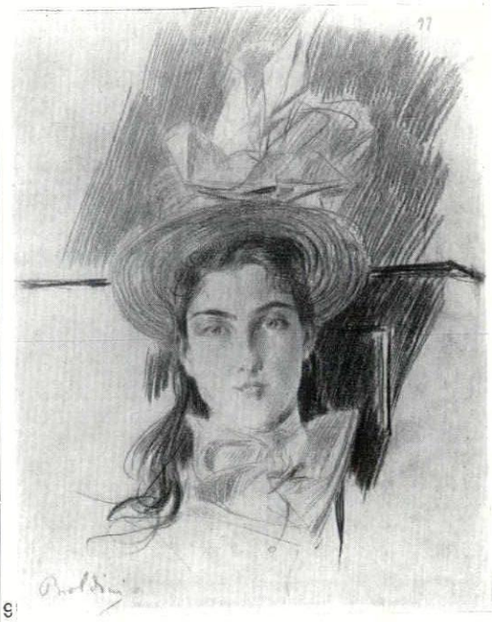


7

pear and a stick of celery, which looks particularly fetching. It's this quality of 'fetchingness' that disturbs me a little. He is a serious artist, and yet everything has to turn into best quality candy or



8



9

remain lumpish. Even his cardinals are fetching, not to mention the 'Portrait of Inge,' 8.

A Boldini drawing of Mlle Deacon, 9, included in Lefevre's recent exhibition of small works by several masters, has the kind of charm that switches off when the period to which it belongs is over. For some reason, this example has, for me, switched on again.

Robert Melville

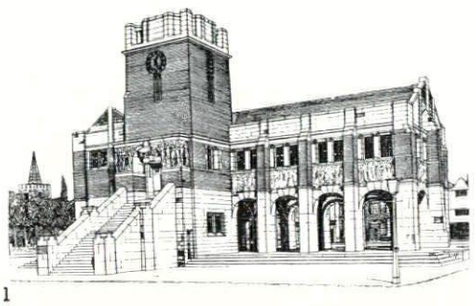
OBITUARY

C. H. HOLDEN 1874—1960

Charles Holden was eighty-five when he died. For the last twenty-five years of his life he had settled down to a style of architecture—the style of the School of Oriental Studies and the General Electric Company—which shares the absence of period ornament with the current style of the mid-century, but nearly everything else with the Neo-Georgians. But in 1930, or, to be precise, in 1930-32, he had made history with his small underground stations on the Piccadilly Line. They were among the first designs in England to be modern in the novel Continental way, and they were at the same time modest, accommodating, not out of sympathy with essential English traditions and sensitively adapted to their surroundings. Moreover, they were part of a house-style more sweeping and successful than any before or after. The conception of the house style was no doubt Frank Pick's, and it is likely that the decision to go so frankly Continental-modern and more exactly north-German-modern was initially Pick's, too, conveyed to Holden or inspiring Holden on a journey which the two men made together to just those parts of the Continent. (See THE ARCHITECTURAL REVIEW, XCII, 1942, page 31 etc.).

The great importance of these stations has tended to eclipse Holden's earliest work, though it is equally interesting and historically nearly as significant. Most of the buildings to which this obituary notice deliberately confines itself are little known. Some have not been illustrated since they first appeared in the early volumes of THE ARCHITECTURAL REVIEW and also in other journals.

Volume I of THE ARCHITECTURAL REVIEW (1896-97) gave a full page to Holden's Soane Medalion design, the design for a Provincial Market Hall, 1—and a remarkable design it was, although the editorial comment in the REVIEW was crushing: 'lack of knowledge,' 'waste of space,' 'motifs without structural ability' were all remorselessly noted, though 'considerable



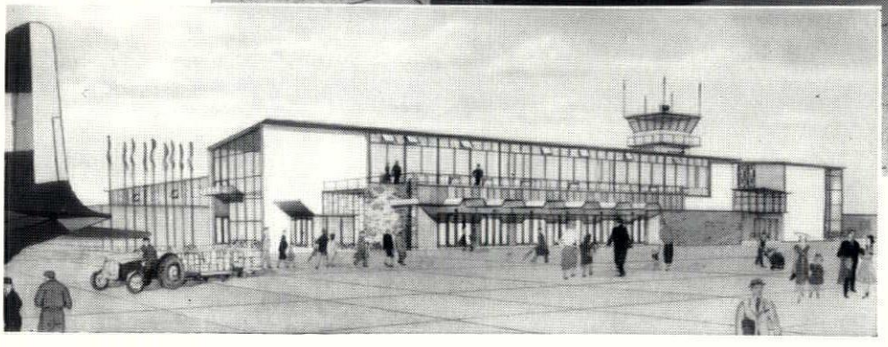
1

latent ability' was recognized. For us that is what matters. Here is indeed an extremely bright student's design, making use, as bright students will, of the most striking motifs most recently put forward by the most go-ahead architects. The nicely asymmetrical composition has no immediate precedent; it was favoured by all the best of the Free-Neo-Tudor addicts. But the frieze of figures in relief was certainly fashionable at that very moment (see e.g. a design for a library by Percy Newton, ill. *Acad. Arch. Suppl.*, 1895) and so was the motif of the flatly spreading-out tree (see Townsend's Bishopsgate Institute, *Acad. Arch.*, 1895 and the same architect's design for the Whitechapel Gallery, *Acad. Arch.*, 1896, vol. I).

The free Neo-Tudor of Holden's, confirmed and no doubt made yet freer by his work in the office of C. R. Ashbee about 1898 and a little later, culminated ten years afterwards in the Bristol Central Library, 2, built in 1906 and illustrated in the AR XXIV, 1908, 330–47. It is a building whose plan was certainly no longer inexperienced, and it has in addition an extremely pretty façade building up towards the centre with its three oriel windows under arches, the tympana of which have again sculpture in relief. Over and above the sources so far mentioned, one feels distinctly reminded here of Mackintosh's Glasgow School of Art,

'Standard' Kingston sanitary ware installed at Shannon Free Airport





'Standard' Kingston wash basins and water closets were chosen for the new Terminal Building at Shannon Free Airport.
The Kingston wash basins are hung on concealed wall brackets and fitted with mixer taps. The Kingston closets are of the double trap siphonic type with the bowl and cistern close-coupled. Both are made of vitreous china which makes them, like all 'Standard' sanitary ware, permanently hygienic and strong enough to resist accidental damage. And in the Kingstons, these telling practical advantages are combined with the finest modern design.

Standard vitreous china

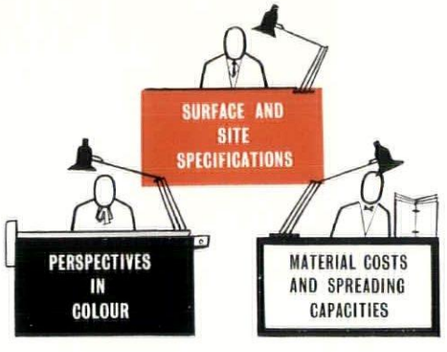
498

IDEAL BOILERS & RADIATORS LIMITED - IDEAL WORKS - HULL



YOUR SITE VALUE WILL GO UP!

More time can be spent on site by the Architect if he leaves the burdensome detail of surface specification in paint, colour schedules and technical supervision during progress of work to Paint manufacturers who *really* know their business. T. & R. Williamson *still* manufacture exclusively for the Trade and their service to the Architect is personal and polished. Just call in the House of Williamson when your plans are on the drawing-board and leave the rest to them. The House of Williamson employ their own team of Artists and can provide colour schemes of charm and distinction in perspective. They can also offer visual presentations of your own colour schedule, in brochure form, which are built up room by room to cover any contract and enable the painters to follow your wishes accurately and faithfully.



INTRODUCTION BY POST . . .

Write now for our comprehensive Brochure entitled "Architectural Service by the House of Williamson." For full information on the cost per square yard of material, in any process, just consult us. We may have a few ideas which will bring down the cost of that job!



T. & R. WILLIAMSON LTD.

The Paint People respected by Architects

Varnish and Enamel Works, Ripon, Yorkshire. Telephone: Ripon 32 and 852
"Ripon House," 84, High Street, HAMPTON HILL, Middlesex. Telephone: Molesey 1775
9, Glover Street, PRESTON, Lancs. Telephone: Preston 56270
73-77, Oxford Street, GLASGOW, C.5. Telephone: South 0825
8, Upper Maudlin Street, BRISTOL. Telephone: Bristol 26905
30, Stoney Street, NOTTINGHAM. Telephone: Nottingham 53061

THERE IS A DEPOT IN ALL IMPORTANT GEOGRAPHICAL AREAS



2



3

which had been sufficiently publicized to be not unlikely as a stimulus. The Bristol library was published as by H. P. Adams; for it was in Adams's firm that Holden now worked. He became a partner at just about this time. Before that moment his name did not appear, and even after it no distinction was made between the two men, a failing not unusual among bosses and senior partners.



4



5

Thus (e.g. in the case of the Midhurst Sanatorium, 3, published in great detail in the AR, XIX, 1906, 277, etc.) not only is the job assigned to Adams, but even the description was provided by him. Since, moreover, Adams was a hospital specialist, it is quite likely that Holden's contribution was of less importance. This Sanatorium certainly is one of the best major buildings in England of the near-modern last phase of Tudor adherence. It can stand a comparison with Voysey's houses of these years and Baillie Scott's Waterlow Court in Hampstead Garden Suburb.

While the sub-division of creative labour here must for the time being be left open, there can be no doubt of Holden's personality in a group of other buildings of the same years, buildings which clearly prepared the ground for his style in the twenties. The first of them is the addition to the Law Society in Carey Street, Chancery Lane, 4. This was designed already in 1902 and illustrated in the AR XIX, 1906, 120-7 (as Adams). This is a classical, evenly stone-faced job, with not a touch of Tudor or of the busy and pretty mixture of materials. At first sight it is simply of the Edwardian-Imperial classicism of those years; but there are again very personal touches. The small seated figures below the ground floor arch, it is true, may be inspired by Beresford Pite, but the rest is pure Holden. It is worth memorizing the details of the upper side windows and the blank niches above them. This adjustment of classical detail into basic cubic shapes was quite a novelty. The columns without entasis and the heavy attic are clearly in the same spirit.

It was going to be Holden's spirit from now on. Take 127-9 High Holborn of 1904 (AR XVII, 1905, 129, as by Adams) a monumental composition, 5 and 6, with a



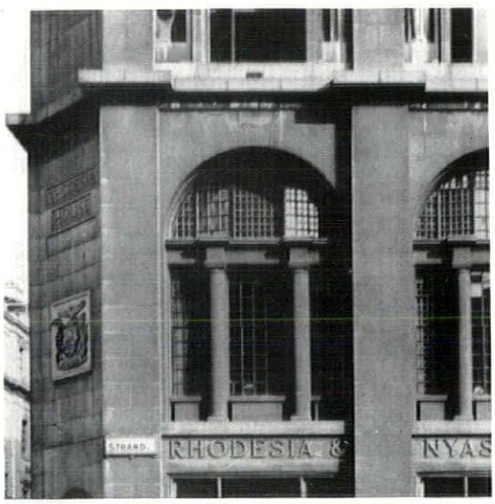
6



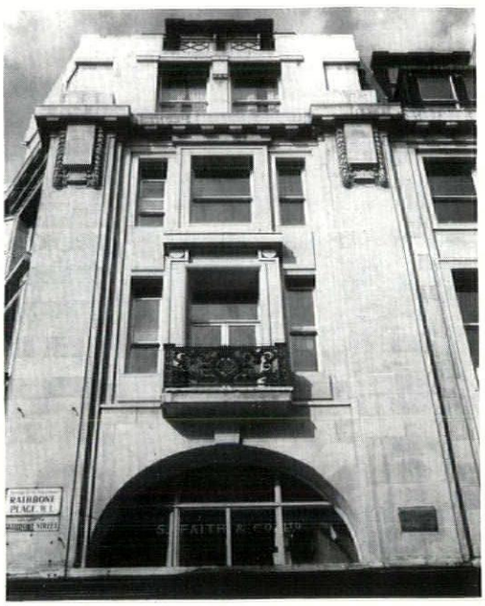
7



9



8

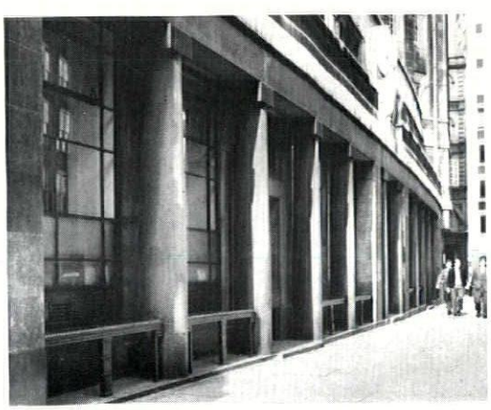


10

corner tower and with such details as the spheres at the foot of the tower, the columns without entasis and also the oddly Mannerist bits round the windows. The fashionable term Mannerism can here be used legitimately; for Holden indeed froze up and invalidated current classical motifs, which is what Mannerist architects did in the Cinquecento. The British Medical Association in the Strand, 7 and 8 (now Rhodesia House) followed. This was illustrated in *Acad. Arch.* XXXIV, 1907, 29, as by Adams and Holden. It was the building in which Holden introduced to a reluctant client and public Jacob Epstein as a monumental sculptor. The later disintegration of his figures has received much publicity. The motifs of the building need not be enumerated. It will be evident to anybody that this and 62 Oxford Street of 1909, 9 and 10, are by Holden and no one else. Ultimate confirmation lies in the major job of Holden's early fifties, the stations along the south extension of the Edgware Line designed in 1926, 11, and the Underground headquarters of 1927–29, 12.



11



12

The small stations are the more interesting as far as the exteriors go. For here Holden abandoned all columnar period-touches which the stations on the northern extension of 1923-24 had still exhibited, and produced stone-faced boxes with no relief but a minimum of cornices and the one motif of pillars carrying balls or spheres which divide the large central window of each station into a tripartite composition. It is twentieth-century architecture by elimination. What Holden had done from 1902 to 1909 by a hardening of classical motifs proves here to have been the beginning of a general reduction to basic geometry. One step further and Holden turned into the stream of the International Modern. Once more, perhaps it was Pick influencing him; perhaps he was never happy in it. One can see that the style of the School of Oriental Studies can be obtained by trimming these stations into something more conventional. It is the sort of direction in which many a man, radical in his youth, starts moving when he turns sixty. **N. Pevsner**

TOWNSCAPE

BURSLEM IMPROVED

Following the successful Norwich experiment (AR, *May*, 1959), *the second of the Civic Trust's face-lift schemes has been completed at Burslem*, the mother town of the six which amalgamated fifty years ago to form the 'Potteries' city of Stoke-on-Trent. As part of the jubilee celebrations, the city council instigated the choice of Burslem's centre for an experiment in urban rehabilitation, and once again Misha Black, of Design Research Unit, acted as co-ordinating architect on behalf of the Civic Trust.

The basic problem was to re-create a visual focal point for Burslem, using a decaying triangular site in the town centre. This involved replanning the open area, which included a lavatory block, car park and gardens, and renovating surrounding properties. Two initial decisions regarding the central area were to form a base for the old town-hall so as to rescue it from traffic congestion (this necessitated the closing of a slip road on its east side, which in turn required the complete re-routeing of the central bus services and the realignment of pavements and kerbs) and to exploit the slope of the site by scooping out the southern half as a garden area on the long axis of the old town-hall and building up the northern half as a car park. A retaining wall, formed between these two level

CARPETS ?

Crossley Colour Advisory Service offers assistance in the selection of carpets for any furnishing scheme. Colour booklet 'Weaving the changes', of special interest to architects, gladly sent on request.

CROSSLEY CARPETS

created by craftsmen



Supplied through usual trade channels. For further information write to:
JOHN CROSSLEY & SONS LTD., DEAN CLOUGH MILLS, HALIFAX
famous for fine carpets since 1803

NOW EVERGLEAM

COUNTER TOPPING by GOODYEAR

starts a counter revolution



Flexible vinyl – curves easily to sharp radii



EVERGLEAM IS AVAILABLE IN A WIDE RANGE OF COLOURS PATTERNS AND TEXTURES.

EASY TO LAY

Evergleam cuts with ordinary scissors . . . rolls in one piece over splash back, counter top and edge . . . gives seamless square-edge facings . . . fixes permanently with contact or impact adhesive.

EASY TO MAINTAIN

No waxing. No scrubbing. A damp cloth keeps Evergleam sparkling clean. It resists dirt, scuffing, all normal hazards — stands the 'hot pan' test. And it won't chip or crack.

EASY ON EYE AND EAR

Evergleam is decorative . . . comes in an array of 23 sealed-in colours, patterns and textures. Evergleam is resilient . . . absorbs blows, turns strident clatter to soft murmur in restaurant, canteen, coffee-bar or store.

EASY ON THE POCKET

With all its good looks, Evergleam is cheaper to buy, cheaper to instal, cheaper to maintain . . . gives lasting wear at lowest cost. It's the topping for your next contract.

HAVE YOUR SECRETARY POST THIS COUPON

To: Goodyear Tyre & Rubber Co. (GB) Ltd., Wolverhampton.

Please send booklet AR4 describing Evergleam Vinyl Counter Topping

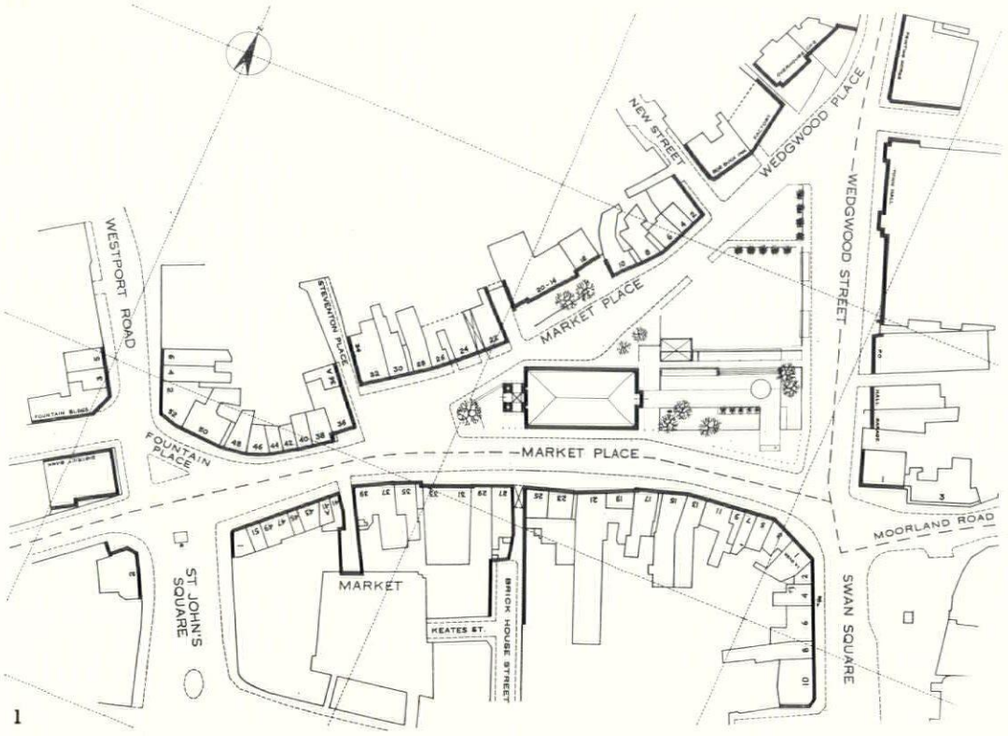
Name _____

Company _____

_____

Address _____

_____



1

1, *plan of the remodelled centre of Burslem, showing the surrounding properties included in the Civic Trust scheme.* 2, *the town-hall and surrounding area in* 1959, *before the scheme began.* 3, *a contrast to* 2: *the town-hall in its new setting, with gardens, shelters and designed floorscape.*



2



3



4



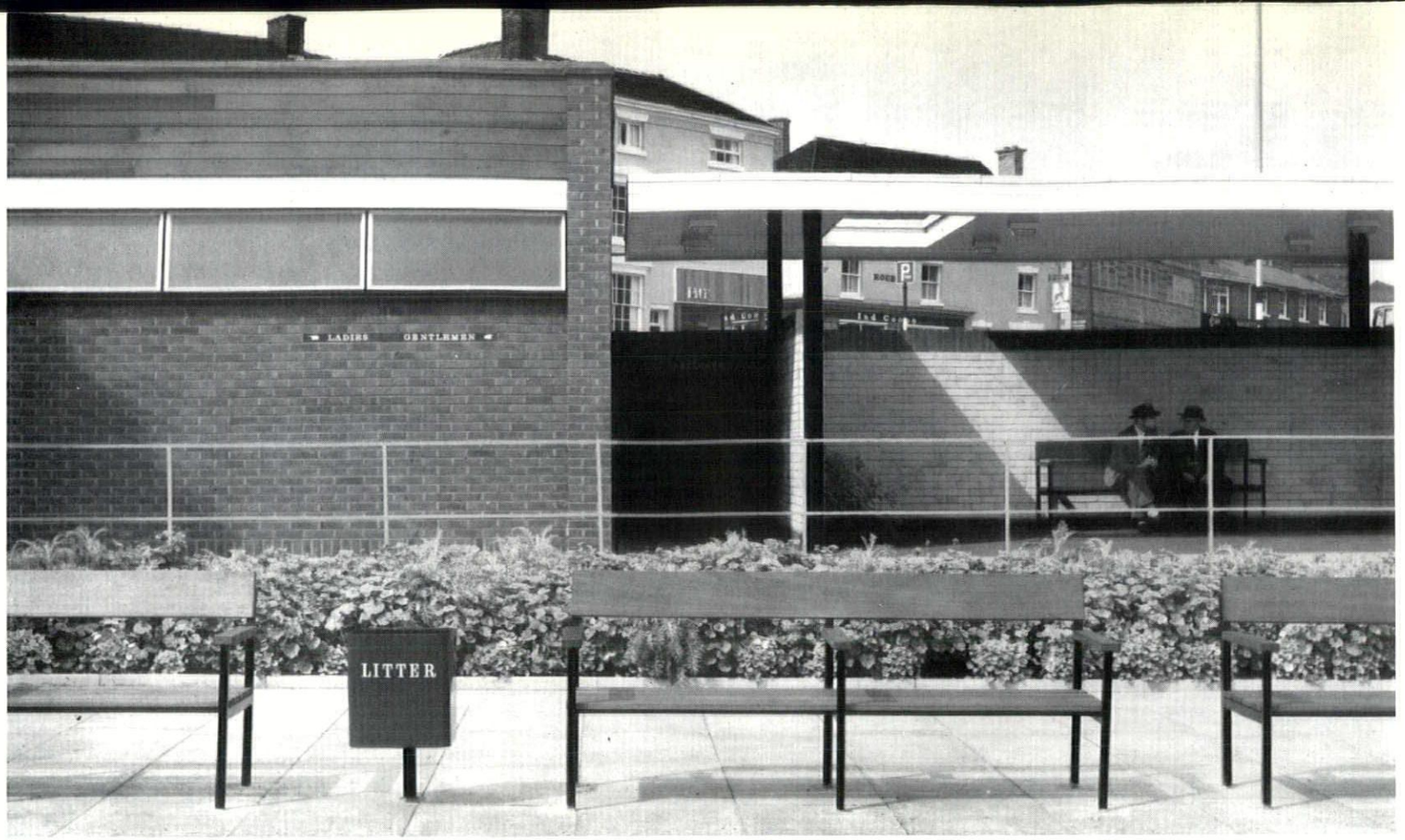
5

4, *the redesigned parking area.* 5, *area west of the town-hall, with specially designed street furniture.*

shields a south-facing seat-shelter built at a half-way level to overlook and be joined by a flight of steps to the garden area. This wall also links the lavatory block—sited in a predetermined position—to the rest of the scheme, and acts as a background to three new bus shelters by being extended at right angles up to the apex of the car park.

The garden area has two raised rectangular lawns, a brick drum with a removable canvas canopy to serve as a bandstand, and a flagpole. The remaining area is paved in pre-cast concrete slabs, contrasted with studded pavior bricks, these being a local traditional paving now little used. Four sycamores and two plane trees, all semi-mature and 25-30 feet high, were planted on the lawn areas. The existing concrete lighting columns were painted a dark grey with light grey lanterns, three were re-sited and one removed—the lantern being bracketed from an adjoining building. A granite memorial plaque to Arnold Bennett, who was born in Burslem, has been built into the retaining wall of the seat shelter. The Potteries Motor Traction Company gave full support to the scheme and the opportunity was taken to design three new bus shelters and ten new bus stop signs and to remove old barriers, time-tables and time-clocks.

As regards the immediate surroundings, following the precedent created at Norwich, a manual of principles was produced for the guidance of all working on the scheme. It set out a range of colours in two groups (one for rendered surfaces, one for detail), a range of sixteen type-faces, seven curtain and six shop-blind materials.

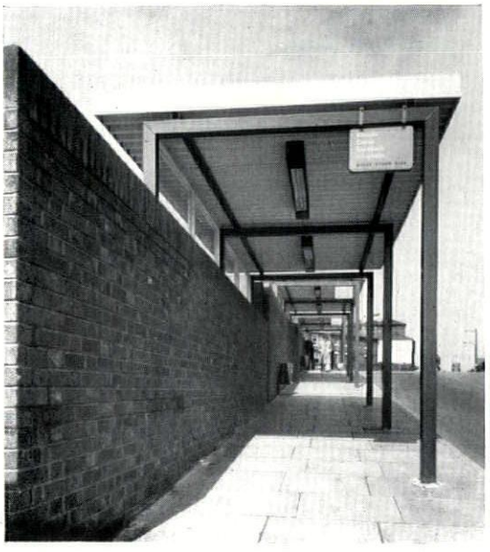


6

6, the new lavatory block and shelter. Below, another before-and-after contrast: 7, the north apex of the site, photographed in 1959; 8, also looking north, with new bus-shelter, retaining wall and properly organized lettering.



7



8

For work on the individual properties, the North Staffordshire Architectural Association nominated ten sector architects, who gave their service free as their contribution to the jubilee celebrations.

The properties were mostly shops, but also included pubs, banks, two small factories, a post-office, a garage, a covered market, and the new (1911) Town Hall. All 80 properties participated in the scheme, only 3 per cent redecorating without submission to co-ordination. Sixteen fascias were amended, six large advertisements and two hoardings removed, old signs cleared away, a disused area in front of a bank filled in and the additional pavement so gained dedicated to the city.

Misha Black was assisted by Anthony Wilkinson, also of DRU; typography was by Milner Gray and Ronald Ingles. DRU worked in close collaboration with J. R. Piggott, the city architect, J. W. Plant, the city reconstruction officer and P. Dyer, the chief park superintendent.

COUNTER-ATTACK

WEST CUMBERLAND 2

The rest is Whitehaven: in this remarkable town all the qualities, opportunities and dangers in West Cumberland come to a head. The situation of the town is—or was—lovely: a small basin with a flat bottom, open on the west to the sea. To the north-east deep woods still come almost into the centre of the town. Everywhere else there is a straggle with a rash of unsightly houses on the hills uncomfortably far from the shops. These are largely pre-war and must have been built at a time when Whitehaven was suffering badly from the slump. Now prosperity has come back, and much of the neglected but extraordinarily handsome middle is being gaily torn down. The replacements have been appalling.

Whitehaven was a boom town at the end of the seventeenth century, a mushroom growth which was none the less organized on extremely spacious, orderly lines by the local landowners, who had a keen eye for the main chance of the early Industrial Revolution, but clearly wanted their town to be something of a showpiece. The plan is a regular grid (varied a little round the market place), but the hills give an excellent containment, so that the streets have a real shape to them for all their straightness. Queen Street, for example, after going flat through the middle by St. Nicholas' churchyard (an enormous open space which could be much better used), climbs steeply and comes to a natural stop in front of St. James', 1. This excellent piece of design—excellent in detail as well as in general layout—is just now being destroyed, apparently without any awareness of what is being ruined. At present (though perhaps by now this should be in the past), a few houses



1

still group themselves round the church, 2, framing it in a dignified, neighbourly composition, which is socially as well as visually significant: the church is the natural focus for the houses. A little farther back, however, 3, the havoc wrought by a thoughtless layout is plain to see. The church fades into the background, the new flats turn their backs on it, have nothing to do with it, and the town really begins to fall apart. (Originally a rather



2



3

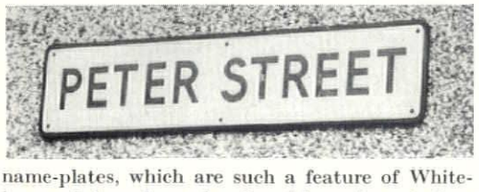


4

more sympathetic design had been prepared by the County Planning Department: no one seems to know why it was abandoned for the present monstrosity.) Moreover the flats themselves, 4, are aesthetically dreadful. They are presumably mass-produced, for in no other way can one account for the awkwardness of the way they stand on the ground, or the way in which the angle of the roof conflicts so tellingly with that of the surrounding houses. But absolutely nothing can excuse the collision of several different shapes of (all ugly) windows, the brash and pointless mixture of brick and roughcast, the chimneys that look as if they are sliding off the roof, the want of proportion in the façade. The final insult is that the admirable street



5



6

name-plates, which are such a feature of Whitehaven, 5, have been abandoned for a characterless, mass-produced object which could never be a feature of anywhere, 6. A halt should certainly be called to rebuilding here (and elsewhere) until some design more sensitive, more respectful to the town can be worked out.

Buildings of this kind, which would be lamentable under any circumstances, are particularly offensive in Whitehaven, which has in its old parts such a distinguished and such a strikingly individual architecture. Here one can see the West Cumbrian Georgian at its best—suave and urbane, as in the magnificent sweep of Scotch Street, 7, or stolid and down-to-earth in that very northern insistence on the heavy window-surrounds, and the small windows high under the eaves, 8. This is regional architecture as it should be, the moulding of a national style to suit local needs and local character. It lasted, in West Cumberland, until the late nineteenth century: now no one appears to have the faintest idea that it ever existed.

The centre of Whitehaven is still in fairly manageable condition. Certainly patching is sometimes necessary, but the houses are in the main very solid, and it is the County Planning Department's excellent policy to encourage self-help and the use of grants to give these fine buildings a much longer life. Indeed, there is a great deal of Whitehaven—as there is in most English towns—which simply needs a little looking after: I have, in fact, stayed in one house (in Roper Street) which has recently shown just what can be done for a fraction of the cost of a new building. But the looking after must be taken in hand.

Yet the really insensitive intrusions continue to appear: over-large, glossily chromium shop-fronts, of course, and, recently, a gruesome little pub opposite St. Nicholas' church, 9, which is an insult to the street, with its coy lettering, ugly windows, poor brickwork (in a stucco street), and the uncanny way in which it manages to break into all the floor, window and roof levels of both its neighbours at once.

Whitehaven's biggest problem, however, is the port area. The elaborate harbour is still the same one which gave the town its initial prosperity: it is now a scheduled monument. Round about, the buildings continue to give an impression of attractive bustle. And yet . . . behind those that still stand are the deserted lots, the mounds of rubble, sometimes intruding into the sea-front, as in the middle distance of 10. Perhaps a few of the remaining buildings can be saved, 11; one hopes so, for they are all excellent. And yet most of these beautiful buildings are doomed: for one thing a new, much needed road is to come through to the harbour, and for the rest one has only to look at them to see the work of neglect. So the old setting of the harbour will go. Is there any chance that its successor will be better than the flats near St. James? Perhaps some: it is unthinkable that the area could be rebuilt without becoming a Comprehensive Development Area. At least, then, there should be a master plan. But it will only work as a real live part of Whitehaven if there are people in Whitehaven ready to come forward and seize the opportunity in a manner sensitive both to the chance they have and to the tradition they have to live up to.

Curiously enough there are several quite pleasing new buildings in Whitehaven—a new hospital with much good detail in a rather featureless layout, an excellent GPO sorting office, and—the one encouraging *local* sign—the new Headquarters of the West Cumberland Farmers, 12 (architect R. P. Gray), a building of much charm (though perhaps not a noticeably *Whitehaven* charm), which unfortunately is prevented from having the impact it might by being rather tucked away. If buildings like this were to become a regular feature of the new Whitehaven, one could bear the loss of so much of the old more calmly. But will they? Whitehaven, as its original buildings made it, in their sane and civilized way, seems to have been a matter of some pride to its citizens. But now? Who knows? Whitehaven has a Civic Hall (also designed by Mr. Gray) which was begun some years ago with much civic aplomb. It is still only one-third built; and there are those who say it will never be more. It is not when towns are poor that the fear of the rates is strongest.

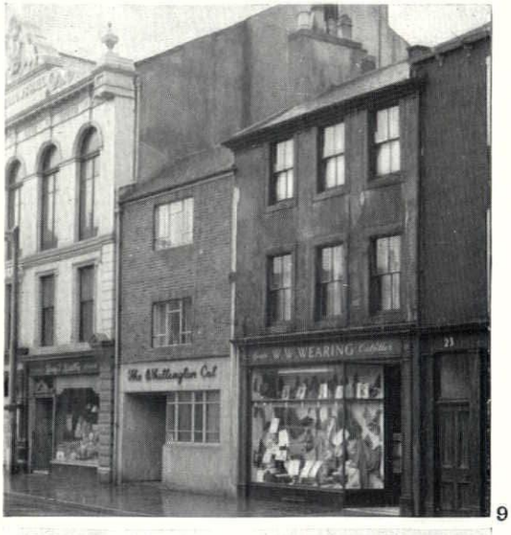
Andor Gomme



7



8



9



10



11



12

SKILL

CLIMATOLOGY AND ARCHITECTURE

Thomas Markus

When the International Society of Bioclimatology and Biometeorology held their second congress in London early in September they included for the first time a working group on urban and architectural problems. In this article Thomas Markus reports the discussions of this working group and assesses the standpoint of the architect with regard to this relatively new and important branch of science.

In the current preoccupation with costs, techniques and management aspects of architectural practice, the fact that one of the ultimate aims of studies in these fields is to provide people with comfortable environment is frequently overlooked. Many of the technical problems have become entirely the province of specialist engineers, whose training encourages design by physical measurement. Unfortunately often only one *quantity* is considered; air temperatures in heating, lumens in lighting; and *quality*, if considered at all, is thought of as a separate and relatively unimportant matter, having little bearing on the engineering calculations.

Detailed investigation of the impact of environment on people has become the province of scientists and physiologists, who, with all their skill, succeed mainly on narrow frontiers of knowledge and divide human experience into small, analysable parcels. Even the experimental psychologists, concerned with subjective reaction and behaviour rather than with physical facts, tend to work in isolated fields such as noise or colour, which in normal environment always exist in combination. This is not to belittle the value of this work. The best of it, such as the research on glare at the Building Research Station, has opened up new fields for designers and has made architects aware that the scientific study of subjective feelings is not only possible but highly rewarding when applied to design problems. Clearly it is for the architect to use his training in comprehensive, broad thinking to integrate the material provided by the specialists.

In this capacity as integrator it is reasonable for him to ask whether the studies in experimental psychology, for instance, can be architecturally misleading, seeing that they are each carried out in isolation, with their combined effect not studied in terms of experience. For example, studies on glare are conducted at fixed levels of thermal comfort; studies on noise are carried out at fixed lighting levels; thermal studies assume fixed lighting conditions. He must therefore rely on his own experience to judge, whether, for instance, certain lighting conditions are likely to be equally successful in noisy backgrounds and quiet ones; or whether people will feel colder in dark rooms than in brightly lit ones under identical thermal conditions. Here is a vast field for subjective experiment which may now be more important than further advances in particular aspects of environment.

Climatology

The architect's starting point, as that of the environmental scientist or engineer, is the outdoor climate. In a sense his task is to make the building shell an environmental filter which protects against extremes, allows sufficient variation for interest and stimulation and makes use of every natural phenomenon in order to reduce either the capital or running costs of the services which maintain comfort conditions in the building. This shell is an extension of the human organism; the thermal comfort of the body depends on air temperature, humidity, air movement and radiation exchange, 1; vision depends on illumination levels and adaptation; hearing on noise intensity and frequency. Similarly heat transfer through the wall depends not only on the air temperature difference on either side, but radiation exchange with sun, sky, ground and room surfaces, air speed, and moisture evaporation; the amount of light that enters depends not only on the size of windows but on the transmission of the glass (size and opacity of the lens); the sound which enters will depend on the response of the materials to the different frequencies and on the size and tortuousness of any direct paths.

There is a welcome growth of interest in microclimate—that is, the climate of one specific spot, although as yet architects are playing only a small part in these studies. Meteorologists, climatologists, biologists, physiologists and agricultural scientists have become aware that the comfort of human beings, the welfare of animal stock or the growth of crops can be predicted not by means of meteorological generalities and arbitrary mean values, but by specific climatic information, expressed on a statistical basis.

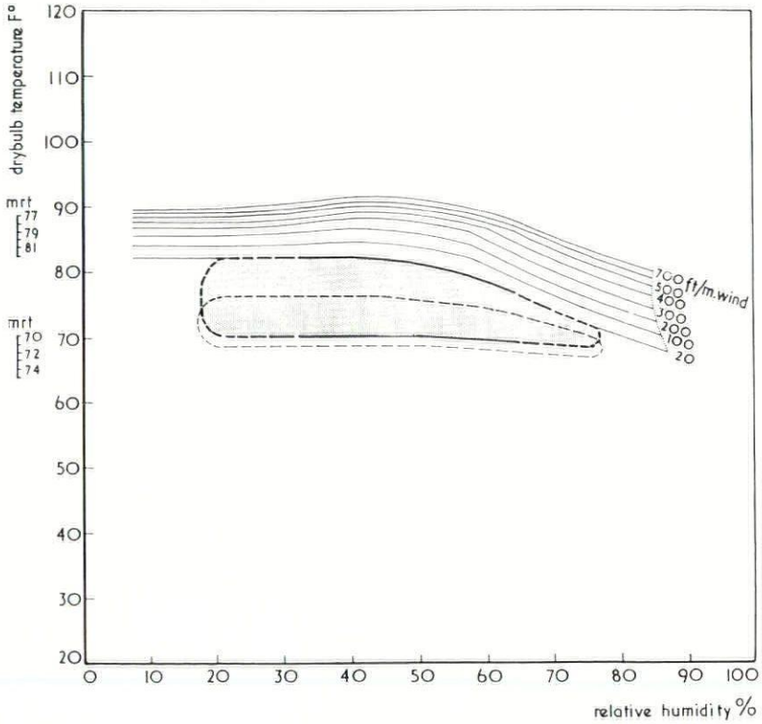
The International Society of Bioclimatology and Biometeorology, linking these experts from many countries, held its second Congress in London early in September. For the first time a working group on urban and architectural problems was organized and the significance of these climatic problems for architects and planners was discussed.

The first paper, by Professor Victor Olgyay, of Princeton University School of Architecture, showed some of the techniques for the presentation of climate data given in his book, *Solar Control and Shading Devices*. They included projections for the movement of the sun, drawn for every latitude, from which its position at any hour on any day can be found. A transparent overlay, orientated identically with a building under investigation, will give the plan and section shadow angles at the same moment, from which shading devices can be designed. To determine when a building needs shading, a chart is used which divides the year into 'overheated' and 'underheated' periods. Such charts, based on mean temperatures, are useful but may give a deceptive picture of the extreme conditions which are so important architecturally. The difficulty is to obtain suitable data on extremes from existing meteorological summaries. For example, the shading devices on the UNESCO building in Paris were designed on such a mean basis and failed to control solar heat gains in the spring and early summer warm spells.

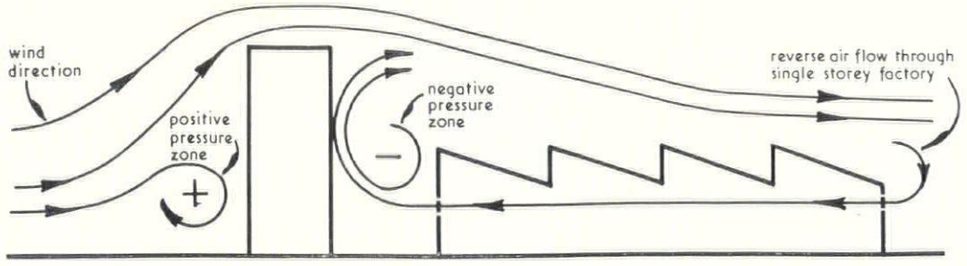
The limitations of average figures

Measurements of climate expressed by means of averages, either of time or place, can give entirely mis-

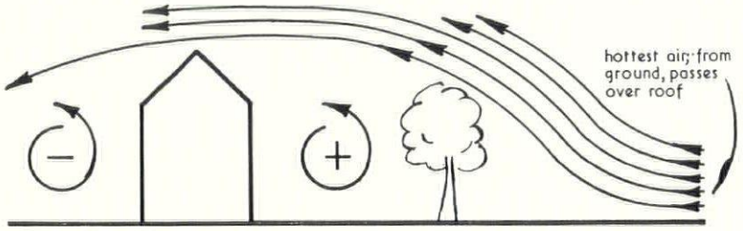
[continued on page 453



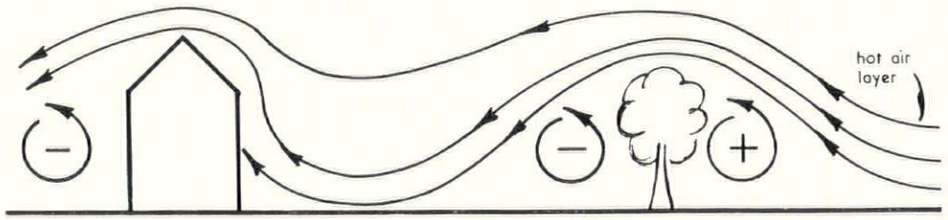
1, *simplified version of climatological chart reproduced from* Solar Control and Safety Devices. *Shaded area shows zone of comfort conditions in summer, the area within a lighter dotted line the zone of comfort in winter. The zone of comfort can be extended a limited distance below the zone by raising the mean radiant temperature (mrt) to the values given in the margin. Likewise the zone can be extended upwards by providing the given wind speeds or the mean radiant temperatures.*



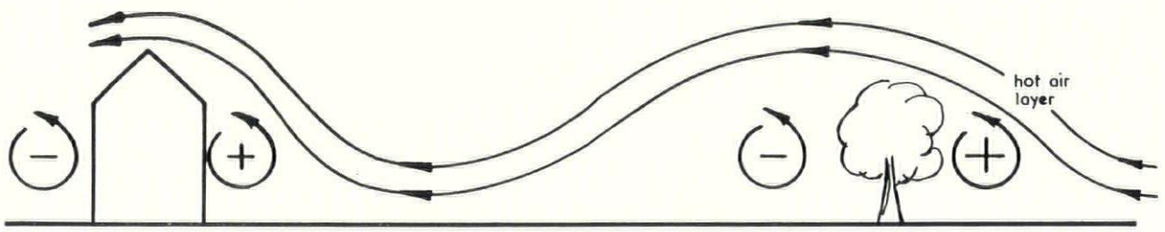
2, *low factory on lee side of tall building subject to air flow in reverse direction to prevailing wind.*



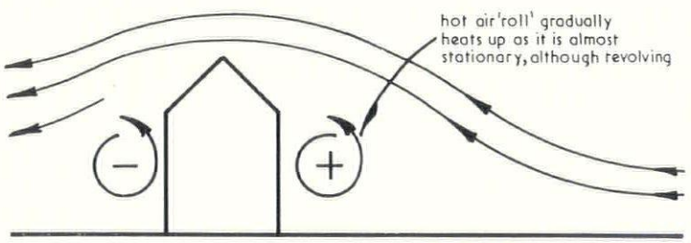
3a, *tree close to building on windward side directs hot air overhead.*



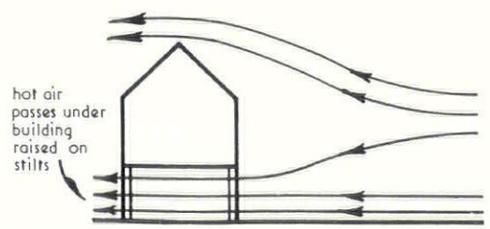
3b, *tree in middle distance directs hot air into building.*



3c, *distant trees cause hot air currents to pass over building.*



4a, *hot air 'roll' at both lee and windward sides of conventional building.*



4b, *elimination of hot air roll by building on stilts.*

continued from page 452]

leading results. Meteorological data are normally expressed in the form of mean values, annual or monthly, day, night or twenty-four hour. Whilst these are useful in determining average running costs—fuel consumption for instance—they do not indicate the degree of variation from the mean and the duration of the more extreme conditions. Two places with identical mean conditions and even with identical maxima and minima, can have very different climates and distribution of conditions. Climatic information must be expressed on a statistical frequency basis—'75 per cent of the daylight hours the illumination level is above X lumens per square foot'; '90 per cent of the days the mean air temperature does not rise above Y degrees and the daily maximum above Z' and so on.

Many graphical ways of representing this information are available, and from this data the designer can select his design conditions. A given heating plant may cope with 95 per cent of the conditions but to cope with 99 per cent may increase its cost out of all proportion. In heating particularly, where the thermal inertia of building structures plays a vital part, the information on the duration of the extreme conditions must be available. For instance, the number of occasions per annum when the temperature drops below X degrees for three days or more, two-three days, and one-two days. Once known, this information can lead to the design of the most economical wall, roof and floor construction.

Local climate

Dr. Dirnhirm, of Vienna, in her paper on 'The Local Climate of Cities,' showed how large the climatic variations within the confines of a city are. Prevailing wind speed and direction, the location of industry and residential zones, and the presence of hills and wooded country immediately behind the latter, mean high build-up of both temperature and atmospheric pollution in the Viennese residential zone. Local climatic variations of this kind can alter not only mean wind speed and air temperature from one part of the city to another, but also solar radiation intensities, humidity and ground radiation.

The turbulence and funnelling effects of buildings, streets, rising ground and trees can, as was later shown by Professor Page, of Sheffield University, reverse the wind direction through a building from the mean direction as given by the meteorological station at the same moment. A low building in the lee of a tall one will have a negative pressure zone on the 'windward' side, 2, hedges and trees create turbulence patterns which can be more critical when they are a middle distance away than when they are close or far, 3; raising buildings on stilts has a sound scientific basis in the tropics to avoid the hot air 'roll' that otherwise accumulates at the base of the building, 4; and wind speed (and hence heat transfer) varies considerably over the height of a tall building.

Other speakers from the British Meteorological Office gave the results of measurements in London of variations of air temperatures in streets from road to eaves level—10°F. or more at night; variations in air temperatures when the 'sea breeze' effect causes a cyclic shifting of warm air over London from one end of the city to the other; variations

of radiation between Kew and Kingsway.

It was also shown how, when a new building is erected, it immediately alters the microclimate of the site. It introduces shading effects, it will alter wind patterns, the planting of trees or grass round it will affect ground radiation as well as humidity; the radiation it absorbs and later releases will affect nearby buildings. A new town, built in open country, will cause large overall changes in local climate. Even the introduction of a central city smokeless zone has effects on radiation intensities and daylight statistics.

The designer may well throw up his hands in despair, since if even general climatic information from airport stations and Ministry roofs is scarce, there is nothing at all relating to the specific sites where he is called upon to build. The answer, first, is that more research will gradually fill in the details of this picture. Measurements of the microclimate of cities, and detailed measurements in and around single buildings will establish many of the general principles. Second, the realization that large variations exist both in time and place will introduce a healthy scepticism into the use made of mean conditions measured at remote country spots, parks or airfields. The corrections to be applied to these may not be known numerically, but only in direction—increase or decrease. For instance, night heat losses in tall buildings will be larger on the higher floors than the lower ones; planting on the windward side will increase the humidity of the air coming into the building; concrete pavements on the south side (in our latitudes) will reflect a considerable amount of solar radiation.

Wind and sun

Professor Robinson and M. Peleg, of the Haifa Technical Institute, Israel, showed a simplified method of calculating the amount of incident radiation on building faces by using the diagonals of rectangular blocks instead of separate faces. They also described experiments carried out in Israel on houses with various types of wall construction and different sized windows to determine the transfer of solar heat. The combination of wind, temperature and sunshine can produce some unexpected results; for instance where there is a regular increase in wind in the afternoon and evening, rooms with east-facing windows may be less comfortable than those with west-facing ones, which admit the sun's energy at a time when cooling winds help. In areas where there is little wind, west-facing windows cause overheating, since the air temperature is higher when the sun reaches them, and they admit heat into the interior at the same time as the heatwave from the solid east walls also emerges, having been delayed by the construction for 6–8 hours. Much of the information from Israel has been put to practical use in various devices which use solar energy; house heating, cooking and sea-water distillation are perhaps the most important.

Thermal inertia

M. Dreyfus, of the Centre Scientifique et Technique du Bâtiment, spoke of his experiences in French North and West Africa on climatic control in buildings. His most important contribution was a detailed treatment of thermal inertia. The time-lag which various wall and roof materials introduce between the occurence of a peak thermal condition outside—say maximum radiation on the wall—and its transfer to the inside is a product of their specific gravity, specific heat and conductivity. This 'fly-wheel' or inertia can be used to control interior conditions only, of course, in climates with appreciable diurnal variations—the hot dry climates. In hot humid zones there is little day/night temperature variation and relief must be obtained by making maximum use of the cooling effect of breezes. The principle of inertia has long been empirically recognized in the design of earth houses, where wall thicknesses usually give a 6-10 hour time-lag, thus transferring peak conditions to the interior in the evening and during the night, when outside air temperatures are so low that heating would be needed if it were not for the heat stored and given up by the walls.

Ideally the inertia of each part of the structure should be varied to ensure that the heat wave is transferred by each at a different time, not to coincide with maximum gains through windows, and to occur spread out throughout the cool evening and cold night. Various simplified techniques are available to make use of say three basic wall types for the whole building. Insulation materials, too, play a part; although they have a low inertia, they can be used on the inside of more massive materials to reduce the amount of heat given off to the room and increase heat losses to the outside during the night.

Conclusion

It is certain that knowledge of the microclimate will be an important aid to building economy and to the providing of a better climate indoors. It is also certain that the architect has an important part to play in the development of architectural bioclimatology both as an integrator of studies done by specialists and as an initiator of the further studies needed for the build-up of the science. In fulfilment of this second role, could not architects give a lead by encouraging the keeping of simple records on their completed buildings?

THE INDUSTRY

Glazed roof ventilator

A logical development of roof extract ventilators is to combine ventilation and daylighting in one unit. This Greenwoods and Airvac have done in the form of their 'Glazed-Top Roofline Extractor,' 1. The unit, which is only 14½ in. high, is constructed in heavy gauge hardened aluminium sheet with riveted and welded joints. The glazed top is reinforced cast wired glass secured to the unit with clamping strips. Within the unit are fibre glass shutters which may be manually or thermostatically operated. The object of the fibre glass, of course, is to ensure that closing the shutters does not cut out the light, although some loss of light is inevitable. The shutters enable adjustment of the amount of ventilation according to the conditions required.

Greenwoods and Airvac Ventilating Company Limited, Beacon House, Kingsway, London, W.C.2.

Melamine laminate

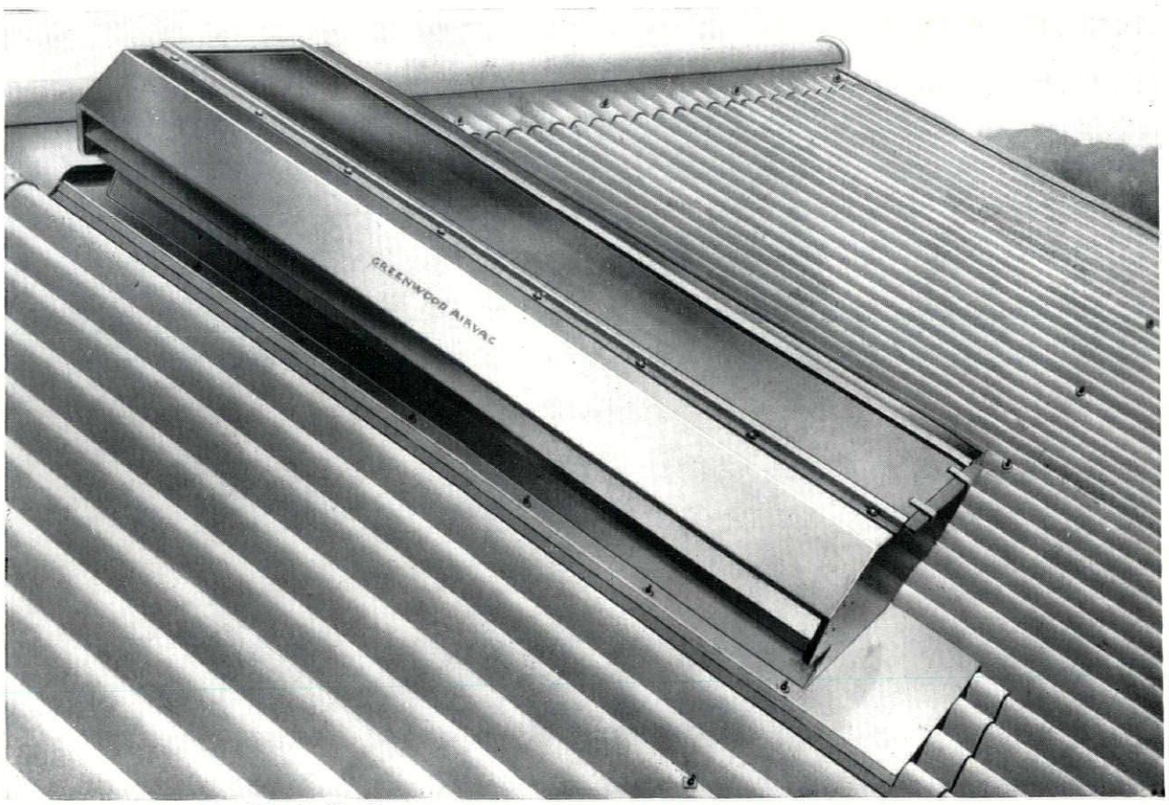
A few years ago Fablon Limited brought to the market their self-adhesive plastic covering in a range of colours and patterns. They have now introduced a melamine laminate rigid sheet called *Fablonite* which brings them into competition with one or two similar products well known to architects. The standard sheet is 9 ft. by 4 ft. nominal by $\frac{1}{16}$ in. thick and the standard surface finish is matt, although glossy surfaces will be supplied if required. Special sizes, 8 ft. by 4 ft. and 10 ft. by 4 ft., also will be supplied. There seems to be an almost unlimited range of patterns, too many of them imitating the surface appearance of other materials, notably wood and stone. This is a fault of melamine laminate manufacturers as a whole and it is a pity that more scope is not offered designers to experiment with surface patterns without reference to imitation effects. Apart from the colours in the patterned sheets *Fablonite* is produced in 19 plain colours, which include black, white and charcoal. The basic price for the standard range is 3s. 9d. per sq. ft. and for the plain colours 4s. 3d., which means that *Fablonite* compares favourably in cost with other melamine laminates.

Fablon Limited, 49 Park Lane, London, W.1.

Aluminium information

ICI has issued two booklets on 'Impalco' aluminium. The first, entitled *Technical Data*, gives chemical and processing details of the various grades of aluminium alloy produced by the Imperial Aluminium Company

[continued on page 456



1, *the Greenwood Airvac 'Glazed Top Roofline Extractor.'*



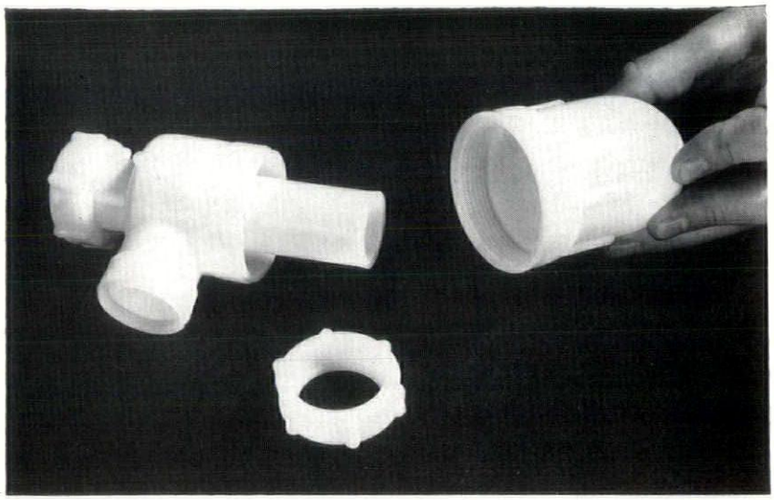
Tyler's are recognised throughout the country as leaders in the field of precast reinforced concrete structures. Many types of industry have found that Tyler structures mean permanence combined with the very minimum of maintenance. Quickly erected, they're ready for use immediately. Tyler's provide either the structures alone, or complete roofing, glazing, and insulation. For full details, write to:

TYLER

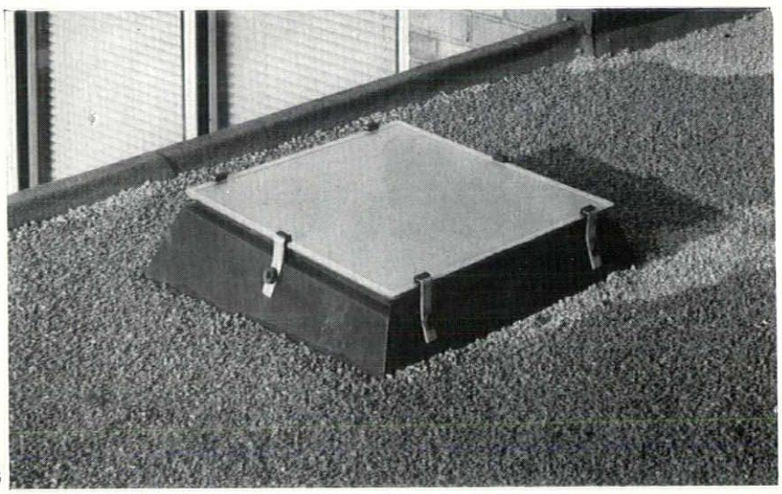
E. W. TYLER & CO. LTD.

Manufacturers and erectors of precast reinforced concrete structures

Dept. I-31, Cannon Lane, Tonbridge, Kent. Tel: Tonbridge 4024 (6 lines) · Dept. I-31, 5, Queen Street, Manchester, 2. Tel: Blackfriars 0680



2



3

continued from page 454]

Limited. It describes the three grades of commercially pure aluminium, Impalco P3, Impalco P5 and Impalco P10, under such headings as *Characteristics* (P10, for example—strength: low; ductility: good; machinability: poor; resistance to atmospheric attack: very good, etc.), *Specifications* (the BSS references), *Composition*, *Physical Properties*, *Thermal Treatment* and *Other Typical Values*. At the beginning of each description is a brief statement of the applications of the particular alloy. It deals in similar fashion with other alloys produced by the company—non-heat-treatable, heat-treatable and others. The value of the booklet lies in its good layout, enabling quick, easy reference.

The second booklet contains details of Impalco profiled sheets for building and is equally well set out, dealing both with troughed and corrugated sheets and including a description of the KSF cladding system as well as general notes on installation.

Imperial Aluminium Company Limited, Millbank, London, S.W.1.

Polythene waste traps

Plastics have long since invaded the building industry and the use of polythene tubes in the plumbing trades is more prevalent than even a year ago. The new range of bottle traps, 2, is moulded in high density polythene and is available in off-white, white and cream, the colours being permanent and fade-proof. The bottle traps are suitable for all types of waste pipes and provide a 3 in. water seal. They are claimed to resist both frost and boiling water, most chemicals, oils and solvents, and to be unaffected by detergents. Available from plumbers' merchants, their prices compare with conventional traps.

McAlpine & Co. Ltd., Kelvin Avenue, Hillington, Glasgow, S.W.2.

Rooflight

The rooflight, 3, known as the Plylite, is made with a double skin reinforced glass fibre kerb, the outer skin either black or green and the inner white or grey. The kerb slopes to give the fall to the top of the rooflight and is flanged to provide a fixing down into the roof and to enable lapping of the roof membrane. The material is self-coloured and painting, therefore, is not necessary. The manufacturers claim a U value of 0.55 for the kerb. The top of the rooflight consists of two layers of diffusing Plyglass with a U value of 0.7. This is laid on a plastic gasket seal at the top of the kerb and held in place by means of stainless steel slotted brackets screwed into the outer skin of the kerb. Sizes of finished trimmed openings to suit standard rooflights are 21 in. by 21 in., 29 in. by 29 in., 42 in. by 29 in., 45 in. by 45 in. and 56 in. by 29 in.

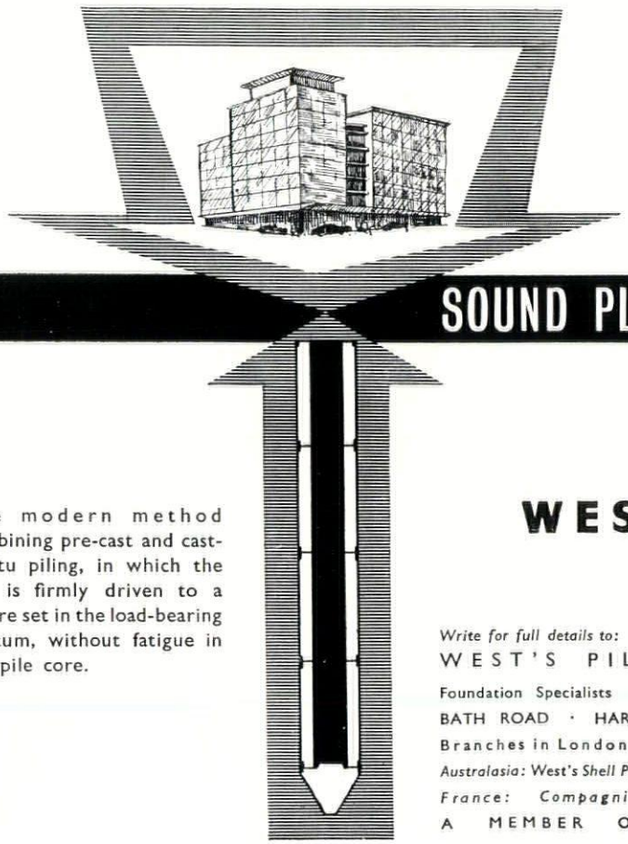
Plyglass Limited, Edinburgh Way, Harlow, Essex.

Thermal/acoustic ceiling panel

A new ceiling panel which is claimed to provide thermal insulation as well as sound absorption has recenty been introduced by the Bowaters organization. The panel, 4, is made to suit a 20 in. module. It

[continued on page 458

2, *polythene bottle trap by McAlpine & Co. Ltd.*
3, *the Plylite rooflight.*



SOUND PLANNING IS SECURELY BASED

ON

WEST'S *SHELL* PILING
SYSTEM

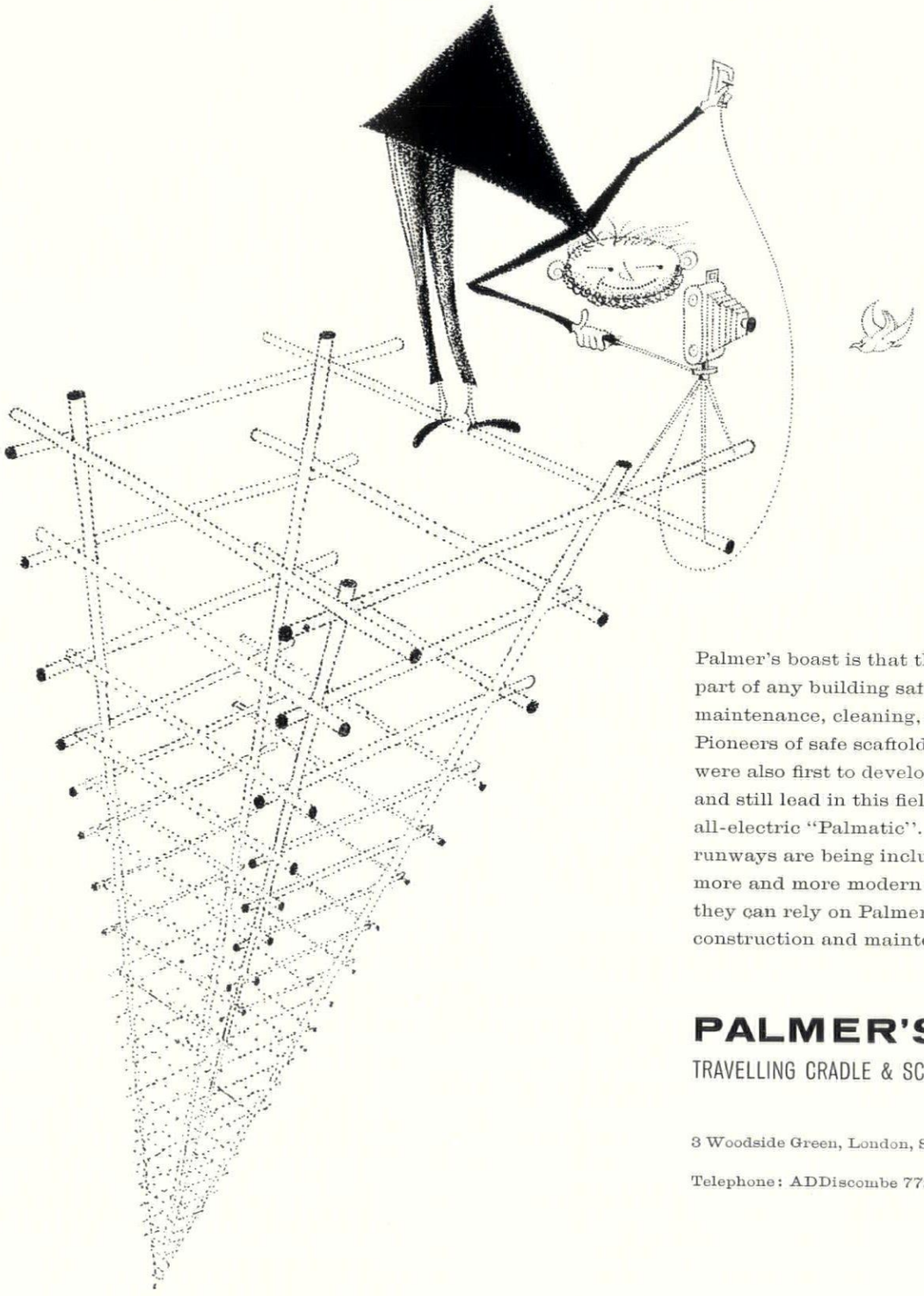
The modern method combining pre-cast and cast-in-situ piling, in which the pile is firmly driven to a secure set in the load-bearing stratum, without fatigue in the pile core.

Write for full details to:
WEST'S PILING & CONSTRUCTION CO. LTD.
Foundation Specialists · Design and Construction in Reinforced Concrete
BATH ROAD · HARMONDSWORTH · MIDDLESEX · TEL.: SKYPORT 5222
Branches in London · Bristol · Birmingham · Manchester · Glasgow
Australasia: West's Shell Piling (Asia) Pty. Ltd., Melbourne, Sydney, Adelaide & Wellington, N.Z.
France: Compagnie Générale de Construction de Fours, Paris.
A MEMBER OF WEST'S GROUP OF INDUSTRIES

W P&C CO

A8

People trust Palmer's



Palmer's boast is that they can make any part of any building safely accessible for maintenance, cleaning, construction or repair. Pioneers of safe scaffolding since 1880, they were also first to develop the travelling cradle and still lead in this field with their new all-electric "Palmatic". Palmer's permanent runways are being included in the design of more and more modern buildings. People know they can rely on Palmer's long experience of construction and maintenance equipment.

PALMER'S

TRAVELLING CRADLE & SCAFFOLD CO. LTD.

3 Woodside Green, London, S.E.25

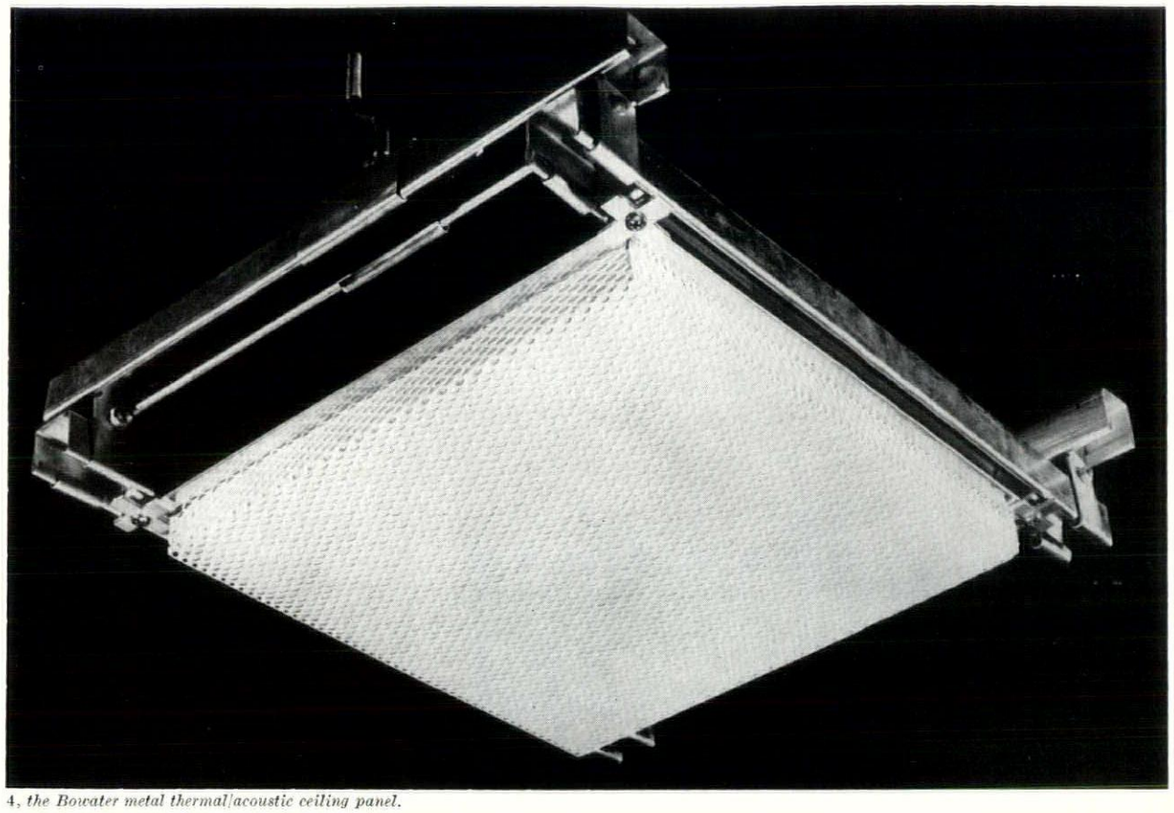
Telephone: ADDiscombe 7721

continued from 456]

comprises a tray of expanded metal, 1 in. deep, held on all four sides by a spot-welded, tinplated steel frame and filled with mineral wool. The latter is backed with asbestos paper and between it and the mesh tray is a sheet of white p.v.c., not exceeding 0.0015 in. thick. The expanded metal is zinc plated and finished in a range of colours.

There are three alternative methods of fixing: 1, direct to timber battens, using metal crosses and woodscrews to support the corners; 2, direct to concrete soffit, using channel and cross plate assemblies; 3, by the Bowater rigid metal fixing system. This consists of a cross grid of main and secondary channels. Main channels are spaced at up to 8 ft. centres and suspended by hanger rods from beams or floor slabs at centres up to a maximum of 6 ft. Secondary channels are spaced at module centres and connected to the main channels by a pinch bolt assembly. The ceiling panels are then fitted to the secondary channels with cross plate assemblies at the corners. The panels have passed a 2-hour fire test at the Fire Research Station. Cost of a suspended ceiling, supply and fix, is between 45s. and 50s. per square yard.

Building Products Division, The Bowater Organization, Bowater House, Knightsbridge, London S.W.1.



4, *the Bowater metal thermal/acoustic ceiling panel.*

Gas handbook

During the last four years technical supplements have been appearing in *The Architect's Journal* dealing with the different aspects of the use of gas and coke. These supplements have been prepared by the gas industry, but, if their ultimate object is to encourage people to use more gas, the method chosen is to make it easier for architects and builders to choose and instal it. The supplements have now been gathered together into the *Gas Handbook for Architects and Builders* which is available free from the Gas Council or from the Area Boards. The handbook is mainly (but not exclusively) concerned with the use of gas and coke in the domestic field, with space and water heating; but there are excellent sections on flues and installation, and others on the planning of communal laundries, and kitchens for public catering. This

[continued on page 460

Polynesia in Mayfair with carpet made specially

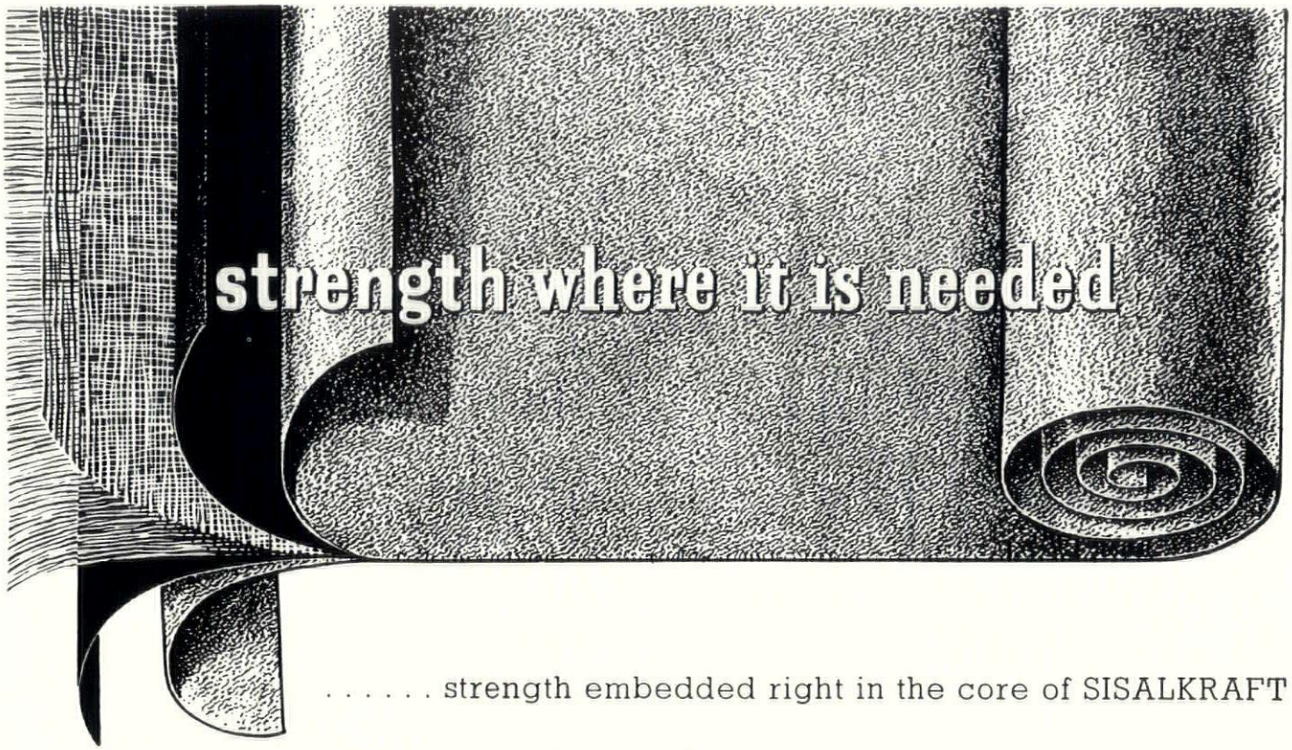


The new 'Beachcomber' Restaurant in Mayfair serves the best and most exotic Pacific foods, and, at a cost of £145,000 has been designed and decorated in Polynesian style. The carpet was made to match the Gauguin/Somerset Maugham atmosphere. Carpet Trades of Kidderminster evolved a pattern of interlacing bamboo lattice work, in shades of tobacco brown, with highlights of blue, amber and red. They wove it in "Karinda" fine woollen Wilton quality.

Carpet Trades Limited of Kidderminster

Supplied through G. B. Kalee of London.

(xc)



. . . . . strength embedded right in the core of SISALKRAFT by the unique reinforcement of tough, nonhygroscopic, unspun sisal fibres that are laid in both directions and sealed in two layers of high grade bitumen and covered by outer sheets of stout kraft paper. This 6 ply construction gives the tough, supple strength of SISALKRAFT, making it easy to handle yet exceptionally tear resistant and proof against moisture and damp.

SISALKRAFT TRADE MARK

the supreme building paper

A PRODUCT OF BRITISH SISALKRAFT LIMITED

Please write for information and samples to the SOLE DISTRIBUTORS:

ESTABLISHED OVER A CENTURY **J.H.SANKEY & SON LTD**

ESSEX WORKS · RIPPLE ROAD · BARKING · ESSEX | *PHONE.* DOMinion 6666 *GRAMS:* BRICKWORK · BARKING

continued from page 458]

last is (apart from the MOE Bulletin) almost the only reference on this subject for architects and is, therefore, all the more valuable.
The Gas Council, 1, Grosvenor Place, London, S.W.1.

Handbook on floor warming

Early this year the Electrical Floor Warming Association organized a symposium of flooring manufacturers to try and tap all the sources of knowledge on the characteristics, problems and techniques of construction involving electric floor warming. Scattered through the industry are many individuals, firms and associations with accumulated experience of the subject, but architects and builders have very little published information available to them. An attempt to fill the breach is now made by the Electrical Development Association in the form of a booklet ponderously entitled *Notes on the Construction and Finish of Floors that are to be Electrically Warmed.*

It is made clear at the outset that the booklet is intended not to tell you about electric floor warming but to enunciate the principles of construction and finishing most likely to ensure a satisfactory installation. Inevitably a few contentious statements appear, for example, that only certain hardwoods (six are listed) behave satisfactorily in both block and strip over floor warming and, again, that the best place for the damp-proof membrane in layered construction is on top of the base or sub-floor with the insulating layer on top of it. Layered construction is a term used in the booklet to describe that construction in which the structural or sub-floor has already hardened before the heating cables and the screed are laid. But much useful information is included and is supplemented by several photographs and drawings. The booklet is likely to prove helpful not only to architects and their assistants but to site agents, general foremen and clerks of works.
Electrical Development Association, 2 Savoy Hill, London, W.C.2.

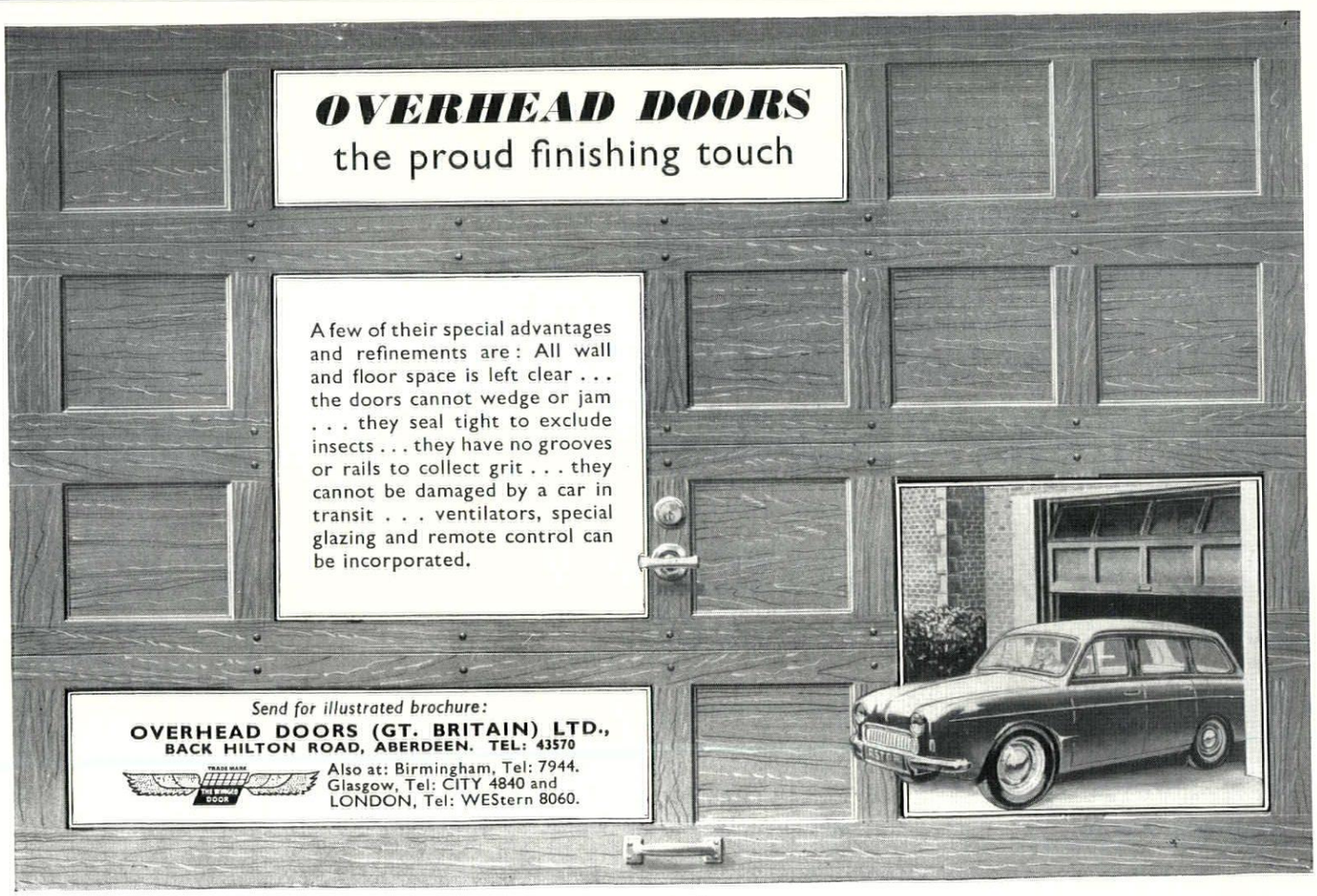
CONTRACTORS etc

Church at Bow Common, London. *Architect:* Robert Maguire. *Contractors: Floors and pavings:* Brookes Ltd. *Metal roofs, etc.:* L. Whittaker & Co. (London) Ltd. *Asphalte roofs:* Pilkingtons Asphalte Co. *Structural steelwork:* S. W. Farmer & Son Ltd. *Lightning conductor:* J. W. Gray & Son Ltd. *Bricks, acoustic ceiling bricks:* Cape Building Products Ltd. *Aluminium roofing:* Fural Ltd. *Double glazing to lantern:* Plyglass Ltd. *Sanitary ware:* Adamsez Ltd. *Sinks:* The Stainless Steel Co. *Paint:* Leyland Paint & Varnish Co., Vitrex Ltd. *Font bowl:* Doulton Industrial Porcelains Ltd. *Lighting glassware:* J. Windart & Co. *External cross and flashings:* S. Ward & Co. (Bow) Ltd. *Slate tops to altars:* Bow Slate & Enamel Co. *Bells:* Mears & Stainbank. *Pitchfibre rainwater pipes, drains:* Key Engineering Co. *Light fittings:* Frederick Thomas & Co., GEC Ltd. *Precast concrete flags:* Tarmac Ltd. *Wood wool decking:* Halcrete Ltd.

Palace in the Persian Gulf. *Architects:* Farmer and Dark. *Sub-contractors: Glass mosaic:* Saivo, Milan. *Aluminium windows:* Quicktho Engineering Ltd. *Anodized aluminium screens and balustrade frames:* James Gibbons Ltd. *Sanitary fittings:* Ideal-Standard. *Vitreous floor tiles:* Ifo, Sweden. *Vinyl floor tiles:* Semtex Ltd. *Exterior lighting and floodlighting:* Atlas Lighting Ltd. *Interior lighting:* Atlas Lighting Ltd., General Electric Co., Troughton & Young Lighting Ltd., Merchant Adventurers Ltd., Allom Heffer Ltd., Fredk. Thomas & Co., Rotaflex (Gt. Britain) Ltd. *Acoustic tiles:* Treetex Acousties Ltd., Armstrong Cork Co., Newalls Insulation Co. *Kitchen equipment:* Regional Manufacturing Co., Ezee Kitchens Ltd. *Pool, pumping and filtering equipment:* Paterson Engineering Co. *Paint:* Walpamur Co., Cellon Ltd. *Flexwood:* Alexandria Trading Corporation Ltd. *Wallpaper:* Arthur Sanderson & Sons Ltd. *Radio distribution system:* Belling & Lee Ltd. *Anodized aluminium trim:* Ajax Architectural Products Ltd. *Cinema seating:* Cox & Co. *Prefabricated plumbing:* Econa Modern Products Ltd. *Adhesive:* Evode Ltd. *Lightning conductors:* W. J. Furse & Co. *Motorized curtain tracks for salon and dining room:* Hall & Dixon. *Sliding door gear:* A. Hill Aldam & Co. *Electric switch plates and boxes:* M.K. Electric Ltd. *Coloured sheet glass:* Pilkington Bros. Ltd. *Blinds and curtain tracks:* Danaura Ltd. *Clocks:* Baume & Co. *Furniture, carpets and curtains:* Hampton Contracts Ltd. *Furniture:* E. Gomme Ltd., Hille of London Ltd. *Fabrics:* Edinburgh Weavers, Vetrona Fabrics Ltd.

Secondary School, Dundee. *Architect:* Robert Dron. *General contractors:* Truscon Ltd., Charles Gray (Builders) Ltd. *Sub-contractors: Switchgear:* H. A. McQueen & Co. *Electric floor warming:* Thermodare (Great Britain). *Limpet asbestos ceiling finishes:* Newalls Insulation Co. *Floor finishes:* Numire Ltd., A. M. McDougall & Son Ltd., Marley Tile Co., Wm. Brand & Sons. *Curtain walling and windows:* Standard Maclean Ltd. *Lift:* Wm. Wadsworth & Sons Ltd. *Folding doors, sliding doors:* Bolton Gate Co. *Cloakroom racks, stair balustrades, fencing:* Barnet & Morton Ltd. *Water purification for pool:* The Peterson Engineering Co. *Roof finish:* Wm. Briggs & Sons Ltd. *Tennis courts:* The En-Tout Cas Co.

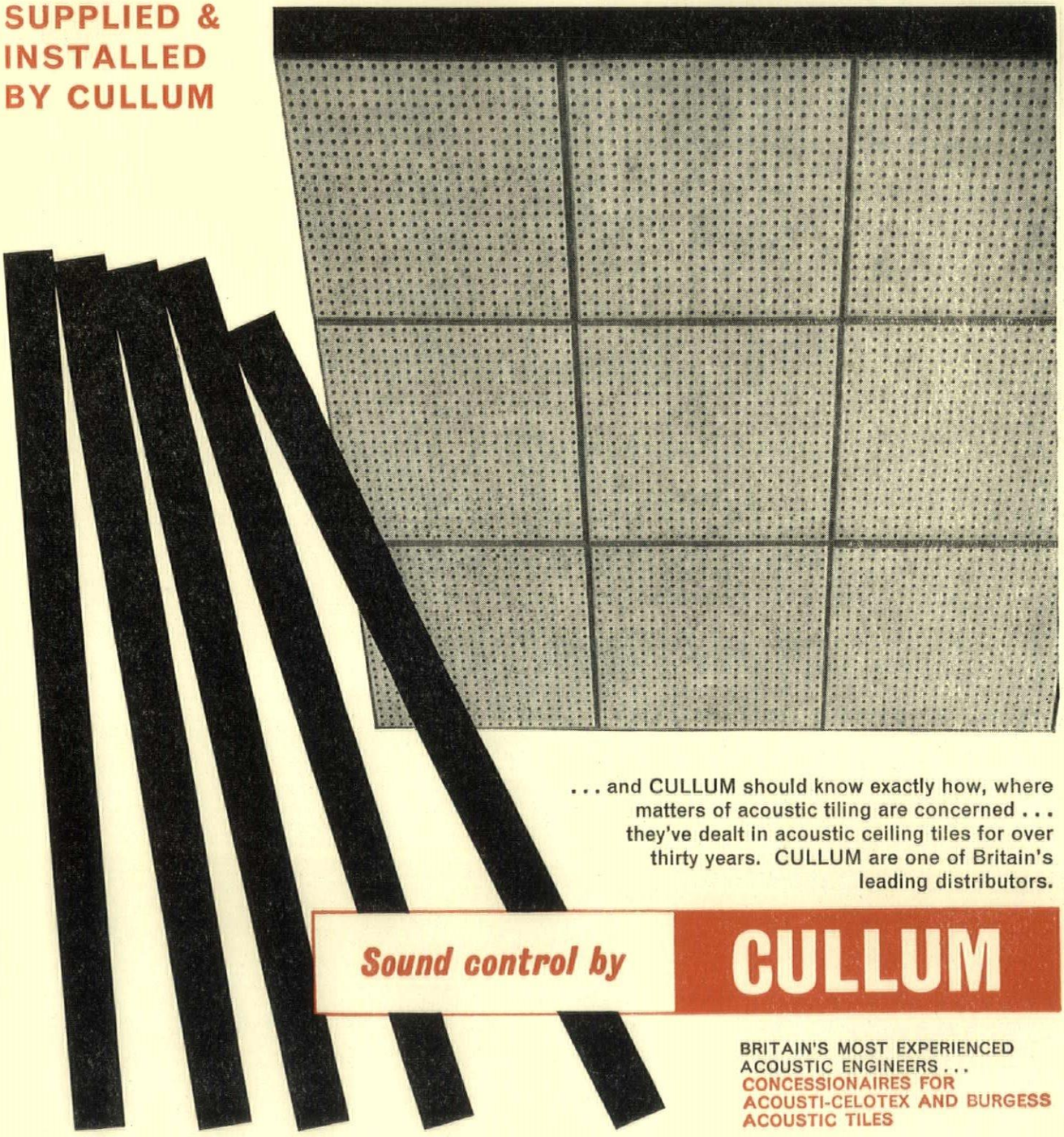
Terraced factories, Basildon New Town. *Architects:* J. M. Austin-Smith. *General contractors:* David Chaston Ltd. *Sub-contractors: Flooring:* Rubolin Flooring Ltd. *Fibreboard:* Tentest Fibreboard Co. *Cement enamel finishes:* Robb's Cement Enamel Finishes Ltd. *Bricks:* Henry J. Greenham Ltd. *W.c. compartments:* Venesta Ltd. *Wrought steel windows and patent roof glazing:* W. James & Co. *Sliding door gear:* Henderson Ltd. *Gas services:* North Thames Gas Board. *Sanitary ware:* T. A. Harris Ltd. *Electrical installation:* Artisans Ltd. *Ironmongery:* H. & C. Davis & Co.





ACOUSTIC TILING KNOW-HOW

...TILES SUPPLIED & INSTALLED BY CULLUM



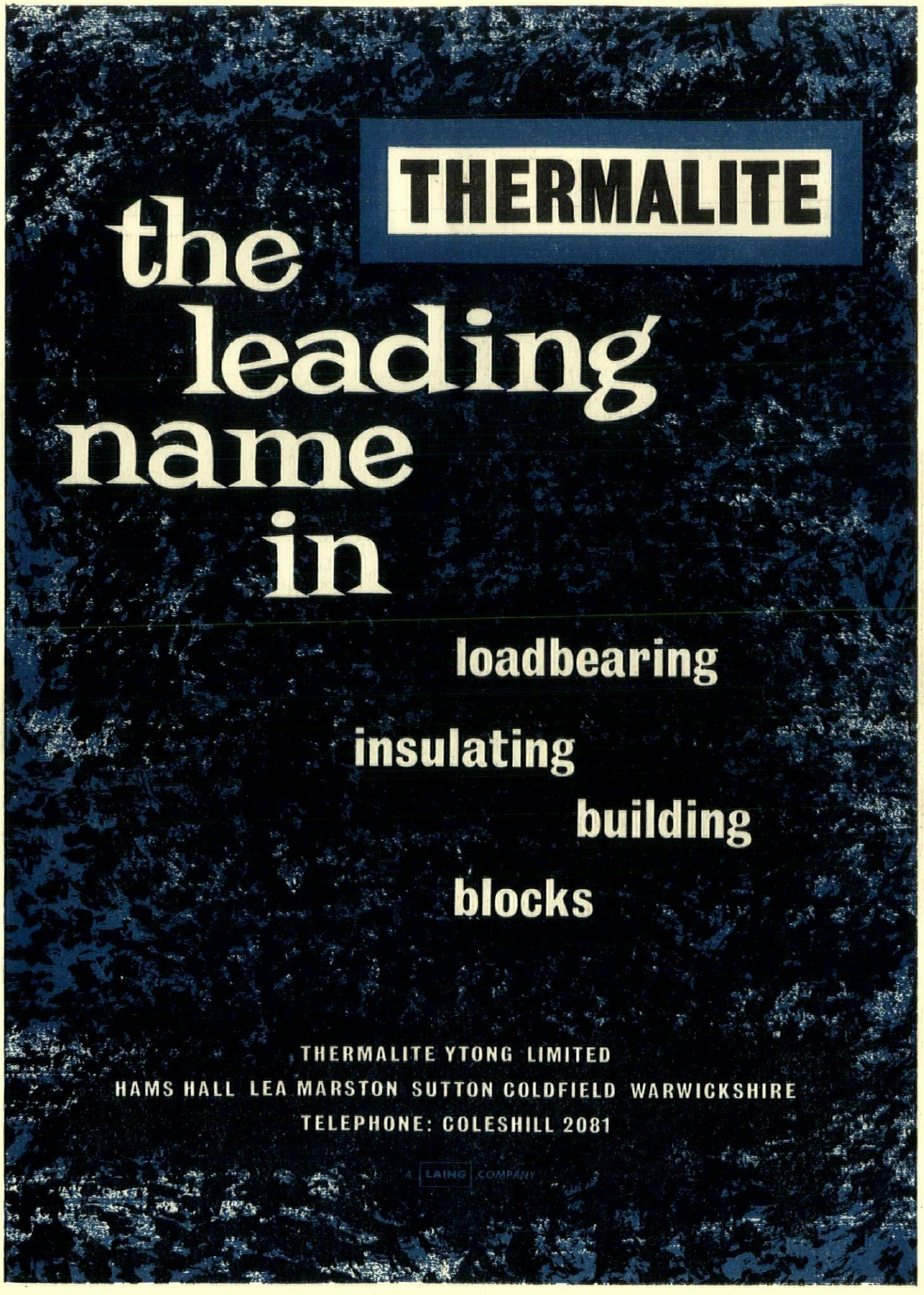
...and CULLUM should know exactly how, where matters of acoustic tiling are concerned... they've dealt in acoustic ceiling tiles for over thirty years. CULLUM are one of Britain's leading distributors.

Sound control by CULLUM

BRITAIN'S MOST EXPERIENCED ACOUSTIC ENGINEERS...
CONCESSIONAIRES FOR ACOUSTI-CELOTEX AND BURGESS ACOUSTIC TILES

HORACE W. CULLUM & CO. LTD. The Acoustic Centre · 58 Highgate West Hill · London N.6 · Tel: FITzroy 1221

Printed in Great Britain for the Proprietors of "The Architects' Journal," of "The Architectural Review," and of "Specification" (The Architectural Press, Ltd.) 9-13, Queen Anne's Gate, Westminster, S.W.1, by Knapp, Drewett & Sons Ltd., by appointment to Her Majesty the Queen, Printers, Kingston-on-Thames. Editorial illustrations engraved by The Engravers Guild Ltd., Windsor House, 23/26, Cursitor Street, London, E.C.4.
Entered in the New York Post Office as Second Class Matter


THERMALITE
the leading name in
loadbearing
insulating
building
blocks
THERMALITE YTONG LIMITED
HAMS HALL LEA MARSTON SUTTON COLDFIELD WARWICKSHIRE
TELEPHONE: COLESHILL 2081
A LAING COMPANY

PAGE

Manasseh, Leonard, and Partners and James Cubitt 69, 71
Manzú, Giacomo 446
Marc, Franz 445
Matthias, John 358
Meid, Max, and Helmut Romeick 132
Mence and Moore 48–49, 51
Merer, P. S. 63, 64
Merer, P. S., and Howard Ashley 63
Messel, Oliver 289
Middelhoek, A., Eijkelenboom, W., and Boks, J. W. C. 272, 285, 296
Ministry of Works 114, 239, 372
Ministry of Works, Northern Region of Nigeria 19
Minoletti, Giulio, and Eugenio Gentili 93
Monies, Tim 282
Montgomerie and Oldfield 40
Moore, Henry 222
Morgan, John 436
Morley, P. G. 63
Moross and Graff 25
Morrow, D. T. and Gordon 131
Morton and Lupton 291, 296
Müller, Werner, and Otto Jäger 319
Narmesniemi, A. 356
Nervi, Pier Luigi 165, 319
Nettleton, C. N. 80
Neutra, Richard 95
Neutra, Richard J., and Robert Alexander 256, 288, 291
Nicholson, Ben 223
Nicholson, Robert and Roger 293
Nickson and Borys 14
Niemeyer, Oscar 254
Niessen, Horst, and Herbert Rimpl 259
Nolan, Sidney 224
Norburn, Blackburne 30
Norman and Dawbarn 24, 43, 45
Nummi, Yki 357
Oakley, Barbara 365
Page, Lincoln 67, 70
Palmer and Turner 72, 79
Pani, Mario 96
Parkin, John B., Associates 132
Peatfield and Bodgener 25
Pei, I. M., and Partners 247
Pereira and Luckman, and Schwebes and Schoszberger 250, 273, 282, 286, 293
Perry, Shaw, Hepburn and Dean 258, 272
Pfau, Bernhard 95
Picasso, Pablo 172, 373–375
Piper, John 224
Ponti, Gio 140
Portillo, J. Salazar 354
Powell and Moya 211–212
Prior, Lourenco and Nothnagel 50
Ravnikar, Professor Edo 96
Rebecchini, Gaetano, Julio Lafuente and Aicardo Birago 317
Reid, John and Sylvia 436
Rees, Glen 272, 282, 290, 293
Reinhard, Hans and Gret 294
Reinius and Eriksen 100
Rex, John, and Douglas Honnold 94
Reynolds, Alan 445
Richards, Ceri 223
Rietveld, G. 238
Rimpl, Herbert, and Horst Niessen 259
Rinaldi, Macdonald and Harvey 34, 38
Roberts, J. A. 113, 114
Robertson Ward Associates 52

PAGE

Robinson, Fitzroy and Partners 250
Rock, David 434–435
Romeick, Helmut, and Max Meid 132
Rosenauer, Michael 279, 299
Ruddiman, Albert 37
Ruhnau, Rave, and von Hausen 95
Russell Diplock Associates 301
Russell, R. D. 278, 283, 285, 296, 364
Saarinen, Eero 168
Saarnio, Bertel 336, 337
Sanabria, Thomas J. 254, 283
Scharoun, Hans 391
Schneider-Esleben, Paul, and Dietrich Hartkopf 132
Schoszberger, Hans, and Paul Schwebes 94
Schwanzer, Karl 167
Schwartz, Milton M., and Associates 258
Schwarz, Rudolf 96
Schwebes, Paul 167
Schwebes, Paul, and Hans Schoszberger 94
Schwebes and Schoszberger, Pereira and Luckmann 93, 250, 273, 282, 286, 293
Scott, Kenneth, Associates 9–12
Scott, Michael 277
Seeberger, Peter Paul 390
Seifert, R., and Partners 304
Shaw, Metz and Dolio 124
Shepheard, Peter 393
Shipley, W. I. 62
Sickert, Walter 149
Sims, Ronald 304
Skidmore, Owings and Merrill 249, 263, 271, 274, 284, 392
Skidmore, Owings and Merrill, Hertzka and Knowles 392
Smigielski, W. K. 190–194
Smirke, Sir Robert 169
Smith, Michael V. 51
Solomon, Lewis, Kaye and Partners 302
Soncini, Eugenio 389
Soria y Mata, Arturo 341–345
Spence, Sir Basil, and Partners 370–371
Spencer, A. Lloyd, and Partners 40
Stengelhofen, F. A. 219–220
Stephenson and Young 113
Stevens, Alfred 206–207
Stewart, J. R. 83
Stillman and Eastwick-Field 189
Stone, Edward D. 252, 284
Strubbe, John 255
Surman, J. B., and Partners 113
Szeto, W. 78
Tabler, William B. 133, 258, 259, 278
Takenaka Komuten Co. 257, 273, 282, 286, 288, 291, 293, 296
Tanganyika Public Works Department 26
Taniguchi, Yoshiro 320
Thompson, Philip Cover: December
Tibbals-Crumley-Musson 129
Tomlin, K. J. 52
Toro, Ferrer and Torregrosa 252
Trinidad Works Department 50
Tschumi, Jean 168
Tucker, Arnold Wasson 329–331
Tucker, Susanne W., and Maurice Holland 271, 281
van den Broek and Bakema 238
van Gogh, Vincent 445
van Sitteren and Partners 70
Varhelyi, Georg 259, 277, 285
Vastu-Shilpa 56, 58

PAGE

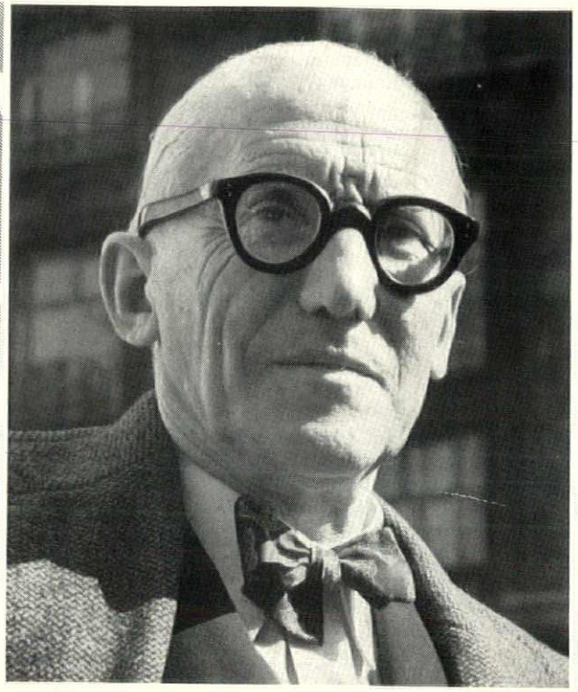
Vittellozzi, Annibale, and Enrico del Debbio 165
Voysey, C. F. A. 396
Walker and Biggin 137–139
Ward and Austin 364, 366
Ward, Ronald, and Partners 225
Watkins, W. H., and Partners 50
Weed-Johnson Associates 132
Wiegand, Gerd 167
Williams, Alan, and P. H. Connell 166
Williams, David T. 279
Willink and Dod 113
Wills, F. J., and Son 265, 286
Wong, Alfred 68
Wood, Kenneth 372
Wright, Frank Lloyd 140
Wright, Leslie 27
Yorke, Rosenberg and Mardall 440–441
Yoshida, Isoya 320
Yoshimura, Junzo 240, 256, 274, 277, 278, 281, 287, 290
Young, Brian 446

AUTHORS AND CONTRIBUTORS

Anson, Peter F. 394
Atkinson, Fello 99
Atkinson, G. A. 74, 81–83
Barr, Cleeve 395
Betjeman, John 325–328
Brawne, Michael 124–134
Browne, Kenneth 190–194, 355–361
Clarke, Peter 99
Collins, George R. 341–345
Collins, Peter 101–103
Cumine, Eric 73–74
Ferriday, Peter 393
Field, John 153–154
Forehoe, C. 225
Fry, E. Maxwell 7–8
Garrett, Stephen 240–316
Gomme, Andor 154, 377–378, 450–451
Gray, Patience 141–143, 266, 375, 376
Guinness, Bryan 395
Harrison, Richard 84–86
Hughes, Richard 21–22
Jackson, W. Eric 305–306
Johnson, Philip 173–175
Koenigsberger, O. H. 53–54
Markus, Thomas 452–454
Melville, Robert 149, 222, 373, 444
Middleton, Michael 171
Morley, Peter 66
Nairn, Ian 110–117, 323, 397–399
Page, Lincoln 65–66
Pevsner, Nikolaus 323, 446–448
Pond, Edward 429–431
Posener, Julius 59–60, 65
Ransom, W. H. 88–92
Ridley, Tom 86–88
Rutherford, R. K. 31–32
Schwarz, L. J. 306–308
Seddon, Richard 206–207
Smithson, Alison and Peter 437–439
Spurrier, Raymond 406–419
Tanner, G. C. A. 227–230, 308–309, 379–382
Tweddell, Noel 195–205
Voelcker, John 180–189
Whiffen, Marcus 171
Williams-Ellis, Clough 171
Woodhouse, Wilfred 41–42
Zacos, George 368–369

his most important book since Towards a New Architecture

MY WORK



MY WORK

Le Corbusier

The record of a life's work—architecture, painting and sculpture—**written, illustrated,** and **designed,** by the world's most eminent and controversial architect. 84s.

Just Published

The Architectural Press, 9-13 Queen Anne's Gate, S.W.1.

PAGE

Trulli, La Valle dei (The Exploring Eye). Illustrated note 420–423

Undergraduate Rooms, Oxford, for St. John's College. *Architects:* Architects' Co-Partnership. Exterior, interior views and plans 104–109

Village, The New Town. *Illustrated article by* Noel Tweddell 195–205
Vocabulary of Plants, A. *Illustrated article by* Patience Gray 141–143, 226, 375–376

Wallcovering, New (The Industry). Illustrated note 386
Wall Fabric (The Industry). Note 310
Wallpaper Designers, Architects as (Design Review). Illustrated note 140
Watney's Lettering (Hats Off). Illustrated note 376–377
West Cumberland (Counter-Attack). *Illustrated note by* Andor Gomme 377–378, 450–451
West Africa. *Article by* E. Maxwell Fry 7–8
Where Are We At? *Article by* Philip Johnson 173–175
Windows, Sashless (The Industry). Illustrated note 230

Zoo Services Buildings, London, Regent's Park. *Architect:* F. A. Stengelhofen. Exterior views and plans 219–220

ARCHITECTS AND ARTISTS

Aalto, Alvar 318
Aeck Associates 129
Agip staff architects 251
Albini, Franco 389
Alexander, Robert E., and Richard J. Neutra 256, 288, 291
Almeida, A. B. 26
Andrews, C. G. 23, 25
Architects' Co-Partnership 20, 104–109, 300, 435
Armstrong and MacManus 144–145
Ashihara, Yoshinobu 257, 272, 278, 292
Ashley, Howard and P. S. Merer 63
Ashwell, Dunn and Associates 45
Austin-Smith, J. M., and Partners 443
Avon, Gianni 255, 276, 279, 284
Bacalu and Cristea 318
Bailey, J. 71
Baillard, Todd and Snibbe 43
Barry, Sir Charles 393
Becker and Voigt 19
Becket, Welton and Associates 94, 250, 251, 252, 253, 262, 274, 276, 285
Beech, G. H. 289
Bennett, T. P., and Son 114
Berlowitz and Furmanovsky 39
Billiard, H. 38
Birago, Aicardo, Julio Lafuente and Gaetano Rebecchini 317
Blaker and McCullough 28
Boks, J. W. C., Eijkelenboom, W., and Middelhoek, A. 272, 285, 296
Boldini, Jean 446
Bolton and Barnstone 49
Booty, Edwards and Partners 71, 72
Boulware, Lyle S. 131
Bransgrove, C. A., and Partners 26
Brera, Georges, and Paul Waltenspuhl 357
Brett, Boyd and Bosanquet 146
Brockmann and Kiep 95
Brown, R. Gordon 72, 78
Browne, Kenneth 354–361, Cover: October
Browning, Robert 24
Brunei Public Works Department 72
Burr, Vincent and Partners 304
Cameron-Smith, H. 33
Caro, Anthony 223
Carter, John 296
Casson, Sir Hugh, and McInnes, Gardner and Partners 365
Casson, Sir Hugh, Neville Conder and Partners 208–210
Chamberlin, Peter 1
Chalmers, Denis G. M. 44
Chatterjee and Polk 57
Cheng, Bill 64
Chong, Wilson 44
Connell, A. D. 28, 30
Connell, P. H., and Alan Williams 166
Connor, R. Duane 165
Conran Design Group 135–137
Constant, M. A. 354
Cornell, Bridges and Treller 276, 285
Correa, C. M. 57
Cotton, Ballard and Blow 113, 304
Cotton, M. J. 67, 69
Covell and Matthews 115
Cubitt, James, Leonard Manasseh and Partners 69, 71, 300
Cubitt, James, and Partners 14, 19,83
Cumine, Eric 76, 77
Davies, Anthony B 118–123, 197–199
Davies, Idris 27
Davies, R. Llewelyn 48
Davis, R. H. H., and Vernon Z. Newcombe 61
Davison, P. R. 67
Defty, Eric 317
del Debbio, Enrico, and Annibale Vittellozzi 165
de Maistre, Roy 149
de Ruyter and van den Graaf 238
Design Research Unit 364–367, 376, 377, 436
de Silva, Minette 58
Diamond, Redfern and Partners 272, 294, 295
Diener, Marcus 259, 282
Drake and Lasdun 11
Drimer, Kereaski, Lazar and Popescu 318
Driver-Jowitt and Lincoln 39
Dron, Robert 442
Dubuffet, Jean 151
Duhon, Emile Jean 264
Eijkelenboom, W., J. W. C. Boks and A. Middelhoek 272, 285, 296
Elliott, Julian 33, 35
Ellis, Alexander 394
End, Henry 279, 299
Ensor, James 150
Epstein, Sir Jacob 396
Erdi, Louis 251
Ernst, Max 151
Erskine, Ralph 276
Falconer, John (Deans and Partners) 24
Farmer and Dark 220–221, 424–428
Farrant, Larry, Bowen, Rule and Bowen 131
Feit and Meyers 36–37
Feltham, T. S. C. 75
Ferrier, James W., and Partners 70
Ford, H. L. 23, 39
Ford, M. Hubbard 292, 293, 260, 296, 306, 307
French and Hastings 26
Friehling, Erik 277, 278, 283
Fry, Drew, Drake and Lasdun 17
Fry, Drew and Partners 11, 17, 18, 82
Fry, E. Maxwell 56
Furrer, Hans 80
Gardella, Ignazio 3
Gardiner, Stephen, and Christopher Knight 322
Gate, Bengt 279, 280, 290
Gaudí, Antoni 394
Gauldie, John, and Partners 37
Gedrych, T. G., and Peer Abben 28
Gentili, Eugenio, and Giulio Minoletti 93
George, Davies and Webb 303
George, Trew and Dunn 366
Gibberd, Frederick 147–148, 200–202
Gill, C., Lovatt and Partners 303
Gluckman, De Beer and Peters 35, 82
Goad, Dereck, and John Hicks 436
Godwin and Hopwood 15, 16
Gollins, Melvin, Ward and Partners 217–218
Gottardi, Mario 272, 291
Grange, Kenneth 436
Greacen and Brogniez 392
Grounds, Romberg and Boyd 332–335
Gruen, Victor 130
Gutierrez, Jorge Romero 390
Halliday and Webster—Design Group Nigeria 16
Halstead, J. G. 12–13
Hardwick, Philip 321, 324
Harrison and Abramovitz 392
Harrison, J. E. K. 16
Hartkopf, Dietrich, and Paul Schneider-Esleben 132
Hartnell, Norman 279, 289
Hattrell, W. S., and Partners 272, 276, 279, 283, 285, 287, 289
Helweg, Ole 255, 275, 281
Hendriksen, Hans 213
Henningsen, Poul 357
Hentrich and Petschnigg 95, 166
Hertzka and Knowles, and SOM 392
Hicks, John, and Dereck Goad 436
Hill, Barbara 52
Hobbis, Charles I. 14
Holden, Charles H. 446–448
Holgate, Kenneth H. 12
Holland, Maurice, and Suzanne W. Tucker 271, 281
Hong Kong Public Works Department 77, 78, 79
Honnold, Douglas, and John Rex 94
Horiguti, Sutemi 255, 276, 287
Hughes, H. Richard 29
Hundertwasser, Fritz 150
Hunt, Norman 33
Huston, Joseph 278, 279
Inglis, McGuinness and Wilkinson 23
Islam, Muzgarul 58
Jackson and Hill 30
Jäger, Otto and Werner Müller 319
James, John 154
Jellicoe, Geoffrey A. 34
Kahn, Louis 134
Kandinsky, Wassily 445
Kanvinde and Rai 58
Katz and Vaughan 260, 278, 282, 283, 284, 286, 302
Keen, E. E., and Partners 69
Kenya Ministry of Works 30
Kidder, Jane 271, 274, 284
Kjaerholm, Poul 356–357
Klatz, Hanns 390
Klimt, Gustav 150
Kling, Vincent J. 130
Knight, Christopher, and Stephen Gardiner 322
Korhonen, Toivo, and Jaakko Laapotti 391
Kraemer, F. W. 178–179
Kurokawa, Noriaki 167
Kwok, Stanley T. 77
Laapotti, Jaakko, and Toivo Korhonen 391
Lacey, W. D. 358
Lafuente, Julio, Aicardo Birago and Gaetano Rebecchini 317
Lagneau, Weill and Dimitrijevic 253, 283, 292
Laird, Colin 48
Lane, William 435
Lapidus, Cornblath and Harle 293
Larsen and Associates 80
Lasdun, Denys, and Partners 214–216
Le Corbusier 55–57
Lehey, Norman G. 63
Leigh and Orange 76, 79
Levi, Rino 338–340
Lewis, Anthony C. 46–47, 52
Ling, Arthur 203–204
Lippi, Filippino 150
Luckhardt, Wassili 176–177
Lyell, Michael, Associates 432–433
McInnes, Gardner and Partners and Sir Hugh Casson 365
Mackintosh, C. R. 396
McMorris and Sibley 52
Mackmurdo, Arthur H. 429–431
Maguire, Robert 400–405
Manasseh, Leonard, and Partners 347–353, 417–419

index

PAGE

Laboratory, Liverpool University, Chadwick Physics. *Architects:* Basil Spence and Partners. Exterior, interior views and plan 370–371
Leeds, Church of Our Lady of Lourdes. *Architects:* Walker and Biggin. Interior views
Lettering, Watney's (Hats Off). Illustrated note 376–377
Library, London, Pimlico, Churchill Gardens, Children's. *Architects:* Powell and Moya. Interior, exterior views and plan 211–212
Light Fittings (The Industry). Illustrated note 382
Light Fittings, Recessed (The Industry). Illustrated note 232
Lighthouse, Dungeness (Functional Tradition). *Illustrated note by* C. Forehoe 225
Lighting, Street. Illustrated article 155–157
Linear Planning (Cities on the Line). *Illustrated article by* George R. Collins 341–345
Litter-bins on Parade: COID Exhibition (Design Review). Illustrated note 436
Liverpool, Birmingham, Manchester. *Illustrated article by* Ian Nairn 110–117
Liverpool University, Chadwick Physics Laboratory. *Architects:* Basil Spence and Partners. Exterior, interior views and plan 370–371
Locks, New Range of (The Industry). Illustrated note 232
London:
- Bow Common, Church. *Architect:* Robert Maguire. Exterior, interior views and plans 400–405
- Chelsea, Restaurant and Coffee Bar. *Architects:* Conran Design Group. Exterior and interior views 135–137
- Euston, Offices. *Architects:* Michael Lyell Associates. Interior views. 432–433
- Finchley, Parish Hall. *Architect:* Kenneth Wood. Exterior, interior views and plan 372
- Manchester Square, Offices. *Architects:* Gollins, Melvin, Ward and Partners. Exterior views and plan 217–218
- Marylebone Road, Martins Bank, Castrol House. *Architects:* Sir Hugh Casson, Neville Conder and Partners. Interior views 208–210
- Millbank, Offices. *Architects:* Michael Lyell Associates. Interior views 432–433
- Pimlico, Churchill Gardens, Children's Library. *Architects:* Powell and Moya. Exterior, interior views and plan 211–212
- Regent's Park, Housing. *Architects:* Armstrong and MacManus. Exterior views and plan 144–145
- Regent's Park, Proposed Royal College of Physicians. *Architects:* Denys Lasdun and Partners. Models and plans 214–216
- Regent's Park, Zoo Services Buildings. *Architect:* F. A. Stengelhofen. Exterior views and plans 219–220
- St. George's Church, Hanover Square, Dating. *Illustrated note by* John Field 153–154
- St. Marylebone, Rutherford School. *Architects:* Leonard Manasseh and Partners. Exterior, interior views and plans 346–353
- Westminster, Staff Restaurant and Coffee Bar. *Architect:* David Rock. Interior views and plan 434–435

PAGE

Mackmurdo Gleanings. *Illustrated article by* Edward Pond 429–431
Malaya. *Article by* Julius Posener 59–60, 65
Manchester: Liverpool: Birmingham. *Illustrated article by* Ian Nairn 110–117
Materials in the Tropics, New. *Article by* W. H. Ransom 88–92
Melamine Laminate (The Industry). Note 454
Melbourne, Australia, House. *Architects:* Grounds, Romberg and Boyd. Exterior, interior views and plans 332–335
Milan Twelfth Triennale. *Illustrated article by* Kenneth Browne 354–361
Monastery of Sumela, The Forgotten (The Exploring Eye). *Illustrated note by* George Zacos 368–369
Motorway, Road-Style on the. *Illustrated article by* Raymond Spurrier 406–419
Munich, Provincial Supply Offices. *Architect:* Wassili Luckhardt. Exterior views and plan 176–177

New Town Village, The. *Illustrated article by* Noel Tweddell 195–205

Offices:
- Bournemouth, for Max Factor and Company. *Architects:* Farmer and Dark. Exterior, interior views and plans 220–221
- London, Euston. *Architects:* Michael Lyell Associates. Interior views. 432–433
- London, Manchester Square. *Architects:* Gollins, Melvin, Ward and Partners. Exterior views and plan 217–218
- London, Millbank. *Architects:* Michael Lyell Associates. Interior views 432–433
- Munich, Provincial Supply. *Architects:* Wassili Luckhardt. Exterior views and plan 176–177
- Runcorn, Cheshire, for ICI Ltd. *Architect:* Frederick Gibberd. Exterior views and plan 147–148

Oxford, Dining-Room for Lincoln College. *Architects:* Architects' Co-Partnership. Interior view 435
Oxford, Undergraduate Rooms, St. John's College. *Architects:* Architects' Co-Partnership. Exterior, interior views and plans 104–109

Palace, Persian Gulf. *Architects:* Farmer and Dark. Exterior, interior views and plans 424–428
Parish Hall, London, Finchley. *Architect:* Kenneth Wood. Exterior, interior views and plans 372
Parking Terminals. *Illustrated article by* Michael Brawne 124–134
Partitions, Office (The Industry). Illustrated note 230
Persian Gulf, Palace on the. *Architects:* Farmer and Dark. Exterior, interior views and plans 424–428
Plants, A Vocabulary of. *Illustrated article by* Patience Gray 141–143, 226, 375–376
Plastics, Reinforced (The Industry). Note 310
Polythene Waste Traps (The Industry). Illustrated note 456
Porvoo, Finland, House near. *Architect:* Bertel Saarnio. Exterior, interior views and plans 336–337
PVC in Floors, Windows and Handrails (The Industry). Note 158

Refrigerator (The Industry). Illustrated note 158
Restaurant, London, Chelsea. *Architects:* Conran Design Group. Exterior and interior views 135–137

PAGE

Restaurant, London, Westminster, Staff. *Architect:* David Rock. Interior views and plan 434–435
Rhodesias, The. *Article by* R. K. Rutherford 31–32
Road-Style on the Motorway. *Illustrated article by* Raymond Spurrier 406–419
Rooflight, The Plylite (The Industry). Illustrated note 456
Royal College of Physicians, London, Regent's Park, Proposed. *Architects:* Denys Lasdun and Partners. Models and plans 214–216
Runcorn, Cheshire, Offices for ICI Ltd. *Architect:* Frederick Gibberd. Exterior views and plan 147–148

St. George's, Hanover Square, Dating. *Illustrated note by* John Field 153–154
São Paulo, Brazil, House. *Architect:* Rino Levi. Exterior, interior views and plans 338–340
School, Dundee, Secondary. *Architect:* Robert Dron (City Architect). Exterior, interior views and plans 442
School, London, St. Marylebone, Rutherford. *Architects:* Leonard Manasseh and Partners. Exterior, interior views and plans 346–353
Service Area on the M1, A Model. *Architects:* Leonard Manasseh and Partners. Drawings and plans 417–419
Service Area Problem on the Motorway, The. *Illustrated article by* Raymond Spurrier 410–419
Shand, P. Morton. *Article by* John Betjeman 325–328
Sheffield, Alfred Stevens at. *Illustrated article by* Richard Seddon 206–207
Ship Interiors 362–367
Singapore. *Article by* Lincoln Page 65–66
Steel Construction, Useful Brochure on (The Industry). Note 312
Steel Decking Flooring System (The Industry). Illustrated note 162
Steel Tiles, Sheet: Industrial Floor Coverings (The Industry). Illustrated note 158
Stevens at Sheffield, Alfred. *Illustrated article by* Richard Seddon 206–207
Stone, Reconstructed (The Industry). Note 158
Street Lighting. Illustrated article 155–157
Sumela, The Forgotten Monastery of (The Exploring Eye). *Illustrated note by* George Zacos 368–369
Sun Control (The Industry). Illustrated note 310

Technical Data Sheets (The Industry). Note 234
Telephone Exchange, Altrincham, Cheshire. *Architect:* Ministry of Works. Exterior view and plan 372
Town Planning: Fix. *Illustrated article by* Alison and Peter Smithson 437–439
Townscape:
- Burslem Improved. Illustrated note 448-450
- Restoring the Royal Mile, Edinburgh. Illustrated note 151–153
- Traffic Plan, The: Enemy or Ally? *Illustrated article by* Kenneth Browne 190–194

Tropical Design, The Principles of. *Illustrated article by* G. A. Atkinson 81–83
Tropics, Air Conditioning in the. *Article by* Richard Harrison 84–86
Tropics, Design of Concrete in the. *Article by* Tom Ridley 86–88
Tropics, New Materials in the. *Article by* W. H. Ransom 88–92

VOLUME ONE HUNDRED AND TWENTY-EIGHT JULY-DECEMBER 1960

ARTICLES AND ILLUSTRATIONS

PAGE

Acoustics, Information on (The Industry). Note 310
Acoustics Materials Handbook (The Industry). Note 382
Air Conditioning in the Tropics. *Article by* Richard Harrison 84–86
Altnagevin, Londonderry, Northern Ireland, Hospital. *Architects:* Yorke, Rosenberg and Mardall. Exterior, interior views and plans 440–441
Altrincham, Cheshire, Telephone Exchange. *Architect:* Ministry of Works. Exterior view and plan 372
Aluminium Information (The Industry). Note 454
Aluminium Wall Cladding (The Industry). Illustrated note 158
America: Be Thyself. Some Thoughts on a Journey Across the United States. *Article by* Ian Nairn 397–399

Bank, London, Marylebone Road, Castrol House, Martins. *Architects:* Sir Hugh Casson, Neville Conder and Partners. Interior views 208–210
Basildon New Town:
- Factories, Terraced. *Architects:* J. M. Austin-Smith and Partners. Exterior views and plans 443
- Factory for Ilford Ltd. *Architect:* Anthony B. Davies (Chief Architect-Planner, Basildon Development Corporation). Exterior, interior views, model and plans 118–123
- Housing. *Architect-Planner:* Anthony B. Davies. Exterior views and plans 197–199

Be Thyself: Some Thoughts on a Journey Across the United States. *Article by* Ian Nairn 397–399
Birmingham: Liverpool: Manchester. *Illustrated article by* Ian Nairn 110–117
Bituminous Waterproofing Handbook (The Industry). Note 234
Boiler, Induced Draught (The Industry). Illustrated note 230
Boiler for Indifferent Chimneys, Oil Fired (The Industry). Illustrated note 384
Boiler, Small Oil Fired (The Industry). Illustrated note 160

Book Reviews

- Baker, John and Alfred Lammer. English Stained Glass 323
- Banham, Reyner. Theory and Design in the First Machine Age. *Reviewed by* Philip Johnson 173–175
- Betjeman, John (Editor), Collins' Guide to English Parish Churches. *Reviewed by* Ian Nairn 323
- Blakeston, Oswell. Thank You Now: An Exploration of Ulster. *Reviewed by* Bryan Guinness 395
- Cook, Olive, and Edwin Smith. English Abbeys and Priories 239
- Davis, Terence. The Architecture of John Nash 323
- Gray, Nicolete. Lettering on Buildings. *Reviewed by* Michael Middleton 171
- Rasmussen, Steen Eiler. Experiencing Architecture. *Reviewed by* Clough Williams-Ellis 171
- Hartt, Frederick. Giulio Romano. *Reviewed by* Marcus Whiffen 171
- Kaye, Barrington. The Development of the Architectural Profession in Britain. *Reviewed by* Cleeve Barr 395
- Lister, Raymond. Decorative Cast Ironwork in Great Britain 323
- Ozinga, M. D. De Monumenten van Curacao in Woord en Beeld. *Reviewed by* N. Pevsner 323
- Pevsner, Nikolaus. Buildings of England: Yorkshire West Riding, Leicestershire and Rutland, Buckinghamshire. *Reviewed by* Ian Nairn 323
- Wright, Frank Lloyd. Drawings for a Living Architecture. *Reviewed by* Fello Atkinson 99
- Wright, Frank Lloyd. A Testament. *Reviewed by* Fello Atkinson 99
- Wright, Lawrence. Clean and Decent. *Reviewed by* Peter Clarke 99
- Zador, Anna. Pollack Mihaly. *Reviewed by* N. Pevsner 323

Books Reviewed

- Architecture of John Nash, The. *By* Terence Davis 323
- Buildings of England: Yorkshire West Riding, Leicestershire and Rutland, Buckinghamshire. *By* Nikolaus Pevsner 323
- Clean and Decent. *By* Lawrence Wright 99
- Collins' Guide to English Parish Churches. *Edited by* John Betjeman 323
- Decorative Cast Ironwork in Great Britain. *By* Raymond Lister 323
- Development of the Architectural Profession in Britain, The. *By* Barrington Kaye 395
- Drawings for a Living Architecture. *By* Frank Lloyd Wright 99
- English Abbeys and Priories. *By* Olive Cook and Edwin Smith 239
- English Stained Glass. *By* John Baker and Alfred Lammer 323
- Experiencing Architecture. *By* Steen Eiler Rasmussen 171
- Gardella 2
- Giulio Romano. *By* Frederick Hartt 171
- Lettering on Buildings. *By* Nicolete Gray 171
- Monumenten van Curacao in Woord en Beeld, De. *By* M. D. Ozinga 323
- Pollack Mihaly. *By* Anna Zador 323
- Testament, A. *By* Frank Lloyd Wright 99
- Thank You Now: An Exploration of Ulster. *By* Oswell Blakeston 395
- Theory and Design in the First Machine Age. *By* Reyner Banham 173–175

Bournemouth, Offices for Max Factor and Company. *Architects:* Farmer and Dark. Exterior, interior views and plans 220–221
Brunei, Sarawak and North Borneo. *Article by* Peter Morley 66

PAGE

Burslem Improved (Townscape). Illustrated note 448–450
Business College, Heidelberg. *Architect:* F. W. Kraemer. Exterior views and plans 178–179

Caribbean, The. *Article by* Wilfrid Woodhouse 41–42
Carpet Ordering, Choice in (The Industry). Note 310
Cast-Iron Work, Ornamental (Alfred Stevens at Sheffield). *Illustrated article by* Richard Seddon 206–207
Catering Equipment (The Industry). Illustrated note 312
Ceiling, Fireproof Suspended (The Industry). Illustrated note 388
Ceiling Panel, Thermal/Acoustic (The Industry). Illustrated note 456
Ceiling Panels (The Industry). Illustrated note 312
Churches:
- Hatfield. *Architects:* Lionel Brett, Kenneth Boyd and Peter Bosanquet. Exterior, interior views and plan 146
- Leeds, Our Lady of Lourdes. *Architects:* Walker and Biggin. Interior views 137–139
- London, Bow Common. *Architect:* Robert Maguire. Exterior, interior views and plans 400–405
- London, Hanover Square, St. George's. *Illustrated note by* John Field 153–154

Cities on the Line (Linear Planning). *Illustrated article by* George R. Collins 341–345
Cladding, Aluminium Wall (The Industry). Illustrated note 158
Climatology and Architecture. *Illustrated article by* Thomas Markus 452–454
Clocks, Slave (The Industry). Illustrated note 384
Coffee Bar and Restaurant, London, Westminster, Staff. *Architect:* David Rock. Interior views and plan 434–435
Coffee Bar, London, Chelsea. *Architects:* Conran Design Group. Exterior and interior views 135–137
Colleges:
- Heidelberg, Business. *Architect:* F. W. Kraemer. Exterior views and plans 178–179
- London, Regent's Park, of Physicians. *Architects:* Denys Lasdun and Partners. Models and plans 214–216
- Oxford, Dining-Room for Lincoln. *Architects:* Architects' Co-Partnership. Interior view 435

Commonwealth, 2. Special Issue 4–92
Concrete Blocks, Exposed Aggregate (The Industry). Illustrated note 160
Concrete in the Tropics, Design of. *Article by* Tom Ridley 86–88
Correspondence:
- Duff, Sir James (Durham Endangered) 169
- Entwisle, E. A. (No Trees in Manchester) 322
- Halse, Herbert (1960 Series) 170
- Harris, John (The Greenwich Layout) 98

PAGE

Holtom, Gerald (Dungeness Lighthouse) 322
Ling, Arthur (Coventry Housing) 323
Lort-Phillips, David (Milford Haven) 98
MacInnes, Jean (Green Belts) 2
Micklewright, F. H. Amphlett (Green Belts) 170
Pevsner, Nikolaus (Classical and Baroque) 239
Sinclair, W. Braxton (The Greenwich Layout) 394
Counter-Attack: Charlotte Square, Edinburgh. *Illustrated note by* Andor Gomme 154
Counter-Attack: West Cumberland. *Illustrated note by* Andor Gomme 377–378, 450–451
Coventry, Housing at Willenhall Wood. *Architect:* Arthur Ling. Exterior views and plan 203–204
Covers:
July: Map showing the Commonwealth Countries of the Torrid Zone
August: Drawing of a Heracleum or Giant Parsnip in the Grounds of a Modern House
September: Dungeness Lighthouse
October: Hotel Interiors, *drawing by* Kenneth Browne
November: Model View of the Roof Pattern of the Palazzo del Lavoro, Turin, by Nervi
December: Lettering, *designed by* Philip Thompson
Cuernavaca, Mexico, House. *Architect:* Arnold Wasson Tucker. Exterior, interior views and plans 329–331

Design Review:
Architects as Wallpaper Designers. Illustrated note 140
Glass as a Substantial Material. Illustrated note 213
Litter-bins on Parade (COID Exhibition). Illustrated note 436
Dining-Room, Oxford, for Lincoln College. *Architects:* Architects' Co-Partnership. Interior view 435
Door Gear, New Overhead (The Industry). Illustrated note 386
Double and Multiple Glazing (The Industry). Note 230
Dundee, Secondary School. *Architect:* Robert Dron (City Architect). Exterior, interior views and plans 442
Dungeness Lighthouse (Functional Tradition). *Illustrated note by* C. Forehoe 225

East Africa. *Article by* Richard Hughes 21–22
Edinburgh, Charlotte Square (Counter-Attack). *Illustrated note by* Andor Gomme 154
Edinburgh: Restoring the Royal Mile (Townscape). Illustrated note 151–153
Electric Circuit Breakers (The Industry). Illustrated note 234
Exhibitions. *Illustrated note by* Robert Melville 149, 222, 373, 444
Exploring Eye, The: Forgotten Monastery of Sumela, The. *Illustrated note by* George Zacos 368–369
Exploring Eye, The: La Valle dei Trulli. Illustrated note 420–423

Factories, Basildon New Town, Terraced. *Architects:* J. M. Austin-Smith and Partners. Exterior view and plans 443
Factory, Basildon New Town, for Ilford Ltd. *Architect:* Anthony B. Davies (Chief Architect-Planner, Basildon Development Corporation). Exterior, interior views, model and plans 118–123

PAGE

Farm Buildings. *Illustrated article by* John Voelcker 180–189
Fiji. *Article by* G. A. Atkinson 74
Fix. *Illustrated article by* Alison and Peter Smithson 437–439
Flats, London, Regent's Park. *Architects:* Armstrong and MacManus. Exterior views and plan 144–145
Floor Coverings, Industrial (The Industry). Illustrated note 158
Floor Warming, Handbook on (The Industry). Note 460
Flooring, Hardwood. *Illustrated article by* G. C. A. Tanner 227–230, 379–382
Flooring System, Steel Decking (The Industry). Illustrated note 162
Functional Tradition: Dungeness Lighthouse. *Illustrated note by* C. Forehoe 225

Garages, Multi-storey (Parking Terminals). *Illustrated article by* Michael Brawne 124–134
Gas Handbook (The Industry). Note 458
Glass as a Substantial Material (Design Review). Illustrated note 213
Glass Doors (The Industry). Note 384
Glazed Roof Ventilator (The Industry). Illustrated note 454

Hall, London, Finchley, Parish. *Architect:* Kenneth Wood. Exterior, interior views and plan 372
Hardwood Flooring. *Illustrated article by* G. C. A. Tanner 227–230, 379–382
Harlow New Town, Housing. *Architect-Planner:* Frederick Gibberd. Exterior views and plans 200–202
Hatfield, Church. *Architects:* Lionel Brett, Kenneth Boyd and Peter Bosanquet. Exterior, interior views and plan 146
Hats Off: Watney's Lettering. Illustrated note 376–377
Heidelberg, Business College. *Architect:* F. W. Kraemer. Exterior views and plans 178–179
Historicism. *Article by* Peter Collins 101–103
History: Dating St. George's, Hanover Square. *Illustrated note by* John Field 153–154
Holden, C. H. 1874–1960. *Illustrated note by* N. Pevsner 446–448
Hong Kong. *Article by* Eric Cumine 73–74
Hotels. Special Issue 240–316
Houses:
Cuernavaca, Mexico. *Architect:* Arnold Wasson Tucker. Exterior, interior views and plans 329–331
Melbourne, Australia. *Architects:* Grounds, Romberg and Boyd. Exterior, interior views and plans 332–335
Porvoo, Finland. *Architect:* Bertel Saarnio. Exterior, interior views and plans 336–337
São Paulo, Brazil. *Architect:* Rino Levi. Exterior, interior views and plans 338–340
Housing:
Basildon New Town. *Architect-Planner:* Anthony B. Davies. Exterior views and plans 197–199
Harlow New Town. *Architect-Planner:* Frederick Gibberd. Exterior views and plans 200–202
London, Regent's Park. *Architects:* Armstrong and MacManus. Exterior views and plan 144–145

India, Pakistan and Ceylon. *Article by* O. H. Koenigsberger 53–54
Industry, The:
Acoustics, Information on. Note 310
Acoustics Materials Handbook. Note 382
Aluminium Information. Note 454

PAGE

Aluminium Wall Cladding. Illustrated note 158
Bituminous Waterproofing Handbook. Note 234
Boiler, Induced Draught. Illustrated note 230
Boiler, Small Oil-Fired. Illustrated note 160
Carpet Ordering, Choice in. Note 310
Catering Equipment. Illustrated note 312
Ceiling, Fireproof Suspended. Illustrated note 388
Ceiling Panels. Illustrated note 312
Clocks, Slave. Illustrated note 384
Concrete Blocks, Exposed Aggregate. Illustrated note 160
Double and Multiple Glazing. Note 230
Electric Circuit Breakers. Illustrated note 234
Floor Warming, Handbook on. Note 460
Gas Handbook. Note 458
Glass Doors. Illustrated note 384
Glazed Roof Ventilator. Illustrated note 454
Industrial Floor Coverings. Illustrated note 158
Light Fittings. Illustrated note 382
Light Fittings, Recessed. Illustrated note 232
Locks, New Range of. Illustrated note 232
Melamine Laminate. Note 454
Office Partitions. Illustrated note 230
Oil Fired Boiler for Indifferent Chimneys. Illustrated note 384
Overhead Door Gear for Garages. Illustrated note 386
Plastics, Reinforced. Note 310
Polythene Waste Traps. Illustrated note 456
PVC in Floors, Windows and Handrails. Note 158
Reconstructed Stone. Note 158
Refrigerator. Illustrated note 158
Rooflight, The Plylite. Illustrated note 456
Steel Construction, Useful Brochure on. Note 312
Steel Decking. Illustrated note 162
Sun Control. Illustrated note 310
Technical Data Sheets. Note 234
Thermal/Acoustic Ceiling Panel. Illustrated note 456
Wallcovering, New. Illustrated note 386
Wall Fabric. Note 310
Windows, Sashless. Illustrated note 230
Interior Design:
Leeds, Church of Our Lady of Lourdes. *Architects:* Walker and Biggin. Interior views 137–139
London, Chelsea, Restaurant and Coffee Bar. *Architects:* Conran Design Group. Exterior and interior views 135–137
London, Euston, Offices. *Architects:* Michael Lyell and Associates. Interior views 432–433
London, Marylebone Road, Bank in Castrol House. *Architects:* Sir Hugh Casson, Neville Conder and Partners. Interior views 208–210
London, Millbank, Offices. *Architects:* Michael Lyell and Associates. Interior views 432–433
London, Pimlico, Churchill Gardens, Children's Library. *Architects:* Powell and Moya. Exterior, interior views and plan 211–212
London, Westminster, Staff Restaurant and Coffee Bar. *Architect:* David Rock. Interior views and plan 434–435
Passenger Ship, The: Backward or Forward? 362–367