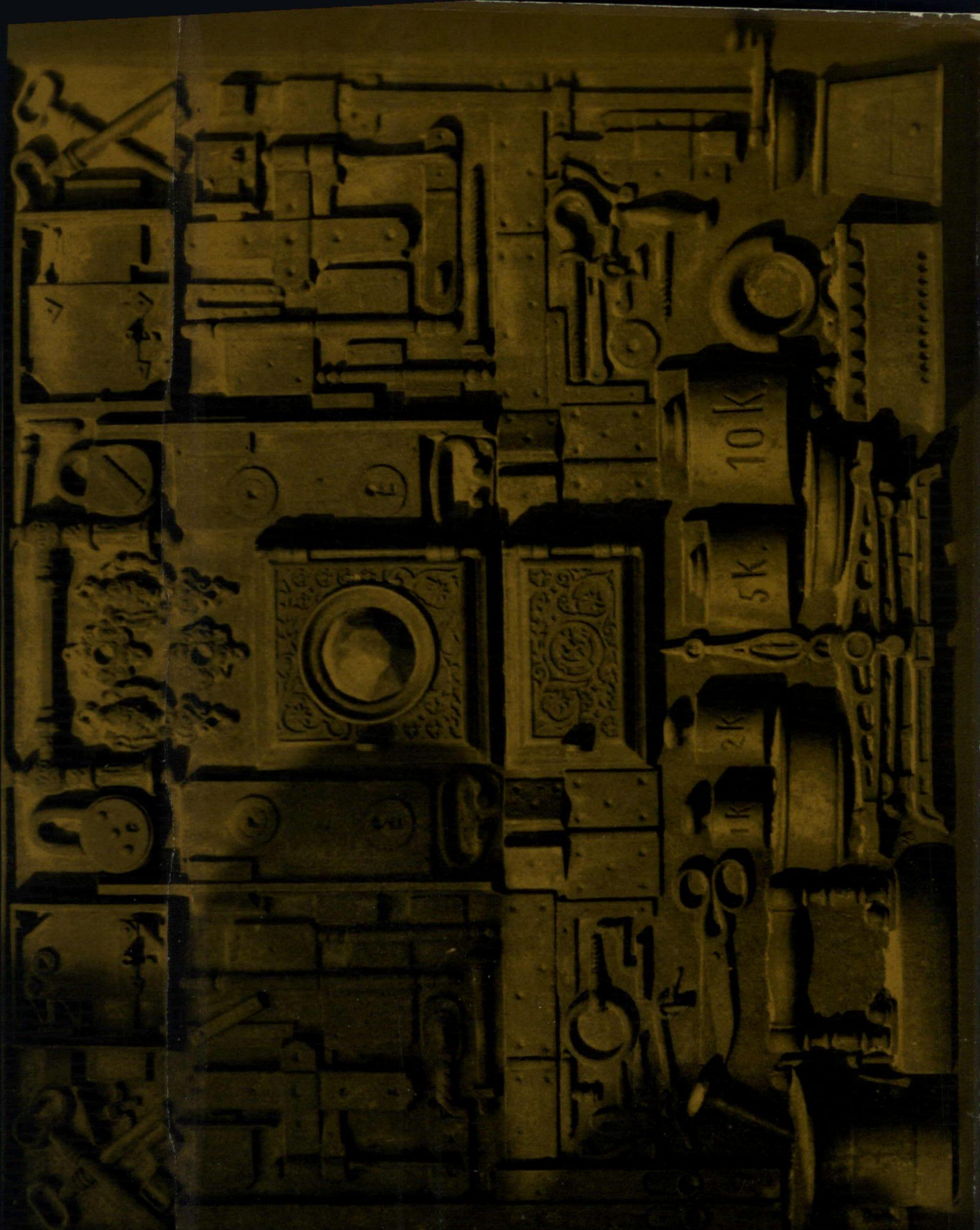
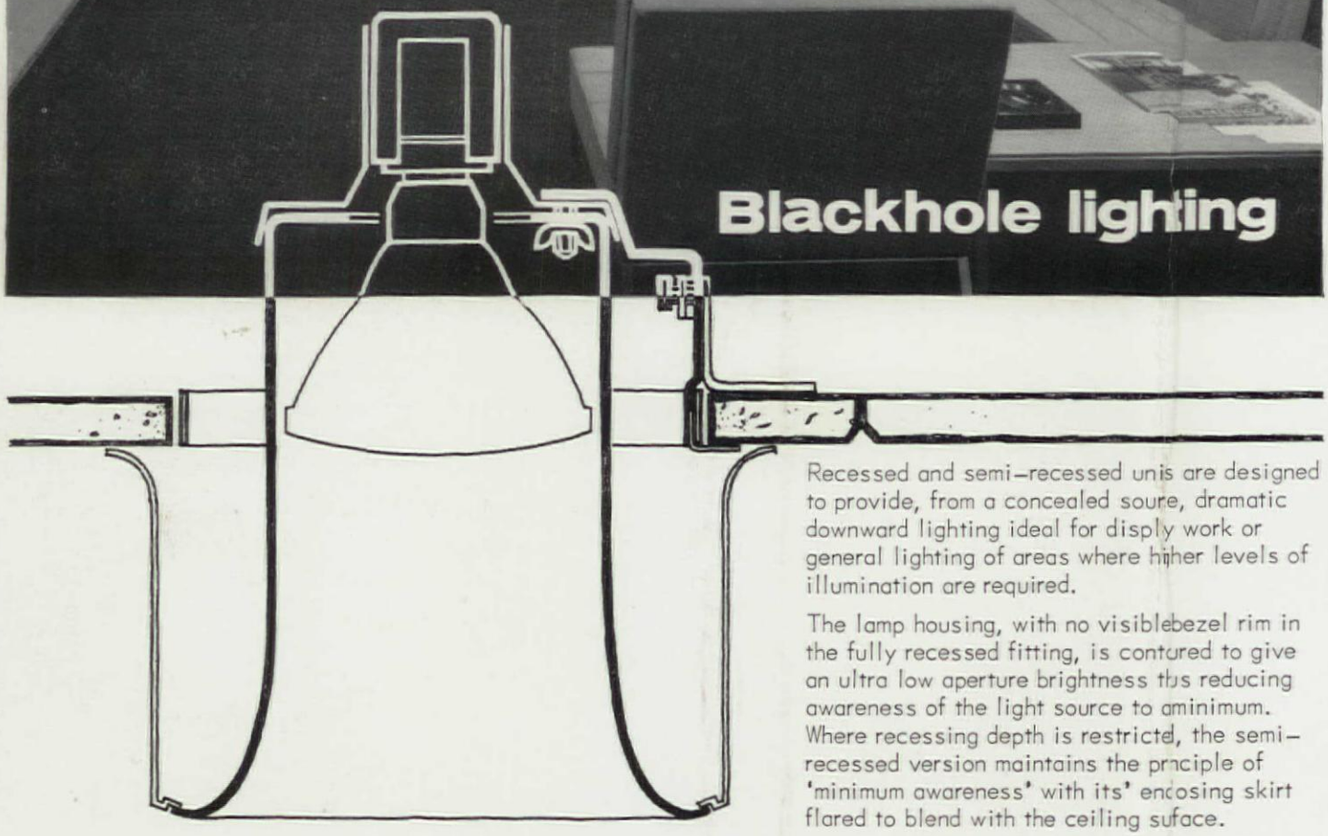


E ARCHITECTURAL REVIEW VOLUME CXXXVIII NUMBER 822 AUGUST 1965 FIVE SHILLINGS



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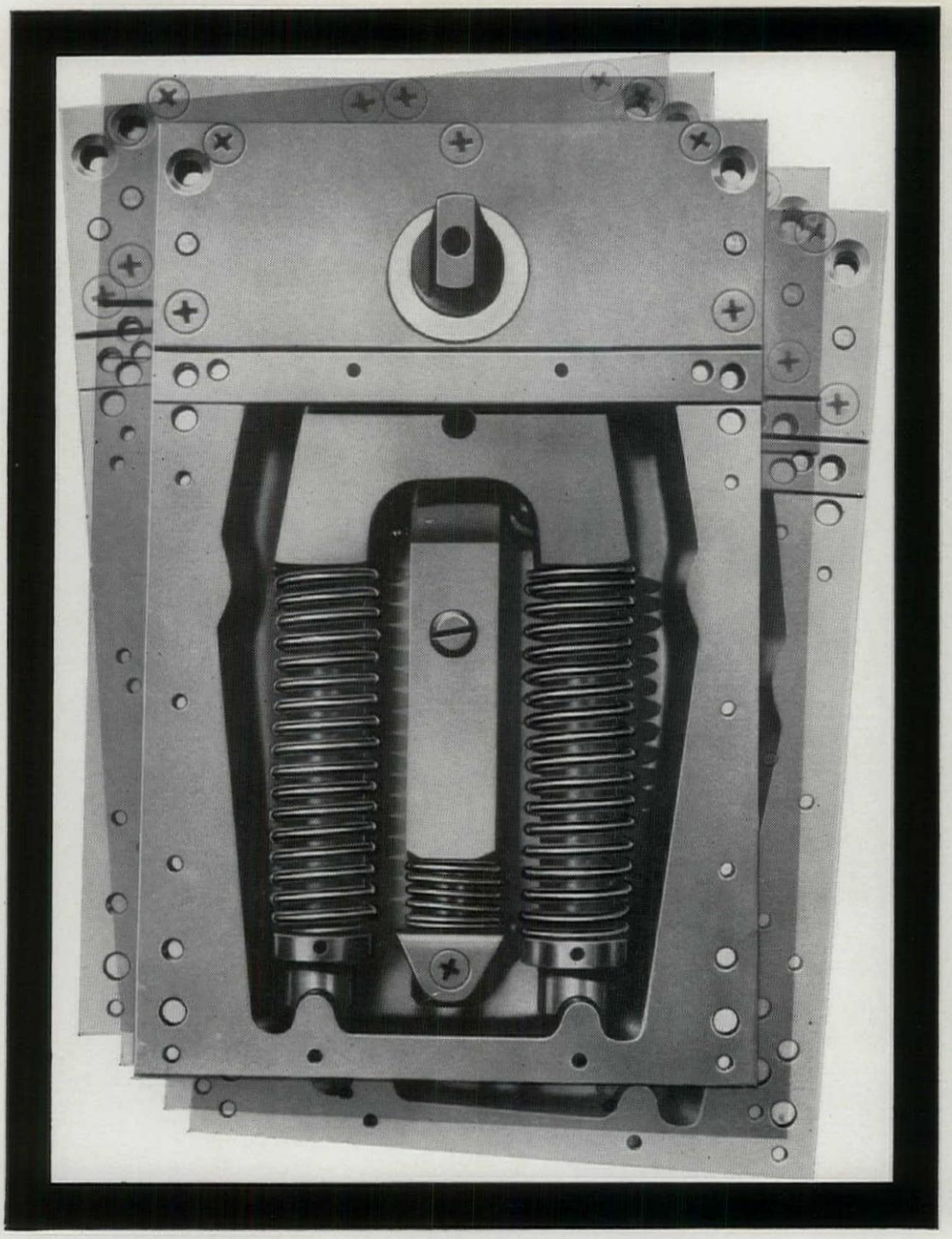

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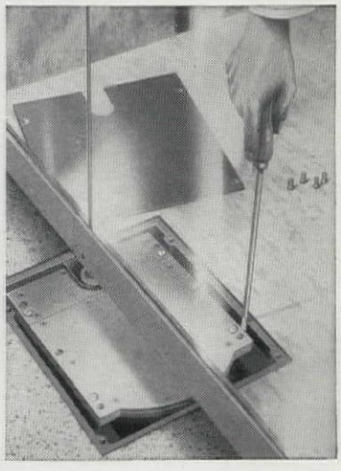

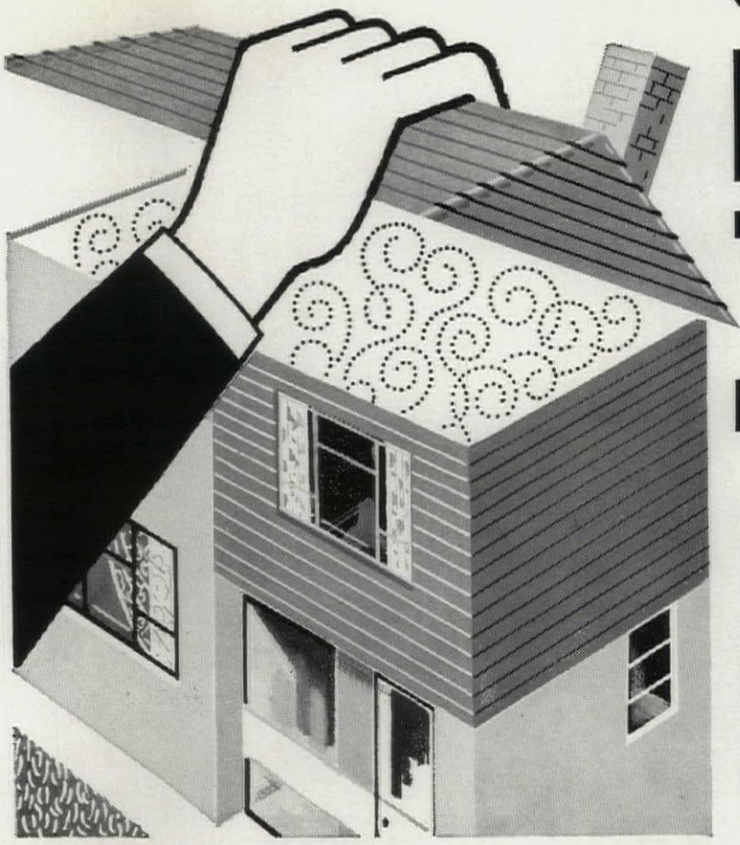

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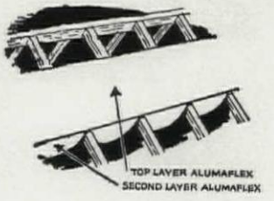

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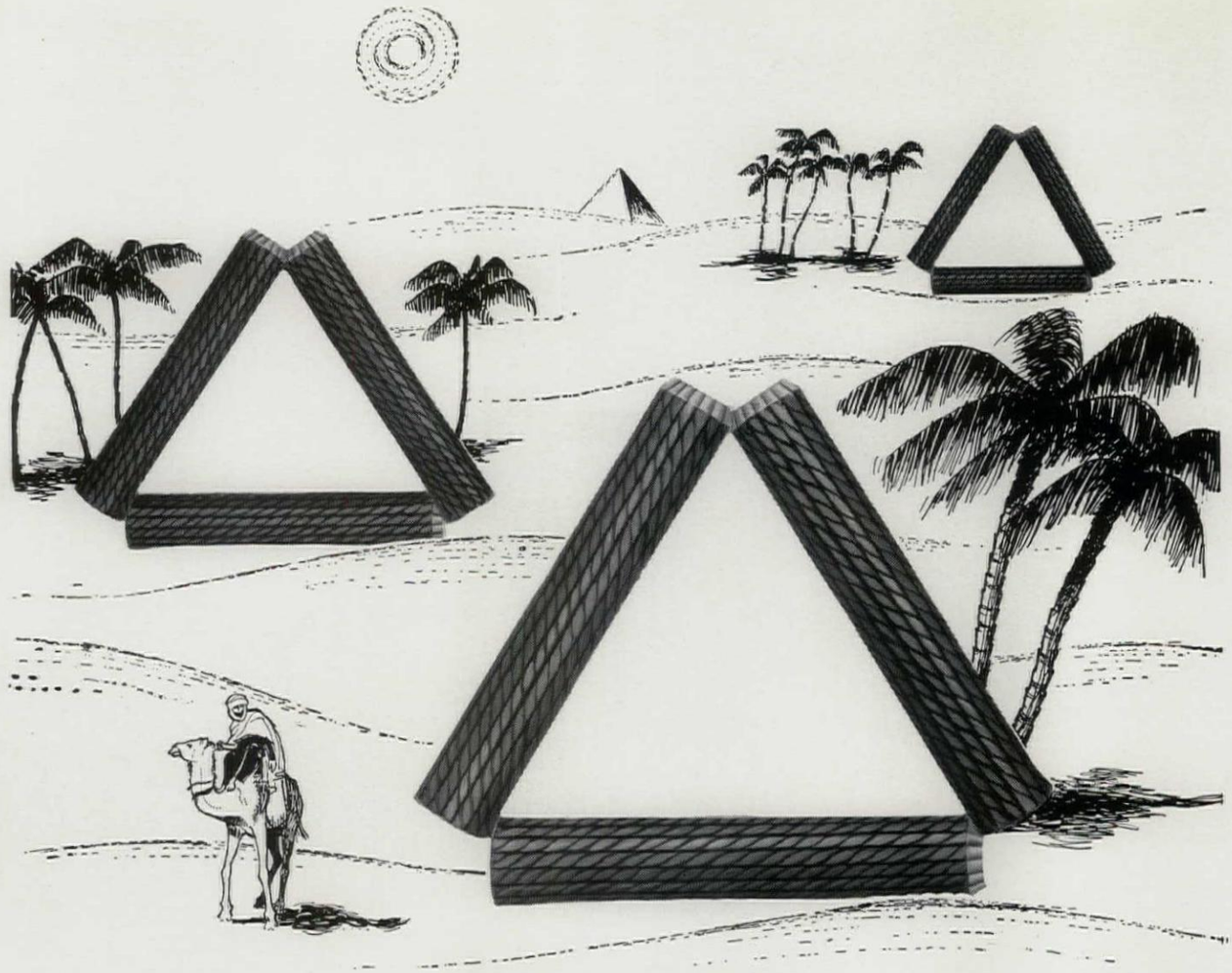

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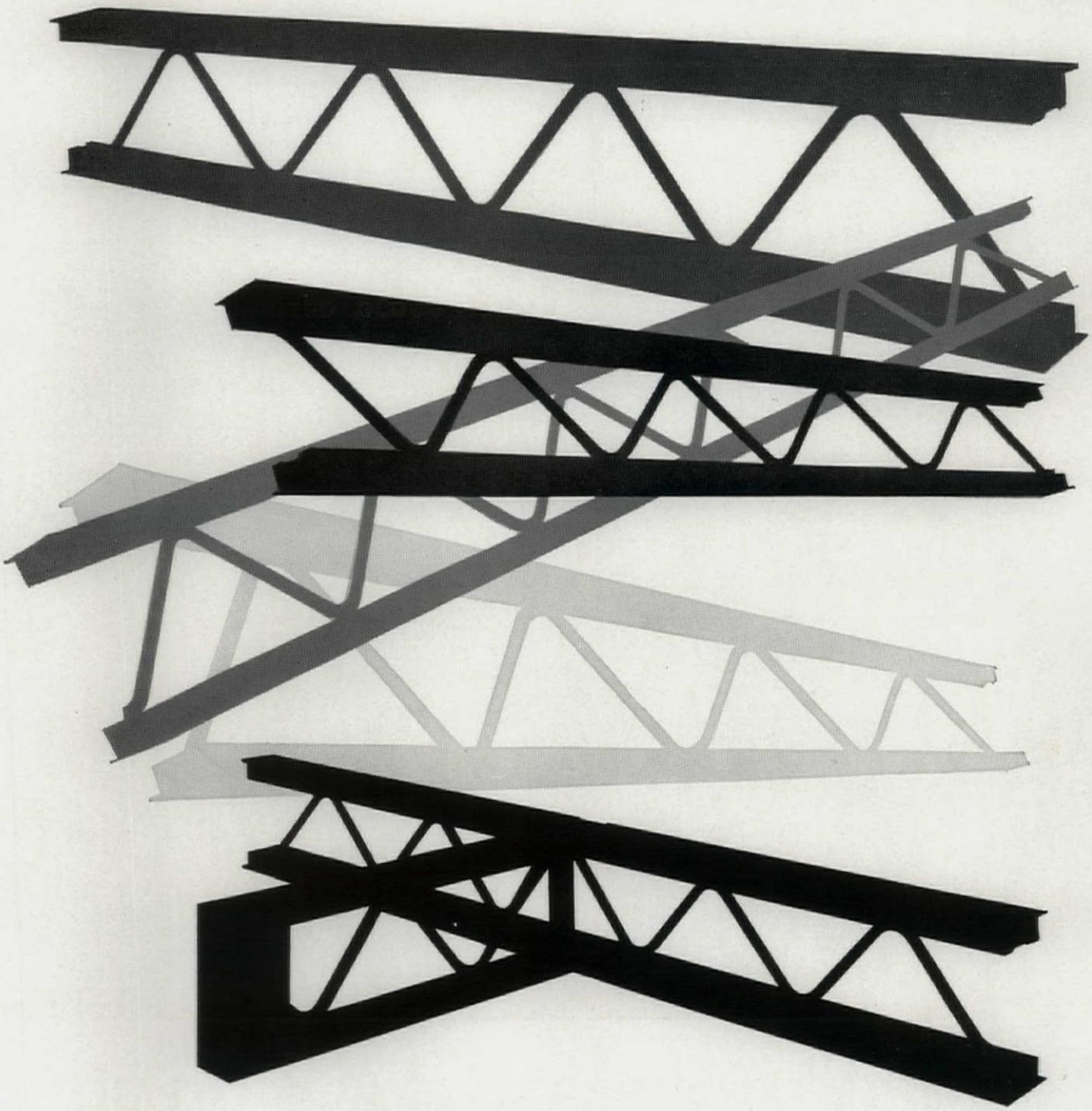

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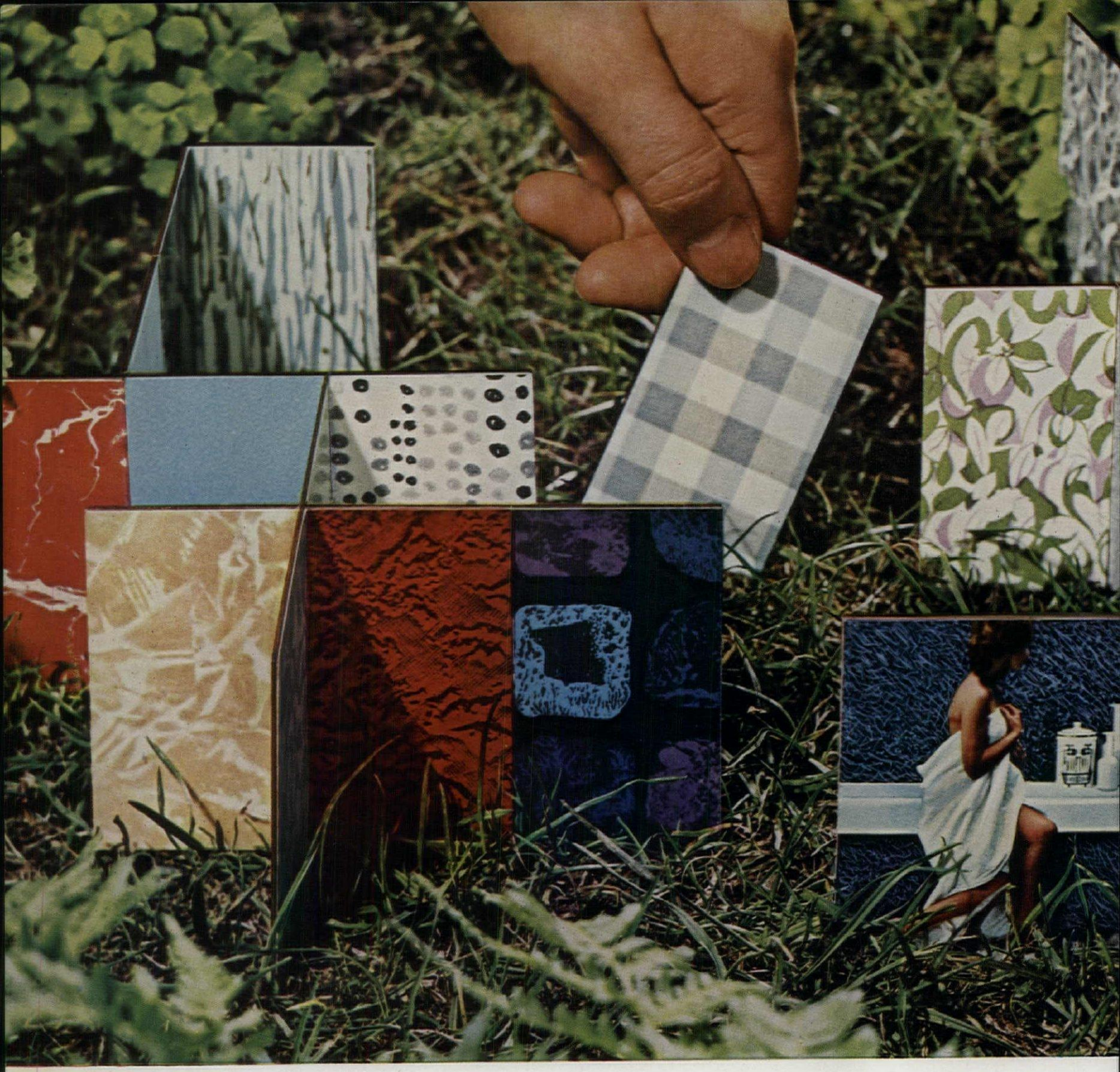

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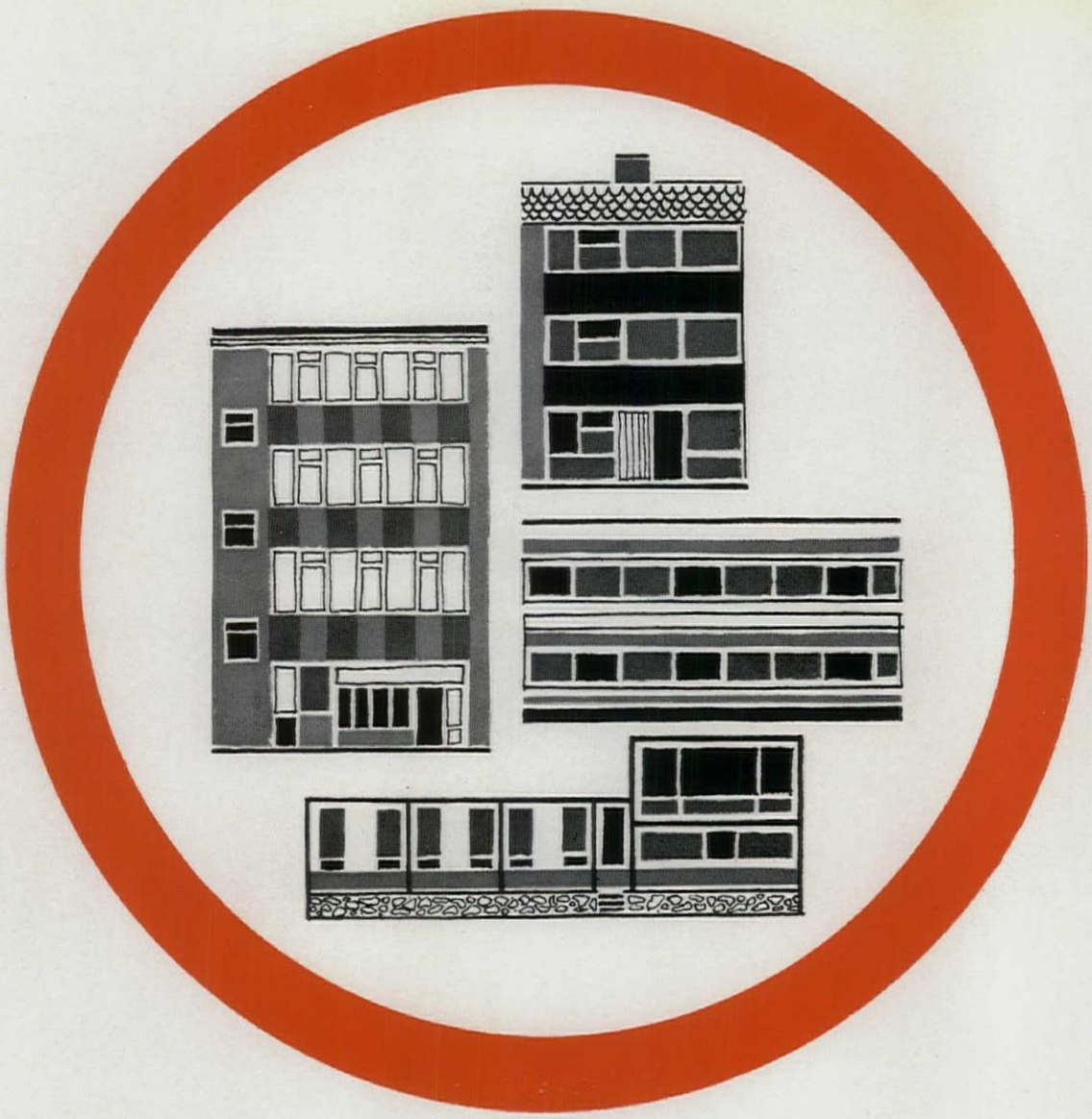

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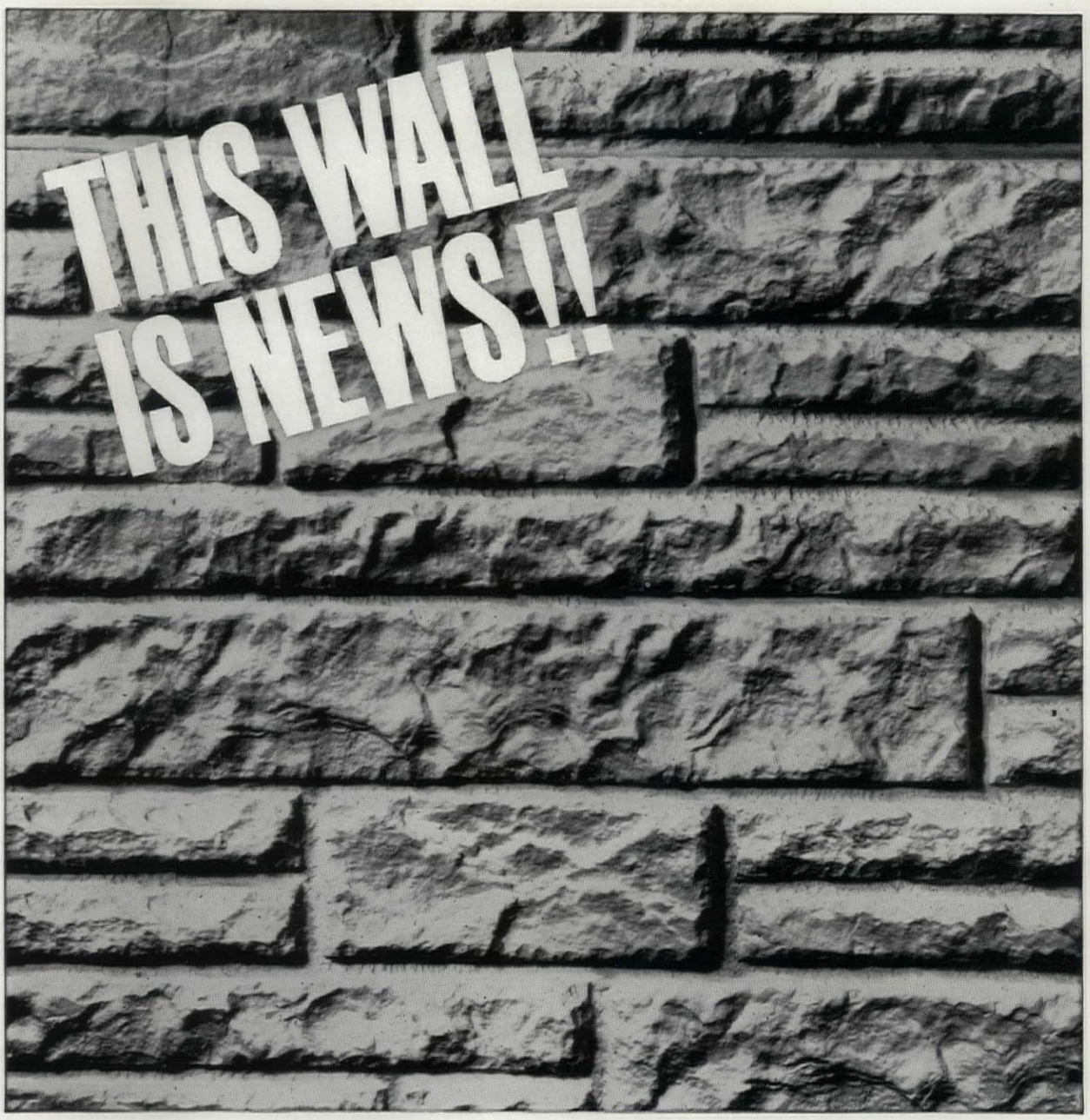

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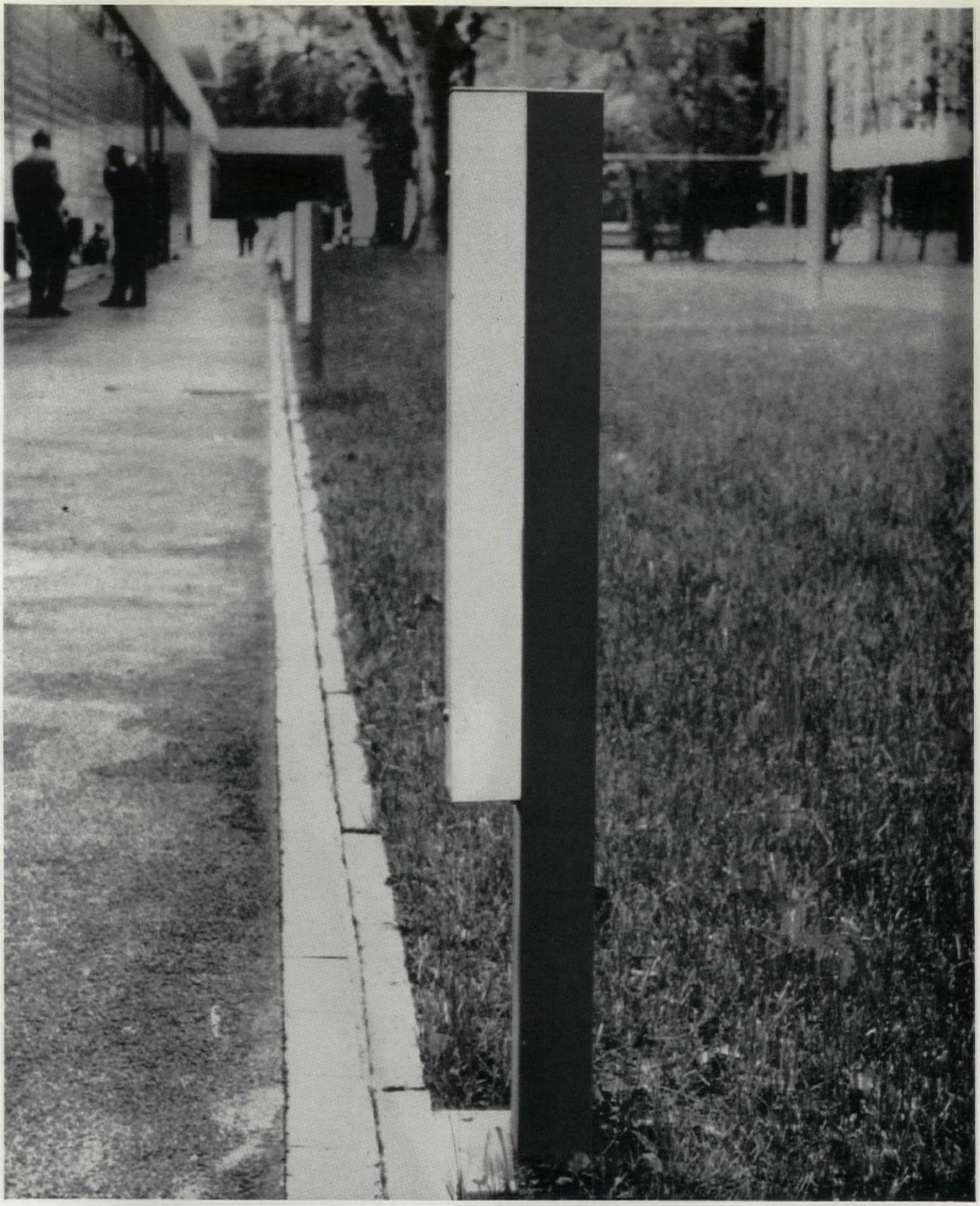

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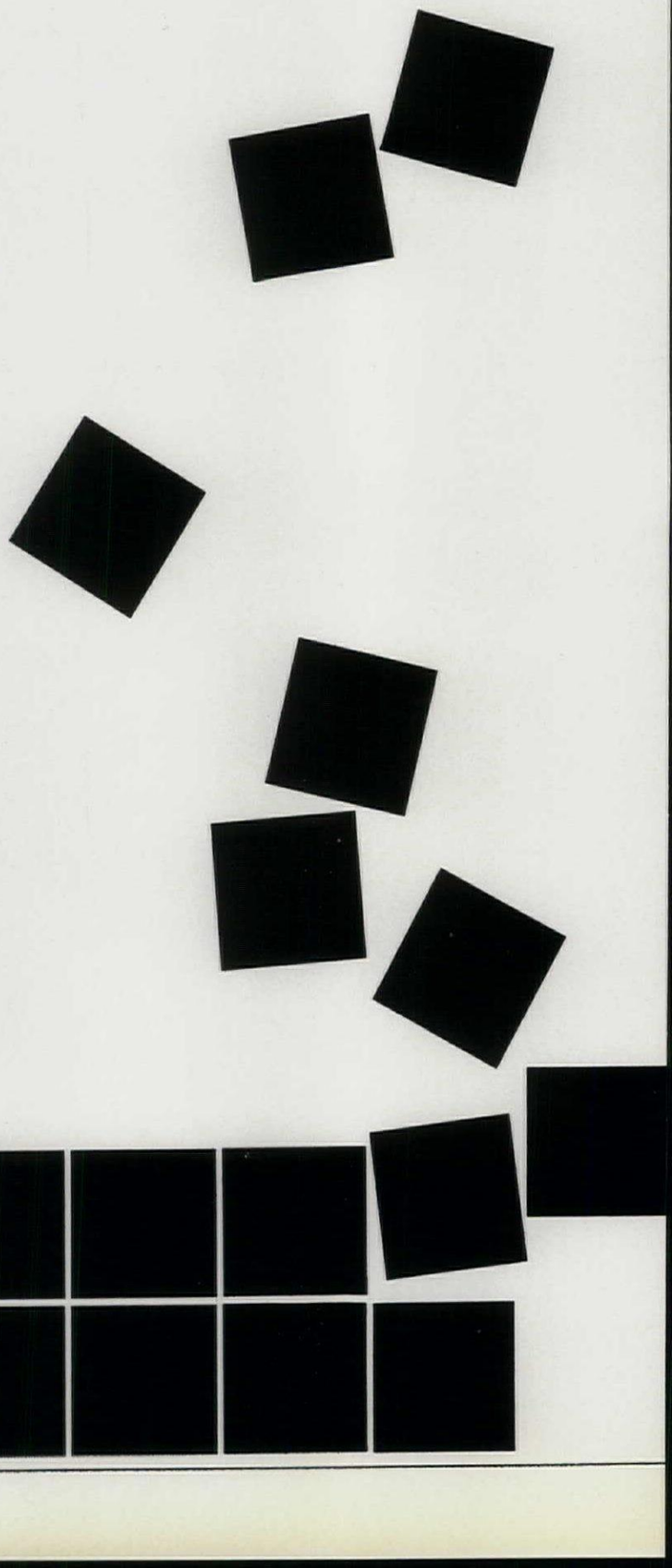

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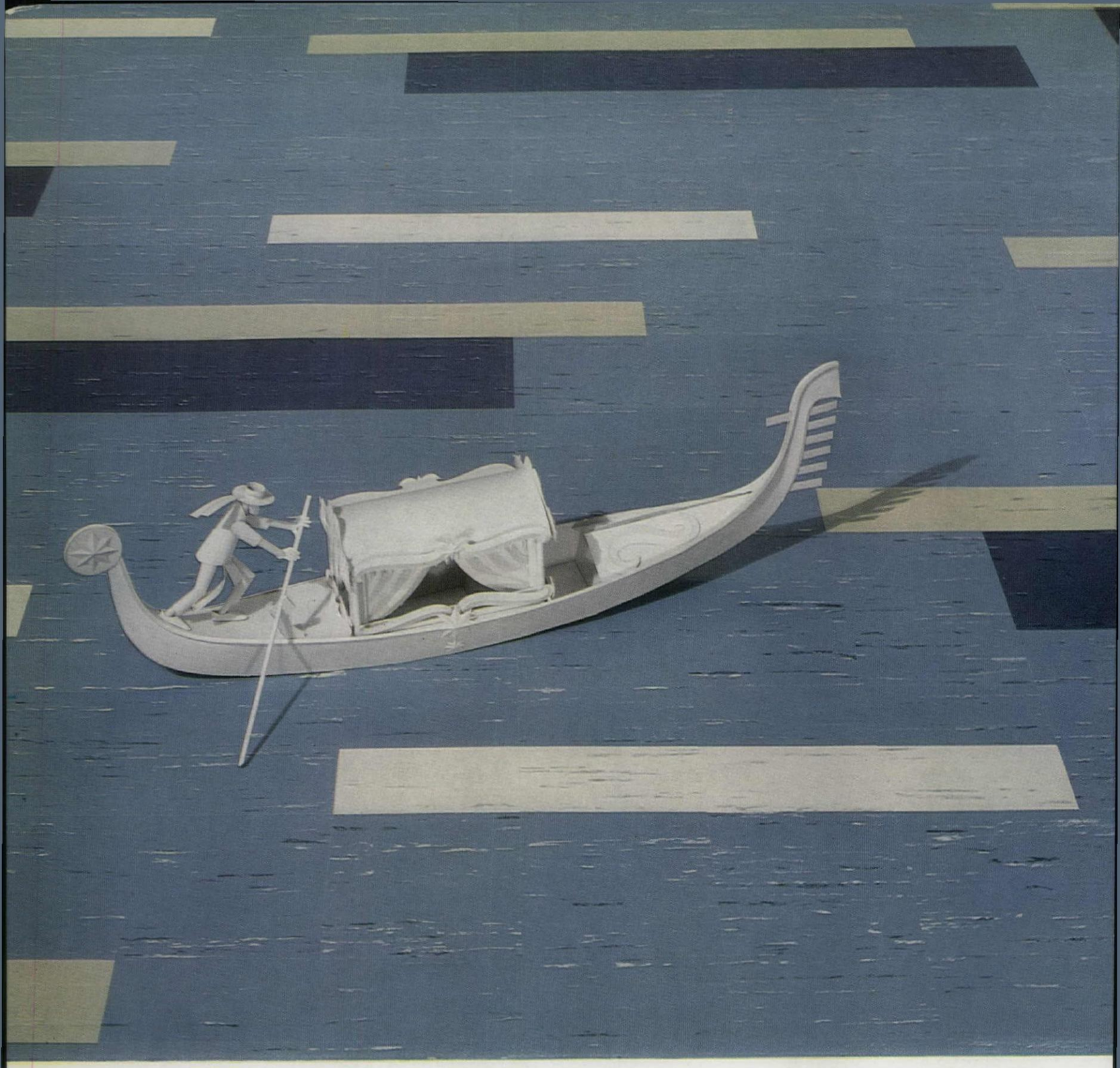

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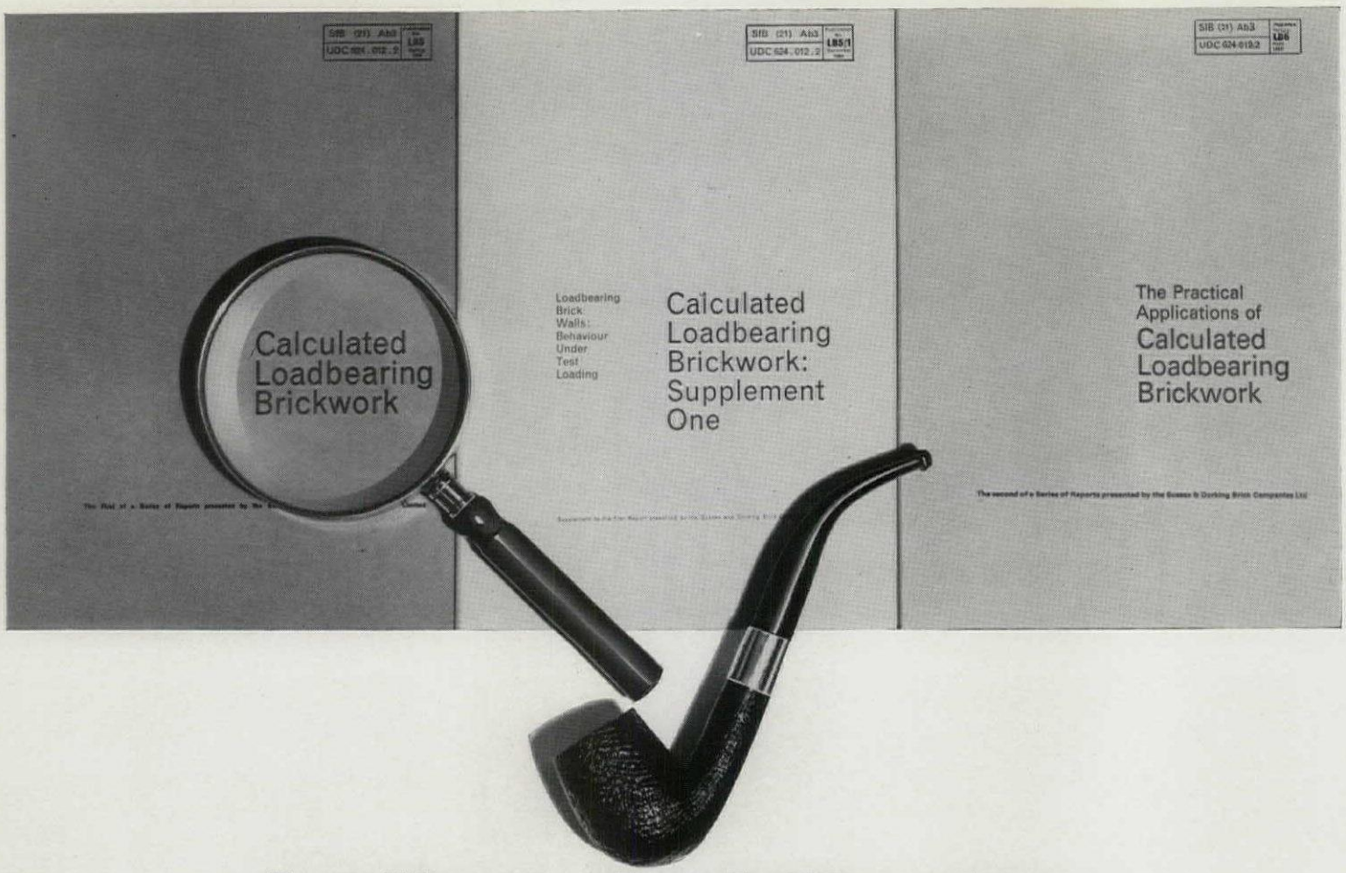

be the calculating type

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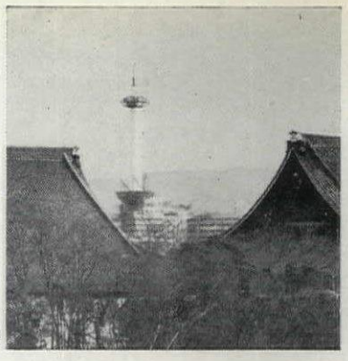


18

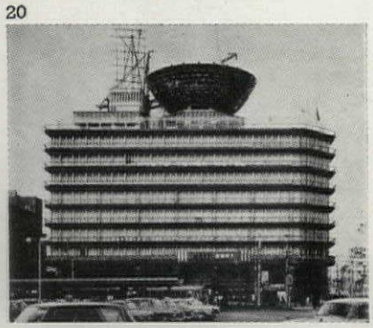
KYOTO TOWER

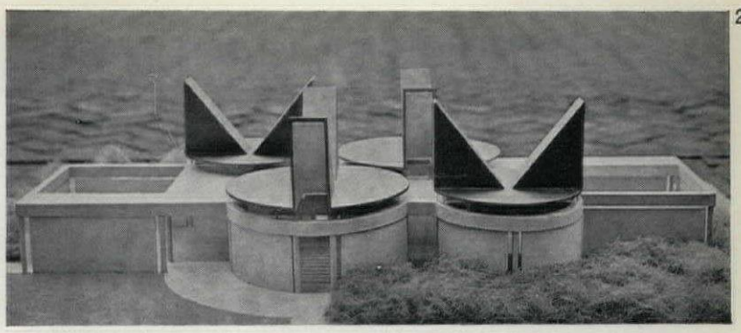
construction ruins Kyoto. Owner's commercialism taking a short view and wavering attitude of the architect, Mamoru Yamada, and the structural engineer, Ryo Tanahashi, should be criticised. As Mr. Aso says, our main concern is in awful dead conscience in resisting those who destroy our old cities.'

There may be more than one opinion on the tower's contrast with Kyoto's ancient rooftops, 18. Where Mr. Aso is surely justified is in the tower's vulgar relationship with the podium (the Kyoto Tower Hotel), 20, exposed to the street scene as a whole, 19. It confirms that the London tower's hidden site in the back streets is the secret of its virtue. Even so, Mr. Aso's 'awful dead conscience' is needed perhaps more urgently against Kyoto's cluttered wirescape.

19

20



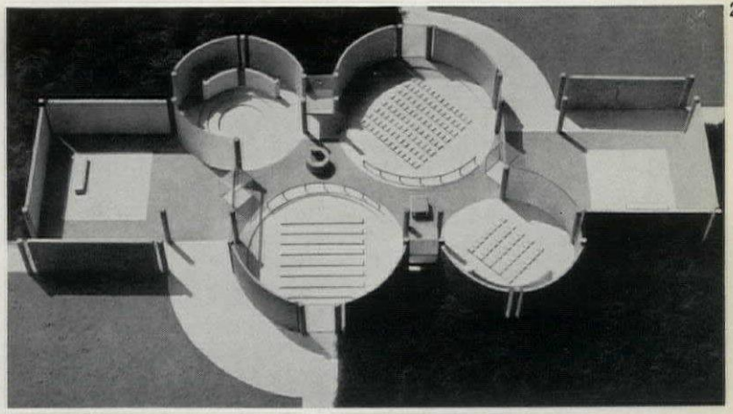


24

VAN EYCK KERK

A remarkable church design by the Dutch architect Aldo van Eyck has made fleeting appearances in several magazines recently; it was at last fully and superbly illustrated in the May issue of *Domus*. Given the ambiguous title 'The Wheels of Heaven' it has apparently been designed for a Protestant movement, Church and World. Marked externally by the giant rooflights (more like wing nuts than wheels), 24, it consists of two large and two small circles, disposed diagonally, with a fluid platform of irregular shape winding between them. On this platform are placed the pulpit and altar. One small circle is a complete amphitheatre for small weekday gatherings such as baptisms; the other three circles relate to the central space, 25.

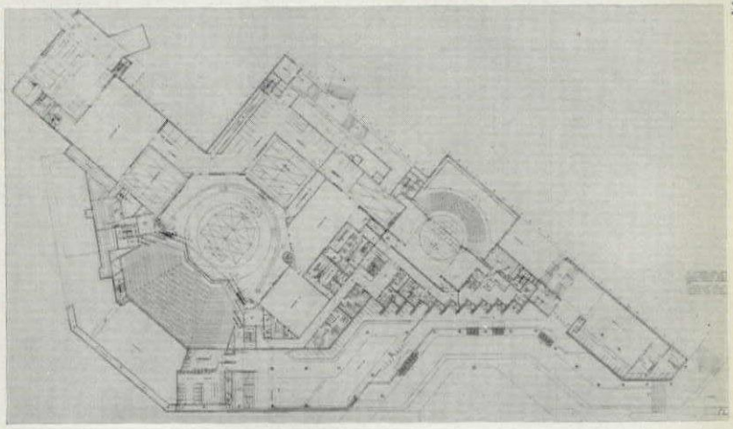
Van Eyck talks at length in *Domus* about the sense of uncertainty and ambivalence—and hence 'poetry'—that the spaces symbolize. This kind of architectural dialectic sounds fascinating; but for ambivalence to come alive as a genuine flexibility of use, the closed form of the circle hardly seems to be suitable. Is the



25

FINNISH THEATRE

For a small country, Finland's architectural energy is prodigious. Besides Aalto's major scheme for the centre of Helsinki, the city has now begun construction of the new municipal theatre, based on a competition design four years ago by Timo Penttilä. The site is a large park, north of the elder Saarinen's railway station, sloping southwards to a lake. Penttilä's layout is built into the contours, 21. The two auditoria, one for drama and operetta seating 930, the other for intimate and experimental theatre, are placed more or less back-to-back (see plan, 22), with a unified complex of fly towers and stage machinery. The audience enters at the south-east corner, at the lowest level, 23, past the booking offices arranged in echelon, the slope being used to provide a variety of terraces and foyers at different heights overlooking the park. The artists' entrance is at the opposite side, at second floor level. The large stage is planned to bring the audience as close as is compatible with the occasional use of a small proscenium opening. The small stage is more flexible, an undivided space within which a proscenium can be constructed if necessary. Both stages can revolve.



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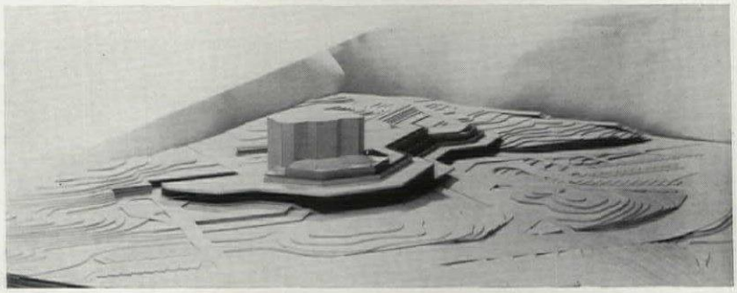

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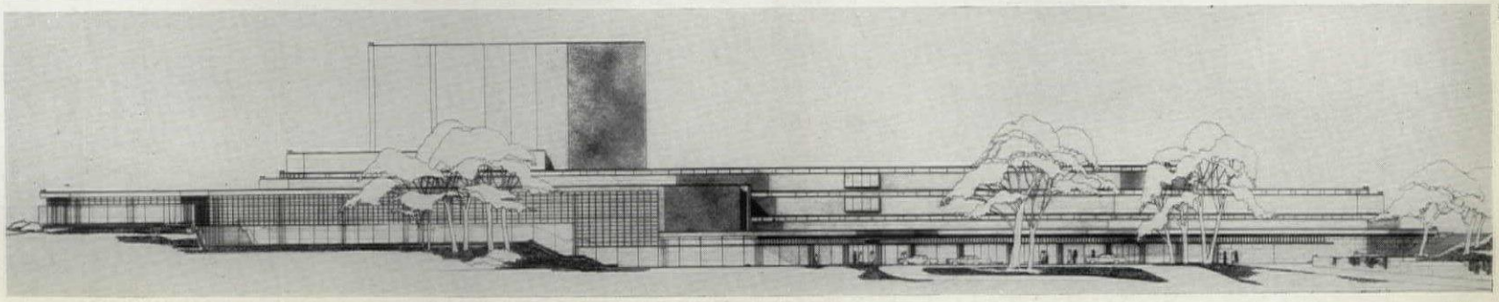
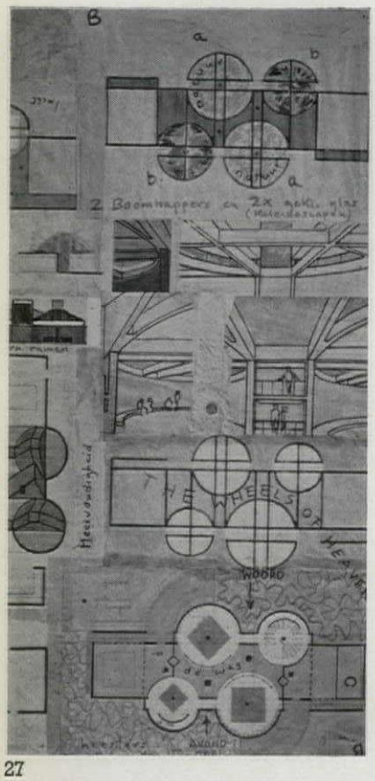


23

VAN EYCK KERK



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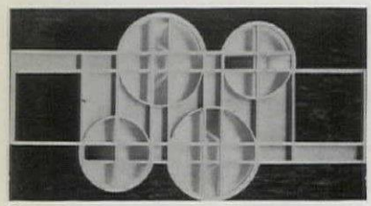
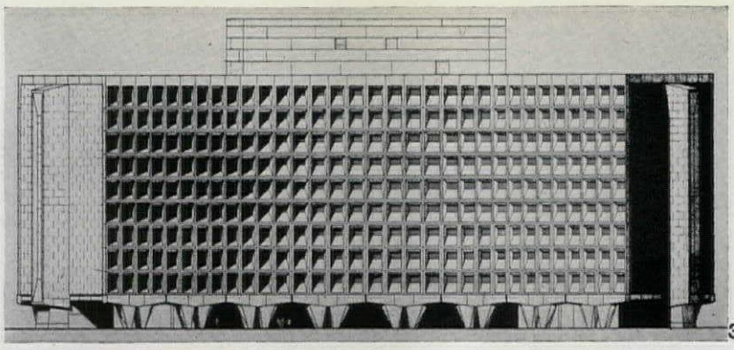

28

seating in the circles flexible? The layout as shown suggests one group looking fixedly at the pulpit, another group looking fixedly at the altar and a third group veering off on its own. Admittedly the church is small, the height of the walls, below the roof structure, being only 10ft. Inconsistencies will therefore not be overwhelming. The double-spread of 'preliminary sketches' in colour (part is seen in 27) is surely the most seductive set of drawings published this year.

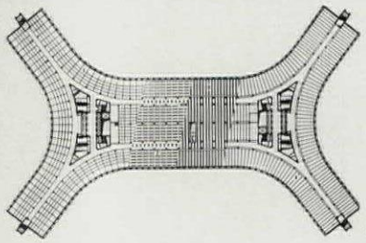

26

The church is to be placed in a park, 26, with two entrances at opposite sides giving the initial spatial twist to the wheels. The discipline underlying the uncertainty is well shown in the model of the roof structure, seen from below, 28. Beyond hoping for a statement on the client's brief (was there one, or is this purely Van Eyck's outside view of the Church's uncertainty?), one can only wait in suspense to see if the space is as beautiful in reality as in the model, 29.

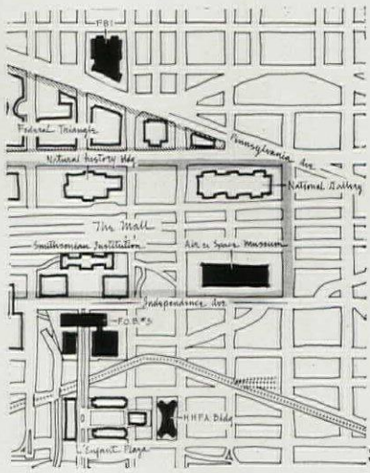

29


30

FEDERAL BEAUTY


31

President Johnson's high-sounding White House Conference on Natural Beauty in May was an unexpected and encouraging carry-over from his predecessor. Four major buildings in the centre of Washington itself were announced by the General Services Administration, which at last seems to be applying the same standards at home as to embassies abroad. Marcel Breuer's Housing and Home Finance Agency building, 30, is another double-Y-shaped variant, 31, of his Unesco and IBM La Gaude, with its deep reveals and massive, close-packed pilotis. Together with Gyo Obata's Air and Space Museum (AR, April 1965) and Curtis and Davis's Federal Office Building No. 5, it begins a new area, 32, south-west of the Capitol (which is just off the right of the map). FOB No. 5 is a complex group of three buildings, 33. It may not be very exciting but in its terraced walkways it shows a new official awareness of townscape. Farther north, the FBI building



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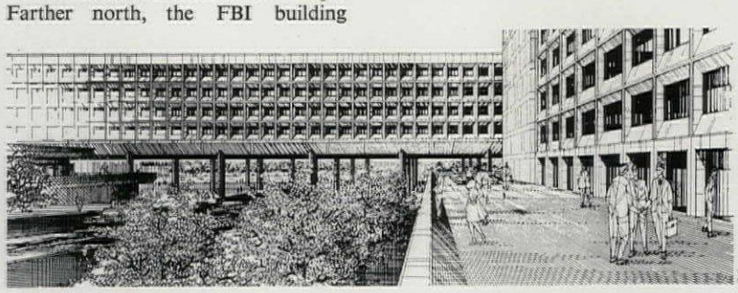
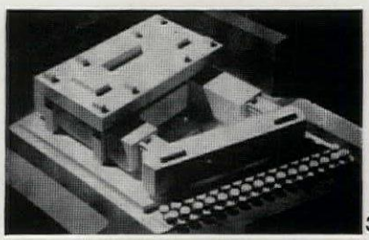

33

by C. F. Murphy and Associates, 34, will form the first part of the otherwise mainly commercial redevelopment of Pennsylvania Avenue, leading from the Capitol to the White House. President Kennedy's committee published outline plans last year. The FBI, revealed in section, 35, shows the massive depth of office space needed to offset the ban on high buildings.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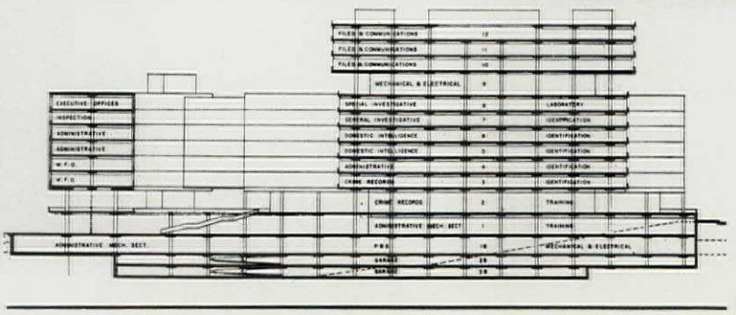

35

VIEWS AND REVIEWS

marginalia

WIRES UNDERGROUND

Even if the placing of power cables underground is proceeding very slowly (see AR April, 1963, and November, 1964) at least the principle is accepted and the Central Electricity Generating Board is itself taking the initiative in several areas. A plan for the Ipswich area which the Board has submitted to the Minister of Power for his approval was reported in *The Times* for June 1.

A new sub-station has been built at Bramford, and the Cliff Quay to Yarmouth 132 kV overhead line will be diverted into it. The plan is for the first three-quarters of a mile from the new sub-station to be placed underground, which will allow at least fourteen existing pylons and their wires to be dismantled. This is being done for technical as well as for amenity reasons and it is reassuring to be told that these can coincide. In the same area the first few spans of the 132 kV line to Stowmarket and Bury St. Edmunds are also to be placed underground, and the first mile and a half of the existing Sundon to Cliff Quay 132 kV line has already been diverted into the Bramford sub-station by underground cable.

The CEGB's plans for the next three years provide for the installation of 650 miles of main power lines (275 kV and 400 kV) of which 100 miles will be underground. The 550 overhead miles will cost £31m. and the 100 miles underground £52m. with only half the carrying capacity. Nevertheless the difference in cost is not nearly so great as the electricity authorities used to claim. During the same period 1,075 miles of extensions to the 132 kV lines will be built, of which 400 miles will be underground. The latter will cost £54½m. and the 675 miles overhead £18m. So the Board, during the next three years, expect to spend much more money on wires underground than on overhead transmission lines.

FAVERSHAM SPEAKS

At a time when the environment is constantly being eroded, any effort to make people really see the place where they live, instead of taking it for granted, must be applauded.

The Faversham Magazine, the first number of which has recently been published, is just such an eye-opener and has the express purpose, 'of combating subtopia and the threat of a country undistinguished and undistinguishable from one end to the other; where Maidstone and Maidenhead differ more in name than in nature.' Its aim is to make people who live in the town aware of what they've got and what they must defend.

Produced by the Faversham Society, it contains an article by Anthony Swaine which, while drawing attention to the hopeless inadequacy of the present system of 'listed buildings' as a means of protection, points out the need for really expert townscape advice. The necessity, that is, of guidance as to what must be kept at all costs and what is expendable and to the proper evaluation of groups of buildings regardless of date. K.B.

STOCKHOLM PLANS

Much attention has been focused on Stockholm in recent years, both as a city with positive town-planning policies and as a city planned in relation to the region of which it is the centre—where the municipal authorities had the foresight to acquire large areas of surrounding land many years ago in anticipation of the need for comprehensive regional planning.

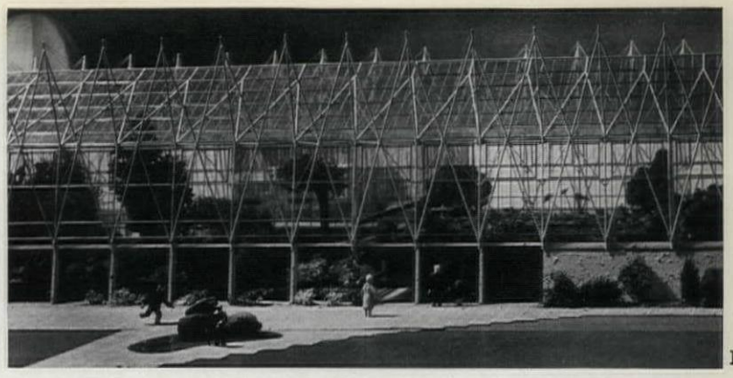
One example of this attention was a meeting of experts on metropolitan planning and development, assembled by the United Nations, which took place in Stockholm in 1961. For this meeting, detailed documentation was prepared, and the documents have now been edited and brought up to date and published in booklet form by the Planning Commission of the City of Stockholm as a guide to Stockholm's plans for its future and to the planning methods used there. It deals with land-use, traffic management and legal procedure, is well illustrated and will provide a useful reference for planners and others studying Stockholm's ideas and experience.

GROPIUS RESEARCH AWARD

Jane Fiske McCullough has been given the first publications grant of the Kaufmann International Design Awards programme for research and for the preparation of a book on *Walter Gropius, the Bauhaus and Basic Design Education*. Mrs. McCullough is a consultant and writer on design, and was founder and editor-in-chief of *Industrial Design*, which she directed from 1954 until 1959.

BAUHAUS REPUBLICATIONS

The Bauhaus-Archives at Darmstadt have proved an admirable institution, not only for collecting material on, and products of, the Bauhaus, which must of course in the end prove a limited field to operate in, but also in offering for discussion of today's problems of architecture and industrial design, of fine art and art education. The Archives' most recent venture is to republish the unobtainable Bauhaus Books of the 'twenties and other books on allied subjects. The publisher is Florian Kupferberg at Mainz und Berlin. The first volumes recently published are Gropius's *The New Architecture and the Bauhaus* (familiar to English readers, in P. Morton Shand's translation and recently made available also as a Faber paperback—price 10s. 6d.), Klee's *Pädagogisches Skizzenbuch* (first published in English in 1944) and *Die Bühne im Bauhaus* by Schlemmer, Moholy-Nagy and F. Molnár. Doesburg's *Principles of the New Art* is to follow, and also a completely new book by Hilberseimer on architecture of the 'twenties in Berlin and a reprint of Semper's brilliant essay on Science, Industry and Art, written *à propos* the 1851 Exhibition. The books are well produced, and efforts are clearly made to keep them at a reasonable price level, that is under £2 each.



1

Construction is about to start of a new glass house (model, 1, above) for exotic plants at the Royal Botanic Gardens, Edinburgh. It is 420 ft. long and 60 ft. wide and has no internal supports, being suspended by stainless steel wires from tubular steel 'diamond' frames outside the glazing. Inside are five gardens heated at different temperatures and separated by glass screens. An underground viewing chamber will allow visitors to study the underwater root systems of tropical plants. The glass house has been designed in the chief architect's department of the Ministry of Public Building and Works in Edinburgh —architect in charge, G. A. Pearce.

correspondence

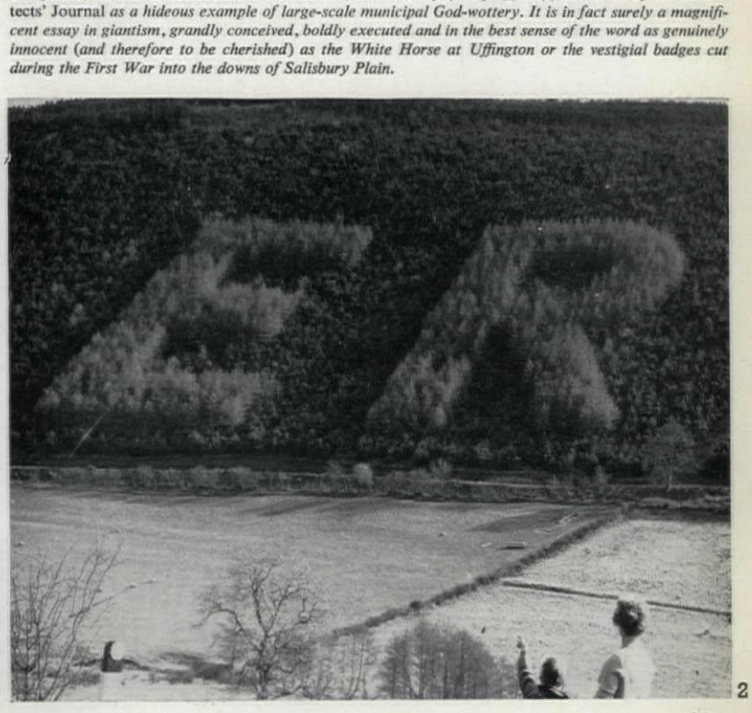
RAYMOND'S UNIVERSITY

To the Editors.

SIRS: I want to express my thanks for the beautiful presentation in THE ARCHITECTURAL REVIEW of my latest work, the Nanzan University at Nagoya. I am particularly gratified by your praise of the natural and organic site planning, and its faithfulness to the Japanese tradition. Besides respecting the original topography, I took great pains also to conserve all the natural vegetation. Kindly do not take it amiss, however, if I disagree with your criticism of the appearance of the buildings, which you call arid. In spite of all the florid and rich-in-imagination results of the present-day architectural efforts in Japan, I will try to express my convictions, the result of more than forty years of association with Japanese culture, in the following Credo.

I believe in absolute values as opposed to relative values. Absolute values were, are and always will be the same, as functional is of a higher value than malfunctional, simple is better than complicated, economical better than wasteful, direct better than involved, natural better than artificial. All structures should be designed from the inside out and not from the outside in. By natural, I mean that not only the materials used should stay as much as possible in their natural state, but also that the natural forces should be respected and taken advantage of. For instance, if you study the plans of the University, you will find that every single room faces south in order to reap the benefit of the sun in winter and of the south winds in summer,

2, *this splendid example of two-tone forestry, planted by the Forestry Commission on Pampunton Hill, Shropshire, in* 1953 *to celebrate the Coronation, was recently (and priggishly) dismissed by the* Architects' Journal *as a hideous example of large-scale municipal God-wottery. It is in fact surely a magnificent essay in giantism, grandly conceived, boldly executed and in the best sense of the word as genuinely innocent (and therefore to be cherished) as the White Horse at Uffington or the vestigial badges cut during the First War into the downs of Salisbury Plain.*



2

that every room has cross ventilation, that every room is guarded against the direct sunlight from June till October. The exterior form of the Faculty Building is the only possible form if my principles are followed faithfully.

Another big factor is thorough research in order to achieve the lightest possible structure to withstand earthquake and typhoons and other forces of nature. There is hardly a pound of substance of these buildings which could be eliminated: the exact contrary of practically all of the work in Japan today, which is fantastically heavy and wasteful for no other purpose except for exterior decoration and plasticity. I believe that I was among the very first ones, preceded only perhaps by Auguste Perret, to build structures in natural concrete without any other finish or treatment. I also believe that I was among the first to control sunlight by exterior louvres—witness my building at Pondicherry. I used these again in designing the Nanzan University with the greatest care for their proper proportions and faultless workmanship. I reject any artificial treatment of concrete like chipping or covering with other materials. There is such a thing as honesty in architecture.

I welcome financial limitations; they prevent vulgarities and bad taste, and I doubt if I would have designed the University any differently if I had had funds to spare. The strange thing is that, in spite of such clear adherence to my principles, so contrary to the general work in Japan, this work was awarded a medal by the Japanese Institute of Architects as one of the best works in 1964. My criticism of the present-day Japanese architectural creative efforts does not mean that I do not thoroughly admire, and fully enjoy and approve of, the youthfulness, originality and enthusiastic expression of something so new. Japan has perfected modern technology to such a degree that it is a joy for its architects to play with it, but I—now in my seventy-eighth year—believe that, just as the Japanese succeeded in digesting the Chinese influence, they will eventually digest the Western influence and come back to the principles which I profess and which are so clearly expressed in the original Japanese architecture, particularly in Shinto shrines and the farm buildings.

Yours, etc.,

ANTONIN RAYMOND

Tokyo.

PUBLISHER'S OFFICE, MADRID

To the Editors.

SIRS: I am surprised that you did not investigate a little further the background to the article you apparently thought worthy of publication in your May issue on the interior design by Peter Hoffer of the *Reader's Digest* office in Madrid.

The Spanish architects of the building, Corrales and Molezun, well known to your readers for their Spanish pavilion at Brussels, are the best architects of their generation in Madrid. This office building ranks amongst their finest works and would have merited the special visit of any architect passing through Madrid if the interior had not been so insulted by this frivolous decoration. Even worse, the blame for this monstrous sham often mistakenly falls on these innocent architects, who could be in danger of losing their well-earned prestige. This decoration is the scandal of the year in Madrid circles. It would have been better to have published this affront to genuine design in your section labelled 'Outrage.'

'The designer,' your description says, 'found that well-designed and produced modern furniture in Spain is almost entirely imported or manufactured under foreign patents.' Obviously he never bothered to look. I suggest that he goes to have a look at the designs by Gres, Aresta, Darró and even some of H-Muebles, next time he is in Spain. There is also in Spain a young and flourishing industrial design group, ADI-FAD, the high standard of which has been confirmed by their admission as a full member of the ICSID. M. Milà, F. Correa and A. Milà, J. Coderch and A. Richard, to mention only a few of the brilliant Spanish designers, have international prestige. It is strange that the *Reader's Digest* chose Peter Hoffer for a modern *Spanish* decoration.

If the continual high quality of the AR were never to have its lapses it would be superhuman. But every lapse must be followed by a protest.

Yours, etc.,

DAVID MACKAY

Barcelona.

Mr. Peter Hoffer, designer of the interior criticized in the above letter, replies as follows:

Mr. Mackay's vehement and spirited defence of the stature, name and work of Messrs. Corrales and Molezun fills me with consternation. Besides being responsible for unleashing this torrent of indignation, to discover that one is also unwittingly held answerable for the decline of two important architects' reputation in Madrid circles and moreover be accused of having insulted their work, loads me with a grave responsibility and puts this magazine which so generously opened its pages to my humble efforts into an embarrassing position from which it is clearly my duty to try to extricate it. Before proceeding further I would like to assure Messrs. Corrales and Molezun of my profound respect and admiration for them and their work and my consequent difficulty in taking up cudgels in my own defence.

That my work should have had such disastrous results is most grievous to hear, but surely an architectural rarity is worth a visit in spite of its ugly furniture? The facade is untouched by my sacrilegious hands. Should the spirit move him, a visit to, and examination of, the interior might make the interested architect take to his heels in all haste, but to the practised eye the lack of stylistic unity or artistic capacity between exterior and interior would perforce absolve Messrs. Corrales and Molezun of all possible blame.

As to the furniture quotation, the article does say 'almost,' meaning 'very nearly.' I can only assure Mr. Mackay that I visited the shops he mentions as well as others, and if he will manage to overcome his revulsion and enter the building the next time he finds himself in Madrid, he will find some of their wares in use. This does not detract from the fact, however, that during these visits I was met by a conspicuous number of old friends and their relations, pieces we all know and have used in the past. Of course there were others and handsome ones too, but frequently either little different from general European trends in conception, or not suppliable in the number required and the time available, as well as being often prohibitive in price. This is in no way meant to detract from the very high standard of work current in Spain. All my Spanish collaborators, ranging from well-known artists, craftsmen, artisans, large contracting firms to humblest journeyman bricklayers, are beyond praise for the diligence, knowledge and enthusiasm with which they executed my affronts to genuine design or contributed their own.

That there are excellent industrial designers in Spain none would have the temerity to question, nor that they have an international reputation. However, I am sure Mr. Mackay would agree with me that there is hardly a country, in Western Europe at least, that is not self-sufficient in its creative elements. But does this mean national boundaries have to be absolute? Italy, for example, possesses a flourishing and creative furniture industry, yet it imports designs and employs foreign designers with no detriment to their own inventive powers or national prestige. To having failed to impose my view of Spain on Mr. Mackay and his friends I plead guilty. But surely the decision who to use, where, when and how, in the ultimate rests with the client—even in Spain?

book reviews

ELEGANT AUSTRALIAN

HARRY SEIDLER, 1955-63. *Macdonald & Co.* 110*s.*

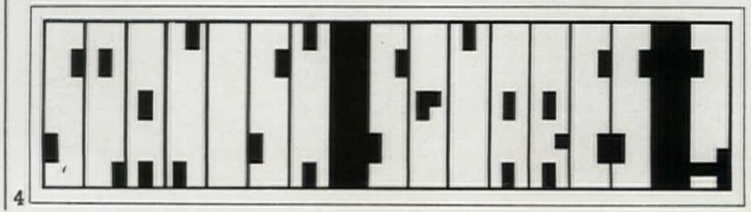
Harry Seidler, says the note on the jacket cover, has been called 'the most important architect practising in Australia.' As we are told in Dr. Reyner Banham's introduction, Seidler's 'reputation rests solidly on the wide dissemination of illustrations of his work throughout the great international architectural magazines.' This book should further enhance that reputation. It is the second volume of Seidler's collected works, the first being published ten years ago when the architect was 31. Like its predecessor, it is of a fashionable shape and size, such as will elegantly grace the coffee tables of the world. Unfortunately the coffee table trade has little interest in the sordid business of altercations and parleyings with local authorities. Acceptance of contemporary aesthetics and methods of construction may have been inevitable in Australia, but the fact remains that Seidler was one of the men who fought for them. Others have now reaped the benefit, and any discussion of Seidler's work must make reference to this aspect of his professional life.

The building and projects (we are not always told which is which) are extremely photogenic, and it is not until half way through the 200 pages of pictures that the strangely lunar quality of the photographs is explained; then, for the first time, there appears one which includes people—there are, in fact, only four photographs with people in them, in spite of the fact that more than three-quarters of the buildings illustrated are of housing. Perhaps it is because Seidler is happiest when there are no human beings to confuse the architecture that his tank rooms and roof-top plant housings are amongst the most brilliant of his architectural compositions.

This is an architecture of clean lines, crisp forms and a direct use of materials—at its most successful when it has no site to compete with it, or when the only natural phenomenon of importance is the mathematically varying angle of the sun (some of Seidler's devices for sun control are brilliant—sometimes the unfortunate juxtaposition of two different solutions for the same orientation makes one wonder if he really needed to go to all

3

The titling (3, *above*) *is taken from the April issue of the Spanish magazine,* Arquitectura, *where it was used as the heading for a feature on the* 1965 *Preview issue of the AR. The upper line is a direct reproduction of one of the titles designed by G. J. Nason for that issue. The two lower lines are* Arquitectura's *somewhat distorted version of it. Nason now adds his comment* (4, *below*) *in yet another version, showing that non-communication is the same wherever you go.*



4

that trouble). The flats at Diamond Bay seem least successfully related to their site, in the sad tradition of most of Australia's sea-side architecture, and Blues Point Tower perhaps the happiest; but only, one realizes, because for that area of Sydney Harbour the Bridge is the feature to which everything more than twenty feet high must relate.

Seidler's work is elegantly professional in the best sense of the word, but there are other architects in Australia, many producing buildings which, if not quite as 'International' as Seidler's, are perhaps more human, more tied down to Sydney, 1965, and, dare one say it, a little less sterilely professional. It would be unfortunate if the critics who have called Seidler 'the most important architect practising in Australia' were to deflect our attention from his less publicized but equally distinguished fellows.

D. R. WYLLIE

USED BUILDINGS

ARCHITECTS' WORKING DETAILS REVISITED. *By Michael Devereau. The Architectural Press.* 36*s.*

A QUALITATIVE STUDY OF SOME BUILDINGS IN THE LONDON AREA. *By S. B. Hamilton, H. Bagenal, R. B. White. National Building Studies Special Report* 33. *HMSO.* 40*s.*

Architectural sins, like moral ones, are both of commission and omission. The latter are in both instances usually more insidious yet less considered. These two books try, appropriately therefore, to remedy our forgetfulness about buildings after the final certificate; they try to look at them as they really appear after years of use.

It is a chastening and necessary experience to see the frequent disparity between intention and sensed reality. Most of this disparity comes from our omission to remember the cumulatively destructive effect of time: of the seeming cunning of moisture to find the least opening, of the gymnastic abilities of schoolboys, of the soot-laden content of London rain. Both books record, fortunately for our self-esteem, not only the failures but also the successes of architectural detailing. A great many of those which were revisited after having originally been published in the *Architects' Working Details* series were in some measure untraditional and it is good to see that in so many instances design ingenuity has paid off. The time interval between building and inspection was, however, only a few years; the great merit of the National Building Study is that it has looked at some London buildings twenty to fifty years after their construction. A good many of the failures it encountered were due to unfamiliarity with the then new forms—flat roofs and exposed reinforced concrete for instance. Current standard practice, the study is able to report, no longer makes those mistakes. It probably makes others.

The two books are not themselves free from certain sins. *Architects' Working Details Revisited* shows a considerable number of photographs taken when the buildings were new but only a few on their second viewing. The full visual impact of the difference between 'as built' and 'after' is thus missing. The National Building Study chooses subjects in which the sins of commission seem to our eyes so serious—Watford Town Hall, the Institution of Civil Engineers, Senate House—that it is difficult to be as concerned about their detail working as the thoroughness of the study demands. It is not easy for the wrinkles of unlovable buildings to exert much fascination.

The Architectural Press volume helpfully devotes each chapter to a different building element. This makes reference very much easier. But, of course, the findings of both these reports should not be in book form. The information ought to be analysed and put under correct headings as part of every check list or SfB-coded element guide so that the red danger signal can flash while the detail is still only a drawing. Although this might lead to the eventual disappearance of books on revisited details and deprive us of the fascination of reading about the seamy side of architecture, it is a loss which most of us would be able to bear.

MICHAEL BRAWNE

WATER WORKS

LE FONTANE DI ROMA. *By Beata di Gaddo. Vitale di Ghianda, Genoa.* 3,200 *Lira, bound;* 2,800 *Lira, paperback.*

It is only seven years since C. D'Onofrio's classic *Le Fontane di Roma* was published, and another book with the same title might well seem superfluous. But although Beata Di Gaddo's book does not cover so wide a field and is designed for the student of architecture rather than the general reader, it is an eminently useful and portable—D'Onofrio's book weighs nearly five pounds—guide to the street fountains of Rome built between 1570 and 1700.

The author has concentrated upon fountains of the free-standing type, including only one of the great *mostre d'acqua* or wall fountains—that which now stands in Trastevere near the Ponte Sisto—and none of the garden or courtyard fountains built in this style. These wall fountains were a characteristic of Rome in classical times as in the Renaissance and baroque periods, and one cannot help feeling that their exclusion on the grounds of 'difficulty of surveying and making scale drawings' or for stylistic reasons such as 'the repetition . . . carried to exasperation of the naturalistic motifs' in the fountain of Trevi, are not really valid in a book entitled *The Fountains of Rome*.

However, within the limited field which she has chosen, Signora Di Gaddo deserves high praise for the manner in which she has handled her subject, and the plans, elevations and section drawings, carried out by the students of the Faculty of Architecture of Rome University, are a new and valuable contribution—especially those showing the evolution of the design of the earlier fountains. The succinct survey of the state of Rome's water supply consequent upon the devastation and decay of medieval times, and its reconstruction as a result of the activities of the remarkable *Congregazione sopra le Fonte*, provides an excellent introduction to the detailed studies of the individual fountains. These are well documented from contemporary sources, which provide interesting information on the part played in their design by architects such as Giacomo Della Porta and the activities of the stone-cutters who were the actual executants. The influence upon the design of such practical considerations as the use of antique fragments of marble, the unpaved state of the streets and the convenient height of the main basins—so as not to be fouled by litter, but low enough to rest jugs and pails—is well illustrated.

The chapter dealing with these sixteenth-century fountains, which also outlines their subsequent vicissitudes, is one of the best in the book. Excellent too, is the one devoted to Bernini's revolutionary influence upon Roman fountain design—his rejection of the old architectural concept of the fountain itself in favour of sculpture and water mingling to make an indissoluble whole—though here especially the quality of the photographs falls short of the text. It is unfortunate, too, that careless proof reading on page 14 has resulted in attributing some of Bernini's work to the pontificate of Innocent V (1276) instead of Innocent X (1644–1655) and on page 95 in confusing Leo XI (1605) with Leo X (1513–1521). Nevertheless, Signora Di Gaddo's book should come well up on the list of those to be read by anyone planning a study of street furniture, or simply to be taken on a holiday to Rome.

GEORGINA MASSON

PROPHET UNREAD

RUSKIN TODAY. *Chosen and annotated by Sir Kenneth Clark. John Murray.* 35*s.*

In this selection from Ruskin's all too voluminous collected works (39 volumes), the introduction by Sir Kenneth Clark is so admirable, so accurate and so elegantly set forth that a review seems, if not an impertinence, at least a work of supererogation. Sir Kenneth writes of the all but complete decline of Ruskin-reading, and the substitution for it of a curiosity into his private life. And the 39-volume edition is indeed something like a mausoleum. Who does read him, not merely look him up from the index to see what he had to say, as an eminent Victorian, about particular buildings, paintings or people? Casual inquiry, and probably library lendings, reveal how little his once famous books are read through. But for many, and certainly for this reviewer, *Praeterita* remains an autobiography of the stature of Mill's or Yeats', of poignant candour, and *Unto this Last*, a piece of lucid wisdom—an answer to merciless economists which was anticipated by Cobbett and has since been recently popularized by Professor Galbraith.

The fact that, comparatively late in life, Ruskin set down directly, simply, and very unpopularly his answers to questions that concerned everybody—what is wealth and what is wealth for?—and did not find the answer in a statistical enumeration of the production of pig iron and the export of bales of cotton is something to be grateful for. It was not prudent in an age that saw the end of the usury laws and the rise of the limited liability company to write 'The idea that money could beget money, though more absurd than alchemy, had yet an apparently practical and irresistibly tempting confirmation in the wealth of villains, and the success of fools' but it was very Ruskinian. Still there can hardly be anybody, Carlyle a certain exception, whom one has less desire to read. Ruskin's life was a horrible and tragic one of almost continuous hysteria, of dissociation from what keeps most of us sane—the world, the flesh and poverty. His connection with life seems to have been quite personal—if that is not begging all the philosophical questions—and consequently tenuous. His connection was hysterical enthusiasm and writing. Of the first it is perhaps fair to say that it is difficult to connect what he said and what is there—his description of a picture, for example, seems quite irrelevant to the object hanging before one. Of the second, what justification, what excuse, for the endless sermonizing, hectoring and repetition except some personal need to establish an otherwise unavailable contact with his fellow men? Certainly not the obvious excuses, money or fame. That the motive was psychopathological could hardly be doubted.

But Ruskin did impinge on Victorian life at so many vital places, and to have done so required remarkable perception and knowledge of what mattered. There can be no chance in patronizing and publicizing the right young painters and the right young architects. Even here, though, he never carried anything through and nearly all his energies were wasted in a maelstrom of enthusiasm, despair, grandeur and madness. Everything was pitched too high. Intense concentration was immediately followed by vapid irrelevance, acute and profound observation followed by eccentricity, stupidity, and bad temper, and all standard and reason was lost. It was all too personal and singular, and no one can hope to pronounce on, teach on, feel and embrace so much by himself; Ruskin could not (and one can see the circumstances in *Praeterita*) accept anything from others' standards, and went mad in the attempt to do all for himself. Nothing was ever quite sufficient, nor with the ambition, could be. He lived by his own sensations and thoughts, and his mind crawled incessantly inside and he had no peace. Even his own total breakdown fascinated him. 'It was utterly wonderful to me to find that I could go so heartily and headily mad.' So his whole life was the dishevelment of genius and it remains, to know about, a terrifying extension of one's knowledge of humanity. It hardly needs saying, and without irony, that such a life was that of a man of great powers; in such a frightening and public breakdown as in triumphant accomplishment, genius is evident.

For the time it seems that Ruskin must remain someone to be 'looked up' as the need arises and it is difficult to imagine his ever being read extensively again. For this reason, at least, one must be grateful for Sir Kenneth Clark's selection, an inducement to read more, and for its loyally just introduction. But without disrespect very few but professional historians of the changes of taste in painting and architecture will go beyond *Praeterita* and *Unto this Last*. Ruskin will remain in all his complexity and tragic enthusiasm a subject for biographers—as a life one ought to learn from, in a way admire, and in a way feel sorry about. It is for us—the lesser, the less able, the less courageous—if not always to praise great men, at least to recognize them.

PETER FERRIDAY

The sculpture of technology is welcomed symbolically by the sculpture of humanism in this photograph  *taken by de Burgh Galwey from the steps of University College, London, with Waterhouse's many-pinnacled hospital in the middle background. The Post Office's 619 ft. radio tower has established itself, in the year since it was 'topped out', as a vital personality in the townscape of London. Other photographs on pages 123–126 of this issue show its many-sided character as it pops out of gaps and crevices in the familiar street scenery. Apart from the single arbitrary decision that it should be round not square, the tower's aesthetic impact results entirely from a straightforward assembly of engineering components, disciplined with exemplary modesty and commonsense by the architects of the Ministry of Public Building and Works.*

Gordon Russell

LOOKING AND SEEING

The old saying 'Hear and forget; see and remember; do and understand' seems perfect justification for the more enlightened methods of art teaching now used in schools. By involving the children in the activities of painting and drawing, pottery and sculpture, we are taking the essential first steps towards a wider understanding of visual art, architecture and design. This is undoubtedly true, but it is also clear that we are failing to build on the basis that is being laid down so successfully.

Science teaching today is changing rapidly, moving away from learning by rote towards methods which involve boys and girls in thinking critically for themselves. Starting from a completely different position, one of out-and-out devotion to free expression, it looks as though art education will have to move in a similar direction if it is to have any more lasting effect. It is a commonplace that, in developing their ability to paint and draw, children find a weakening of confidence and directness at the senior end of the school. The boy or girl with only average ability tends to become more and more discouraged, and this frustration easily deepens into the idea of art as a special skill without personal relevance. Although modern methods of teaching have produced a tremendous flowering of activity in primary schools and in the early years at secondary schools, it seems to be extraordinarily ephemeral. The curious paradox is that the natural sense of colour and form which is fostered in primary schools all over the country finds hardly any place in the adult environment.

It is easy to see how the pioneers of modern art education, who had to work in a very hostile climate of opinion, were inclined to claim too wide a spread of lasting executive ability. Crusaders are inevitably driven to over-simplifying their position, and it was an immediately strong and serviceable case to point to the astounding ability that small children do have, rather than to the more slowly, more subtly developing ability to appreciate and understand. What has often been missing from the framework of teaching is a belief that the values the child learnt about by practice could be developed outside the closed world of the art room.

It would be wrong to suggest that the direct experience of working with materials, colour and composition is not essential; it is, but the extension of this into the everyday world is also essential. Unfortunately, the nature of the average school curriculum has helped to keep art firmly locked in its own small area. Wherever history, for example, continues to be taught primarily as a list of kings, battles and dates instead of as a changing pattern of ideas and ways of life, it is very difficult to demonstrate the intimate

connection that exists between people, the things they made and their attitude to existence. Even now, the scholarly tradition tends to favour subjects in their 'pure' rather than their applied form, cutting mathematics off from engineering, botany from gardening and geology from its influence on architecture—in fact: thought from craftsmanship, learning from civilization. So long as the whole education system concentrates on the quantitative, on division rather than synthesis, a qualitative subject like design, which covers a wide range of human activity, must be at a disadvantage.

All this would matter less but for the particular character of industrial society. After all, visual education of a bookish kind for people in general is not a marked feature of periods rich in craftsmanship, painting and architecture. In the past, when a direct experience of working materials and a direct personal contact with craftsmen were common, functional and aesthetic standards were implicit in the whole environment, in everyday conversation and experience. Only when industrial techniques broke the link between maker and user, did a separate visual education become really essential. Much of the environment, particularly in the great industrial cities, is now so hideous that it requires a conscious and deliberate effort of re-education to break out to even tolerably decent standards of architecture and design. Squalor is self perpetuating, and constant contact with awful surroundings produces its own resistance to excellence.

In the context of contemporary culture with its mass communications and predominance of mass standards, the present situation is profoundly disastrous. It is no longer the criteria of a small and cultured group which set the tenor and flavour of life. In creating an unheard-of prosperity, the industrial revolution distributed patronage over millions of people, most of them living in cities and suburbia. The tragedy is that in a period which is distinguished by great energy in art, architecture and design, the general environment has remained stodgy and ugly, completely unrepresentative of the best work that has been done. In one sense this means that we have failed to find the mechanism for interpreting the needs of our society, but it also means that our society as a whole is crassly unaware of the ugliness in which it exists and the possibilities of change. It is precisely here that we are paying a dreadful price for the inadequacy of our educational system.

Fundamentally, the problem facing any attempt at visual education is the complete unfamiliarity of the subject matter involved. Few people have any direct experience of craftsmanship, few have any opportunity to learn about the particular qualities of different materials, few are introduced to any ideas about visual values in the environment except in relation to 'beauty spots' or suburban front gardens. The overwhelming impression must be that it is a thing of the past except for rockeries. And, although we have seen how important painting at school can be, it sometimes serves to support the idea of colour and form as occurring only in a limited way, inside a picture frame, on an old wall or—more remote still—in a museum.

The real achievement in visual education would be to equip people to understand and take delight in these qualities, and be able to use them in their own surroundings. This would cut through much of the doublethink which affects design and architecture, much of the confusion between what is good and what sells, much of the moralistic uneasiness between what people like and what designers feel they ought to like. It is far more important to teach an informed basis with its roots in real pleasure, than it is to teach taste. Taste by itself is a poor thing, individual understanding and delight are the foundation on which can grow genuine personal preferences, idiosyncratic and rich, challenging and supporting the creativeness of artists, architects and designers.

Recently there have been a number of fresh approaches to this problem and, in schools of all kinds, lectures on design and architecture are steadily increasing and becoming more important. But it is, on the whole, rather a haphazard development, hindered by the lack of knowledgeable teachers and good elementary text-books and by the problem of putting over the essential core of visual awareness and experience on which the whole structure depends. So far, it has remained a subject without even an agreed and generally accepted definition of what an educated person might be expected to know. Everything has depended on the initiative and inventiveness of particular teachers in particular schools, and they have had to put together their own courses and gather up their own teaching material from many sources.

This kind of incoherent development has not helped to give visual education any standing in schools; the impression has persisted that it is a liberal decoration to life, rather than one of the fundamental disciplines affecting the nature and richness of civilization. A number of schools have made the effort to adapt the explorative techniques of a Bauhaus-type foundation course to the special needs of school children. On the whole this approach, which emphasizes visual qualities in the abstract, is a good deal less fruitful than one which brings out the visual qualities of the real world. Today the links between art and life are weak enough without choosing to present the whole splendid repertoire of colours, textures, patterns and forms apart from their basis in nature and the works of men.

At this early stage in the development of visual education the appearance of any book which may help teachers to make clear the link between art, design and life, is welcome, and the foregoing thoughts have been inspired by the appearance of a new series of books by Kurt Rowland, primarily for use with eleven and twelve year olds. This designed series* is something special. It could easily become a standard text-book bridging the gap between the child's involvement in painting and drawing and a far broader understanding of design in the whole environment. Basically, each volume consists of carefully chosen illustrations joined by a text which involves the child in looking at each picture in what will be new and unfamiliar ways. The children's books are supported by shorter notebooks for teachers, which suggest approaches to teach-

**Looking and Seeing.* By Kurt Rowland. Pupil's books 1 and 2, Teacher's books 1 and 2. 1 Pattern & Shape; 2, The Development of Shape. Glnn and Company Limited. Price 12s. 6d. each. Book 3 (The Shapes We Need) was published as this article was going to press. Book 4 is still to be published.

ing and show how the course can be related to other parts of the school curriculum.

As yet only two of the four volumes of the series have been published. Together they form a 'visual grammar,' seen not in terms of abstract qualities but in the configuration of the land, cities, faces, crowds, tools, paintings, leaf and letter forms, teapots, old and new buildings. The starting point is always direct visual experience of the world, viewed through certain standards of quality and excitement. Many examples are taken from the past, but a very large number come from today. One of the most striking things about the books is the refreshing way in which they treat past and present as joined together in the exploitation of a continuously developing aspect of life.

If, as seems likely, these books at last make it possible to introduce courses of visual education into many more school curricula, and they prove to be the means of giving the subject an acceptable academic pedigree, and if this in turn leads to the gradual development of more advanced courses later in the school, their appearance will have been more than timely. It is now very late in the day to save our environment from complete and utter ruin.

The last series of Reith lectures, given by Sir Leon Bagrit, made it very clear indeed that the impact of automation will mean that our educational pattern will have to be changed tremendously over the next decades. There are two principal factors involved, and both imply the importance of finding a place in the curriculum for visual education. The first factor is the increasing speed of change and development that will be made possible by the use of computers in planning and in controlling production. Here it will be essential for people making decisions to understand what effect they may have on the environment. It will be essential for them to have at least an elementary interest in visual qualities so that they can interpret the expert advice given by architects, engineers, designers, town planners and landscape architects, and it will be even better if they too care passionately about the creation of genuinely civilized surroundings.

The second factor is that after a while leisure will increase to a very great extent. At the present time we are experiencing the frustrations that can be caused by leisure when it is presented as a contrast to unrewarding labour and in dreadfully tawdry surroundings. What is now just a small problem could easily assume gigantic proportions and make a complete mockery of our other achievements. Leisure, like wealth, is of little use without a vivid sense of quality to support it. The computer will make it unnecessary to train large numbers of people with rigid, relatively undemanding skills. It will call for broadly educated, adaptable people, able to think and act for themselves. If the promise of automation is to be realized, the groundwork of a general liberal and scientific education—including art, architecture and design—will have to be laid now, and as regards the visual arts these publications could play a part in laying it.

The fear remains that the existing pressure towards more and more specialization will be difficult to resist on practical grounds and that, at the same time, the gap between the best and worst educated will not be much lessened. If this happens, it will be to sacrifice the long-term good of our society to immediate benefits. We do need a great many more well-trained scientists, executives and administrators at this very minute, but unless they are men able to appreciate the broader implications of their work and the work of others, changes will be made on a haphazard basis and the environment will be one of the worst sufferers from any piecemeal development. Equally, unless there are deep enough roots of appreciation and understanding throughout society, any attempt to achieve higher standards will be meaningless.

criticism

This brilliantly conceived and remarkably attractive building is the latest stage in the architectural transformation of a conservative cathedral city—showing the influence as Dean of Walter Hussey, the Sutherland-Moore patron from Northampton, and also the influence of the Festival Theatre's architect, Philip Powell. Not only does the Theological College adjoin a Powell conversion job (his first building) and the two houses of 1949 designed for his father and uncle, but the partner most closely concerned with the new building, Richard Burton, was job architect on Powell and Moya's Brasenose building at Oxford. To this it bears an obvious family relationship: an acute understanding of infilling a slow-growth medieval city, a sympathetic massing of materials and skyline, and a subtle connection to existing pedestrian routes and communal activities. It is wholly dissimilar from the grey stone chapel and the white stucco back of Marriott House, yet the three form a successful group, 1. It offers a constantly growing and changing experience within and without. Like Brasenose, it seems enormous compared with its actual size.

The courtyard, with its diagonally placed brick paving and its chamfered stair towers, is a kind of country-and-western version of the Economist *plaza. It is approached from a variety of directions, by passages threaded through the building, by stairs, by steps, by a ramp or straight off the lawn. The corridors on the upper floors, lit by a variety of slits and skylights, burst out of the building in the form of cantilevered street decks on different levels. Whether or not the courtyard is ever roofed in for meetings or used for dramatic performances, as the architects envisage it, the building's genius lies in its capacity for chance encounters and informal meetings between residents. The direct opening of the little brick-paved chapel off a corridor is matched in its freshness and simplicity by the open planning of the kitchens, which form a focus for meeting and chatting in each unit of five rooms. Private by contrast, the library has an impressive rooflit reading area. The tubular light fittings in the stacks are prototypes for those at the same architects' library for Trinity College, Dublin.*

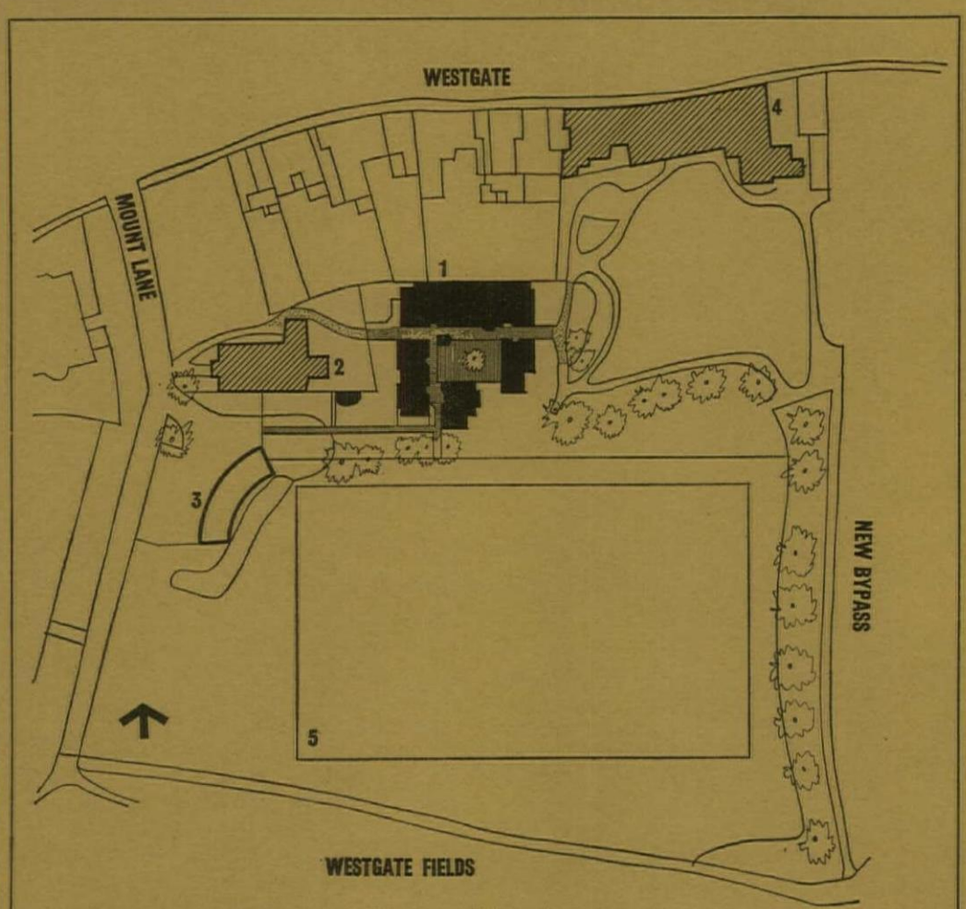
Instead of the 'straight up, straight down' space of so many over-glazed, over-exposed bed-sitters, the rooms form a complex private world which is remarkable at the price. Consumer reaction confirms that the architects were right in taking the symbolic form of the monastic cell, fitting the desk into a rooflit study recess packed with book shelves. It is these recesses, perfectly functional in conception (apart from possible sun glare), which give the building its sculptural form, with each floor slightly recessed. The two-directional, in some rooms three-directional, daylight plays upon the surface of the white-painted blockwork to give a luminously High Church background to objects of art and piety. Largely because of their small size, the rooms have a certain lack of adaptability, not wholly avoided by designing the divan mattress to slide to various positions.

The rustic, guitar-playing atmosphere is not just a passing fad. The architects have used rough-shuttered concrete and local stocks (very rough indeed on the inner side of the 9in. brick stair towers) as an attempt to establish a type of cheap construction which any small or medium-size contractor can carry out successfully. The results are good: the brickwork is excellent and the concrete is quite adequate. The roughness of texture has another advantage: this is a young architect's building and at times it has an engaging Heath Robinson air. Bits of brick wall stick out into the garden without the intended earth banks behind them; the kind of floodlights used at greyhound tracks are used at pathway level; last-minute windows are punched out to let light into a dark corridor; rainwater pipes are disguised as pilotis; *the doors are curiously stained, very irregular in colour and texture; and parodies of Corbusian tubular skylights invade some of the kitchens. Far from these things being embarrassing or painful, they merely add to the fun. One of three staircases, for example, starts only at first floor level and has to be searched for by the visitor; but this causes no hardship and increases the apparent size of the building. Only the concrete baffle inserted on the second floor street deck to prevent the overlooking of nearby rooms shows real crudity. There is a curious resemblance throughout to another young architect's building, Philip Webb's Red House; not only is the arrangement of rooms, corridor and courtyard the same, but the constant change of levels and improvisation in materials is repeated in a similar mood. This kind of architecture in the hands of weaklings would become mere sloppiness; as it is, its gay inventiveness gives a happy impression of being by students for students.*

N.T.

1, from the south, with the residential block centre, St. Bartholomew's left and Marriott House right

RESIDENTIAL BLOCK, THEOLOGICAL COLLEGE, CHICHESTER



site plan: key 1, residential block 2, St. Bartholomew's 3, future garages 4, Marriott House 5, playing field

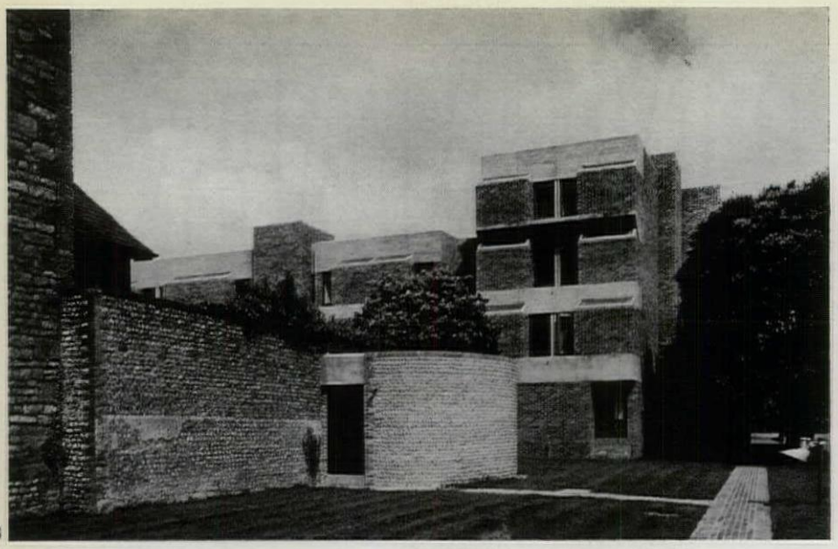
SKYLIT SEMINARY

RESIDENTIAL BLOCK, THEOLOGICAL COLLEGE, CHICHESTER

photographs by John Donat

architects **AHRENDS, BURTON AND KORALEK**

2, view from the south, looking towards the courtyard from the playing field.



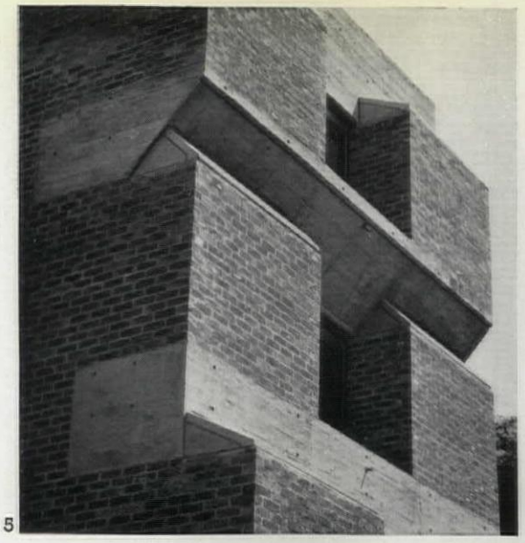
3

The college, founded under Oxford Movement influence in 1838, has lecture rooms, common rooms and some residential accommodation in Marriott House, a large Georgian residence in Westgate. In 1959 the nearby church of St. Bartholomew, a grey stone classical building (1832, by George Draper) was transferred to the college as its chapel. The new block stands astride the pathway between these two previous buildings. Behind it are the backs of houses in Westgate. It faces out to playing fields and the lawns of Marriott House; beyond are the famous Westgate Fields (see AR, September, 1963, page 174), recently altered by the building of a by-pass and a College of Further Education.

The building contains 35 study-bedrooms, three staff flats, a caretaker's flat, and a library and lecture room for use by the whole college. The partially open courtyard and the college-chapel pathway which runs

3, the west side of the building, with St. Bartholomew's on extreme left and the fuel store in the centre. 4, the courtyard, looking east along the paved way to Marriott House.

4



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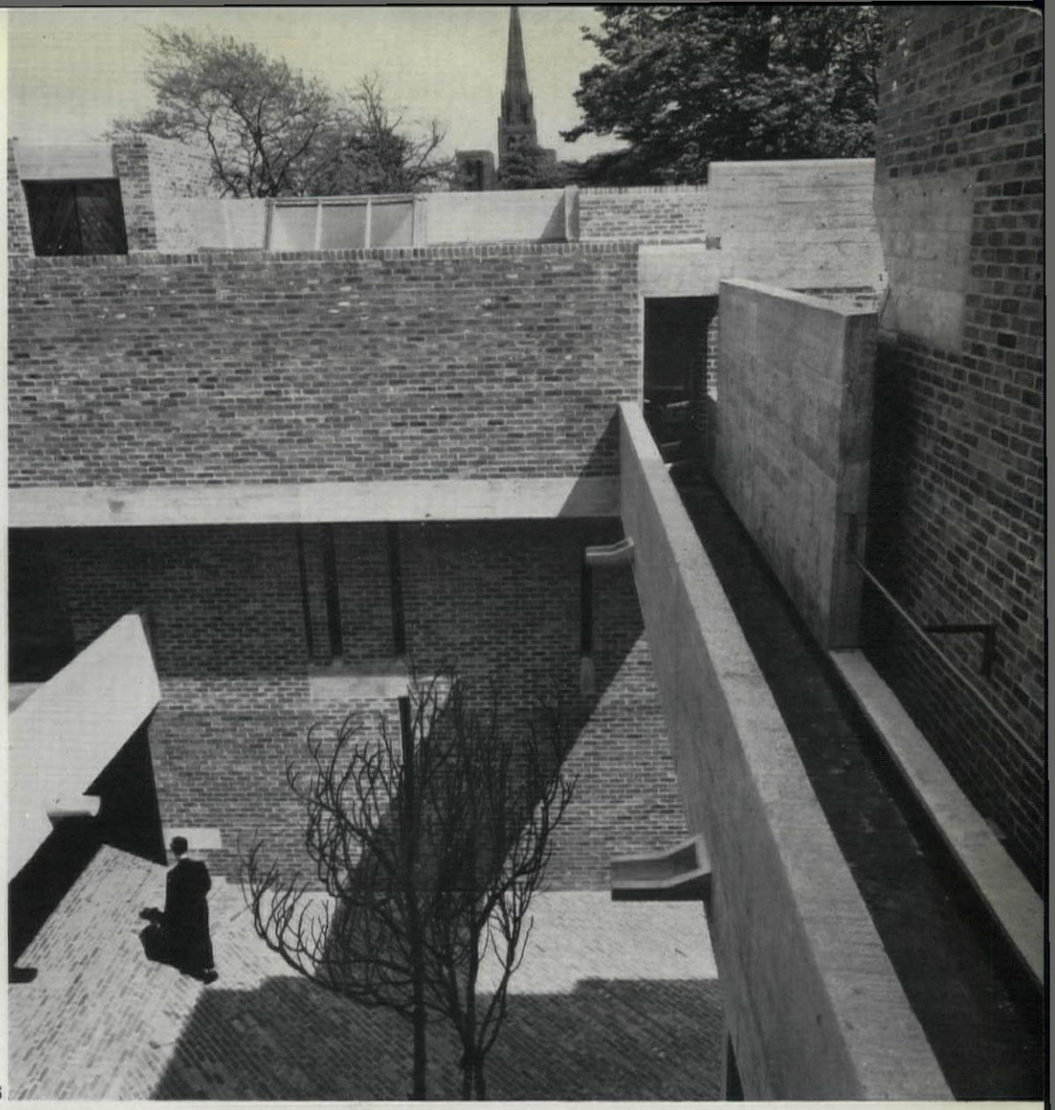
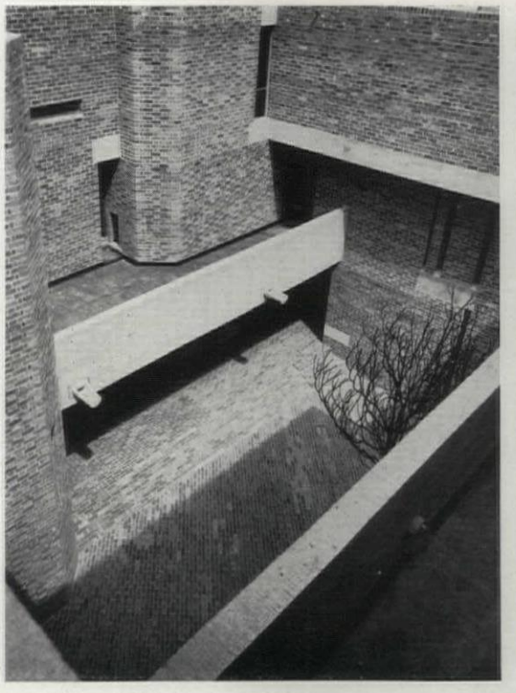


6

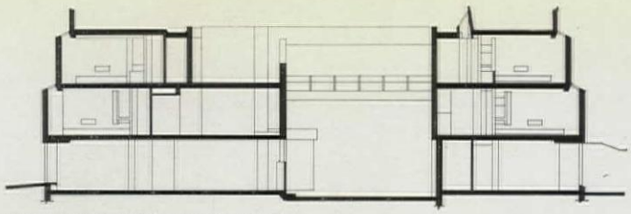
5, detail of study cells and skylights. 6, second floor panorama across courtyard and galleries, with the west front of the cathedral in the distance (much closer in reality than in a photograph). On the right is a concrete baffle inserted to prevent overlooking. The elements of the courtyard are seen clearly from the south-west in 7: brick paving, open galleries, slit-windowed corridors and polygonal stair towers. The interpenetration of the various types of circulation helps to open out the court towards the playing field. 8.



7

8

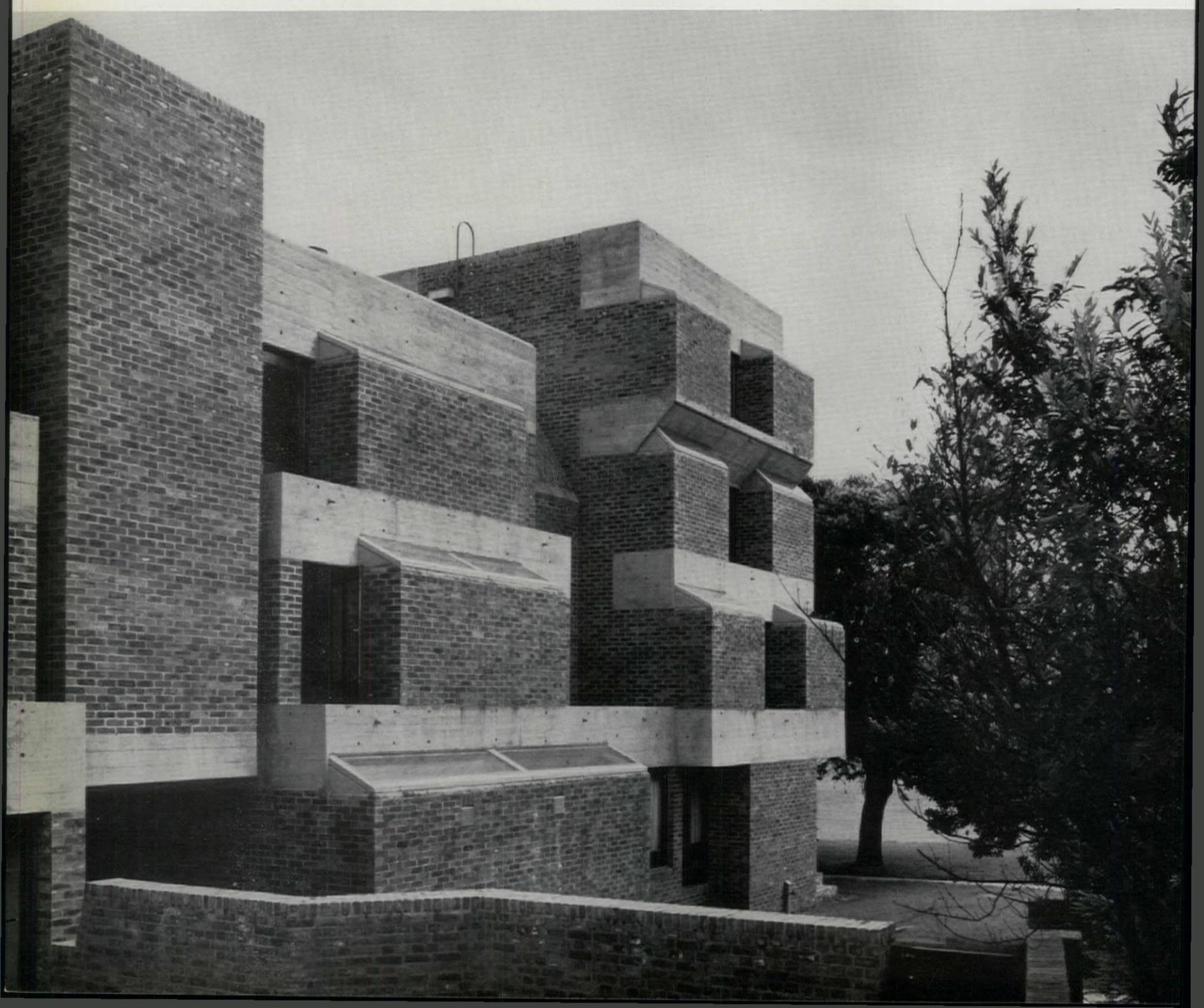
RESIDENTIAL BLOCK, THEOLOGICAL COLLEGE, CHICHESTER

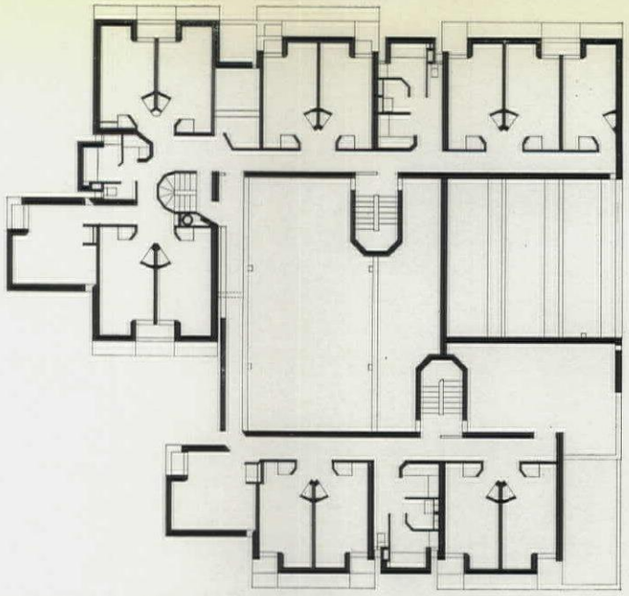


section through study-bedrooms and courtyard

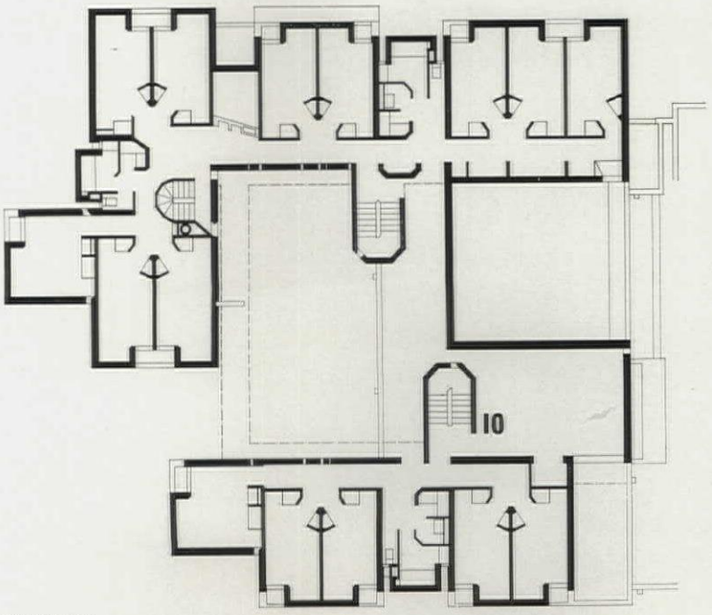
along its north side are both brick-paved. Rooms are arranged looking outwards on the east, south and west sides, with stairs and short lengths of corridor towards the courtyard. Between the two ranges, on the north side, stands the library, partially rooflit, in order to avoid overlooking adjoining property. The book stacks are spaced widely so that several more can be inserted. Above the library is the lecture room, above which again is a brick-paved roof terrace. The four flats occupy the rest of the ground floor. At first and second floor level, bridges are carried across the courtyard. The rooms are in seven groups of five, each group having a kitchen area open to the corridor. A small chapel for morning Mass opens directly from one of the corridors. A semi-circular flint-faced fuel store is attached to St. Bartholomew's churchyard wall. The structure is of loadbearing 6 in. concrete block cross walls, with reinforced concrete floor slabs, rough-shuttered externally. External walls are of cavity construction, faced with brown Wealden stock bricks outside and white-painted concrete blockwork inside, with foam insulation between. The brick paving of the outside circulation areas is bright red in colour. Roofs are generally of timber, with felt and woodwool covering. There is a zinc covering to the library roof, which is wrapped in a polygonal form round 6 ft. high structural baffles and faced internally with white timber boarding. Each room is lit by a concrete toplight over the desk recess and by a softwood casement window alongside. Some also have a small window lighting the built-in shelves at the back of the room. The built-in bed unit is arranged so that the divan mattress can be moved into various positions. Doors are stained orange, red or blue. Assistant architect, Paul Drake. Quantity surveyors, E. C. Harris and Partners. Structural consultants, Felix Samuely and Partners.

9, the west front, through which the pathway from St. Bartholomew's passes beneath the stair tower, left.



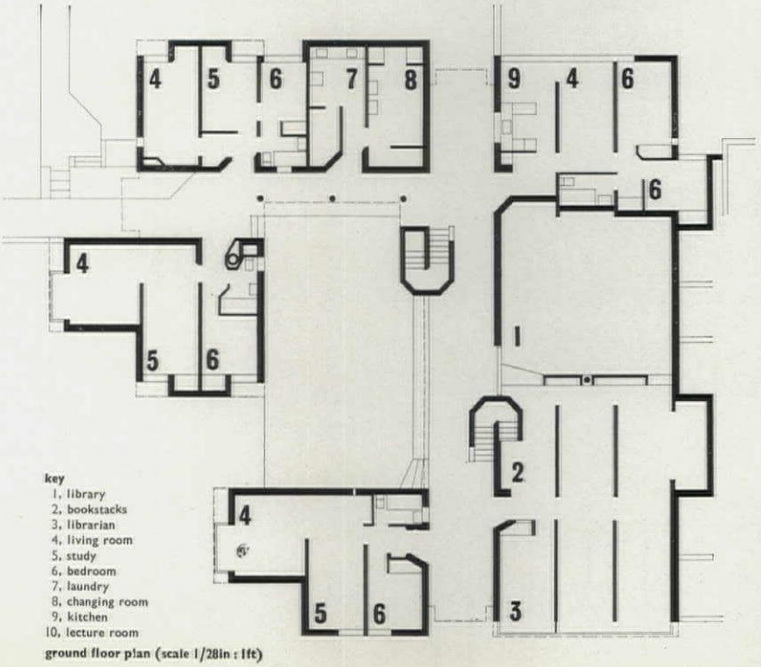


second floor plan (study-bedrooms)



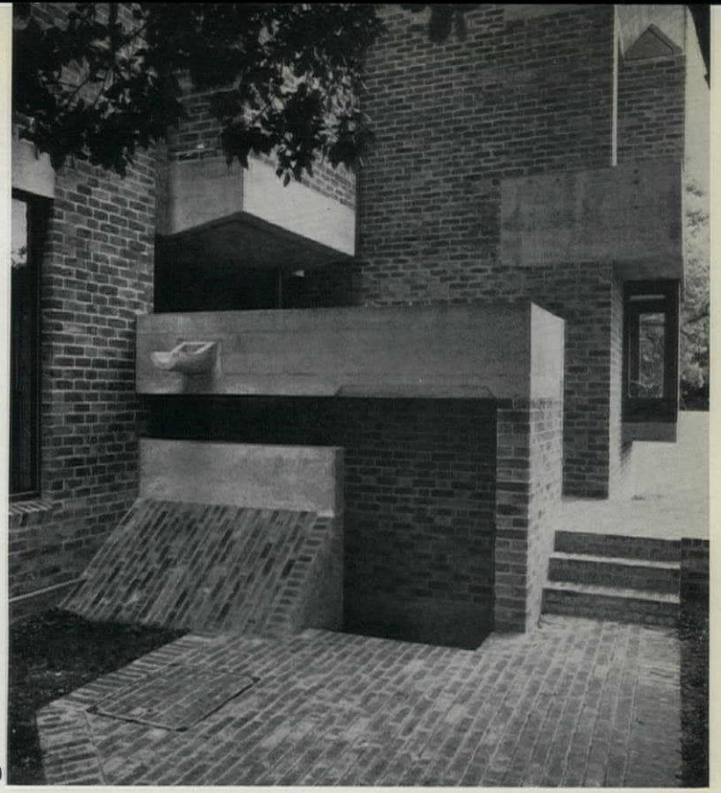
first floor plan

RESIDENTIAL BLOCK, THEOLOGICAL COLLEGE, CHICHESTER



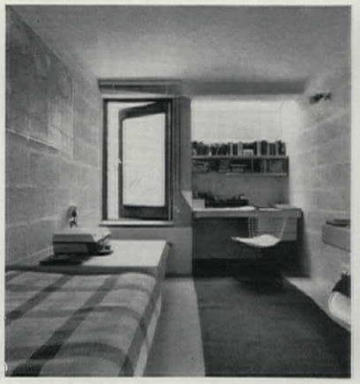
key
1, library
2, bookstacks
3, librarian
4, living room
5, study
6, bedroom
7, laundry
8, changing room
9, kitchen
10, lecture room

ground floor plan (scale 1/28in : 1ft)

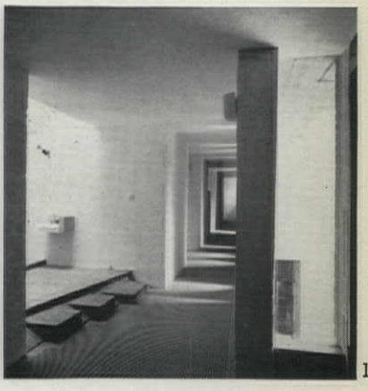


10

10, the boiler room entrance at the south-west corner. 11, a typical bed-sitter, which has two types of window and a flexible divan-storage unit.

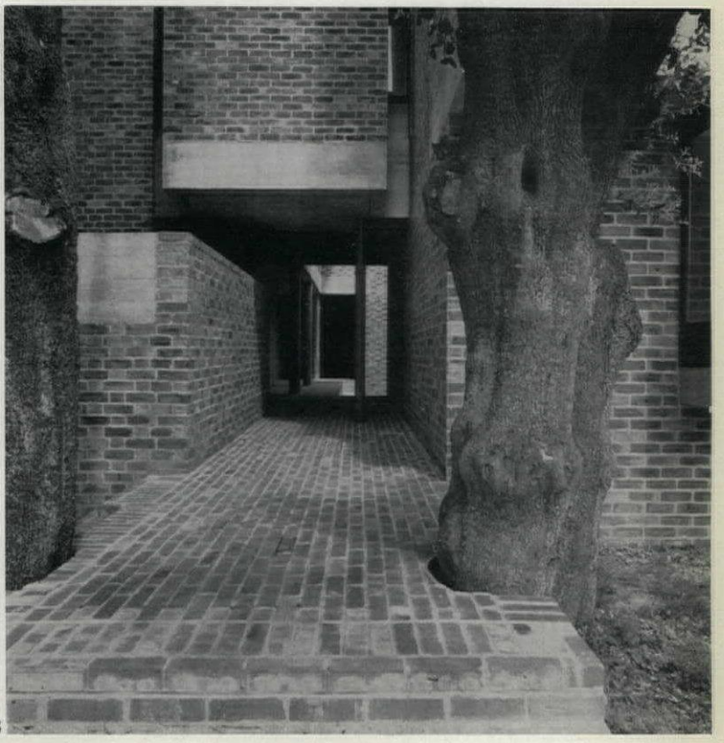


11



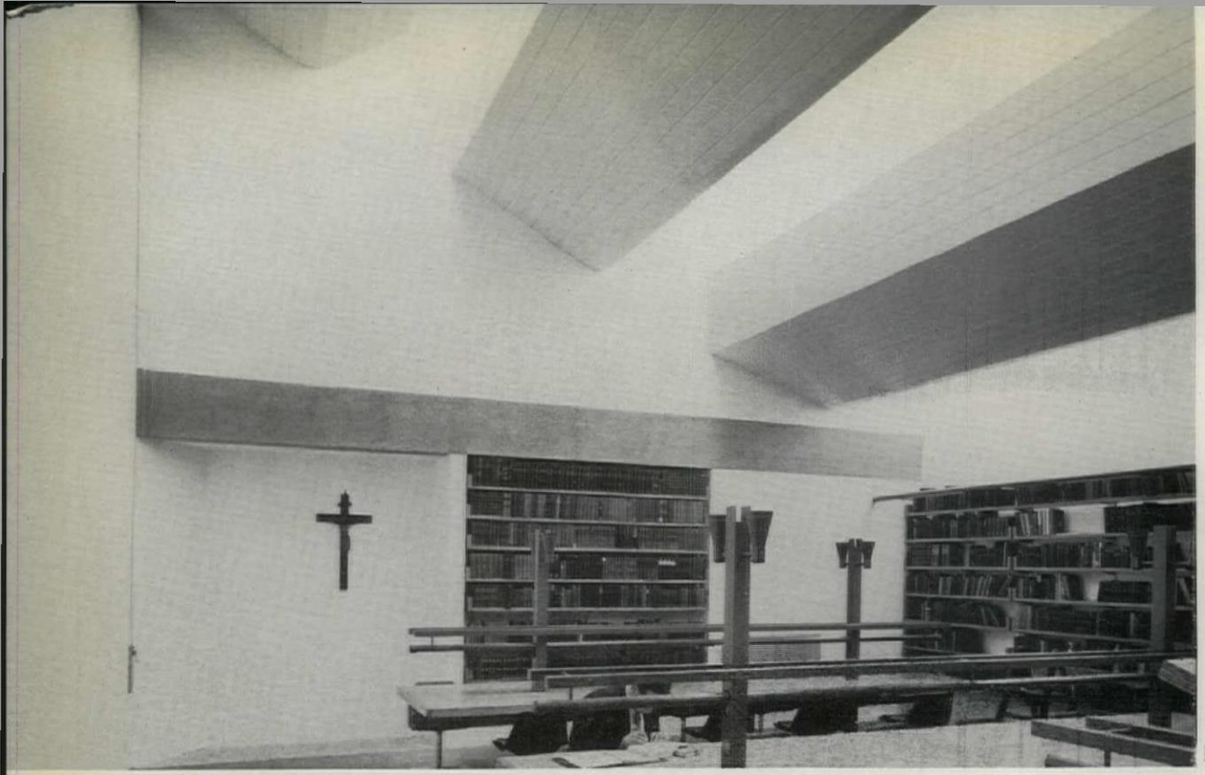
12

The chapel on the first floor opens on to the west corridor, 12, with a view of the courtyard on the right. Below this corridor, a brick-paved cloister forms a secondary axis at right angles to the main Marriott House-chapel route, ending in a jetty towards the playing field, 13.



13

RESIDENTIAL BLOCK, THEOLOGICAL COLLEGE, CHICHESTER



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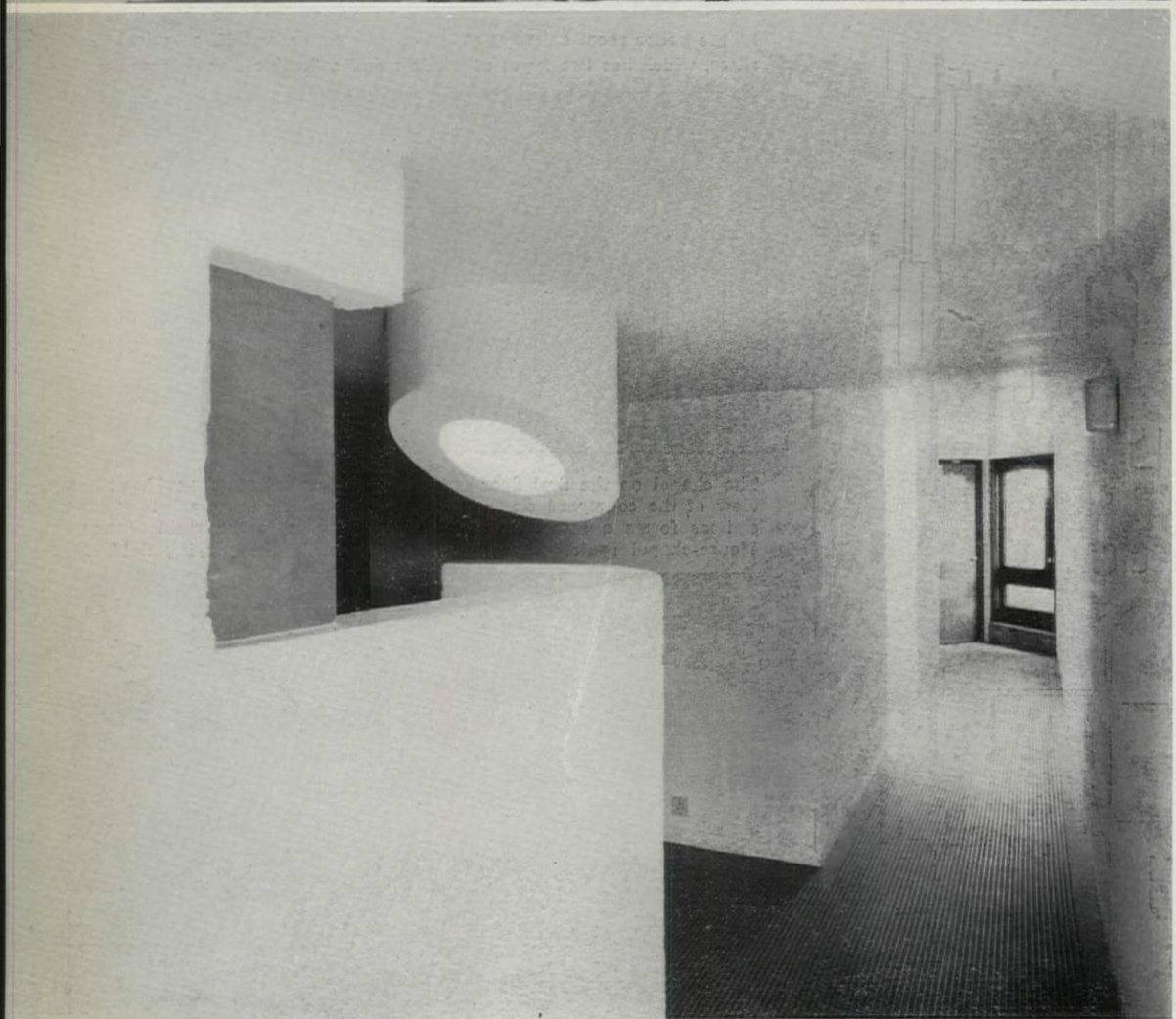
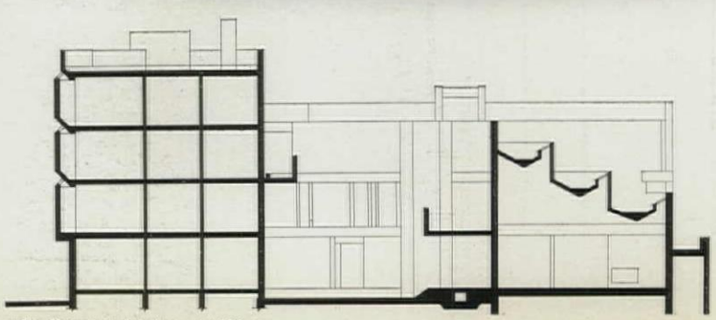


15

14, the rooflit reading area of the library, with concrete block walls and white timber boarding. The lampshades on the standards are temporary. Concrete appears most effectively in the kitchen 'pulpit,' 15, which forms a focus for each group of five rooms and is spotlit on the second floor by a special tubular rooflight. The flooring is of ribbed rubber.



section through study-bedrooms and library

Antony Dale

LISTING AND PRESERVING HISTORIC BUILDINGS: THE EUROPEAN PICTURE

Mr. Dale is Chief Investigator of Historic Buildings at the Ministry of Housing and Local Government. He is naturally interested in the procedure for protecting buildings in other countries and has over several years prepared the material which has gone into the pages to follow. This is the first time such a survey has been made, and in order to make it more valuable for England, Mr. Dale's article is prefaced by a survey made by the Review of the situation in England.

England & Wales

Legislation for the preservation of ancient buildings or their sites in England and Wales began with the Ancient Monuments Protection Act, 1882. This listed 29 monuments, all earthworks, stone circles and the like, of which the most important was Stonehenge. They were set out in the schedule to the Act, whence the term 'scheduling' ancient monuments is derived. The Commissioners of the Board of Works, as the Ministry of Public Building and Works was then called, were empowered to accept by agreement with the owners of these monuments either guardianship or a transfer of ownership, in either of which cases the Commissioners would thenceforward maintain them. Power was given to the Queen, by Order in Council, to add similar monuments to the list, but the term monument was not defined to go beyond the monuments in the schedule to the Act and similar ones of which the Commissioners of Works agreed to accept guardianship.

The matter was carried a little further by the Ancient Monuments Protection Act, 1900, which was intended to cover medieval buildings as well as prehistoric remains. It defined a monument as 'any structure, erection or monument of historic or architectural interest' other than an inhabited dwelling-house, and it empowered the Commissioners to acquire the ownership or guardianship of such monuments by agreement with the owners whenever they thought that their preservation was of public interest by reason of their historical, traditional or artistic interest. This Act led to the first acquisition of buildings as distinct from prehistoric remains: such as Deal Castle in 1904 and Richmond Castle, Yorkshire, in 1910. Prior to the Act of 1900 the Commissioners had already become responsible for the maintenance of certain buildings such as the Jewel House and the Chapter House at Westminster and Carisbrooke Castle in the Isle of Wight, but these were more in the nature of surviving parts of former royal palaces, for which the Board of Works had always been responsible. The Acts of 1882 and 1900 were very limited in scope because they only applied to buildings or sites of such importance that the Government, through the Board of Works, was prepared to accept financial liability for their upkeep. No attempt was made to list ancient monuments in general. The Ancient Monuments Consolidation and Amendment Act, 1913, greatly extended the powers and activities of the Commissioners of Works and was the first really important piece of legislation on the subject. This Act set up advisory boards known as the Ancient Monuments Boards for England, Wales and Scotland, consisting of representatives of various learned bodies. On the advice of these Boards the Commissioners of Works were empowered to prepare and publish a list of monuments whose preservation was considered to be of national importance. The word 'monuments' was defined in such a way as to cover all buildings, remains, or sites of buildings of public interest by reason of their historic, architectural, traditional, artistic or archaeological interest other than inhabited dwelling-houses or ecclesiastical buildings in ecclesiastical use. The owners of buildings or sites so listed were to be informed of the fact that their property had been placed on the Commissioners' list and they were then obliged to give one month's notice of any intention to interfere with it. To prevent demolition or undesirable alteration the Commissioners could make a preservation order placing the monument concerned under their protection and preventing any alteration to it without their consent. Such an order was valid for eighteen months only unless subsequently confirmed by Parliament. The first building or buildings listed by the Commissioners under this Act were the medieval walls and gates of the City of York, which were scheduled on April 1, 1914. The first list of Ancient Monuments was published in 1921 and comprised 139 monuments in England and 70 in Wales.

The Act of 1913 was amended by the Ancient Monuments Act, 1931. This substituted the period of three months' notice of intention to demolish or alter a scheduled Ancient Monument for the previous period prescribed. It prolonged the validity of preservation orders from eighteen to twenty-one months in all cases. After this period confirmation by Parliament was only required where an objection to the order was made. In other cases the order remained in force indefinitely. Power was given for the Commissioners to make excavations. The inclusion of monuments in the Commissioners' list and the making of preservation orders were henceforward to be registered in the Local Land Charges Registry.

The Historic Buildings and Ancient Monuments Act, 1933, simplified the position concerning procedure. It enabled the Minister of Works, who had replaced the former Commissioners of the Board of Works, acting on the advice of the Ancient Monuments Board, to issue an interim preservation notice, valid for twenty-one months, in relation to an ancient monu-

ment threatened with destruction. At the end of that time such a notice would cease to be valid unless a preservation order was substituted for it, and in the event of the owner or occupier objecting to the making of such an order the Minister would hold a public enquiry to decide whether or not an order should be made. Provision was made for the payment of compensation in case of loss sustained by an owner or occupier. But in actual fact, where such cases of opposition arise, more often than not a solution can be reached by excavation being made before the monument is damaged rather than by the payment of compensation.

By 1939 4,000 buildings and remains in England and Wales had been scheduled as Ancient Monuments. The war altered the whole scope of the problem. Aerial bombardment brought widespread destruction of historic buildings. Most of these were in towns and most of them were also inhabited dwelling-houses which could not in any case be scheduled under the Ancient Monuments Acts. Public opinion began to be very concerned about the preservation of this type of building. A provision was therefore inserted in the Town and Country Planning Act, 1944, enabling the newly constituted Minister of Town and Country Planning to prepare, for the guidance of local planning authorities, lists of buildings of special architectural or historic interest. The Town and Country Planning Act, 1944, was repealed by the Town and Country Planning Act, 1947, but the particular section of the older Act dealing with this matter was reinstated in the Act of 1947, and again in the Town and Country Planning Act, 1962. The former Ministry of Town and Country Planning was renamed the Ministry of Housing and Local Government.

The listing of buildings of special architectural or historic interest is still proceeding, and the whole of England and Wales has not yet been investigated. An overwhelming proportion of the buildings listed are of architectural, rather than historic, interest. The term 'special architectural interest' has been interpreted to cover almost all surviving buildings dating from earlier than about 1700 and most significant buildings erected between that date and about 1830. The recent development of interest in Victorian buildings has caused the scope of listing to be extended to cover a limited number of nineteenth or early twentieth-century buildings of definite quality and character. In general these would not be buildings erected later than 1914, though in exceptional circumstances a later building could be included, provided that its architect is no longer living. The listing of nineteenth-century buildings has also brought early industrial monuments within the scope of the Act.

The buildings selected are divided into two lists and three grades. Grades I and II comprise the Statutory List. The difference between the two grades arises from the degree of architectural or historical interest of the buildings concerned. There is no difference in legal effect of the two grades. Grade III buildings comprise the Supplementary List.

Grade I buildings are buildings of such great architectural or historic interest that under no circumstances ought their demolition to be allowed. About 3,360 buildings have so far been listed in Grade I in England and Wales. Grade II buildings, which comprise the main bulk of the Statutory List, are buildings of such quality or interest that they ought not to be destroyed without a compelling reason. About 75,000 buildings have so far been listed in Grade II in England and Wales, and by the time that the whole country has been covered it is likely that the total will reach more than 100,000.

The Supplementary List, or Grade III buildings, comprise either more modest buildings, often of vernacular character, which have a certain but less marked significance, or buildings which, if intact, would qualify for inclusion in Grade II but have been depreciated in quality by subsequent alterations. The number of Grade III buildings so far listed in England and Wales is about 95,000 and is likely to exceed 150,000 when the listing is complete for every area.

The Ministry listing is nearly complete, or would be if there were not about two hundred lists still in a provisional state because of the lack of clerical staff to convert them into statutory and supplementary lists. Some lists have been in a provisional state for eight years. There is also the additional listing, especially for Victorian and Edwardian buildings which has rarely yet been finalized. However, all this is a clerical matter exclusively, and given a substantial increase in clerical staff, the Ministry listing could be in perfect working order in a few years. The situation in official inventorization is much gloomier, as will be shown later on.

In all cases special regard is paid not only to the individual quality of each building but to their relation one to another where these form formal or informal groups. Churches are in a rather special position. They are included for record purposes in the lists, but the legal provisions of the Act do not apply to them as long as they remain in ecclesiastical use. From the moment that they are closed and cease to be in ecclesiastical use the provisions of the Act apply.

Listing in Grade III of ecclesiastical or civil buildings imposes no obligation on the owner or occupier. Such buildings are merely recommended by the Minister to the attention of the local authority. But in the case of buildings listed in Grades I and II a notice is served on the owners and occupiers informing them that they must give the local planning authority two months' notice of any intention to demolish or to alter the buildings in any way that would seriously affect their character. This notice must be passed on by the Local Planning Authority to the Minister of Housing and Local Government who can offer observations thereon during the two months.

At the end of the two months the owner is free to pull the building down unless a building preservation order has been made upon it. This can be made either by a County or County Borough Council, or by a Municipal Borough Council, Urban District Council or Rural District Council as the case may be, or in the case of very important buildings by the Minister himself. No compensation is payable under an order, but if an owner can successfully claim that an order deprives him of reasonable beneficial use of the building, he can compel the local authority concerned to buy it from him; 532 Building Preservation Orders have so far been made on 2,012 buildings.

In the case of alterations to listed buildings the two months' period enables negotiations to be made between the owner and the local authority, as a result of which a satisfactory method of doing the work is sometimes agreed. In the absence of agreement or of the making of a preservation order the owner is free to carry out the work at the end of the two months, if planning permission is not required. If planning permission is required a decision is made by the Local Planning Authority, from which the owner can appeal to the Minister. In Scotland the whole procedure for listing building is similar, but separately administered.

The provisions of the Town and Country Planning Acts relating to listed buildings are largely negative. They can prevent demolition but do not ensure maintenance. In the years succeeding the war it became apparent that some of the larger country houses would become casualties to heavy taxation and high costs of maintenance if

no State aid was available. The Historic Buildings and Ancient Monuments Act, 1953, empowered the Minister of Works to make grants towards the maintenance or repair of buildings of outstanding historic or architectural interest and their contents, and towards the upkeep of any adjoining land, or to acquire them or to assist local authorities to do so. The one condition of such a grant, in addition to the quality of the building, is the right of limited public access. Historic Buildings Councils for England, Wales and Scotland were set up to advise the Minister in the making of such grants. The majority of buildings grant-aided under this Act have been inhabited dwelling-houses, but they are not necessarily so.

The annual contribution by the State for these historic buildings grants is approximately £450,000. In addition the sum spent by the Ministry of Public Building and Works in 1963-4 on the maintenance and repairs of the Ancient Monuments of which the Ministry has accepted ownership or guardianship was £1,065,000. The total number of such Ancient Monuments in their care in England and Wales is at present 408 and the total number scheduled in England and Wales 10,161.

Many buildings listed as of special architectural interest necessarily fail to qualify as being of outstanding interest for the purpose of receiving a grant under this Act. In an attempt to help some of these lesser buildings the Local Authorities (Historic Buildings) Act, 1962, was passed, which empowered all Local Authorities to make grants or loans to buildings of architectural or historic interest. In the case of buildings not included in the Minister of Housing and Local Government's Statutory List the consent of that Minister is required but not for buildings statutorily listed.

The power of the Minister of Public Building and Works to make grants to buildings of outstanding architectural interest is limited to secular buildings, but local authorities can make grants to churches under the 1962 Act, though they have not done so in very many cases. A bill is in the course of preparation to provide for grants from both State and Church funds for the maintenance and repair of redundant churches of architectural interest.

The measures so far described are the Government's limit in positive or negative steps towards the preservation of historic buildings. But in addition the Government finances Royal Commissions of Historical or Ancient Monuments in England, Wales and Scotland whose function it is to record the ancient and historical monuments of the three countries from the earliest times until, at first, 1714; which date was recently extended until 1855. Their work is exceedingly slow, and after sixty years of operation, they have only completed 12, or at the utmost 15 per cent of their task. But the part played by private or voluntary action in the cultivation of the arts in England having generally been as important as governmental action, if not more so, this is not the whole of the picture. Various non-governmental bodies have a considerable influence over the preservation of historic buildings. The most important of these is the National Trust for places of Historic Interest or Natural Beauty, which was founded in 1894. Its objects are the preservation for the benefit of the nation of lands and buildings of beauty or historic interest. The Trust is now the largest landowner in the country. It has acquired, mostly by gift or testamentary bequest, a considerable number of historic houses which are open to public inspection. Some of these are still occupied by the families of the donors. Others are partly or wholly let. The Treasury can also accept either land or an historic house towards the payment of death duties. These are then handed to the National Trust for administration.

A certain number of other learned bodies such as County Archaeological Societies also own and administer other, mostly rather smaller, historic buildings such as the remains of castles or abbeys. Others are in the ownership and administration of local authorities.

The oldest of the societies formed expressly for the preservation of buildings, as distinct from land, is the Society for the Protection of Ancient Buildings, which was founded by William Morris in 1877. Its original purpose was perhaps more to protect buildings from unwise and excessive restoration than to prevent demolition. But in recent years it has become the most active body concerned in private operations to save ancient buildings from demolition both by public propaganda and by giving advice on the manner of restoration and possible adaptation to other uses. The Georgian Group was an offshoot from the Society for the Protection of Ancient Buildings, founded in 1937. It concerns itself with buildings dating from the Elizabethan to the early Victorian period and is a no less vigorous champion of these than the SPAB is of those of the earlier dates.

Both societies have now been complemented by the recent formation of the Victorian Society which fulfils the same purpose with regard to Victorian and Edwardian buildings and has in the last two or three years made striking progress in reducing public prejudices. Other societies active in the field of preservation are the Ancient Monuments Society and the Council of British Archaeology which acts as the co-ordinator of all local archaeological societies.

These are all national societies operating throughout the country. But in addition there are now over five hundred local preservation or civic societies interested in the preservation of the character, amenities or historic buildings of areas which may vary in size from a village to a large borough or county. These societies express the informed public opinion for their areas on matters affecting their visual and other amenities, including historic buildings. The most recent addition to the number of national bodies concerned with matters of amenity is the Civic Trust, which was founded in 1957. Its principal objects are to encourage high quality in architecture and planning and to eliminate ugliness. But its activities also include the preservation of buildings of artistic distinction or historic interest and the protection of the beauties of the countryside. It acts as the co-ordinator of local preservation societies, more than five hundred of which are registered with the Civic Trust.

The Ancient Monuments Acts of the United Kingdom and the provisions of the Town and Country Planning Acts relating to the listing of buildings of special architectural or historic interest do not apply to Northern Ireland (or to the Isle of Man and the Channel Islands). Northern Ireland however has its own Ancient Monuments Acts. These Acts give the Minister of Finance power to schedule buildings of archaeological or historic interest, as the result of which owners must give notice of their intention to demolish or alter the buildings. But the provisions do not enable the Minister to prevent private owners from interfering with such buildings for more than a few weeks. The only way by which the Minister can prevent demolition or injudicious alterations is by the State acquiring the buildings. 172 monuments have been scheduled, of which 67 have been so acquired by the State and 105 are in private ownership.

Since 1940 a survey of the ancient monuments of Northern Ireland has been in process. But this has no statutory significance and is somewhat similar to the survey being undertaken by the Royal Commissions of Historical or Ancient Monuments in England, Wales and Scotland. A similar survey is also being made separately of the early industrial monuments in the Six Counties.

LISTING AND PRESERVING HISTORIC BUILDINGS: THE EUROPEAN PICTURE

Eire

In Eire the position as regards historic buildings is governed by the National Monuments Acts of 1930 and 1954, which are somewhat similar to the Ancient Monuments Acts of Great Britain. National monuments are defined as buildings or remains whose preservation is a matter of national importance by reason of their historical, architectural, traditional, artistic or archaeological interest. But, as in Great Britain, inhabited houses or ecclesiastical buildings in ecclesiastical use are excluded. Most of the monuments listed are the ruins of castles or abbeys and earthworks.

The owners of listed monuments must give two months' notice of any intention to demolish or alter them. This enables the Minister of Finance to make a preservation order which entrusts the preservation of a threatened monument to the Commissioners of Public Works. Alternatively the Commissioners can assume guardianship or acquire the ownership of national monuments. But they cannot contribute towards their maintenance unless they have assumed guardianship or become the owners thereof.

France

France was the first country in Europe to embark on measures for the protection of her historic buildings and remains. Her legislation on the subject today is also the most extensive. The first list of historic monuments was drawn up in 1840, but it was not until 1853, under the supervision of Prosper Merimée, that the department now known as the Direction de l'Architecture in the Ministère des Affaires Culturelles (formerly the Ministère des Beaux Arts) was founded. The present legislation dates from 1913, with certain more recent modifications.

The Minister, acting on the advice of the Commission des Monuments Historiques, is empowered to designate buildings in two categories: *monuments classés* and *monuments inscrits*. *Monuments classés* can comprise the whole or part of any building or land of public interest from the point of view of history or art. *Monuments inscrits* are buildings or land of less importance than the former but which nevertheless have sufficient archaeological interest to render their preservation desirable. In either case the restrictions imposed cover not only the buildings or land designated but also the field of visibility round them to the maximum extent of 500 yards.

The owners of the buildings concerned are informed of the designation, and this is also entered in the land charges register. The designation of a building as a *monument classé* gives the owner a right to a contribution from the State towards its upkeep. The matter is usually settled by a private negotiation between the owner and the Minister which provides the extent of the listing, the amount of the subvention and, in some cases but not invariably, a right of public access. A building can also be classified by agreement at the request of the owner. But in the event of the owner not being willing to accept classification of his building he can appeal to the Conseil d'Etat, which decides the matter. Alternatively, the owner can claim compensation for any inconvenience caused by the classification, the amount of which is fixed by a *juge de paix*. No work of restoration, alteration, or demolition of or addition to a *monument classé* can be made without the Minister's consent. When permission is given, the work must be carried out under the supervision of the Minister's own architects, or by the Minister's own staff at the State's expense.

In the case of *monuments inscrits*, the consent of the owner to the designation is not required, and there is no appeal. The only obligation imposed is for the owner to give the Minister four months' notice of any proposed modification of the building. If the Minister objects to the nature of this, the only method for him to prevent it is for the building in question to be transferred to the list of *monuments classés* under the ordinary procedure. But the State can contribute up to 40 per cent of the cost of upkeep of *monuments inscrits*.

Under these provisions about 11,000 buildings have been designated as *monuments classés* and about 15,000 as *monuments inscrits* and their number is still being added to yearly.

In addition to this legislation affecting buildings, a law of 1930, replacing an earlier law of 1906, set up in each department a Commission des Sites, Perspectives et Paysages, together with a Commission Supérieure in Paris, to prepare lists of natural monuments and sites whose preservation is of public interest from the artistic, historic, scientific, legendary or picturesque point of view. Owners of the land concerned are notified of the listing and then have to give four months' notice of any intention to carry out work that would affect the appearance of the monument or site. The exact scope of the obligation imposed is usually settled by agreement. But in the event of an owner disputing the classification by a departmental *Commission des sites* he can appeal to the Commission Supérieure and thence to the Conseil d'Etat. Alternatively he can claim compensation for any loss resulting from the classification.

A protection zone round a monument or site listed can also be established in which major works are forbidden without the consent of the Minister for Cultural Affairs. The foregoing legislation concerns only single buildings, and until 1962 no procedure existed for the protection of ancient towns or villages as a whole. In that year a special law was passed for 'the protection of the historical and aesthetic heritage of France.' It is sometimes called the Malraux Law because its passing was due to M. André Malraux, the Minister for Cultural Affairs. This created a Commission Nationale des Secteurs Sauvegardés with a view to preserving the general atmosphere of the towns and villages which are the principal architectural inheritance of the country. The legislation aims at substituting a positive approach to the problem for the negative restrictions affecting individual buildings. It is hoped in due course to apply the procedure to about 1,000 historic towns and villages, but pilot projects are to be made on fourteen places: the Marais sector of Paris, Aix-en-Provence, Avignon, Besançon, Bourges, Chartres, Clermont-Ferrand, Lyon, Pézenas, Rouen, Sarlat, Saumur, Troyes and Uzès.

On the advice of the Commission Nationale des Secteurs Sauvegardés, the Minister of Cultural Affairs and the Minister of Construction, who deals with ordinary cases of urban renewal, can designate a 'protected area' in any town or village when its historical or aesthetic character justifies the preservation, restoration and rehabilitation of all or some of its buildings. This will take into account the historic, archaeological, artistic and picturesque elements of the place. The local authority will be consulted beforehand and the designation will normally be made with their agreement, but, in default of this, the division can be made by a decree of the Conseil d'Etat.

After classification of the area in any town which is to be preserved the Ministries concerned have two years to prepare a plan for that area. During this period no new buildings may be erected or existing ones altered or demolished without the consent of the Direction de l'Architecture in the Ministry of Cultural Affairs. The plan for the area will be made by an architect chosen by the local authority in agreement with the two Ministries. But the requirements for the preservation of individual buildings and their setting will be laid down by the Minister of Cultural Affairs. In its final form the plan will be approved by the Commission Nationale des Secteurs Sauvegardés. The Mayor of each Commission affected has the right to attend the Commission's sittings in an advisory capacity.

The plan will comprise not only such provisions for urban renewal and general planning as affect all towns, but also a special architectural directive. This will include a detailed survey of the town's architectural features and of the condition of existing buildings and their setting. It will specify which buildings or parts thereof should be preserved and which demolished and will provide details of the restoration to be executed and of the improvement required for the surroundings of the buildings to be retained. All new buildings must conform with the scale and volume of the existing buildings. The provisions of the plan will not affect individual *monuments classés* or *inscrits* or sites already listed, but the advice of the Commission des Monuments Historiques can be previously sought about the former. After the adoption of the plan, the supervision of the historical and aesthetic character of the area will pass to the Direction de l'Architecture of the Ministry of Cultural Affairs, whose consent will be required for the erection of new buildings and the alteration of existing ones. The procedure affecting individual *monuments classés* or *inscrits* will remain unaltered.

It is recognized that almost all the old towns and villages of France contain buildings whose owners could not afford the cost of extensive restoration. The law therefore contains unusual financial provisions, together with compulsory powers of acquisition and eviction. In ordinary towns the funds provided by the State for urban renewal are applied to the demolition of sub-standard houses and their replacement by new dwellings. In the designated areas of the selected historic towns these funds will be used for the restoration of such buildings. Owners will be able to claim assistance up to 80 per cent of the total cost of restoration, consisting of medium and long term loans to the value of 60 per cent and a possible subsidy of 20 per cent. If the owners are unable or unwilling to co-operate to the extent of the remaining 20 per cent they can be expropriated by agreement or, if necessary, compulsion.

Buildings acquired in this manner form a collective enterprise undertaken on communal initiative. They are acquired by mixed economy groups consisting of representatives of the local authority, local preservation bodies, chambers of commerce and banks. Once the restoration has been completed the owner can resume his ownership on payment of the proportion of cost due from him. Failing this, the building will be sold, again with a right of option to the previous owner. Tenants can likewise be evicted on six months' notice for the execution of the necessary restoration, and will be found temporary accommodation elsewhere. On completion of the work they have the right to return, but if they are unable to pay the increased rent to which the improvements have given rise, permanent alternative accommodation will be found for them. This is more difficult in villages than in towns, and in these cases it is a part of the enterprise for the State to aim at creating new kinds of activity which would raise the standard of living of the old tenants and thus enable them to pay the increased rents due from the restored buildings.

Belgium

The preservation of monuments and sites of national interest derives from a law of 1931 operated by the Ministry of Science and Arts, acting on the advice of the Commission Royale des Monuments et des Sites. The listing of buildings of national importance either from the point of view of historic, artistic or scientific interest can be initiated either by the Commission itself or by the local authority. All proposals for listing are notified to the owners and other interested parties such as mortgagees, who have a period of three months in which to register objection. The local authority is also notified. The Commission Royale and the Ministry of Finance are consulted.

If the Commission's recommendation is favourable, the decision is made by royal decree which is registered in the land charges register. This can cover the whole or only part of the building, and must specify the proportion of the cost of maintenance to be borne by the State, the Province and the Commune respectively; the State's proportion being never less than that of the commune. If the owner subsequently fails to carry out the necessary repairs, the State can have these executed and claim reimbursement from him, but a private owner can, in lieu of carrying out the necessary repairs, serve a compulsory purchase notice on the State. No alteration to a listed building can be carried out without one month's notice, during which period the Commission Royale and the local authority are consulted. If such alterations form a serious threat to the building the State can, on the advice of the Commission Royale, acquire the building.

Holland

A department of Arts and Science within the Ministry of the Interior was formed in 1875, but the first list of historic monuments was not compiled until 1908. The present law dates from 1961. This empowers the Minister of Education, Arts and Sciences, acting on the advice of the State Commission for the Care of Monuments, to list sites, buildings or objects not less than fifty years old which are of public interest because of their artistic, scientific or folkloric value, or their historical association. The lists are submitted to the local authorities for their observations and the latter can request that proposed buildings are omitted from a list. The Minister has complete discretion to accept or reject such requests. The owners of the monuments concerned can make similar objections, but these are heard by the courts.

About half the country has so far been covered, and the Minister has announced his intentions in the case of 18,000 buildings. Some of the objections remain to be heard, and these may reduce the number of buildings listed by about 10 per cent. It is calculated that the total number of listed buildings for the whole country is likely to be about 35,000.

Demolition, alteration or repair of a listed building is not permitted without the permission of the Minister of Education. Restoration conducted with the Minister's approval can be carried out by private architects chosen by the owners, but is subject to supervision by the State Service for the Care of Monuments.

The listing of a building enables the owner to obtain a subsidy for its maintenance varying in amount according to the means of the owner and the importance of the building concerned, but normally in the nature of 40–60 per cent from the State and 10–15 per cent from the provincial or municipal authority. The State budget provides an annual sum of 10,000,000 guilders for the purpose of these subsidies.

The law has a special provision of importance which enables the Minister to list town and village views comprising groups of immovable objects including trees, roads, streets, squares, bridges, canals, waterways and ditches which, in conjunction with one or more of the monuments belonging to the group, constitute a picture of public interest because of the beauty or character of the whole.

Denmark

The Danish legislation dates from 1918 and arose out of the formation of the Society for the Preservation of Ancient Buildings in 1907. The Ministry of Education, acting on the advice of the *Saerlige Bygningssyn* (Historic Buildings Council), was empowered to compile a list of secular buildings of artistic or historic value which are as a rule more than a hundred years old. The list is revised every five years and suggestions for inclusion can be made by private individuals or societies.

The buildings listed are divided into two categories: Grade A, buildings of such great artistic or historic interest that their loss, mutilation, or neglect would be a national loss; and Grade B, buildings of slightly lesser value but whose preservation is nevertheless of importance. Owners are notified of the listing, but there is no right of objection. The Local Authority is also informed and the listing is registered in the land charges register. Owners must give six months' notice of intention to demolish buildings in either section of the list, during which period the Ministry can acquire the building compulsorily. When alterations are proposed the owner must give eight weeks' notice. The Historic Buildings Council can refuse permission for these to be carried out to Grade A buildings, and if the Council requires the work to be done in a manner involving greater expense to the owner, the extra cost is reimbursed to the owner by the State. In the case of Grade B buildings the Historic Buildings Council can only offer advice as to the manner in which the alterations should be carried out but cannot compel the owner to take it. No general contribution for the maintenance of listed buildings is made except in very outstanding cases, where the means of the owner justifies this and he agrees to the building being supervised by the National Museum. But listed buildings are wholly or partially immune from rates.

Up to date, 562 buildings have been listed in Grade A and 1,738 in Grade B. In 1962 a third classification, Grade C, was introduced. This has no legal significance but is intended for the guidance of the local planning authorities.

Copenhagen has a special position since 638 of the total of 2,300 buildings listed in Denmark are within the old city. The City Reconditioning Act of 1962 set out a plan for the restoration of the area known as Christianshavn, where most of these are situated. The majority of the buildings which it contains date from the eighteenth century. The proposal is to remove unsuitable buildings of later date and to restore the largely residential character of the area. The Corporation of Copenhagen is also empowered to expropriate properties graded C, if their owners fail to maintain them.

Norway

Norwegian law on the subject of historic buildings is based on that of Denmark and was passed two years later (1920). The Minister of Church and Education, acting on the advice of an Historic Buildings

LISTING AND PRESERVING HISTORIC BUILDINGS: THE EUROPEAN PICTURE

Council, was authorized by it to compile a list of secular buildings more than a hundred years old whose destruction or decay would entail a great loss to the national cultural heritage. This list is revised every five years. The Local Authority and the owners are informed, but there is no right of appeal. The listing is registered in the land charges register. Owners must give six months' notice of their intention to demolish a listed building, and if the Minister, acting on the advice of the Historic Buildings Council, is not prepared to give permission for this to be done, he must acquire the building, if necessary compulsorily, within this period. For alterations eight weeks' notice is required, and if the Historic Buildings Council requires the work to be done in a manner involving extra expense to the owner, the State must contribute the extra amount in whole or in part.

There is a provision for the State to make a contribution towards the repair of a listed building, if the special economic circumstances of the owner justify this and if he places the building under the supervision of the State antiquarian service. But if the owner fails to keep a listed building in proper repair, the Minister can compel him to do so, with or without a contribution from the State. The law also provides for income tax relief on maintenance and repair costs, instead of immunity from rates, as is the case in Denmark.

Sweden

In Sweden the preservation of buildings of historic interest relates mostly to those in State ownership, but there is a law dating from 1960 (replacing one of 1942) which deals with historic buildings in private ownership. It empowers the Director General of the Central Office and of the Museum of National Antiquities, after consultation with the Board of Works, the Nordic Museum and Local Authorities, to draw up a list of secular buildings of architectural or historic interest and to make arrangements for their maintenance. The provisions can extend to the surroundings of the buildings. The owners are notified of the listing and can appeal to the Ministry of Education. The listing is registered in the land charges register. Owners must obtain permission before they carry out any alteration to listed buildings. If they neglect to carry out the repairs prescribed, the work can be done by the local authority and the cost reclaimed from the owners. But if the value of the building is reduced by the listing, the owner can claim compensation. Up to 1964, 113 buildings had been so listed.

Germany

West Germany is a federal state but there is no federal legislation concerning historic monuments. Their protection derives either from the laws of the old kingdoms, duchies and cities of Germany or from new legislation passed by the *Länder* of which the present federation is composed.

In Bavaria for instance the position is governed by a law of 1908 made by the old Kingdom of Bavaria. This set up a Landesamt für Denkmalpflege (Office for the Protection of Monuments) under the auspices of the Bayerisches Staatsministerium für Unterricht and Kultur (Ministry of Education and Culture). This department was authorized to list monuments of artistic or historic interest or sites of natural beauty. The survey of the *Land* is not yet complete, but it is thought that, when completed, this will include about 21,000 monuments. Permission of the Landesamt für Denkmalpflege is required before any listed monument can be demolished, altered or sold, or the site excavated.

A similar situation obtains in the *Land* of Nordrhein-Westfalen, where the survey of monuments by the Kulturminister is not yet completed. But between 14,000 and 15,000 monuments are already subject to protection.

The law in the *Land* of Hamburg dates from 1920. A similar Denkmalschutzamt, advised by a council of twelve experts, is empowered to list monuments, earthworks or movable objects of public interest on account of their importance to general history or art history, together with other surroundings. 499 monuments or earthworks have so far been listed. These cannot be altered or removed, or their surroundings built on or altered, without the consent of the Denkmalschutzamt which must give its decision within a period of four months. The *Land* can also acquire a listed monument if this is necessary for its protection.

The only *Land* which has embarked upon legislation since the war is Schleswig-Holstein. Unlike the other *Länder* of Germany and most other European countries, this brings the local authority into the picture. The law of 1958 empowers the local authority in the first instance to take action for the preservation of historic monuments, subject to the Landesamt für Denkmalpflege and the Landesamt für Vor und Frühgeschichte in the case of prehistoric and early remains. Both Landesamts are in turn subject to the directions of the Kulturminister. Monuments are defined as things of past times whose preservation is of public interest on account of their historical, scientific or artistic interest. The Landesamts appoint honorary officers to advise the local authorities and are themselves advised by a Denkmalrat or council of nine members nominated by representative learned bodies in the country. All appeals are addressed to the Denkmalrat. The consent of the local authority is required for the repair, alteration or destruction of a listed monument, or the alteration of its surroundings. Alienation must be notified to them. Listed monuments can be appropriated, against compensation, for their necessary protection or that of their surroundings.

As the passing of the Act is so recent, the survey of monuments in Schleswig-Holstein is nothing like complete. But it is evidently not the intention to cast the net as widely as in Bavaria and Nordrhein-Westfalen, since the estimate of the number of monuments that are likely to be listed when the whole of the *Land* has been surveyed is between 1,000 and 1,400.

In Baden-Württemberg legislation exists for the protection of areas of natural beauty but not for historic buildings or archaeological sites, except in South Baden. But as the constitution of the *Land* authorized the passing of legislation for the protection of cultural monuments, a law is in process of being framed somewhat on the model of that of Schleswig-Holstein. Even in the *Länder* which, like the Rhineland, have no law on the subject, money is in fact voted each year for the preservation of historic monuments and, with this, buildings of architectural or historic interest are acquired or restored.

Austria

Austria is also a federal country. But, unlike Germany, her law on the subject of historic monuments is federal legislation dating from 1923. This established a Bundesdenkmalamt to designate monuments and objects of historic, artistic or cultural significance whose preservation was in the public interest. An unusual provision is that this automatically includes all buildings in public ownership, unless they are expressly excepted from the provisions of the law at the request of the owners. Moreover public ownership is so widely defined as to include ownership not only by the State and by any *Land* (i.e. province or county), but also by other public corporations or institutions including religious bodies. An appeal against the designation of a monument can be made to the Minister of Education.

Once a monument has been designated, its destruction or sale, or any alteration to it which would affect its traditional or artistic appearance, requires the consent of the Bundesdenkmalamt. At the latter's request the local authority

can forbid the erection of signs and other advertisements in the surroundings of a listed monument. (Any contravention of the law in 1923, when the Austrian currency was much inflated, gave rise to a fine of a million Krönen!) About 3,000 buildings in private occupation have been listed since the law came into force. There is no obligation concerning maintenance; neither does the State contribute towards this, apart from an occasional token grant for the preservation of an individual feature like a statue. But the *Länder* on the other hand do make substantial grants towards the maintenance of buildings in private ownership, and in this context private ownership can include some institutions like religious foundations which were considered to be public institutions for the purpose of listing their buildings. The monastery of St. Florian in Upper Austria, for instance, receives about a million Austrian shillings a year from the *Land* of Upper Austria.

Switzerland

Switzerland is another federal country. Under its law the preservation of historic buildings is primarily the responsibility of the Cantons. All of these have legislation on the subject with roughly similar provisions. Most of this legislation dates from 1911 but some is later. Each Canton has a Commission des Monuments Historiques staffed by one or more professional archaeologists. This body can, on its own initiative or after reference to the Conseil d'Etat, designate monuments of historical, artistic or scientific interest. The owners are informed and can oppose the designation both before the Conseil d'Etat and, on appeal, in the ordinary civil courts. If the designation is confirmed the owner of a classified monument cannot demolish, alter, sell or mortgage the building without the consent of the Commission des Monuments Historiques or, in some cases, of the Conseil d'Etat acting on the advice of the Commission. On a sale the Canton has the right of pre-emption at a price fixed by arbitration. The owner must also keep designated monuments in repair, but the Canton can contribute towards their upkeep in proportion to the importance of the monument and the financial circumstances of the owner. The Canton can also proceed to expropriation in the event of the repair of a monument being neglected.

There is no federal legislation imposing any restrictions on historic buildings in private ownership, but since 1958 the Federal Government has spent 1,500,000 francs a year on the preservation of monuments of archaeological, artistic or historical importance (including churches), either by restoration or excavation, and in exceptional circumstances by State acquisition. A Commission Fédérale des Monuments Historiques controls the matter.

State aid is arranged through the Canton. The owner must first solicit cantonal help and the Cantonal Government must take the responsibility of approaching the Federal Government. The latter will only join in on the condition that the Cantonal Government also contributes. If the Federal Government does make a grant it will give 25 per cent of the cost of the work needed on account of the archaeological, artistic or historical value of the building in the case of monuments of local importance, 35 per cent in the case of those of regional importance and 50–60 per cent in the case of those of national interest; 893 buildings had received federal grants up till the end of 1963. Many of these were churches. The owner must agree to carry out the restoration or repair under the supervision of the Commission Fédérale and not to undertake further alterations without the consent of the Commission. He is henceforward under the obligation to maintain the building and must allow reasonable public access to it. A federal law of 1961 authorized the State to acquire by agreement, or if necessary by expropriation, nature reserves, sites of significant historical interest or monuments of national importance or to make financial contributions towards their preservation.

Portugal

The Portuguese legislation is akin to that of France in some respects. The Ministry of Public Buildings contains an Historic Buildings Department with a special council of experts to advise the Minister on this subject. He is empowered to classify buildings of great architural or historic interest either as (*a*) national monuments or (*b*) edifices of public interest. There is no difference in the legal effects of the two categories, only in the degree of importance attached to the buildings by the Ministry.

The majority of the monuments or edifices classified are either churches or castles. They are also in most cases in public ownership and therefore maintainable by the State. But a building in private ownership can be classified subject to the owner's consent. Except in very unusual circumstances of financial hardship, no grants are made to private owners. No power exists to list a building in private ownership against the wishes of the owner unless the State is prepared to acquire the building compulsorily. Once a building, whether in public or private ownership, has been classified, no alteration to it can be made without the consent of the Historic Buildings Department. This also applies to the surroundings of a building listed, up to whatever distance may be specified by the Minister. This is always a minimum of 50 yards but can be much more in the case of a formal garden layout surrounding a classical building.

During the last 18 years the Historic Buildings Department has also undertaken the same sort of exercise concerning whole towns and districts of special historic character as France has recently undertaken under the Malraux law. This has so far been applied to five small hillside fortified towns of medieval origin, of which Obidos was the first; to two districts of Lisbon, and to one district of Oporto. The other four small towns are Almeida (a fortress besieged and taken by Wellington during the Peninsular War), Marvào, Mansaras and Valencia de Minho.

Once a town or district has been adopted by the Minister for such special treatment, no external alteration of any kind within the prescribed area is permitted without the Minister's consent. The Historic Buildings Department carries out whatever repairs are necessary and directs the removal of any accretions of later date that are unsightly. Powers for compensation and rehousing exist under this heading.

But even in towns and districts not chosen for special treatment great care is given to the preservation of the character of historic areas. The Ministry of Planning employs a number of specialist architect-planners whose function it is to prepare special plans for towns or districts where either classified buildings are numerous or, even without this being the case, the area has a special architectural or historic character or interest. The local authorities are consulted but the plan is actually drawn up by the Minister. If the plan, when adopted, provides for the retention of ancient buildings whether classified or otherwise, this would be the decisive factor as far as they were concerned and would prevent their demolition. But it does not provide for their actual maintenance as do the provisions affecting the towns specially selected by the Minister of Public Buildings.

Italy

The number of historic buildings in Italy is so vast that it is not surprising that the Italian legislation on the subject is more concerned with buildings of such importance that they need to come directly under State ownership and control, rather than with certain limitations of private ownership, as in most countries of western Europe. Buildings of historical, archaeological, ethnological or artistic interest can be declared by the Fine Arts Department of the Ministry of Education to be national monuments. Their preservation thenceforward becomes the responsibility of the State. The State has the right to acquire any national monument and the owner can also compel the State to do so within two months of the receipt of notification that the building has been made a national monument. All subsequent transfers of national monuments from one private owner to another must be notified to the Ministry of Education.

Hungary

The care of historic buildings in Hungary is in the hands of the National Monuments Inspectorate. On the advice of this body the Ministers of Public Construction and Public Education can jointly declare any building or earthwork or part thereof to be a national monument on account of its outstanding historical, archaeological, artistic or ethnographic significance. Such monuments comprise two categories: those which should be preserved in all circumstances and those having strong claims to preservation but whose demolition could be contemplated under certain circumstances. By 1960 1,900 monuments had been listed in the first category, of which 30 per cent were private dwellings, 27 per cent religious buildings, 15 per cent public buildings, 10 per cent historic mansions (now in public use), 7 per cent ruins of medieval castles, churches or monasteries, 5 per cent statues, 4 per cent buildings with individual historical associations such as the birthplaces of famous people and 2 per cent industrial relics. In the same period 6,000 monuments were listed in the second category.

The National Monuments Inspectorate comprises two sections: Budapest and the rest of the country. Both are supervised by the Department of City Planning of the Ministry of Public Construction. They are staffed by archaeologists and art historians, and their instructions are 'to accord increased protection to the relics and achievements of Hungarian history, science and art and to make them accessible to the entire population.' Alterations to national monuments require the consent of the Inspectorate, and notice of such must be given to it by the local authorities concerned.

Repairs and excavations carried out by the Inspectorate itself are notified to the Planning Department of the Ministry of Public Construction and also to the Monuments Committee of the Federation of Hungarian Architects before being finally approved by the Minister. They are then

carried out by the Ministry's own staff.

A very interesting feature of the legislation in Hungary is the establishment of local committees of experts serving in an honorary capacity in the cities and centres of administrative districts to look after the monuments of their area and to advise the local and central authorities concerning their maintenance and other problems. The Ministry of Public Construction has published surveys of 72 communities which have pointed out ways in which they could be improved by the reduction of advertisement signs, the modification of obtrusive shop-fronts in buildings of architectural quality and the elimination of gaps in built-up areas. It is the intention to make special provision for the protection of historic centres of ancient towns, but this has not yet been carried out.

Poland

The earliest legislation in Poland on the subject of the preservation of historic monuments dates from 1928; but it was not very effective because the funds provided by the State were largely absorbed in the restoration of outstanding buildings in national ownership, and there was nothing left over for buildings in private ownership which comprised the majority of the extant historic buildings. However in 1937 the Ministry of Education established a Central Inventory Bureau, which by the outbreak of war had surveyed two provinces.

The war completely transformed the problem owing to the overwhelming devastation suffered by Poland. Except in Cracow, almost all the most famous historic buildings of the country were very badly damaged or destroyed. The problem was therefore how these could be saved by restoration or rebuilding rather than, as in other countries, to prevent the demolition or injudicious alteration of sound buildings. To achieve this end a Directorate General of Museums and of the Protection of Monuments was set up in 1945 under the Ministry of Culture. It was staffed by architects and art historians, and provides a regional service in every province to superintend restoration, together with Workshops for the Conservation of Historic Monuments for the actual execution of the work, and a Bureau of Research to advise on methods.

The results have been outstanding. Almost all the most famous historic buildings in the country have been rebuilt, at least in part. Over a hundred large Gothic churches have been reroofed. In the restoration of such buildings advantage has sometimes been taken to remove later work which overlaid and obscured the original building, and to reveal and restore the latter. Monuments and fittings have been replaced and made good; also the elaborate décor of later secular buildings.

The Directorate has concerned itself not only with individual buildings but with their setting of park, trees and garden ornaments, and in Warsaw, Wroclaw and Posnan with the rebuilding of groups such as market squares and even of whole historic areas. In these cases surviving records such as the paintings of Bellotto enabled the original houses to be rebuilt without their accretions of later date. A few tall blocks of flats dating from the early twentieth century which destroyed the harmony of an area were even demolished.

Special steps have been taken for the preservation of wooden buildings, including the provision of subsidies given to the occupants for their repair when they are inhabited, or the removal of the buildings to another site if this presented a better chance of preservation.

Czechoslovakia

The present law on the subject of the preservation of historic monuments in Czechoslovakia dates from 1958. The Minister of Education and Culture is empowered to list property which offers evidence of the development of society, its art, technology, science or other sphere of human work and life, or any group of such things which are of similar interest collectively even if not individually.

The Minister is advised by a Central Commission for Public Monuments made up of experts acting in an honorary capacity, under whose supervision is a Public Institute for the Care of Monuments and the Protection of Nature. Each *Kreis* or county has a similar Commission for the County established by a resolution of the County Council, and each District Council a similar District Commission, with a District Curator of Public Monuments who is the Chairman of the District Commission. In a Parish which contains a large number of monuments the Parish Council can appoint a similar Parish Commission.

The owner of any property or building declared to be a public monument by the Minister of Education and Culture on the advice of the Central, County or District Commission must keep the property in repair according to the directions of the Minister and must notify the Commission of any threat or danger to it or of any restoration work undertaken by the owner. The District Curator of Public Monuments is empowered to take immediate steps for the preservation of monuments that are in danger. If an owner neglects to keep a public monument in repair, the Minister can take the necessary measures at his expense. If the owner claims that he is unable to repair the building for financial reasons, the Minister must decide what steps should be taken in the matter, and these can include expropriation.

Public monuments can only be used in a manner which is compatible with the principles of the care of monuments and in sympathy with their character and condition. Monuments in public occupation must be treated in accordance with their importance and, in consultation with the other Ministries concerned, used for cultural purposes such as museums, libraries and the like. Planning projects must take monuments into consideration, and the protection of monuments takes priority over planning requirements. Where a number of monuments form an important group, the Minister of Education and Culture, in consultation with the other Ministers concerned, can lay down conditions controlling building in the area.

LISTING AND PRESERVING HISTORIC BUILDINGS: THE EUROPEAN PICTURE

On the facing page: part of the research block and —on the right, a corner of the office block showing the precise modelling of the exposed concrete frame and the deep recession of the window-line inside it.

criticism

J.M.Richards

Architects: Mathews, Ryan and Simpson, in collaboration with Skidmore, Owings and Merrill

Administration and Research Building, Hayes Park, Middlesex

Absence of clutter is one of the fundamental, as well as agreeable, virtues of this group of buildings—fundamental because it is not derived simply from a conscientious Keep Britain Tidy treatment of a site that certainly deserves every care, but from the kind of meticulous pre-planning—the taking every consideration into account—which is the basis of much good architecture and which results in the deceptive simplicity and inevitability we associate with SOM. This building for the Heinz company is the first English building of which they have played a major part in the design, though they collaborated with the same architects on the company's 1959 factory near Wigan.

The absence of clutter is seen superficially in the way the undulating grassland of which the site consists, embellished only by mature forest trees, rolls right up to the walls of the buildings—there are no fences, only a ha-ha separating the rough grazing through which the buildings are approached from the mown grass round them, and no fussy flower beds—and in the way car-parking is enclosed within the stock-brick garden walls of the Victorian house in whose park the buildings stand. For once we don't have to look at a modern building across a foreground of shining car roofs. Clutter is also refreshingly absent from the roof-tops of the buildings: plant-rooms are in the basement; hydraulic lifts are used in order to avoid high-level motor-rooms; the need for a tall chimney (which in any case, though required under the Clean Air Act, was prohibited under the Planning Act) has been avoided by the use of two fuels in the boiler room.

But it is in the use of space within these admirably planned buildings and the simple slickness of detail (another thing we have learnt to associate with the SOM office) that the absence of clutter shows up most clearly, as something almost synonymous with good architecture. The space is all usable; circulation space is kept to a minimum (there are, for example, no office corridors; they are reached from the desk-free outer perimeter of the open general office that surrounds the central courtyard of the administrative building). One clearly defined space leads into the next with no fuss or blurring of the essential geometry. The modular arrangement of the structure permits a variety of room sizes, each well proportioned and well lit and clean of projecting surfaces, horizontal and vertical. One final virtue, which again exemplifies the sense one gets in these buildings of every detail being thought out in advance at the right stage, is that both office and laboratory furniture—for the most part architect-designed — accords with the module and is laid out as an integral part of the architectural planning; structure, partitioning, furniture and finishings, the mechanism for sun control and the use of colour are one conception. This is architecture thought right through.

The administrative offices and the research laboratories occupy separate buildings, both rectangular in shape and almost identical in external treatment; and in this perhaps the few weaknesses of the project are to be found. The spaces required inside the two buildings were similar and a two (or more precisely two and a half) storey arrangement suited them both, besides being logical enough on a site that imposed no restrictions on ground-space. It also conformed with the planning requirement of no high building on the edge of the green belt. But was it justifiable to give identical external expression to two buildings one of which is a hollow square—four ranges of offices planned round a garden court—and the other solid, with the centre occupied by the storage and services on which the laboratories surrounding it depend?

This is a question, not an assertion of error. The question may be prompted by too simple-minded and puritanical an attitude to the relationship between planning and appearance, and I suppose it could be argued, even on the same moralistic basis, that a central garden bringing light and a sense of visual relief to the offices looking on to it is performing exactly the same function as a central core of services in a block of laboratories, and requires no difference of expression. On the other hand some opening of views into the internal garden of the office building would have lightened the exterior as well as giving this block its own identity; at present there is a certain blind quality about both exteriors as seen from the main approach—due, no doubt, to one having no visible entrance and the other only a small entrance at semi-basement level which has properly been kept modestly domestic in scale because it is for visitors only.

A form of opening up has, as it happens, been successfully attempted on the opposite side of the office building, where the semi-basement floor is occupied by a canteen and the lawn outside dips down at this point to expose full height windows, adding greatly to the architectural interest since here and here only there is some sense of interpenetration between outside and in. This has made possible, moreover, the most successful interior effect in the whole building: a view from the visitors' entrance hall, across the garden court with its moving surface of water, through the canteen to the green openness beyond.

However unjustified one may be in demanding a slightly more free expression of the difference in function and plan between the office and laboratory buildings, there remains something basically equivocal—and therefore, to this critic's eye anyhow, unsatisfactory—about their siting in relation to one another—or, to be

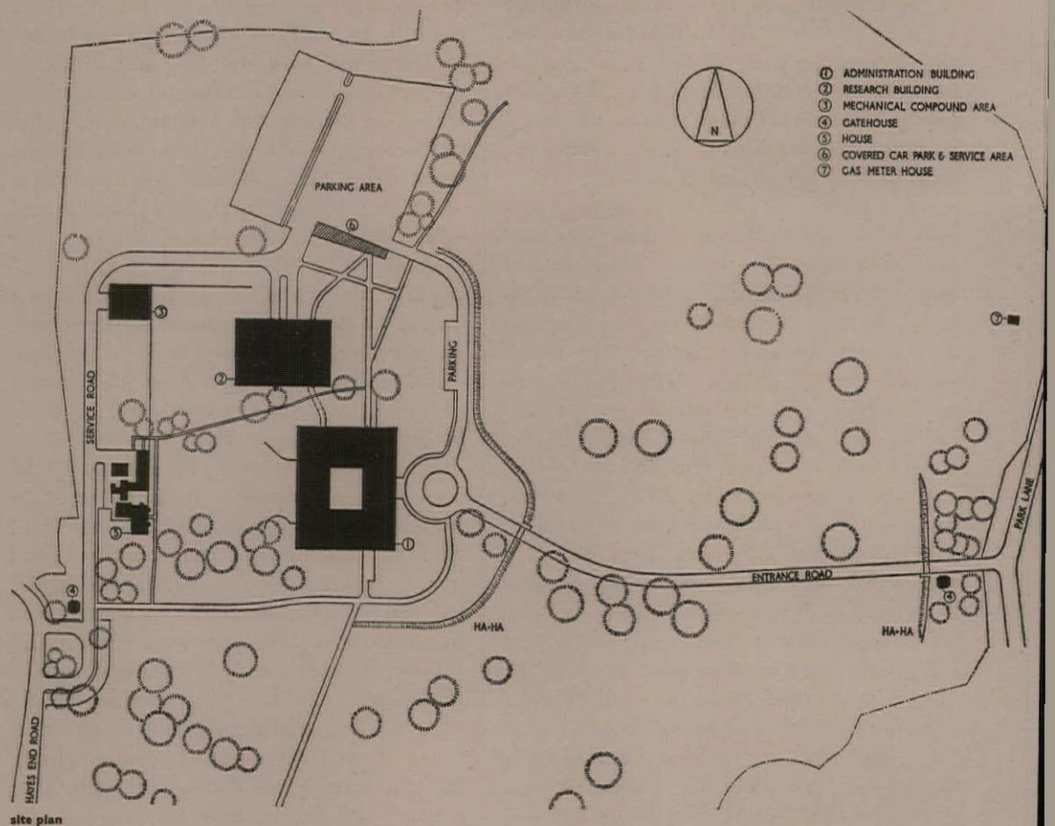
precise, without apparent relationship to one another. Here are two identical rectangular blocks, near but not joined. They are set in echelon, which helps; but for all the eye can tell might equally well have been nearer together or farther away, which produces a slackness of tension between them. Their relationship may have been determined by the positioning of trees—and the two buildings do frame a splendid chestnut tree which helps to unify them into a group—but some architectural gesture towards unity seems to be wanted also.

One hesitates to suggest they ought to have been physically linked above ground because linking them by a tunnel underground has avoided interference with the regular formal planning of the main floor and has created an efficient—though invisible—circulation system: from the walled-in car park to the entrance at the side of the laboratory building, through the tunnel into the lower level of the office building, terminating at the side entrance of the latter, which is the staff entrance leading to a footpath across the park and the public bus service. The two buildings are moreover self sufficient in that they each house staff with different jobs to do; on the other hand they need a connection (apart from under-cover access for office staff to the car-park) because the laboratory staff use the canteen.

This question of the relationship of the two buildings to each other must be left as one of those problems that have been dealt with as a matter of landscaping but might have been solved better by using some architectural means. Fortunately any failure of evident relationship between the two is minimized by the handling of the main approach: the approach road winds through the park and the office building—the nearest—is seen obliquely, overlapping the further building. An approach axial to the first building would have revealed the other as simply a repeat of it, floating away to one side and not tied into the landscape in the same way.

The unity contributed by the use of the same free-standing concrete frame is nevertheless important, and the form of frame the architects and the engineers have together devised—based on a large cruciform precast unit—is entirely successful both functionally and visually. At first sight the very size of the unit gives the building an unexpected breadth of scale, but this is in keeping with the breadth of the landscape and the scale of its full-grown forest trees. It is saved from clumsiness by its beautifully precise finish. It is bold in modelling, and might be described as the masculine counterpart of the somewhat feminine-scaled free-standing concrete frame of similar principle that Philip Dowson recently used in his buildings for Corpus College, Cambridge, and Somerville College, Oxford—illustrated AR, February 1965. In the buildings under review the glass is set even further back from the frame than in the more successful of Dowson's two buildings, that at Cambridge—nearly 5 ft., which gives them a powerful depth of modelling appropriate to their general character and setting. Only when one looks across the corners and is made aware of the even greater diagonal dimension does the distance the frame is projected seem to detach it too much from the wall surface of which, conceptually, it is one component. The window-glass, incidentally, is grey tinted, which avoids any harshness of contrast between solid and void outside (though it may add to the slightly opaque, blind feeling I have already referred to) and ensures a most agreeable glare-free light inside.

The precision of finish achieved in this precast frame, as well as the delightful surface that has been given to it—a compact but lively granular surface obtained by exposing a Cornish granite aggregate by acid etching and then high pressure water blasting—are typical of the sense of sheer craftsmanship that gives so much of their quality to these beautifully finished buildings. Inside and out, the finish is first class. No doubt the meticulous attention to detail at every design stage on the part of the architects, on which I have already laid stress, is necessary for the contractor to achieve such a result, but it couldn't be achieved without him and isn't achieved often enough in this country. The secret, I suspect, is partly money, but it is also to some extent a matter of all the people concerned minding enough. Architects—out of professional pride and their sense of aesthetic responsibility—ought to mind; those contractors that don't can be persuaded to; clients ought to as well—and at least ought to understand where not to try to save money. Yet sheer quality of building is one of the things modern architecture, in spite of all its technical resources, seems slowest in attaining.



site plan

ADMINISTRATION AND RESEARCH BUILDINGS, HAYES PARK, MIDDLESEX

architects **MATHEWS, RYAN AND SIMPSON**

in collaboration with **SKIDMORE, OWINGS AND MERRILL** *(New York office: chief designer Gordon Bunshaft)*

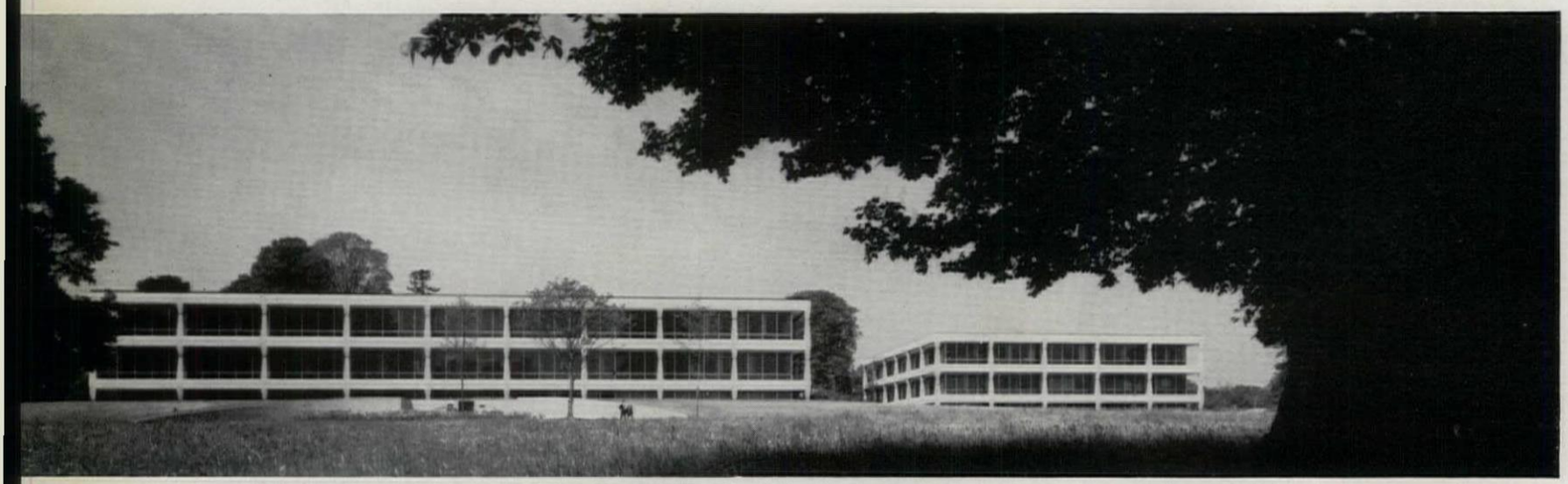
photographs by Ezra Stoller Associates

1, the two blocks from the west. A dip in the ground gives full-height windows to the basement of the office block (right) in the centre where the canteen is placed.

These two three-storey buildings, one containing offices and the other experimental and research laboratories, are the new British headquarters of the H. J. Heinz company. They occupy the site of a Victorian house, now demolished, in open parkland on the edge of the Green Belt where the planning authority required height to be kept down. They have both therefore been designed with only two main storeys and a lower storey half sunk in the ground.

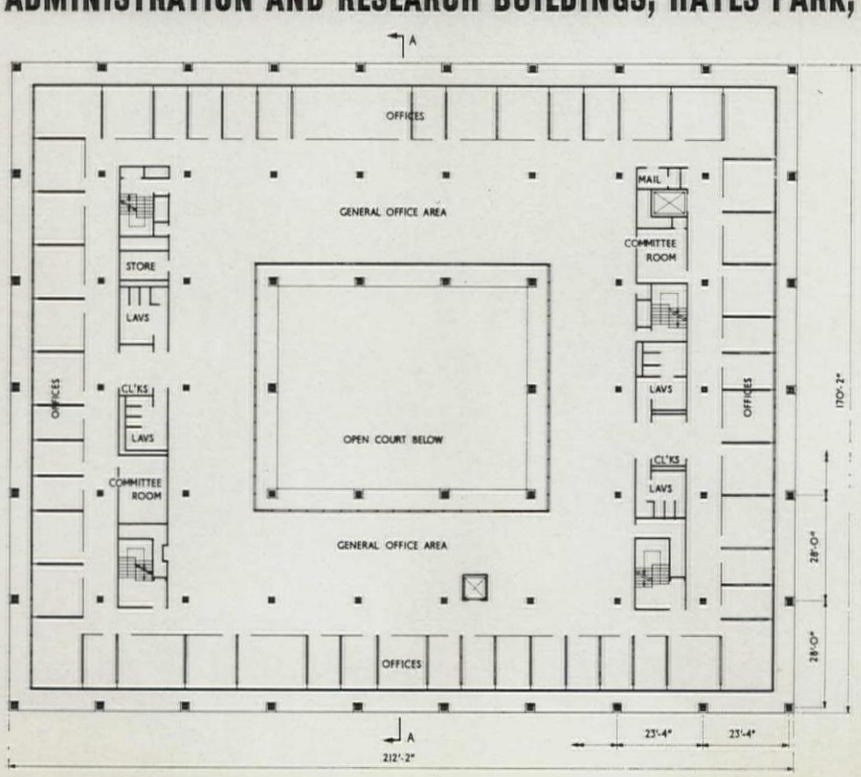
The office building is planned round a garden court containing a wide reflecting pool. On the same lower level is a canteen, with full-height windows facing west owing to a dip in the ground. The remainder of the lower floor is devoted to kitchens, cloakrooms, other services and entrance hall. The two main floors above have open general offices looking into the court and private offices on the outer face. The laboratory block is similarly planned but with a central service core. It is entered from the north, where a car park has been formed from an old walled garden. A passage at lower ground level continues as a tunnel into the office building, which also has a staff entrance on the south, reached by descending a ramp.

Both buildings have an externally exposed reinforced concrete frame built up from precast cruciform elements, the vertical members of which are stressed together by means of a 1¼in. diameter bar passing through each member which was tensioned as each element was erected. The horizontal members are connected by precast edge beams. The frame has a fine exposed aggregate finish using white Cornish granite graded to a maximum of ⅜in. and white Portland cement, the exposure being obtained by washing and acid-etching. External glazing is set back 5ft. from the outer face of the frame. The vertical members of the frame and the internal columns are positioned on a 28ft. by 23ft. 4in. grid. The internal columns are for the most part cast *in situ*. Floors are flat-slab, 9in. thick (increased to 15in. in the dropped panels round the columns), except in the case of the main floor of the research block which is 12in. thick to take exceptional loads. The research block also contains a two-storey pilot factory area which required a large uninterrupted floor space. This is roofed with 55ft. 3in. long precast, post-tensioned T-beams, cast in white cement as they form the

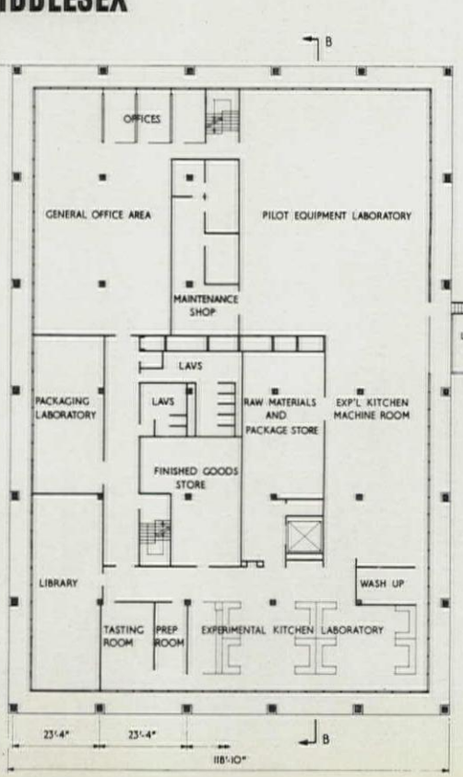


2, from the approach drive : left, the office block with visitors' entrance in the centre, at basement level ; right, the research block.

ADMINISTRATION AND RESEARCH BUILDINGS, HAYES PARK, MIDDLESEX



ground floor plan, administration building



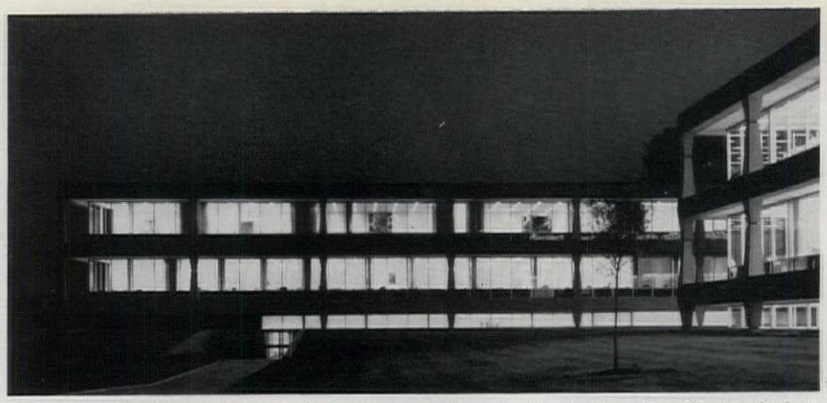
ground floor plan, research building

3, looking along the facade of the office block at ground floor level, with the research block beyond. At left, in the foreground, is the dip in the lawn in front of the canteen.

ceiling to the room. Internal walls are plastered and painted white. Ceilings are either illuminated plastic egg-crate or acoustic tile. Floors are buff—either linoleum or carpet, with brown quarry tiles on the lower ground floor. Windows are aluminium with grey tinted glass. Laboratory benches have teak tops and white plastic facings. Both buildings are air conditioned.

Project manager (S.O.M.), Frederick C. Gans. Design assistant, Whitson M. Overcash. Consulting engineers, A. J. and J. D. Harris, in association with Paul Weidlinger of New York.

Quantity Surveyors, A. Boxall and Partners.



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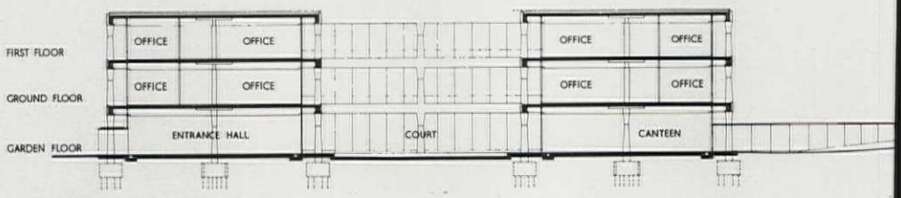
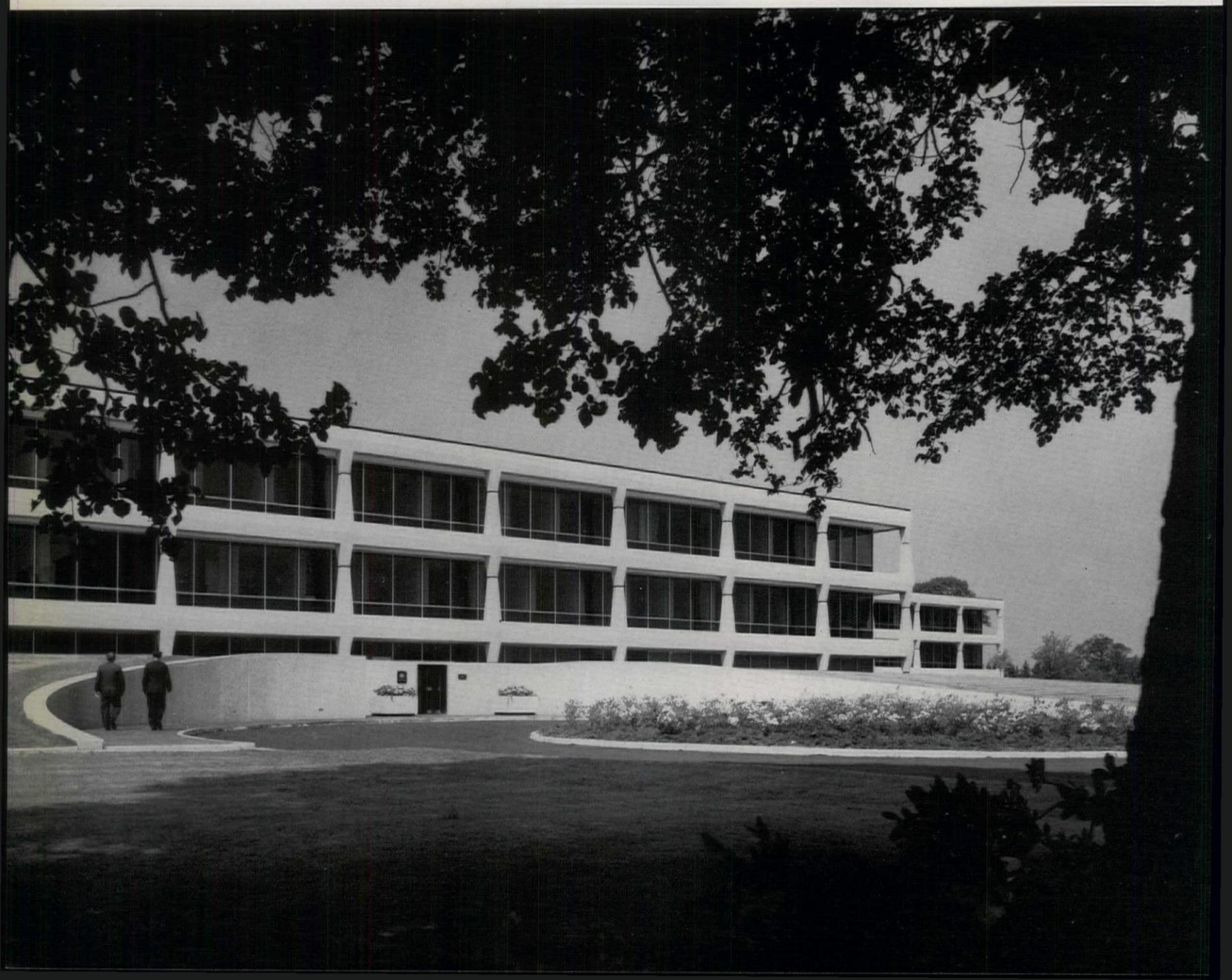
4, the two blocks at night. 5 (below), the eastern side of the office block (facing the main approach) with visitors' entrance in the basement wall.

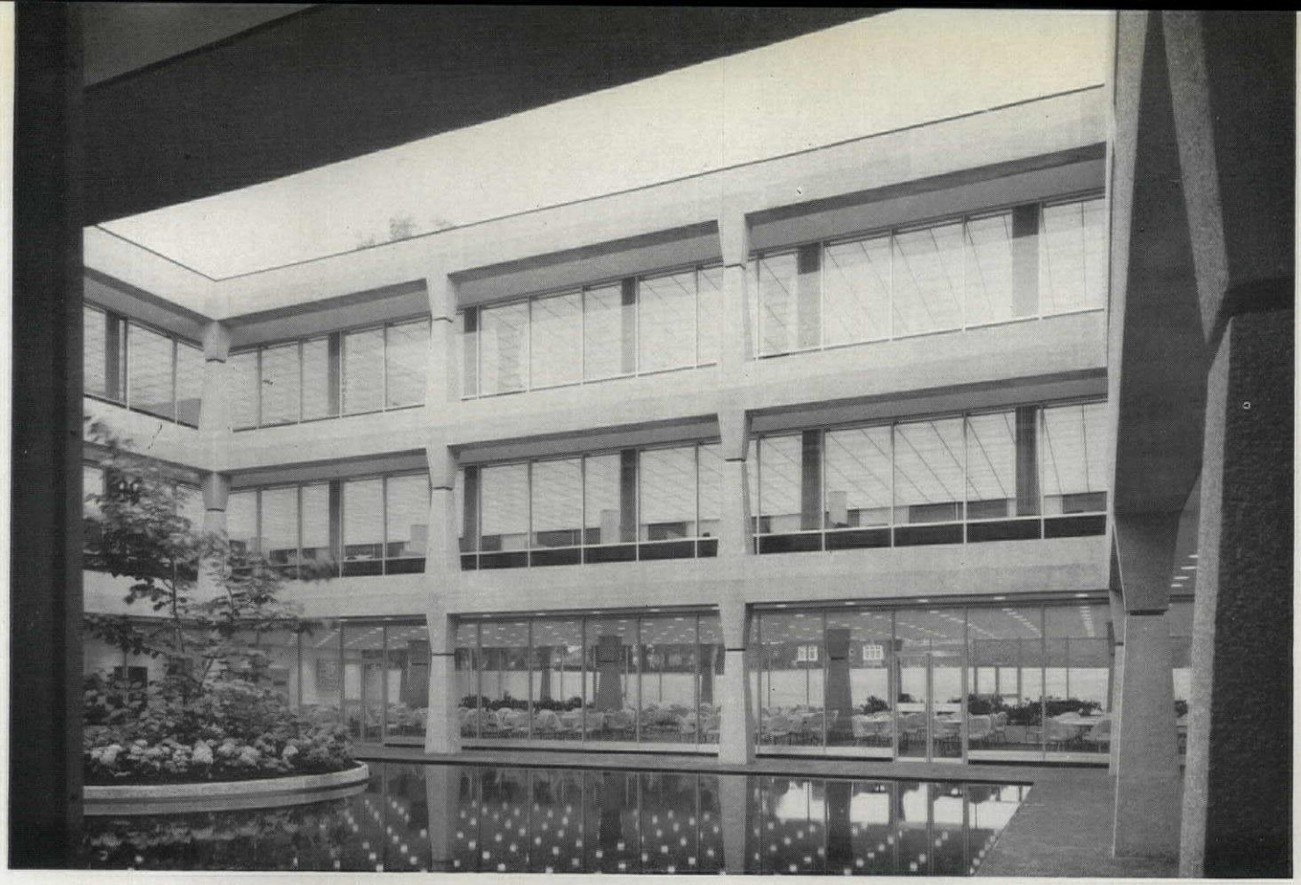
ADMINISTRATION AND RESEARCH BUILDINGS, HAYES PARK, MIDDLESEX



section AA through administration building

5





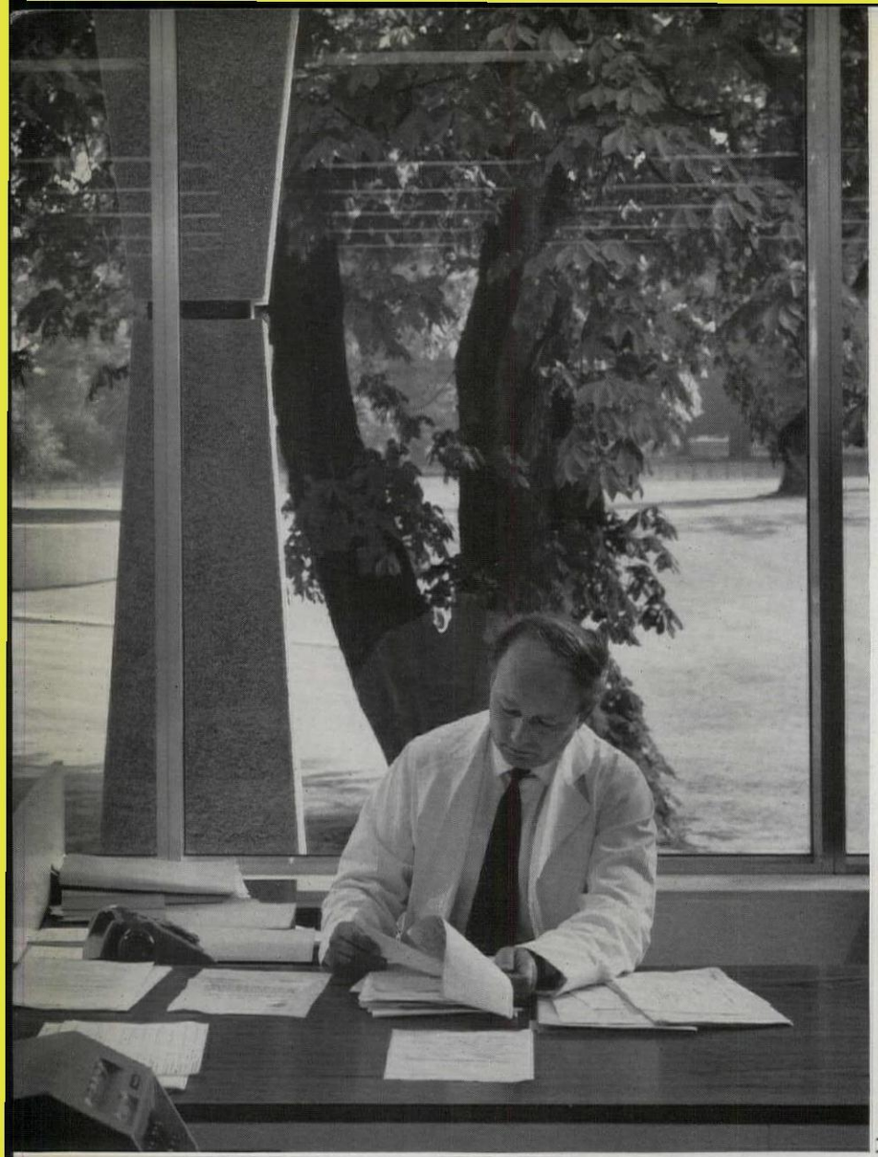
6, the internal courtyard of the office block, looking towards the west, through the basement-level canteen to the open lawn beyond.

7

9

8

7, the visitors' entrance hall on the opposite side of the courtyard from the canteen. 8, a corner of the same entrance hall, looking across to the canteen. 9, the boardroom in a corner of the upper floor of the office block.



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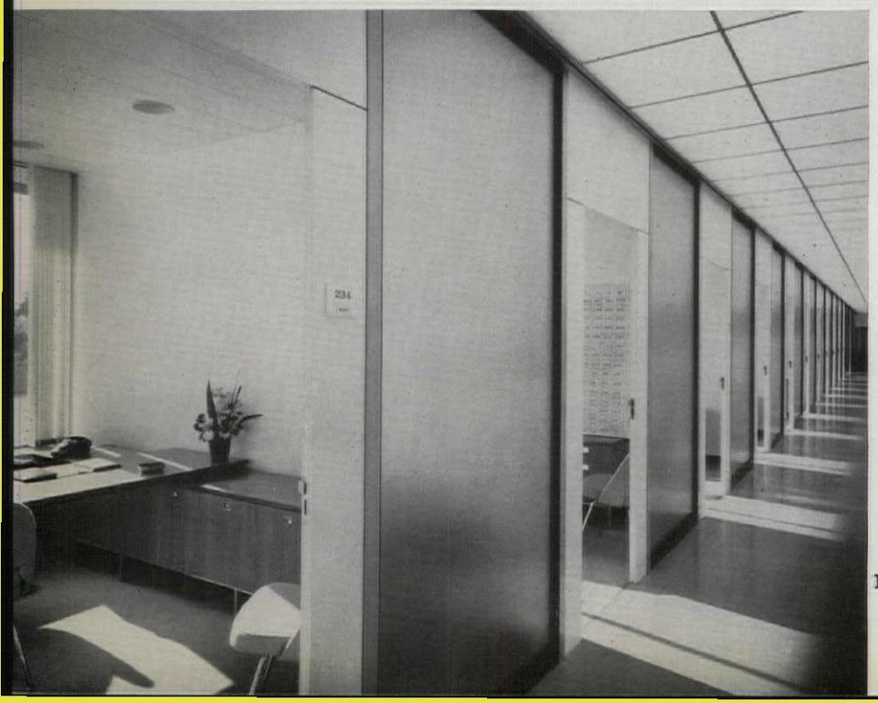

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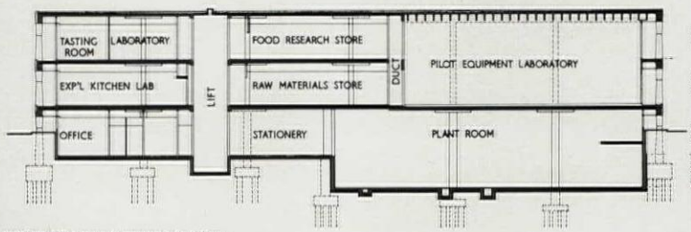
ADMINISTRATION AND RESEARCH BUILDINGS, HAYES PARK, MIDDLESEX



section BB through research building

10, work table in the office portion of the research block, illustrating the close relationship of indoors to out created by the structural system and the continuous fenestration. 11, inside the general office which surrounds the courtyard in the office block. Outside the general office are private offices round the perimeter of the block. 12, typical laboratory space in the research block. 13, the modular-planned private offices whose doors open on to the circulation space around the general office.

TOWNSCAPE

SAVE OR SCRAP?

THE HALL, LONG EATON

Kenneth Browne

Long Eaton, seven miles from Nottingham, makes everything from lace to kitchen sinks. Visually nothing to write home about, it is the sort of place where anything of quality takes on added significance and therefore needs defending to the last ditch. Yet, the one decent building in the town, the Hall, proudly described in the council's official handbook as 'a fine Georgian mansion,' is in imminent danger of destruction; not by speculators but by the Urban District Council itself. Built in 1778 for a lace manufacturer and at one time the Town Hall, it is now occupied by the Treasurer's department. Standing back some fifty yards from the Derby Road, and seen first through a screen of fine beech and chestnut trees, it is sited in attractively landscaped grounds at the junction of the Derby, Nottingham and Tamworth roads.

Now, wanting to use this site for a civic centre but faced by local opposition to any suggestion of demolishing the Hall, the council has commissioned an impartial assessment of the situation from a firm of Derby architects.* This assessment, after weighing the pros and cons and admitting that the Hall would make a splendid civic suite, regretfully reaches the conclusion that the Hall should go. The main reasons given are firstly, that in spite of good interiors, the building is not really of sufficient architectural value to be worth the cost of renovation; secondly that it is an obstacle to the best use of the site.

Additional reasons given are that people would have to walk nearly 100 yards to the council offices because the area in front of the Hall would be sterilized and that there is no space for catering facilities and toilets, 'so a fake extension would have to be added to the Hall.'

A plan, X below, prepared by the authors of the report, shows the Hall incorporated in a new civic centre layout but commenting on it, the architects say that: 'in juxtaposition with large buildings of quite a different, non-domestic scale; it would be in marked contrast to the remainder and the weakness in its design would be accentuated.'

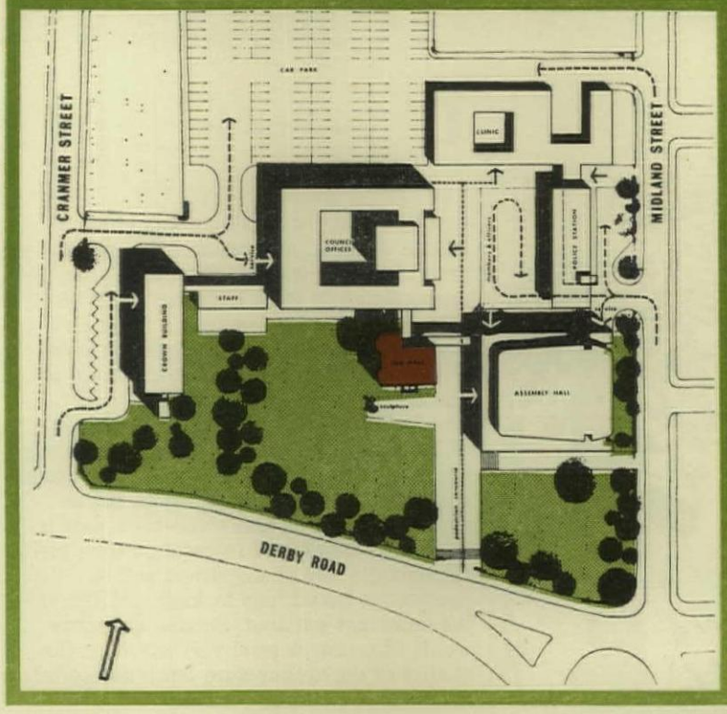
The evidence for and against is clearly stated here yet, before accepting sentence, it is worth querying some of that evidence, for in a sense this is a test case. To begin with, the question of the building's quality must surely be relative. The authors say 'what a pity it is not of the quality of Risley Hall a few miles away'; but that is not the point. Though this building would not be remarkable in say Oxford, at Long Eaton it certainly is.

As to juxtaposition, the description 'domestic scale' applied here is misleading, for the Hall is large scale by modern standards of room height and could undoubtedly be married to new buildings quite happily. The Germans and Italians do this sort of thing all the time, so why cannot we? And why should catering facilities and toilets at the rear of the

* Long Eaton UDC. An Assessment of the Existing Hall by Grey Goodman and Associates. 1st Feb. 1965.

Plan contained in the consultants' report showing the Hall as part of a new civic centre.

plan X



An alternative sketch plan by the author of this article. (Numerals indicate approx. height in storeys.)

plan Y

A. Setting (see Plan Y.) – front elevation to Derby Road showing how the Hall might be incorporated in a new civic centre

building have to be 'fake' Georgian? With a real wish to keep the Hall, and in this context it should be kept, there must be many ways in which it could be satisfactorily incorporated into a new civic centre. The following sketches ***A, B, C,*** and plan ***Y*** show one possible way.

The main points are:

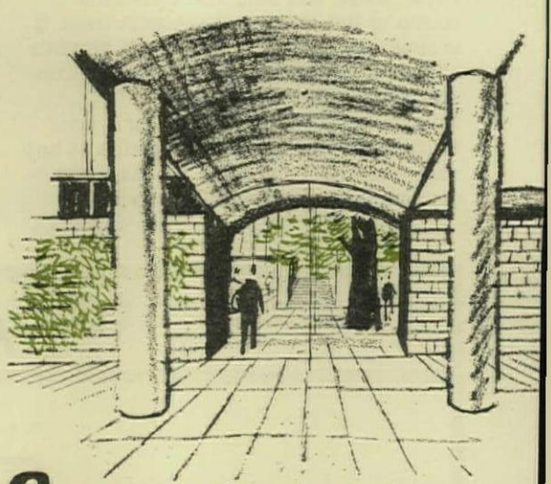
(a) The four-square Hall must be given a sympathetic, even-height setting; in this case a walled garden bounded by a regular two-storey enclosure ***A***. This would ensure the restful frame it requires (by contrast with plan ***X***, where it is overpowered by the large assembly hall).

Also visual support is then provided to the sides of the Hall, where there is overmuch sky at the moment so that it stands up too starkly. The present garden with its fine trees and bushes should be kept as it is, with no large scale buildings seen immediately adjacent to the Hall.

(b) At present, on the eastern side of the site, the ground falls to a lawn at a lower level. This sunken lawn effect could be reinforced ***B*** and enclosed by a regular two-storey colonnaded building. Visitors would then reach the main offices at the back of the site under cover, thus reducing the objection to the distance.

sunken lawn enclosed by 2 storey colonnaded building

enclosure B



C penetration – archway in the wall leading to paved squares at the back of the site.

(c) All the larger buildings should be behind the Hall, and reached through an archway in the wall ***C***. The exact arrangement of these buildings could be varied considerably but plan ***Y*** shows a first shot at it. By contrast with the lawns in front, this could be a different world of paved squares and hard surfaces.

There is plenty of space at the north end of the site, and if existing trees were kept and the buildings arranged to give a regular background to the Hall, it would not be overpowered. A distant stand-back view is impossible because of foreground trees and the opposite side of the street, and so perspective would help to keep the Hall as the dominant building. Success or failure would of course depend very much on the quality of the architecture but a successful marriage is certainly possible.

Showroom and Bank, Elephant and Castle, London

architect: Ernö Goldfinger

photographs by H. de Burgh Galwey

ID
Interior Design

1, *strip lighting on the ceiling of the bank.*

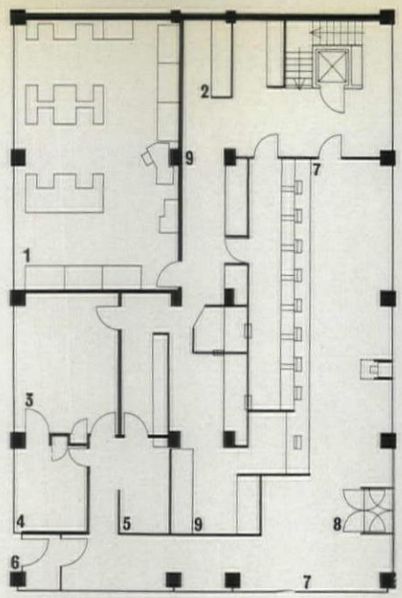
2

3

4

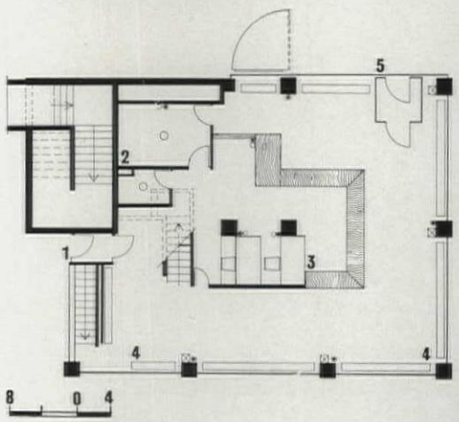
2, general view of the reception area of the showroom from the piazza entrance. The staircase to the mezzanine is rough-shuttered concrete, the floor grey lino. 3, display stands in the reception area. 4, the Newington Causeway front of the block showing both the bank and the showroom.

Showroom and Bank, Elephant and Castle



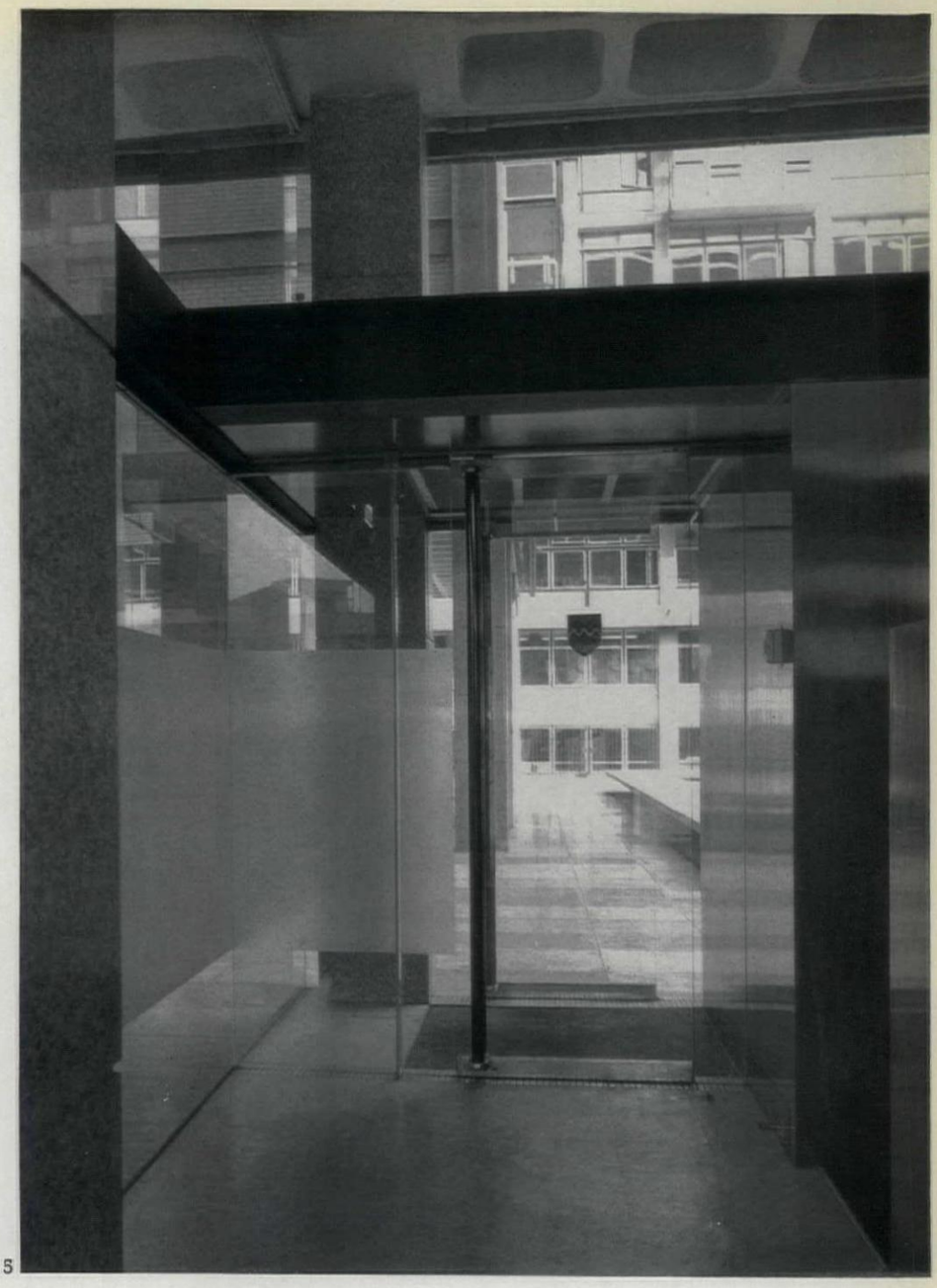
bank, ground floor plan

key
1, machine room
2, typists
3, manager
4, assistant manager
5, waiting
6, piazza entrance
7, public area
8, main entrance
9, cashiers



showroom, ground floor plan

key
1, piazza entrance
2, interview room
3, reception
4, display area
5, arcade entrance



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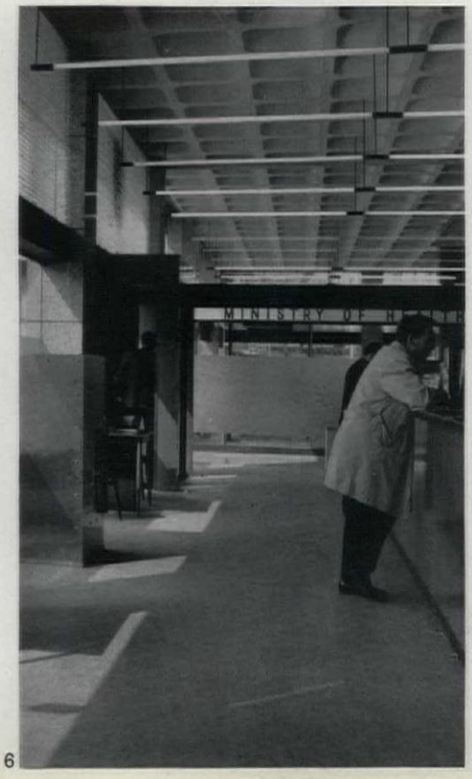
The showroom, on the ground floor of Alexander Fleming House, Ministry of Health headquarters (see AR, February, 1963), serves as a display and information centre for the whole building and consists of a reception area and interview room with a mezzanine level storage room above, toilets and storage below. The bank, situated beside the showroom with an arcade between the two, has public and office space, with strong-room facilities, rest-rooms and storage in the basement. The ceilings of both interiors are of exposed fair-faced concrete, painted white. Facade walls are plate glass panels spanning between the Cornish grey granite-clad columns and black-painted r.s.j's. Partitions, counters, bar screens and cupboards are of timber studding with Honduras mahogany veneered blockboard. Except where the ceilings are low, lighting is by 8ft. exposed fluorescent tubes, silvered on the underside and joined together end-to-end by small black cylinders.



6

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5, piazza entrance of the bank at the rear of the building. The glass facade panels have acid-etched areas. 6, public space in the bank looking towards the arcade. 7, detail of secondary light fitting in the bank.

8

9

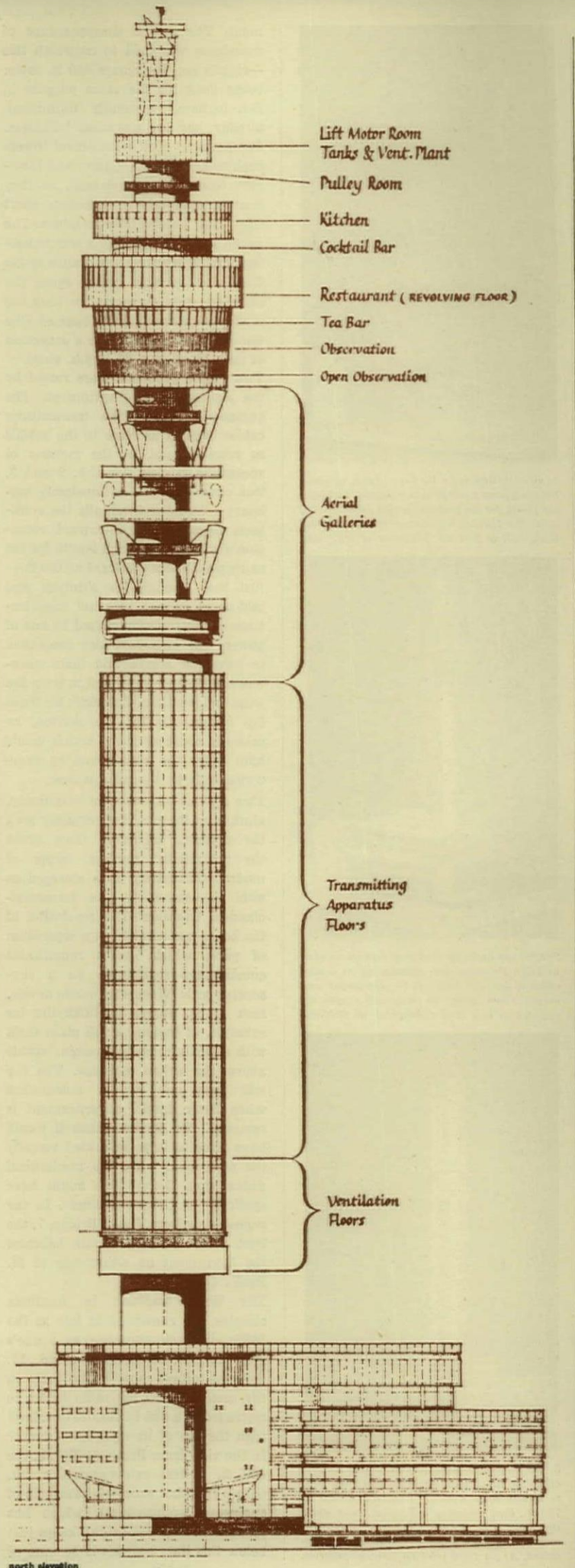
8, the freestanding night safe, clad in stainless steel, which projects through the wall on to the Newington Causeway front. 9, main entrance to the bank. The showroom can be seen across the arcade.

Showroom and Bank, Elephant and Castle

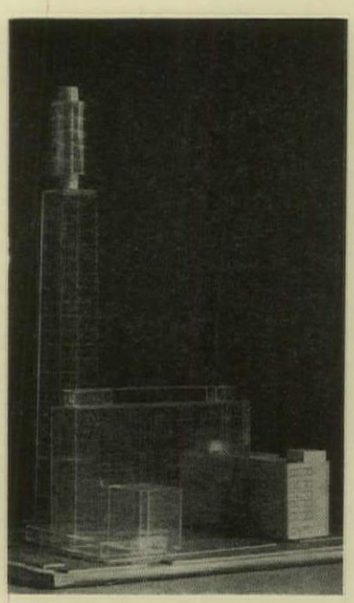
RADIO CAMPANILE

It has been with a growing shock to relief and recognition, as of a long-lost friend, that Londoners have become aware in the last year of a heavenly presence hovering from a distance over the entire centre of the city, from the Elephant and Castle in the south to the heights of Hampstead in the north. The Post Office radio tower in Howland Street, 580 ft. to the top of the main structure, 619 ft. including the lattice-framed mast, has to a quite extraordinary degree given back to the London skyline the self-respect which it had virtually surrendered before the ziggurats of Mammon. Its great achievement lies in its unexpected arrival in gaps and crevices of the street fabric throughout central London. Microwave beams have to be given a straight passage from tower to tower, so the obvious sites, to minimize height and cost, were on the hills of North and South London. Sydenham, however, was already taken by both BBC and ITA, and Hampstead-Highgate was ruled out on amenity grounds (though a tower as good as this would have been an ornament there, too). As Eric Bedford says, the one place the amenity people could not defend on grounds of architectural beauty was Tottenham Court Road—so there it went. As the southbound traveller on Hampstead Road comes down the slight incline from Mornington Crescent, the GPO tower stands out almost entire in silhouette, 6, as the gateway to a city centre still defined by the New Road bypass of 1757. From here all six elements of the tower are clearly seen: the podium containing trunk telephone equipment, part of the MUSeum exchange; the central tapering shaft of rough-shuttered concrete, 35 ft. in diameter at the base and only 22 ft. at the top; the sixteen slightly polygonal curtain-walled floors, three at the bottom containing ventilation plant, the rest housing microwave apparatus; the six open platforms supporting the main horn- and dish-shaped aerials; the observation floors and the revolving restaurant with its kitchens; and finally the lattice mast carrying extra aerials and meteorological instruments. Because of the so-called security aspect, the Ministry of Public Building and Works has not exactly trumpeted its own chief architect's *chef d'oeuvre*. Eric Bedford and the senior architect-in-charge, G. R. Yeats, have followed in the high tradition of British pragmatism. They have not tried to suppress the colossus of engineering into an image of 'good taste' or into a fashionable formalism, but, like good schoolteachers, have coaxed it into expressing its own personality within the minimal rules of architectural grammar. The only weak point is the telephone exchange in the podium, where architecture, as conventionally understood, has taken control.

The Ministry architects' one arbitrary aesthetic decision was that the tower should be round in section, although a square would have been far more convenient for accommodating equip-

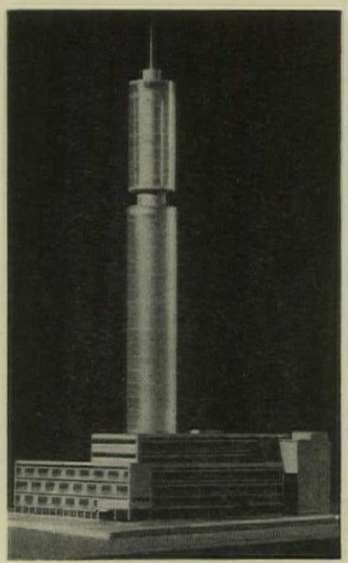


north elevation



1, *an early design for the tower,* 1956, *in which the equipment floors formed a massive rectangular plinth for the protected aerial floors. At that stage the telephone exchange was a tall slab block cutting into the silhouette of the tower.*

2, *after the exchange had been reduced in size, in* 1959, *the tower was rounded off as a slim column, but the bulk of the equipment and aerial floors gave an ungainly top-heavy appearance to it and endangered its stability.*



3, *the engineers were persuaded in* 1960 *to allow the floors to be projected down the shaft to a maximum distance from the aerials of* 150 *ft., thus achieving a slimmer, more stable structure. The aerials, however, were still covered so that the tower's function was disguised. As yet there were no viewing galleries.*

ment. The optical disappearance of roundness was held to outweigh this —rightly so; the square 500 ft. tower being built for the same purpose in Birmingham, although unfinished, already has an alarming bulkiness. Comparisons with Continental towers such as Dortmund (square) and Stuttgart (round) are irrelevant, as they contain only television aerials apart from their observation chambers. The round shape in fact has a compensating gain: it offers less resistance to the wind and therefore makes easier the complete stability needed to keep the microwaves horizontally beamed (the top of the tower will have a deflection of only 15 in. in a 90 m.p.h. gust).

Two major problems were raised by the nature of the equipment. The engineers required the transmitting cables to start as close to the aerials as possible, and, as the pictures of successive models show, 1, 2 and 3, this caused at first a hopelessly top-heavy silhouette. Gradually the architects negotiated a downward extension until the maximum length for the equipment floors was fixed at 150 ft.—just long enough for slimness and just short enough to avoid imperfections in transmission caused by loss of power. The engineers also demanded to have the aerials and their maintenance platforms covered in from the wind and weather. Unluckily for them but fortunately for the skyline, no material could be found which would both cover the aerials and be penetrated fully by the microwaves.

This spartan exposure of machinery, glinting in the sun, has certainly been the skyline's salvation. Once again the supposedly soulless forms of modern technology have emerged as vital successors to the humanist-classical tradition. The revelation of the horns has resulted in a separation of parts which, by a remarkable coincidence, reproduces on a skyscraper scale Wren's favourite device, seen at St. James Garlickhythe for example, of topping a tall plain shaft with a richly modelled cupola, visible above the urban roof-line. The top will have one further indentation when Peter Lind's advertisement is removed. Mr. Bedford himself would have liked to have separated visually the equipment from the mechanical floors, even though this might have spoilt the shaft's smoothness. In the superb view from Tower Bridge, 7, the Post Office tower perfectly balances the Monument on either side of St. Paul's dome.

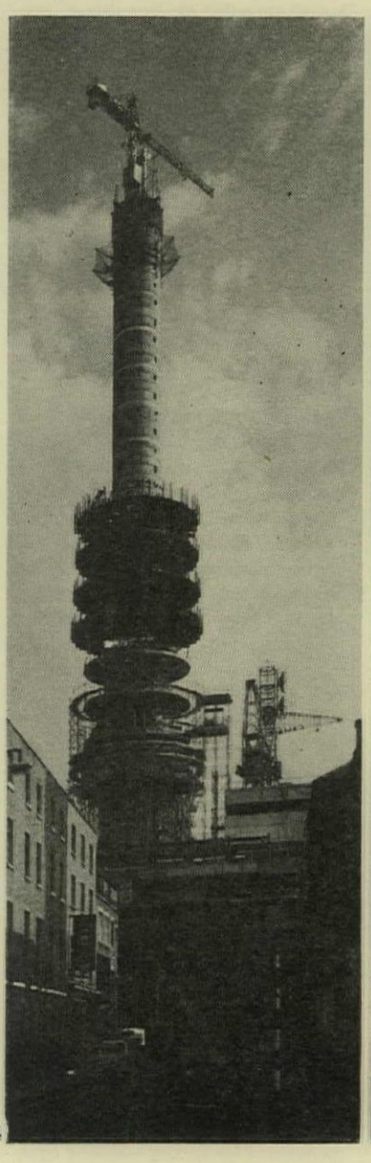
The Wren tradition in Anglican steeples was continued as late as the 1820s, in such churches as Soane's Holy Trinity, Marylebone Road, 11. Can the offices now being built in the area close to the radio tower be restricted to a 355 ft. cornice line, level with the top of its equipment floors? In the view from Primrose Hill, 8, the 400 ft. Seifert extravaganza at St. Giles's (another successful example of engineers' architecture), which has just reached its full height, keeps just below this line, but this is because of its greater distance to the south. The Euston Centre tower, slightly lower, will rise 30 ft. above the base of the open galleries, into which it will cut nastily from many views.

If Wren seems one obvious spiritual forebear of the GPO tower, it is as a Gothic object that the cupola comes fully into its own. From Lambeth, 9, it appears as a pinnacle of the Houses of Parliament (another of Dr. Reid's vent shafts?). From University College portico, 10 (see also frontispiece, page 86), it matches the Germanic turrets of Waterhouse's hospital on the other side of Gower Street. It floats in bristling contrast above the cool Ionic curve of Nash's Park Crescent, 14, and fits equally well into Nash's more romantic mood, in the tree-hung Regent's Park canal, 13.

As soon as the tower took off in 1962, first as a propulsive rocket image, 4, then as an acrobat's heap of plates, 5, it began to reintegrate visually the decrepit area around its base, 12. The peculiar fascination of the tower is precisely the way in which it rises from a congested back street, plugging gaps in an untidy roofscape, 15. The most dramatic view of all, of the base of the shaft and the bridge to the exchange, can only be visited down a tiny mews, too narrow for cars to pass each other. No doubt there will be traffic problems, as soon as the tower is firmly established on the Americans' Grand Tour of London, but nothing should be done to 'open it up.' Any purposeful demolition to create a 'vista' would wreck the exciting relationship of the giant tower to the pygmy city at its foot. In Fitzroy Square, 16, the whole campanile sits with perfect dignity on the south side's facade designed by Robert Adam—a final proof of Eric Bedford's successful integration of technology and humanism, in a London skyline badly in need of it. N.T.

RADIO CAMPANILE

4, 5, *in the structure that rose from the ground in* 1962, *the aerials were at last unveiled, and the addition of the viewing galleries and revolving restaurant completed the cupola form which now appears as though it were 'inevitable.'*



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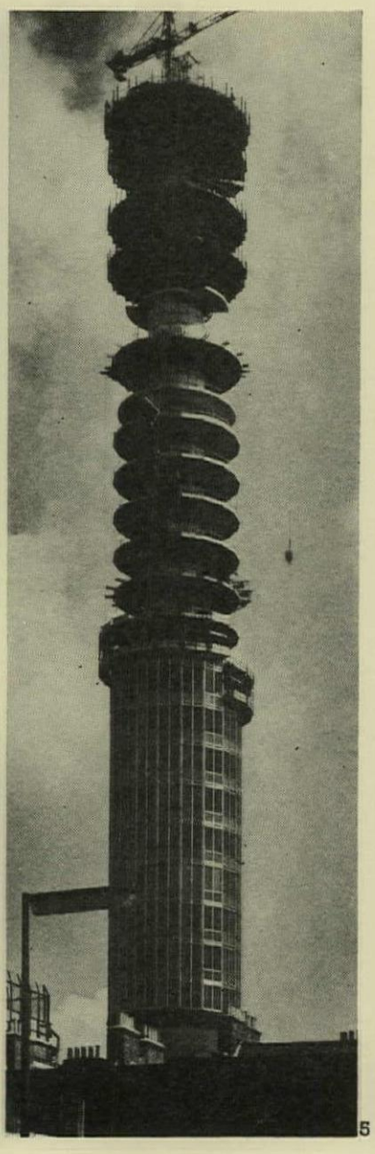

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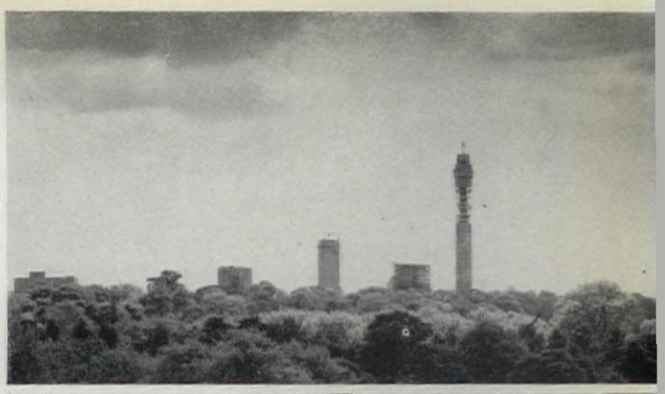

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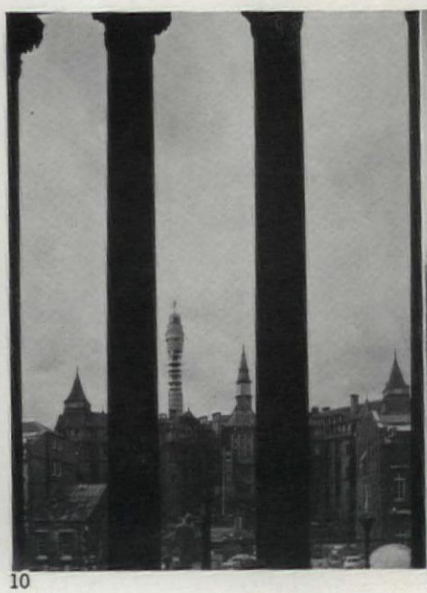
The GPO tower has a striking impact on distant views of London: 6, as a landmark to travellers from the north, looking down Mornington Crescent; 7, as part of Wren's horizon of campanili, in the panorama from Tower Bridge; 8, as the stadtkröne *of the West End office complex, seen over the rolling parkland of Primrose Hill; 9, as a pinnacle of the Houses of Parliament, from the South Bank at Lambeth. Its silhouette fits as easily the neo-Gothic of Waterhouse's hospital,* 10, *seen from within University College portico, as it does the neo-classic of Sir John Soane's Holy Trinity, Marylebone Road,* 11.



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11

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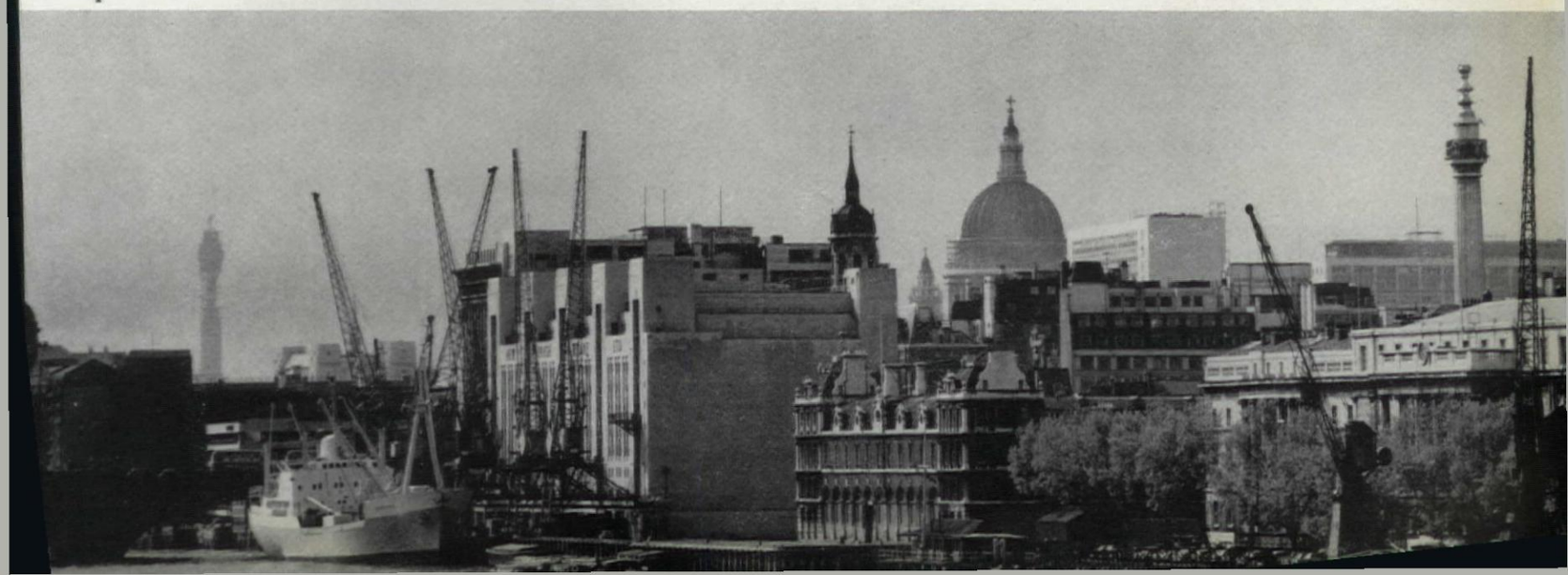
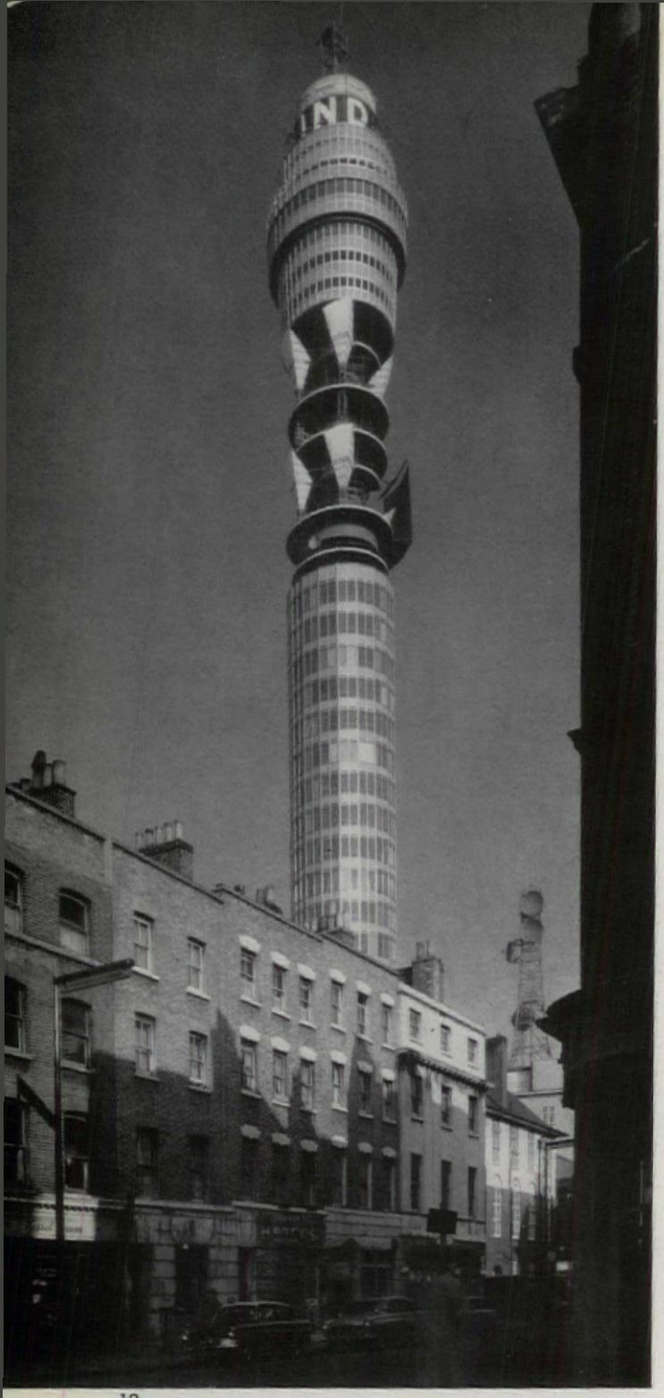
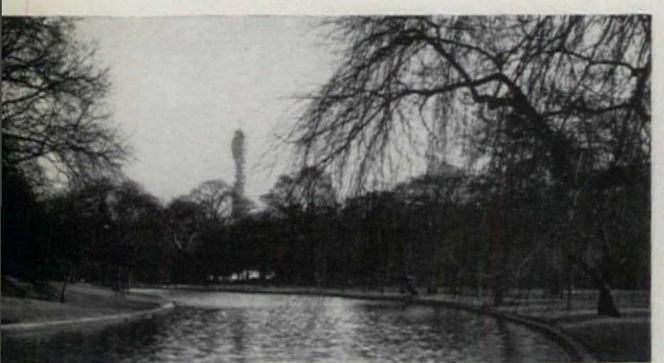




12

RADIO CAMPANILE

Much of the fascinating townscape effect of the tower results from its hidden back-street site amid worn-out Early Victorian terraces, 12. *Yet it also cuts firmly into the broadest spaces of Nash's famous procession, from the tree-hung informality of Regent's Park canal,* 13, *to the crisp colonnades of Park Crescent,* 14. *At right-angles to Nash's axis, in the view across Portland Place from Weymouth Street,* 15, *the machinery of microwave transmission sits easily on the confused roofscape; but it can equally have a revolutionary arrogance rare in Civil Service architecture,* 16, *as it makes Robert Adam's Fitzroy Square its footstool.*



13

14

15

16

FUNNEL & BREAST-PLATE

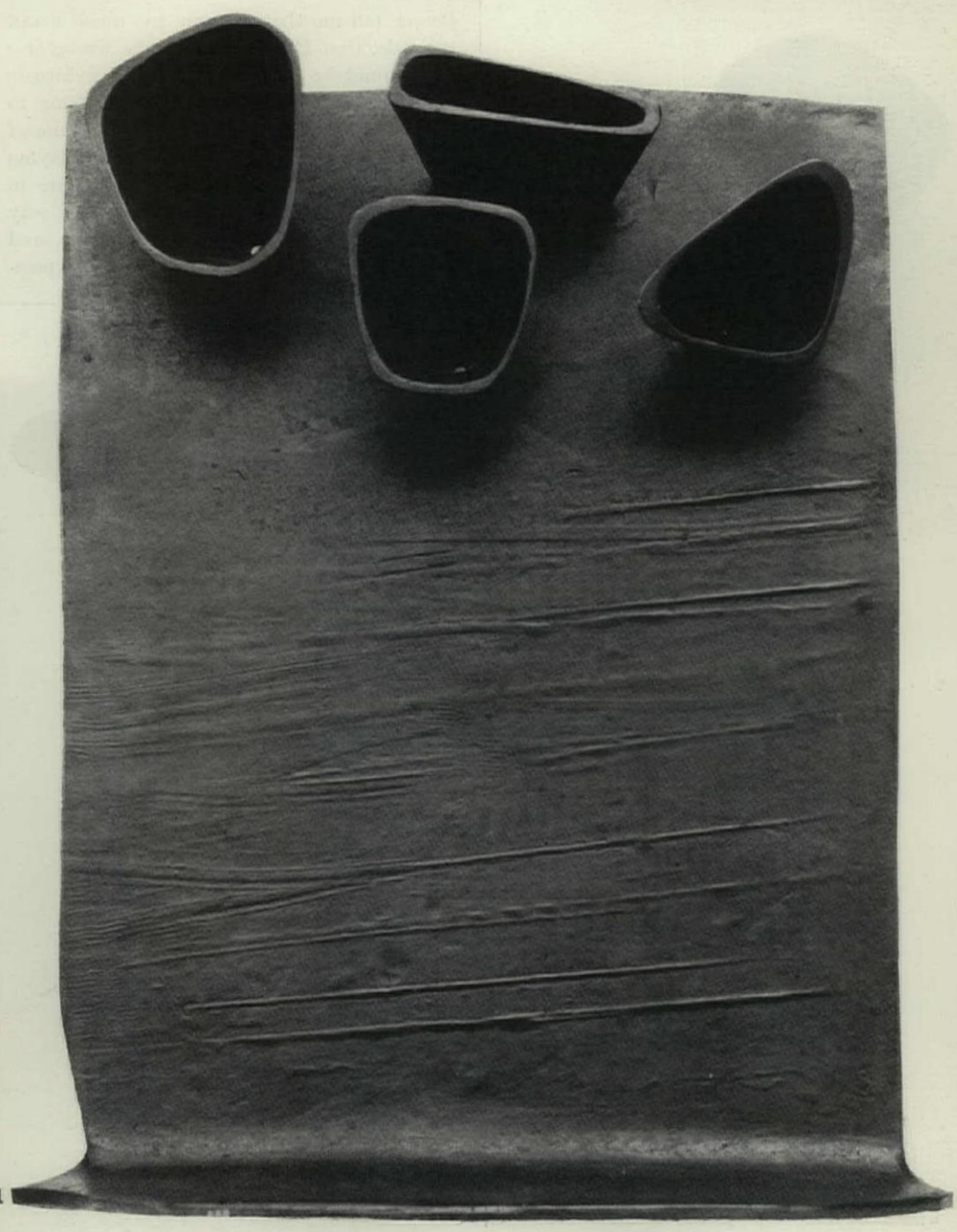
Robert Melville

It was brave of Kenneth Armitage to hold a one-man show in London so soon after the Contemporary Art Society exhibition of English sculpture at the Tate had seemed to reveal the almost total bankruptcy of the work of his generation. He has survived the ordeal. He has come through with colours flying at half-mast. The critics admired the simple monumentality of the larger things in his recent exhibition at Marlborough New London and they applauded the introduction of a brand-new theme as if they were receiving an unexpected bonus. His reputation, which was fraying at the edges, has been patched up. But something has gone wrong for all the sculptors who took part in that group show at the British Pavilion in Venice in 1952, which put them on the international map, and I think the trouble is that the general conception to which their sculpture is tied has collapsed. The area between the effigy and the pure abstract, where twentieth-century sculpture had so many of its triumphs in the past, has turned into a dust bowl. No one can make biomorphs, organic abstracts and invented personages look right any more. The spirit has deserted them. They are possibly better made than ever and may last a thousand years, but they seem to fall apart before one's eyes.

The theme which has been Armitage's chief preoccupation since 1962 is called 'Pandarus' and his exhibition included twelve versions of it in various sizes, as well as several other variations called by other names. The range of sizes reminds me of something Ian Dunlop wrote in the catalogue of the Stuyvesant show of young sculptors recently held at Whitechapel. He was referring to the fact that their sculpture is neither large nor small but 'just right' and therefore takes no account of current marketing practice, and he added that it is 'a real act of faith to make sculpture which is not ornamental, which can neither sit on a desk-top nor relate to an architectural setting.' Actually, this is an exaggeration: if the works are desirable enough, collectors and architects will find ways to accommodate them. But it's true that the works at Whitechapel appear, like Moore's early carvings, to exist only in their optimum dimensions. Armitage's things on the other hand seem to have no optimum at all, and although no two of the Pandarus versions are quite alike, they all look as if they might be available in the full range of sizes, as if the selling potential were an aspect of the conception.

The Pandaruses are simple plaques with a curious tombstone-like frontality, penetrated by funnels with wide mouths. The funnels emerge near the top of the plaque as if they might be organs in an otherwise undifferentiated head zone. Most frequently, there are one or two funnels to a plaque, but there can be as many as four or five, 1. Sometimes there is a depression lower down the plaque which operates as a navel, 2, or a patch of heavy cross-hatching, 3, which might stand for hair on the chest. These features are sufficient to suggest an enigmatic personage without really arousing one's curiosity. It's the name that arouses one's curiosity. In fact, I think the act of naming the image is more significant in this case than the act of making it.

Artists are rather fond of saying that they only give titles because it's easier to refer to



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a work which bears a name instead of a number, and that no significance should be attached to them. But they are well aware that most words bear a thick fur of associations, and often enough their titles are a deliberate, and sometimes irresponsible, invitation to the spectator to speculate about the meaning of the image. One thing certain about the title 'Pandarus' is that it's intended to provide the image with human associations. Another thing that's almost certain is that it drifted into Armitage's mind in response to the funnels, since he only applies it to works characterized by these forms.

On the face of it, the image has no attributes which are specifically identifiable with a procurer, but if we knew in what form or circumstances the funnels engaged Armitage's attention sufficiently to make him want to use them as sculptural devices we might get an inkling of why he found the name 'Pandarus' obviously or vaguely appropriate. I wonder, for instance, whether he had been looking at some of those little paintings of the Temptation of St. Anthony, by Flemish vulgarizers of the art of Hieronymous Bosch, which so frequently used a kneeling devil with a large funnel poking out of its anus as a far-fetched sexual offering to the Saint. I mention it because in relation to Pandarus (the professional go-between, the smoother of the course of illicit sexual pleasure) the funnels could not inappropriately symbolize ease of access.

People tell me that I worry too much about the title, that I'm barking up the wrong tree and should be considering these Pandaruses purely as sculptural form, not forgetting to praise their monumentality and recommend them to architects. But the point I am trying to make is that the sculptural forms are in fact inarticulate, that he uses them in a way that clouds them with half-meanings and muddy overtones; that they lack the expressive purity and formal logic of, let us say, on the one hand the tall standing nudes of Giacometti, and on the other the constructions of Naum Gabo.

Considering the Pandaruses as monumental sculpture and forgetting what they are called,

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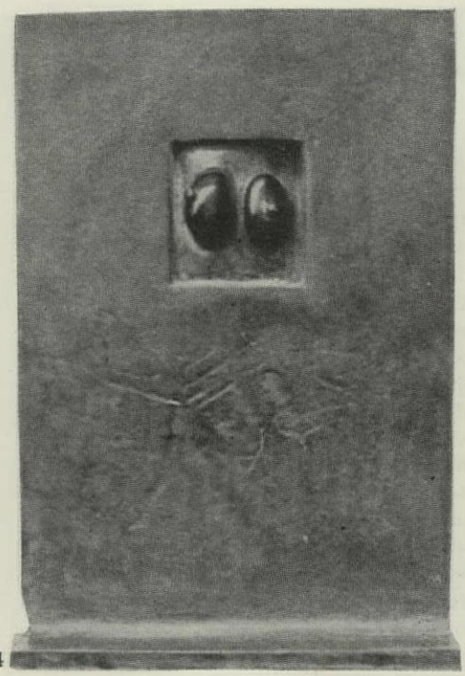

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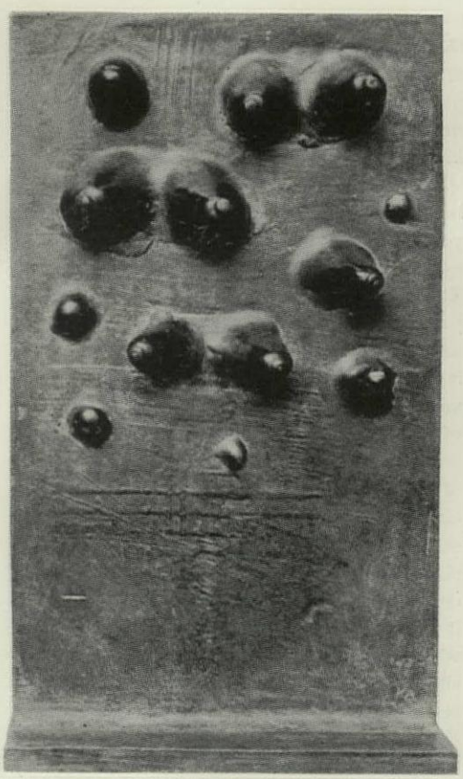

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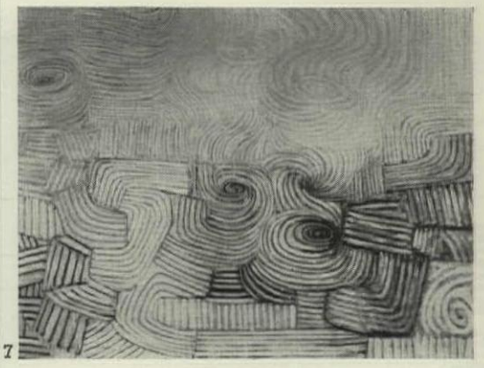
I can see that on certain sites they could become in a sense articulate but that then they would be facetious. Let us contemplate the idea of a nice big one on the site in Parliament Square which is occupied by the Saint-Gaudens monument to Lincoln. This site comes to mind because it has always struck me as rather odd that Lincoln faces a group of effigies which include Palmerston, Disraeli, Peel and Canning. His position puts him at the head of a meeting of English statesmen, and although it's the function of a President to preside, the situation is, to say the least, unusual. The effigy of the President is pleasant enough—even if his chair is much too large—and I'm not thinking of starting an agitation for its removal; it's just that I can't forget that it's on the perfect site for a public tribute to the art of sculpture. But I do not think the Pandaruses would be eligible. If one of them were put there, the funnels would turn immediately into megaphones and become a satirical comment on government. Even if one were to consider such a comment to be a virtue, it would be a virtue forced on the sculpture by its own vacuity. By the same token it would scarcely be suitable for one of the new schools. But considered as a robot, it might look very effective at the entrance of a computer factory. It might even be very nice, and a kind of international identity symbol, if a Pandarus cast could stand at the entrance of every computer firm in the world.

The Armitage sculpture based on a new theme is intended as a contribution to the art of the evocative fragment, but quite openly relies upon the evocatory power of the word to lend the sculpture a warmth of feeling the forms do not express. They are flat metal panels studded with female breasts. At first there is only a single pair on a panel, 4, but the sculptural meagreness is mitigated by its association with a folk story printed in the catalogue. It's called 'The Legend of Skadar,' and the sympathy aroused for the woman who was walled up alive and fed her new-born baby through an aperture in the wall rubs off on to the first two panels. But as the artist goes deeper into the theme it fires his imagination, as they say, and the number increases until a sort of climax is reached with thirteen breasts of various sizes dotted about a single panel. This work is called 'The Legend of Skadar, Version 9,' 5.

Victor Pasmore is a painter who seems to arouse the maternal instinct hiding in the breast—or is it perhaps the soft underbelly?—of every English critic. We are sometimes excessively indulgent, but rely upon a periodic retrospective to assure us that it's almost impossible to be otherwise. The biggest retrospective of all has recently been held at the Tate, accompanied by a first-rate catalogue

6



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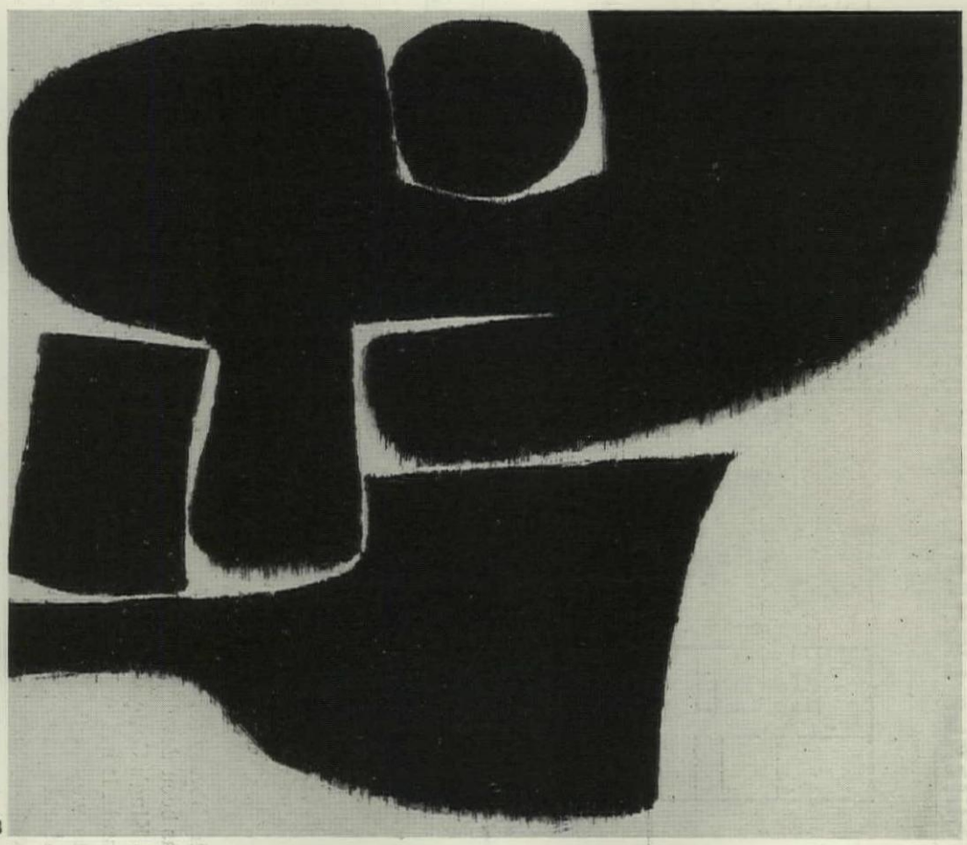
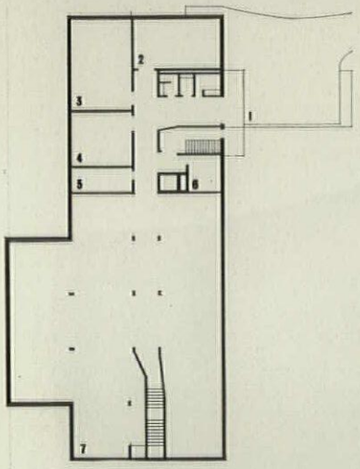
by Ronald Alley, and it proves all over again that even Pasmore's most abortive experiments, not to mention his sometimes outrageous dependence upon the art of Klee and Mondrian, somehow contrive to yield works with the delectable Pasmore touch. The final version of 'The Gardens of Hammersmith,' 6, looks more like the work of the Zen masters than any of the paintings done by the Orient-orientated Americans, and the spiral paintings still convince me that he stopped working in this vein much sooner than he needed to. Two of them, 'The Wave,' and 'The Snowstorm,' 7, seem to me to be masterpieces, but it's a pity that he didn't attempt a spiral picture entirely free from landscape associations. His strange, tight, blunt use of the spiral is potentially one of the most powerful abstract devices in modern painting. The huge 'Black Abstract,' 8, painted in 1963–64, with the further addition in 1965 of a band of grey round some of the forms, not shown in the photograph, was perfectly placed in the narrow entrance room, where it operated as an environmental picture. To stand underneath its stirringly brutal forms was a bit like being at Gordale Scar. Seen from that particular point of view it was as powerful a contribution to the Abstract Sublime as the best work of the Abstract Expressionists.



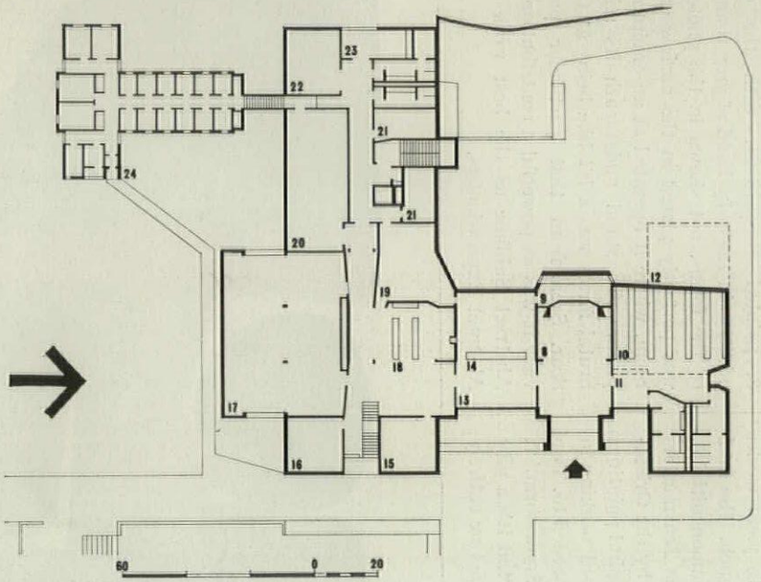
8

SCIENCE LIBRARY, UNIVERSITY OF ABERDEEN

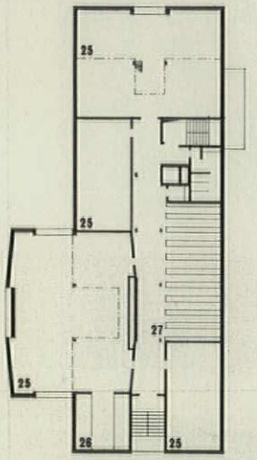
architects **GEORGE, TREW AND DUNN** | *photographs by Henk Snoek*



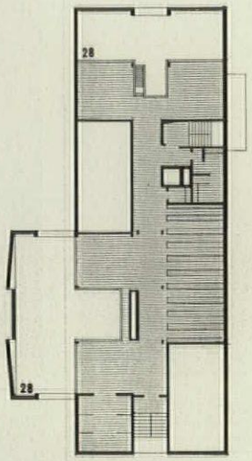
lower ground floor plan



ground floor plan



first floor plan (second floor identical)



mezzanine plan

key

1, goods entrance
2, telephone exchange
3, mailing and despatch
4, reception
5, fireproof room
6, calorifier
7, storage
8, display area
9, microfilm reading room
10, cloaks
11, future counter
12, future extension
13, control
14, lending counter
15, type reading room
16, staff
17, periodical room
18, catalogue reference
19, cataloguing room
20, reference reading
21, office
22, bindery
23, staff room
24, research rooms
25, reading room
26, carrels
27, bookstalls
28, balcony to reading room

The library serves the complex of science buildings that has been developed since the war on a site, close to King's College and Old Aberdeen, known as Market Lands. It has been placed near the centre of the site, west of the chemistry building and south of the natural philosophy building. The ground slopes to the west, allowing two-level access with service access at the lower level. To save land, an underground heating station for the whole university has been sited to form a terrace between the library and the chemistry building.

It was required that bookstacks and reading-rooms should be interchangeable. The main block of library accommodation has therefore been designed as two identical floors 16ft. high, with mezzanine floors to each, which can serve as reading galleries overlooking the main reading rooms, and as bookstacks. These mezzanines are in metal, giving the flexibility required, and the distribution of windows derives from this arrangement. The lower ground floor is allocated to storage and reception and despatch of books and to a telephone exchange which may eventually serve the whole university. On the ground floor are the pedestrian entrance, cloakrooms, etc., a display area (all in a single-storey wing), administrative offices and bindery, periodicals and reference reading-rooms and the lending counter and catalogue space; also a research reading-room wing with separate access. The two identical reading and bookstack floors are above.

The single-storey wing (of which the cloakroom part is designed for extension as the library grows) contains the spaces where talking is allowed. In the main area of the building, where silence has to be observed, doors have been kept to a minimum since they are themselves a source of noise and the aim has been to solve the noise problem by planning rather than by physical means. The lift is surrounded by service accommodation to isolate it from the reading spaces.

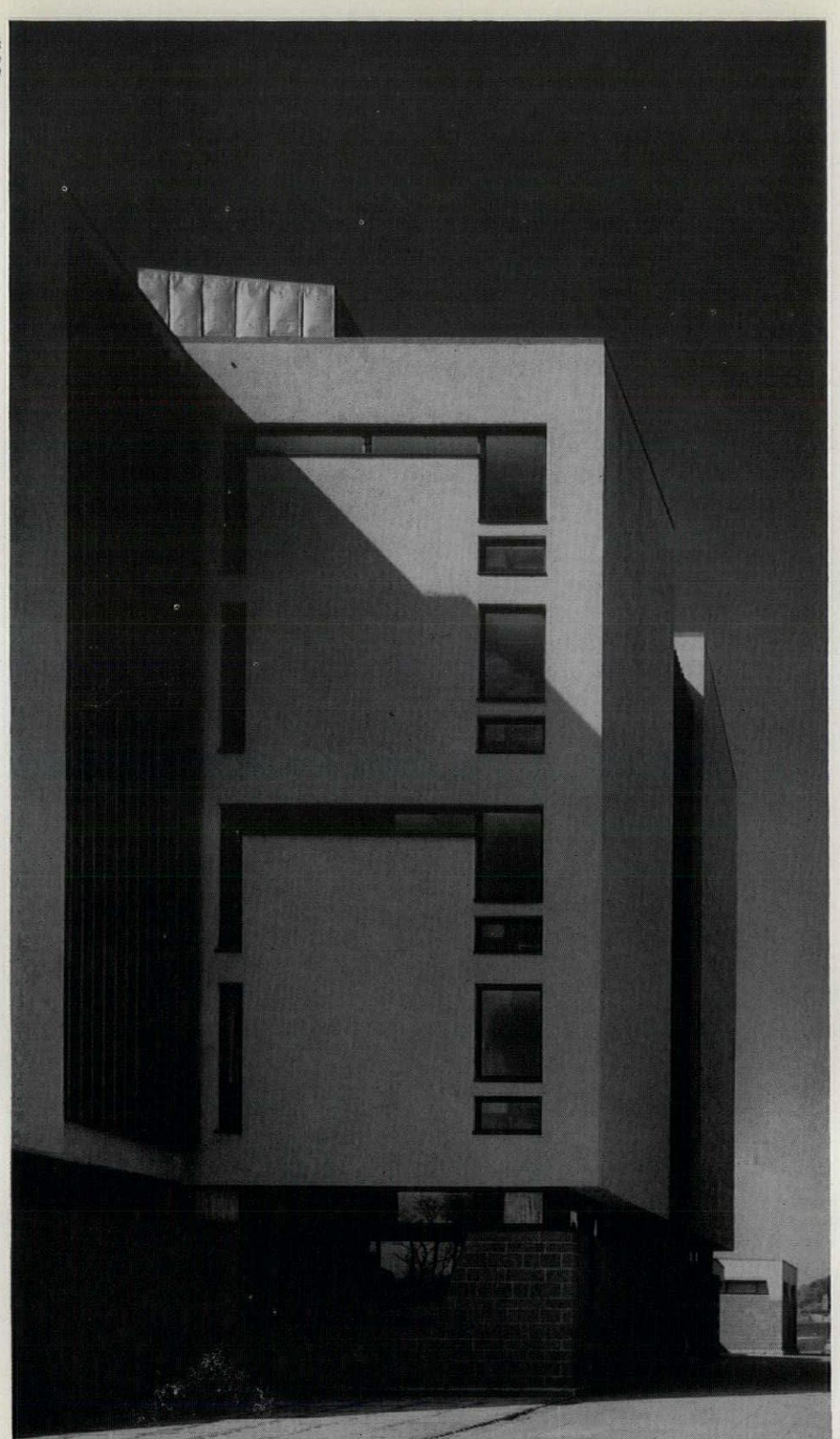
The internal arrangement of the library is based on the principle of a number of small reading rooms and reading spaces closely connected with the bookstacks. The reading-rooms are conceived as book-lined interiors, with their walls continuously lit and with windows only to prevent claustrophobia. The windows have translucent curtaining to avoid glare from the low winter sun. The single-storey research block, at the quietest end of the site, is for senior post-graduate students and staff and consists of a double row of rooms which will be let for long periods. It has kitchen and lavatory accommodation and its own general reference department.

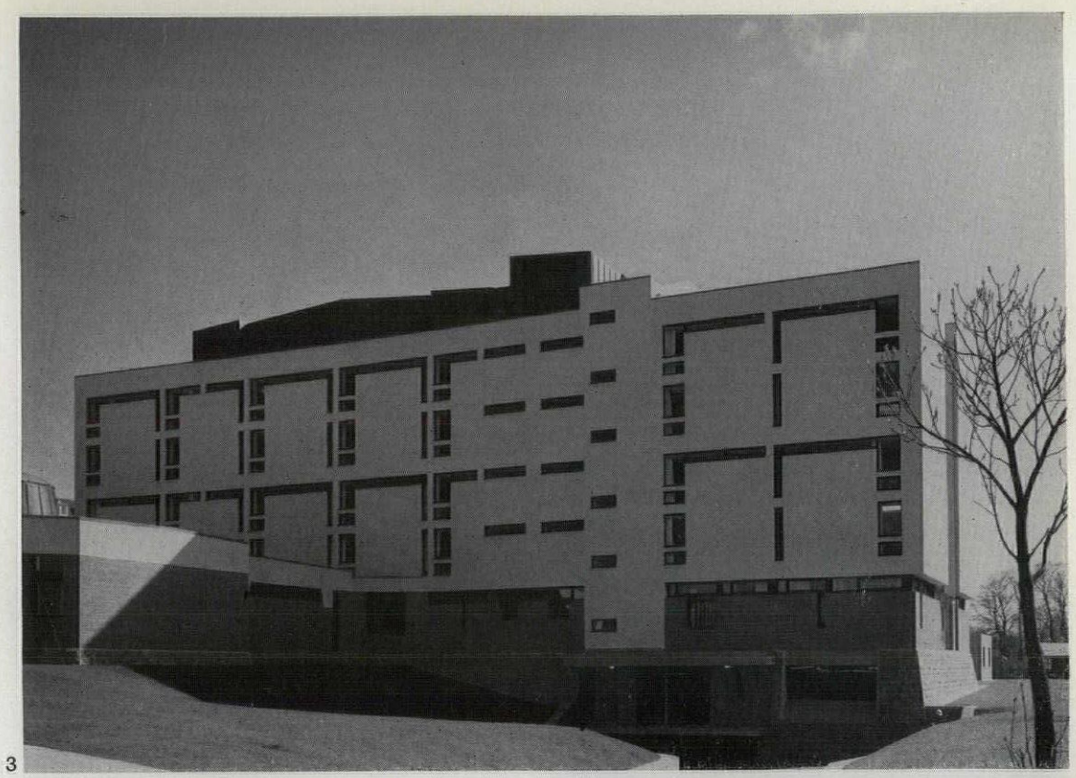
The building has a reinforced concrete frame and floors, the latter (except the ground floor) being designed to take double bookstack loading if required. The battered external walls of the lower ground floor are granite, the material of King's College and other neighbouring buildings. The ground floor has concrete blocks faced with granite chippings. The main library above has a white rendering of hard Norwegian spa, with which the metal windows are nearly flush. The ground floor of the main block and the research block have natural ventilation and are heated by radiators. The main library floors are artificially ventilated with full humidity control and with background heating from the acoustic-tiled ceilings.

Assistant in charge, Miss R. Hall. Structural engineers, W. A. Fairhurst & Partners. Services engineers, Donald Smith, Seymour & Rooley. Quantity surveyors, John Dansken & Purdie.

1, opposite, the south front of the library with the reading-room wing on the left.

IN A GRANITE SETTING





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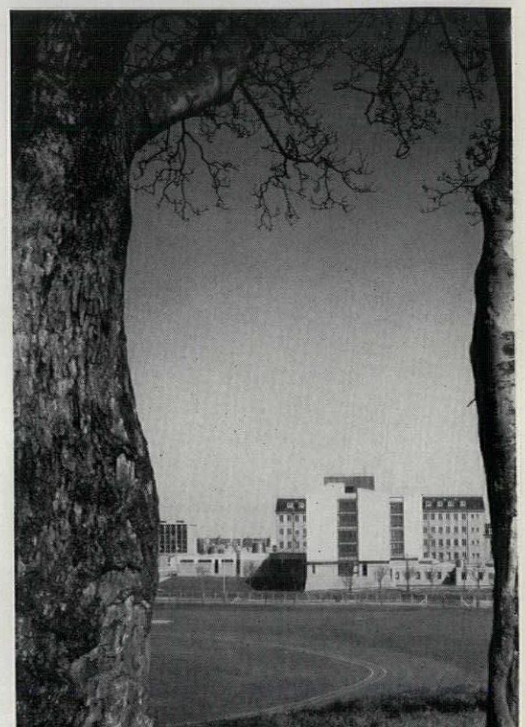
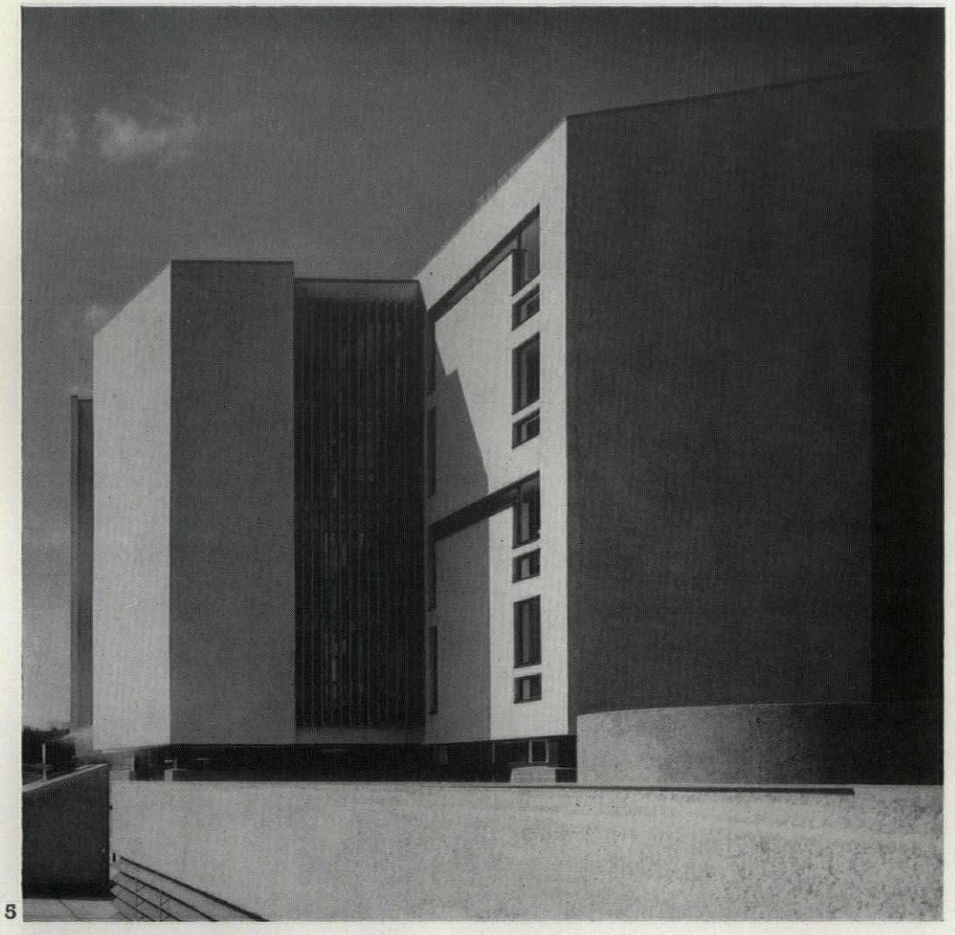
SCIENCE LIBRARY, UNIVERSITY OF ABERDEEN



2, the easternmost corner of the block showing the clear division between ground and upper floors. 3, oblique view, across the lower-level service bay. 4, the university complex seen from the fields beyond Bedford Road, which runs along the west side of the site. On the left is the natural philosophy building and directly behind the library, the Chemistry



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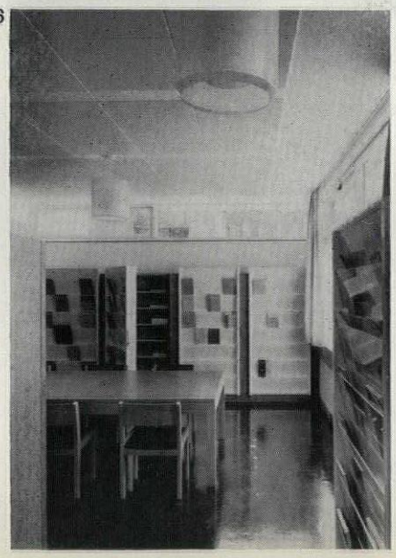
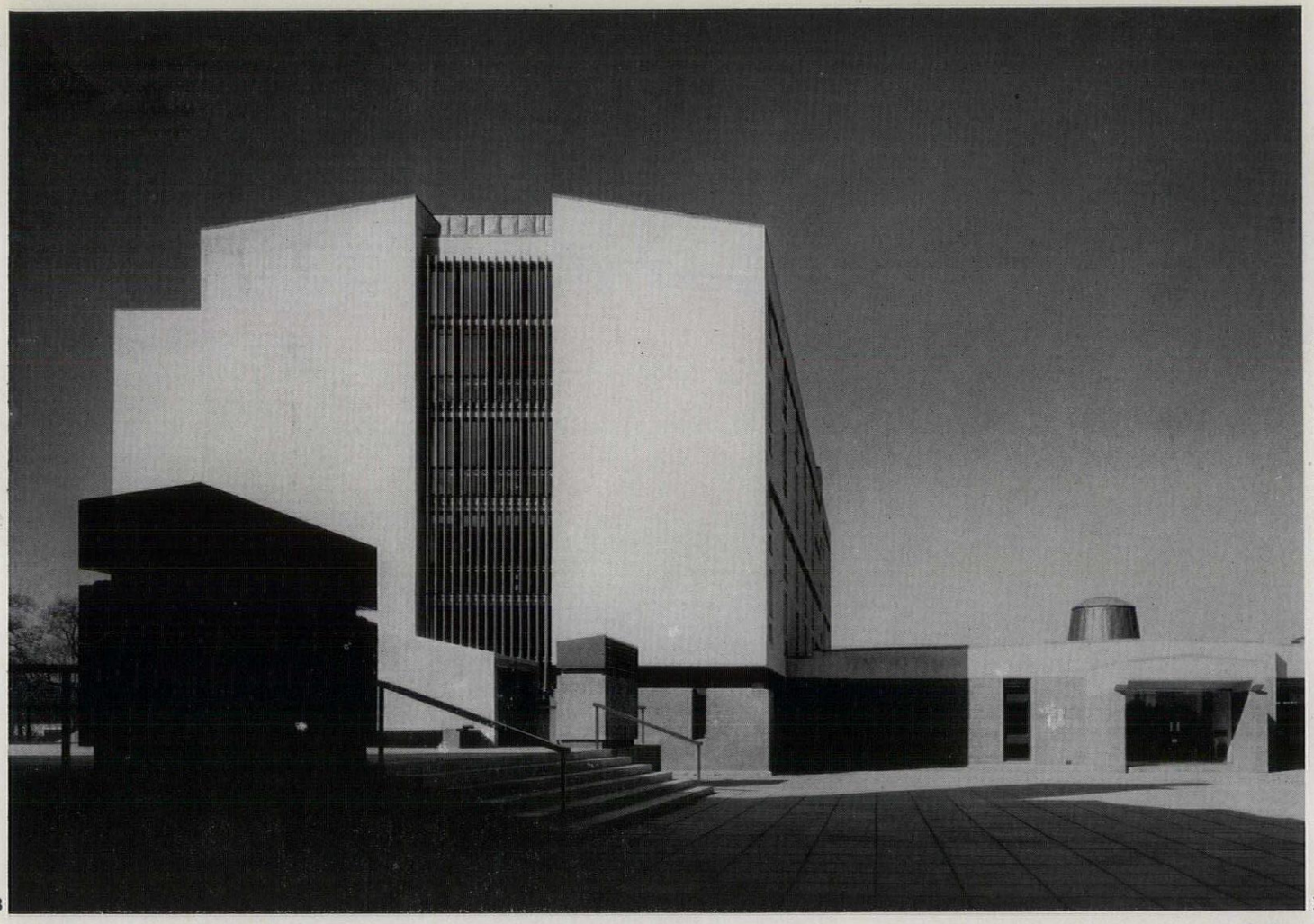


6

5, view from the heating station terrace. The slats on the windows, of honey-coloured fibre-glass, are to cut down glare within the library. 6, the ground floor periodical reading-room. 7, main entrance with the cloakroom block in the foreground.

7



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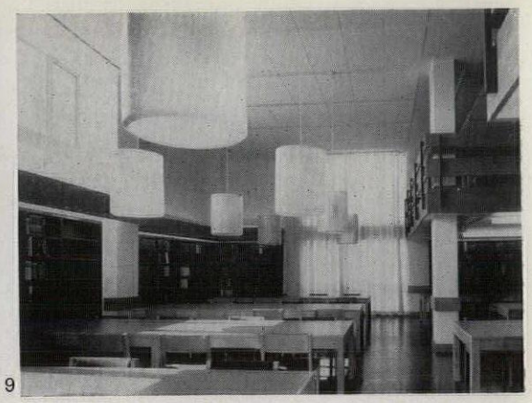

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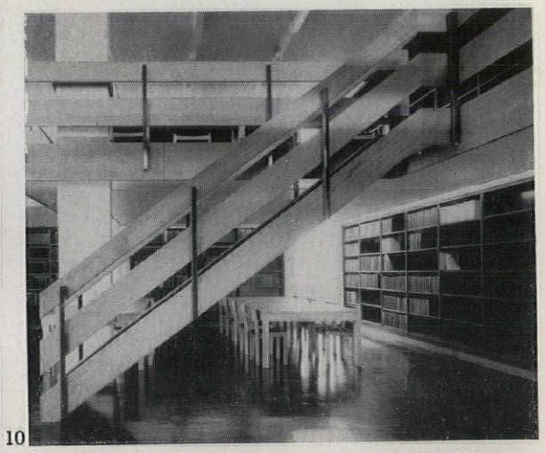
8, the library from the east with the terrace formed by the below-ground heating station in the foreground. 9, one of the main reading-rooms showing the mezzanine level on the left. 10, staircase from reading-room to mezzanine deck.



10

SCIENCE LIBRARY, UNIVERSITY OF ABERDEEN

COYLUM BRIDGE HOTEL

MOTOR INN/SKI HOTEL AT AVIEMORE, INVERNESS-SHIRE

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Builder:
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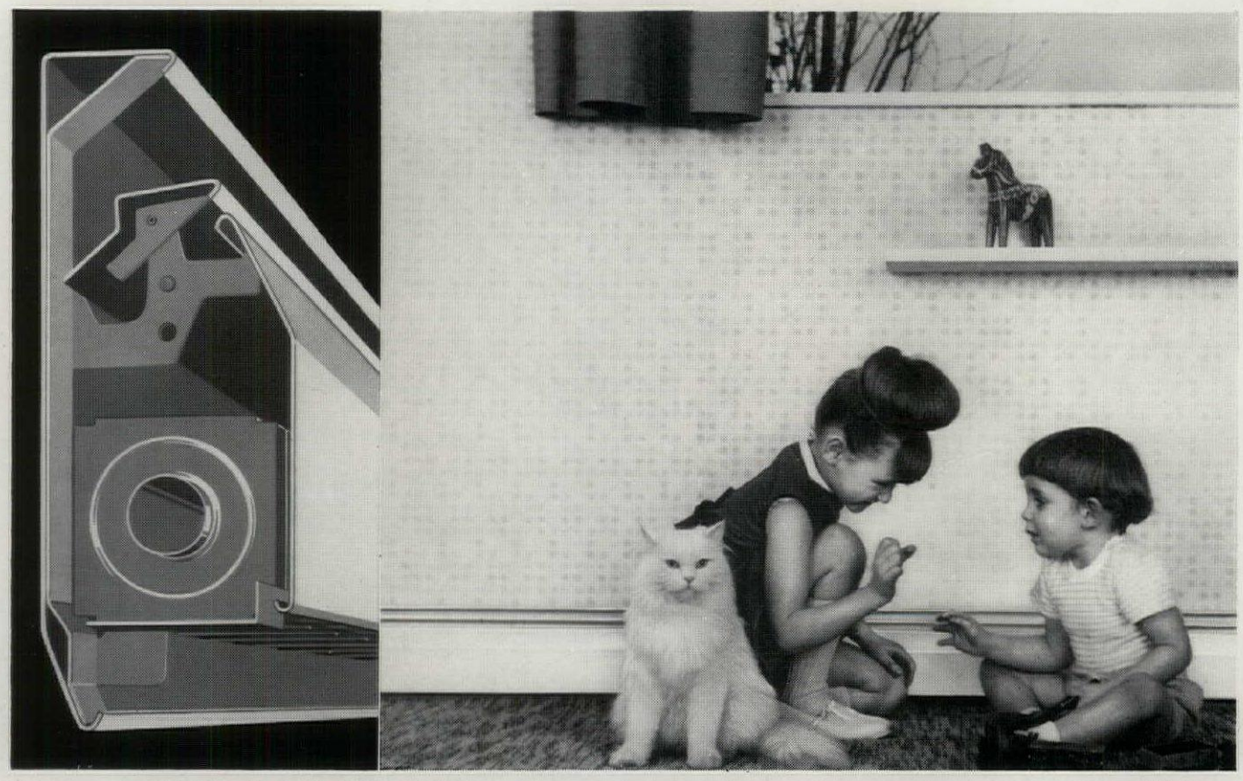

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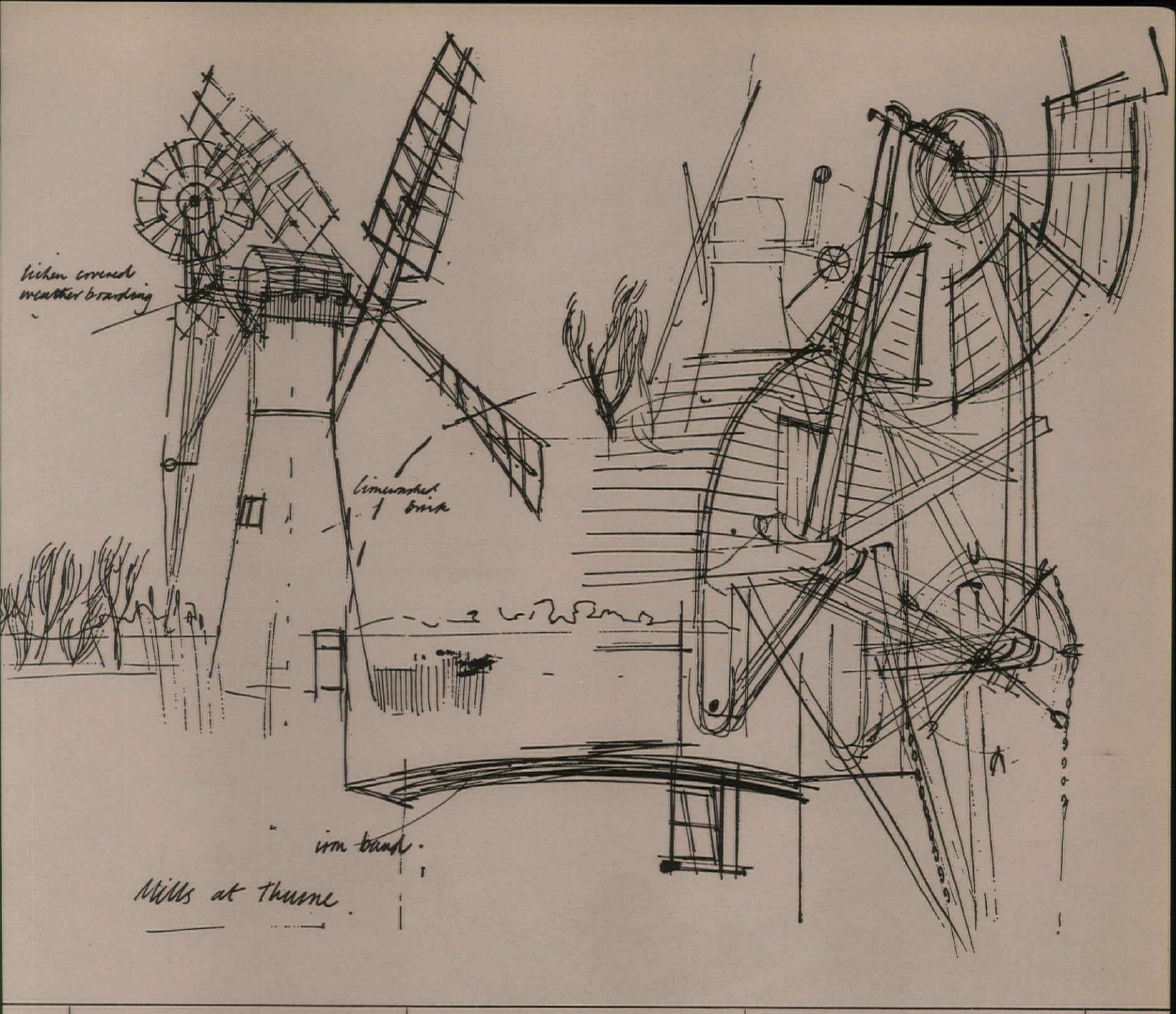
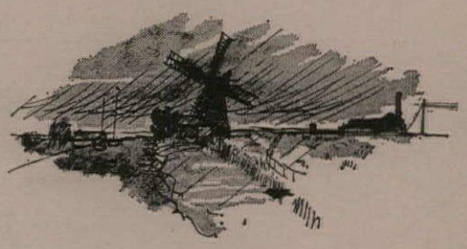


contemporary draughtsmen

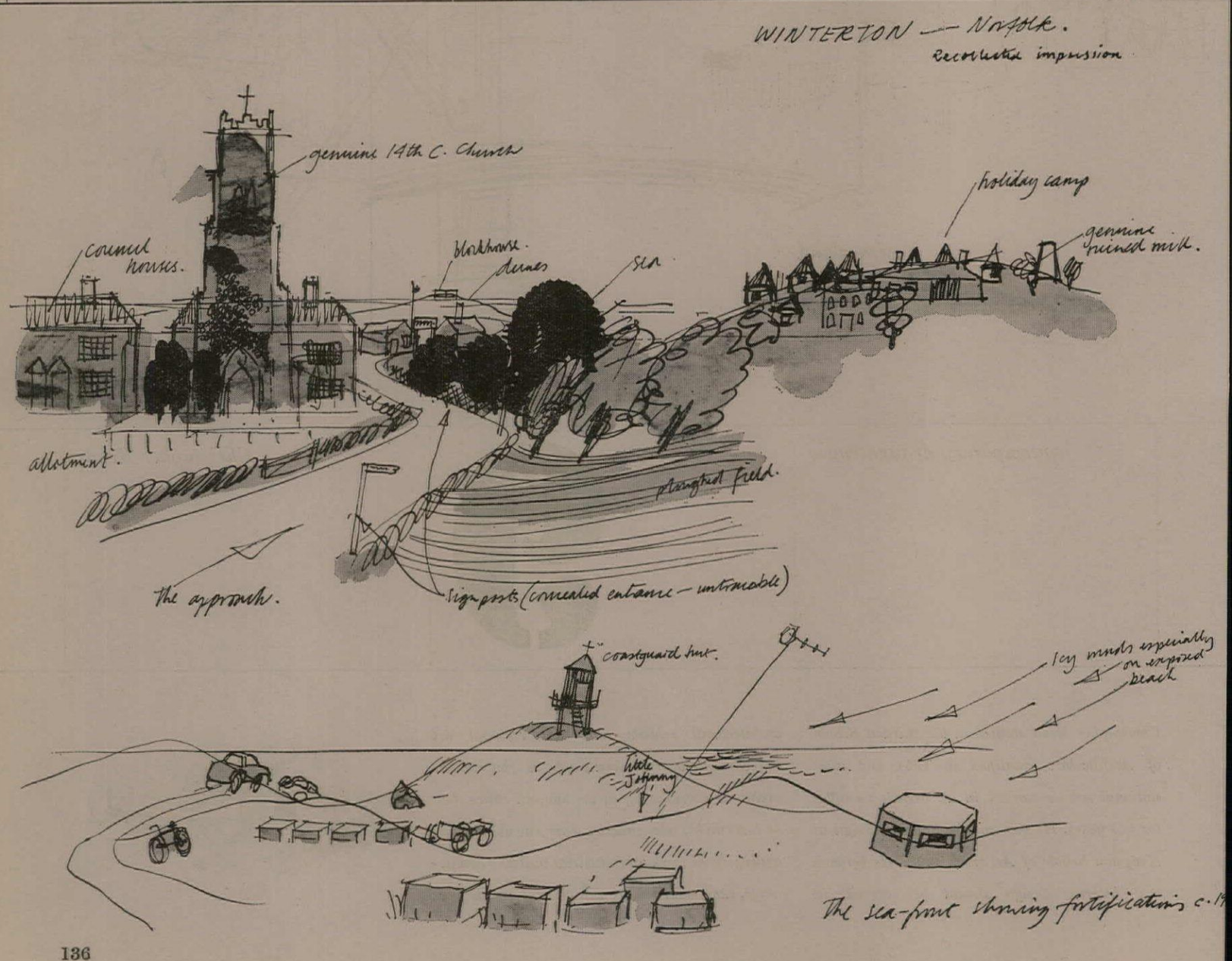
9

Christopher Read

Christopher Read studied at the Bartlett School of Architecture, qualified in 1951 and after national service worked in an architect's office for two years. He then taught interior design at Kingston School of Art until 1963. He believes that interior design should be covered in architectural schools and that regional art colleges should run post-graduate courses for architects specializing in the subject. Since then he has run his own practice, carrying out various architectural work on industrial building components, exhibition stands and general design jobs.



contemporary draughtsmen: **9 Christopher Read**



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Design Review

New products chosen and annotated by Ronald Cuddon.

DR

Carpets

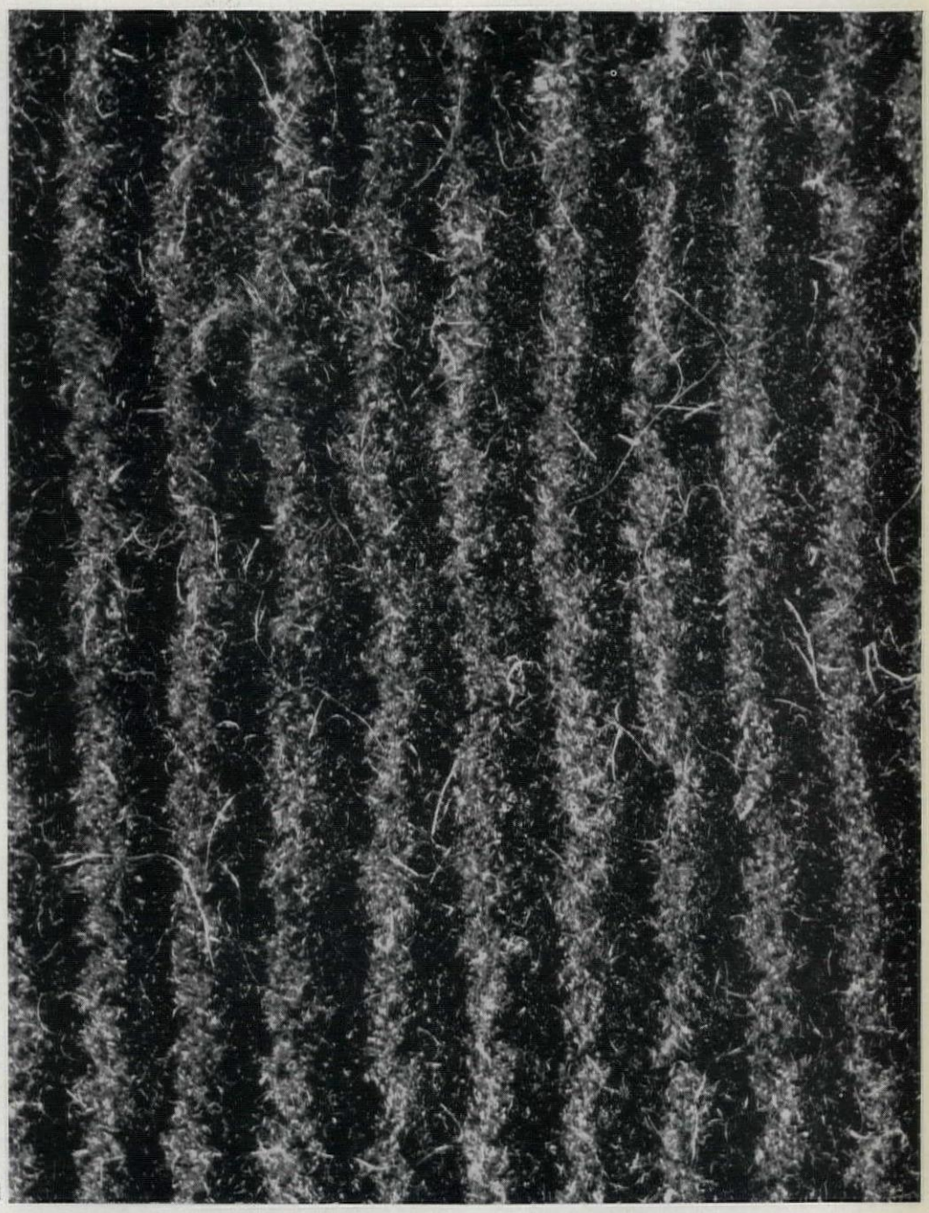
It is unfortunate that most people are fascinated and finally seduced by stimulating carpet and curtain samples. Thus the carpet manufacturer is faced with a dilemma because the demand for highly patterned and multi-coloured carpets is enormous and it is remarkably difficult to convince many clients and retailers that a plain or restrained design may be the most satisfactory choice where fitted carpet is required. Yet detail, pattern and colour are but components of, and subordinate to, the total architectural concept. A simple design may contribute more to an interior than one which has greater appeal at first glance. But simplicity is a profound and subtle ideal; it is the final distillation of skill and sensitivity, and the apparent effortlessness of the result conceals immense mental application.

It will be argued that many lovely oriental carpets are heavily patterned, but in the best of these the overall richness and glow is created by the interaction of their many similar tones and enhanced by their unique texture. They are in any case at their best when used as loose mats on hard surfaces of wood or stone. Like jewels they should be used with discretion and restraint.

The worsted Wilton carpet shown in 1 is a Scandinavian design adopted and manufactured by Brintons. It was used in the executive offices of a petroleum company project two years ago and at that time was the only carpet thought to be completely satisfactory for the job. It helps to create an air of coolness and serenity and does not compete visually with furniture or people, yet it is of sufficient interest to break the deadness that plain Wilton or Axminster sometimes gives. The two closely related colours used in the very narrow stripe impart richness and depth without giving a strong directional effect. Shading still occurs, but is less apparent than in a plain carpet. The sample photographed is a two-tone grey, but other colours are available or can be obtained when reasonable quantities are required.

Shading in carpets causes a good deal of dissatisfaction and irritation among clients. It is worst in plain carpets of high quality where the pile is closely woven and even in texture. I. & C. Steele and Tomkinsons have now developed two plain-textured carpets, Oxon, 2, and Hempton, 3 (designed by James P. Church), which overcome this problem. They formed part of an excellent collection shown in London recently. Both are Wilton, but a new weaving technique has been employed to give corded and squared textures. These catch the light in such a way as to break up shading but also give the single colour used added depth and quality. The same collection included a number of highly successful geometrical designs. For the purpose of illustrating on these pages in black and white, only patterns in contrasting colours have been photographed, but the most successful designs were those which were small in scale and woven in muted colours or in colours with similar tonal values.

Patio, 4, designed by Mary Yonge, is a



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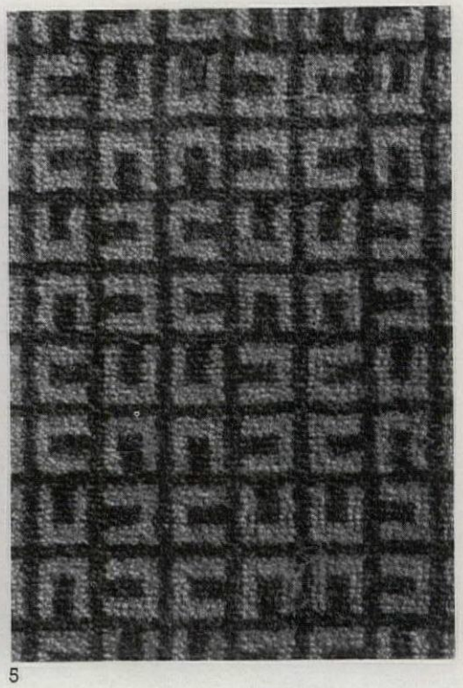
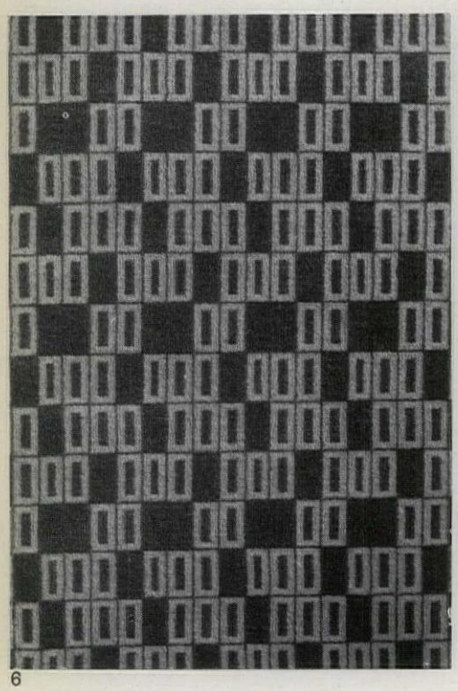


5

complex geometric design in four colours and gives the effect of one colour in different tones. The large sample exhibited vertically at the collection was enchanting, though it could dominate a room and must therefore be used with great care. Magnetic, 5 (also designed by Mary Yonge), has a simple 1in. motif in two close-toned colours, and this design and Patio are both available in four colourways. Adderbury, 6, was designed in Steele's own studio and is a design of rectangular motifs evenly spread over the ground colour and available in three colourways. Toltec, 7, designed by Hugh Mackinnon, is reminiscent of ancient South American fabrics, and Furrows, 8, designed by Lucienne Day in five carefully related colours, is basically a stripe though directional lines are avoided by the changing colours of the rectangular blocks. This design and Toltec are available in three colourways. All the carpets from this collection are woven with 80 per cent wool and 20 per cent nylon but, 5 and 6 can be obtained in 100 per cent Acrilan pile. All are 27in. wide, with 3, 4, 5 and 6 also available in 36in. width.
It is rewarding when one finds manufacturers who are courageous enough to back new developments and untried designs and to do so in a confident and generous fashion. Studio 3 has been set up by Steele and Tomkinson under the co-ordination of Helen Challen to meet the needs of modern architects and designers. Such a consistent and positive approach is indeed rare.

Products: Carpets
Manufacturers: Brintons Ltd.
I & C. Steele and
Tomkinsons



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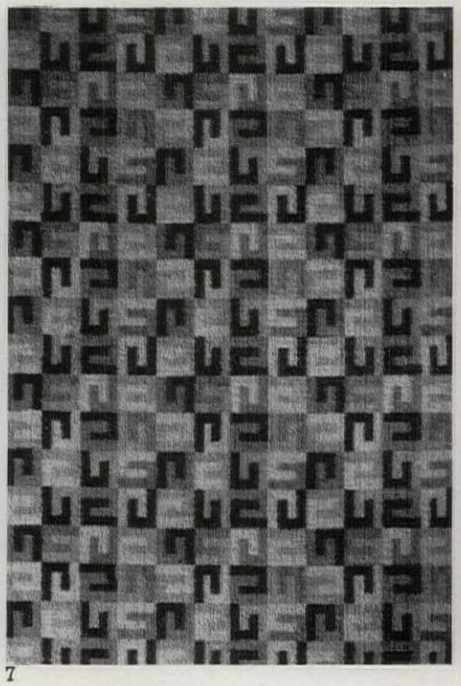

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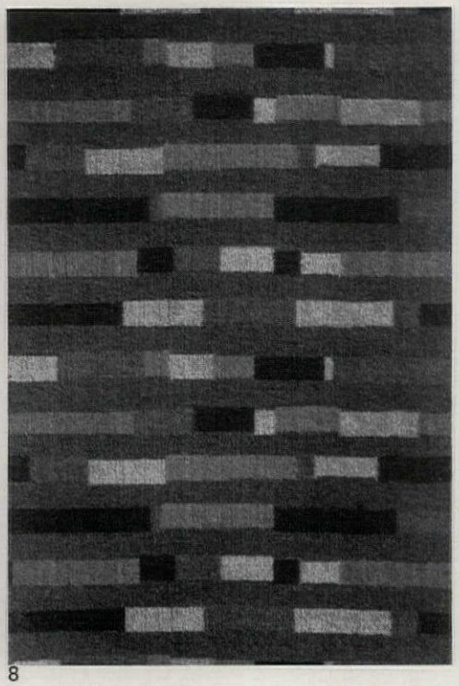

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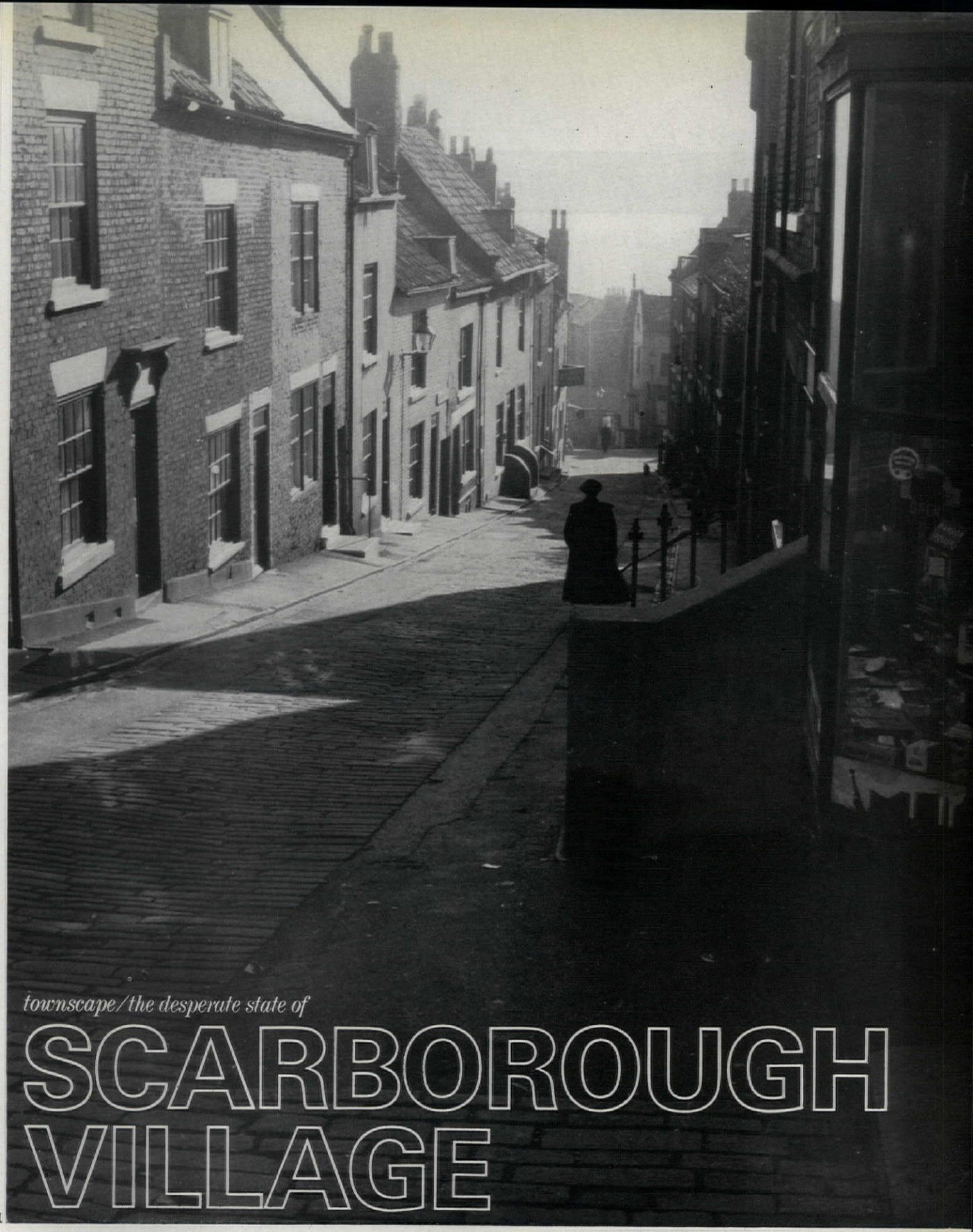


townscape/the desperate state of

SCARBOROUGH VILLAGE

1

MISCELLANY

Behind the bingo halls of Scarborough's foreshore lies the old fishing centre of the town. It was from such villages that most seaside resorts sprang up, and often they remain the most interesting and charming areas. This was certainly true of Scarborough thirty years ago. In 1938 a report entitled *The Further Development of Scarborough* by Professor Adshead described in detail the individual houses of this part

3

4

5

6

of the town. He made a plea for 'the very special attention that should be given to their preservation by all housing authorities having fishing villages in their area.'

How far this plea has been ignored was shown by an exhibition of photographs recently mounted by three Scarborough men, Peter Burton, John Lane and Raymond Fieldhouse, in the town's Public Library. Entitled 'Live or Let Die,' it set out to show the beauty of domestic architecture in the North Riding and how easily it can be ruined. The most startling example of ravishment which it revealed has occurred in Scarborough's fishing village.

Such villages grew from a special way of life; fishermen have always liked to live near their boats in crowded, closely-knit communities that seemed in spirit to shut out the bare seascapes, the windy waters, the unpeopled wastes where they fish. So there grew up another world, intimate, crowded, cosy. Houses and cottages were piled together on top of one another on narrow cliff sites (Staithes, Runswick Bay), or across a river valley enclosed by cliffs, as at Whitby; or on the protected shoulder of a castle-dominated headland as at Scarborough. 2 shows the harbour seen over the roofs of Scarborough's fishing village and 3 Princess Street with the castle in the background.

The homes built in the seventeenth and eighteenth centuries mirror also a particularly northern way of life. The individual houses may come from builders' copybooks used up and down the country; but always something original, northern in character, seemed to creep into the proportions of doorways, windows, façades (4 and 5 are typical examples from Scarborough) and into the setting of narrow alleys, small yards (often entered down narrow tunnels under the houses) and wider open spaces. Then, as in Whitby, there were the more important houses, coaching inns, churches of the main Church Street. Behind, piled on the hillside, the pantiled roofs of hundreds of cottages.

In Scarborough many principal houses still remain in streets like Longwestgate, above the village. But the host of smaller dwellings which frame them have gone. Fine Georgian houses have been pulled down, medieval pubs allowed to fall into decay, doors and windows 'modernized' (so ruining the proportions and feeling of the buildings). Beautified bungalows replace eighteenth-century cottages, and their chintz curtains and pseudo-Georgian lamps mock the genuine old buildings that remain. Of the main thoroughfare, Quay Street, little remains; the houses still standing are mainly uninhabited and in a state of decay. Poorly designed new houses intrude among the old, 6, and instead of

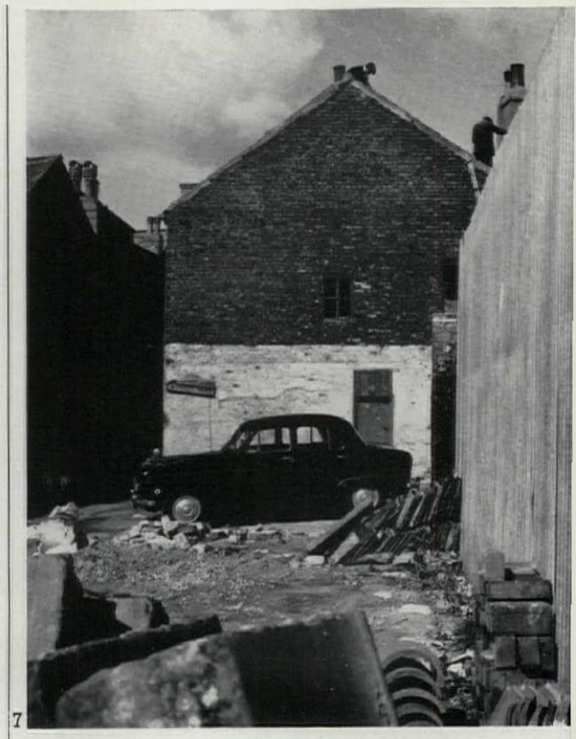
the narrow streets which gave the area so much of its character, there are wide, gaping spaces filled with rubble, 7.

Despite the existence of an old smugglers' inn with secret panels and escape tunnels, the fishing village is virtually unknown to the thousands of tourists who throng the foreshore only a few yards away. So nobody has any financial interest in preserving old buildings that would, in the coastal villages of Cornwall, be a tourist attraction. An idea of the quality of these dwellings can be gleaned from the 1938 Adshead Report. One block of buildings is described in the Report thus: 'These are old seventeenth-century buildings, or earlier, and with the arch form an extremely interesting feature. It appears that the house has been reconditioned and should be carefully preserved.' All have since been demolished. Too often when the Report says 'should be preserved' one finds that the buildings no longer exist. 1 shows St. Mary's Street, Scarborough, where the houses on the left are about to be demolished.

But it is not only demolition that is ruining the fishing village. Insensitive alteration of details can have a disastrous effect on the proportions of Georgian houses. Doors and windows have been torn out and replaced by mock-Georgian bottle glass; huge lilac drainpipes crawl over the facades. The street plans are broken up when the modern bungalows are set back from the existing houses, and the roof-line is irreparably destroyed.

The same thing is happening all up the North-east coast. Whitby is more conscious of its heritage (on which it depends for its tourist trade), but even there much damage has been done. During the inter-war periods a new fisherman's estate was built farther inland. The old 'unhygienic' yards, so meticulously scoured by generations of fishwives, began to vanish. Church Street crumbled before the onslaught of traffic. First it was laid open to the river (a not altogether ruinous fate); then pseudo-Georgian blocks replaced earlier town houses, more open spaces appeared (usually car-parks), the bridge approach was spoiled with modern shop-fronts. The heart was torn out of the old town proportions. The wooden balconies (a characteristic detail) were worth imitating, but unfortunate suburban-type balconies were all that could be constructed. Well-meaning developments have ended in a dull and disappointing townscape.

What can be done to preserve these fishing villages? In the first place, we need a community where fishermen can live and work and not feel themselves part of a depressed area. Now that so much has gone, only a complete redevelopment to a comprehensive plan can improve the situation. Piece-meal bungalow erection among the carcases of eighteenth-century foundations is no answer. The superb site



7

below Scarborough Castle, and the white early nineteenth-century terraces and the parish church of St. Mary overlooking the harbour, call for more than mere hack-building. What remains of the good buildings of the old village must be retained and the waste space sensitively developed.

HARLAND WALSHAW

furniture

A MODULAR TABLE

1

Often the planning of furniture within a room or series of rooms presents the architect with the same problems as does the planning of buildings themselves, and demands the same kind of solution. The conference table illustrated here, 1, is a case in point in which the requirement of flexibility and variety of use was met by the standardization of a basic unit capable of being assembled in different ways.

The table was planned (by Mr. W. L. Yuille, a partner in the firm of Burnet, Tait and Partners) for the extension to the Chamber of Shipping building in St. Mary Axe, London, which the firm completed at the end of last year. The conference area on the ground floor of the building had to cope with a great variety of business, and was therefore provided with sliding walls that allowed the area to be sub-divided at will into units corresponding to one, two, four, five or six bay widths while retaining longitudinal, as well as the lateral, door openings.

The table, following the same principle, was composed from a standard unit—based on a one-metre module—which can be easily demounted and reassembled in any number of combinations to suit the various purposes the area is required for: committees, conferences, entertaining, dining-room and ante-room. The four photographs, 2–5, show some of the possible arrangements.

The basic unit was not specially made, but is a standard table by the Danish architect Finn Juhl, which is of teak, the same material employed on the walls of the con-

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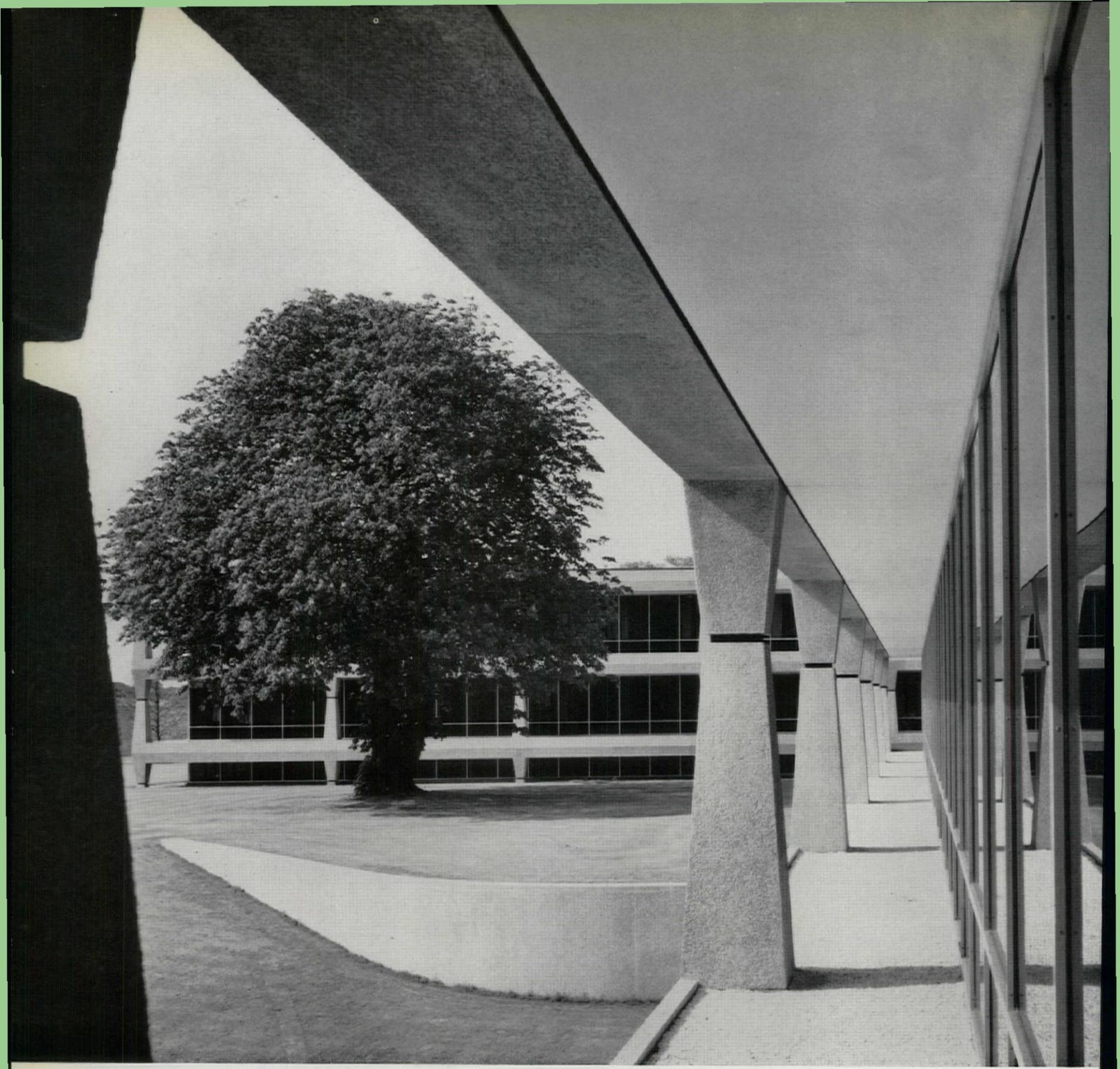

THESE distinguished buildings, forming a new research and administration centre, were recently constructed for H. J. Heinz Company Limited by Trollope and Colls to the design of Skidmore, Owings and Merrill, of New York, in association with Mathews, Ryan and Simpson of London.

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2

3

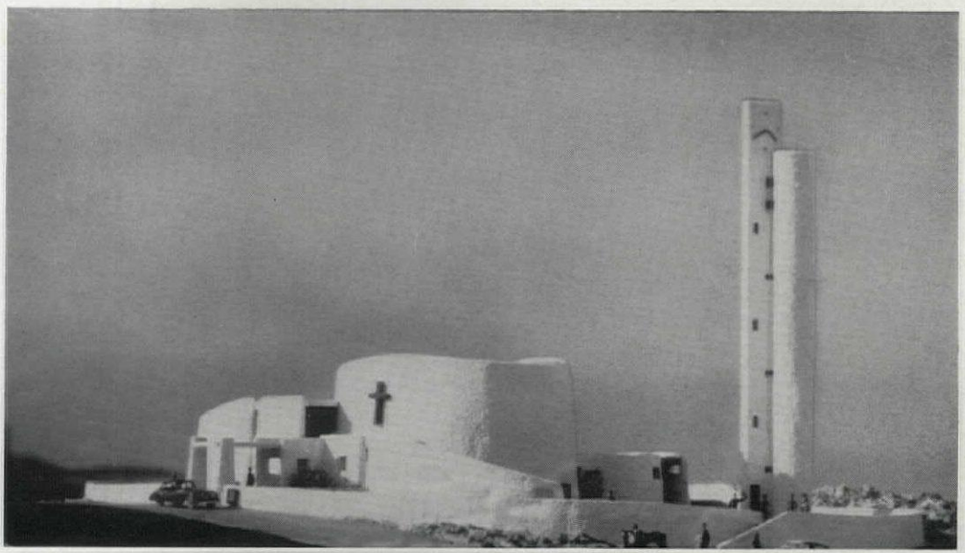
4

5

ference area. The chairs are also by Finn Juhl. It is interesting to note that the dimensions of the basic unit—one metre by two metres—are approximately the same as those of the *tatami* mat, the unit employed in the modular design of Japanese houses, both units being related to the human body in a sitting posture. The spatial arrangements of the table unit can vary in the proportions 1:2:4:5:6, governed by the 10 ft. bay width of the new building which was also the bay width of the original building.

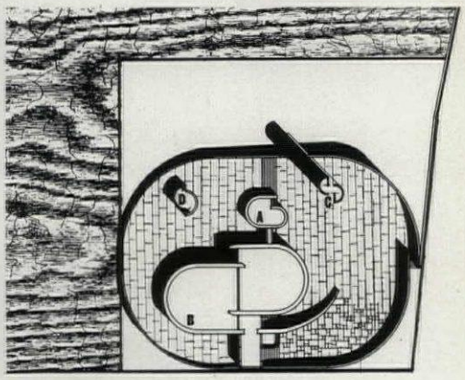
architecture

A MODERN VERNACULAR IN MALTA



1

When some new War Office married quarters in Malta, designed by the Austin-Smith, Salmon, Lord Partnership, were illustrated in the AR in April, the relationship of the buildings—in form and colour—to the Maltese landscape was discussed, since a topography like Malta's, with its lack of vegetation and its geological structure evident, as it were, on the surface, demands that new buildings shall be sympathetic to it and conform to the tradition that buildings merge into the landscape rather than stand out against it. A Maltese architect, Richard England, has been particularly concerned with evolving a contemporary idiom that will answer this demand and echo indigenous



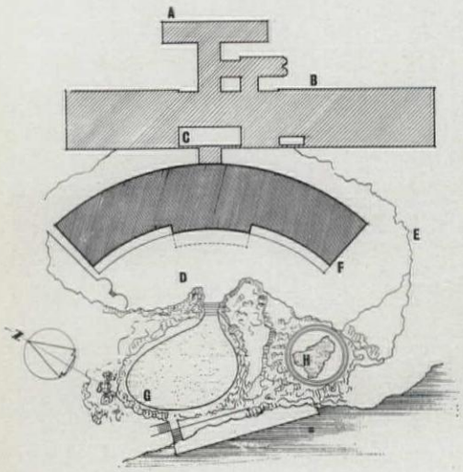
plan of church

key
A, sacristy
B, church
C, bell tower
D, crib

ways of building. The accompanying photographs show two of his most recent buildings. The first, 1, is a church sited at the top of the typical Maltese village of Manikata. It has been influenced by the shapes of primitive Maltese neolithic temples and also by the beehive structures,

used by farmers as tool-stores, that are found in all parts of the island.

The church, which seats 150, is built of local stone cut to a rough texture on the outside surface and polished smooth inside. The outside walls are given a batter of half an inch per foot of height and are 3 ft. 6 in. thick at the base. Roofs and the bell-tower are reinforced concrete. As the plan of the church shows, all the elements have the same overlapping circular shape on plan. The piazza that unites them is on two levels.



plan of hotel

key
A, entrance porch
B, main block
C, staircase
D, terrace
E, cliff face
F, lower level block
G, swimming pool
H, children's pool

2

3

The second building is a 45-room hotel at Paradise Bay occupying a picturesque site on the north-western tip of the island. It is sited above a disused quarry, which

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4

accounts for the curved shape of the lower of the two blocks of which the hotel is composed (see plan). Where the side of the quarry runs into the building the rock has been left naturally rough. This can be seen in 2, the view from the west. The upper block contains most of the bedrooms. It is shown in 3 with the lower block in the bottom left-hand corner which contains additional bedrooms convertible into suites and the public rooms. The entrance, 4, is at the upper level on the opposite side.

Exterior walls are of hollow precast concrete blocks, plastered, but interior walls are of local stone. Roofs, beams and the arched canopies are concrete. The hotel was commissioned by a British firm (Halstead Taylor & Co.) and is one of the first of a series of new hotels being built in Malta with Government aid to help establish it as a tourist centre.

history

pedestrian cross-over

We are proud of our progressive ideas, especially those concerned with traffic segregation—the idea, for example, of providing pedestrian circulation at an upper level, crossing at appropriate points over the wheeled traffic below. But we too readily regard this as a wholly modern notion. There are precedents from the past, and when we consider—as we have hardly begun to do—how to translate these ideas into architectural terms, it is worth looking at the way similar two-level circulation has been handled before: at the Rows at Chester, for example, where the pedestrian circulation is woven in and out of the façades of buildings, avoiding the exposed decks that most of our modern solutions provide.

Here is another—quite modest—example at Exeter, photographed by Eric de Maré. An elegant iron bridge, appropriate in scale to its purpose, continues a pedestrian walk formed at the top of the old city wall across one of the roads leading towards the cathedral. Note the date, 1814, and, just above it, the lamp-bracket integral with the structure. Another moral here: light fittings and street furniture too often, in modern examples, look like unrelated afterthoughts.

Sunshine and Radiation Calculation for Buildings: 2

In this article Tom Markus concludes his review of methods by considering the criteria for glass/shading devices and the problem of solar heat gain through windows.*

skill

Criteria for glass/shading device combinations: continued

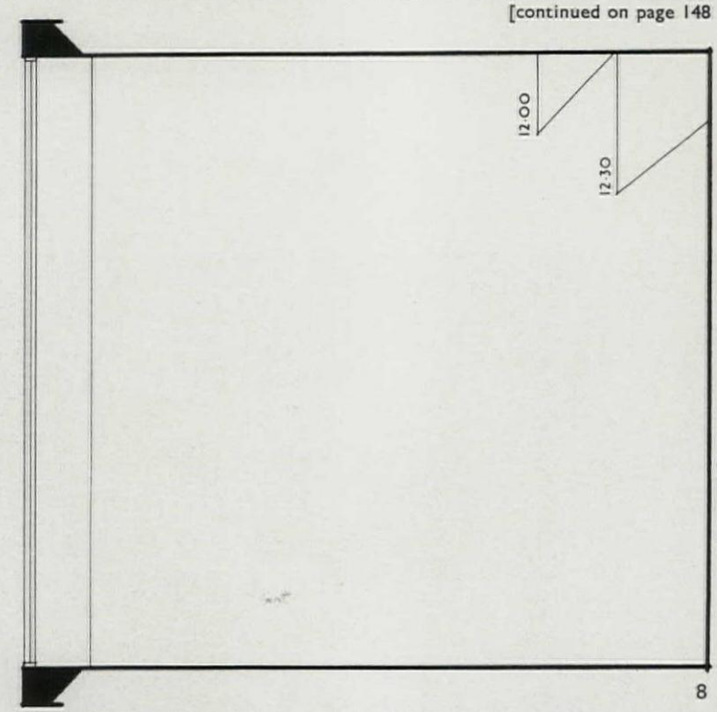
(*d*) *Vision through:* Increasingly, the purpose of the window, especially in fully air conditioned buildings with fixed windows and with permanent supplementary lighting, is to provide a view-giving aperture between the internal environment and the external one. Quantifiable criteria in terms of size of the view (solid angle?) and its information content (for instance, the proportion of ground, landscape and sky that it contains) are, as yet, almost totally absent. Much further research will be needed before this increasingly important function of the window can be specified in terms of human satisfaction. However, the imposition of a blind of a movable kind between an occupant and the external view is more tolerable if such a device allows a reasonable amount of view through it—at least sufficient to give a continuity of view and some information about the exterior world.

The degree to which any device composed of solids and voids—for instance open weave materials or even venetian blinds of normal or miniature slats — allows vision through, depends in part on the angular relationship between the observer's eye and the size of the apertures, and in part on the relative brightness of the solid portions of the mesh facing the observer, and of the view seen through the apertures. The Victorian lace curtain is a good example. Viewed from inside, the mesh is of a fine scale, the surface brightness of the threads is low compared to that of the surfaces outside and the curtain causes little interference with view out in the daytime. Viewed from outside, however, the reverse brightness relationships apply—the interior surfaces seen through the aperture are dark compared to the high brightness of the mesh threads on the outside surface, and by the phenomenon of veiling glare, transparency is obliterated and the mesh reads as an opaque white surface from beyond a critical distance, which depends on its size.

More work is needed on the size of mesh related to viewing distance and suitable reflectances to give reasonable transparency without upsetting the solar heat and glare control functions. Linked to this problem is the reverse one of privacy but fortunately, in this case, the subjective requirements of oblitera-

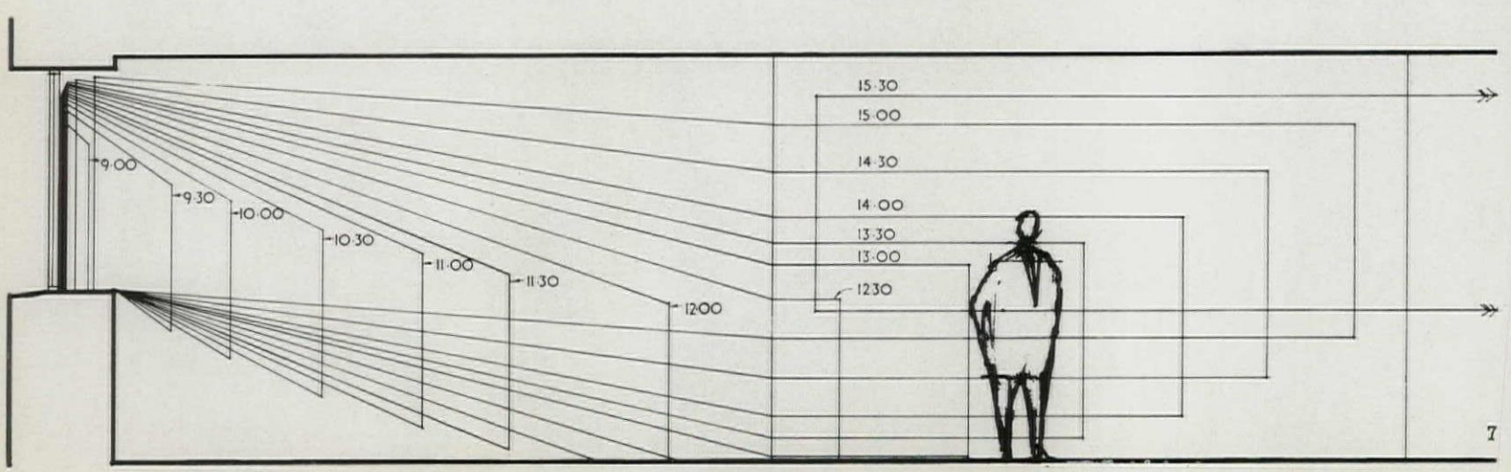
[continued on page 148

* The methods described in both articles are drawn from *Sunpath Diagrams and Overlays for Solar Heat Gain Calculations* by P. Petherbridge, Building Research Current Paper Series, Research Series 39, March 1965, together with Supplement.



8

Diagrams showing the insolation obtained from a horizontal strip window. 7, elevation of side and back walls. The patches show sunlight on floor and walls at different times of the day on December 21. 8, plan.

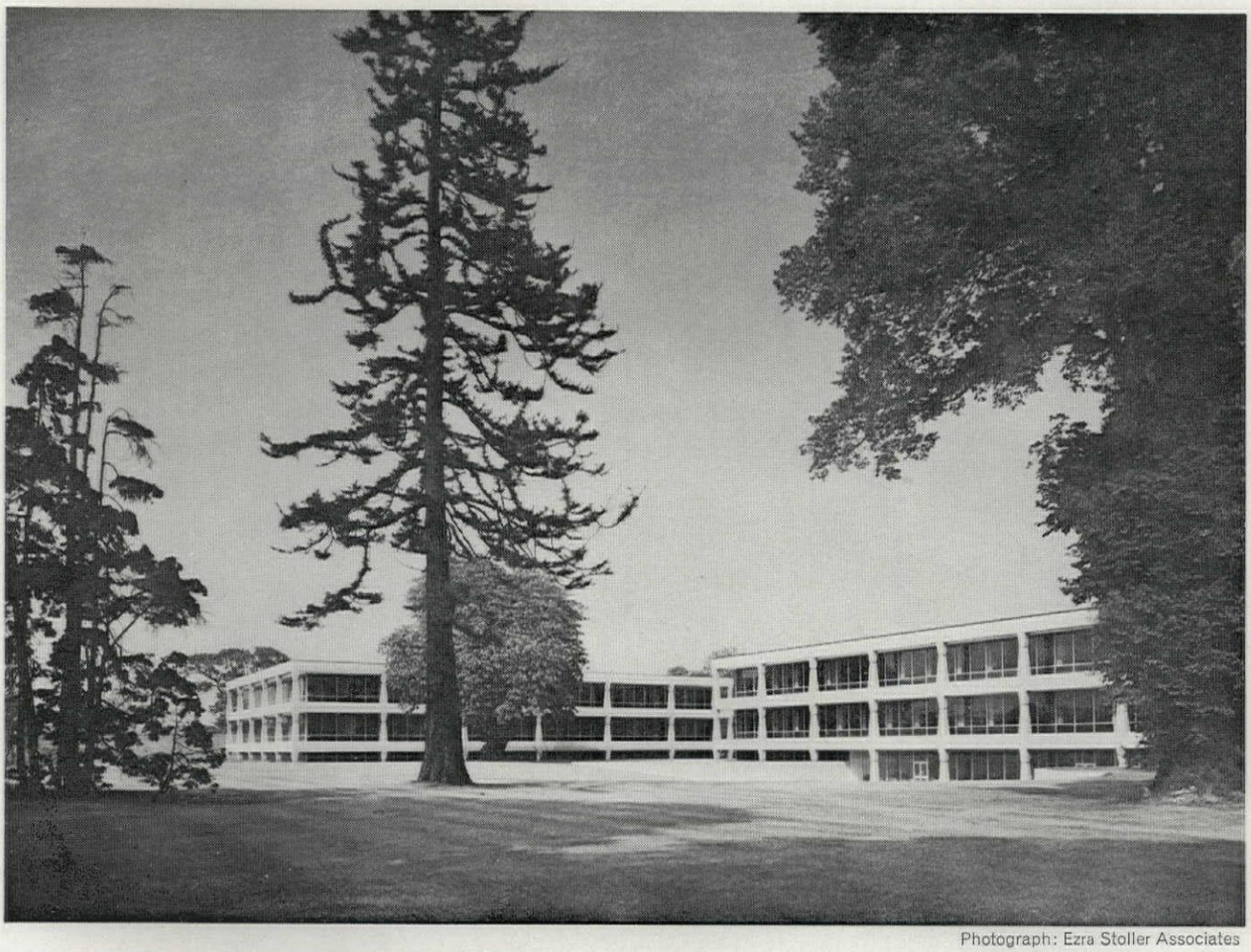


7

New Administration and Research Centre

for H. J. Heinz Co. Ltd. at Hayes Park, Middlesex.

Architects: Skidmore, Owings and Merrill of New York in association with Mathews, Ryan and Simpson (formerly J. Douglas Mathews and Partners).
Consulting Structural Engineers: Harris and Sutherland in conjunction with Paul Weidlinger of New York.
Electrical and Mechanical Services: Matthew Hall Mechanical Services Limited in conjunction with Jaros, Baum and Bolles of New York.
Quantity Surveyors: A. Boxall and Partners.
General Contractors: Trollope and Colls Limited.

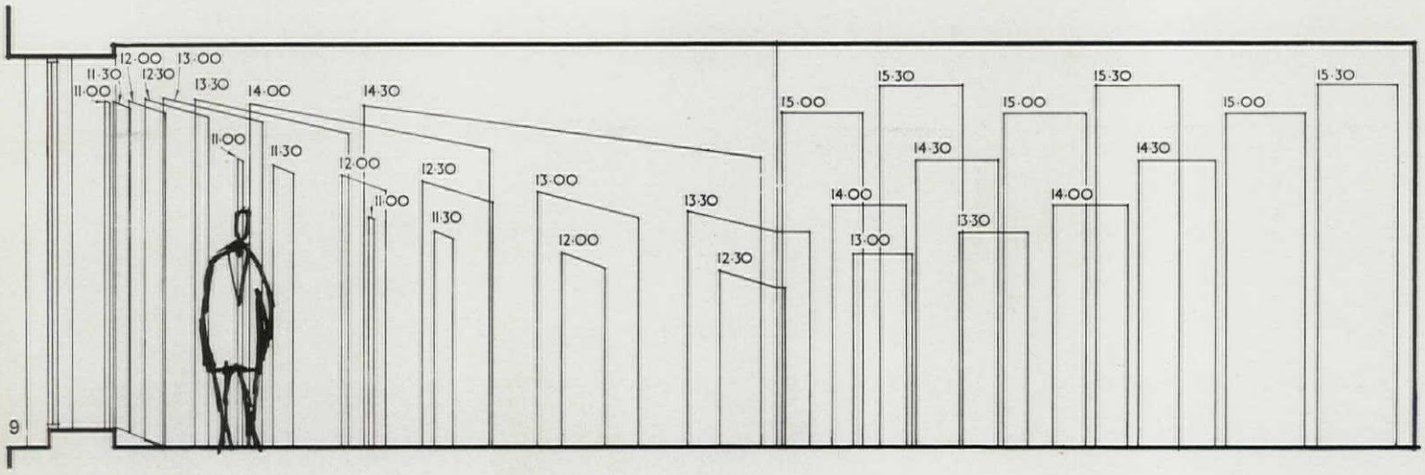


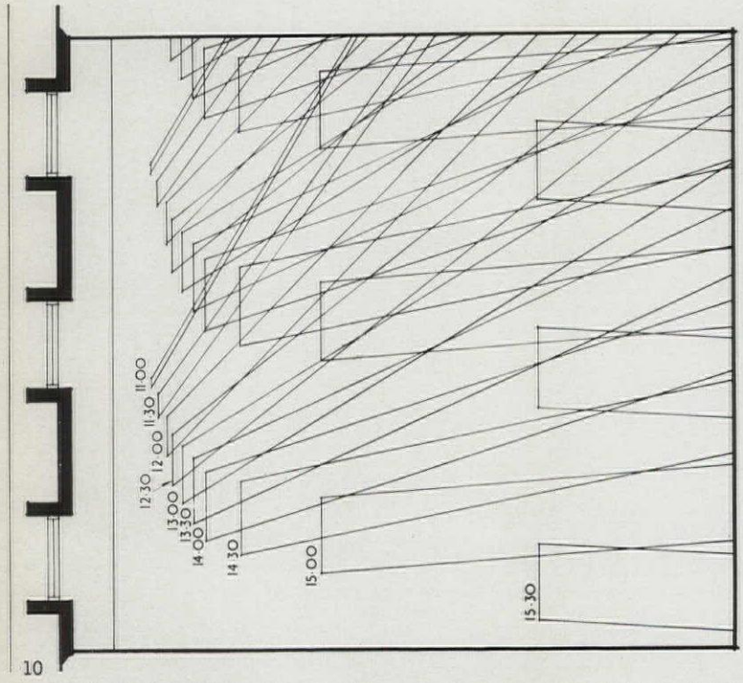
Photograph: Ezra Stoller Associates

Under a 'multi-services' contract all the mechanical and electrical services were designed, co-ordinated and installed by Matthew Hall, (in conjunction with the architects and Jaros, Baum and Bolles). These services include high velocity dual-duct and induction air conditioning, heating, sanitation, fire protection, domestic water services, electrical lighting and power, process and laboratory services and kitchen equipment.

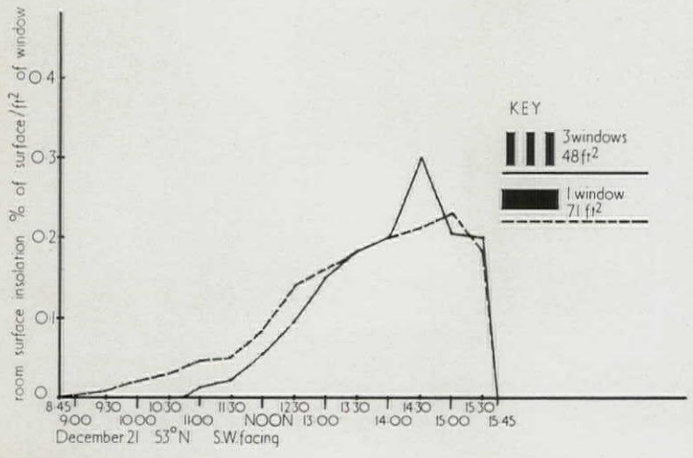
Throughout the programme from initial design to final installation the services were co-ordinated by Matthew Hall.

Space requirements and installation time were reduced by the integrated design and unified responsibility.





Diagrams showing the insolation obtained from three vertical strip windows. 9, *elevation of side and end walls.* 10, *plan.*



11, *graph comparing the percentage of room surface insolated expressed as a ratio of window area, calculated from figures* 7-10. *The windows face south-west.*

continued from page 146]
tion of transparency from outside appear to coincide with functional requirements for maximum reflectivity on the outside surface of open mesh materials.

(*e*) *Appearance:* After a full analysis of the thermal and lighting properties of a given combination, its cost and its subjective effect with regard to view and privacy, the designer must still, of course, weigh up the visual character and its appropriateness to the general concept of the building interior and exterior, and the design of the whole group of buildings when the shading devices play a prominent part on the exterior. Here, at the moment, one can only suggest that the designer apply his traditional intuitive selection to solutions in which the quantifiable elements have already been worked out, so that at least, in making his intuitive choice, he knows the functional and cost consequences and can put these to the client.

(*f*) *Sunshine penetration:* In northern climates the penetration of sunlight to interiors of various kinds has usually held to be desirable, particularly during winter, and various Codes have been drawn up specifying minimum hours of penetration for certain winter months. In tropical climates, too, it may be that provided adequate visual and thermal protection is given, the penetration of sunshine in limited quantities has subjective value.

Whilst here, too, more research is needed, we can already try to be more specific about what we mean by sun penetration. Is this to be defined in terms of the depth of the room into which a patch of sunlight penetrates; or the proportion of all the room surfaces which are insolated; or is exterior insolation of, for instance, closed patios or courtyards also to be included, since its subjective effect may be the same as penetration of sun into a room? The all-important question arises as to whether sunshine inside a room with a relatively dark exterior scene, such as occurs round about midday from the south side of a street, is to be preferred to the vision of a sunlit scene seen outside from a shady room such as would occur at the same time from the other side of the street, i.e. from that facing north. In the light of recent studies of apparent brightness which show that in the former case the high brightness within the room would lead to adaptation levels making the exterior scene look even darker than it really is, and that in the latter case the reverse would be true, it is possible to go part of the way to evaluate this effect.

One way of expressing the 'sunshine penetration efficacy' of a window is by plotting the patches of sunlight on room surfaces on critical dates, and then plotting the result as the insolated room surface area *per unit area of window*, figures 7-11. These figures show how, in the specific case used, three small windows of a total area just over a half that of a single larger one, can at certain times result in better insolation *per unit area of glass*.

Prediction

(*a*) *Selection of critical times:* All solar heat gain calculations involve the prediction of quantities. Whilst it is easy to do these calculations with the data provided in the BRS publication and tabulate the results, it is difficult to know what to do with these data unless they are organized into some helpful pattern. Apart from this the computation of the great mass of alternative quantities for alternative solutions is extremely laborious without a digital computer. Until a designer acquires sufficient experience to pick out the few relevant dates immediately, it is, however, necessary to compute for any given solution the solar heat gain for a number of dates and times. These results should then be plotted graphically so that the variation with date and time of year is immediately evident and can be related to the variation of other thermal inputs such as those from air temperature differences between the outside and the inside, infiltration and ventilation, people, lights and equipment. It is only by combining the solar heat gain with the other heat inputs that peak conditions for the building can be found and these may not necessarily occur at times of peak solar heat gain.

For instance, highest air temperatures occurring in July and August may coincide with days of highest radiation, but the sun position at these times may more than counterbalance the picture compared with late spring or early autumn where less shading will be provided by horizontal overhangs and the total heat gain may be higher.

It is usually sufficient to plot one day per month—for instance the 15th of each month (but in this case

[continued on page 150

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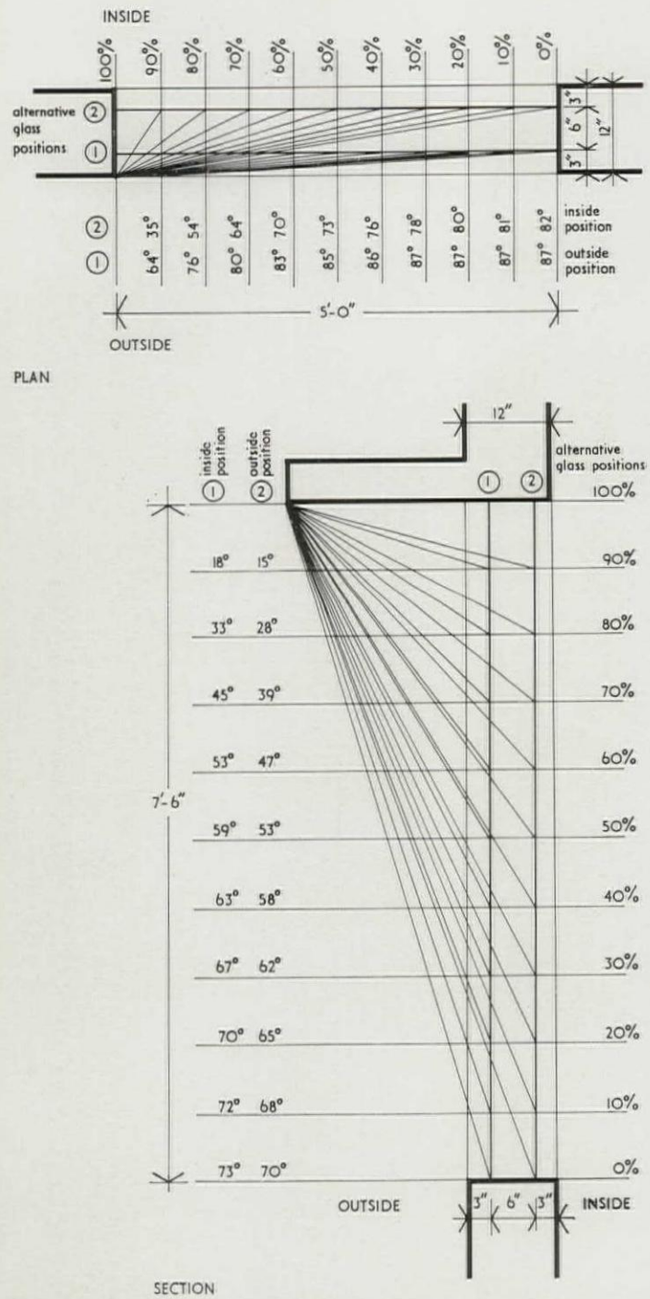


12, *diagrams showing the preparation of a 'percentage insolated' shading mask for two alternative glass positions.*

continued from page 148]

the dates of the equinoxes and solstices should also be included as they are the temporal axes of symmetry), and to plot a value for each hour during the day. It is not possible to say at an early stage in the design whether hourly values, totals for three hours, or daily totals are the most relevant quantities, since this will depend on the character of the building structure and the thermal response of any mechanical plant. It is usually sufficient for the initial analysis to take account only of direct solar radiation, both transmitted and absorbed in the glass/shading device combination, since the diffuse radiation levels from sky and ground will only alter the maximum solar heat gain, but not the pattern of change with date and time.

(*b*) *Combination of solar heat gains:* It will depend on the period chosen—one hour, three hours or daily values—and on the character of the building structure, to what extent solar heat gains taking place on different orientations and through the roof have to be summated. For instance, it is possible that the peak release of energy absorbed through east facing windows occurs after noon by which time the sun has moved off this elevation and is creating solar heat gains on the south elevation.

The BRS publication and this article do not discuss this picture of delayed effects and summation of consecutive periods of radiation on different elevations; they both limit themselves to the computations of the actual amount of radiation transmitted to the building interior at a given instant. What happens to it from then on has to be determined by the architect and air conditioning engineer jointly on the basis of their respective products (the building and the air conditioning plant).

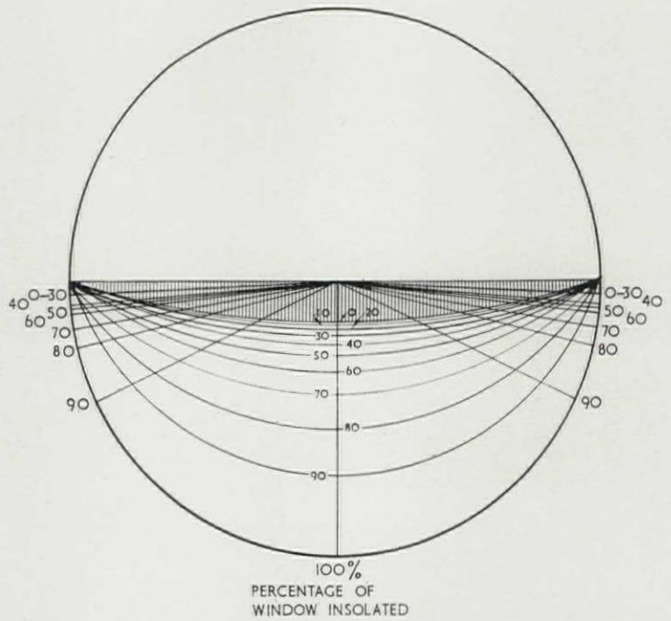
Calculation procedure for solar heat gain through windows

(*a*) *First assumptions:* In order to do any calculations the orientation, size, plan and section of the window have to be assumed as fixed; the obstructions have to be assumed and a glass/shading device as an infill has also to be assumed. As an example, the window in figure 12 is here used. Single ¼ in. plate glass, a SW orientation and two alternative glass positions are assumed, with no external obstructions.

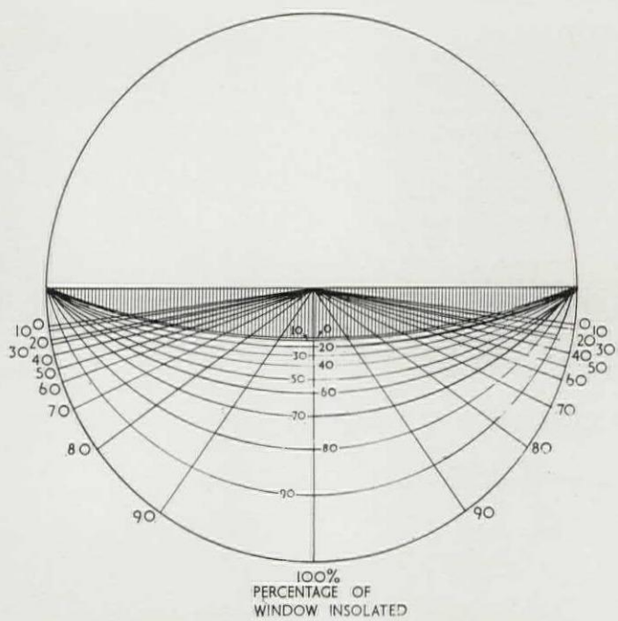
(*b*) *Shading mask:* On the basis of the plan and section, taking into account obstructions, a shading mask can be prepared which shows the absolute limit outside which the window is 100 per cent shaded. In addition, it is necessary to show the percentage of the window which is insolated at various horizontal and vertical shadow angles and this can be done by dividing the glass area both on plan and section into a number of convenient equal sized strips. For instance, ten on plan and section giving 100 equal size areas on elevation. It is surprising in how many of the published works on solar heat gains no attempt is made to compute the variation in the insolated area of the window which takes place with sun movement. This is, in fact, a vital stage even where there are no projections or overhangs, and where the glass is shielded only by the depth of the window reveal.

The shadow angles from each of these divisions on plan and section are measured and transferred on to the shading mask which can be calibrated in terms of 'percentage insolated' from 0-100 per cent, 13 and 14. By placing this calibrated shading mask over the sunpath diagram for

[continued on page 152



13, *percentage insolated shading mask for glass position 9 in. from front wall face (position 1 in figure 12).*



14, *percentage insolated shading mask for glass position 3 in. from front wall face (position 2 in figure 12).*

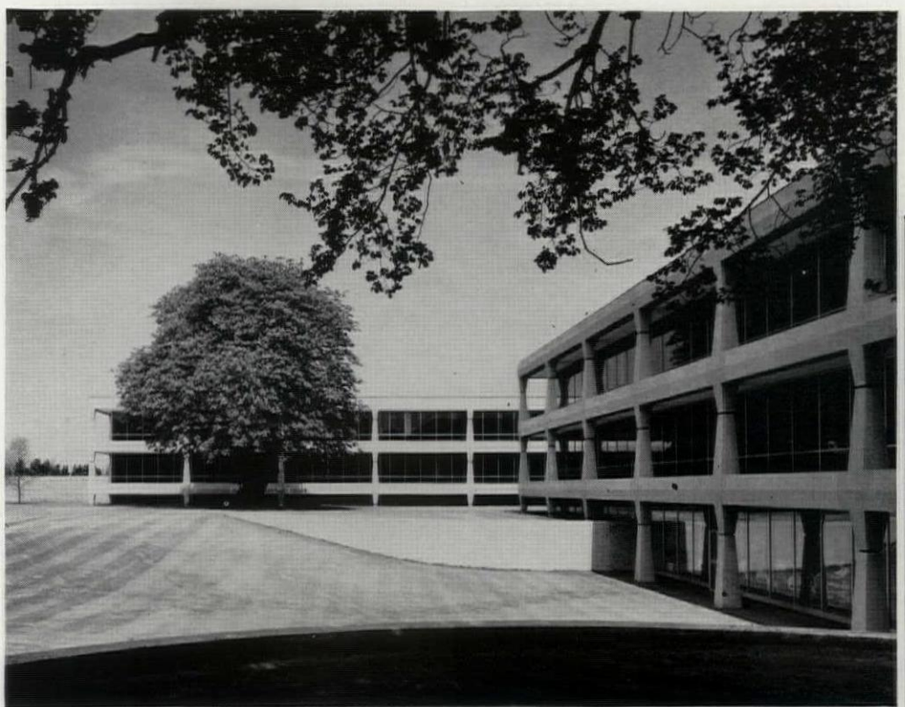
EMPIRE STONE at Heinz, Hayes Park

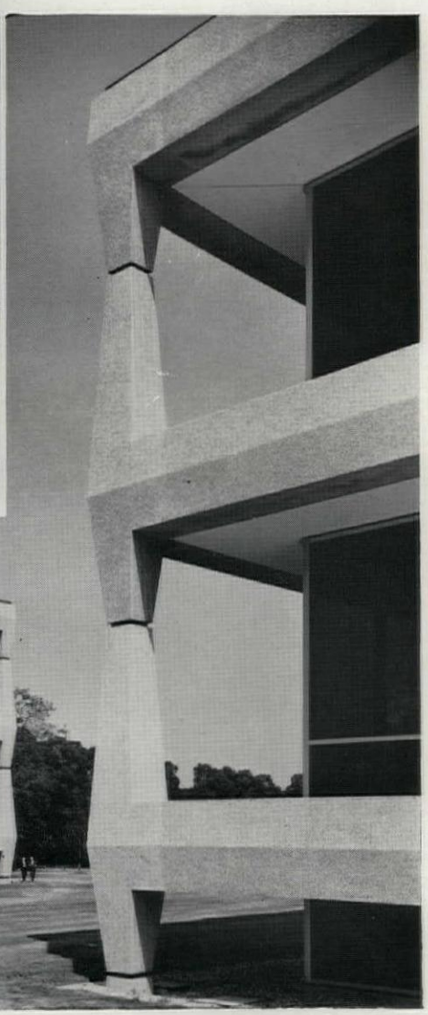
New Research and Administration Centre

Architects: Skidmore, Owings and Merrill of New York in association with Mathews, Ryan and Simpson.

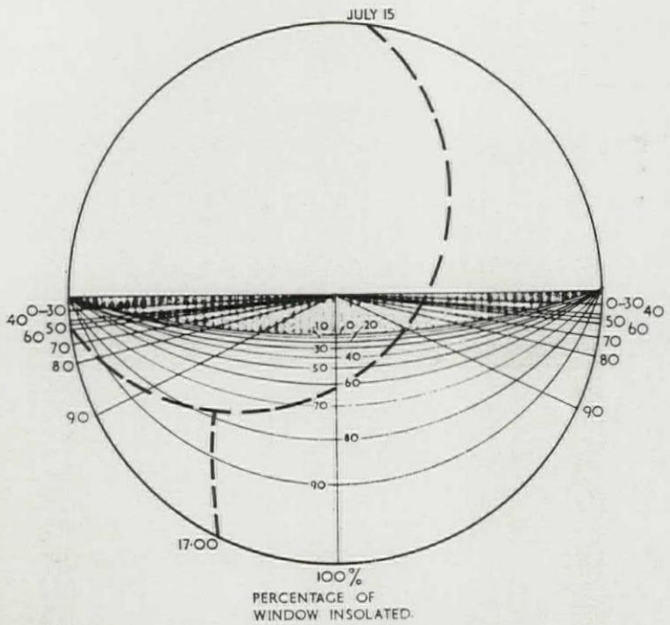
Consulting Engineers: Harris and Sutherland.

General Contractors: Trollope and Colls Limited

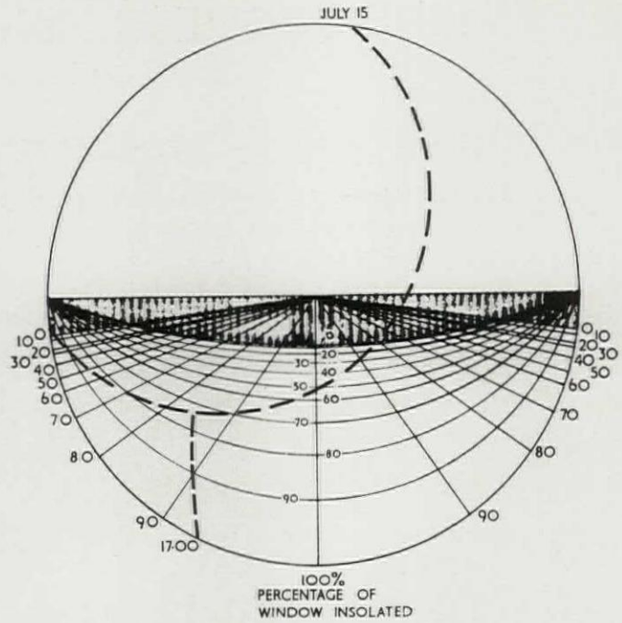




The units, comprising cruciform columns and fascias, are in an exposed aggregate cornish granite finish, this finish in the case of the columns being provided on all four faces.
The cruciform columns are structural carrying the floor and roof slabs and were prestressed on the Lee-McCall system.
We carried out the erection of all the units and the prestressing.



15, *diagram illustrating the imposition of figure* 13 *on a sunpath diagram for* 53°*N. The dotted lines show the percentage insolated at* 17.00 *hours on July* 15.



16, *as* 15, *but imposing figure* 14 *on the sunpath diagram.*

continued from page 150]
the correct latitude, correctly orientated, the percentage of the window insolated at each hour on the relevant dates can be noted. In the simplest case, where there are no external obstructions, the percentage is the product of the factors read off from the vertical and horizontal shadow angle-scales on the shading mask. For instance 15, on July 15 at 17.00 the sun's position on a south-west facing window of the type illustrated in 12 with the glass in position 1, gives 78 per cent insolation on section, and 93 per cent insolation on plan and, therefore, the total insolated area of window equals 78 per cent by 93 per cent equals 73 per cent. The same calculation with the glass in position 2, 16, yields an insolated area of 62 per cent., i.e., a reduction in solar heat gain of 15 per cent caused by simply recessing the glass line by 6 in.

(*c*) *Incident radiation:* Using BRS overlay 8, the radiation incident on the window can be plotted for each of the times previously chosen. At this stage it is only necessary in British climates to use direct radiation leaving diffuse sky and ground reflected radiation to the final stage of the calculation.

(*d*) *Transmittance and absorptance of glass:* Selecting the appropriate overlay the transmittance and absorptance for glass at each of the relevant times chosen can be directly read off and plotted. For instance for single plate glass $\frac{1}{4}$ in. thick, overlay 15 is used. For slatted venetian blinds, one of the overlays 17 to 22 is selected.

(*e*) *Transmitted radiation:* The product of the incident radiation by the transmittance gives the value of transmitted short wave radiation. These values can be plotted for all the selected times.

(*f*) *Absorbed radiation:* The absorptance of the glass for all the angles of incidence concerned can be found by again using overlay 15 and plotted for the relevant times.

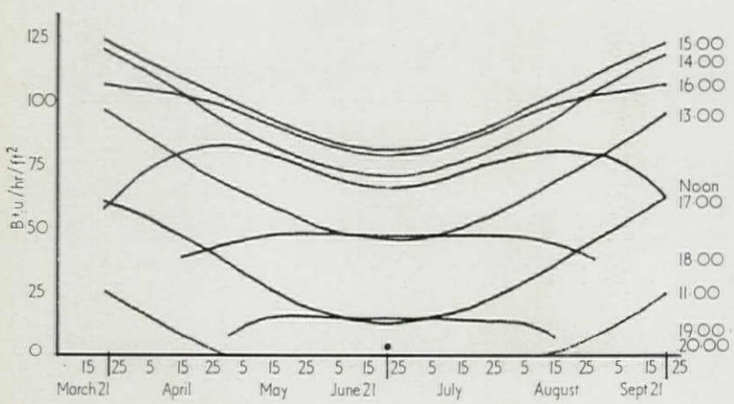
(*g*) *Heat gain from absorbed radiation:* The product of the incident radiation and the absorptance of the glass/shading device combination gives the total absorbed radiation and this multiplied by a factor for the proportion released inwards, gives the quantity of heat released by re-radiation and convection to the room interior, and this can be taken as sensible heat gain. It is critical in determining air temperature and cooling loads. The factor usually taken for typical conditions in this country (and used here) is 0.3 for single glass. Factors for other glass/shade combinations are given in the BRS publication.

(*h*) *Total direct radiation solar heat gain:* The sum of the transmitted and inward released absorbed radiation multiplied by the percentage of the window insolated, gives the total heat gain from direct radiation and can be plotted for the relevant times and dates. Figures 17 and 18 show this for 53° N Latitude. As an initial analysis and comparison for alternative solutions this figure is adequate in Britain, although it cannot be taken as adequate in hot humid tropical climates where the diffuse component of radiation may be much higher.

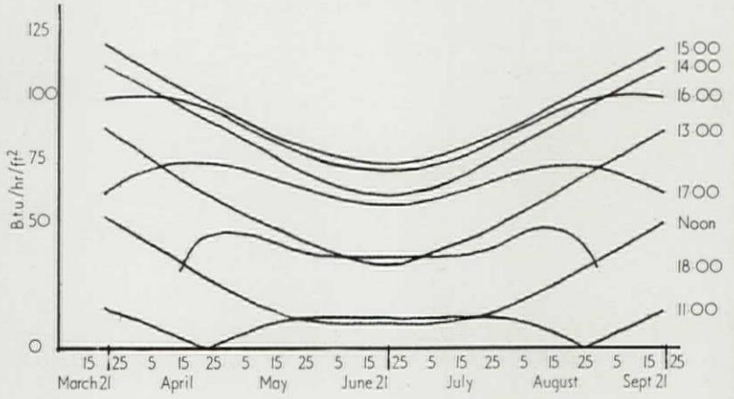
(*i*) *Total solar radiation gains:* It is now necessary to compute the diffuse radiation gains by using overlay 13 for all appropriate times and dates, and in this case the effect of shading by obstructions and overhangs cannot be taken into account in the same manner as for direct radiation, and an approximate result will be obtained by using the total window area irrespective of the degree of obstruction or overhang. These values can then be added to the direct radiation gains to obtain the total solar radiant heat gain. When this has been carried out for all surfaces of a building, the total gain for the whole building, or zone of the building (if it is separately air conditioned) can be obtained.

(*j*) *Total heat gains or cooling loads:* Finally, the total solar radiant heat gains determined as above have to be added to all heat gains from other sources and this will pinpoint the periods when solar heat gain control is most critical. One can then return, if necessary, to the original calculation to discover whether an improved combination of glass/shade devices, orientation, and window size can be found.

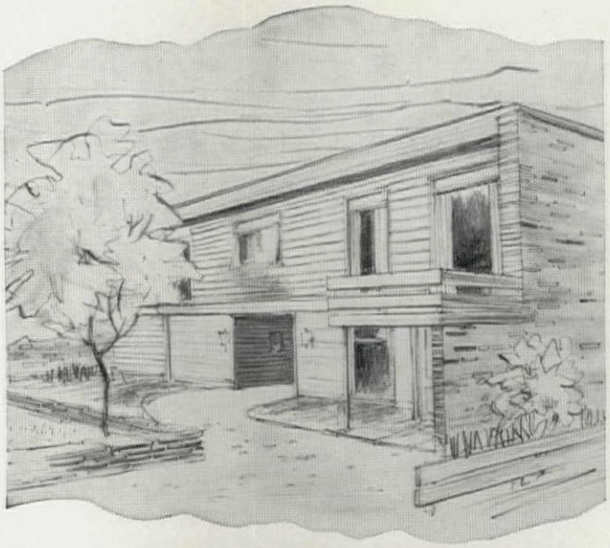
(*k*) *Total optimization:* The alternative window designs giving optimum answers from the heat gain point of view must then be examined against the criteria set out in the first article, under *Criteria* (*a*)-(*f*), so that the satisfaction of specifications in each of those criteria and hence overall optimum solutions for all the criteria can be found.



17, *radiation transmitted and re-radiated inwards; and convected portion of absorbed radiation for glass in position* 1 *in figure* 12.



18, *as* 17, *but for glass in position* 2 *in figure* 12.



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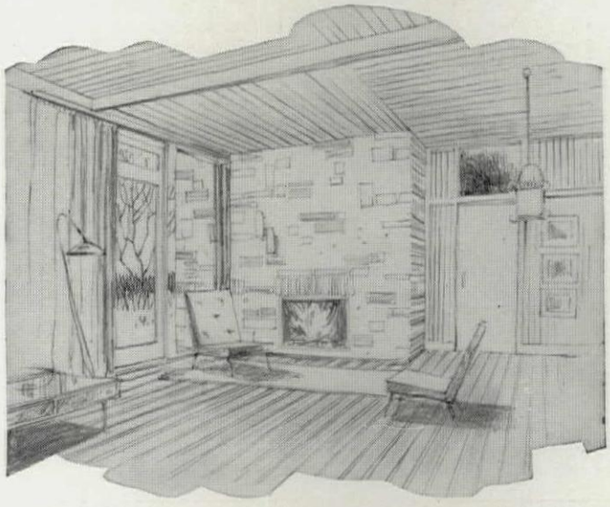

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The Industry

Window awnings

The realization that exterior screening of windows provides the most effective protection against excessive solar heat gain will clearly influence the appearance of buildings. Several techniques are being investigated by the Building Research Station and one of these, the awning, has already been widely used in Europe. When in use the awnings enliven the elevation, but the boxes are unobtrusive when the awnings are in the retracted position. 'Denorma' awnings, 1, were introduced from Norway at the end of last year by Allan Levin Ltd. The fabric consists of aluminium and glass fibre slats woven together with terylene thread and requires no maintenance. It has been tested at the Research Institute of Norway which has stated that it will last for a minimum of thirteen years. The awning is stabilized against wind and flapping should not occur. Light is diffused through the glass fibre ribs. The awnings are made to order and prices are only available on application. However, awnings of the size illustrated are said to cost £25 to £30 each.

Allan Levin Ltd., Grays Park Road, Stoke Green, Slough.

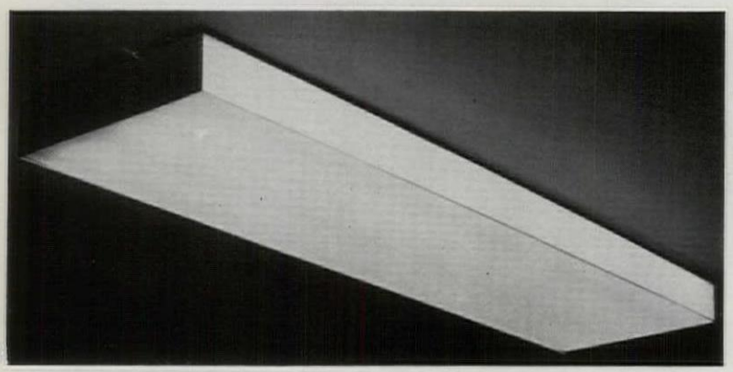
Light fittings

Higher standards in illumination have made urgent the need to counter distracting glare in design and the prismatic lens provides a successful means to this end. Moorlight have produced a range of fluorescent fittings utilizing prismatic lens panels of maximum light transmission made of polystyrene. The panels are said to perform under normal conditions without objectionable discoloration for seven to ten years. There are four patterns of prism and the least obtrusive of these should be very easy to clean.

The fittings are available as recessed modular units, surface or suspended units. In all cases light is provided in the horizontal plane through opal plastic panels to enliven the appearance. The 'wafer' unit illustrated, 2, costs £18 2s. 6d. without tax for the model containing two 80w tubes.

E. J. Schofield & Co., Moorlight Works, Oxford Street, Ashton-under-Lyme, Lancs.

1



2

Contractors etc

Residential Building, Theological College, Chichester. *Architects:* Ahrends, Burton and Koralek. *General contractor, built-in furniture, library tables:* Jno. Croad Ltd. *Sub-contractors: Electrical:* Duncan Watson Ltd. *Heating:* Andrews-Weatherfoil Ltd. *Library shelving:* Durrant & Son Ltd. *Metalwork for library tables:* John Rawlson. *Library lighting:* Rada Lighting Ltd. *General furniture:* Hille of London Ltd. *Curtains:* Domans Furnishings. *Linoleum:* Pirelli Ltd. *Precast top lights:* J. & A. King & Co. *Bricks:* Sussex & Dorking Brick Companies. *Concrete blocks:* Penfolds of Barnham. *Ironmongery:* N. F. Ramsay & Co. *Window gear:* Teleflex Products Ltd. *Sanitary fittings:* Broad & Co. *Marble:* J. Whitehead & Sons.

Administration and Research Buildings, Hayes Park, Middlesex. *Architects:* Mathews, Ryan & Simpson, in collaboration with Skidmore, Owings and Merrill. *General contractor:* Trollope & Colls Ltd. *Sub-contractors: Towelmaster cabinets:* Advance Linen Services. *Built-up roofing and asphalte tanking:* Amalgamated Asphalte Cos. *Metal fencing:* William Bain & Co. *Steel stairs:* Fredk. Braby & Co. *Stainless steel doors and drinking fountains:* Culford Art Metal Co. *Granite curbs:* F. J. Dangerfield & Co. *Steel rolling shutters and grille:* Dennison Kett & Co. *Chain link fencing and gates:* Durafencing (London) Ltd. *Large bore pile foundations:* Economic Foundations Ltd. *Precast concrete structural members to elevations, retaining walls, fencing slabs:* Empire Stone Co. *Polished plate mirrors and stainless steel shelves:* W. N. Froy & Sons. *Fume cupboards:* Griffin Grundy Ltd. *Main entrance gates:* Grundy Arnatt Ltd. *Stucco embossed aluminium sheeting to roof plant room:* Hall & Co. *General glazing to elevations, armour plate glass doors to laboratory fittings:* James Clark & Eaton Ltd. *Galvanized coat hangers and racks:* James Sieber Equipment Co. *Document lift:* Lamson Engineering Co. *Aluminium architectural metalwork and sheet metalwork:* Luxfer Ltd. *Mechanical and electrical services:* Matthew Hall & Co. *Operational mechanism/smoke outlets:* Minimax Ltd. *Metal shelving and racking:* Norwood Steel Equipment Ltd. *Specialist cleaning of anodized aluminium window, walls and partitions:* New Century Cleaning Co. *Passenger and goods lifts:* Otis Elevator Co. *Acid resisting floor pavings and skirting:* Prodorite Ltd. *Strongroom door:* Ratner Safe Co. *Suspended acoustic ceilings:* Rudders & Paynes Ltd. *Timber doors:* John Sadd & Sons. *Lino floor tiles:* Semtex Ltd. *Aluminium clad blockboard fascia to cycle shed and garage:* Stonor & Saunders Ltd. *Wall tiling:* Wiggins-Sankey Ltd. *Stone, marble and granite works:* Wandsworth Stonemasonry Works. *Prestressed beams over pilot equipment shop:* W. C. French Ltd. *Road gullies and frames, heavy duty manhole covers:* General Ironfoundry Co. *Sliding door gear:* Hill-Aldam & Co. *Linoleum tiles and cork bulletin board:* Nairn-Williamson Ltd. *Fibreglass tiles* (supplied via Noise Control Products Ltd.): Owens-Corning Fibreglass (UK) Ltd. *Wall and floor tiles* (supplied via Wiggins-Sankey Ltd.): Carter Tile Co. *Demountable partitions* (supplied via Luxfer Ltd.): E. F. Houserman Co. *Suspended toilet partitions:* Henry Weis Manufacturing Co. *Sanitary fittings:* Standard Range & Foundry Co. *Stainless steel sinks and work tops:* Associated Metal Works Ltd. *Nori acid resisting pavings:* Acerington Brick Co. *Aglite concrete blocks:* R. Y. Aymes Ltd. *Duratile concrete floor tiles:* Ewhurst Tile Co. *Brick flue lining:* Moler Products Ltd. *Precast concrete curbs, precast concrete paving slabs:* ECC Quarries Ltd. *Hexagonal floor tiles:* Dennis Ruabon Ltd.

Showroom and Bank, Elephant & Castle, London. *Architect:* Ernö Goldfinger. *General contractor:* Tersons Ltd. *Sub-contractors: Joinery and shopfitting:* Garmack & Co. *Heating and ventilation:* G. N. Haden & Sons. *Glass shopfronts:* James Clark & Eaton. *Steelworker:* Wessex Guild Ltd. *Granite:* Anselm Odling. *Electrical:* Duncan Watson Ltd. *Light fittings:* GEC Ltd. *Bullion hoist:* Penrose Lifts Ltd. *Signs (illuminated):* Signcrafts Ltd.; *(lettering):* Cobb & Co. *Sanitary fittings:* Stitsons Ltd. *Flooring:* Ramoneur Flooring Co. *Control gear:* Arens Control Ltd. *Steel r.s.js:* Lindsays of Paddington.

Science Library, University of Aberdeen. *Architects:* George, Trew & Dunn. *General contractor:* Donald C. Stewart. *Sub-contractors: Mechanical services:* G. N. Haden & Sons. *Metal decking and bookshelving:* Roneo Ltd. *Metal windows:* The Crittall Manufacturing Co. *Floor finishes and wall lining (terrazzo):* Toffolo Jackson Ltd. *Flush doors:* Leaderflush Ltd. *Ironmongery (including plastic engraved door plates):* N. F. Ramsay & Co. *Glass dome lights:* T. & W. Ide Ltd. *Main entrance glass doors (including fittings):* Pilkington Bros. *Roofing:* William Briggs & Son. *Adjustable shelf brackets:* Tebrax Ltd. *Wall textiles:* Arthur Sanderson & Sons. *Curtain track:* Silent Gliss Ltd. *Glass showcases:* Frederick Sage & Co. *Piling:* Wests Piling and Construction Ltd. *Structural steelwork to stack floors:* Metal Sections Ltd. *Heated plaster tile ceilings:* Stramex Ceilings (GB) Ltd. *Fire-fighting equipment:* The Pyrene Co. *Door mats:* Cimex Ltd. *Lift:* Otis Ltd. *Fibreglass light fittings:* John Colinson Ltd.

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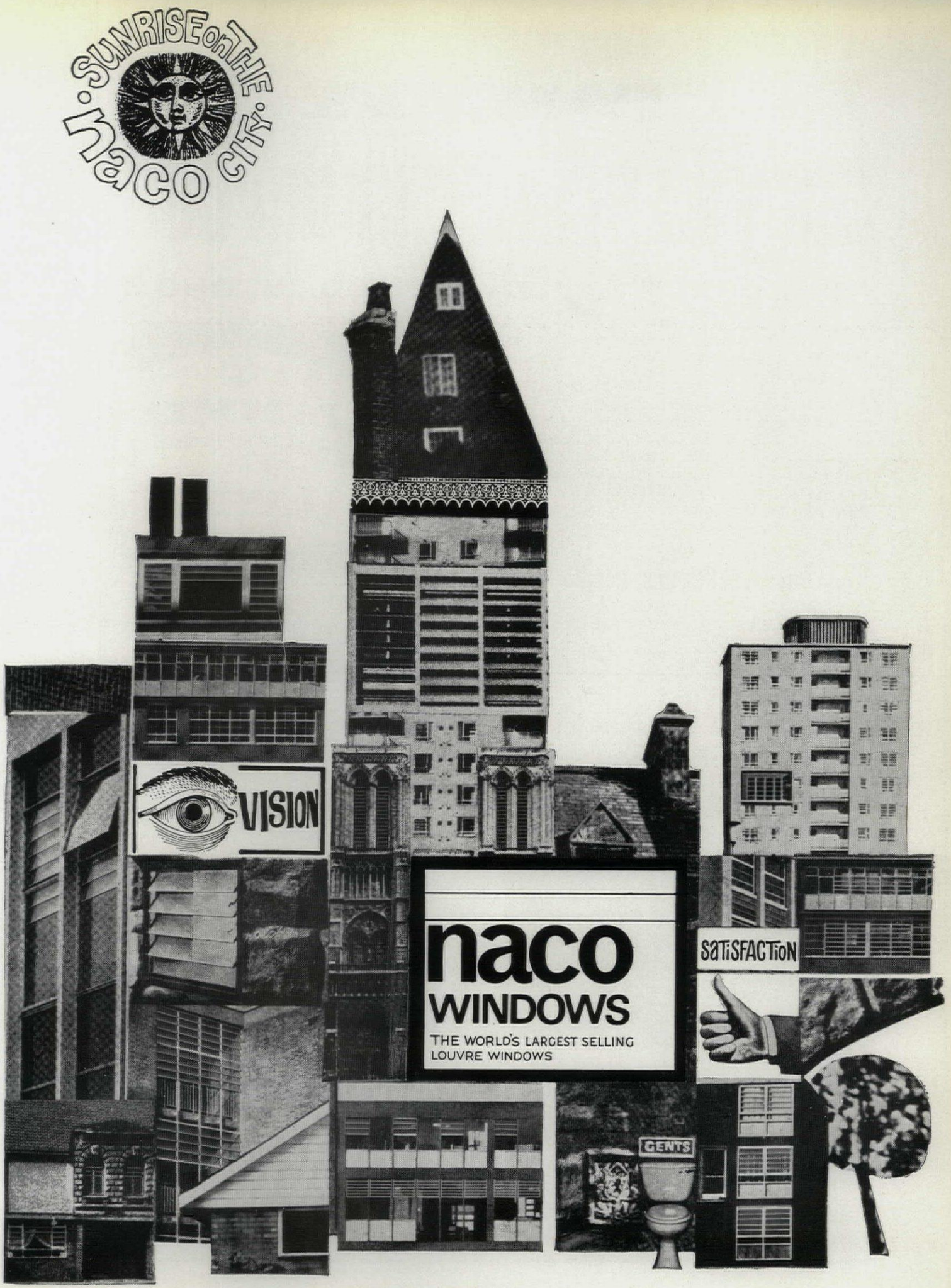
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SOS

SHEFFIELD
The entrance to Green Lane Works—apparently Georgian, in fact built as late as 1860. It looks to be in a bad way, 1.

STONY STRATFORD, BUCKS.
A really good market place, neatly screened from the traffic on the A5. But gaps are appearing, and the quoined Georgian building seems in need of help, 2.

OUTRAGE

ARCHITECTURE AS SHE IS SPOKE
A new church at Washington, County Durham, 3.

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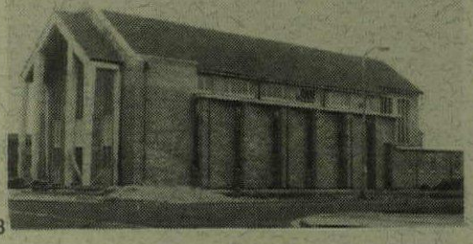
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BEADNELL, NORTHUMBERLAND
New houses on an unspoilt coastline, or Operation Neptune in reverse, 4.

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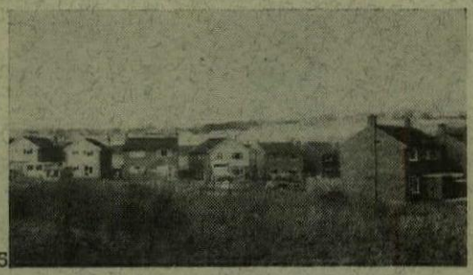

5

CAUTION

NEWCASTLE-UPON-TYNE
Personable houses on the way down in Westgate Road, 6, and . . .

6

CREDIT

MILFORD, DERBYSHIRE
The same kind of house being re-used and modernized in the famous industrial village at Milford, near Belper, 7. The moral may be that slum clearance is more a matter of borough boundaries than of physical standards.

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Counterpoint in the contrast of pre-war eclecticism and the new tall Arts block of Sheffield University, 8. It would be a pity if these occasional older buildings were to disappear entirely in the rebuilding, admirable though it is.

OPPORTUNITY

SUTTON BINGHAM, SOMERSET
A new reservoir, well landscaped, on which fishing is allowed, 9. All that is wrong now is the fence. As there is already public access, why not take it down?

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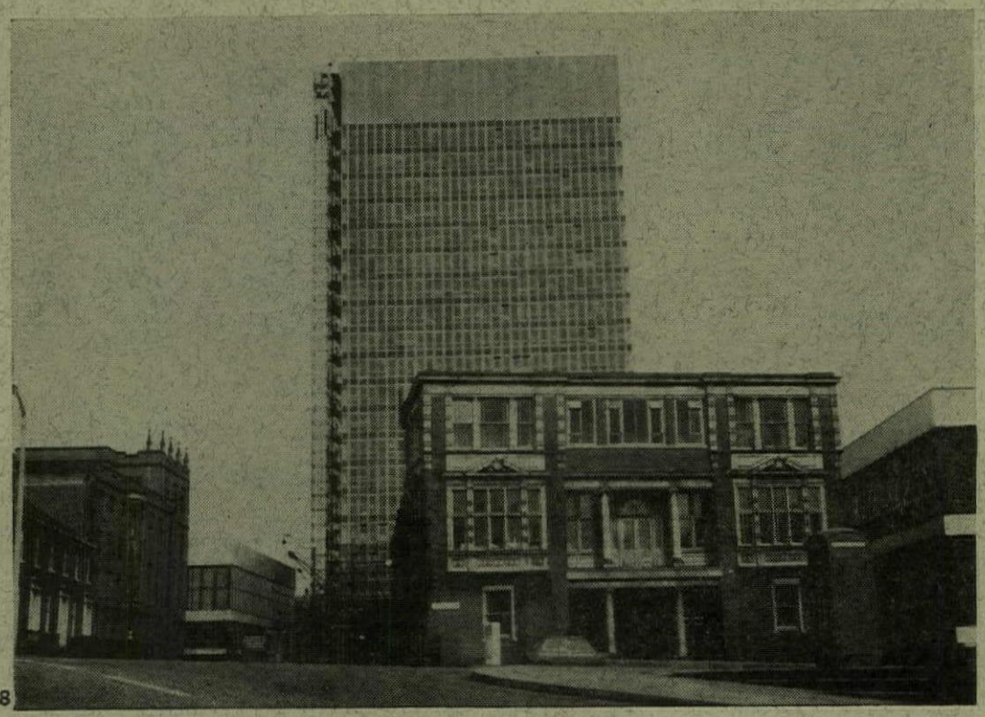

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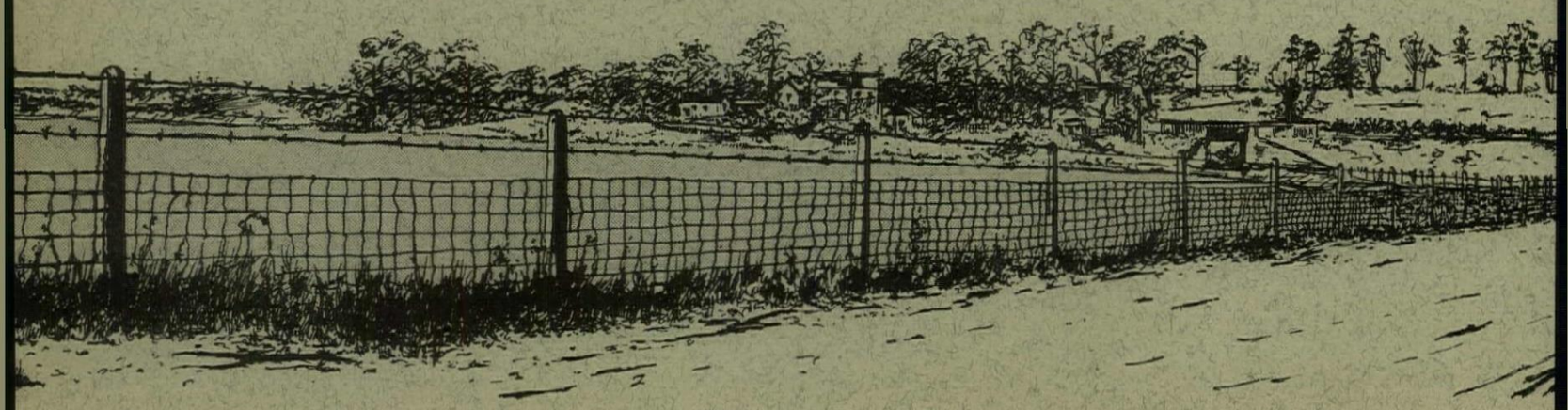

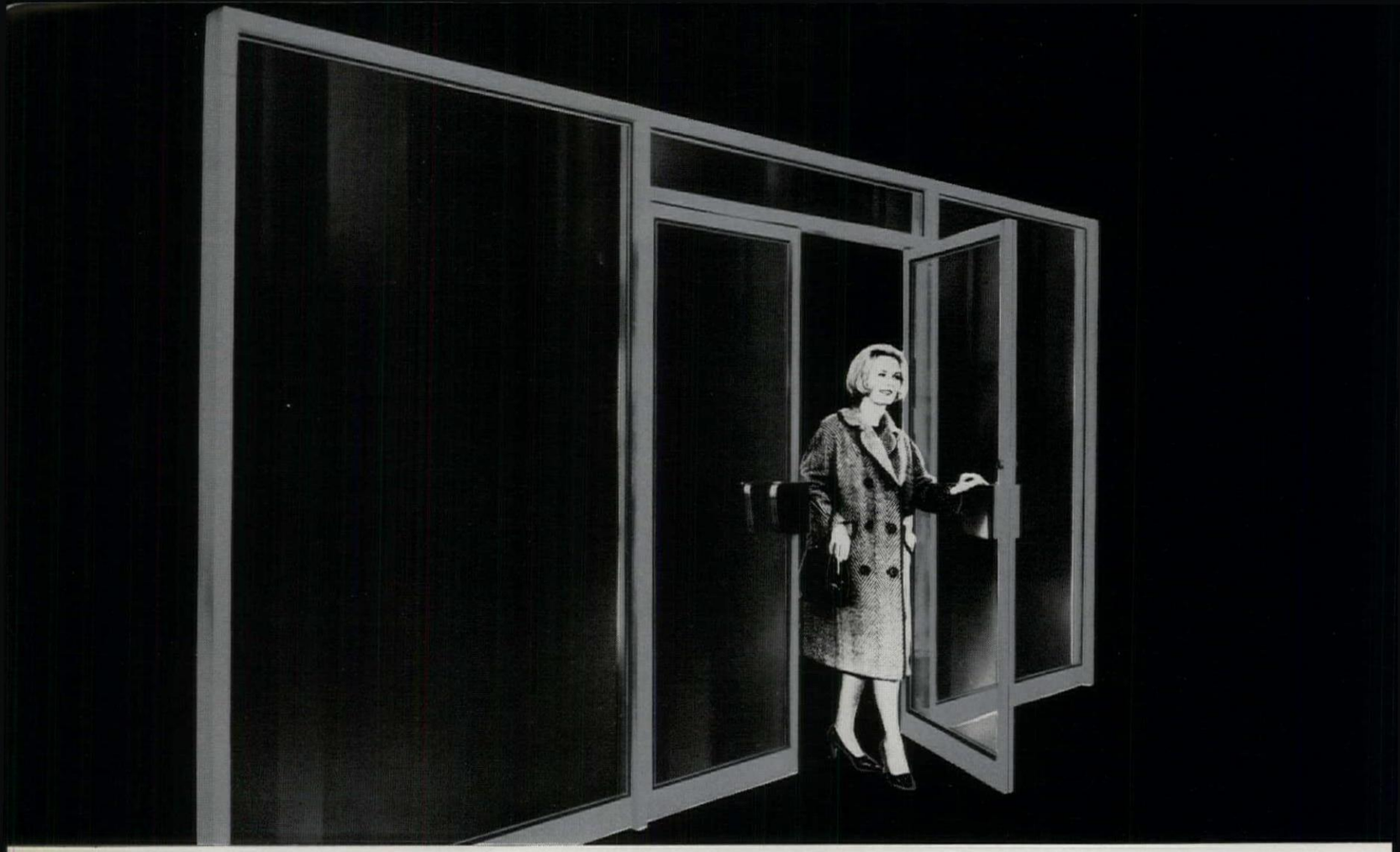

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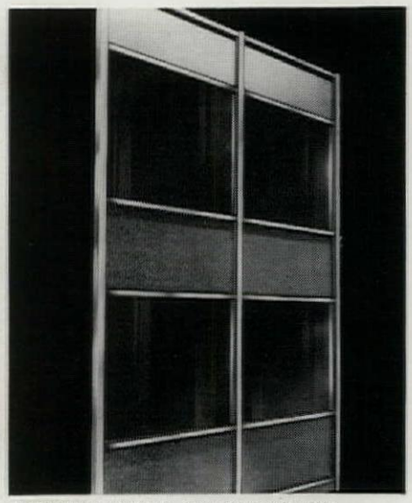

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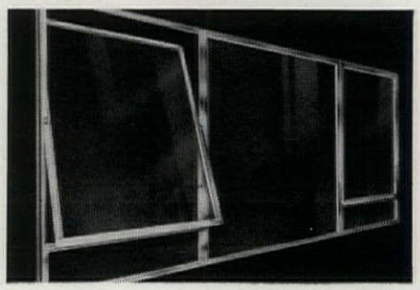

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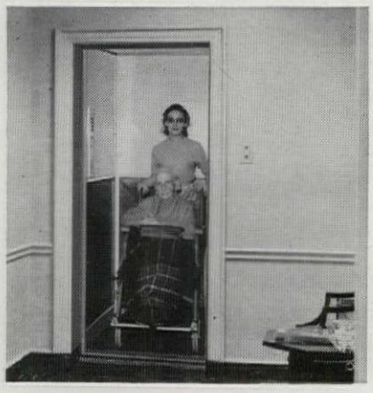

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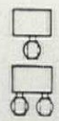

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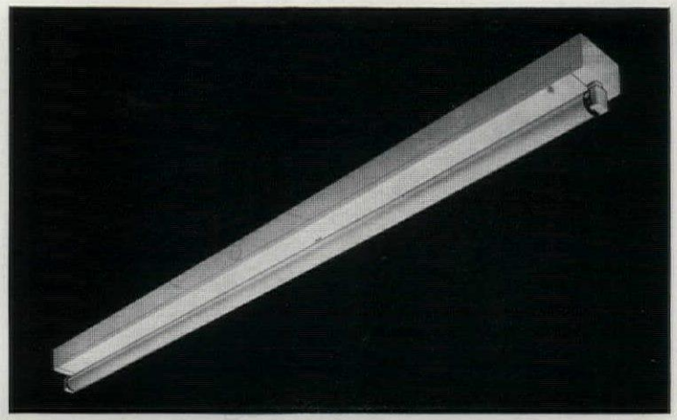

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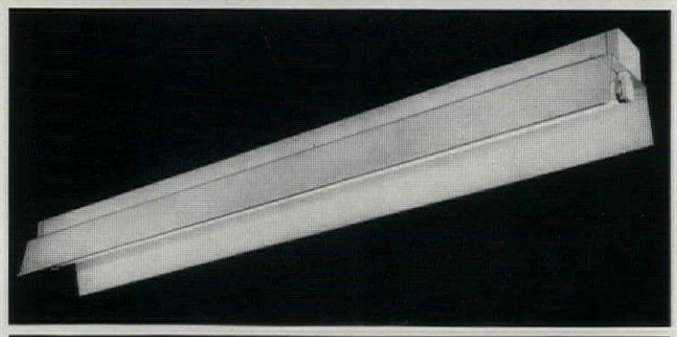

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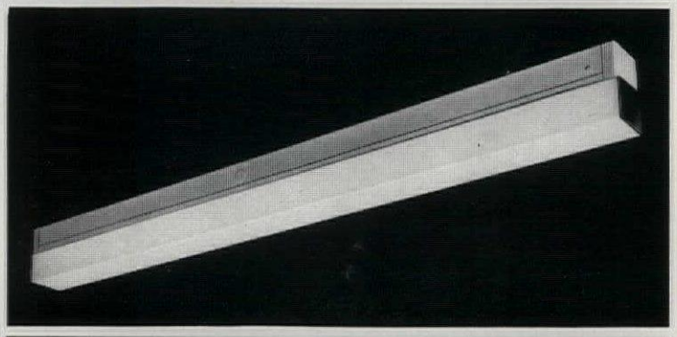

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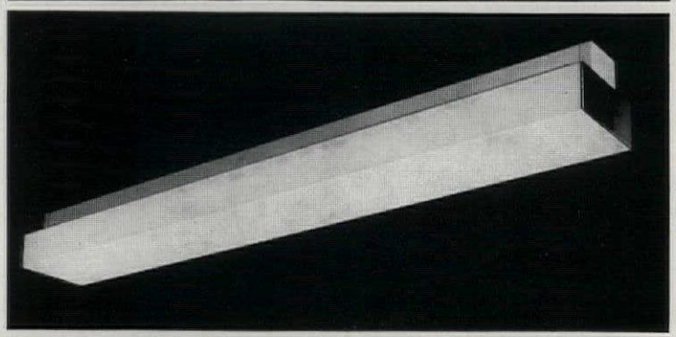

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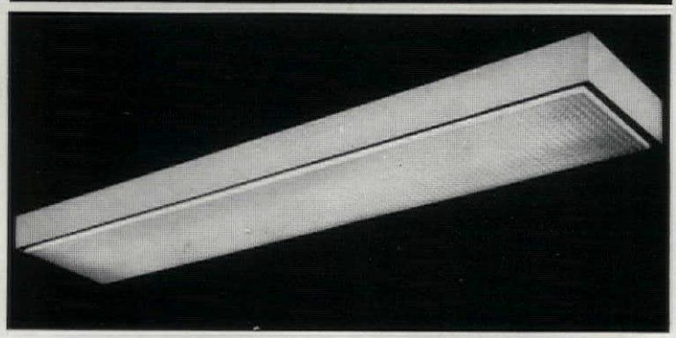

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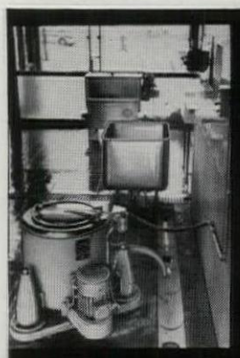
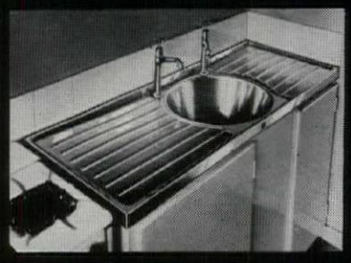
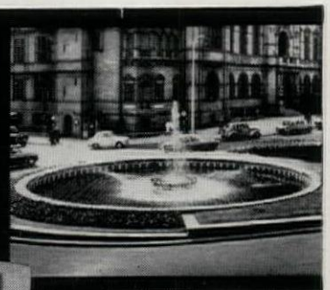


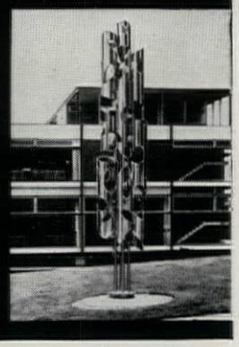
The Park Hill Development Scheme, Sheffield.



STAINLESS STEEL

The Goodwin Fountain, Sheffield.





Stainless Steel Sculpture, Sheffield University.

Stainless steels are being used increasingly for architectural applications by virtue of their strength, durability and resistance to corrosion; they lend themselves to good design and offer long life coupled with simple maintenance.

In the Parkhill Development scheme, Sheffield, each of the 995 flats is fitted with a stainless steel sink unit whilst extensive use of the material is made in the communal laundry installation. For such applications 'Staybrite' F.S.T. steel (type 302) is ideally suited. This general purpose 18/8 austenitic steel possesses excellent ductility and is suitable for all cold forming processes.

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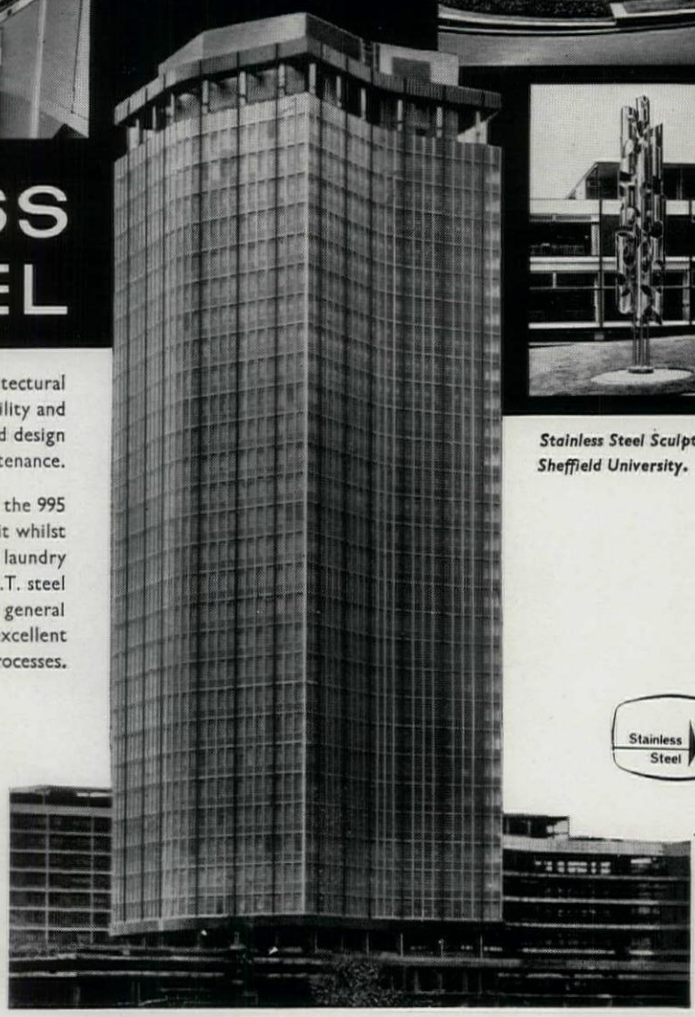
'Staybrite' F.M.B. steel was also used exclusively for the centre-piece and lighting reflectors of the Goodwin Fountain and for the sculpture shown above. This quality is readily weldable by all processes; it is highly ductile and is suitable for rolled or drawn sections and pressed panels of all descriptions.



Stainless Steel

Millbank Tower, London. Architects—Ronald Ward & Partners.

Further information on the use of stainless steels for architecture is obtainable on request.

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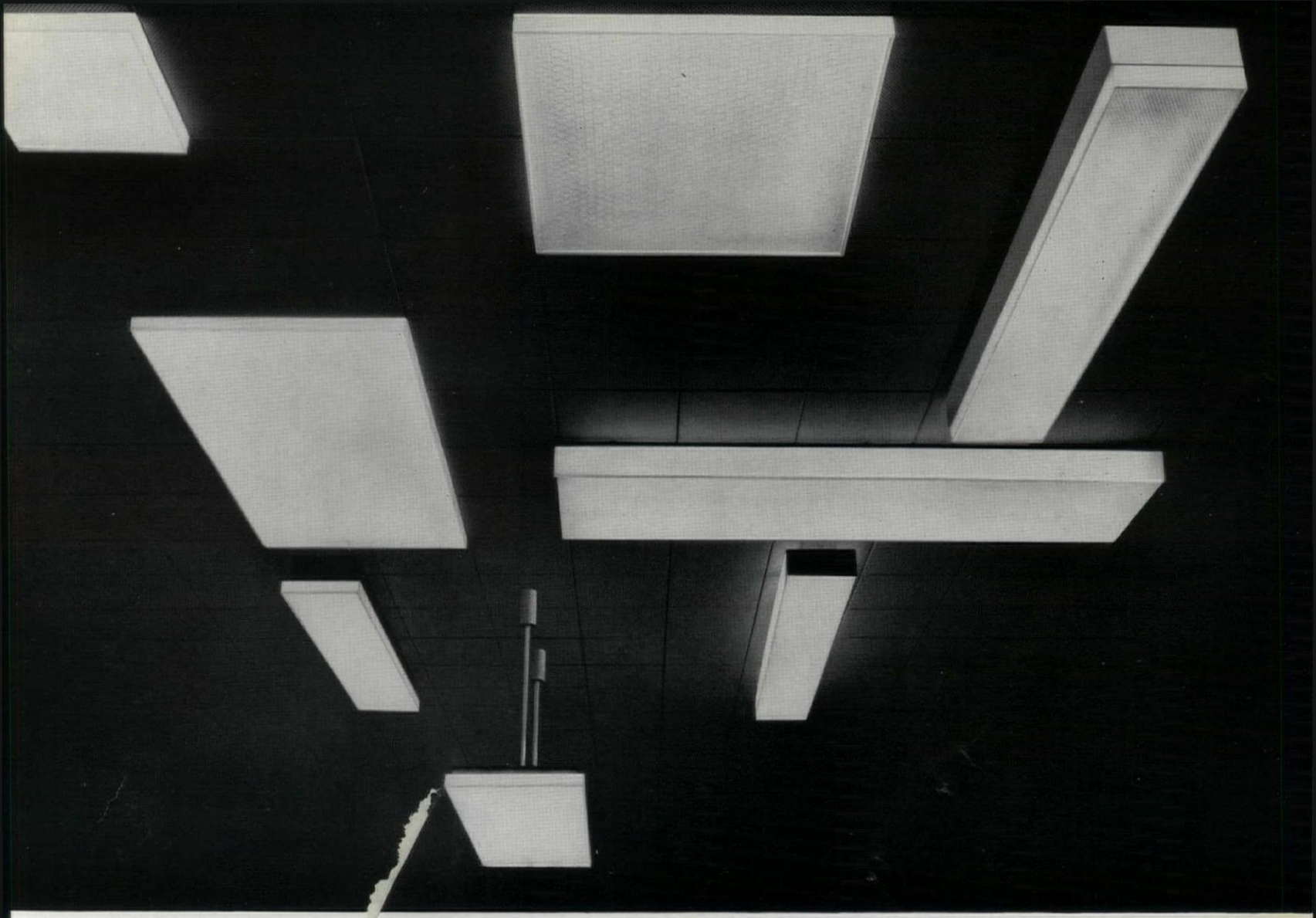
Staybrite Works Sheffield



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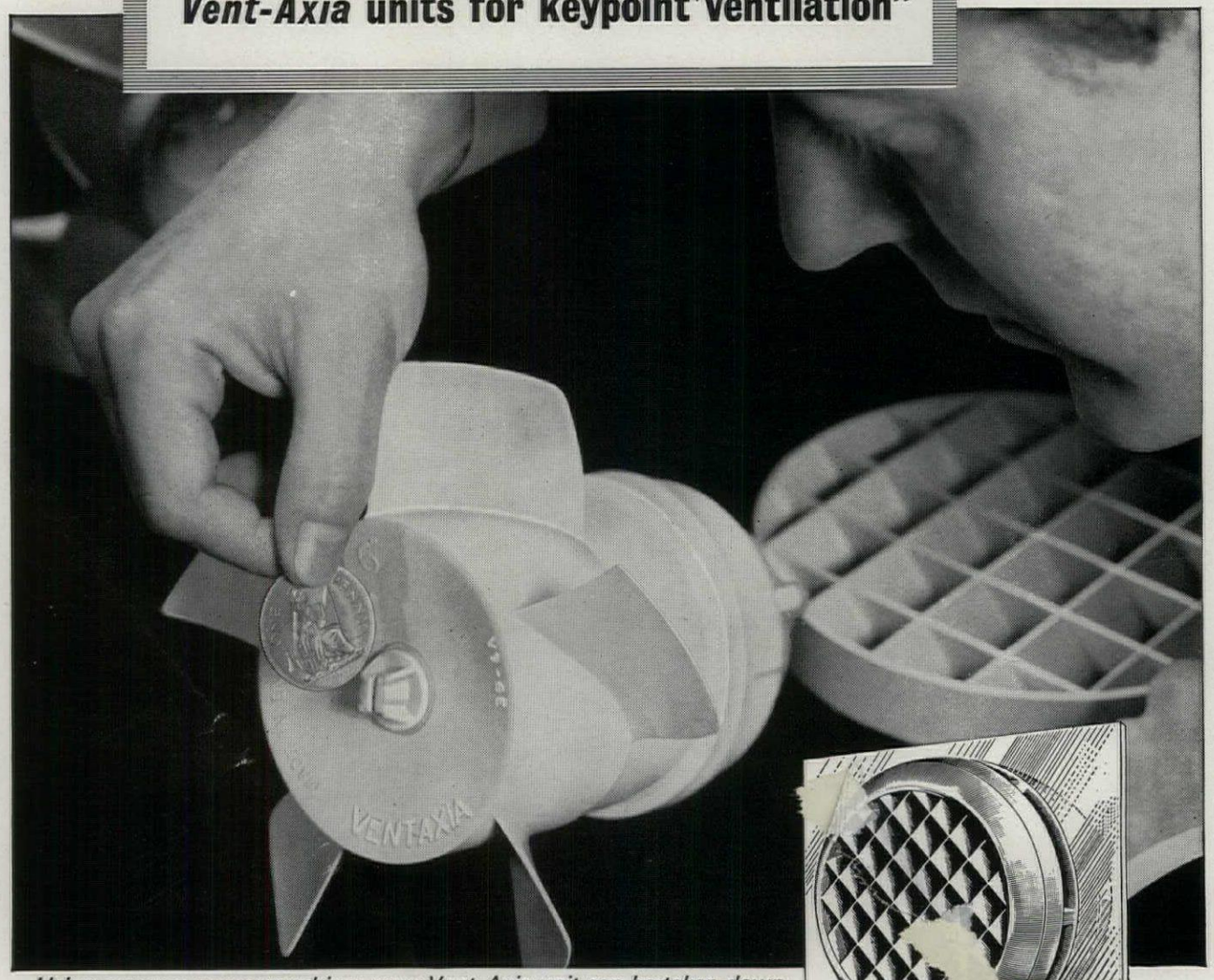

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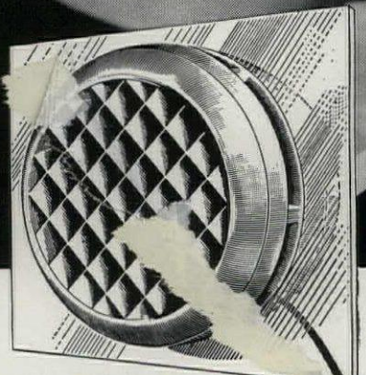

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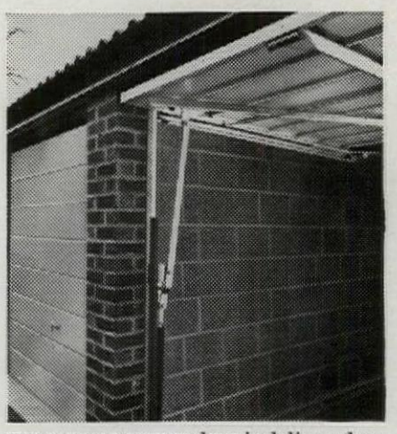

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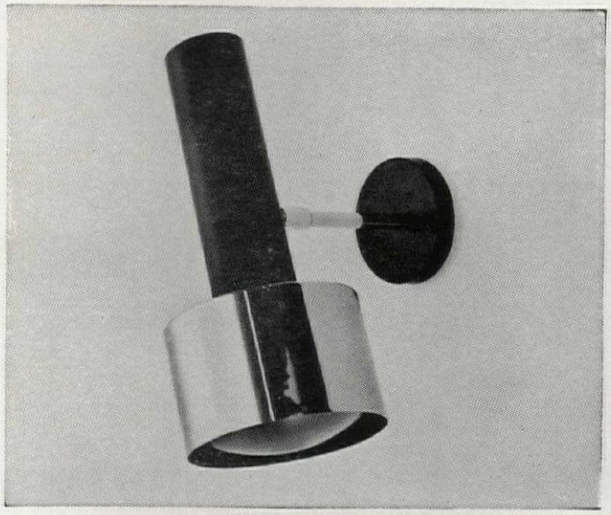

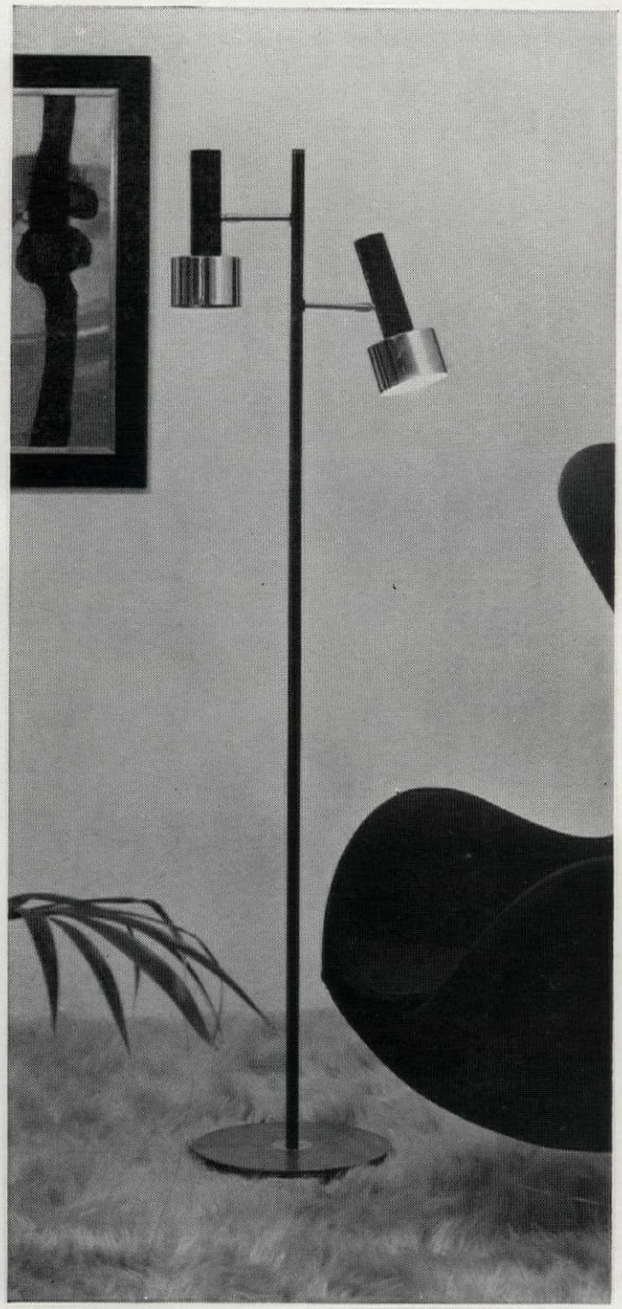

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