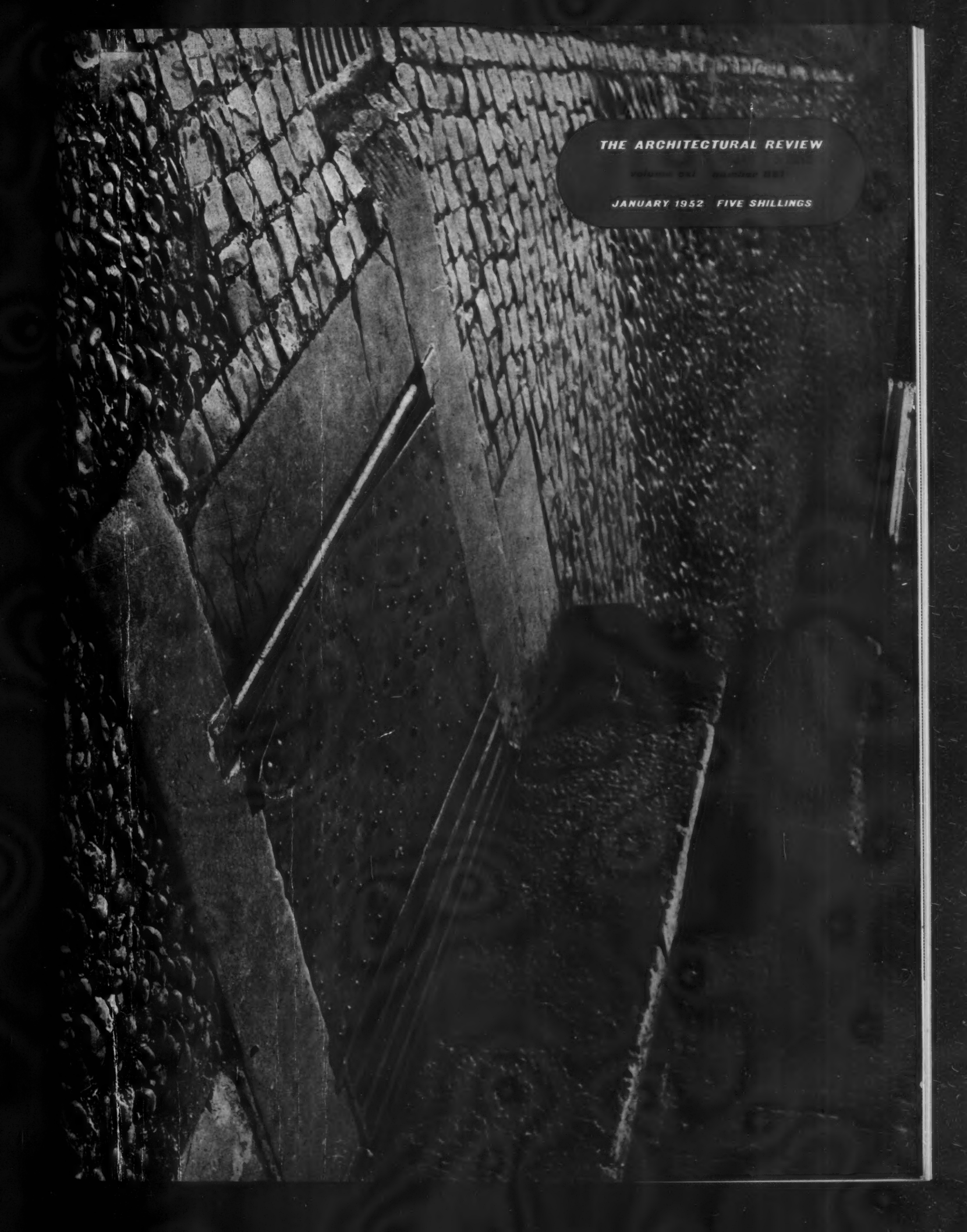


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VOLUME 251 NUMBER 1

JANUARY 1952 FIVE SHILLINGS



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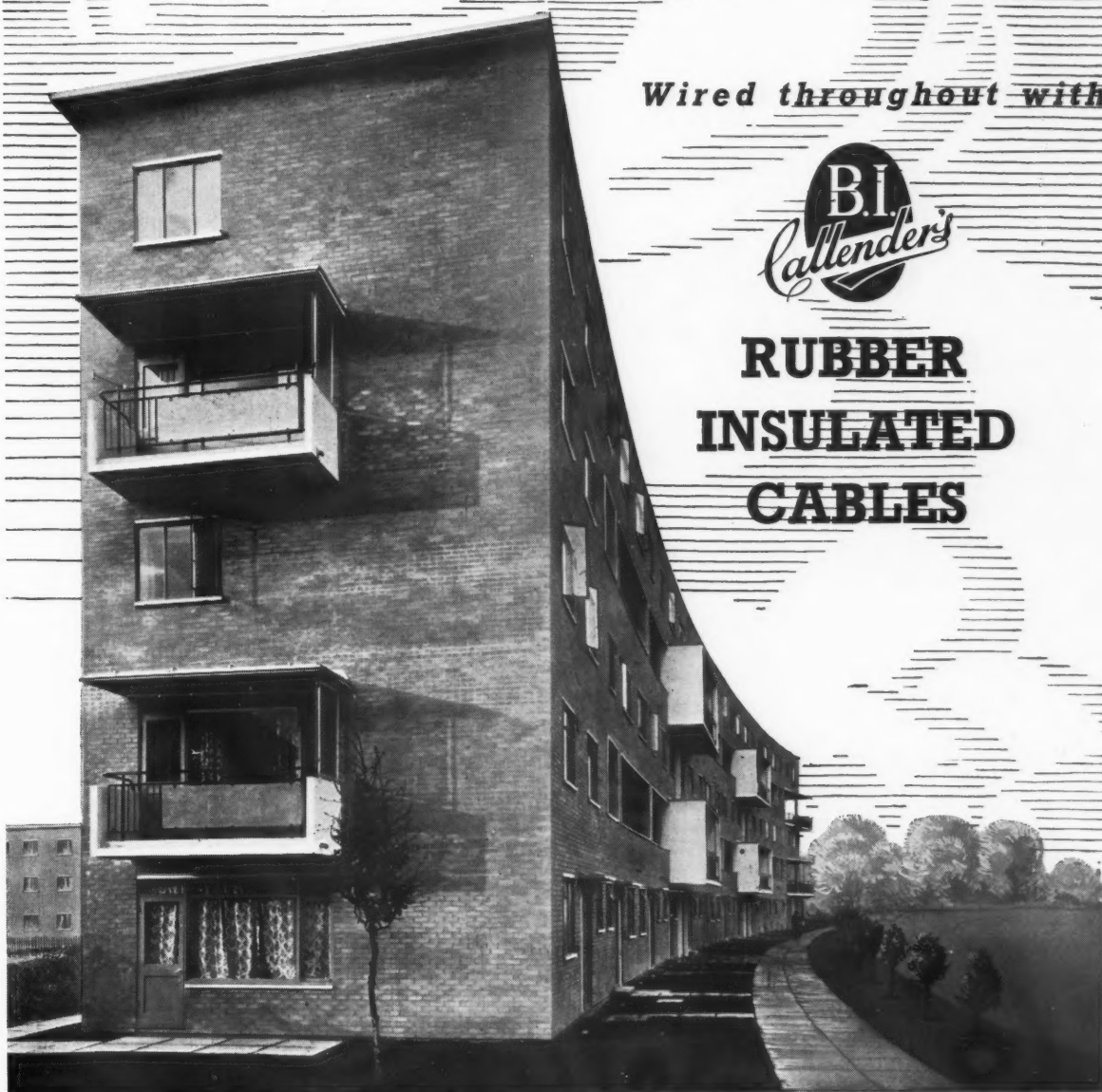
Designed for the Lewisham Borough Council by Messrs. Fry, Drew & Partners, this modern housing estate consists of 101 flats in four blocks constructed in the unusual box frame method.

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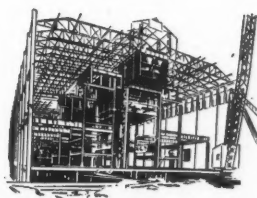
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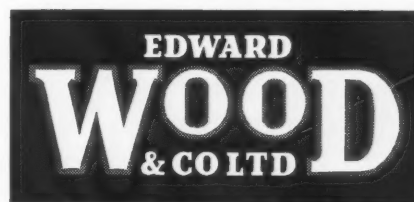
CHELIDON URBICA. Under the eaves or beams of a building the house martin builds a symmetrical nest, collecting clay and flying ceaselessly to and from the 'site' working a fifteen to eighteen hour day. The interior is carefully lined with soft hay and feathers.

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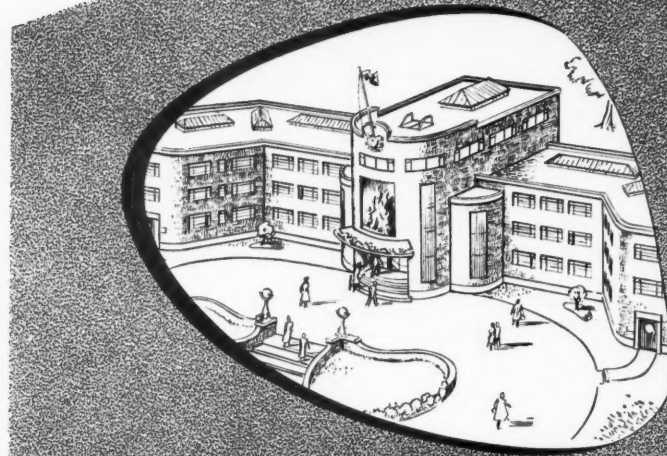
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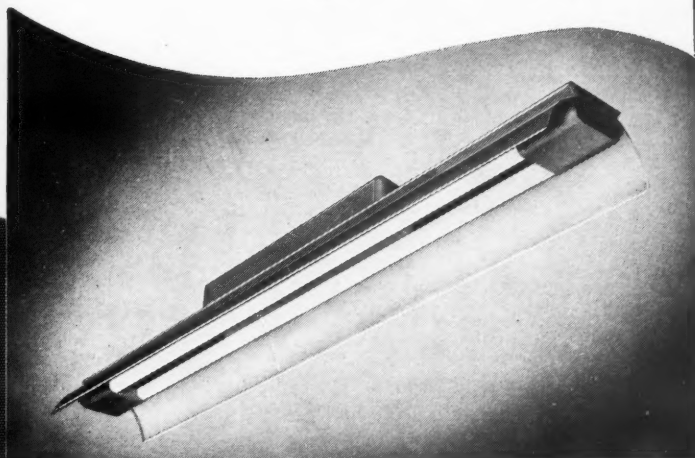


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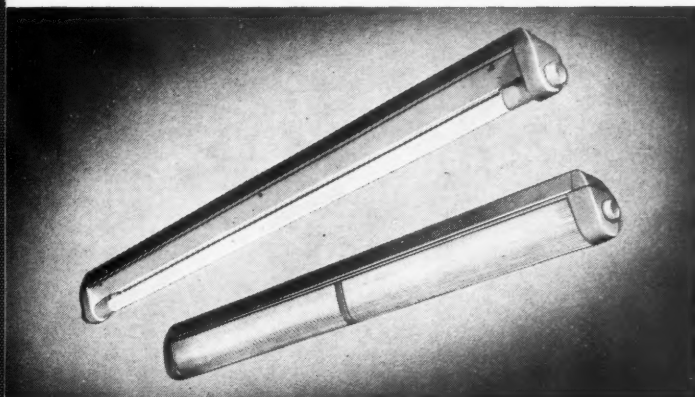
from whom may be obtained technical literature and the name of the nearest supplier

Lighting WITH A PURPOSE



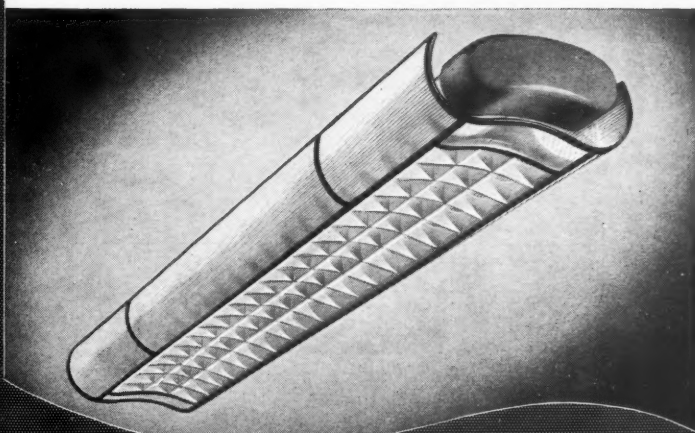
FE/2081

This ATLAS fitting throws a better light on many industrial problems. And it's able to "stick at it" because of the 'Miracoat' finish that defies corrosive atmospheres. It has two 80 watt tubes.



FB/0081

A cheery fellow this. In its working dress, it is a simple 5ft. 80 watt batten light, throwing out direct and reflected illumination in factories and offices. But clothe it in its diffuser and you have a unit which fits happily into many surroundings.



GN/2040

No photograph does justice to ATLAS fitting GN/2040, in its decorative diffuser. The downward light from the louvres, the soft glow through the side panels make it a fountain of light that cannot be captured in black and white. It carries two 4ft. 40 watt tubes.

Choosing fluorescent lighting fittings can be quite a headache—especially if you belong to that body of distinguished architects sometimes referred to (by the irreverent younger generation) as the "old school". May we, therefore, suggest that you add the ATLAS catalogue to your reference library? It contains many new answers to old lighting problems.

It's surprising how many architects make a regular habit of discussing their lighting projects with our lighting advisory experts.

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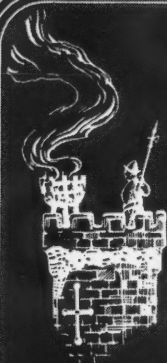
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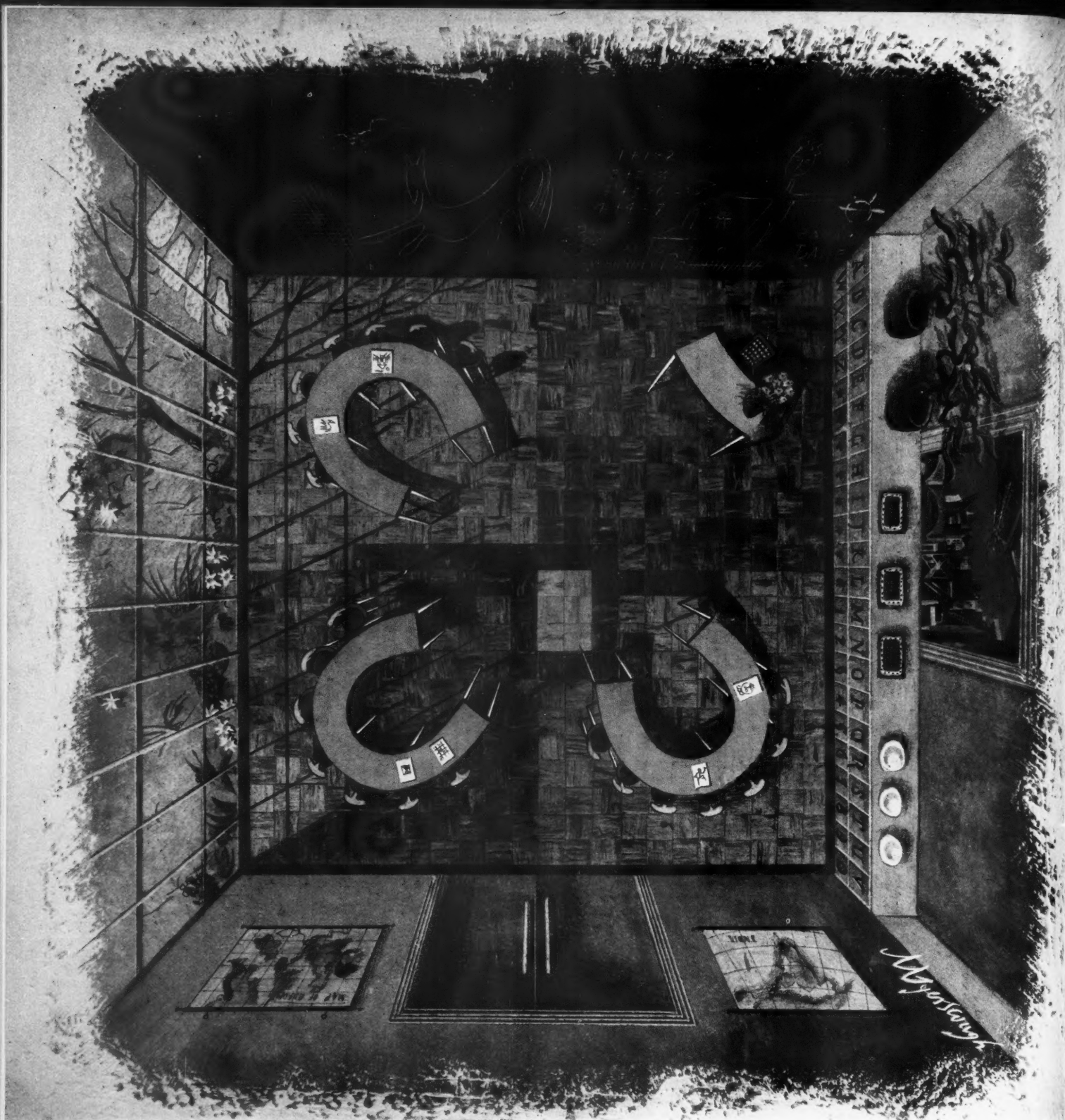
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The illustration shows the Ground Floor Entrance Hall. The wall linings are of marble, the main ground in Cream Travertine, filled and polished, the skirting and capping band in Ashburton. The paving is in 12" Cream Terrazzo tiles with borders in dark green. Similar Terrazzo tiles are used for all the main stair halls throughout the building. Terrazzo was also employed as step casing and dado, and for paving, walls, and precast partitions in lavatories on all floors.

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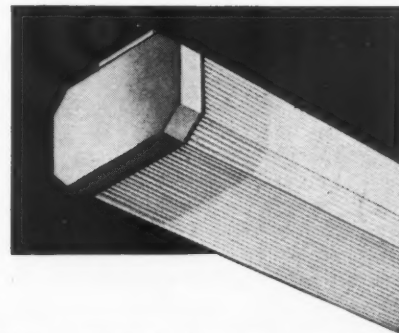


— when I mentioned light he jumped down my throat. ‘What do you want with more light,’ he said, ‘when there are no cars to sell?’ But things sink in slowly with old Hopkins. A month later a knowledgeable Johnnie from Crompton Parkinson came here and measured up the whole place. Hence this 1952 model lighting that makes a pre-war motor gleam like one just out of covenant. Amazing thing is that it takes no more juice than the old lighting.”

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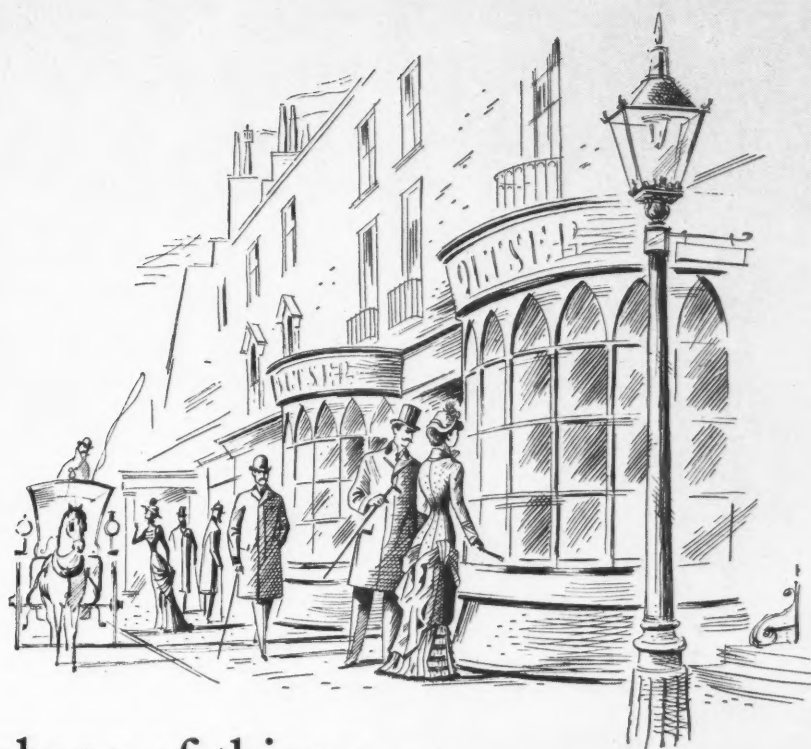
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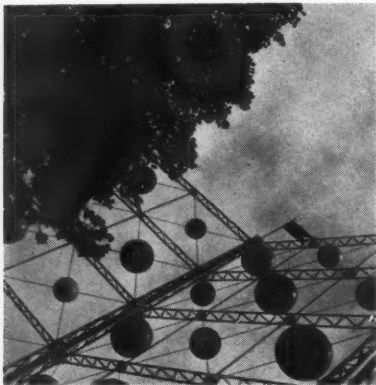
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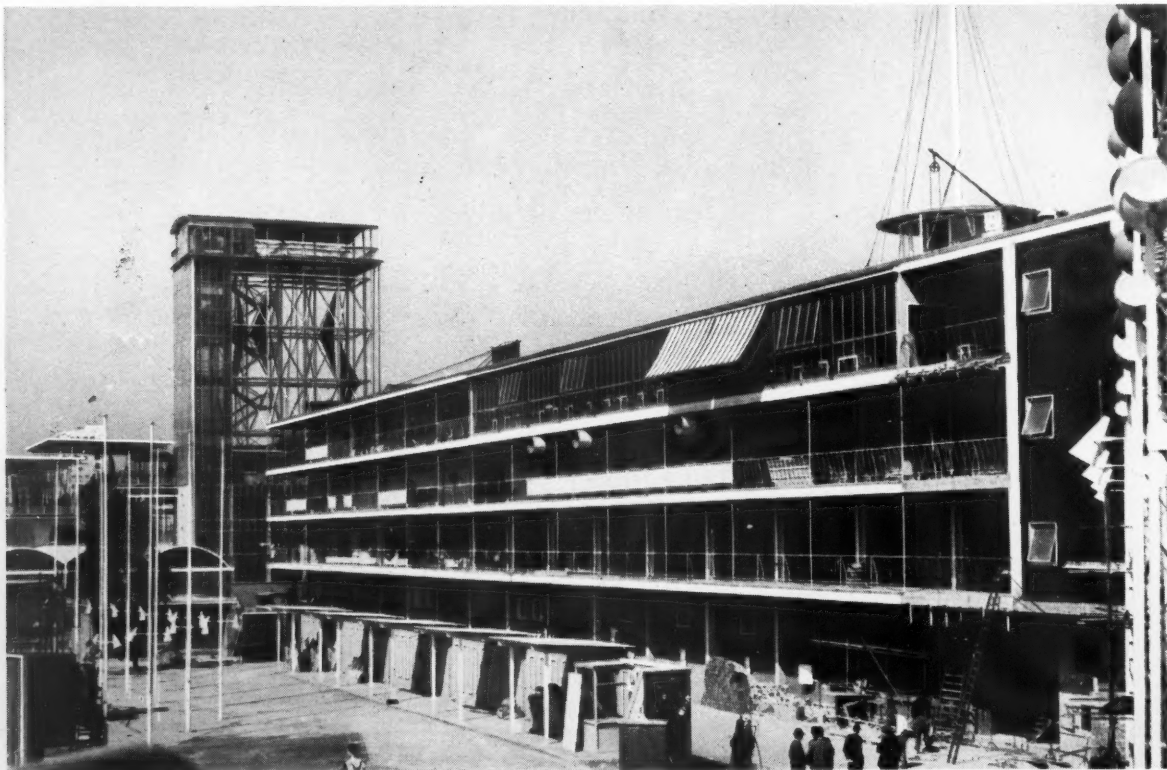


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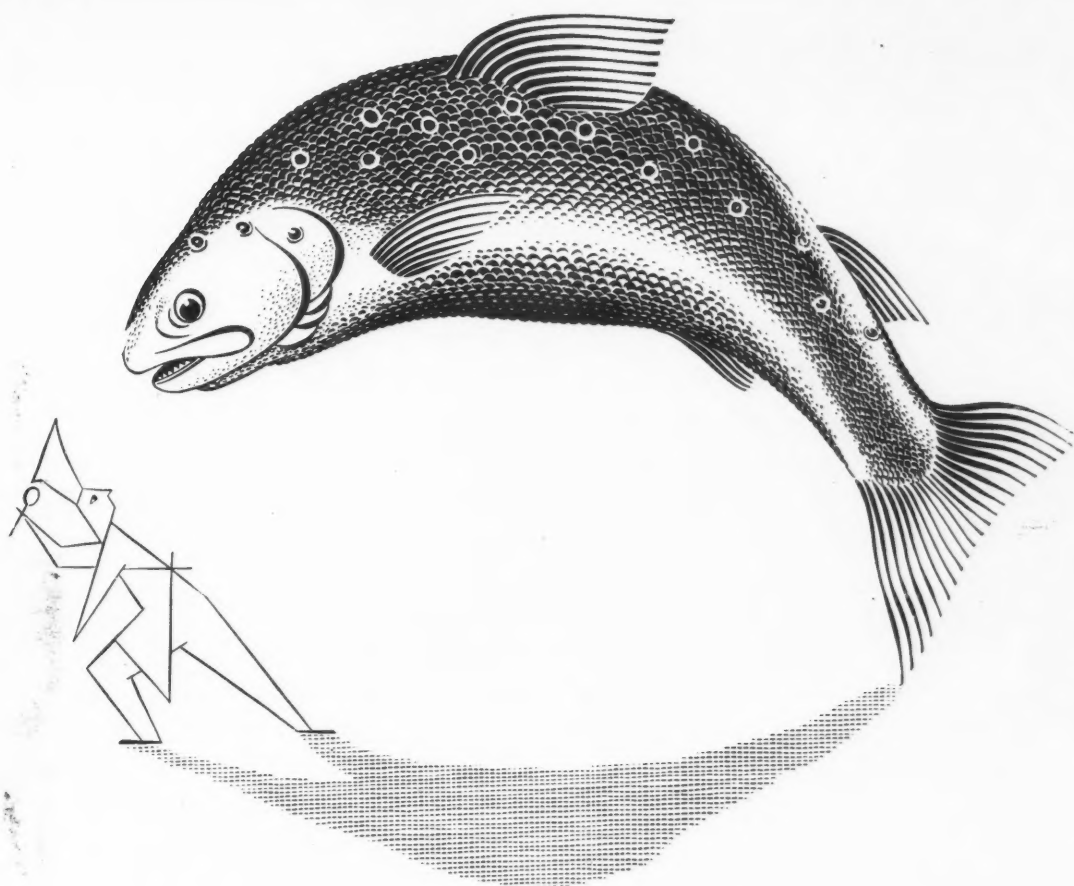
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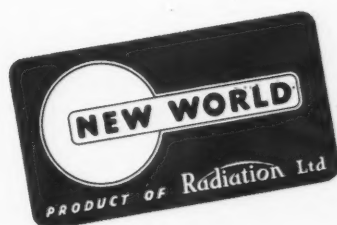


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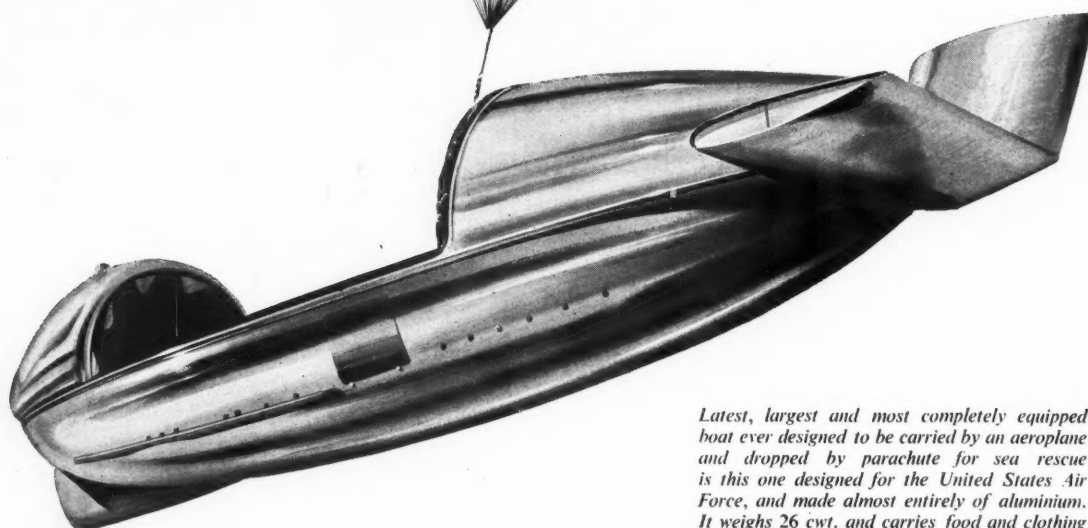
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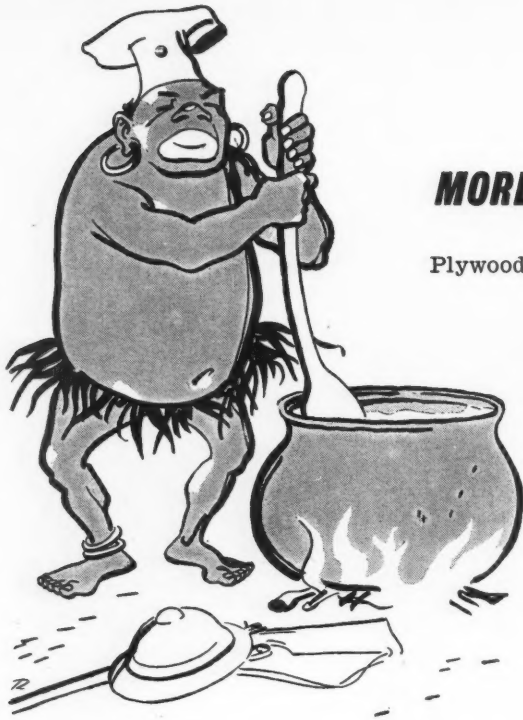
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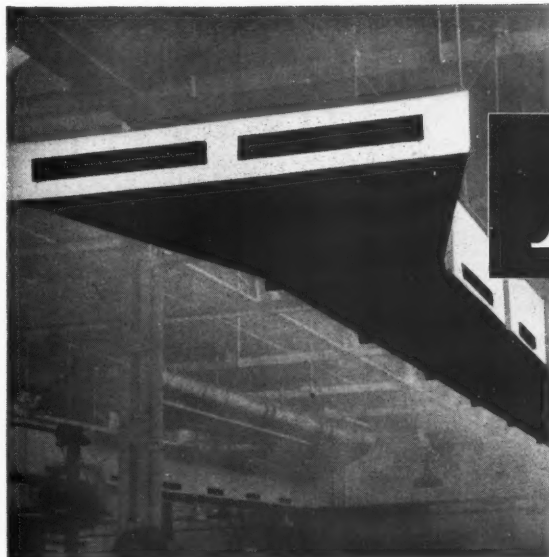
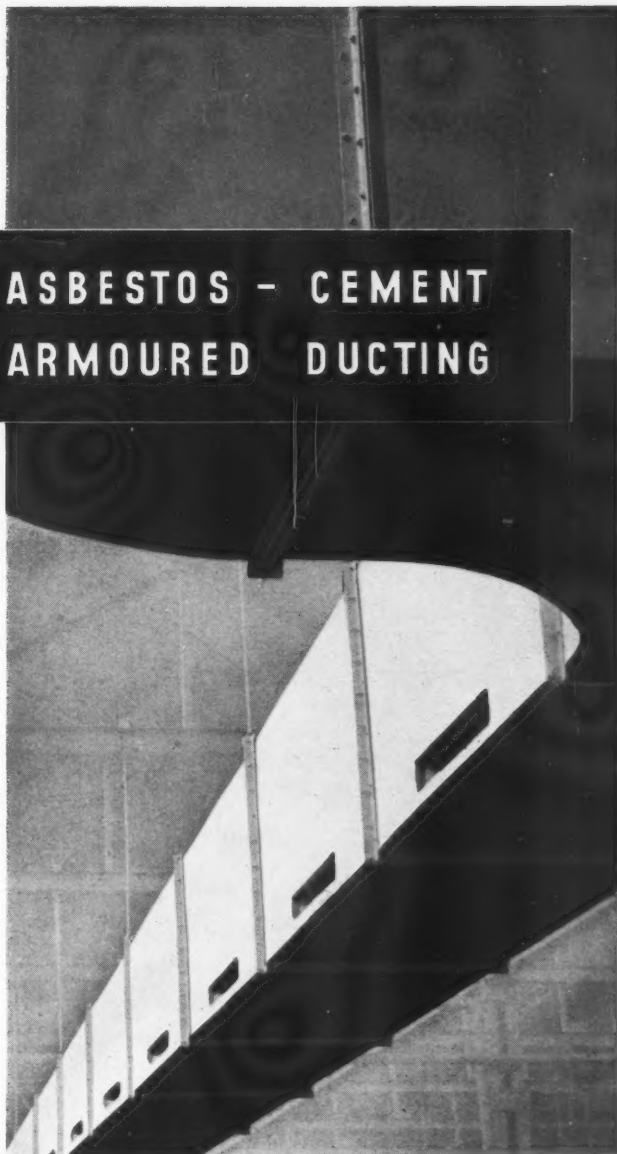
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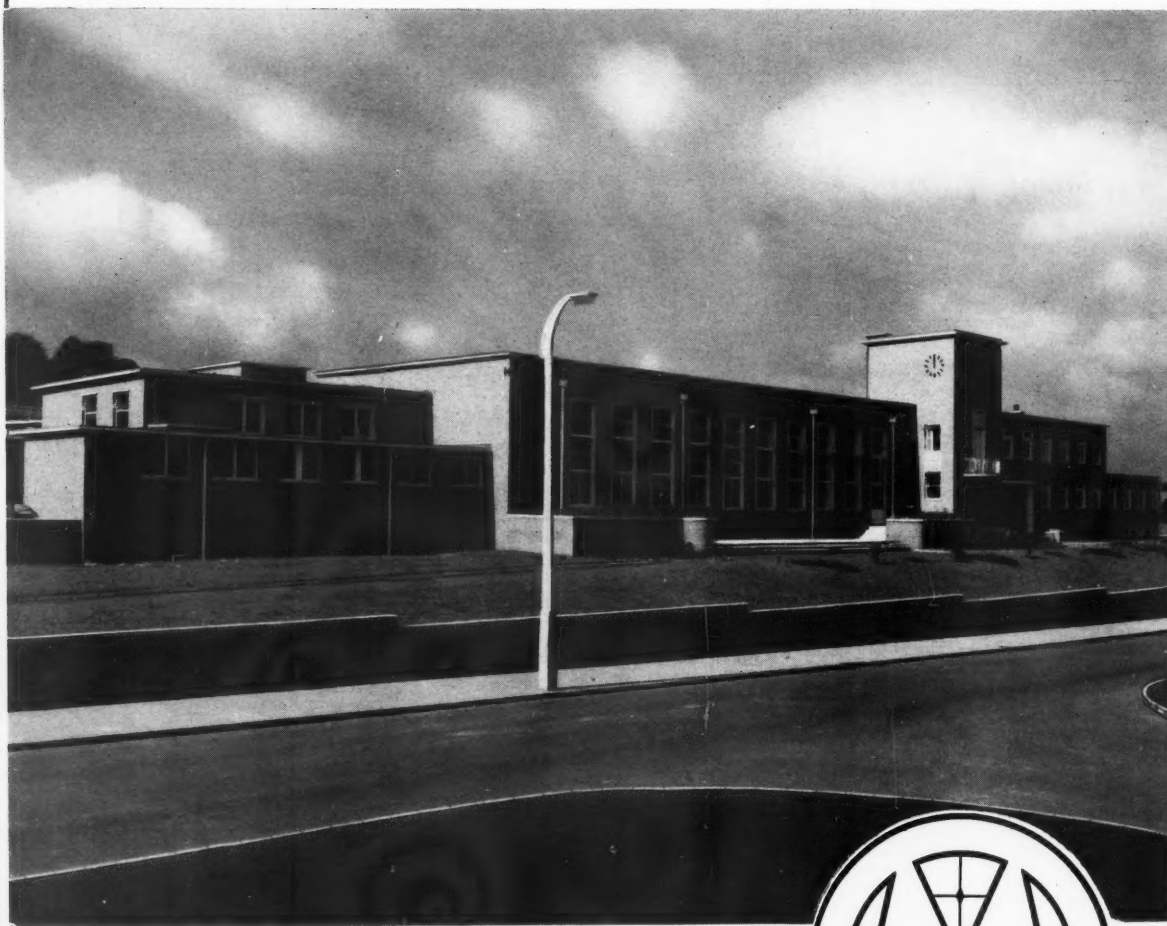
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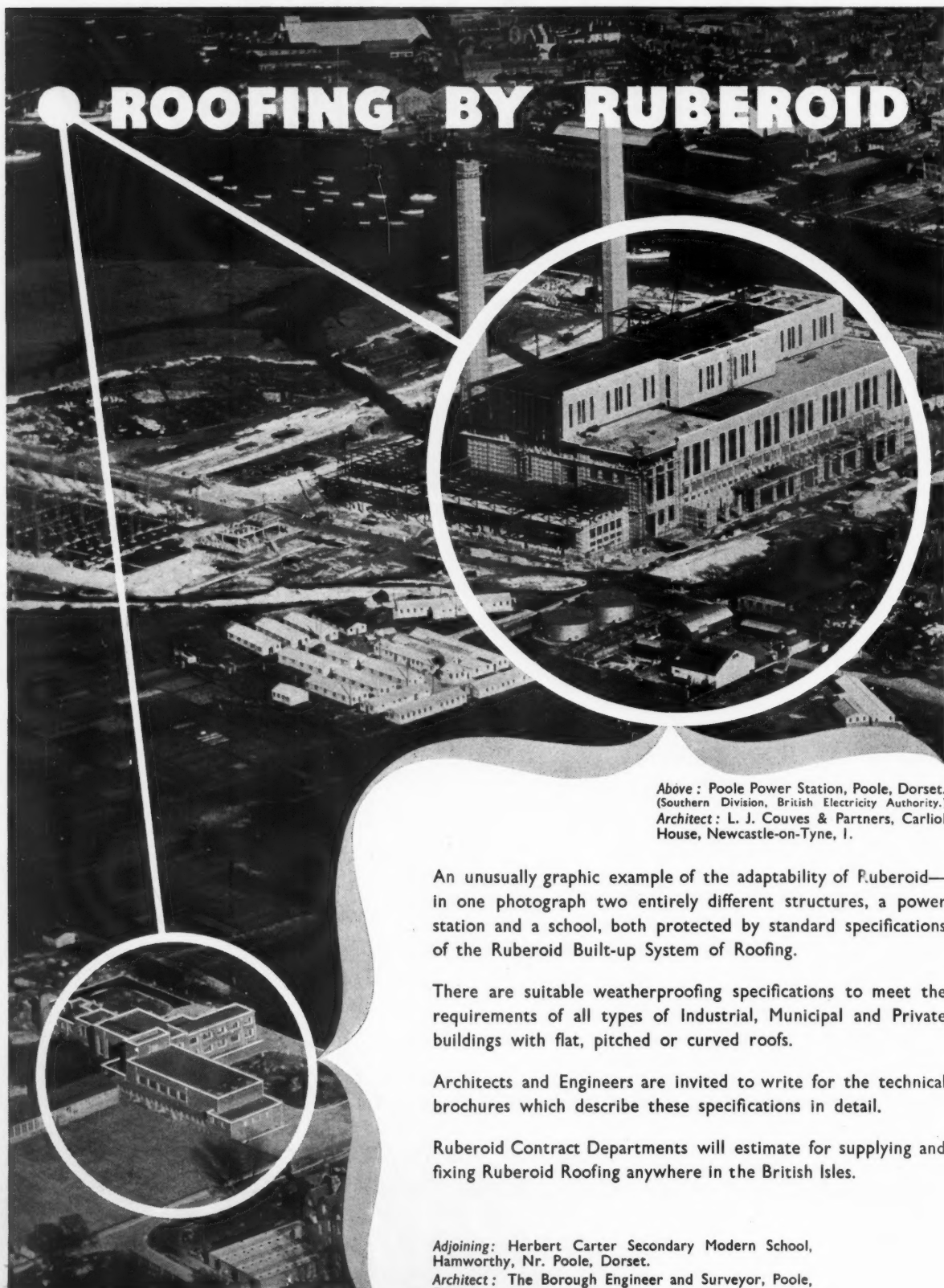
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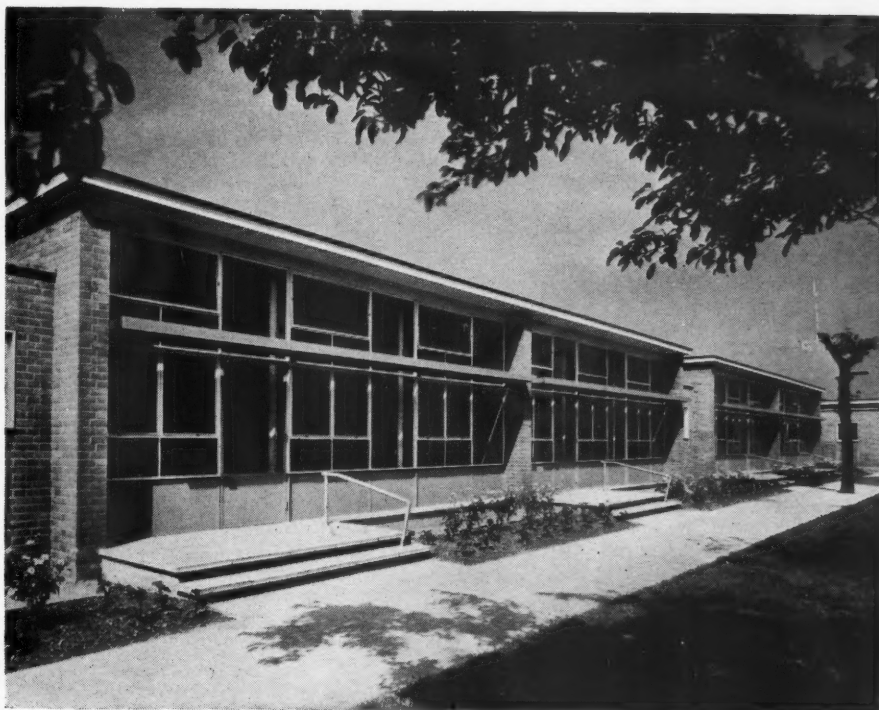
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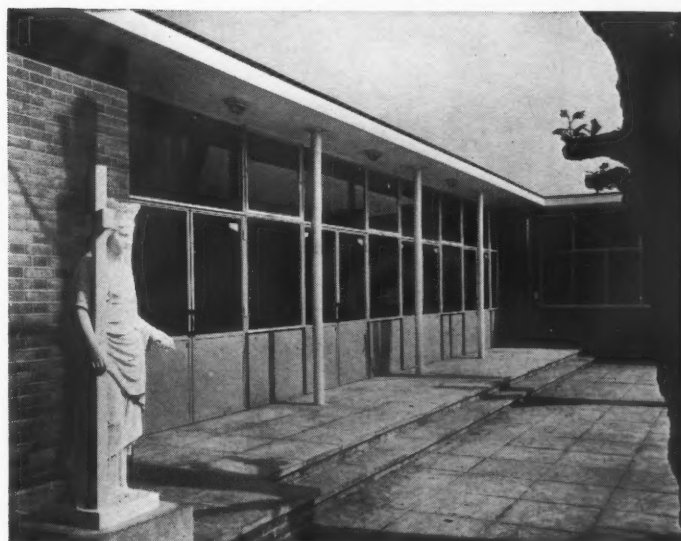
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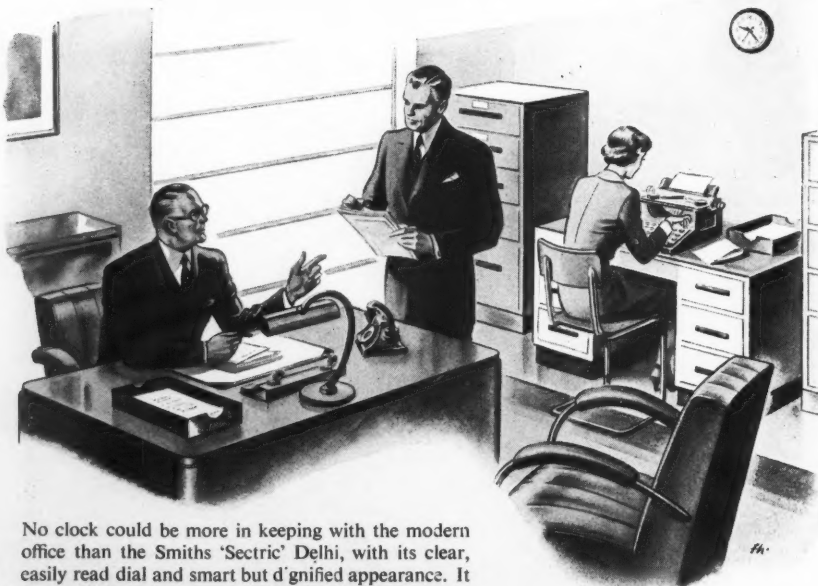
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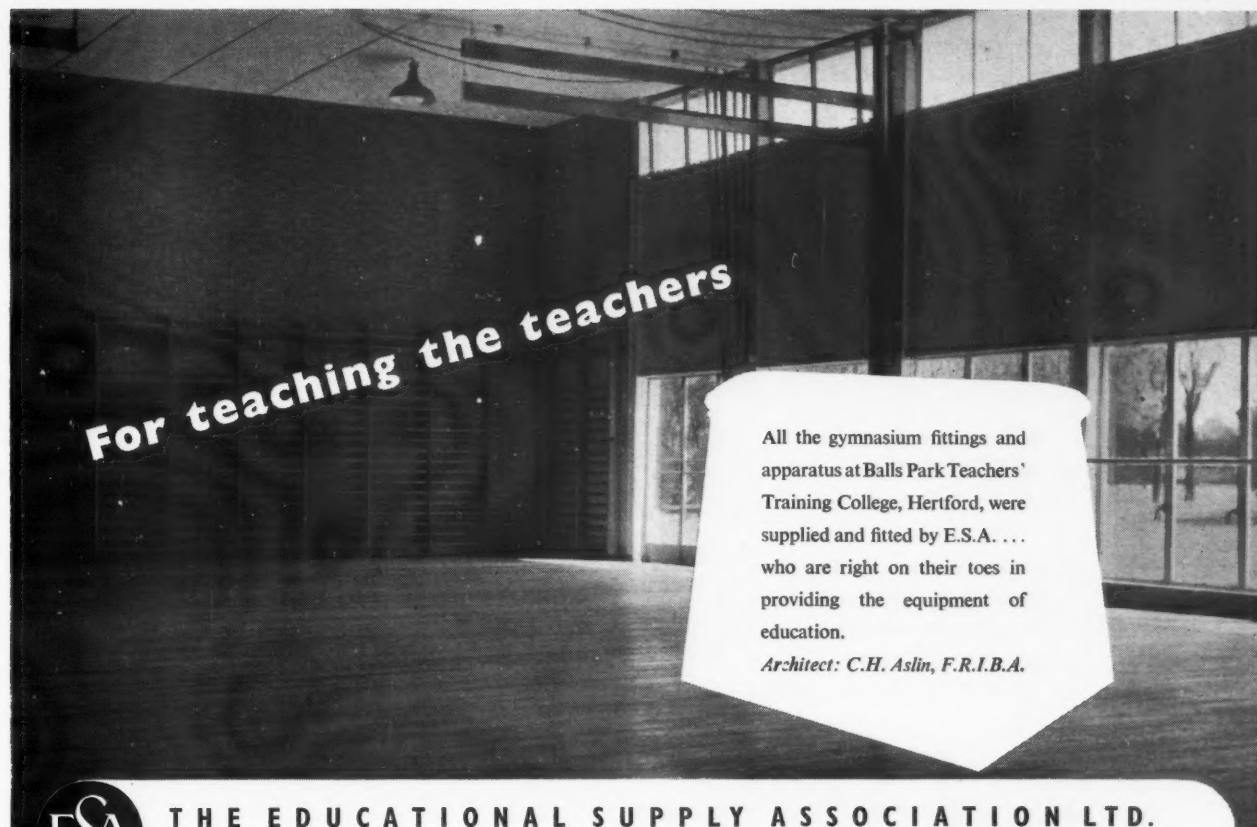


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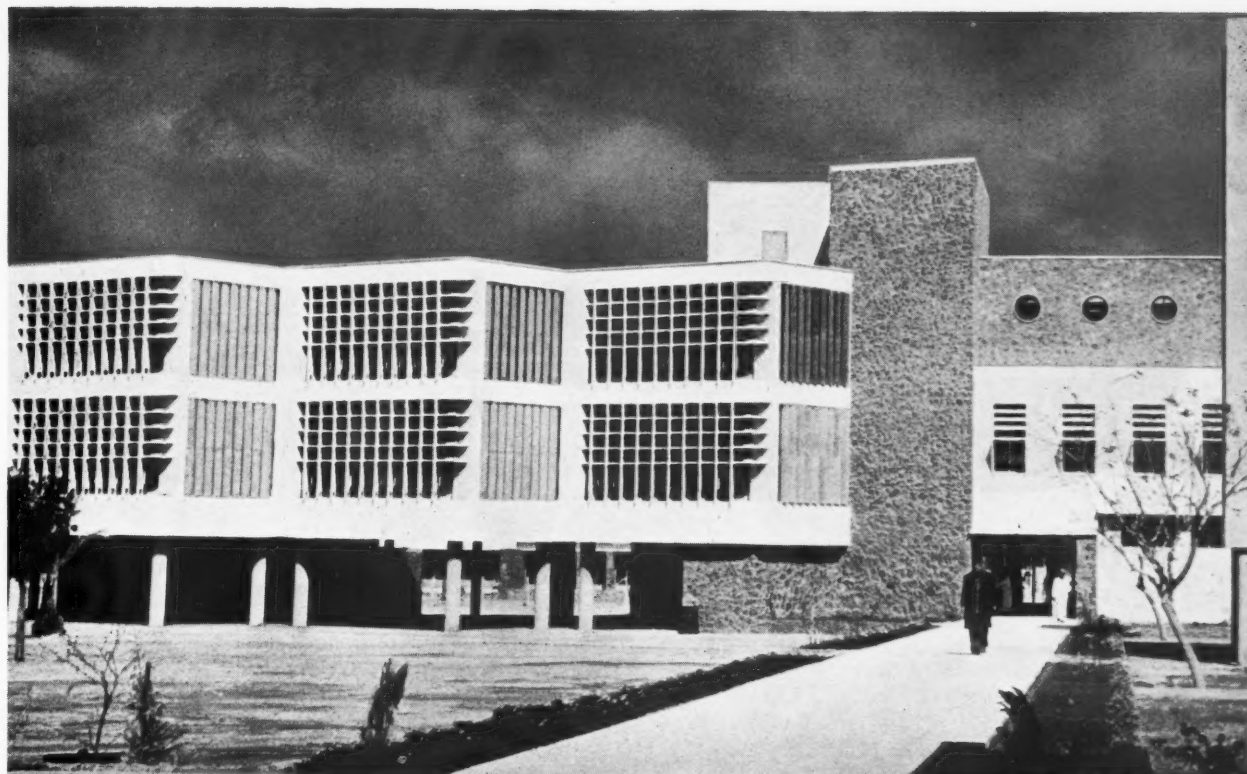
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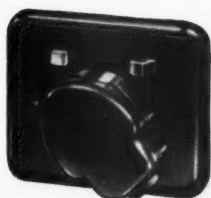
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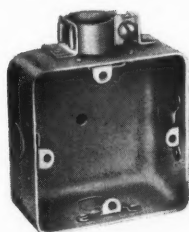
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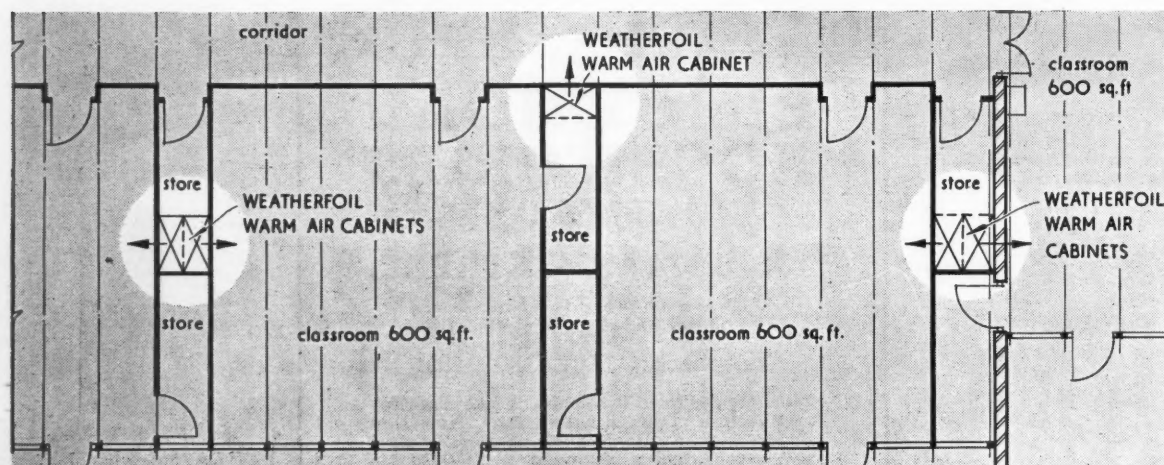
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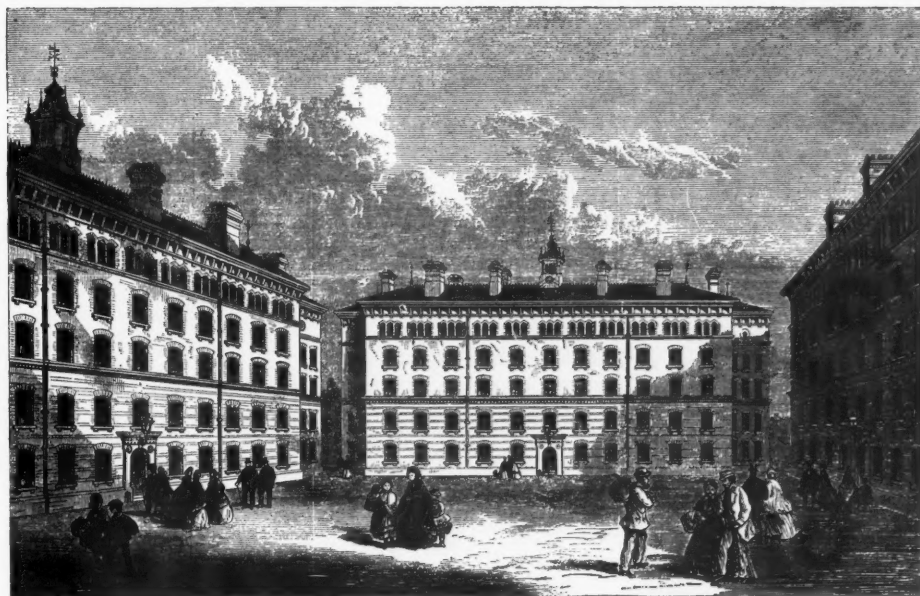
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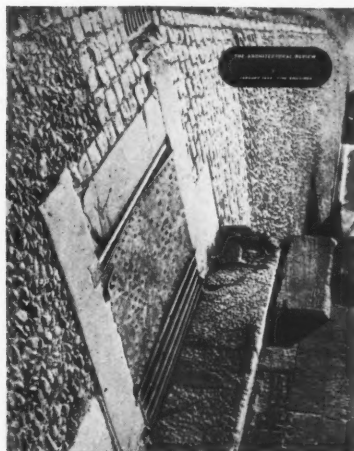


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THE ARCHITECTURAL REVIEW

Volume 111 Number 661 January 1952



The Cover is a white lie. A piece of floor has been turned upon its side to make the eye see it as a piece of wall. The point of the deceptio? In its more usual horizontal position the floor, to judge by normal town planning practice, is invisible; we live in a wall-eyed age. The necessity of making the floor visible again, and of treating it with the respect that its importance as the largest unbroken surface in every town demands, to lavish the same care upon it as we lavish on the objects which are perpendicular to it, is the theme of the article *Focus on Floor* on pages 32-42.

2 Frontispiece

- 3 **Coventry** by J. M. Richards Basil Spence's design for Coventry Cathedral has been attacked by those who still agree with Pugin that Gothic is the only architecture for a Christian church, and acclaimed by those who see in the competition assessors' award a victory for architecture which owes no allegiance to the styles of the past. What it has so far received little of, and what J. M. Richards gives it in this article, is considered criticism based on an analysis of its intrinsic merits and defects. Mr. Richards finds that the basic weaknesses in the design are due to attempts to reconcile things which may well be incompatible—a non-traditional architectural idiom with a traditional, axial plan, and the dynamic quality of a shell-concrete vault with static, load-bearing walls of masonry. For all the architect's ingenuity in finding means to stimulate an emotional response in the spectator, 'there are limits to the extent to which the arbitrary and capricious, however skilfully handled, can establish emotional communication with its public because it has no single artistic principle to communicate.'

- 8 **Victoria College, Cairo** John W. Pollock, Architect

Editors
J. M. Richards
Nikolaus Pevsner
Ian McCallum
H. de C. Hastings

Assistant
Editors: production, G. Bensusan.
art, Gordon Cullen. research, S. Lang. literary, Marcus Whiffen.
Editorial Secretary, Whitehall 0611-19

- 17 **Sun Control** by H. P. H. West The use of the *brise soleil* as a positive element of design in the Ministry of Education building in Rio de Janeiro and other Brazilian buildings has led to a heightened interest in the whole problem of sun screening, considered in both its aesthetic and technical aspects; no longer can it be said that screening is used by designers 'who through lack of foresight in planning make louvres and other such devices their subterfuge.' It is now recognized that whereas the requirements of good standards of natural lighting within a building demand the provision of large openings, complete control of lighting, glare and solar heating can only be achieved by the use of scientifically designed screening. In this article H. P. H. West discusses the problems of sun control and the relative merits of the various solutions that offer themselves.

- 23 **Offices in Paris** R. Gravereaux and R. Lopez, Architects

- 26 **Hotel at Lusaka, Northern Rhodesia** G. A. Jellicoe, Architect; Dennis Lennon, Interior Designer

- 33 **Focus on Floor** by Gordon Cullen The floor is the basis of all three-dimensional design. Yet for a hundred years at least the town planner has treated it just as if it wasn't there; he has left it to the traffic-obsessed surveyor or engineer for him to do his damndest with. The result has been that the floor of the average town has been neutralized; instead of being a connecting surface between buildings it has become a dividing surface, instead of expressing the comings and goings (and stoppings too) which take place upon it, the face which it presents to the world is an almost featureless mask. The restoration of a fruitful relationship between floor and building, and of expressiveness to the floor itself—this must be the town planner's very first concern. In the illustrated section of this feature examples of floorscape from the town of Woodstock are used to point the morals that he must bear in mind.

- 43 **Art Furniture of the Eighteen-Seventies** by Nikolaus Pevsner Slowly but surely, modern scholarship is unravelling the tangled skein of nineteenth-century art history. As so often happens, the unravelling process is proving that the skein is a great deal more tangled than anyone realized before it began. We now know, for instance, that the picture of William Morris as a lone and unheralded warrior battling against High Victorian taste is a gross over-simplification. In his recent book on the exhibits of

1851, *High Victorian Design*, Nikolaus Pevsner showed how much of Morris's doctrine had been anticipated by Pugin, Owen Jones and Matthew Digby Wyatt. Here Professor Pevsner taking the story on to the eighteen-sixties, -seventies and -eighties, demonstrates the importance of the part played by such men as Eastlake, Godwin, Edis and Morris B. Adams in the propagation of new decorative ideals.

51 Current Architecture

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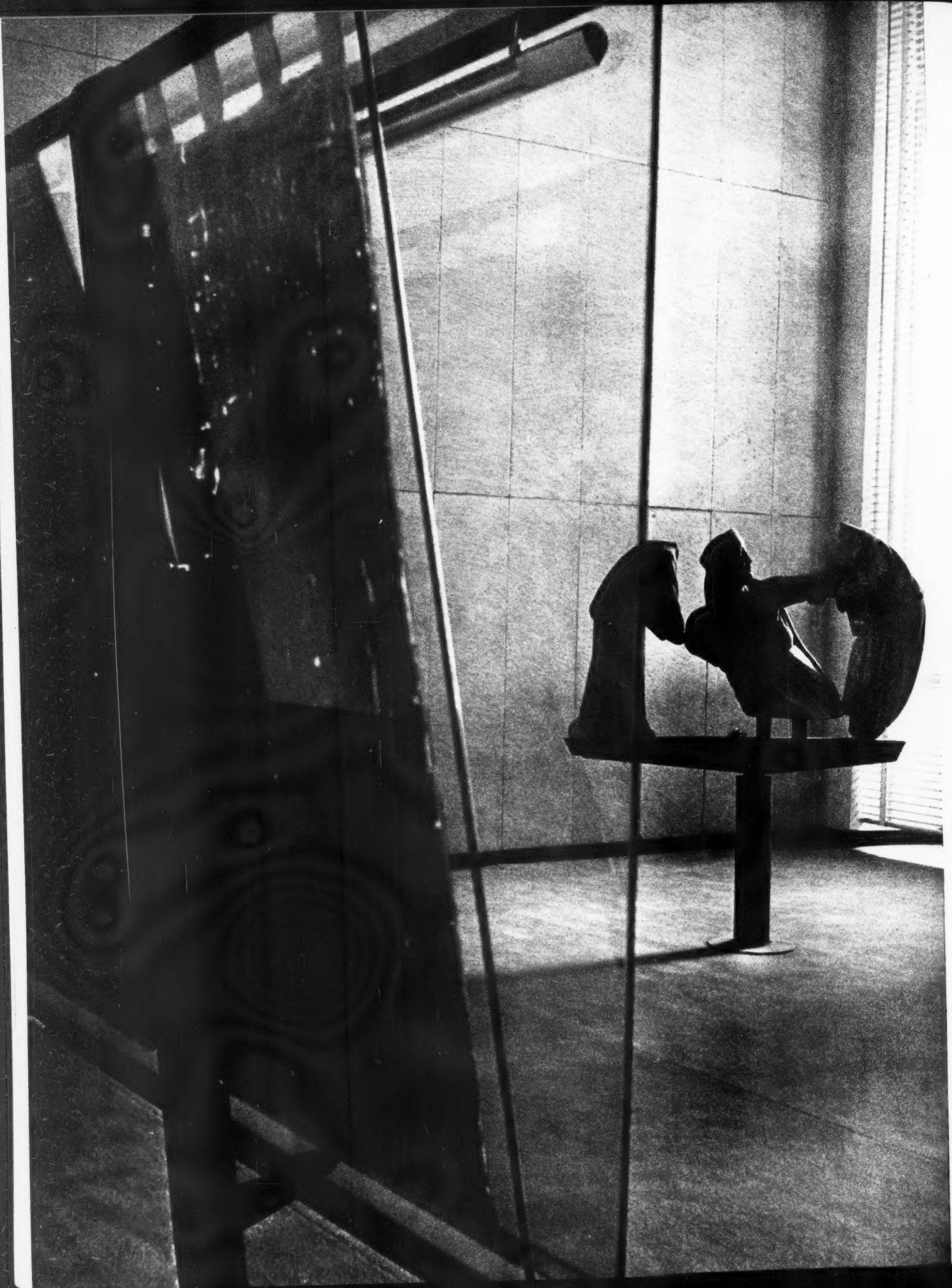
Author H. P. H. West, born 1920. Educated Maidstone Grammar School, Maidstone College of Art, Maidstone Technical College and Medway College of Art, Rochester. War service RAF 1940-45. Worked for the Malling RDC until 1948 when he entered John W. Pollock's office and first studied the question of sunshine control working on the Victoria College, Cairo, scheme (see pages 8-15). Distinction received in RIBA Finals thesis 'Sun Control.'

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THE ARCHITECTURAL REVIEW

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FIVE SHILLINGS



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 The problems attending the exhibition of old masters have rarely been tackled with such boldness and willingness to experiment as in Italy during the past few years. In this photograph three innovations, or at least adaptations of existing devices to new purposes, are seen. In the foreground a Byzantine pallium is displayed in a specially designed plate-glass case, containing its own lighting (cold cathode), which allows both sides to be inspected; in the middle distance a hydraulic car-jack makes it possible to exhibit a piece of sculpture at the height for which it was intended and yet to lower it for close examination; in the background a venetian blind is used to control and diffuse the light. Further photographs of the redesigned galleries in the Palazzo Bianco at Genoa, of which this is one, appear on page 60, together with a description. The architect was Franco Albini.

J. M. Richards

CRITICISM

COVENTRY

What line should the conscientious critic take when confronted with Basil Spence's winning design for a new Coventry Cathedral? The critic has probably been doing his best for some time to support the idea that a contemporary building ought not to be designed in a style that imitates an ancient one. He may indeed have been among those who pleaded, when the Harlech Report was published, for the removal from the competition conditions of the recommended requirement that the cathedral must be in the English gothic style. Should he then acclaim Mr. Spence's design simply for being non-traditional—for the sake, that is to say, of the victory over the gothic revivalists that it can be taken to represent?

Or, remembering that a critic's first duty is to insist on quality in architecture and to point out that good modern design has an aesthetic of its own and does not arise merely from the avoidance of traditional forms and motifs, should he then condemn the design for whatever weaknesses of this kind he discerns in it, even though, as a result, he finds himself in alliance with those who are condemning it for very different reasons? Mr. Spence showed boldness in eschewing conventional gothic trimmings, and the competition assessors showed, perhaps, even greater boldness in awarding first prize to a design that did so. For this they are under heavy fire, but fire of a kind in which the critic who believes in a contemporary architecture will hesitate to join, though he may eventually decide that it is his duty to do so. That is a familiar dilemma, but it comes out the more strongly when the subject criticized is a cathedral, because the opposition to a modern design does not then consist only of those who, from principle or prejudice, dislike modern art, but also of many others who are genuinely concerned about how a building, designed in the modern style as we know it, can possibly achieve the devotional atmosphere a cathedral requires.

There are ways out of this dilemma, when the cathedral in question is the new one proposed for Coventry. One way would be to agree with the body of opinion that denies the need of a new cathedral at all, and argues that the bombed St. Michael's can be more economically replaced by enlarging the undamaged Holy Trinity church that stands alongside it, or else by moving the cathedral to Warwick, which is nearer the centre of the diocese and possesses, in the spacious church of St. Mary, a building as easily adapted to serve as a cathedral as was St. Michael's, Coventry, when the diocese was created in 1918. But that would be to evade the architectural issue altogether, which cannot now be evaded at Coventry since the decision has been taken, rightly or wrongly, to face up to the problem and build a new cathedral approximately on the old site—a site given special significance by the events of 1940.

Another way out of the dilemma would be for the

critic to take the line that the modern age, not being an age of religious faith, is not equipped to produce satisfactory cathedrals, and that any shortcomings of the design under review must be blamed on this fact and accepted as inevitable. There is enough in this argument to warrant investigating it further, for it is a commonplace of contemporary criticism that the social climate in which it is produced must be taken into account when trying to estimate the significance of any work of art.

The argument runs somewhat like this: in the middle ages, which are rightly regarded as the golden age of cathedral building, religious faith was the basis of everyday life. People's aspirations and their collective enthusiasms were centred in the church and what it stood for, and in the church buildings the best architectural ideas of the time were embodied. Today, other matters occupy the foreground of existence, and religion, at best, the background. Religious

buildings, therefore, no longer play a significant part in the architectural landscape, and until the result of the Coventry competition was declared, it was generally accepted—at least by implication—that a cathedral was something that belonged only to the past. New cathedrals tried to recapture past glories by means of some kind of reminiscence of the style associated with the church's golden age. The question is next asked whether, architecture being today in a state of experiment and flux and religious worship being so largely a matter of fixed traditions, rooted in the past, there is any common ground on which the two can meet. The difficulty of bringing the two together is increased by the fact that in our day art as well as religion has become divorced from daily life, and the capacity to be moved by what is apprehended directly by the eye has largely been lost. The appreciation of architecture is no longer visual but literary—a matter of emotion being aroused by associations and by familiar symbols. We cannot therefore expect a building like a cathedral, whose role is to create a particular atmosphere, to make successful use of an unfamiliar idiom, however much intrinsic beauty the architect puts into his design.

This is a counsel of despair. As to the first point, if the church wishes to re-establish itself as a force in the modern world it must equip itself with modern buildings symbolizing the role it means to play. It must present its own challenge to modern architecture at the same time as modern architecture presents its challenge to the church. The latter is an act of faith in its own future that modern architecture cannot refuse to perform without admitting its incapacity to embrace the religious idea—in fact without limiting its role to expressing only the unemotional and the utilitarian. And as to the second point, the charms of modern architecture will not be visually apprehended until it has laboured at enriching its own vocabulary and at the same time has offered its public, in buildings of great scale and importance, opportunities of adjusting their need for familiar symbols to what the art of their own time offers them.

The foregoing argument can legitimately be used to explain the difficulties that face the architect of a new cathedral, but not to prevent him from attacking them boldly. His task, fundamentally, is one of communication; but architecture only serves as a means of communication when it has something to communicate. The central fact of our time is the conquest of the physical world by science, and only an idiom that displays architecture's ability to conquer science has the necessary vitality to make a significant emotional impact on the mind of the generation it serves. That it need not be an arid idiom is shown by the example of the gothic style in which the ancient cathedrals were built, which was inspired by the engineering achievements of medieval masons. That modern engineering achievements have a long way to go before they can hope to blossom so fruitfully must be acknowledged, and the architect who is too conscious of the need for an idiom capable of evoking a response in ordinary people's minds, may be tempted to try and hasten the process by contriving some non-historical eclectic style more palatable than the geometrical abstractions of modern architecture. But in doing so he only distracts modern architecture

from its purpose of evolving a fully expressive idiom out of the needs and opportunities peculiar to itself.

This is a trap into which many buildings with an ostensibly revolutionary character, not excluding the new Coventry cathedral, can be found, on analysis, to have fallen. When his well-worked-out ground-plan (of which more later) has to be translated into enclosed space the anomalous character of Mr. Spence's design—its basic eclecticism—becomes apparent. One of his most difficult problems lay in the fact that any building which has to achieve monumental dignity and authority requires some degree of formality of expression, and in the case of a cathedral this must almost inevitably be translated into formality of plan, since all attention must be focused on the high altar. Modern architecture has tended so far to obtain its best effects not from the drama of rigidly determined climaxes afforded by the axial ground-plan, but from a more subtle arrangement of spaces in all three dimensions, made possible by the structural freedom of new building techniques. The Coventry plan, while ostensibly breaking away from tradition, makes a wholly traditional use of the axis, the cross-axis, the secondary vista and the like. And where its internal spatial effects are not founded on tradition, as in the case of the saw-tooth plan of the nave walls, the gradual reduction in height of the ceiling from (liturgical) west end to chancel (a device intended presumably to create, by means of false perspective, an extra impression of distance), and the gradated cold-to-warm colour-scheme of the stained-glass windows in the nave, they are too obviously theatrical in conception. The invention shown can perhaps be credited to the architect's experience as an exhibition designer. Exhibitions are not expected to adhere to any fundamental architectonic principle, but buildings that claim permanent significance and authority ignore it at their peril.

One result of doing so can be seen in the conflict of character, throughout the Coventry design, between roof and wall. Although the attribute of Mr. Spence's design that has received most attention is its non-gothic style, the fact remains that gothic architecture is clearly the model for its most impressive interior effect: the soaring nave arcade carrying a lofty vault on the lightest possible points of support. Yet with this conception the outer walls are strangely inconsistent. They are composed of alternating panels of void and solid, but instead of the voids being used to enhance the lightness and transparency of the structure, they are almost concealed from view, being used instead to throw a side light on the sculptured stone panels between them and to concentrate light towards the altar. It is an effective enough theatrical device, but the result will surely be to emphasize the weight and solidity of the walls—a characteristic, incidentally, that is further emphasized by the low relief carving of their surface—and to destroy the whole drama of the airy structure.

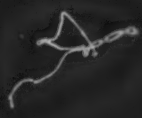
If these sculptured walls had been treated as free-standing curtains, independent of the light pier-and-vault construction, a clearly articulated architectural character might have emerged. But the walls, of solid masonry, are made to share with the slender post-stressed concrete columns the task of supporting the shell-concrete vault, and this mixture of modern

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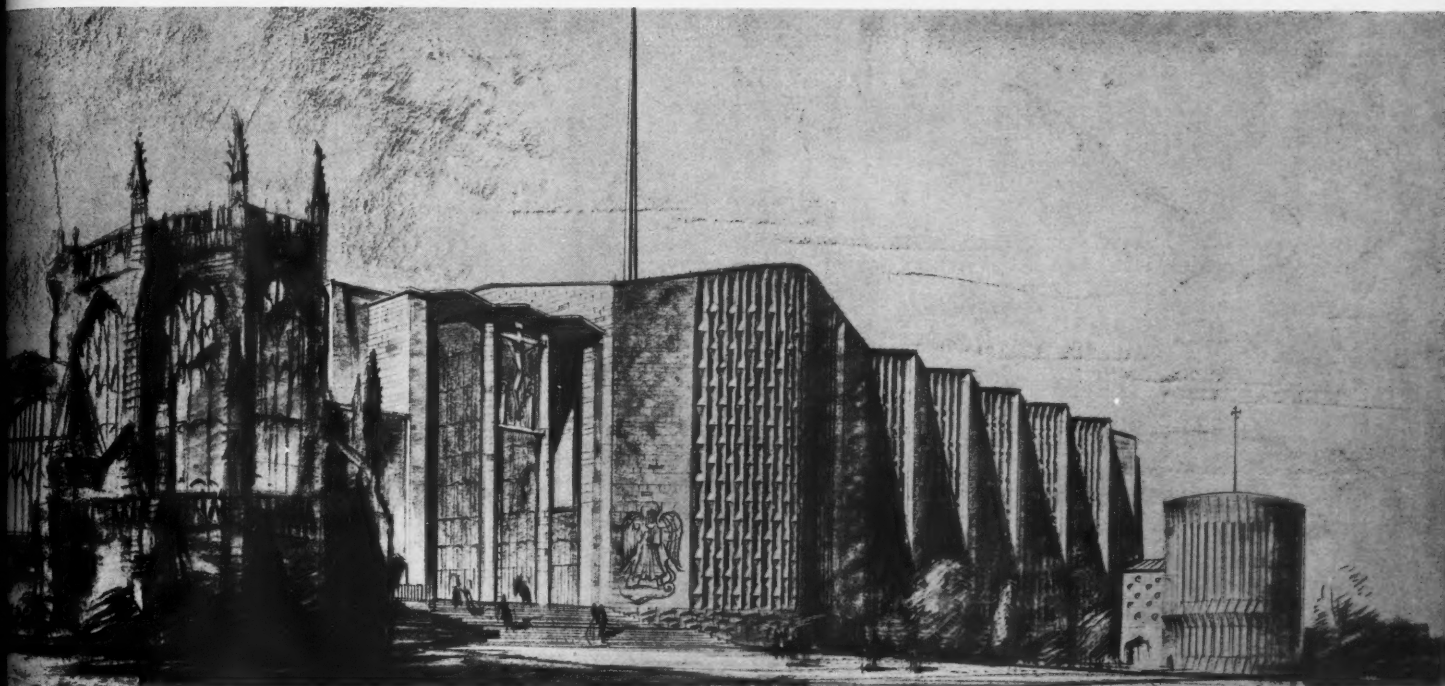




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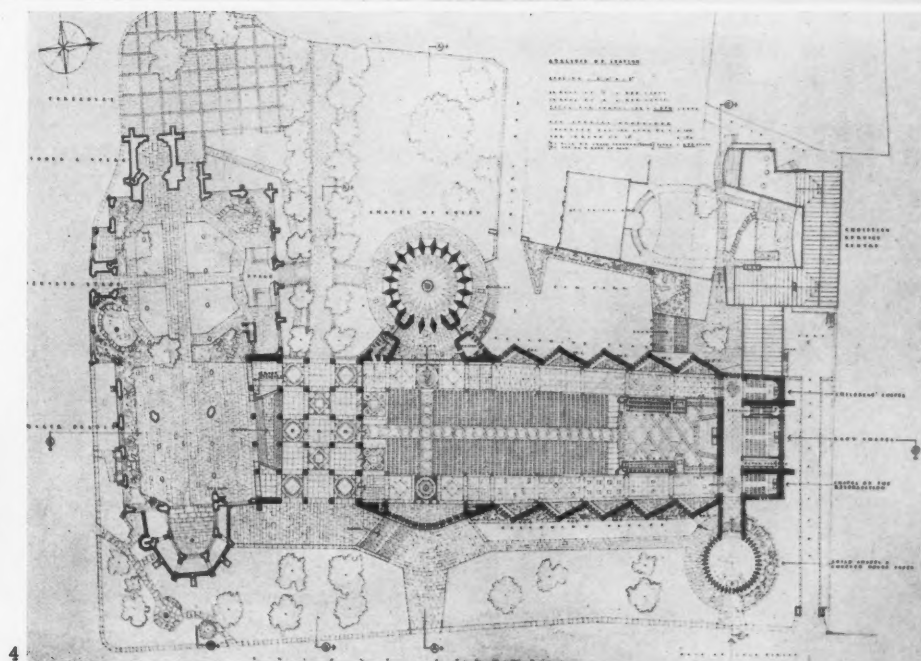
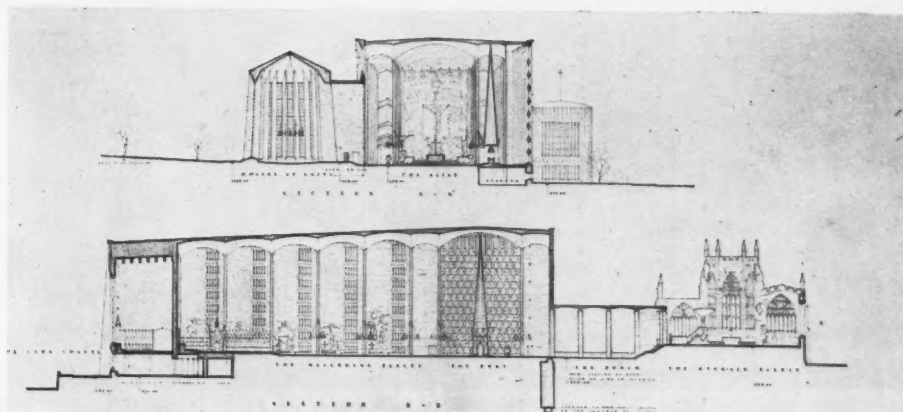
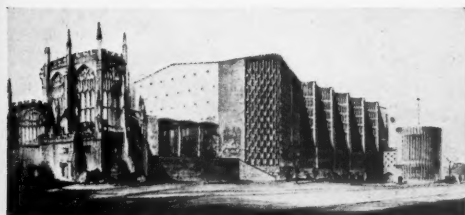
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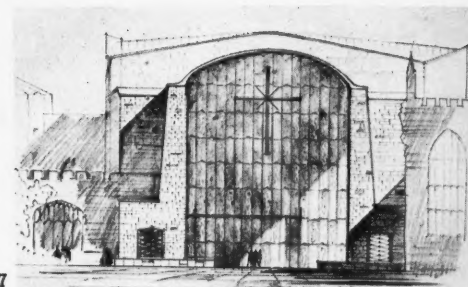
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Basil Spence's prize-winning design for a new Coventry cathedral. The perspective drawing, 1 above, shows modifications already made, at the time of writing, to the competition design illustrated in 3 and 4, right. Further modifications will no doubt follow. The small perspective, 2, shows the competition design from approximately the same viewpoint, namely the (liturgical) south-west. The heavy, blank gable-end and the somewhat perfunctory roof-treatment of the porch at its base were weaknesses in the competition design. The porch has now been raised, as can be seen in 1, to the full height of the nave. Its barrel vault is an extension of the shell-concrete nave vault inside. The west wall of the cathedral, beneath the porch, will be entirely of glass, and the question may be asked whether this type of window will not compete unhappily with the heavily traceried window used elsewhere, and whether the quantity of light it admits will not upset the carefully controlled lighting effects that the angular nave windows are designed to produce. If the now lofty porch is treated as part of the building and the west window therefore as an internal glazed screen this conflict could perhaps be avoided. Another change is the substitution of a more formal and monumental flight of stairs leading up to the porch for the rather interestingly planned staircase passing down the baptistery wall shown in 2. Both perspectives bring out the solid, crystalline character of the exterior, typical of deeply modelled masonry construction, which the accompanying article suggests is not altogether consistent with the more organic, lightly vaulted roof-structure that the masonry walls help to support.



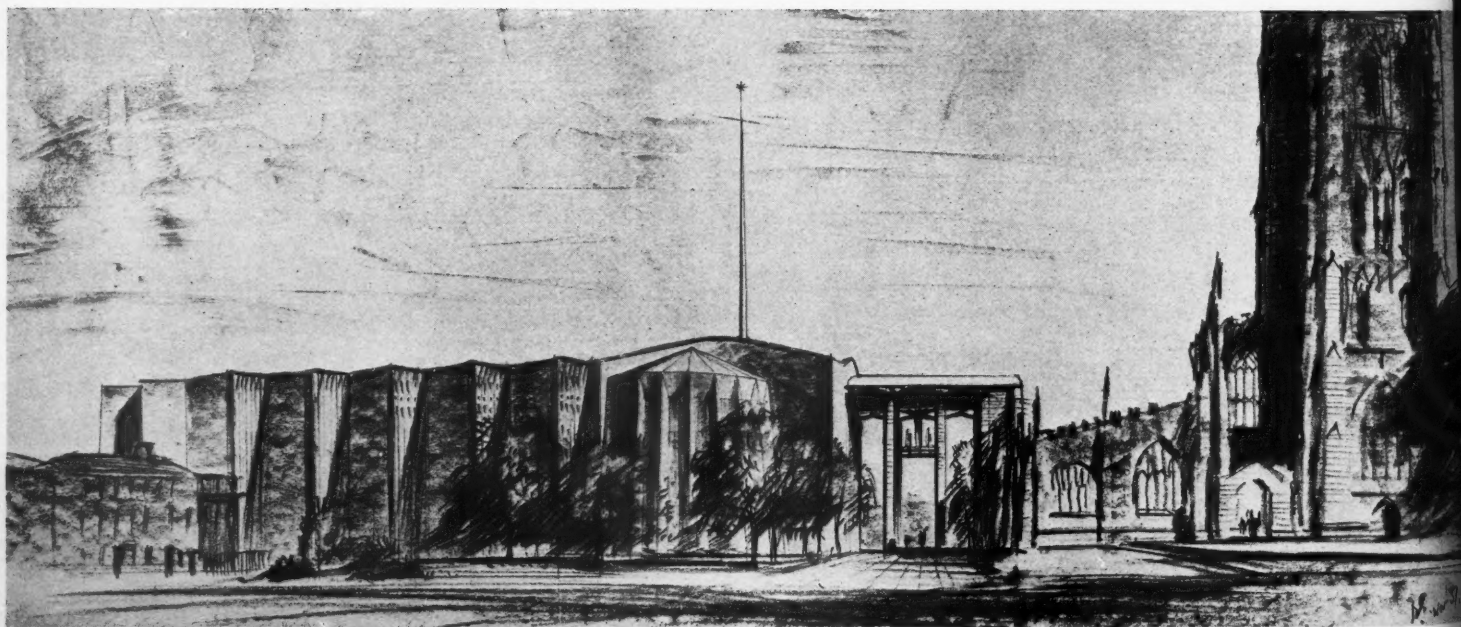


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7

5, the interior of the proposed Coventry cathedral, from a sketch in oils by the architect. Behind the high altar is a huge tapestry on which the light from all the windows is focused. The sketch shows both the essential orthodoxy of the plan and the deliberately exaggerated slenderness of the reinforced concrete columns and the shell-concrete vault, both clearly inspired by gothic models. This is an organic construction which contrasts somewhat abruptly with the static construction of the masonry outer walls. A problem still unresolved at this early stage of the design is how the vaulting and the junction of the vault with the top of the columns is to adapt itself to the proposed gradual lowering of the ceiling from west end to altar. Since the competition design the roof has wisely been levelled off at the extreme (liturgical) east end, as shown in the more recent perspective, 6 below. This shows the building as it will be seen from the city. In the centre is the Chapel of Unity and alongside it the enlarged open porch described on the previous page. 7, an elevation of the porch from the ruins of the old cathedral, showing the glazed west wall of the nave filling the far side of it. Once more there is some incongruity between the lightness of the concrete vault and the heavily modelled masonry abutments. The crucifix is suspended within the open end of the porch.



6





concrete and traditional masonry is partly responsible for the unconvincing nature of the interior. The masonry walls belong to the crystalline principle of architecture and the vaulting, with its supporting shafts, to the organic. Alternative descriptions are static and dynamic. He is a bold man who tries to synthesize the two, and the writer cannot feel that in this instance the attempt has come off. Such are the perils of attempting to give novelty of character, by arbitrary introduction of certain non-traditional structural and decorative elements, to a traditional piece of spatial planning. The opportunity has not been taken of showing what special contribution modern construction can make to architecture's dramatic repertoire, nor what special contribution the free spatial planning permitted by modern construction can make to the dual problem of catering for crowds of worshippers and providing a setting for religious ritual. Mr. Spence may have alarmed the traditionalists, but he has burdened himself with the obloquy of the revolutionary without giving himself the pleasure of furthering any revolutionary cause.

Transferring attention to the outside of the building, it may not be a matter for reproach that the saw-tooth masonry nave walls, with their tall windows cut off somewhat abruptly at the top, produce a zig-zag skyline which gives no hint of the method by which the interior spaces are enclosed, but elsewhere are to be found weak and arbitrary shapes that much more certainly show the want of a fully realized structural system and the discipline it imposes. A case in point is the weak, flattish curve of the south wall of the baptistery, which closes the cross-axis formed by the Chapel of Unity. Defects of this kind, however, are to be expected in competition schemes, and Mr. Spence's latest sketches show that further study has already remedied some of them. The modelling of the Chapel of Unity is less crude and heavy, and the external masonry of the nave walls—especially the treatment at the base—has a more precise and crystalline character.

The porch which links the garden cloister, formed in the ruins of the bombed cathedral, with the western entrance to the new one has also been redesigned. It takes the form of an open colonnade, somewhat weakly proportioned in the competition drawings, and somewhat perfunctorily treated where the tall columns terminated in an insignificant roof. The porch has now been raised to the full height of the nave, and its roof-line has been strengthened, the barrel vault over the nave being carried through the west wall to form the roof of the porch. But this has the drawback of serving once more to emphasize the building's structural contradictions, already referred to. The porch now has a more emphatically masonry character; its colonnade rises stoutly, on the side facing the city, from a newly devised flight of steps, and the thin shell-concrete vault rests somewhat incongruously upon it. The same effect is even more apparent on the side facing into the ruins, where the insubstantial vault is supported on either side by heavy stone abutments.

This porch, nevertheless, has the merit of introducing the visitor, in an effective way, to the simple sequence of spaces of which the design is basically composed. When the problem is one of planning

rather than of style, the modern architect need not be inhibited by a sense that he has lost the means of direct communication with his public, for the effect of the organization of space is not dependent on symbols and associations. It remains visual and immediately communicable. Mr. Spence has obviously realized the opportunity thereby presented and has made an interesting attempt to use a spatial symbolism as a substitute for the discarded symbolism of gothic forms and ornaments. For example the porch just referred to, which lies across the main approach from the city, is only separated from the cathedral nave by a fully glazed wall, allowing a view from within the ruins of the bombed building right up to the high altar of the new building. Another instance of the use of the plan to symbolize the function and significance of the building is the placing of the Chapel of Unity on a cross-axis to the nave, so that worshippers of other denominations than the Church of England, who will share the chapel, will not be made to concentrate their view on the high altar but on the font, in its baptistery across the nave, baptism being a rite common to all Christian churches; and another is the arrangement of the windows already referred to, in each of the Hallowing Places that line the nave walls, so as to concentrate light from an unseen source on to the high altar.

Religious architecture is a matter of feeling rather than logic, and Mr. Spence has made brave efforts to arouse feelings, to stimulate an emotional response, in the somewhat bewildered public with which modern architecture has to come to fresh terms, by the use of these and other decorative devices. Yet in trying to assess Mr. Spence's winning designs one can only repeat that there are limits to the extent to which the arbitrary and capricious, however skilfully handled, can establish emotional communication with its public because it has no single artistic principle to communicate. Having applauded the boldness of the Coventry design in discarding the gothic trappings by which church building had long been strangled, one must then assert that in a profounder sense, if it had been more gothic it would have been more truly modern.

The design under review is still in its early stages. Every detail will no doubt be studied afresh before construction starts. Improvements have already been made on the competition design as the accompanying illustrations show, and it is not too late for the weaknesses that remain to be remedied.

Constructive criticism can help, and one function of architectural competitions is to afford an opportunity for the views of various critics (who are, in this context, the representatives of the public) to be expressed while there is yet time for them to have some influence. Too often the public is presented with architectural monuments in the shape of accomplished facts, and it is not therefore surprising that its interest in architecture languishes. The wise designer will find stimulus in the conflicting comments of his critics, whether sympathetic or otherwise, because they are an earnest of public interest in architecture, which must be awakened and kept awake if the language he, the architect, employs is to become capable of bearing a religious—or indeed any kind of emotional—message.

VICTORIA COLLEGE CAIRO

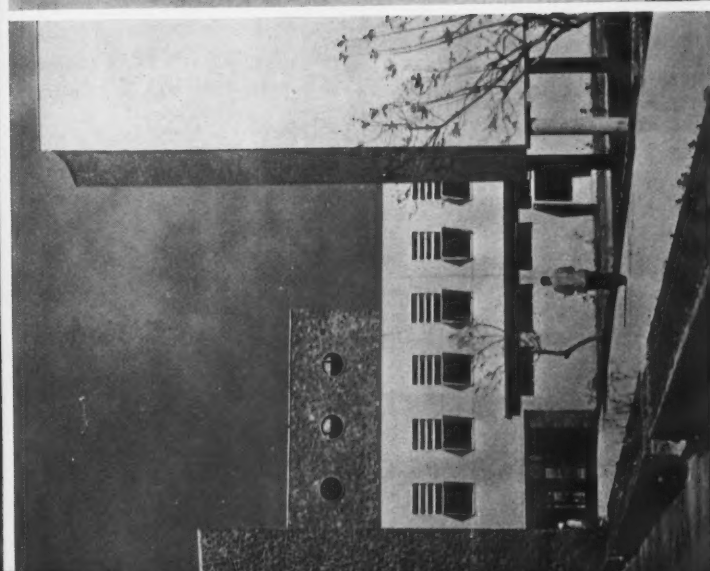
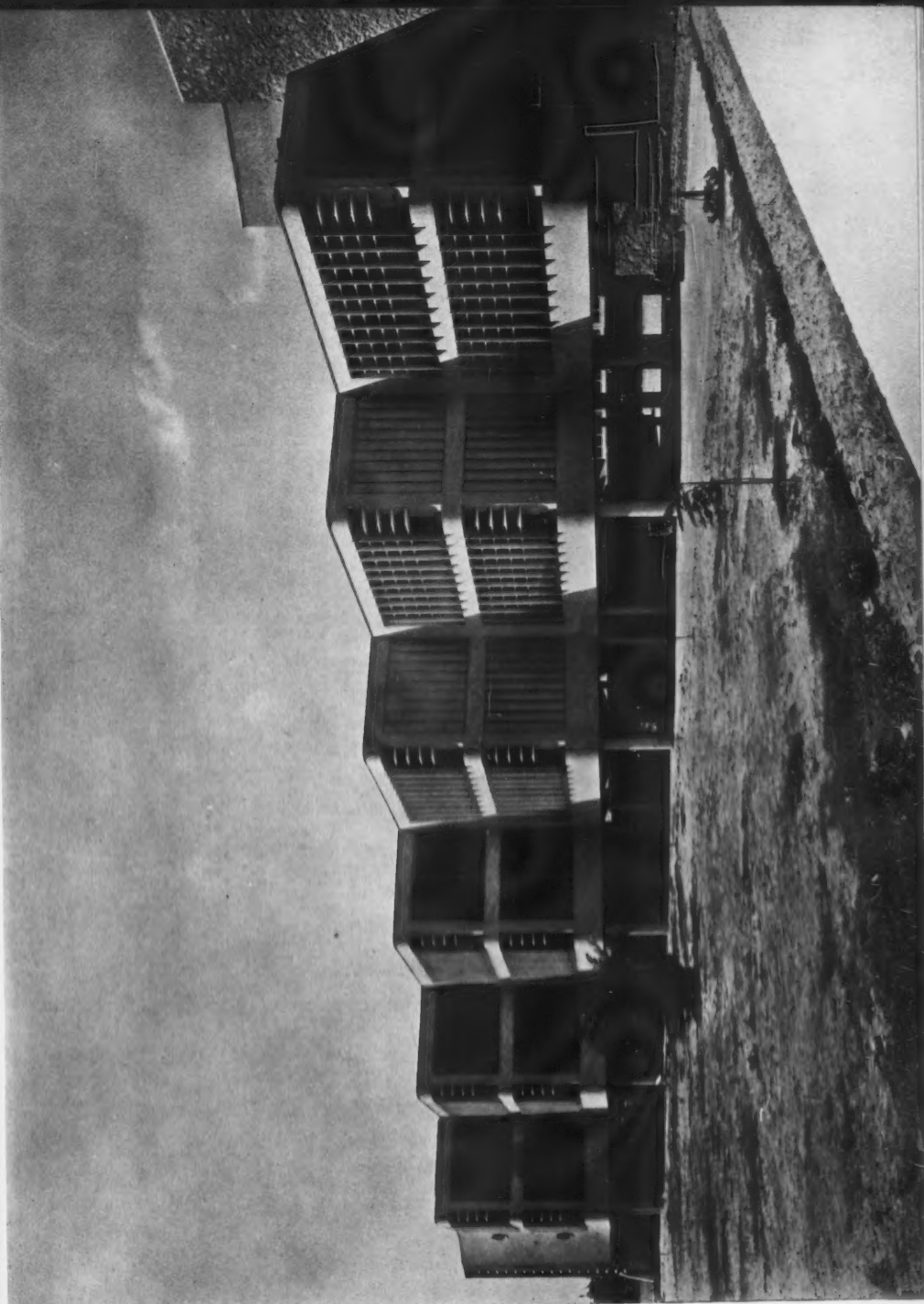
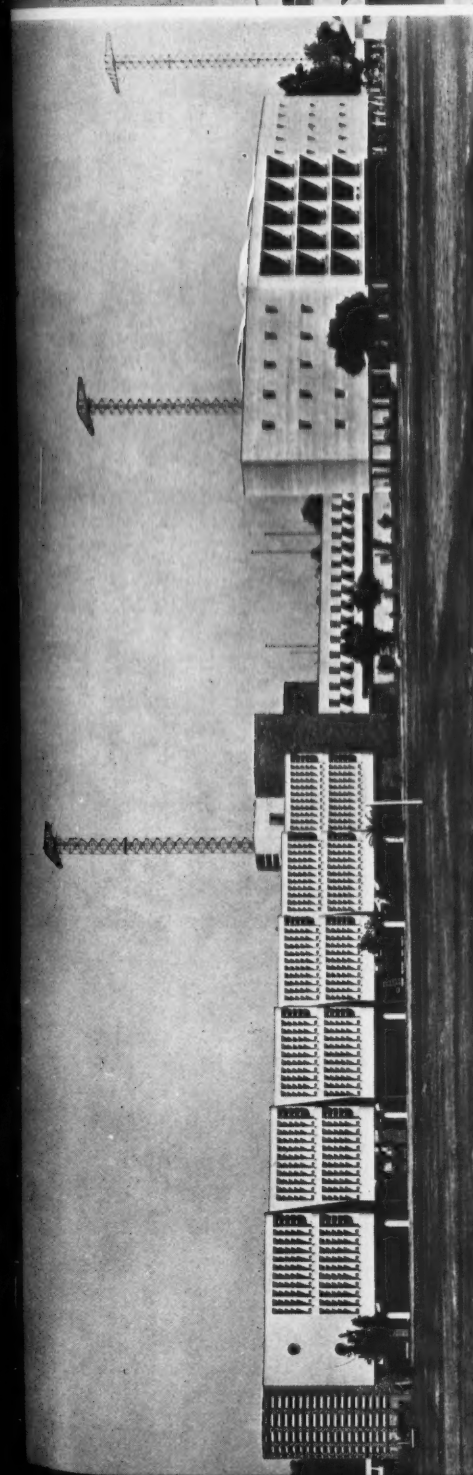
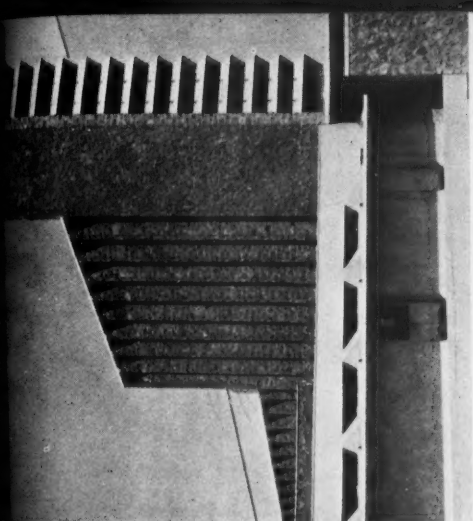
JOHN W. POLTOOK: ARCHITECT

2, 10, 12, 13, 14 and 19 are not yet built

Victoria College is well known throughout the Near and Middle East, and its reputation stands as high in Egypt as that of any public school in England. The name is connected with two schools, the original Victoria College, Alexandria, founded in 1901, and the one in Cairo. Both have British headmasters, also staffs almost entirely British, and they provide residents of Egypt, and surrounding countries, with the opportunity of educating their sons along the lines of an English public school. Victoria College, Cairo, was opened at Shubra, Cairo, as a temporary measure in 1940, as the Alexandria college had become vulnerable to air attack. Its success was immediate, and so great was the demand for a permanent college in Cairo, even after the return to Alexandria of the parent institution, that in eight years the number of boys increased from 150 to 500. The end of the war found the College Council with a problem requiring an immediate solution. The building occupied in 1940 was a sequestered Italian school which would sooner or later have to be returned; new premises had to be provided without delay, and with the acquisition of a site at Maadi, a residential area a few miles to the south of Cairo, the erection of the new buildings was commenced in July, 1949. The completion of the first part of the scheme, which is illustrated on the following pages, enabled the college to re-open at Maadi after the summer vacation of 1950.

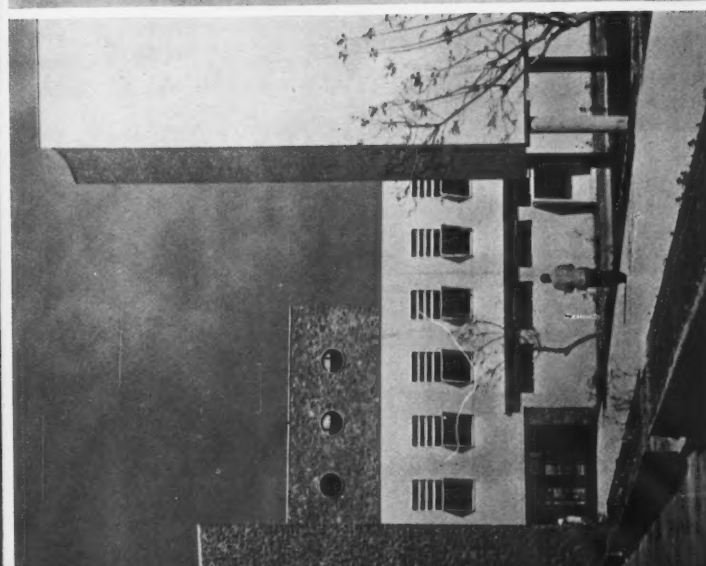
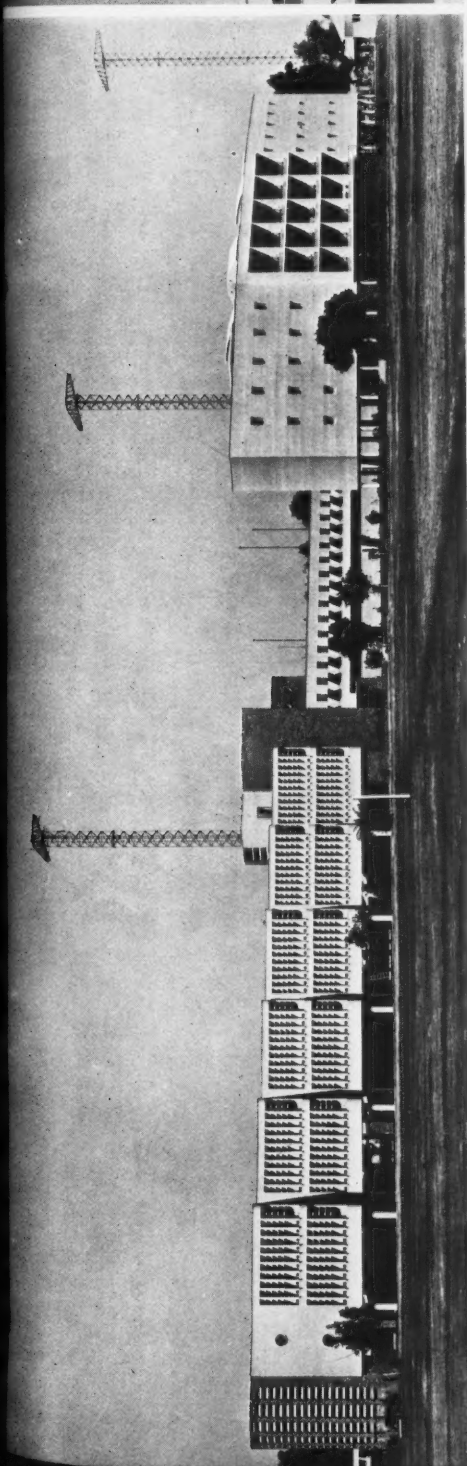
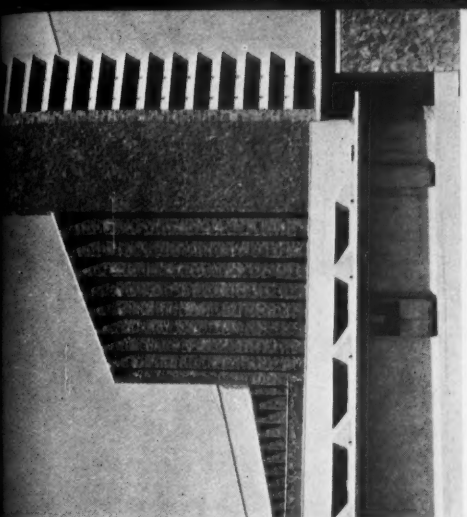






VICTORIA COLLEGE CAIRO

1. general view of the completed part of the school; on the left is the main school block; on the right one of the dormitory blocks. 2. north-western side of the main block. 3. the main school entrance from the south. 4. the classroom wing from the south-east. Windows facing south are protected by fixed eggbox louvres, east windows by adjustable vertical louvres.



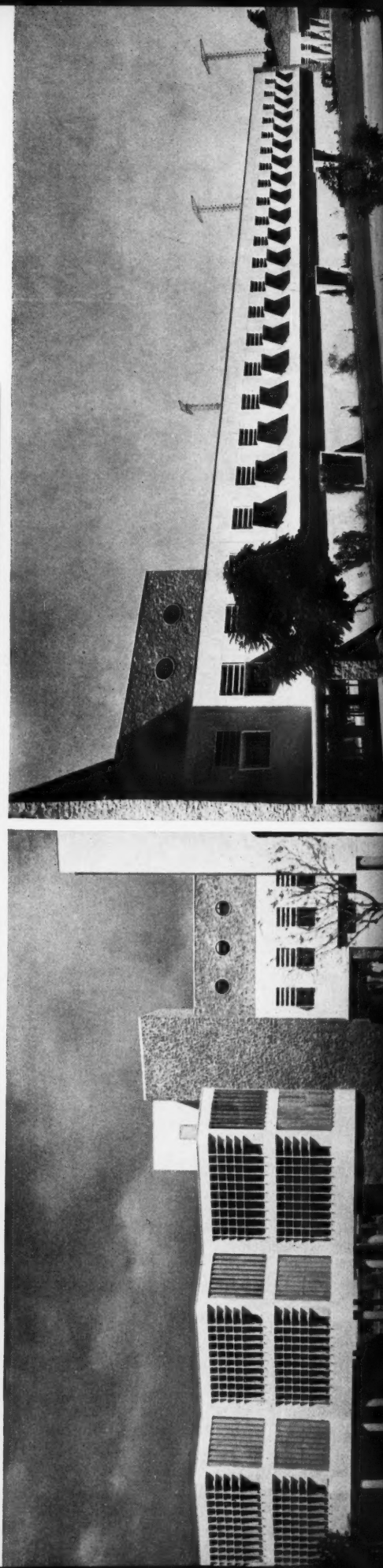
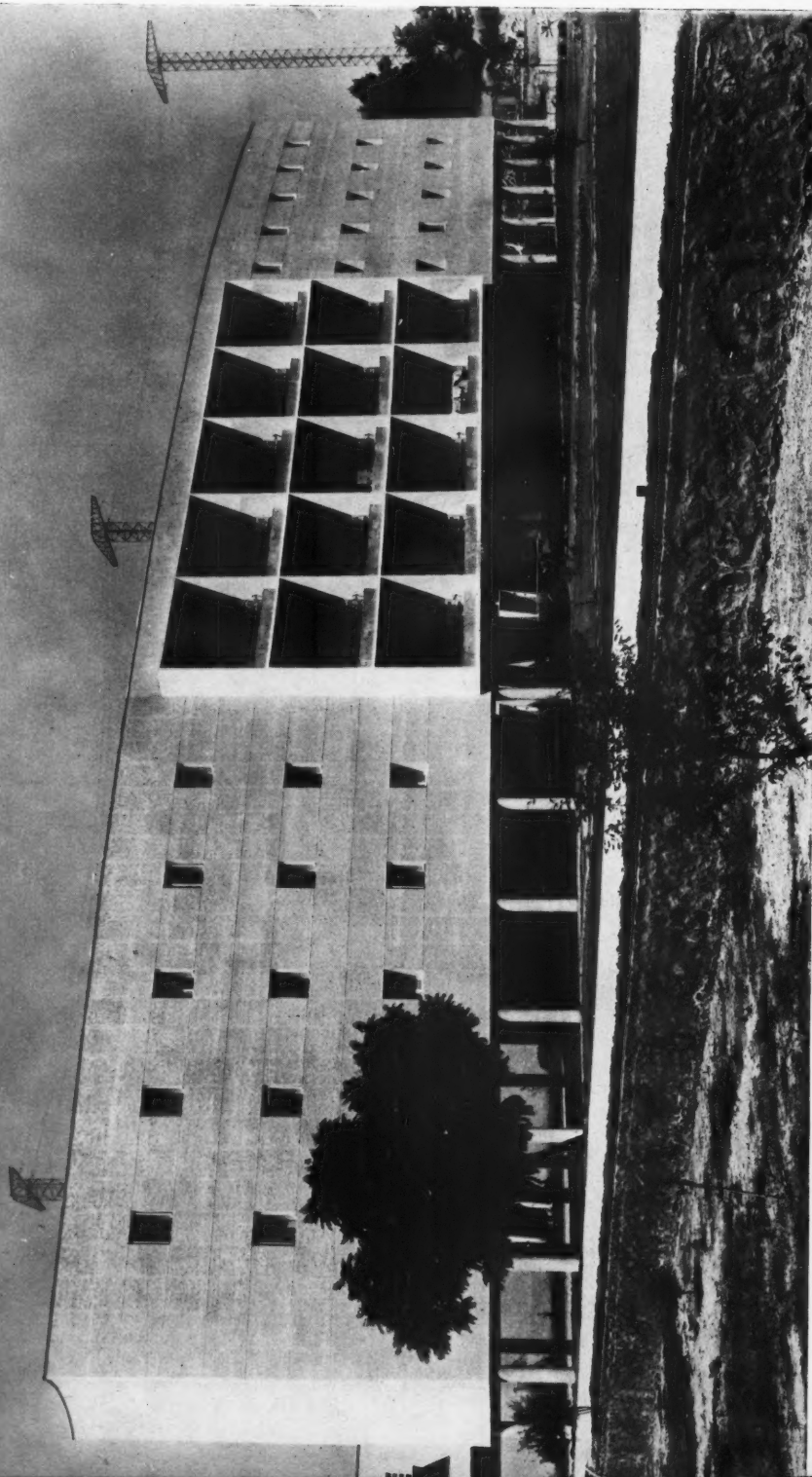
VICTORIA COLLEGE DAIRO

1. general view of the completed part of the school; on the left is the main school block, on the right one of the dormitory blocks.
2. north-western side of the main block.
3. the main school entrance from the south.
4. the classroom wing from the south-east. Windows facing south are protected by fixed eggbox louvres, east windows by adjustable vertical louvres.

VICTORIA COLLEGE CAIRO

5, the dormitory block. 6 and 7, the main entrance to the school block seen in 6 with the classroom wing on the left and in 7 with the common-rooms on the right. The balconies in the dormitory block belong to the masters' flats; they are designed to exclude all but early morning sun-
shine.

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6 | 7





Site The grounds are about 25 acres in extent and roughly triangular in shape. They lie to the east of a little used single track railway line which deals almost exclusively with goods traffic. The boundaries of the site are formed by tree lined roads of generous width, and the main approach connects with a *midan** of some importance in relation to the estate development. Maadi is already a well established and developed garden suburb, while present and further development lies mainly to the south of the site. Immediately to the north of the college is the main Marconi Wireless Station in Egypt, and the lattice steel masts dominate the landscape behind the new buildings.

siting The four main considerations were (a) the retention of as much of the site as possible for a sports field; (b) the avoidance of any nuisance caused by the railway line; (c) to take maximum advantage of the prevailing wind from the north-west; (d) to avoid hot and airless 'pockets' between buildings and closed courtyards.

The layout adopted groups the buildings to the north-east of the site on an axis through the centres of the *midans* at the main and secondary entrances to the college grounds.

climate With the exception of the coastal areas, the climate of Egypt is very dry. During summer, and the greater part of spring and autumn, rain is practically unknown, while only a few light showers may be experienced in the winter. In other years, heavy rain may occur, but never for any lengthy period. In summer, late spring and early autumn sunshine produces quite high temperatures, particularly when the sun shines from a clear, cloudless sky. At these times the shade is a pleasant relief to the heat of the sun. However, during the winter the sunshine is very welcome, for the weather can be cool and the wind keen, although the period when such conditions are likely to occur is not very long, and usually lasts from about mid-December until the end of February. As the school year commences at the beginning of October and ends in June, the solar heating properties are just as welcome in the winter as the sunshine is objectionable in the summer.

It should be noted that the normal practice in Egypt is to employ external louvred wooden shutters to exclude the sun's rays. This practice produces gloomy conditions, even when the sun is at its strongest, and a survey of existing schools found examples of electric lighting being used to improve the very poor natural lighting which managed to filter in through the wooden shutters.

The use of large unscrutinised window areas, giving good natural lighting, would result in rooms being uninhabitable in summer due to excessive solar heating. By the use of sun screening, however, selective exclusion of sunshine can be obtained together with good lighting conditions.

To meet the varying climatic conditions of both winter and summer, various plan shapes, grouping of buildings, and forms of fixed and adjustable sun screens have been employed. The theoretical basis upon which these screens have been designed has been fully justified in practice, the desired degree of sunshine control has been obtained with considerable accuracy and at the same time evenly distributed, high intensity, glare free lighting is

* Tree-planted traffic roundabout.

provided. Also every advantage has been taken of the prevailing cool and invigorating wind which blows from the quarter between north and west. To obtain the maximum benefit of the cool breeze, the buildings are varied in height, some being raised on columns.

finance The finances immediately available to the College Council were extremely limited, while the accommodation required was considerable. This has resulted in the standard of finish and the materials employed for flooring being of a strictly utilitarian and austere character. The planning of the scheme so that the buildings can be erected in stages was also required because of the lack of funds.

The first portion of the scheme, which is now completed, comprises the following:—

Main School Block: (a) 12 classrooms to be increased by 6 in the future. (b) Biology, physics, advanced and elementary chemistry laboratories. (c) Lecture theatre. (d) Boys' common rooms, studies, tuck shop, school shop, dark room, book store, etc. (e) Housenaster's rooms, master's common rooms, etc. (f) Shower block. (g) Kitchen. (h) Dining Block: (a) Dining hall. (b) Kitchen. (c) Servants' accommodation. (d) Supervisor's flat. (e) Dormitory Block: (a) 6 dormitories—total 90 boys. (b) 15 one-room flats for masters. (c) Dispensary. (d) Preparatory School: (a) 7 classrooms. (b) Assembly hall. (c) Mistresses' accommodation.

The buildings yet to be built, to complete the scheme as planned, are a second dormitory block for 120 boarders, with common rooms and staff flats, administration building, assembly hall theatre, main entrance hall and library, art and handicraft building, swimming pool, open-air theatre, squash courts.

planning CLASSROOMS. The individual classroom plan shape has been evolved from the consideration of many factors:—

1. THE WEDGE SHAPE

(a) Concentrates the pupils' vision and attention upon the chalkboard. (b) Enables the master to control the whole class with ease, as all the pupils are within his angle of vision. (c) Places the long lighting wall with an aspect of due south, allowing the most economical use of sun screening. (d) Places the rear wall facing due east, allowing the maximum penetration of sunshine for solar heating during the cool winter mornings.

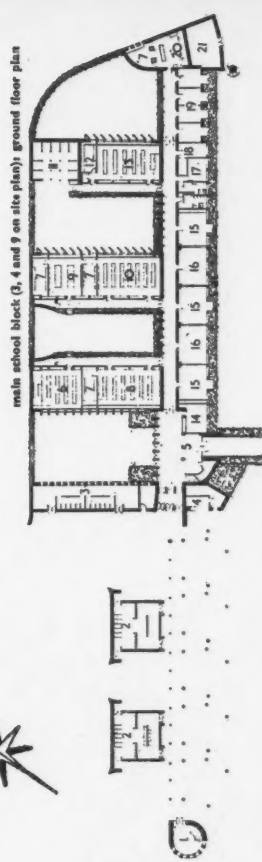
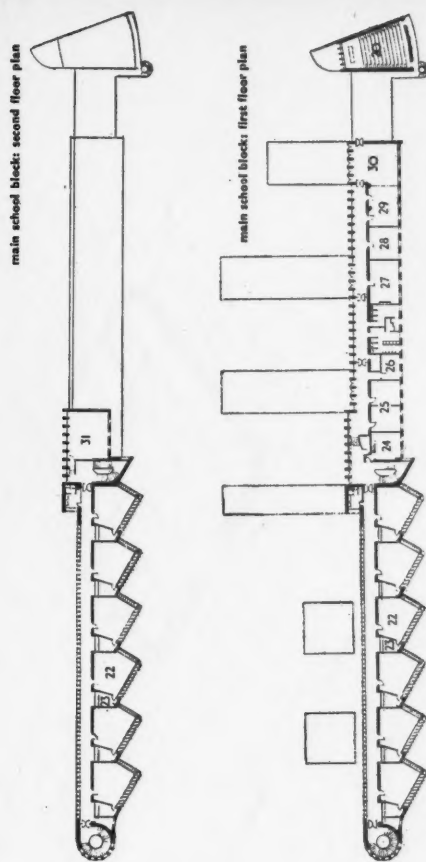
2. TEACHING AIDS

(a) A continuous display area is provided from the chalkboard to the rear wall. (b) The back of the chalkboard folds back and reveals a visual aid projector screen. The projector itself is placed upon a shelf at the bottom right-hand corner of the chalkboard, convenient for operation by the lecturer. It projects through a porthole on to the screen via a mirror on the rear wall of the store.

Three removable boards may also be used on the chalkboard frame, so that together with the rear surface of the board a large area is available for demonstration purposes.

3. WINDOW WALLS

(a) The vertical louvre units to the south wall are so arranged that the pupils can see no sky area within at least 100° angle of vision when they are looking towards the chalkboard. This ensures that they will not suffer from sky glare caused by views of the bright sky. If they desire to obtain relief



first floor plan



dormitory block (11 on site plan) ground floor plan



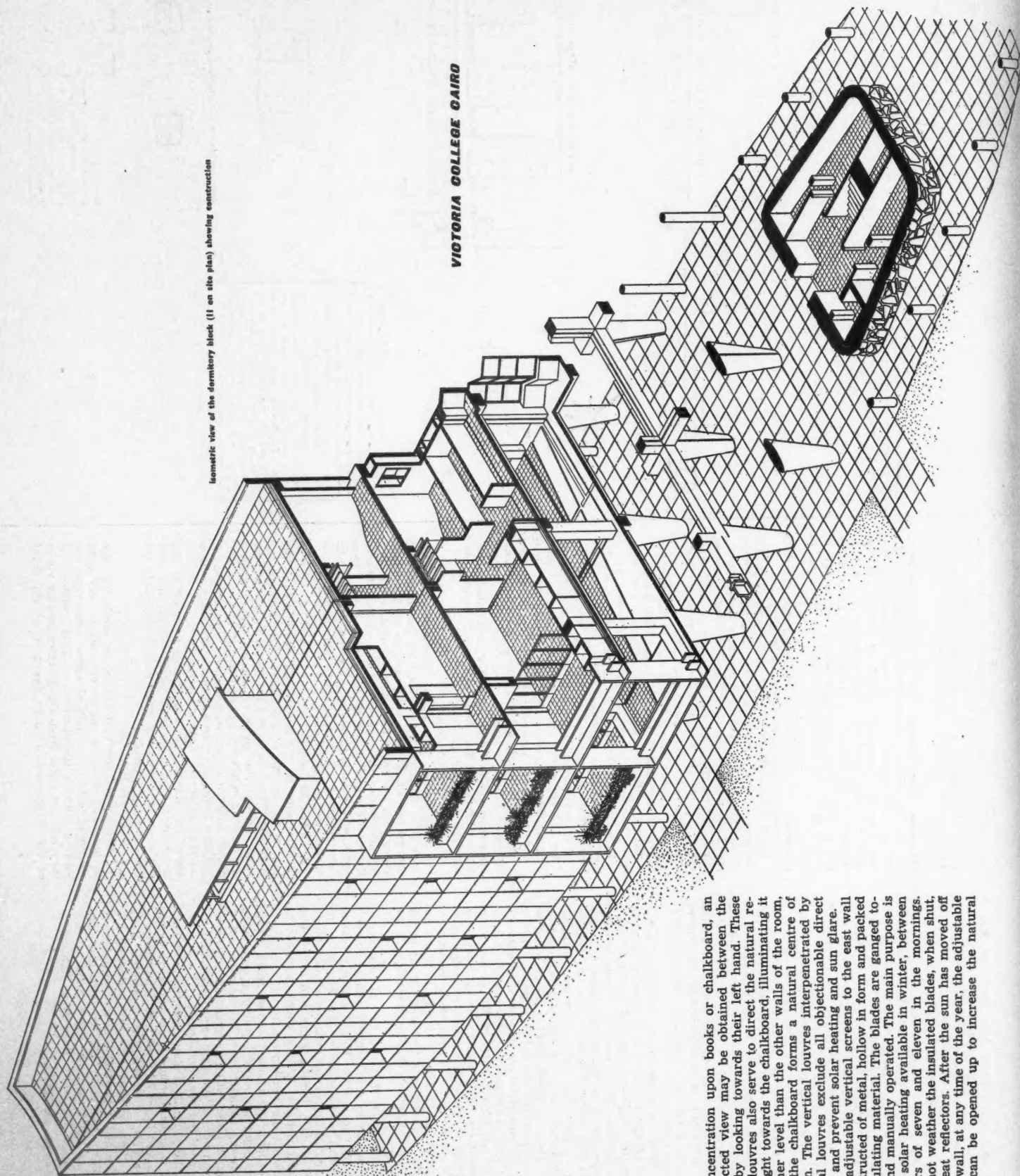
key

- 1. dormitory, 2. boys' studies, 3. assembly hall, 4. common room, 5. master's room.

- 1. west entrance, 2. lavatories, 3. shower wing, 4. tuck shop, 5. main entrance and hall, 6. geography room, 7. preparation room, 8. physics laboratory, 9. advanced chemistry laboratory, 10. elementary chemistry laboratory, 11. biology study, 12. biology store, 13. biology laboratory, 14. school shop, 15. boys' common room, 16. table tennis room, 17. scout master's room, 18. photographic room, 19. senior boys' studies, 20. science lecture theatre, 21. school carpenter's shop and store, 22. classrooms, 23. store to classrooms, 24. book store, 25. house master's studies, 26. second master's study, 27. female staff common room, 28. marking room and study, 29. visiting masters' common room, 30. male staff common room, 31. music room.

Isometric view of the dormitory block (II on site plan) showing construction

VICTORIA COLLEGE CAIRO



from concentration upon books or chalkboard, an unobstructed view may be obtained between the louvres by looking towards their left hand. These vertical louvres also serve to direct the natural reflected light towards the chalkboard, illuminating it to a higher level than the other walls of the room, so that the chalkboard forms a natural centre of attraction. The vertical louvres interpenetrated by horizontal louvres exclude all objectionable direct sunshine and prevent solar heating and sun glare.

(b) The adjustable vertical screens to the east wall are constructed of metal, hollow in form and packed with insulating material. The blades are ganged together and manually operated. The main purpose is to make solar heating available in winter, between the hours of seven and eleven in the mornings. During hot weather the insulated blades, when shut, act as heat reflectors. After the sun has moved off the east wall, at any time of the year, the adjustable screens can be opened up to increase the natural lighting.

DORMITORIES To achieve the most economical use of space a wedge shaped room was decided on. This allows space for circulation at the point of entry, where the washrooms and the door to a sewing maid's room are situated; and reduces the space at the far end to passage width sufficient solely for access to the end beds.

Dormitory window cills are placed five feet above floor level so that they do not interfere with the placing of beds. The windows are inward opening, and timber shutters open out within the depth of the 25 in. thick external walling.

All the masters' flats are provided with a balcony, and the rectangular box-like structure to these rooms on the south-east façade is designed to exclude all sunshine except that of the early morning during the cooler winter period of the year.

It is intended that the future five-floor dormitory block shall be similar in plan and form to the three-floor block.

DINING HALL The relation of the various elements included in the block of buildings, of which the dining hall is the largest unit, has been designed to facilitate circulation between the various rooms, yet enable easy control of the college servants to be exercised by the kitchen supervisor and the steward. When the scheme is completed the dining hall will be available for use, on special occasions, in conjunction with the assembly hall. The main entrance hall will act as a foyer for these functions and the adjacent library will be used for the reception of VIP's.

COVERED WAYS Throughout the scheme many covered ways are provided to give shade from the hot sunshine. The walking way between the main school block and the dining hall is as yet uncovered, but there is provision in the ultimate scheme for a canopy. When this stage is reached it will be possible to walk from building to building under shaded walking ways with the exception of the short distances to the dormitories and the preparatory school.

labour and supply The structural design of the buildings, and the selection of the materials and methods to be employed in their erection, was greatly influenced by the fact that all labour and supervision would be Egyptian. While reinforced concrete has been in extensive use in Egypt for many years, there is a marked difference between standards and method in Egypt and this country. Certain structural forms and recent developments were precluded because the required highly skilled workmen experienced in new methods and technique were not available. Similarly many materials in general use here for such purposes as insulation, etc., were not readily available or proved to be uneconomical when compared with local materials. However, reinforced concrete construction is the usual structural material, although due allowance has to be made for a less precise finish than that normally accepted here.

The mason, both stone and brick, is the craftsman used for all walling and partitions. The materials he generally uses are soft white limestone, red bricks, concrete bricks and sand lime bricks. The finished work is almost invariably plastered, and as a result

the mason rarely executes work that one would wish to leave unplastered. At the same time, an extremely hard red-brown sandstone can be obtained and skilled masons are available who can execute random rubble walling of a fair standard.

Plastering is the universal finish to practically all buildings. The plasterer is used to being given extremely rough and irregular work to 'cover up', although this frequently results in the thickness of the plaster coat being much in excess of that normally found in this country.

Cement is manufactured in Egypt, and all cement products, such as vibrated precast concrete, cement tiles and terrazzo pavings are in general use. All timber and metal have to be imported, and these materials are relatively expensive. Sanitary ware, builders' ironmongery, etc., of a satisfactory quality have also to be imported, with the resulting high cost and not infrequent damage in transit. **Structure** Single-storey buildings have load bearing walls, but elsewhere R.C. framework is used. All

floors and roofs are R.C., but the classroom floors are of hollow pot construction, reinforced both ways, owing to their large span and the desire to avoid beams showing in the classrooms.

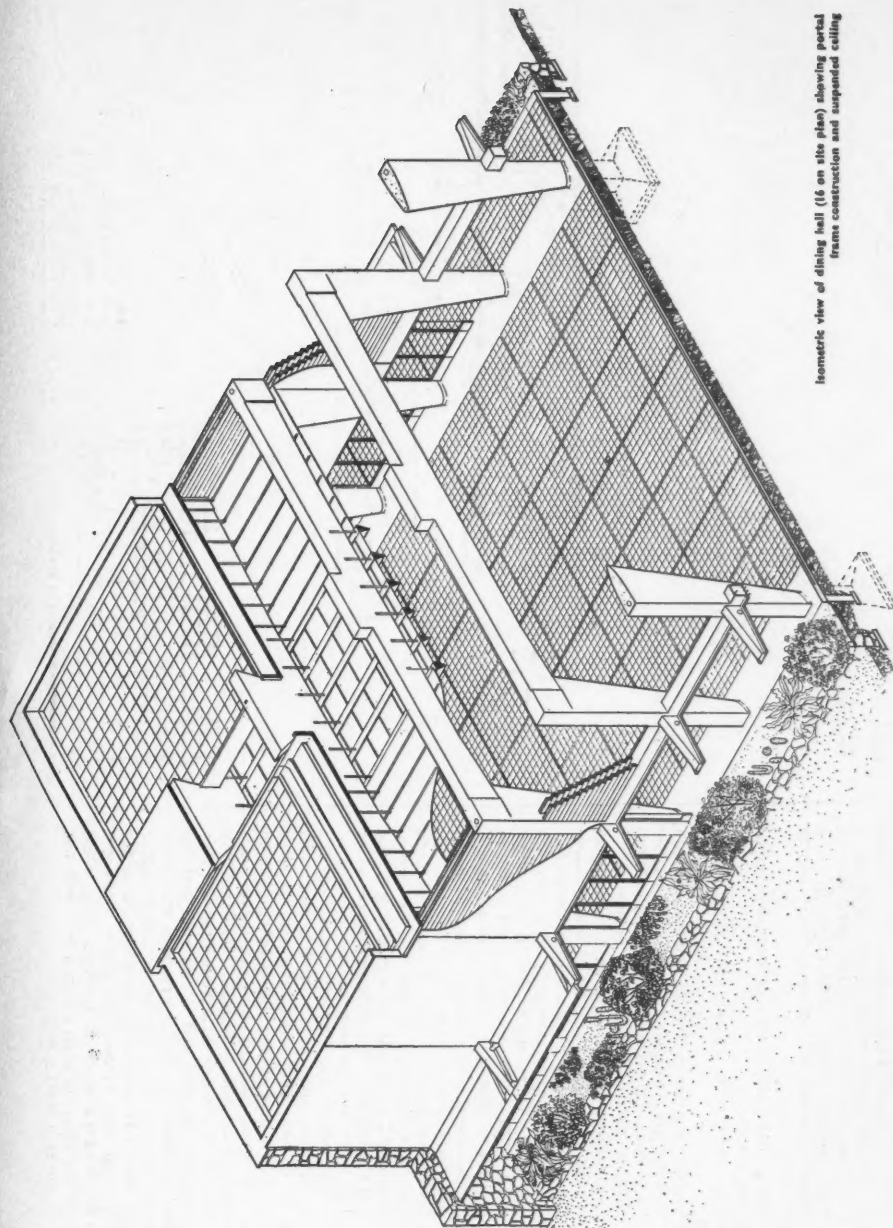
(1) The construction provides good insulation from heat and generally has large thermal capacity to conserve the heat during the cool nights.

(2) External surfaces are light in colour to assist heat insulation by the reflection of sunshine.

(3) All buildings are separated into small units by expansion joints, which pass completely through them, in order to reduce thermal movement to the minimum extent and thus prevent the setting up of excessive stresses in the R.C. framework and load bearing walls.

(4) All openings required for lighting or ventilation are screened from sunshine by permanent louvres, and are glazed (a) to perfect the solar heat barrier provided by the sun screens, (b) to exclude dust, particularly during sandstorms

Isometric view of dining hall (16 on site plan) showing portal frame construction and suspended ceiling



(rain occurs so infrequently that its exclusion, although provided for, is a problem of relatively minor importance).

Ventilation Ventilation is essential owing to the high air temperatures. The prevailing north, to north-west, winds, which are almost continuous throughout the year, are used by providing openings on the N.W. face of the buildings connected, in some cases, by floor ducts across corridors, to convertible vents at floor level; the vitiated air being drawn out through normal type opening window units on the leeward face of the building. The higher buildings, the classroom wing (3 floors in ultimate scheme) and the dormitory blocks (3 and 5 floors) are raised up on columns to allow the free movement of air under the buildings at ground level and thus to prevent the formation of pockets of hot air.

Cladding (1) Brickwork of hollow construction 15 in. or 25 in. overall consisting of half brick inner and outer leaves bonded together, the former by metal wall ties and the latter by cross walls at intervals, finished externally with cream colour rendering with rubbed 'tyrolean' finish which is divided into panels by sinkings.

(2) Local Abbassia stone of a red-brown colour in uncoursed random rubble 16 in. to 20 in. thick, generally load bearing.

Roofing The roofing finish generally is:—
(a) 15 cms. (6 in.) of an aerated lightweight cement material of high insulation value, under (b) cement and sand screed to falls, under (c) two layers bitumen felt and hot bitumen waterproof membrane, under (d) 4 cms. (1½ in.) thick x 40 cms. (16 in.) x 40 cms. (16 in.) Massarah Balaties on sand bed. These balaties are cut slabs of soft white limestone which provide good reflective insulation owing to their natural white colour.

Floors The floor finishes used are: 1½ in. in situ terrazzo divided into units by aluminium, brass or ebonite strips; 1½ in. granolithic paving with ebonite expansion strips; grey cement tiles, either laid close jointed, or with wide joints filled in with cream coloured cement, and divided into panels by strips of terrazzo. A covered purpose-made skirting tile precast of cream terrazzo is used to all grey tile floors. It is intended to replace much of the grey tiling with timber flooring (when funds become available), so the tiles are laid on a 2½ in. consolidated sand bed to facilitate the change.

Walls Except where the red-brown sandstone random rubble walling is used for colour and texture, both as external walling and the decorative treatment internally, the walls are built of solid white limestone masonry where they are weight carrying, the thickness being about 20 in.; where walls form the cladding to the R.C. structure they are built in concrete bricks.

All internal wall surfaces, except the sandstone rubble walling, are plastered and painted.

External rendering as described in 'cladding'. **Sun screens** are either precast, vibrated, reinforced concrete units, sheet metal louvres filled with insulating material to the adjustable classroom screens, or, in the dormitories, traditional timber louvered shutters.

Services **WATER:** from mains supply, but pumped to tanks on the roof of the dormitory block.

ELECTRICITY: from mains supply. The distribution cables are carried in tubing built into the structure. An electric bell and master clock system is installed.

GAS: no mains gas available. 'Butagaz' from re-plishable portable containers is piped to the science laboratories, also to the boiling pans, grillers, etc., in the kitchen.

OIL: the main boilers, for domestic hot water and heating, are oil fired. Oil is the fuel used in the kitchen for the large central range with its four separate burners.

DRAINAGE is to septic tank installations within the site.

Miscellaneous Metal windows, casements and swing doors; hollow cored plywood faced flush doors; solid cored timber fire resisting flush doors; pressed metal door frames. The purpose-made timber laboratory fittings, benches, pressed metal chalkboard fittings, lockers, bedside fittings, built-in furniture, etc., were designed by the architect.

Roads The roadways within the site are constructed of 'mix in place', a bituminous compound being mixed with the sandy top soil by machine (like a cement mixer) and spread directly in position by an almost continuous process. It is a most economical form of roadmaking which provides a durable, hard wearing surface, as has been proved by the many desert roads constructed by this method which were subject to very heavy traffic during the recent war.

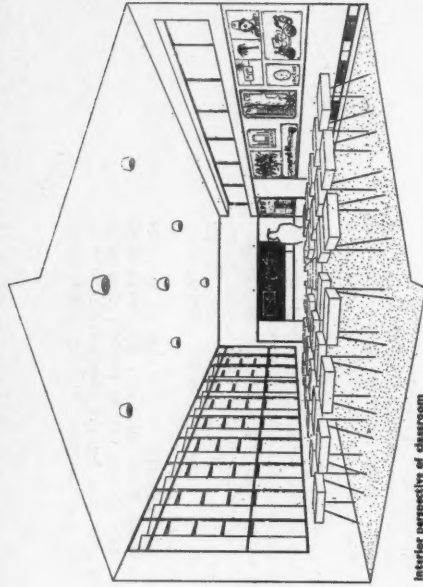
Colour Throughout the buildings extensive use of colour has been made.

Externally, red-brown stone and pale cream rendering.

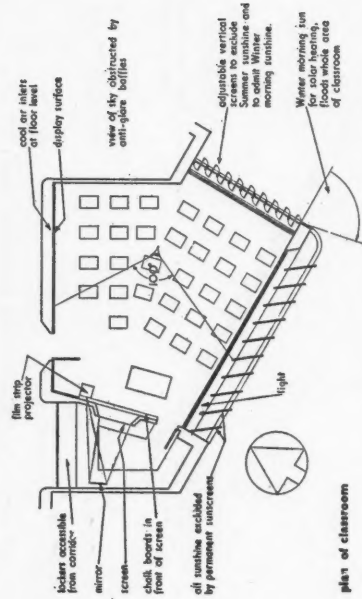
Internally, the staircases are finished with blue terrazzo, and the grey cement tiles of the corridor flooring are arranged with cream joints and wide terrazzo margins. The other floors are grey tiles.

Painted walls have a gloss dado up to door head height in corridors, covered ways and other places where traffic is heavy, and matt surfaces elsewhere. Classroom walls have each been painted a different colour, as have the walls in the dining hall; they are all in pale shades: blue columns, flesh coloured walls, ivory ceiling, dove grey doors, frames, etc.

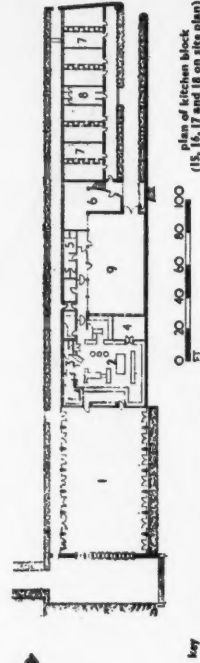
Planting Throughout the scheme flower boxes and flower beds have been incorporated, so that full advantage can be taken of the ease with which flowers and flowering shrubs can be grown, and used to humanise and add natural colour to the exterior of the buildings. The beds and boxes at or near ground level are formed in the red-brown sandstone. The site, and indeed much of the land at Maadi, was once desert, and it has been reclaimed by careful and constant irrigation over many years. The whole of the site is being planted with grass and trees, and the numerous flower beds and flower boxes on the buildings themselves are being cultivated. There are irrigation ditches, pipe-work and culverts around and in the site, and the flower boxes at upper levels are provided with permanent water supply, for in this hot country regular watering of plants is absolutely necessary in order to cultivate them with success. The flower beds and boxes are filled with mud from the River Nile, while the whole of the site has been given a two inch top dressing of this rich fertile soil.



Interior perspective of classroom

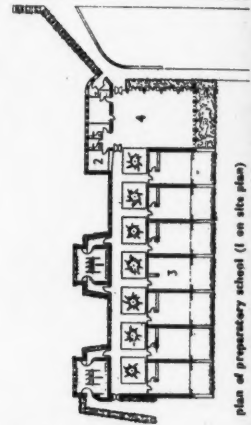


plan of classroom



plan of kitchen block
(15, 16, 17 and 18 on site plan)

key
1, dining hall, 2, kitchen, 3, superior's office,
4, servants' dining room, 5, staff toilet, 6, laundry,
7, servants' room, 8, servants' bathroom, 9, kitchen
yard.



plan of preparatory school (1 on site plan)

key
1, lavatories, 2, head-
mistress, 3, classrooms, 4,
hall.

pumped to tanks on the roof of the dormitory block. dressing of this rich fertile soil.

plan of preparatory school (1 on site plan)

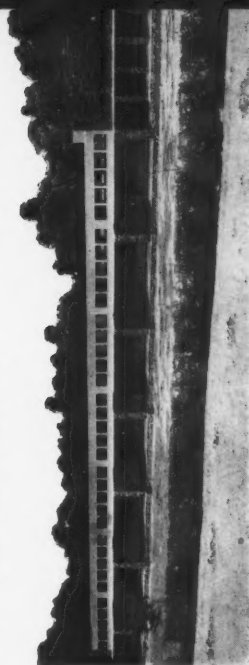
alt.

VICTORIA COLLEGE CAIRO

8

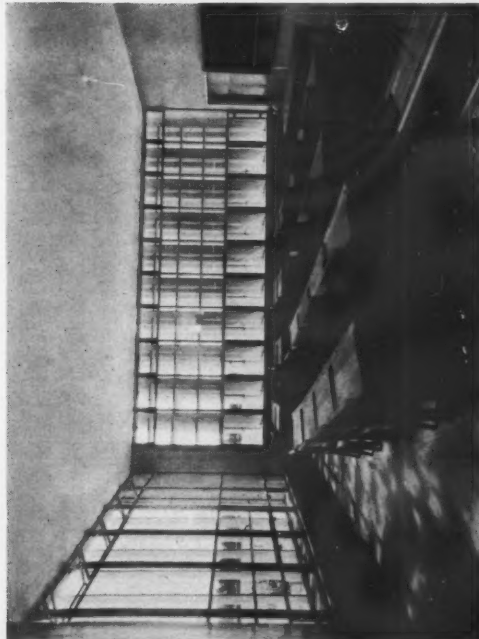


8. the interior of the dining hall. 9. the preparatory school. 10. a typical classroom. 11. the main school hall wing. 12. the preparatory school hall and. 12. one of the classrooms. Throughout the buildings all the interiors are plastered and painted: columns are blue, walls are in a variety of pale shades, ceilings ivory, doors and frames dove grey.



9

10



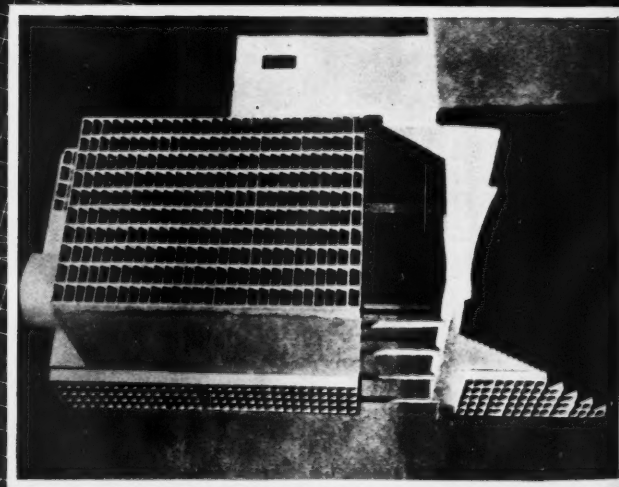
11



12



Brise-soleil were proposed for the first time in 1933 in one of Le Corbusier's projected buildings for Algiers (see left). They demonstrated that the problems of sunshine control can be solved by the application of screening as an integral part of the technical and aesthetic considerations of architecture, rather than by the haphazard use of sunblinds as an afterthought. The system proposed was that of horizontal adjustable louvers and, as can be seen from the photograph, they were to be very similar in form and treatment to those actually incorporated in the Ministry of Education and Health building at Rio, for which Le Corbusier was consultant. The then revolutionary solutions proposed demonstrated a new aesthetic and technical approach to the problems of sunshine control. The axonometric view of a classroom wing of Victoria College, Cairo, illustrated fully on the preceding pages, shows one of the most recent applications—a combination of egg-box and vertical adjustable louvers. In the article on the following pages the different forms the brise-soleil can take are discussed in relation to the scientific principles on which they are based. The author is assistant to the architects of Victoria College, Cairo, and his researches into the subject were undertaken in connection with the design of this building.



H. P. H. West

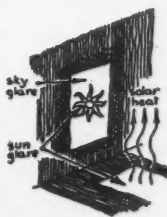
SUN CONTROL

The majority of design problems require the control of sunshine to some degree, the architect being chiefly concerned with the provision of diffused sunlight for natural lighting, direct sunshine for its bacteriological and health-giving properties, and the provision, or prevention (according to climate), of solar heating.

To provide the high intensities of natural lighting which are now demanded, large window areas are required. Although solar heating can be a very real asset, particularly in cool climates, such as that of Britain in winter, the use of large windows may result in excessive heating in summer and may also give rise to conditions of sky glare or sun glare, so that special precautions may be necessary to reduce such discomfort to a minimum.

sky glare

Sky glare occurs when dark shadowed surfaces contrast with the bright sky areas visible through an opening. Its effects may be minimized by eliminating structural members from the window wall, or by making them as thin as possible and splaying or rounding their internal edges to reduce the area in dark shadow to the minimum. Sun screen assemblies may be so designed that their internal surfaces are illuminated by reflected light, but it is also advisable to



make them light in colour. The alternative solution is to completely obscure views of the sky. Where the direction of vision of the persons within a room is relatively fixed, as in auditoriums and classrooms, this may be achieved by the use of deep piers or vertical baffles across the windows (as Victoria College classrooms) or by obtaining light solely from properly screened roof openings. The angle of the horizontal field of vision, within which the viewing of a bright light source will cause glare, is about 60° , but the eye can actually see more than 180° on the horizontal plane, so that it is safer to use an angle approaching this for design purposes. The critical vertical angle of vision is about 30° with a limit of about 55° and 'eggbox' screens may be designed across roof openings to obscure views of the sky for all normal angles of vision. It should be noted that the critical design angle of these screens is that of the diagonal, not that between opposite sides of each box.



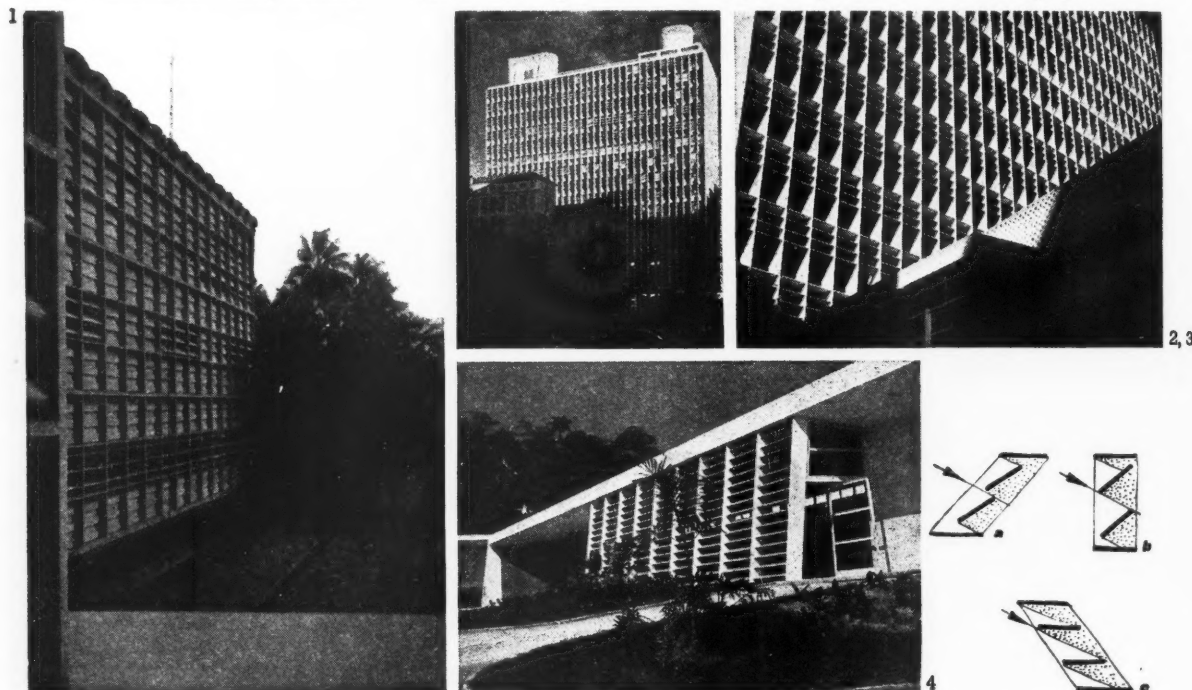
sun glare

Sun glare occurs when direct sunshine falls across the working plane and can only be prevented by excluding sunshine or by diffusing it throughout the

horizontal adjustable louvres This dormitory building at Pondicherry, in India, 1, by Antonin Raymond was commenced in the same year (1937) as the Ministry of Education at Rio, but finished in 1938. It would seem therefore to be the first building using sun screening on a large scale. The humid Indian climate requires the maximum ventilation at all times; thus no glazing is employed and the adjustable louvres are so shaped that even when they are completely closed ventilation is still provided. In the Ministry of Educa-

tion building at Rio de Janeiro (1937-42), 2 and 3, the screen units comprise three adjustable louvres formed of asbestos cement sheet in metal frames, ganged together and operated from within the building. Complete sunshine control is obtained. One disadvantage of this system is the chequered pattern that results. A way to overcome this would be to pivot the louvres about their outside edge, although some device would be required to retain the louvre at the desired angle. The outside edges

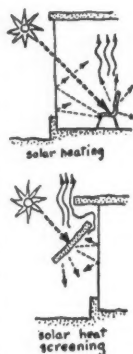
would then always remain in the same position and, although there would be a varied shadow pattern, the general horizontal lines of the louvres would be retained. The shop and laundry near Rio de Janeiro, 4, by Affonso Reidy shows the use of horizontal adjustable screens on a small building. The prominent screen supports slope inwards from the ground to roof; however, as the diagrams show this requires the louvres to be more nearly closed than if the supports were vertical, or sloping outwards.



room. Screens for this purpose should preferably have a matt surface; for a highly polished surface might cause glare by specular reflection. It should be noted that, although it may effectively diffuse sunlight, the use of moulded or textured surfaced glass is unlikely to prevent sun glare; in fact, it may well accentuate the problem, for the surface of such glass may itself become a brilliant source of light contrasting with the lower general level of illumination within the building; so that these surfaces will themselves require to be screened. Translucent materials may behave in a similar manner unless they are fairly dense, and their surface brightness thus of a low value.

excessive solar heating

Even in Britain, solar heating can cause discomfort during the summer months and although the use of curtains or blinds is often considered sufficient to reduce its effects to an endurable level, some problems require more precise and effective methods. On latitudes where the intensity of sunshine is great over long periods of the year, the prevention of excessive solar heating is a problem of primary importance. The fabric of a building may be constructed to reduce the entry of solar heat to a minimum, but if this highly efficient heat barrier is pierced by any opening which

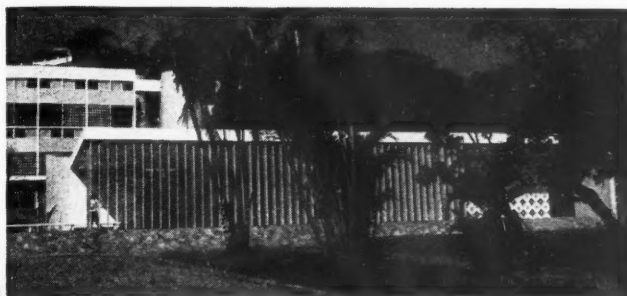


allows sunshine to enter, the resulting solar heating effects may well be sufficiently great to completely nullify the usefulness of the insulation.

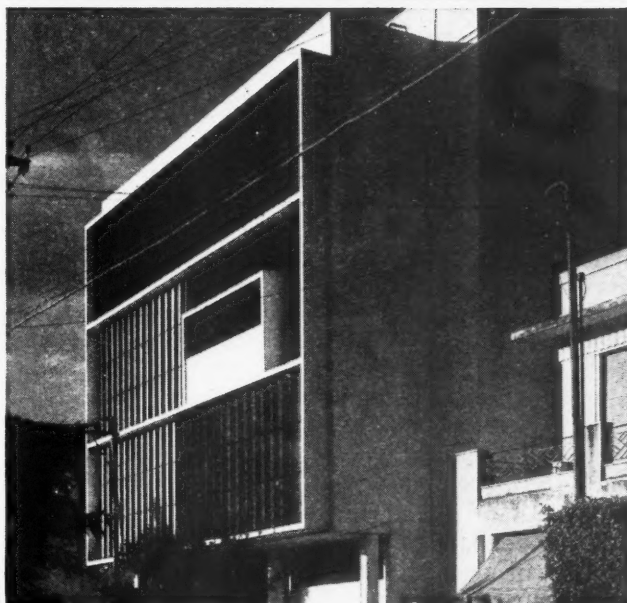
The problem may be solved by the selection of suitable orientation; e.g. a north-easterly aspect will exclude all but the early morning sunshine. However, such orientation may not be possible or desirable, for even in quite hot climates a northerly aspect may be rather cheerless and may result in chilly conditions in winter. The alternative solution is the use of sun screens, and, for this, it is useful to understand the nature of solar heating.

Solar heating occurs when the infra-red content of sunshine falls upon and heats objects in a room; and these objects, in turn, transfer this heat to the air of the room by the processes of conduction and convection. To prevent this, therefore, all objects within the room must be screened from sunshine. But any type of screen will itself be heated by the sunshine falling upon it, and will re-radiate this heat into the building. To reduce this effect to a minimum the screens should be shaped to allow air to circulate around and cool them, and placed outside the opening to exclude as much of this heated air as possible.

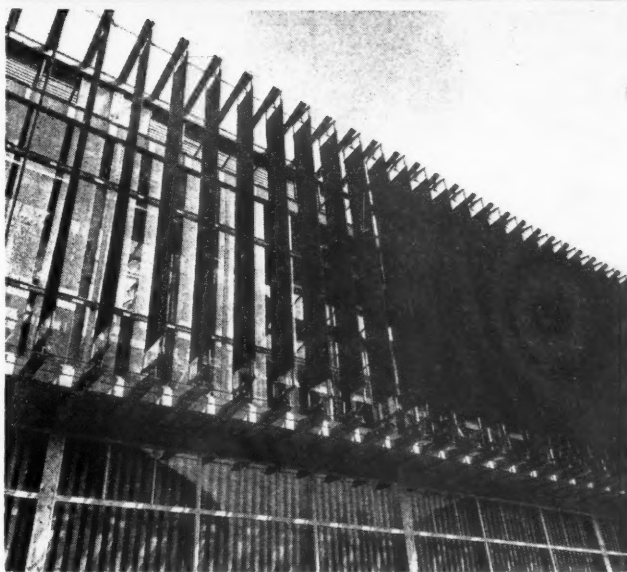
Ordinary glass, although transparent to the light spectrum and most of the infra-red wavelength range, is opaque to heat radiations emitted by objects having a temperature of 100°C or less. Re-radiated heat from



5



6



7

vertical adjustable louvres In the health centre near Rio de Janeiro, 5, by Affonso Reidy the vertical adjustable screens while looking extremely delicate are at the same time so dominant that the structural columns behind them disappear, and the roof seems to float above the louvres. The projecting concrete framing which unifies the whole façade of the day nursery at Rio, 6, by Oscar Niemeyer is, at the same time, necessary in order to prevent

the entry of sunshine from the head or sides of the screening. Screens used here are of asbestos panels in centre pivoted metal frames, and give complete sunshine control together with good natural lighting conditions. The screens to the countryside pavilion at the South Bank Exhibition, 7, by Brian O'Rourke were formed of green canvas panels spring tensioned between metal arms, ganged together and rotated

by an electrically driven motor. Complete sunshine control was not obtained though solar heat was effectively excluded, since the screens were placed outside the glazing. This was, no doubt, sufficient to protect the living plant exhibits in the gallery behind, and the general arrangement was an admirable solution to the particular problem.

objects heated by sunshine will be confined within a room having glazed openings, and the solar heating effects thus greatly intensified; greenhouses take advantage of this effect.

It follows that screens placed inside a glazed opening will be most inefficient; the screen will not intercept the heat rays until they have already entered the building, and but little heat will be excluded.

If, however, the screen is placed outside a glazed opening, the glass will exclude both the re-radiated heat and the air heated by the screen; and the efficiency of the solar heat barrier will be greatly improved.

the design of screens

Screens may be used: to concentrate sunlight in a desired direction; to prevent sky glare, sun glare, or solar heating. Although each has its own special requirements, it is frequently possible to design screens to solve two or more of these problems at the same time.

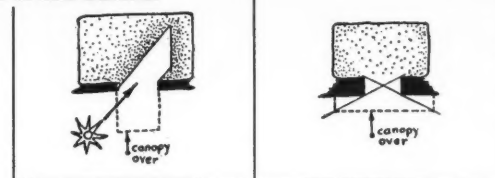
To prevent sun glare or solar heating, all sunshine must be excluded: but as the purpose of an opening is to admit light, act as a ventilator, or as a viewing area, screens must be of the minimum area consistent with the exclusion of sunshine, so that such use is unimpaired.

It is often thought that, for instance, at midsummer in Britain (when the maximum sun altitude is 62°) a canopy which obstructs an altitude angle of 62° on true section will exclude all sunshine; but this is not necessarily true; the orientation of the opening has a considerable influence on the entry of sunshine. Consider an opening facing due south; when the sun is due south sunshine will enter, but when it is due east or west (and the altitude is considerably less) no sunshine can enter because it is shining in a plane parallel to the face of the opening; and the 'apparent angle' of the sun, drawn on a true section, is vertical. In fact, a canopy with a 62° cut-off angle with an aspect of, for instance, south-west, will allow sunshine to enter at all hours after 1 p.m. in midsummer, and is less than 50 per cent efficient.

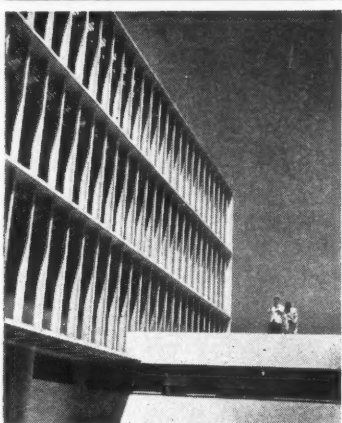
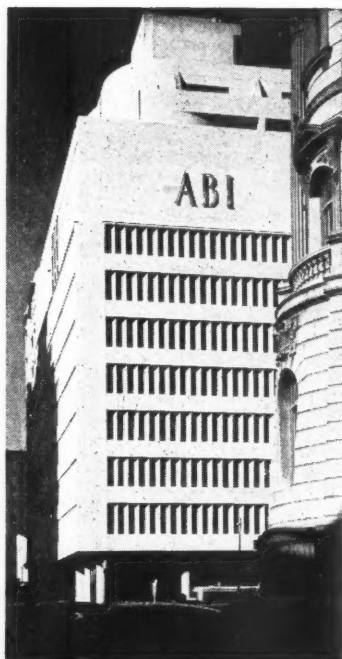
This problem is, therefore, rather complicated and no 'rule of thumb' method can provide any solution of the least value.

It is considered that the current available methods of analysis such as the Burnett diagrams, R. O. Phillips' diagrams, and the Helodian are not completely satisfactory for the purpose of sun screen design; and the author has developed a Solar Diagram from which the apparent angles may be directly measured, and the effect of any shape of screen simply but accurately determined by superimposing

methods of sun control



permanent vertical louvres The system employed in the Brazilian Press Association building at Rio, 8, by Marcelo and Milton Roberto, is of delicate deeply moulded bands of screening which form a strong contrast to the massive plain surfaces surrounding them. The louvres are permanent concrete slabs fixed at an angle to the building face, with an open corridor behind them. In the school at Rio, 9, by the same architects, fins are placed well in front of the glazing, and the louvred openings in the floor slabs between the glazing and the screens allow air heated by the louvres to escape from the building. This is most important and should be considered in all screen designs; for hot air trapped within the screen assembly could otherwise enter the building through any ventilation openings in the glazing. Another example of the permanent vertical louvre is in the science wing of Victoria College, Cairo. The sun shines only from one side of the openings which face north-east. The fins are therefore so arranged that the azimuth of the most northerly sunrise in midsummer lies on a line joining the edge of the fin with the opposite internal corner of the opening. However, to restrict the projection of the fins to a reasonable dimension it was found necessary to incline them towards the north. They are constructed of half brick walls, suitably reinforced, and finished with plaster. The canopy over is formed of precast concrete units, and to ensure the free circulation of heated air they have slotted perforations. Complete sunshine exclusion and large viewing areas are obtained with these simply constructed screens.



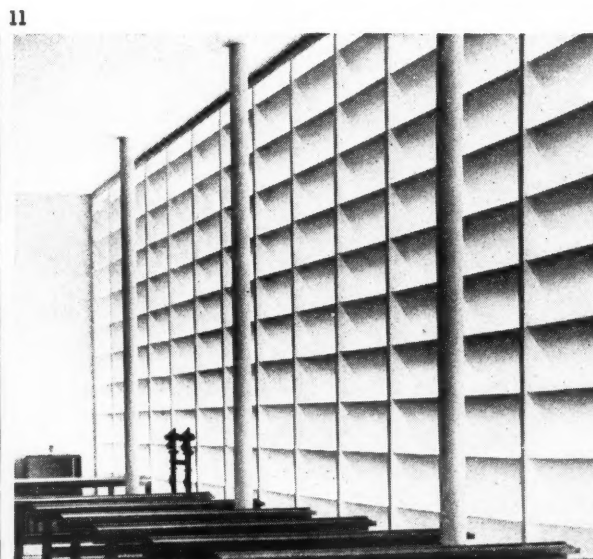
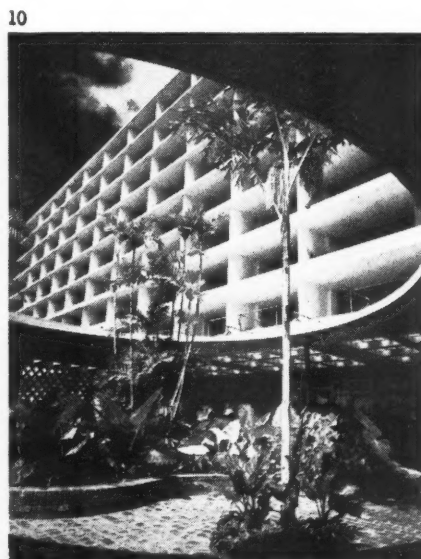
a 'mask' for such screen upon the diagram. It is essential that an accurate analytical design method be used to determine the minimum size and shape of screen for the required purpose.

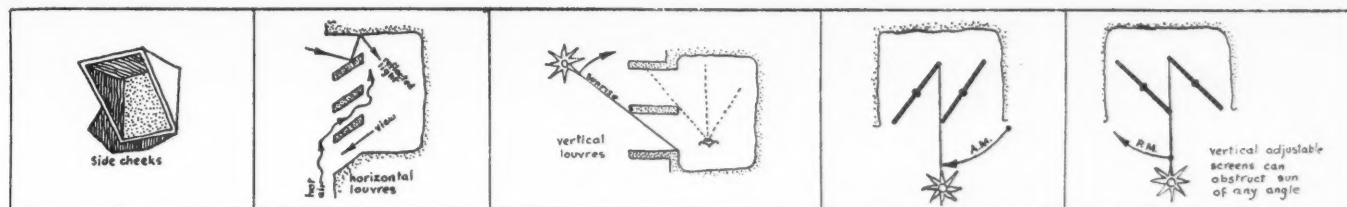
However, the basic screen shapes, horizontal, vertical, rectangular and 'eggbox' units, have certain characteristics which make them more suitable for application to some problems than others; so that it may be possible to select a shape before proceeding with the more detailed analysis required to determine the economic proportions of the screen. When considering these shapes, it should be noted that the actual size has no influence on the sunshine screening efficiency: thus a canopy six feet deep, and the blades of a venetian blind two inches deep, are both horizontal screens which may be designed to give the same degree of protection; it is the proportions of the opening that are the significant factor.

screen shapes

HORIZONTAL SCREENS mask steep altitude sunshine but are inefficient for screening the low altitudes of sunrise and sunset occurring at easterly or westerly aspects. They are thus most efficient for southerly aspects where the steepest range of altitude angles occurs. The most common form of horizontal screen is the canopy at the head of an opening. It should be noted that any such screen that extends for the width of the opening only will be most inefficient, for considerable areas of sunshine can enter from the ends of the canopy; these ends must be closed. This

eggbox In the hotel at Panama, 10, by Edward D. Stone, the eggbox type screening is formed by the structure itself. Extensions of the floor slabs provide horizontal members and fins attached to the structural columns the vertical ones. Free air circulation and almost unobstructed views are obtained from the screened balconies and corridors. In the chapel of the Bishop Anstey High School for Girls at Trinidad, 11, by Watkins, Gray and Partners, closely spaced vertical members, together with the asbestos horizontal louvres, form a non-structural eggbox screen. The chapel has a westerly aspect, and the tilted overlapping horizontal louvres ensure that all sunshine, including that of the almost horizontal evening rays, is excluded. Reflection from the louvres and ceiling provides adequate, diffused natural lighting. The south walls of the classroom block at Victoria College, 6, page 10, are also protected by eggbox type screening.





may be efficiently achieved by either of two methods: by the use of side cheeks extending at least to a line joining the leading edge of the canopy to the inner edge of the cill, or glass line (as used first floor, east wing, Victoria College); or by extending the canopy beyond the opening at least until its leading edge lies on the line joining the inner jamb corner with the opposite external jamb corner of the opening on plan. It is frequently difficult to construct a canopy to exclude sun altitudes of less than about 45° , because of the large projection that would be necessary, and for these angles it may be more convenient to use a series of horizontal louvres one under the other across the opening. To retain a reasonable spacing between louvres it may assist if they are tilted outwards and downwards. Such louvre assemblies can assist the room lighting by reflecting light into the distant areas via the ceiling, although direct light will be obtained only from the less bright sky areas near the horizon. Where the tendency is to look downwards through the louvres they offer but little obstruction to the view, although they may obstruct views of the interior from outside the building. They are often used where ventilation is also required, as can be seen in the typical wooden shutters common throughout the southern areas of Europe, but their shape tends to encourage the movement of hot air into, rather than out of, the building.

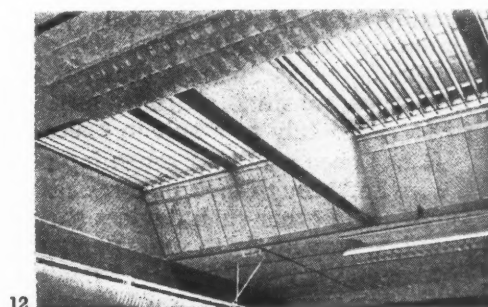
VERTICAL SCREENS mask the sides, but allow all sunshine in front of the opening to enter. They are

therefore most efficient for those aspects where sun will shine from the side of the opening only; i.e. aspects north of east and west (as Victoria College science wings). Care must be taken to ensure that the head of the screening is closed to prevent sun penetration from this direction.

Direct light will be obtained from a vertical strip of sky and will therefore be of greater intensity than that obtained from horizontal screening, and as these vertical screens may be easily constructed as piers, a large viewing area can only be used when looking directly between the screens, as they will tend to overlap when seen from any other angle; but as previously noted, this may be an asset if they are also required to act as anti-sky glare baffles.

RECTANGULAR OPENINGS or 'eggbox' screens combine the characteristics of horizontal and vertical screens; the efficient aspect range varying according to the predominant characteristic. It is possible to design a vertical 'eggbox' unit that can replace a solid vertical screen. In general it is easy to exclude high altitude, but difficult to exclude low altitude, sunshine.

ROOF OPENINGS may be completely screened from sunshine by the use of 'eggbox' units, or by louvres placed vertically across the opening in an east-west direction. It is easy to exclude low angles, but more difficult to exclude high altitude sunshine. Therefore the lower the maximum sun altitude angle,

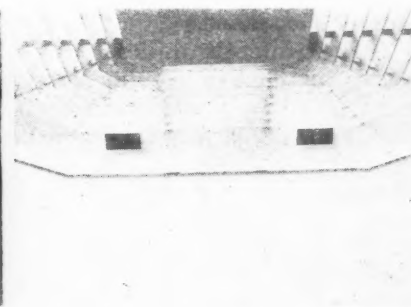
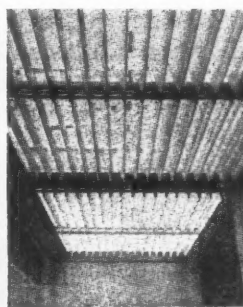


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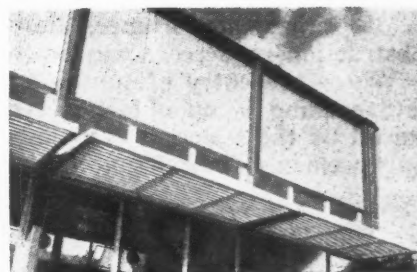
roof louvres Adjustable vertical rooflight screens control the light in this prototype classroom, 12, for Middlesex County Council by C. G. Stillman. Some solar heat is excluded, but the efficiency in this respect would be greatly enhanced by the addition of a glazed skylight under the louvres. The practical advantage claimed for this arrangement is that, owing to the evenly distributed high level lighting obtained, it has been possible to reduce the ceiling height. In the primary school at Hertford, 13, by C. H. Aslin, adjustable louvred rooflights (designed by Arcon) are used in the infants' classrooms in place of the usual clerestory lighting to provide controlled lighting and ventila-

tion. The high intensity lighting obtained has made possible a reduction of ceiling height to 9 feet. The Boymans Museum, Rotterdam, 14, by A. van der Steur has an arrangement of louvres which provides excellent lighting though not all sunshine is excluded. Slight rearrangement of the louvre angles would concentrate light more directly on the pictures, but additional screening would be necessary for the exclusion of sunshine. On the classroom units at Hatfield, 15, by Arcon, a louvred canopy is employed. All types of screening may be formed in this way. Advantages are: free air circulation, an effect of lightness, and less glare due to the relatively bright underside.

89712A



13, 14



15

the greater the spacing between louvres.

adjustable screens

The above screens have been considered as if they were fixed, and, indeed, such permanent louvres may be most economical; for they may be of robust construction and thus require little maintenance; the exclusion of sunshine is automatic, but, as they will be designed to exclude the lowest critical sun angle, they will give greater protection than is necessary at other times.

Adjustable screens will ensure a greater degree of natural lighting control; but, being mechanical, maintenance costs may be greater than for permanent screens and, moreover, their efficiency depends upon their intelligent use, which can seldom be guaranteed in practice.

For dull climates removable screens (either fixed or adjustable) may be most suitable; for their removal during overcast periods will ensure the provision of the maximum level of natural lighting.

Generally, it may be concluded that vertical adjustable screens are most efficient for easterly or westerly openings, and horizontal adjustable for southerly aspects; but vertical screens may be designed to provide large sky areas at all times for any aspect, while horizontal louvres must obscure all sky in order to exclude the low altitude sunshine of sunrise and sunset. It is interesting to note that the first type of 'brise soleil' to be used in Brazil was the horizontal adjustable, as on the Ministry of Education and Health building, Rio de Janeiro; but since then, as on the Day Nursery at Rio by the same architect (Oscar Niemeyer), the vertical adjustable has been more frequently used, possibly because of the better lighting and viewing conditions they provide. In spite of their apparent general inferiority, the horizontal adjustable screen in the form of the venetian blind is still extremely popular, but it is difficult to know whether this is because of its screening characteristics or because it is relatively economical to manufacture.

application of screening

It is frequently difficult to decide when additional cost is justified to provide screening. This can only be determined by considering each problem on its own merits with regard to the importance of the prevention of glare or solar heating. In hot sunny cloudless climates their use may not merely be justified, but may well be essential; for without them the interior of a building will either be unbearably hot, or else (with small openings in thick walls) very badly lit. In cooler cloudy climates, such as that of Britain, the provision of adequate natural lighting on dull days is of primary importance; and only the minimum obstruction by screens can be tolerated.

Where the entry of sunshine in early morning or late evening is no objection, the problem may be solved by the selection of a suitable orientation. The only permanent louvre that can be completely justified

in Britain is the vertical screen for aspects north of east and west: on southerly aspects it will not be practicable to exclude the very low altitude winter sunshine; but if, as in many problems, this sun is welcomed, it will be possible to use permanent screening to exclude the high angle summer sun only. In other cases, particularly where sun or sky glare must be eliminated, the use of adjustable or removable screens provides the only solution. In factories, workshops and similar workplaces where high intensity sunless natural lighting is essential, the use of screened roof openings may provide an excellent solution. Adjustable vertical louvred screens have in fact been used in two recent school buildings: a prototype classroom for Middlesex County Council by C. G. Stillman and a Primary School at Hertford by C. H. Aslin. In the former case these screened roof-lights are the primary source of light; relatively small vertical openings are provided to serve solely as viewing areas.

If sun screens are to be used on a building they must be considered during the very early design stage. Thus if permanent horizontal screens are to be used to exclude all sunshine, or to exclude the high angle summer sun and to allow the entry of low angle winter sun, the openings should be located with an aspect as near as possible to true south. If permanent vertical screens are to be used, an aspect north of north-east or north-west should be selected if the morning or evening summer sunshine is to be excluded. The most difficult aspects to control are those in the vicinity of east-south-east and west-south-west, where the sun travels 180° in front of the building, with apparent altitude angles ranging from almost horizontal to vertical. On such aspects it is difficult to exclude all sunshine with permanent screens; the vertical adjustable screen is the most efficient type.

The period of day and year during which sunshine must be excluded to prevent objectionable solar heating can be decided only by reference to the climate of the locality and the requirements of the problem, but it appears that, in general, only days with noon sunshine altitudes greater than about 40° to 45° are likely to result in excessive heating.

It has been said that screening is used by designers '... who through lack of foresight in planning make louvres and other such devices their subterfuge.' This criticism may apply to some particular cases, but need not be, and is not generally, true. The requirements of good standards of natural lighting within a building (for as yet no artificial source has the quality of, or is as economical as, natural light) demand the provision of large openings and, although some control may be achieved by the selection of suitable orientation, complete control of lighting, glare and solar heating can only be obtained by the scientific design and use of screening.

OFFICES IN PARIS

**R. GRAVEREAUX AND
R. LOPEZ: ARCHITECTS**

The French Master Builders' Federation recently acquired a large nineteenth century house and garden in the Avenue Kleber for their Paris headquarters. The house has been converted to provide rooms for receptions and other social functions, and offices and conference rooms for the leading executives. At the far end of the garden on the Rue La Perouse an entirely new five-storey building has been erected to house the Federation's administrative and technical offices. Beneath the garden, which is largely unaltered, an underground theatre and conference hall has been made out of what were formerly cellars; entrances are on the ground floor of the main office block.

office block The major planning consideration for the office block was the Federation's requirement that the method of partitioning the interior space should be extremely flexible and capable of rearrangement in the event of changes in the Federation's services or activities. This requirement determined the design of the basic structure, which consists of five continuous flat floor slabs of reinforced concrete, supported by a double row of four reinforced concrete columns, cantilevered out ten feet both front and rear. The entirely free floor space thus provided was then enclosed with prefabricated aluminium wall panels, ready glazed and painted. These were inserted as soon as the reinforced frame was finished at the rate of one storey completed per day. Floor slabs and the vertical stabilising members at either end project slightly from the cladding. The top storey is set back at the front as far as the first row of columns and is covered by a reinforced concrete roof of shallow pitch sheathed with aluminium sheet. As the local planning authority had asked that the end walls should be 'decorative' these were faced with Oise stone of random sizes in courses of varying depth.

The prefabricated aluminium wall panels were designed



1

2



1, the façade of the new office block seen from Rue La Pérouse. 2, the armour plate glass doors between the public lobby and the main hall of the office block. The helical staircase which rises round a column is free standing between floors.

to a 4 ft. 8½ in. module. The depth of the offices is just over 14 ft. In addition to lifts there is a circular staircase constructed around, but independent of, a column at either end of the building. These staircases are entirely self-supporting between storeys. Heating is by floor panels. Floors are covered with linoleum, concrete ceilings and metal partitions are painted.

theatre The main problem in converting the old cellars into a theatre and conference hall was to prevent moisture percolating through from the garden pool above. The ceiling is therefore composed of five layers of aluminous cement; the walls have three layers of bituminous felt and a layer of cement reinforced with wire mesh, these are lined with brick carrying a wooden framework. The framework is plastered and faced with plywood, the vertical joints being covered by oak mouldings. Seating has been provided for 290 people and a projection room at the rear is equipped with two 35 mm. and one 16 mm. projectors and an epidiascope. Fifty-six hand microphones are fitted which can be passed from seat to seat and there is a complete system of air conditioning.

3, rear façade of the office block from the garden terrace of the house in Avenue Kléber. 4, the prefabricated aluminium wall panels in position before the floor space was partitioned to make offices.



4

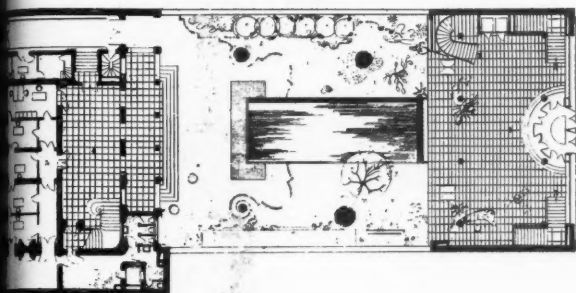
3



nineteenth century house

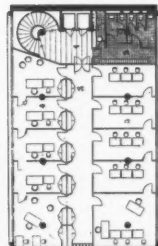
garden with theatre beneath

new office block



Rue La Pérouse

scale 1/48 in. = 1 ft.

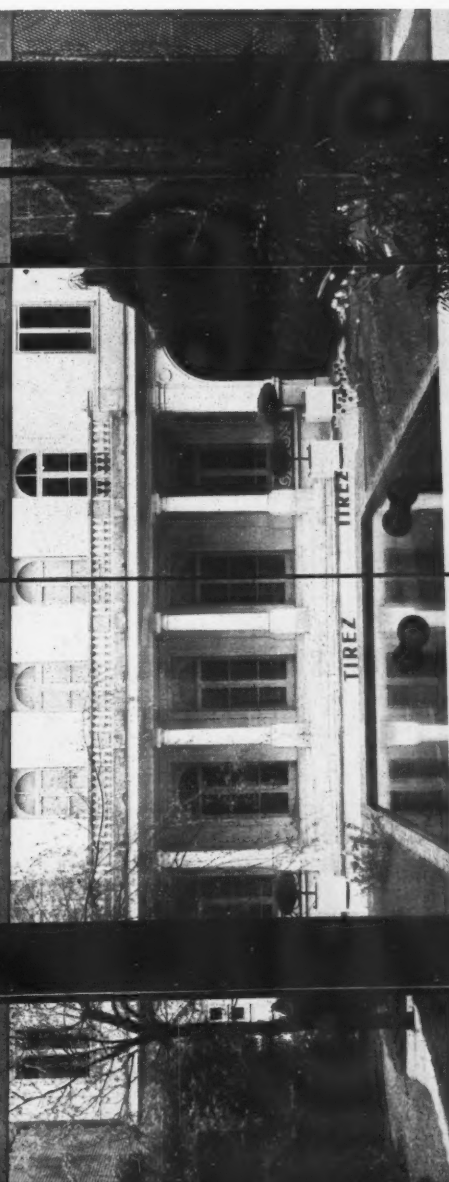


typical floor plan of office block

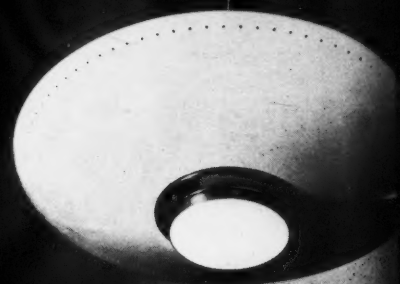
5. looking through the main hall of the office block and the garden to the rear facade of the house in Avenue Kléber which has been converted to reception rooms and offices for senior executives. 6. the main hall of the office block. Columns are faced with marble, the floor is of flagstones.



6

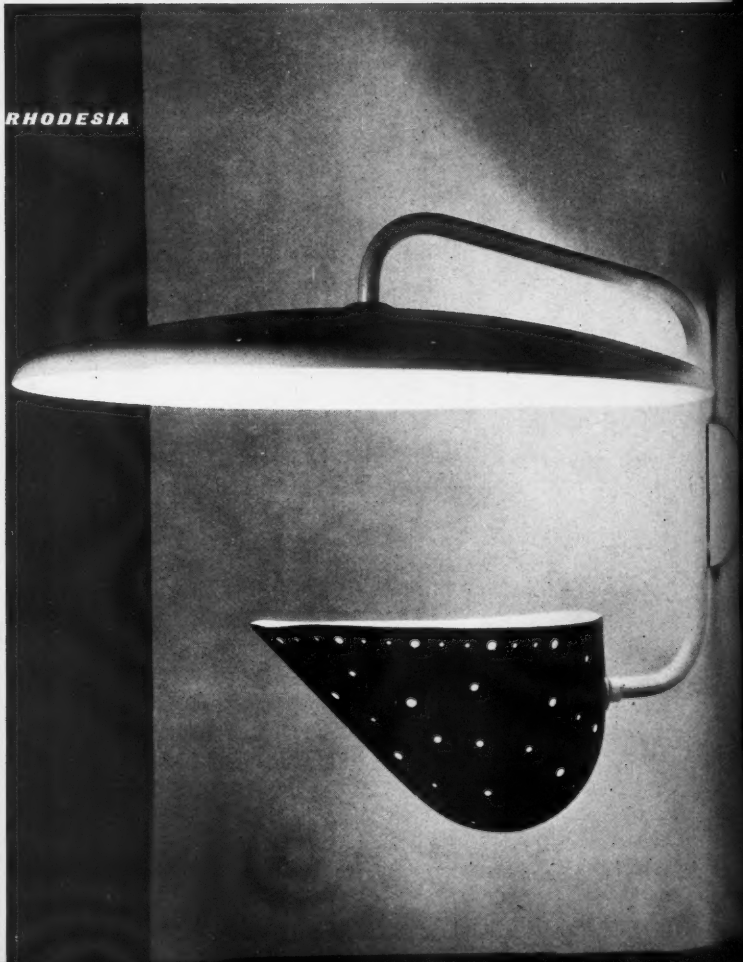


INTERIOR



These light fittings were designed by Dennis Lennon in association with A. B. Read. They are for the Ridgeway Hotel at Lusaka, Northern Rhodesia (architect, G. A. Jellicoe) and form part of a scheme of interior decoration and furnishing which is described and illustrated on the following pages. Left is a table lamp of brass with anodised aluminium finish: the metal shade is stove-enamelled lemon yellow or white. Above is a pendant variation of the same shade. Wall brackets, below left, for the coffee terrace are of grasspaper in a framework of steel spokes, and below is one of the general terrace wall brackets. The perforated metal bowl is painted red, green or blue and the other parts stove-enamelled white.

HOTEL AT LUSAKA NORTHERN RHODESIA



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HOTEL AT LUSAKA

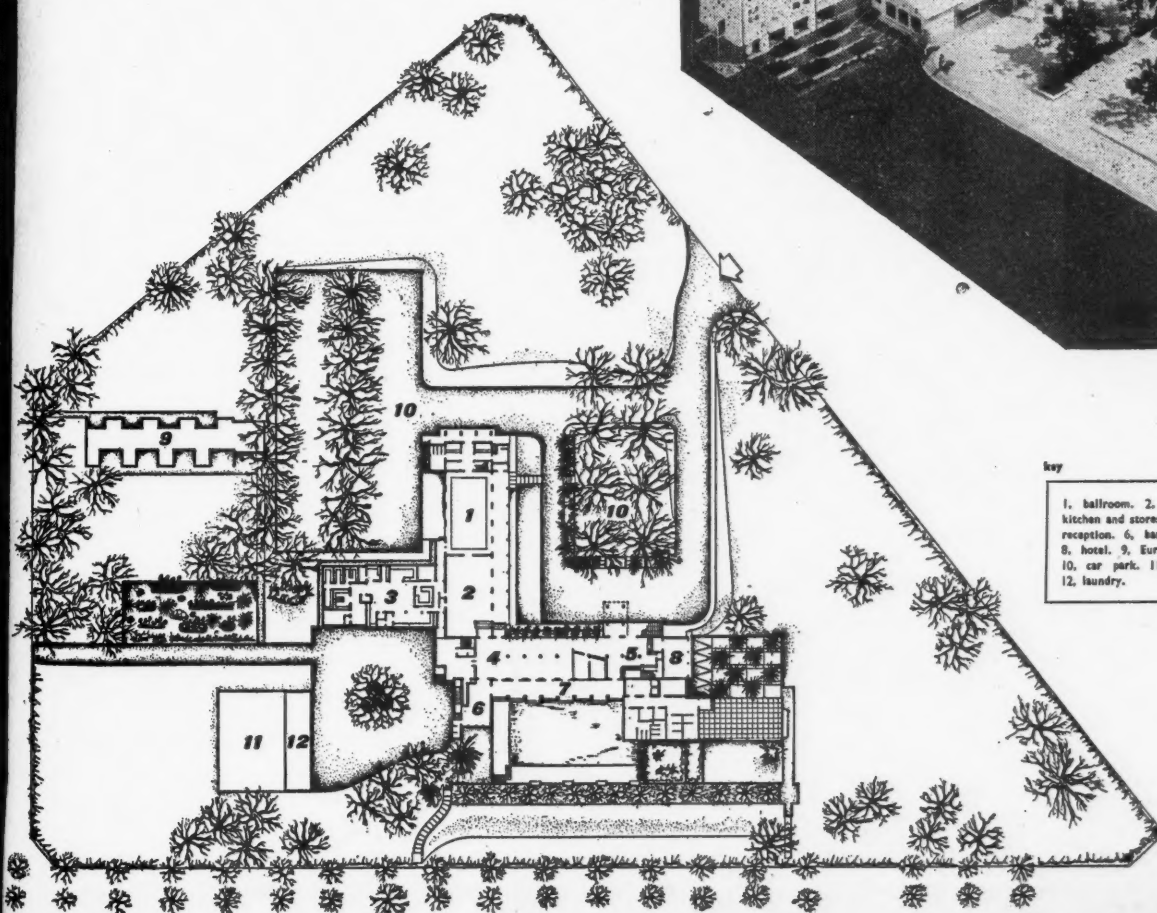
NORTHERN RHODESIA

G. A. JELICOOE : ARCHITECT

The Ridgeway Hotel now under construction at Lusaka, Northern Rhodesia, to the designs of G. A. Jellicoe,* comprises in addition to the public rooms, four flats, twenty-two double and twenty-two single bedrooms, most of which have their own bathrooms. Provision has been made for a possible extension of fifty bedrooms. The hotel is situated on a corner site bounded by a main road which connects the residential area of the town with its centre. The building has a reinforced concrete frame with brick facing; all exposed brickwork will be rendered, and windows are of steel. Owing to the prevalence of ants in Northern Rhodesia, timber has been used sparingly at lower levels. An anteguard has been provided in the form of a 2 in. projection of the ground floor concrete slab. The whole interior of the hotel is the responsibility of one designer, Dennis Lennon.

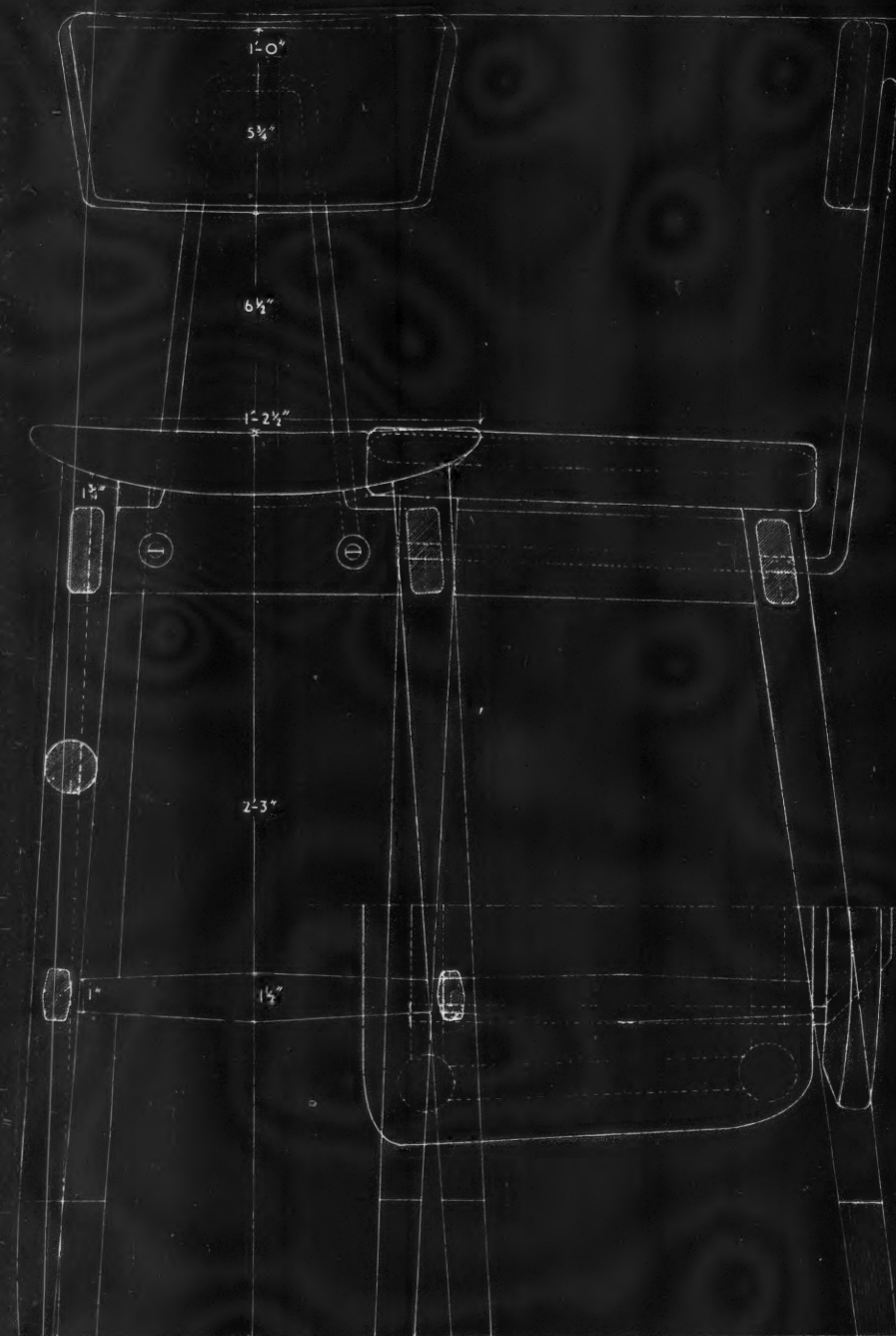
In view of their special interest, his proposals are illustrated on the pages that follow, in advance of completion. On this page is a model and the ground plan of the hotel itself, which will be published in full at a later date.

* Other recent work in Northern Rhodesia by the same architect was published in THE ARCHITECTURAL REVIEW, March 1951, pp. 167-174.

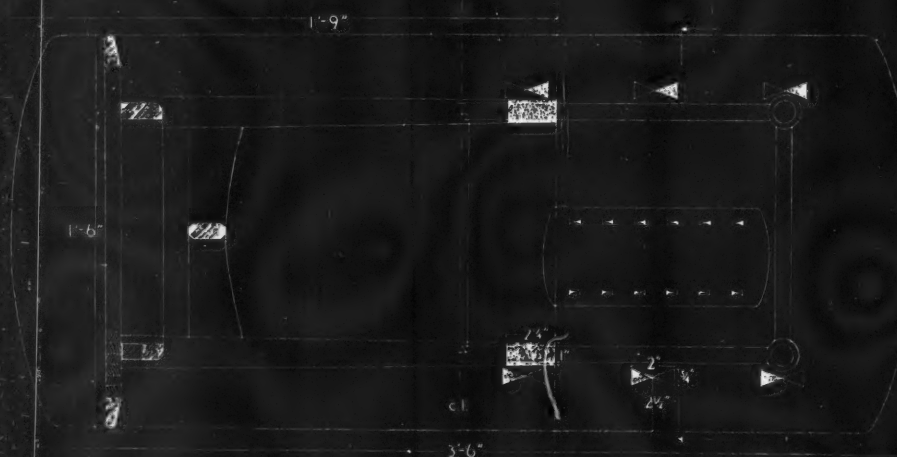


- key
- 1. ballroom. 2. restaurant. 3. kitchen and stores. 4. lounge. 5. reception. 6. bar. 7. verandah. 8. hotel. 9. European quarters. 10. car park. 11. drying yard. 12. laundry.

INTERIOR



detail of cocktail stool



detail of coffee table

hotel at Lusaka The design of the furniture, fittings and decorations for the hotel is the result of close consultation between the designers, manufacturers, and Mr. E. Hall, the manager designate. Before coming to London to work as a combined assistant and planning consultant to G. A. Jellicoe, the hotel's architect, Mr. Hall was given complete responsibility for a policy for the interior design, and toured South Africa and Great Britain inspecting the work of designers and manufacturers of furniture, fabrics, etc.

The proposed character of the hotel demanded an air of quality and elegance and an avoidance of borax. Dennis Lennon was commissioned to design the furniture and to assume the responsibility for co-ordinating the work of the associated designers and manufacturers in producing prototypes.*

Other conditions which had to be taken into account were due to the sub-tropical climate of Northern Rhodesia. A cool effect was aimed at with little heavily upholstered furniture and the use of fresh, bright colours. Also because of climatic conditions, all woods have been dried to a low moisture content and the designs incorporate structural details to counteract severe changes of temperature. As it has to stand up to hard wear and tear, heavier sections than would be usual for such furniture in this country have been used.

Mahogany is almost universally used for the furniture with occasional relief by the use of sycamore. A symbol for the hotel was required and the resultant design is a graphic expression of the clients' desire that the hotel should have a 'dress for dinner' atmosphere. It has been inlaid as a decorative motif in table and desk tops and also appears in drawer handles.

The furniture is made by Scottish Furniture Manufacturers, and light fittings have been designed by Dennis Lennon in consultation with A. B. Read. Most of the fabrics are by Terence Conran, the remainder by Tibor Reich and Marianne Straub.

* The photographs of these on the following pages were taken at a recent exhibition held in London.

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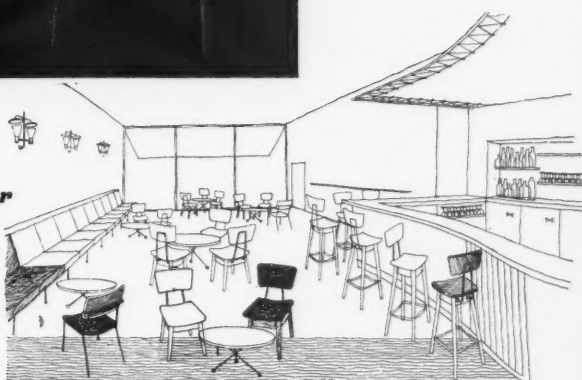
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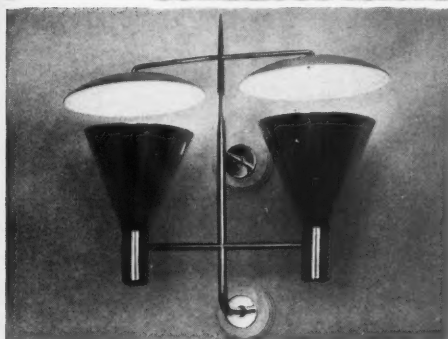


1

cocktail bar



2



1, mahogany bar stool upholstered in red leather. 2, anodised aluminium double wall bracket light. 3, other furniture for the bar including red upholstered mahogany chairs, metal framed cane chairs and tripod tables with tops in various bright colours. The wallpaper is a black and white check and the fabric Mobile will be used for curtains and the bar canopy.

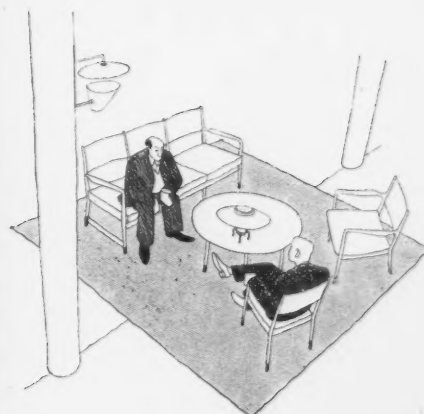


3



4

main lounge 4, mahogany three-seater settee and chair upholstered in a yellow and grey mixture of hemp rayon and cotton. The table, also mahogany, has the hotel symbol inset in ebony and sycamore.



ballroom



5, mahogany chairs and table. The upholstery is blue with a thin white line, and the chairs can be used beside the dance floor or around the banqueting table.

6, a study for the proposed chandeliers.



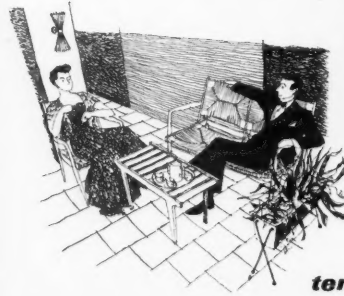
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6

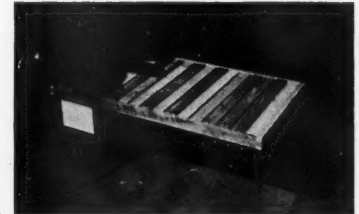


7



terrace

7, mahogany chair with rush seat and back. There is also a settee version of this design which is shown in the drawing. 8, combined plant box and table of mahogany slats on steel legs. 9, flower box units.



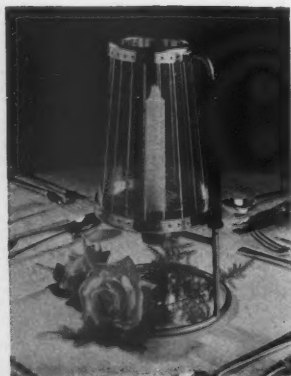
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9



10



11

restaurant

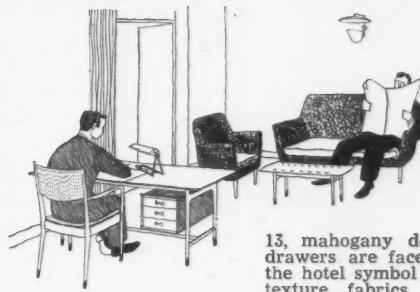


12

10, gilt metal wall bracket with pleated silk shades. 11, gilt metal candle holder. Vertical lines are sandblasted on to the glass. 12, mahogany chairs upholstered in lime green with thin black lines.

residents' lounge

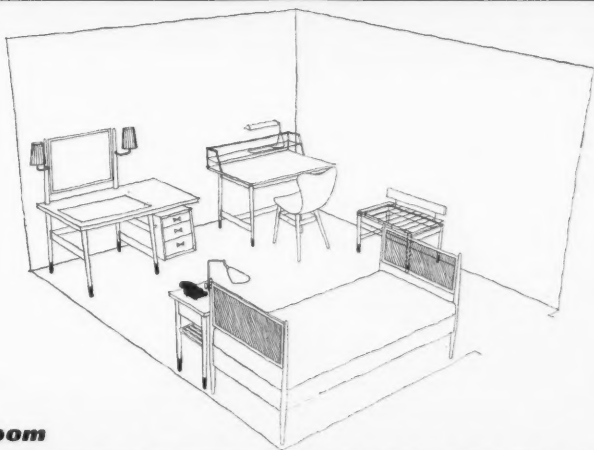
13



13, mahogany desk and chair. The drawers are faced in sycamore with the hotel symbol as handles. 14, deep texture fabrics designed by Tibor Reich on the settee and chair. The writing lamp in the foreground has the hotel symbol incorporated in its base. 15, chair upholstered in green with seat in oatmeal.



15



bedroom

16



16, mahogany bed with cane panels at head and foot. Bedside table in mahogany with sycamore drawer. 17, dressing table in mahogany with sycamore drawer fronts. 18,

mahogany writing table with metal framed shelf; the chair is upholstered in red. 19, luggage stand of enamelled steel rods on a mahogany base. 20, a clamp bedside light.

17



18



19



20





 In one sense (much emphasized to-day) architecture is space enclosed. In another more old-fashioned sense it's two walls and a floor. Three dimensions, of which, curiously enough the third, the floor, has for a hundred years at least been treated exactly as though it wasn't there, even while the other two have been subjected to a fury of design. Yet the floor is the basis of all three-dimensional design. The neglect of this truth in town planning (with its functional implications) has reduced the designer to a mere extra, doing 'background stuff,' the foreground being occupied by borough engineer and surveyor putting in their services and surfaces, with what results we know. Yet the floor is the real base of all human communications, the area of manoeuvre, assembly and contact, to articulate which in terms of floor pattern is the town planner's most important job. What he must resist is the over-simplification which turns up in, for instance, words like 'street.' 'Street' is merely one amongst a thousand floor ideas which include anything from the idea 'stream-lined' to the idea 'neglect' shown opposite, where an undesirable traffic short-cut in the town-centre (Woodstock) is turned into a traffic hazard by purely moral obstructions, the pedestrian way meanwhile being kept alive. A brilliant improvisation masquerading as a piece of urban neglect—to the engineer a pain in the neck, to the architect a valuable motif in townscape, though only one amongst a multitude.

Gordon Cullen

FLOOR

FOCUS ON

When the railways came they built their own permanent way linking town to town. Not so the internal combustion vehicle which used roads and streets which already existed and doing so swept a special path for itself through all the towns of England. On first inspection this would appear a natural development. Inhabitants of towns and villages can still do their shopping or visit each other's houses. But the river of vehicles has damaged town life in one of its less obvious but essential senses. It has severely restricted the right of free assembly. To congregate, to be able to stop and chat, to feel free out of doors may not seem very important compared to the pressing needs of transport, but it is one of the reasons people live in towns and not by themselves, to enjoy the pleasures of being sociable. Whereas the distinction between in and out of doors should be one of degree and not kind, it has now become the difference between sanctuary and exposure. Buildings are gathered together but they do not form towns; one might almost as well build houses facing across a railway line.

There are two closely related aspects to the right of assembly: the first is applied to the people who live in towns and the second applies to the buildings which compose it. From the visual standpoint the greatest single loss suffered is neutralization of the floor, the space between buildings, which has changed from a *connecting* surface to a *dividing* surface. It has also changed from a particular to a generalized surface.

It isn't the purpose of this article to discuss the merits of road transport, but to draw attention to the floor which is a very large slice of urban scenery. Whatever solution is achieved it seems clear that for a town to fulfil itself, functions of freedom and assembly (and the multitude of contacts implied thereby) must be restored: if not



towns might as well cease to be represented on the map as a black blob and be replaced by a thickening of the main roads.

The first reaction of a person who becomes aware of the value of the floor as potential scenery is to decorate it. Hence the flower-bedded traffic roundabouts ('tulip circles' we might call them). Hence also the somewhat arbitrary use of cobbles to form decorative patterns which, though not so flagrantly pretty, still originate from a desire to add decoration. The distinctive patterns formed by differing materials arise from use. Imagine users of the floor acting in an instinctive or predestined manner and then plot their movements. The result will be a 'movement pattern' in which the use of the floor is crystallized into shapes formed by differing colours or textures which indicate action. These will vary from the use of hazards (rough surfaces) to accepted symbols (zebra striped crossings), and to nuances which can safely be transgressed except at certain periodic functions. Further, these patterns if commonly adopted will provide in two dimensions the service which today normally takes three.

I have already mentioned that the floor could be a *connecting* surface between and around buildings. To do so it cannot be a neutral ribbon of asphalt flanked by pavements. It must be considered an equal partner with the buildings and by the nature of its levels, scale, texture and general propriety, produce the effect of sociability and homogeneity. That is the first and overriding visual function of the floor.

But it cannot do this without itself having power to move the emotions (otherwise it remains a no-man's-land, a dull spot in a bright scene. It is no good running a slab of concrete between buildings and, since it is continuous, hoping for homogeneity). The floor must contribute its own unique type of drama. In what particular quality does the secret and uniqueness of floorscape lie?

Does it, as some may suspect, lie solely in the charms of weathering, wear and settlement? Or does it lie in the variety of materials, many of which are now obsolete for their traditional uses? I believe the essentials lie in neither.

(1) As opposed to buildings whose volumes and modelling are mainly geometric, the modelling of the floor is much more primitive and possibly more subtle. It is a thin veneer of durable material covering the most powerful and natural element in the urban scene, i.e., the earth's undulation. This imparts to the floor an austerity and also an inconsequential waywardness.

(2) Due to the fact that it exists only as a surface all its work is done in two dimensions. It persuades, segregates, emphasizes, joins, divides by surface pattern. Could there be a more perfect foil to the precise cubism of buildings than textured and painted 'movement patterns' on the deceptive flatness of the floor?

(3) More than any other device in townscape it possesses the quality of expanse or extension. This quality can be seen not only in the vast paved square but in the little flagged strip that disappears round the corner. The first is the affirmation, the second a hint.

(4) Lastly we mention materials and make the point that the work they must do means that they must have durability and weight. It imposes a certain discipline on the make-up of the floor and it is this which gives to the floor its final character.

The following pages demonstrate the points, good and bad, on which this case rests. The introductory illustrations (up to page 37) are from one town, Woodstock in Oxfordshire.

A ADVENTURE

The justification for this article is to draw attention to the dramatic scenery of the floor and to reveal its independent private life. It is not just something that buildings stand on and cars travel across, it has a character and vitality peculiarly its own, long neglected.

B FUNCTIONAL PATTERN

The difficulty of driving over cobbles makes it at once an obvious surface for stationary vehicles. Obvious not to the designer but to the motorist who is not tempted to use it. The beginning of pattern based on function.

C MATERIALS

A coherent scene but composed of seven different elements unified by a common surface, and clarity of function. Cobbles are suppressed in the shopping area, on the wall side of the pavement, to allow more elasticity of movement and use.

D STANDARDIZING THE CODE

The pavement takes a plunge across the road. Clear warning is given by the path of setts to both pedestrian and traffic. The band of cobbles acts as a warning buffer between flagstone and tarmac. Just one example of how varied materials could, if standardized, give a visual Highway Code, establishing conventions, behaviours and frontiers.

E ARTICULATION

Articulation of movement by intensifying the contrast of surface and introducing directional techniques. The street is the same as (D) but the shops have given way to houses—so cobbles return to each side of the paving. The result establishes the independence of the floor from buildings.

F LET'S RELAX

The not-too-urban scene (F) in which we see the two aspects of free assembly for people and for buildings. The small, free path is set in a buffer zone; its casual gutters, its trees in the roadway express the informal domestic nature of the neighbourhood. Contrast this with the Dullards solution (H, page 36), the standard layout applied abstractedly to all streets, urban or otherwise, allowing no tolerances and reducing all urban variations to uniformity.



A



B



C



D



E



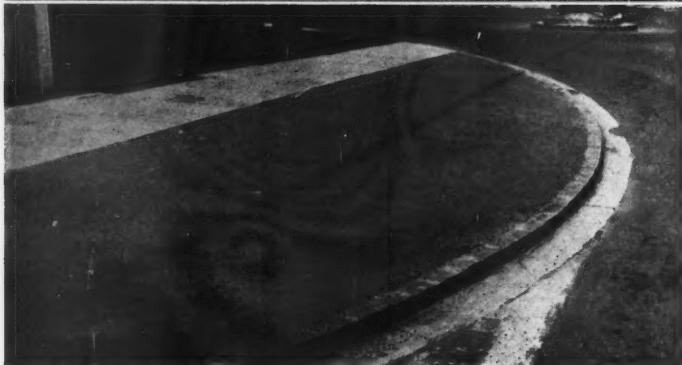
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WOODSTOCK UNWINDING 

G



H



I



g



G PROPRIETY

If you continued along the road in G and turned left at the end, you would see the rolling park of Blenheim, g. This in fact is the end of the main shopping street, a cul-de-sac. The pavement exactly expresses this termination; the cobbles and paving die away with a charming sigh as the houses end in a flutter of wistaria. A cosy corner has been created by the floor pattern instead of that dead and deadly thing, a dead-end.

H DULLARDS SOLUTION

Don't get the idea Woodstock is safe—here is the kind of floor that is already superseding what's gone before—so easy to do. The sort of floor that succeeds in being quite neutral. Free space looks ominously like waste space (compare with F). What has happened? Simply that the floor is regarded as waste space except where it is used. Hence h, a timid and futile attempt to decorate.

I TYRANNY OF RULE-OF-THUMB

When the light goes out people work in the dark. Roads are a certain width, it's in the book; pavements are so wide; pavements always follow the line of the road. And that's it. We all know how this piece of floor is going to look when finished, but on the following pages we illustrate some of the things it might become.



The next section consists of elaboration, or restatement, of the points discovered in the microcosm of Woodstock. Most of the examples are traditional, but that does not mean that we are making a plea for the use of traditional materials. The iron rimmed wheel has gone and with it the streets of granite setts (also the appalling noise). But

modern examples of the principles are so scarce that the photographer is forced back on traditional examples. To establish the PRINCIPLE is the object here, the rest is up to the architect and engineer, not the journalist.

A ADVENTURE AT FLOOR LEVEL

14



It is important first of all to establish the principle of the possibility of scenery at floor level; that it is a living and vital part of Townscape, and to be blind to it will undo and make nonsense of every structure that is placed on it. We are all conditioned into accepting without demur the dual carriageway and the raised 6 ft. pavement. This article is an attempt to break down this outlook by presenting some of the drama of a more variable floor. (14, Beaminster; 15, Chippenham; 16, Honiton.)

16



15



B FUNCTIONAL PATTERN OF THE FLOOR



17



18

The floor serves many kinds of traffic and many kinds of people. When all have hooted, and tramped, parked and chatted, we find the movement pattern incised or painted on the floor. In 17 (Evesham) can be seen a ribbon of setts which is all that divides the main road from a bus station. Quite enough. Such economy of means is highly satisfactory. In 18 (Sherbourne) the same material is used to indicate a pedestrian crossing.

C MATERIALS

Brick

Which leads to the consideration of brick as a floor surface. Although not used to any extent in this country (19, 20, 21 are in fact from Harlingen in Holland), it has the advantage of being a small unit which can form an even surface, a consideration when a particular scale and propriety are called for. Also homogeneity with the wall—when you want homogeneity.



19



20



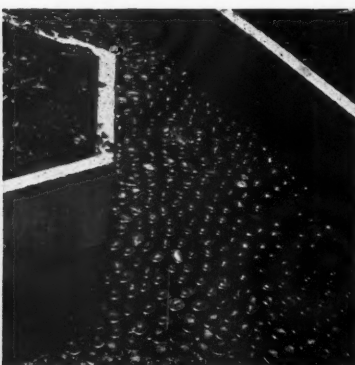
21

Cobbles

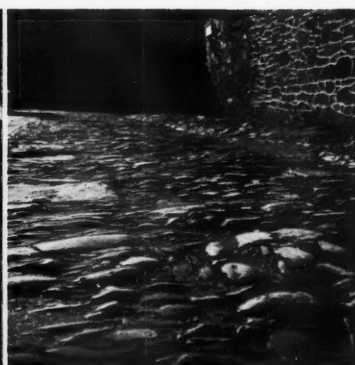
The smaller the unit the better it settles without crazing; on the other hand it will usually present an uneven surface to the tyre or foot. All this can be put to advantage. Loose cobbles (22, South Bank Exhibition) are as unmanageable as a pair of roller skates, admissible therefore in lieu of a keep-off notice or fence. Fixed cobbles (23, South Bank Exhibition)



22



23



24

can be laid to a direction or pattern; can be driven over slowly, but not walked on with comfort. The moral sticks out a mile. A word of warning on the clash of textures (24, Totnes).

Setts

The granite sett is fast disappearing from our streets with the disappearance of the horse shoe and iron wheel. It is, however, a magnificent article, rugged and full of character and its use for paving, kerbs, gutters, pedestrian crossings and lines of demarcation should be accepted. Its scale is variable, texture is sharp and it can be laid to patterns or in direction. The example, 25, is from Cirencester.



25

Artificial Materials



26



27



28

One of the most interesting artificials is cement laid to take up irregularities and faults as in 26 (Agde, Southern France). Textured surfaces restore to artificials what many of them lack in surface character (27, Fowey; 28, Sidmouth).

Paving

Paving varies a great deal from the mosaic of fragments to the smooth, monumental and formal, as in 29 (Chippenham) and 30 (Beaminster). The surface provides smoothness combined with a natural grain which may be enlivened by the tool marks of the mason, although nowadays the even saw marks tend to give it the effect of an artificial.



29



30

Mixtures of Materials

The overlapping or abutting of functions brings together different materials. The overall flatness of the surface into which all fit seems to overcome difficulties of scale and suitability. (31, Valladolid, Spain; 32, Melsham; 33, Larbonne, Southern France.)



31



32



33

D STANDARDIZING THE CODE

Earlier rule-of-thumb tyranny was mentioned in the context of desolation. But given a New Deal, in the way of an imaginative highway code with significant symbols, nothing could be better than rule-of-thumb. 'Wherever the pavement crosses a minor road lay a path of setts' or 'Wherever a kerb-stone is cut to a slope it should be scored,' 34 (Totnes). The floor is a big place, and it is not the intention to have a continually changing treatment, but simply to bring back the floor as a powerful element in the scene. Local demands will provide variety so long as their voice is allowed to be heard. Intelligent standardization under an enlightened highway code, yes—uniformity, no.



34

E ARTICULATION OF MOVEMENT

In all the illustrations shown here the floor does not constrain, it persuades. It lays down the carpet for you. But the pattern of the carpet is not decorative, or merely decorative pattern, but functional. It tells you many things, amongst others the plan of circulation. (35, South Molton; 36, Stirling.)



35



36

ARTICULATION OF MOVEMENT (cont.)

Two examples, 37 and 38, from Beaminster churchyard, of the indication of routes by using paving slabs and cobbles.



37



38

G PROPRIETY

The first duty of the floor is to create a connected and homogeneous environment and in this respect the floor and buildings are equal partners in creating the atmosphere proper to the particular scene. Shopping

street, metropolitan centre, suburban by-way, back-street, etc., all indicate obvious variations. It is important that scale should be maintained. The square in Tarragona, Spain, 40, achieves this by its

bold lines. Propriety permits the use of ornament in certain cases. Examples of this are 39 (Copacabana, Brazil) and 41 (Totnes), and the use of cobbles at Exeter, 42, makes the scene hang together.



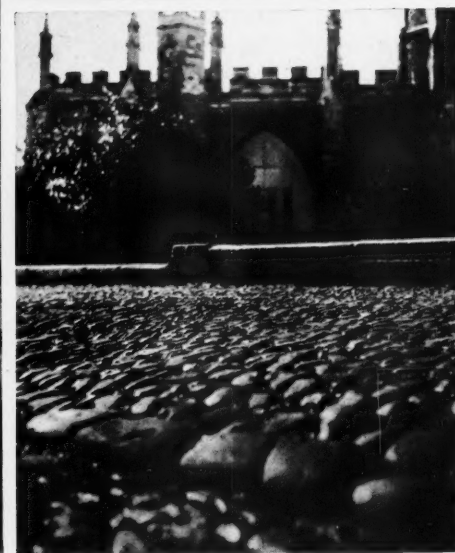
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40

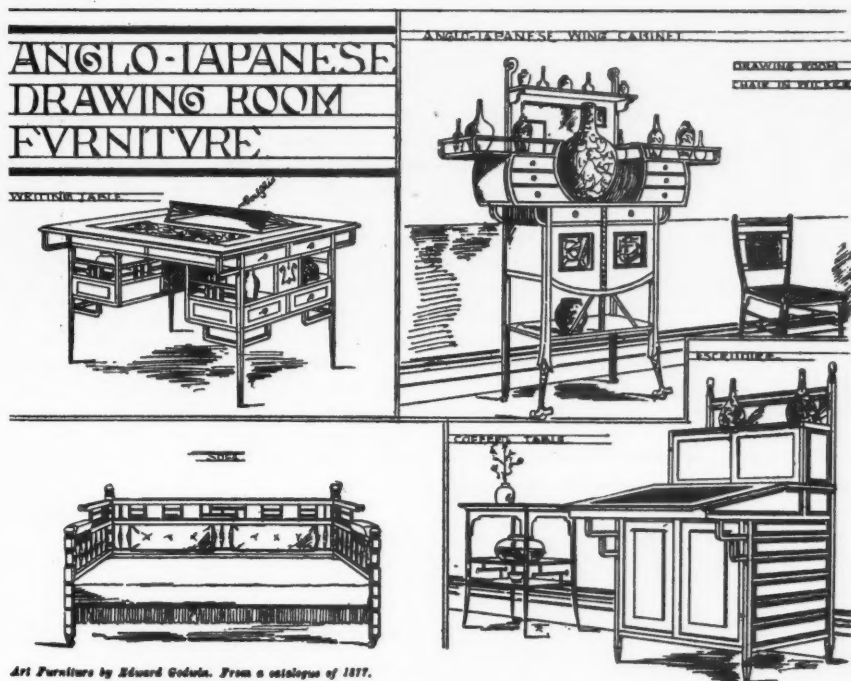


41



42

Nikolaus Pevsner



Art Furniture by Edward Godwin. From a catalogue of 1877.

ART FURNITURE

OF THE EIGHTEEN-SEVENTIES

We visualize Victorian furnishings as a composite picture derived from things seen in grandparents' houses, catalogues of the 1851 and 1862 exhibitions, wood engravings from the Illustrated London News, and Royal Academy society paintings with palm-trees in pots, arrangements of fans and bulrushes, and gentlemen and ladies in evening clothes. The picture is rich in flavour but lacks precision. For Victorian furniture possesses far more variety and interest than the hitherto accepted crude division into Regency – Victorian – William Morris Reform made one expect. Victorian furniture is not one; it is by no means characterized throughout by the grossness and hearty tastelessness universally ascribed to it, nor was the Morris Reform either the first or the earliest anti-Victorian reform. The decade from 1850 to 1860 cannot be understood exclusively in terms of the Great Exhibitions. The author of this article has, in a recent book, proved how much of Morris's doctrine Pugin, Owen Jones and Matthew Digby Wyatt had anticipated. He now shows the wealth and complexity of the opposition against the High Victorian taste in furnishing.

I was talking with a lady friend of mine the other day who was puzzled as to what to do with her growing son, and we discussed the possibility of his taking to one of the crafts... say cabinet making... We were obliged to admit that... the thing could not be done; it would make him either a sort of sloppy amateur, or an involuntary martyr to principle... At first sight the thing seems monstrous... Why in the name of patience should a carpenter be a worse gentleman than a lawyer?... And yet, you see, we gentlemen and ladies durst not set our sons to it... Amongst other things the lady said to me: "You know, I wouldn't mind a lad being a cabinetmaker if he only made Art furniture." Well there you see!

William Morris: Art, Wealth and Riches (Coll. Works, vol. 28, p. 154).

Introduction

I have found the term Art Furniture applied for the first time in 1868. In that year the *Building News* of December 25 had a plate called Art Furniture showing pieces designed by Walford and Donkin Architects. The furniture is in the Gothic style. In the same year Charles Lock Eastlake, later Keeper of the National Gallery, published his *Hints on Household Taste* in which the term occurs twice, once used by Eastlake himself and once as the name of a firm, the Art Furniture Company, with which apparently Arthur Blomfield was connected. Eastlake, three years later, brought out the standard history of the Gothic Revival; Blomfield was one of the most successful, if certainly not the most inspired, of its representatives. In the same year 1871, the *Building News* had a plate illustrating furniture designed for the Art Furniture Company by Edward Godwin, the architect of Whistler's house in Tite Street, Chelsea.

The word is significant. It is proof of a split which had occurred during the second third of the nineteenth century between art and craft, and between art and manufacture. Furniture in the days of Sheraton had been accepted without questioning as art—of its own kind and within its own limits. Now, unless an artist condescended to apply art to a cupboard or a table, they could no longer be art. We know of this development through William Morris whose one aim in life was to undo it. The term Arts and Crafts was coined to express the illusion that peace between the two could be restored in terms of the nineteenth century. The Arts and Crafts became an accepted term chiefly through the Arts and Crafts Exhibition Society which began its activities in 1888. But William Morris started thirty years earlier, with the 'tables and chairs like incubi and succubi' of which Rossetti speaks as parts of the furnishing of Morris's first London rooms in Red Lion Square.¹ When two years later, in 1859, Morris had got married and needed a house of his own, Philip Webb, the architect, his friend and former colleague in Street's office, designed for it an oak dining table, chairs, cupboard, and even table glass, candlesticks and fire-dogs.² Morris's

¹ Mackail I, 113.

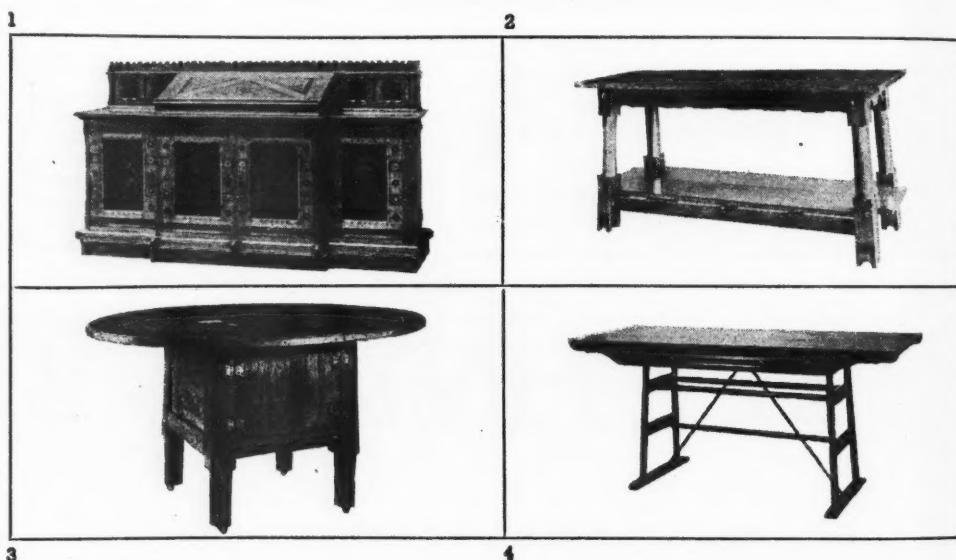
² Mackail I, 143.

firm, it is known, was started in 1861. In its prospectus we read: 'The growth of Decorative Art in this country, owing to the efforts of English Architects, has now reached a point at which it seems desirable that Artists of reputation should devote their time to it.'³ And so in 1861 and 1862 Morris's produced to the designs of Madox Brown, Rossetti, Philip Webb, J. P. Seddon, Morris himself and others, tiles, wallpapers, table glass, stained glass, and also furniture. Of the furniture the pieces usually known to people are very ornate; cupboards such as the one at the Victoria and Albert Museum (1) which Seddon, then about thirty-four years old, designed for Morris to hold his drawings and which was painted with stories of King René's Honey-moon by Madox Brown, Rossetti and Burne-Jones. But we hear from Mackail also that Webb's furniture comprised 'specimens of most articles of common use . . . the greater number quite plain and depending for their quality on their simplicity and elegant proportion.'⁴ The Victoria and Albert Museum has one such table (2) and Lethaby in his book on Webb⁵ says that in Webb's notebooks for shortly after 1860 a dining-room table, a round drawing-room table, washstands, a dressing table, towel-horses and so on are mentioned as designed for Major Gillum, an art-minded businessman, one of the founders of the Hogarth Club in 1858, the owner of the small version of Madox Brown's *The Last of England*, now in the Fitzwilliam Museum, Cambridge, and the client for whom Webb in 1861 designed the remarkable warehouse in Worship Street, London, which still exists. Thanks to the help of my friend, the late Arthur H. Mackmurdo, I was able to trace Major Gillum's nephew, Colonel W. Gillum, and, with his kind permission, had photographs taken of several of these surviving Webb pieces. One is a round table, the other an oblong table. The round table (3) is an extremely simple, rustic piece, with short rounded legs, panelled construction, hinges demonstratively big and exposed, and the timber unstained. The oblong table (4) has spindly turned legs, a thin top with a long drawer with a gracefully turned front and metal rings as handles, and the timber is polished. It is remarkably different from any one style of the past, although the top shows sympathy with the eighteenth century and the legs with the seventeenth.

These four pieces of Morris-Webb furniture introduce all those questions under which the most interesting furniture of the sixties and seventies must be contemplated: sympathy with the Middle Ages, simplicity, rusticity, and also lightness, and independence of period precedent. With the exception of the first all these qualities are the opposite of what one would expect High Victorian furniture to have been like. **Sympathy with the middle-ages**

Pugin's, Carlyle's, the Pre-Raphaelites', Ruskin's, Morris's sympathy with the Middle Ages are known. Morris derived his from his reading of Ruskin and his architectural training in Street's office; Ruskin believed in Italian Trecento Gothic first

the medievalists The two most distinguished furniture designers in the medieval taste of the 'sixties and 'seventies were Philip Webb and William Burges. Both were architects of much personality. Webb, the more original and important of the two, designed 1 for William Morris's firm. 2 is a table by him now at the Victoria and Albert Museum. 3 and 4 were made for Major Gillum about 1861. 1 was also made for William Morris, but to the design of J. P. Seddon. The date is c. 1861, the painted panels are by Madox Brown, Rossetti and Burne-Jones. 7 and 8 are a cupboard and a fireplace from the house which William Burges built for himself in Melbury Road, Kensington, in 1875. The painted panels on 7 are by Rossetti, Holman Hunt, Burne-Jones, Poynter, S. J. Solomon and others. 5 and 6, and 9 and 10 introduce two further medievalists, Bruce Talbert (illustrations of 1866 and 1869) and C. F. Eastlake, author of *Hints on Household Taste* (1869).



and foremost; Street, who won the competition for the Law Courts in 1868, kept 'a decided adherence to the earlier phase of Gothic,'⁶ that is the Early English.

A dedication to Street appears on the first page of a book brought out by a man in 1867 who was not an architect but a designer of furniture and metal-work, Bruce Talbert (1838-81).⁷ In the introduction to this volume he declares it to be his intention 'to present furniture modelled on the best style of the past, mainly the twelfth and thirteenth centuries,' and then emphasizes that 'domestic work of early date . . . demands a certain amount of invention before it could . . . fulfil the purpose or give the comfort now necessary to us.'⁸ The results are sturdy and massive, with rich, flat surface decoration (5).⁹ Yet when it

comes to whole interiors by Talbert, they are not necessarily all that heavy and Gothic (6). Especially for drawing-rooms Talbert recognized that they call for more 'elegance and lightness,'¹⁰ and so at least the cupboards are slimmer, and the busy forms of the surface decoration, in the coving in particular, also help to create a slightly less ponderous effect.¹¹

Talbert at his most cyclopic is remarkably similar to William Burges (1827-81), the last upholder amongst architects of the Early English style for domestic furnishings. In his own house in Melbury Road, London, he has as late as 1875 the short columns, the oppressive trefoil arches and so on which occur all through Talbert's book (7 and 8). Here at least, as far as weight goes, there is nothing to contradict our prejudices regarding the High Victorian style.

This is perhaps not quite so when we examine the plates to Eastlake's *Hints on Household Taste*. Eastlake who fully

³ A. E. Street: *Memoir of G. E. Street*, 1888, p. 19; also p. 107.

⁷ More on Talbert will be found in my paper in *Designers in Britain*, III, 1951.

⁸ *Gothic Forms applied to Furniture* . . . , 1867, p. 1.

⁹ Fig. 5 was illustrated before the publication of the book in *Building News*, 1866, p. 136.

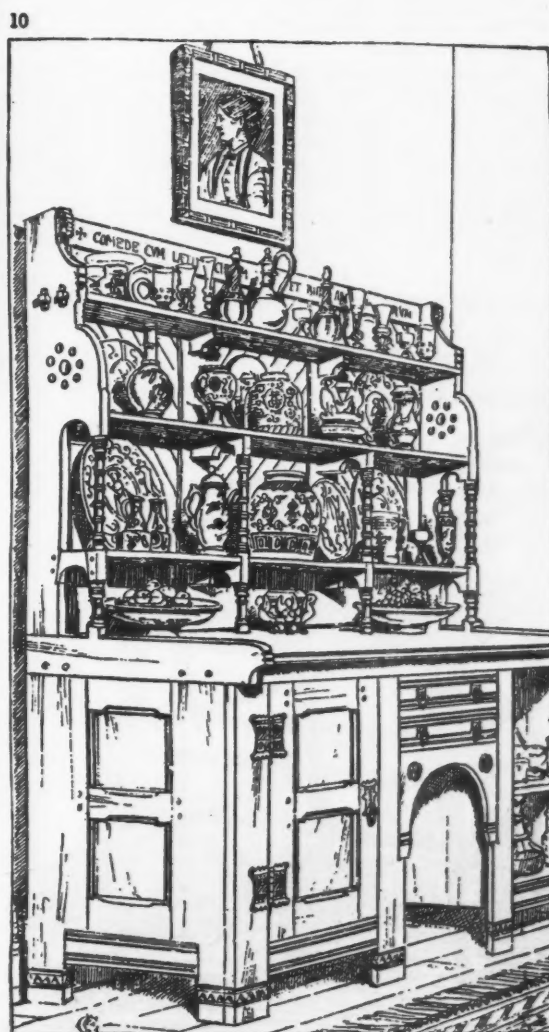
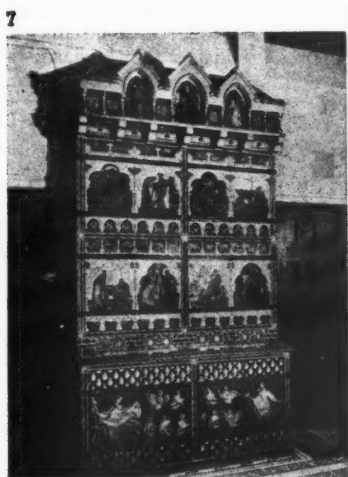
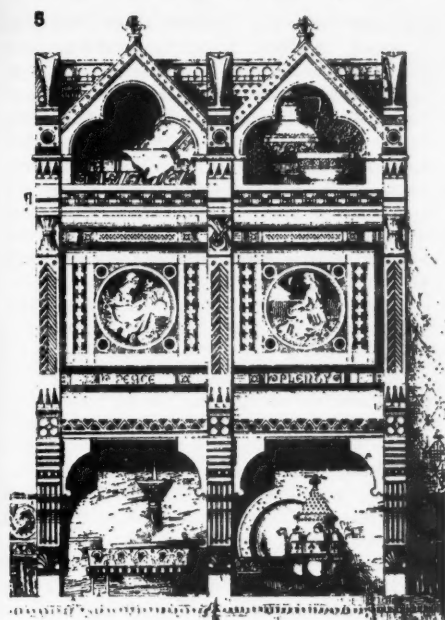
¹⁰ *ib.*, p. 4.

¹¹ Fig. 6 comes from *The Architect*, 1869, p. 42.

³ Mackail I, 150.

⁴ Mackail I, 154-155.

⁵ p. 37.



acknowledges his debt to Pugin and Ruskin, yet designed pieces which, although Gothic, do not look as primeval as Talbert's and Burges's, while being much more elaborate than Webb's (9 and 10).¹² **simplicity and honesty**

But Eastlake's book is more remarkable today for its text than its plates. We are still used to regard Morris as the one and only reformer of Victorian taste and ascribe to him the whole campaign against over-elaboration, sham display, dishonesty in the use of materials, and so on. In fact the first to plead for purer ideals was Pugin in the early forties, and he was almost immediately followed by Henry Cole, Owen Jones and Matthew Digby Wyatt, the initiators of the 1851 Exhibition.¹³ To them no doubt Eastlake owed such remarks as

¹² Another architect who figures with Gothic furniture in exhibitions was S. J. Nicholl who designed for Cox & Sons (see *Building News*, May 31, 1871), a firm which also occasionally employed Talbert (see Talbert's *Examples of Ancient and Modern Furniture*, 1876, Plate 47).

¹³ See N. Pevsner: *Sir Matthew Digby Wyatt*, CUP, 1950.

these: 'Every article of manufacture . . . should indicate by its general design, the purpose to which it will be applied' (p. 81). 'So far from good design being under any circumstances incompatible with strong and sturdy service, it is only in bad design that use is not kept in view as the first and guiding principle' (p. 122). At present it is 'far better to choose the very plainest and simplest forms of domestic furniture procurable in the shops' (p. 156) than to indulge in any luxuries in furnishing; for it is a fact that 'the most commonplace objects of domestic use . . . are sure to be the most interesting in appearance' (p. 58). And so Eastlake goes on to recommend the unvarnished exposing of the natural grain of wood (p. 159), strict flatness in wall-paper design (p. 108), and the use of iron or brass for bedsteads (p. 184).

Talbert, oddly enough, agreed on all these points with Eastlake—the same remarkable contradiction between theory and performance which appears in Pugin, Wyatt, Scott and others. Talbert in the introduction to his *Gothic Forms applied to Furniture* recommends the Early English style because of its 'great breadth and simplicity,' calls the later Gothic 'lavish display of ornament . . . quite undesirable for Cabinet Work,' praises solidity, 'construction honestly shown,' and 'tenons, pegs, iron clamps,' etc., frankly exposed, and disapproves (not without qualification) of the staining and even of too much veneering of wood.

The experience that the least ambitious things in shops were also the least pretentious and therefore the most satisfying, had been William Morris's too, and amongst the few pieces of furniture not designed by himself which Eastlake illustrates in his book, there are an armchair and a long seat by 'Messrs. Morris's' (11 and 12). They

are the famous Sussex type which Morris's friend and business manager Warrington Taylor discovered for him some time between 1865 and the date of Eastlake's book 1868. My friend Mrs. Janet Leeper kindly drew my attention to some surviving examples of these early Morris chairs at the house of Elizabeth, Lady Kilbracken (18). What is remarkable about them besides their humble rush-seats and their comfortable shape is the thinness of the legs, arms and stretchers, a quality obviously emphasized specially in Eastlake's drawings.¹⁴ This delicacy and transparency is generally regarded as un-Victorian, and therefore needs our attention.

delicacy
Coming from Eastlake's plea for sturdy Gothic furniture the reader will be surprised by the passage in his *Hints* (p. 178), where he contrasts the bad taste in all 'fashionable establishments devoted to decorative art in London' with the far superior taste of 'those nations whose art has long been our custom to despise,' his one and only example of such nations being the Japanese. So here, in Eastlake's book, appreciation of the Gothic style appears at least for a moment, side by side with appreciation of Japan. The earliest stages of the fashion for *Japonnerie* have often been described: how the etcher Bracquemond discovered in Paris in 1856 some Japanese woodcuts, how their clear light colours appealed at once to those who were working towards the ideals of an Impressionism to come, how Madame de Soye, back from the East after ten years, opened a shop in the rue de Rivoli in 1862 and called it *La Porte*

¹⁴ Incidentally they sold at 9s. 9d. for the armchair and 85s. for the long seat. This we are told by W. R. Edis in a book on which more will be said later (p. 27). A set of these chairs is also in the Fitzwilliam Museum at Cambridge. Mr. T. Pevsner owns another long seat.

Chinoise, how the Exhibition of 1862 had a much noticed Japanese section, how Whistler painted his *Princesse du Pays de la Porcelaine* in 1864, how Rossetti collected blue and white china at the same time, how Manet painted Zola in 1868 against a background of Japanese woodcuts, and how Farmer and Rogers's Oriental Warehouse established themselves about 1862 as a shop in London where Chinese and Japanese goods could be purchased. Farmer and Rogers's manager was Sir Arthur Lasenby Liberty (1842-1917) and so in 1875 Liberty's came into being.¹⁵ But it was only in Mr. Harbron's recent book on Edward Godwin¹⁶ that attention was drawn to the fact how surprisingly early Godwin was in the field with his admiration for Japan. Godwin (1833-86) who was, just at that time, making a name for himself with designs for public buildings in the Gothic style and who was a close friend of Burges's, decorated his own Regency house at Bristol in 1862 in a very different taste. This is how Mr. Harbron describes it: 'His scheme consisted in painting the walls of his rooms in plain colours, hanging thereon a few Japanese prints and laying some Persian rugs on the bare floors.' Godwin presumably knew of Japan through the exhibition of 1862, and he may also have heard of Whistler's enthusiasm¹⁷—the fact remains that the spindly thinness and the

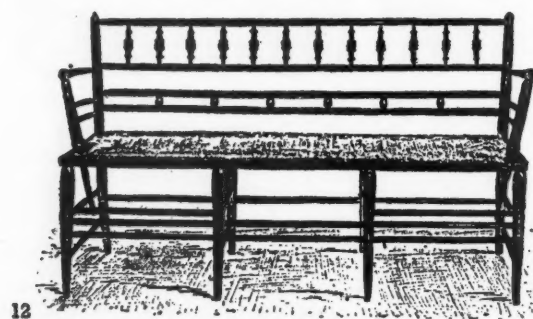
¹⁵ My thanks are due to Messrs. Liberty for these dates.

¹⁶ *The Precious Stone*, 1949.

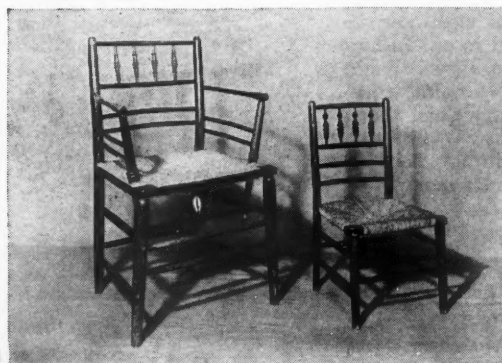
¹⁷ Other Orient enthusiasts in London were Thomas Jekyll who designed the woodwork for Whistler's Peacock Room and metal grates for Barnard's of Norwich, and Dr. Christopher Dresser, the botanist and industrial designer who was so enchanted by the Japanese taste that he went to Japan in 1877. On Dresser see N. Pevsner, *ARCHITECTURAL REVIEW*, April 1937.



11



12



13

William Morris never was a mere imitator of medieval forms. These chairs and seats were introduced by his firm during the second half of the 'sixties. The example was a rural chair discovered by Morris's business manager Warrington Taylor. The type is known as the Sussex chair. The selling price of the armchair was 9s. 9d., of the long seat 85s.

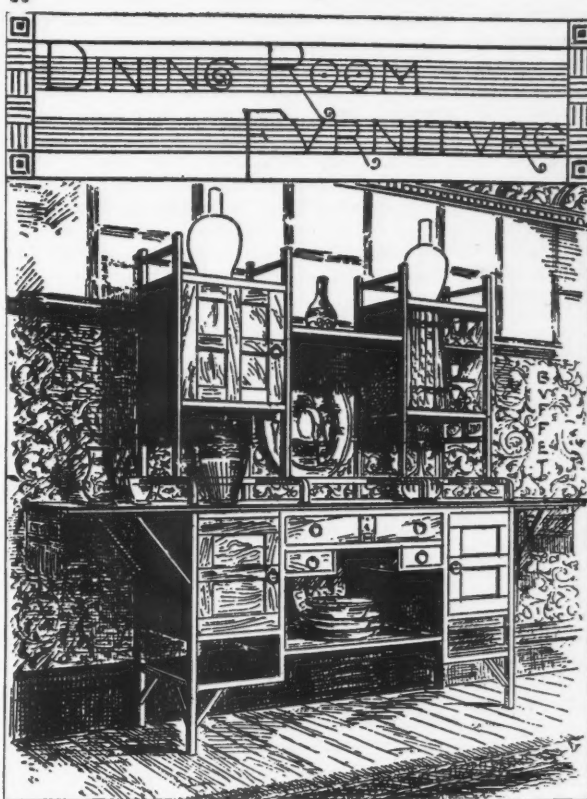
non-permanent look of Japanese furniture inspired Godwin in the design of the furniture which was later to become fashionable under the name Art Furniture. Thus it is called in an oblong quarto volume which Godwin brought out with the manufacturer William Watt in 1877. The pieces in this catalogue—for that is no doubt what it was meant to be—are all very much in the same style, and Godwin calls it on one page Anglo-Japanese. These precariously projecting shelves, these thin curved brackets, these spidery tapering legs all seem to be more closely allied to the Art Nouveau style of twenty years later than to Victorian architecture of the sixties and seventies (14, 16 and page 43). For although the catalogue came out only in 1877, we have seen that Godwin's Art Furniture (for the Art Furniture Company) was illustrated as early as 1871, and Godwin in an introductory letter to the catalogue of 1877 says that, for instance, one particular coffee-table was first made for him 'nine or ten years ago' which would take us back to 1868, the year with which this article began. Godwin complains in this introductory letter of imitations of his work, and one such imitation made by the distinguished firm Jackson and Graham is indeed illustrated in a book of 1881.¹⁸ Godwin goes on to explain that such effortless looking designs as those shown in his volume yet 'demand no inconsiderable amount of thought' and cannot be made 'by any happy-go-lucky process whatsoever.' Godwin's furniture, if one is fortunate enough to know originals, bears this out.

Thanks to Mrs. Leeper I am once more able here to show such originals. (18) is the very table designed as early as 1867 or 1868, and belongs to Ian Henderson who is also the possessor of the wardrobe shown here (17). The wardrobe shows the functionalist side of Godwin, a shape so simple and a combination of units so rational that few would hesitate to date it in the early years of the twentieth century. The table is Godwin at his most elegant, of a lightness and playfulness which comes out even more sparkingly in his sketches. The drawing (15) comes from a sketch-book of Godwin's and was presented by his son Edward Godwin to Mrs. Leeper.

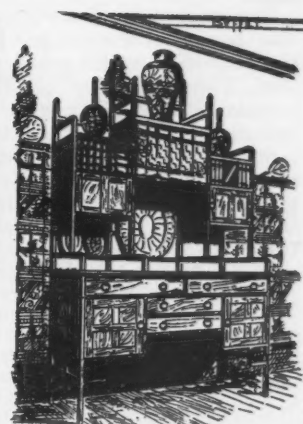
Equally original and unforeseeable are Godwin's 'Greek' chairs, the parallel in his furniture design to his keen interest in Greek plays and their production (19, the property of Elizabeth, Lady Kilbracken). To get the full, seemingly post-Victorian flavour of this style, one must also take its colour character into consideration. Godwin was Whistler's friend and designed his house for him in 1877, the White House in Tite Street, Chelsea. Later Whistler married Godwin's widow. Now Whistler painted the walls of his house, and later the walls of exhibitions (in 1883 and 1884) in such colours as lemon-yellow, white, rose. So here were interiors which in their delicacy of colour and the fine-limbed grace and somewhat *outré* scaffolding-transparency of their furniture pronounced total opposition to what had been known as art furniture a little earlier, the monuments of early Webb, Talbert and Burges.

¹⁸ Edis, p. 214.

14



15



16



17



18



19

Edward Godwin belonged to the same generation as Morris and Webb. He also was an architect. The style of the furniture designed by him, however, differs much from the medievalizing or the rural character of Morris furniture. The source of his inspiration was Japan, although such pieces as 17 and 19 are entirely original and remarkably different from what one imagines Victorian furniture to have been like. 14 and 16 come from the Art Furniture catalogue issued by the manufacturer William Watt in 1877. So does the headpiece on page 43. 15 is a page from a sketchbook of Godwin's.

books

The year of the Godwin catalogue was also the year of Morris's first lecture and of the beginnings of his grand series of textiles. The creation of the Hammersmith carpets followed a little later, and then the opening of the Oxford Street shop. In the same years—and, it must be realized, by no means only under Morris's influence—a whole spate of books appeared all dealing with furnishing, interior decoration and furniture. Here are the titles:

W. J. Loftie: *Art At Home Series*, 1876, etc. (A Plea for Art in the House, by W. J. Loftie; *The Drawing Room*, by Mrs. Orrinsmith; *The Dining Room*, by Mrs. Loftie; *The Bedroom and Boudoir*, by Lady Barker; *Suggestions for House Decoration*, by R. and A. Garratt).

Mrs. H. R. Haweis: *The Art of Beauty*, 1878.

Mrs. H. R. Haweis: *The Art of Decoration*, 1881.

R. W. Edis: *Decoration and Furniture of Town Houses*, 1881.¹⁹

Of these books Edis's is the most ambitious. It runs to about three hundred pages of text and is well illustrated. It gives us the best idea of what artistic furnishing meant at the end of the period with which I have here proposed to deal—or at least what it meant to those who were not exclusive adherents of William Morris. Colonel Sir Robert W. Edis (1839-1927) was a successful west-end architect and a man equally successful, it seems, in his military career and as a big game hunter. He designed the Constitutional, the Junior Constitutional and the Badminton Clubs in London, the Conservative Club in Glasgow, the Inner Temple Library, the Great Central Hotel in Marylebone Road, the Ballroom at Sandringham. His book is the text of his Cantor Lectures to the Royal Society of Arts in 1880. It deserves a fairly full summary in our context.

Although he takes his motto from Ruskin, he establishes at once in his foreword that he is not a Gothickist. He says that it is his intention to avoid 'the trammels of any particular school' whether it be the 'Classic, the Gothic, or so-called Queen Anne.' This is the first time that we meet the term Queen Anne and more will have to be said about it later. It stands in architecture for a revival of late seventeenth rather than eighteenth century forms, for red brick, long slender, often segment-headed windows, and Dutch gables. It is chiefly connected with Norman Shaw's work from 1872 onward, although already Morris's own Red House of 1859 by Webb has some touches of it. Edis likes it, including incidentally Chippendale, Adam and Sheraton (p. 81), just as for instance Loftie likes it.²⁰ But Mrs. Haweis has her objections against the 'Queen Anne mad decorators' (1881, p. 52), for a reason which is not without interest. To her Queen Anne and Chippendale 'cannot be called beautiful. Their virtues are merely negative. They are a reaction against vulgarity, and that is all' (1878, p. 242, etc.). Similarly Mrs. Orrinsmith can recommend only to those 'whose taste has not been properly de-

veloped' that 'Quaker uniformity, the reverse of vulgarity' which has suddenly become fashionable (p. 27).

The greatest difference between Edis and Morris is that Edis was not a pessimist with regard to his own time. Morris as late as 1888²¹ saw all the good in architecture in his own day as no more than 'the result of a quite self-conscious and very laborious eclecticism.'²² Edis says that gradually by such means as exhibitions, all classes have become filled 'with a desire and love for beautiful form and colour and a distaste for crude vulgarities and hideous forms' (p. 4). So here from the beginning is comfortable optimism as against Morris's heavier-going social criticism. In his vision of the deep roots of art in social life Morris remained alone.

But while Edis likes Queen Anne (p. 14) and is ready to accept Gothic or rather a general Medieval in the new meaning which Morris had given it, he has hard things to say against the 'medieval examples of Wardour Street' (p. 37), 'the fashion of so-called medieval furniture' (p. 81) and 'bookcases plastered over with gothic buttresses.' The Garratts agree with him and call the type of furniture to which they object more specifically 'Early English' (p. 49). This must be directed against Talbert and Burges. But Edis is even more outspoken in his dislike of 'the flimsiness of furniture imitated from Japanese examples' (p. 7). That sounds as if he meant Godwin; but he cannot, because in another place he mentions Godwin specially, together with Street, Shaw, Waterhouse, Webb and others (and incidentally Burges) amongst the praiseworthy architects. If he paints so unattractive a picture of 'rooms decorated with imitation Chinese bamboo work and tinted sealing-wax and gold with splashes of blue and green in imitation of Japanese lacquer' (p. 9), he is probably referring to the commercialization of Godwin's style which had already begun in 1880.²³ And one can hardly blame him for that if one reads in Mrs. Orrinsmith's book the serious suggestion of placing above the fireplace 'a picture surrounded by dried ferns—or perhaps Christmas greenery and Japanese fans huddling amongst all' (p. 47).

If we now try to get an idea of Edis's own views we see at once that he carries on the Pugin-Henry Cole-Owen Jones-M. D. Wyatt-Eastlake tradition of criticism. He preaches that 'all things that show what they really are, and do not pretend to be something else, are in the end best' (p. 23). We must set our 'faces against all pretensions, shams and conceits' (p. 284). That includes that 'our houses should speak the language of our day' (p. 284), and that furniture of the past should not be imitated (p. 17). The language of our day for furnishing seems to be, according to Edis, 'simple and plain' without 'overloading... with heavy and scrolly furniture' (p. 109). As an illustration a Morris buffet is contrasted against the usual 'twisted and

curled and carved' sideboards (p. 112). Here again the other writers concur. Mrs. Orrinsmith says that in good furniture of the past 'fitness was desired before beauty' (p. 82), the Garratts also call 'fitness the one great source of beauty' and Mrs. Orrinsmith goes on to describing what to her the 'Victorian style in furniture' should be: 'Resign all ideas of wood carving as a decoration.' Instead of that insist on 'honest material, little glue, and good sound workmanship, even if a sparsely decorated apartment be the temporary result' (pp. 97, 109).

It was unavoidable that these preachers of plainness and simplicity should get into trouble with their own liking for Queen Anne and Georgian furniture. And indeed the discrepancy between Edis's own taste and his recommendation of 'plain polished or painted deal furniture' in preference to 'the elaboration of Chippendale fretwork or Queen Anne ornamentation' (p. 16) remains unsolved—as so much in the relations of theory and performance amongst the Victorian reformers in art before William Morris.

While most of Edis's arguments so far discussed,²⁴ go straight back to the reformers of 1851—Owen Jones is in fact quoted more than once²⁵—we find one other trend in Edis's book which must reflect readings of Morris's lectures. It sounds very odd in a book so obviously written for a wealthy clientele to be told that 'the aim of all true art should be to produce good work for the million' (p. 250) and that the urgent problem of the day is therefore 'good and artistic furniture at a moderate cost so that it might be within the reach of all the classes' (p. 26).²⁶

The answer is that Edis was not a strong character. He had no mission as Morris had. He was ready to pick up whatever convinced him at first sight and put it into his lectures without much bothering about the consistency of his views. There is no system behind his book. That comes out most clearly in his attitude to colour and in his illustrations. As regards colour first, one finds that he wants it 'bright and cheerful' (p. 40) in town houses. But then, in specifying colour-schemes, they invariably come out sombre and hot, 'warm golden brown and yellow' on the staircase (p. 159), 'a good dark tone' dado with walls of 'chocolate colour' in the dining-room (p. 171), 'golden-yellow walls with a golden-brown flower pattern' in the drawing-room (p. 202) and so on. These colour-schemes which tally with what one feels was the Victorian taste, find a parallel even in Morris, although Morris went in for dark blues and peacock greens rather than Edis's brown and gold.²⁷ The temperature, however, is

¹⁹ And also such remarks as those on the desirable flatness of wall decoration (p. 8). There should, for instance, be no 'sprawling flowers' on carpets (p. 18). Mrs. Orrinsmith means the same, but she speaks of 'brilliant bunches of full-blown blossoms, convulsed scrolls and inexplicable twistings' (p. 60).

²⁰ Especially p. 70.

²¹ Similarly Mrs. Haweis, who was anything but a social reformer, hastens to say that all art must be for the people (1881, p. 20).

²² Mrs. Haweis makes irritated remarks about those who sit among 'blue china and green paper... There are other colours in the rainbow besides green and blue' (1881, p. 17).

²³ Some of these books I was shown for the first time by Mr. R. W. Symonds. I am very grateful to him for his helpfulness.

²⁴ 'Very good for furniture,' p. 29.

²⁵ *The Revival of Architecture*.

²⁶ *Collected Works*, XXII, p. 329.

²⁷ It is different with Mrs. Haweis who goes out of her way to object to the 'aesthetic folks' (1881, p. 17) and to rooms 'all splinters and ashen tints,' presumably a mixed vision of Morris, Whistler and Godwin.

the same in Edis and Morris, and also incidentally in Mrs. Haweis (who recommends for instance a red room with a black ceiling starred with dull sea-green and yellow, p. 251), and in Mrs. Orrinsmith ('low tones, twilight shades, olive greens, peacock blues, cloudy reds,' p. 61).²⁸

The most curious thing to us nowadays is the regret of the Mid-Victorians at the large size of windows in most town-houses. Mrs. Orrinsmith says explicitly that they should be reduced in apparent size by leading parts of them with small quarry panes, because light is only healthy if 'distributed in discrete doses' (p. 64), and even William Morris in his lecture *Making the best of it* (1879 or earlier) says that 'windows are much too big' in most houses.²⁹

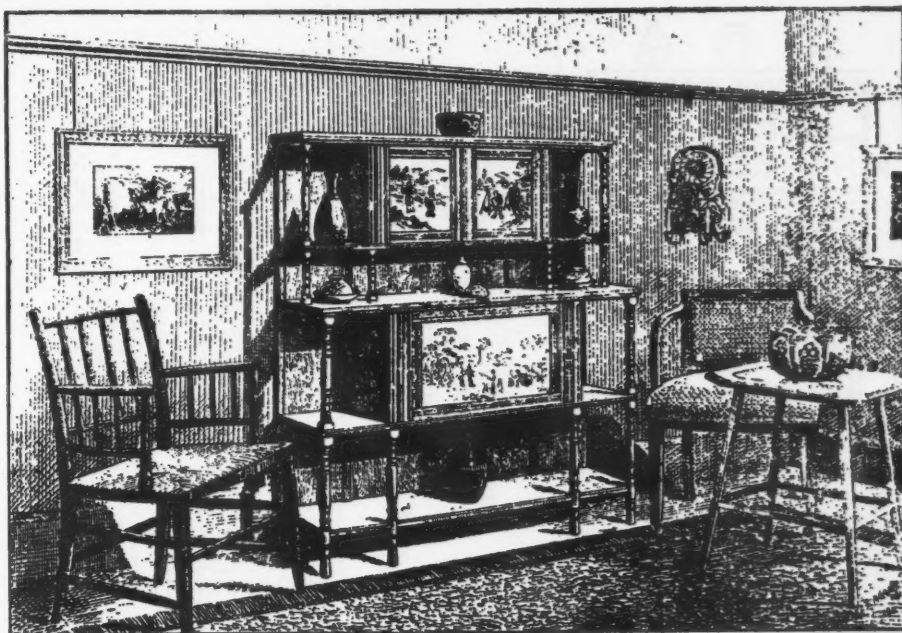
Edis's eclecticism appears everywhere in the choice of his illustrations. The furniture in his Plate 7, an arrangement from Jackson and Graham's (20) he recommends as combining 'general artistic merit of design with simplicity and practical common-sense' (p. 103). It consists of a sideboard and a small table nearly as spindly as Godwin's, and a Morris armchair. In spite of his censures against heavy Gothic furniture he shows a sunflower wallpaper by Talbert, the chief missionary of that style (p. 61), and he also shows a 'Modern Jacobean Hall' by Gillow's, the decorators (Plate 15). His own interiors are specially interesting (21 and 22). They combine furniture emphatically no longer heavy and no longer imitative of any style of the past, with a few eighteenth century allusions (small square glazed panes of a cupboard door, delicate garlands in a frieze and so on), and an all-over decoration with foliage wallpaper, and figure or bird or fish panels obviously in the style of William Morris, Walter Crane and Stacey Marks. Indeed the picture which forms the frontispiece of Edis's book has actually a frieze by Marks and Morris's Pomegranate paper.³⁰

Now such interiors perhaps more than Morris's give an all-round idea of accepted artistic furnishing about 1880. It is—to emphasize it once more—much less stodgy than most people would imagine and also much less imitative. Its covering of all surfaces with ornament is Victorian, but the ornament is not ponderous. And the furniture certainly possesses much more lightness than ten or twenty years before. Compare with Edis's an interior from Godwin's Catalogue (23) and you will at once observe how the seventy years between them and us have covered over the differences between the individual tastes of the two designers. Godwin also clearly had a *horror vacui*, and although his furniture is decidedly more daring, the similarity to Edis is much greater than the differences.

²⁸ An exception was apparently the exhibit of Messrs. Collinson & Lock at the Paris Exhibition of 1878 in which the colour-scheme, according to Edis, was of soft delicate yellow and yellowish pink walls, with pale blue woodwork, a fireplace glowing with red lustre De Morgan tiles, light pink and yellow muslin curtains and Indian matting on the floor—no doubt under Whistler-Godwin influence.

²⁹ *Collected Works*, XXII, p. 92.

³⁰ Edis mentions on p. 177 the prices of Morris wallpaper as 5s. to 12s. a piece, cottons as 2s. a yard 36 in. wide, woven hangings as 3s. to 12s. a square yard, and carpets as 6s. 6d. to 10s. 6d. a square yard.



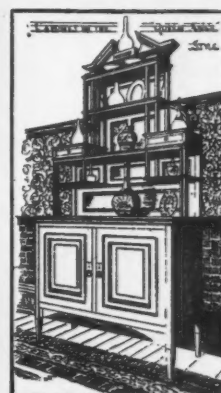
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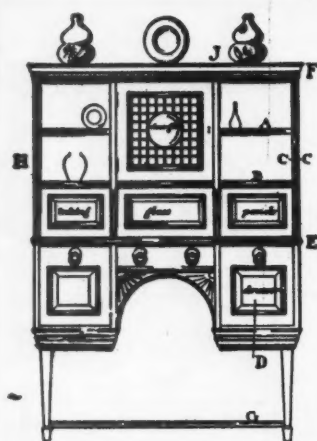
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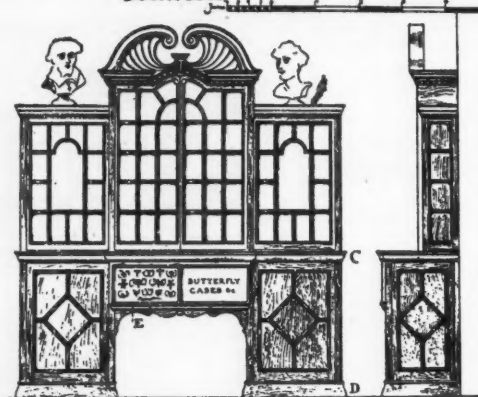
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Whole furnishing schemes more than individual pieces of furniture prove how far from imitative the 'seventies were. The style of the avant-garde of decorators was a mixed style in which Pre-Raphaelite, rural, Japanese and even Queen Anne features could exist. 24 from the Godwin-Watt catalogue of 1877 is called a cabinet in the Queen Anne style; 23 is from the same catalogue. 21 and 22 are by R. W. Edis and were published in 1881. 22 has Morris's pomegranate wallpaper and a frieze by Stacey Marks. The furniture is ebonized mahogany. 20 has a Morris chair and a sideboard made by Jackson & Graham, the best-known cabinet-making firm of the period.

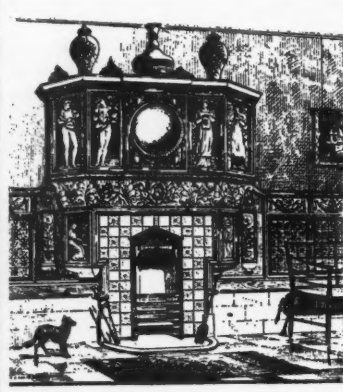
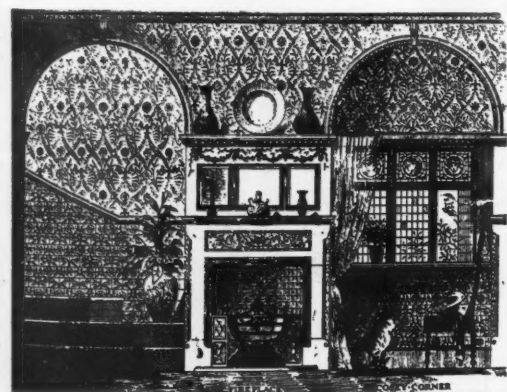
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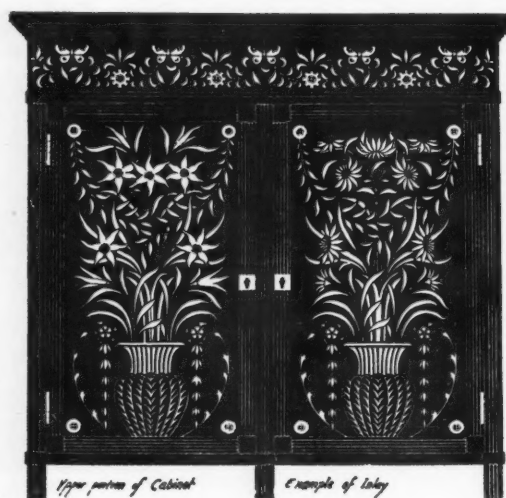
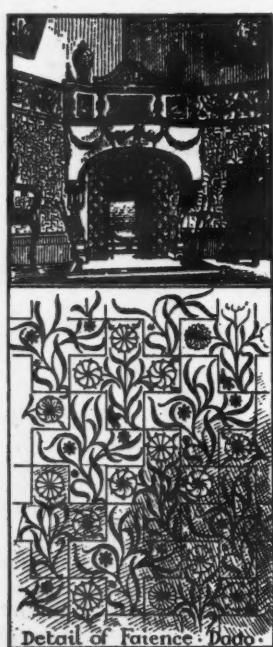
Bookcases Scale of feet



27



29



25 and 26 are surprising for their dates, 1880 and 1881, 25 in its freedom from period precedent and pre-Voysey daintiness, 26 in its frank dependence on the Georgian style. Both are designed by Maurice B. Adams, who was a younger follower of Norman Shaw and editor of *The Building News*. 27, 28 and 29 are also by Adams and of the same time. They show the delight of those years in a lavish use of majolica or faience. The brand here is Burmantofts. The patterns in 29 come very close to Art Nouveau, although it is more than five years earlier than the emergence of that movement. The same surprising freedom and sense of flow appears in Lewis F. Day's cabinet, 30, illustrated in 1879. Day was one of the best individual designers of the period.

28 from Queen Anne to art nouveau

In this connection it is worth noting that in one plate of Godwin's Catalogue (24) a cabinet looking much like the others and much like Edis's is called 'in the Queen Anne style.' The overlaps are even more curious than that, and they prove that progressive decorators then as now were a small set at one in fundamentals. There is for instance Maurice B. Adams (1849-1938), Technical Editor of the *Building News* from 1872-1923, and a close follower of Norman Shaw with whom he worked on the Bedford Park Estate, where he designed the Art School. He was the leader of the fashion for imitation eighteenth century furniture about 1880, a fashion which one would think would have been distasteful to a man like Talbert. Yet Talbert in publishing a second part of his album of furniture designs eight years after the first, that is in 1876, thanks amongst others Adams for help and indeed goes out of his way to state that 'in the intervening eight years ideas . . . have greatly changed. . . . At present there is no style without admirers; even the English Rococo has its worshippers, and we find that those who were once believers only in the thirteenth century Gothic now imitate the Tudor, the Jacobean or the Georgian—at least so far as domestic work is concerned.' He goes on, it is true, to warn against commercialized Chippendale, just as Edis had warned against commercialized Japanese. But in fact there were no real hatreds between the various schools of thought amongst the moderns.

Adams's furniture (25 and 26) is particularly interesting in that it demonstrates the step from the new grace of, say, Godwin to full-dress Georgian imitation. Here again the resulting style looks much more 1900 than 1880.³¹ But again when it comes to complete schemes for interior decoration, period imitation is silenced and the style appears entirely original and basically in sympathy with Morris and Godwin and Edis. Adams was the designer for Messrs. Wilcock of Leeds Burmantoft Faience, tiles which were much used to achieve that overall covering with flat decoration which was so dear to the period (27 and 28). Edis illustrates it in Plate 1 of his book (29) and recommends it.

And now, having shown how theory, forms and colours in the work of Morris and Webb, and Godwin and Whistler, and Edis and Adams assume a distinctly Late Victorian character at a surprisingly early date, a last aspect must be considered, a Proto-Art Nouveau of the seventies. So far my earliest example of Art Nouveau had been Mackmurdo's title-page to his book on Wren's City Churches.³² Now it must be added that the sense of slender, undulating leaf-shapes in their sway exists to a certain extent already in Adams's tiles on the one hand and in such woodwork as Lewis F. Day's cabinet of 1879 on the other (30).³³ Day (1845-1910) was one of the founders of the Arts and Crafts Exhibition Society and the Art-Workers' Guild—and so we are back with the Morrisites whom we started from.

³¹ The illustrations come from the *Building News*, March 5, 1880, and October 14, 1881.

³² See *Pioneers of Modern Design*, New York, 1940, p. 80.

³³ From *The British Architect*, 1879, p. 255.

current architecture recent buildings of interest briefly illustrated.

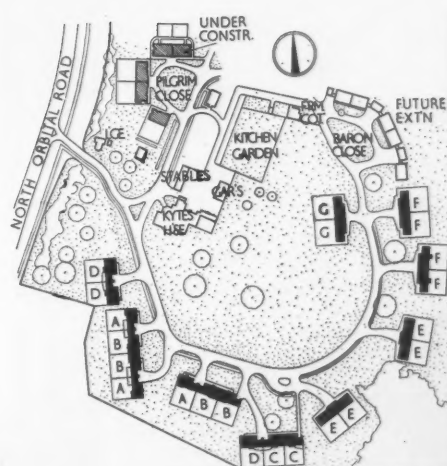


Looking west at two D type bungalows

HOUSING FOR DISABLED EX-SERVICE MEN

ARCHITECTS: NORMAN AND DAWBARN

The settlement at Garston, Watford, for paraplegic ex-Servicemen is being built in the grounds of Kytes House, which itself has been converted to accommodate games rooms, a clinic, library, secretary's room and private flats for voluntary assistants. The settlement is planned for a possible maximum of 48 bungalows and will eventually be absorbed into the community of a housing estate to be developed by the Watford Borough Council on surrounding land. The bungalows are informally laid out around a central green which includes the fine existing trees. There are four different types of bungalow, with either two or three bedrooms. All changes in level are by ramps to allow free circulation of wheel chairs. Internal corridors are 4 ft. 9 in. minimum width. Each bungalow has a garage wide



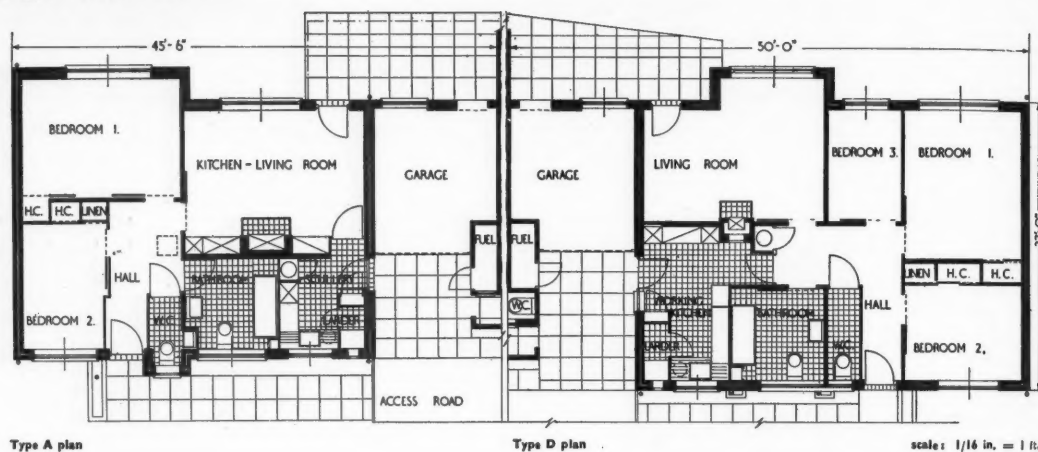
site plan (letters refer to plan types)



Above, bedroom looking into the hall typical of types A, B, C and D.

enough to take a car and wheel chair side by side. All living rooms have a large window with low cill looking out on to the garden. Walls are of 11-in. cavity brickwork with solid 9-in. brick party walls, 4½-in. internal spine walls and 2-in. breeze internal partitions. Floors are of concrete and roofs of timber trusses. Garage doors are either roller steel shutters operated by an external winch or overhead spring-balanced wood doors. Internally all room doors are 2 ft. 9 in. wide and in the main circulation they slide on roller bearings. In bathrooms, wc's and garages, hooks and steel chains are supported on the ceiling joists to enable the occupant of a wheel chair to lift himself. All electric controls are placed at a height convenient for use in a sitting position.

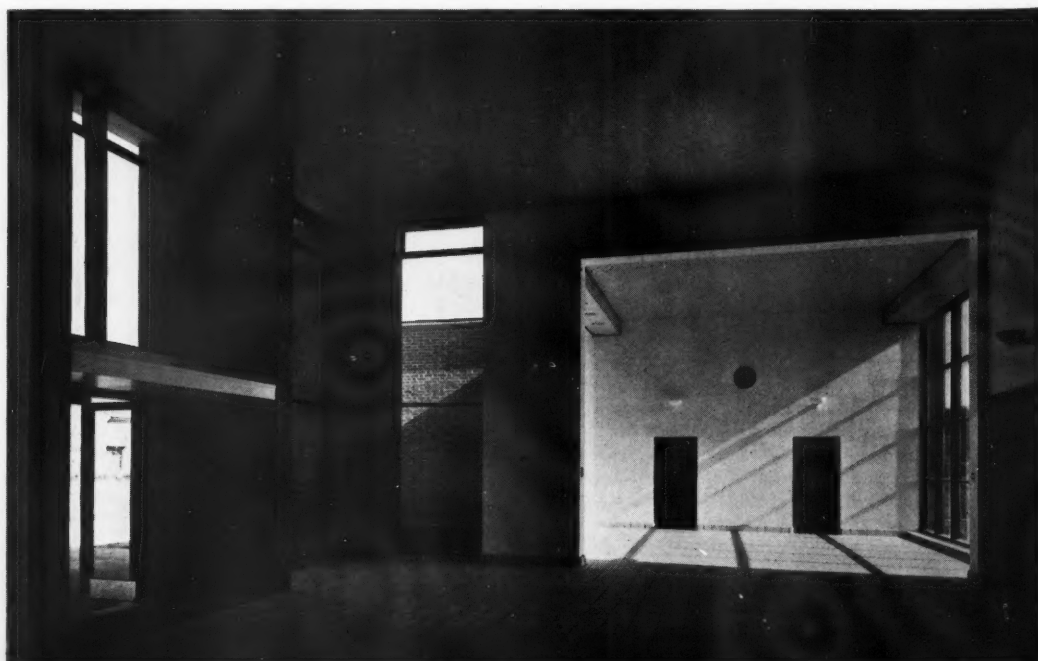
Housing for Disabled Ex-Servicemen



RESEARCH LABORATORIES IN BEDFORDSHIRE

ARCHITECT: CECIL C. HANDISYDE

This building for the London Brick Co. houses four laboratory sections, offices, a large entrance and display hall, a conference room, a library and a directors'



The entrance and exhibition hall, with doors to the conference room and library in the background.

4



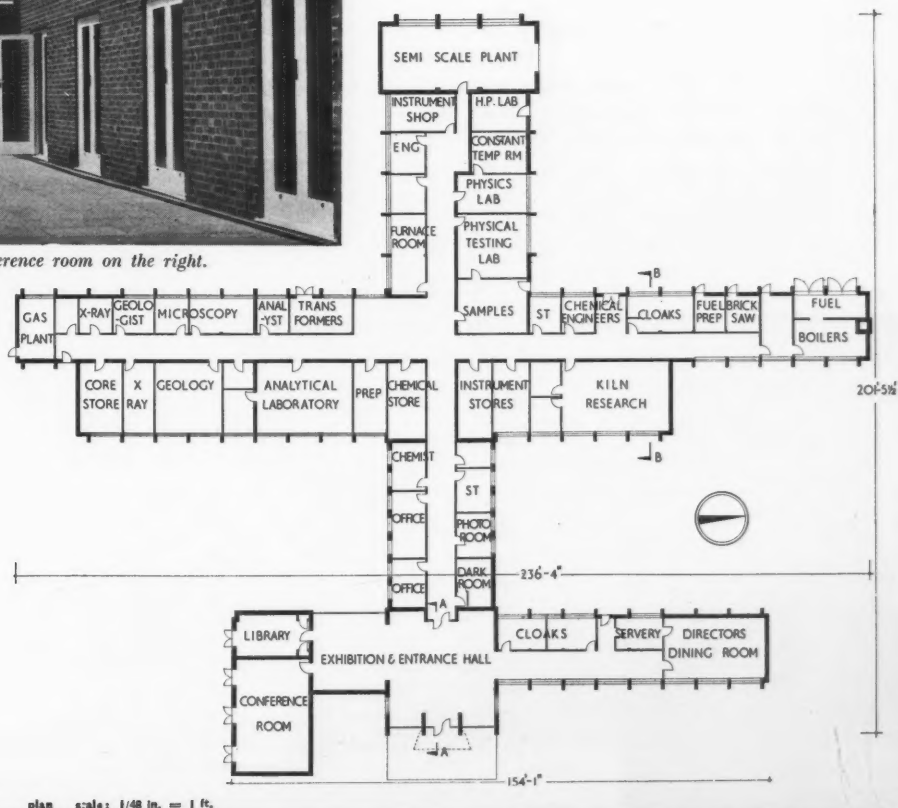
The east facade looking south-west.

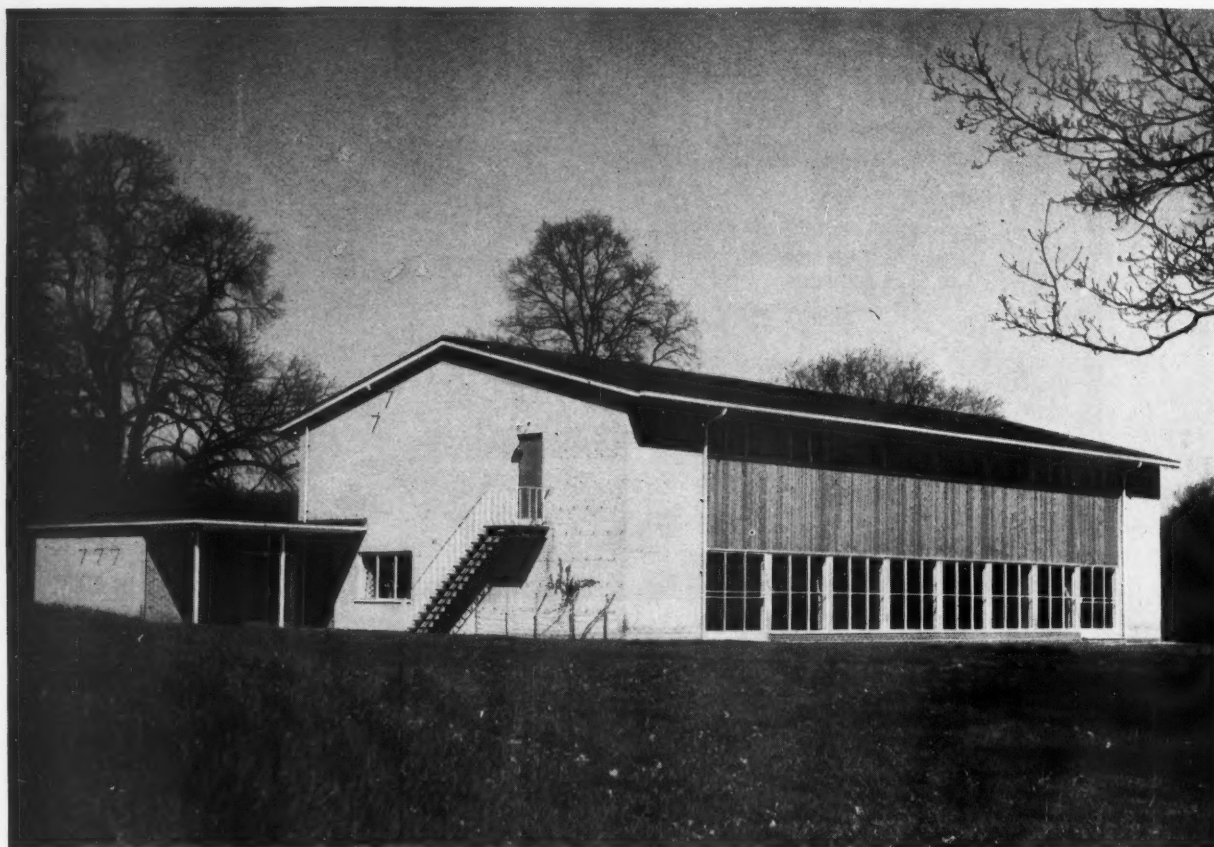
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Looking west with the south wall of the conference room on the right.

dining room. The general construction is in brick. Two standard bay dimensions are used and the roofs are of hollow tiles. The large span ceiling to the entrance hall is of solid reinforced concrete, cross reinforced and domed about $1\frac{1}{2}$ in. on the soffit to avoid any appearance of sag. External walling is in rustic flettons. The piers to the main entrance are covered with sawn-finish Westmoreland green slate. Windows to the east block are in iroko, and elsewhere in painted softwood. The roof is finished in 3-layer felt with a white spar topping, and insulated by 1-in. cork, plus light-weight concrete screeding.





The gymnasium looking north-west. 7, the interior, and 8, the changing room.

GYMNASIUM AT TEACHERS' COLLEGE, HERTFORD

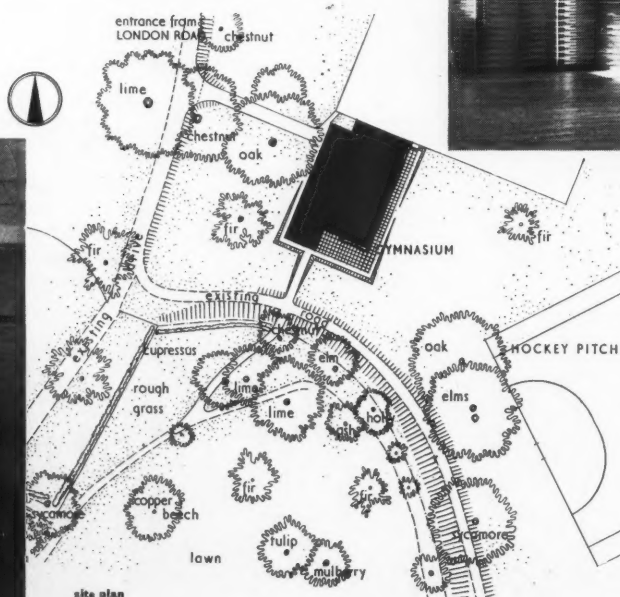
ARCHITECT: C. H. ASLIN

A gymnasium was required for the women students of the Balls Park Teachers' Training College at Hertford, which could be shared by children from adjacent primary schools. The site is on the edge of the playing fields where the showers and changing rooms can serve for either outdoor or indoor recreation. A galvanized light steel frame is used with standard beams and column sections as in the current Hertfordshire schools programme. External walls are mostly of cavity brickwork with an inner skin of



7

8



vibrated clinker blocks in the changing room section. The roof is of timber purlins on light steel roof trusses at 8 ft. 3 in. centres. The main roof is finished with 23 gauge copper on 1-in. insulation boards. Externally, walls are of buff colour, except for the side walls of the lower block, which are terra-cotta. In-filling between the upper and lower windows on the east elevation is of western red cedar boarding with fibrous plaster internally and insulation between. Internally, the end walls of the hall are in fair-faced cream brick; side walls are plastered and discoloured slate blue on the west side and greyish-yellow on the east.

The name miscellany implies, of course, an architectural miscellany—one that will include subjects which, though marginal to architecture, are nevertheless vital to it.

miscellany

BOOKS

SWEDISH SYNOPSIS

SWEDEN BUILDS. By G. E. Kidder Smith and Albert Bonnier, Stockholm. The Architectural Press. London. 1950. 45s.

Mr. Kidder Smith has again given very good value for the Guggenheim fellowships which have sent him with able camera and pen to record the modern architecture of different countries. Third in line from *Brazil Builds*, and in the same format as *Switzerland Builds*, this latest in the series more than justifies its high price by the very thorough way in which it presents Swedish architecture.

In their attempt to make the background intelligible the captions have avoided the occasional glibness discernible in the previous book, and Mr. Kidder Smith has largely resisted the temptation to cut up and arrange his photographs in odd shapes and patterns. There are a couple of pictures cut out with pinkish shears, but none apple-shaped.

It is a pity that the five full-page colour plates seem to have been printed with a more fuzzy grain than the Swiss ones, but they do suggest some of the limitations and advantages of black-and-white illustration. Seen next to a good black-and-white photo, the colour plate looks more real, but at the same time in some way more dull and unsurprising. It is as if, having sacrificed the crisp abstract quality we have come to look for in the architectural views of the glossy magazines, we have to start in again with a different set of values, stomaching the colour plate's disturbing trueness to life, but eventually, we hope, coming away with a more exciting and direct experience of the building.

In the introduction Mr. Kidder Smith shows a perhaps over-simplified enthusiasm for the setting of the average housing layout in the Swedish landscape. It is a bit far-fetched to call some of them slums, but there are several Swedish town-planners who are heartily sick of seeing the same parallel three-storey blocks of flats stretching away

among rocks, moss and pines from every suburban tram-stop, and who question whether this so general vernacular is really a healthy development.

He also seems to explain the features of folksiness and formalism which have crept into recent Swedish work as too completely due to the cramping effect of material shortages and of government restrictions. Is there not a latent capacity for evil, or at least for wilful waywardness, in every architect himself, whose indulgence no external conditions can really justify? Alfred Roth effectively demolished a major part of both Swiss and Swedish architecture and architects in his March article *Zeitgemässe Architekturbetrachtungen* in *WERK*, which forms a necessary prolegomena to both Mr. Kidder Smith's books. It is among the younger architects, still idealistic enough to see a meaning and purpose in the *declassé* word 'functionalism,' that there is the best hope for a return to the fresh spirit of the early 30's.

Sven Markelius contributes an introduction on 'Swedish Land Policy,' which sounds from the title as if it was going to be rather agricultural and statistical, but which is in fact a clear statement of the town-planning technique used, especially in Stockholm, and of the chief types of housing block and their layout. This might well have been illustrated by a few more town-planning maps. That there are not fuller plans to illustrate the individual buildings is an obvious complaint, but an unreasonable one where every photograph is such good value for space.

Michael Ventris

HISTORY

POTSDAM

Inter arma silent Musae et mens.
Late in April 1945 when German resistance was already crumbling, air raids, either British or American,

wiped out many places which belonged to the cultural inheritance of mankind. On April 24 Potsdam's turn came, where before only slight damage had been done (e.g. to the late eighteenth century theatre). Now the old part of the town, a kind of peninsula skirted by the river Havel, was almost destroyed. Scarcely any other place contained such well-preserved town architecture of the eighteenth century. There were entire streets, unaltered by the nineteenth and twentieth centuries. Before the destruction the impression of timeless Rococo had suffered only in some streets where



1, Potsdam Stadtpalais before destruction and 2, after 1945.
3, mask above a door from Andreas Schlüter's workshop.

trees had been cut down and big shop-windows had broken into noble façades. Even such well-planned eighteenth century cities as Karlsruhe and Mannheim—now also destroyed—had not preserved such aesthetic unity and quality.

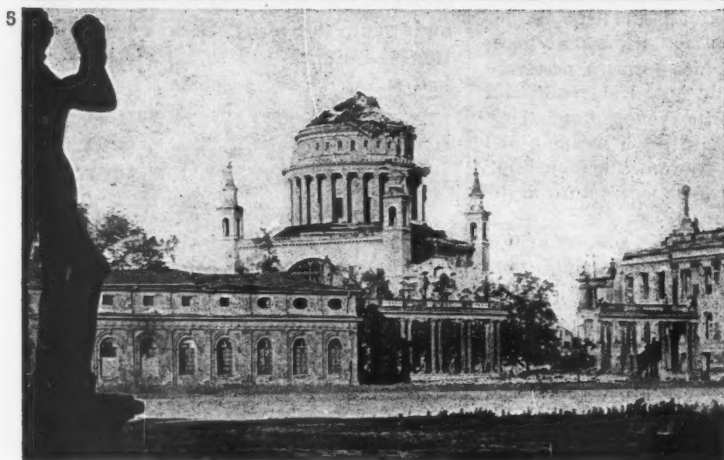
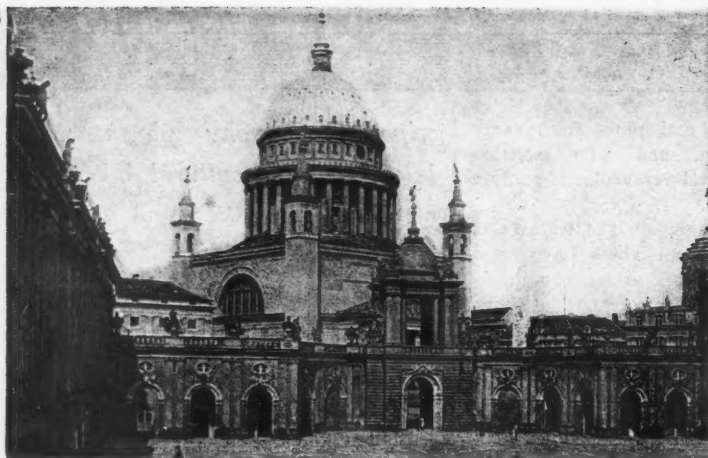
This result had been intentionally produced by the grant of subsidies for building façades of an accepted kind and by the supply of building material. The small bourgeois, civil servants and soldiers, who became the owners of these palace-like



1

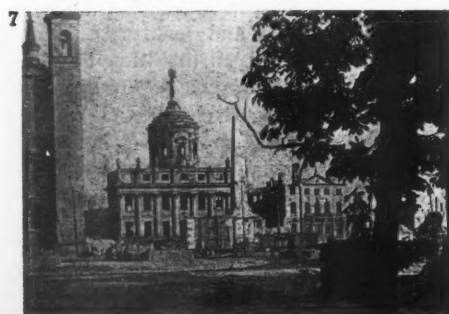


2



4, Stadtpalais yard and Nikolai Church before destruction and 5, afterwards. 6, view through gate of Stadtpalais. 7, below, the 'rose and white' town hall after the raids, showing the figure of Atlas on the lantern tower, which survived.

houses, were far from wealthy and eagerly accepted the grants, but they could not always afford to build the back parts of the houses sufficiently solidly. Later, with increasing prosperity, this poor construction was often replaced by good masonry, but at some places the rickety structure



behind the splendid front was still visible from the courtyard.

The two Prussian kings, Frederick William I and Frederick II, took a very close interest in the architecture of their residences. Every new building or alteration needed the King's personal assent. A royal architect supplied the plan for the front or the King approved a submitted plan. Every trick was used to give the town a truly regal appearance. Often, for instance, several houses were united by one splendid front.

The royal patrons husbanded their

means and did not waste money on architects if it could be avoided. Etchings of well-known buildings in Italy, France, Holland, Austria and England often supplied the patterns which were changed to fit in the proportions and surroundings. Nevertheless, the two Kings rarely committed architectural blunders.

The rose and white painted town hall, 7, copies motifs of the Amsterdam Town Hall. The gilded Atlas on the lantern-tower survived the raids, but the building was gutted. At the other side of the square the imitation of the Palazzo Barberini is rased to the ground, and the destruction of this royal whim will perhaps be less regretted, as it did not fit into the Rococo atmosphere. The greatest loss, however, is the destruction of the *Stadtpalais*, the Royal Palace, 1, 2 and 3. We cannot here go into the chequered history of this building. Its main front toward the so-called 'Lustgarten,' a part of it is a sandy drill-square, received its final setting by Frederick's great architect Knobelsdorff. An empty shell is left, and even the walls show big gaps, 5. The colonnades at the front which supplied the *repoussoir*—the charm of every great architecture is the perspective—are completely gone. The *cour d'honneur* towards the market square kept amongst the ruins its gate, 4 and 6—

built by Jean de Bodt as early as 1701. Where the treasures of the interior went is not known. Something might be stored in other German places. There was the finest furniture of the eighteenth century, especially by Nahl and the Swiss Kambly, pendules bought from the heirs of Madame de Pompadour. The figures of the silver gallery, the paintings by Lancret, Pater and Pesne have vanished. The bombing had been bad enough, but later looting and the mischievous destruction by children, Russian soldiers and allied souvenir hunters followed. Finally, in 1948, Herr Steimer, Chief of the Police, son-in-law of a communist leader and now President of the East-German 'State,' used the Town Palace as a quarry for building opposite a stadium for his police force. So posters were fixed at the ruin 'Away with this hotbed of feudalism' and 'This is a shame to all working people, and it became a ruin owing to the militarist tradition.'

Broad Street with the Garrison Church and the Great Orphanage has suffered badly. The spire of the Garrison Church was a landmark with its bells, playing every half an hour 'Ueb immer Treu und Redlichkeit'—Act always truly and honestly—is badly damaged, and the ineffective admonition sounds no more. v.

DESIGN REVIEW

LAMP DESIGN COMPETITION

Following a complaint by Marcel Breuer that he was unable to find on the US market a decently designed modern lamp which he would be willing to have in his own home, the Museum of Modern Art, New York, in association with a firm of domestic lamp manufacturers, arranged last year to sponsor a competition for the design of table lamps and floor standards. The winning designs (three prizes were awarded for table lamps, and one for standard lamps), were selected from submissions by over 600 competitors from all over the US. Models were made of these and of another six 'mentioned' designs and were displayed, together with the drawings of the other entries, at an exhibition held last summer at the Museum of Modern Art. As a point of interest the first and second prizes for table lamps were both won by students of the Chicago Institute of Design.

TABLE LAMPS First prize winner Joseph Burnett. The assessors made this award 'for a lamp which achieves the greatest possible flexibility in the control of light.' The lamp is in two parts. The bulb sits in a vertical cup 8½ inches high and illuminates a cone set on a tripod. With the lamp directly beneath the cone the light is evenly reflected all round. If the lamp is moved to one side of the cone the light is then concentrated on that side and is sufficiently intense for reading.



Second prize winner Anthony Ingolia. This lamp is made with a swivelling head and is supported by spring legs which, if squeezed together, releases the grip on the stem making it possible to slide them up towards the head. There are thus two adjustable features when used on a table. The hook on the base allows it to be hung on a picture rail if desired. Direct and indirect illumination are possible.

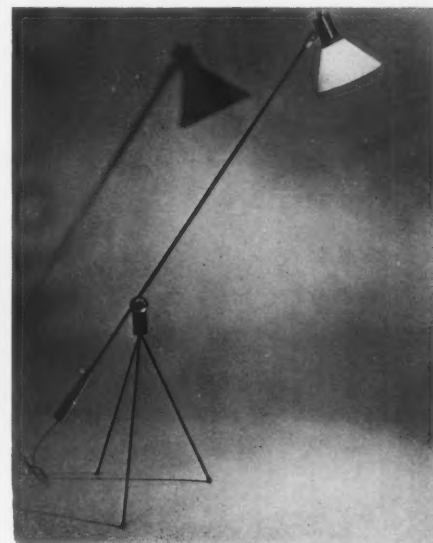


Third prize winner James H. Crate. In this design, three legs of metal rod support a funnel and are projected above it to hold a flat reflecting disc. The light bulb is housed in the funnel and shines upwards into the disc. The angle of the reflector can be adjusted within certain limits by moving the rods.

STANDARD LAMP Special prize winner Gilbert A. Watrous. The points of this design are self-evident except that the ball in which the lamp arm is fixed is held

in position magnetically. Its angle can be adjusted easily and the arm itself is counterbalanced.

H. McG. Dunnott



WALLSCAPE

TEXTURE AS SCULPTURE

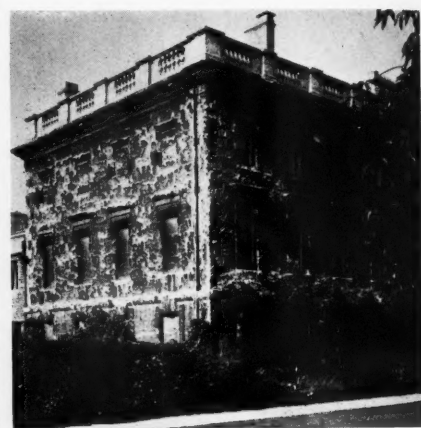
That nature imitates art is a truism; that nature and art can enter into a happy collaboration, each working towards the same end in its own way, is a truth less often recognized. The photograph here and those overleaf show it happening. The scene is Spain—Tarragona. The gateway in the photograph below is



surmounted by a marble achievement of arms which has a kind of all-overishness of pattern, frequent in Spanish sculpture and architecture, that is due to the need to break up the blinding Spanish light into manageable quantities; here sculpture is



texture. Part of the same wall, lower left, shows how nature has carved the surface of the wall to produce a remarkably similar effect; this is texture as sculpture. Below is texture as sculpture again, but this time in England. The first is Corpus Christi, Oxford. There are, of course, strong arguments in favour of restoring the fine edge to classical architecture. In a case like this one, however, where the superb textural qualities of the stone in no way endanger stability and where the effect is so appropriate to the Oxford *ambiance*, there is no excuse at all for out and out restoration; replacement there will have to be from time to time. It is the medieval building which suffers most from the almost universal desire to make the rough smooth and the crooked straight. The



Guild Chapel at Stratford-on-Avon, above, provides a good example of collaboration between art and the forces of nature in a medieval building. As it happens, this particular building has received sympathetic treatment aimed at conserving decay rather than 'restoration.'* Few are as fortunate.

A.E.

* John Piper, *Pleasing Decay*, September, 1947.

INDOOR PLANTS

SYNGONIUM VELLOZIANUM

The *Syngonium vellozianum* is a climbing or trailing foliage plant from central or tropical America of the Araceae family and is distantly related, therefore, to the arum lily, the common or hedgerow 'Lords and Ladies' and the scindapsus and philodendrons, which in habit and appearance it somewhat resembles. Its leaves are, however, three-lobed and arrow-shaped or sagittate. Like the scindapsus



it throws out aerial roots and its foliage is a glossy green. This variety and others such as *S. podophyllum* and *S. erubescens* are said to be descended from *S. albolineatum* which was first introduced into this country as a tender foliage hot-house plant in 1893. This does not mean that the plant is easily obtainable or popular—only eight varieties are known to growers. Nevertheless it is to be hoped that recent importations of this plant will repair the omission as it fully deserves a place in any collection.

Syngoniums do not need direct sunlight, preferring shade, are quick growing and are easily propagated from cuttings. They require ample water and, if possible, a place where the air is warm and moist. Its leaves in any case should be frequently sponged.

H. F. Clark

LETTERING

GENTEELISM

A public notice is like a public speaker: if it is to get its message across to those in the back row it must shout. It can shout in all kinds

of common ways but it must shout. It follows that the worst enemy of the public notice, as of the public speaker, is the soft and the sissy, and the worst kind of sissy is the genteel sissy. Photographs 1 to 5 show egregious examples of genteelism in public notices. Each of them is addressing itself, or at any



rate should be addressing itself, to the back row of the audience—to the people who filled the pools on South Bank with ice-cream cartons and leave every picnic spot from Land's End to John o' Groats knee-deep in newspaper. Not one has a chance of being heard by them, or, if heard, treated with anything but the contempt of the tough for the proper, and how right that contempt is. Their genteelism, it will



be noticed, is of three distinct brands—the pawky-genteel in 1, the such-well-brought-up-children genteel in 2 and 3, the artistic-genteel in 4 and 5. It will also be seen these distinctions apply to both form and content, the pawks and saws of 1 to 3 (Edinburgh) are presented with the visual unimaginativeness of a Scottish nursery



governess chalking the blackboard, and the God-wottery* of 4 and 5 (Cirencester) in



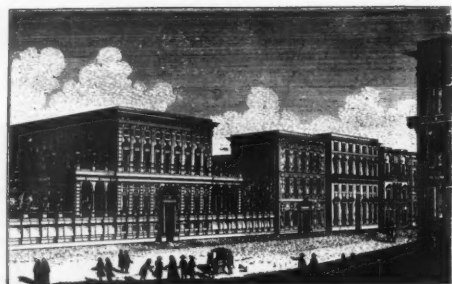
that anæmic kind of 'Trajan' which societies concerned with what they generally call 'amenities' seem to think particularly refined. Contrast 6, a public notice (at Phurlestone) whose stentorian voice would reach the back row and beyond in the teeth of a 60 m.p.h. gale—a splendid example of straight-from-the-shoulder visual oratory, and straight-from-the-shoulder English too.

R.M.

* This useful word, which has visual as well as literary applications, derives from T. E. Brown's notorious poem beginning 'A garden is a lovesome thing...'

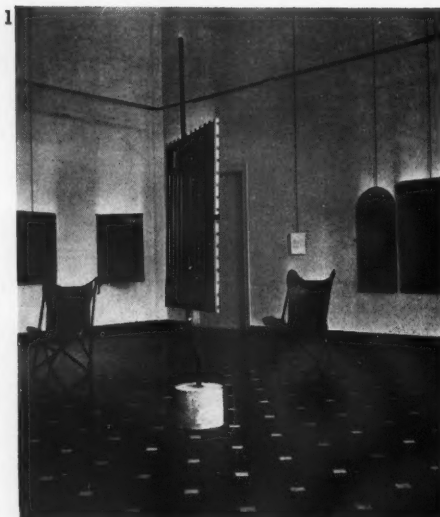
PALAZZO BIANCO, GENOA

The technique of exhibiting works of art of the 'old master' variety in a modern way has been explored by the Italians during the past twelve years in a series of bold and interesting experiments. Among the most notable are Pagano's Mostra Leonardesca of 1939, the famous exhibition of drawings at the Brera in 1942, the permanent exhibition room in the Istituto centrale del Restauro, Rome, designed by Radiconcini in the same year, and the Bergamo exhibition of drawings in 1950. The latest example is the restoration and rearrangement of the art gallery in the sixteenth-century Palazzo Bianco at Genoa, undertaken by the architect Franco Albini for Dr. Caterina Marcenaro of the Genoa Department of Antiquities and Fine Arts. In all but the first two rooms of



The Strada Nuova in which the Palazzo Bianco stands c. 1781.

the palazzo the original floors have been left, black slate and white marble, and all walls and ceilings are pale grey. All the windows have been hung with venetian blinds to control the light, except in one or two instances where the light was ill-adapted to the exposed pictures; here the windows have been blocked by screens of slate slabs mounted upon a metal framework and decoratively incised—a sort of *lavagna*. In most of the galleries the pictures are shown by means of iron rods which hang down from runners and are adjustable, or are mounted upon steel tubes with sections of old columns for bases, 1. Lighting is by controlled daylight and by cold cathode fluorescent tubes suspended upon wires, except in one or two cases where, for special effects, incan-



descent spotlights are used. Portable tripoline armchairs, in black wood and natural leather with brass fittings and joints, are used for the seating throughout the palace.

The second room, carpeted in grey, exhibits the two chief treasures of the museum.* The marble group from the tomb of the wife of Arrigo VII by Giovanni Pisano presented the problem of how to exhibit it at its proper height and at the same time facilitate close inspection. This was solved by mounting its metal stand upon finely adjusted bearings for turning it round, and by adapting a hydraulic car-jack for raising and lowering it. The sculpture is lit by adjustable spotlamps on the opposite wall. The famous Byzantine pallium, along with its cold cathode lighting, is sealed within plate glass guards so that it is protected from dust and both sides are clearly visible.

Perhaps the most interesting room of all is the *sala didattica*, 2, which is used



for special exhibitions. Here, vertical and horizontal members in black wood, with

* See frontispiece p. 2.

brass attachments and sheets of glass to hold photographs, are used in a modular arrangement derived from the scale of the black and white floor. Similarly the incandescent lamps can be moved to light the photographs wherever they should be placed.

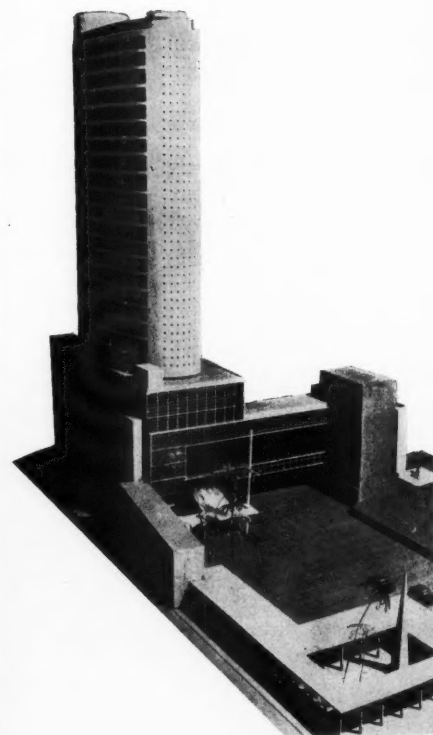
Toni del Renzio

RECONSTRUCTION OF TOULON

The general standard of design in French post-war rebuilding has been remarkably low. However, a number of schemes published recently show a marked advance, and the first of these to be put into operation on a big scale is the Toulon Harbour.

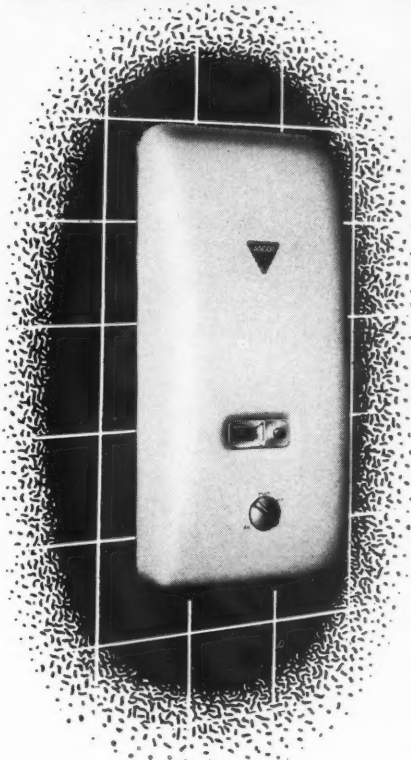
The four blocks of flats along the Quai Stalingrad comprising the first stage (see AR, March, 1951) are now well under construction and the new twenty-seven storey block illustrated here is sited behind them.

The first six floors are reserved for



municipal offices connected with the administration of the civil harbour, including a hall for official receptions and festivals; the seventh to nineteenth floors are divided into three or four roomed flats for the local people whose homes were destroyed during the bombardment of the harbour; and the twentieth to twenty-seventh floors are an hotel.

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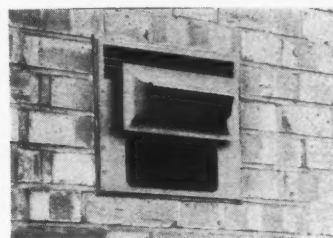
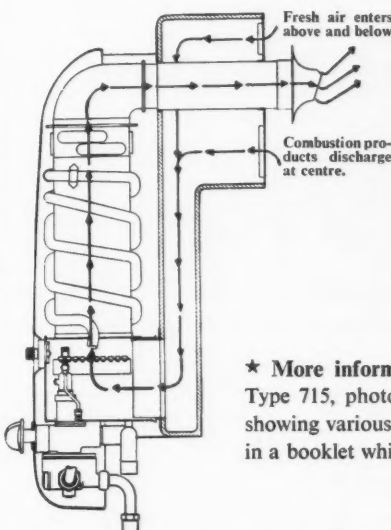


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which the heater is installed. Enclosed ducts draw air to burn the gas from outside the building and carry away all the products of combustion.

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sunshine**

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PAINTED CHURCHES OF CYPRUS

'Here in the Pitsillia men work harder to gain a living than in any other part of Cyprus. From deep valleys their land slopes steeply up into the sky, rough with crops of heather-coloured, serpentine rock, but doggedly cultivated with vines: green stars cross-stitched against patches of worn, gold earth, right up to the crests of the mountain ridges. Rising towards one of these crests, two miles up a mountain path from Platanistasa, is a broad steep ridge of tiled and moss-grown roof. It sweeps from the ground to cover the lonely church of Stavros tou Ayasmati, the Holy Cross—once called Stavros tou Dhiosmati, the Cross of the eye of Zeus.' . . . 'We entered, and with a shock of surprise saw the dark walls transfigured with frescoes, an inward richness sanctifying an outward simplicity.

'Several valleys—Peristerona, Asinou, Solea, Marathasa—cleave, at intervals, this northern face of the Troodos range. These painted churches are a feature of them all. Unlike the geometric Byzantine landmarks, which rise with assurance from the plains, they merge unobtrusively into the landscape, their rustic elements of tile and timber, stone and plaster and brick, matching the earthiness of villages and hillsides. Long, low, lichened buildings, sometimes half-timbered and always with steep-pitched roofs, they resemble Elizabethan barns rather than Byzantine places of worship. Bats flutter silently among their rafters, and swallows build their nests beneath the gables. But here is also the familiar, often haphazard furniture of the Cypriot country church: the rickety stalls around the walls, the candelabrum grimy with wax and empty match-boxes, the brandy-bottles of oil and holy water, and the clutter of offerings left by suplicants; the iconostasis (or screen), carved and painted perhaps by peasant workmen, with its garish icons and its faded curtain and the cross leaning forward from above it; then behind it the dusty altar, littered with objects sacred and profane: the tattered account-book and the dog-eared Bible, the pegs hung with the fusty garments of the priest. Here are all the mundane odds and ends which no Cypriot finds incongruous with a spirit of worship.

'Less familiar, almost invisible at first, as the churches, like barns, have no windows, but starting slowly to glow with life, are the paintings. Dark with the earthy colours of umber and indigo, cobalt and ochre, they portray a world inhabited by saints and martyrs, prophets and evangelists, angels and arch-angels, Virgin and Child and the Christ Pantocrator. Their images have now the naivety of folk-painting, now the refinement of Byzantine art, but always the joint inspiration of Greek tradition and Christian belief. Here are bearded prophets like Greek philosophers, and Greek-nosed Madonnas, like goddesses. Christ is a thoughtful baby with a scroll, or an adolescent Greek youth, serious-minded and alert beyond his years. Sometimes he wears a single jewelled ear-ring, as do the only sons of Cypriot mothers today.'

PATRICK BALFOUR (*The Orphaned Realm*), Percival Marshall, 1951.

MARGINALIA

With only a little Comment

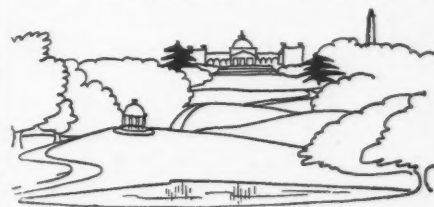
'In the eighteenth century they laid out their parks with wonderful avenues of huge trees many miles long and often hundreds of yards broad, down which could be seen vistas of rolling grass, cunningly punctuated with artificial lakes and delicate sophisticated classical monuments—little temples, bridges, wells, or grottoes—and so contrived as to terminate in some outstanding local feature, such as a church

tower or a hill. If no such feature existed, one would be built—a triumphal arch, an imitation ruin, a mausoleum, or an obelisk. For such men no flight of fancy was too extravagant, but it was extravagance on the grand scale: no tawdry spendthrift whim of the moment, but an extravagance on a long-term policy. None of the great landscape artists of this time can ever have seen his schemes as he meant them to be seen, for none of the splendid avenues would have reached anything approaching maturity when he died. . . .

'The eighteenth-century builders laid out

their terraces in simple straight streets, fine big squares, with gardens in the middle, in crescents and circuses, one opening out of the next, forming vistas and avenues of masonry and brick-work terminating in clumps of trees that are the square gardens, just as in the country they laid out avenues of trees, terminating in buildings. The insistence on vistas and avenues, which is a natural outcome of a symmetrical layout, was a technique that the Renaissance architects had taken from ancient Rome, and was a complete innovation in England.'

These two passages come from *The Observer's Book of British Architecture* by John Penoyre and Michael Ryan and with an introduction by F. R. S. Yorke (Frederick Warne and Co., 5s.):



so does this drawing. It seems almost incredible that in this year of grace, of Christopher Hussey and of *THE ARCHITECTURAL REVIEW* two people could get the English eighteenth century so wrong as to suppose that grand avenues were the distinguishing mark of its landscaping, and symmetry of the planning of its towns.

Architects in this Issue



Architect of Victoria College, Cairo (see pages 8-15). JOHN W. POLTOCK, born 1903. Became articled pupil to J. A. Webb, architect and surveyor, Stanmore; evening study at Harrow School of Art and Technical Institute, Regent Street Polytechnic School of Architecture and Royal Academy Schools. 1931-40, Senior Assistant, Architect's Department, Kent CC; 1941-45, Royal Engineers (including last year as Staff Officer RE (Designs) to Chief Engineer, HQ, Egypt). Since 1948 in private practice. Instructor in Advanced Building Construction since 1931, Maidstone Technical College, and in Architectural Design at the Maidstone College of Art. Head of Department of Architecture at Medway College of Art, Rochester, 1949. Early influences included Lutyens, Baker, Dawber, Scott, Curtis Green (RA Schools visitors). Read in 1930 English translation Le Corbusier's book 'Vers une Architecture,' rapidly followed by personal discovery of the works of the other pioneers of modern architecture. When he joined the staff of the

County Architect for Kent work carried out was Georgian, Gothic or Tudor. In 1934 he was entirely responsible for the design of Chislehurst and Sidcup Grammar School for Boys, which was carried out against opposition within the office although fully supported by the Education Committee and encouraged by publicity given to the building (especially John Summerson in *The Listener*). The commission to design new buildings for Victoria College, Cairo, largely due to connection with Chislehurst. While designing temporary buildings in Egypt during the war he first became aware of local problems of sun control.



Architect of Hotel at Lusaka, Northern Rhodesia (see pages 26-31). G. A. JELICOE, born 1900. AA School 1919-23. In partnership with J. C. Shepherd until 1930, engaged on gardens and domestic work; afterwards in independent practice. Work included Calverton Colliery buildings, in collaboration with Miners' Welfare Commission. Principal AA School 1939-41. Consultant, Ministry of Works 1942. Has since prepared landscape and town plans for Wolverton (Bucks), Guildford and Wellington (Shropshire). Appointed designer for New Town of Hemel Hempstead, 1947. Appointed consulting architect to Government of Northern Rhodesia 1947. At present engaged on housing for the Lansbury neighbourhood, Poplar, and at Hemel Hempstead. President, International Federation of Landscape Architects. A strong believer in the development of the Colonies, both as areas to receive immigrants from an over-populated England, and also because their architectural story lies in the future rather than in the past.



Interior Designer, Hotel at Lusaka (see pages 26-31). DENNIS LENNON, born 1918. He studied architecture at Bartlett College, London University. He served in the Royal Engineers

during the war in France, Middle East and Italy. Was taken prisoner and later escaped through Spain and Gibraltar. After the war worked as assistant architect to Maxwell Fry for three years and was later appointed Director of the Rayon Design Centre, London. In December, 1950, started in private practice as an architect and industrial designer. Interested particularly in furniture design; other interests mainly painting and drawing.

Three Reports

The fifty-sixth annual report of the National Trust, for the year 1950-51, emphasizes the seriousness of the Trust's financial position. The year's accounts show a deficit of some £56,000 as compared with £31,000 in 1949—an excess of expenditure over income which is mainly attributable to continued work on repairs that accumulated during the war and in part to inflation and the general rise in costs; the latter factors, as the report points out, hit a charitable body like the Trust, which carries a portion of its endowments in trustee securities, particularly hard. To meet the deficit it has been necessary to draw on the Jubilee Appeal Fund, which stood at £90,000 in 1946 but which, it is stated, is likely to be exhausted by the end of the current year. Reading of a more cheerful kind is to be found in the new properties section of the report. The finest building acquired during the period covered was James Wyatt's Castlecoole in Northern Ireland (illustrated AR, November, 1950, p. 296). The purchase of this was made possible by the release by the Government of Northern Ireland of £50,000 from the Ulster Land Fund for the purpose, and for that of maintaining the property; the report points out that the Gowers Report recommended that part of the fifty millions in

the English Land Fund should be used for exactly similar purposes, but that this is the first occasion on which either government has actually placed a portion of the Land Fund at the Trust's disposal.

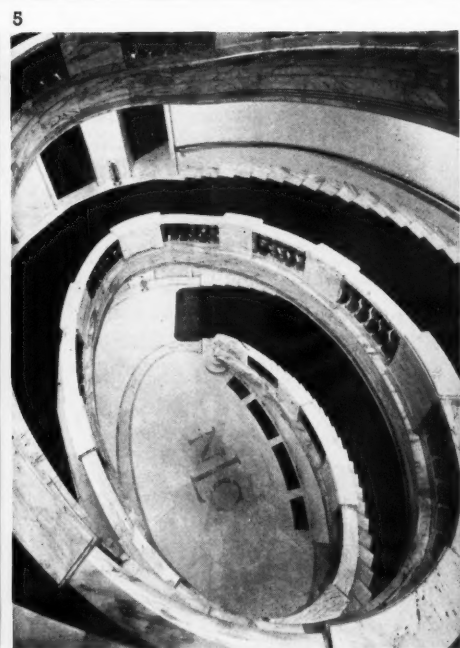
The latest annual report of the National Buildings Record looks back over the ten years of the Record's existence, during which period it has formed a collection of photographs and drawings that in April last numbered 385,626 items. Again the story is one of lack of funds—the NBR's main source of income is a Treasury grant of £10,000 a year—and it is certainly ridiculous that an institution of this importance should not be able to afford its own darkroom and staff for developing and printing negatives.

Also to hand is the interim report of the Georgian Group. This reveals that the Group has been consulted by a number of local authorities about the design of lamp standards, and regrets the low standard of designs available. 'The design of lamp-posts,' it continues, 'might seem to have little to do with the preservation of Georgian buildings, but in fact it is useless to preserve a building if its surroundings are to be disfigured by badly sited and unsuitably designed items of street furniture.' It is hardly necessary to say that the REVIEW endorses every word of this; it also hopes the Group will find it possible to convene the conference on street furniture—an excellent idea—which its executive committee is considering.

EXHIBITIONS

Painting and Sculpture

It really begins to look as if Expressionism is the popular art of the twentieth century. The



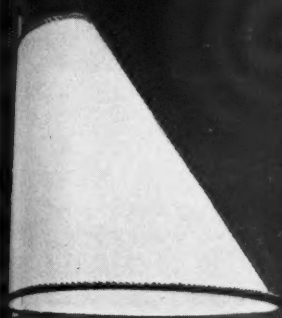
TWO WAYS WITH A STAIR WELL. The National Liberal Club, Whitehall Place, London, has recently been provided with a new grand staircase (above, right) which is described as being unique in the world. The former stair (designed by Alfred Waterhouse) was damaged in the blitz in 1940 (left). Instead of reinstating it in its original form the architects, Clyde Young and Bernard Engle, designed a free carrying stair in reinforced concrete, of eight foot width on an oval plan. The marble with which it is faced and paved cost about £40,000; nevertheless the whole affair cost only a third of what an exact restoration of the original staircase would have cost. The REVIEW presents these photographs as a record of an interesting structural achievement.

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FV.3/S BRACKET. Fixed. Shade with turning rim. Finishes: all satin brass or satin chromium; shade, ivory or peach plastic. Lamp: up to 75 watts.



FV.116/R PENDANT. Six-light ring with large metal reflectors. Finishes: reflectors and supports, off-white; remainder, satin brass; flexible cords, white. Lamps: up to 6 x 100 watts.



FV.3/R BRACKET. Fixed. Small metal reflector. Finishes: reflector, off-white; backplate, satin brass or satin chromium. Lamp: up to 60 watts.

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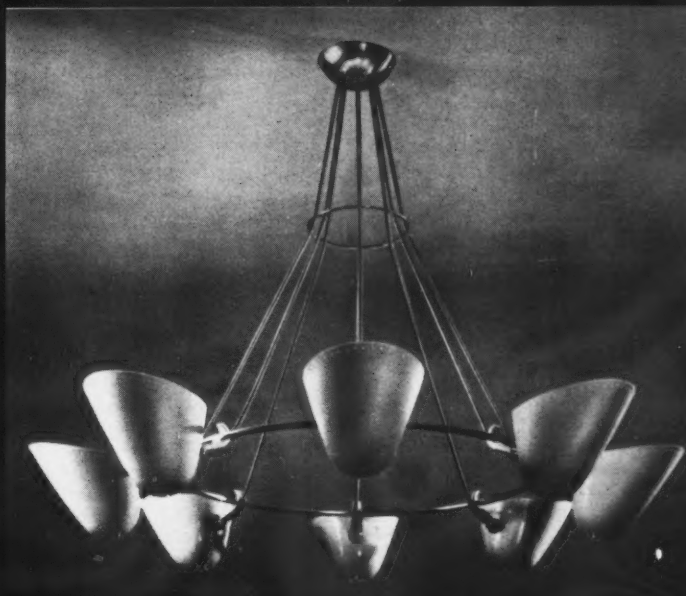
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FV.8/R TABLE LAMP. Adjustable arm. Small metal reflector. Finishes: reflector and top of base, off-white; arm and base, satin brass or satin chromium. Wired complete with three yards visible of 3-core flexible cord and switch. Lamp: up to 60 watts.



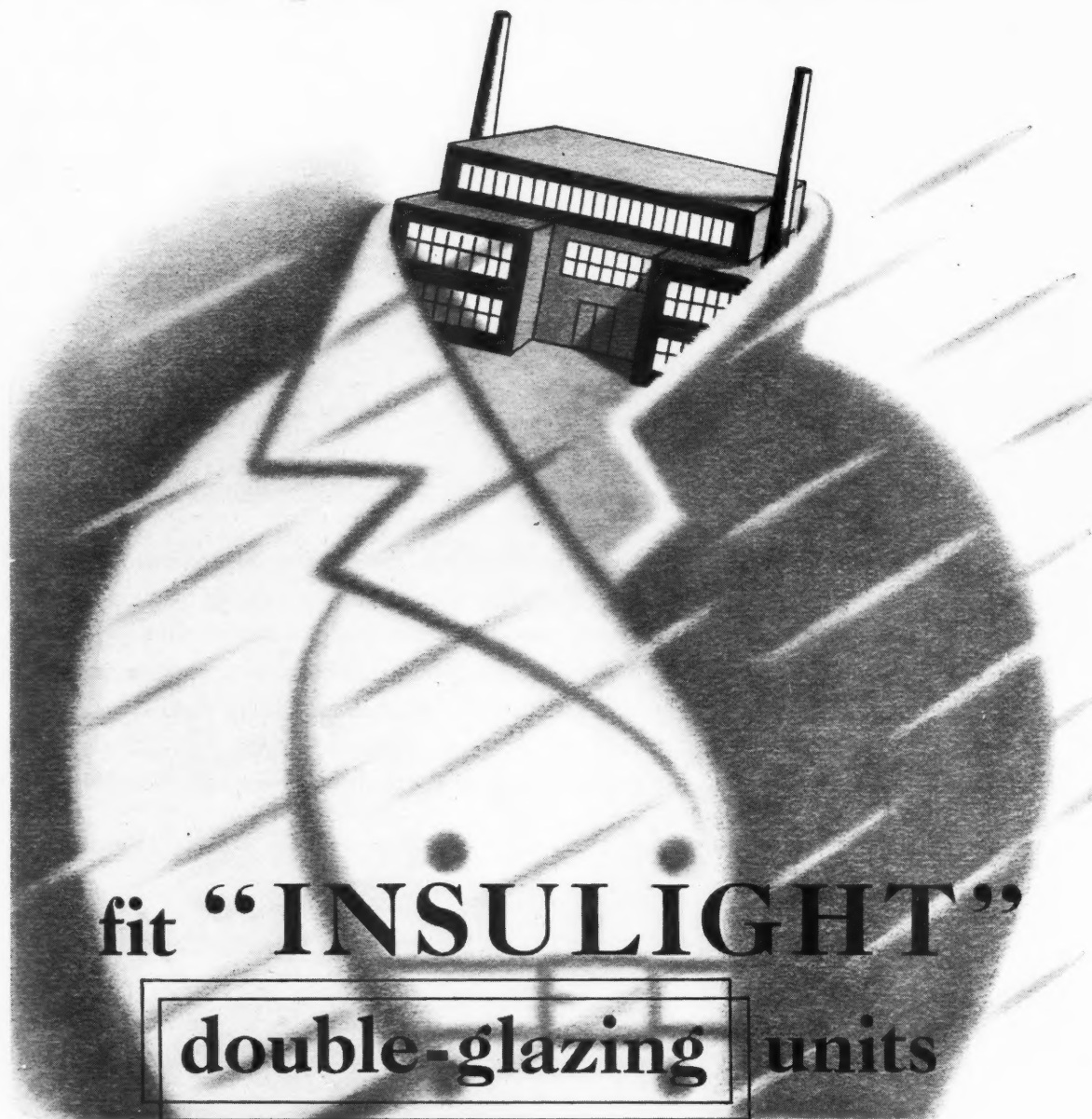
FV.118/R PENDANT. Eight-light ring with large metal reflectors. Finishes: reflectors and supports, off-white; remainder, satin brass. Flexible cords, white. Lamps: up to 8 x 100 watts.



FV.51/R BRACKET. Adjustable metal reflector. Finish: all off-white. Lamp: up to 150 watts.



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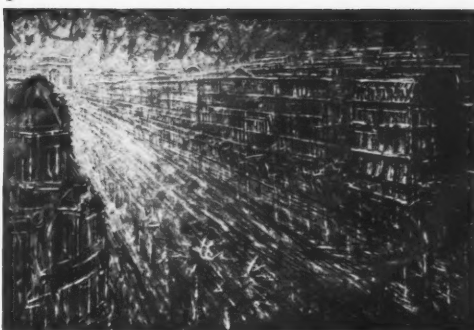
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6, *Le Panier des Fruits* by André Derain (Roland, Browse and Delbanco); 7, *Champs-Élysées* by George Melhuish (Leicester Galleries); 8, *The Red Table*: *St. Ives* by Patrick Heron (Redfern Gallery); 9, *Sails Drying* by Hans Tisdall (Lefevre Gallery); 10, *Girls on a Bridge* by Edward Munch (Tate Gallery).

crowds at the Tate for the Edward Munch show can only have been exceeded by those for Van Gogh at the same Gallery, and for Picasso's fiercely distorted 'occupation' pictures at the V & A. Critics, legitimately enough, have spoken of the crude colour and the neurotic pessimism, but the public has recognized his genius for expressing common anxieties with uncommon directness. As an interpreter of the ecstasies, miseries and fears of adolescence, Munch has no equal in painting.

His expressive power was inextricably involved in a melodramatic and often ludicrous symbolism, and his large and ambitious *Dance of Life* is marred by the exaggerated personifications of Innocence, Lust and Disillusion. But the two figures, locked in a close embrace, who occupy the foreground are superbly conceived. These two young dancers are practically at a standstill and their faces are emptied of expression, but the girl's dress, falling in heavy *art nouveau* folds about their feet, has a hot, turgid, rhythmic life of its own which is a perfect visual symbol of the fever in the blood.

Munch scarcely ever achieved a completely satisfying composition, but *Girls on a Bridge* is probably the greatest of the exceptions. Three girls out for a walk on a summer evening gaze down at a river into which a tree has thrust its monolithic shadow. The yearning for love is expressed with passionate coherence within the framework of a scene directly related to actuality. A similar theme—two women on a lonely shore gazing out to sea—inspires the finest of his coloured woodcuts: it has the economy and subtlety of a Vuillard, and a much stronger overtone. After 1910, his work lost its rhythmic vitality and its convulsive sense of human

frustration and sorrow, and although the preface to the catalogue assures us that it expresses a 'more mature view of human existence' it seems empty and unpleasantly exuberant. In *A Sick Child* he recovers for a moment his understanding of sorrow but with nothing like the consuming force of his early work.

Paul Nash's photographs—which have made an impressive exhibition at the Arts Council's gallery in St. James's Square—give to natural objects the dignity and character that the great Victorian photographers gave to their portraits. Nash looked for the uncanny sign and the strange presence. A dead tree withers in obscure torment, a rock wall in Dorset becomes a line of hard-pressed idols, a waterfall assumes the life of human hair. Under the domination of his animistic vision, the No. 2 Kodak, which cannot tell a lie, reveals a soul in every standing stone and every fallen tree. The exhibition includes watercolours which are directly related to some of the photographs, and with one significant exception they are less compelling. The exception is the watercolour called *The Night Tide*, which is connected with a very fine photograph of the wooden breakwaters at Dymchurch. They are not in competition. In the watercolour, Nash has discovered an imaginative linear convention for the sea to which the photograph provides no clue. The artist needs a transforming eye, for the photographer the selective eye is enough.

Patrick Heron in his pictures at the Redfern inscribes calligraphic figures and objects on a background of luminous colour, and the effect is of light so saturating and powerful that it flows through solids as if they were wire cages. The technique seems to be a brilliant adaptation

of the new sculptural principle of open construction, and at its best, as in *The Red Table*: *St. Ives*, is a way of rediscovering the intoxicating loveliness of the visible world.

Light in the paintings of George Melhuish—the Irving Gallery exhibits his work—marches through the streets of Paris like an army with banners, but it is as if it were an army of occupation, for the spectacle is not gay. Paris drowns disconsolately in an effulgent fog, sometimes green and blue, more often red and yellow, and curiously enough the blue and green fog is warmer than the other. Perhaps the melancholy is produced by the uncompromising blackness of the buildings which have the look of etchings printed on to the paint.

In the almost monochromatic paintings of Hans Tisdall, light has the role of the frustrated lover, and in those where a complication of sails fills the picture-space the light presses in from behind, seeking for a weak spot in the fabric, creating a peculiar and uplifting tension. One flaw in the sails will bring the light upon us like a roaring waterfall.

Tisdall shares the Lefevre with John Armstrong, whose pictures make a fascinating show but may not fare so well when separated. The young ladies without any clothes on seem to have stepped off Victorian pedestals to fondle nasturtiums whilst waiting to be chased by the clowns who are, alas, far too preoccupied with keeping their umbrellas open in a dry wind ever to notice them. Even the young lady who has had the happy idea of bursting into flames makes no impression. But the nasturtium leaves and the umbrellas are in an intriguing visual correspondence which the painter has not mentioned in his note on the symbols.

Roland, Browse and Delbanco have an unprejudiced eye for good French painting, whatever the signature: in their latest exhibition, exquisite little pictures by Lepine, Guigou and Lebourg look perfectly at home in a company which includes Ingres, Gericault and Courbet. An early Vlaminck still-life bears a fantastic resemblance to Braques of a much later period. A grave and beautiful still-life by Derain almost suggests that this great conservative would have been more at home in the seventeenth century. Upstairs, Margaret Kaye's 'fabric collages' have virtuosity and perhaps something more. Her 'Owl on a Wall' suggests that a genuine poetic vision is finding its own eccentric yet only suitable medium.

Robert Melville

INTELLIGENCE

The next Gold Medal of the American Institute of Architects is to be awarded to Auguste Perret.

Karel Teige, who died recently in Prague, was a leading theoretician of modern Czech architecture. In 1923 and 1924 he was a lecturer at the Bauhaus and in the thirties wrote several books on modern architecture including a survey in English of modern Czech architecture. His death aroused little interest among present architectural personalities in his own country.

The Double Elephant Club has recently been formed at Cardiff, with a membership limited to the architectural profession and at present consisting of an even proportion of practising architects and assistants, and of students from the Welsh School of Architecture where the secretary can be contacted.

The County of London Development Plan was made public at the end of December and now only awaits Ministerial approval. It will be discussed at length in a future issue of the REVIEW.

CORRESPONDENCE

South Bank Exhibition

The Editors,

THE ARCHITECTURAL REVIEW

SIRS,—As the leading periodical on architecture, the REVIEW bears great responsibilities in connection with fundamentals of design. At different times you have stated the problem involved in progressive development from the simple reasonableness of function towards comprehensive design expression in keeping with the complexity of the human mind, and have published valuable contributions towards solution.

In the special number for August reviewing the South Bank exhibition, page 74, the writer says: 'The geometrical style is seldom suitable for modern towns,' and on page 75, 'The plea has been made in THE ARCHITECTURAL REVIEW and elsewhere that this visual code of practice could be achieved if town planners adopted a modern version of the Picturesque principles that were applied so successfully by country planners in the past.' You have, in other articles in the issue, emphasized Picturesqueness as a major requirement in town planning.

I believe that it is dangerous and misleading to emphasize one design characteristic at the expense of all others. I suggest that the modern town and

the modern man need 'the geometrical style' or Formality as much as Informality. The characteristic of symmetry is as necessary as asymmetry. Irregularity, surprise, the happy accident are desirable or otherwise according to time, place and circumstance. Their value is complementary to that of order, assurance and conformity to rule.

It may well be that I am taking your review of the exhibition too seriously, but I feel that available research into the nature of the human mind has not yet had due impact on our conception of the nature of design requirements; and that the REVIEW is more than a fashion journal indicating the latest trend. In this particular case I think that the premise that Picturesqueness is good for exhibitions has been rather thoughtlessly applied generally to the complex life of a town; with the possibility of handicapping clear thought about the future of design.

I hope you will accept my comments as evidence of real concern about the training of architects and designers, and that the REVIEW will continue to face up to the problem created by the shedding of period styles and the failure to formulate a design idiom for the future.

Yours, etc.,

JOHN M. HOLMES,

Principal.

Regional College of Art, Manchester.

Our review of the South Bank exhibition was certainly meant to be taken seriously and Mr. Holmes can be assured that our suggestion that the Picturesque principle should be applied to the design of towns was not made thoughtlessly. On the contrary it is supported by long study of existing towns and by the realization that the modern town requires something more organic, something that springs more directly from the special needs of its particular site, than either the formal monumentality of the beaux-arts planner or the geometrical rigidity of the traffic engineer. Possibly Mr. Holmes has misunderstood our use of the word Picturesque, which we do not use in the modern guide-book writer's sense to mean a mere pretty disorder, but in the eighteenth century landscapist's sense of forming a picture out of the elements natural to or arising from the locality in question. Picturesque describes the principle on which the humanized English countryside was so effectively designed. In its last phase the eighteenth century movement accepted symmetry and axial planning where fitness demanded them.—THE EDITORS.

The Editors,

THE ARCHITECTURAL REVIEW

SIRS,—The title of Mr. Lancaster's recent broadcast 'The End of the Modern Movement' seems to be symptomatic of a certain air of uneasiness or dissatisfaction with our present language of architectural expression which is shared by many architects and students. Following the South Bank exhibition it is said: 'Well, now we've got all this out of our system, where do we go from here?' There were, however, as Mr. Lancaster points out, certain aspects of the South Bank architecture which do form a pointer toward further development.

Up to now, the REVIEW has given us rather a rosy picture of the South Bank and seems to be quite satisfied with it. I hope that we can now be presented with the other side of the picture. I suggest a real thoroughgoing post-mortem, with plenty of hard-hitting criticism from differing points of view. And I do not mean just a criticism of the lettering on the litter-boxes.

In these times it is rather irritating to pick up what should be the leading architectural magazine in the country and find it devoted to a series of problem pictures featuring wire fences and refrigerators. We know these things are important, but surely if the REVIEW really wants to improve design it should begin not by attacking the fringes,

but by striking down to the very core of the problem.

Yours, etc.,

PETER LOWDEN.

Liverpool.

Far from confining itself to lettering on litter-boxes, the South Bank issue was particularly concerned with the layout and landscaping of the site, with the grouping of buildings and with the part played by the South Bank in the development of London. These surely constitute the core of the problem, not the fringe. At the same time the treatment of the fringe is often symptomatic of what is happening at the core.—THE EDITORS.

TRADE & INDUSTRY

A Sanderson Occasion

On the 14th of this month, Arthur Sanderson and Sons, 52 Berners Street, are staging an exhibition lasting for a fortnight to celebrate the complete replanning and redecoration of their Berners Street showrooms. The exhibition will include their new range of wallpapers among which their Swedish collection will be of special interest. They will also show a unique collection of fabrics, which have been made by Courtaulds and are being marketed by Sandersons. These comprise twenty-five designs based on embroideries, damasks and brocades still to be seen in such famous houses as Hardwick Hall, Burghley House, Knole and Holkham Hall. Each design has been produced in a number of colourings in rayon or rayon and cotton and recapture to a remarkable degree the richness and lustre of the originals.

The fabric shown in the illustration comes from Hardwick Hall in Derbyshire, where Mary, Queen of Scots was imprisoned, and the Latin mottoes



Sanderson's cotton-rayon Hardwick Brocade.

have apt reference to her misfortunes. The design itself could well be used with effect in a modern setting as well as a traditional one.

Creda Unit Electric Ranges

During the last decade, a most determined campaign has been in progress behind the closed kitchen door. The objective is cleanliness in food preparation and obviously one of the first essentials is properly designed and well-planned kitchen equipment. In large-scale catering establishments this need is even greater.

Two years ago the Simplex Electric Company of Oldbury, Birmingham, displayed for public comment some prototypes of a unit electric range, designed for economic operation with the minimum of maintenance, for adaptability of layout and for ease of cleaning. These ranges, since modified in the light of constructive criticism and practice, are now in full scale production and hundreds are in use.

One of the chief features of this Creda range is the method used to 'butt' the units together to form island and wall groups, in order to prevent grease and dirt from penetrating between them, and so

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The photograph shows a barrel vault roof recently erected over a Turbo-Alternator House at East Greenwich for the South-Eastern Gas Board. It illustrates the excellent natural lighting obtained by the use of this type of roof with lantern light glazing. Design and reinforcement were by



LONDON: 43 UPPER GROSVENOR STREET, W.1. Tel: GROsvenor 1216. BIRMINGHAM: ALMA STREET, SMETHWICK, 40. Tel: Smethwick 1991.

MANCHESTER: 7 OXFORD ROAD, MANCHESTER, 1. Tel: Ardwick 1691.

GLASGOW: 146 ARGYLE STREET, GLASGOW, C.2. Tel: Central 4551.

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provide breeding grounds for vermin. This possibility is completely excluded, and cleaning time is reduced to a minimum. Maximum boiling plate capacity is provided and there is adequate hob standing space between boiling plates, the wiring of which is effectively protected from spilt liquids. All electrical components are easily accessible from the front, and a two-stage thermostat controls the fully automatic oven heat.

The unit system has other advantages in that one section can easily be removed for overhaul without affecting the use of the others. It also reduces the problem of handling during shipment and eliminates the need for dismantling in the manufacturers' works and subsequent reassembly on the user's premises.

Art Gallery Lighting

The Walker Art Gallery in Liverpool, which was requisitioned early in the war by the Ministry of

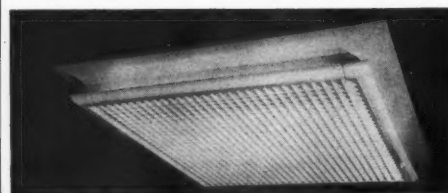


GEC fluorescent lighting at the Walker Art Gallery, Liverpool.

Food and freed only a few months ago, has recently been re-opened to the public after a complete renovation under the direction of Dr. Ronald Bradbury, Liverpool City Architect. Lighting is of prime importance in a building of this nature, and the General Electric Company (Magnet House, Kingsway, W.C.2) designed the special fittings which were used to house the fluorescent lamps which now light the gallery throughout. The fittings are made of sheet steel and are equipped with special reflectors which allow a percentage of the light to shine on to the upper walls, so reducing the cut-off shadow. The fittings are arranged to give a continuous run of five-foot 40 watt Osram colour matching lamps and are painted to match the colour of the walls which varies from room to room.

Courtney, Pope Price Reductions

The arguments for and against inflation, deflation and 'disinflation' become so involved these days that sometimes it seems that a price level beyond everyone's pocket is our only hope of economic



13, new model C23 fluorescent fitting by Courtney, Pope.

salvation. News of a price reduction therefore brings a real breath of sanity.

It has recently been announced by Courtney, Pope (Electrical) (Amhurst Park Works, Tottenham, N.15), manufacturers of the Hyliter, Angliliter and of other types of fluorescent lighting fittings, that the prices of many of their display and commercial fittings have been reduced in price.

Nuralite Roofing Material

Shortage of raw materials is one of the most important problems of the post-war world, and in the immediate future it is undoubtedly the limiting factor in the building industry. Many have, of course, foreseen this situation and seen in it a challenge to their ingenuity to evolve substitutes and alternatives.

Nuralite, a roofing material produced by the Cellactite and British Uralite Company of Higham, Kent, and distributed in this country by Henry Honess and Son of Gravesend, is an example of this. It is intended as an alternative to copper, lead and zinc for roofing, ridging, flashing and guttering.

Nuralite is a laminated material based on two traditional materials—bitumen and asbestos fibre. It is claimed to possess the durability and the water-proofing qualities associated with both. It is supplied in sheets 8 ft. by 3 ft., weighs about 8 oz. per square foot, is mottled black in colour but weathers to a light grey. It can be cut with tinsmiths' shears and moulded easily on site after gentle warming with a blow-lamp. Two sheets can be welded together by opening the laminations on one edge, inserting the second sheet and sealing with a bituminous mastic.

It is thus easy to handle, is in plentiful supply and can be acquired without licences or permits at a price which is claimed to be half that of zinc, if a comparison is made on a supplied, laid and finished basis at current prices.

Booklets Received

'Timbers of South America' is a revised edition of their red booklet on this subject issued by the Timber Development Association. It contains fresh information on the properties and uses of these timbers and deals in all with ninety-three types. In addition, their Timber Information Leaflet No. 28, 'Notes on East African Timbers,' was also issued recently and

[continued on page 68]



ST. MARY'S CHURCH TWYFORD, HANTS

The Altar

The capitols and arcades of the Norman church which are believed to date from about 1180 can still be seen.

Other parts of the Norman church which remain are the East Window, the Priests' Doorway into the Vestry and the very beautiful square-headed, perpendicular window, now in the East Wall of the Vicar's Vestry.

The Altar is lighted today by a combination of tungsten and fluorescent strip lighting.

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continued from page 66]

gives details of 15 new species, some of which are now being imported into this country. Copies are obtainable from their offices at 21, College Hill, E.C.4.

'Heat Insulation in Schools' is an account and an analysis of an enquiry carried out for the Fibreglass Company by an architect, a heating engineer and a quantity surveyor working as a team. A specific school building project was the subject of the enquiry, and the results obtained have then been adapted for use with any school scheme. Comparative figures are given for different types of wall and roof, and for various methods of heating.

'Pollards Revolving Doors' illustrates examples of doors of this type produced by E. Pollard and Company, and shows alternative arrangements and applications for them.

Changes of Address

Harris and Sheldon, the well-known Shop Fitters and Architectural Joiners, announce that they have opened new London showrooms at 46, Gt. Marlborough St., W.1.

The British Aluminium Company Head Office is now at Norfolk House, St. James's Square, W.1.

Mr. S. S. Jewsbury, MIHVE, MIEI, who has retired from the Board of Messrs. G. N. Haden & Sons, Ltd., Heating and Mechanical Engineers, has joined the firm of R. W. Gregory & Partners, Consulting Engineers of Newcastle-upon-Tyne, Bristol and Manchester.

CONTRACTORS etc

Victoria College, Cairo. Main contractors: Braithwaite & Co. Engineers. Sub-contractors: Reinforced

concrete (design): Indented Bar & Concrete Engineering Co. Metal windows and doors: Crittall Manufacturing Co. Non-ferrous metals, paints, etc.: Imperial Chemical Industries. Coloured cements, etc.: Cement Marketing Company. Sanitary fittings and laboratory sinks: Associated Clay Industries. Bituminous roofing: William Briggs & Sons. Flush doors: Leaderflush Ltd. Glass: Pilkington Brothers Ltd. W.C. and shower partitions: Venesta Ltd. Kitchen equipment (range, etc.): Smith & Wellstood Ltd.; The Falkirk Iron Co. Boilers and radiators: Ideal Boilers & Radiators Ltd. Plumbing fittings: Peglers Ltd. Anti-vac traps: Greenwood & Hughes Ltd. Shower controls, etc.: Charles Winn & Co. Laboratory, water and gas fittings: A. Gallenkamp & Co. Ironmongery (door furniture, etc.): James Gibbons Ltd. Ironmongery: Nettlefold & Moser Ltd. Manhole covers: Broads Manufacturing Co. 'Accordo' dark blinds: Hills (West Bromwich) Ltd. Electric cables: W. T. Henley's Telegraph Works Co. Main switch gear: Simplex Electric Co. Switches and accessories: New Day Electrical Accessories Ltd. Lighting fittings: Hailwood & Ackroyd Ltd. Clock and bell systems: Synchronome Co. Exhaust fan: Shipley Fan Co. Dark room extractors: Vent-Axia Ltd. Refrigerator: The Lightfoot Refrigeration Co. Oil burning equipment: Paramount Exporters (London) Ltd. Pumps: Pulsometer Engineering Co. Shower curtains: North British Rubber Co. Draught stabilizer: Ivo Engineering & Construction Co. Hand power lift: Douglas & Bryden Ltd. Folding partition gear: P. C. Henderson Ltd. Ebonite strip: United Ebonite & Lorival Ltd. Kicking plates, etc.: Holoplast Ltd. Ribmet reinforcement: J. Cranmer & Co. Calorifier: Robert Jenkins & Co. Main water storage tank: Braithwaite (Tank Sales) Ltd. Galvanized cistern: W. P. Butterfield Ltd. Carborundum grains: The Carborundum Co. Entrance gates: Boulton & Paul Ltd. Slate slabs: Richard Williams & Co. Rubber mats: Nuway Manufacturing Co. Rubber hose: S. Dixon & Son.

Hotel in Northern Rhodesia. General contractors: Richard Costain Ltd. Sub-contractors: Pressed steel tank: Braithwaite & Co. Engineers. Kitchen equipment: Benham Booth (Pty.) Ltd. Valves, thermometers, pressure gauges, etc.: Crane Ltd. Locks, door furniture: Comyn Ching & Co. (London). Cast iron pipes, etc.: Fraser & Ellis Ltd. Lifts: Marryat & Scott Ltd. Spring floors: Francis Morton (Spring Floors) Ltd. Feed pump: Royles Ltd. Refrigeration equipment: Pressed Steel Co. Water softening equipment: Permutit Co. Calorifier: Rother Boiler Co. Cold room doors: Smithfield Refrigerator Co. Pumping units: Worthington-Simpson Ltd. Manufacturers: Furniture: Scottish Furniture Manufacturers Ltd. Light fittings: Troughton & Young Ltd. Fabrics: Tibor Ltd.; David Whitehead Ltd.; Edinburgh Weavers Ltd.; Donald Brothers Ltd.; Wilson & Glenny Ltd.; Warner & Sons. Carpets: James Templeton & Co. Wallpapers: Cole & Sons; John Line & Sons. Cutlery and plate: Gladwin Ltd. China: Dunn Bennett & Co. Glass: Johnsen & Jorgensen Flint Glass Ltd. Linen: Alexander Eccles Ltd. Blankets: Charles Earley & Co. Pillows: The Puritan Feather Co. Mattresses: The Dunlop Rubber Co. Prints: Ganymed Press Ltd.

Housing for Disabled Ex-Service Men, near Watford. Bungalows 1-12. General contractors: C. Brightman & Son. Sub-contractors: Electrical: J. W. Russell Ltd. Bricks and roof tiles: Henry J. Greenham Ltd. Windows: Rippers Ltd. Ironmongery, furniture for sliding cupboards, door furniture: Parker, Winder & Achurch Ltd. Roller steel garage doors: Haskins. Grates and slow burning stoves: Standard Range and Foundry Co. Wood block floors: Hollis Bros. Sanitary fittings: Standard Range and Foundry Co. Kitchen fittings: Rippers Ltd. Aluminium striking plates: Whittingham & Watt Ltd. Sewage ejector plant: Tuke & Bell Ltd.

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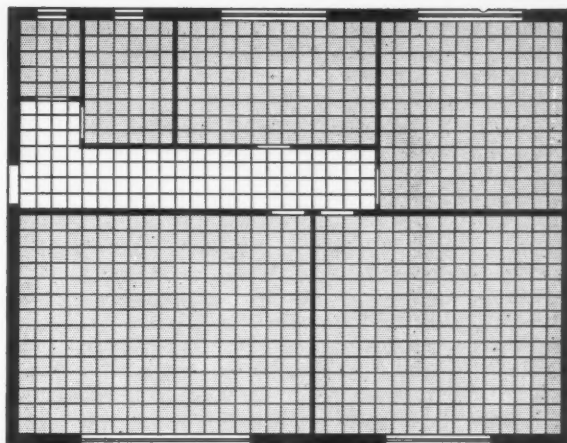
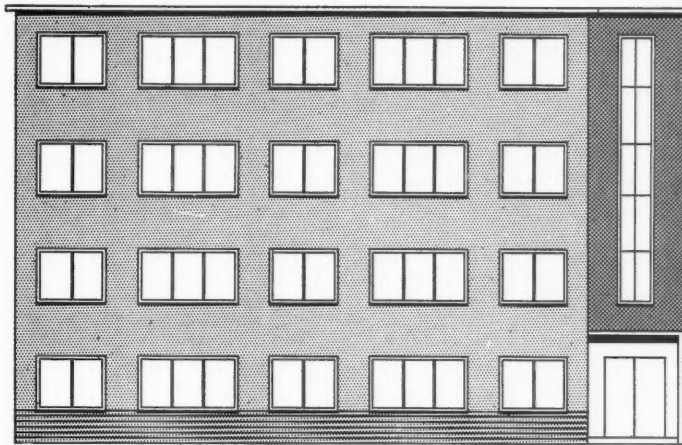
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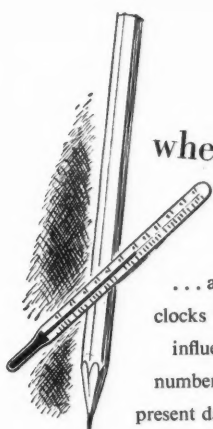
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The Gibson electric clock photographed here is an example of a clock planned at the 'blue print' stage. It was constructed by us to a specific design, and has white Roman chapters on an orange vermillion ground, satin-finished brass hands and white moulding round the dial. It is erected in the assembly hall of the Crofton Town Court Lane County Primary School, Orpington.

The architects of this school were: E. D. Lyons, A.R.I.B.A., L. Israel, A.R.I.B.A. and T. B. H. Ellis, A.R.I.B.A., A.R.C.A., in collaboration with S. H. Loweth Esq., F.S.A., F.R.I.B.A. County Architect, Kent.

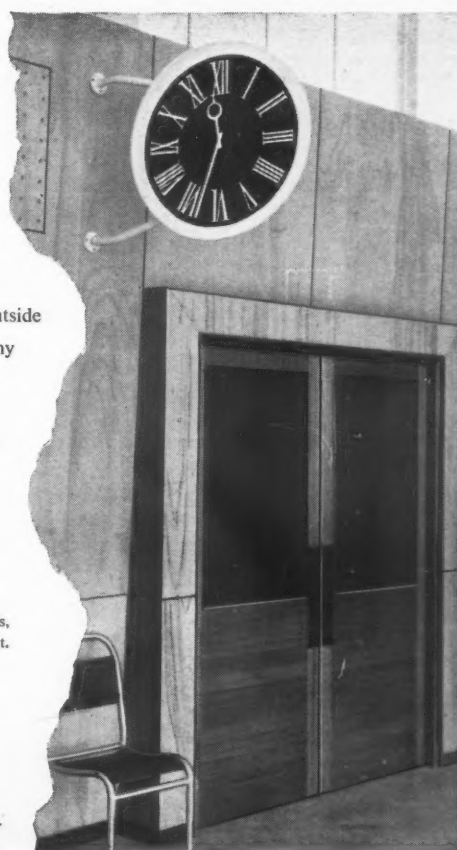
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Bungalows 13-22. General contractors: C. Miskin & Son. Sub-contractors: Electrical: J. W. Russell Ltd. Bricks and roof tiles: Henry J. Greenham Ltd. Patent flooring: Armstrong Cork Co. Open coke fire and indirect hot water cylinders: Ideal Boilers & Radiators Ltd. Waterhouse inspection chambers: Trollope & Colls Ltd. Hot water radiators: Gulf Radiator Co. Windows, kitchen fittings, doors: Jayanbee Joinery Ltd. Sanitary fittings: W. N. Froy & Sons. Aluminium kicking plates: Whittingham & Watt Ltd. Wood block floors: Hollis Bros. Ltd. Ironmongery, door and window furniture, sliding door gear: Clarke Ellard Engineering Co. Ltd.; Lockerbie & Wilkinson (Birmingham) Ltd. Slabbed tile fireplaces: A. Bleakley & Co. Aluminium picture rails: J. H. Sankey & Sons.

Research Laboratories in Bedfordshire. General contractors: Robert Marriott Ltd. Sub-contractors: Special heat resisting paint: Pilchers Ltd. Sanitary goods: Dent & Hellyer Ltd. Window furniture: Yannedis & Co. Door furniture: Rennis Ltd. Hand operated 2-ton overhead mobile crane: Herbert Morris Ltd. Bronze casement windows: Williams & Williams Ltd. Plastic lettering: The Lettering Centre. Slate facing slabs: The Broughton Moor Green Slate Quarries Ltd. Laboratory furniture: The North of England School Furnishing Co. Teak wood block flooring: Stevens & Adams Ltd. Triplex bituminous roofing: D. Anderson & Son. Hollow tile roofing: Flooring Contracts (London) Ltd. Heating: The Norris Warming Co. Ltd. Iroko teak: James Latham Ltd. Buff quarry tiles: J. C. Edwards 'Ruabon' Ltd. Door mats: National Institute for the Blind. Electric clocks: Richard & Tucker Nunn Ltd. Wallpaper: John Line & Sons. Electrical installations: London Brick Co. Blinds: Accordo Blinds Ltd. Light fittings: Savage & Parsons Ltd.; Troughton &

Young (Lighting) Ltd. Dining room furnishings: Story & Co.

Gymnasium at Hertford. General contractors: The Universal Housing Co. Sub-contractors: Concrete blocks, 'Hilcon' precast concrete roof and floor beams, structural steel, casements, external stairs and balustrade: Hills (West Bromwich) Ltd. Bricks: Uxbridge Flint Brick Co. Pavings: Croft Granite, Brick and Concrete Co. Floor tiles: Carter & Co. (London) Ltd.; Dennis Ruabon Ltd. Special roofings, insulated copper roofing: Broderick Insulated Structures Ltd. Roofing felt: Ruberoid Co. Strip flooring: R. W. Brooke & Co. Floor clips: V. C. Birch Ltd. Patent flooring: Corbulin Ltd. Suspended ceiling: Celotex Ltd.; Technifix Regd. Heating and hot water service: Weatherfoil Heating Systems Ltd. Electric wiring: Eastern Electricity Board. Electric light fixtures: Benjamin Electric Ltd. Sanitary fittings: Dent & Hellyer Ltd. Door furniture: Comyn Ching & Co. (London) Ltd. Opening gear to high level windows: Aren Controls Ltd. 'Welrise' door: Westland Engineers Ltd. Fibrous plaster: Claridges (Putney) Ltd. Metalwork, games kit storage and towel drying racks: Clark Hunt & Co. Joinery, gymnasium equipment, fixed and portable: The Educational Supply Association Ltd. Flush doors: Geo. M. Hammer & Co. Tiling, walls: Carter & Co. (London).

ACKNOWLEDGMENTS

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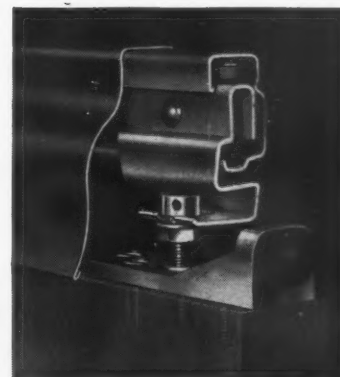
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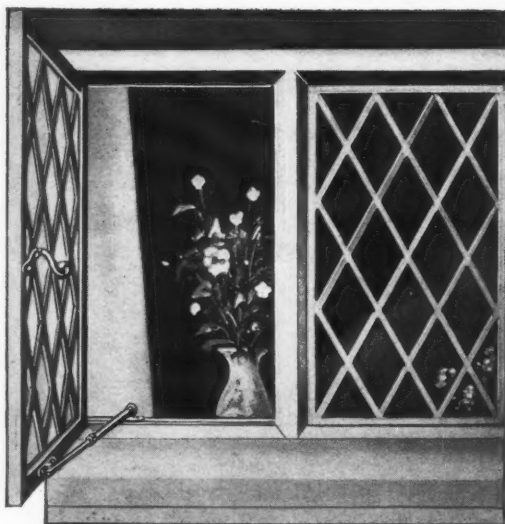
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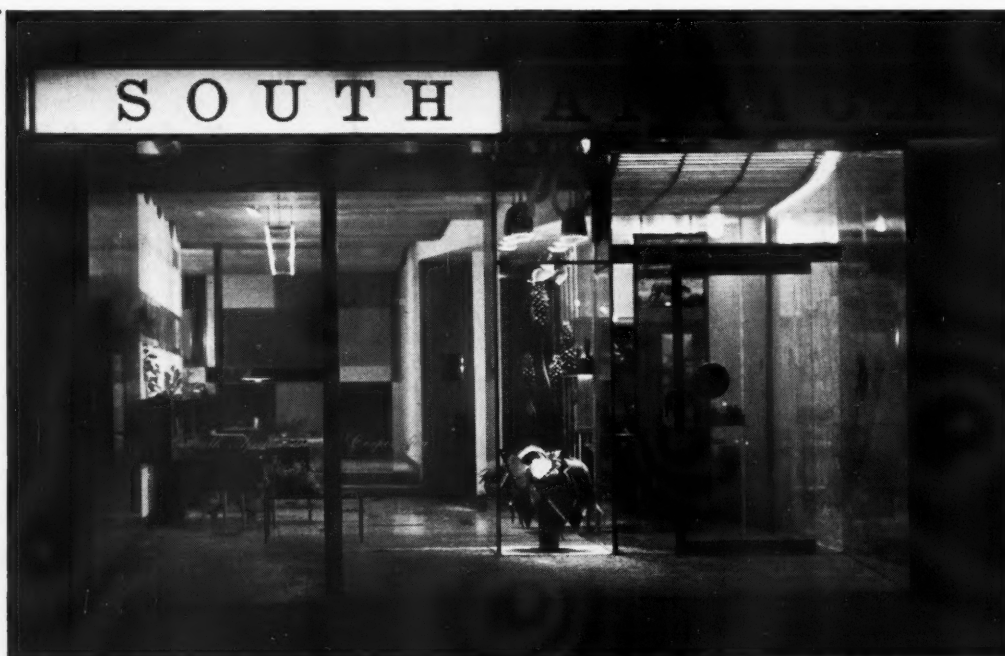
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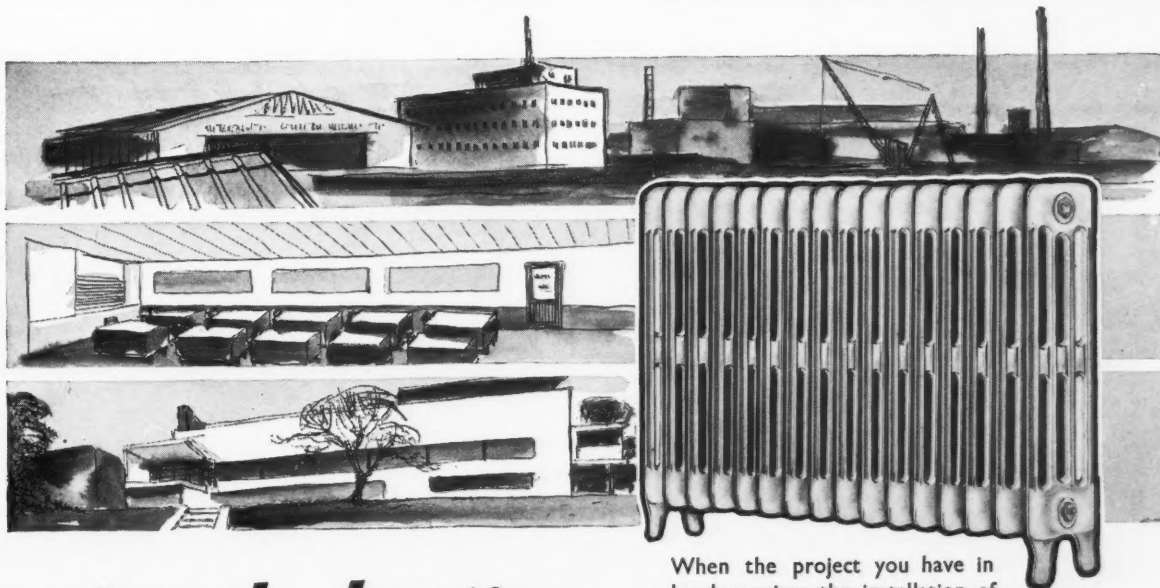
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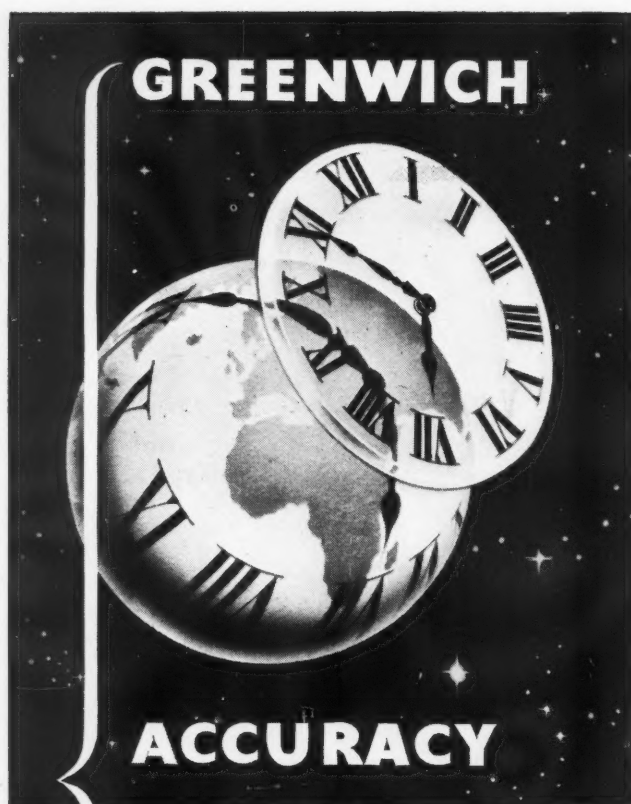
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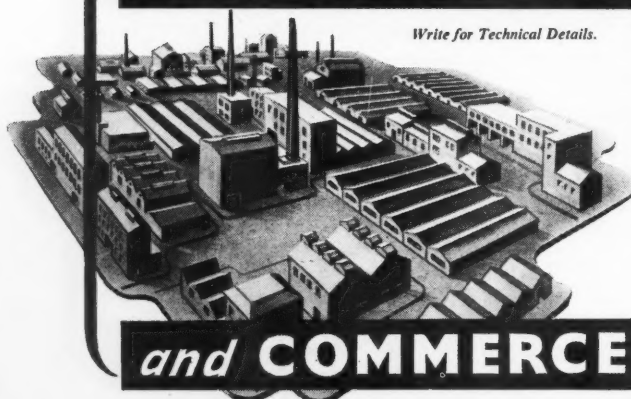
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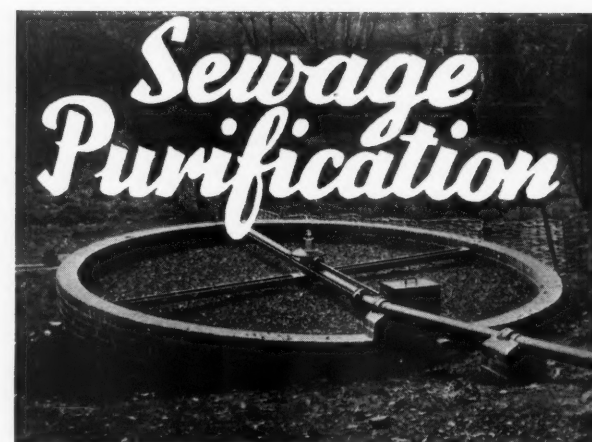
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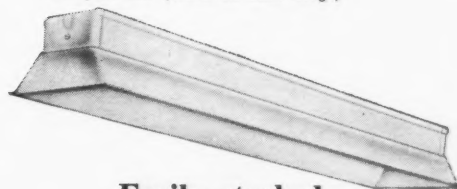
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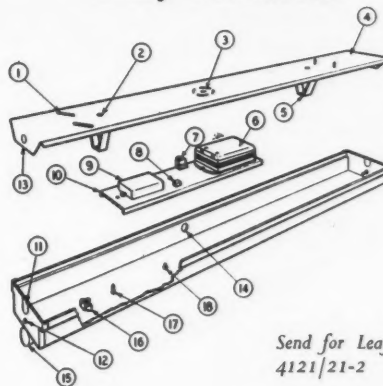
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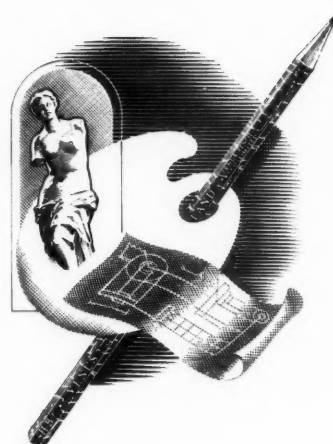
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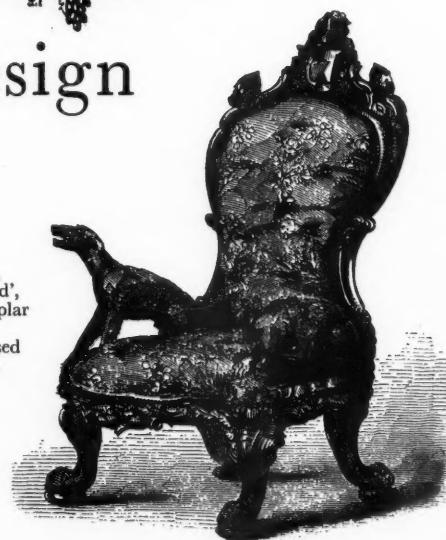
a study of the exhibits of 1851

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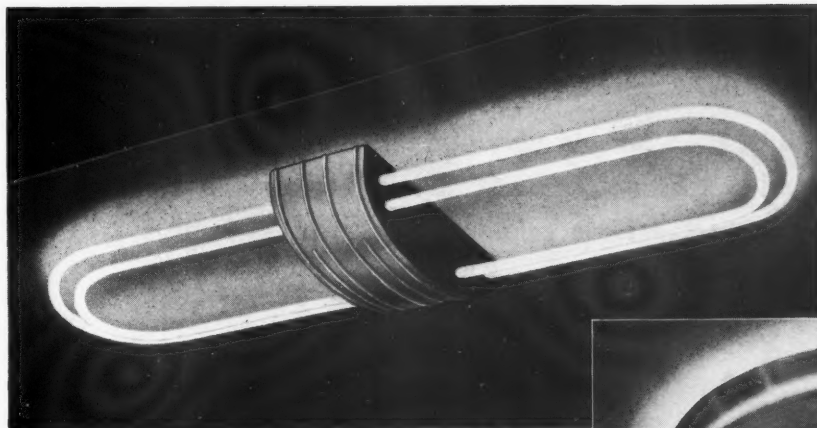
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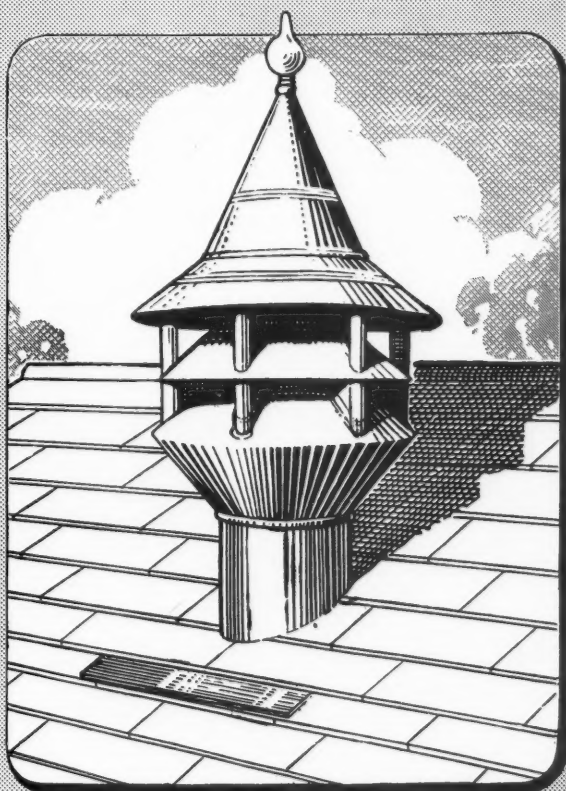
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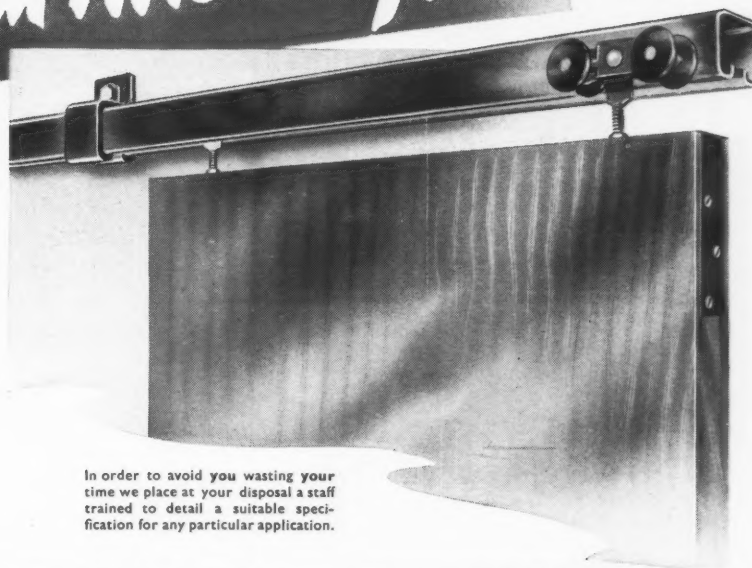
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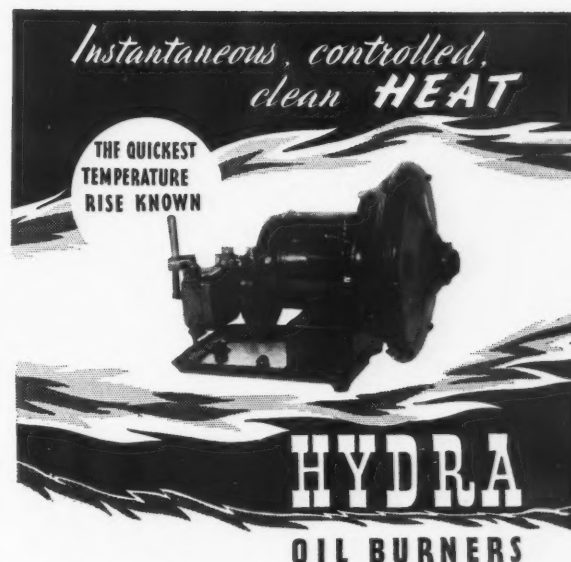
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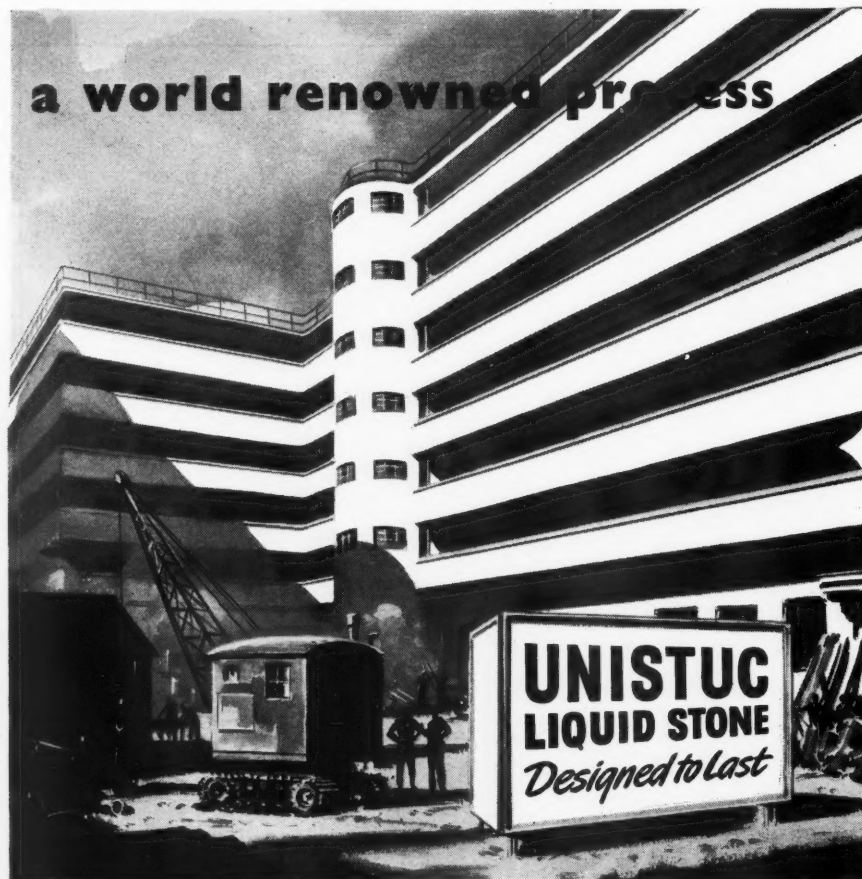
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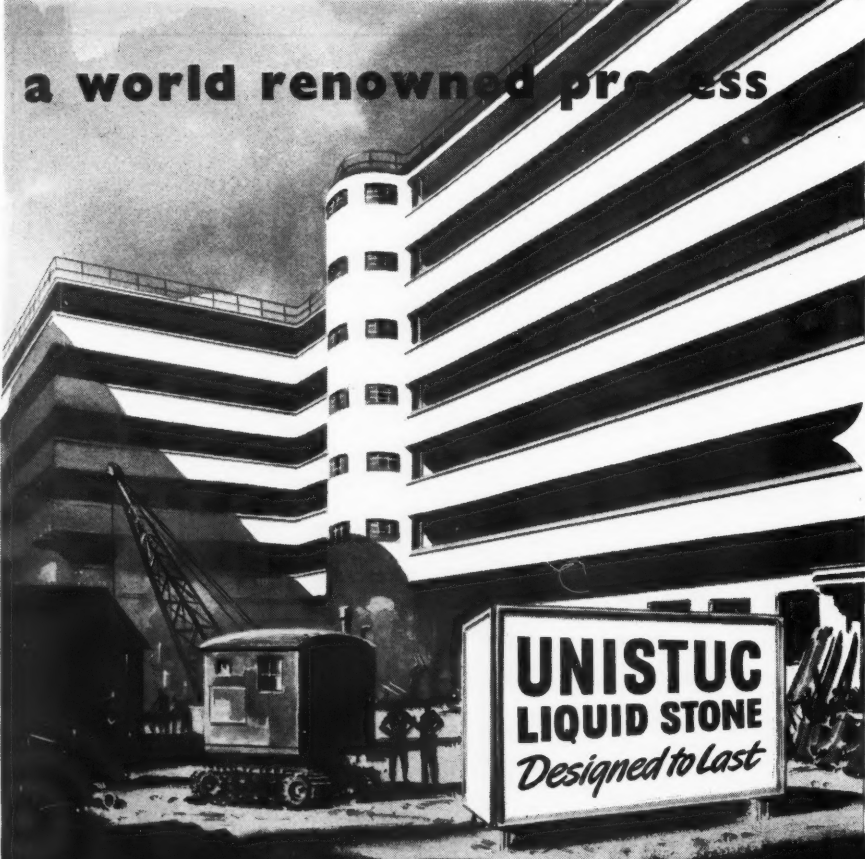
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