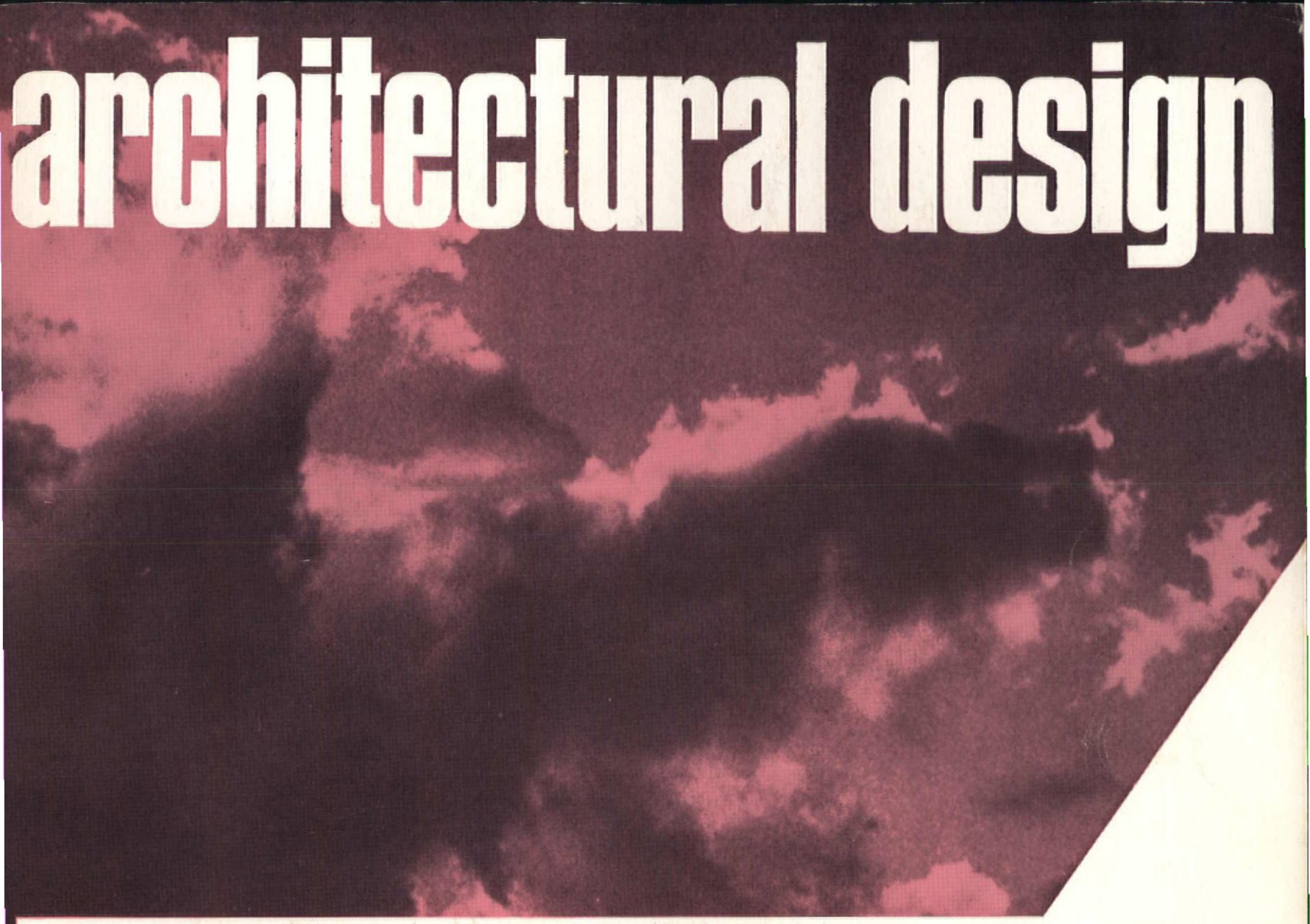
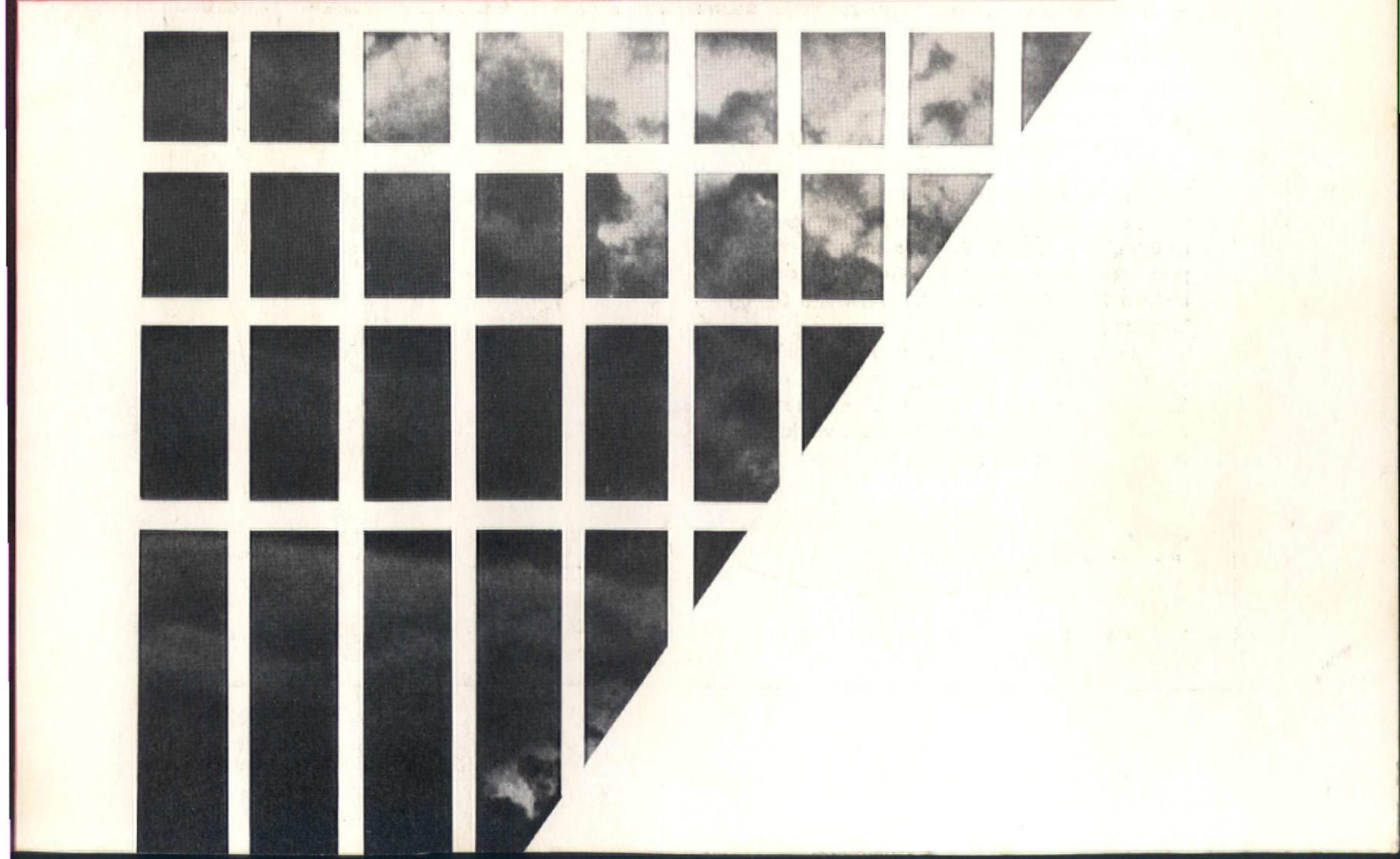
architectural design





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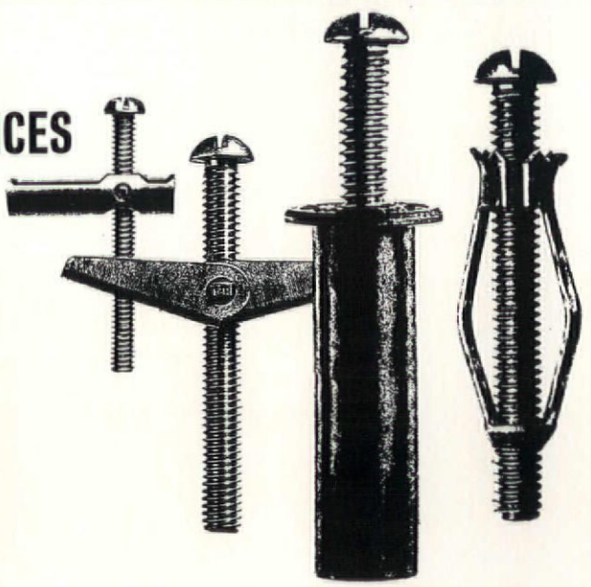

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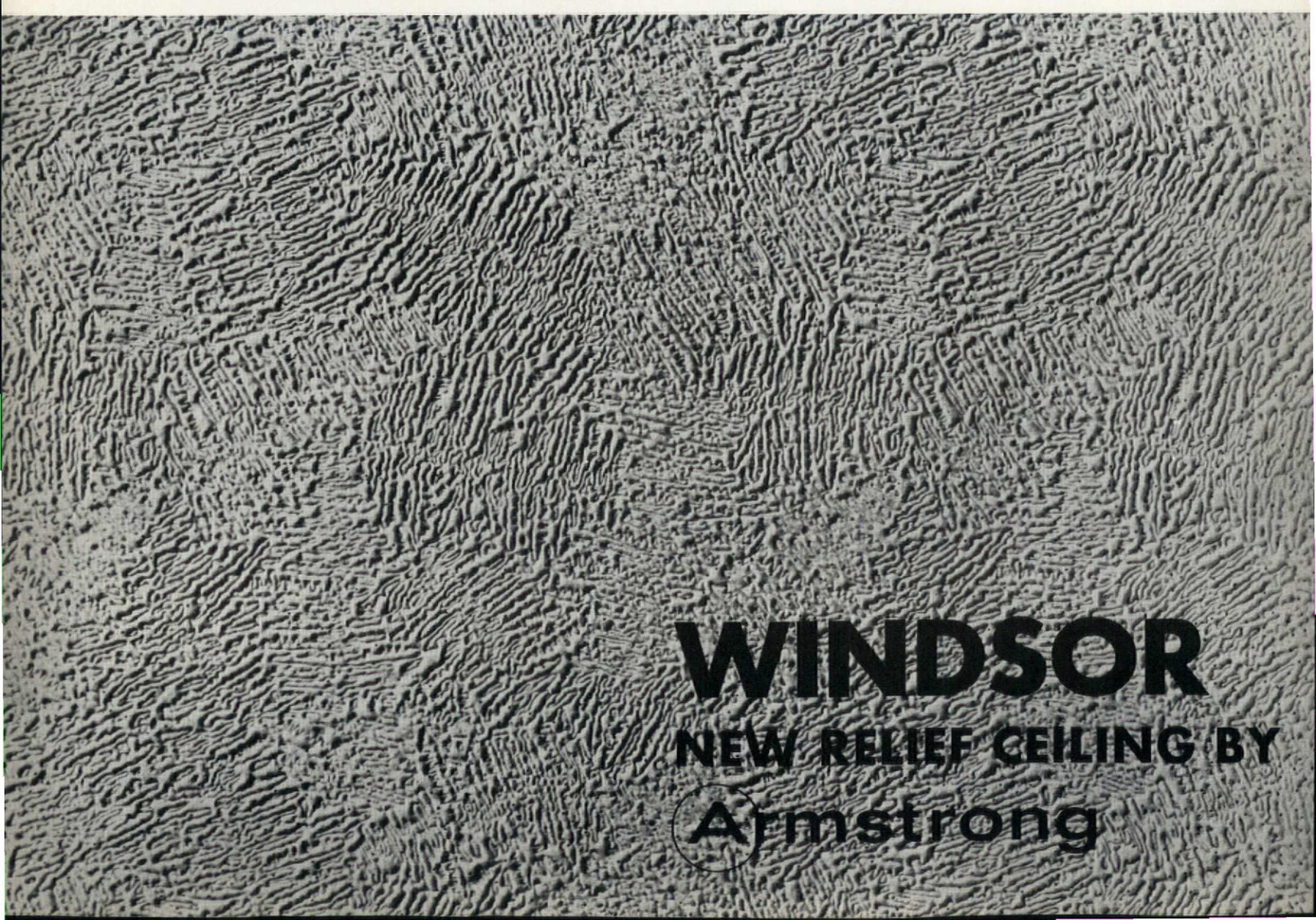

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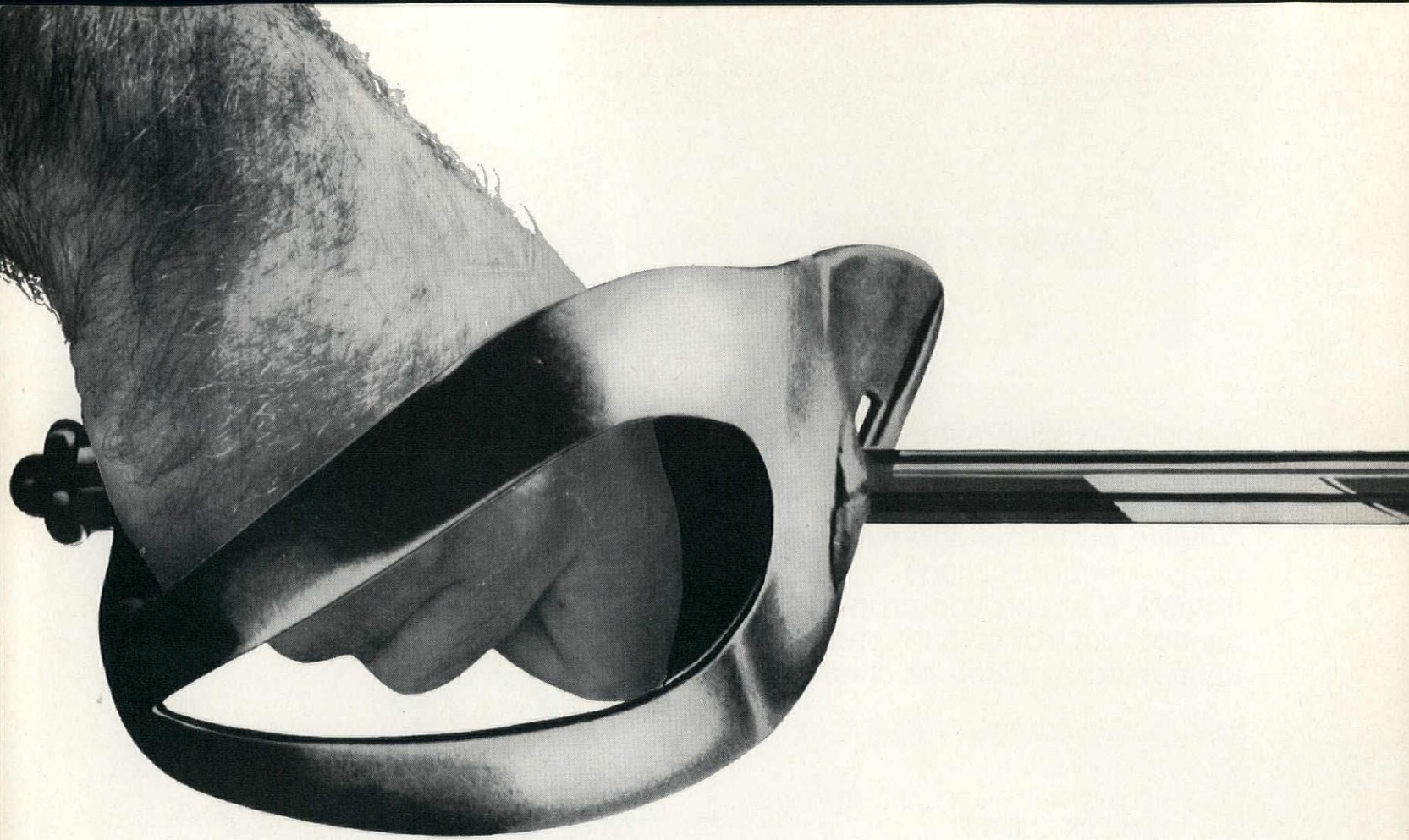

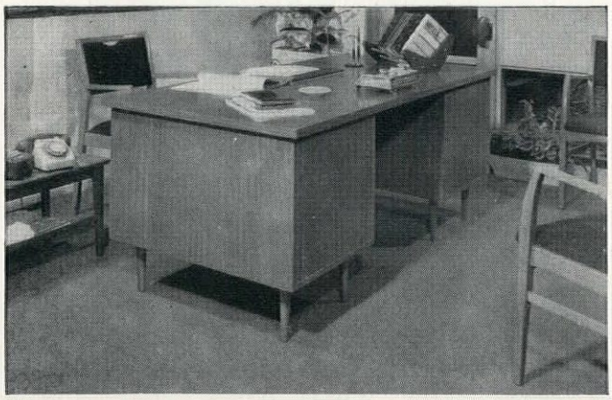

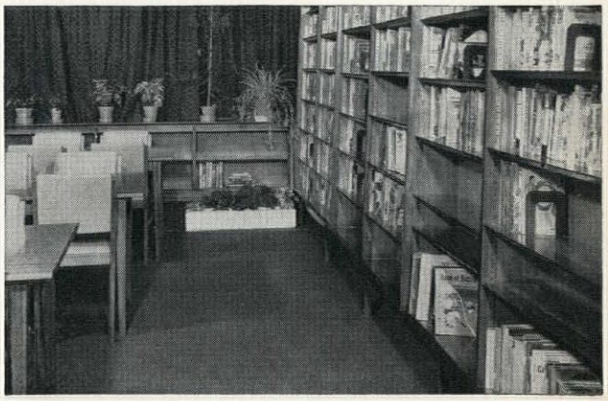

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Offices, libraries, schools, universities, technical colleges, shops, halls, hotels, hostels and restaurants, are ideal contract situations for installing "Iron Duke".

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- *Needs neither binding nor stitching, and underfelt is not essential.*
- *Far outwears top quality conventional carpeting.*
- *Eliminates floor impact noise at source and absorbs airborne noise.*
- *Thermal insulation properties relieve coldness at floor level.*
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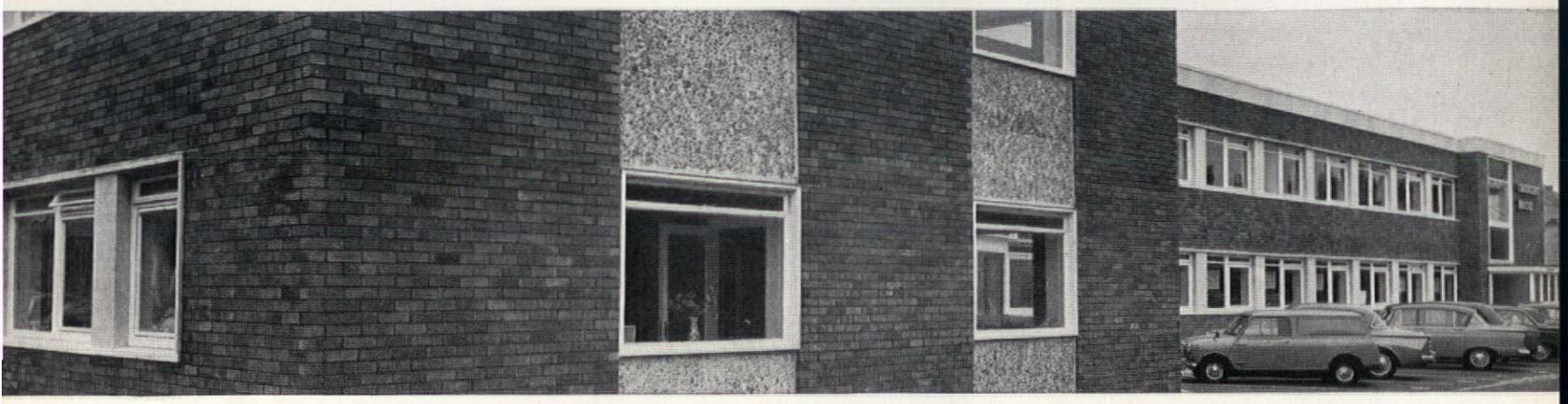
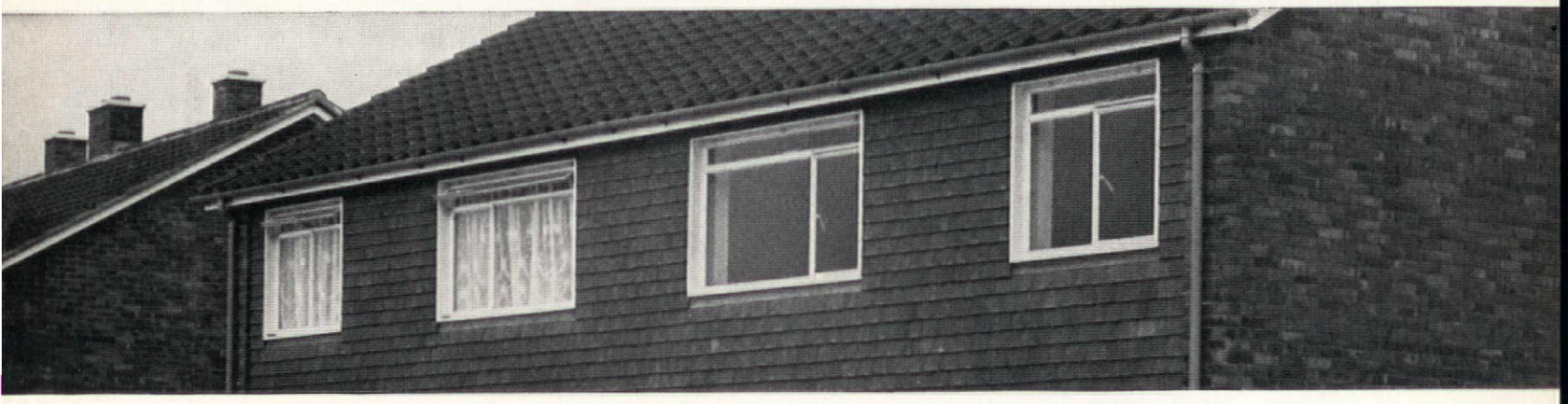




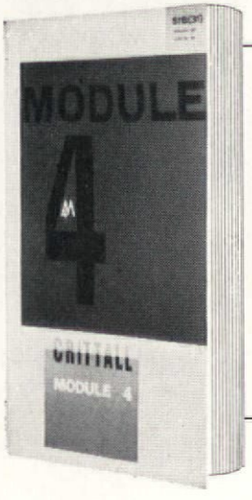
Crittall Module 4 windows

New standards of contemporary design *at low cost*

Note the clean modern lines and pleasing proportions of these Crittall steel windows. No, they are *not* 'purpose-made'. All are standard low-cost 'Module 4' windows. The introduction of the Module 4 Range has meant that today architects can achieve well-proportioned elevational treatments with the economy of STANDARD steel units. Crittall is helping them. Costs are actually *lower* than for previous standard patterns. Weather stripping and double glazing may both be specified. Rust-proofing is by the highly efficient hot-dip galvanizing process.

This new Crittall booklet on the Module 4 window and door range gives the busy architect all the facts he needs. Details of Crittall's latest fittings, pressed steel sills, lintel bearers, and new larder windows are included. *It will be sent free on request – together with a wall chart, if required.*

THE CRITTALL MANUFACTURING COMPANY LIMITED · BRAINTREE · ESSEX



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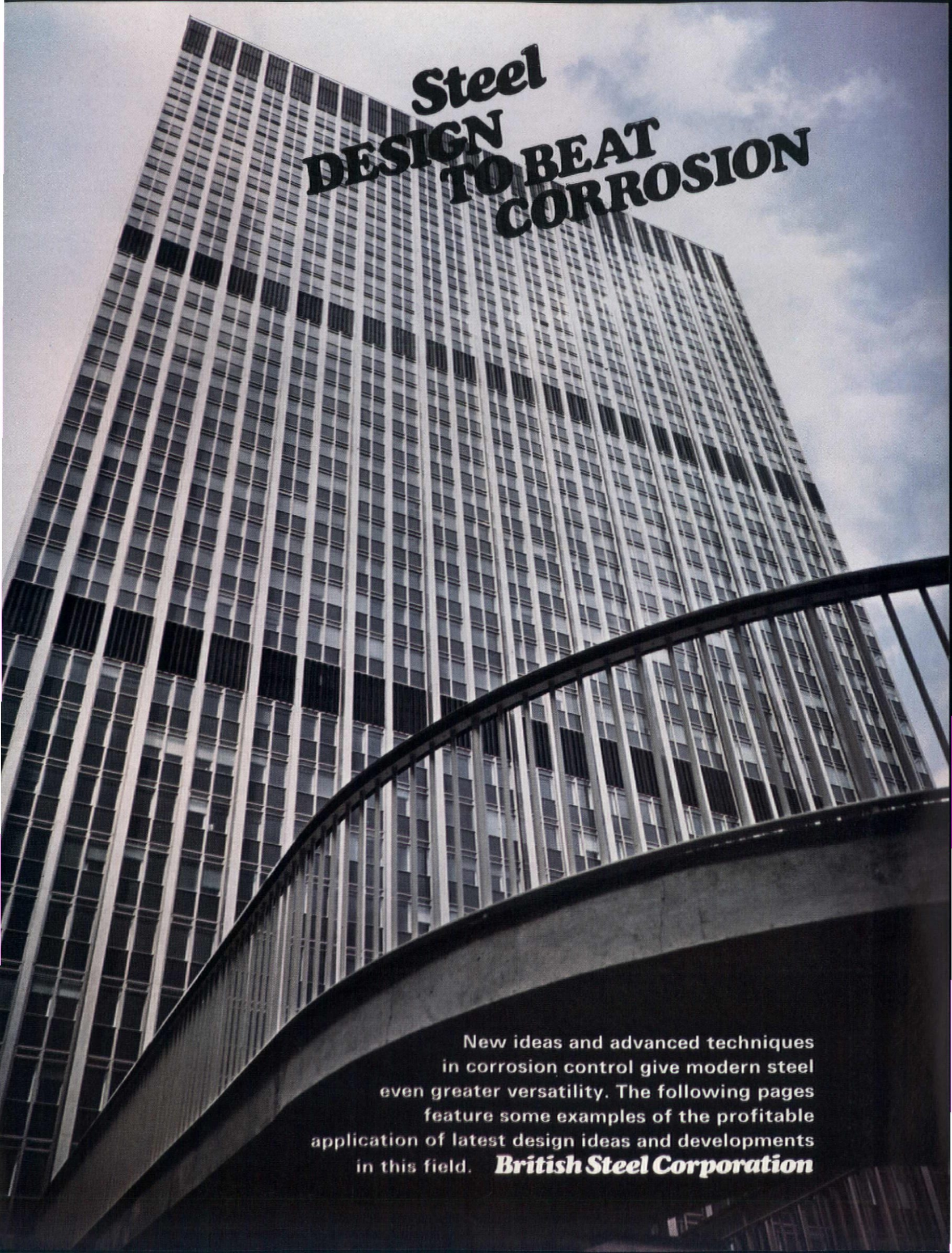

Steel
DESIGN TO BEAT CORROSION
New ideas and advanced techniques in corrosion control give modern steel even greater versatility. The following pages feature some examples of the profitable application of latest design ideas and developments in this field.
British Steel Corporation

Modern answers to problems of corrosion mean more scope for imaginative design in Steel

New ideas and improved techniques in corrosion control, special steels and newly-developed steel products together provide more efficient, cost-saving answers to every type of corrosion problem today. Developments and anti-corrosion measures described in these pages are succeeding dramatically in giving longer useful service life to steel components, products and structures, together with the advantages of lower maintenance costs or the elimination of maintenance altogether. Designers and manufacturers are profiting by the steel industry's investments in research and new plant. The results—in better defences against corrosive attack and rusting—yet further extend the potential uses of steel through increasing its durability and scope for imaginative design.

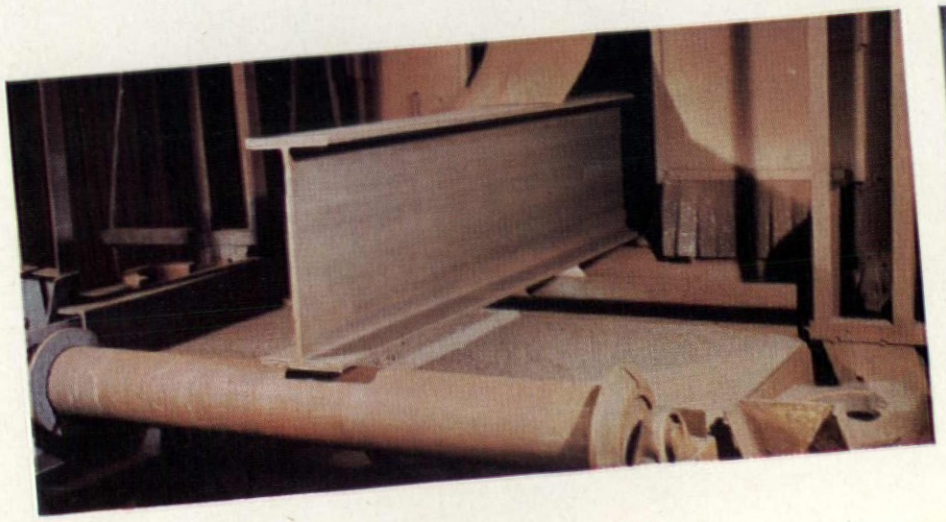
Design to beat corrosion—at the drawing board stage. A highly effective means of combating corrosion is to 'design out' all features likely to promote it. Rounded contours and corners are preferable. Crevices which trap moisture and dirt should either be avoided completely, filled by welding or use of mastic paste. Provision of adequate drain holes can also eliminate collection of water and dirt. Joints and fastenings can be arranged to give clean uncluttered lines. Welded-in bulkheads at ends of box-section girders inhibit internal corrosion. Versatile tubular steel in the form of Circular, Square, or Rectangular Hollow Sections, can help the designer to avoid sharp edges which are prone to damage and cannot be evenly coated for corrosion protection. Suitable maintenance systems to achieve maximum economical service life must be planned *at the design stage* and all surfaces needing future attention should be readily accessible.

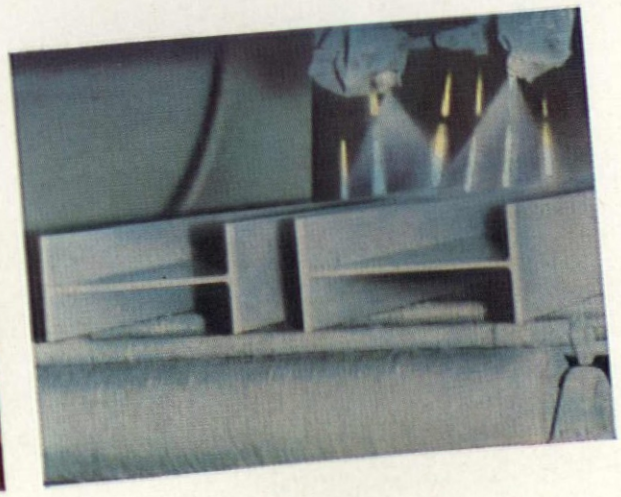
New steel products and better coatings. 'Pre-finished' corrosion-protected steel sheet with p.v.c. laminate, plastic or paint colour-coatings can now be easily formed into products that need no expensive finishing. Available coated on both sides and also pre-galvanized, these pre-finished sheets are economically produced on continuous process lines and are now available in *any practical length*. In steel sheet cladding and roof decking applications, erection is thus speeded and costly site painting eliminated. The physically strong decorative coatings employed, which include alkyds, acrylics, p.v.c. and other high adhesion paints and plastics, provide excellent long-life barriers often equivalent in thickness to *seven normal coats of paint*. Dip coating of steel products also imparts tough, smooth adherent nylon, p.v.c. or polythene surfaces to combat rust or chemical attack. Modern calcium plumbate paints react to create an excellent bond when used on galvanized or other zinc coated steel surfaces. Other paints based on coal-tar epoxides, polyurethane, vinyl co-polymers, Neoprene or Hypalon, can also be used to give enduring protection and decoration. And in the finishing of large steel structures, the excellent barrier properties of micaceous iron oxide are also now being exploited.

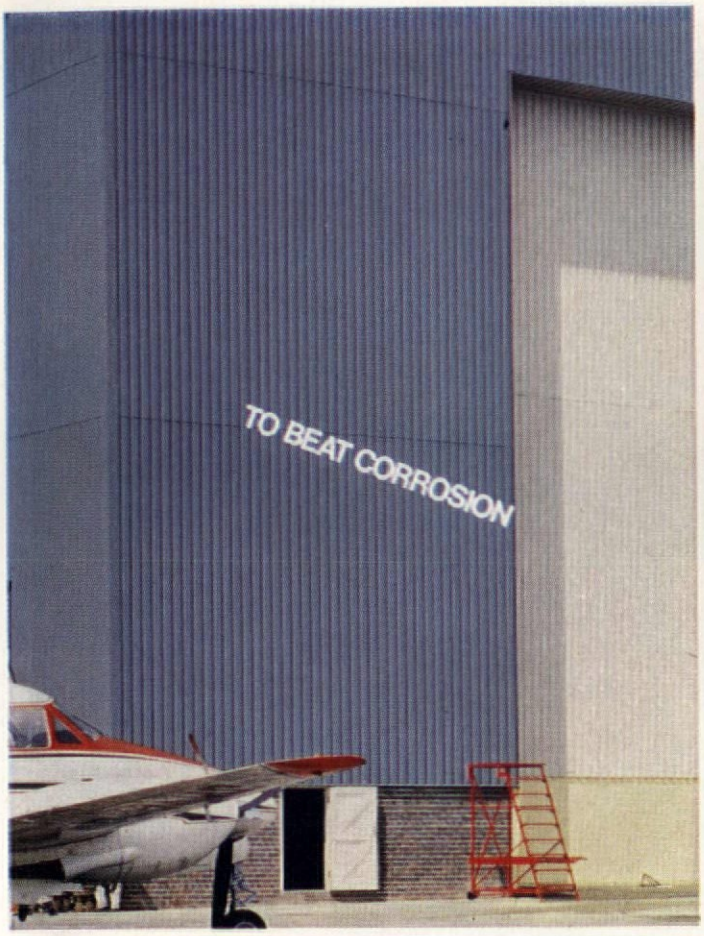
Special steels and anti-corrosion measures extend service life economically. Various grades of Stainless Steel, and low-alloy steels such as Cor-Ten, can often be employed very economically today, to combat corrosive attack and maintain good appearance. They are particularly suitable where protective coatings are impractical or when regular maintenance attention will be uneconomic. Their high-strength properties are also useful in design. Higher first cost will often be well justified by long-term reduction of maintenance costs. Important anti-corrosion methods and steel finishes that also assist good design, by resisting rust and extending service life, include highly effective hot-dip galvanizing, vitreous enamelling, spray-coating or electro-deposition of anodic metals such as zinc or aluminium. These methods give mild steel suitable rust-protection for a wide range of uses and meet a variety of different service conditions.

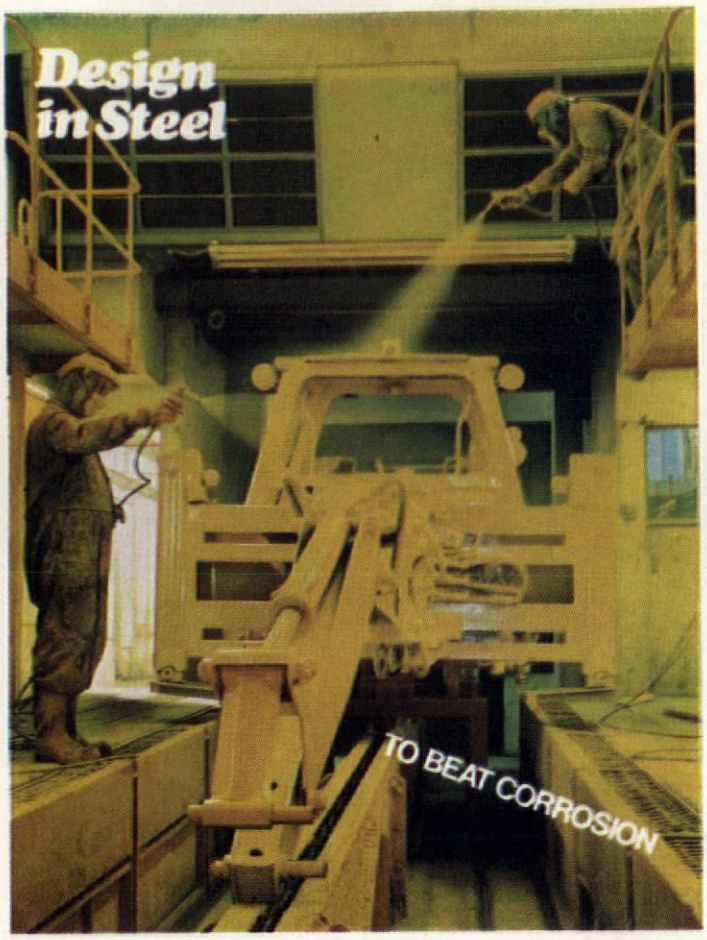
Surface preparation—key to top protection. Effective life of protective schemes is increased five-fold when mill-scale and residual rust are first thoroughly removed from steel by blast-cleaning or pickling rather than by ineffectual weathering and wire-brushing. Today, blast-cleaned and shop-primed steel plates and sections can be supplied by rolling mills, steel stockholders and fabricators. The quick-drying prefabrication primers, sealing, and rust-inhibiting coatings now used permit rapid handling, economical and efficient shop treatment of the steel by automatic plants under ideal, controlled conditions. The primed steel can be safely flame-cut and welded.

Prefabrication Primers for rust-free steel. *Molecular reactive coating is sprayed on to an ideal roughened, 'clean' steel surface immediately following the abrasive blast cleaning process. Metal coating in direct contact with steel acts as a sacrificial anode, and gives cathodic protection. Special anodic or stainless steel sealing coats applied later give long-term protection, under corrosive conditions.*







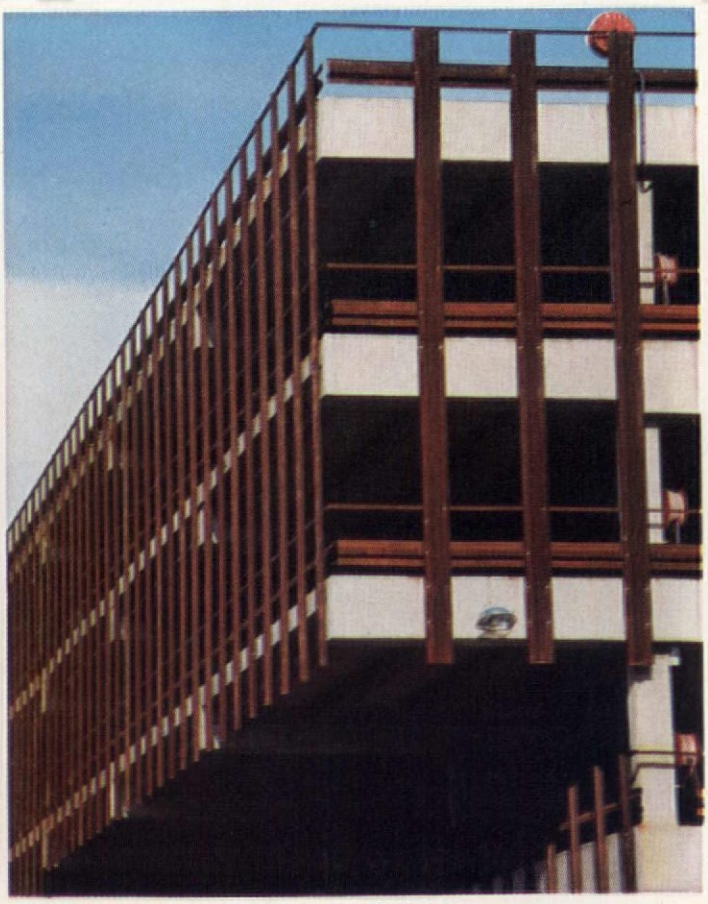


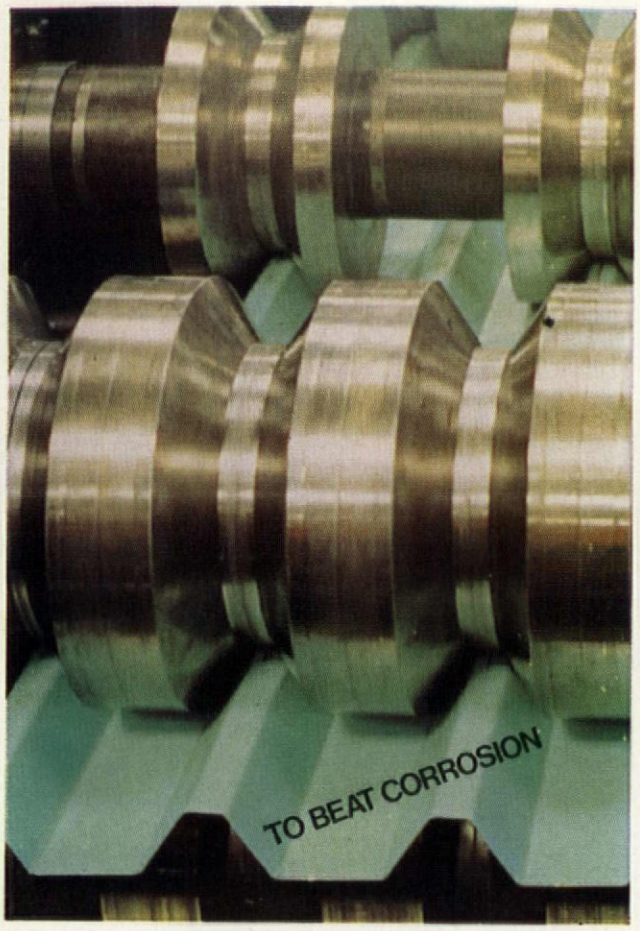
Long-life colour-cladding *'Colour Galbestos' is one of the versatile steel sheet architectural cladding products now giving attractive maintenance-free colour protection to modern buildings. Steel is degreased, pickled and passed through molten zinc. Pure asbestos felt is immediately pressed onto both sides, impregnated for additional strength and corrosion-resistance before colour-coating with modified polyester resin.*

Corrosion-resistant fasteners *which ensure freedom from plant failure and unsightly rusting, are well worth a little extra in cost. Improved forging techniques have actually reduced cost of many types in Stainless Steel. Special fasteners employing insulating gaskets, washers or sleeves prevent bi-metal corrosion.*

Better rust-protection. *'Zintec' electro-zinc coated mild steel sheet gives excellent paint adhesion for lasting finish, plus protection of hidden parts. Coating withstands severe forming, prevents creeping rust and eliminates the need for pickling, phosphating and chemical pre-finishing.*

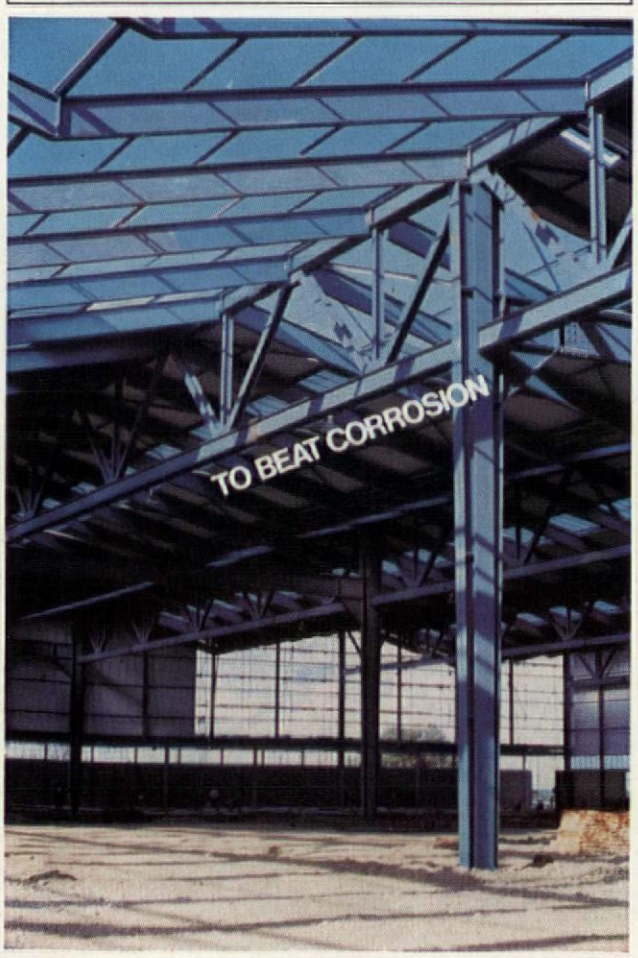
Architectural 'bare' steel. *High strength low-alloy 'weathering' steels such as Cor-Ten offer high resistance to atmospheric corrosion. A distinctive decorative surface patina develops and darkens with time into a dense coat of purplish-brown colour. The tough oxide film forming on bare steel fenders and cladding sections of this multi-storey car park at Doncaster, eliminates all need for future maintenance.*

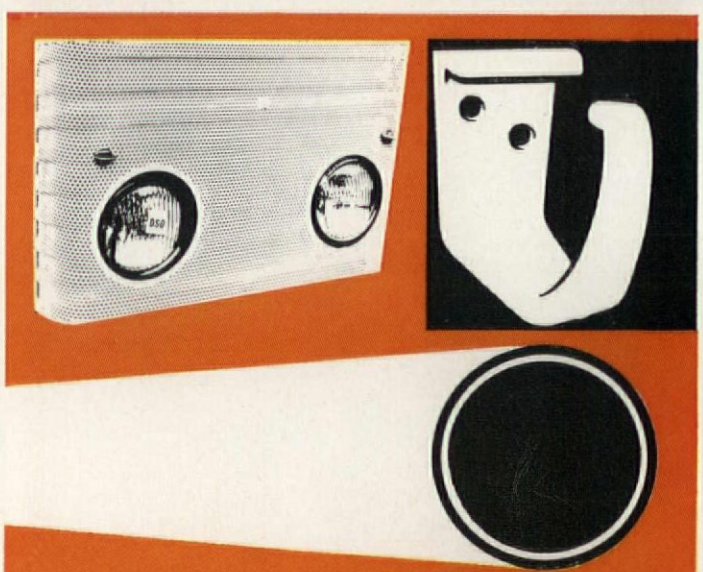




Steel Sheet—strong, light, versatile, corrosion-protected. *Hot-dip galvanized steel sheet is one of the cheapest and most versatile self-protected sheet materials available to industry. Easily formed and fabricated. Additionally coated with plastic or paint colour finishes it gives even greater resistance to corrosion, and cuts maintenance costs.*

Corrosion-protected steelwork. *Standard steel-framed industrial buildings and special fabricated structures alike can now have the long-term corrosion-protection and maintenance-saving advantages which initial blast-cleaning and anodic metal priming of basic steel members provide. Welding and flame-cutting of the treated steel presents no difficulties.*





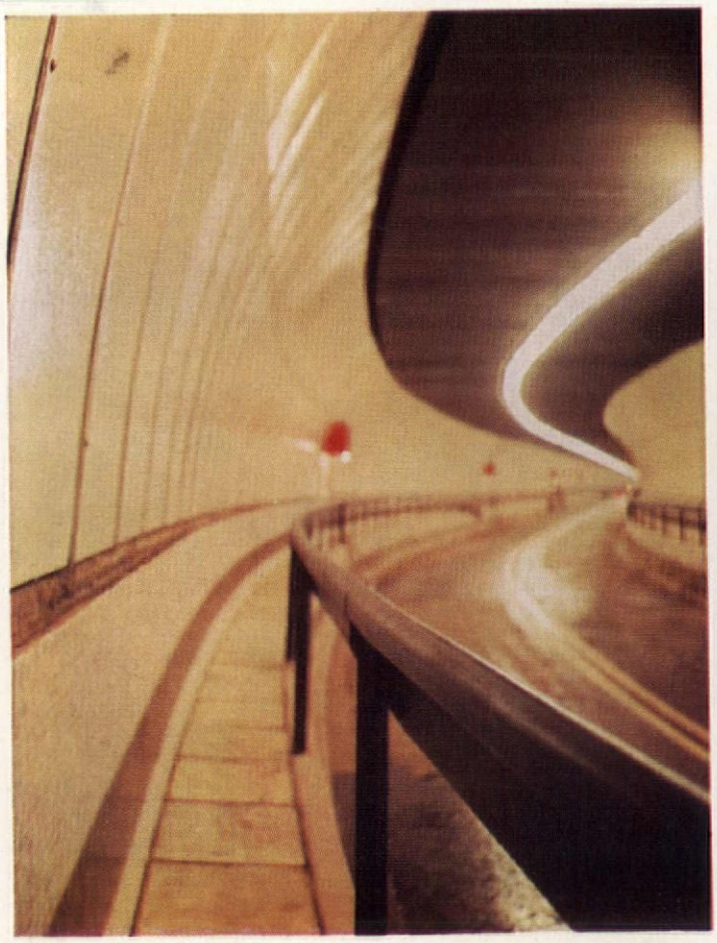
Plastic-coated—for good. *The latest thermoplastic coating techniques permit engineers to use the strength of steel with the excellent decorative, wear and corrosion-resisting properties of special coatings. Steel traffic bollard above is nylon dip-coated for long maintenance-free service. P.V.C. dip-coated roof gutter bracket and tractor grille combine strength with long-term corrosion resistance. Steel tubes with continuously extruded HD polythene sheathing, are ideal as maintenance-free signposts.*

Safeguarding appearance and strength. *Galvanizing provides highly efficient, consistent corrosion protection—and usually at the least unit cost. Steel window-frames and greenhouse components are typical fabricated steel products hot-dip galvanized for long maintenance-free service. Modern dipping plants with high throughputs can also handle large structural steel components.*

New vitreous enamelling techniques *and special steels mean more economic production of strong, light pressed steel products with tough colourfast hygienic glazed surfaces, resistant to severe corrosive attack. Porcelain-enamelled steel panels lining the new Tyne tunnel resist traffic fumes, are easily cleaned and held in pvc-coated steel channelling so that usual costly tunnel maintenance is eliminated.*

Stainless steel: good design policy. *Good design must aim to keep maintenance to a minimum. Stainless steel needs no special attention other than occasional cleaning, is ideal in high-rise architectural projects.* Cover—*Britannic House, London, headquarters of the BP Group of Companies. Stainless steel curtain walling and mullion cladding in highly corrosion-resistant 18/10/3 quality.* Above—*Stainless steel windows in multi-storey Council flats at Barbot St., Edmonton, will eliminate costly painting.*

Galvanized for 'Rolls-Royce' performance. *To combat corrosion and maintain vital structural strength over this superbly-engineered car's considerable life, some 150 pressings of hot-dip galvanized steel sheet are used for underframe parts and reinforcements. The new 'Silver Shadow' is the first Rolls-Royce with body of unitary construction.*



TO COMBAT CORROSION IN HOSTILE ENVIRONMENTS

The steel industry is meeting growing demand for 'clean steel'—blast-cleaned and ready-primed. For aggressive conditions, such as those met by marine structures, the shipyard practice of shot-blasting and immediate application of a suitable prefabrication primer to cleaned steel, is particularly desirable. Six basic types can at present be specified: Zinc rich epoxy; Extended zinc epoxy; Zinc silicate; Aluminium epoxy; Red iron oxide epoxy; Vinyl etch primers. The new BS Code CP 2008 outlines useful protective schemes for fully or partly immersed marine structures, including the vulnerable 'splash zone'. Cathodic Protection Systems also counteract electrolytic action of rusting by impressed current or sacrificial anodes.

Design in Steel

REFERENCES **Cover** Stainless steel curtain-walling and mullion cladding, 'Britannic House', London, fabricated by Morris Singer & Haskins, Ltd., Basingstoke. Architects: Joseph and F. Milton Cashmore and Partners, London, E.C.4 **Inside** Automatic blast-cleaning and priming of steel by Sanders & Forster Ltd., London, E.15. Prefabrication primer by Metalife Limited, Harrogate Greenhouse by The Crittall Manufacturing Co. Ltd., Braintree 'Silver Shadow' body parts in galvanized steel sheet by Rolls-Royce Tyne Tunnel porcelain-enamelled steel lining panels by Escol Panels Ltd., London Stainless steel windows for London Borough of Enfield, by Drawn & Rolled Sections Ltd., Bridgend, Glam. 'Metalife Clad' steelwork for Joseph Sankey & Son Ltd., designed by W. S. Atkins & Ptnrs, Epsom, and fabricated by Modern Engineering, Bristol Dip-coating of steel products by Plastic Coatings Ltd., Guildford 'Colour Galbestos' cladding by H. H. Robertson (UK) Ltd., Wirral, Cheshire Stainless steel fasteners, Fredk. Mountford (Birmingham) Ltd. 'Selascrews', '-nuts' and '-caps' by The British Screw Co. Ltd., Leeds JCB excavator with Zintec electro-zinc coated steel sheet cab and engine cover, by J. C. Bamford Excavators Ltd., Uttoxeter, Staffs Steel-clad multi-storey car park construction supervised by Doncaster County Borough engineer and planning officer, P. Greaves, CEng., MIMun.E, AMI Struct. E, AMICE, AMIWE. Designed and erected by John Mowlem & Co. Ltd., Westgate House, Ealing Rd., Brentford, Middx. BP's North Sea Drilling Rig 'Sea Quest', built by Harland & Wolff Ltd., Belfast.

For Expert Advice on your corrosion problem
The British steel industry provides a valuable advisory service to industry on corrosion prevention and control, through the Corrosion Advice Bureau, Dept. X, British Iron and Steel Research Association, 140 Battersea Park Road, London SW11. Tel: 01-622 5511.

Valuable aid to correct practice
'Protection of Iron and Steel Structures from Corrosion', BS Code 2008—an important new publication now obtainable from the British Standards Institution, Newton House, 101-113 Pentonville Rd., London N1. 205 pages. Price 42/-.

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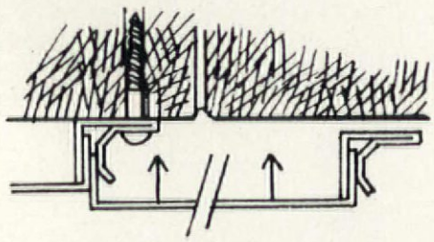

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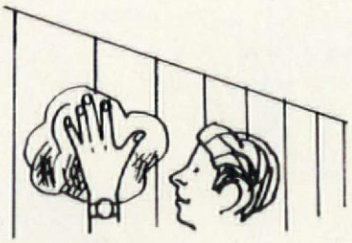

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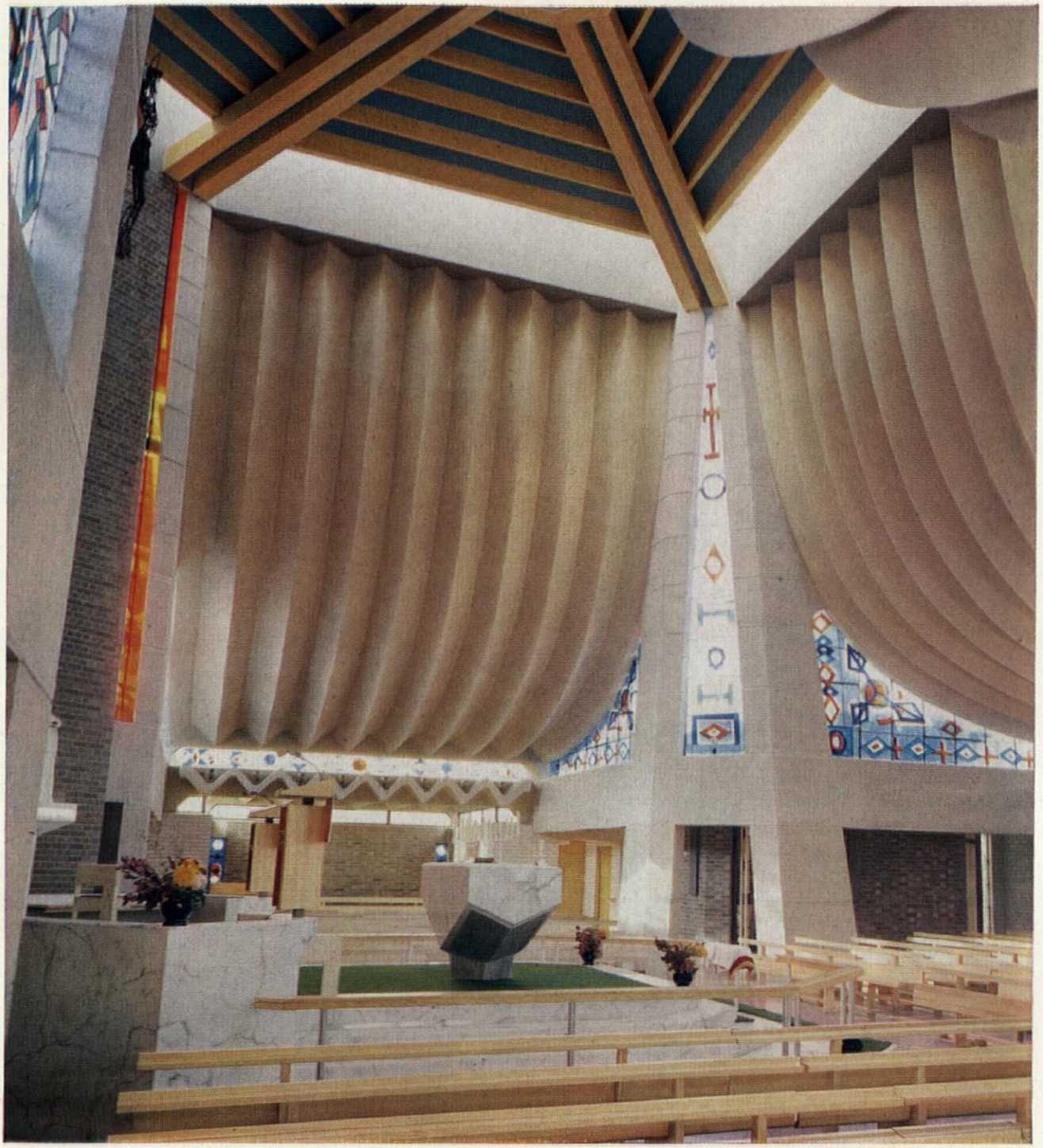

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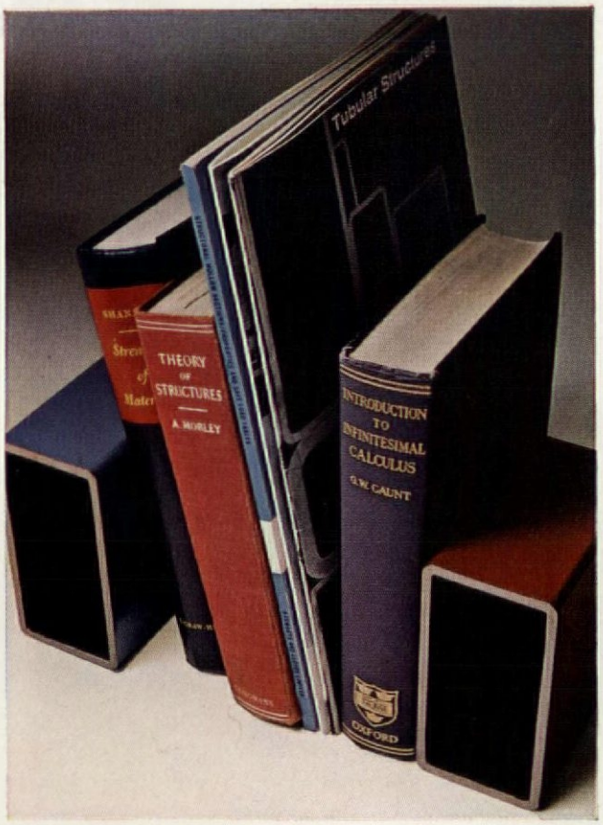

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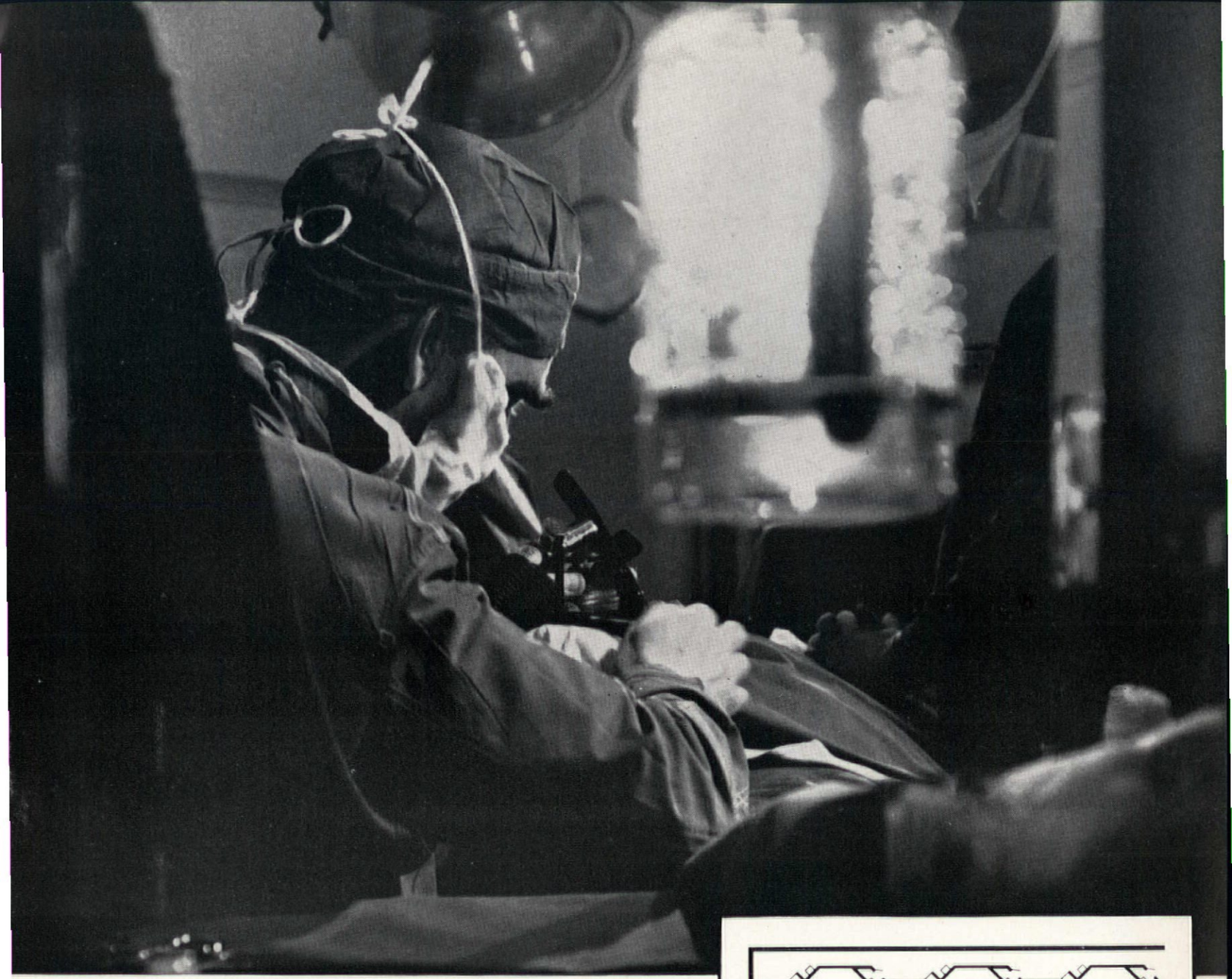

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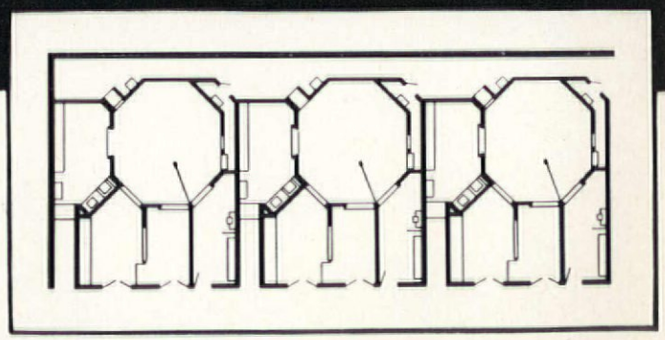

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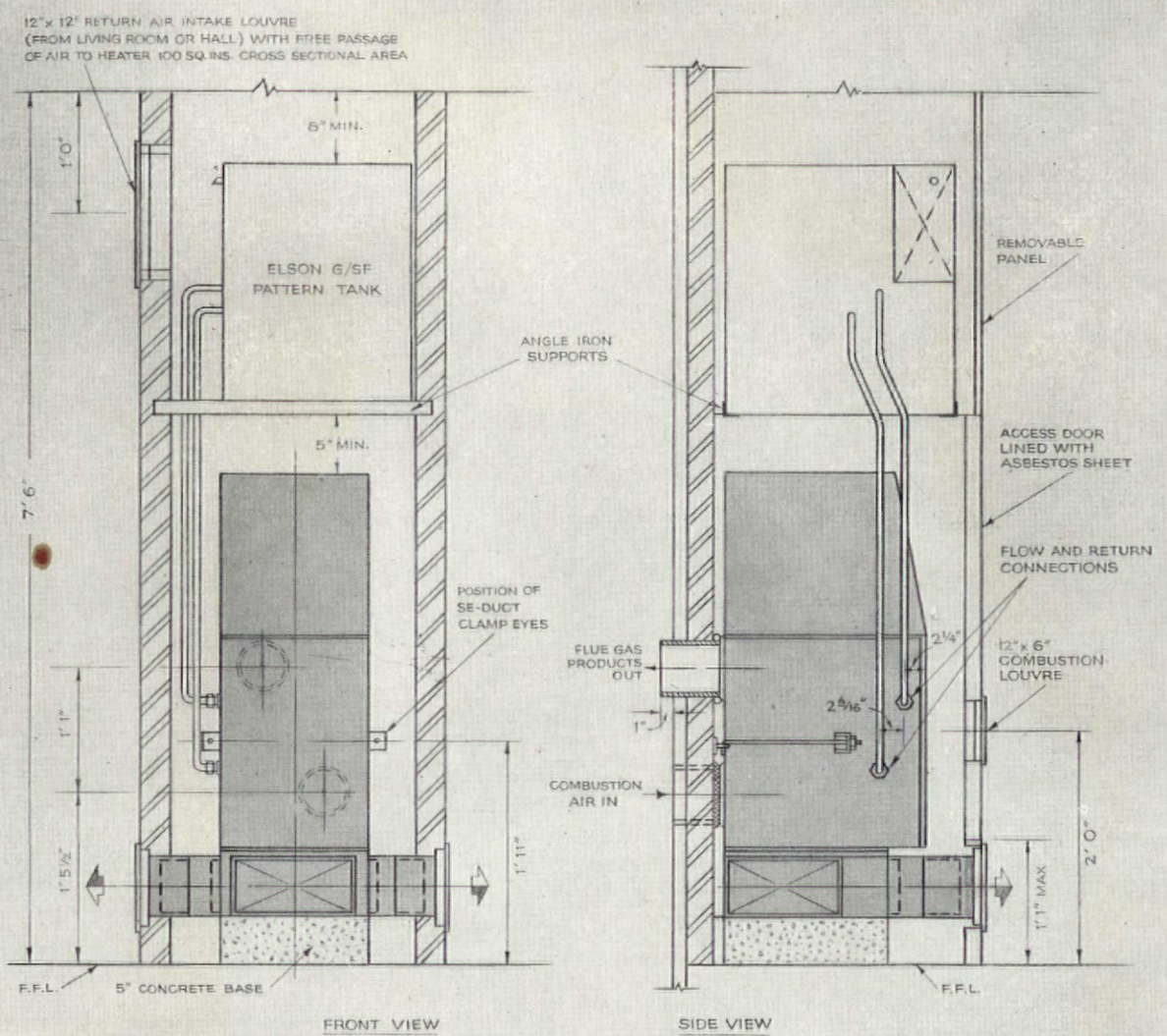

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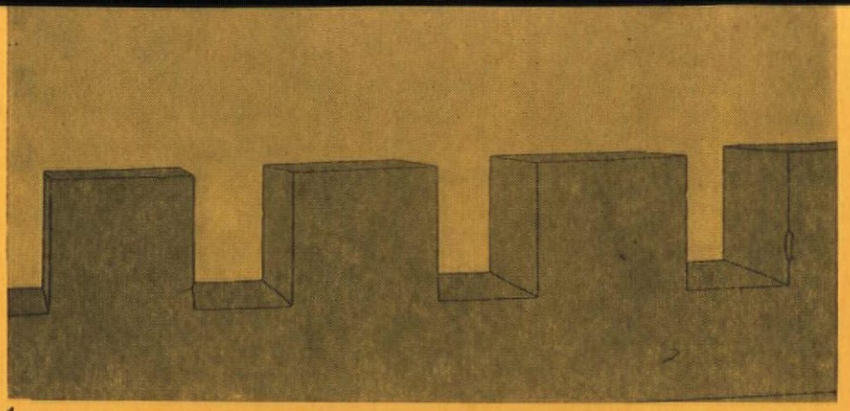


1

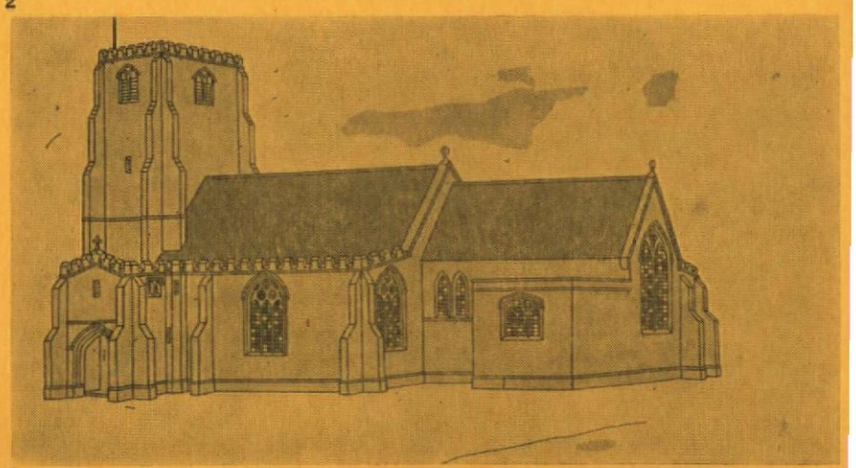
Patrick Caulfield

Jasia Reichardt

Lichtenstein has often insisted that one of the most crucial factors about his paintings of strip cartoons is their critical closeness to the original. Without taking a ruler and plotting the outlines on graph paper, it is difficult to be exact about the differences between the comic strip and the painting. The transformation which the image undergoes is one that belongs to those mysterious realms of art which simply cannot be subjected to an effective analysis. We simply know that the transformation has been achieved when the painting communicates on a certain level. The case is not unsimilar with the pictures of Patrick Caulfield (Robert Fraser Gallery), which appear to be critically poised between the sort of motifs one finds in 'colour-it-in' books and very personal, simplified, linear images. The works consist of patches of even, saturated colour, which are outlined and drawn into with a heavy black line of which neither the quality nor the thickness varies. Nor are there any artistic devices that would either exploit the possibilities of the medium or those of contemporary stylistic trends. Briefly, the ingredients are as banal as those of any do-it-yourself art kit.

Caulfield's subject matter is so neutral and dead-pan (battlements **1**, churches **2**, wells, rocks **3**, urns) that occasionally irony is referred to as one of the motivating forces behind his work. Every strong statement, particularly if it is very simple and very obvious, makes one look for some sophistication, some cryptic significance, as an underlying force or the real motive behind the work. Such temptation must be very powerful in relation to Caulfield's paintings. They seem too obvious, too straightforward for us not to try to look for some deeper meaning in the cartoon-like compositions. What is wrong here is that most radical paintings of the past 20 years have been paralleled by so much theorizing that when the burden of the accompanying words is removed, the pictures tend to look bare. The bareness of Caulfield's work is their strength. There is no content that is not immediately visible, there is nothing more to them than immediately meets the eye, and there is certainly no irony. He can afford to use the most obvious clichés, to make rocks look like paste jewels, and stained-glass windows like tasteless colour charts, because the relationship between the themes and their presentation contains that critical moment Lichtenstein talked about—the moment when an object is imperceptibly transformed into a work of art.

2



3

Cosmorama

WHat Ere Ho n?

There was only one correct entry to the new regular architectural competition started in *AD* last month. The winner of the £5 was Philippe Boudon of Paris.

The answer, of course, is that the architect was Anatole de Baudot, Viollet le Duc's only significant pupil, who erected the pavilion to serve as a gymnasium in the yard of the Lycée Victor Hugo, rue de Sévigné, Paris. The structure is of reinforced concrete faced with ceramic mosaics. The date is surprisingly early—1894. The building still stands, though access is extremely difficult as it is through a girl's school. It can be glimpsed though, by jumping up and down behind the rear garden wall.

This weeks' problem building is more contemporary in style and date. The sender of the first correct entry (identifying the architect, the name and address and date of the building) opened in our office on the 20th of this month will be rewarded with £5. The entry form is printed on page AD28.

Man of the month

ALVAR AALTO, designer with his wife, of the Institute of Technology, Otaniemi, featured in this issue, with an appraisal by Douglas Stephen. The appreciation offered here of the man and his work is by MAXWELL FRY.

I first met Alvar Aalto in Helsinki in 1936. In Obo, on my way to Helsinki, I had seen some squarish buildings faintly inscribed with classical symbols—some early work. At Paimio my heart had been lifted by a sanatorium so gloriously and lyrically functional, vibrant in the crystalline landscape, as to make me believe our architecture capable of anything. This was Aalto launched.

Then I met him and we lunched from midday until well into the afternoon in a restaurant on the roof of his Carlton Hotel, where the ceiling, rather to my surprise and other people's at the time, was supported on one edge by close struts at a 45° angle, looking for all the world like a manger. 'The Finns are not very clean eaters', he explained.

Now Aalto is a wood-Finn who can teach Swedish-Finns lessons in delicacy, and in him the two strains combine; Swedish-Finn for technique, function and finish; wood-Finn for robustness and earthiness; Turgenev and Tolstoy rolled into one.

As early as I knew him he worked over the full architectural scale from furniture, through the factory, to the housing of the employees; a fully integrated architect.

His beautiful furniture I bought in the 30's is still in service: like Mies' chair it was prototype material, difficult to reject. But so too was the acoustic ceiling coiling the length of the lecture room in the library at Viipuri because it was no mathematical response to a sound-wave diagram but the fully integrated emotional sense of the still wider conspectus of what offered to be solved by an imaginative mind, in this case so solidly based as to make his ceiling a statement of certainty.

Aalto in America was a man not so much at his ease. I admire his MIT hostel block, but it has two distinct faces and shows signs of stress. Unlike Mies, for whom America was the opportunity to do what he knew he had to, Aalto was still in transit for the time when the true amalgam of his character would declare itself, coming well down, when the time came, on the earthy, woody side for the release of his creative genius for volume and form in materials, native to his country, that, feeling deeply for, he could re-use for new ends, robustly and as delicately.

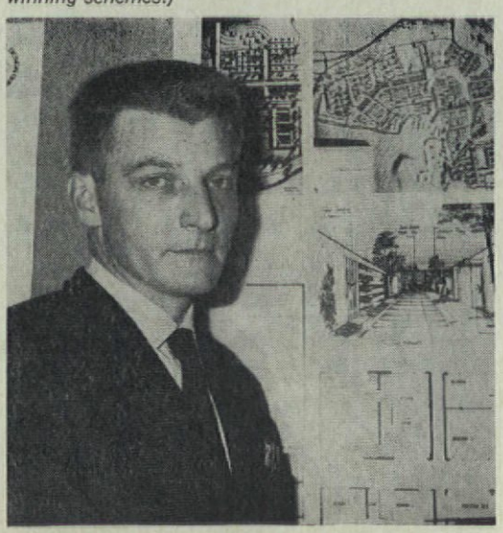
At Jyväskylä he entered his true inheritance, and in the House of Culture at Helsinki his genius pulled clear away, not from what he owed to the early modern movement in its early creative period, but entirely from the growingly synthetic world of America, towards forms and volumes organic only in the sense of responding with intense energy to the humanly-based demands that alone can dominate the structures and materials appropriate to the task.

Thereafter he was an architect free to act out what was best for him; confined by no dogma, wedded to no material.

In the course of his fulfilment he has rejected nothing. But at each stage he has enriched and deepened his sensibility without loss. To Aalto more than to any other architect we owe the direct development from the earliest days of the modern movement towards that collaboration with industry, that, in his own words, 'leaves man at the centre'.

ARCHITECTURAL DESIGN PROJECT AWARD

Lord Kennet, Joint Parliamentary Secretary to the Minister of Housing, is seen here (left) presenting AD's *Project Award certificates to the 1968 winners at a party at the Building Centre, London, on January 9th, the day that England was virtually brought to a standstill by snow and ice. Nevertheless, winners from Cheshire and Swansea were undeterred: F. Lloyd Roche (centre), Chief Architect and Planning Officer for Runcorn Development Corporation, and J. R. Gammon and H. O. Williams (right). (See* AD, *January 1968 for the winning schemes.)*



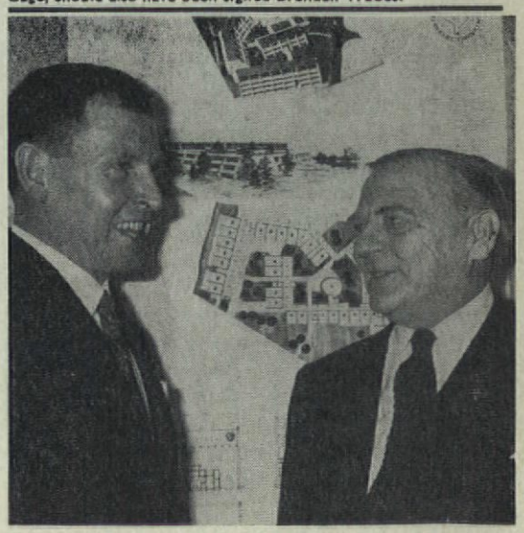
AD seeks secretarial paragon

As from April, *AD* requires an editorial secretary to replace Judith Wilkinson who is leaving to realise her vocation as a singer at Glyndebourne.

A working knowledge of German and French is required and the successful applicant must be prepared to work as a member of the editorial team.

Apply to the editor in writing, stating particulars of previous experience.

Correction. The letter printed in our January issue, signed Stephen Gage, should also have been signed Brendan Woods.



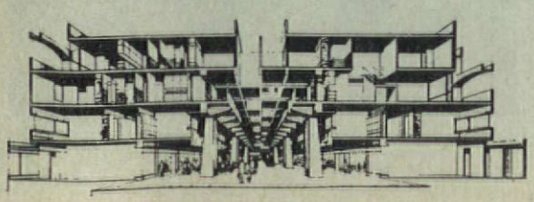
Alcan universities conference

The economics of central area renewal, Derwent College, York, January 9–12, 1968

In four days 60 delegates and over listened to a spate of carefully prepared papers on the economics of central area redevelopment, presented by an array of knowledgeable experts. Mr W. L. Abernethy, treasurer to the Greater London Council described the financing of public development; Mr H. Buck of Hillier, Parker, May and Rowden explored the financing of private development. No less a man than Vince Ponte 1 was brought from Montreal to explain how, whether publicly or privately financed, development on the grandest possible scale could be achieved in the shortest possible time—the new centre of Montreal, with the most extensive multi-level pedestrian and vehicle system in the world, was begun no more than six years ago (see *AD*, July 1967).

But, despite all the expertise, most of the papers were of the most banal kind. They were clearly prepared for an audience of simple minded architects—half the audience, at least, was made up of architects, but their knowledge of the subject should not have been so underrated, nor should that of the remaining delegates, made up of developers, solicitors, valuers and administrative officers who are already well-versed in the machinations of central area redevelopment. If the delegates learned little of practical value, they were given even less encouragement or inspiration for serious reappraisal of the whole question of central area development. The emphasis was firmly on money and cash returns; returns to be made principally on 20ft shop frontages. Economics was given its most limited interpretation. There was nothing on the environment, nothing on transportation even, let alone patterns of movement. Mr John Madge did discuss housing in central areas—without conviction—but only Mr D. R. Diamond, of Glasgow University, attempted to assess the nature of central areas and to question our assumptions with regard to them. It is not the shops he declared—and in York this sounded like heresy—that make up the central area, but its qualities of complexity and dynamism. 'We have to think of movement', he said, 'some of which can be seen and some of which cannot be seen—the movement of weightless things like ideas, telephone conversations, electricity and so on, as well as the movement of people and goods—and also of movement in the form of change'. Mr Diamond alone envisaged that the central areas we know are not likely to be thoughtlessly perpetuated. We can of course, not now afford them.

The shopping and business centre at Beersheba, designed by Karmi and Associates. Like the Cumbernauld town centre it is a massive *in situ* concrete lump, extendable but basically inflexible. They will probably both make lovely ruins.
Photo:* Baumeister, *November 1967

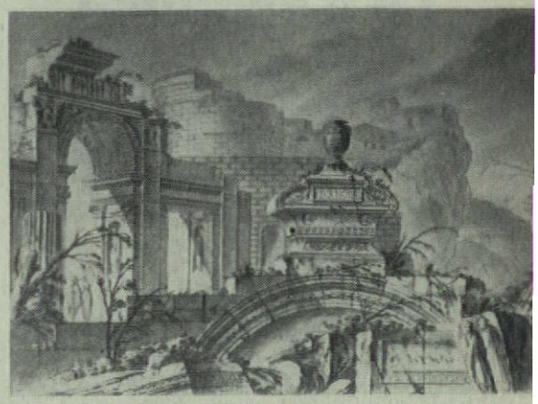


France in the eighteenth century

Royal Academy of Arts, Winter Exhibition 1968

This grand and sumptuous show is not, of course, in any sense intended to illustrate France in the eighteenth century. The 1035 items on display are, for the most part, carefully selected easel paintings that illustrate aspects of life in eighteenth century France, but are more evidently intended to demonstrate the talents of particular painters, notably François Boucher, Chardin, Fragonard, Greuze, Lancret and Watteau. Connoisseurs might carp at the choice of paintings and will certainly be irritated by their apparently haphazard arrangement. But it is in those small sections devoted to furniture and to architectural drawings that the waywardness and uncertainty of the organizers is most apparent. The effort and expenditure required for such an exhibition determine that it is a rare occurrence; they should determine also that it is more than an occasion for fashionable delectation. There are historical problems still unsolved in the formulation of the Neo-classical style; the small collection of furniture—since it could clearly not be representative of the whole century—might have been chosen to elucidate some of them. Similarly, the architectural drawings and paintings might have served to solve some of the knottier problems of the evolution of the Neo-classical style. The little known drawing by Moreaux-Desproux for the Hotel de Chavannes—the building that the Abbé Laugier himself pin pointed as first in the 'style grec'—should, one would have thought, have been on show. Similarly Marie Joseph Peyre and Gondoin should have been represented. There are, it must be admitted, notable and significant drawings on exhibition, compositions by Charles-Michel-Ange Challe, Jean Charles Delafosse, Louis Jean Desprez, Charles Louis Clérisseau and, most intriguing, two sketches by the enigmatic Jean Laurent Le Geay. But they are scattered throughout the exhibition and are not easily to be assessed in relation one to another. The Le Geay sketches should have been set side by side. Etienne Louis Boullée's project for a *Metropole* might have been placed alongside Hubert Robert's *Finding of the Laocoon*. Indeed the splendid array of Hubert Robert's paintings and drawings would have been much enhanced if they had been more thoughtfully grouped as the basis of an architectural display. One feels that the organizers had no real grasp of the material in hand.

Le Geay, Imaginary composition, Collection J. Harris



Le Geay, Decorative sketch, Collection Staatlichen Museen, Berlin

World congress of engineers and architects, December 18–23, Israel

Derek Sugden

Was it Ben Gurion who said to Macmillan, 'How would you like to govern a country of two and a half million prime ministers?' This is the first and most lasting impression of Israel.

The congress itself was completely overshadowed by the 'birth of a nation' basking in the afterglow of military victory achieved against tremendous odds and in very quick time. One can forgive the chauvinism when so much was at stake, but I found it out of place in a congress of engineers and architects.

The congress opened with 'organized' tours around the country. I say 'organized' with some feeling.

Our first real sight of Israel was when visiting Beersheba (*below*) and Arad. The buildings are all of *in situ* concrete and have the look of being built in a hurry.

They took us all to Jerusalem for the formal opening of the conference and by this time the organization was really creaking. After finding further buses, the last delegates left at 10.30 when the scheduled start was 8.30. Before lunch we saw the new Hebrew University. Here the standard of building was infinitely better than in Tel Aviv, Beersheba or Arad. The new buildings are very much in the post-war debased international style with a few concessions to Asia.

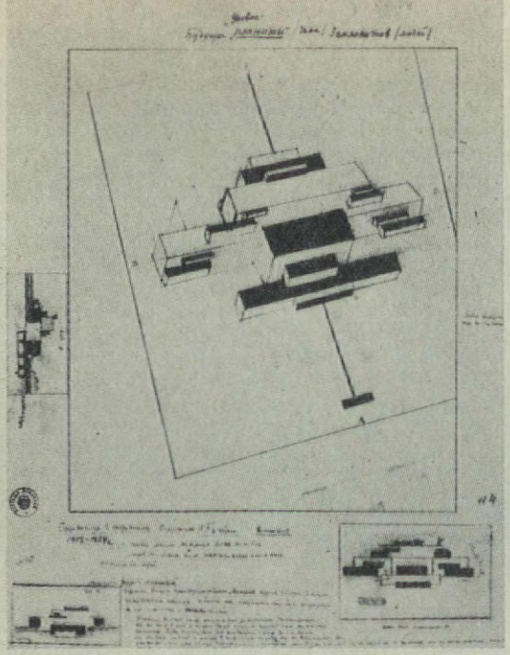
The congress proper opened in the evening in Jerusalem at the Congress Halls. We were regaled with speeches by Levi Eshkol, the Prime Minister, and by Mordechai Bentov, the Minister of Housing, who spoke in Hebrew, a real Mapai figure, straight from the kibbutz with open-necked white shirt in the Ben Gurion tradition. Then Teddy Kollek, the Mayor of Jerusalem, spoke, followed by Bruno Zevi, who replied on behalf of the overseas visitors. Arieh Sharon, the President of the Association, formally opened the Congress and then we had a superb lecture from the archaeologist, Professor Yigael Yadin, on 'Architecture in King Solomon's time'.

The first speaker on the Wednesday morning was Louis Kahn who spoke about 'Architecture and the institutions of Man'. The last speaker was Ove Arup who denied that he was going to talk about 'Public building in Australia' and then introduced the Sydney Opera House film. Both Louis Kahn and the subject of the film, although in itself a lost opportunity, were fascinating. The papers in between have for me now coalesced into a sea of boredom.

The next day we had planned a trip to Masada and, despite a bad start through the most intricate confusion between buses, cars and times, we set off. We went again through Beersheba and Arad, this time with a guide called Emmanuel—'God with us'.

On Friday, we felt that listening to three hours of Bucky Fuller starting at 8 a.m. was more than flesh and blood could stand, so we took ourselves off to the 'Water development and irrigation in arid countries'. This proved fascinating compared with the architecture and building. The irrigation developments in Israel have been quite fantastic and the yields now being achieved by drip irrigation are even more so. The morning finished with a paper by a Mr Leslie Shanan on 'Ancient and modern agriculture in the Negev Desert'. This was an account of the remarkably successful reconstruction of two ancient farm systems in the 100mm winter rainfall Negev Desert.

So, on to the afternoon and the formal closure of the conference. A lecture by Yigal Allon, Minister of Labour, nothing to do with architecture, building or reconstruction but everything to do with Israel, the Arabs, the political situation and what we have we hold. After the summaries by chairmen of the sessions, the closing address was by Elhanan Pelles with proposals for an international association of engineers and architects. I was not sure whether this title included the words 'in Israel' or not.



Avantgarde 1910–1930 Osteuropa

Planit, a 1924 study by Kasimir Malewitsch, shown at the Berlin Akademie der Künstre during December.
Bauwelt 50, 1967

Agents provocateurs

From December 11 to 15, an international symposium on architectural theory, organized by Professor O. M. Ungers, was held at the Technische Universität, Berlin. The symposium attracted large audiences of students who, during the four days, listened to no less than 18 papers delivered by architects, theorists and historians from Switzerland, Austria, Germany, Canada, England and America. The papers varied in approach from the usual radical line (preoccupied with the indeterminancy of modern society and its forms) to the liberal, sceptical attitude of Colin Rowe.

The paper that stimulated the strongest reaction was that by Reyner Banham—*Edison: missing pioneer*. Sigfried Giedion was stirred to passionate protest by Banham's accusation that he had written an account only of those pioneers whose contribution to architectural development was structural and had ignored altogether the technical pioneers i.e. such men as Edison. Banham had to face Giedion publicly proclaiming in German (though he offered to say it also in English) his authorship of *Mechanization takes command*. Ungers was equally disturbed, though the point of his contention was Banham's introduction—by way of Edison—and acclaim for Paul Scheerbart's concept of an architecture of glass and coloured light as depicted in the *Glasarchitektur* (1914). Ungers was concerned that praise of this Expressionist poet might influence his Berlin students, who already have innate propensities for the over-emphasis of architectural expression. In addition, Ungers was prompted to point out that Scheerbart's ideas led directly to the mysticism and social ideals set out by Bruno Taut in *Alpine Architektur* (1919). Non-conformists in this ideal society were to be branded on the forehead and branded again until they conformed. For Ungers the dictatorial attitudes and even the architectural forms of this millenial world were no different from those associated with Hitler's mountain retreat in Berchesgarten. To put the case for Expressionism in Berlin, was he claimed, incendiary.

Banham felt it was somewhat unsporting to introduce politics into an academic architectural discussion; but the theme once taken up, was eagerly pursued. The Austrian Otto Graf spoke with ironic delicacy of Hitler's *lichtarchitektur*, erected in 1945 over the city of Berlin, and piling provocation on provocation he determined that the evening ended in uproar.

Similar uproar occurred on the last day of the symposium when a mild 'happening' by Wolf Vorstell was outstripped by two banners hung by students from the sides of the hall, bearing the conclusive but provocative legends:

HÖRT AUF ZU BAUEN—stop building

ALLE HAUSER SIND SCHÖN—all houses are beautiful.

Gustav Klutis, Anti-Imperialist Exhibition poster, Moscow 1931.

Rodchenko, *Cine-Eye Vertov* film poster, Moscow 1925.

Revolutionary poster

Camilla Gray

In Moscow, Prague, Warsaw, East and West Berlin, London and Paris, exhibitions have been held to mark the 50th anniversary of the October Revolution. Of all these, the Warsaw exhibition *The Revolutionary Poster* was easily the most exciting and appropriate. Organized by Szymon Bojko, it consisted of a selection of 440 posters; international in scope, it was not confined to the Bolshevik Revolution and the young Soviet State, but included the Spanish Civil War—a superb Miró was the prize of this collection—the 1919 Hungarian Revolution and posters connected with various Peace and Anti-Fascist movements. England was represented by CND work (rather sparsely, a lack which will be made up in the publication which Bojko is preparing on the exhibition).

However, the 90 Russian posters were the heart of the exhibition and Mr Bojko's *coup* was in obtaining from Moscow 20 or so works by the major Constructivist designers: Rodchenko, Lissitzky, Klutsis, the Stenberg brothers and Lavinsky. Of these, all but the Lissitzky street poster 'Beat the Whites with a Red Wedge' are virtually unknown—this has been enjoying a freak publicity, used as a poster for their exhibition by West Berlin's 'Akademie der Künste' and re-printed in a loose-leaf album of Russian revolutionary posters by Riuniti, as well as to illustrate several articles on the Fiftieth Anniversary.

The importance of Constructivism is now universally acknowledged, but how little the actual work is known. Mr Bojko is one of the few specialists in the field of Constructivist design who has worked on the original material in Soviet archives and who has therefore been able to make a selection of work based on judgment and knowledge and not simple expediency, (the introduction of agit-trains and the famous agit-ship 'Red Star'—*see below*—among the posters is an illustration of the liveliness of his approach.) Such a straightforward and informed approach to the subject of Constructivism is all the more welcome when contrasted with the recent spate of publications in Western Europe and the United States in which the term 'Constructivism' seems to be used of any 'construction-type' sculpture and in particular is misused to describe Gabo's work, to which it is historically opposed.

It seems opportune, therefore, to repeat some of the slogans of Constructivism—so vividly realized in these posters:

DOWN WITH SPECULATIVE ACTIVITY IN ART!

WE DECLARE UNCONDITIONAL WAR ON ART!

NOT TO CREATE ABSTRACT PROJECTS BUT TO TAKE CONCRETE PROBLEMS . . . WHICH ARE PRESENTED TO US BY THE COMMUNIST WAY OF LIFE.

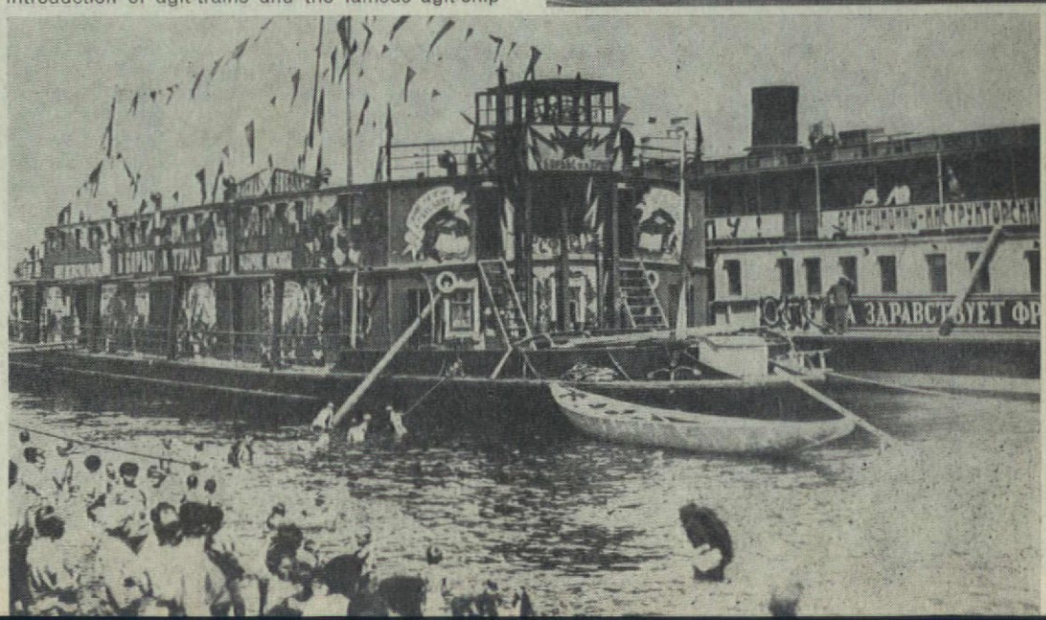
THE END HAS COME TO PURE AND APPLIED ART.

A TIME OF SOCIAL EXPEDIENCY HAS BEGUN.

A COMMUNIST TOWN IN THE PLANNED DESIGNS OF THE CONSTRUCTIVISTS IS A FIRST ATTEMPT TOWARDS THE ORGANIZATION OF HUMAN CONSCIOUSNESS.

WORK. CLARITY. ORGANIZATION.*

* From Constructivism by Alexei Gan 1922.



Book notes

The Kariye Djami

Paul A. Underwood. Three volumes (boxed), Routledge & Kegan Paul for the Bollingen Foundation. £20.

The conventional church of Christ the Saviour in Chora (Kariye Djami), stands near the angle between the Land Walls of Constantinople and the Golden Horn. It was completely rebuilt and redecorated by Theodore Metochites, an imperial minister, philosopher and theologian, in the decade before 1320–21. Two narthexes were added to the existing church and decorated with mosaics which principally describe the Lives of the Virgin and of Christ. A parecclesion was added to the south side of the church as a mortuary chapel and decorated with wall-paintings depicting the Resurrection, Last Judgement and Old Testament prefigurations of the Virgin and promises of salvation. The church is deservedly the most famous example of the last, Palaiologan, renewal of Byzantine art and its iconography is amazingly rich. Many regard the Anastasis scene in the parecclesion as the culmination of all Byzantine pictures. The church is almost the last great Byzantine—indeed Greek—work of art, for never again could the unfortunate Greeks afford to build at such expense or, it might also be said, allow themselves to create anything quite so beautiful.

The Byzantine Institute Inc. of the United States and the Dumbarton Oaks Centre for Byzantine Studies completely restored the church and its decoration in 1948–1958. Paul Underwood succeeded as director on Thomas Whittemore's death. Much of the practical work was carried out by the indefatigable and meticulous Ernest Hawkins who has left the church as one of the most splendid monuments of Istanbul.

Reports on the progress of the work have appeared annually in such publications as the Dumbarton Oaks Papers, but this complete account has been long awaited. It is a masterpiece of presentation and description: the Kariye Djami at last has the book it deserves.

The book is divided into three large volumes. The first contains Paul Underwood's brief historical introduction and full descriptions of each mosaic and wallpainting; every inscription is printed and all appropriate biblical, apocryphal or hagiographic reference is given. There are two interesting and possibly controversial sections on the technique of the mosaics and paintings. The volume concludes with the usual scholarly apparatus and 12 plans and sections of the building. This volume is strictly descriptive, an *ekphrasis:* it makes no mention of the wider implications of the work, which will be explored in a fourth volume of essays by a number of scholars entitled *Studies in the Art of the Kariye Djami*, to be published shortly. This book should be important.

The second and third volumes consist entirely of 550 full page plates of the mosaics and paintings, mostly in black and white. The quality of many of them is not good enough. The greyish black and white photographs often lack definition; some of the few colour plates are bleary. Perhaps the Bollingen Foundation should have gone to a German or Swiss firm experienced in art work rather than to an American printer. The book is magnificent enough, but one may carp and wonder whether, for £20, it should not have been even closer to perfection. *Anthony Bryer*

Living architecture: Romanesque

Raymond Oursel. Oldbourne. 55s.

The format and arrangement of the *Living Architecture* series is wholly estimable (except that, with so much typographical expertise, pull-out pages and so on, indexes have been forgotten), but the texts and translations are sometimes rather shaky. Raymond Oursel's text is on the whole sensible and reliable (save for the historical sections and one or two flights of fancy—Abbot Suger turns up as a sort of crazy metaphysician). One may sympathize with Oursel's outbursts against the gothic vandals of the twelfth century who outdid both French Revolutionaries and nineteenth-century restorers in destroying so much Romanesque work: its heyday was very brief indeed. A few important (mostly French) examples are examined in some detail with plans, photographs and description. The translation is good, the proof-reading could have been better and the preface by Hermann Baur is egocentric and piffling. Considerable (unacknowledged) use is made of nineteenth-century architectural engravings; indeed it is interesting to find how large Viollet-de-Duc still looms over the subject. The photographs by Jacques Rouiller and heliogravure plates are superb and the plans coherent and uniform. This is one of the better books in the *Living Architecture* series. *Anthony Bryer*

Decorative Work of Robert Adam

Daime Stillman. Alec Tiranti. £2 10s.

Despite the popularity of Robert Adam and the excess of literature on his architecture, it is astonishing that not until Sir John Summerson gave it his attention in 1953 were the components of the style analysed. He was followed in 1962 by John Fleming, and in 1963 Eileen Harris subjected Adam's furniture to a disciplined examination. Now we have Dr Stillman's *Decorative Work of Robert Adam*. Stillman provides four short chapters on Adam's decorative work, sources and collaborators, appended to a catalogue of 173 illustrations. We are taken through Adam's career from the years of early practice in Scotland, to his highly advantageous Grand Tour, and so to a most fashionable and lucrative practice in London. One's only regret is that we are led on like blinkered horses, leaving totally unexplored many fascinating aspects of Adam's revolution in decoration. There is no need to reiterate here what a unique revolution this was. Nevertheless, we are told little about what the patrons thought, or whether it was regarded as a masculine rather than feminine taste. In a searching enquiry such as this purports to be, one should expect to know if the patrons were satisfied, or if they demanded certain types of decoration for specific room functions.

Dr Stillman's account of the neo-classic background in Europe, especially France, is almost archaic in its simplicity. France is treated in a vague, off-hand way. The vortex of neo-classicism in the decade preceding Adam's visit to Italy in 1755 was the French Academy in Rome. Clérisseau was a product of this, and so, by his friendships, was Chambers. Yet we are given no word of this, and Paris itself is passed off with generalizations, all despite the fact that Adam was an intimate of Clérisseau and had contacts with Cochin, that acolyte of neo-classicism.

Furthermore there is no mention of Adam's professional contemporaries, of the extent to which fashion obliged them to conform to the style, and the manner in which they conformed. James Wyatt said about 1800 that when he returned from Italy in 1768 he found the public taste corrupted by the Adams but had to follow.

Wyatt, Bonomi, Mitchell, Chambers or Richardson are absentees from this book. Pattern books are completely ignored. Through these, especially Richardson's *Designs for Ceilings*, the style was disseminated. I find it difficult to believe that with energy one could not find examples of 'Adam' decorations in Holland, France, Italy or Poland. And surely Cameron, one of Adam's most successful imitators, deserves an entry.

Although much is written about Adam's craftsmen, comment might have been made that they were often quite willing to work concurrently in opposite camps. Cipriani is a case in point, and so is Rose. There are the two ceilings painted by Cipriani in Buckingham House, one designed by Chambers, the other by Adam. They are both alike, and in the case of both architects, pretty advanced for a date around 1763. This would seem to be a nice problem that Dr Stillman could have tackled.

Adam's decoration was said by Malton to be 'unrivalled for elegance and gaiety'. These words could not be applied to Dr Stillman's illustrations. They are, except for the photographs of drawings in the Soane Museum, appalling, and Adam's decoration is rendered grey and lifeless by either bad photographs, or Tiranti's blockmakers. *John Harris*

The Georgians at home

Elizabeth Burton. Longmans. 50s.

'The Georgian era, once so beautiful, so brutal, so splendid, so squalid that it might with some justice be called our own particular and peculiarly English renaissance . . .' is here described with wit and pace.

We are hurried from a brief sketch of the politics of the period through architecture, furniture, glass and china, and entertainments to gardening with a brief and horrifying glance at the doctoring of the period. The book is stuffed with information and anecdotes about the habits of the Georgians, and quotation from the diarists in which the age so happily abounded is well and pertinently used. The hovel of the Georgian cottager, the hours at which the gentry dined, the first school of Cookery and Domestic Science—opened in Manchester—the layout of the Georgian theatre, the price of turves for making a lawn, are all described.

Felix Kelly's illustrations are charming in themselves, but lack the point and reality that carefully chosen authentic contemporary drawings, cartoons and prints would have given.

Some points of style and arrangement irritate—does it illuminate to tell us that Nash 'is an entirely different *chaudière de poisson*' (from Soane)? Also regnal years are notoriously tiresome for social historians, and 1815 is of greater significance than even 1837, but why exclude poor William IV just because of his name? If the terminal date is to be 1830, then a word about Cockerell's Tyburnia, Burton's Bloomsbury and Cubitt's Belgravia is surely called for. The last of these three men, one of London's greatest speculative developers is named once—as a civil engineer concerned with canals.

Nonetheless, this is an entertaining bedside book, and illuminates the curious mixture of refinement and brutality which was the eighteenth century, though it will not displace such classics as Trevelyan's *Social History of England* or R. J. Mitchell and M. D. R. Ley's *History of the English People.* *Hermione Hobhouse*

Gesamtplanung britischer Hochschulen

Peter Jockush, Werner-Verlag, Düsseldorf. 1967. 20DM.

This survey of British universities was carried out in 1965/66 by a German architect/planner and is published as one of a series of documents for the Zentralarchivs für Hochschulbau. It is well illustrated with plans, photographs and diagrams and takes the opportunity to make a critical appraisal of the planning principles now being evolved by universities and their architects. The extremely comprehensive bibliographies for each section of the book make this a valuable source of reference and it is only to be regretted that it is not available in an English translation. *Jeremy Taylor*

Publications received

Utzon and the Sydney opera house
Morgan Publications, Sydney, Australia. $1.20.

The myth of the machine
Lewis Mumford. Martin Secker & Warburg Ltd. 50s.

Network analysis in construction design
Ministry of Public Building and Works. pp. 40. HMSO. 7s. 6d.

Space Structures
Ed. R. M. Davies. pp. 1232. Blackwell Scientific Publications. £18 18s.

Professional collaboration in designing buildings
Ministry of Public Building and Works. HMSO. 12s. 6d.

The Building Regulations 1965
Selected decisions, first series
Ministry of Housing and Local Government (Welsh Office). pp. 20. HMSO. 2s. 6d.

CLASP/Brockhouse
The Brockhouse Organization. pp. 14. J. Brockhouse & Co. Ltd.

Effect of right turning vehicles at traffic signals
F. V. Webster. Road Research Laboratory. Free.

Going metric in the construction industry
Ministry of Public Building and Works. pp. 15. HMSO. 3s.

A guide to the use of plastics under the Building Regulations 1965
Polyplan Ltd. in collab. with Fichard Fitt. pp. 39. Polyplan Ltd. 15s.

Design for death
Barbara Jones. Andre Deutsch Ltd. 63s.

Sound and vision
Peter E. M. Sharp. pp. 64. Macdonald & Co. in association with the Council of Industrial Design. 7s. 6d.

Boats for sailing
John Proctor. pp. 64. Macdonald & Co. in association with the Council of Industrial Design. 7s. 6d.

Architecture, forms and functions
pp. 291. Editions Anthony Krafft, Lausanne, Switzerland. Sw. Fr. 5.

Apartments: their design and development
Samuel Paul. pp. 308. Reinhold, London. £11 13s. 6d.

Designing for science
Dept. of Education and Science. pp. 98. HMSO. 13s. 6d.

Progress in learning the meanings of symbolic traffic signs
A. M. Mackie. pp. 24. Road Research Laboratory. Free.

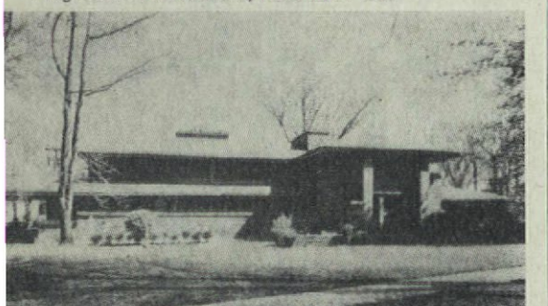
Wright demolished

The Committee for the Preservation of the Imperial Hotel, Tokyo, report that demolition of Frank Lloyd Wright's building has begun (see *AD*, November/December 1967). Comprehensive documentation has, however, been undertaken, in the form of three-dimensional photographs that can be converted into scale drawings, together with ordinary photography. As many as 90 chunks of the building are being dismantled and preserved intact. There is a strong possibility that the entrance and lobby will be reconstructed in Meiji village, near Nagoya, though the Committee are still hoping for a more extensive reconstruction on a more appropriate site. The cost of all this work is considerable; those who earlier donated money for preservation are being asked to agree to its being diverted for reconstruction purposes and more money is still being sought. Donations may be sent to the Committee at Kenchikushi-Kenkyushitsu, Faculty of Engineering, University of Tokyo, Tokyo.

Wright restored

The house that Frank Lloyd Wright built on Jewett Parkway, Buffalo, N.Y., in 1904 for Darwin D. Martin (client of the future Larkin building) is to be painstakingly and expensively restored for the president of the University of Buffalo. The architect in charge of the work will be Wright's pupil, Edgar Tafel. The house, which long stood empty, to be converted after World War II into three separate dwellings, is to be reconverted to a single residence. The roof, which was originally of clay tiles, is to be covered with slates, and a skylight is to be introduced above the main living room, but the restoration will otherwise be respectful. Roof lines will be straightened, tile floors repaired and woodwork, much of which was torn away during conversion, restored. The reinforced concrete structure and steel supports for the roof are reported to be in good condition.

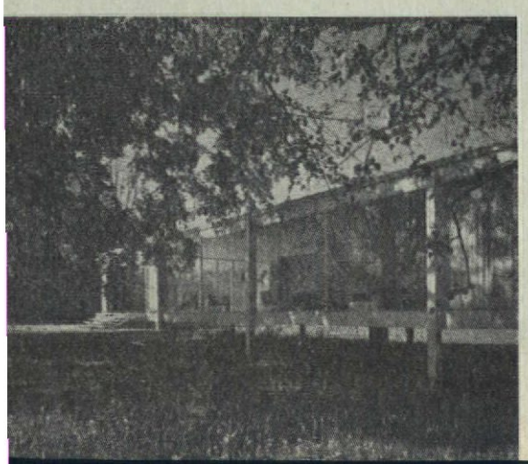
Progressive Architecture, November 1967

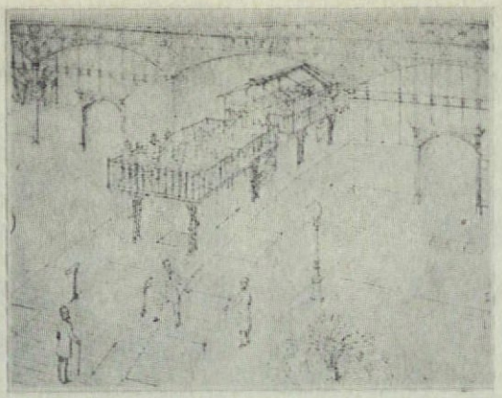


No more poised in nature

The Virgilian splendour of *Les Heures Claires* has been negligently destroyed (see *AD*, December 1967), now another landmark of twentieth-century architecture that depends for its effect on its untrammelled and uninterrupted natural surroundings is threatened—no less a building than Mies van der Rohe's Farnsworth House, near Plano, Illinois. Dr Farnsworth has been notified that a bridge is to be built on her land within 192 feet of the house. The approaches to the bridge will rise to 10ft 6in and will come even closer. Protests from architects in the Chicago area have, at last, led to consideration of an alternative proposal for a bridge not on the Farnsworth property.

Forum, November 1967





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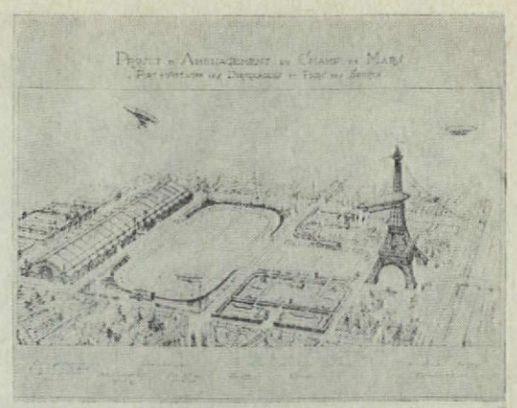


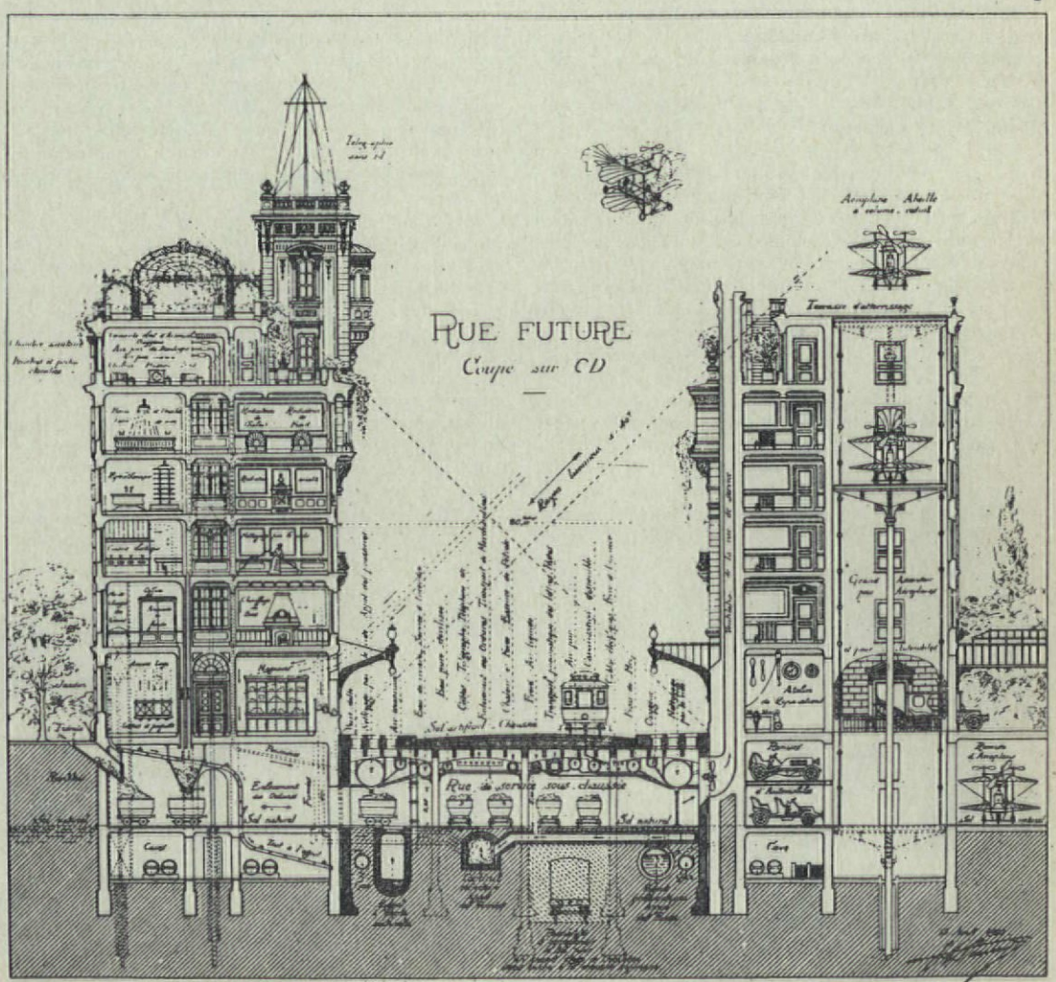
2

Early command of mechanization

Eugène Hénard (1849–1923), one of the most adventurous, yet equally one of the shrewdest and most practical of twentieth-century town planners, has been dramatically brought to the attention of readers of *Forum* (October 1967) by Peter Wolf of New York University. We may all be enlightened by his researches.

Hénard was architect to the city of Paris from 1900 to 1914. He was the friend of Camillo Sitte, Joseph Stübben and Charles Buls. In 1913 he founded and was elected first president of the *Société Française des Architectes Urbanistes*—the first society in the world to gather together sociologists, economists and architects and engineers in an attempt to solve the problems of town planning. But he is remembered chiefly for his daring and imaginative designs for the reorganization of Paris—designs that show how shrewd he was in assessing the advantages of the newly emerging technology. In 1887 he first put forward his proposal for electrically powered moving platforms as a means of travelling from building to building; two years later he drew up this project for the *Exposition Universelle* in Paris **1**, but not before 1893 was the idea given its practical application at the World's Columbian Exposition in Chicago. In 1904 he proposed that the Champ de Mars, together with Dutert and Cotamin's Galerie des Machines, be converted into a port, within Paris, for dirigibles **2**. The idea was not taken up; the Galerie was demolished and half the ground sold to speculators. Six years later, undaunted, Hénard proposed at the Town Planning Conference in London that the streets of Paris be converted into multi-level streets, with up to five levels, one for goods deliveries, another for the Metro, a third for service ducts and conduits and rubbish disposal, a fourth for trams, the upper level for cars and pedestrians. In the most intricate of his schemes **3**, he envisaged not only adequate heating, ventilation and vacuum cleaning systems for every household, but mechanized rubbish disposal plants, freight delivery trains, and hydraulic lifts to take cars to the basements and even airplanes up to the roof—this airplane, 'some form of light aeroplane', he said, 'equipped with horizontal helices . . . and capable of remaining stationary in the air, hovering over a given point', envisaged years before even Jules Verne had thought of the helicopter. Marinetti rode to fame on the basis of Hénard's ideas. Even Le Corbusier took them up—and misused them.

3

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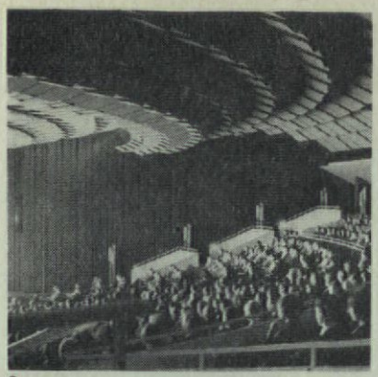
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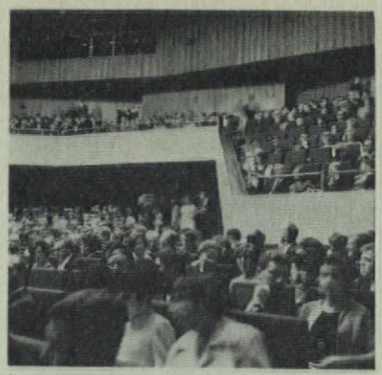
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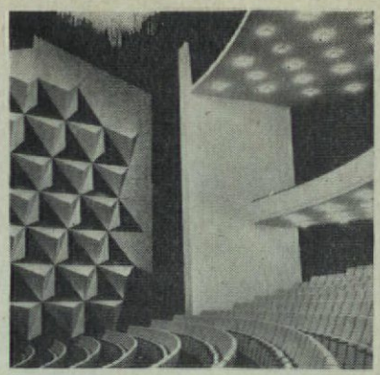
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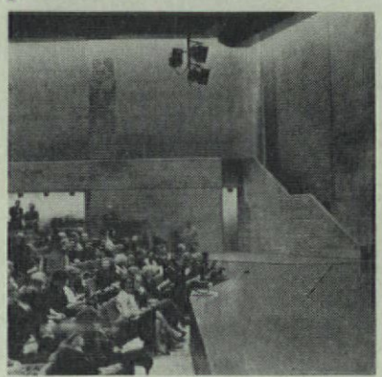
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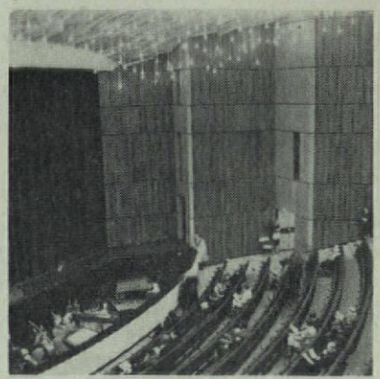
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More new German theatres

An exhibition arranged by Fritz Bornemann Modern theatre architecture in Germany *is being held at the Royal Festival Hall, London, from February 13–26. Victor Glasstone, who has recently returned from Germany offers his own record and commentary. He will lecture on the subject at the Purcell Room, on February 19 at 8 p.m.*

West Germany is still building theatres. Since my last survey for *AD* ('Auditoria Galore'; Nov. 1963; pp 547–556), more than a dozen have gone up. I have just been to inspect the latest crop. All are in small German cities. Most seat under 800. Dortmund alone, has a capacity of 1130.

If any general trend is apparent, it is in a retreat from the 'Trad-rethought' which produced the great classics, Münster, Cassel, Gelsenkirchen, and the Philharmonie. Poising an audience in space is proving too adventurous for currently successful architects. Simple steeply-raked banks of seats is more their mark: entirely adequate but unadventurous. Only Dortmund tries boxes **1**, using then *en escalier*, but pitching them too far from the stage. Great slabs of side wall intervene. Indeed, the problem of the overpowering wall seems to be unrealized, never mind tackled. The design philosophy triggering Gelsenkirchen—audience slung three-dimensionally in a negative environment; hence the black walls—has been misinterpreted by both German and other architects (vide Nottingham) as being a trick of fashion: black walls instead of red! Anyway, they *are* dark, deadening light spill from the stage, even if, generally, as here at Wuppertal **2**, there is too much fine finish about. City-Councillors are universally a push-over for plywood. Bonn **3**, treats them to a surfeit, but breaks the slab-like rigidity of audience divided into stalls and balcony by dipping one down to meet the other. Stuttgart's Liederhalle pioneered this fraternization; Scharoun took it to apotheosis.

Erich Schelling at Schweinfurt **4**, *is* frightened of plain walls, with a proper horror of natural materials in the theatre, but goes too far the other way with a gloriously quirky painted surface; more effective in fact than photograph. In its context, the *demi-mondaine* cascade of stalagtites lighting the house is completely successful. Somehow he dilutes my conviction that ceilings are for lighting the stage from; rather than for tartings-up of. But he understands the use of vulgarity in a theatre. The foyers could be for no other kind of building.

Encouragingly, foyers are getting better and better. Here, the best influences are showing. Chiarascuro, and dramatic changes of level are 'in'. Ingolstadt **5**, Dortmund **6** and Wuppertal show splendid virtuosity.

Still 'out', is 'adaptable' staging. The Germans are not to be told that it is anything but cramping and old-fashioned. Only Ingolstadt makes a gesture **7**, although its nominal thrust/end-stage situation irritates the present management. They do not intend using the thrust, and fight furiously at the potential of the great forestage set in its reticulated envelope of brutalist concrete. Results are impressive. Schiller's *Maria Stuart* looked, and sounded, magnificent.

All these new theatres, save Wuppertal, stage opera and drama. Lack of 'adaptability' does not mean that every orchestra pit does not rise to become a forestage. All too often a no-man's land as at Wurzburg **8** which cannot be dressed (fire regulations), and reads too definitely as auditorium, not stage.

Wurzburg, Recklinghausen, and Worms (a rebuilding of Otto March's famous Volkstheater—bombed) alone try the civic-theatre-concept, basically nineteenth century, of fenestrated foyer fronting neatly expressed auditorium and stage-tower blocks. All the others essay various brands of romanticism. Concealed and Miesian at Wuppertal; elegant *Bunker-brut* at Ingolstadt **9**, **10** (the theatre is sited at the old city walls); serried cages, balconies, and paraphenalia about a sculpted tower at Trier, Schweinfurt, and Bonn **11**, **12**.
The scene continues lively.

DORTMUND
Stadttheater. 1957–58 Workshops; 1960–64 Stage, Administration and rehearsal block; 1964–66 Auditorium. Opened: 3.3.1966.
Seats: 1130.
Architects: H. Rosskotten, E. Tritthardt, J. Clemens.
WUPPERTAL-Elberfeld
Schauspielhaus. 1964–66. Opened: 24.9.1966.
Seats: 750.
Architect: G. Graubner.
BONN
Stadttheater. 1961–65. Opened: 5.5.1965.
Seats: 901.
Architects: K. Gessler, W. Beck-Erlang.
SCHWEINFURT
Stadttheater. 1961–66. Opened: 1.12.1966.
Seats: 785.
Architect: Erich Schelling.
WÜRZBURG
Stadttheater. 1962–66. Opened: 4.12.1966.
Seats: 756.
Architect: Hans Joachim Budeit.
INGOLSTADT
Stadttheater. 1963–65. Opened: 21.1.1966.
Seats: 700–750 in theater; 1350 in multi-purpose hall.
Architects: H-W. Hämer & M-B. Hämer, and others.

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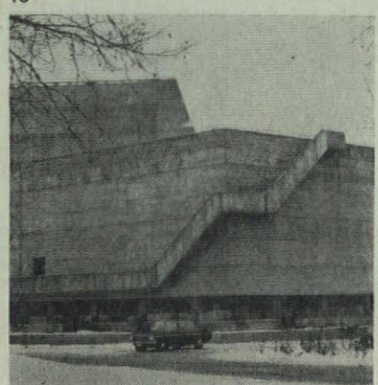

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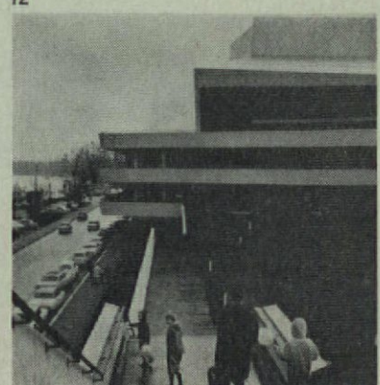


Housing research

The US Department of Defense has signed contracts amounting to $174,000 with Carl Koch Associates, the General Electric Co. and the University of Michigan to undertake research into low cost housing development —primarily intended for military families. If the investigations warrant it, the contracts will be extended to include prototypes and, ultimately, the mass-production of units. The initial research will be furthered also by Kaiser Industries, National Gypsum Co., Batelle Memorial Foundation and Aerojet-General Corporation.
Architectural and Engineering News, December 1967

Habitat II

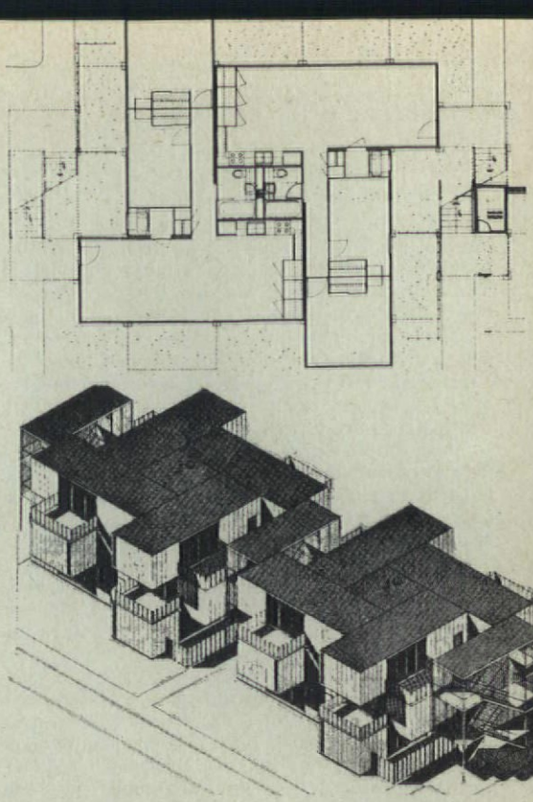
Moshe Safdie, designer of Habitat, has been commissioned by HUD to study a similar project for 500 to 1000 low- or middle-income housing units. These must compete economically with conventionally built US public housing units. The Montreal units cost $140,000 per dwelling, much of this being accounted for by overtime wages. The cost was nonetheless excessive. Conrad Engineers, holders of US patents to expansive cement, have now proposed light-weight concrete walls, 2in thick, which will substantially reduce the price both with regard to smaller quantities of material and greater ease of handling. If the problems of construction and economics can be satisfactorily settled the first of the US Habitats is likely to be built in Washington.
Architectural and Engineering News, October 1967

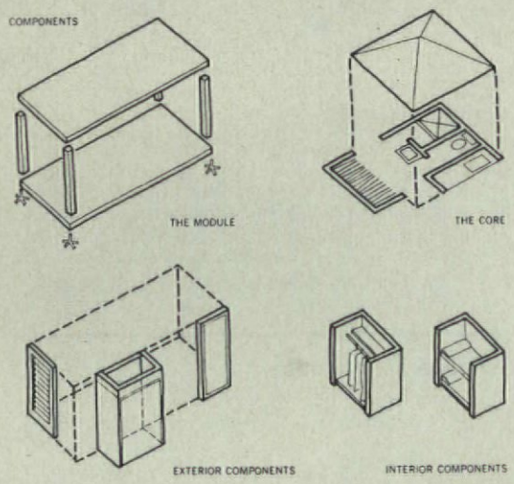
Stacked prefabs in USA

Mobile homes that can be stacked together, Habitat fashion, are proposed by architects Ken Fryar Associates and Ronald Goodfellow, in a study sponsored by the Department of Housing and Urban Development (HUD). Standardized living-room, dining-room and bedroom units, a maximum of 12ft wide to conform with road transport regulations, are grouped three storeys high around core units (containing most of the services) which can be either factory-built or erected on site. For it is the service and plumbing units that account for most difficulties with local authorities and plumbing unions in the United States. The core unit contains two bathrooms and two utility walls for kitchens. A vertical duct runs up the middle. Kitchens are individually ventilated by horizontal ducts controlled in each apartment. Heating and cooling are by gas-fired package units set in an external wall, near the entrance, requiring no flues or outside condensers. Supply and return air ducts are underfloor.

External wall panels are steel faced panels, 24 gauge, supported on tube columns, with gypsum board and vinyl interior surfaces. Insulation is provided by glass fibre. Sound transmission is reduced by vibration dampening bearing pads.

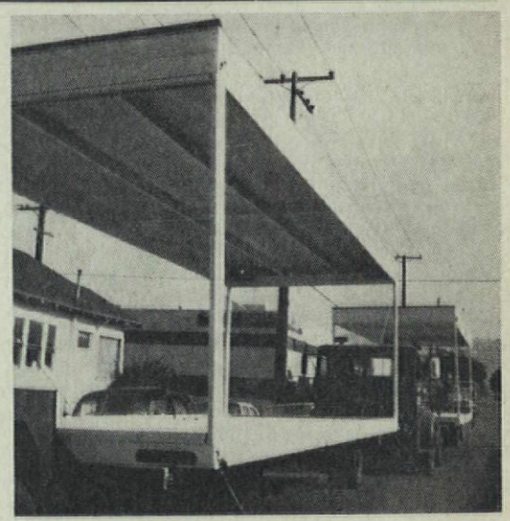
It is estimated that a 10 man crew could erect a cluster of six apartments in 25 days. The cost of each apartment is calculated as 38 per cent less than by standard building methods.
Architectural and Engineering News, December 1967





Self-help housing

Sanford Hirshen and Sim van der Ryn have designed and built a prototype of their 'kit of parts' house, intended primarily for the farm workers in California, 300,000 of whom live in what are euphemistically categorized as 'substandard' houses. They are desperately poor. The 'kit of parts' house, made up with steel-framed modules (only 10ft wide, in order to comply with all possible road regulations), core units and the interior and exterior components shown here, is intended to be arranged, erected and modified as needed by their occupants, thus providing them not only with a house but keeping them occupied during periods of unemployment. The total cost however, will not be much less per square foot than that of the mobile homes illustrated above. There are other drawbacks; the 10ft molecule is restrictive, planning variations are limited and the core unit does not adapt to as many layouts as might be thought advisable. The architects' enterprise and intention are, however, of the most admirable kind.
Forum, November 1967



Osaka '70

The designers for the US pavilion at Osaka, chosen in competition with 10 other teams, have been named as David, Brody and Associates; Rudolph Deharak Inc. and Chermayeff and Geismar Associates.
Architectural and Engineering News, December 1967

Blow your mind out in a car

Crashed car culture has erupted recently not only in Drop-city (see *AD* December 1967) but also in a club in Montreal, called quite simply, Le Crash. The designer is Jean-Paul Mousseau. Bent and broken bits of chromium trim, head-lamps and driving mirrors are jumbled together and dramatically high-lighted with strobe lights, all to suggest the inevitable crack-up.
Architectural and Engineering News, October 1967

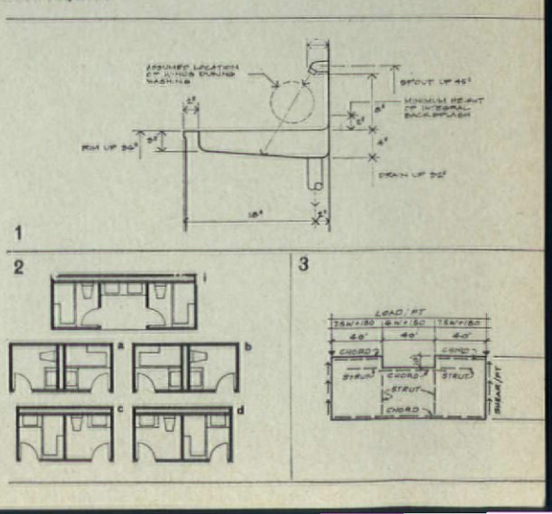
URBS

The heavy *Contract documents and performance specifications* for URBS (University Residential Building System—see *AD*, November 1967) were issued late last year to the 130 manufacturers who have indicated their willingness to bid for the design, manufacture, supply and maintenance (for no less than 20 years) of the five major components that are to be used in the University of California's residential buildings during the next few years. The design of 50 per cent of each building will thus be determined by product manufacturers before any architect is selected. A minimum of 4500, a maximum of 9000 students are to be housed, on at least six designated sites. Unlike its celebrated predecessor SCSD, for which Ezra Ehrenkrantz was also consultant and which was likewise supported by the Educational Facilities Laboratories, the URBS programme will provide for high rise buildings.

The standards and performance specifications are stringent. The five component categories, structure/ceiling, heating/ventilating/cooling, partitions, bathrooms and furniture, will be accepted only if they are compatible and proved to be so in prototypes. The horizontal structural module is laid down as 20in, the planning module is set at 4in; partitions will be either 8ft or 10ft high and floor to floor heights must be to within ¾in of the design specification. The exact degree of tolerance and of adaptability for each component and detail is specified. Tests for abrasion resistance of plumbing features and bathroom floors and other such minutiae are rigidly fixed. But it is the chair which has been given the most daunting specification:

'Tipping backwards. The chair shall be placed in its normal position, but with the rear legs secured to the floor by hinges. A weight of 20lb shall strike the center of the top of the inside of the back at a speed of 10ft per second horizontally. The chair shall be allowed to rotate freely backwards on the hinged feet of the back legs until the top of the back hits a concrete floor covered with a thin rubber sheet. This shall be repeated 100 times.'
Architectural and Engineering News, October 1967

1 Criteria for washbasins, derived in part from Alexander Kira's *The bathroom*, research report no. 7, Center for Housing and Environment Studies, Cornell University 2 Plans of five of the 17 bathroom layouts required 3 Sketch showing the diaphragm condition required



Architecture in the UK, 1945–1965

Cedric Price

Written for Bauen & Wohnen, *as an antidote to that rosy estimate of British architecture upheld abroad.*

Architecture and planning in the UK 1945–1965 has suffered primarily from the quality of the architects in control of, if not actually producing, the priorities for the building effort. While the aspirations of such architects can be understood—if not shared—the fact that such personal preferences and beliefs should be transferred direct to both planning policy and building detail has had disastrous effects.

It is necessary to look to the education of these architects to determine where the fault lies. Prior to the war the architect's main responsibility was assumed to be to his client, and the client in most cases was clearly defined as the individual or individual company who not only paid for the work but intended to occupy the resultant building.

This over-attention to what was felt to be the major duty of the architect overlooked the more significant attention that should have been paid to the conditions relevant to producing a built environment in the immediate post-war years. These were, firstly, an awareness that the nature of patronage of architects and planners had changed radically, and secondly that, in a period of acute national relief, due to the finishing of the war, commodities hitherto unavailable such as houses would be demanded by the public and State alike with little consideration as to their long-term validity or social life span.

The transference of pre-war attitudes to post-war conditions resulted in the social, political and emotional beliefs of the designer being transferred in an infantile way direct to his work, since the apparent soulless, faceless entity of the vast state and local government client was rejected as a 'real' client and the well-being of the user was considered to be of paramount importance. However, the new user was a multitude of anonymous, homeless people—not one rich opinionated man—and the architects overnight took on the additional role of amateur mass-sociologists, if not that of guardians to the new egalitarian society.

Because of the inability of architects and planners to act as sociologists and their incapacity to understand the social immediacy of their guardianship, they and their immediate successors have failed to realize the contribution they could make to society. They have failed to realize that they are primarily concerned with providing a socially acceptable commodity—whether a city or a house—and that confusion, short-term expediency or merely doubt on the part of the consumer (client) is not to be thought unproductive.

The major faults of the UK architectural profession, 1945–1965, can be summarized as follows:

UNAWARENESS THAT THE REAL 'CLIENT' IS A COMBINATION OF ALL WHO ARE IN ANY WAY AFFECTED BY THE ARCHITECT'S ACTIONS.

INABILITY TO ACCEPT THAT DOUBTS ON THE PART OF THE 'CLIENT' SHOULD INTRODUCE *CALCULATED UNCERTAINTY* AS AN INTEGRAL PART OF THE DESIGNER'S WORK METHOD.

Such faults have led to the following sad, bad and ludicrous actions on the part of the profession:

The production of new towns as finite entities.

The continuous production of housing, in both plan and siting, which assumes that family inter-relationships are unchanging and that there will always be a housing shortage.

Continued use of the existing construction industry to the almost total exclusion of any other industry.

The assumption that existing community activities will continue and that they can be used as valid 'fixes' for physical development. This has led to the wrong assumption that the health clinic, community centre, school house and the retail shop are, for all times, integral parts of domestic development.

Total inability to understand the increasing pace of personal mobility and exchange.

Over-enthusiasm to accept without question the opinions of other professions such as doctors, economists and politicians as determinants of a design theory. This has resulted in inflexible, ill-sited industrial development, old-fashioned hospitals incapable of change, monastic universities, romantic efforts to keep the population static, and a patriarchial attitude to housing arrangements.

A total avoidance of any national scale planning and development—a collection of city and regional plans does not produce a national plan.

The continued use of such phrases as 'urban renewal', 'suburban sprawl', 'green-belt' and 'nature conservation' indicates an inability to see all landspace —whether built on or not—as a common amenity requiring common recognition.

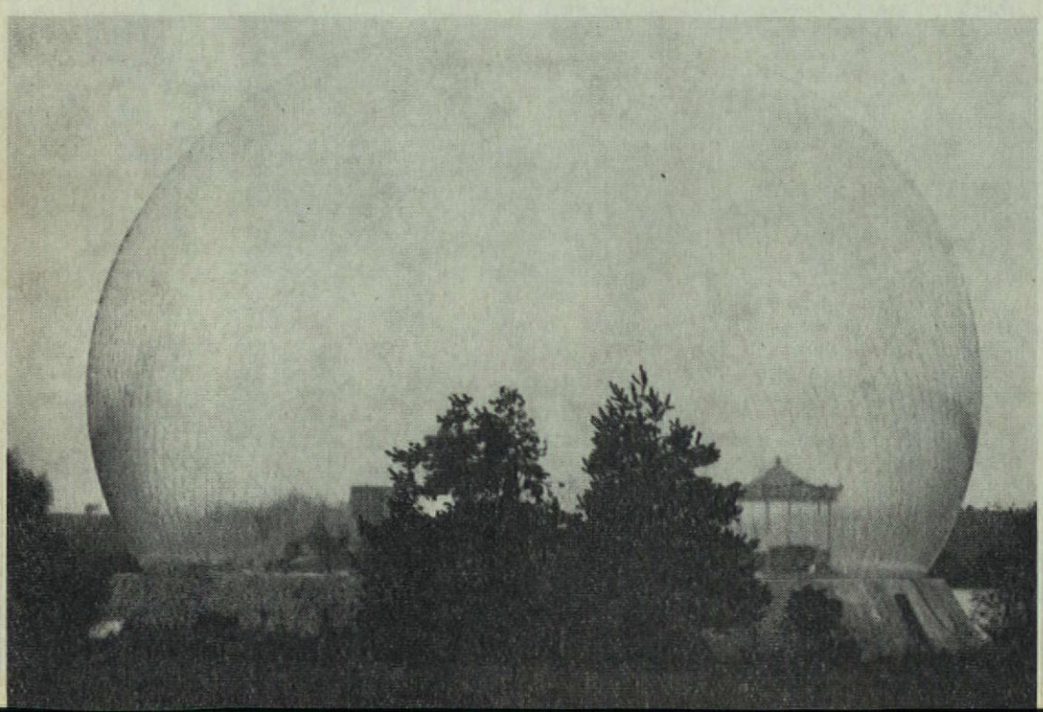
Unwillingness to demand of industry a particular technology has resulted in architects remaining a profession of mental beggars—waiting for the 'spin-off' of other technologies.

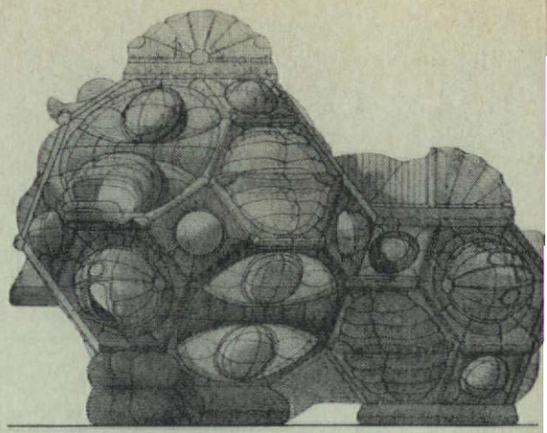
Lack of concern for the education of architects, resulting in the maintenance of the most amateur education system of any profession in the UK.

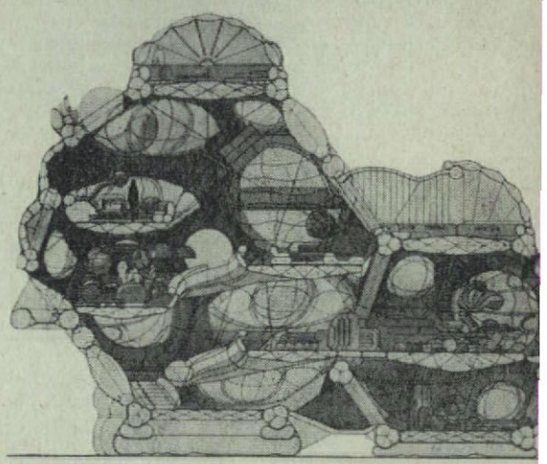
1965 IS TWO LONG YEARS AGO AND NOTHING HAS CHANGED.

Bubbledom

In fantasy film worlds at least, if not in reality, the elegant and fashionable aspire to live in a plastic bubble rather than in a Regency striped residence or rustic cottage. For the 20th Century Fox film, *The Touchables*—produced by John Bryan, directed by the photographer Robert Freeman—Arthur Quarmby has designed and built a transparent PVC dome, encased in a light nylon net to ensure its stability. This pleasure dome is intended for a rather special set of people with very special tastes; four girls live in it, on the edge of a lake, they fancy a boy, whom they capture and bring to live with them. However, a wrestler also has his eye on the boy . . .







Gonflé

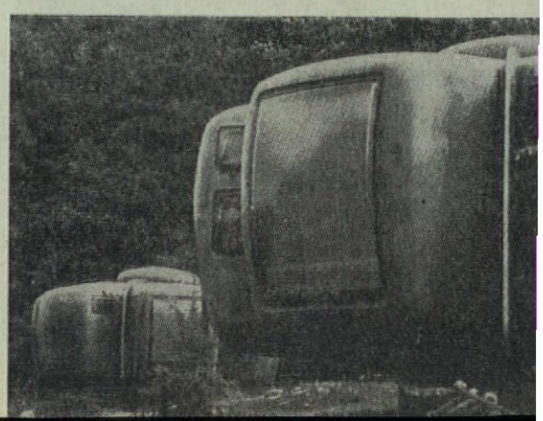
The blow-up *ad absurdum*, the Dyodon (named after those Nile fish that puff up when exposed to the air), a pneumatic house designed by Jean Aubert, Jean-Paul Jungmann and Antonio Stinco, all of Paris, who are helping to prepare the exhibition *L'air et les structures gonflables* to be held at the Musée de l'Art Moderne, Paris from February 21 to March 24, 1968.

Domus, December 1967

La bulle six coques

The star-shaped Prisunic pavilion—in bright orange plastic—conceived and designed by Gérard Ifert, Rudolf Meyer and the architect Jean Maneval (see *AD* January 1968 and *Domus* December 1967) was, it appears, more seriously considered as a dwelling unit than as a publicity stunt. Exhibited last November at the 6th Salon International de la Construction—Batimat—in Paris, *La bulle six coques* as it was called, emerged as the first mass-produced dwelling unit to be made entirely in plastic. The manufacturers are the Société Dubigeon—Normandie. Each cell weighs 440 lb, the total weight is 3,300 lb. Erection time of the units, on a prepared concrete base, is four hours. Thermal insulation, provided by a sandwich construction with an infil of polyurethane foam, is claimed to be equivalent to a 24 in thick masonry wall. A photo-electric cell can be incorporated to control a small electric motor that will turn the house so that the living areas face the sun throughout the year. The cost, excluding transportation is 37,000 NF, equivalent to £3120. Already an experimental village has been set up in the Pyrénées.

Contract Journal, December 21, 1967



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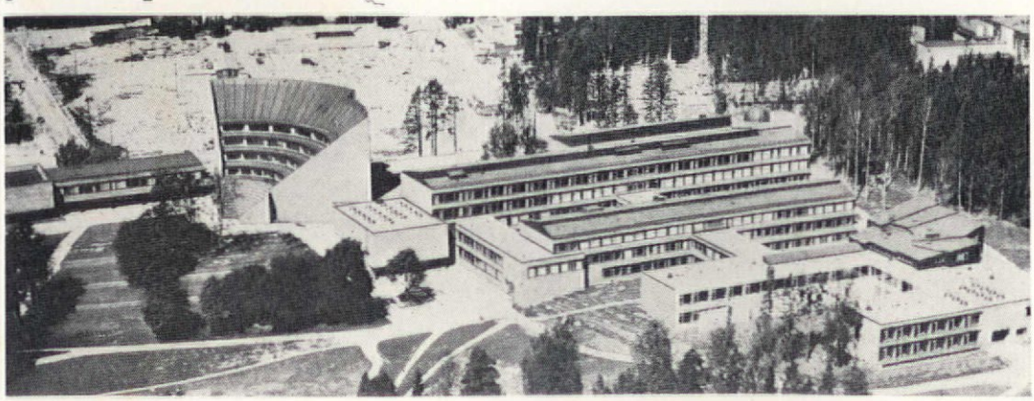


1
The main auditorium from the south
2
Site plan
Key: 1 Sauna, K. & H. Siren, 1951. 2 Chapel, K. & H. Siren, 1957. 3 restaurant, K. & H. Siren. 4 residential buildings, K. & H. Siren. 5 residential buildings, A. Aalto. 6 Institute of Technology, main building, A. Aalto. 7 shopping centre, A. Aalto, 1960–61. 8 Dipoli or students' centre, R. & R. Pietilä. 9 Swedish Technical Students Union. 10 sports hall, A. Aalto, 1954.
3
Aerial view from the south east

Commentary by Douglas Stephen

Institute of Technology Otaniemi, Finland

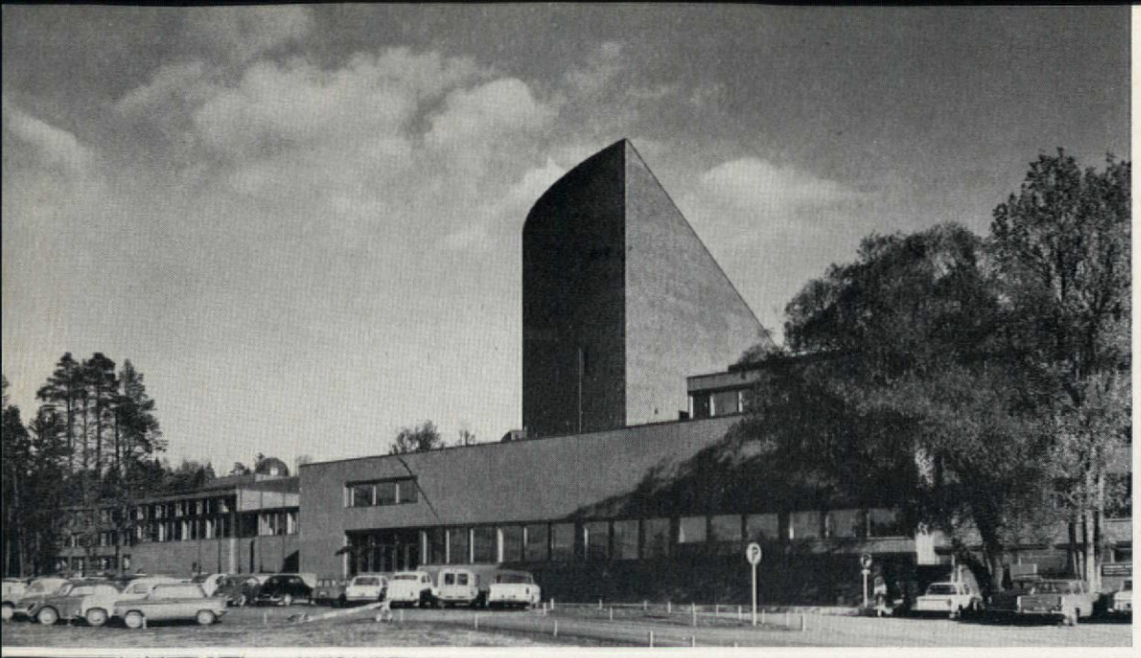
Elissa and Alvar Aalto

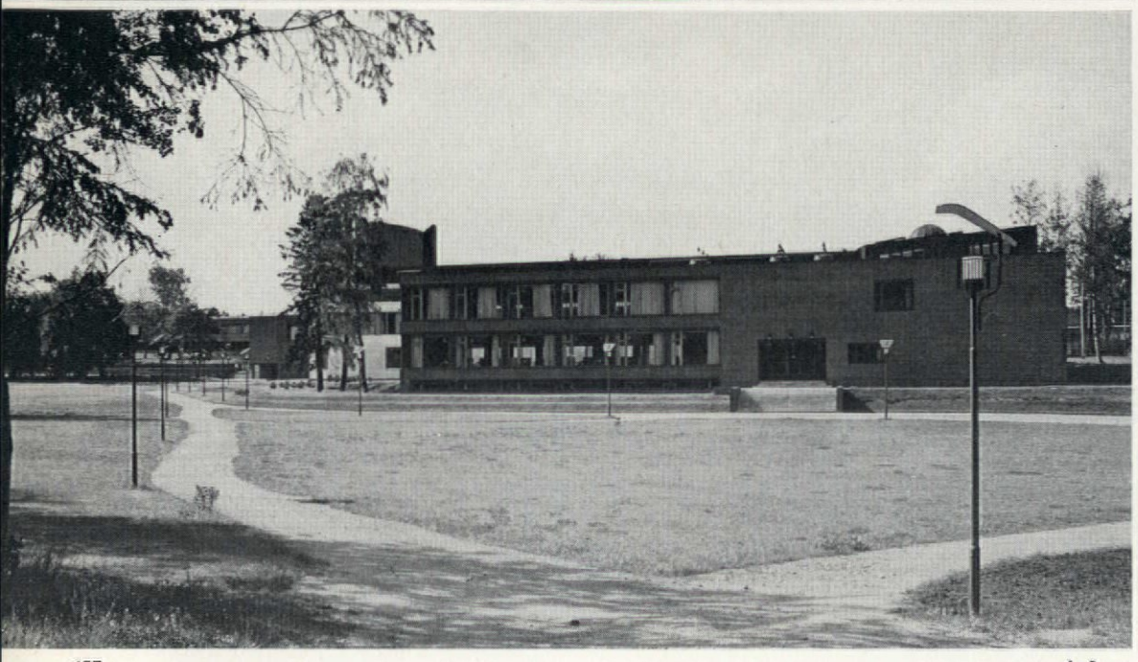
All photos, except the air view and No. 2 on page 59, are by P. Ingervo, and are published by courtesy of the Museum of Finnish Architecture, Helsinki

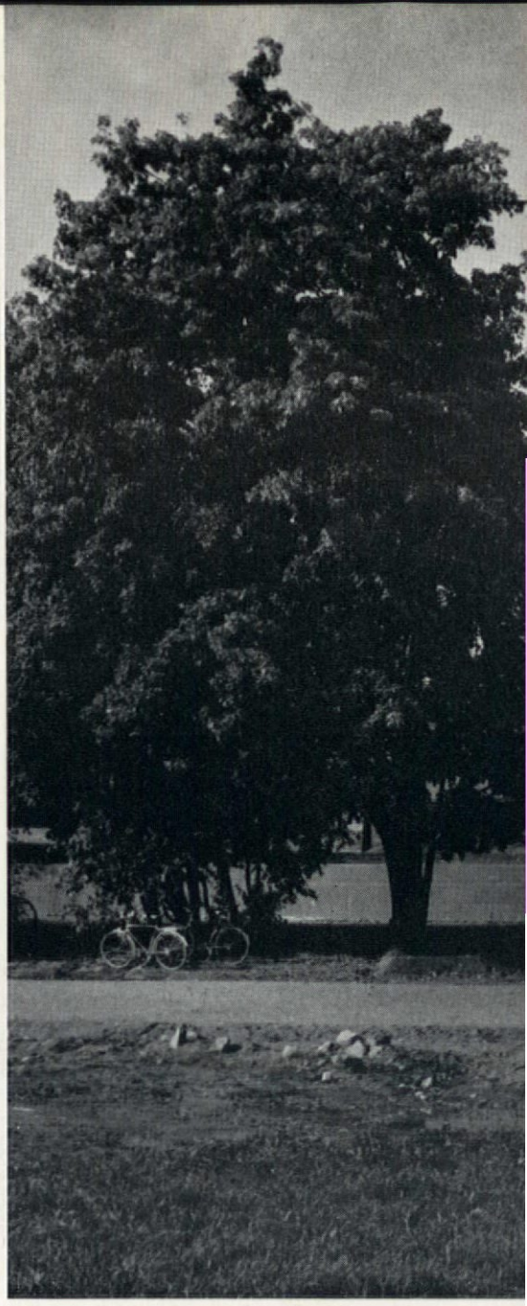
One of the interesting aspects of an architect's geometry is the amount of nudging it can take before the form expressing the original intentions becomes unrecognizable.

No one is more able to destroy the platonic image than Alvar Aalto. One of the definitions of 'platonic' in the 'Concise' Oxford is 'harmless', so that it is, perhaps, excusable to so disturb the form that the original intention ceases to be harmless and acquires an element of vigour. Nowhere is this more clear than in the Institute of Technology at Otaniemi by Aalto.

▷58







◁57

1, 2

Aalto has probably designed and built more auditoria than any other architect. Having won a competition for his first at Turku in 1927, he has since built or designed some twenty or so, including open-air structures and those connected with educational buildings.

Otaniemi, lying to the west of Helsinki, is a rapidly expanding technical university. The campus will eventually contain all the institutes of higher education, most having been transferred from their older premises in Helsinki. The plan for the campus was the result of a competition won by Aalto in 1949, the main building of which, the Institute of Technology, containing several faculties including that of architecture, and the Sports Hall, shopping centre and students' hostels, he kept for himself, allowing other buildings to be done by other architects, some of which were also the results of competitions, the most notable being the students' union building by the Pietiläs (see *AD* 12, 1966).

Aalto's plan calls for a ring road connecting groups of buildings with spurs of varying length as feeders to the other groups, mostly housing and recreational buildings. The Institute of Technology itself is serviced on one side only, the other being the pedestrian approach—it is clear that Aalto wanted to make this a principle of the plan as most of the other buildings also conform to this pattern, with the possible exception of the nuclear physics laboratory which has service roadways all round, most probably as a safety precaution. The ring road, if it may be called that, connects a number of ridges, the major groupings being on the higher levels with land falling away to the outside and into a valley within.

Approximately in the centre, Aalto has placed his main building, the form of which is a complex of linked rectangular blocks, with contained and open courts, and a large auditorium, semicircular in plan, with a stepped section, the roof of which is also stepped, appearing to form an open-air auditorium on the obverse side.

The plan, the included angle of which is just over 100°, contains two fan-shaped auditoria, one holding approximately 500 people, the other holding about 300. The chord of the fan opens out into a foyer on an approximate diagonal. Three staircases in echelon serving the large hall descend from the foyer, which is at first floor level, to the ground; a further staircase offset and approximately on its axis serves the smaller hall. A tiered terraced courtyard again on the approximate axis of the small hall forms the centre of the general departments. This form is repeated with both closed and open-ended courts culminating in a U-shaped architectural department with its own lecture theatre, studios and entrance hall.

The plan of this area appears banal. It is apparent that the auditoria hold the centre stage. The discipline of the geometry set up by the regular, even monotony of the departmental buildings is there assaulted and disarranged. The disturbance is calmed again in the administrative building, laying parallel to the departments, but against the auditoria.

Aalto disassociates the administration wing from the departmental wing by changing the columnar treatment, there being four bays of the latter to every three of the former. The columns are faced in bronze and a rather deep red brick skin cladding embraces and helps to unify the apparent disparity of the parts.

The section reveals a series of semicircular inclined V-shaped concrete beams which terminate at their head in a vertical window, each window lighting the reverse side of the beam behind. The lighting is more even than the section would suggest; the concrete is white and the amount of reflected light is thereby increased.

The flank walls of the auditoria display panels

3

of relief abstract decoration of a geometric nature, reminding one of the geometric forms used in the display panels of the Finnish Pavilion at the New York World Fair in 1939, where wooden strips were used in a variety of ways to either frame exhibits or as decoration. This decoration, however played down in Aalto's work, is directly Finnish in origin. It can be seen in thirteenth- and fourteenth-century buildings in Turku, Pernaja and elsewhere. The outline and shape, however, are more sophisticated here than these historical examples.

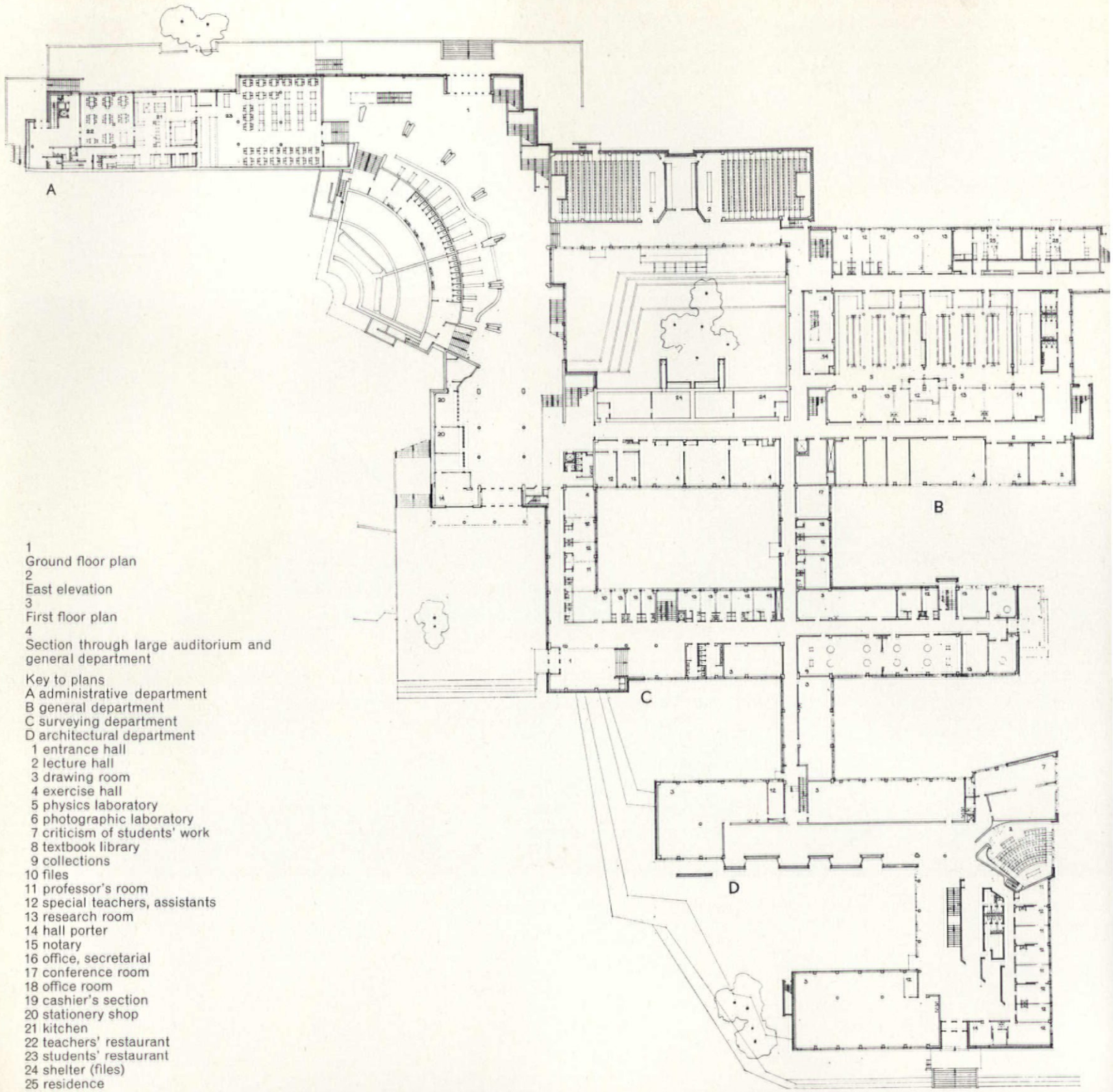
Aalto has never been noted for his polemic. Very largely ignored by the historians, neither Pevsner nor Banham have anything very significant to say about his observations on architecture and art. Nevertheless his influence has been and is still ubiquitous. Goran Schildt says in the introduction to the Girsberger's *Alvar Aalto,* 'We soon come to the conclusion that the basic essential of his achievement is that his roots are deep down in the Finnish soil', etc.—and it must be presumed to be so. It is possible that this influence is an embarrassment to historians who continue to ignore Aalto. Yet the architectural tradition of Finland is basically classical; even medieval architecture there owes as much to Mediterranean culture as to Russia or Byzantium. The seventeenth and eighteenth century Finnish work is very much concerned with centralized plans and classical order, with ornament mostly in wood, and this environment cannot but have had an effect on Aalto's development.

His first built work, however, was a prefabricated industrial exhibition building in 1922—a single-storey steel-framed building with white infill panelling, lit by continuous high level windows and finished off with a shallow pitch roof. This was probably as much influenced by those same influences that were currently affecting the work of the Bauhaus. Joseph Alber's work on moulded plywood may only just have preceded similar work by Aalto. Plywood is a material which has never ceased to fascinate Aalto. Indeed all his early timber work is of a very high quality and it is surprising that the buildings of 1927–30 have not appeared in current reviews. His concern for 'things' is obvious; little is left either to chance or to the vagaries of the builder or supplier. Door-handles, light fittings, even hinges are designed and prototypes made up sometimes in the workshop under his studio.

Aalto himself exhibits a healthy disdain for architectural intellectual posturing and disclaims polemic attributes to his work, which may well be the reason for his apparent casualness in distorting geometry. His real secret is his mastery of continuity of spatial experience. His buildings, seldom built on the flat, rise and fall incessantly over the selected terrain, as here in Otaniemi. The banality of the routine spaces is juxtaposed to the exceptionality of the major spaces. Staircases, almost always contained by walls on both sides, lead from low dark entrance spaces into brightly lit, soaring halls. Corridors, seemingly endless, are relieved only by exquisite

▷63

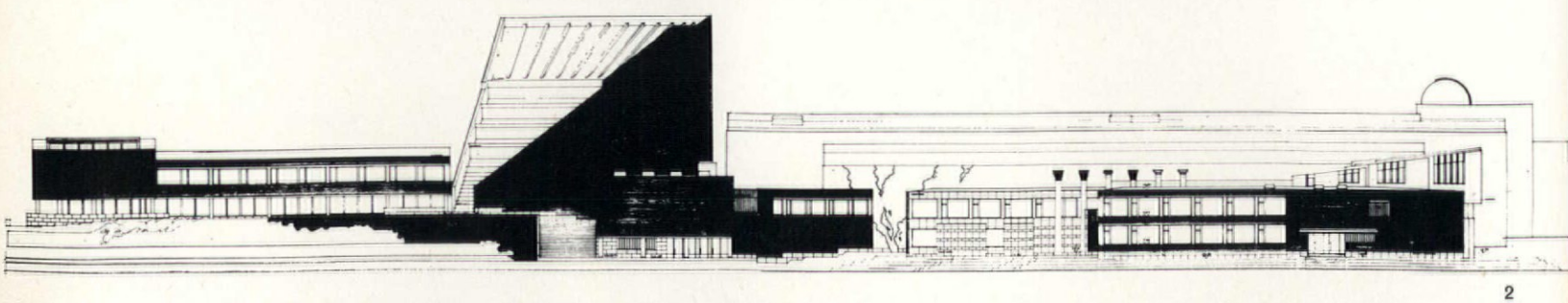
1
Administrative department and main auditorium from the west
2
Architectural department from the east
3
View from the east with a lecture hall in the centre and surveying department on the right
Photo: 2 S. Rista



1
Ground floor plan
2
East elevation
3
First floor plan
4
Section through large auditorium and general department

Key to plans
A administrative department
B general department
C surveying department
D architectural department
1 entrance hall
2 lecture hall
3 drawing room
4 exercise hall
5 physics laboratory
6 photographic laboratory
7 criticism of students' work
8 textbook library
9 collections
10 files
11 professor's room
12 special teachers, assistants
13 research room
14 hall porter
15 notary
16 office, secretarial
17 conference room
18 office room
19 cashier's section
20 stationery shop
21 kitchen
22 teachers' restaurant
23 students' restaurant
24 shelter (files)
25 residence

1



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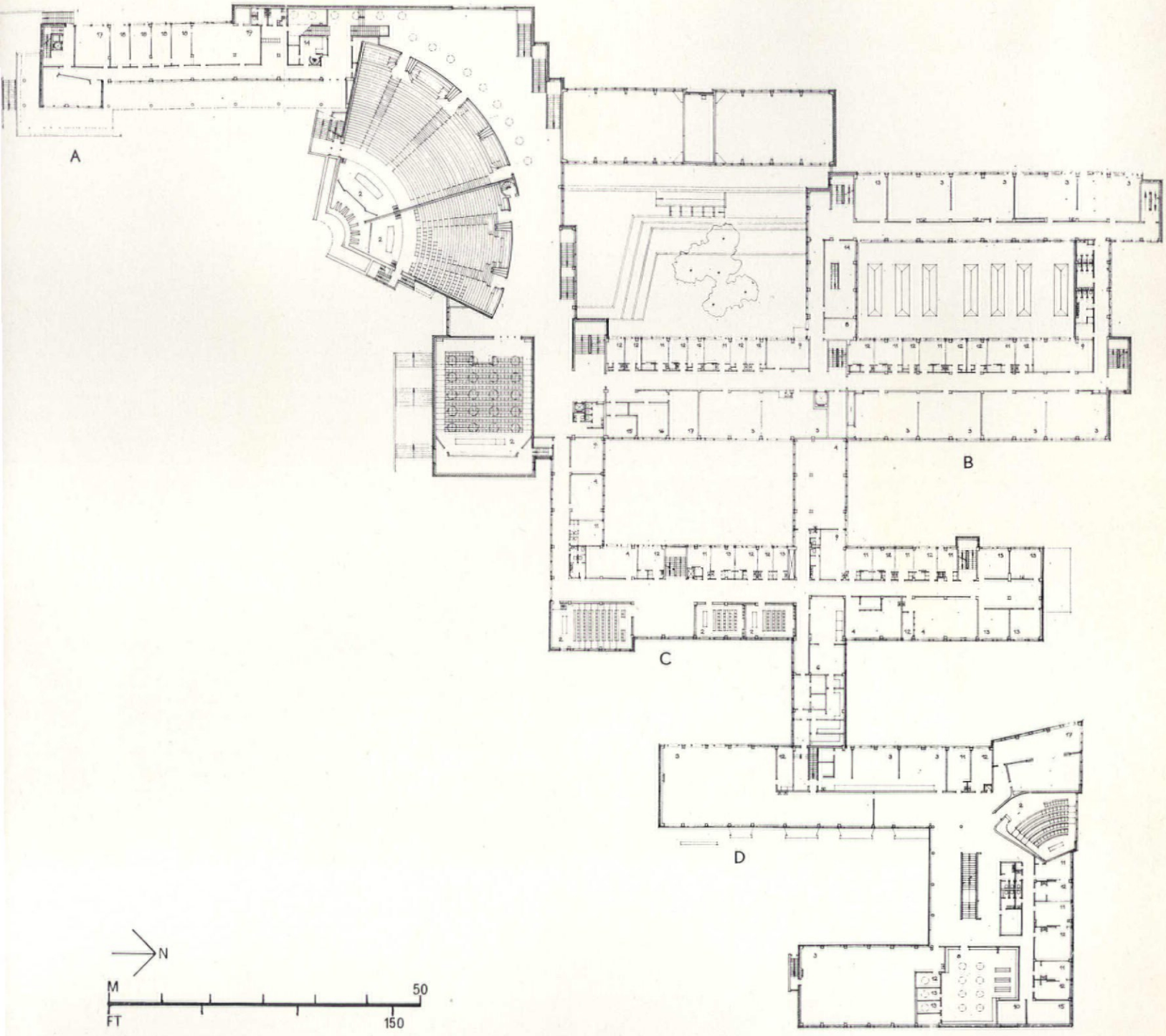

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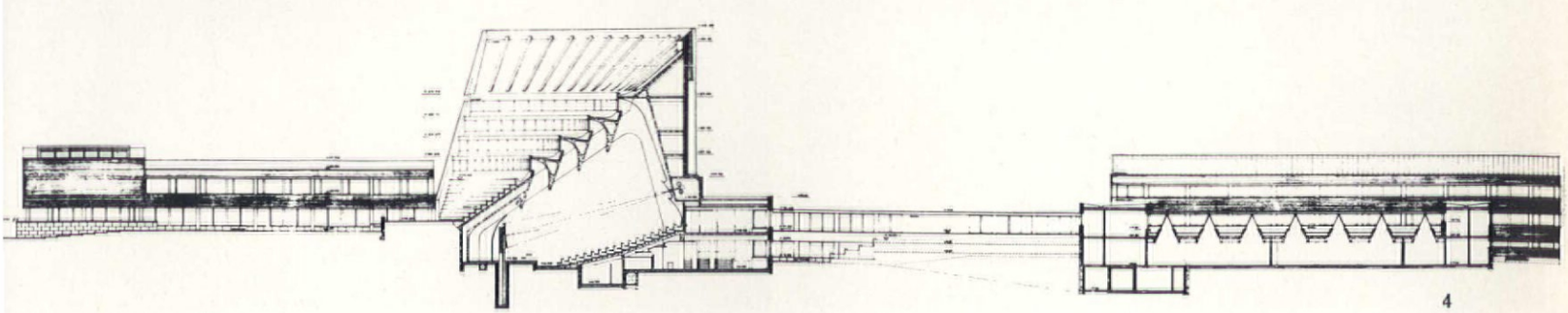

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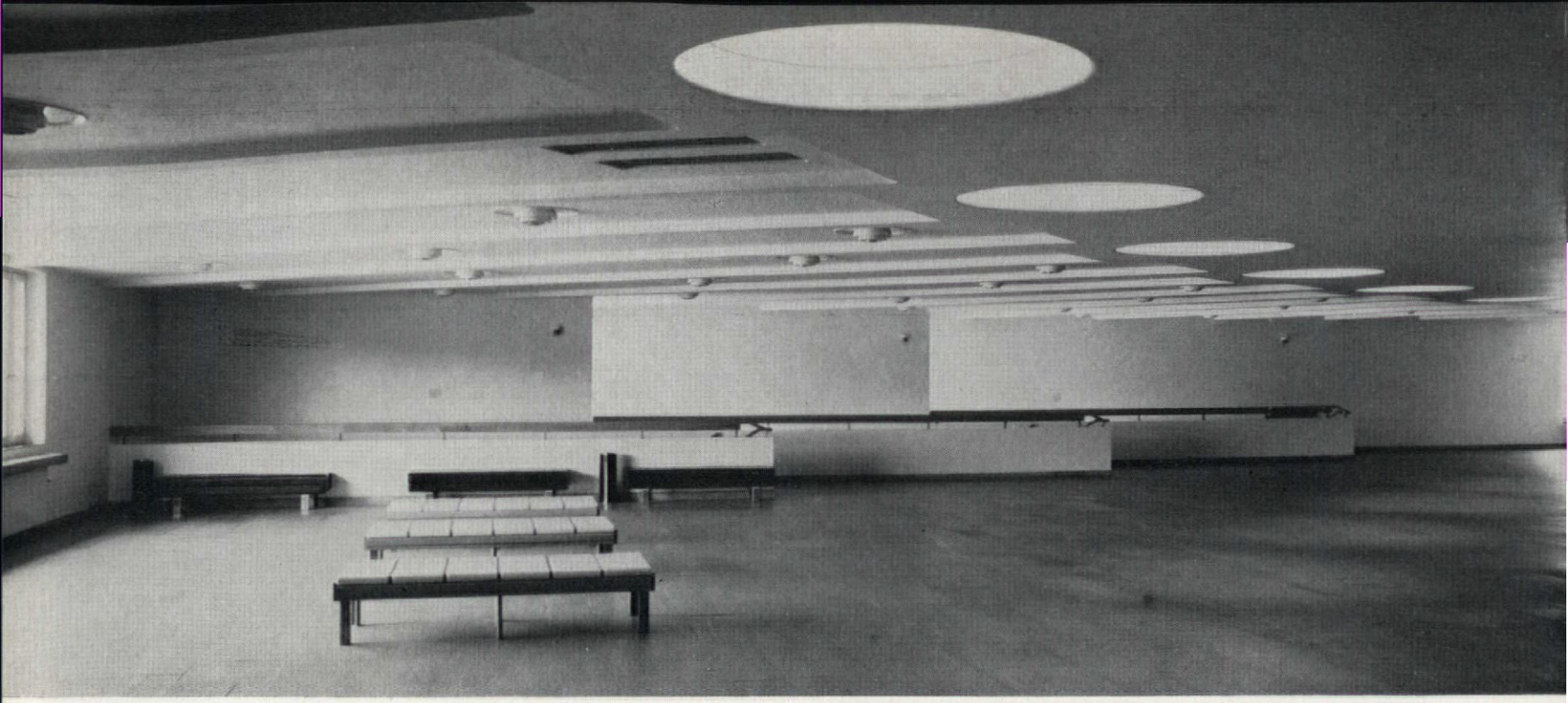
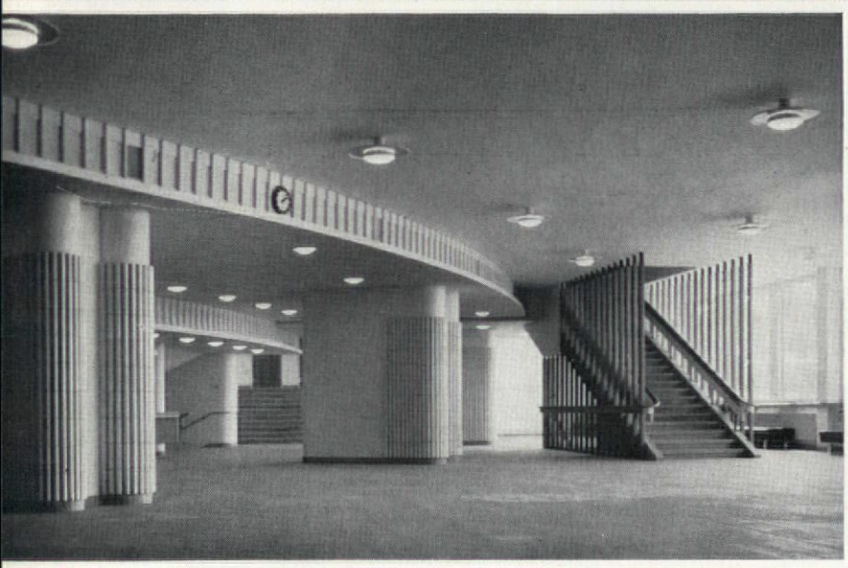
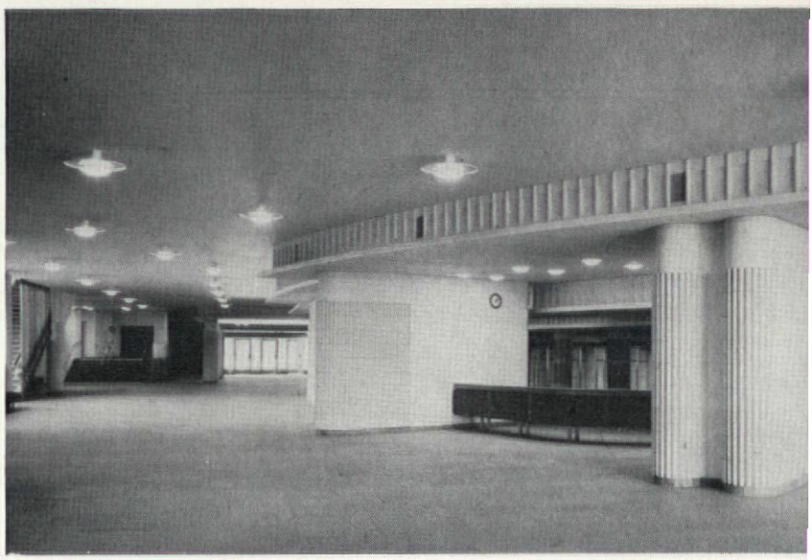






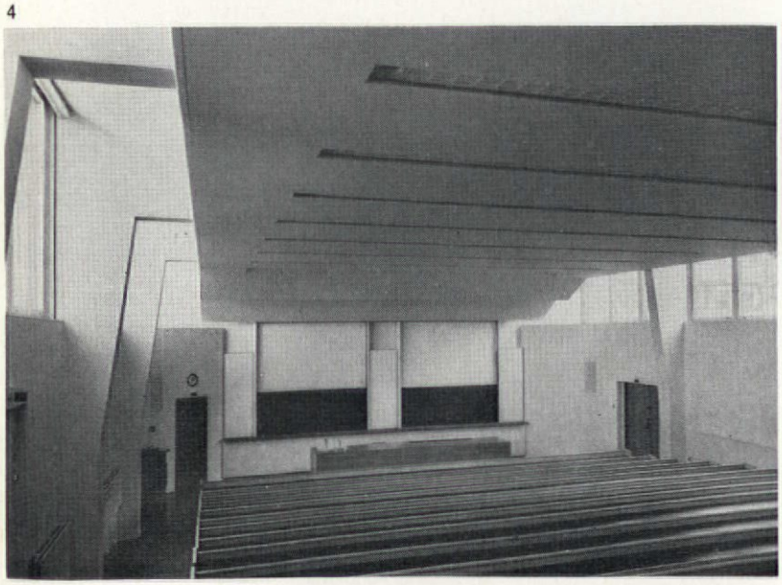
1
2
1
Upper foyer to the large auditorium
2 & 3
Lower foyer to the large auditorium

4 & 5
Lecture hall
6
Large auditorium

3

7
North–south section through the large auditorium looking west

4



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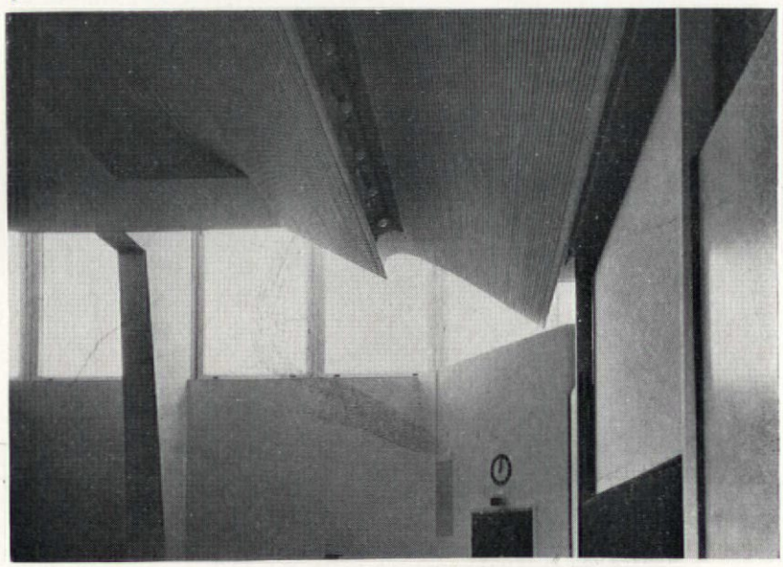


◁59

detailing. The play of light and colour, as in all of Aalto's work, is that of a primitive. But like all primitives, his understanding of connections is inherent and he is able to bridge imaginatively the gaps that the jointing of the various elements creates. These links have the strength that is required to hold the parts together so that a tension is set up in the spatial experience of the building which repeats itself at intervals within the plan; smaller forms such as a length of corridor opening out into an unexplained space, each space in turn being a slightly different shape so that the experience is varied, and is never quite the same. Nevertheless consistency is preserved.

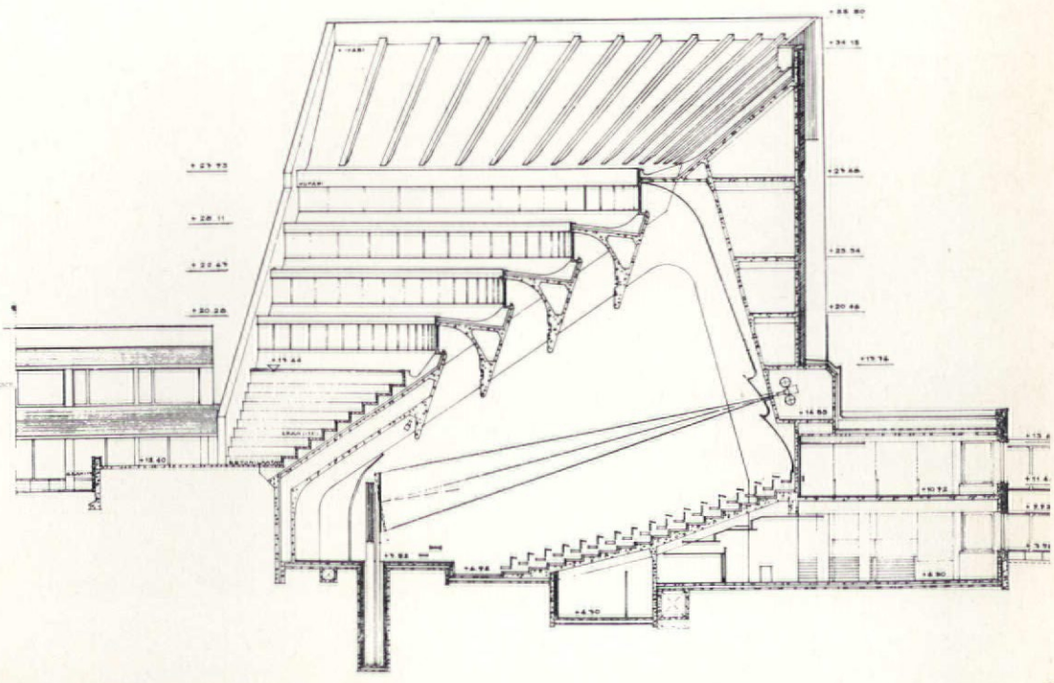
This applies not only to the spaces and their continuity, but also to the continuity of materials. The building outside has an envelope of warm red brick, windows are bronze. The interior has these same materials with the addition of wood and plaster. The latter predominate but the reminders of the external fabric are always there.

It is in the consistency of thought that Aalto's genius lies and it will always be his ability to confine and limit his objectives which will ensure that his work continues to surprise and to delight other architects.

▷64

6

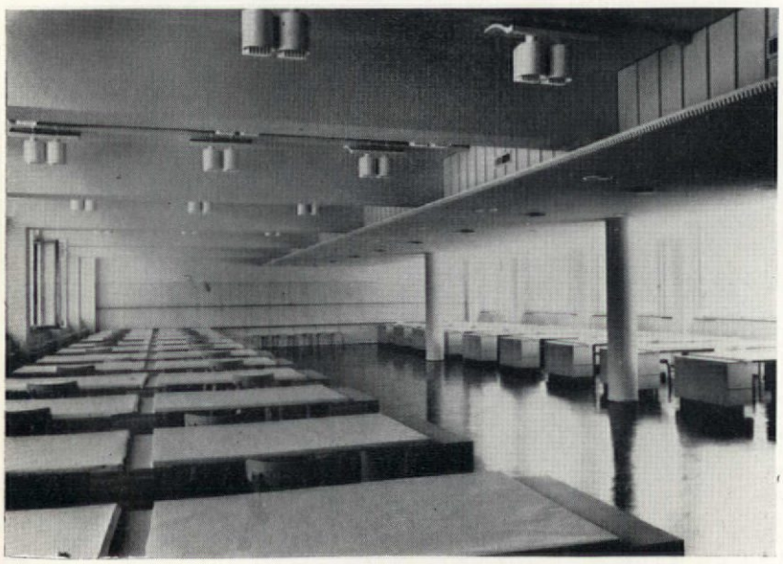
7



1

1
Lecture hall
2
Architectural department drawing studio
3
Physics laboratory

2



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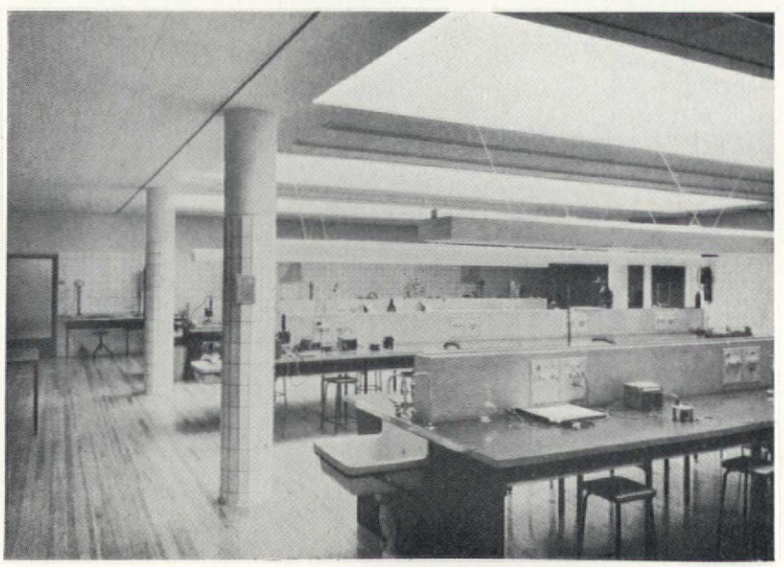
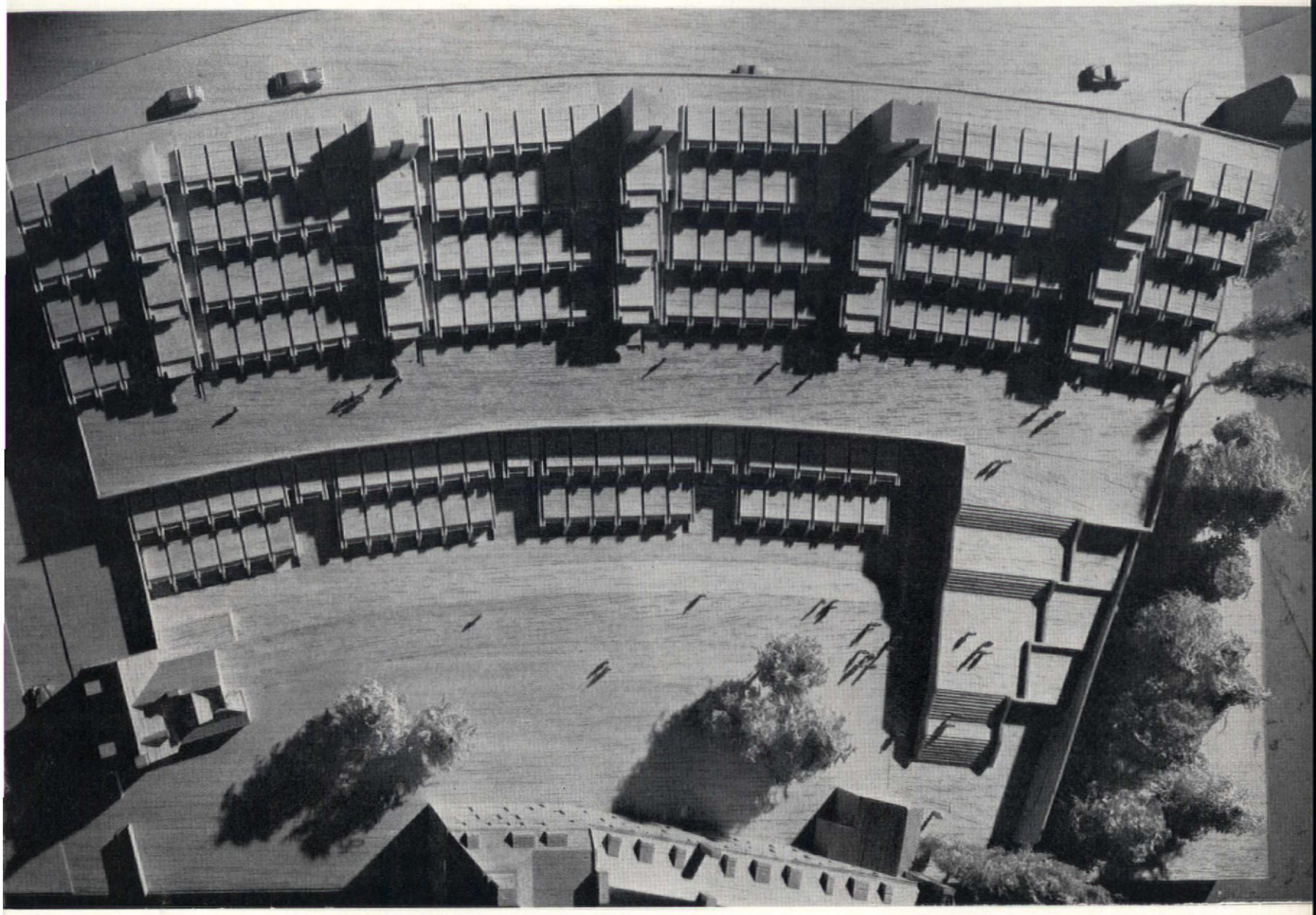




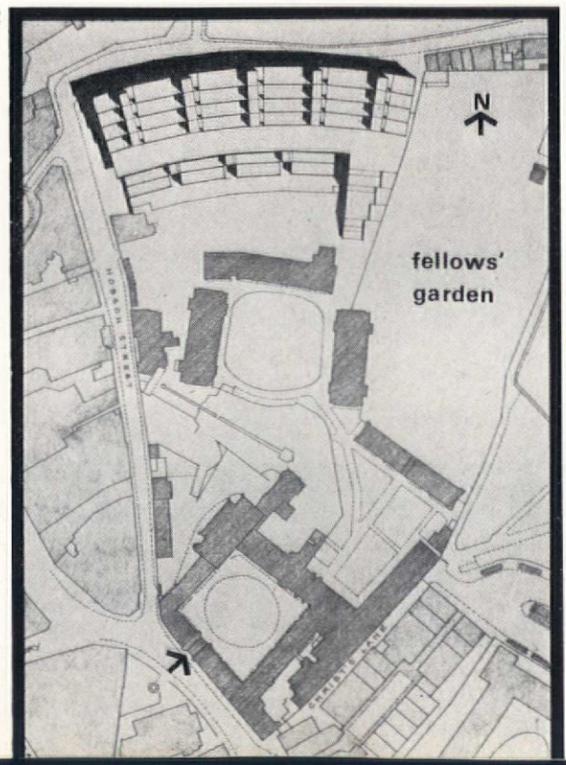
1

Christ's College, Cambridge

Denys Lasdun and Partners (*see also p.68*)

A redevelopment scheme to provide the College with additional residential and communal accommodation

2



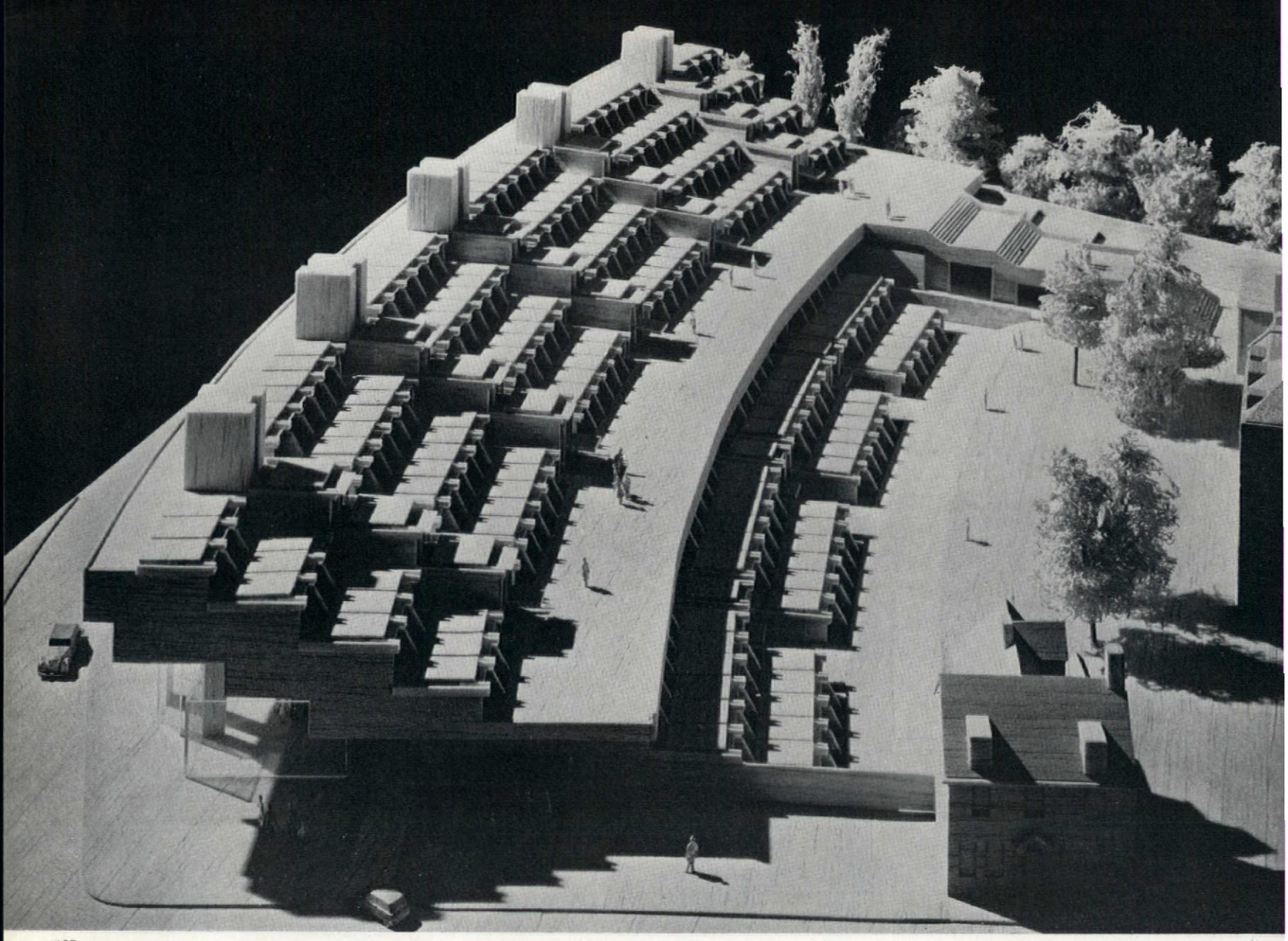
The site is immediately to the north of the existing college buildings and consists of old buildings of undistinguished character, a number of which have already been demolished. It is bounded by Hobson Street and King Street which will form an important link between the existing and the proposed new shopping centres of Cambridge.

The scheme provides for use by the college, study bedrooms for about two hundred undergraduates, flats for single and married Fellows, a general purpose lecture room/theatre to seat about two hundred, common-rooms and squash courts. In addition, along the King Street frontage there are lock-up shops and a public house to take the place of those existing at present.

The study bedrooms are planned in groups of six, each of which has its own washing area, small kitchen, trunk store and drip-dry rooms. On plan the groups are separated by staircases and on the upper floors by the flats for single Fellows also. On section, each floor is stepped back in relation to the floor below, to create space at

1
Bird's-eye view of the model
2
Site plan
All photos by Richard Einzig

▷66



◁65

1

ground level under the residential accommodation for a shopping arcade and the public house with their associated service road and parking area. At second floor level, the stepping back is increased to create a broad landscaped terrace with grass and trees. At the east end of the development adjoining the Fellows' garden, this terrace is continued to the south, where it forms both the roof of the lecture room and common-rooms and a main link with the existing college buildings. Space for parking college cars is provided above the shopping arcade at the same level as the terrace with which there are direct links through the entrance halls at each of the five staircase positions.

The development is to be carried out in stages, work starting on site for the first stage in June 1968. In this stage, which is at the east end of the site, is the main access from King Street for the complete development, both for college and shops. For the college, there is pedestrian access at ground level adjacent to the lecture room and a ramp to the terrace level car park, while for the shops there is the service road and adjoining parking area. The car parks and service road can thus be extended in subsequent stages without disturbance to those in the first stage.

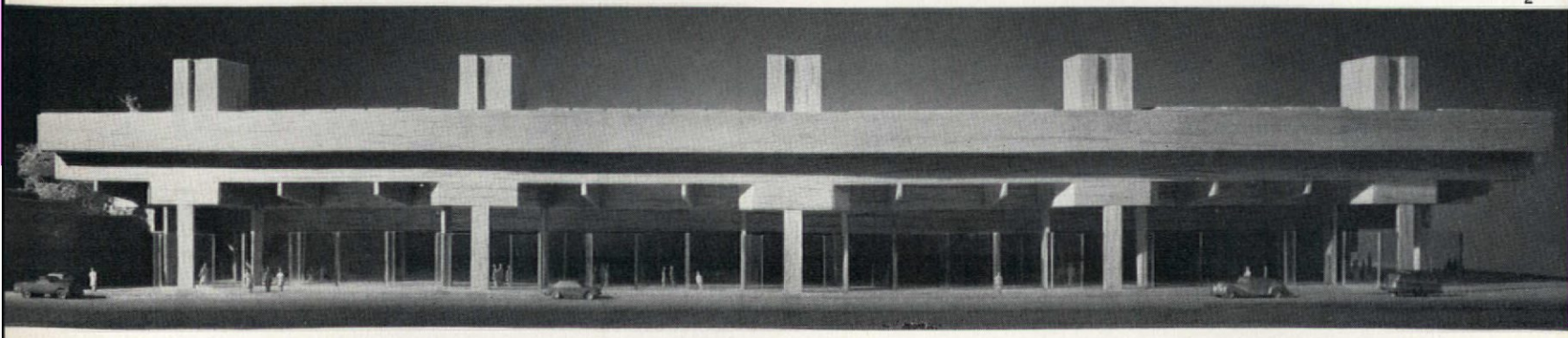
A large part of the scheme is to be constructed of self-finished pre-cast concrete structural units, particularly the study bedrooms and Fellows' flats, where the roof of each room will be a single unit supported on pre-cast gutters and cross walls. Integrated with the structure will be the furniture and fittings so that together they will create and define the space and uses of the rooms themselves.

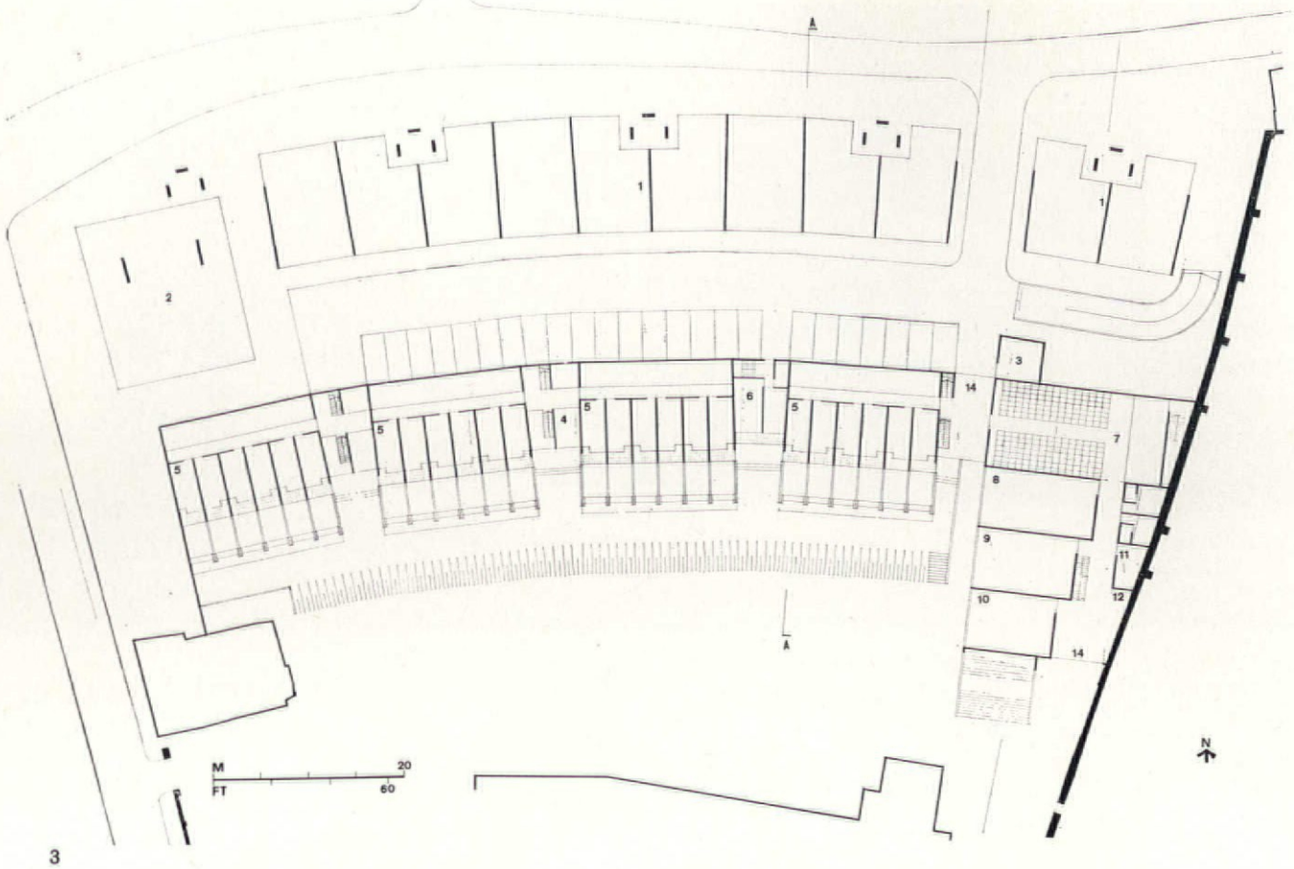
1
View of model from the west, Hobson Street in the foreground

2
Model, view of the King Street front

3, 4, 5 & 6
Ground, and part second and third floor plans, and section AA

2





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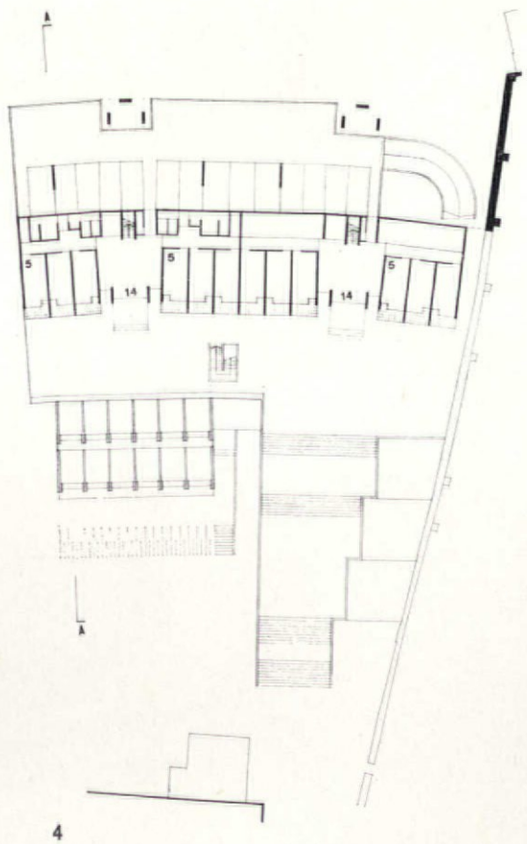

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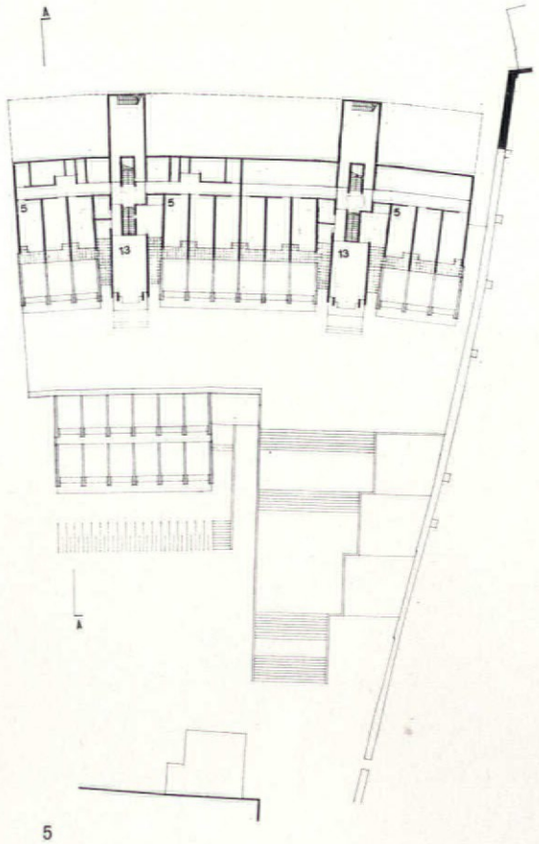

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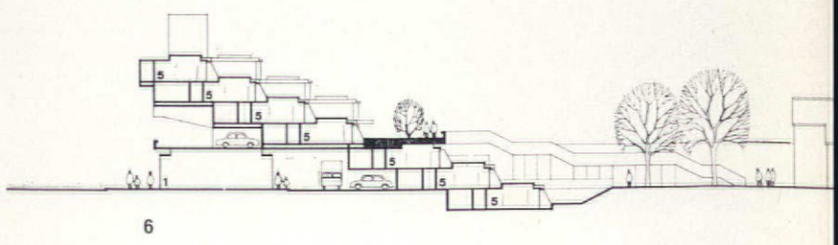
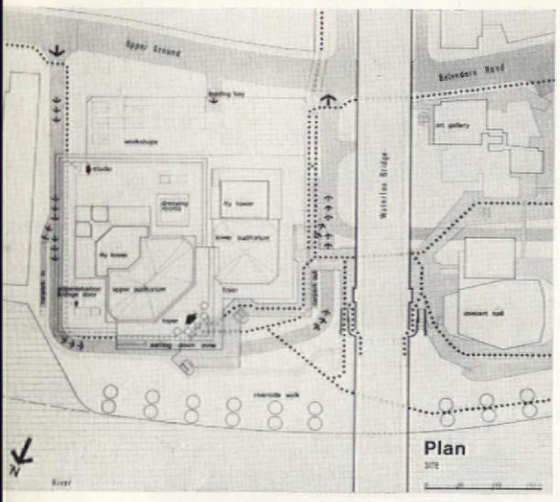


6

Key
1 lock-up shops
2 pub
3 porter
4 supervision room
5 study-bedrooms
6 married Fellow's flat
7 lecture room
8 BAs' common-room
9 TV room
10 undergraduates' reading room
11 kitchen
12 cloaks
13 Fellows' set: including bed-, bath- and living room and kitchen
14 entrance

1



2

1
Model of the National Theatre as it might appear from Somerset House, with Waterloo Bridge on the right

2
Diagrammatic plan showing the relationship of the National Theatre to Waterloo Bridge, the Hayward Art Gallery and the Queen Elizabeth Hall. Arrows indicate vehicular circulation, dotted lines pedestrian routes

3
View of the model from the south-east, from where there are both pedestrian and vehicular approaches

4
Plan of upper theatre

5
Plan of lower theatre

Photos: 1, 3 Behr

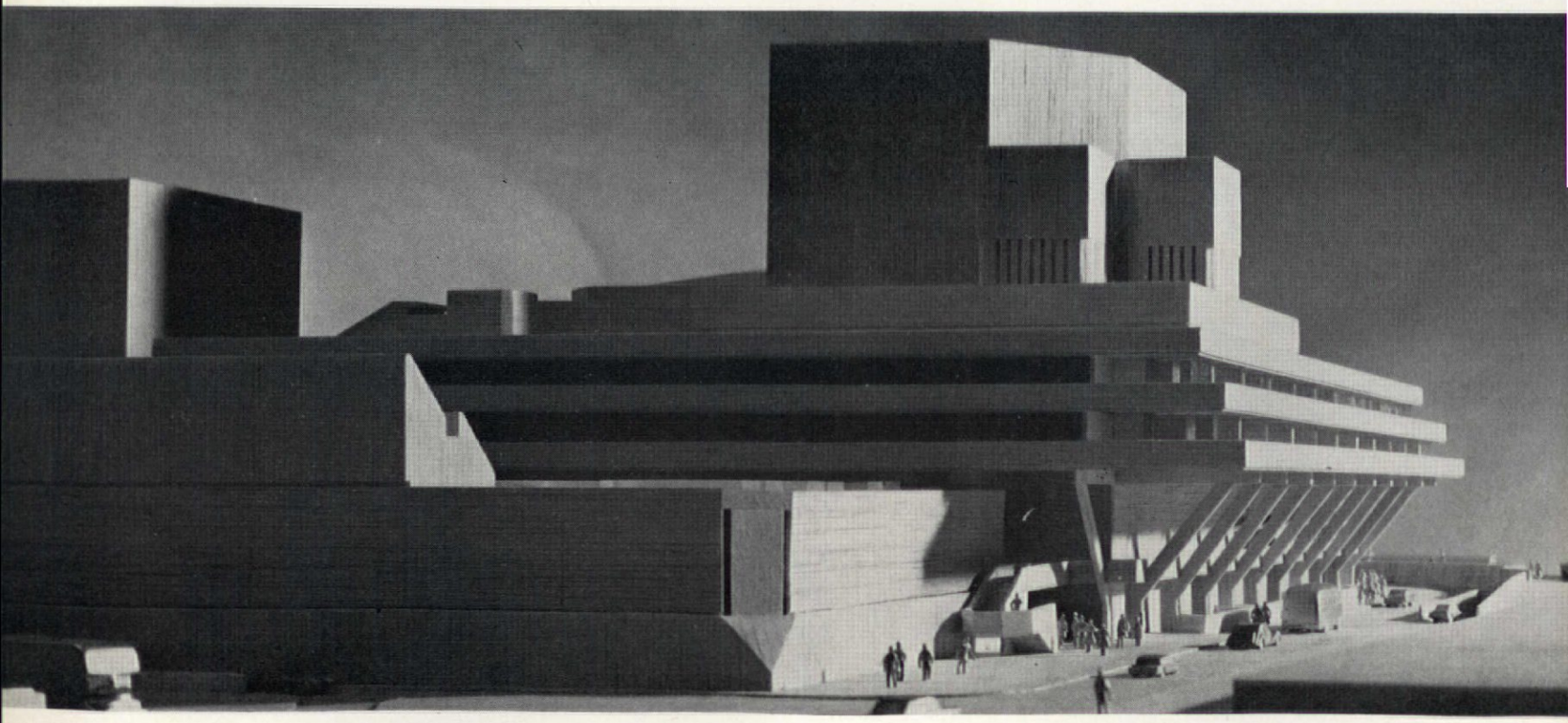
National Theatre, London

Denys Lasdun and Partners (*see also p.65*)

The art of drama, in which by general consent this country leads the world, is a supreme national asset. The present, revised proposals* for re-housing the National Theatre on the South Bank aim to provide it with a setting where it can be seen to best advantage by the largest possible number of people.

Early in the development of the proposals it was decided that two auditoria were absolutely essential to this purpose. It was clear that at least 2000 seats would be needed and that a single auditorium with this number could not give the public value for money since visibility and audibility suffer when even an open stage

*The first proposals were published in *AD*/6/65 p.263



3

theatre has more than about 1200 seats. A single auditorium, in any case, would have to be physically adaptable in order to house everything from Greek tragedy to the plays of Coward and Osborne and a theatre that can be adapted to house everything is never properly suited to anything. A vast single auditorium, in fact, would be a hopeless artistic compromise.

The provision of comfortable conditions for the audience in each auditorium has been a prime consideration. Each auditorium will be air-conditioned, seats will be generously spaced and entrances planned to avoid congestion.

Each theatre has its own foyers with generous cloakroom accommodation and adequate space for bars and for serving refreshments.

The upper open stage theatre is designed to seat 1165 people with an unobstructed view of the stage and excellent audibility for all. The seating is arranged in two main stepped tiers linked visually by intermediate tiers on each side to form a bowl. It is disposed so that the attention of the audience is focused onto the acting area of the stage, giving the actor command of the whole auditorium. The configuration of the stage in relation to the seating avoids the possibility of members of the audience looking at each other across the stage and is such that the excessive movement sometimes associated with open staging will be completely unnecessary. The stage itself allows great flexibility of use providing the advantage inherent in the open stage form of increased audience/actor intimacy without the usual disadvantage of having to sacrifice all but a minimal scenic environment.

The stage is equipped with a fly tower for which it is intended to develop a new system of unit hoists for flying three-dimensional scenery. A revolve with integral lifts is proposed for the stage floor, and this, together with the three rear stages, equipped with wagons, will enable the change-over from production to production to be handled efficiently.

The lower (proscenium) theatre has its seating disposed in two stepped tiers confronting an end stage viewed through an adjustable proscenium opening. It has been designed to accommodate the maximum number of people consistent with good visibility and audibility under these conditions. It has 895 seats which are arranged so that the audience is concentrated directly in front of the stage in an intimate relationship with it. The stage is to be fully equipped with a flying system and a trapped floor incorporating two lifts, one to provide an orchestra pit and the other to receive stage wagons and lower them flush with the stage floor. The immediate off-stage space consists of a rear stage and a single side stage with a scene assembly area between the two.

The small studio theatre which is also provided is intended to serve as a research department to keep the theatre in touch with its future and to attract the enquiring young audiences who have a stake in that future. It will give new playwrights and directors the chance to prove their worth in a laboratory atmosphere and will provide opportunities for testing new techniques of presentation. The studio is a room approximately 60ft square designed to be as flexible in use as possible. The room is surrounded on three sides by a gallery 8ft above stage level beneath which actors can circulate to stage entrances between banks of seating. The seating itself would be in movable units which can be arranged in a variety of ways to produce different stage layouts. There is a small backstage area on the fourth side of the room. A small entrance foyer is provided for the audience with access to the gallery level. Approximately 200 people can be accommodated, the actual number depending on the stage layout. A small bar is planned above the entrance foyer.

Outside, at the lower levels, the terraces link up with Waterloo Bridge and the existing system of walkways around the Royal Festival Hall, forming an extension of the riverside promenade which can be used and enjoyed by the general public. Higher up they provide external spaces, warmed by infra-red heating, for theatre audiences, places of relaxation for those working in the theatre, and essential emergency escape routes.

The combined entrance to the two main theatres faces the river and is accessible at car-park level, road level and pedestrian terrace level, the three levels being interconnected by lifts and staircase. The lifts are arranged so that they can be reached by disabled theatregoers without negotiating any steps.

The box office is situated on a mezzanine floor between the road level and pedestrian level entrances. There would be a separate department to deal with postal and telephone bookings.

The lower proscenium theatre is alongside the entrance hall at ground level and the upper open theatre is above the entrance hall. The small studio theatre is entered separately from the approach road at the side of the building.

The lower part of the building which includes the production workshops and main rehearsal rooms, in addition to the lower theatre and studio theatre, provides the large high spaces which are needed wherever scenery has to be handled. The upper theatre stage is over the top of these areas, and scenery is raised to it by means of a large lift.

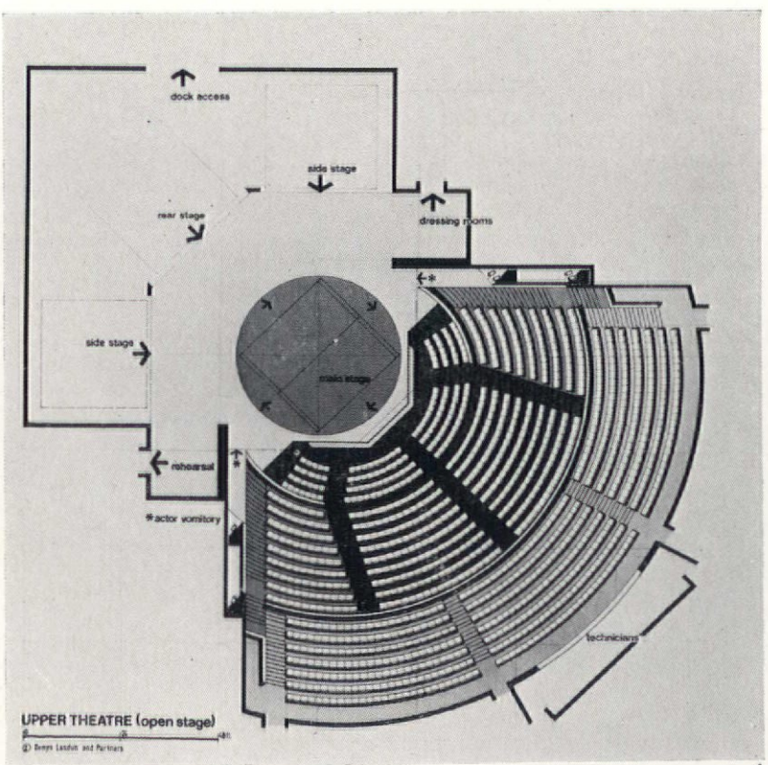
The dressing-rooms are strategically placed around a small open court in the centre of the building close to all stages and rehearsal rooms.

The wardrobe workrooms are immediately above the dressing-rooms and the administrative offices encircle the upper part of the building with direct access to all departments.

All staff and actors use the staff entrance beside the approach road on the side of the building. Staff facilities such as the canteen and the Green Room are in this area and have the advantage of river views.

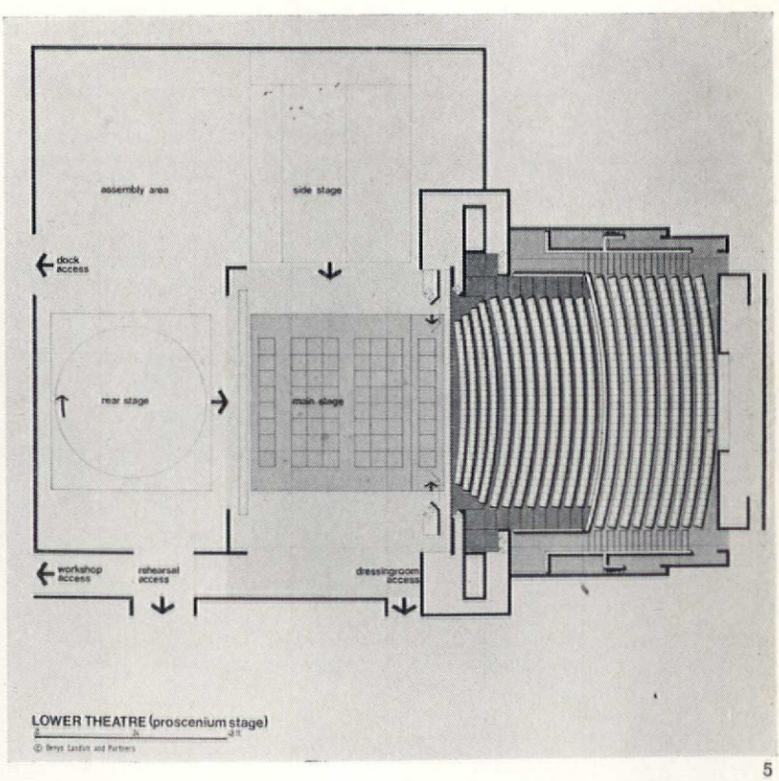
A service entrance with direct access from the upper ground is provided for the production workshops.

A basement car-park for 165 cars is included with direct lift access to and from the theatres. The car-park is entered from the approach road and cars leaving rejoin the road beyond the theatre entrance. It would be possible to extend the car-park towards the rear of the building to accommodate an extra 220 cars.



UPPER THEATRE (open stage)

4



LOWER THEATRE (proscenium stage)

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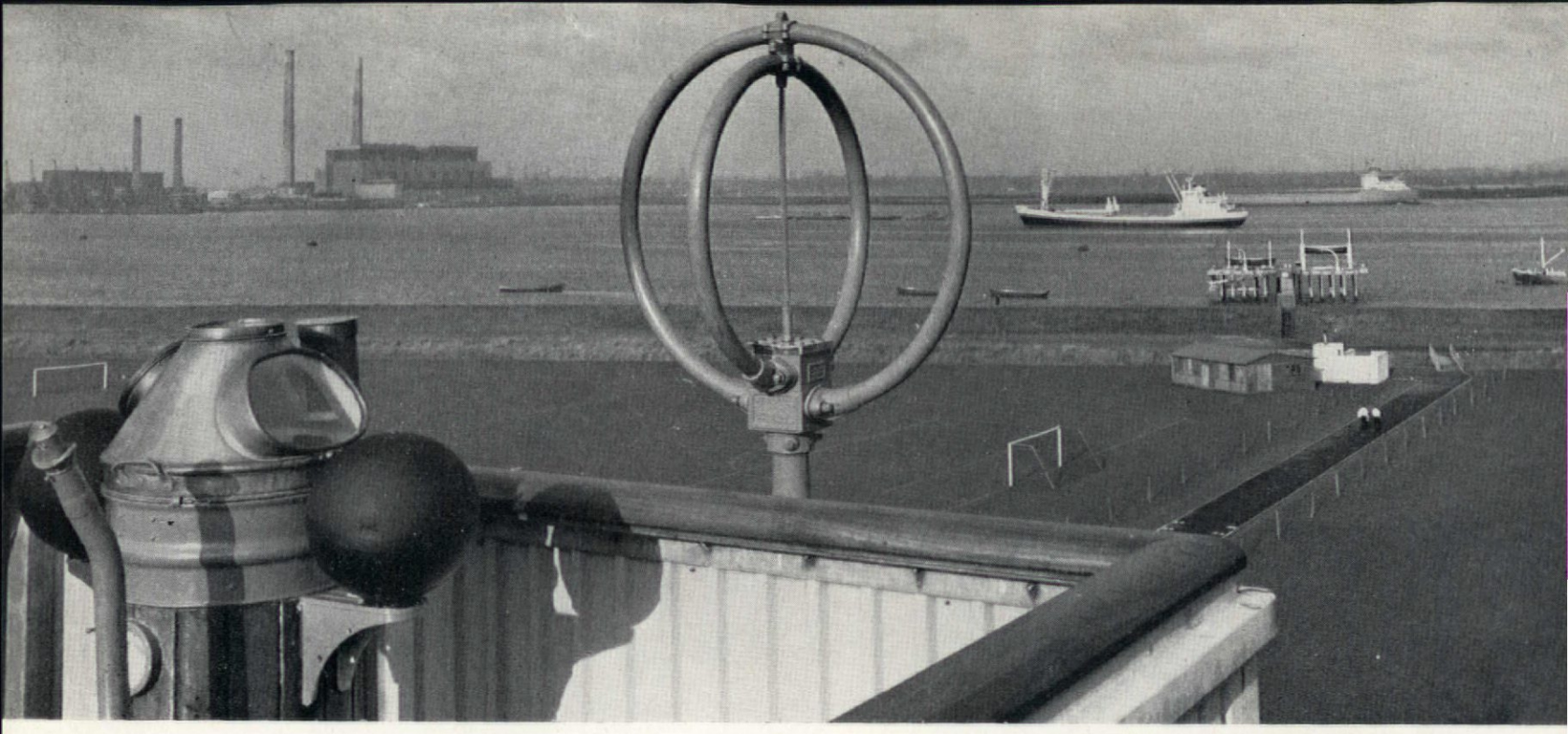

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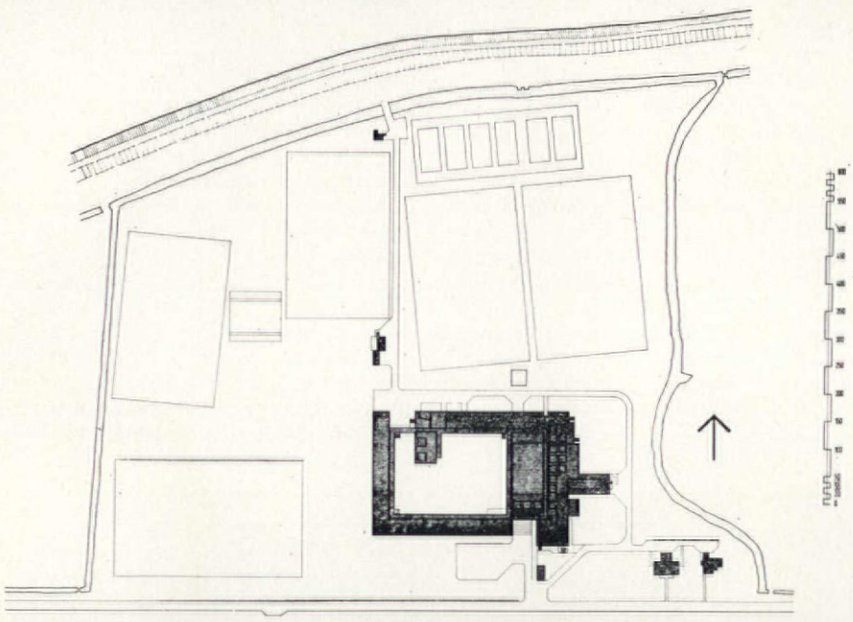

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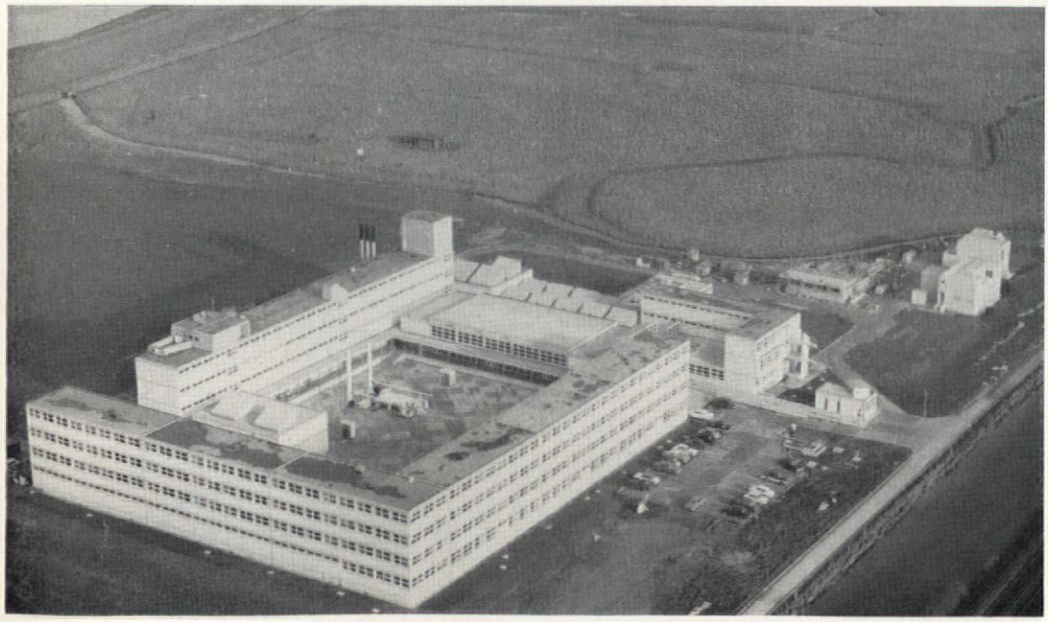

3

Sea Training School, Gravesend

Lyons, Israel, Ellis and partners

Architect-in-charge: D. F. Gray

Commentary by Neave Brown

The Sea Cadet Training Centre at Gravesend has the quality which ought to be the normal achievement of any good office. This is high praise, as sadly few English buildings since the war show comparable skill, restraint and unpretentiousness. In an uncertain cultural situation, the dedication required to achieve quality is so great that often the building is misconceived in terms exceeding its proper role; the result is rhetorical and demonstrative. So many forces operate to spoil the design in the course of production, that to complete a consistent building is an act of almost heroic endurance. Architecture is concerned with norms. It is paradoxical that buildings suggesting norms are the rarest.

The new National Sea Training School at Gravesend is sited on windswept broadland, a bleak landscape bordered on one side by the Thames and on the other by the low hills of north Kent. Parallel, across this landscape run a railway and a disused canal. On 14 acres, between the towpath and the river the architects had to provide a habitable environment for the school, and its adjacent playgrounds, attached on one side to Gravesend by the raised towpath, and on the other to the Thames and the sea by a jetty required for training purposes.

The school now provides in a single centre training which had previously been provided by several schools. All trainee deck and catering ratings will attend here a three months' residential course prior to going to sea in the Merchant Navy in order to complete their training. It is, in a sense, a closed community, giving along with instruction, discipline and living conditions comparable with experience at sea. It holds 567 trainees and operates without

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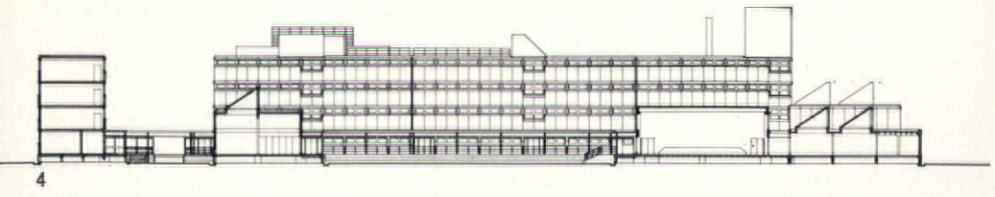

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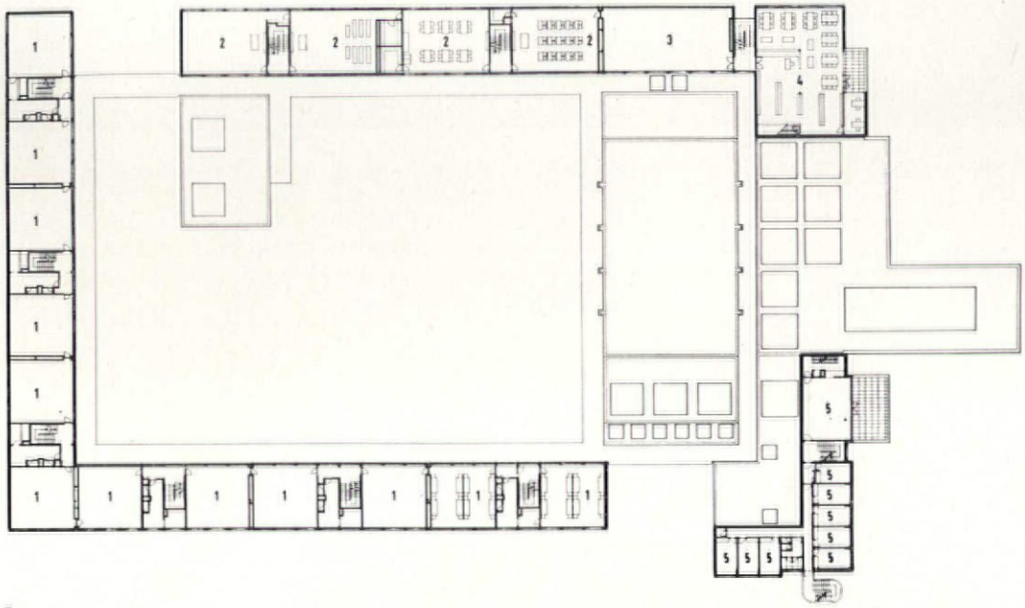

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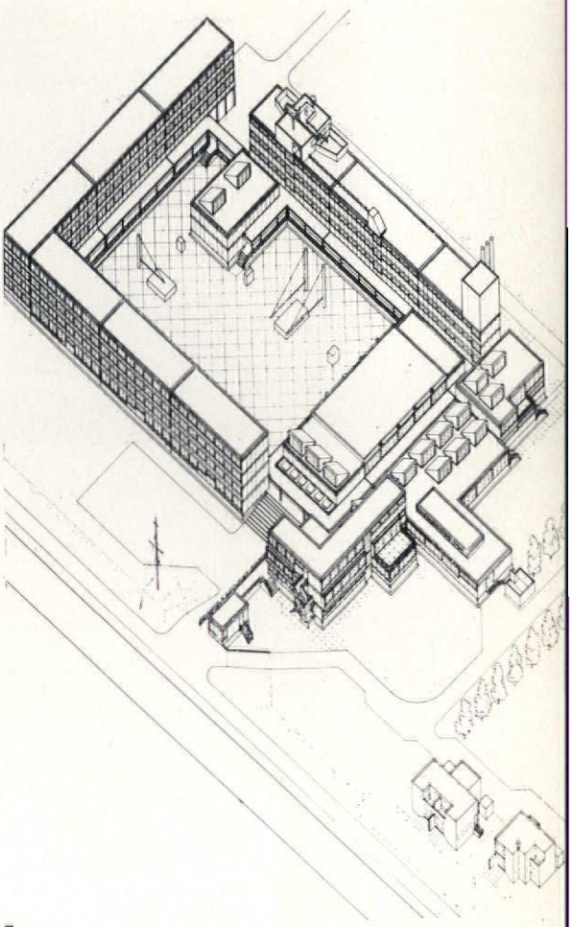

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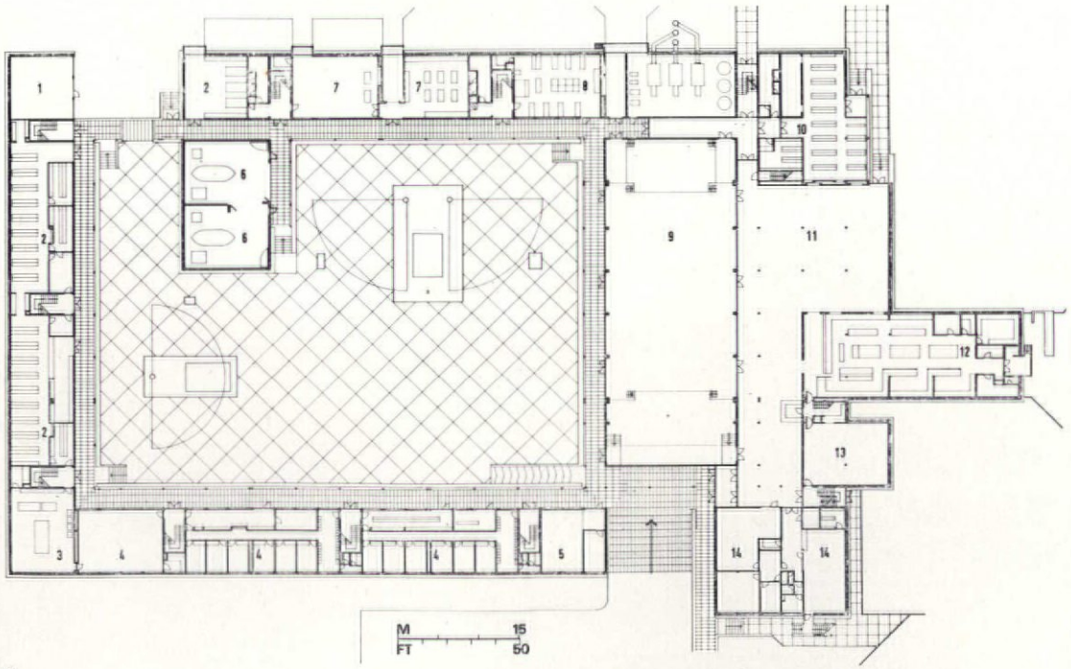


6

1
View from the 'bridge' looking north over the Thames

2
Site plan

3
Air view from the south-west, showing the fortress-like character of the college, set in the Thames marshes, with the Thames itself appearing in the top-left corner

4
Cross-section

5
First floor plan
1 dormitory
2 classroom
3 recreation
4 library
5 officers' accommodation

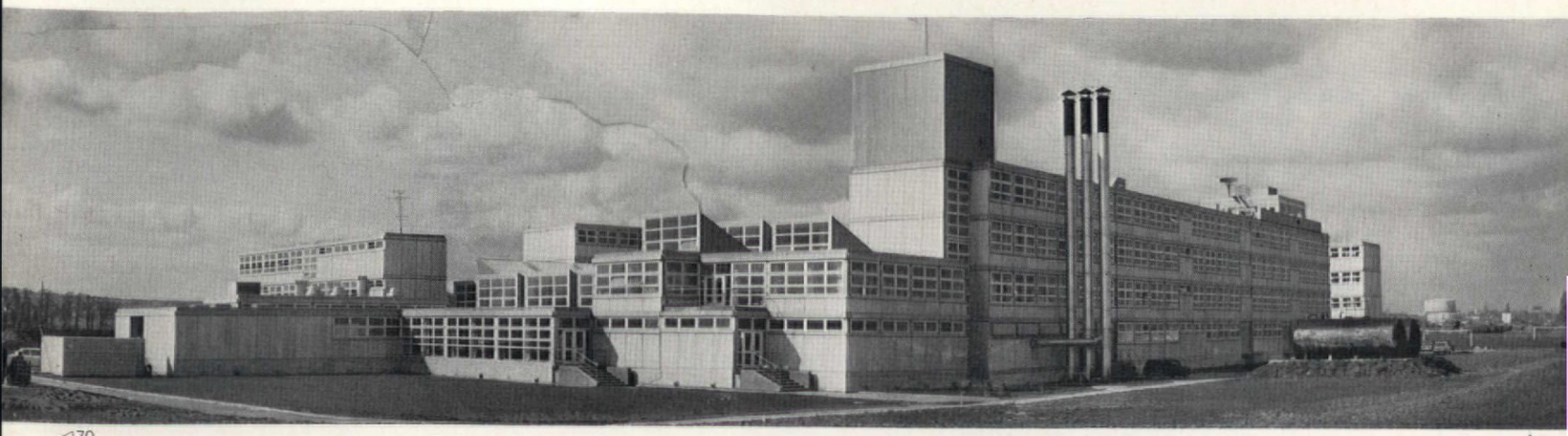
6
Ground floor plan
1 garage
2 stores
3 laundry
4 instructors' accommodation
5 training classroom
6 lifeboat classroom
7 workshops
8 instructional kitchen
9 assembly hall
10 changing rooms
11 dining room
12 kitchen
13 officers' dining
14 administration offices

7
Axonometric

Photos: 1 J. Donat, 3 Skyfotos

Quantity Surveyors: Mercer and Miller
Structural Consultants: Hajnal and Myers and Partners
Services Consultants: E. A. Pearce and Partners
Gross area, main building: 101,220 square feet
Cost on tender: £588,885
Nett cost/sq. ft on tender: 97s 10d
No of trainees: 576

Structure: Precast concrete f rame, plain face finish on *in situ* ground beam grid. Piled foundations
Cladding: White concrete, board f ace finish
Internal walls: blockwork, 1 : 1 : 6 render painted
Windows: timber frames metal opening lights, painted
Doors: beech veneer faced
Floors: hardwood mosaic or quarry tile
Heating: oil-fired automatic boilers



◁70

1

interruption throughout the year. It is subjected to very heavy wear.

The landscape, the conditional requirements, the enclosed nature of the community and the need for protection from the wind and rain which blows across the Thames estuary, together have generated a disciplined and regular form, an exercise in courtyard planning, and a dialogue between the additive characteristics suggested by systematic building techniques and finite forms.

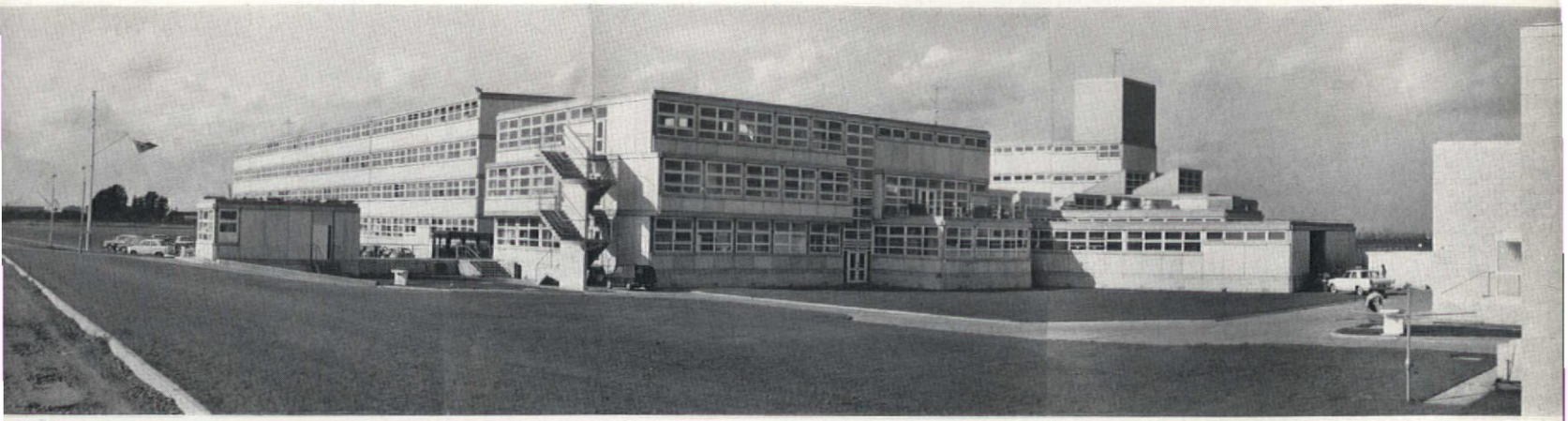
Courtyard planning was almost non-existent in the rationalist architecture of the 'twenties and 'thirties. The cloister and the cortile, each necessary and distinct spatial and organizational elements, each conforming to rules and integral to hierarchical systems of which they were a part, were incompatible with prevailing attidudes. The new concept of space, turning inside out the neo-classical models and exploding elements apart in counterpoise arrangements, could not absorb the formal courtyard with its implications of symmetry, enclosure, perimeter and calm. It was totally absent from the work of Le Corbusier until he committed his solicism at La Tourette, and literally dropped the bottom out of courtyard planning. However, since the war, together with a revaluation of neo-classical models, the courtyard has re-emerged in a number of significant buildings.

At Gravesend, the need for a sheltered parade ground provided the rationale from within, the interminable quality of the site suggested a bastion form without. The components of the building have been arranged around this parade ground, satisfying at the same time the regularity and unity of classical courtyard planning, and the twentieth century orthodox requirement that different uses should be physically and recognizably distinct, and that their grouping should suggest symbolically as well as functionally their dependence.

At the centre is a basically regular figure, the rectangle of the courtyard surrounded by the gallery, a continuous, covered, raised walk connecting all accommodation and extending beyond the courtyard to surround the combined assembly hall and gymnasium. Therefore, in symmetrical relationship to the unifying courtyard is the principal enclosed space. In the courtyard are derricks, hatches and winches, nautical gear for deck training. Also, intruding into the space are the combined lifeboat training rooms requiring greater height than the adjacent classrooms. The roof of the surrounding gallery provides a raised duct, and distributes services throughout the building above flood level.

The bulk of the accommodation is grouped around the courtyard in two L-shaped wings. One

2



3

is regular, repetitive, and contains all the dormitories as a series of interconnected rooms around staircases. The other is irregular, and can be broken down into its components, a four-storey teaching block echoing exactly the dormitory block opposite, the library, dining room and kitchens, administration and sick bays.

The openings between the two Ls provide the entrances and exits to the complex, in diagonally opposite corners. The main entrance divides about the end of the assembly hall with unresolved assymetry. The opening for the exit to the play fields and the path to the jetty is delimited by the lifeboat training blocks. This, together with the two L-shaped blocks, develops within the total rectangle two interlocking spirals.

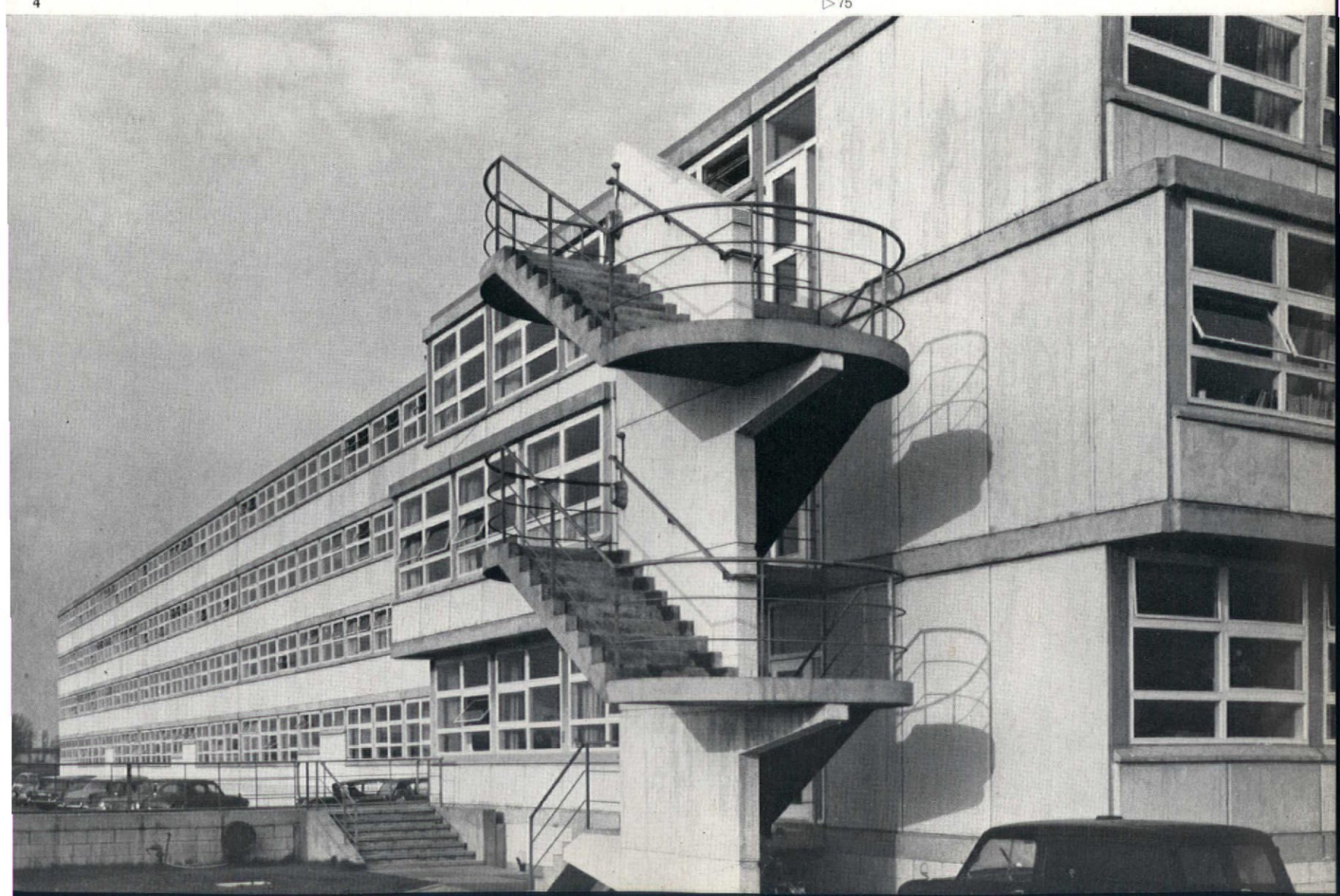
The building has therefore two simultaneous spatial characteristics. The first static, the regular, finite, predictable figure of the rectangle. The second dynamic, the spiral and the vortex, causing the calculated internal and external disturbances to the form of the rectangle, the agitated and irregular profiles of the dining room, kitchen and staff accommodation and the intensive classroom in the courtyard. It combines therefore the closed (neo-classical, composed) figure with the qualities of the open (neo-plasticist) figure.

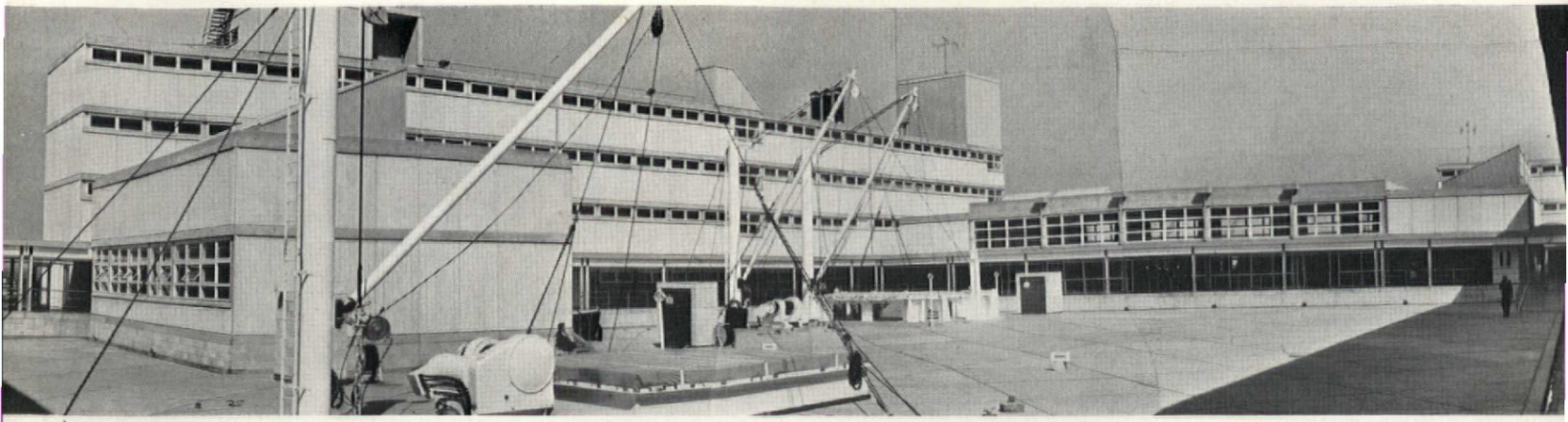
The formality and discipline of the concept at Gravesend provides a context of sufficient clarity to overcome the disintegrating characteristics of module planning and additive, component structures. For reasons of economy, a systematic composite structure was designed, combining precast elements with *in situ* concrete. On top of 35ft deep piles and ground beams, a precast structure including 50ft high columns, beams, sill beams, floors and facing slabs, is restrained by *in situ* staircase bays. But

▷75

1
View from the north-east
2
Detail of the north end of the east elevation
3
View from the south-east
4
Detail of the south-east corner and escape stair
Photos: 1, 2, 3 D. Gray, 4 J. Donat

4





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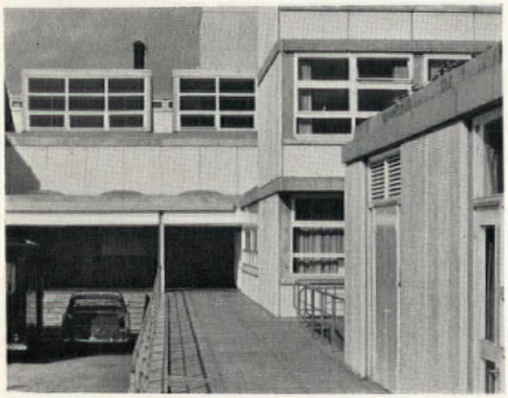

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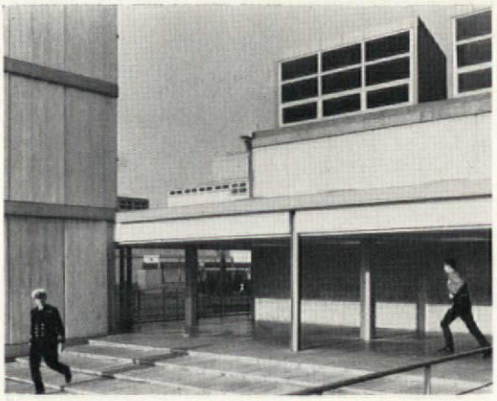

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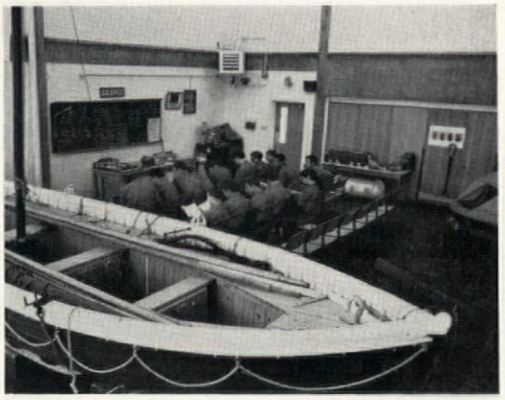

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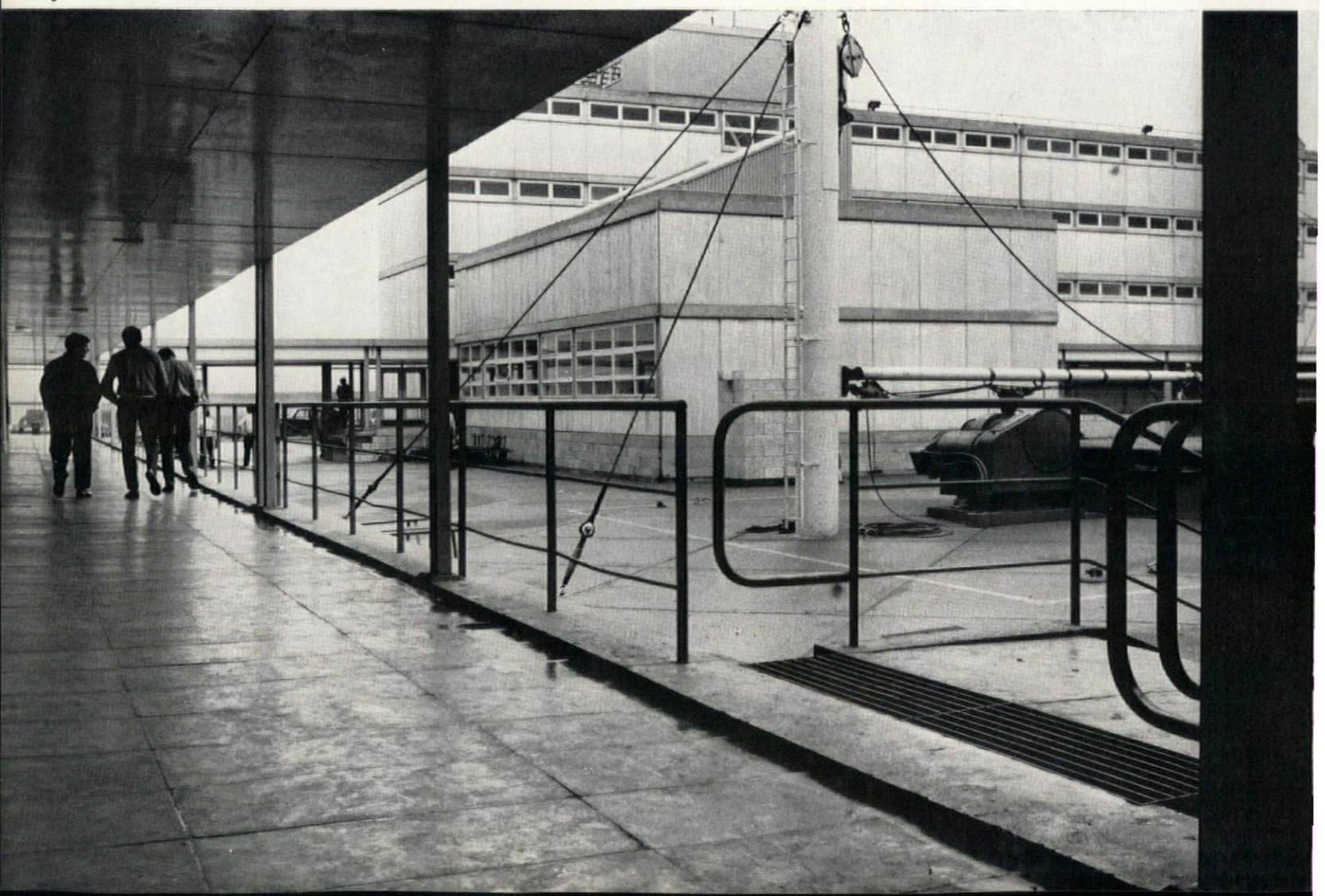
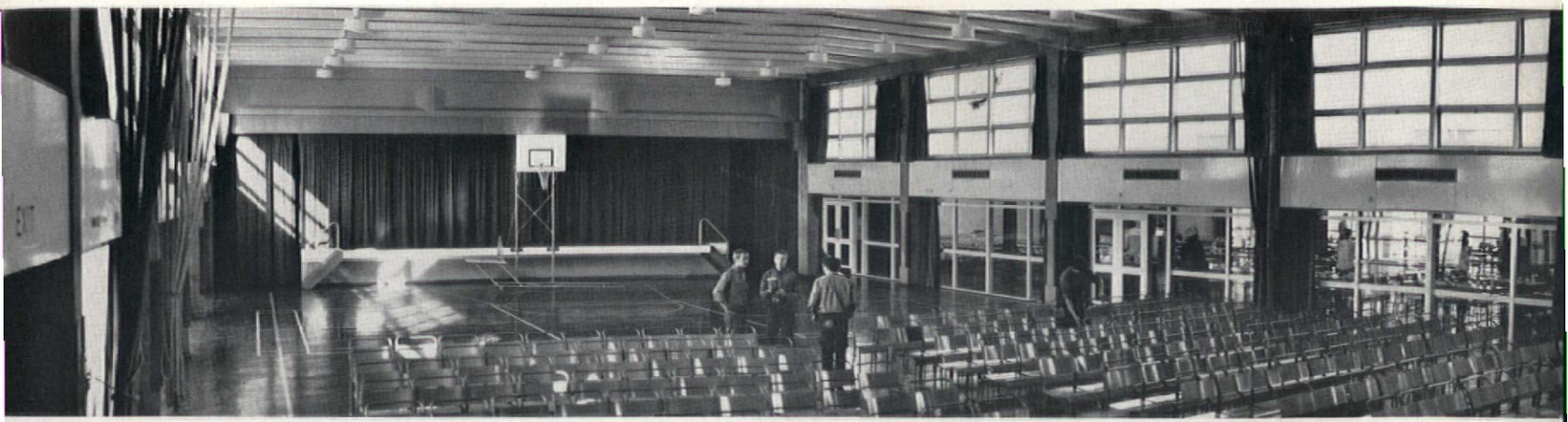




◁73

it is the precast system which shows throughout, and gives the building its surface quality. Apart from the steel-framed gallery, only special elements, the 'bridge' and the tank room on the roof, the external escape stairs at the main entrance, are of necessity structured separately and are treated as embellishments.

Considered apart from the formal context of the building, the visible components, windows and precast elements, have the additive capacity of all 'kit of parts' structures. Such pieces do not imply, as do for instance the Orders, a proper place for each with an exact relationship to the whole, a hierarchy and ultimately finite organization. This a-formal characteristic of systems has been used at one extreme to justify irregular amorphous buildings, in the name of freedom, flexibilty and extendablity. Its aesthetic justification has been that such formulations are natural to the techniques. The consequences can be disastrous, an environment that everywhere tends to crumble to the level of its smallest components.

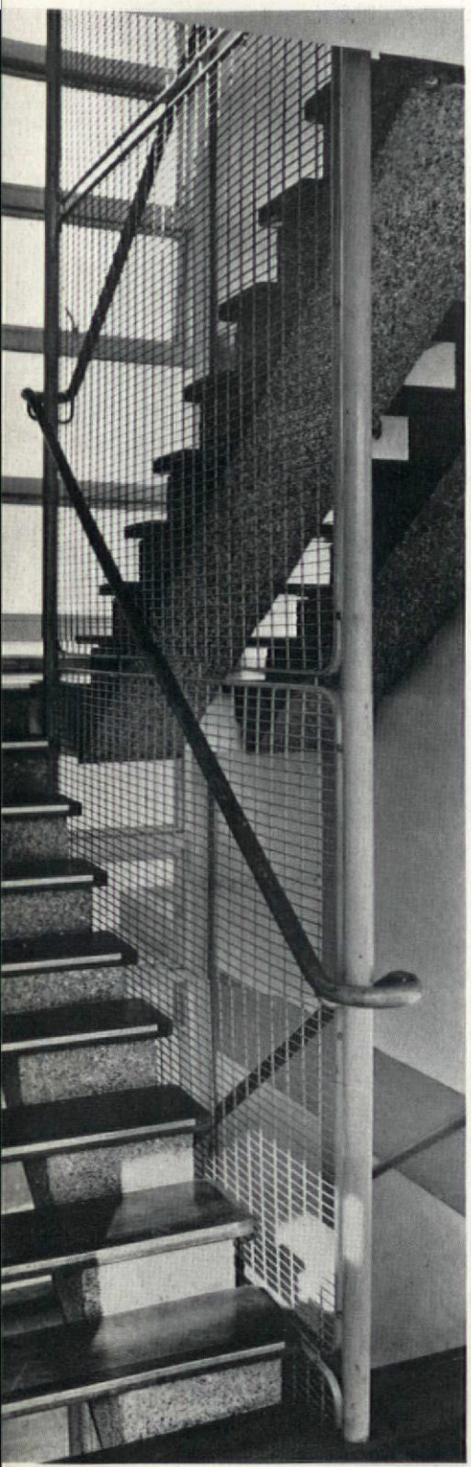
At the opposite extreme is the unfragmented total block of building with undifferentiated exterior, and planned more or less in accordance with concepts of universal space. The degree of success acknowledged to Gravesend depends on the importance that is allowed to the expression of different parts of the accommodation and the organizational and environmental value that is allowed to the articulation of the plan (causing for instance the complexities of profile of the dining room, kitchen, and staff accommodation) within a system which of itself might suggest absolute regularity.

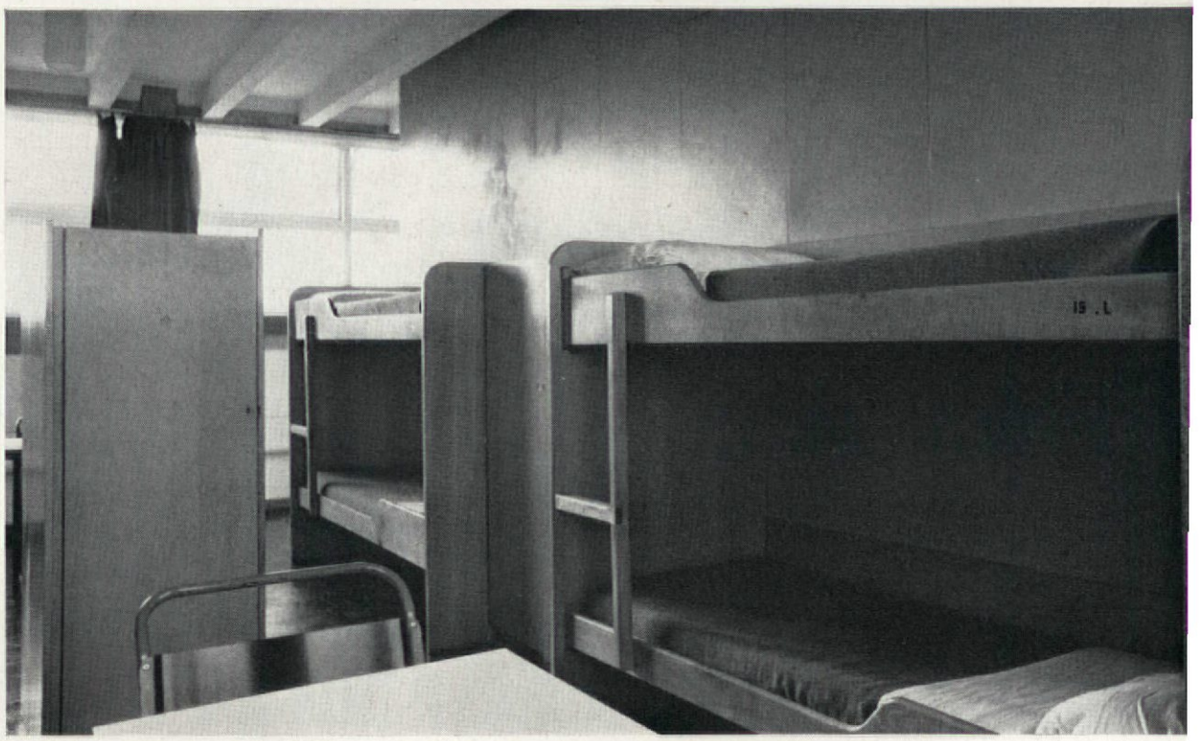
Just as at Gravesend static and dynamic patterns can co-exist in a basically simple organization and the components can be seen relegated to their proper expressive level, so growth figures can achieve the desirable qualities of finite figures at various stages. It is perhaps a pity at Gravesend that the possibility of growth has not been anticipated and allowed for within the figure of the building. The additive qualities of the system would then be fully exploited.

1
View of the court from the south-east corner
2 & 3
View of the main entrance walkway and ramp, with a view through to the court
4
Interior of a lifeboat training room
5
The court, seen from under the gallery
6
Assembly hall with the dining room beyond
7
Dining room
Photos: 1, 2, 6 D. Gray, 3, ,4 5, 7 J. Donat

▷76

6
7

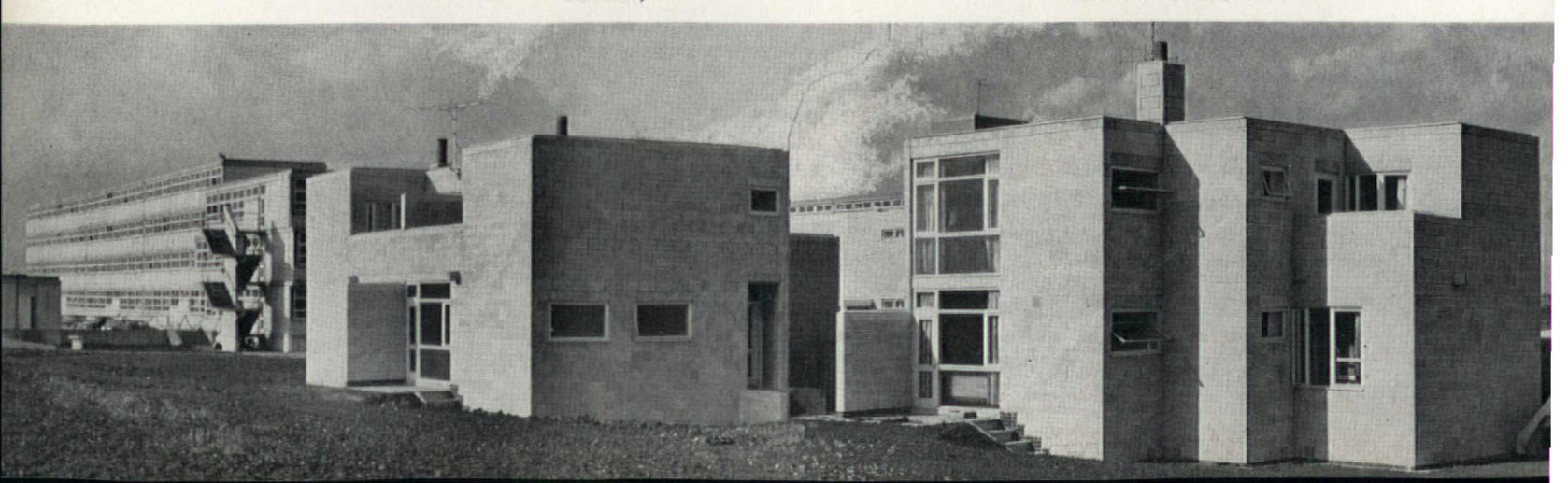




1 | 2
3 | 4

1
Detail of stair-rail
2
View of the assembly hall stage in use as a classroom
3
Dormitory
4
Auxiliary housing required for the higher ranking officers, seen from the south-east

Photos: 1, 4 D. Gray, 2, 3 J. Donat



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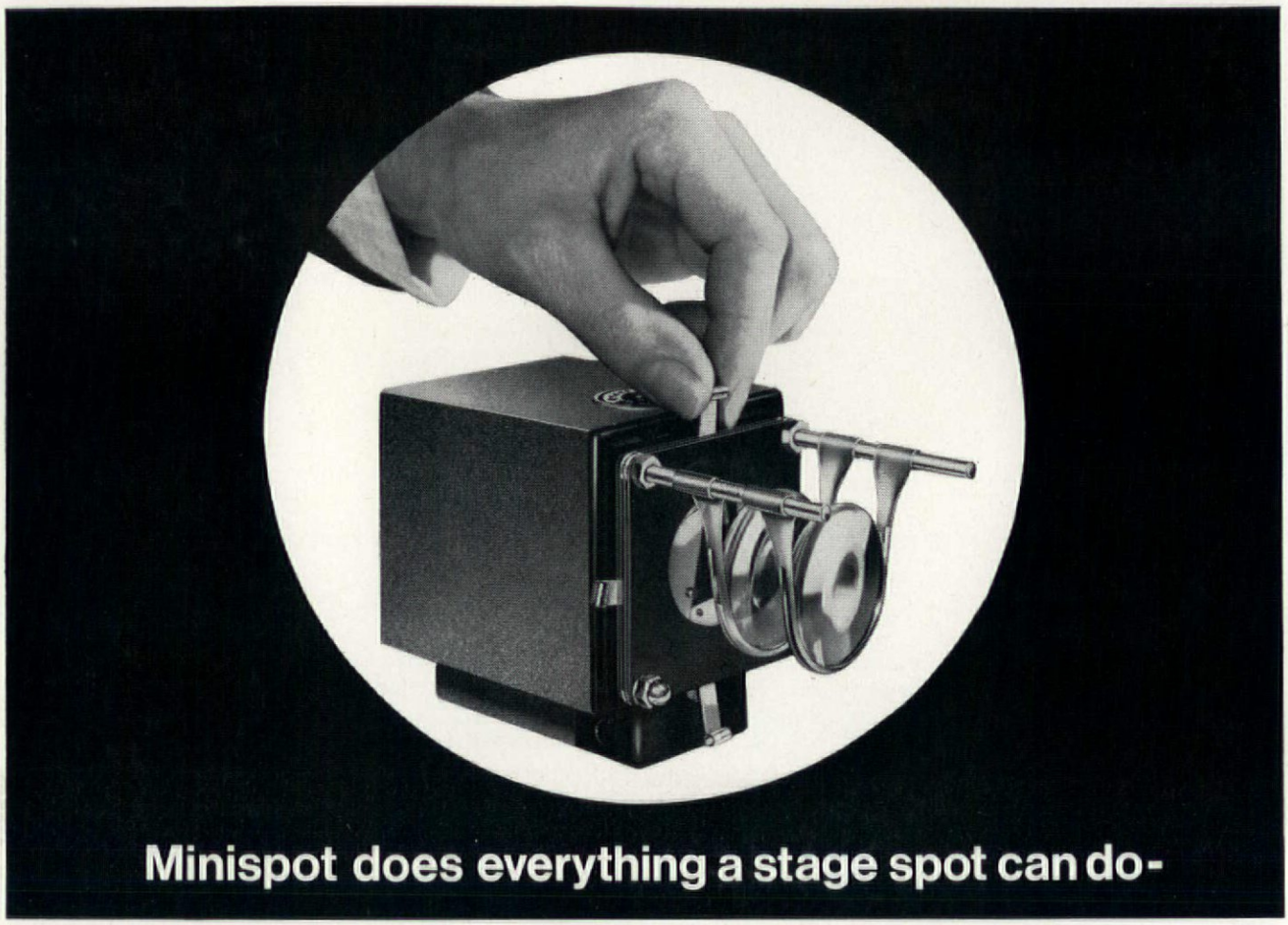

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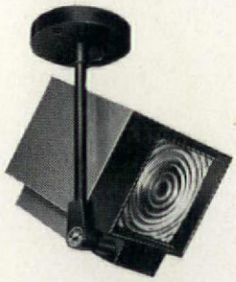

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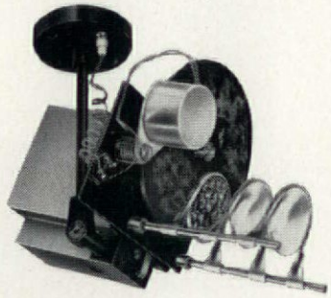

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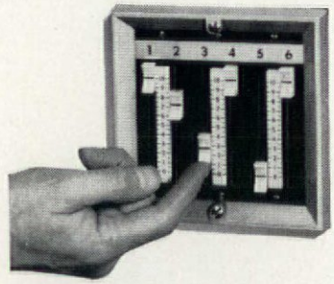

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Oskar Hansen

The Polish architect Oskar Hansen is 'a prophet without honour in his own country'. Yet his teaching philosophy, and especially his method of exploring space, should give him an important place in the world of contemporary architecture in the opinion of ALINA MOFFETT, a fellow countrywoman practising in London.

Chronology

Italic figures in the text refer to illustrations on the following eight pages.

1922 Oskar Hansen born in Helsinki.
1924 Zofia Hansen born in Kaluszyn.
1948 Winning design (1st prize) in competition for a Civic Building.
Project for housing settlement in Debiec nr. Poznan.
1948/1949 Working in the atelier of Pierre Jeanneret and Fernand Leger. Takes part in CIAM at Bergamo and in International Summer School of Architecture in London.
1951 Diploma of Architecture in Department of Architecture in the Warsaw Politechnik (Technical University).
1953 Designed, in group of other architects, Polish Pavilion for exhibition in Stockholm.
1955 Project for exhibition pavilion where walls of plastic are filled with hot air. *27, 28*
1955/1956 Polish pavilion at an International Exhibition in Izmir. *3, 4*
1956 Conversion of top floor of an old house in Warsaw for a flat for himself. *5–10*
Project of a pavilion at Brussels Universal Exhibition. *11*
1957 One-man exhibition in Warszawa —'Architecture, painting and sculpture'. *18, 19*
Second National Exhibition of Interior Design in Poland designed by O. and Z. Hansen in collaboration with K. Meisner. *16, 17*
1957 Exhibition Hall added to an old art gallery Zacheta designed by O. and Z. Hansen in collaboration with L. Tomaszewski and S. Zamecznik. *12–15*
958 Project of culture centre in Montevideo (as part of competition for memorial of Jose Batle) designed by O. and Z. Hansen, structural consultant L. Tomaszewski. *23*
Study of composition in continuity of internal and external space in architecture (contribution to Exhibition of Modern Art in Warszawa, 1958), designed by W. Fangor, O. Hansen and S. Zamecznik. *24–26*
Blocks of flats in Rakowiec district of Warszawa, O. and Z. Hansen in collaboration with B. Ufnalewski, J. Kakolowski, J. Wolski, Brukalski and Dowgiallo. *20–22*
Project for a memorial of Warsaw uprising.
Article in the *Cultural Review* on the theory of open form—winning award.
Project for a pavilion for the Festival of Modern Music.
1959 Polish pavilion in exhibition at Sao Paulo ('open form') designed by O. and Z. Hansen in collaboration with L. Tomaszewski. *29–32*
Project for memorial of Auschwitz (Oswiecim and Brzezinka), winning design in an international competition. Designed by O. and Z. Hansen in collaboration with J. Jarnuszkiewicz, J. Palka and L. Rosinski. *33–35*
Project for commercial centre in Pultusk.
1960 Project design model for housing settlement, Slowacki in Lublin (part one variation II) designed by O. and Z. Hansen. *37–39*
Interior of Radio House, flexible positioning of instruments suitable for electronic music, designed by O. and Z. Hansen. *40, 41*
Two silver medals received during XII exhibition in Milan.
Conference of 'Team X' in Bagnois-sur-Seine.
1961 Lectures on 'open form' in Institute of Modern Art in Helsinki.
Continuation of project for housing settlement at Slowacki in Lublin (part one of variation II) north service area, south residential designed by O. and Z. Hansen and J. Dowgiallo. *42–49*
1962 Exhibition of works by O. and Z. Hansen in Holland and Finland.
1963 Participation in an international competition on the subject of a memorial to Sibelius in Helsinki.
Participation in an international seminar in town building in Hamburg.
Sculptural project for a vertical feature and lookout tower for a dam in Debe near Warszawa designed by O. Hansen and E. Cieslar. *53*
Project of housing settlement in district of Grochowski in Warszawa designed by O. and Z. Hansen in collaboration with B. Ufnalewski. *52*
Project of 24-storey commercial building for 'Towar'.
Project of studios for teachers in Lublin analysis of type 'B' building in accordance with site contours, designed by O. and Z. Hansen and J. Dowgiallo.
Project of landscape design of Botanical Gardens of Marie Curie-Sklodowska near Lublin, designed by O. and Z. Hansen. *50, 51*
1964 International seminar of sculptural expression today and tomorrow in Antwerp.
Lectures in 'open form' in Oslo and Trondheim.
Participation in International Congress of students of architecture in Delft (Holland).
Exhibition of works of O. and Z. Hansen in Norway.
1965 Blocks of flats project.
Theatre in open air (Slowacki district in Lublin). *54*
1966 Design of services for district in Lublin.
Project of museum of modern art in Skopje. Competition design by O. Hansen in collaboration with Barbara Cybulska, S. Hatloy and F. Fasting. *58–62*
Town Planning Exhibition illustrating a continuous linear system of services with 'plug-in units of habitation, industry, commerce, etc.', designed by O. and Z. Hansen in collaboration with Grzegorz Kowalski. *55–57*

In Poland today architects are engaged on huge projects sited on very large areas of land. Discussion among them is rarely about a single building but rather about housing estates, towns, villages, factory compounds and sports centres. Current projects are impressive in mass, essential in volume and vitally urgent in time. For the mental health of the younger generation good progress in housing is especially important.

Seen against this background of the energetic reconstruction of a large nation, Hansen's brilliant philosophy appears too luxurious and too sophisticated. In spite of his many young followers and admirers, he is generally misunderstood in contemporary Poland. His philosophy could be applied very satisfactorily to a situation of massive rebuilding. But it cannot be denied that life for many architects in contemporary Poland is often frustrating, in spite of—perhaps sometimes because of—building achievements on an heroic scale. Even the best designs are negatively affected by lack of finance and chronic shortage of building materials. In this atmosphere of frustration, those architects who cannot bear to see their designs deformed, concentrate on writing, teaching and exhibitions. This is true of Hansen, who finds an outlet also for his creative imagination in painting and sculpture.

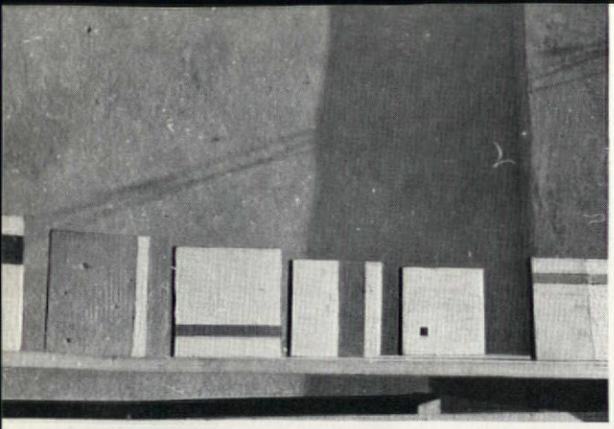
Hansen's greatest achievement (or value) lies in his teaching philosophy and especially in his method of exploring space. His fascinating approach to space through the eyes of the individual is at the same time imaginative and poetic. As a practising architect he finds difficulty in incorporating his philosophical ideas into the design of his own buildings. His belief that people themselves should be the ornament to architecture is logical, interesting and basically sound. There is the danger, however, that a self-consciously 'negative' architecture might reduce human beings to the status of dull, faceless numerals.

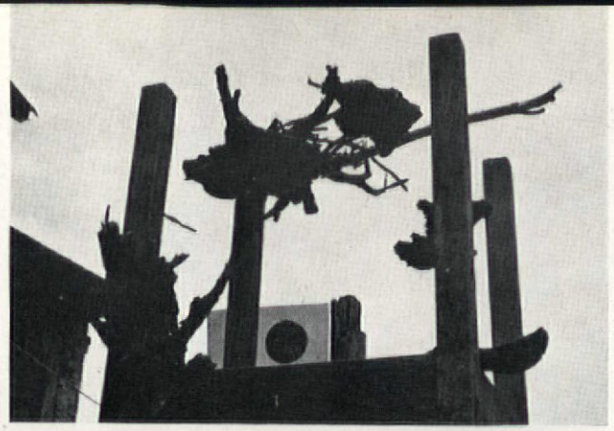
Hansen's dilemma is to translate a dream into reality. How can philosophy become bricks and mortar? In realizing monumental projects, the architect in Poland, as elsewhere, must ensure that ordinary, simple, happy people are not swamped and their individuality destroyed both by over-rationalizing and by over-symbolizing the historic past.

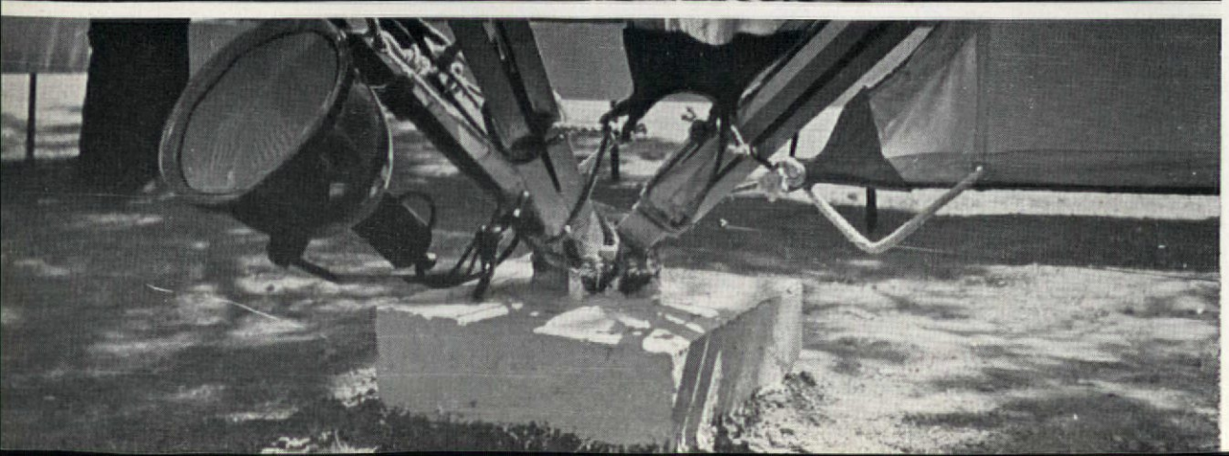
It is interesting to look at photographs of the work of Oskar Hansen, but these cannot give a true understanding of his contribution to architectural thought. It is his philosophy—and particularly his theory of 'open form' on which he has lectured in several European cities—which gives him an important place in the world of contemporary architecture. This theory consists of revealing different layers of open space in time and in the context of environment both subjectively and objectively.

'Open form' reveals itself by relating various complementary units characteristic of the physical environment and by expressing the idea of environment in accordance with individual criteria.

Hansen believes that a building only comes to life when inhabited by people; he therefore deliberately leaves a wide gap in his design process which has to be filled by a man (the active element). In his studio in the Academy of Fine Arts in Warsaw, Hansen, with his students, is experimenting with form; 'active form'—time and movement in the dimensions related to human scale and 'negative form'—form contained internally by the structure of the building. Very interesting discoveries in town planning and especially in traffic engineering could well result from these experiments.







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1
Study of Direction, Experiment 1950

2
Study of Form, Experiment 1952

3
Polish pavilion at Izmir Exhibition 1955

4
Detail of 1955 Izmir pavilion

5	6	7	8
9	10		
12	11		
13	14	15	

6, 7, 8 & 10
Interior of Zofia and Oskar Hansen's own flat, Warsaw 1956

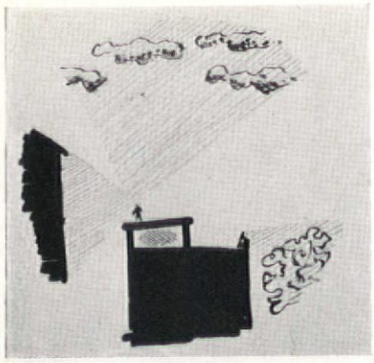
5 & 9
Studies for possible roof configurations for Hansens' flat, Warsaw

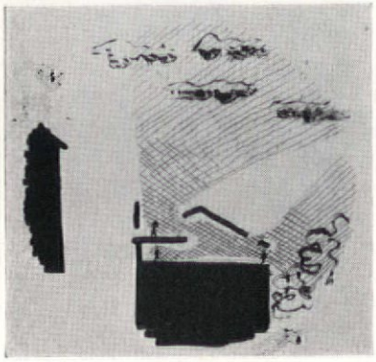
11
Model of Polish pavilion for Brussels exposition, 1956

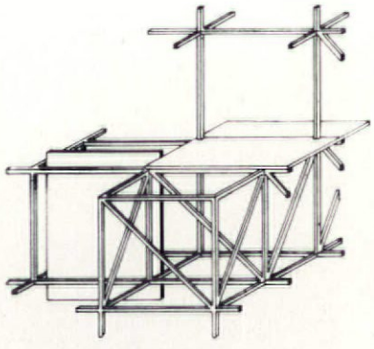
12
Detail of structure of Art Gallery, Zacheta

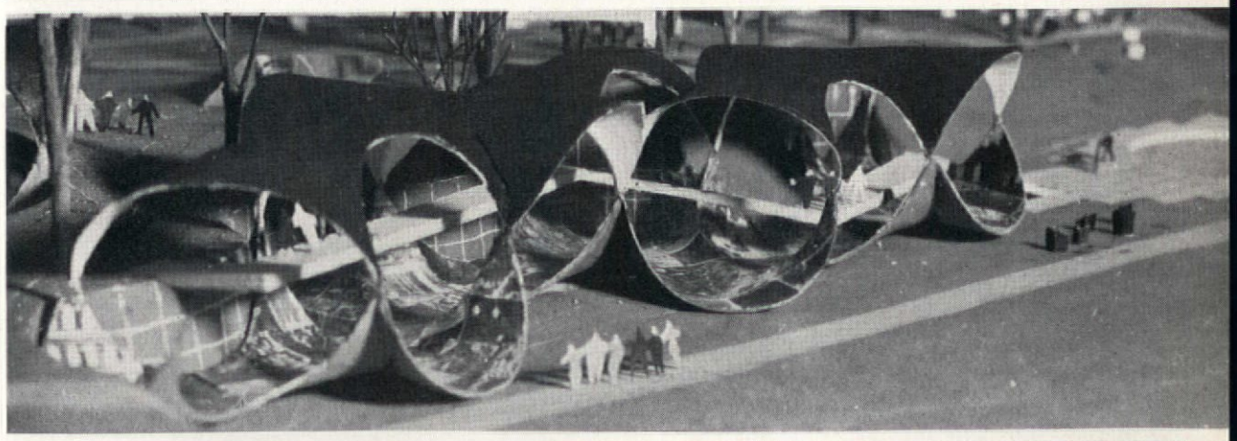
13
Section through Art Gallery, Zacheta

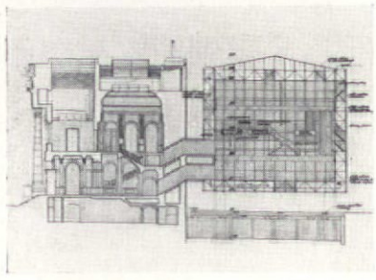
14 & 15
Exterior and Interior of model of extension to Art Gallery, Zacheta 1957

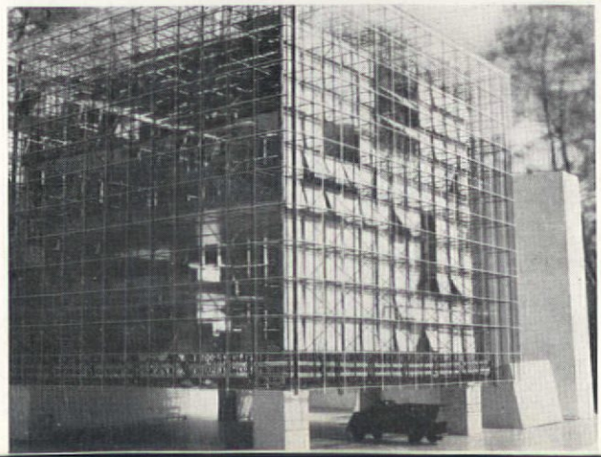


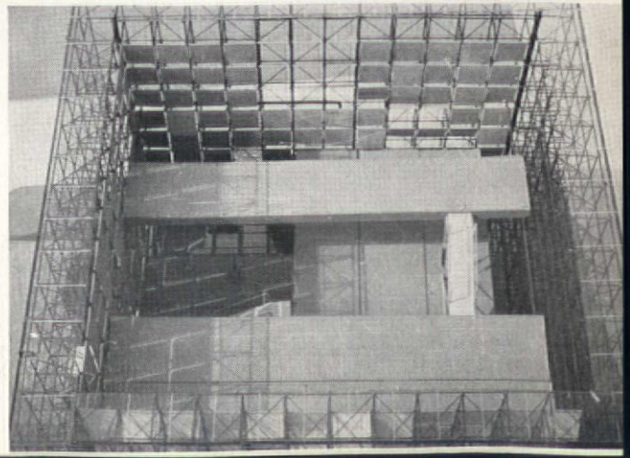


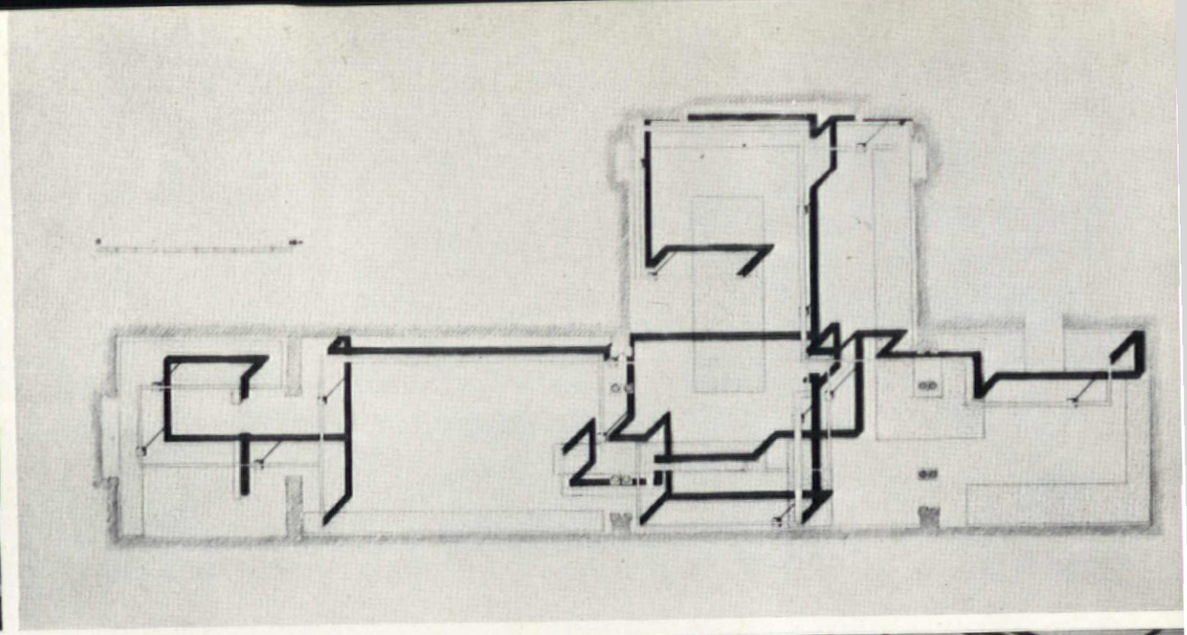


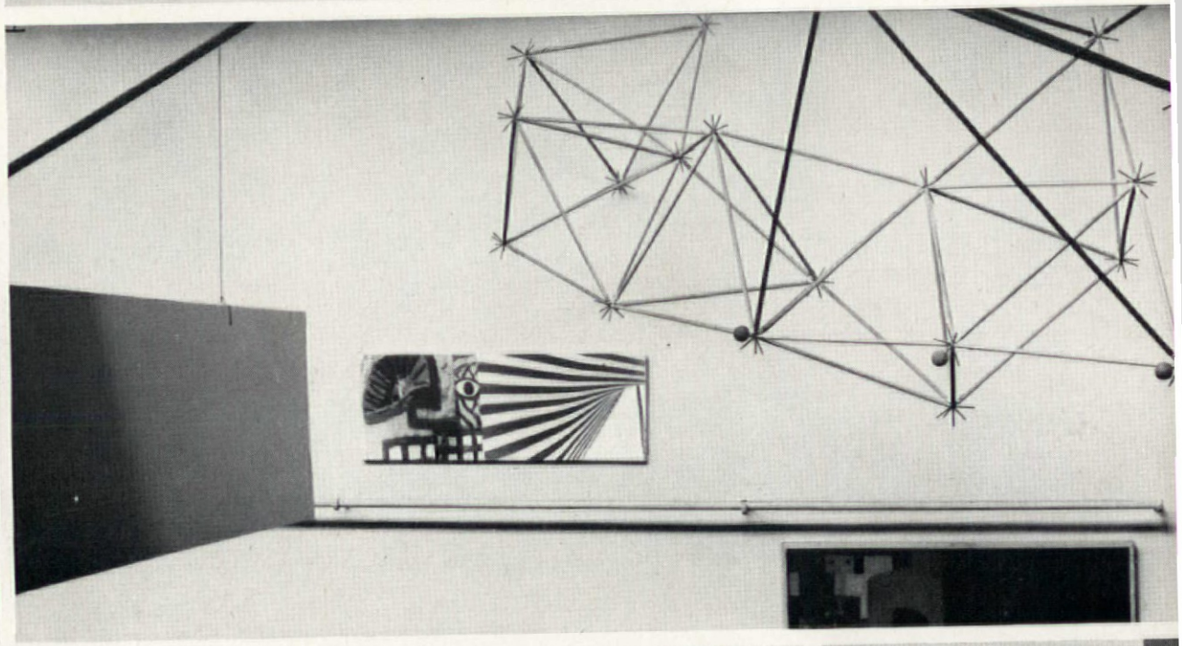


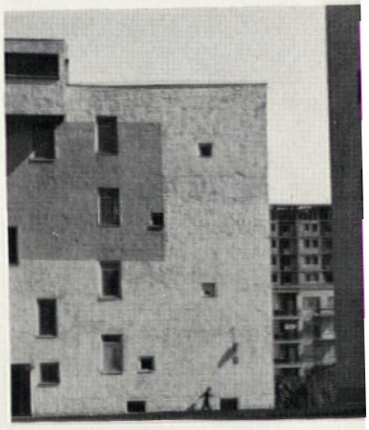


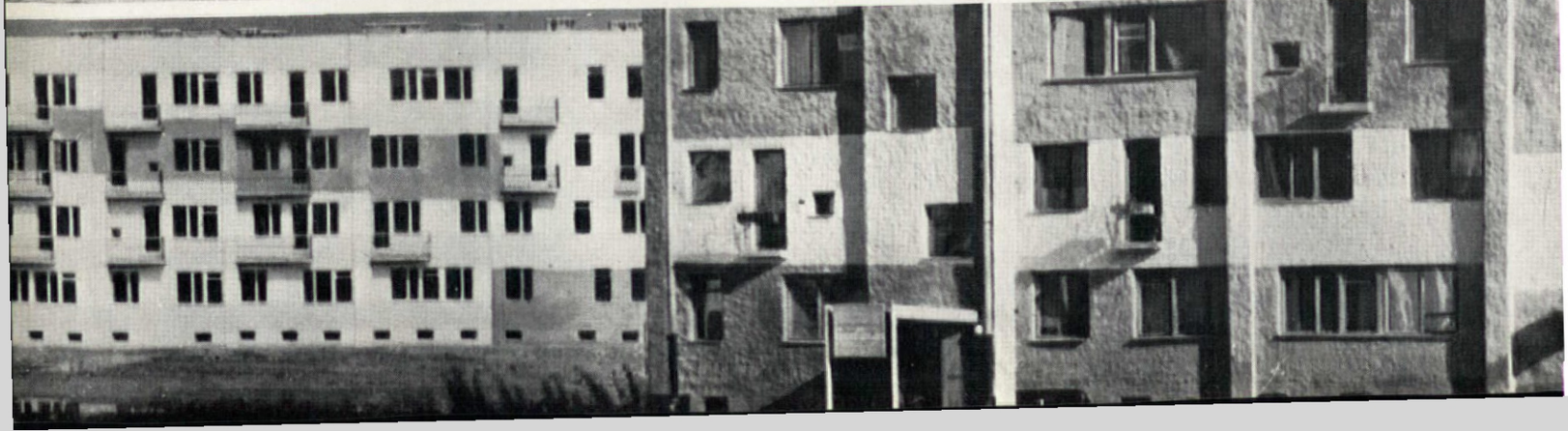












16 | 17
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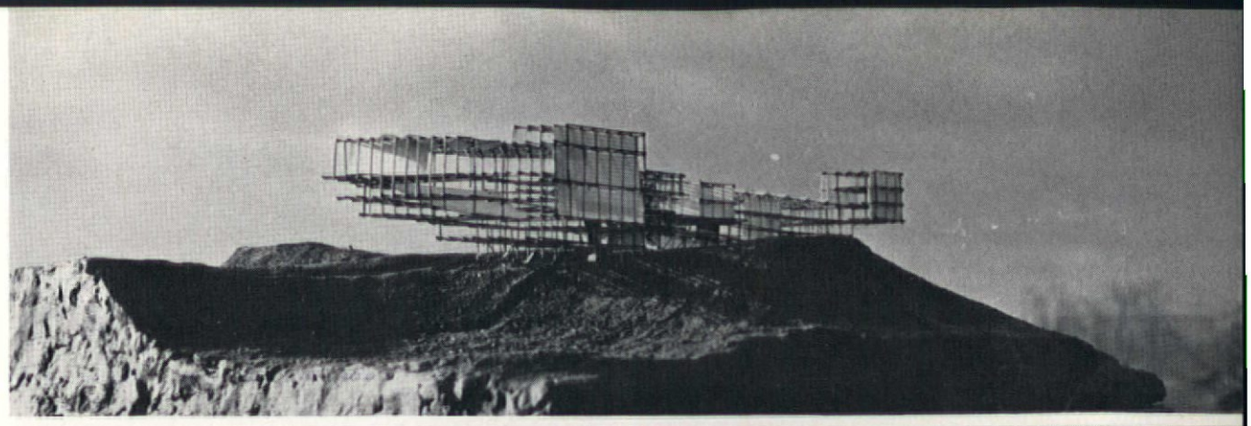
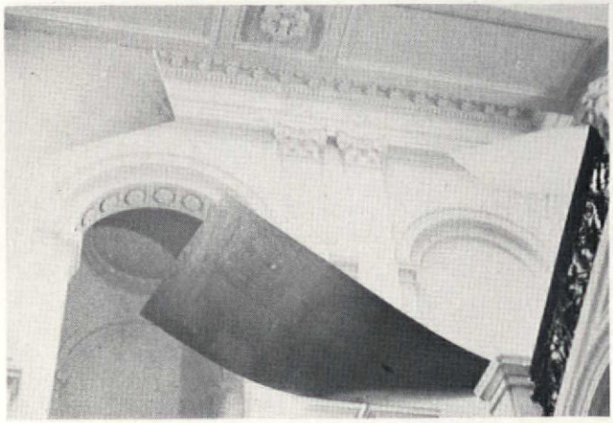
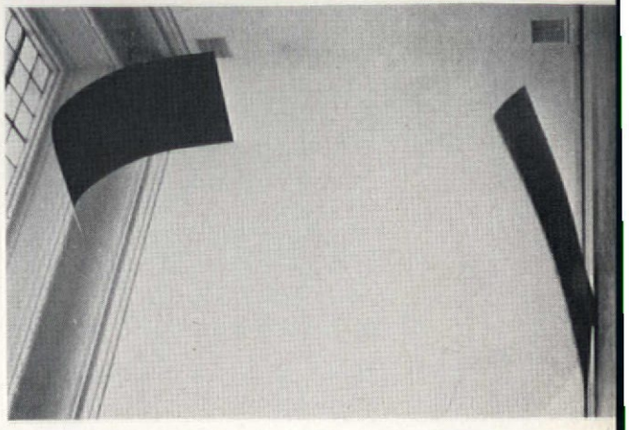
16 & 17
Exhibition of Interior Design, Warsaw 1957. Interior and plan

18 & 19
Architecture, Painting & Sculpture, an Exhibition of Hansen's work 1957

20, 21 & 22
Housing, Rakowiec, Warsaw 1958







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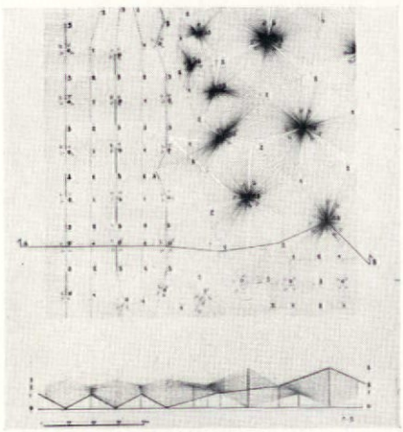
23
Project for Montevideo Civic Centre 1958

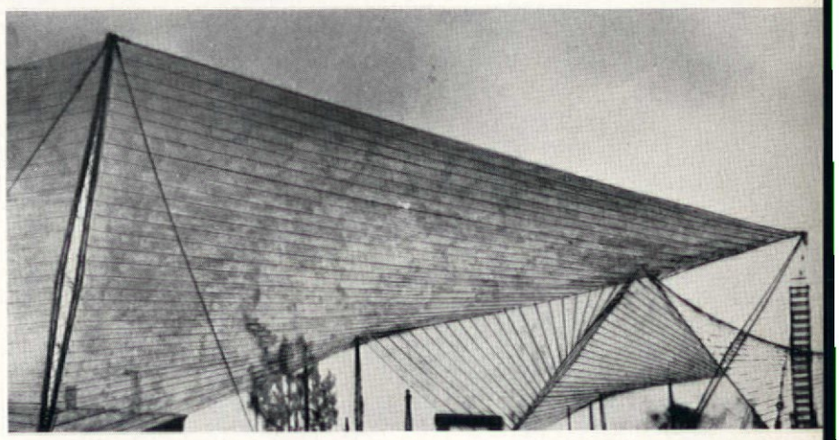
24, 25 & 26
Section through garden and existing neo-classical building and photos of Second Exhibition of Modern Art, Warsaw 1958, showing the method of achieving continuity of spatial flow with suspended boards both out and indoors

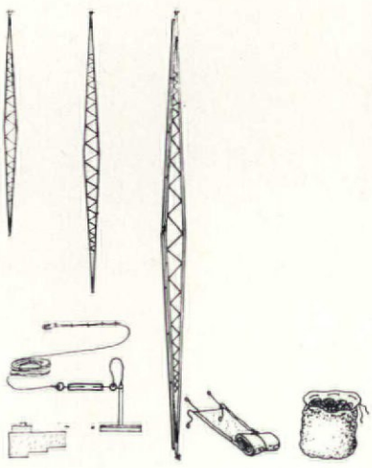
27 & 28
Pavilion project, started 1955. Plan and model

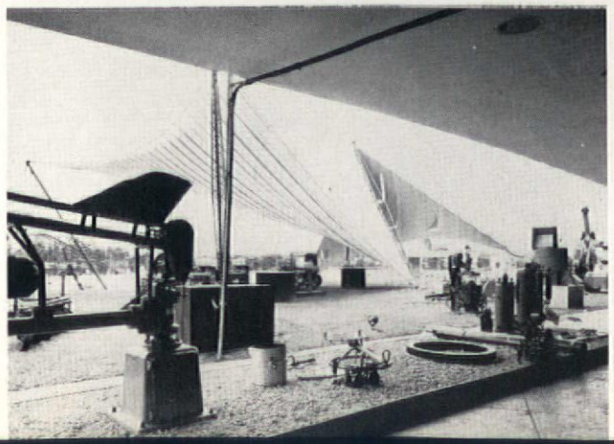
29, 31 & 32
Polish pavilion at São Paulo, 1959, based on 1955 studies

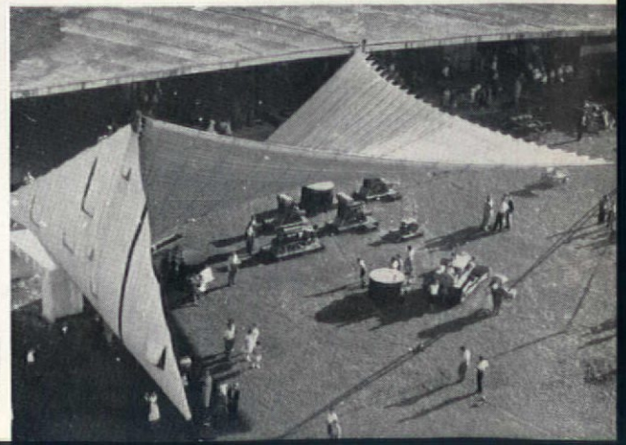
30
São Paulo erection kit

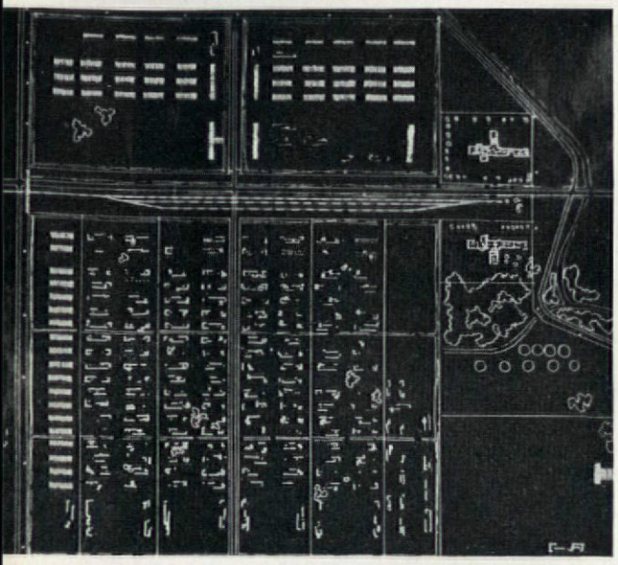


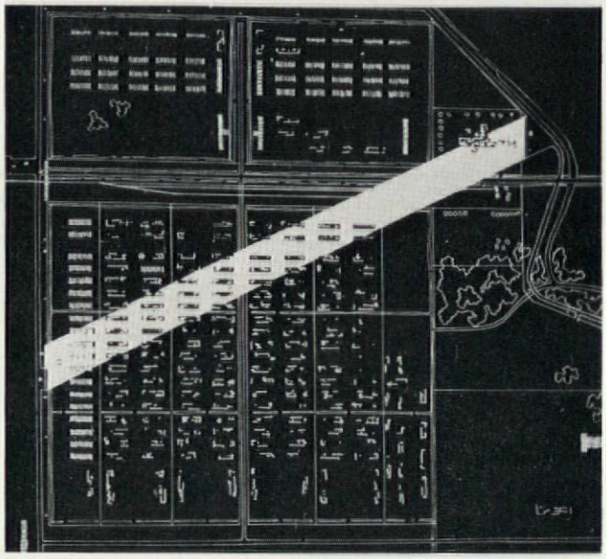


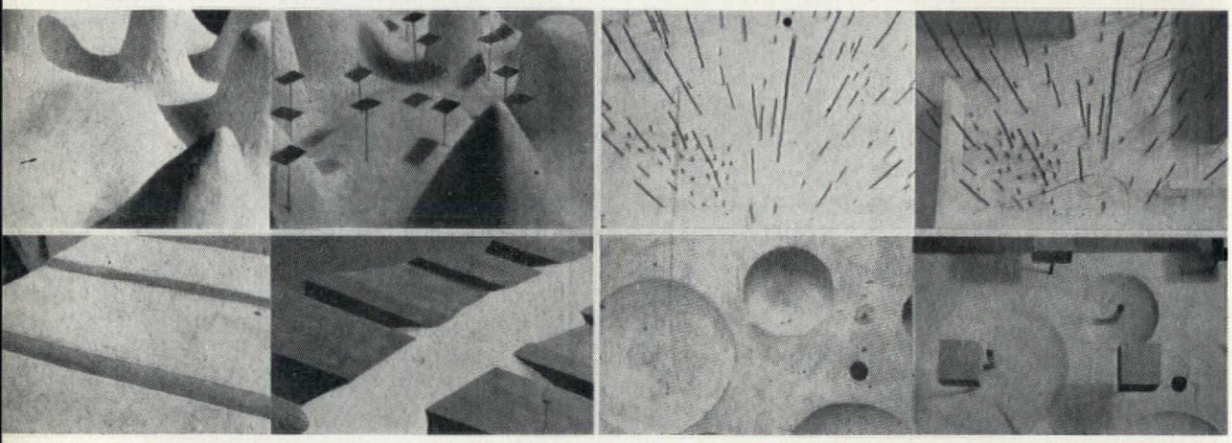












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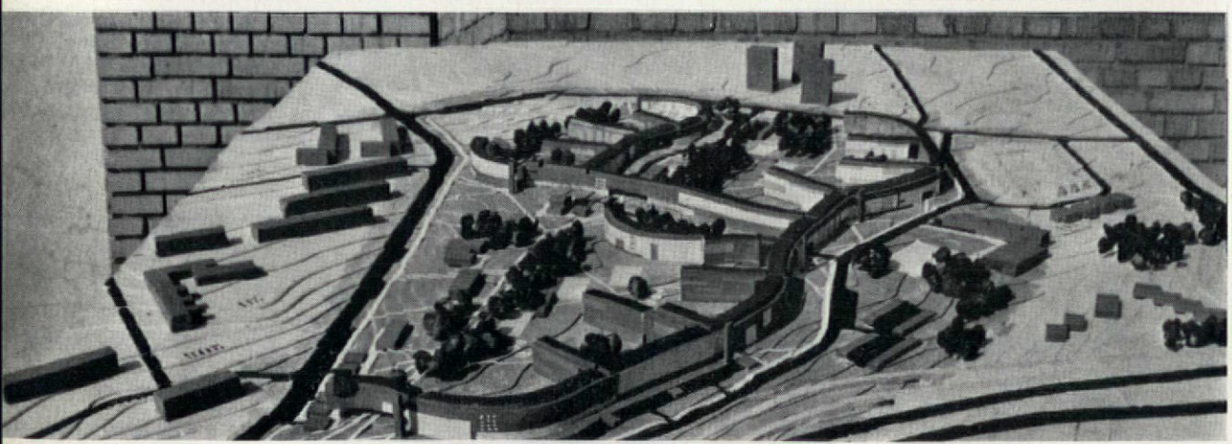
33, 34 & 35
Memorial Project for Auschwitz 1959. Montage and plans of the concentration camp as existing and with proposed concrete ways

36
Experiments in form, 12th Triennale, Milan 1960

37, 38 & 39
Models of alternative housing layouts for Lublin 1960



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42 | 43 | 44
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46 | 47
48 | 49

40 & 41
Polish radio machinery

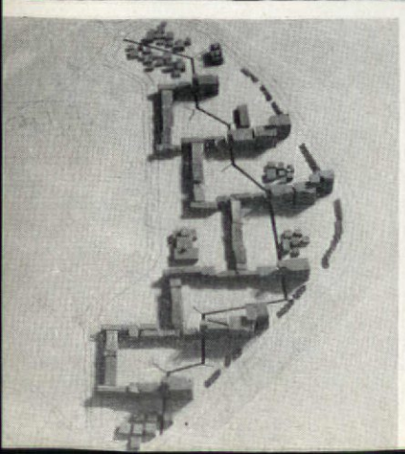
42
Plans and sections of Lublin housing blocks

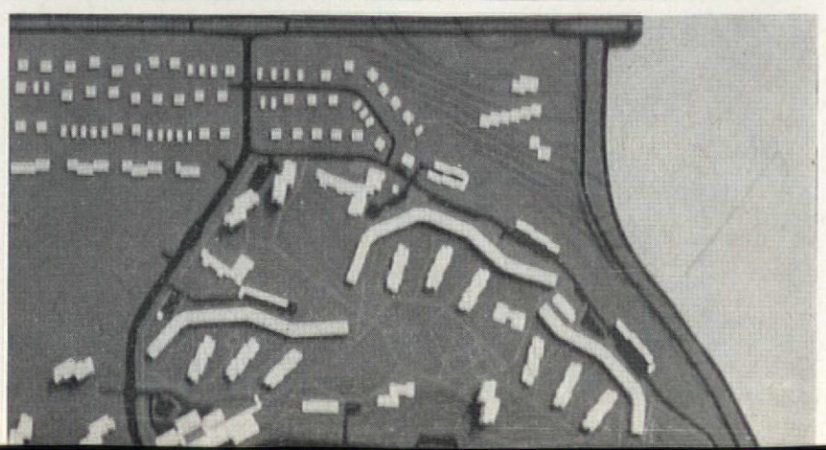
43, 44 & 45
Second stage of Lublin district, Slowacki, under construction 1962

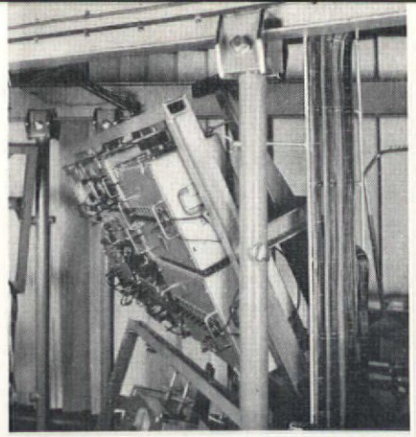
46
Model of final Lublin housing development

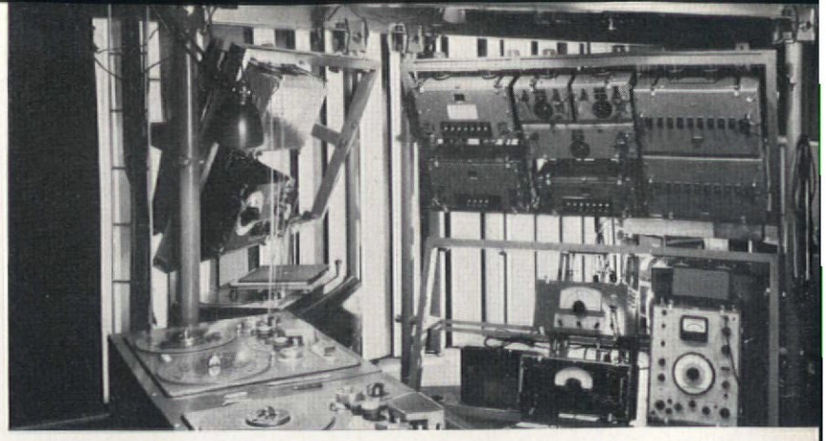
47 & 49
First stage of Lublin Development 1961

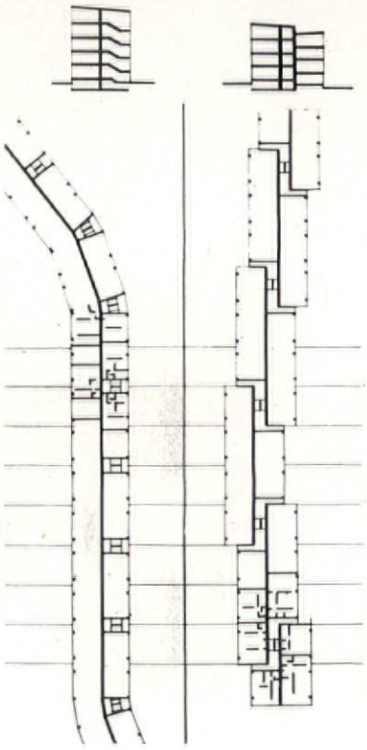
48
Sketch showing construction system for continuous blocks at Lublin

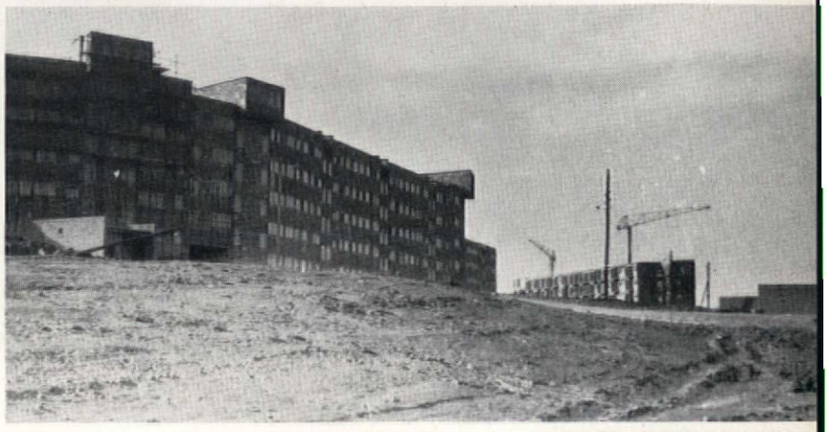


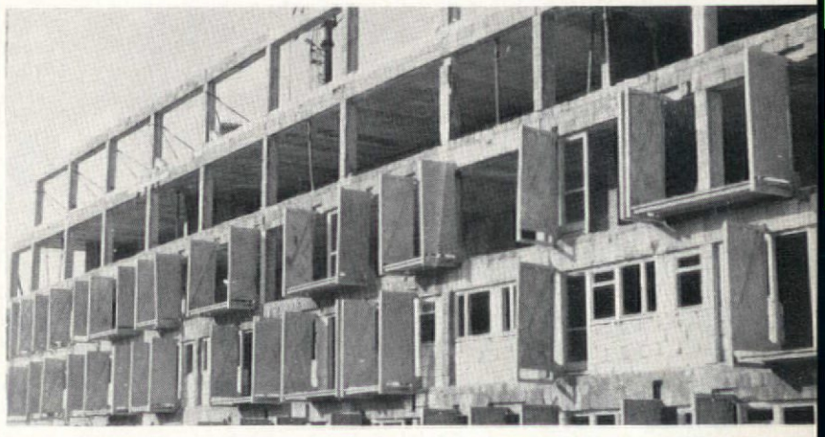


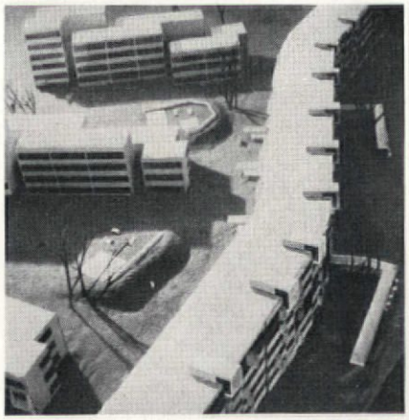


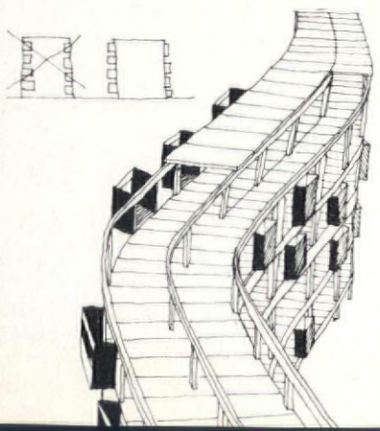


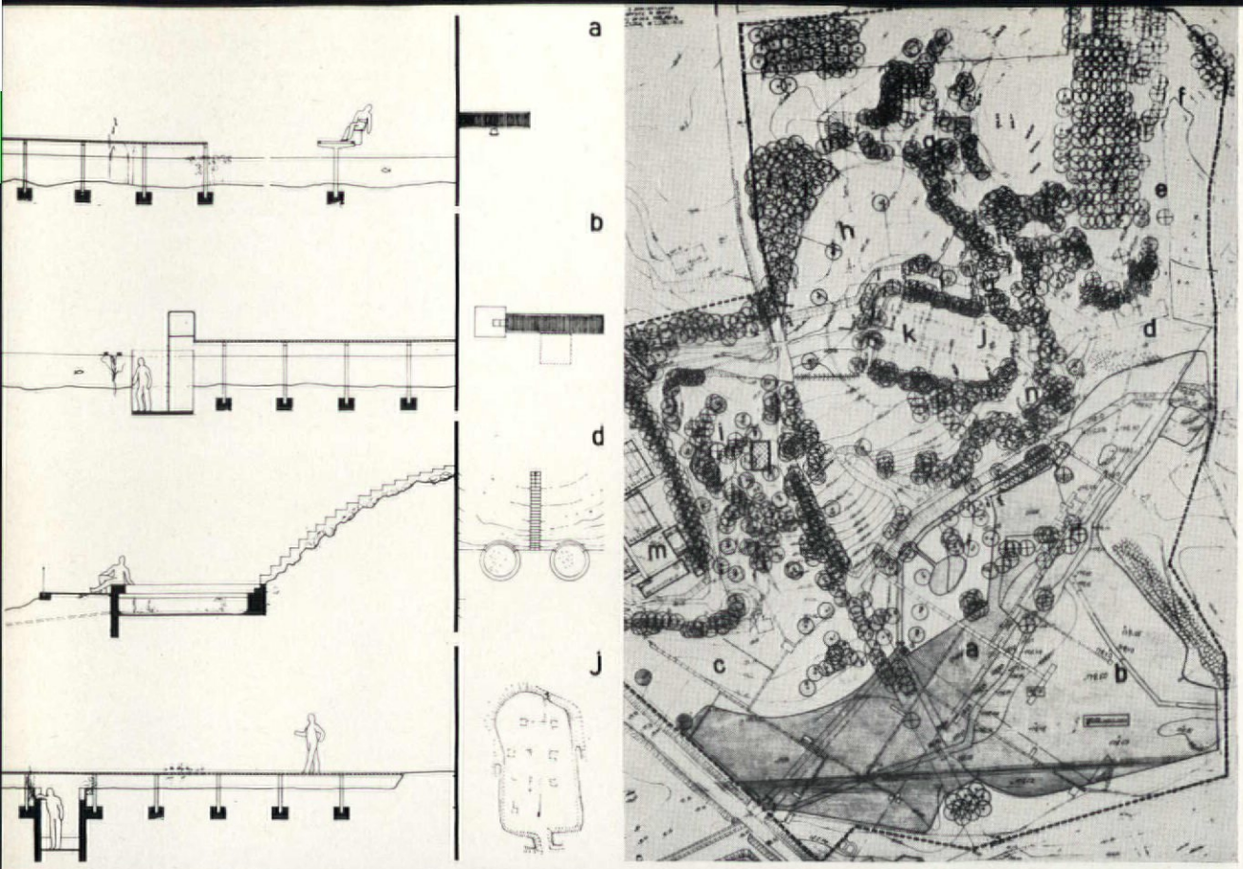


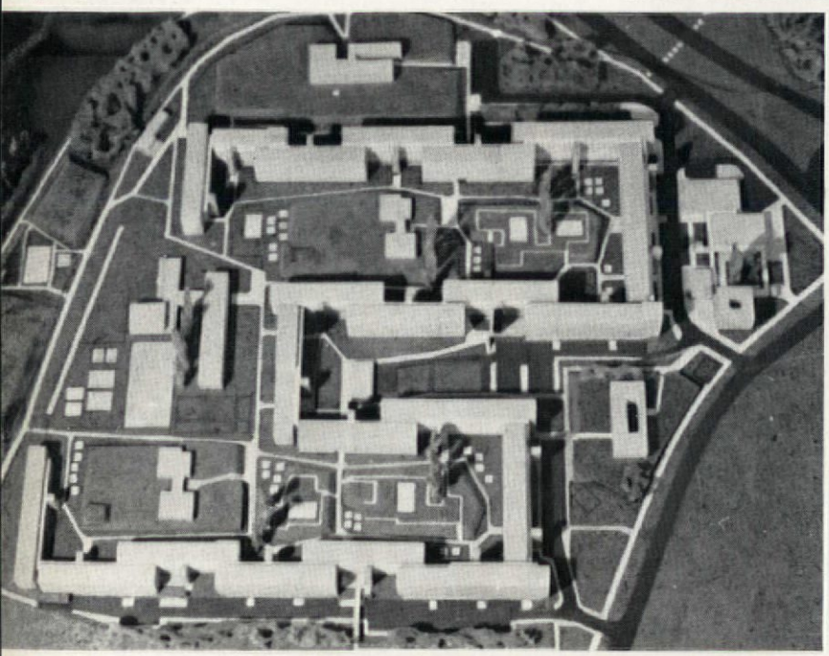


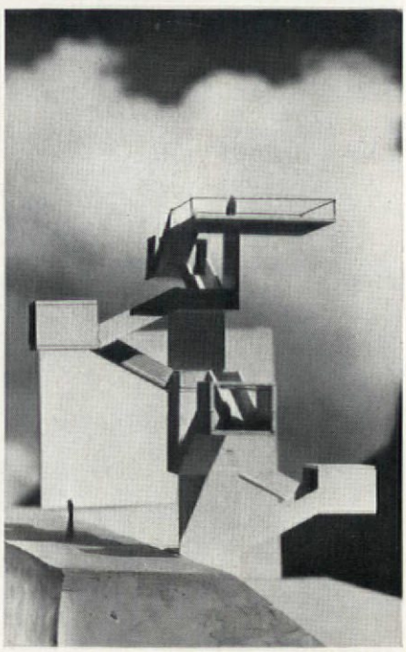


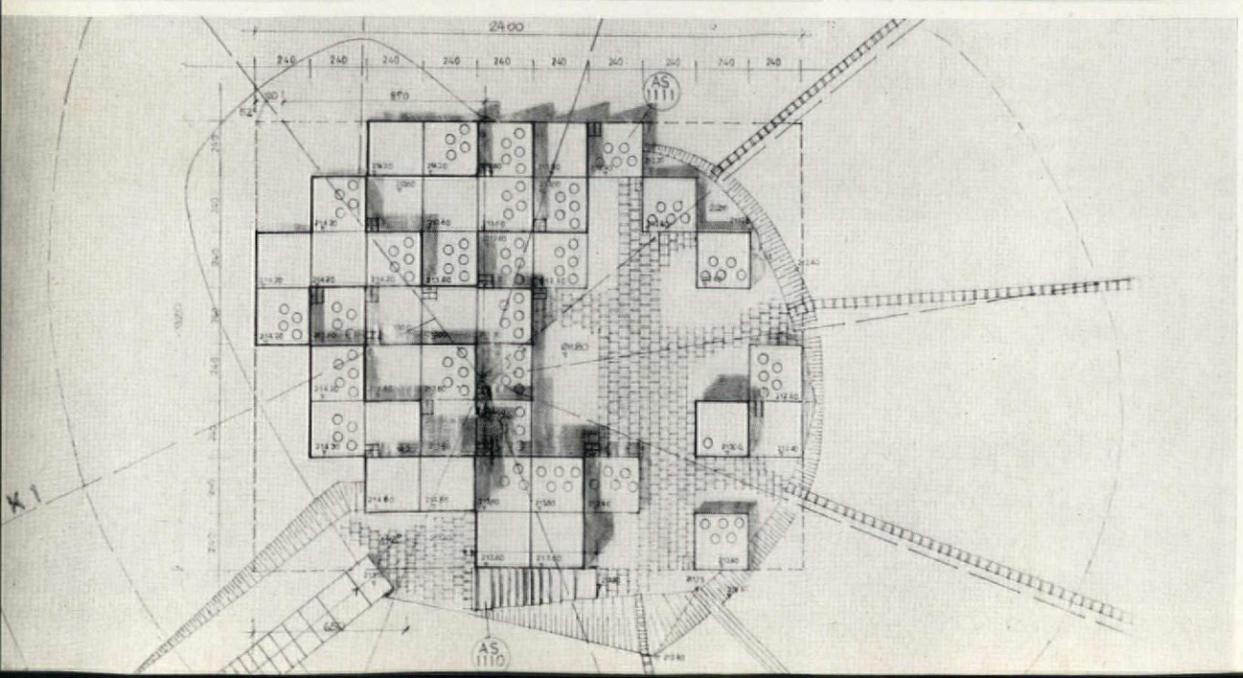












50	51
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50 & 51
Sections & plans of micro-environments and site plan of M. Curie Botanical Garden, Sklodowska, Lublin 1963

52
Model, Settlement at Grochow, Warsaw 1963

53
Model, Dam at Debe 1963

54
Plan, Open air theatre, Lublin 1965

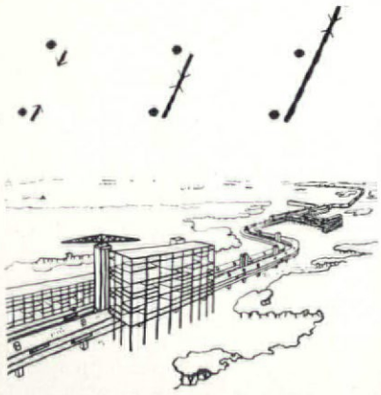
55	56	
	57	
	58	59	60
61	62	

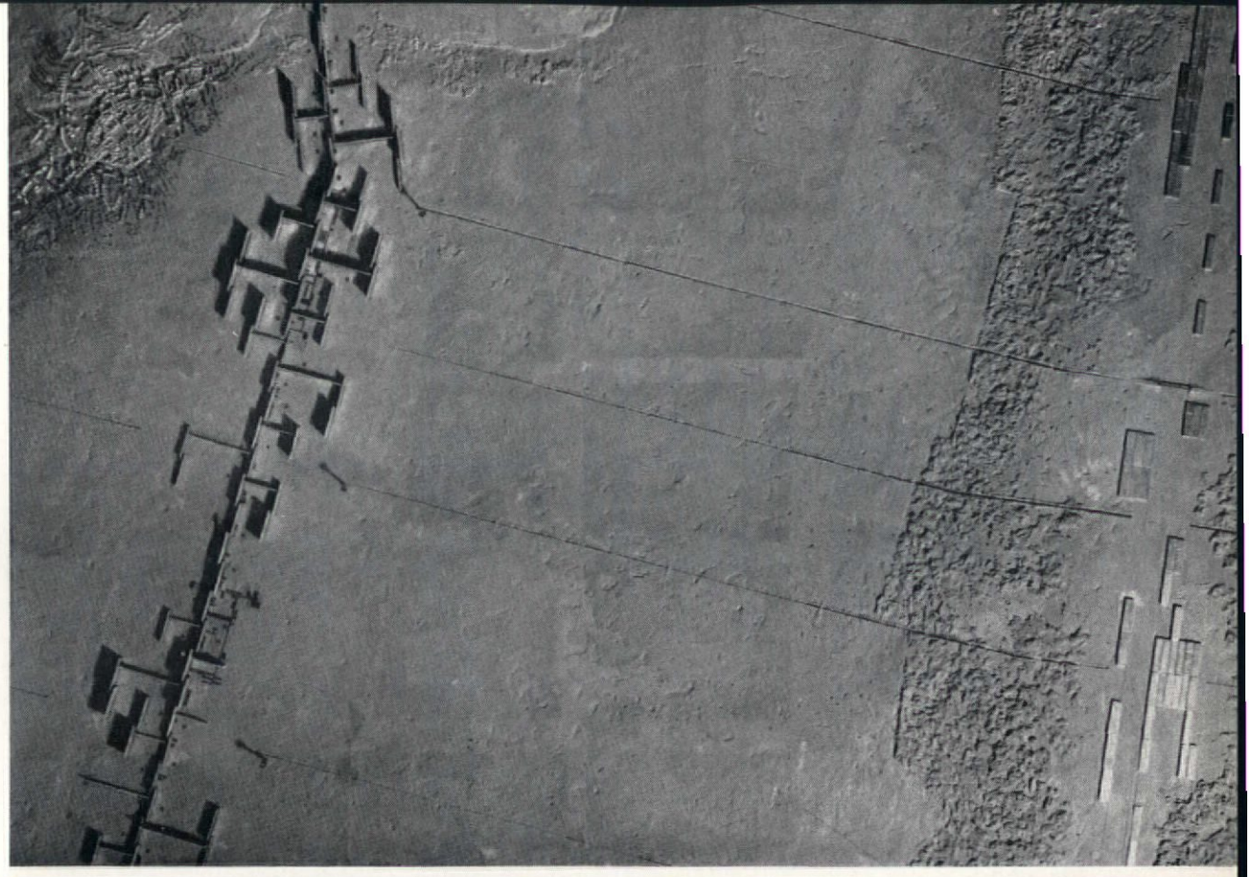
55
Sketches showing growth of linear development

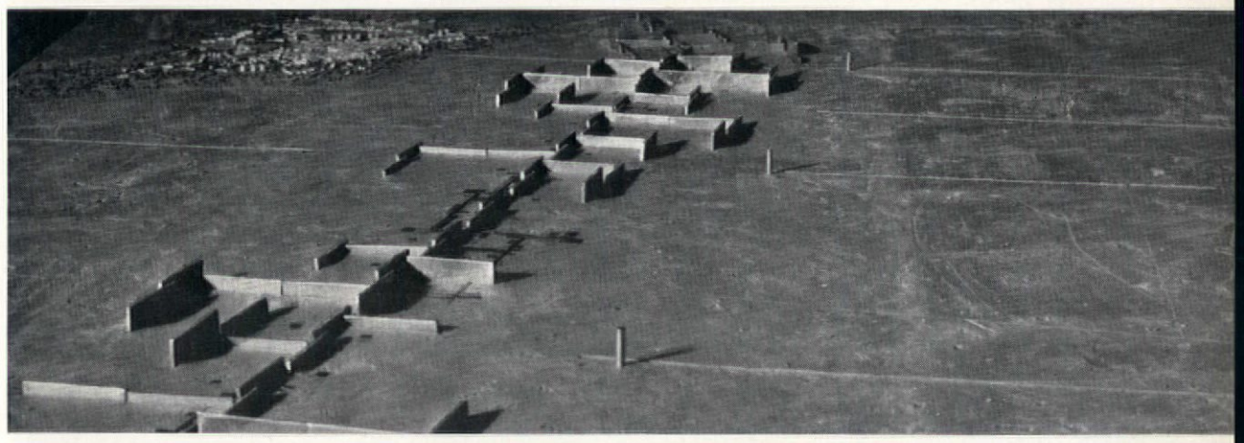
56 & 57
Model of linear development, exhibited Warsaw 1966

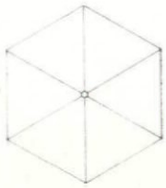
58, 59, 60 & 62
Competition project for Museum of Modern Art, Skopje, 1966

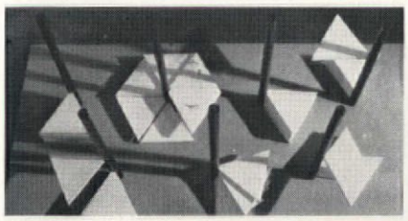
61
Section through a typical support, for proposed Skopje museum

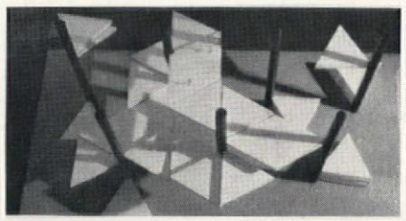


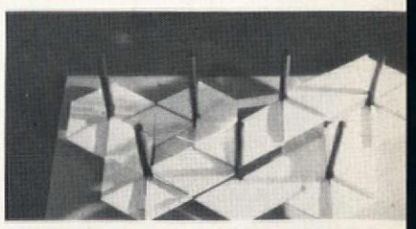


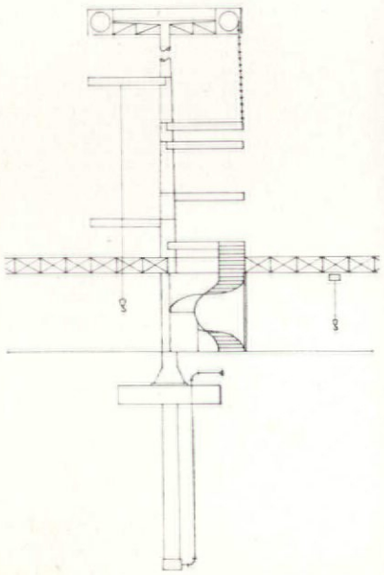


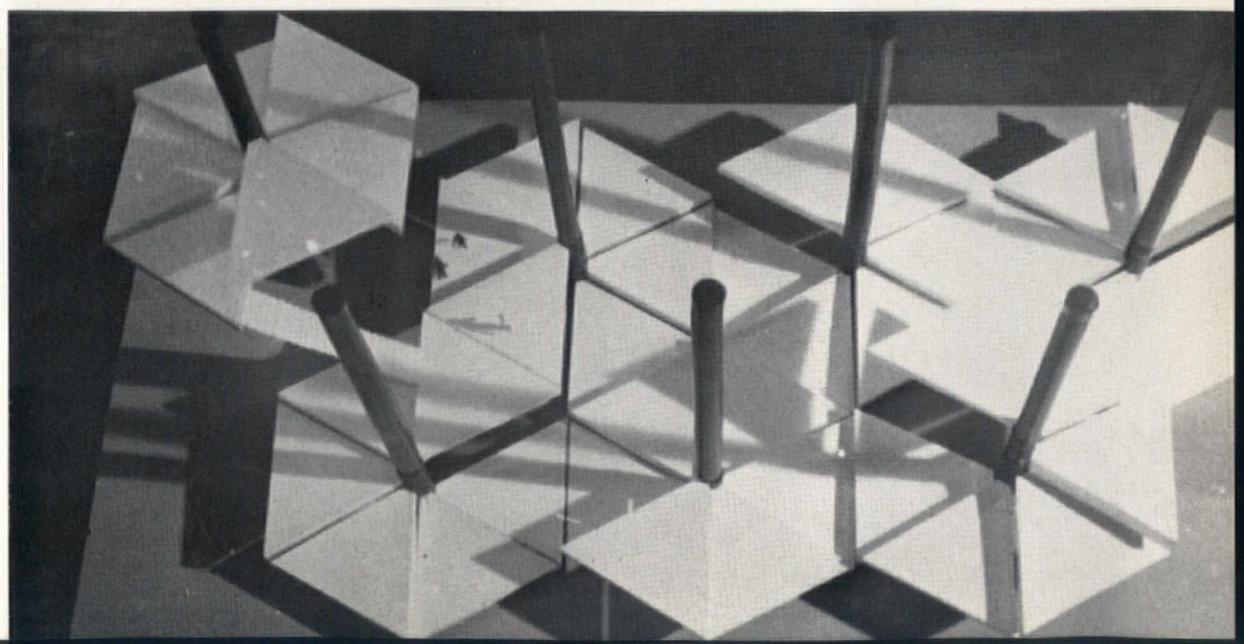












Building in the Cotswolds, where tradition is enforced, is a trying business and rarely does any modern designer manage to comply with the regulations with such subtlety and sensitivity as Edward Cullinan.

Centre for Advanced Study, Oxford

E. Cullinan. (*See also p.88*)

1

A new international centre for advanced study in the developmental sciences is being established at Minster Lovell Mill near Oxford. Its purpose is to promote the growth of knowledge about the development of human behaviour and the factors which influence it from conception onwards. It aims to stimulate research, expand teaching, and foster the wider communication of knowledge in all the relevant sciences. Such knowledge as already exists is possessed in piecemeal form by many different disciplines. It is the object of the centre to bring workers in these disciplines together, to pool their relevant knowledge and to instigate research and study along useful lines. The following disciplines at least will be involved: anthropology, biology, criminology, education, embryology, genetics, neurophysiology, paediatrics, sociology and zoology.

The centre is likely to cater for the following activities:

Residential study-groups of several days' duration.

Individual study for weeks or months at a time, away from the stresses of one's usual place of work.

Fellowships will be available for those who wish to use the centre as a research base.

Short study courses for post-graduate students and refresher courses.

The library will become a specialist library. It will contain journals, reference works and monographs, pre-publication drafts, theses and reports, micro-film and cine micro-film.

Publication of study-group proceedings, of a news letter and of research monographs.

There are now three buildings at Minster Lovell Mill: the main house, a malthouse and a barn. They are vernacular Cotswold buildings and they have, in the past, been consciously and energetically kept that way. In the new project the main house has been made the common-room, dining room, kitchen and offices; the malthouse a library and the barn a series of conference rooms. These three places are linked to one another, the barn ending in study-bedrooms and Fellows' rooms built over and around the routes between them.

1
Existing Minster Lovell Mill showing the courtyard with the gable-ended malthouse which is to house the library appearing on the left. The refectory and common-room are to be in the main building on the right

2, 3, 4, 5 & 6
Ground and upper level plans and three sections of the library in the existing malthouse

Key
1 reception
2 office
3 periodicals
4 catalogue
5 library
6 bridge
7 librarian's office

7 & 8
Ground and upper level plans of new and existing buildings

Key
1 car park and garage
2 potting shed and greenhouse
3 offices
4 meeting room
5 study/bedroom
6 library
7 kitchens
8 coffee room
9 common-room
10 formal garden over mill-race
11 staff bedrooms
12 conference room
13 projection room
14 Fellows' rooms
15 summer house
16 dining hall

9
Section showing the roof construction reduced to form a cloister round the meeting room courtyard

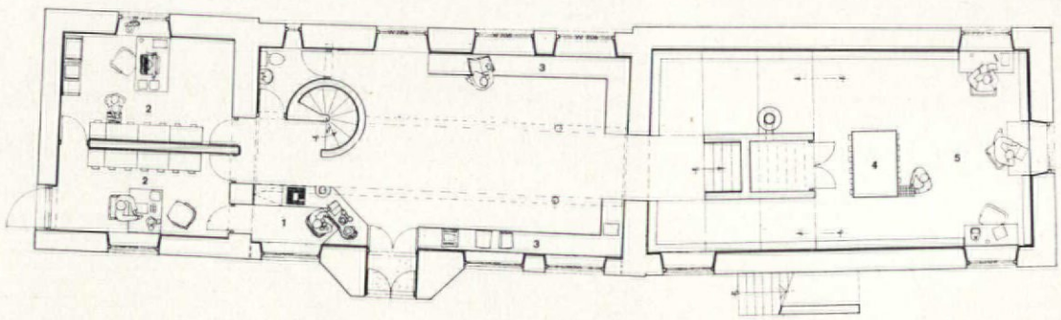
10
The generating cross section is a tent-like roof covering a Fellow's room on the first floor and a study/bedroom on the ground. The roof is of bolted timber trusses and with voids in two places to allow light into the rooms. There are not windows in the accepted sense: light enters through the timbers. This will make for generous, even light without glare.

The rooms are connected by a cloister running along the back, beside an existing stone wall. The Fellows' rooms have their own showers, basins and w.c.s, in the study/bedrooms these are shared

11
Cross-section through barn.

The main conference room is 'an upper room'. The roof is extended to accommodate offices and small meeting rooms on the ground floor

12
Cross section through the conference room foyer. The foyer, with its own small kitchen and bar, is on the first floor, under the roof, and there are four more study/bedrooms on the ground floor



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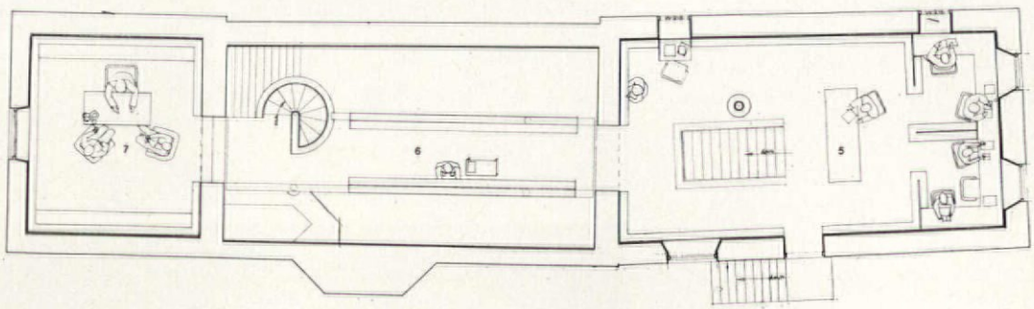

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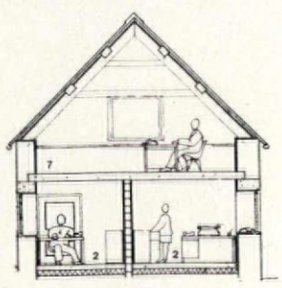

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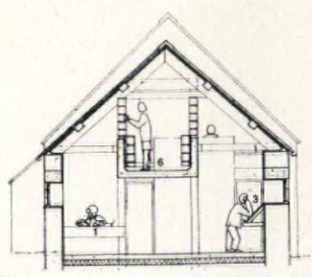

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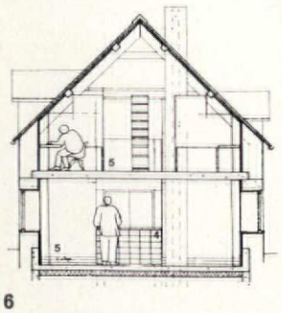

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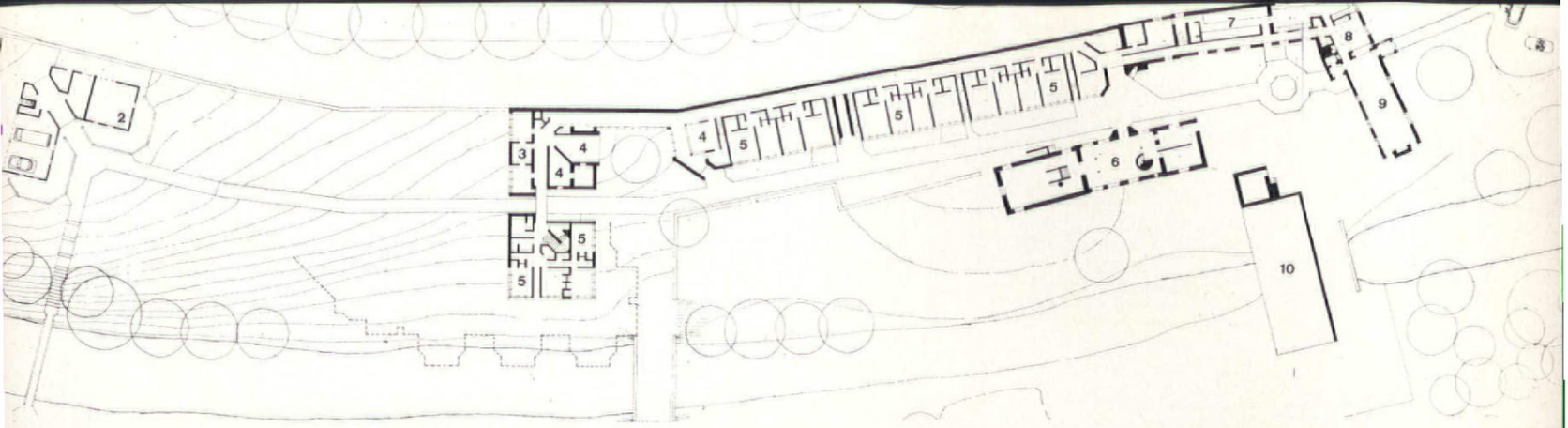

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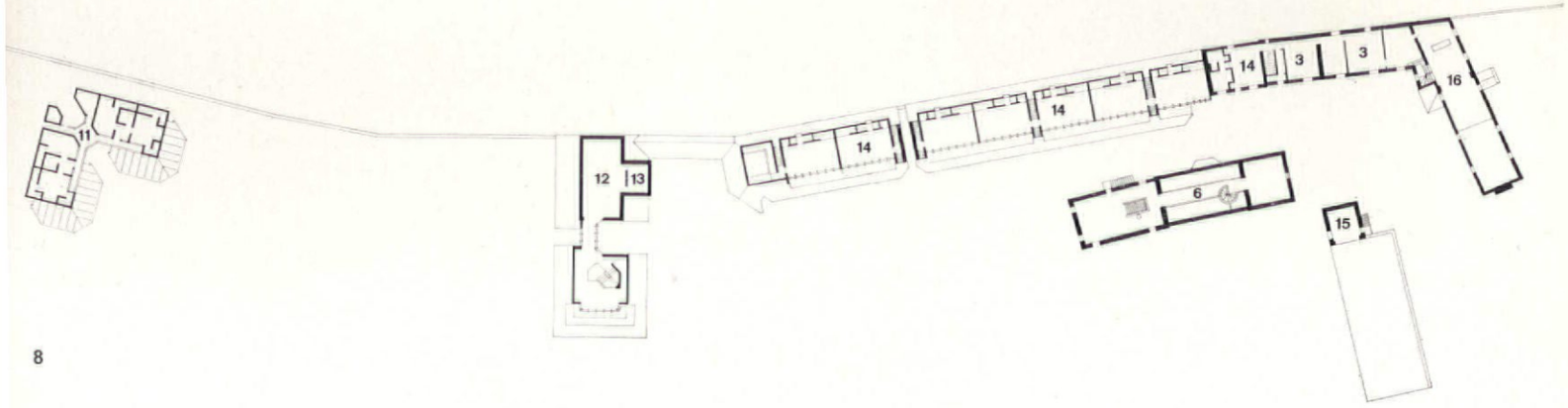

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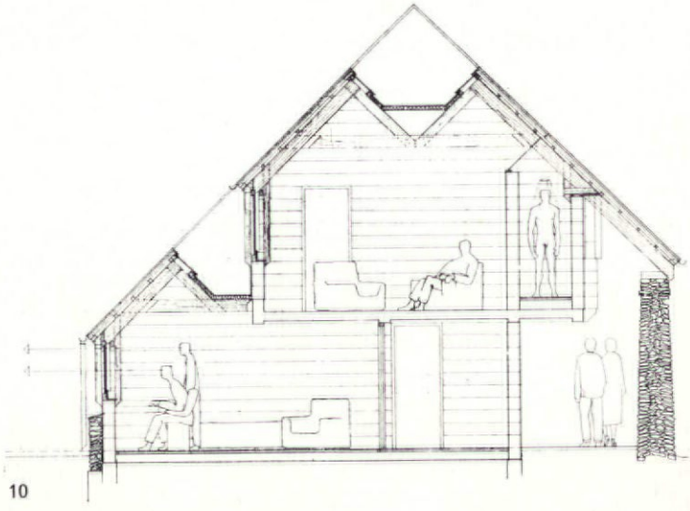

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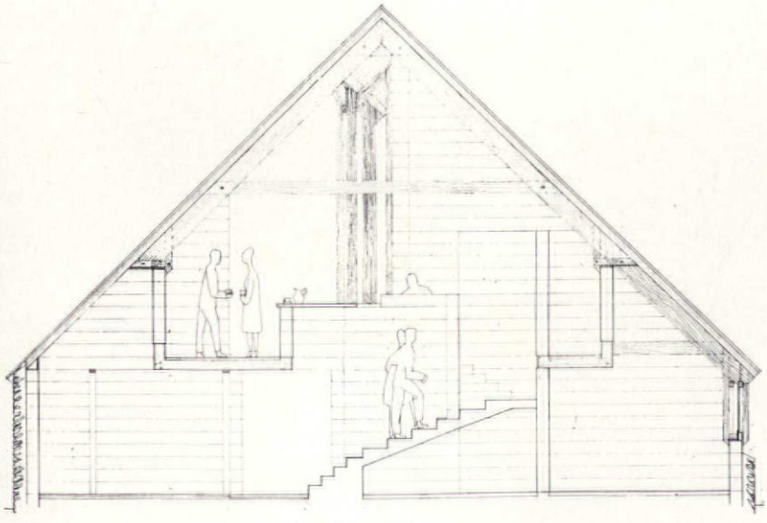

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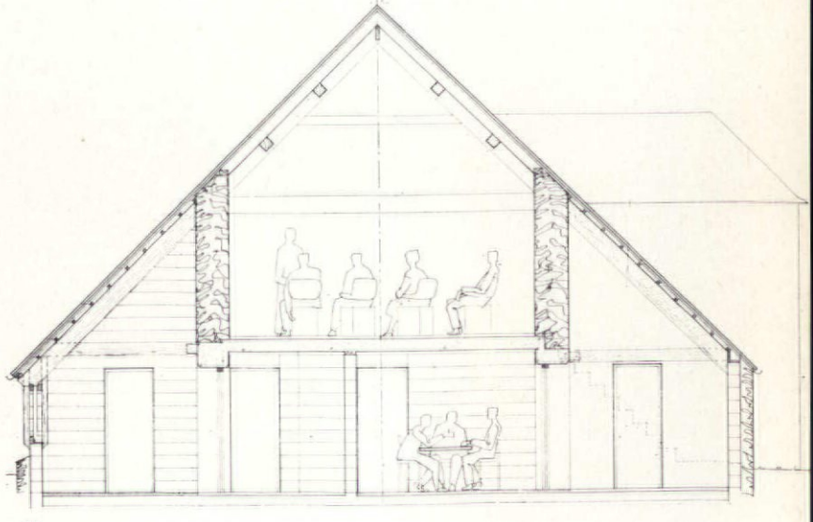

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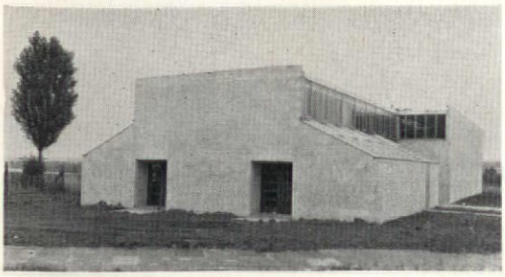

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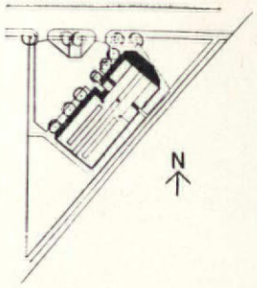

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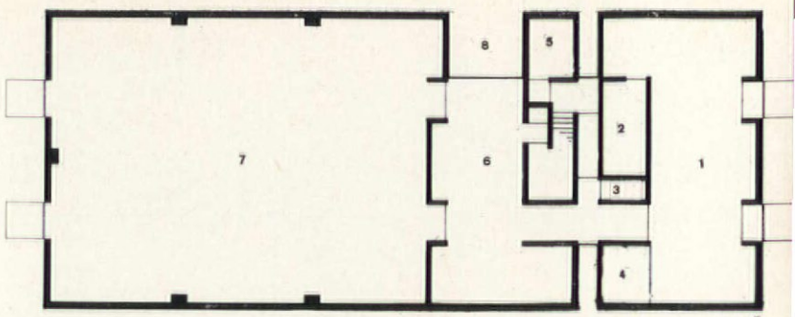

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Printing works, Witham, Essex

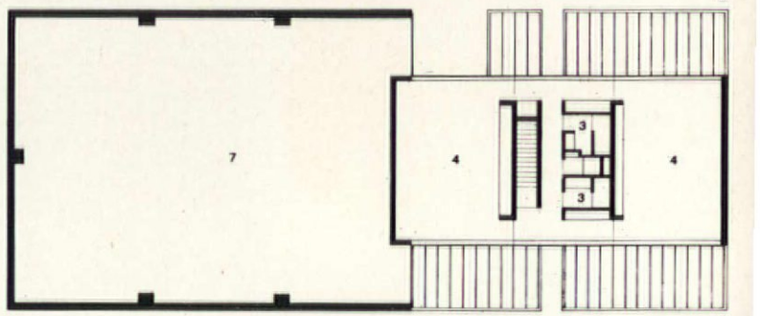
Edward Cullinan. (*See also p. 66*)

The owners of the works, Social Service Supplies Ltd, are printers and suppliers of stationery to charities and social services. They are a non-profit-making organization whose members are the clients.

The building consists of four main areas: on the ground floor a print room, an area for cutting and packing, together with a loading-bay, and a warehouse; on the first floor a group of offices. The print room and warehouse are set one on each side of the cutting and packing area so that they may be extended independently. The loading-bay is within the total volume of the building so that vans might be loaded at night for delivery early the following morning.

To speed construction time wet finishes were avoided as far as possible, except where materials had to be protected from corrosion.

Key
1 print room
2 darkroom
3 w.c.
4 office
5 kitchen
6 cutting and packing room
7 warehouse
8 loading bay



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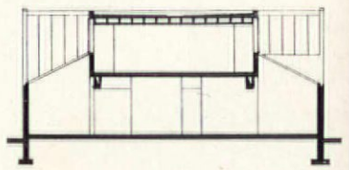
Construction: walls are of load-bearing concrete, floors are of *in situ* concrete, roofs are of wood wool on standard steel joists, or standard aluminium patent glazing.
Heating is by warm air throughout.



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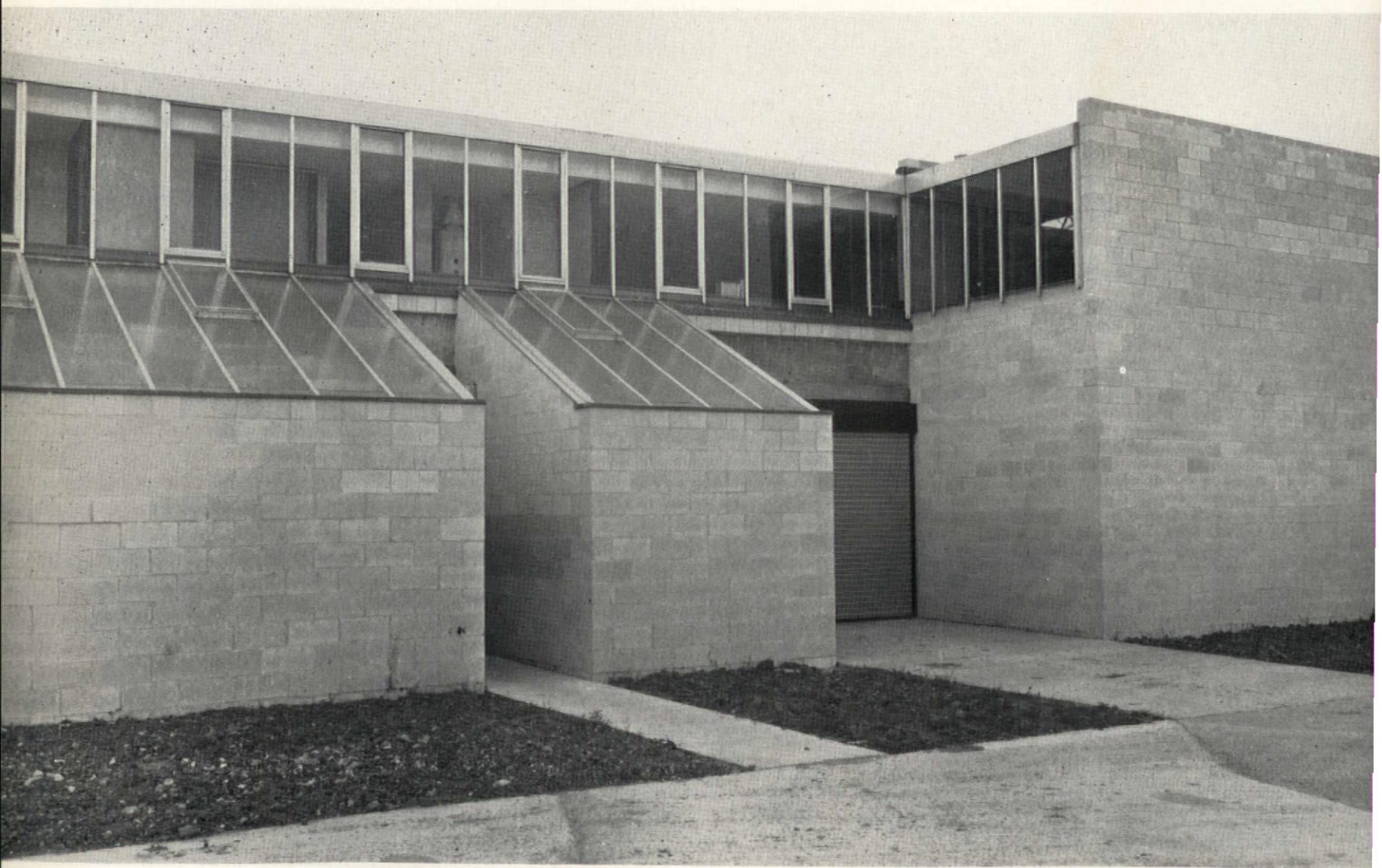

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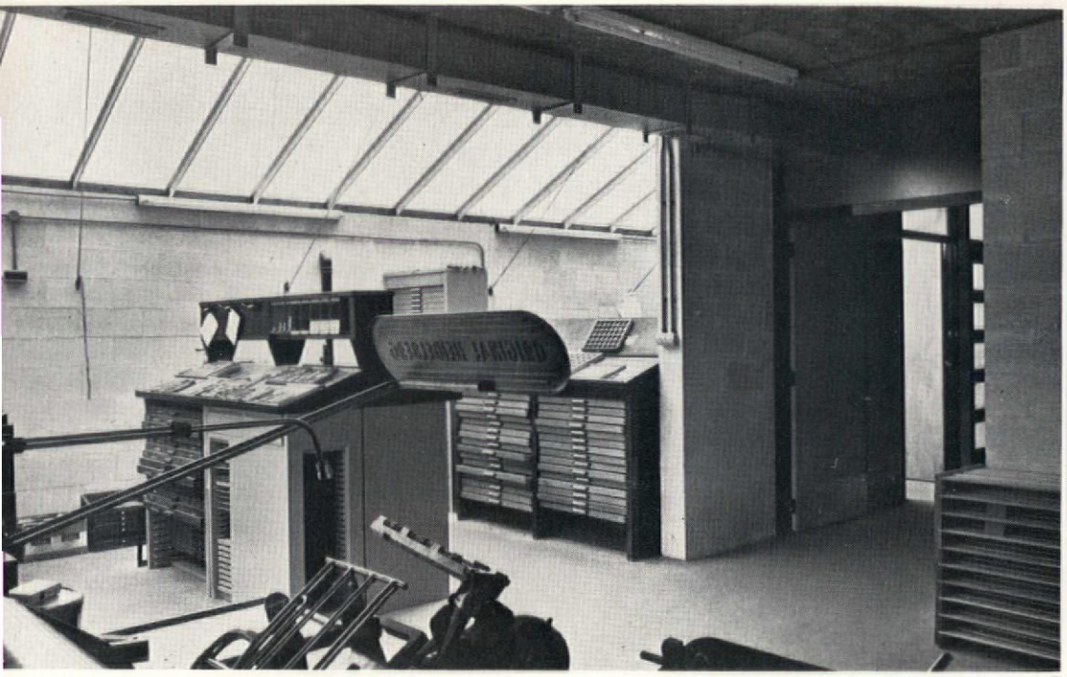
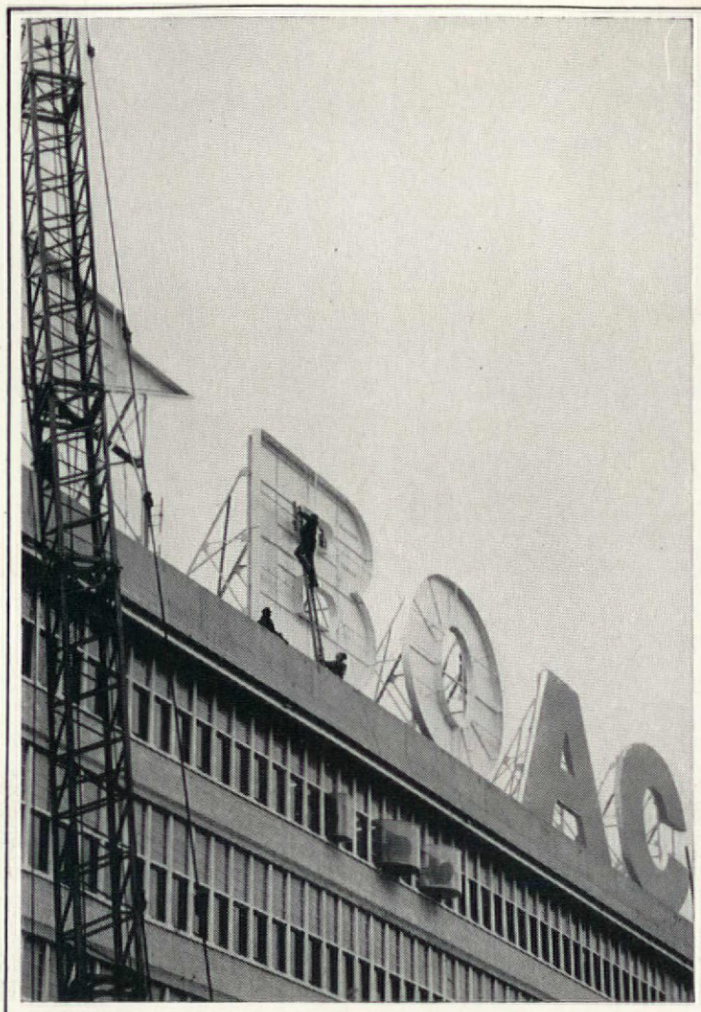


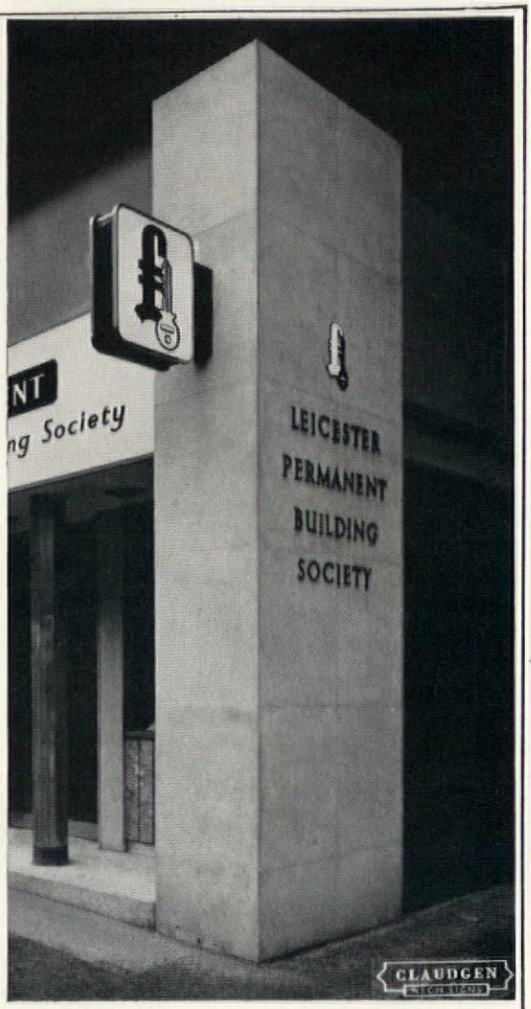
7

8

1
View from the north
2
Site plan
3, 4 & 5
Ground and second floor plans and cross-section
6
View from the north-west, showing pedestrian and service entrances
7
Print room on the first floor
8 & 9
Views of the warehouse, in use and unoccupied

9





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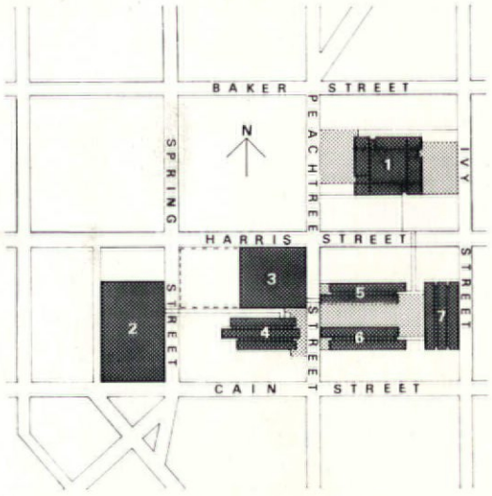

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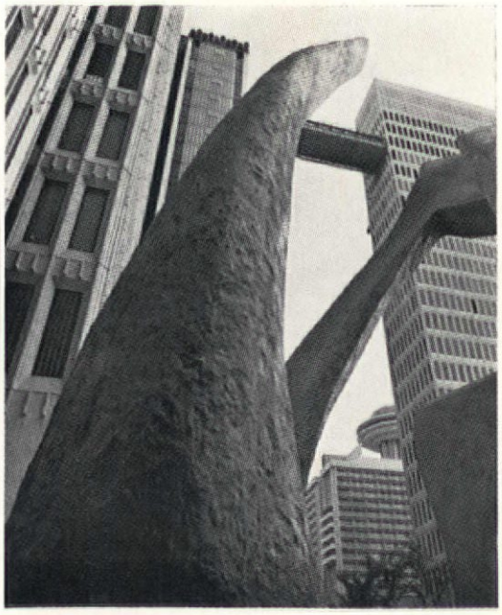


The hotel is really a small city

People innately desire certain things in buildings: warmth, order, variety. . . . A hotel is a single unit, a living environment. It involves all phases of human activities: sleeping, dining, entertaining. The hotel is really a small city. In such acceptable terms, JOHN C. PORTMAN, as both architect entrepreneur of Regency Hyatt House, introduces this part of Atlanta's Peachtree Center described below by PETER COOK.

Several buildings are bridged together in a Rockefeller-type complex so that 20 storeys of precast balcony grille stare across at 30 storeys of tapered mullion. A glazed mushroom (the 'Polaris' lounge) appears to have strayed from some other city's television tower and come to rest on the hotel's roof. Before you flick over, take a look inside, because that is where it all suddenly happens.

The mushroom is by no means just the answer to tower-top worry. The girth of the foursquare block is no miscalculation of net-to-gross. The balconies are pretty cool (by this building's standards) as a foretaste of what is to come. For once a building really has a middle—a surfeit of stimulants for both the tired businessman, the bell-hop and the environment-collector. The bedrooms are merely an external crust to a 55ft × 65ft hall that rises through the height of the building. Each bedroom floor has an internal balcony overlooking the giant lobby. Each balcony is hanging with vegetation. The mushroom? Merely the exposed crown of an almost free-standing shaft around which cling five elevators. These last are characteristic, each is only just attached to a rail on the shaft, otherwise it is glazed, with 210° of view into the hall. Top and bottom of the cabin form cupolas—constantly lit, of course. Little more could be wrung out of the business of raising one up a building, which is a clue to its success. I suspect that most of us without our rationalist European training and weather-eye open only to the recognizable *parti* of 'worthwhile' buildings will dismiss the exterior completely on the grounds of disinterest and the interior almost completely on the grounds of vulgarity.

We seem to have reached a point where we are preparing to jettison much that was unnecessarily particular about buildings, and to admit to a wider scope for the conditioning of people's experience—whether this involves taste or not. Yet it is just here, when confronted with a structure that does attempt to wring out of space a real provision of comfort, excitement, and a pay-off from the necessity of high-rise, that we are prepared to ignore this last glance back. The apsidal curves of 'Hugo's Gourmet Restaurant' and the Burle-Marx-like garden on the lower levels, the 'Kobenhaven' internal street-restaurant and 'Le-Parasol' cocktail lounge, over which the actual parasol hangs by a single cable from the skylight 21 storeys above—all permit a nostalgia in which we expect Garbo to come wafting through the hall and Barrymore to dart back behind the trellis. This building is in the grand, bland tradition. The styling is different, the gimmicks come thick and fast, but intention and expression are always sustained. Real use of the conditioned environment is not yet so commonplace that we can afford to ignore it.

Seeing past interpretive gestures to the content of the ideas has remained a constant hang-up of architectural discussion since reputations first had to be made. The notion of 'international' architecture has sustained much of our currency but is replete with curious areas of misunderstanding or ignorance whereby we can completely ignore experiments with environment, organization or just plain problem-solving because the result is bizarre, gawkish, or

▷91

1
Blue plastic domed Polaris restaurant rising above the roof of Regency Hyatt House, Atlanta, by John C. Portman and H. Griffith Edwards

2
Site layout of the Peachtree Center, Atlanta, designed by John Portman, who acted also as developer, in partnership with Trammell Crow. The first building to be completed was the Merchandise Mart **3** opened in 1961, into which most of the local carpet industry has since been consolidated. The Mart is at present being doubled in size. The two subsequently completed buildings, the 30-storey Peachtree Center building **4** and the 25-storey Gas Light Tower **5**, are linked to the Mart by high level bridges. The Regency Hyatt House **1**, an 800-bedroom hotel, was opened in June 1967. The Trailways Bus Terminal and car park **2** and other office buildings **6**, **7** are still under construction. There are plans for further buildings not yet divulged

3
Exterior of the Peachtree Center, seen through a fibre-glass sculpture. One of the high-level link bridges can be seen in the distance *Photo: 1 Bell and Stanton*

provincial in taste. Emberton is somehow less respectable, historically, than the Tecton group. Frank Lloyd Wright is tolerated, but less *significant* than the more effortsome heroic Europeans. Even then, his reputation seems to rest on his duller, more readily explained buildings.

The architect of the Peachtree Center and of the proposed Embarcadero Center for San Francisco (see p. 93) is more than just a giver of form. He is managing partner of the group of developers on the San Francisco project. He is the admitted pusher, over a five-year period, of the Atlanta development. He has plans for more, and wisely does not diclose them all, in order not to raise land values. Such developers are rarely as imaginative as John C. Portman, and by wishing that he had more taste (our taste), or more discrimination (and to reject, maybe, the whole directness of the invention), we are throwing away his value to us. Our bland and unctuous discrimination has probably prevented some of the best twentieth-century buildings from ever happening. The monuments have (nearly) gone forever—and none of us need shed a tear—except for the last few which would have combined the fullness of mechanical technology with the sheer uplift of the palatial game.

Portman is at his weakest when he has the kind of culture-worry that requires historical and respectable 'quotations' to back up his formal ideas, resulting in one building ranging from OK Japanese split projecting beams to cheesecake Baroque. Or have I set my own trap? Perhaps he is strongest, because once again he is just using these things in their natural place, as support for an idea—titillation as just another service.

Peter Cook

1, 2

3

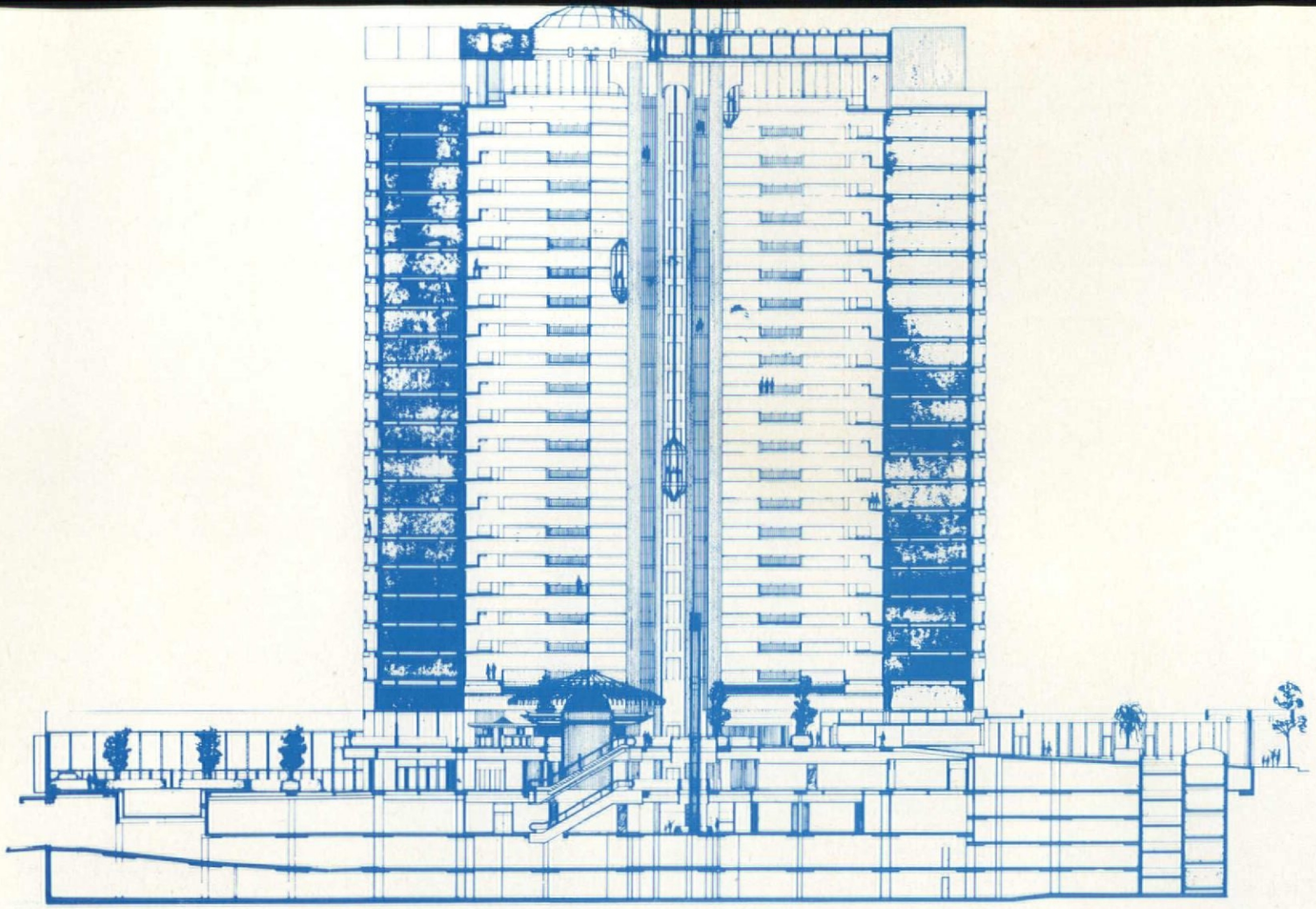
1
View of the entrance of Regency Hyatt House, looking into the central, 21-storey high court. This has been consciously designed to reproduce the sense of enclosure and the vitality of a French or Italian town square. The whole is air-conditioned. The open, Kafe Kobenhaven is on the left, in the middle a 40ft fountain, in the distance Le Parasol bar

2
Interior of Le Parasol, set on top of a pedestal in the central court, covered with a steel and glass roof suspended by a single cable from the skylight. On the left is the top of a three-storey aviary

3
View upwards in the central court

4
View from the balcony of the 17th floor into the entrance court. The 800 rooms of the hotel—each with its own coloured TV and FM radio, some even with log-burning fireplaces—open externally onto individual balconies; internally they give onto the open corridor and planted balconies surrounding the court. The lift shaft to the right has five lifts moving continuously so that it appears as a giant mobile

Photos: 1–4 Bell and Stanton



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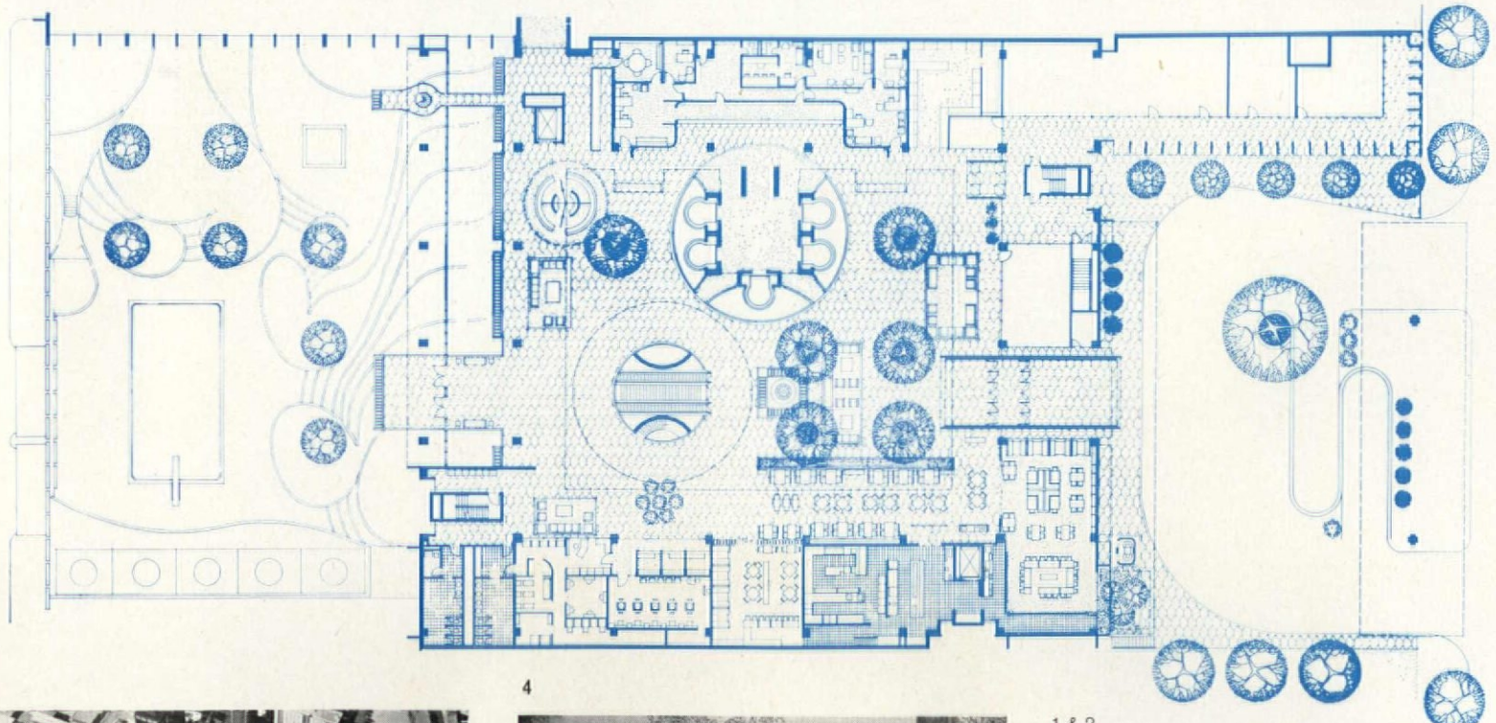

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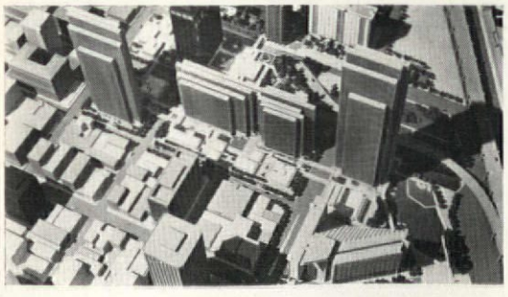

4

1 & 2
Section and ground-floor plan of Regency Hyatt House

3 & 4
Block model and perspective of a terraced hotel proposed for the Embarcadero Center, San Francisco. The centre was designed by John C. Portman, who is also managing partner for the development, the other partners being David Rockefeller, Trammel Crow and Cloyce K. Box. One of the largest privately financed centres in the world, it is comparable in scope to the Rockefeller Center, New York. On the 8½-acre site are an entertainments centre, an 800-room hotel and 2,851,000sq. ft of office space. Cost $125,000,000

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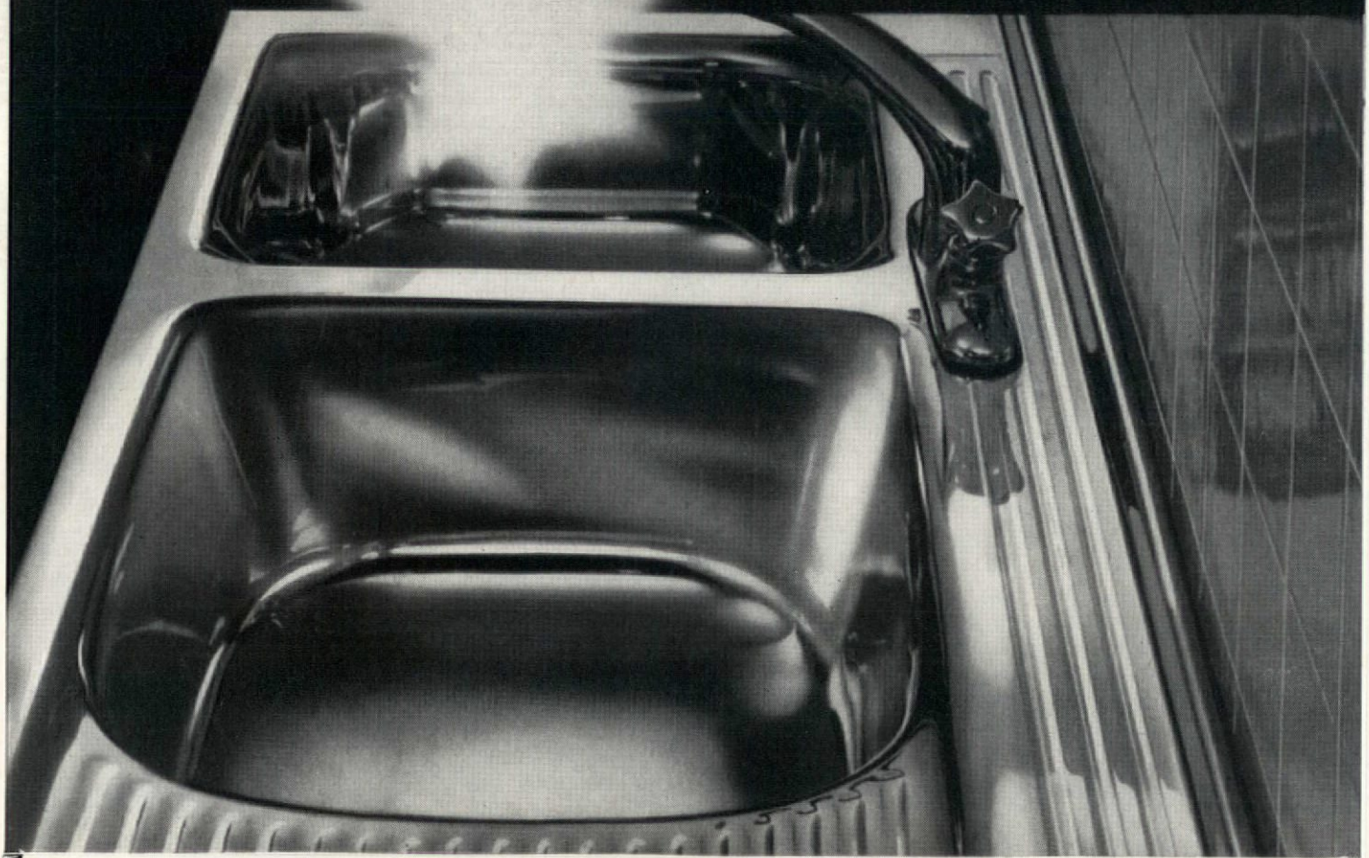

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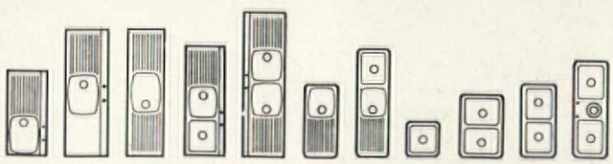


Design

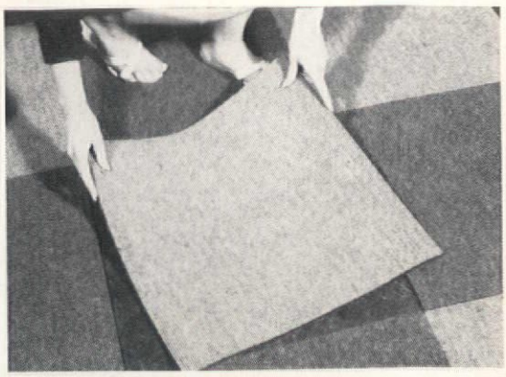
Hard wearing floor coverings

Tretford Carpets Ltd., have produced an interesting and useful development to their carpet range, by backing the carpet with non-slip bitumen-and-cork combination and selling it in the form of tiles 50cm (19½in) square, retailing at about £1 each **1**. The squares do not require fixing down, and can be cut without danger of fraying. The carpet itself is hair and wool cord bonded on rubber, and comes in 20 shades of beige, grey, red, brown, blue, green, and yellow (no charcoal).
Shenstone, nr Lichfield, Staffs.

Riding Hall Carpets Ltd., in conjunction with Courtaulds, have developed a tufted carpet (Ten Shot) with an 80/20 blend of Evlan/nylon, which retails at 29s. 6d. per square yard, or 38s. 6d. per square yard if it has a built-in foam rubber cushion underlay. The new carpet has been subjected to intensive laboratory tests including a device simulating the effect produced by millions of walking feet. Two million revolutions are specified by the Carpet Federation as a minimum for industrial and contract use; Ten Shot achieved thirteen million before the machine made any real impression on the carpet. Eleven colours are offered to date (light grey, beige, yellows, greens, reds, blue, but *no* charcoal).
Riding Hall Mills, Halifax, Yorks

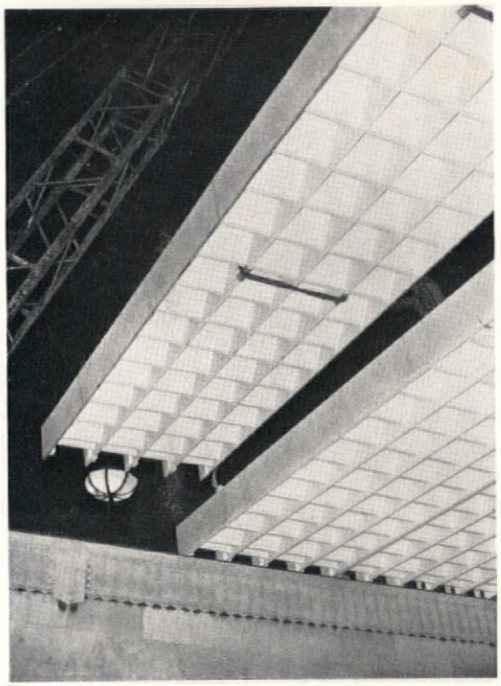
Alfred Morris Furnishings Ltd. make a 100 per cent nylon pile carpet (Shildon) with polypropylene backing and foam rubber integrated underlay. Guaranteed for ten years' fair wear, it is made 27in wide for about 70s. (plain) and 83s. (patterned) per sq. yd or 54in wide for about 138s. and 166s. respectively.
146 Marylebone Road, London, NW1

E. Illingworth & Co. (Bradford) Ltd., do a nylon felted, fibre based floor covering for fixing straight onto concrete etc. It is made 1½ metres (59in) and 3m (118in) wide, costs 52s. 4d. the square yard laid and comes in 10 colours (red, blue, 2 greys, beige, 2 rusts, 2 greens, yellow).
Shelf Mills, Shelf, nr. Halifax, Yorks



1

To recap, last year we published details of comparable synthetic floor coverings: Fogarty Ariel's courtelle *Duti-flor* at 30s. per square yard and Heckmondwike's nylon *Iron Duke* at 53s. (*AD* 4/67, p197); and Barry Staines and Sommer Developments, both nylon, also costing around 52s. (*AD* 10/67, p484). Heckmondwike and Sommer also supply the carpet in tiles.



2

Plywood design award

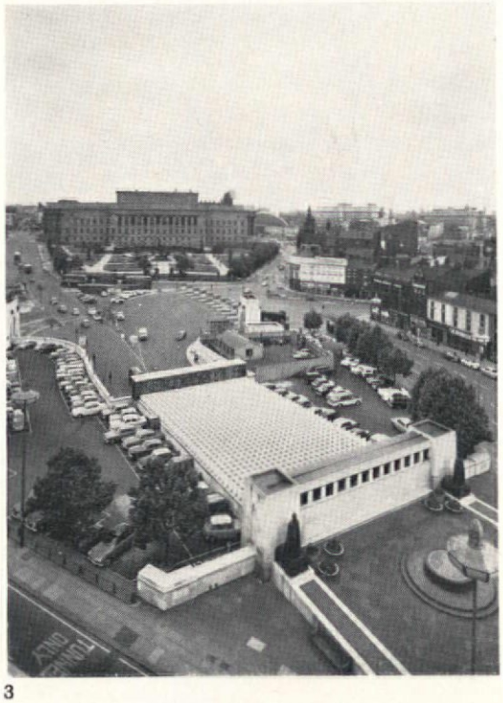
Three widely differing structures won prizes in the Plywood Design Award 1966–67, sponsored by the Plywood Section of the Timber Trade Federation of the UK. The competition was for structures incorporating the most imaginative and progressive use of plywood, thus emphasising the material's qualities of strength, lightness, ease of working, good appearance, durability and economic cost.

The three prizewinners were as follows:

1st prize £500, plaque and certificate): structu al engineer Eric Carl Ozelton (Walter Holme and Sons Limited, Liverpool). Louvres covering the two main entrances to the Mersey Tunnel **2, 3**.

2nd prize (£200 and certificate): structural engineer Ian H. Paxton. (Ian H. Paxton, G. Thompson and Associates, Harrogate). Barrel vault roofs, vehicle repair and canopy parking building, Yorkshire Electricity Board, Hull.

3rd prize (£100 and certificate): P. R. C. Standeven (Central Electricity Generating Board) Industrial wind tunnel, CEGB Research and Development Department, Marchwood Engineering Laboratories, Southampton.

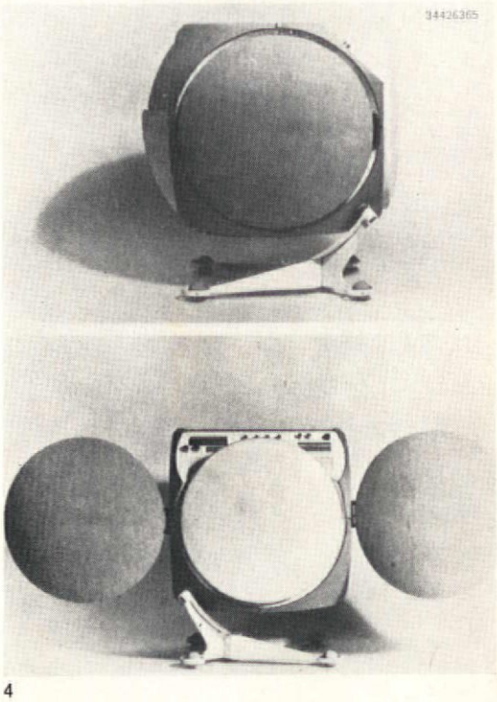


3

The judges were John Reid, R. T. James, and Ezra Levin.

Interdesign 2000

Last month we announced the names of the winners of the Interdesign 2000 competition organized by Christian Holzäpfel the German manufacturer of modular office furniture and a partition system. The winning design, by Finnish Siegbert Nummela, for a multifunction audio-visual room unit **4** tried to consolidate the individual appliances in a rather congested spherical element which moves on casters. The unit includes radio, amplifier, loudspeaker, TV, screen, slide projector, projection screen, magnetic tape and microphone with a versatile range of appliance combinations offered by the control cabinet:



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stereophonic TV sound and simultaneous tape recording of a radio broadcasting;
reproduction of conserved pictures or sound, and the simultaneous recording on tape of a radio broadcasting or a TV show;
tape-controlled slide projection on a screen and the simultaneous film projection on a film screen because film screen and screen point in the same direction.

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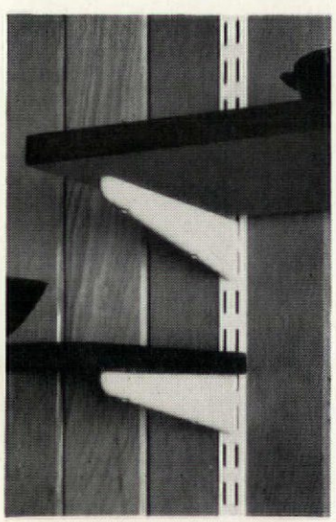

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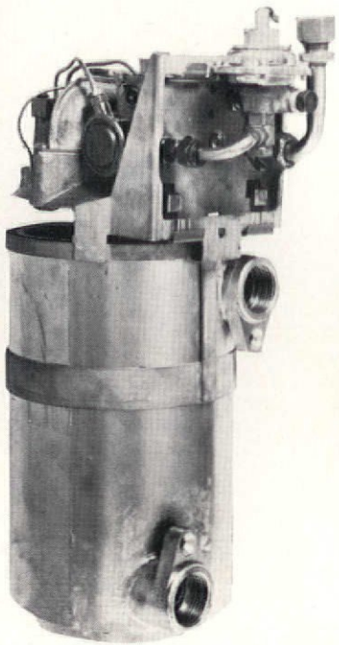
Trade notes

Alexander Pike

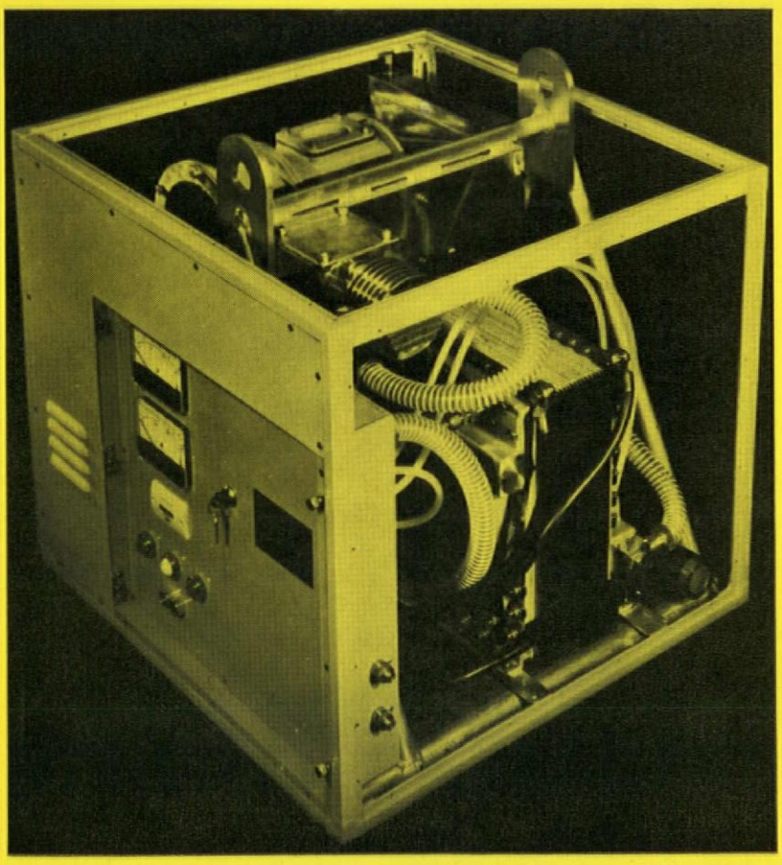
To obtain additional information about any of the items described below, circle their code numbers (D1, D2 . . . etc.) on the Readers' Service Card inserted in this magazine.



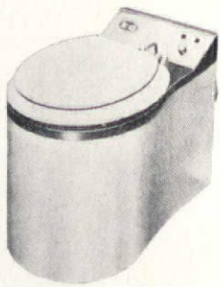
D1 Gas water heater for warm air units
Ascot Gas Water Heaters Ltd., Radiation House, North Circular Road, Neasden, London NW10.
The 303WE multi-gas circulator storage water heater is designed for installation in a gas-fired warm air unit, giving the user the benefit of the operating efficiency of two independent appliances occupying no more space than a conventional warm air unit alone. The heater can be connected to a hot water cylinder of 20 to 60 gallons capacity and has an output of 13 galls. per hour raised through 80°F. Installation is simplified since the heater and warm air unit use common gas supply, fire outlet and electricity supply. An electric thermostat is used in conjunction with a solenoid operated gas valve to control the gas supply to the burner. As it is designed to be fitted within a warm air unit casing, no case is supplied with the 303WE, the dimensions of which are 15¼in high × 6in wide × 8½in deep.

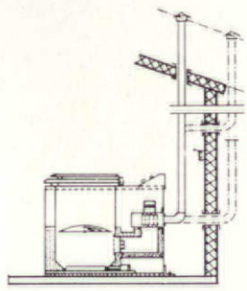
D2 Microwave ovens
Dysona Industries Ltd., Molly Millars Lane, Wokingham, Berks.
The first three Dysona microwave ovens, all of 1·15kW output, but with differing timing devices, are claimed to be in advance of all competitive products and capable of totally eliminating food waste in industrial and commercial restaurants. They employ very high frequency radio waves to heat the inside of food and work 15 times faster than conventional cookers at one-sixth of their fuel costs. The 'time key' model, operated by small plastic keys to match meal heating times, and specially designed for use with automated meal vending machines, costs £425 and is claimed to represent a saving of £200 on the imported machine which is the only alternative. Cooking speeds are extremely rapid. A 9lb chicken can be microwave cooked in 10 minutes—at a fuel cost of less than a penny—and sponge cakes and batter puddings take two minutes.

A single gas-fuelled package produces power, space-heating, hot water, refrigeration and air-conditioning for a whole building.



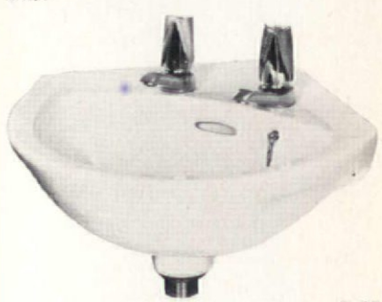
D3 Energy package
Energy Conversion Ltd., Chertsey Road, Sunbury-on-Thames, Middlesex.
By using "Total Energy Systems" employing a single fuel source, self-contained units such as houses, flats, schools and small factories can be provided with power, space heating, hot water, refrigeration and airconditioning from a single integrated package. Over 300 systems of this type have already been installed in the USA (including one example in Chicago in which it is claimed that a saving of over £5000 a year is made by not being connected to mains electricity), and it is considered that during the next five years 70,000 new buildings could show economic benefits by using gas-fuelled total energy packages. The advantages of such systems lie in reduced fuel transmission costs (by eliminating the need for overhead electric cables and pylons) and the accessibility of relatively cheap supplies of natural gas. By generating electricity directly from natural gas and utilising the waste heat for heating or air-conditioning, the fuel is used with 70 per cent overall efficiency compared with approximately 40 per cent in power stations, from which transmission costs are four times greater than those for piping gas. The ECL model now under development is a fuel cell designed to produce a maximum power of 5kW and occupies a cube of 2ft side. Hydrogen made from natural gas in an associated generator is fed to the fuel cell. The hydrogen reacts with air in the fuel cell to produce electricity at 24V D.C., which is then processed in an invertor to provide power at whatever voltage and frequency the consumer requires. The firm is also working on a 100kW unit suitable for blocks of flats.





D4 Electric toilet
Partille E. C. Verken, Aktiebolag, Partille-Sweden.
The electric closet eliminates the need for connection to a drainage system but avoids the less satisfactory features of the usual alternatives. After use, the cover is closed and a turbine fan and combustion element are switched on by push button. Combustion time varies between 10 and 30 minutes but the closet can be used several times successively as the combustion unit is switched off when the cover is lifted. The fan continues to operate until the temperature in the combustion chamber has dropped to 50°C. Size, approximately 15in wide × 24in deep × 19in high. The unit is provided with red and green control lamps for the fan and heater element and requires connection only to a vent pipe and 220V supply.

D5 Angle wash basin
John Steventon & Sons Ltd., Royal Venton Works, Middlewich, Cheshire.
In two sizes, 18in × 18in and 21in × 21in (replacing the former 24in × 18in) the new Royal Venton angle basins are designed to give maximum bowl area where space is restricted. The basins have a concealed screw hole at each side for rigid fixing and are supplied with two wall hanger brackets. Available in white only.



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To obtain additional information about any of the items described below, circle their code numbers (D1, D2 . . . etc.) on the Readers' Service Card inserted in this magazine.

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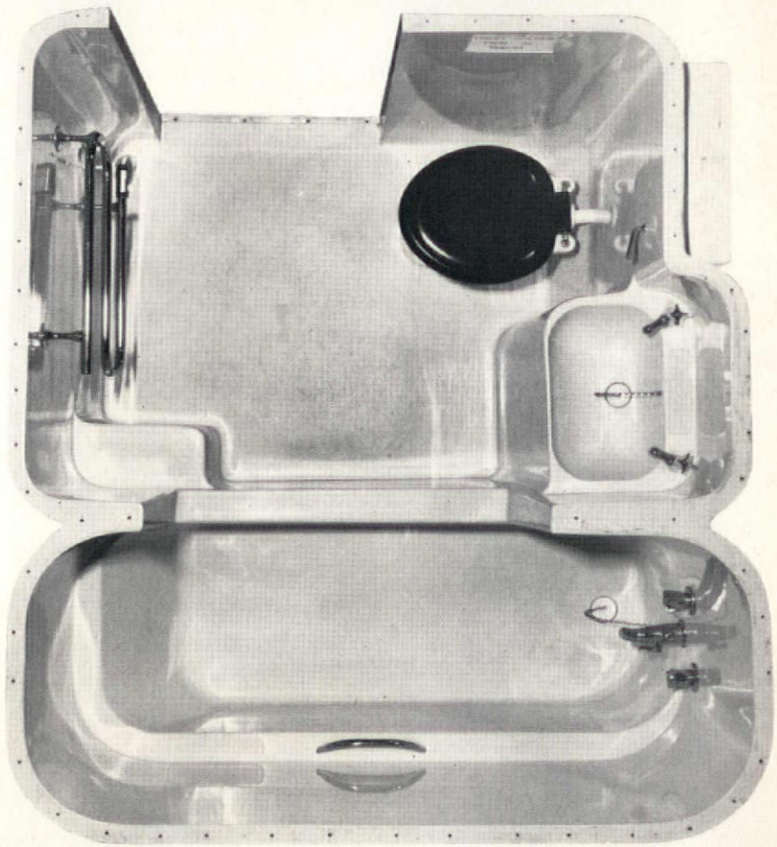
D6 Glass fibre bathrooms 2
Surface Productions Ltd., Adelaide House, King William Street, London EC4.
Complete bathroom and cloakroom units in g.r.p. have been designed for installation in flats and houses of both traditional and industrialized construction. Moulded in two parts which are bolted and bonded together horizontally, the units are designed to be free-standing. The junctions of ceiling, walls, floor and door openings have been rounded to minimize the stress concentration normally occurring at sharply radiused corners, and considerable flexibility has been achieved in plumbing and drainage arrangements to meet differing Local Authority requirements.



D7 Metric kitchen units
F. Wrighton & Sons Ltd., 3 Portman Square., London W1.
The International range of kitchen units is based on a 10cm (4in) module used in multiples of 4, 5, 6, 8, 10 and 15. Thus any wall space exceeding 80cm (32in) in length can be fitted to within 10cm or less. Base units are of two depths, 50cm (19⅔in) and 21in, both of which can be extended to 60cm (23⅔in) by the use of a special top. By providing alternative thicknesses of work top, standard height units can be built up to either 86cm (34in) or 90cm (36in). Free-standing appliances made by various manufacturers are now available in both these heights.

D8 Aluminium windows
Domestic Aluminium Windows Ltd., G.P.O. Box 40, Broad Plain, Bristol 2
Incorporating two top hung panes and a fixed lower pane, the 45 HR range is available in widths of 2, 3 and 4ft, and heights of 3ft 8in, 4ft, and 4ft 4in. The windows are opened by a rotary handle which can only be operated when a safety catch is manipulated simultaneously. In the larger windows these controls are 4ft apart and therefore cannot be opened by small children, making the window suitable for installation in multi-storey flats. Price approximately 15s per square foot.

▷97

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Code 38

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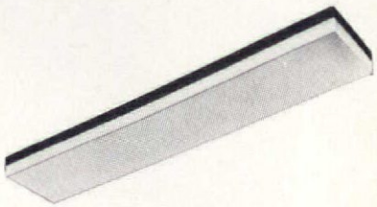
D9 Flourescent lighting fitting
Crompton Parkinson Ltd., Crompton House, Aldwych, London WC2.
The Contrast range of fittings has a black satin finish to the exterior metalwork and a plastics diffuser with white opal sides and a clear prismatic base. The shallow depth of 4½in enables the fittings to be used in situations where ceiling heights are limited. Special spring hinges allow easy removal of the diffuser for lamp replacement and cleaning, and have a positive snap-closure action. Sizes 2ft × 2ft, 4ft × 1ft and 5ft × 1ft

D10 Modular lighting air outlets
RCM (Air Distribution) Ltd., RCM Works, South Way, Wembley, Middlesex.
Available in nominal lengths of 2ft, 3ft and 4ft the RCM units have a plenum box of mild steel and deflection and volume control blades of extruded aluminium. The spigot connection accepts most forms of 5in diameter flexible ducts. Handling capacity up to 40 c.f.m. per ft.

D11 PVC Skirting board
Allied Structural Plastics Ltd., Dunstable, Beds.
Aspect skirting board, in white PVC, incoporates a specially designed cabled duct system. Fixing is by simple wall clips which allow individual sections to be removed quickly for access to the cable ducts. The ducting system isolates mains voltage wiring from telephone, television and radio aerial wires. Provided in a semi-gloss finish, weight 3oz per foot, cost approximately 2*s* 6*d* a foot run.

D12 Thixotropic polyurethanes
Cray Valley Products Ltd., St. Mary Cray, Kent.
Combining the toughness, resistance and durability of urethanes with the benefits of one-coat coverage, drip-free application and freedom from settlement in the can, Unithane 652W can form the basis for stable one-pack dripless paints having faster and superior through drying than paints based on conventional long oil alkyds.

D13 Bird repellant
The London Stone Cleaning & Restoration Co. Ltd., 121 Victoria Street, London SW1.
Developed to combat the serious problems associated with pigeons and starlings, whose droppings accumulate in great quantities on ledges, string courses, etc., Lunstone Bird Repellent is supplied in 12oz tubes 11in × 2in, eliminating the necessity for application guns. The preparation is clean to handle and does not harm the birds.

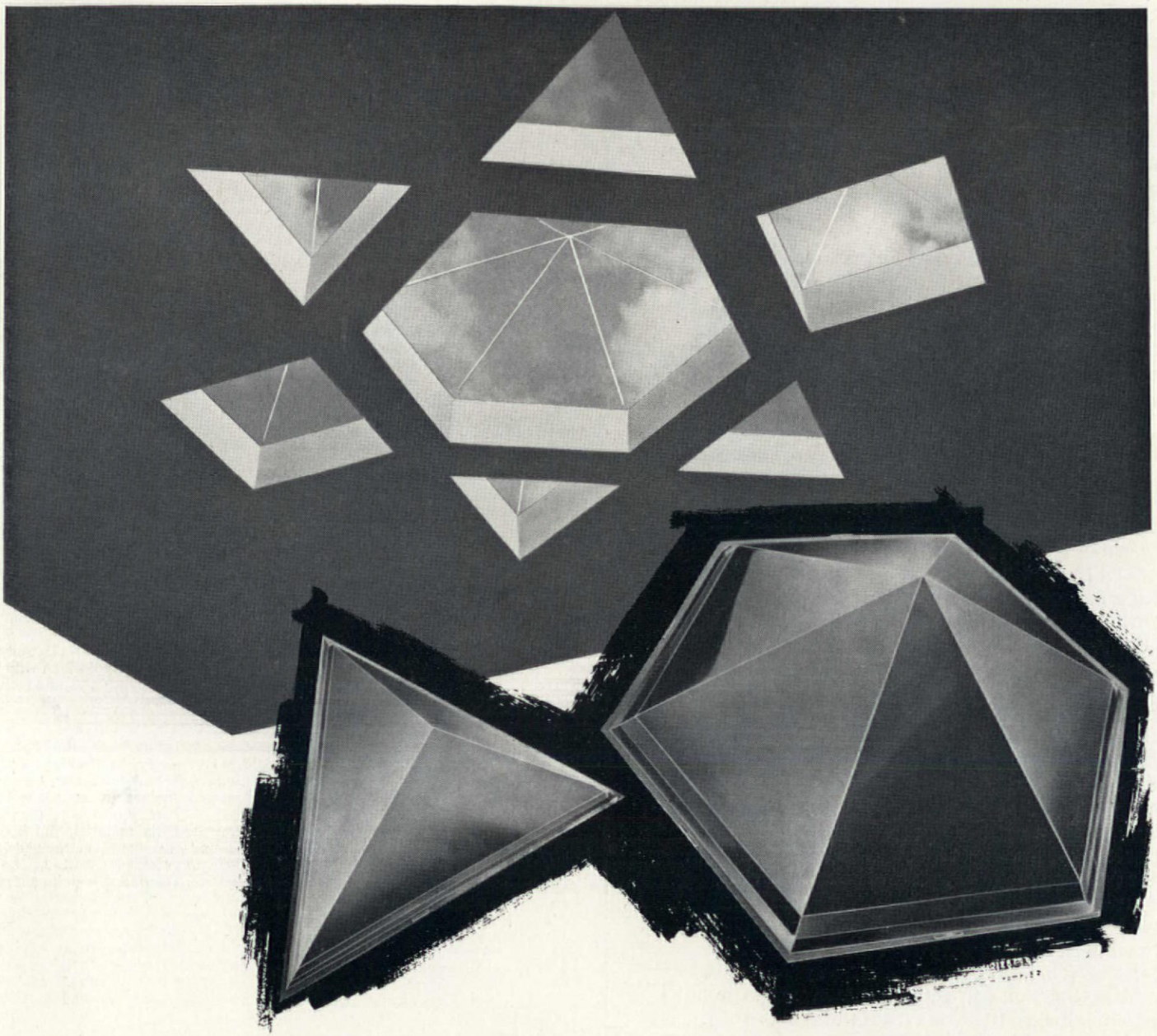


D14 Drawing ink for plastic films
L. & C. Hardtmuth (Great Britain) Ltd., Ashley Road, Tottenham, London N17.
Koh-i-Noor P.F. is a water-resistant ink for use on all plastic films. It is claimed that this ink will not clog or harm any technical fountain pen and will harden with age without loss of elasticity. Drawings can be 'washed' clean with sponge and water, leaving the lines clear and densely black.

D15 Vitreous enamelled chalkboards
The Vitreous Enamel Development Council, 28 Welbeck Street, London W1.
Made of steel with a special matt vitreous enamel finish, bonded to chipboard or other suitable material, the boards are claimed to have extremely efficient chalking qualities and to be easily cleaned. The boards can be supplied in a wide range of colours and, if necessary, with special requirements, such as graph rulings, permanently fused into the surface. An added advantage is that the boards can be used for display purposes with the use of magnets. Available in any size up to a maximum of 6ft × 4ft.

D16 Automatic line spacer
Eagle Pencil Co., Ashley Road, London N17. TOT 4435
The Linex line spacer is designed to draw parallel lines to pre-determined divisions. The ruler moves at the touch of a button when the magnified scale has been set, and built-in rubber feet stop the instrument from slipping. A protractor is provided to allow hatching at an accurate angle and french curves and templates can be fitted to the spacer to give unlimited pattern and curve hatching. Price 84s.

D17 Print trimmer
H. M. Developments (Uxbridge) Ltd., 53 Belmont Road, Uxbridge, Middx. Uxbridge 35738
Rotatrim models 24in and 42in now have a wider range of cutting ability, up to 20 sheets of medium substance paper, and board of $\frac{3}{32}$in (or thicker according to substance). Trimmers with this modification have 'one way' operation and do not cut on return of the cutting wheel. Safety is ensured by containing all cutting edges within the die-cast wheel housing and beneath a Perspex siting strip.



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ONE THIRD LIGHTER IN WEIGHT without loss of strength and security, making movement quick and free with greatly reduced wear and less effort.

The lintel above the door carries much less weight: this will show a saving in building costs.

Sensible, strong construction makes the lattice work at the back of the door easily removable for maintenance and repair of accidental damage.

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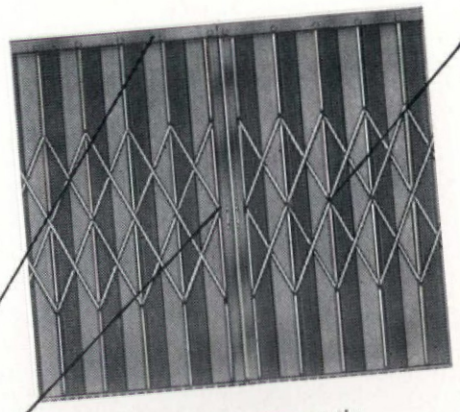

Far easier running, finger tip operation—less maintenance required because of smooth, light action, therefore less long-term cost.

More efficient movement means less greasing points, easier servicing.

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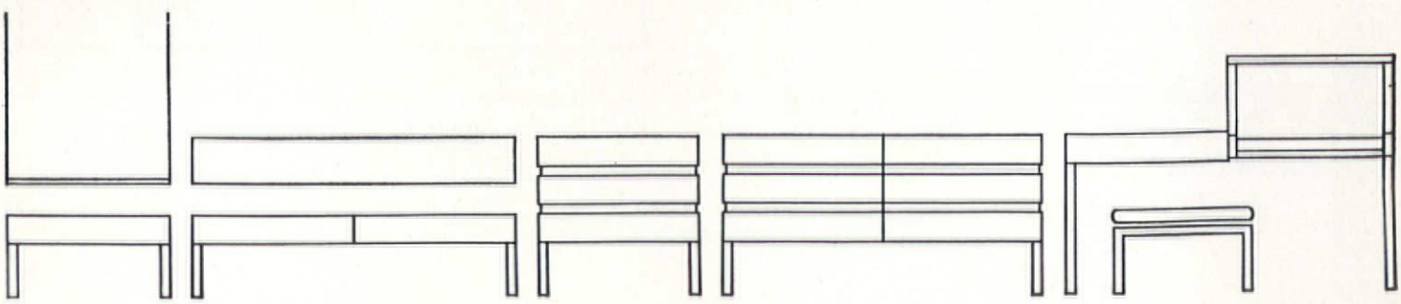

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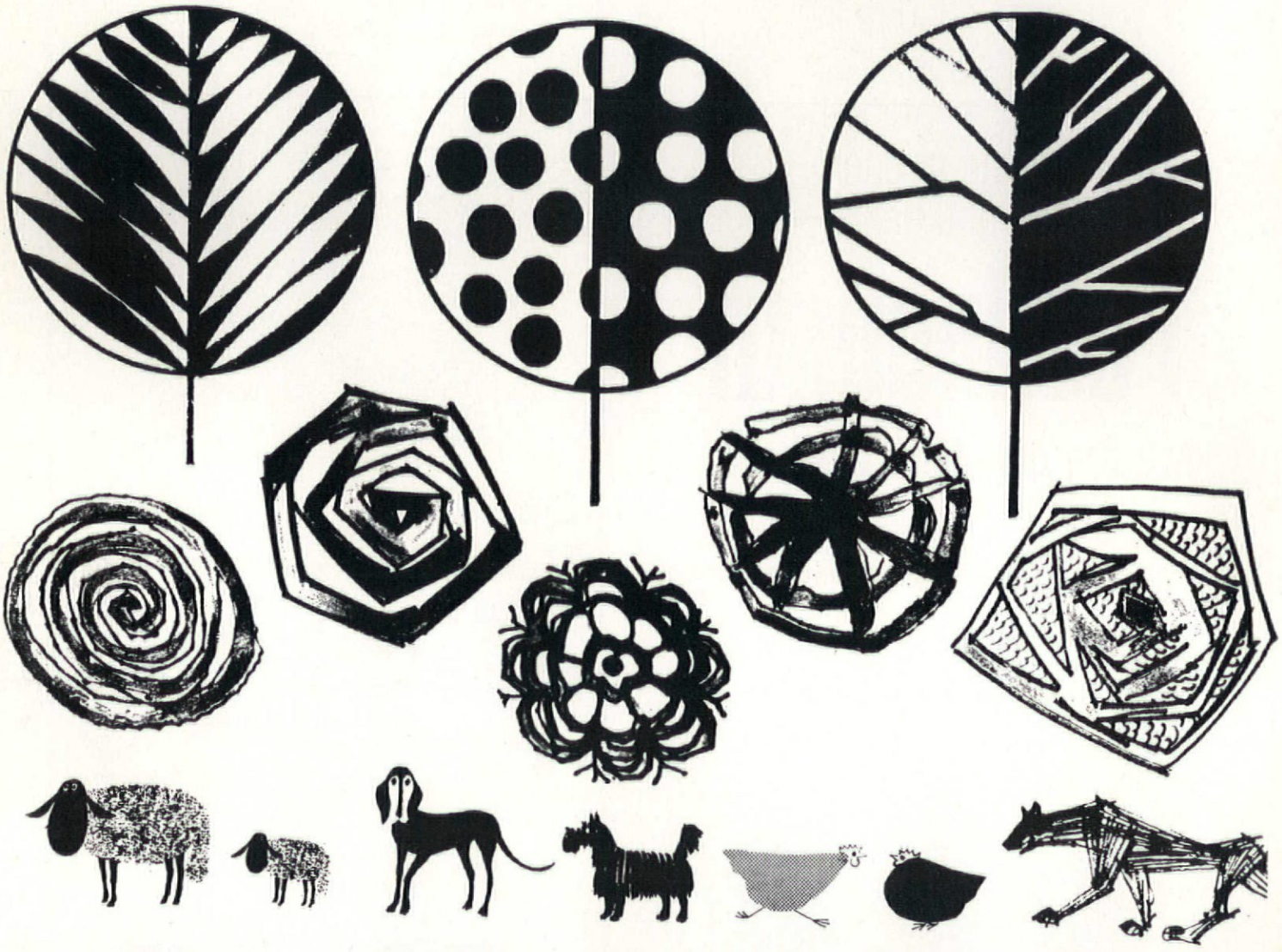

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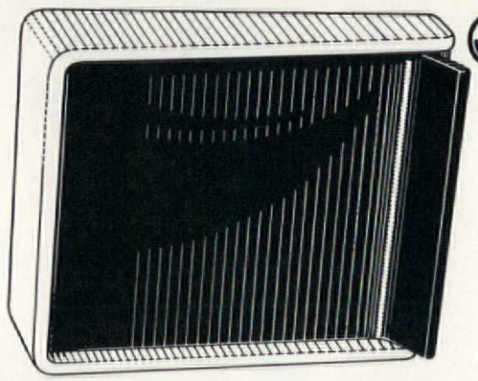

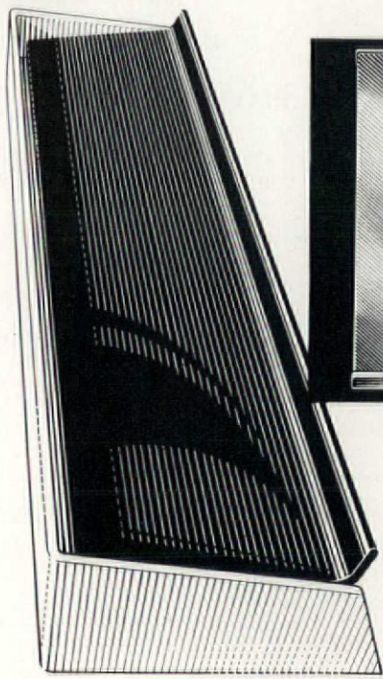

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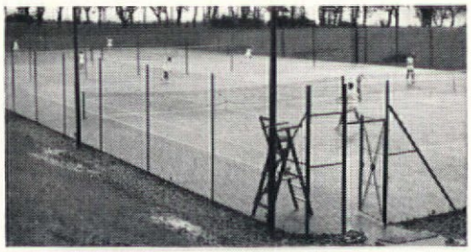

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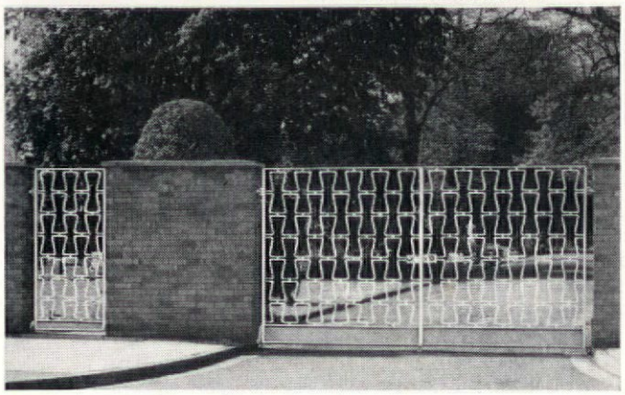

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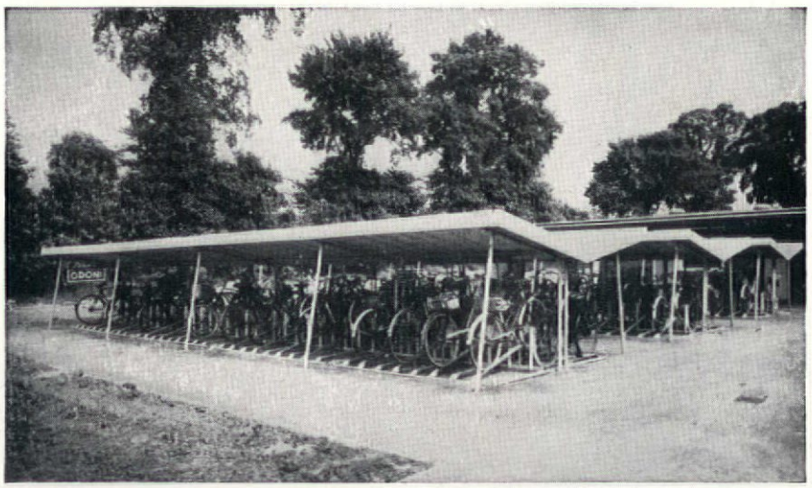

Type TD2A-R-LR ODONI Tubular SHELTER (R.D.899573) with Type 5A Pedal Cycle Stands at Gable Hall School, Corringham, Essex.
Photo by courtesy of Messrs. Brown & Mulin, A/A.R.I.B.A., in Association with H. Conelly, C.B.E., F.R.I.B.A., County Architect, Essex County Council

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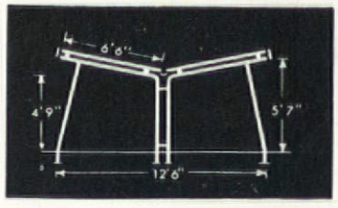

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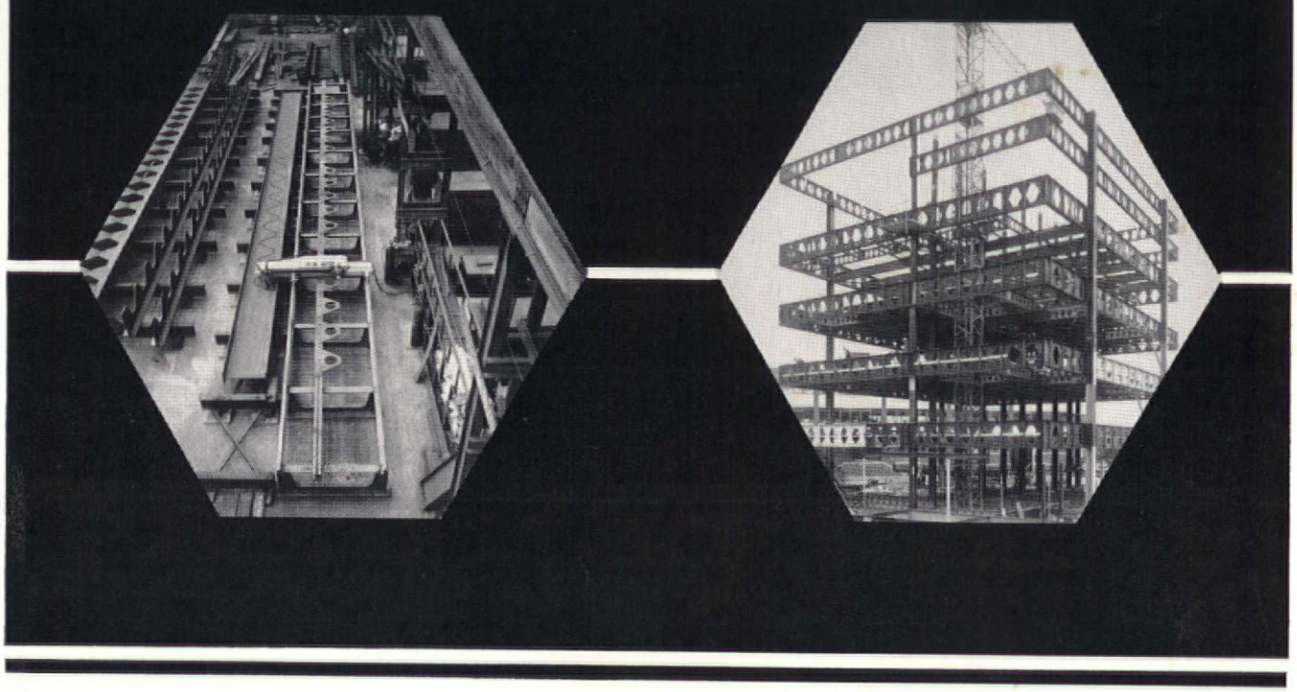

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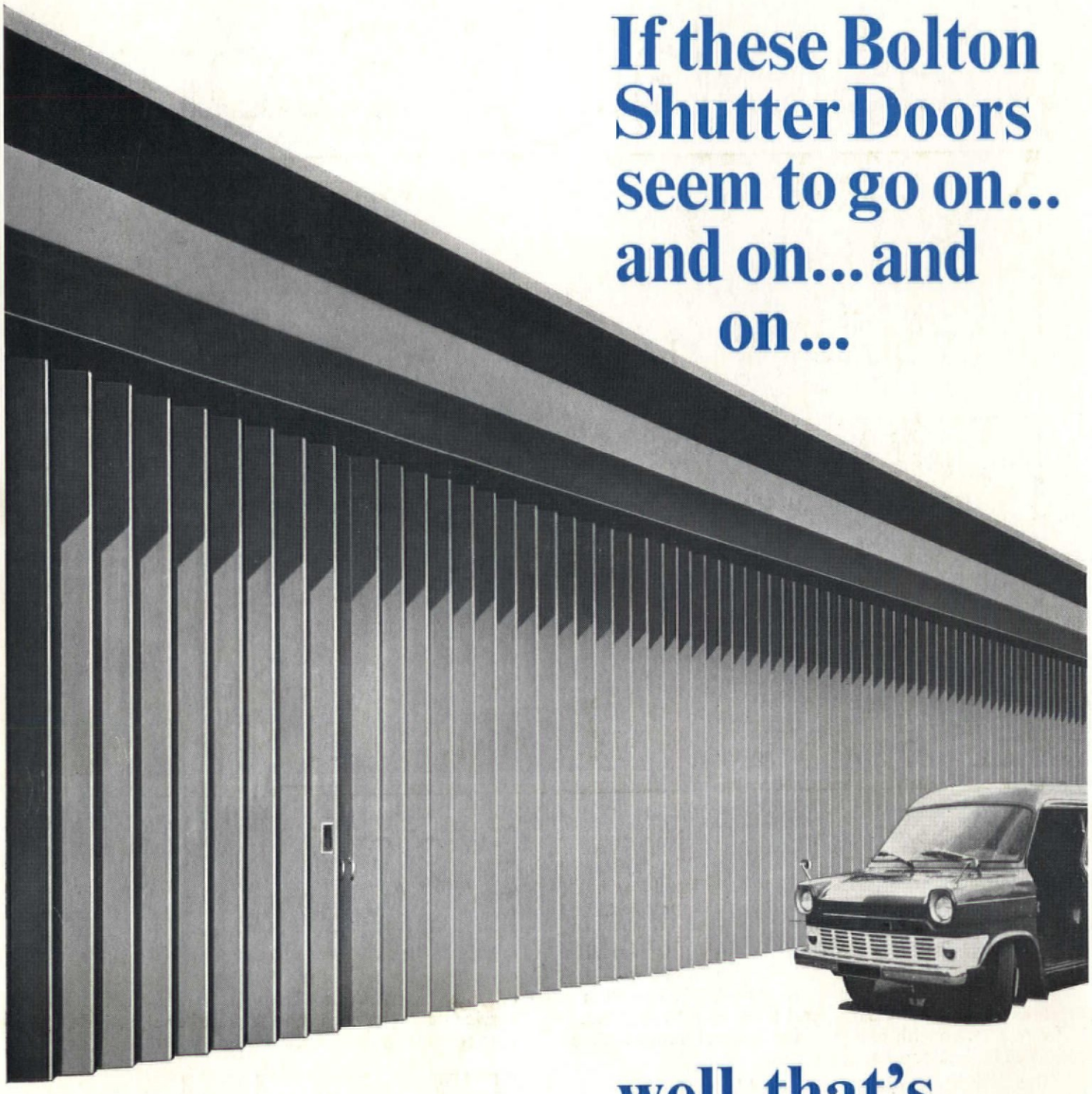

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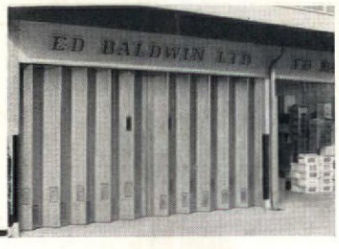

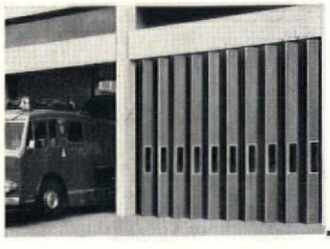

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