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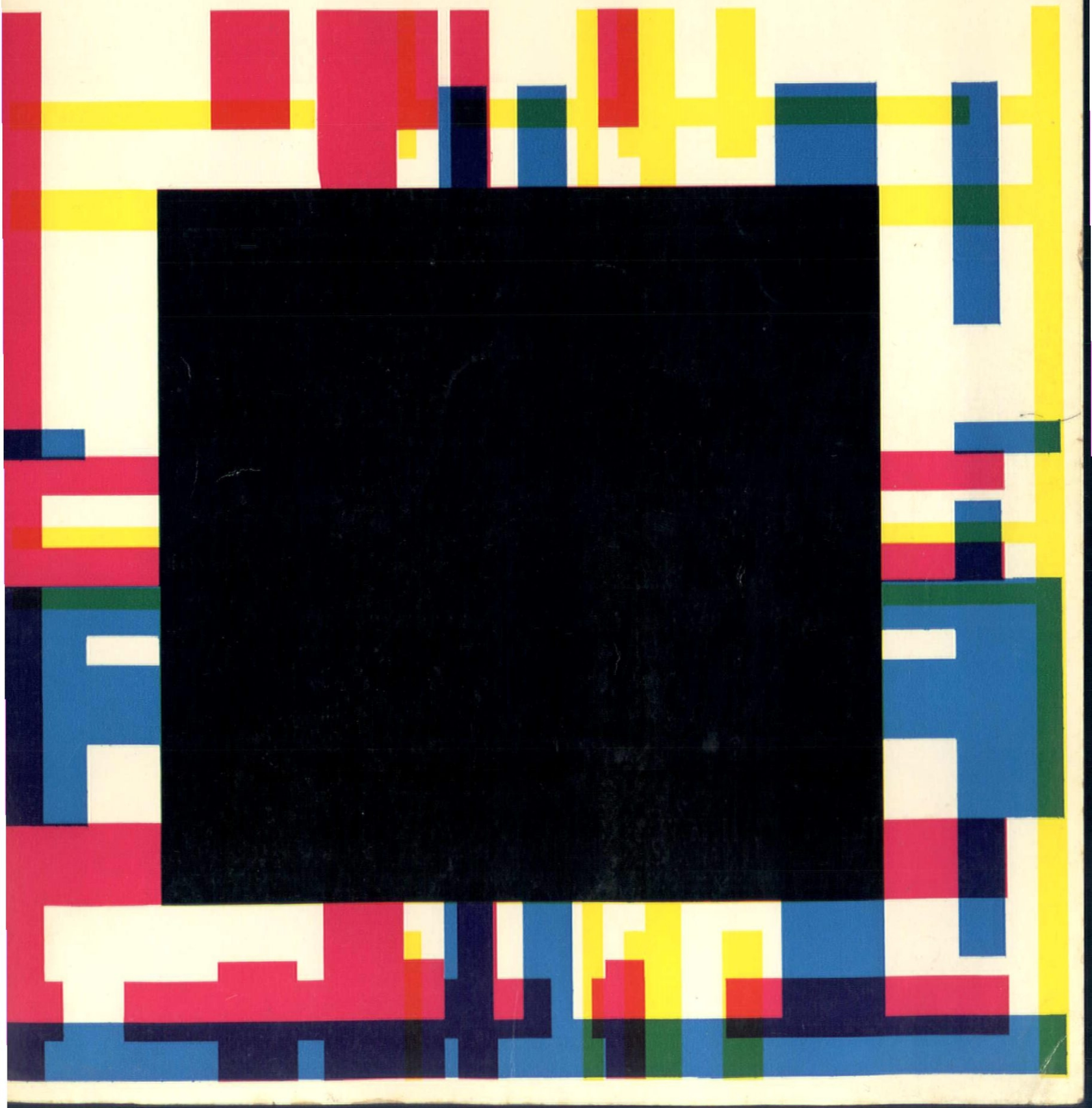

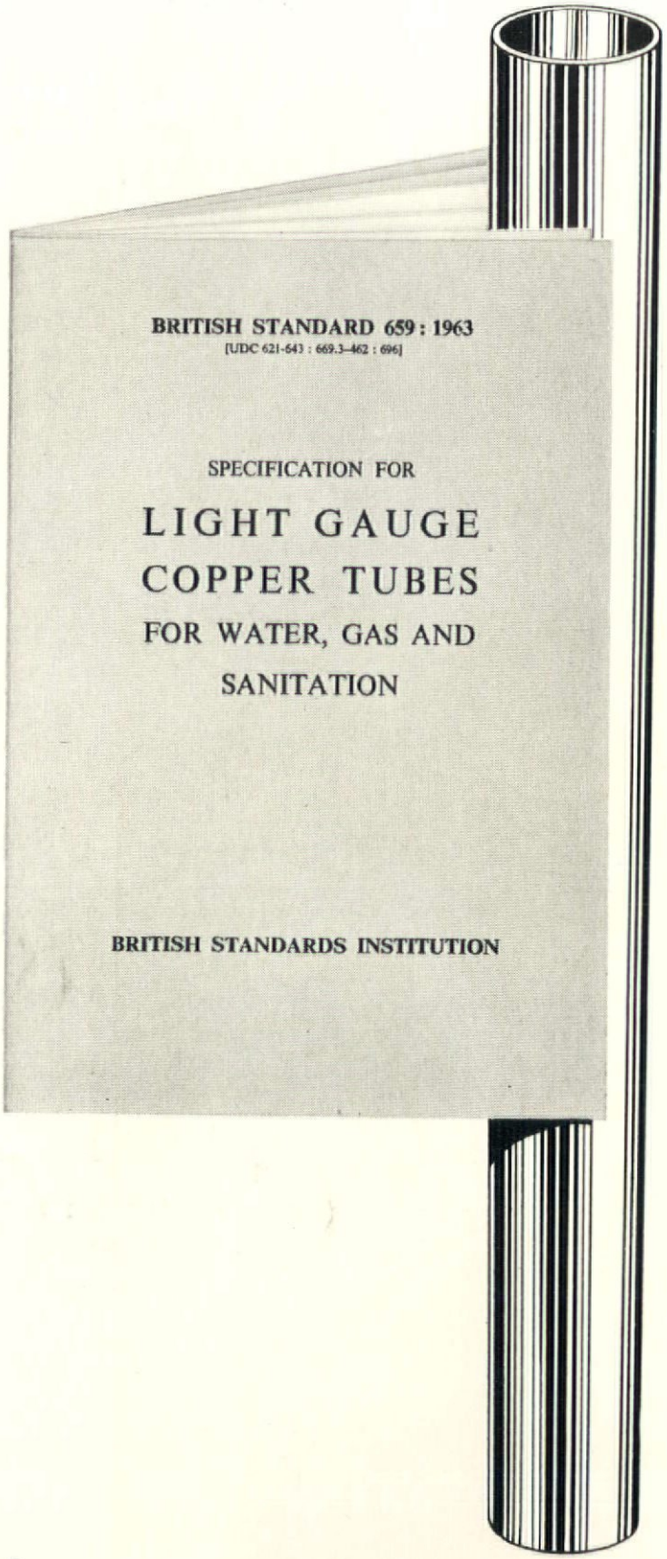

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Volume XXXVI **February 1966** **2**

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Cover

A design study from the second sixteen of Lionel March's Trio No. 5 'Rotation around a Square' composed in 1965 for intended presentation in book form.

See page 62

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Books

The four books of architecture

Andrea Palladio. Constable, London. £4

Isaac Ware's English translation of Palladio's four books on architecture is indisputably the best. When it was first issued in 1738 it at once superceded earlier renderings by Nicolas du Bois and Giacomo Leoni and by Colin Campbell (it was not only more accurate and comprehensive, but cheaper) and has not been improved upon since. Now, published in a facsimile edition, it is once again offered as a source of reference for English admirers of that great conservative master. It will serve not only as an extension to Professor Rudolf Wittkower's *Architectural principles in the age of humanism* but as a source book for eighteenth century architecture in England. It reveals in its very presentation how the solid, robust nature of the Italian Renaissance was refined and chastened by the English—Ware's meticulous interpretation of Palladian detailing in steel engravings takes all the guts out of the broad and generalized architectural flourishes that appear in the woodblocks of the original Venetian edition of 1570 (published in a facsimile edition in 1950 by Hoepli of Milan).

Commémoration Eugène Freyssinet 1963
Eugène Freyssinet 1879–1962

Chambre Syndicale Nationale des Constructeurs en Ciment Armé et Béton Précontraint.

Eugène Freyssinet died on June 8th, 1962. He is remembered by most architects as the designer of those two concrete hangars that were built at Orly in 1921 and illustrated two years later in Le Corbusier's *Vers une architecture*. But he designed a host of more recent structures, including the Tancarville bridge. He is revered by engineers as the inventor of the technique of prestressed concrete. Yet there has been no adequate record of his work and achievement. These two volumes, prepared for a commemorative ceremony by the *Chambre Syndicale*, Paris, are the first to assess his greatness. The conventions of French academic discourse usually render such volumes treacherous as evidence of greatness or even ability, but Freyssinet's stature is so little open to question that they can be accepted quite confidently for what they are—a eulogy on his achievement and a personal record of his life and attitudes towards engineering in all its ramifications. He reveals himself as a man of modesty, calm and considerable humanity. He was also a man of brilliant intellect, but intelligence, as he realized, should not be overprized, it is a means only towards the achievement of one's wider aims—'parmi les certitudes que j'ai pu acquérir au cours d'un demi-siècle de recherches et de travaux, il en est une, vraiment sûre, c'est que les qualités du caractère—courage, probité, amour et respect de la tâche acceptée—sont infiniment plus nécessaires à l'ingénieur que celles de l'intelligence qui n'est jamais qu'un outil aux ordres de l'être moral'.

Frank Lloyd Wright's Fallingwater

Bruno Zevi. Iliffe Books. 45s.

It was a felicitous idea to reprint in book-form this beautifully illustrated monograph of a building which first appeared in *L'Architettura* in August 1962, especially as the text gained translations from the original Italian into English, French, German and Spanish. It is already in its second edition. The text is in two parts: first an essay by Prof. Zevi discussing the house architecturally; second, an article by Edgar Kaufman, Jr. about how the house was conceived and built. Here is the gist of Zevi's summing up: 'It emerges from the continuity of the landscape as a formless articulation of spaces, i.e. it has destroyed the elementary shapes of "cubic matter" and all classical residue . . . there coincide for the first time in man's history the formation of cavities and the composition of masses'.

Architecture in Lebanon

Soraya Antonius. Beirut. Khayats. $1

After a short but zestful introduction this book is a disappointment. No promise of scholarly appraisal or paraphernalia is held out, but the intelligence informing the introductory remarks seems to have lapsed in the choice and presentation of examples.
Crusader churches and castles are omitted. Even such felicitous samples of Arab fortified building as Mousayliha, poised impregnable on a rock outside Batroun, are not shown. The choice of buildings is wayward, but not odd enough to stimulate interest. There are no plans or sections of the buildings illustrated (and these would have been particularly useful in the instance of the village house at Ibl Saqi, pictures of which are scattered here and there for no apparent reason). Not one of the buildings is properly located.
Since, however, there is nothing comparable, this book will have to serve visitors to Lebanon and they will, probably, appreciate its one real merit that it does give a representative sample of the buildings to be encountered in that country.

Zodiac 14

Ed. Pier Carlo Santini & Maria Bottero. Olivetti, Ivrea, and Zwemmer, London. £2 10s.

Jørn Utzon takes up nearly half of the 14th edition of *Zodiac*—with fullest details of the Sydney Opera House, Silkeborg Museum and the Zurich Theatre, as well as an article by Giedeon which forms a chapter from the next edition of *Space, Time and Architecture*. This is followed by short monographs on Albini and Valle, an article on an anti-rationalist reaction in the Argentine, and finally a piece by Jasia Reichardt about London's new towers and The Elephant.
Russell Hitchcock's article this time is about German cities and Düsseldorf in particular.

Architecture and perspective designs

Giuseppe Galli Bibiena. Introduction by A. Hyatt Mayor 53 plates. Constable, London. 18s.

This fascinating and beautiful reproduction of Giuseppe Bibiena's *Architettura e prospettive* appears at first a compendium of those exuberant and ornate designs for stage sets, fêtes and other displays for which the whole Bibiena tribe is famous. But there is more to it. Giuseppe Bibiena (1696–1756), the son of Ferdinando, the first of the theatrical Bibiena engravers, was supremely active in Austrian court circles during those years in which European architects were making their first fumbling attempts to evolve that architecture which was to be known as Neoclassical. He was not an innovator and his work is best interpreted as a culmination of Baroque theatrical tradition, but equally it is a repository of those themes and motifs that architects were experimenting with in the middle years of the century. Those soaring columns and those diagonal receding perspectives for which the Bibienas are renowned are not ubiquitous. There are static, set pieces in which buildings are grouped together in classical townscapes. The elements are clearly not of Bibiena's invention but compilations from the works of other engravers and architects. Some of the details that stand out as important in view of their later use by those French architects in whom leadership may be said to have

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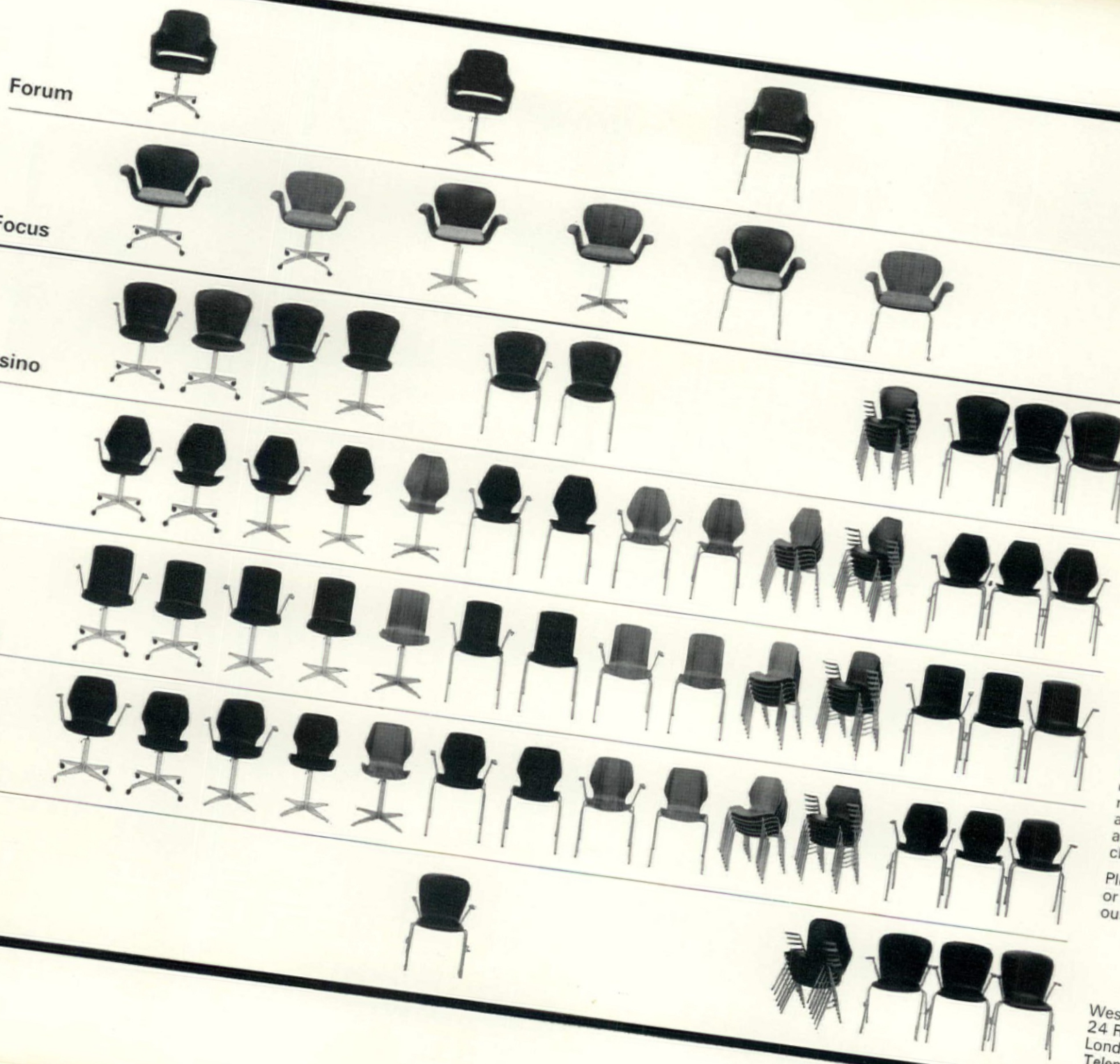

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been vested—Servandoni, Le Lorrain, Soufflot and Moreau Desproux—are lifted, surprisingly enough, from the Austrian works of Fischer von Erlach. Indeed, many noteworthy motifs of Le Lorrain's and even Piranesi's early Roman engravings might perhaps be traced to such sources. Absolutely, this publication poses new problems for scholars, and delight for everyone interested in eighteenth-century extravagance. The cost is absurdly low.

The first book of architecture

Lamont Moore. Revised and edited by Peter Rawstorne. Edmund Ward. 10s. 6d.

Elements of the art of architecture

William Muschenheim. Thames & Hudson, 35s. (cloth) and 18s. (paperback)

Without having seen the original 1961 American edition, it is difficult to know how much credit is due to author or reviser of the first book.
Written for the interested but non-intellectual reader, the material is divided into building-categories, and ends up with a 'walk around St Mark's Square'. The good thing about it is that it is not just another old history primer, but is up to date with both text and pictures.
Addressing himself to a slightly more adult lay audience, the author of the second book aims to illustrate the essential qualities of the *art* of architecture rather than the functional aspects. His thesis, too, is right up to date, with many pictures, but the material is differently divided, the three sections being titled 'form', 'surface', 'space'. Both books would be helpful for 'educating' an interested client.

Vasarely

Vasarely, translated Haakon Chevalier Editions du Griffon Neuchâtel, and Zwemmer, London. £8 8s.

Surely this publication is one of the most exquisite in the series to which it belongs ('Plastic arts of the twentieth century' edited by Marcel Joray), if not among all modern art books!
To quote Marcel Joray
'To transpose the plastic work of a contemporary artist, giving it a form appropriate to the technique of book publication; to prepare a volume that will present a synthesis of this work, and that will itself be as authentic a work of each of the creations reproduced—or even better, a book in which the scale of the reproductions will not betray the models, in which the printing processes will give results as convincing as the artist's own techniques—this may seem a vain ambition, or a mad dream.
'We believe that, however great the challenge, we have come close to the ideal objective. We owe it to Vasarely who has laid out the elements of every page, who has dynamized the whole, imparting to it the precision, the density, the vibrancy characteristic of all his creations. We owe it to the work, which came providentially to the rescue, for—tradition to the contrary notwithstanding—nothing that Vasarely creates is tied to a definite scale, or to a preferential technique.
'The "originals", in fact, do not exist. These are prototypes, which he subsequently recreates, according to his mood or the occasion, in sizes that may be 10cm or a meter, or 10m. Every one of our pictures has been reworked and adapted by himself to the format of our book and is as true as the "original". No subject is ever dependent on a technique. . . . The backing here being paper, printer's ink is therefore perfectly 'right' and cannot falsify. . . . The artist has demystified the concept of a unique item and defends the idea of the multiplication of the work of art. . . .
'For the execution of this work we have drawn on a great range of technical resources, including offset, silk screen, typography; mat, glazed and translucent papers and translucent backings; loose sheets and large folding sheets. Offset lent itself to reproduction in colour and to printing on mat paper. In order to remain faithful to the models in flat tints, use of the screen has been avoided as much as possible. A great number of pages have accordingly been executed by one printing in black and two or three printings in different greys, whereas a single printing in screened black might have sufficed, but would have been less faithful. The reproductions in colour have required up to eight successive passages on the machine (with the exception of the pages having several subjects in different colours, when the screen was unavoidable). Typography had to be used for subjects in black and white which gained in intensity and depth on glazed paper. Silk-screening, finally, gave the best results for the printing of the transparencies and the pages in silver or gold'.

So there it is—a technical *tour de force*, a work of art in its own right.
And Vasarely, who has all his life explained his ideas in words and writings, provides a distillation of his 'Rough notes' alongside the illustrations, showing the development of his thinking.
There is an immense satisfaction to be gained from his creations with their purity and order and the characteristic vibration—*la plastique cinétique*. He is the architects' artist *par excellence*. To him, form and colour constitute a plastic whole. 'A vocabulary of elementary colour-forms fitting into a square enables him to give modern architecture its plasticity. Not by means of super added polychromy, but through a true integration'.
Footnote: the reader cannot avoid being fascinated by a 'toy' provided in the book—five 'photo-graphisms' with overprints on separate transparent acetate sheets for him to move about and gaze in wonder at the emergent metamorphoses. Such miraculous 'movement' has always fascinated Vasarely.

Larousse encyclopaedia of modern art

Ed. René Huyghe. Paul Hamlyn. £4 4s.

The name Larousse is associated with completeness and definitiveness. So it is an exciting thought to have it related to modern art. The work under review certainly looks as though it should come up to expectations. It is a large volume, lavishly illustrated.
So how to test it? Assuming that Architecture forms part of Art, we looked up a few favourite twentieth-century names. Frank Lloyd Wright, Le Corbusier and Mies v.d. Rohe are well represented but not Louis Kahn. From Britain we could only find Sir Basil and there is no mention, for example, of Lasdun, Smithson or Stirling. In a section on chairs, we find Mackintosh, Rietveld, Mies, Saarinen, Gio Ponti, one Otto Eckmann (nineteenth century) but no Thonet or Eames—in fact Eames does not feature in a single section of the book. Under 'Rogers' we found Claude but not Ernesto. . . . Maybe, however, we are being unfair.
The authoritative essays introducing each chapter, plus the editor's qualifying notes do contribute to the success of the book's main aim, i.e. to show art as 'one essential element of the continuous development of mankind'. The material is divided into four sections: (1) Classicism and the romantic movement; (2) later eastern art; (3) Realism and Impressionism; and (4) twentieth century.

Art treasures of the world

E. C. Munro and R. Rudorff. Paul Hamlyn. 55s.

Published in 1964, this impressively produced volume, now reduced from 5 gns., is copiously illustrated, as much in full colour as black and white, and printed offset in Italy. A worthy companion volume to the Larousse.

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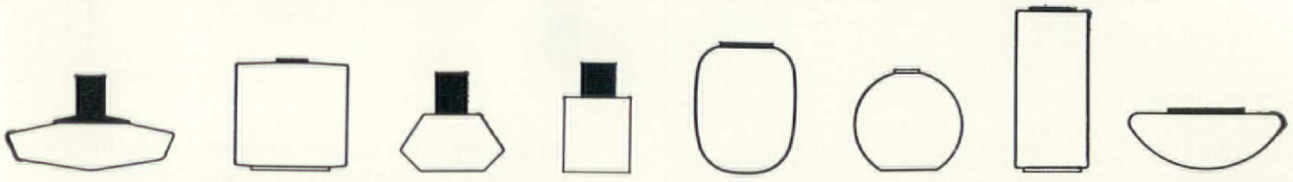

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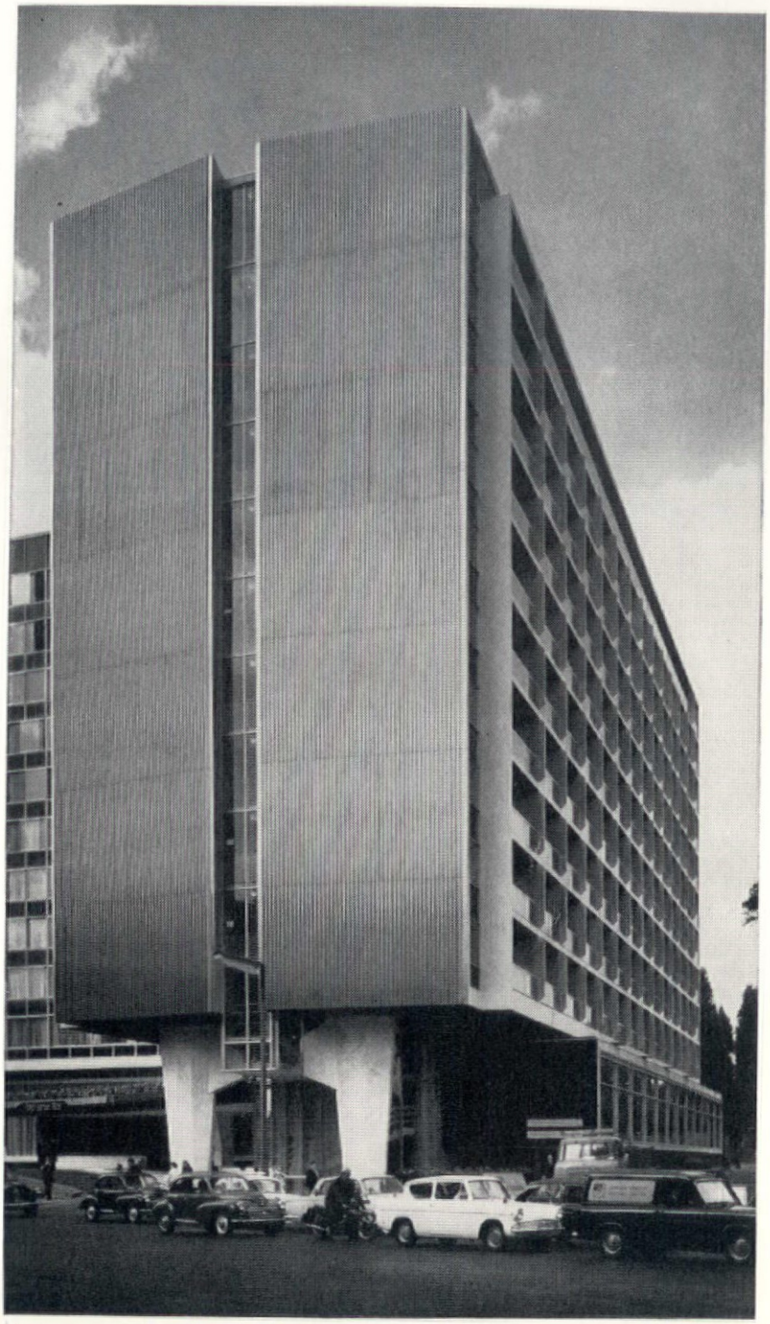

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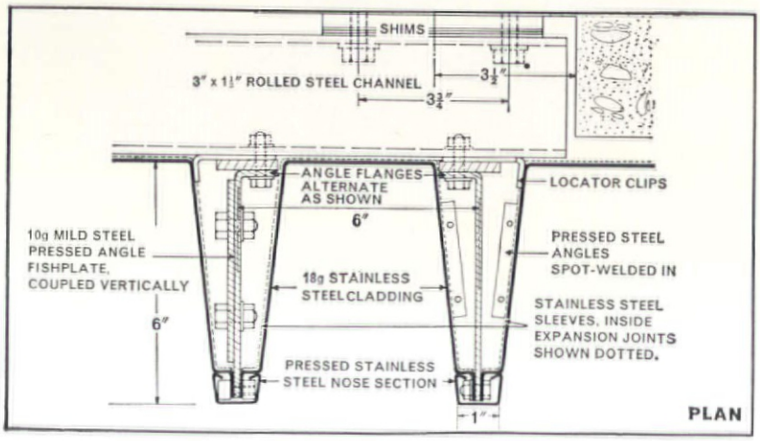

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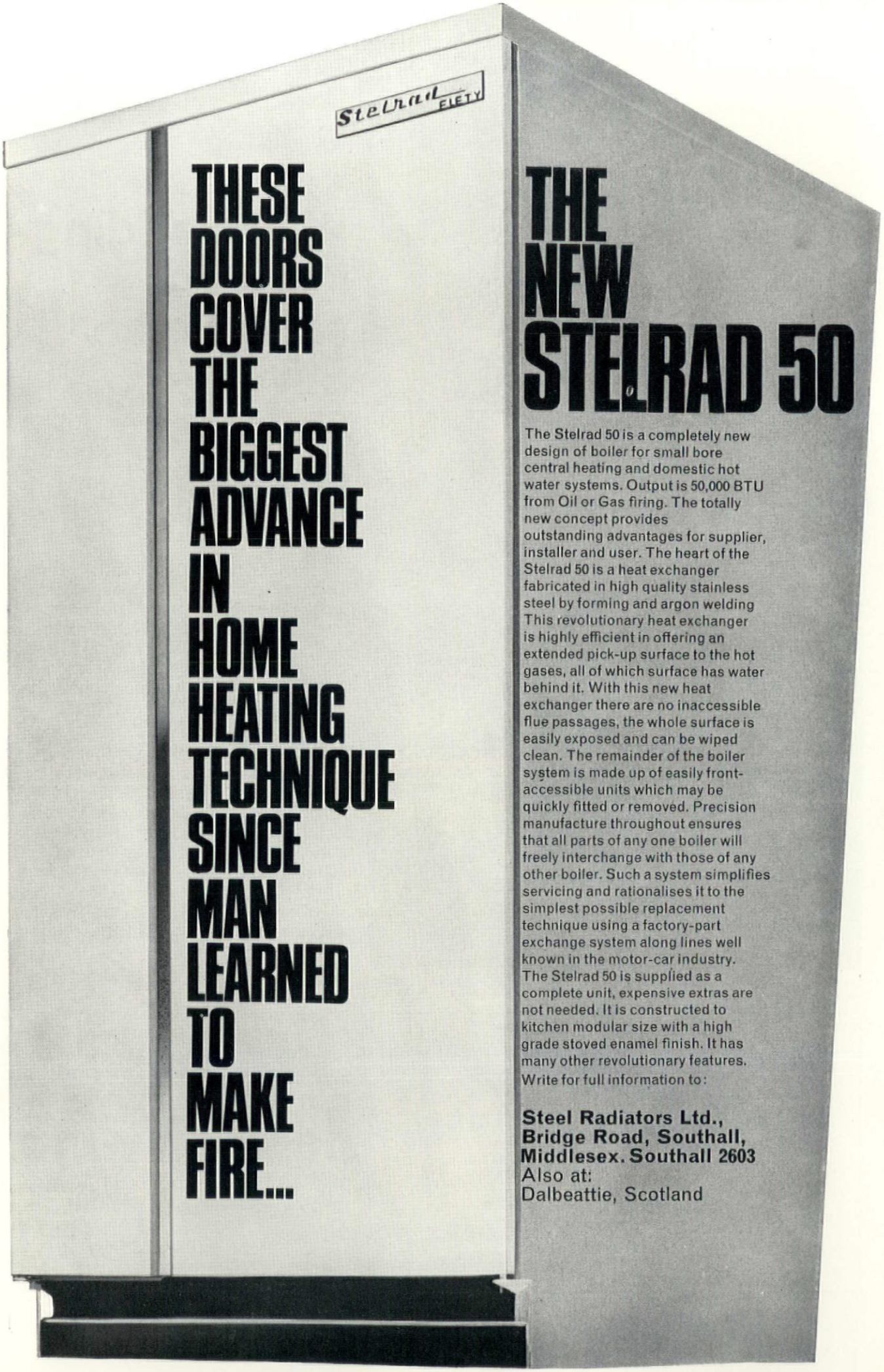

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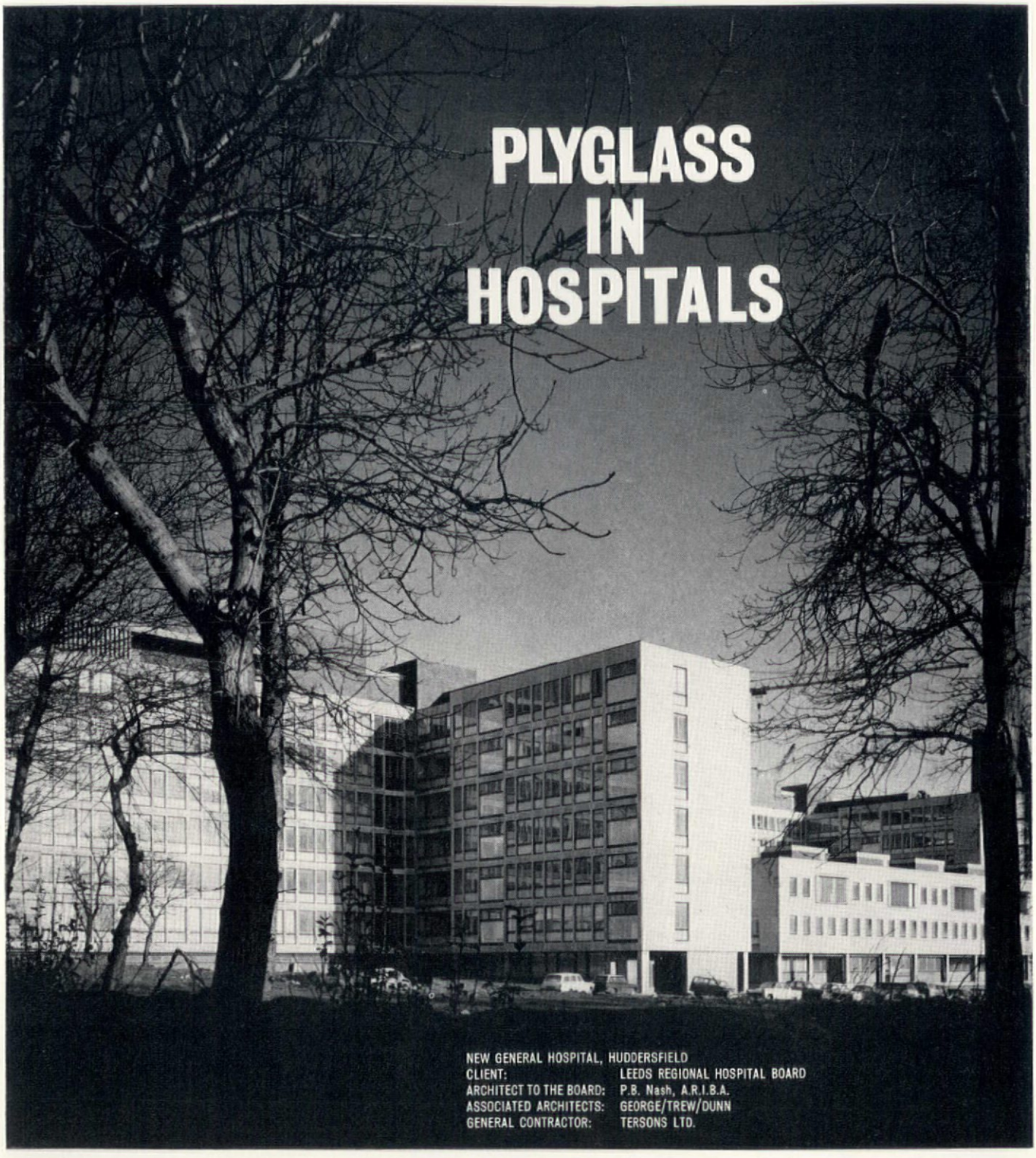

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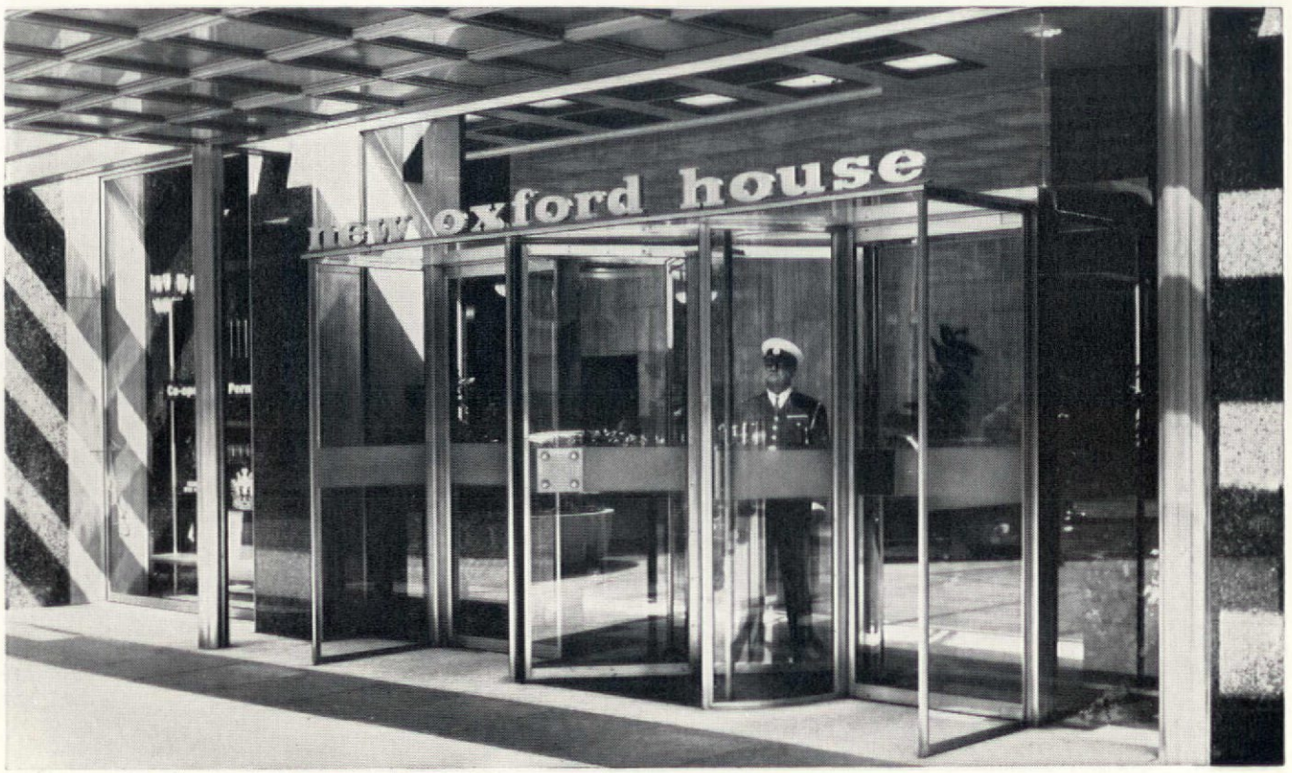

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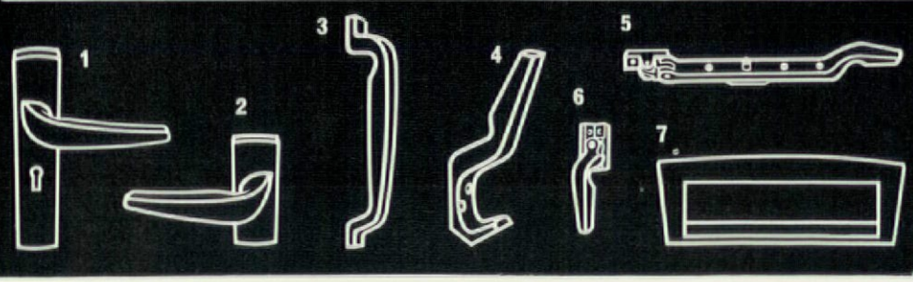

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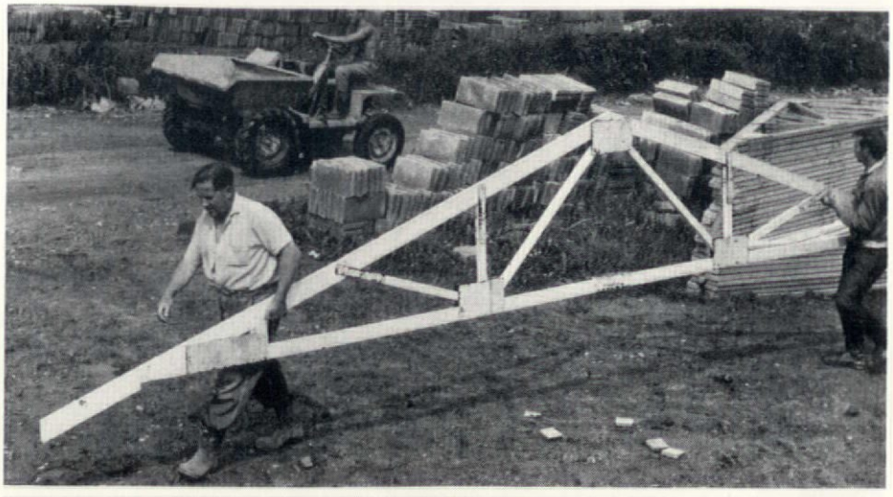

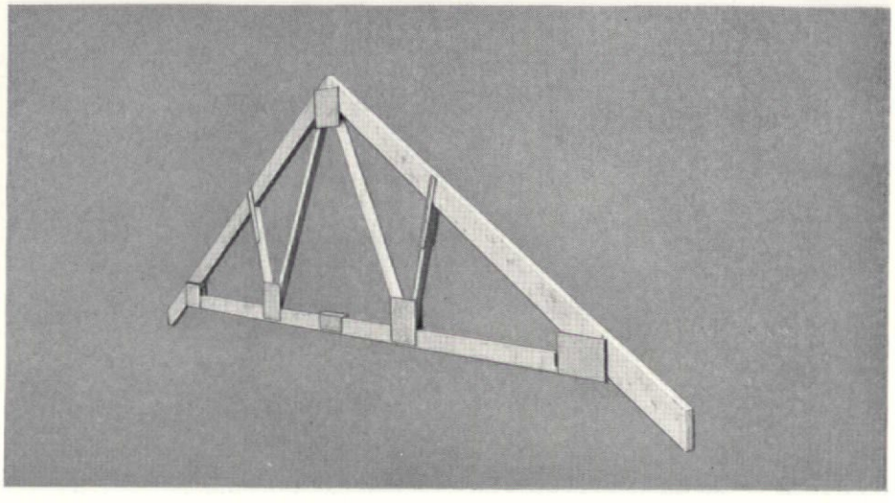

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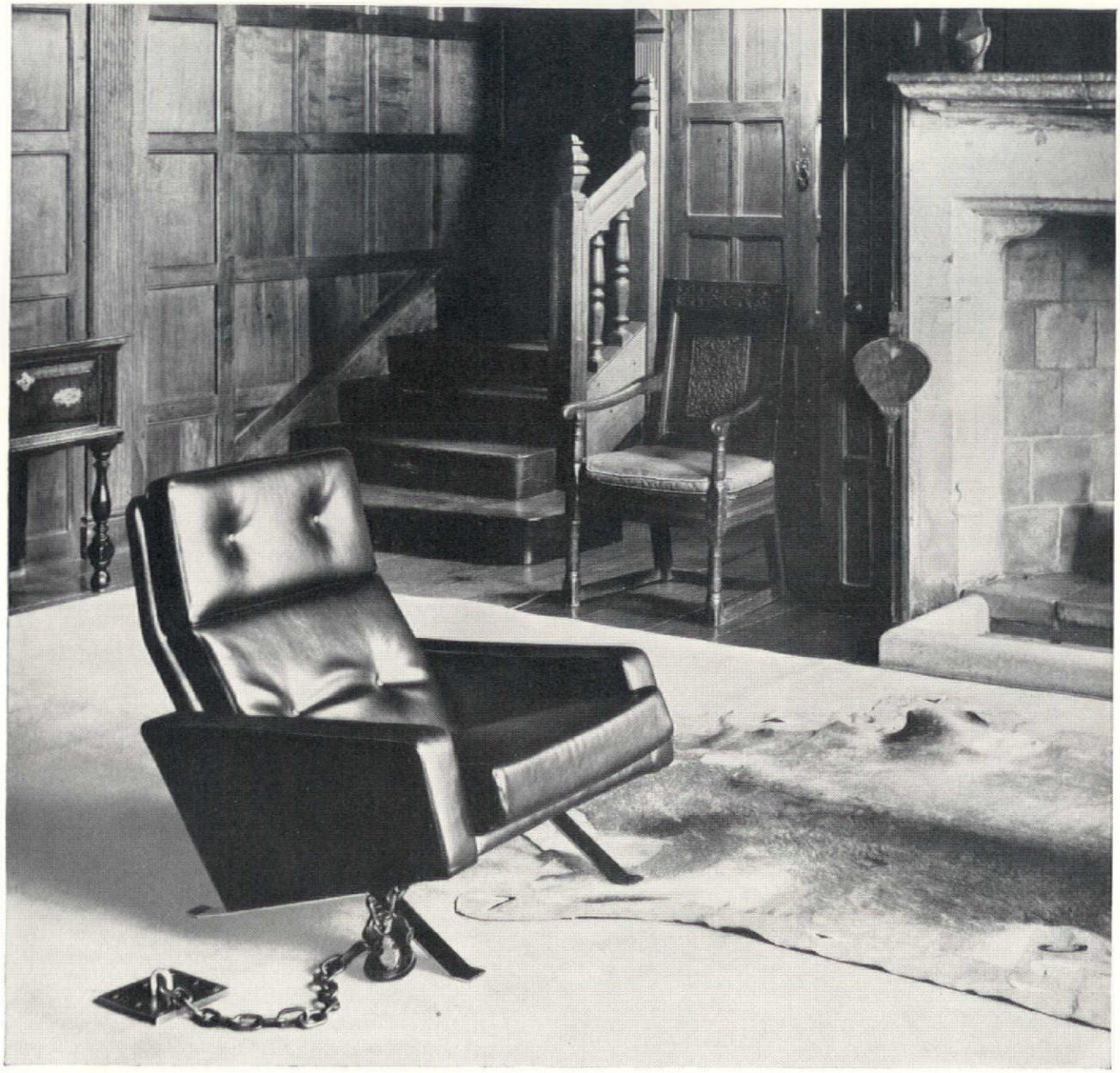

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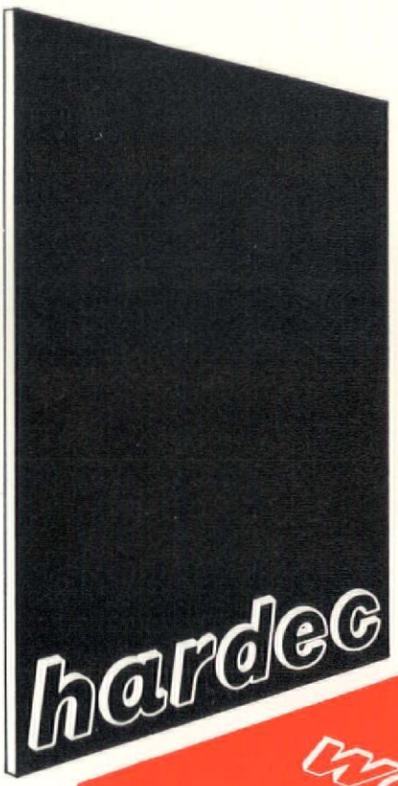

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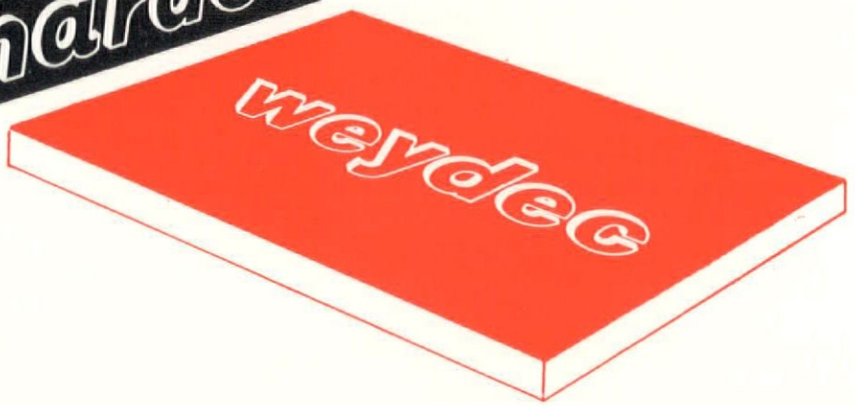

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AP 356

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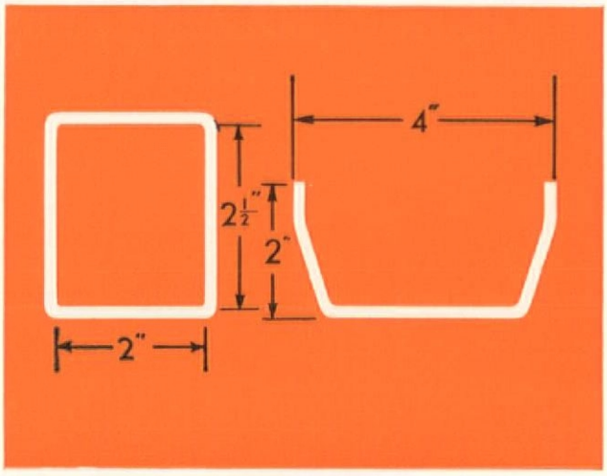
introducing Limpet

PVC RAINWATER GOODS



A new complete range of unique design.

Here, at last, is a superb range of high-quality PVC rainwater goods which, through its unique rectilinear design, provides new scope for distinctive elevational treatments. No longer need gutters and downpipes be 'hidden'; the LIMPET line is neat, good-looking . . . a very interesting architectural feature in itself. LIMPET rainwater goods have been exhaustively tested by the manufacturers, J. W. Roberts Ltd. – a company of the Turner & Newall Group. But its unique rectilinear design is not the only reason why its success is assured. Far from it. Consider all these other advantages!

* EASIER & QUICKER TO FIX. All gutter outlets, unions and fascia brackets are designed to allow gutters to be snapped into position. Built-in neoprene seals ensure water-tight joints and allow for expansion. Gutter unions and outlets act as support brackets and simplify erection, and with single screw fixing, easier alignment is achieved.

* AMAZINGLY LIGHT, STRONG & DURABLE. Made from specially formulated high-grade PVC, LIMPET rainwater goods will take normal ladder loadings and will withstand frost, ice, snow and anything the climate can produce.

* MORE WATER CAPACITY. 4" width gutter in the new rectilinear shape will handle more rainwater than a 4½" nominal half-round gutter. The new shape of the downpipe has a cross sectional area equivalent to a 2½" diam. downpipe and maintains the same discharge capacity.

* CONVERSION PIECES. A special change piece from rectangular to circular is available where downpipes are required to fit directly into a circular back inlet gully.

* ADAPTABILITY & ECONOMY. Swan necks are available in a range of sizes or can be fabricated on site to fit intermediate dimensions. Separate pipe connectors rather than socket-ended pipes allow pipe off-cuts to be used up on site.

* MAINTENANCE FREE. Needs no painting. Will not corrode or rust.

* COLOUR—GREY to B.S. 2660. Shade 9-097 – with a high quality finish.

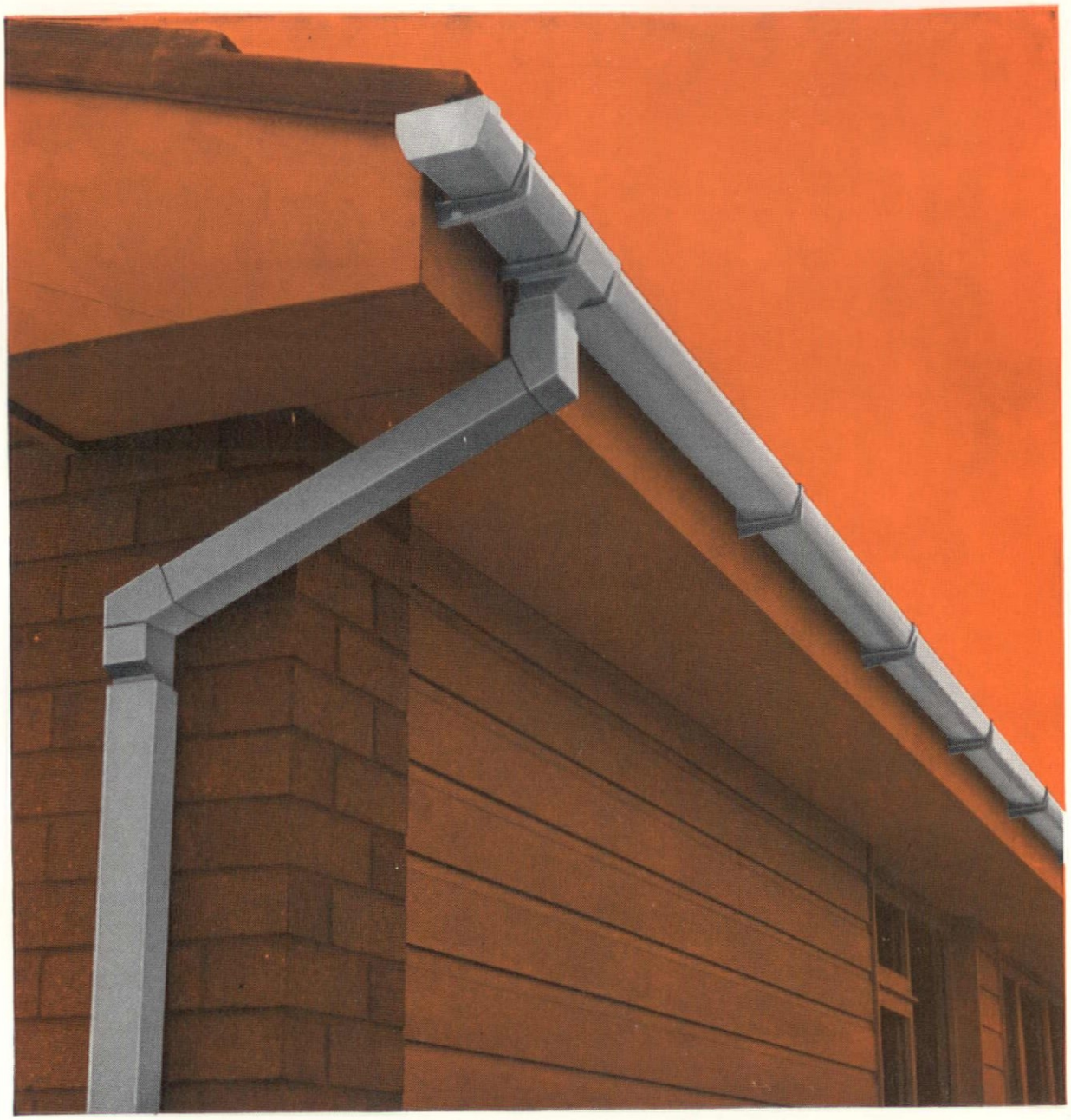
* AVAILABLE NOW—Complete range of fittings. Gutter and downpipes in standard 6 ft. and 12 ft. lengths. Available from leading Distributors and Builders Merchants.

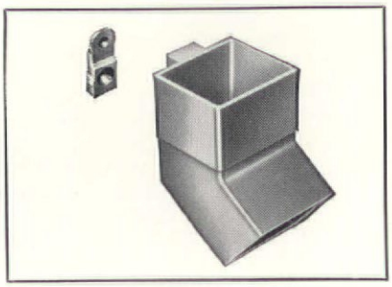
LIMPET rainwater goods are manufactured by J. W. Roberts Ltd., a Turner & Newall company that specialises in the production of plastics for building. It is backed by all the research facilities and production resources of this £100 million Group – which today comprises over 30 companies and operates in 10 countries.

Technical Advisory Service. The technical staff of J. W. Roberts will be pleased to answer any queries about LIMPET rainwater goods. Fully descriptive literature is available on request.

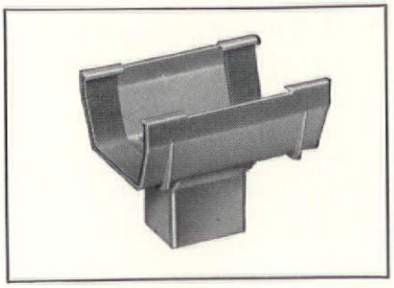
NOW IN BARBOUR INDEX

J. W. ROBERTS LTD · HORWICH · BOLTON · Tel: Horwich 840 *A Turner & Newall company*

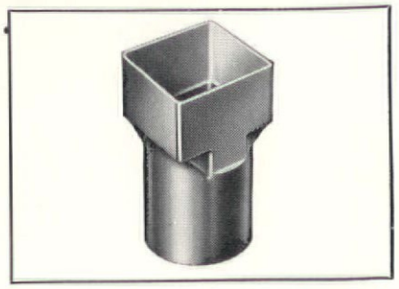




The wall clip is fixed by a masonry pin or screw, and the shoe is placed over it and snapped into position.



The gutter outlet has well radiused corners allowing for a smooth flow of water. This component also acts as a support.



The change piece is used when a downpipe is fitted directly into a back inlet gully, the circular section is cemented into the gully.

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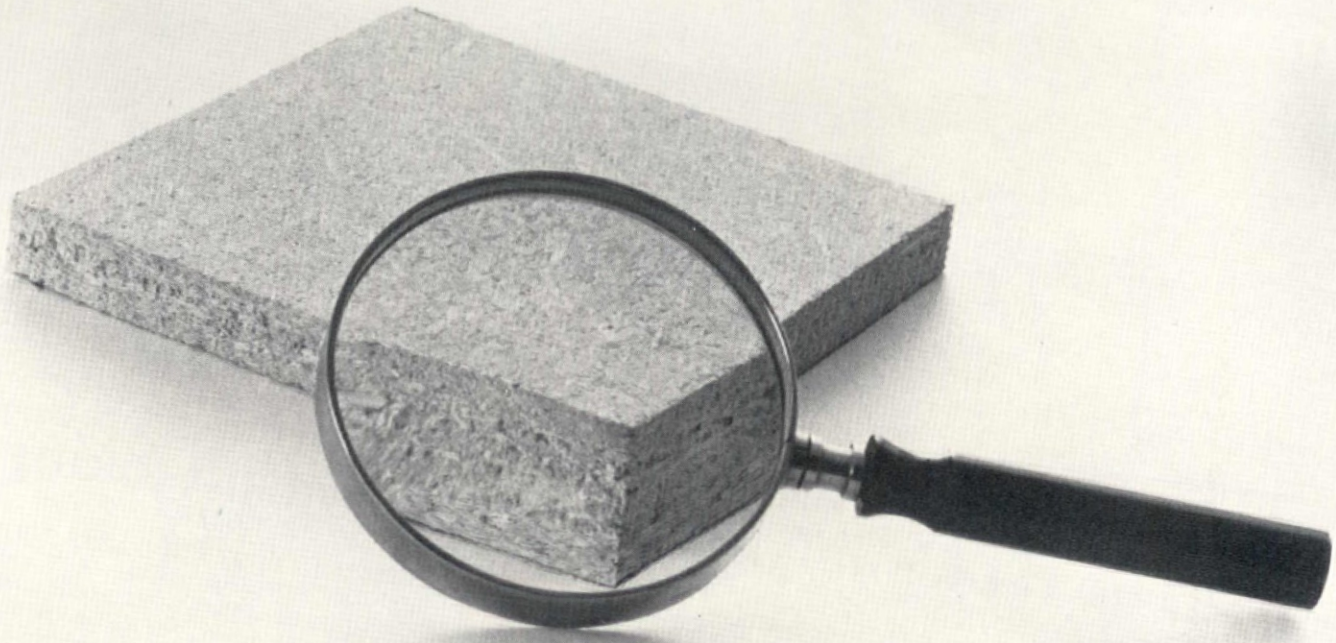

...that's been taken care of 56 times already

Weyroc is made on the most automated plant of its kind in the world. Because of this, we can maintain quality control standards impossible on a less developed production system. Weyroc is the product of a manufacturing system incorporating 56 precise quality control checks. **So the mere fact that you receive a piece of Weyroc wood chipboard is a guarantee of its quality.**

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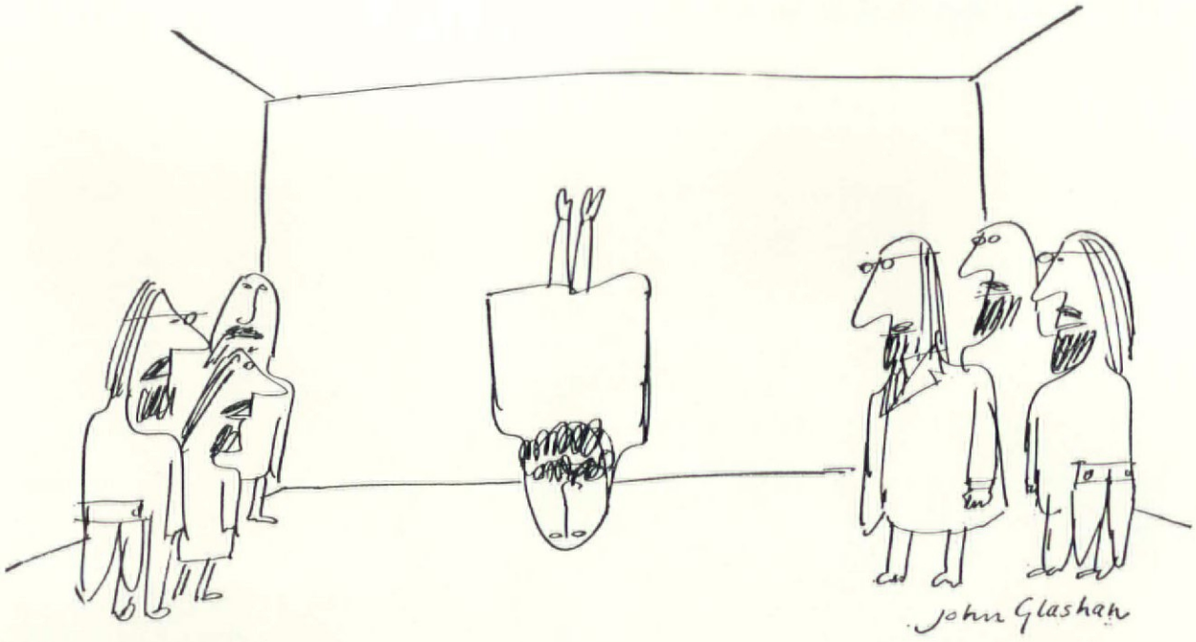
Barbour Index No. 252

AP 359

Who's the joker who said we could have all our heating, lighting, ventilating and sound-absorption through the ceiling?



The HT Ceilings man. And he wasn't joking

Deadpan, he said it. Because he knew he could do it. 'He who laughs last', he muttered, as he stood on his head (the better to look at the situation, you understand.) Then he jumped to his feet, and came up with all the answers — including a gem on cost-cutting. We kid you not. HT Ceilings can combine any or all of these functions in *one ceiling*. There's nothing to clutter up design. In point of fact, HT Ceilings are a flexible design element in themselves.

Heat through 'em. HT Radiant Ceilings with unique new electrical element built right in, give gentle uniform warmth at unbeatably low running cost. The element, operating at around 100° F, has an exceptional safety margin. There are no unsightly radiators or pipes. And what's more — no maintenance.

Light through 'em. HT Luminous ceilings give you glare-free, shadow-free lighting at any level. They can provide up to 100 lumens per sq. ft.— or more. Pretty bright, eh? And HT will put any size or shape of lighting unit into any ceiling, integrated to suit design requirements.

Ventilate through 'em. When it comes to ductless ventilating ceilings, HT have yet another ace up their sleeve. Multiple invisible slots give controlled air-injected ventilation with absolute freedom from draughts, even at 120 air-changes per hour. Still no draughts when the volume of air injected is varied in different parts of a space. Given the air-change requirements, HT experts will calculate the rest to ensure complete mixing above head-height. If you want to introduce humidified or conditioned air, HT Ceilings are the boys for that as well.

Let's speak acoustically. HT make the only acoustic ceilings that can both reflect and absorb sound scientifically calculated for optimum performance, with no change in appearance.

The sound-reflecting and sound absorbing materials are effectively concealed behind aluminium alloy strips. Stove-enamelled in twenty-one colours, and completely flexible directionally, the lineal facing offers endless design possibilities.

As an example of HT Acoustic Ceiling efficacy — they can reduce reverberation time in swimming-pools from 6½ seconds to 1½ seconds. Five seconds worth of nerve-racking reverberation lost! And again, these ceilings need no maintenance.

Thinking of integrating? Fitting fire-sprinklers, air-terminals or lighting-units — any shape — into all HT Ceilings presents no problem, nor does working round corners, or partition integration.

The HT Ceilings man wasn't standing on his head purely for laughs. He was entirely serious about the possibility of combining all these features in one ceiling.

To give you a case in point — HT are producing a special two-layer luminous/acoustic ceiling for Ford's new £10½ million Engineering and Styling Centre at Basildon. In this ceiling, the light fittings are designed to be the wiring trunking and main support of the Acoustic Ceiling which itself forms the air-conditioning plenum and fire barrier. The lower ceiling, designed to the building module, provides glare control and supports for the demountable modular partitioning throughout. Covering 200,000 sq. ft. this is the largest single special ceiling in Europe.

The gang at HT live and breathe ceilings. Their expert advice is available from the drawing-board onwards. They're thoroughly qualified to see the project through. At design stage, during erection and after completion HT are ready and able with help. For as long as the building stays up.

Look, we don't want to go *on* about this. Write for Sfb classified technical literature or ask the HT Ceilings man to call.

HT CEILINGS
A HALL-THERMOTANK GROUP COMPANY

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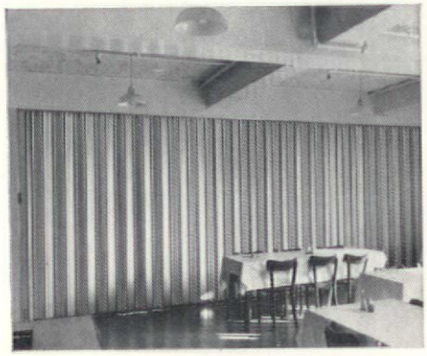

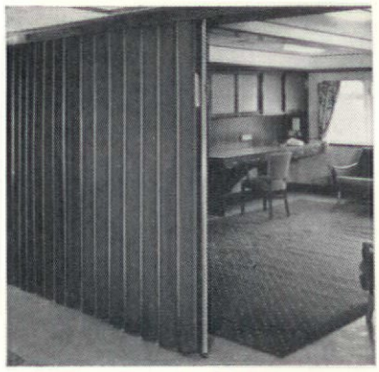

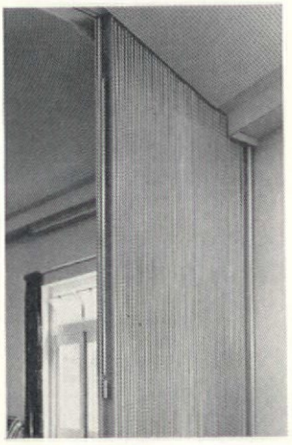

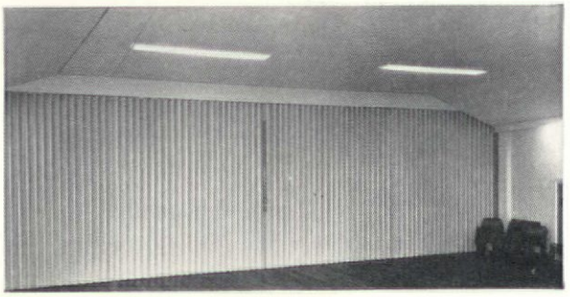

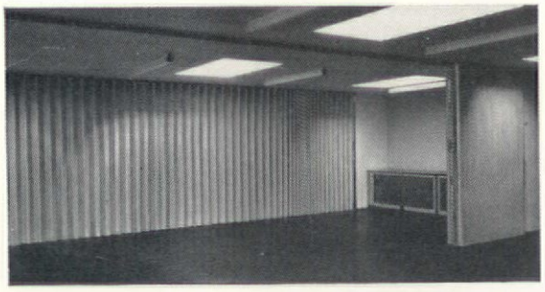

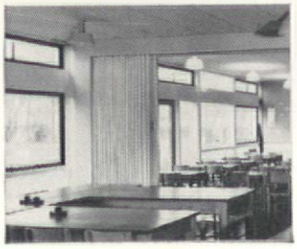

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'ARMOURCLAD' colours stay young

You can't tell the age of a building by its looks when it is faced with 'Armourclad' toughened glass cladding. The colours are fired into the glass for permanence, and with simple cleaning always look new in the way that belongs exclusively to glass. There are 10 standard and 40 non-standard colours in the 'Armourclad' range and many others can be matched if the footage required is sufficiently large. Contact Pilkingtons' Technical Sales and Service Department for details and also of 'Vitrolite' glass for cladding.

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PILKINGTON BROTHERS LTD St. Helens, Lancashire Tel: St. Helens 28882 London Office & Showrooms: Selwyn House, Cleveland Row, St. James's SW1 Tel: WHItehall 5672. Supplies of 'ARMOURCLAD' and 'VITROLITE' ('Armourclad' and 'Vitrolite' are registered trade marks of Pilkington Brothers Ltd. in many countries of the world) are available through the usual trade channels.

Photograph by courtesy of Wates Built Homes Ltd.

THE GLIKSTEN MARK 12 VENEERED FLUSH DOOR

An elegant room designed for a pleasant awakening; a room that by its very simplicity is restful, quiet and dignified. Fitting into the picture so easily is the Gliksten Mark 12 door, put there by the designer who needed something rather better than usual to harmonise with the well-thought-out colour scheme.

Gliksten Mark 12 doors are, in fact, at home in most surroundings and will give an air of quality to a lounge, dining room or an entrance hall just as well. Have you considered using Mark 12 doors in your own housing schemes? It's well worth looking into, especially as the extra cost per house is very little. If, however, the call is for painted doors, there is none better than the 'Silkstone' door. Write to us for details of either or both these types.

FOR PAINTING USE THE GLIKSTEN 'SILKSTONE' FLUSH DOOR

GLIKSTEN

GLIKSTEN DOORS LIMITED, CARPENTERS ROAD, LONDON, E.15. TELEPHONE: AMHERST 3300
87 LORD STREET, LIVERPOOL, 2. TEL: CENTRAL 3441 ☐ LEADS ROAD, HULL. TEL: HULL 76242.

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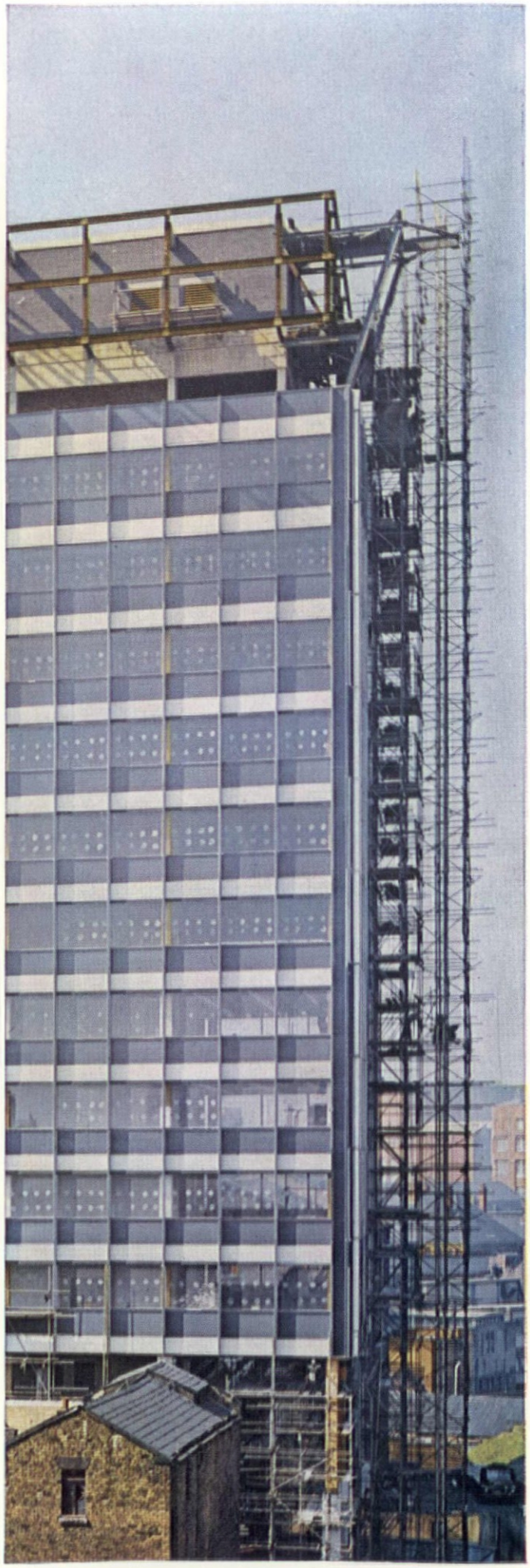
At ICI we believe we have one of the most underworked Complaints Departments in the UK. It's not good luck, it's good labs — ICI is pioneering in every new field of painting development, but testing is so thorough that new paints are marketed only when we are certain that your complaints will be as few as ours. If you are interested in all types of modern surface coatings, you can specify 'Dulux' and other paints from ICI with professional confidence. By the way, you mustn't get the idea that the spider in our illustration has an easy life—his whole day's work is wiped out nightly by the cleaners.

You have a name to live up to...

...so do ICI



A tale of EIGHTEEN STOREYS

You are looking at Littlewoods' new building in Liverpool—and at a bit of history!

This is the highest office block in Liverpool (320 feet above sea level.) It is also the first structure in Britain to be designed as a rigid all-welded steel frame using high yield stress steel Universal beams and columns (rolled at Dorman Long's Lackenby Mill.)

Why? Because on this contract, the consulting engineers found that for overall economy and speed of construction steel showed definite advantages over other forms of construction.

Using a steel framework had other advantages. Smaller columns gave more usable space. No haunches meant clear runs for services. Less deadweight allowed small foundations.

Fabrication and erection of all structural steelwork (about 2,200 tons in the first phase) was carried out by Redpath, Brown & Company Limited.

Architects, Quantity Surveyors and Electrical Engineers
W. L. Stevenson, Esq., O.B.E., Manager, Littlewoods Department of Architecture & Planning.

Consulting Structural Engineers
Bingham Blades & Partners, Liverpool.

General Contractors
Tysons (Contractors) Ltd., Liverpool.

DORMAN LONG
STEEL

Cosmorama

The month in Britain

Michael Manser

Christmas came and went with customary bloodletting on the roads, and 1965 closed taking with it an unusually high quota of world giants including Churchill, Schweitzer, Corbusier, Elliot and Somerset Maugham.

New Year civil honours were not bestowed over-generously on the construction industry, but the RIBA recommended engineer Ove Arup for the 1966 gold medal for services to architecture. They also replaced the bronze medals with a new regional system of architecture awards. The GLC appointed Sir William Holford, this time with Ove Arup, to have yet another go at the Piccadilly problem. The projected new town in Buckinghamshire was announced to cover a designated area of 27,000 acres—the largest new town yet, and equal to the size of Manchester.

The Ministry of Transport revealed, to no one's surprise, that increases in traffic volumes expected over the next years will outstrip new road construction. Subsequently a new Minister, Barbara Castle, took over and made some encouraging noises about traffic and integrating all transport systems, and then spoke sharply to the railways about the need for outside consultants on railway management.

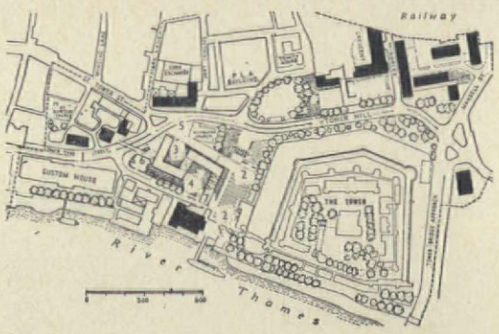
The Chiltern Hills were designated as areas of outstanding natural beauty, and the Town & Country Planning Association held a conference on the Land Commission Bill, involving 1000 people from all the interested bodies.

Preservation Societies are too often anti everything and strictly negative, but the Barnsbury Association formed of citizen planners, lawyers and architects, etc., had a resounding and constructive success when opposing an LCC compulsory purchase order. They put up counter proposals for this area of Islington, environmentally planned *à la* Buchanan. The Minister in his report on the inquiry supported their proposals and suggested Barnsbury a suitable area for a pilot scheme, with their consultation. The Barnsbury Association have now nagged the GLC into providing a site in the area for an adventure playground.

For architects in mid career the AA announced a number of short courses on computer programming, care of old buildings, industrialization of building, senior management, architectural aspects of electrical and telecommunication systems, urban planning and development, architectural design with respect to urban micro-climate, and heating and ventilating.

Three journalistic enterprises made a 1966 debut: one a professional glossy architectural quarterly devoted to productivity under the title *PACE* (Productivity in Architectural Construction and Engineering); another, *Clip-Kit*, a student product in the Archigram image; the third *The Set Square*, a tabloid with Owen Luder for consultant editor, to be published monthly by The Marketing Group, whose experience has hitherto been with controlled circulation newspapers for the medical and pharmaceutical professions.

PACE deals in the guts of productivity and progressive construction and only disappoints in the architectural quality of buildings illustrated.



Key to plan

1 Lower Thames Street widened and diverted around the Precinct

2 Tower Hill concourse, a large paved space for pedestrians

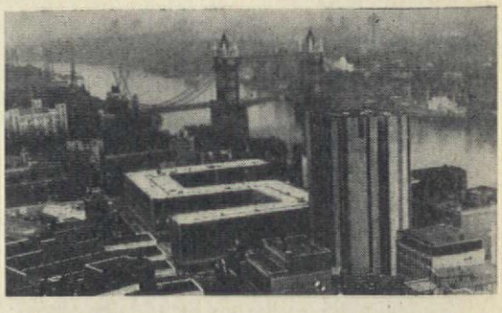
3 Shopping and walking space

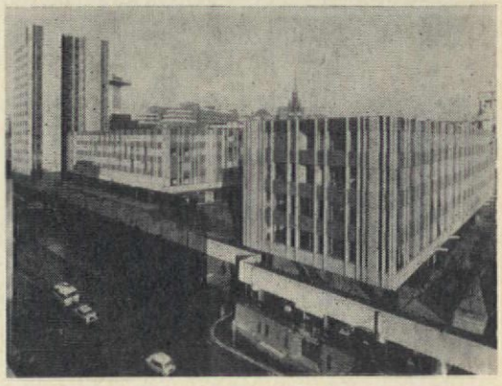
4 Accommodation for 300 cars and 16 coaches on three floors under this space

5 Open spaces to south and west of All Hallows Church improve its setting

6 15-storey office block

7 Five-storey office block with through views to the Tower





Tower Hill Precinct

The completion of the Bowring office building on Tower Place carries the LCC and City Corporation's 1959 plan for the Tower Hill Precinct a stage nearer completion. The aim of the plan was to provide a more worthy setting for the Tower of London and the other public and historic buildings and monuments in the area, such as All Hallows Church, the Port of London Authority building and Trinity House. It involved realigning Lower Thames Street, and providing eventually a pedestrian concourse in place of the present car park on Tower Hill. New parking space has been incorporated below the Tower Place buildings.

The S-shaped plan and the tower height of the new office complex were determined by the various authorities concerned with the area before the architects, George, Trew and Dunn, working with the architectural department of one of the two clients (City of London Real Property Co.), came on the scene. The buildings, designed in collaboration with the Corporation's planning department and engineers Ove Arup and Partners, provide a traffic-free upper level shopping terrace with wonderful views of the Tower and the river, in due course to be connected by a bridge to a pedestrian spine proposed to run parallel with Lower Thames Street. The 16-storey tower and the four-storey S-blocks have their structural concrete mullions faced with panels of light toned Cornish granite aggregate, with darker aprons below the windows. On the Lower Thames Street side, where the slope of the ground allowed for car parking under the great pedestrian terrace, the street front is set on a high plinth of rough-hewn granite masonry, and topped by the deep concrete fascia of the terrace.

Ove Arup

Of Ove Arup*, recipient of Britain's 1966 Royal Gold Medal for 'Services to architecture', his partner Ronald Jenkins said, 'One thing that history will certainly remember him for is his fostering of the ideal of integrating structure with architecture'.

*See *AD* March 1965

Plug-in principal

When interested and disinterested parties met to discuss a new principal for the AA, Council's democratic image was hailed by some as too average, while the student committee seemed as conservative.

Extreme suggestions included scrapping a Principal or hiring a business manager; and Reyner ("I can't teach in this atmosphere") Banham wanted to scrap the whole AA.

Those in favour of a Principal wanted someone 'switched-on', while Peter Cook thought he should be 'unpredictable' and removed when past his peak.

International diary

15–30 March 66. First International Congress of Interior Decoration and Design. (Director, Fomento de las Artes, Apartado de Correos 14778, Madrid.)

4–9 April 66, Lyons. First meeting of *Actuel 66. Architecture et urbanisme contemporains.* (C. Soubeyran, 57 rue Sarrette, Paris 14.)

15–21 May 66, Montreux, Switzerland. 4th Seminar of Industrial Architecture. (Swiss Tourist Office, Montreux.)

June–September 66, Venice. 33rd International Art *Biennale.*

13–16 July 66, Bled. ICOGRADA congress. 'Graphic design and visual communication technology'. (ICOGRADA 1966 Congress Secretary, c/o DLUUS, Titova Cesta 21/1, Ljubljana, Yugoslavia.)

10–13 September 66, Dublin. RIBA annual conference. (RIBA, 66 Portland Place, London W1.)

19–27 September 66, Munich. *Bau 66.* (M.M.G., Theresienhöhe 13, Munich 12.)

21–23 September 66, London. International Conference on Space Structures. (Dept. of Civil Engineering, Battersea College of Technology, London SW11.)

8–17 October, 66, Bologna, Italy. 2nd International Exhibition of Industrialization.

9–15 October 66, Tokyo. 5th International Congress of Plastic Arts. (Sécrétariat Général de l'AIAP, 6 rue Franklin, Paris 16.)

ALL YOU SEE IS THE DOOR CLOSE

With the Briton 1100 concealed overhead door closer the surface of the door and its surround is left completely free from all visible fittings. The Briton 1100 is designed to be fitted into the soffit of either wood or metal frame doors with the arms concealed in the top rail of the door. The use of butt hinges is eliminated as the door is hung on a bottom centre. The Closer occupies a space only $3\frac{3}{4}$" wide x $1\frac{1}{2}$" deep x $12\frac{3}{4}$" long. A special feature is that the dimension from the back of the closer to the spindle is only $2\frac{3}{8}$" thus allowing maximum clear opening when doors are fully opened.

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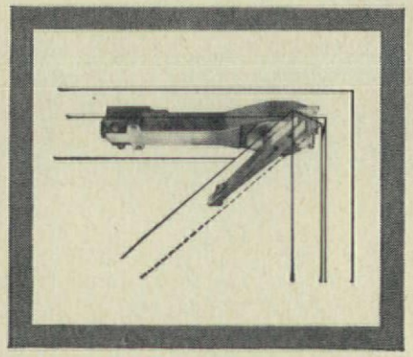
briton 1100



NEWMANS WILLIAM NEWMAN & SONS LTD., HOSPITAL STREET, BIRMINGHAM, 19

1

Teesside industrial estate report

J. Collier

On the basis of a site chosen by the then Government in January 1964 a project group under Professor Jack Napper and advised by Lord Holford set out to make recommendations for the development to the Industrial Estates Management Corporation for England. A study of existing estates, automation, new techniques and procedures, car ownership and environmental standards have led to a Radburn type layout in a series of factory superblocks. Each superblock has extendable car parking (capable of eventual decking), a pedestrian spine containing offices, staff rooms, etc., linked to a recreational area providing facilities for increased leisure and club development. Public transport lay-bys are related to the pedestrian system.

Each factory now backs on to the road system and requires an overall design instead of the prestige frontage normally associated with industry. Comprehensive landscaping, screening and planting complete a report which contributes to the establishment of environmental standards in industrial development. Larger problems such as the integration of industry into the urban structure and especially its requirements in areas of mixed use are unfortunately outside the scope of this study, but the values it respects and their organization which it suggests, clearly indicate that industry can become a decent neighbour to other activities.

Droitwich expansion

R. Stanley-Morgan

Government planning policy for the West Midlands Region calls for establishment of a city of 200,000 in East Shropshire to improve the balance of people and jobs throughout the region, and at the same time smaller old communities are being encouraged to expand. Droitwich in Worcestershire is one of these. A joint scheme by Borough and County Council will push up the population from 8000 to 30,000 in the next 15 years, one third of these new people coming from Birmingham and another third from the Black Country.

Where the new industry will come from is not so clear. Birmingham firms wishing to expand are directed to Development Areas away from the Midlands, so one expects that Droitwich will have to recruit firms of a different kind from other centres. If immigrants from Birmingham have to retrain in new skills in order to move to Droitwich, one foresees snags.

The residential development suggested is on familiar low density New Town lines and there is to be a fifty-acre campus in the river valley, no doubt with comprehensive education in mind.

Oud exhibition

The fine, comprehensive exhibition of the works of J. J. P. Oud mounted with the help of his widow last July at Die neue Sammlung, Munich, has been set up at the Berlin Akademie der Künste, where it opened on January 28th. Perhaps the RIBA might be stimulated to bring it to England.

2

Liverpool centre—1966–86

Dennis Sharp

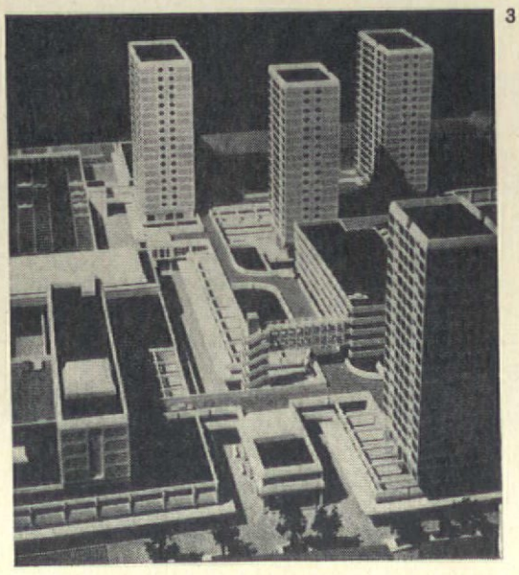
The plan for a new Liverpool has now reached its most crucial stage, with the announcement of the City Centre Plan. It is a formidable proposition. Its success will rest largely on the progress that can be made with the proposed integrated transport system. Liverpool grew up as a port approached through the mouth of a great river. It is being reorganized for modern needs as a conurbation core, the centre of a region that by the 1980s will have increased its population to 2½ million.

The City Centre Planning Group—consisting of members of Graeme Shankland's Planning Team and Walter Bor's City Planning Office—have put forward their proposals that will establish the pattern of environmental development and traffic organization for the next 20 years. At an estimated cost to the Council of £66 million for the first five years the transport system from within and outside the city centre will be started, the comprehensive development areas (designated 'environmental areas' and not neighbourhoods) will get under way, the major road works programme and pedestrian circulation will be developed and the first stage of the new Civic and Social Centre completed.

In the plan the transport system is clarified into an underground Mersey Railway loop which connects all the terminals and an overground loop connecting the outlying district centres with the underground at the remaining two main line terminals. The inner motorway channels the incoming traffic from the tunnels and the outskirts of the city around the central area and into the 27,000 car parking spaces. Buses will serve the internal environmental areas.

Besides the provision of some 2000 new residential units within the central area, open space will be doubled.

All this is happening on the east bank of the Mersey Estuary and one major question remains to be answered. What is Birkenhead going to do?



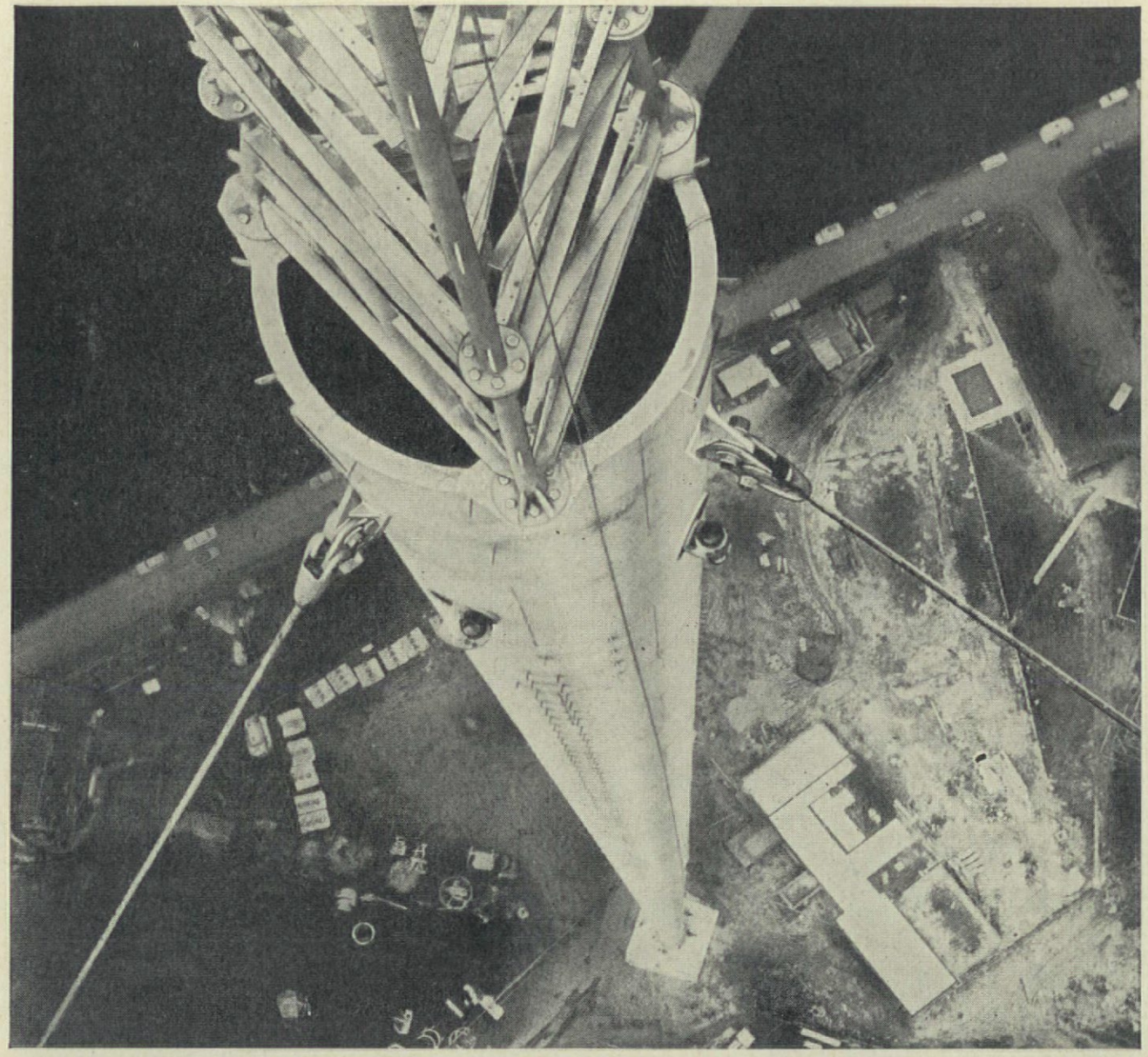
3

Sunderland central area plan

J. Collier

Sunderland Council's proposed development **3** achieves limited pedestrian safety but inflicts extra car parking on to the already inadequate street system virtually encircling the site. Flats above the shops allow bachelors and pensioners to survey roofs and parked cars by day, whilst by night their lighted windows reassure the planners that the precinct is 'alive'. Basil Spence's Civic Centre **4**, with a stepped form for lateral departmental expansion and a triangular grid of less obvious use, is 500 yards away.

4



THE TALLEST STRUCTURE IN EUROPE IS MADE FROM APPLEBY-FRODINGHAM HIGH TENSILE STEEL PLATES

The 1,265 foot T.V. mast at Emley Moor, Yorkshire, consists mainly of a steel column 9 feet in diameter, housing equipment and a power-operated lift permitting maintenance work to be carried out in all weathers.
The column is built from 375 fabricated segments in Appleby-Frodingham high tensile steel and weighs 210 tons.
Another mast 1,015 feet high has been built at Winter Hill, Lancashire. A third at Belmont, Lincolnshire will reach 1,265 feet. The cylindrical columns of all three masts are built from Appleby-Frodingham high tensile steel plates.

Masts commissioned by I.T.A. and to be shared by B.B.C. Design, supply and erection by British Insulated Callender's Construction Co. Ltd. for E.M.I. Electronics Ltd. Fabrication and hot dip galvanizing of steelwork by Painter Bros. Ltd., Hereford.

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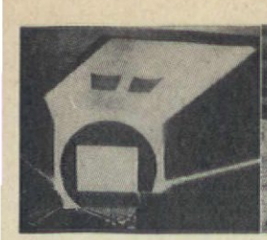

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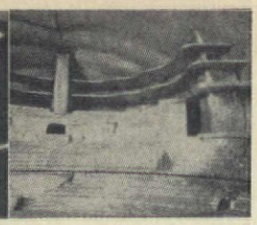

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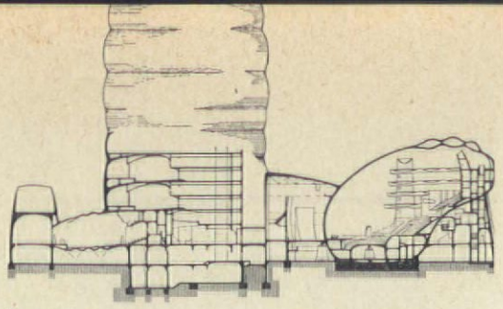


3

Frederick Kiesler

Frederick Keisler's designs have the power to stir architects to frenzied doodling. His Endless House of 1953 set a whole school of English architects on a Bowellist course. His Universal Theatre of 1961 confirmed them in their enthusiasm **2, 3**. Yet his executed works fail, signally, to arouse such emotion and rarely appeal to the admirers of the projects. How many imitators of the Endless House have sought out the Eighth Street Cinema of 1928 vintage **1**? How many of them can contemplate with equanimity the recently published views of the Shrine of the Book **4, 5**, that monumental composition on a hillside outside Jerusalem intended to house four of the Dead Sea scrolls and at the same time to glorify their wisdom and to present it thus glorified as an inspiration for the reborn State of Israel. (The scrolls, by odd coincidence, were found in 1947 during the same week that the UN voted for the independence of Israel from the British mandate.) The shrine, Kiesler has stated, is an example of ideological architecture.

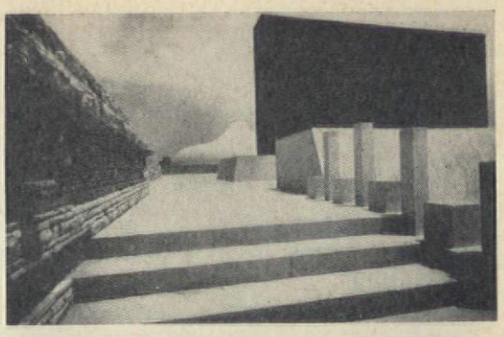
'My definition of architecture', he writes, 'is very simple; architecture is the art of making the superfluous necessary. And building and shelter is the art of making the necessary superfluous. We have no architecture today because we only believe in the necessary, in the practical, in the immediacy of things.'

Functionalism is to Kiesler too limited a goal. Technology he takes for granted. The sequence of sloping lawns, the stairways, basalt blocks and corridors, the dome, the fountains of fire and water, all are conceived to transcend the mere art of building or architecture as we know it to-day. The Shrine points to a rare future.

Correalism is the key word. But, if one is to judge by the published views, the building—or sculpture or what-have-you—has failed. The whole is stamped with the imprint of academicism. It is stiff. And the profusion of motifs and materials, far from lending it an intricacy and richness, has made it no more than a contrived and artful display. Absolutely, the ideology is belittled. Clearly we are not yet capable of adumbrating in architecture such ideologies as Kiesler upholds. He himself is not yet master of any possible vocabulary. The ideology of modern architecture is based on a belief that every man is entitled, as a start, to an adequate environment and it is against the reality of such buildings as are provided for the use of the population of the world that our ideologies must be tested—places of work, factories, offices and shops and, supremely, houses must be considered as the prime expression of ideology for present day architects.

Kiesler's famous designs, significantly, have usually been for theatres, not for buildings of daily routine—even the Endless House was first conceived as a vast space theatre.

Architectural Forum September 1965; *Progressive Architecture* September 1965; *Moebel Interior Design* October 1965; *Deutsche Bauzeitschrift* September 1965.



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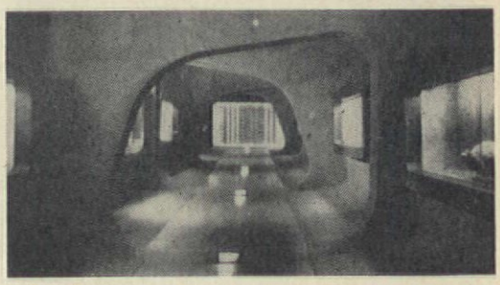

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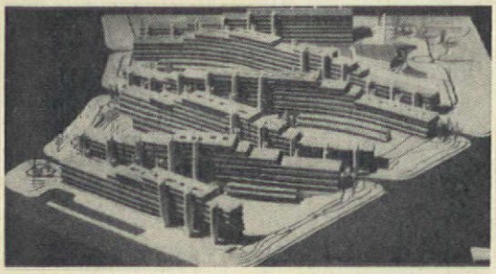


Naples overspill

The chronic state of the finances of the city of Naples has made it all but impossible for any adequate rehousing to be undertaken during the last decade. There are virtually no slum clearance schemes. The vast areas to the north-west of the city that have recently been covered with blocks of flats are for the middle income groups or for the rich—wherever possible they are for the very rich. All the more noteworthy therefore that one of the best considered and most humane of recent projects for housing—in nearby Secondigliano—is the result of a competition, won by Arnaldo, Bruschi, Vitto De Feo, Frederico Gorio and others, for an estate of low-cost, government subsidized housing.

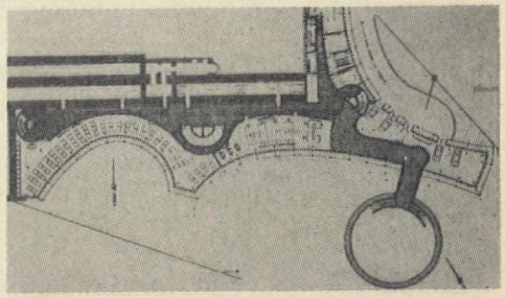
Three thousand people are to be housed at high densities but, though buildings are to be kept low, large areas of open space are to be provided. Roadways are kept to a minimum. Indeed it is the happy juxtaposition of closely built-up streets and generous lawns that will give to each of the inhabitants a sense both of the teeming intimacy of the streets of Naples with which they are familiar and a new-found freedom from congestion.

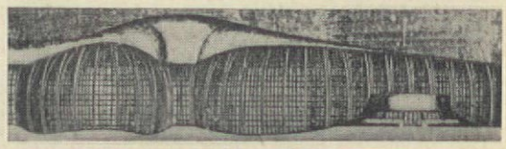
L'architettura, November 1965

Playful provincialist

The design by Enrico Villani for the new provisional administration offices for Vercelli is nothing if not adventurous—a fantasia of steel and glass, curved and countercurved, convoluted and twisted, all, it is claimed, in an attempt to subordinate the building to the flanking abbey of Sant' Andrea, built in the thirteenth century. The new offices are intended to appear as no more than a piece of garden sculpture on the edge of the abbey park. This pious piece of explanatory humbuggery will presumably fool no one, so one must hope that there is a more cogent *raison d'être* for the form —that is if it is really to be built.

Domus 434 January 1966

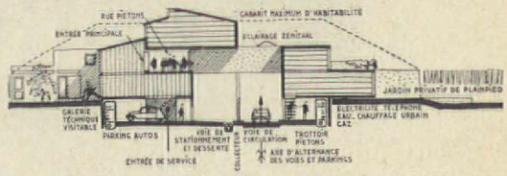


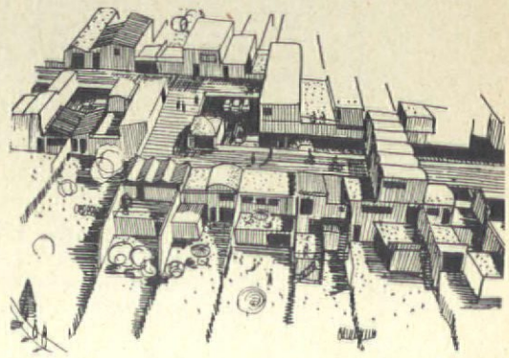


Street architecture

Designing from the premise that all sense of community, conviviality and friendship in a city must start from the life on the streets, J. M. de Monès and M. Proux have elaborated the theme of the Smithsons' well known village project. All communal life is focused on the routes of communication. The doors of the houses open directly off them. There is no place for isolated or tower blocks which, the architects are firmly convinced, are prime causes of the breakdown of our modern towns. They should be built up as a crust along the streets. Cars are at the lowest level, with all services readily accessible so that there is no need for disruptive digging. Above, but linked visually, are the pedestrian routes along which are the houses, shops and restaurants, all of which may give on to gardens. Flexibility is a keynote. The framework is fixed but each individual may build his house as he wishes and the quality of the whole, it is hoped, may be enhanced by this self assertion.

Techniques et Architecture October 1965





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AP 183

A load of illiterates

I. Chippendale

No statement was issued by the architects to go with the press release of the Economist Building. Magazines were each allocated that portion they were most interested in, told to do their own leg work, but steer clear of aesthetic appraisal. They nearly all skimped their chosen facet (*Design Magazine* read like a woman's magazine) and fell flat on their faces doing aesthetic comment. Have we a load of illiterates special to architectural criticism? For the Smithsons have been writing theory based on projects for some 15 years. Almost any article of theirs could have held a key to the way their mind was thinking about the problem.

Let's kick off with 'Education for Town Building' —*AA Journal*, Jan. '61. ' "Architects" buildings in the recent past and in the present, are conceived as objects within a fundamentally unchanging environment. We are worrying about restyling them "Modern", when the very streets they stand in are uninhabitable.'

Moving in from the street, 'Social Foci and Social Space'—*AD*, Dec. '60 (it's even printed extra heavy) 'Not putting a building on a site, but with a building making a space.'

Part of their basic polemic has always been they act as architects in a situation—*AA Journal*, Dec. '62. Answer to Victor Gruen, '. . .there is something still very "screwed up" about New Towns and Urban redevelopment projects in terms of the actual architecture. . .and I simply do not agree with the basic statement that it is no longer a question of architecture. It is a question of deciding what architecture is now. It has changed. It has become environment, but that does not mean to say that those qualities that previously invested architecture—the sense of space and the feeling of structure and so on—are not part of the scheme of things today.'

Banham was intelligent—playing his pieces like a Sicilian gambling box of footballers—*AA Journal*, Feb. '59. He kicked at classical Greek building in passing: 'Those of you who are students here know that the obsession of my generation is the creation of a technique which can give the correct value to a building in its situation, and at the same time, revalidate the situation through the building.'

What happened to the lovely students we used to have before Bill Allen?

Cullen in the Review stuck to his last (so at least another of the Brides' seven brothers is literate). Fix—*AR*, Dec. '60—'Architecture must focus on to the problem of how the community structure can be made more comprehensible; and this is not only a matter of "city planning", but must inevitably alter the nature of architecture—at least as far as the nature of architecture has been understood since the Renaissance.'

Cullen stalking the building knew the message, 'This is not a matter of "fitting into the environment", but of building creating a special sort of environment through human and formal organization.'

On this sorely needed insight into the integration of industrial products—*NQA/AJ*, May 28th '59—'Whatever people say about the old modern architecture only playing at being a machine architecture, it certainly succeeded in making architecture in which common industrial artefacts of the time were perfectly at home, bicycles, bowler hats—and lamp bulbs.' (Richard Hamilton could carry today's polemic of integration were he made editor of a design magazine.)

On keeping it looking the way it should—Techniques and Technology from the 'Shape of Things' (*AJ*, May 21st '59). 'Maintenance is as important for architectural impact as it is for keeping the building standing.' This alone could have been the jumping-off point for an examination of an attitude to materials; and for example —do people think of sending their clothes to the cleaners when given a new fabric covered chair for their personal use? Who dirties buildings? Who cleans them? With what—pleasure? Or revulsion?—that patent British stuff they clean railway carriages with.

Other pan handles that could have been grasped: The put-away aesthetic ('Future of Furniture', *AD*, April '58; *Appliance House Design*, 90, 113, 119).

The true Brutalist aesthetic (Banham last did it *AR*, Dec. '55).

Chanting: Uppercase, Team 10, Doorstep, Patterns of Association, Identity, Cluster, and so on.

Discussion of theory and its application (as was done by K. Frampton* in 'The Economist and the Haupstadt') was, and is, surely worth doing—on certain buildings. Any idiot, architect or layman, can think you up a stream of half baked comments on a do-it-yourself basis. If we have to have a printed criticism about a building which has a background of theory let it at least be trying to lift the shade on a different way of thinking about buildings; that is if we are not to succumb to the disease side of the throwaway magazine cult: 'Right, that's done, what's for next month?' There was no comment on virtually ten years' work of about ten people after Team 10 Primer—Holroyd and Price offered, but the magazine has to roll or loses way in the international publication race. No chewing over of Mies: yet we are living while he is, while the stuff goes up. Its like living beside Bramante or Doric himself. We rush on—not even knowing how Corb or Mies are, or what Aalto is building unless someone has been there. Oud, Rietveld can die and the magazines have to be told before belated obituaries appear. What is important to us as architects? What are we without the breath breathed into us by the masters? Our details and technical files are as nought, chaff in the adman's burp. Here the Smithsons and their office have been beating their brains out, only to find no one has taken in any previous messages—or people have lousy memories.

As a final crack I quote P. Smithson, again from the 'Shape of Things', this time—How to Crib. 'I speak here perhaps a little bitterly, for we have found in our own work that the further we have got in evolving a personal, formal language, the more difficulty one has with communicating the idea. In terms of speech, that which one wants to say no one can understand, and that which can be understood one no longer wishes to say.'

* *AD*, Feb. 1965, p.61

Rino Levi †

The news that the Brazilian architect Rino Levi died last September has only just reached us. His practice in São Paulo will be continued under the direction of Roberto Cerqueira Cesar and L. R. Carvalho Franco.

Hans Gugelot †

Hans Gugelot who was famous both as a teacher at the HfG, Ulm, and as the designer of a great many of the ubiquitous Braun products (*AD* March 1963) also died in September last, unexpectedly.

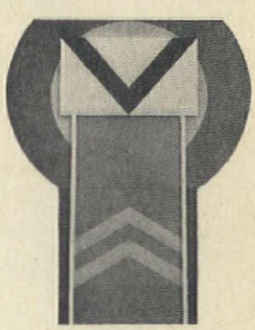
Winfred Gaul's traffic signs

Jasia Reichardt

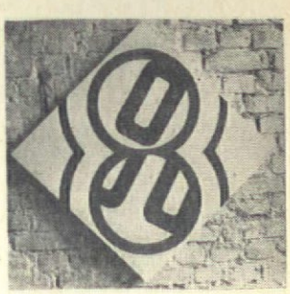
Since 1964 Winfred Gaul has been painting and building images and objects which relate directly to an aspect of the industrial landscape. His works go under the umbrella title of 'traffic signs and signals', since his sources of inspiration are the printed instructions on roads and motorways—whether in the form of symbols and pointers or explicitly conveying an order. Gaul is not particularly concerned with the content of traffic signs but with the way in which they operate and their stylized appearance devised to convey messages instantaneously. Scale, boldness and streamlining are the three basic visual qualities of traffic signs and these are the very characteristics which the artist is trying to emulate in his work.

Whereas the appearance and finish of industrial artefacts is a vehicle for making an object function or the information readable, the problem of using this sort of exterior without the original *raison d'être* is a thesis that does not seem readily acceptable. It has something to do with the way one feels about utilitarian objects that are accepted as a part of one's environment, and an imaginative, out of context, interpretation of these objects, where the most important element, i.e. that of function, is missing.

The rendering of a still life object, landscape or an interior in the conventional sense may seem far removed from the process employed by Gaul resulting in the rather stark, hard-edge and brilliantly coloured paintings. Yet it is not dissimilar. The fundamental difference has something to do with scale, distance and intimacy with which objects are perceived rather than the way in which they are treated. Gaul's transformation of street signs into imaginary signals does not turn them into intimate objects —the paintings are as impersonal and require as much distance as a motorway sign in order to convey optimum effect. What is interesting about his recent ICA exhibition is Gaul's choice of subject matter and the fact that his interpretation of it makes the same visual demands on us as the road signs boldly occupying the urban landscape, but the artist's message is inevitably ambiguous.



For eggheads only, 1963



Traffic sign, 1964
Photos: Winfred Gaul

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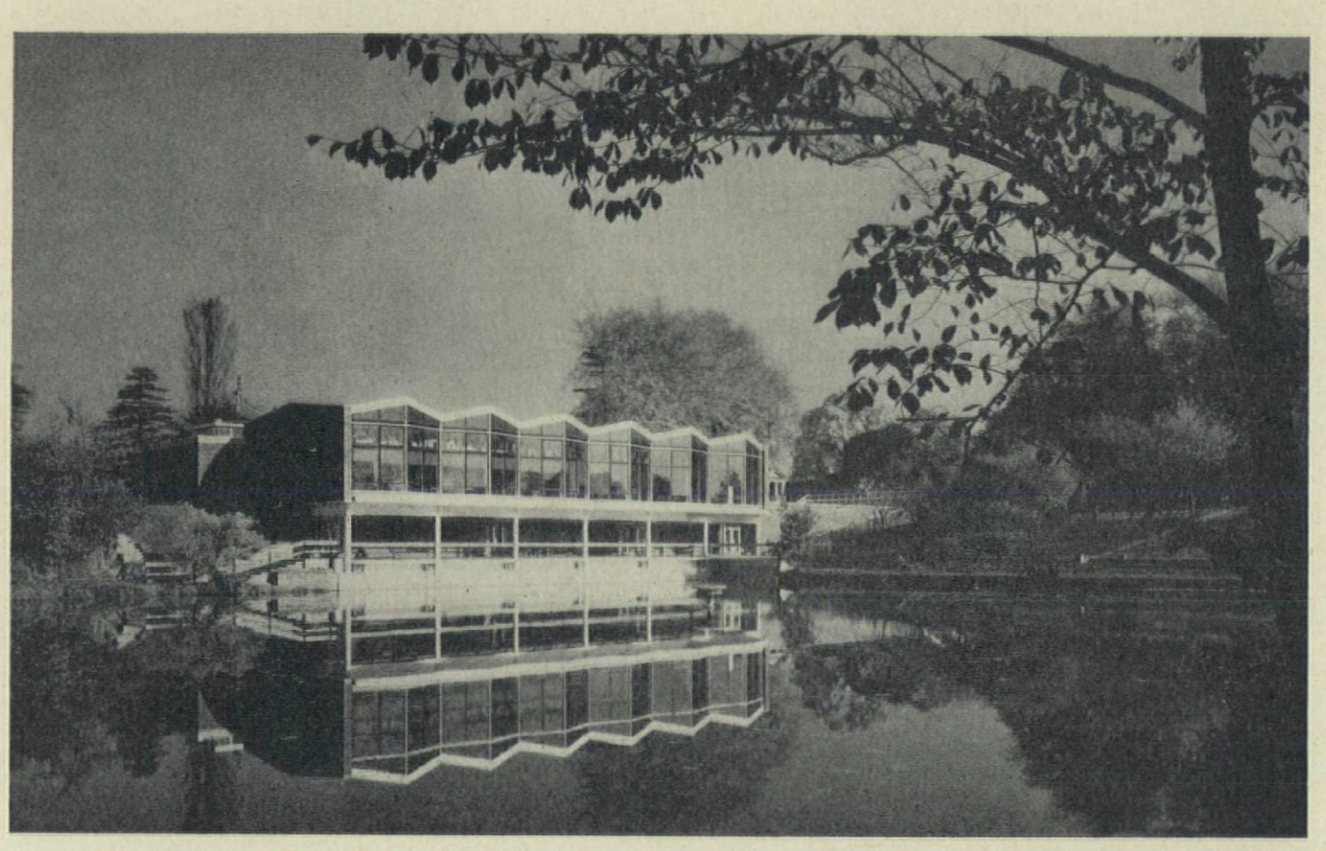

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Around Britain—2

Hull and East Riding—a time to be shouting

Alan Plater

Towards the end of 1965 a debate was held in the House of Commons on the future of Humberside, but only eight members were in the House. Self-assertion is, of course, the answer. Newcastle-upon-Tyne is top of that particular league, closely followed by Liverpool and Sheffield; it is questionable whether Hull is even in the First Division, even though it is the country's ninth city and third port. Lacking an effective road link to the A1 fifty miles to the west, lacking a bridge over the Humber to the south, it is easy to see how isolation breeds introspection, apathy, and—because there are no serious unemployment problems—smugness. At the same time, there are straws in a varying and erratic wind. Regional planning is a new OK conception; the drilling for natural gas in the North Sea has very obvious implications for those nearest to the first big strike; Dick Crossman has revealed Government thought, albeit vague, about a large new conurbation on the south bank of the Humber; and lurking under everything is the brute fact that in an overcrowded island, eyes will inevitably turn towards relatively undeveloped areas where land is cheap and scope for industrial expansion unlimited.

The response of the local authorities has been to talk to each other in earnest, and there has been a suggestion that Anthony Goss and the Leeds School of Town Planning be asked to prepare a plan for the Humberside area, which would be an extension of a clear-sighted, articulate study they published and exhibited last year. But planning—even sound academic planning—is one thing; persuading local authorities to cooperate in adopting and implementing schemes of this kind is another (as Dan Smith has discovered in the north east).

Because it was a strategic target, Hull was bombed anonymously during the war. The damage was proportionately greater than in any other town in England, and the opportunities for redevelopment consequently unlimited. There was a brief honeymoon period with a plan prepared by Abercrombie, but the opposition of various more or less vested interests saw the scheme dropped, and in its place was deposited —an apt word—a zoning and road plan prepared under the auspices of the City Engineer's department. This scheme is still the effective framework for development; the pre-war street pattern is retained, embellished with bits of road-widening, traffic islands and keep left signs. An elaborate one-way system has recently come into force. The most that can be said about the new buildings in the central area is that they do full justice to the planning mentality behind their context; they cover a complete range from the mediocre to the abysmal.

The Old Town retains its medieval street pattern, a handful of fine buildings, the only piece of public river frontage in the city, and a nicely varied daytime life compounded of market stalls, banks, fruit merchants, quaysides, solicitors and the seat of local government. It also has large areas of rot and decay, but there is no comprehensive development plan for the area, nor—amazingly—any apparent intention by the planning department to prepare such a scheme. The newly-formed and vigorous Civic Society has the Old Town high on its list for study, and this is about the only hopeful glow in the murk. This is a depressing picture and it is only fair to ask what the city's architects have been doing and saying during the last twenty years. Until fairly recently, their protests have been quiet, churlish and private where they should have been loud, passionate and public; but the last couple of years have seen the creation of the Civic Society, and the inauguration of *Perspective*, the bi-monthly magazine of the York and East Yorkshire Architectural Society. The latter is edited by the author of this article, so it would be inappropriate to claim any victories, and probably inaccurate.

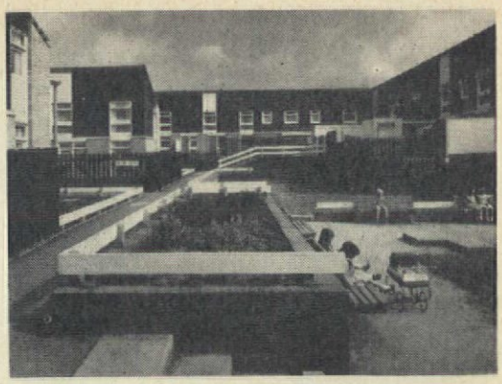
It is dangerous to generalize about the quality of individual buildings, but few would dispute that the best work has come from the City Architect's department and from a handful of outside architects. During the brief but lively period of David Jenkin's spell as CA, there developed a sense of purpose and dynamic that —one hopes—can be maintained. The annual rate of house-building increased from around 700 to a more realistic 2000, notably by the development of the 'Caspon' factory-built house type **1** recently given a Ministry award. The Jenkin era also demonstrated the futility of having architectural and planning departments working in separate pigeon holes.

Official projects handed out to eminent outsiders have had varied results. The David Lister Comprehensive School **2** is good, gutsy Lyons, Israel and Ellis in a suitable east-side setting; on the other hand Frederick Gibberd's technical college and Queen's Gardens redevelopment is a bit bleak, while a vast new hospital by Yorke, Rosenberg and Mardall has some lively ancillary buildings tagged on to a grim, uninspired slab.

The real pacemakers are to be found in the University of Hull. Starting with a dubious inheritance from his predecessors, Sir Leslie Martin has knocked the main campus into shape, and the new framework accommodates some lively contributions including Peter Womersley's sports centre **3** and Martin's own arts building **4**. There is ample evidence of intelligent, open-minded briefing on the part of the University, especially in The Lawns scheme **5** for student accommodation just outside the village of Cottingham. Downs Hall (**5** right, and **6**) is the first hall to be completed in a large residential complex, each unit of which will be potentially self-supporting. Gillespie, Kidd and Coia have worked from very sane, very simple premises towards a solution that is sophisticated in the best sense of the word.

At the risk of over-praising The Lawns, two points do emerge very strongly. This is the best and most imaginative piece of coherent planning in the Humberside area; and, though there is a considerable quantity of young talent scattered in the profession locally, no one firm seems capable of approaching this quality of thought and expression. If the picture appears depressing, it should be mentioned that five years ago the situation was even more bleak; today at least there are a few good cribs.

The future of Hull and East Riding is precariously balanced. There are too many actual and potential assets in the area for it to be left alone, and if the likely development of the next twenty years is to be controlled, it would be better that the terms of reference were determined in advance, and by the people themselves, in the democratic sense. The alternative is to trust in God and the whims of Big Business. It is really a test of Hull's imagination and its will to re-establish its own identity, vigorously and recognizably different from the long-dead acres of south-east England.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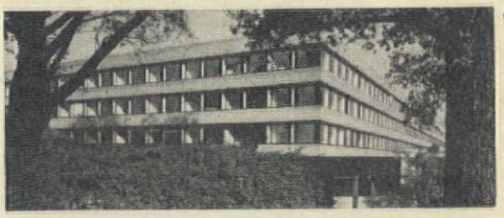
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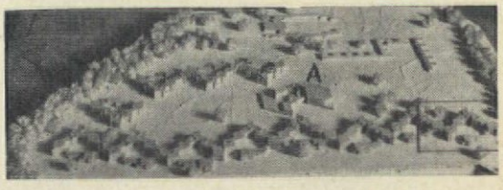
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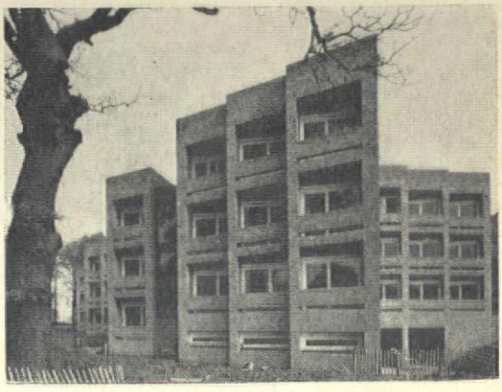
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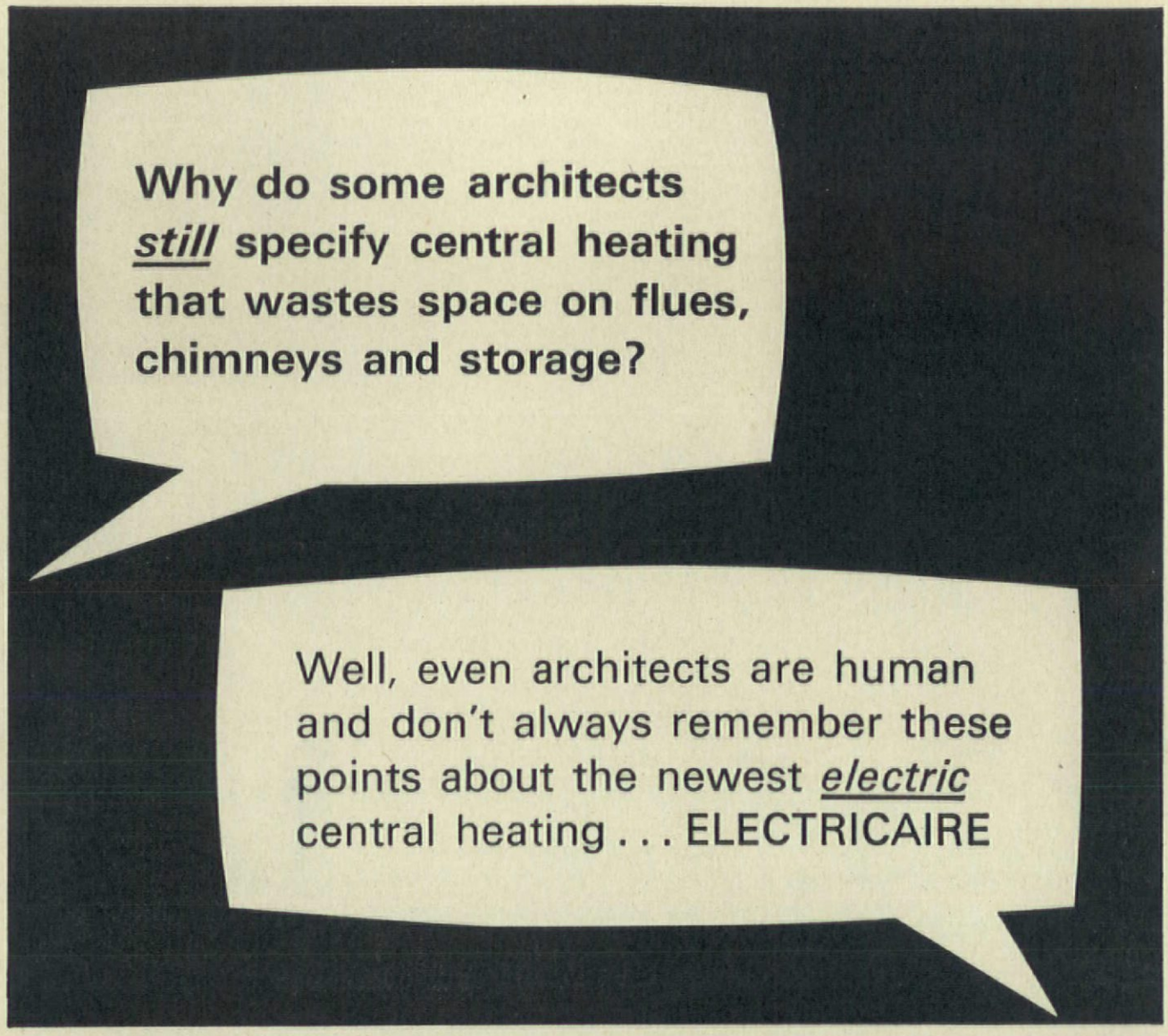

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Dans ce numéro

Contributions à une Utopie fragmentaire

Page 64

Nous savons tous que la motorisation est inévitable et le Rapport Buchanan explique patiemment l'évidence même si bien que tous, y compris les hommes politiques, ne peuvent s'y méprendre.
Mais pour l'urbaniste professionnel cela n'est pas une consolation. Nos problèmes sont toujours présents.
Nous nous soucions de la poésie du mouvement, de l'impression de quiétude, du fait que le lieu de travail doit donner l'impression d'être un lieu de travail, de pouvoir apprécier la cité de la machine aussi immédiatement et profondément que le plaisir que l'on ressent encore dans un port de pêche, un marché, sur les quais où de vieilles techniques et habitudes ont encore cours.
Pour accepter ainsi les nouvelles technologies sera un long procédé. Mais en fait les changements technologiques sont relativement lents. Los Angeles a accepté les conséquences de l'automobile depuis 1930. Le Boeing 707 est avec nous sous forme d'embryon depuis le Superfortress et il semble qu'il restera aussi longtemps que le DC3 (qui est encore (tout juste) avec nous).
Ce dont je veux discuter est la manière dont on peut continuer la tradition ancienne de la cité en tant qu'œuvre d'art collective. Il y a les méthodes primitives pour ce faire, non pas des théories, ni des plaidoyers en faveur d'une recherche plus approfondie. Ce sont les exemples pratiques.
Aucun architecte ne peut, lui-même, s'occuper de problèmes conventionnel ayant cette ampleur ou mettre au point des techniques de contrôle traditionnel collectif; ceci serait une raison suffisante pour *ne pas* entreprendre un tel ouvrage. A mon avis, pour une autre raison encore plus sérieuse, on n'a pas le droit de s'attaquer à une telle complexité. *Les villes sont déjà trop étroitement nouées et trop denses, ce qu'il faut c'est les desserrer et espacer les points les plus utilisés, pour que les choses puissent devenir elles-mêmes sans plus d'artifices et de luttes.*

Oeuvre récente de Karl Schwanzer

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Karl Schwanzer est né en 1918; il fut diplômé de l'Université de Technologie de Vienne en 1940. Neuf ans plus tard il ouvrit un bureau indépendant; il a depuis conçu un grand nombre d'immeubles aux formes diverses, ils sont tous contrôlés, élégants et bien ordonnés. Récemment il a conçu le pavillon autrichien, représenté ici, pour l'exposition de Montréal, et il montre toutefois une tournure plus individuelle de son développement.

Le Centre Nordweststadt, Francfort

Page 86

Le type américain de quartier commerçant de banlieue, bien qu'encore une exception en Europe, trouve quelqu'appui en Allemagne de l'Ouest, par exemple il y a le centre commerçant Main-Taunus dans la banlieue de Francfort, et Stuttgart pense établir un cercle de centres analogues. Mais en général là n'est pas le but des planificateurs allemands. Ils cherchent plutôt à établir des centres urbains dans les nouvelles et anciennes villes-dortoirs pour que l'on y trouve en même temps une réponse aux besoins culturels et sociaux des communautés. L'une des conceptions les plus avancées est celle du Centre prévu pour Nordweststadt, un énorme projet de logements pour 50.000 personnes dans la ceinture verte de Francfort. Le Centre, une zone de 250 m× 400 m, entourée d'un boulevard, fit l'objet d'un concours qui fut gagné par les architectes Apel et Beckert en 1962.

Vie en masse

Page 93

Bien convaincu que les immeubles isolés et individuels n'ont pas suffisamment de rapport entre eux pour donner un sens immédiat de cohérence aux nouvelles villes et cités, Léopold Gerstel a continué ses expériences avec des groupes de logements en masse pour les villes nouvelles d'Israel. Son étude ziggurat bien connue (*AD* janvier, 1964) comprenait un groupe de logements en gradins pardessus un centre composé de magasins et de parkings. Mais bien que l'ensemble ait l'apparence d'une masse il y avait partout des cours, des sources de lumière, des rues, des allées permettant à la lumière du soleil et à l'air de pénétrer même aux niveaux les plus bas. Le thème de son étude a été plus ou moins développé dans chacune de ses dispositions récentes d'habitations—le concours de projets pour Ramat Hadar, en dehors de Haifa, Nahalat Itzhak, Neve Josef, en dehors aussi de Haifa et un project audacieux 'd'habitations Elyséennes.'

La biotecture

Page 95

On peut construire des systèmes environnants vivants, dynamiques, mobiles, fantastiques, nous en avons l'énergie, les systèmes de connaissances et les matériaux sont disponibles. La biotecture vivante est le plus grand défi de l'homme industriel. La technologie de l'espace est le pionnier de cette nouvelle discipline intégrale. L'architecture vivante, l'architecture mobile n'ont pas d'histoire. Les expériences systématiques créeront de nouveaux principes techniques. La biologie offre des systèmes d'analogie, la chimie offre un grand choix de matériaux organiques. Toutes les connaissances actuelles de construction devraient être remplacés durant les dix prochaines années. Les étudiants d'aujourd'hui seront les architectes-biochimistes de demain. Aucune cabale, quelle que soit sa force ne vaincra ce défi. Les plastiques offriront des propriétés physiques et des rapports stabilité-poids bien plus grands que ceux de l'acier ou du béton armé. La matière organique fait la plupart des choses d'une manière plus complexe et plus dynamique analogue à une cellule DNS, à l'os, la peau, les organes ou le cerveau de notre corps. Avec dix mille fois plus d'énergie disponible qu'il y a cinquante ans, tout immeuble physique et toute conception de systèmes environnants dépasseront notre propre imagination.

Le Concours Ramakrishnapuram

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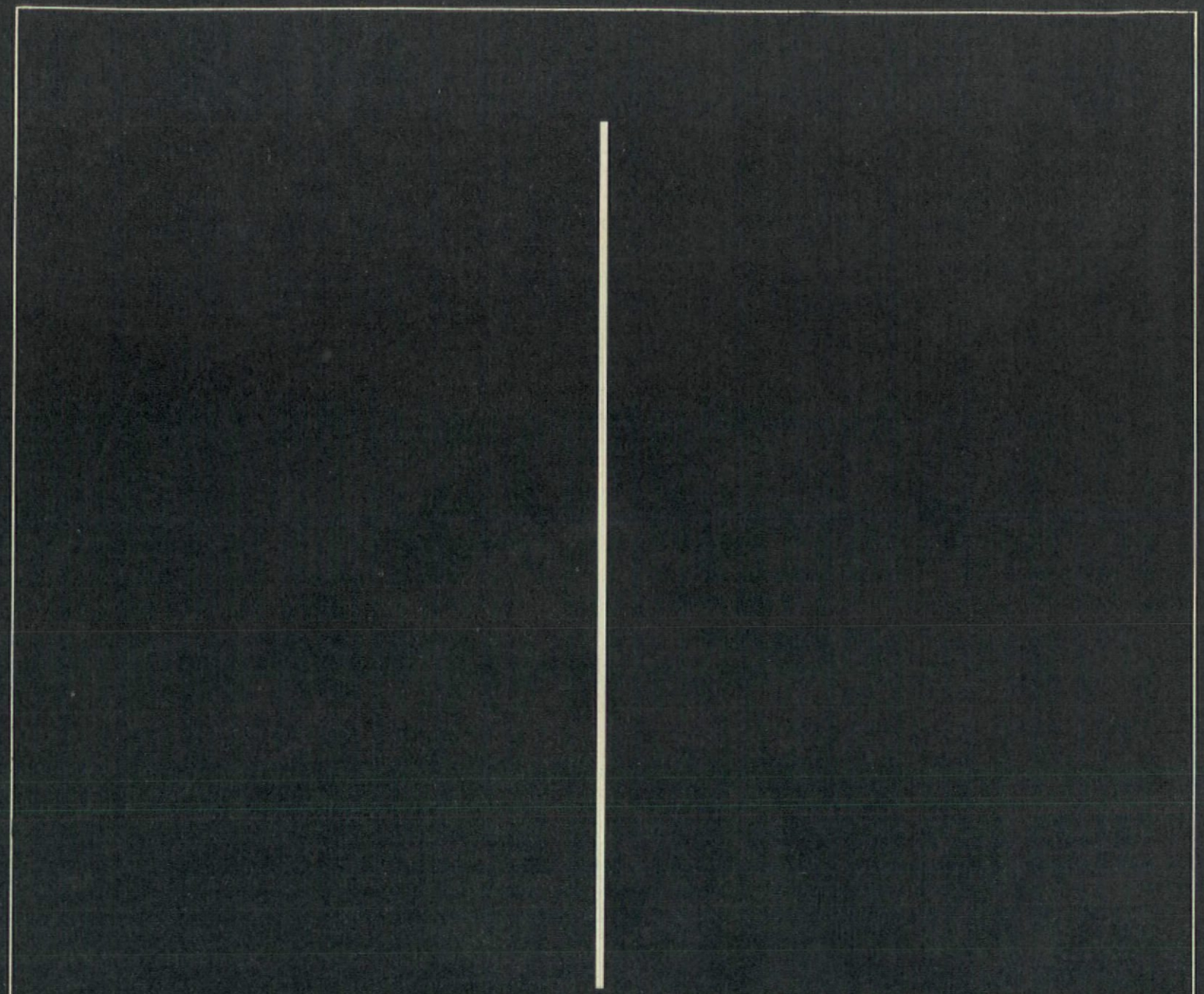
Le concours pour le centre régional à Ramkrishnapuram, Delhi, était sous l'égide du Ministère des Travaux indien et l'Institut des Architectes.
Quarante neuf architectes y prirent part. Parmi eux les juges sélectionnèrent cinq projets, ceux de Raj Rewal et de Kuldip Singh; Ram Sharma; Bruno Dias Souza; Bijit Ghosh et Oscar Pereira; Bernard Kohn; et Suryakant Patel; auxquels ils demandèrent de soumettre d'autres plans et détails. Les gagnants furent Raj Rewal et Kuldip Singh dont on trouvera le projet dans cette colonne. Le succès de leur projet vient de leur effort à construire une séquence d'enceintes pour piétons avec de longs et bas immeubles, à l'intention de développements mixtes, de telle manière que bien qu'il y ait une grande variété entre les espaces—aussi bien externes qu'internes—ils font partie d'un ensemble continu, semblable au bazar indien traditionnel.



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Una Utopia fragmentaria

Página 64

Todos sabemos que la motorización es inevitable y el Informe Buchanan no hace sino exponer con toda paciencia lo que de por sí es evidente de modo que hasta los políticos comprendan sin malentendido posible.
Pero para quien tiene la profesión de preocuparse de urbanismo esto no es suficiente. Los problemas le siguen siendo problemas.
Lo que nos preocupa es la poesía del movimiento, el sentido de la calma, que el lugar de trabajo parezca lugar de trabajo, que se pueda gozar de la ciudad de la máquina directamente y con el mismo gusto profundo que se siente aún en el puerto de pesca, en el mercado, en los muelles, sitios estos donde siguen estando en vigor tecnologías mas antiguas.
El asir las novísimas tecnologías en este sentido va ser un largo proceso. Pero de hecho la evolución o cambio tecnológicos son relativamente lentos.
Los Angeles ha comenzado a aceptar las consecuencias del automóvil desde los años treinta de este siglo.
El Boeing 707 ha vivido con nosotros en embrión desde la Superfortaleza y parece que va a pervivir como el DC3.
Quiero hablar de las formas de continuar la vieja tradición de la ciudad en cuanto obra de arte colectiva. Son consideraciones elementales sobre "como-hacer-las-cosas", y no teorías ni abogar por que se investigue más. Son ejemplos prácticos.
No existe el arquitecto que pueda resolver él solo los problemas formales de ese grado de complejidad o que haya desarrollado técnicas de control formal colectivo que permitan la colaboración de muchos en problemas complejos; y esto debería ser razón suficiente para *no* emprender esa clase de trabajos.
Lo que yo pienso es que, por otra razón aún más seria, no está bien intentar enfrentarse con tal complejidad. *La urdimbre de las ciudades es ya demasiado densa y lo que necesitan es abrirse y que los puntos de intensidad de uso se desparramen aún más, de modo que las cosas puedan ser lo que son sin mucho artificio ni lucha.*

Obra reciente de Karl Schwanzer

Página 68

Karl Schwanzer nació en 1918; se graduó en la Universidad de Tecnología de Viena en 1940. Nueve años más tarde se hizo arquitecto independiente; desde entonces ha diseñado un número considerable y una variada gama de edificios, todos ellos controlados, nítidos y de buenas maneras. Su reciente diseño del pabellón de Austria en la Exposición de Montreal, que se muestra aquí, muestra, sin embargo, una tendencia más idiosincrática en su desarrollo.

Centro urbano de Nordweststadt, Frankfurt

Página 86

El tipo americano de centro suburbano de comercio, aunque aún excepcional en Europa, encuentra alguna acogida en Alemania Occidental; por ejemplo, el centro comercial Main-Taunus en las afueras de Frankfurt; y Stuttgart está estudiando la construcción de un anillo de tales centros contorno a la ciudad. Pero en general ésta no es la intención de los planificadores alemanes. Más bien lo que intentan hacer es crear centros urbanos en las ciudades dormitorio nuevas o viejas combinando en ellos las necesidades sociales y culturales de las comunidades. Uno de los proyectos más avanzados es el Centro para Nordweststadt, un gran proyecto de construcción de viviendas para 50.000 almas en el cinturón verde que rodea a Frankfurt. El Centro, sito en una isla de 250 × 400m, rodeada de tráfico, ha sido el tema de un concurso ganado en 1962 por los arquitectos Apel y Beckert.

Vida de gran densidad

Página 93

Firmemente convencido de que los edificios aislados e individuales carecen de la cohesión suficiente que permita un sentido comunitario a las nuevas ciudades y colonias, Leopold Gerstel ha seguido experimentando con racimos macizos de viviendas para las nuevas ciudades en Israel. Su famoso estudio de zigurat (*AD*, Enero 1964) consistía de un mazacote de viviendas dispuestas en terrazas sobre un núcleo comercial y de espacios de estacionamiento para vehículos. Pero el todo se presentaba como una sólida masa estaba lleno de patios interiores, de patios de luz, de calles y avenidas que hacían que el sol entrase y el aire hasta los más bajos niveles. El tema de esos estudios ha sido desarrollado en mayor o menor grado en cada uno de sus ulteriores proyectos de viviendas—el diseño de concurso para Ramat Hadar, en las afueras de Jaifa, Nahalat Itzhak, Neve Josef, también en la safueras de Jaifa y un audaz proyecto llamado "Viviendas Elíseas".

Biotectura

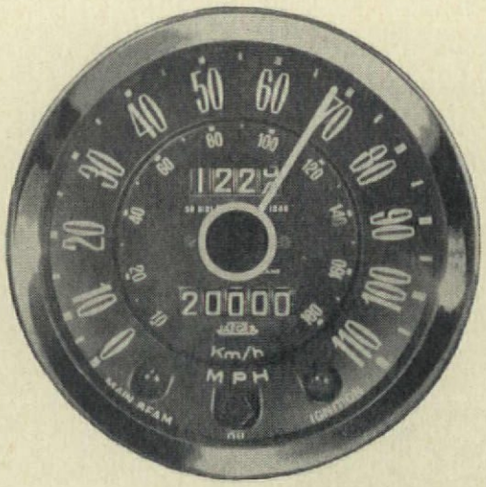
Página 95

Podemos construir sistemas de ambientación vivos, dinámicos, móbiles, fantásticos, disponemos de la energía, del conocimiento de sistemas y de los materiales. La biotectura viva es el mayor desafío para el industrial. La tecnología del espacio es un pionero en esa nueva disciplina integral.
La arquitectura viva, la arquitectura móbil no tiene historia. La experimentación sistemática creará nuevos principios de ingeniería. La biología nos suministra analogías de sistemas, la química una amplia gama de materiales orgánicos. Todo el conocimiento actual sobre construcción debe ser superado en los proximos diez años. Los estudiantes de hoy serán un día arquitectos-bioquímicos. Ningún grupo de presión, por mucha fuerza que tenga, podrá oponerse a este desarrollo. Los plásticos y las materias orgánicas tienen propiedades físicas y cocientes estabilidad/peso muchos mayores que los del acero y cemento. La materia orgánica construye de manera dinámica, similar a una célula de DNS, los huesos, la piel, los órganos y el cerebro de nuestro cuerpo. Con diez mil veces más energía disponible que hace cincuenta años, todos los edificios físicos y sistemas de ambientación extenderán los límites de nuestra imaginación actual.

El concurso de Ramakrishnapuram

Página 89

El concurso para el distrito central de Ramakrishnapuram, Delhi, ha sido auspiciado por el Ministerio de Trabajos Públicos de India y el Instituto de Arquitectos del mismo país. Se han presentado cuarenta y nueve arquitectos. De entre ellos los asesores eligieron cinco diseños, los de Raj Rewal y Kuddip Singh; Ram Sharma; Bruno Dias Souza; Bijit Ghosh y Oscar Pereira; Bernard Kohn; y Suryakant Patel; a todos los cuales se les pidió que presentaran planes más detallados. Los finalistas fueron Raj Rewal y Kuldip Singh, cuyo proyecto se reproduce en esta columna. El éxito de su proyecto consiste en su esfuerzo de construir una secuencia de precintos de peatones con edificios bajos y largos, con la intención de un desarrollo mixto de modo que aunque hay considerable variedad entre los espacios internos y externos, forman parte de un todo continuo de manera muy similar al bazar tradicional indio.



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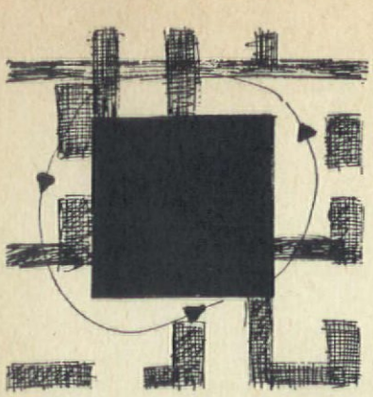

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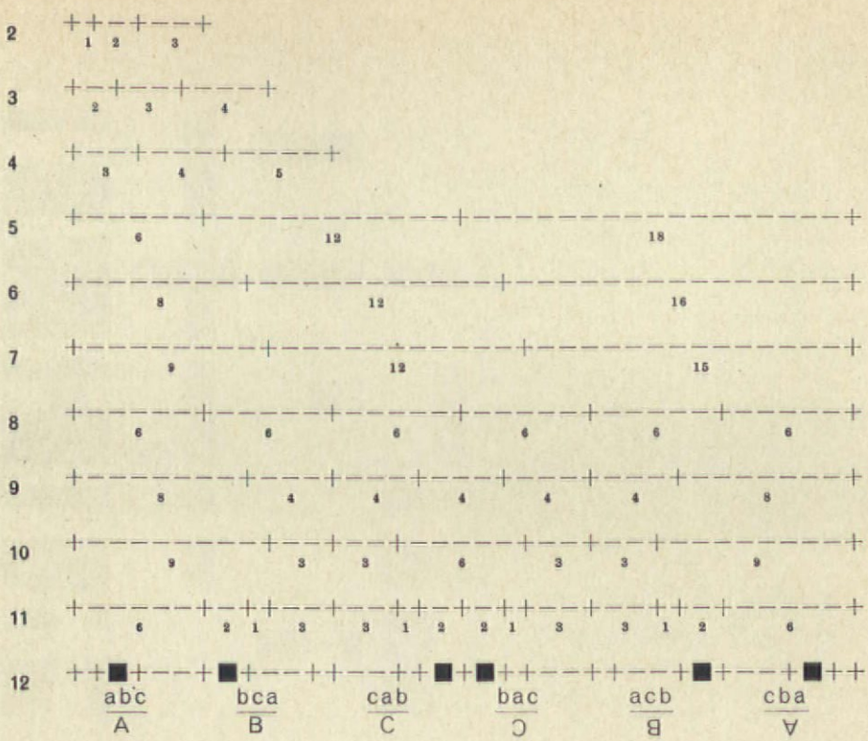


Serial art

Notes on the cover design 'Rotations around a Square'

Lionel March

In a work in which serial techniques are employed, there are five stages to the process of design: intention, selection, automatism, expression and interpretation. These stages can be illustrated by using the work *Rotations around a Square* as an example.

Intention

A square impinged upon by events occurring around it **1**. Four-colour printing including black. Three rotating colour plates give 4 × 4 × 4 = 64 variations, or, if the rotations of the whole are discounted, just 16 different visual designs. These designs to be presented sequentially in book form.

Selection

Selection of elements (sets and rows), of arrangements of elements, and of arrangements of arrangements. The choice of the rhythmic set. In this work three rhythmic measures are used and the set in general can be expressed

S = (a b c) : M

where a, b and c are rhythmic measures, and M is the metre or length of the set. In particular the following sets are chosen **(2, 3, 4)**

S_1 = (1 2 3) : 6
S_2 = (2 3 4) : 9
S_3 = (3 4 5) : 12

These can be metrically transformed (see **21**) to have a common metre of 36 modules **(5, 6, 7)**

$6S_1$ = (6 12 18) : 36
$4S_2$ = (8 12 16) : 36
$3S_3$ = (9 12 15) : 36

Order is not important in the rhythmic set and a rhythmic infrastructure, arising from the six possible permutations (a b c) (a c b) (c a b) (c b a) (b c a)) (b a c), can be set up **(8, 9, 10)**

I_1 = (6 6 6 6 6 6) : 36
I_2 = (8 4 4 4 4 8) : 36
I_3 = (9 3 3 6 3 3 9) : 36

These can be combined to give a rich and supple polyrhythmic infrastructure **11,**

P = $I_1 + I_2 + I_3$
= (6 2 1 3 3 1 2 2 1 3 3 1 2 6) : 36

satisfying the felt needs of the work.

The choice of the structural row. Here order, unlike the rhythmic set, is of great importance. In this work the following row is chosen

(abc bca cab | bac acb cba)

or in brief

(A B C | Ↄ Ⅎ ∀)

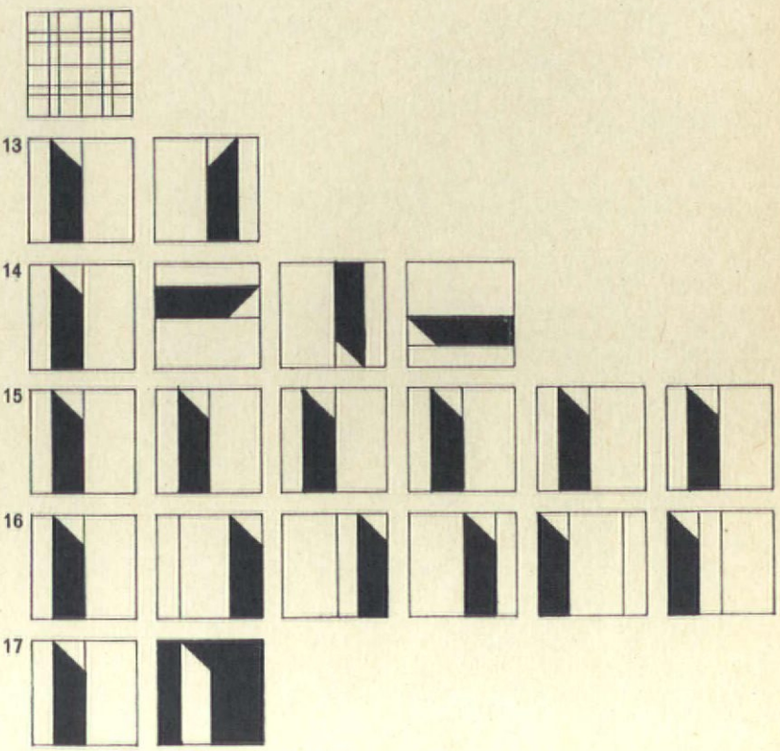
This row has the characteristics of (i) employing all permutations, and (ii) reflecting itself about the centre. The latent visual possibilities of this structural row can be glimpsed by giving a, b and c metrical values and distinguishing one, say b, in solid black **12.**

Arrangement of the structural row. In order to arrive at the structural row, the genetic code of the work, the notions of permutation and reflection were used. These are symmetry operations. To develop the work idea further, and to shape it towards the stated intention, other symmetry operations can be employed.

Reflection **13**
Rotation, in this example four-fold **14**
Translation **15**
Permutation **16**
Complementarity **17**

The structural row can be operated on in these five ways. The elements are thus arranged.

Arrangements of arrangements. This process is achieved through combination of the various arrangements of elements produced by symmetry operations. Combination may be by *union* or by *intersection*. By union we mean the whole of one arrangement is added to another including whatever is common to both. By intersection we mean a combination in which only the common parts of the two arrangements are stated. For example, the union of six boys and two girls with six girls and two boys is eight boys and eight girls; the intersection of these arrangements is two boys and two girls for this combination is common



to both.
Taking two elements a and b, for example, and their complements a′ and b′, the group of possible combinations can be represented by **18** where U = union and ∩ = intersection and to the right and above the diagonal the combinations are all union, and to the left and below the diagonal all intersection.

Automatism

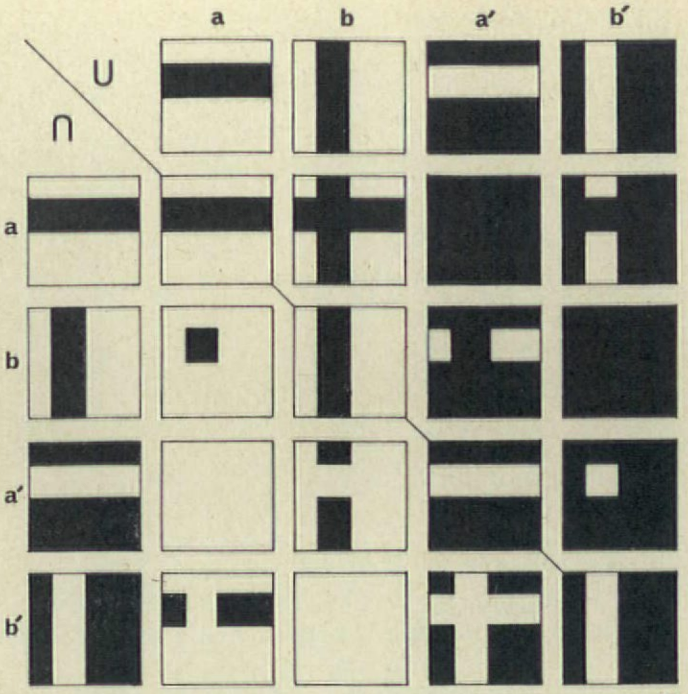
A large number of choices have so far been made. Up to this point the design process has been one of decision. But decisions made within a discipline. *Knowing* the potentialities of the choices made, it has been possible to make precisely those decisions which lead to a desired expression of the work-idea, or intention. At this stage a full programme can be written down for the work. **19** shows part of the programme for *Rotations around a Square.*
The work is pre-formed and the programme generates a mass of unexpected relationships. The stage of automatism is reached. The system takes over and its full potentialities are explored, as by a machine, exhaustively. The elements are woven, in a predetermined way, into designs in which the detailed results cannot be foreseen.

Expression

There then follows the second stage of decision. From the mass of possibilities those designs are selected which best illustrate the work-idea. Finally one design, or in this case, sixteen related designs, is fixed upon and its expressive possibilities developed. For example colours are chosen. They may be transparent or opaque. A decision on this will change the appearance of the work without affecting the structure. The same is true of rhythmic or metric transformations **20, 21.**
Here is an important idea: the *look* of the work is to some extent independent of its structure.
Here is another: the same structure lies behind many different appearances.

Interpretation

The final stage in the design process has not been reached in the work presented here, *Rotations around a Square.* It could involve tonal changes in colour, the matter of focus—hard or soft edges—and so on. The work as presented is comparable to an architect's presentation model. The essential form of the work is there, but it is not yet what it is ultimately to be.



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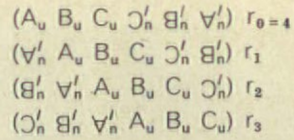
19



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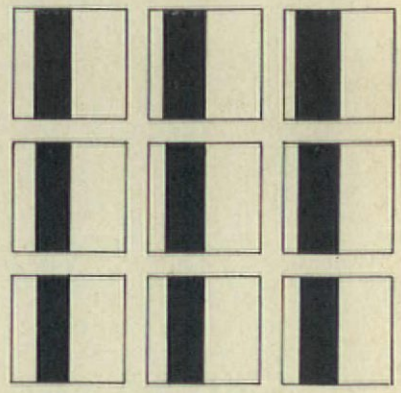

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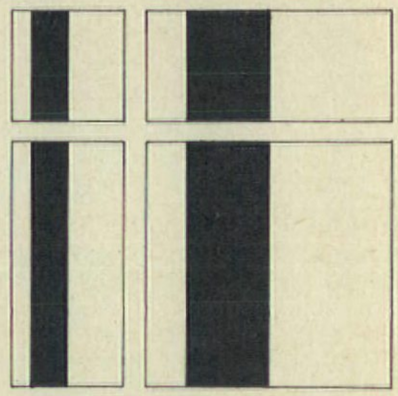


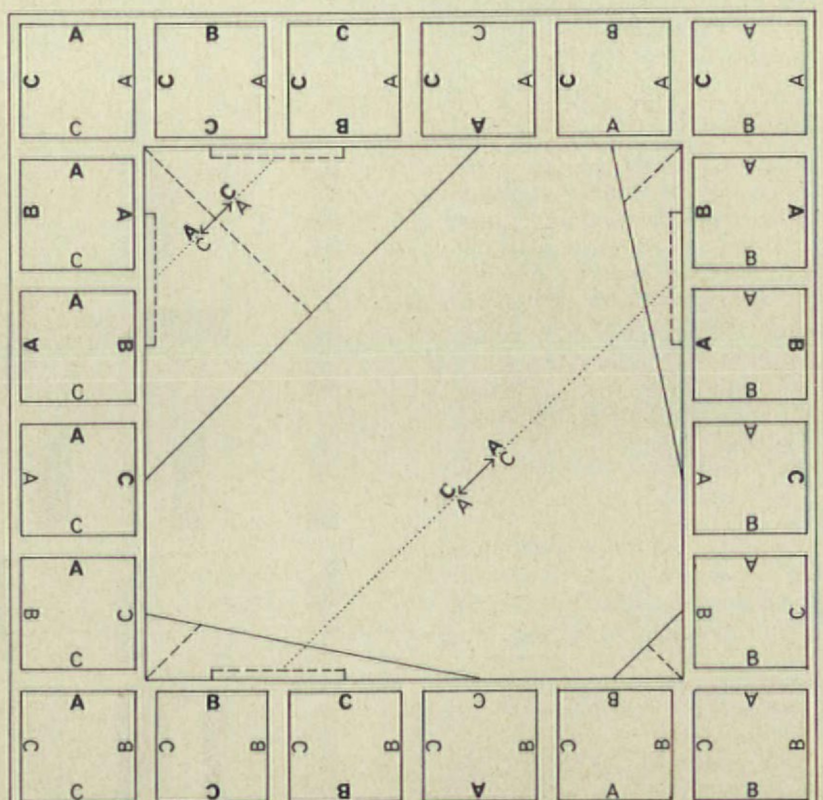
19
Programme of work

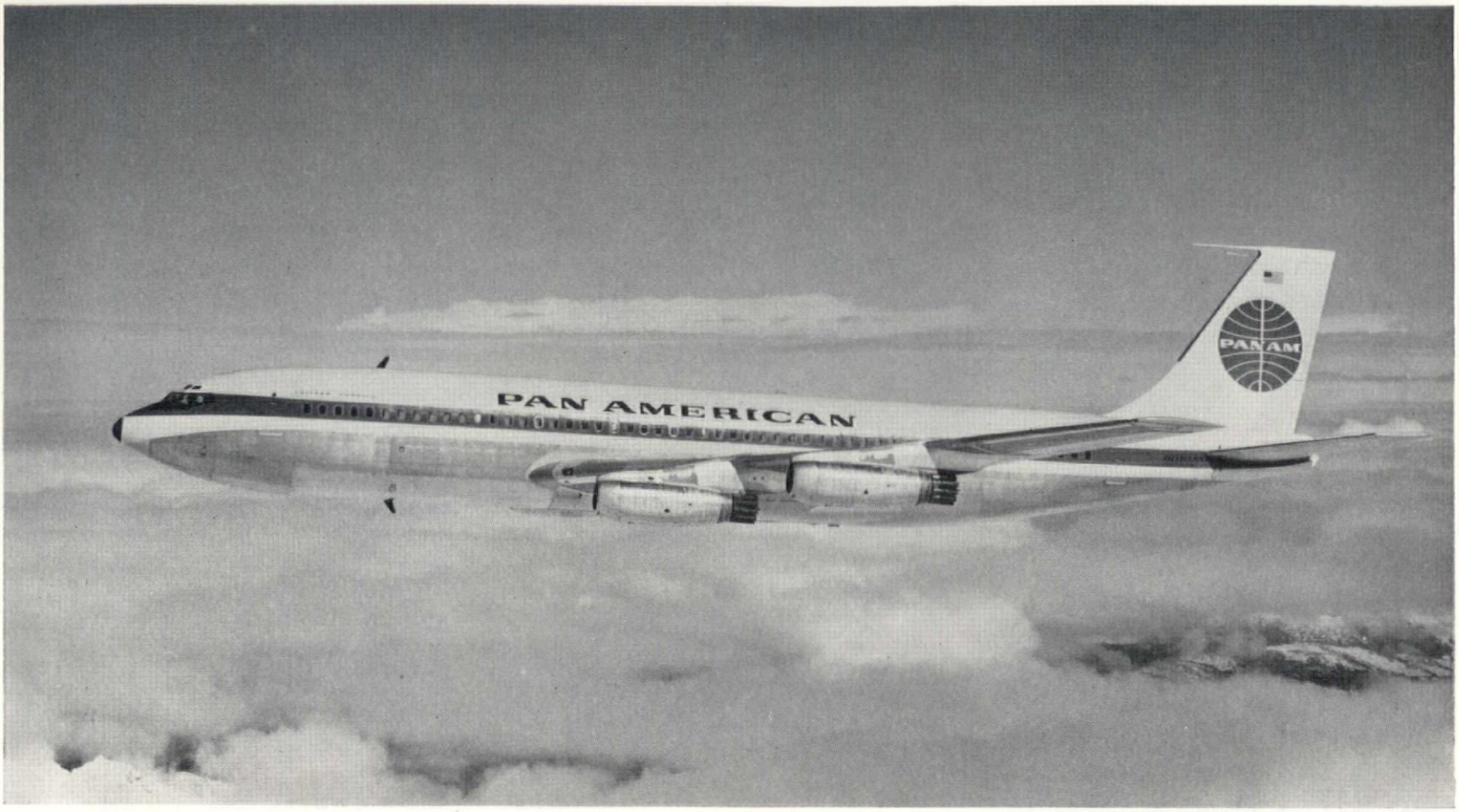
20
Rhythmic transformations. The rhythmic infrastructure is changed and the proportions of the element vary

21
Metric transformations. The rhythmic infrastructure is constant, but the module is changed in one direction and the other, and both together

22
Analytical diagram showing the symmetry pattern of *Rotations around a Square.* Solid lines link like arrangements. Dashed lines link enantiomorphic arrangements (i.e. left and right-handed). Dotted lines link arrangements that are symmetrical with respect to B but interchange A and C. The symmetry lies about the diagonal and provides a distinct character to each colour separation which is not lost in rotation

22





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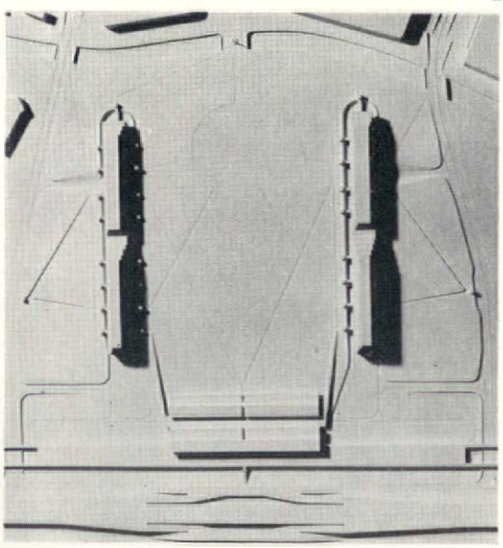


1
Boeing, 707
The B707 has been on regular airline service since the mid-fifties and we can be certain some will still be flying somewhere, in the mid-seventies. The rate of change is slower than one thinks. There is time for things to become both refined and normal to one's life

2
Model of the Mehringplatz/Blucherplatz project by Alison and Peter Smithson with G. Nitschke
This was conceived as one of a series of 'events' strung out along an urban motorway. Each event was given space to develop itself in, and given a clear relationship with the motorway

Contributions to a fragmentary Utopia

A commentary on the Buchanan Report by Peter Smithson originally intended for a third programme talk in January 1964

We all know that motorization is inevitable, and Buchanan's Report patiently spells out the obvious so that even politicians cannot misunderstand.

But for the professional worrier about urbanism this is no comfort. Our problems still remain.

Our concern is for the poetry of movement, the sense of quietude, for the workplace to feel like a workplace, for the city of the machine to be able to be enjoyed with the same directness and deeply felt contentment we can still feel in the fishing harbour, the market place, the quayside, where older technologies and ways of doing things still hold.

To get a grip on the newer technologies in this sense is going to be a long process. But technological change is in fact relatively slow.

Los Angeles has been accepting the consequences of the car since the 1930s.

The Boeing 707 has been with us in embryo since the Superfortress, and looks like going on and on like the DC3 (which is (just) still with us).*

So it is no good saying that the speed of change makes it impossible for us to understand techniques in our bones in the old way, and to produce works of art.

*The first DC3 flew on December 22, 1935, that is thirty years ago.

For this is the only thing that gives change meaning. The only thing worth doing—the 707 itself is a work of art.

The things I want to discuss are ways of continuing the old tradition of the city as a collective work of art. They are primitive 'how-to-do-its', not theories, nor pleas for further research. They are practical exemplars.

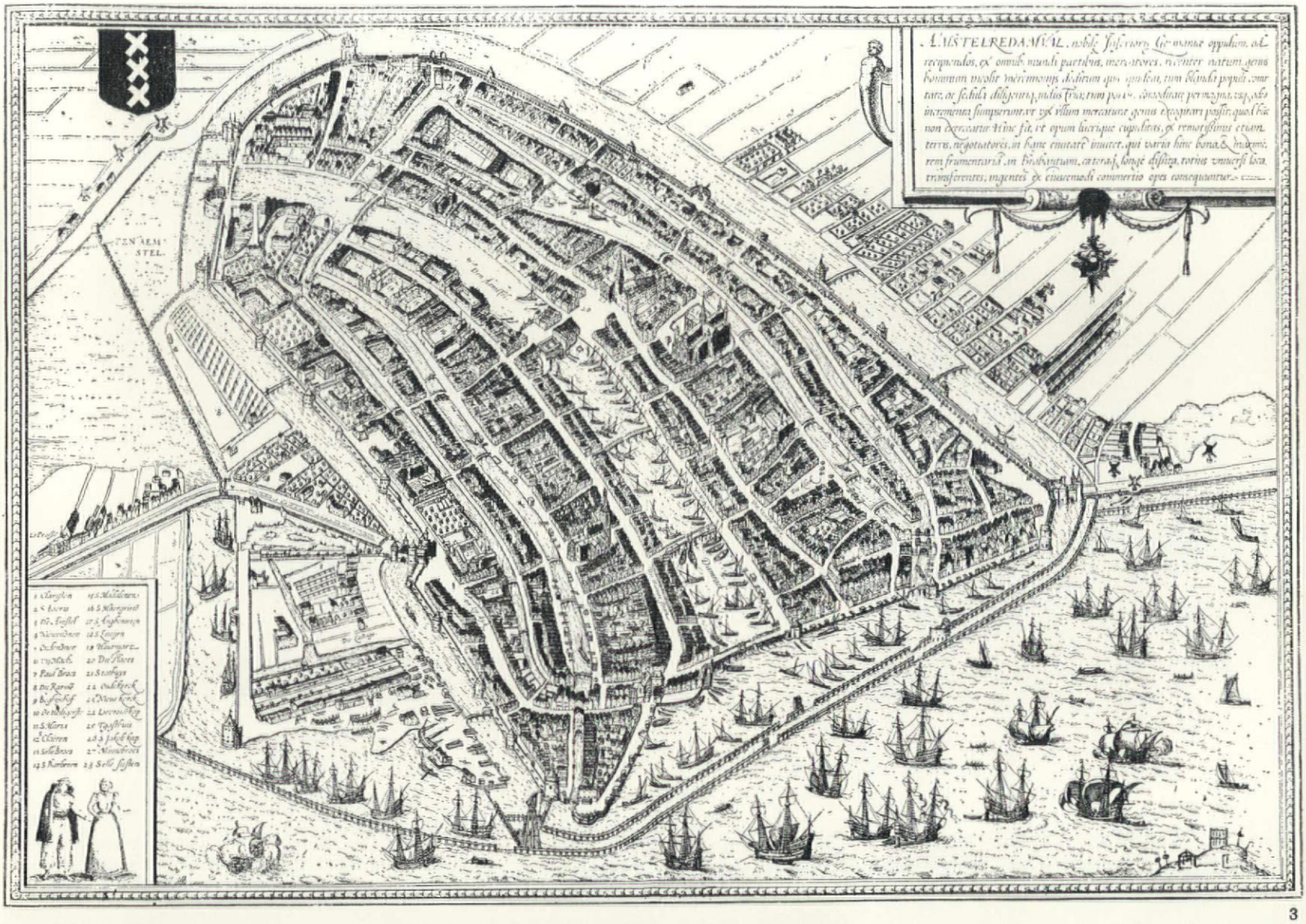
There is also unfortunately one important thing to be said which is, in a way, negative, and that is that following the Buchanan Report there will be many proposals for multi-level development on the lines of that near the Old Hay Market in Stockholm, or more complex versions of the Stag Brewery site in London. Such developments, in my terms, are uninhabitable.

My experience of them is that one feels trapped, less than a man, and unhappy.

One feels repeated in them, in an odd way, the sense of social restriction and injustice communicated by the Old Holborn Restaurant and the Shell Centre.

There is no architect who can himself handle formal problems of this degree of complexity, or who has developed techniques of collective formal control so that many can work together on complex problems; and this should be reason enough for *not* undertaking such work.

My own feeling is that, for another even more serious reason, it is not right to try to handle such complexity. *Cities are already too knitted-up and too dense, what they need is to be loosened up, and the points of intensity of use spread about more, so that things can become themselves without so much artifice and struggle.*



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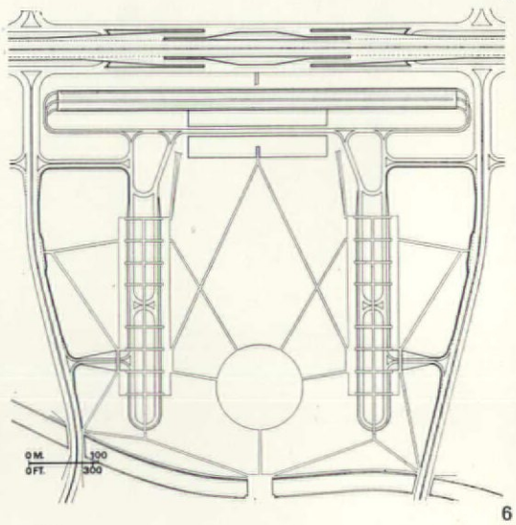

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3 & 4
Plans of Amsterdam (sixteenth century) and Turin (late eighteenth century)
In Amsterdam the waterways are about 40 per cent of the built-up area, in Turin the fortifications with its 'cordon sanitaire' occupy more space than the built-up area
The urban motorway net of a scattered city with its 'cordon sanitaire' and connections is likely to occupy about the same proportion of the total area as these
As the canal system and the fortification system were the 'only things at the scale of the city' in the old city, so the motorway system is the 'only thing at the scale of the city' for the new city

4

I think I should like to explain a little more fully about 'things becoming themselves'.

This can most easily be done by contrasting the original openness and well-organization of Amsterdam or the old waterways of England, with the clumsy system for the servicing of buildings today—with lorries backing and manoeuvring in inadequate spaces, with inadequate turning circles, often in dark and ill-ventilated basements.

What pleasure can this give to the people who work there? It is asking men to work with poor tools.

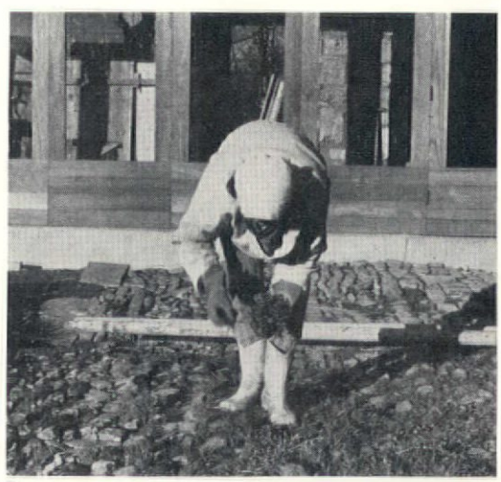
If 'systems of access' are to work sweetly 'to become themselves', develop their own disciplines, their own elegance, space is needed. For the scale of the motorized city is the scale of a city of great waterways, docks and harbours—an analogy made by Louis Kahn as part of his struggle to find an 'order of movement' for Philadelphia.

It is the total lack of the sense of an emergent 'order', the lack of even an illuminating fragment, that explains why the pilot-studies of the Buchanan Report seems without point.

Like a good Mandarin, Buchanan's strength is in defining and numbering. But his studies speak of no new places to go, no new structuring, no sense of a present just waiting to be unfolded.

But, you might ask, how can anyone help to unfold the present?

By discovering the routes which would give a sense of release, and from which one could feel the structure of the city.



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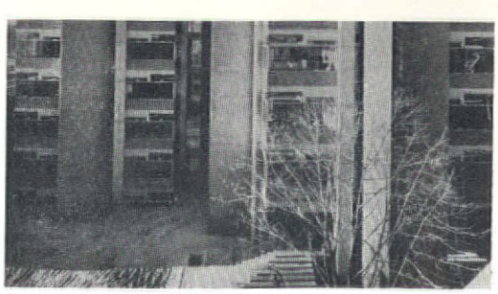
5
M4 Brentford
Primitive though the M4 is, it gives a sense of release and of structure to the western approaches

6
Ground level of the Smithson's Mehringplatz project
The idea—to give the service access system fresh air by digging a big moat and floating the building over it. This is so that the places where men have to load and unload and wait is decent
Car-*parking*, on the other hand, where a car waits without a man in it, is in a closed parking building. The parking building is in the noisiest place next to the motorway, and is used to shield the peopled buildings and spaces from motorway stress

7
Alison Smithson cobbling
In a garden one thinks and builds outwards from the house into the surrounding space, looking for limits, looking for uses; giving sense to random places. So also should the city grow

8
Entrance to Louis Kahn's Richards' Medical Research Building, Philadelphia, 1958–60
Not in those towers
but in those not yet hollow stones
standing quietly where one enters
there is a revelation.
For in Philadelphia is the first precast concrete architecture I have ever seen



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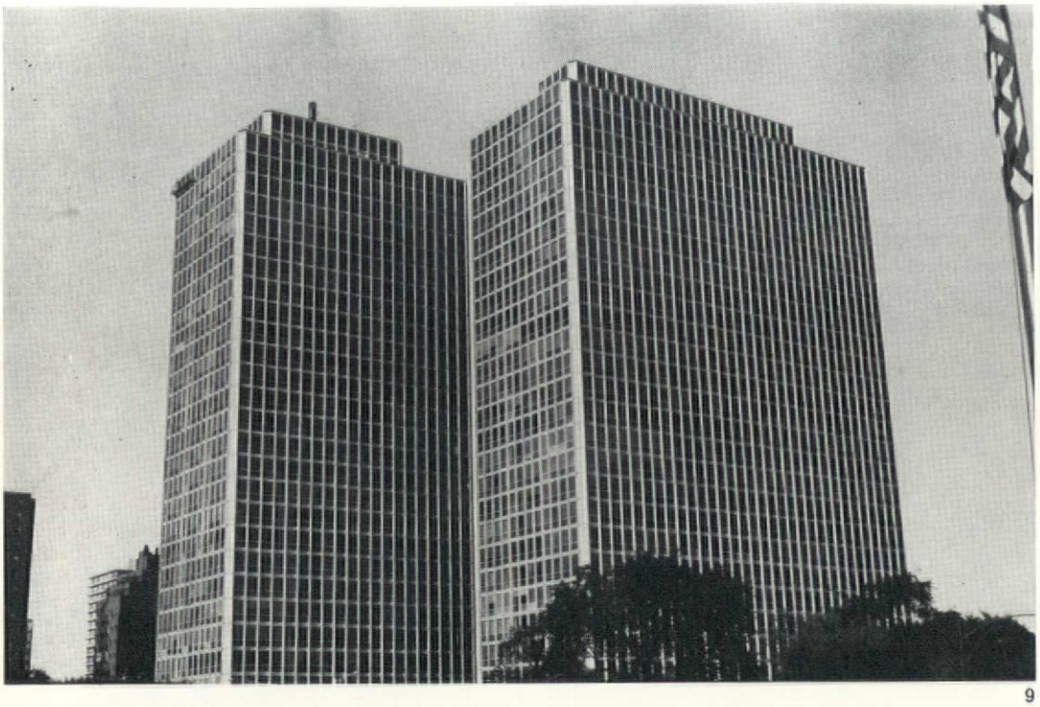

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9
Mies van der Rohe, Gratiot Apartments, Chicago
An aluminium skin detailed with formal precision and unique to this job, yet at a cost lower than council flats

10 & 11
Alison and Peter Smithson, Economist Building, London
One of the few new places to walk in London where one is *sure* one is not going to be knocked down. The only new place to go for the sake of the place

Illustrations: 3, from Civitates Orbis Terrarum, *reproduced in* Old European Cities; *4,* Voyage en Italie, *Vol. I, Pl. II; 5, Aerofilms Ltd. 10 & 11, Sandra Lousada Photo: 1, Pan American*

By building buildings which quietly indicate what one might do there.

By personal commitment to place. To one's own place, to the city as an extension of oneself, comprehended bodily and extended as one extends one's arm or builds a garden.

What do we know about how to do these things?

We know that roads can be used as a way of controlling intensity of use, and that through them we can loosen-up the texture of the city.

We know that buildings can have capacity-to-make-places built into them, for example:

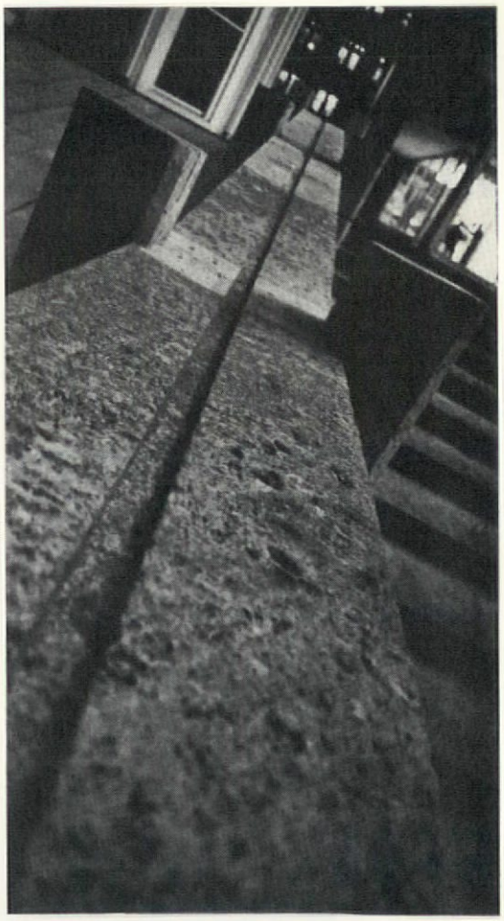
By systems of linkage.
By form compatibility.
By style compatibility—a capacity to live with one another by the use of neutrality.

We know that building technology is over the hump of standardization, and that it could be as responsive to place and formal intention as that of the Middle Ages—no place need be the same as every other place. (For we crave difference of milieu as we do oranges in winter. Why else the longing for the country or the sight of the sea?)

You may say that we do not know very much. But the whole notion of 'building-towards-the-community-structure' has been lost. What was once the natural way of building has become too metaphysical to be grasped even by my own students.

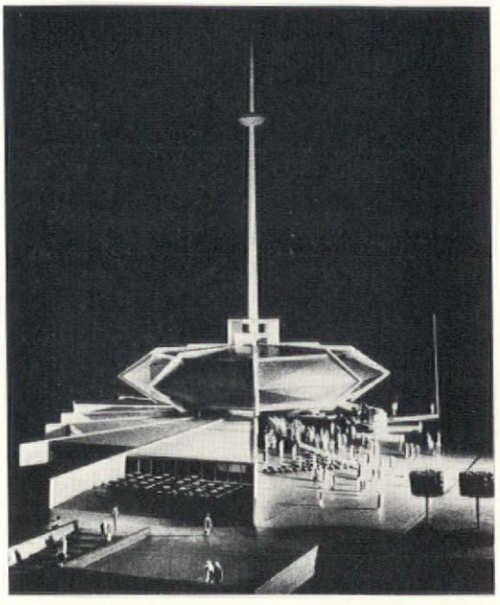
So it will mean a great deal of effort before what we do know becomes language accessible to all.

10



11

Recent work of Karl Schwanzer



Karl Schwanzer was born in 1918; he graduated from the University of Technology, Vienna, in 1940. Nine years later he set up an independent architectural practice; since then he has designed a considerable number and a wide range of buildings, all of them controlled, neat and well-mannered. His recent design for the Austrian pavilion at the Montreal exhibition, shown here, gives evidence, however, of a more idiosyncratic turn in his development.

Extracts from statements by the architect

Designing—creative and active

For the qualitative output of the architect, it is unthinkable to plan creatively without using fantasy. This leaving of well-trodden, and therefore safe, paths opens up new ways, new possibilities for both progress and the expression of our epoch.

By analysing the spiritual content-matter of the task right down to precision programming, the architect becomes one of the active creators of our surroundings. He no longer figures as the passive planner of present projects, but takes a spiritual share in conceiving and formulating them, tasks that go hand in hand with the architectonic solution and formulation. By active designing, I understand the collaboration in analysing the bases that lead up to defining the problems, as well as to an active share being taken, in the reciprocal effect of the often clashing views expressed by principals and designers, and this already in the earliest stage of affairs. From such an attitude more meaningful solutions result than from the mechanical acceptance of an anonymous building programme, in which the designer has but a passive role since he was not permitted to take a share in formulating designs. The architect should never be locked up in the drafting room, but must rather exercise his profession in the most comprehensive manner. He must, however, be equipped with ample knowledge of the actual needs of human society, of the definition of its economy, of its social and political activity, and of its aesthetics. He must emerge from being an architectural 'designer' and become an architectural 'producer' who really links up architecture with life. Future active planning will spell increased social responsibility for the architect, but also win him more recognition. Consciousness of the meaning of a project and involvement in its conception will result in more serious and useful designs being produced than hitherto by the passive planning.

It cannot possibly be the intention of contemporary architecture that church and railroad station (despite the use of similar technical materials and constructional means) should produce the same formal results.

Designing is not a chore, but redemption from a tension within by architectonic manifestations.

Designing—optical and spiritual

Seeing, perceiving and recognizing are things we have to learn again from day to day since there are new impressions constantly to surprise us.

The essence of rhythm is less the endless repetition of single units than that of relations in function of a single scheme of proportions.

Rhythm is the basis of order; and relation computed in advance is the essence of rhythm.

To see also means to perceive, to grasp with the intellect, or, in other words, to be struck by the truth.

The genuine art of the architect is to retain truth in construction and in the material. Clarity is truth, the simpler the clearer.

Designing is based on an ordered mental activity—i.e. on thinking.

Planning also spells thinking—thinking in advance for the later implementation of the plan until the edifice can discharge its useful function.

Thinking will always have to exercise a correcting function. Despite all intuition and artistic flair, the design must be worked out down to the last detail.

In the preliminary drawing we have an interaction between thinking and seeing. Both activities alternate uninterruptedly and supplement one another.

To think in advance, in keeping with the spirit of our time and without temporizing, i.e. without being forced into decisions by situations, is one of the basic precepts of orderly and mature planning.

Thinking is a process to which one has to be educated.

The biggest difficulty in large-scale building projects is to maintain the proportion of the building to human scale.

Symmetry is the expression of immobility and lassitude, asymmetry that of action and vitality. The fine art is to balance forces regardless of disproportionate weights.

What is expected from a contemporary edifice is the expression of an idea.

Even the purely scientific worker stands in need not only of his skills, but also of creative spirit. For the architect, inspiration is even more important.

Preliminary proposals for Austrovision

A new idea to be realized in connection with Austria's participation in EXPO 67, Montreal.

Architecture, static displays like photo-murals, works of art and products are not enough to provide in the visitor to the Austrian Pavilion at the Montreal Fair 67 a lasting experience of the Austrian Image. In order to create such an experience the organizers will present a scenic demonstration. The main medium of information will be the Austrovision—a synthesis of theatre, film, music, photography and space elements as well as exhibits which will impress themselves easily and naturally on the mind of the visitor.

The dramatized Imago Austriae shall be presented by audio-visual means through four scenic images:

Austria's share in the Alps
Austria's share in the Pannonic plain
Austria's share in the European Danube valley
Austria's share in European cities

A main path leads diagonally across the Austrian exhibition site, so visitors will be virtually forced to enter the Austrian pavilion and to view at least the showcases and exhibits displayed on the ground floor and tempted to visit the café, where they will find the traditional atmosphere of the famous Viennese coffee house.

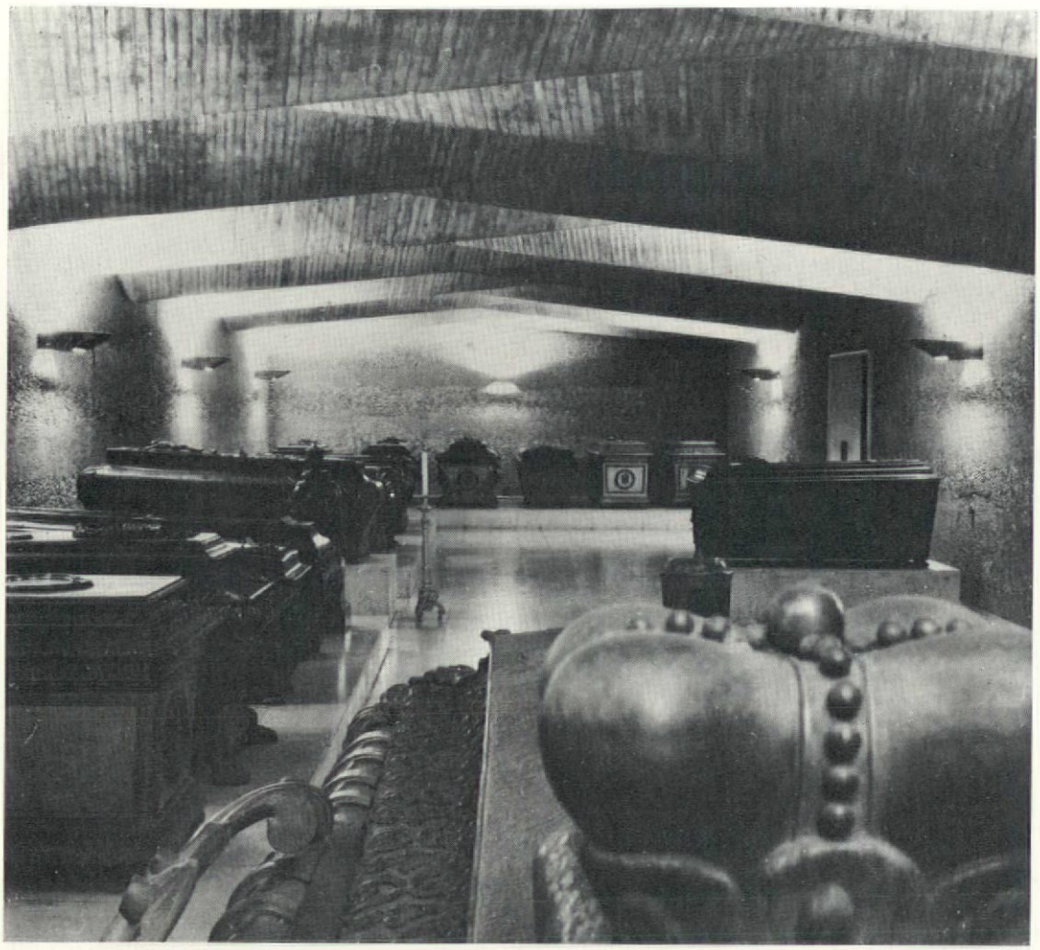
The 'reflector symbol', floating on a mast above the pavilion, will be an eye-catching element, particularly for visitors arriving from the seafront and will make the Austrian exhibit an important focal point.

Removable partition walls allow for the transformation of the three main elements of the plan at court-level—information room, reception room and reading room—into one single room for special occasions. All rooms open onto the court which forms a place for meeting and a place for resting.

An escalator affords easy access to the completely enclosed Austrovision which lies on a higher level. The passage through the four rooms is suggested (but not forced upon the visitor) by the arrangement of architectural elements.

The construction consists of a centre column from which radiate similar supporting elements. Outside walls: aluminium panels. Inside walls: plaster on lath. Ceiling: acoustic tiles. Floor: fitted carpet.

Extension of the Kapuzinergruft, 1958-60



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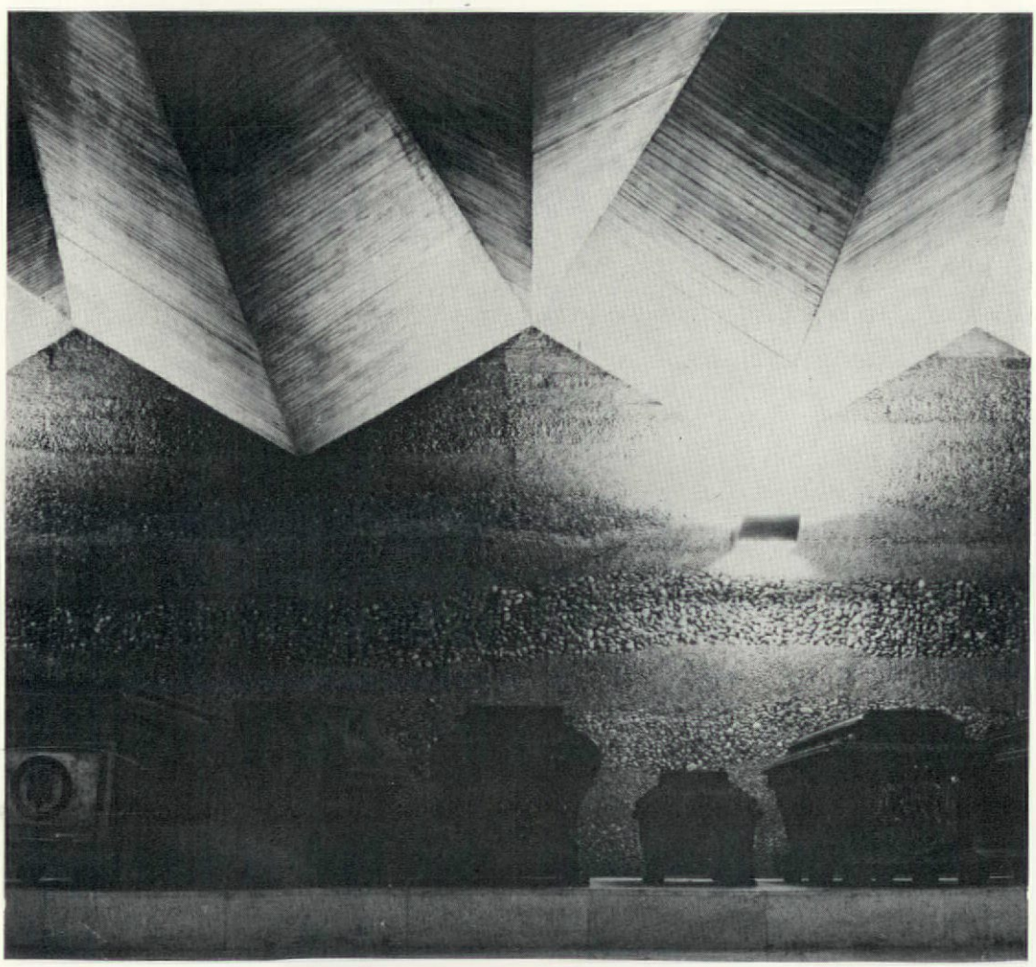
The extension of the Kapuzinergruft (the Imperial vaults and hereditary burial chambers of the Hapsburgs) covers an area of 280m² under part of the monastery garden which is preserved as a green and recreation area. The new underground burial chamber makes no attempt to compete with the buildings of the past Austrian empire. The architects aimed to provide a modest, but dignified last resting place for historic personalities, using only concrete for the building material and complying with structural requirements and providing beauty of line by incorporating a fluted ceiling.
The floor is covered with slabs of synthetic stone, and the coffins stand on pedestals elevated according to the rank of the deceased. The chamber is mechanically ventilated.
The wrought iron doors and chandeliers are by the sculptor Rudolf Hoflehner.



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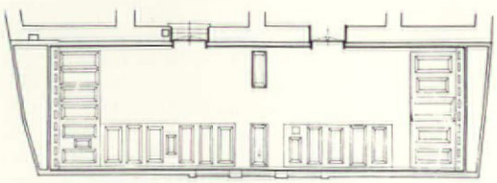

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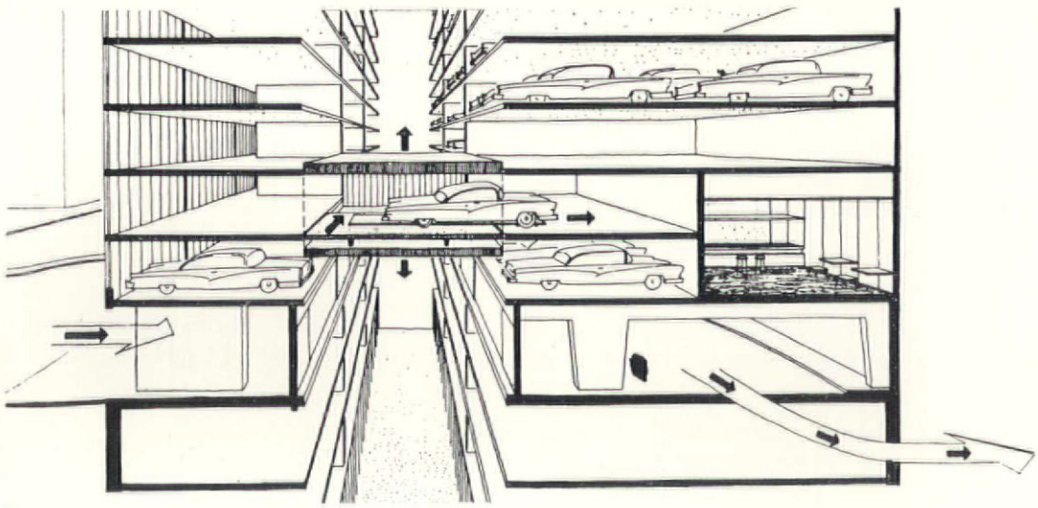
1 & 2
Two views of the Hapsburg vaults

3
Section

4
Plan
Photos: Carmela Haerdtl

1



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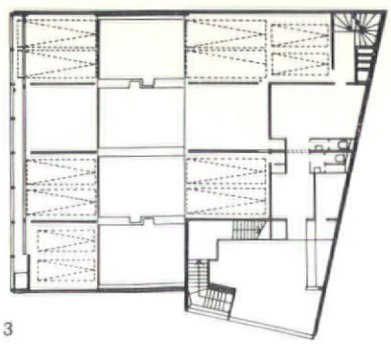


3

1
Lower elevation of the parking and service garage, Neuer Markt 8a

2
Diagrammatic section illustrating the organization of the car park, using a lift running both vertically and horizontally in an internal well

3
Plan of the garage
Photo: Maria Wölfl

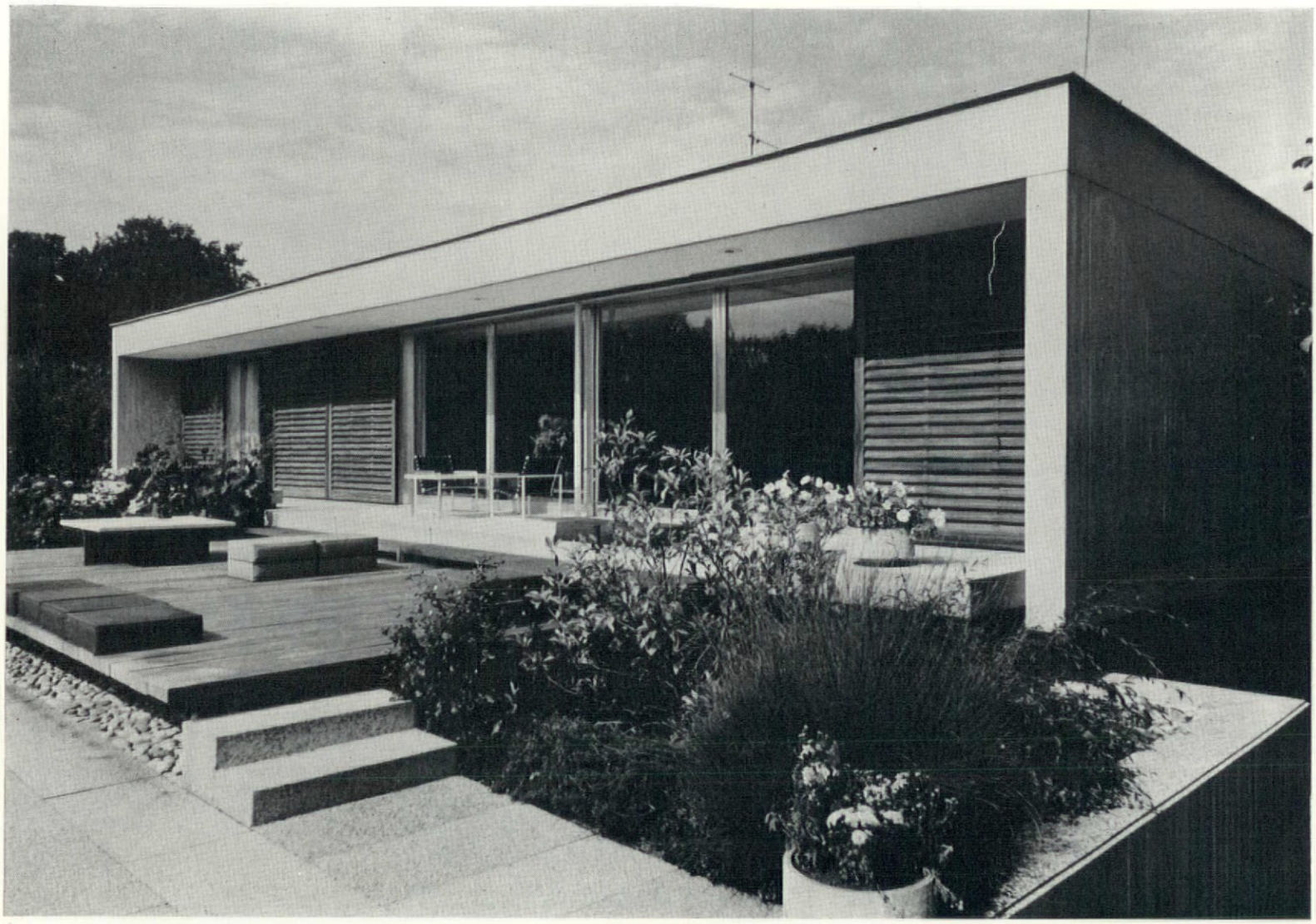
Parking garage, Vienna, 1958

The reinforced concrete parking garage rests on an 80cm thick reinforced concrete raft. The parking floors are 1·90m high, while the other floors are 3 and 3·80m.

The main elevation consists of a reinforced concrete frame with infill of corrugated wire-reinforced glass; the sides are concrete.

The concrete slab construction chosen for this building allowed for exceptionally slender walls (15cm approx.), despite the substantial loads catered for, such as the service station, the lift installation and the parked cars. Likewise the floors are of minimum thickness (12cm). The same goes for the solution to the problem of one corner of the building which cantilevers about 5m over the pavement.

There are four entrances and collecting points at ground-floor level and a lift shaft behind them. Above rises the building with its 12 storeys plus three basements. The cubic space allows for about 300 cars; four boxes per floor for two or four cars each respectively. These are kept supplied by four lifts of 2000kilos carrying capacity each, and a speed of 0·9m per second. These lifts are operated by a liftman travelling along the stage. Putting the cars on the lift platform and parking them in the various boxes throughout the building is master-minded and automatically mechanically handled by a Wertheim Car Parker on the platform.



1

2

3

House at Hawelgasse, Vienna, 1960-62

The main aim of the design was to achieve ample living space on one level. Any definite splitting up of the plan was avoided, and ample variations were made possible by sliding wall components. A lower level resulting from the sloping site was utilized for residential purposes (TV, music, etc.) on the side facing the road, and closets on the slope side.

External walls are r.c. left as found on the outside, and lined on the inside with an insulating layer of cork and brick. The ceiling loads are supported by internal steel columns, to avoid having load-bearing walls inside, and allowing for great flexibility in the dividing-up of the space (achieved with storage components made of 'Wenge' wood with sliding doors partly covered with rice straw).

The windows are aluminium framed with insulating glazing. 'Glasal' compound plates were used on the parapets.

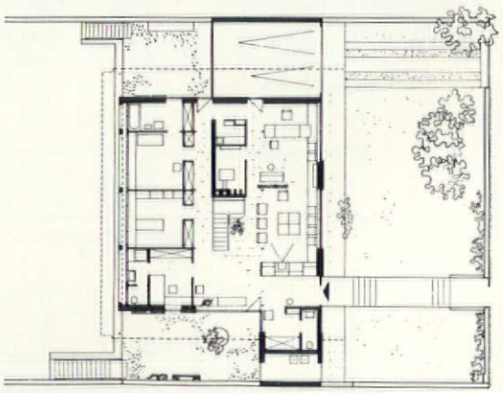
1
Exterior of the house from the terraced garden

2
View of the living room at garden level

3
View of the study at street level

4 & 5
Street level and first floor plans

Photos: Adalbert Komers-Lindenbach



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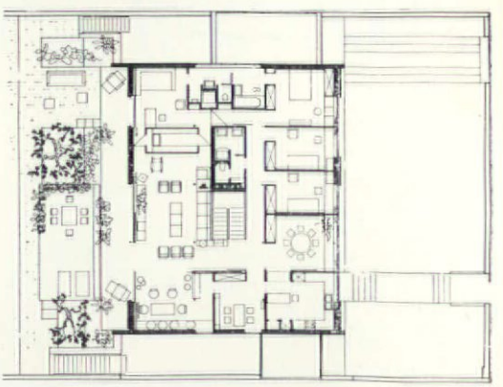

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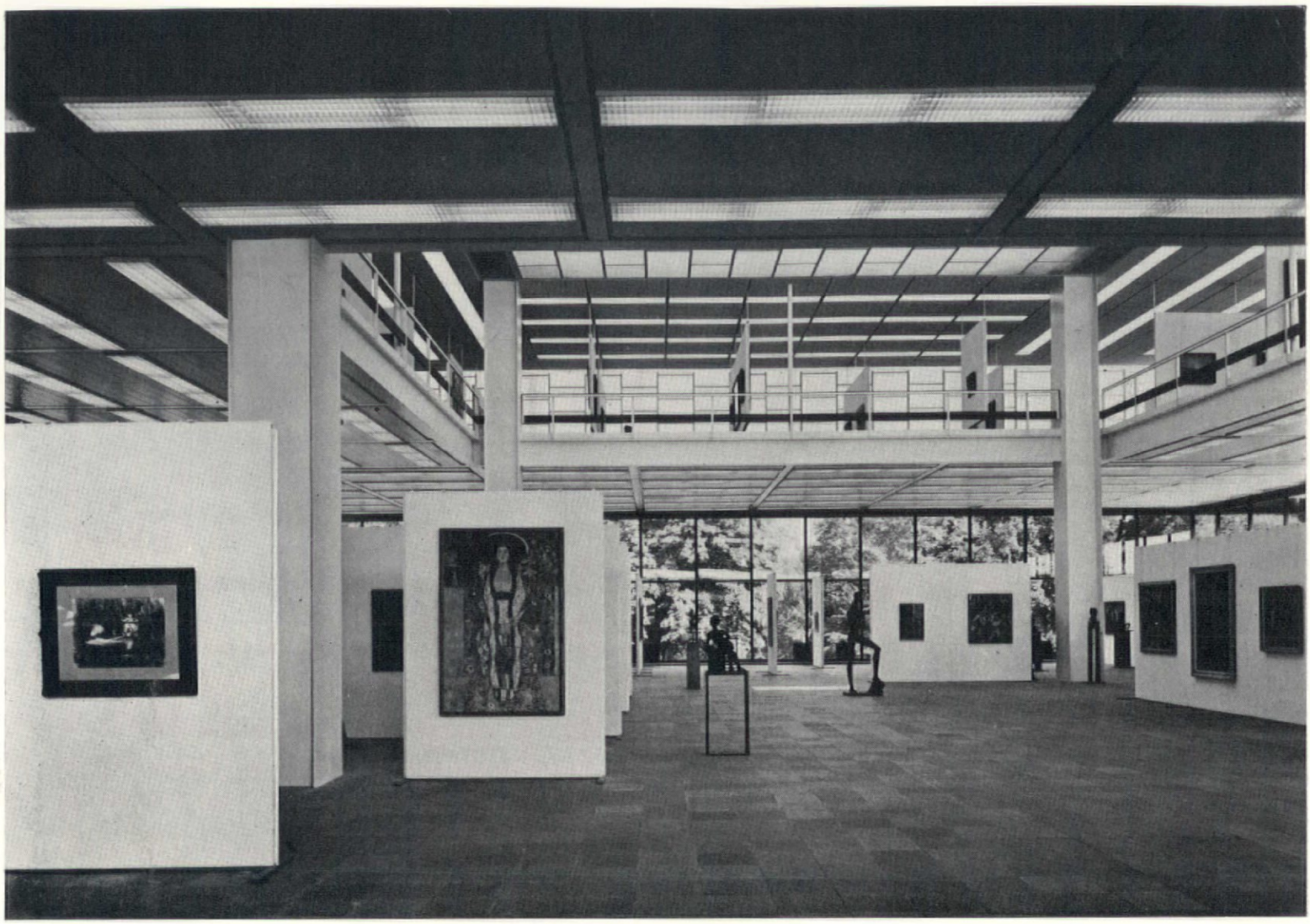

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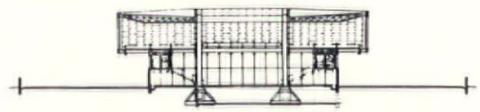

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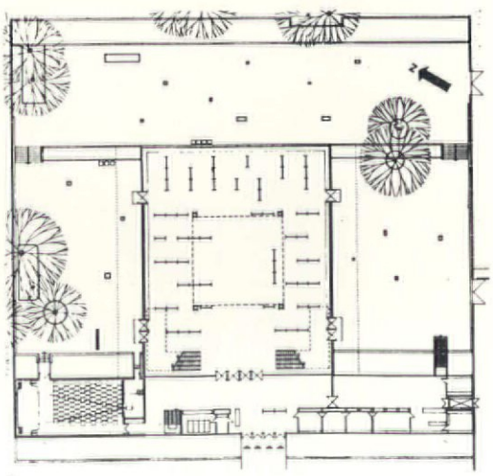


4

1
Interior view of the central gallery

2
Exterior of the museum from one of the sculpture courts

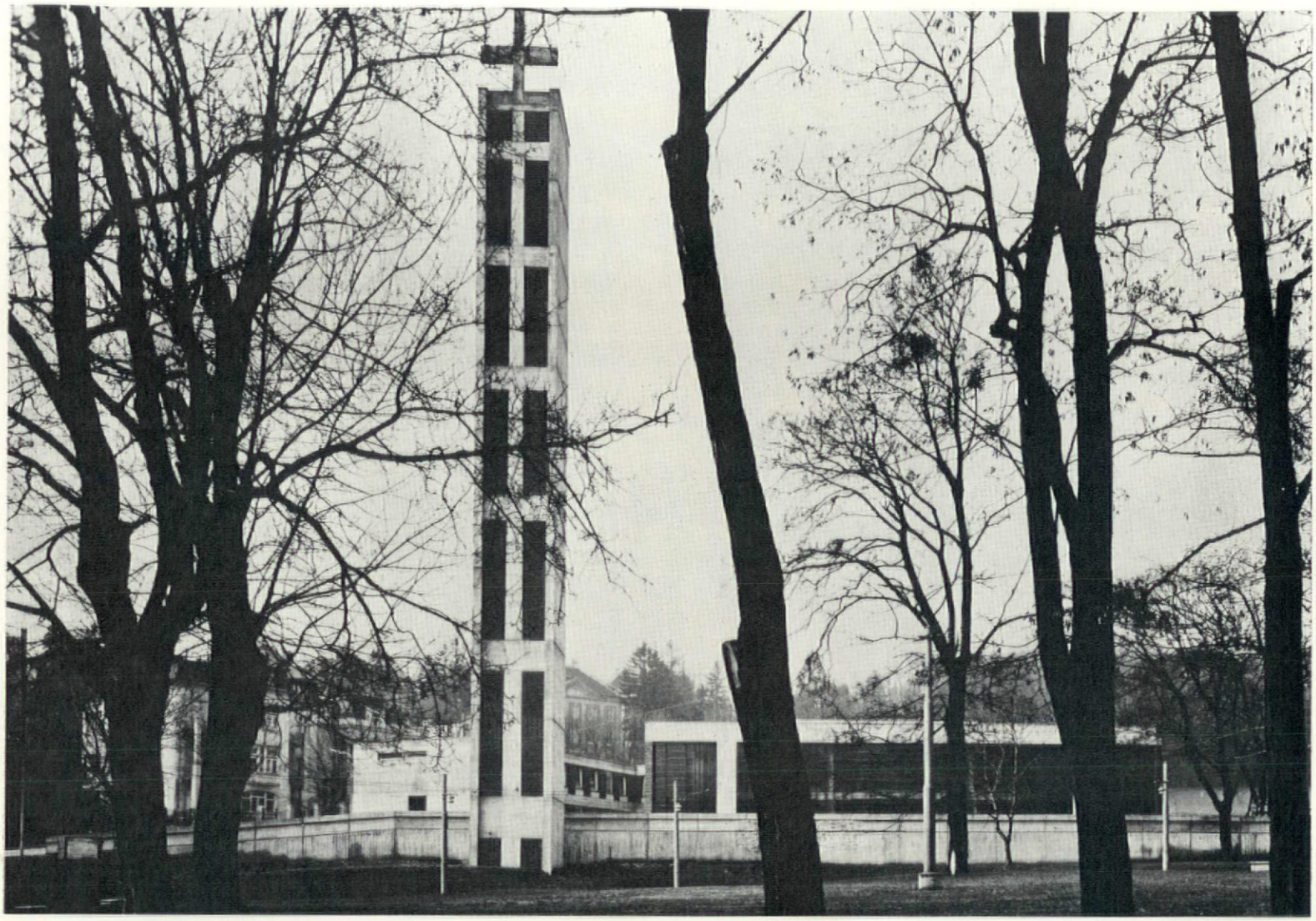
3 & 4
Section and ground floor plan

Photos: P. Grünzweig

Twentieth Century Museum, 1960-62

In 1956 Professor Schwanzer won the competition for the Austrian pavilion for the 1958 Brussels Exhibition. His building rested on four supports and provided an open ground floor and a closed-in upper floor round an open central courtyard. It was later decided that this sort of building would be suitable for re-use as the Museum of the Twentieth Century in Vienna, and a site in the Schweitzergarten was provided by the municipality.

The architects deemed the basic cube to be ideal for a museum. The exhibits all being from a single century dictated the idea of a one-room museum. The ground floor was enclosed, partly by glass, partly by solid walls; and the central courtyard was glazed over. Three sculpture courtyards surrounding the actual building are visually linked with the interior of the museum, but separated from the outside world by low walls. The ground floor space is subdivided, where required, by free-standing partitions; the upper floor by movable painted wood panels suspended from ceiling rails. A secondary building, also from Brussels, lies at right angles to the museum and houses offices, a small lecture hall, reading rooms and cloakrooms.



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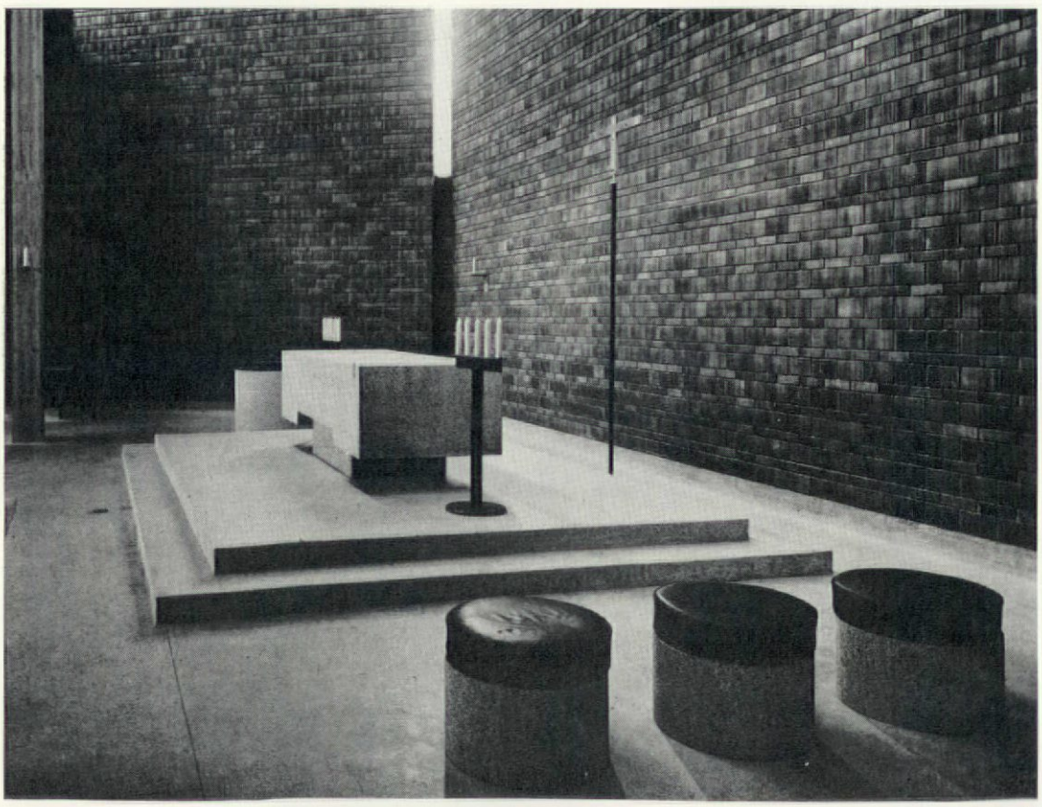
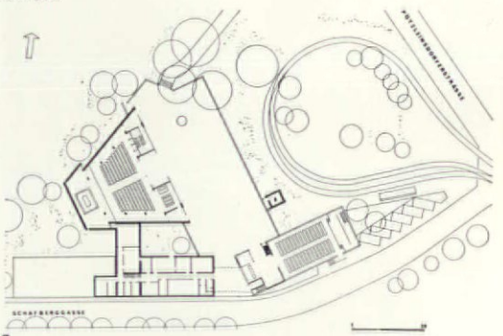


2

Church of Christ the King, Pötzleinsdorf, 1960–63

The church seats 270 people with further standing room for 380. Above the east end a gallery or choir will accommodate an additional 100.
Attached to the church is a two-storey parsonage with kindergarten and an intermediate building linking the two. The ground floor houses offices, the top residential quarters.
All the buildings are in natural concrete and brick.



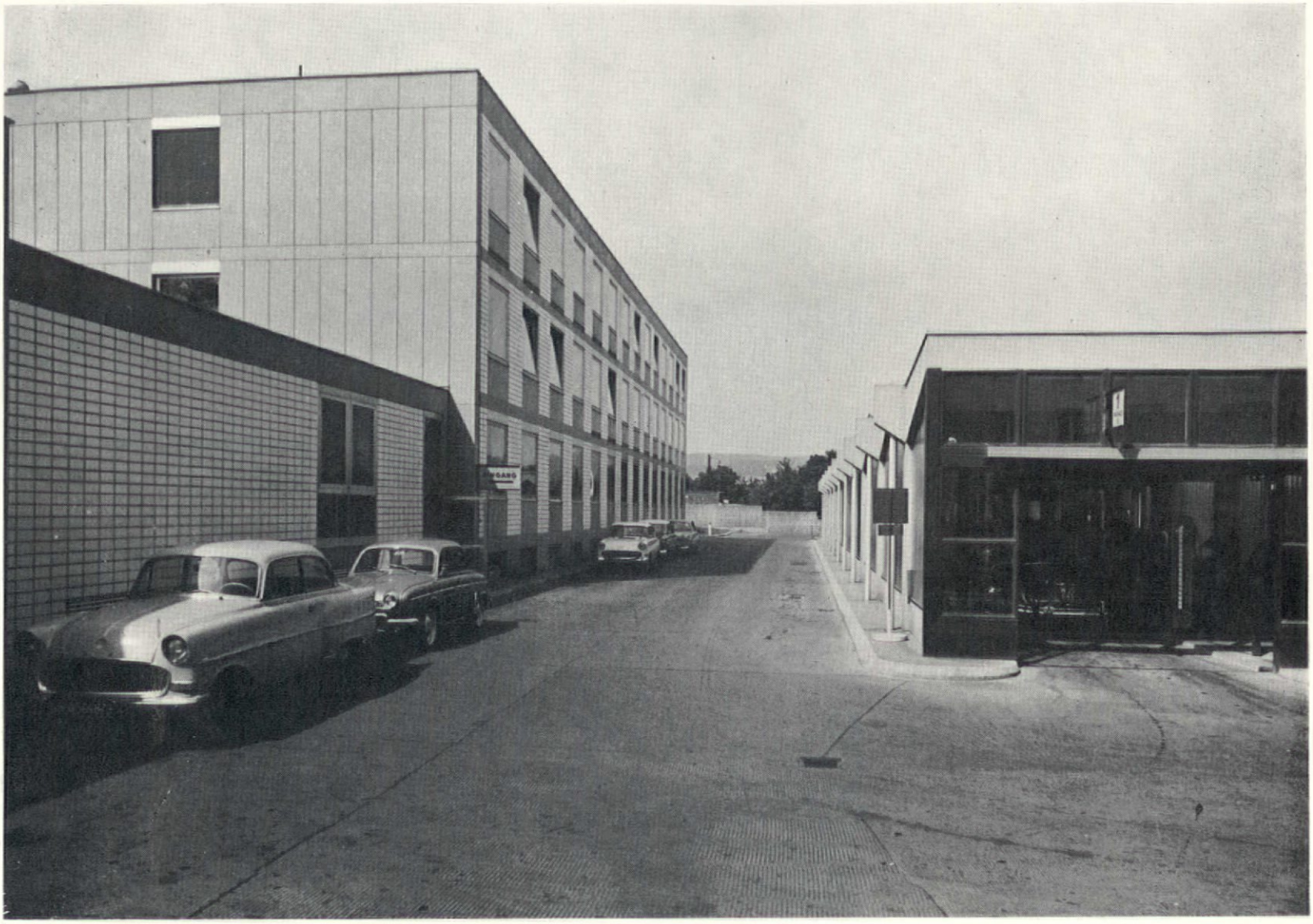
3

1
External view of the church, 18 Pötzleinsdorfer Strasse

2
Detail of the altar furnishings

3
Plan

Photos: P. Grünzweig



1

2

Touring club offices and technical research station, Vienna, 1962–64

The new administrative building and technical research station for the Austrian Touring Club had to make provision for facilities for highly specialized individual car tests and breakdown service, with complete control over activities. On a site of limited area, the group of buildings comprises two workshops and a three-storey administrative building containing a lecture hall, a control room, office facilities, kitchen and canteens. The main part of the office building is of prefabricated concrete components, with windows of aluminium, and some cladding in ceramic tiles.

In the workshops no effort was spared to provide good light and to use prefabricated components as much as possible. Entrance and exits are controlled by electrically operated glazed steel doors. From the mechanics' pit the basement beneath may be reached. Ventilating required a good deal of attention, in view of the exhaust fumes of running engines. Noise reduction was effected by lining the ceiling with acoustic damping plates.

1
Exterior view of the office building and testing station

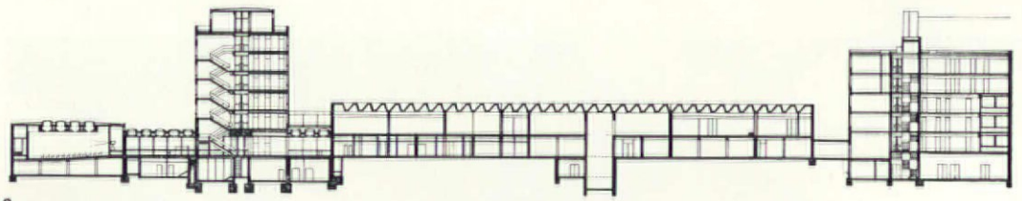
2
Interior of one of the testing garages

Photos: 1 Adalbert Komers-Lindenbach; 2 P. Grünzweig

1

College of further education, Vienna, 1960–63

In the buildings of the Wirtschaftsförderungsinstitut (WIFI) main stress was laid on a clear, accentuated arrangement of the individual building parts, organized according to their function and use. Particular attention was paid to the linking of rooms of different purposes to enable them to be used together or separately. The modelling of the buildings was much reduced; windows and bays are almost flush with the wall. The constructional system is clearly visible, and has been maintained throughout; also the distance between centre-lines of 5·32m resulting from the size of the lecture hall furniture was used in all of the buildings. The entrance halls are completely glazed in deliberate contrast to the solid concrete walls. The building was intended to give a large-scale, vigorous effect, achieved by the materials used and by the proportions of the individual elements; and to emphasize its function as an institution for advanced occupational training. The thrift of materials used on the exterior of the building has been continued in its interior, white, grey, and natural wood appearing consistently as colours.



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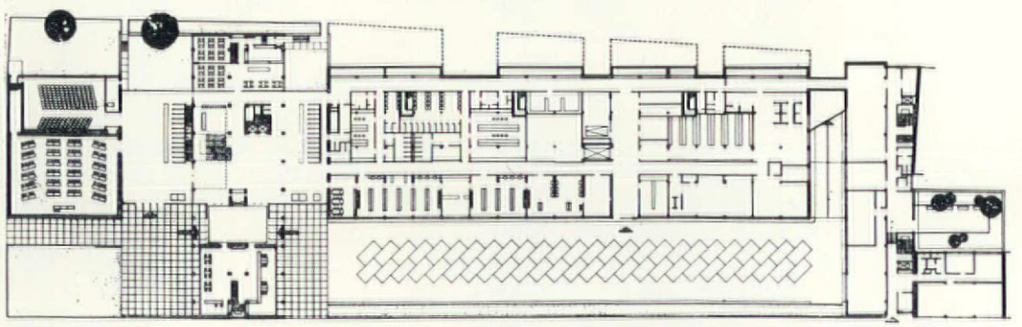

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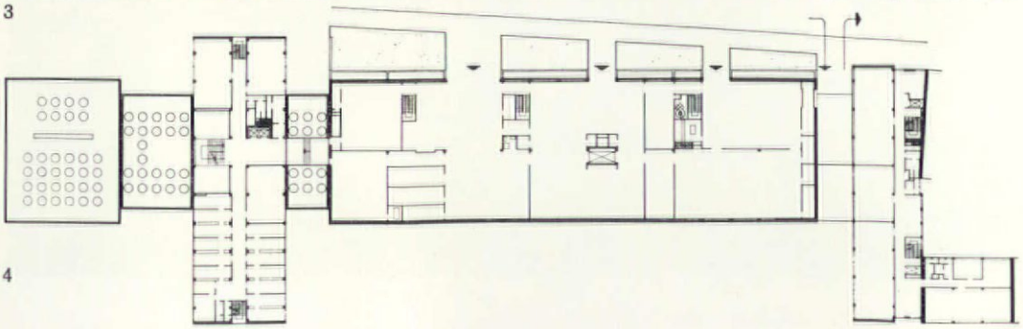

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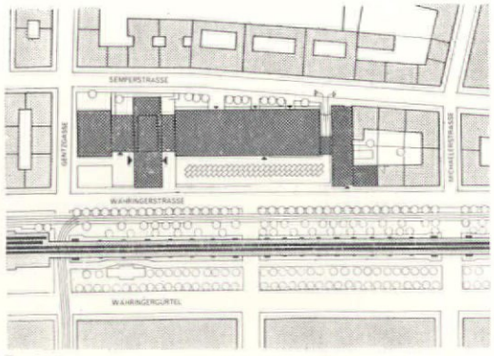

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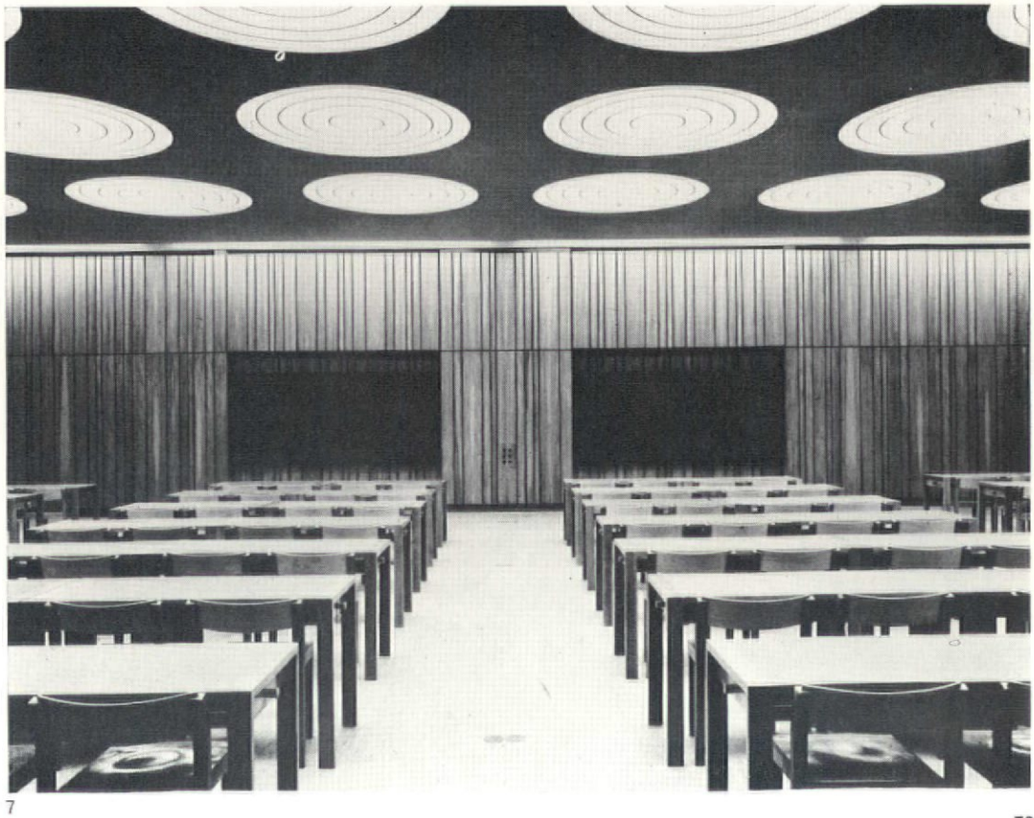


7

1
Exterior view of the institute, 18 Währinger Gürtel

2
Section

3
Ground floor plan

4
First floor plan

5
Interior view of the main entrance hall

6
Site plan

7
Interior of lecture theatre

Photos: 1 M. Kössler; 5 & 7 P. Grünzweig

Philips office building, Vienna, 1962-64

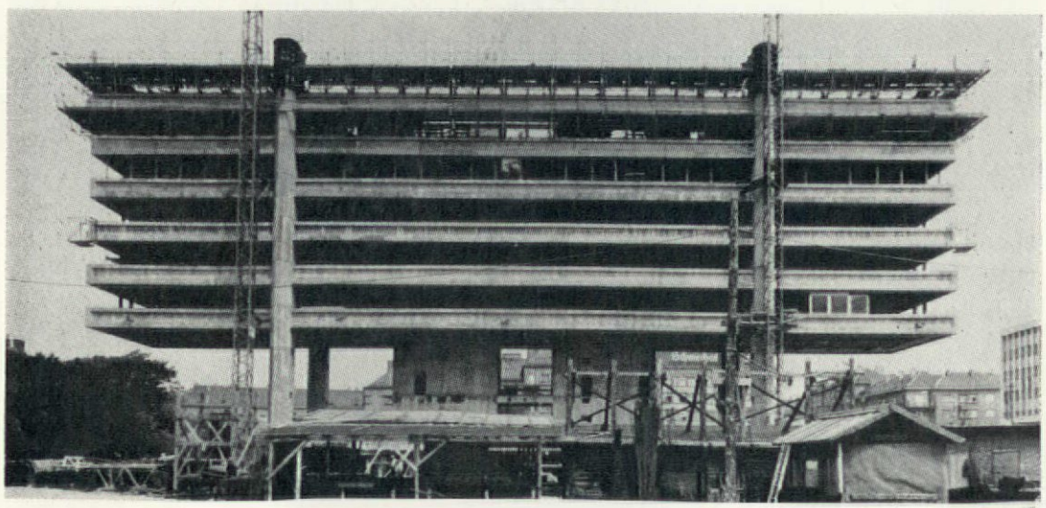
The building is in two parts: an 11-storey east–west structural slab containing office premises, a lower structural block taken up by exhibition premises, technical showrooms, lecture hall, sales rooms and sales office, storerooms, garages, file department, dining room and kitchenette for employees, etc.; in the first basement, heating, air conditioning and power plant, and in the second basement storage and parking for 13 cars.

The building caters for about 520 persons. The lecture hall has a seating capacity of 212 and is equipped with all facilities for showing standard films.

The façades are mainly of concrete coated with protective paint and partly faced with ceramic tiles. The windows are aluminium framed glazed with insulating glass. Sun protection is by vertical aluminium louvres automatically controlled.

The flat roof has synthetic or gravel compound covering, with terrazzo tiles where it is intended to be walked on.

1



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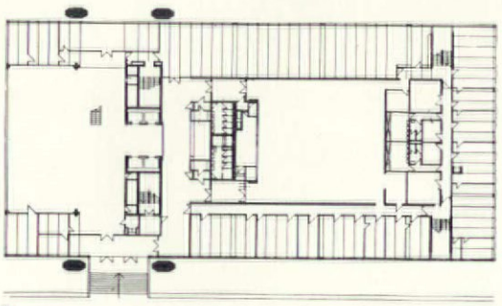

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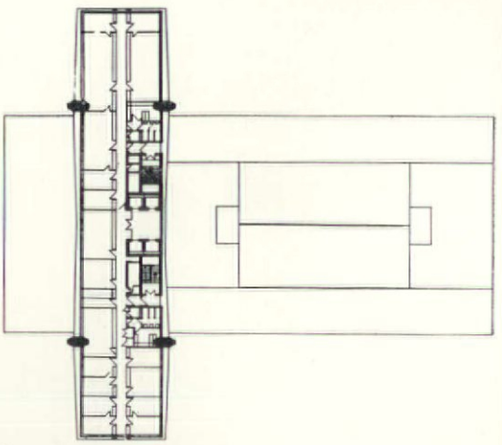


4

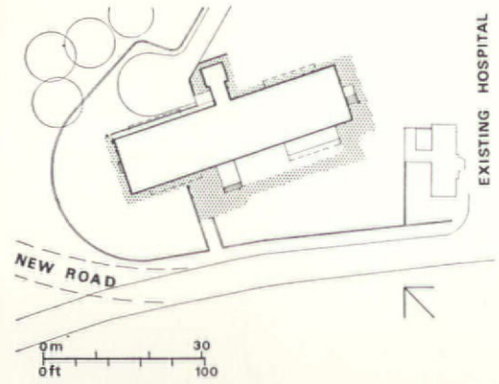
1
Views of the Philips building, 10 Triester Strasse

2
Philips building during construction

3
Ground floor plan

4
Typical plan of the floors in the tower

Photos: P. Grünzweig



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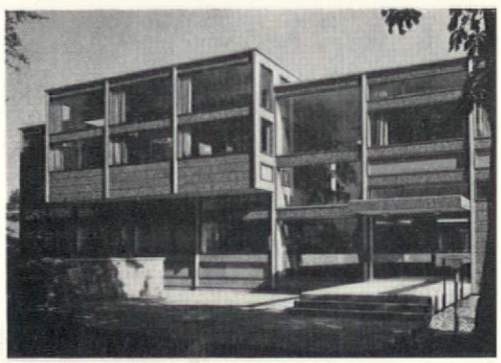

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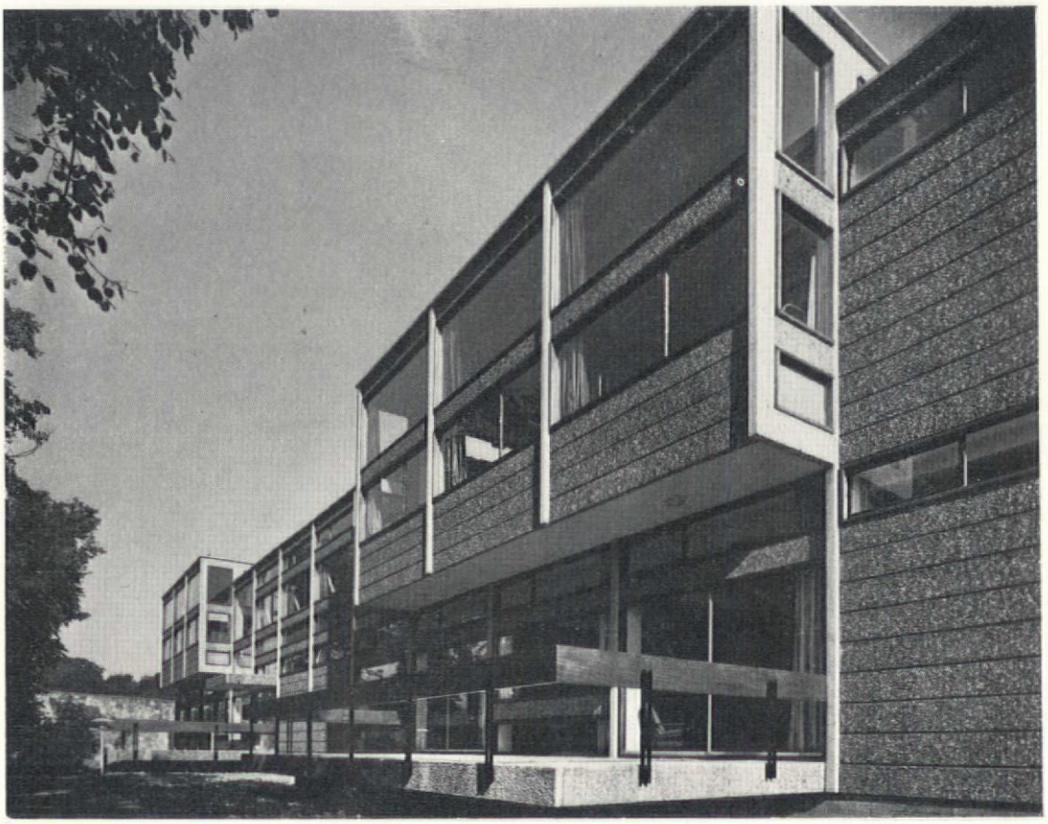


3

1
Block plan

2, 3
Main entrance façade

4
Longitudinal section, first and ground floor plans

1 reception	9 examination
2 dining room	10 consulting room
3 men's dayroom	11 kitchen
4 women's dayroom	12 bedroom
5 sister	13 laboratory
6 staffroom	14 men's ward
7 w.c.	15 women's ward
8 bathroom	

5
Lift tower from the grounds of the existing hospital
All photos: A. L. Hunter

Hospital admission unit Haddington, East Lothian

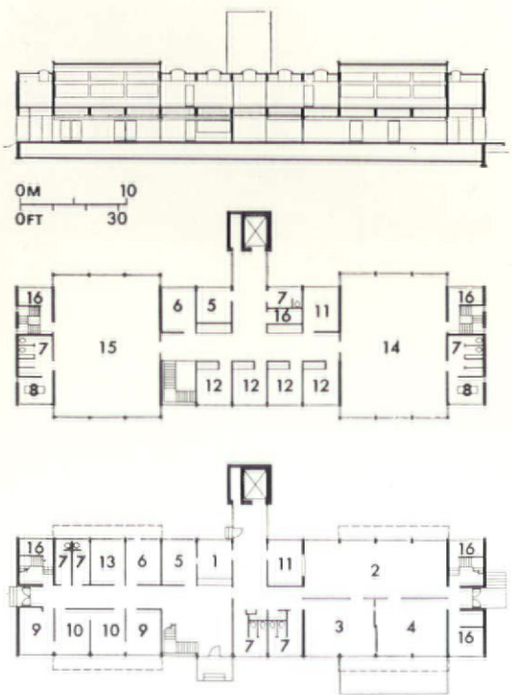
Peter Womersley

Quantity surveyors: J. Gentles & Son
Consultant engineers: Blyth & Blyth

The architect was appointed in June 1961 after a great deal of preliminary research on planning and siting had been agreed between the Hospital Board and the Regional Architect for the South Eastern Regional Hospital Board of Scotland. The revised and final plans were approved by the Board at the end of 1961 and building commenced in June 1962. Owing to the bankruptcy of the first contractor in December 1962, a second start was made on the building in April 1963, and the building was finally handed over to the Hospital Board on September 17th, 1965.

The admission unit, attached to Herdmanflat Hospital, a hospital treating mental illness, is for short-stay patients entering for assessment before going into the hospital itself. Six months is deemed (in psychiatric terms) to be short-stay and in fact the unit has so far catered for the younger ambulant patient, and no patient is in bed all day long, so that full use is made of the ground floor 'social' rooms.

The building has a reinforced concrete frame with 9in × 10in columns at 11ft 0in centres. The



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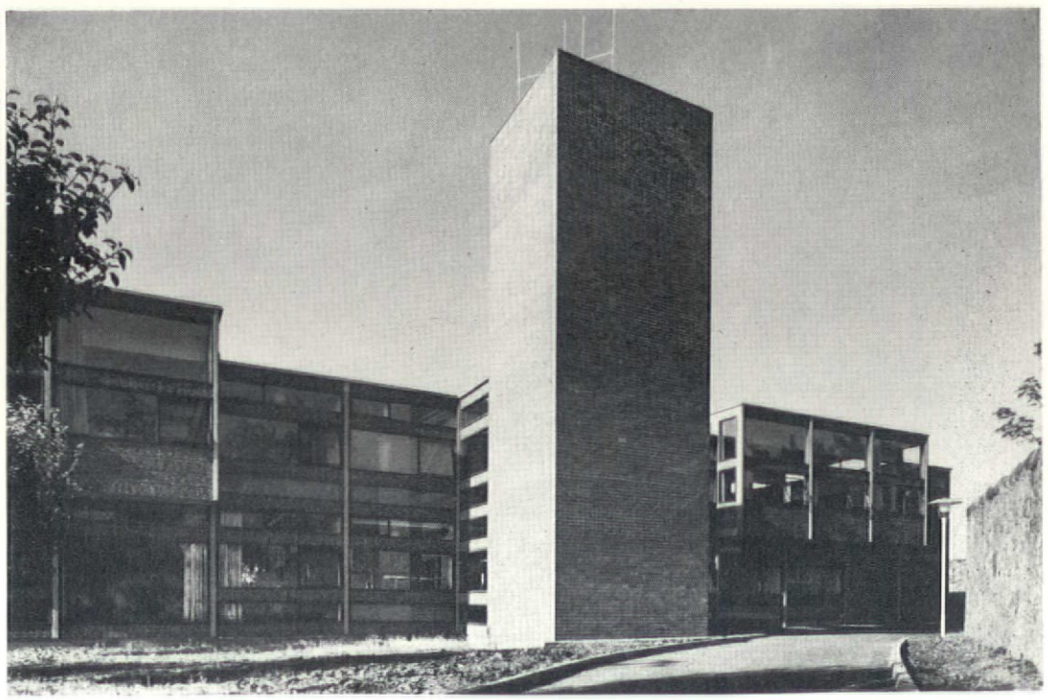

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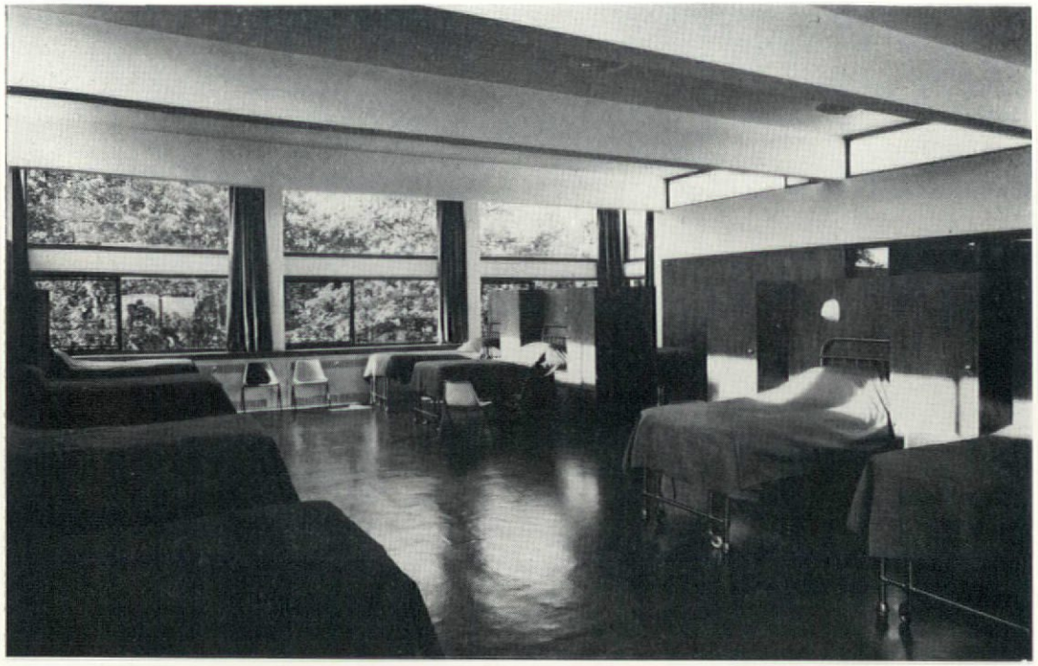


1

columns have a projecting 6in × 4in nib, which is faced in Norwegian quartz. Beams are 24in × 9in spanning 34ft 0in, with 4ft cantilever beams emphasizing the location of the two upper floor wards which, in addition, have a higher ceiling height (13ft 0in as opposed to 10ft 0in elsewhere). The beams span across the building, forming frames, except over the wards where the beams span 32ft 0in longitudinally. All exposed structural surfaces are faced in Norwegian quartz, and the building itself is clad in precast panels 10ft 6in long by 1ft 0in deep, which are faced in Walley Blue flint, and are interchangeable as either cladding panels or window transomes.

The lift tower, gable ends and plinth of the building are built of Colville's brown facing bricks, which echo the colour of the stone-built main hospital buildings. Windows are steel framed opening lights in afromosia frames; the opening lights are horizontally pivoting centrally, with a locking device for safety reasons, limiting the size of opening. The roof is in-situ concrete on 2in woodwool; the first floor is precast.

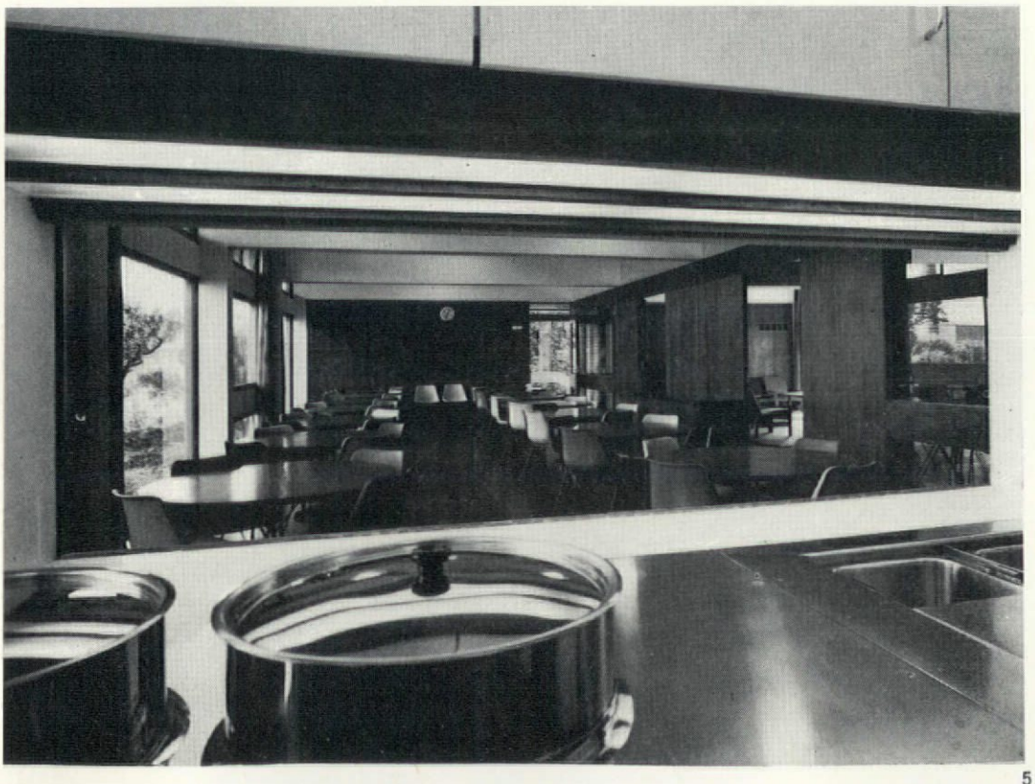
Floors: linoleum with terrazzo in sanitary annexes, secondary staircases, sluice rooms, etc.

Walls: fairfaced brick, plastered foamed slag, afromosia boarding or panelling.

Ceilings: plasterboard or afromosia boarding.

Main staircase: afromosia strings and open treads with metal plate connections, and plate glass balusters.

Heating is by recessed convector heaters below all cills with upright fan assisted convector units heating the entrance hall and social rooms.



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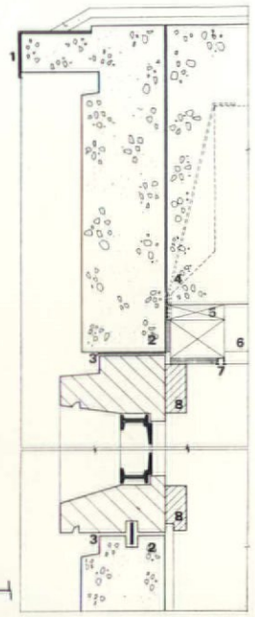

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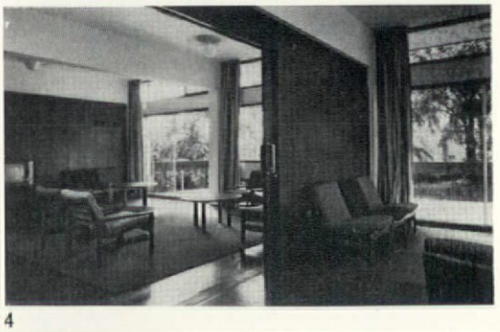


4

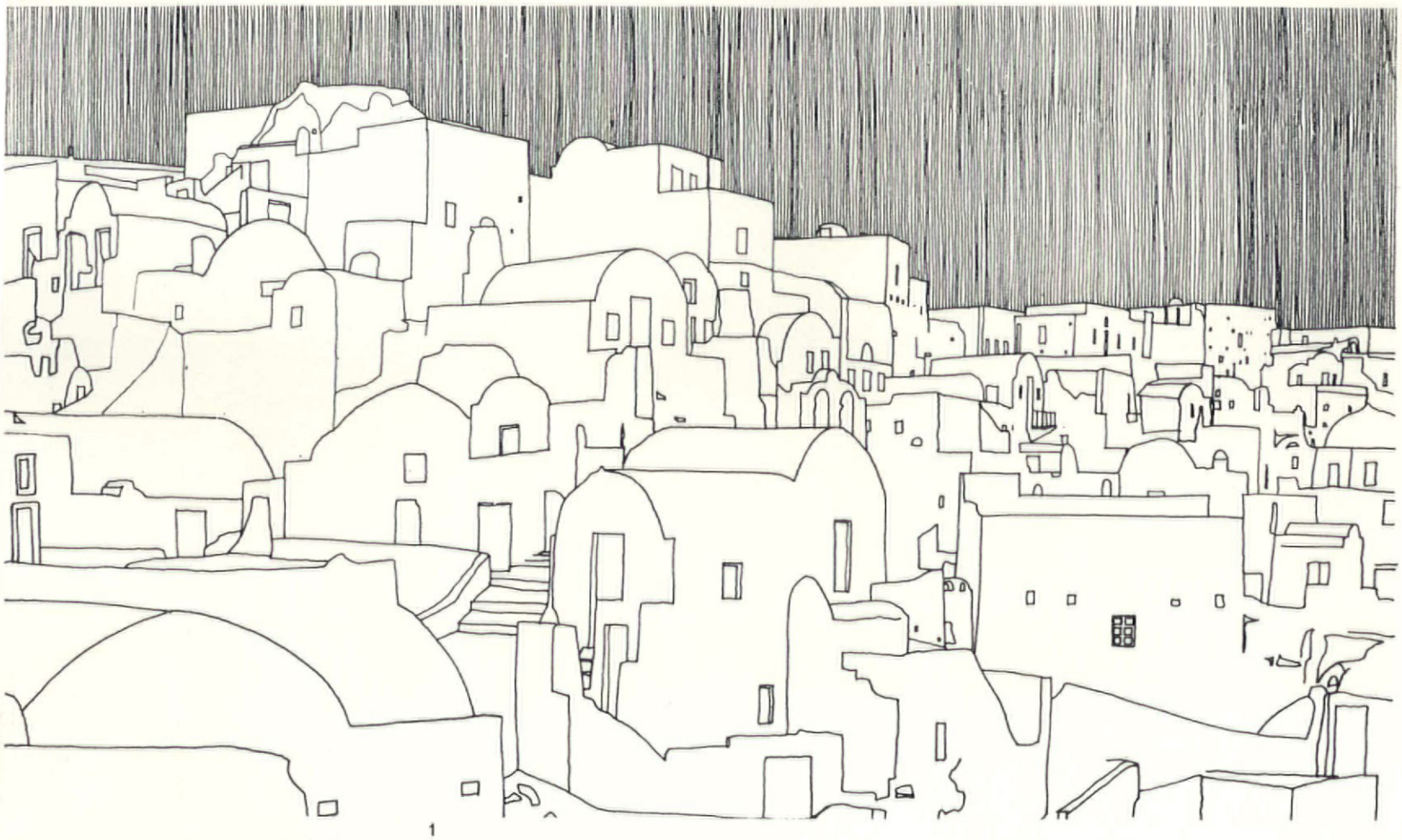
1
The men's ward on the first floor

2
Detail section through external wall
1 3in × 2in anodized aluminium trim, bitumen coated internally
2 precast concrete
3 mastic pointing
4 profile of concrete and d.p.c. at head of ground floor windows shown dotted
5 2in × $\frac{3}{4}$in creosoted timber ground
6 2in woodwool slabs
7 curtain track
8 afromosia facing

3
Main staircase

4
View from the men's through to the women's dayroom

5
View of the dining room through the service hatch



1

It seems to us that the house—ie the dwelling in direct contact with the ground—is a concept that CIAM has never taken sufficiently seriously as a possible element of the city. The lack of basic thinking by researching architects in this field has meant that, while multi-level block is now established as an urban concept, the twentieth century has not yet produced a city, or part of a city, made of houses; it has produced suburbs, dormitory villages and Broadacre, all latter-day children of the Romantic Movement, but not a Polis.
We are not turning our backs on the multi-storey possibility, but we feel that it is only one possibility and that another important one is being neglected . . . . Above all . . . houses must be grouped into a significant order, to create a satisfying environment for families of all sizes and children of all ages; in other words, there must be a statement of ideal human habitat.

Howell, Killik, and Partridge,
AD Sept. 1955

Housing

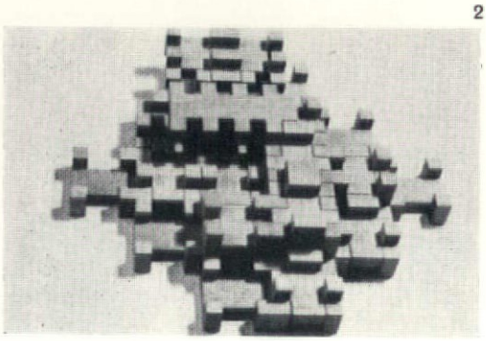
Low level, high density

Jonas Lehrman

The rapid growth of cities, the high value of land, and the enormous growth of traffic are foremost among today's planning problems. Housing that is little more than a direct result of these pressures has proved inadequate, and although often financially profitable, it reflects economics and regulations, mass and conformity, rather than human needs and the true scale of the individual.

The quality of urban housing has been recognized to depend on safety (in terms of the separation of pedestrian and vehicle), convenience (a full range of suitable dwelling types within any neighbourhood), visual interest (buildings and spaces **1, 2**) and variety of things to do and places to go (no neighbourhood too remote from areas of employment, shops, public activities, or mass transit). Housing at present found in urban areas does not meet all these requirements **3, 4, 5**; and even when transportation enables suburbanites to commute 50–100 miles within the hour, increasing land shortage will inevitably restrict wasteful development.

2



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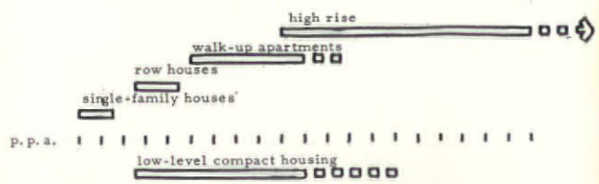
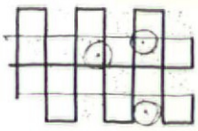


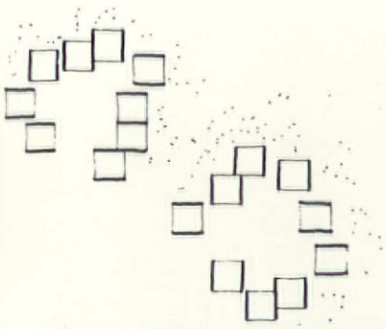
5

1
Santorini, Greece
2
Combination of similar elements, J. Thylén (Industrial Design Department, HfG, Ulm)
3
Apartments, Philadelphia, I. M. Pei
4
Housing: relative densities
5
'A fatal disarticulation of the urban phenomenon'



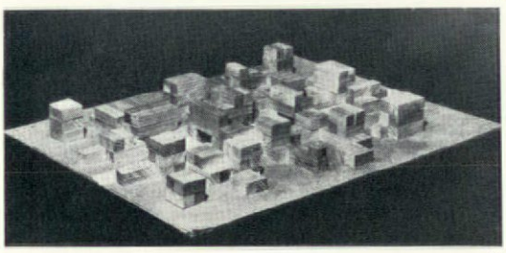
geometrical formation

informal terrace



clusters

6



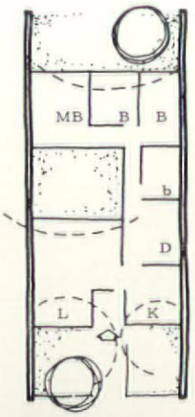
7

8

open space

semi private

sheltered



private

entry and kitchen

9

10

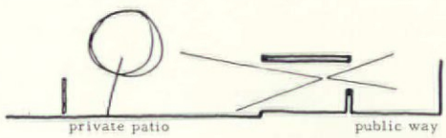
Furthermore, many aspects of privacy, identity, and the ability of dwellings to grow and change within a total meaningful organization, are often completely neglected. Housing that combined the assets of a suburban single family dwelling with the attraction of a central location would obviously have great appeal.

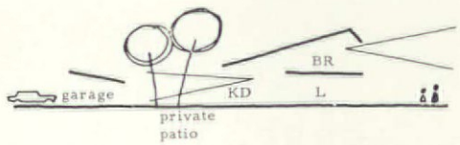
Grouping of low-level housing units is clearly highly flexible, whether dwellings are set in geometrical formation, in aligned or offset terraces, or in clusters about a common space **6, 7.** There is an easy adaptation to topography and many types of accommodation are united within a common discipline. A satisfactory relationship also results between built-up area and open space, and between small private open spaces with larger areas of community use.

Growing density of population, however, exerts several pressures on the individual. Low-level housing at a higher density than that to which it is normally taken, whilst acknowledging population pressures, yet goes far to meet individual requirements not met by the high-rise apartment **8.** For example, whilst privacy may be achieved by adequately separating the dwelling's various functions, social contacts between families may be selected and not forced. If patios are used, the resulting inward nature of the housing discourages segregation both of the various age and economic groups, and of differing ethnic and religious backgrounds since behind the homogeneous streetscape, the similar massing and materials and the overall quiet and unassuming character, a variety of ways of life may easily take place. All this, of course, is directly the reverse of the current suburban situation. It is also quite possible to own the land upon which the house is built, affording a feeling of security and a sense of responsibility.

In the internal planning of today's dwelling, audial privacy in terms of noisy and quiet areas is generally understood, and both adults and children often have their relatively separated zones of activity. Visual privacy is often jeopardized in spite of its increasing importance and despite the fact that often it can be easily achieved simply by careful positioning of glazing (for example, by clerestorey windows, or by lighting internal areas from screened outdoor spaces of allied function) **9, 10, 11.**

11





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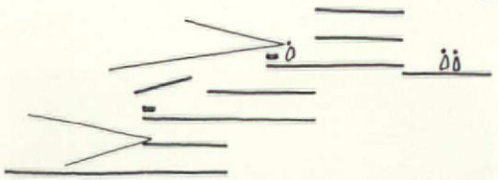

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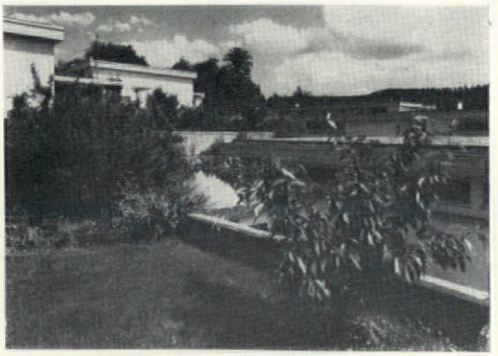
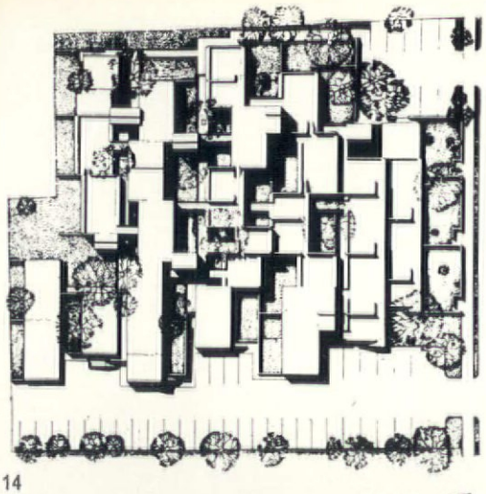


6
Flexibility of grouping
7
Housing study for Montreal (118 p.p.a.) by Jonas Lehrman
8
Punch, May 27th, 1964
9
Zones of activity and privacy
10
Siedlung Halen, Berne, Atelier 5
11
Visual privacy
12
Long-range view and protection of privacy
13
Teppichsiedlung, St. Gallen, Biserhof and partners
14 & 15
Site plan and detail plan of proposed married students' dormitories, Yale University, P. Rudolph
1 hall
2 boiler
3 bathroom
4 cupboards
5 bedroom
6 living room
7 kitchen
16 & 17
'Hill housing', Stuttgart, Frey and Schroder
18, 19 & 20
Site and typical house plans, Haggerston Estate, Angrave Street, London, chief architect, LCC
21 & 22
Perspective and section, Woodquest Avenue, Lambeth, London, borough architect E. Hollamby
23
Atrium house plan, 'Tonttukalio', Espoo, Matinkylä, Finland, Korhonen and Laapotti
24
Talavera Barracks, Aldershot, War Office Architect
25 & 26
Sundyberg development, Stockholm, S. Markelius



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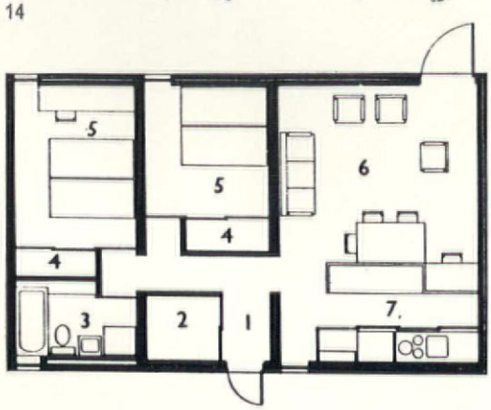

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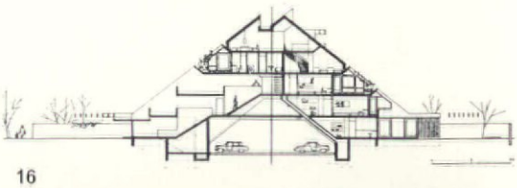

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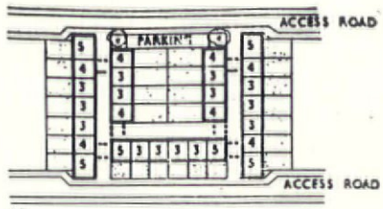

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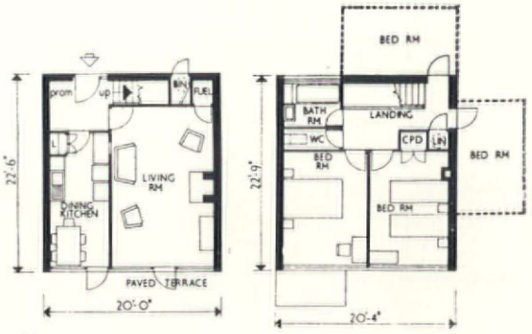

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Long-distance views **12, 13** balance the inward nature of this housing and may be controlled in many ways: by stepping dwellings, by use of plants and screens, and by careful glazing **14, 15, 16, 17.**

The dwelling as a whole may be audially insulated by means of an intermediary enclosed court or garden, and by internal planning. Kitchen, workroom, corridor and stairs placed on this external wall, form an effective sound barrier **18, 19, 20.** If there is only one patio, entry to the dwelling is better direct from the public way.

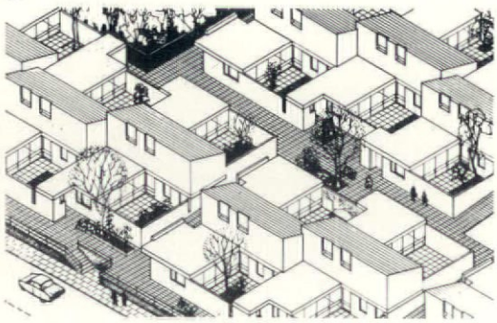
On the broad scale, areas of low-level high density dwellings, with their close ground coverage largely reduce urban noise.

When high density housing goes beyond one floor in height, the section through dwelling and outdoor space assumes more importance, and the height of the dwelling has an immediate effect on environmental quality. A problem in high density housing usually results when upper floors overlook private outdoor spaces of adjacent dwellings **21, 22**; but lower-level windows could face their own garden, upper storey windows could face the public way **23, 24**, with any glazing at this level on the garden side placed at clerestorey height; the upper level floor may be turned at right-angles to the lower, facing the windowless side of the upper-level block of the adjacent dwelling, which itself would shield its own garden from being overlooked; the party wall may be extended, or conversely the dwellings may be staggered; the private patio itself may be on an upper floor, with gardens requiring less privacy on ground level **25, 26.**

When there is more than one floor, shadow is also a problem which is intensified by the walls required for private outdoor space. This problem may be reduced when advantage is taken of slopes and when orientation, season and hour of day are taken into account.

Compact housing carries a number of economies. Land costs are shared, and quality housing is brought into the range of a greater number of people. Services may be supplied in large quantities and therefore at a discount, whilst narrow frontages, the proximity of kitchen and service rooms to the street, and reduced street widths between building faces, give economical service runs. Party walls offer heat insulation and save on construction costs, so

21



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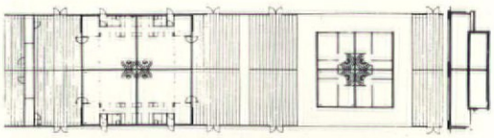

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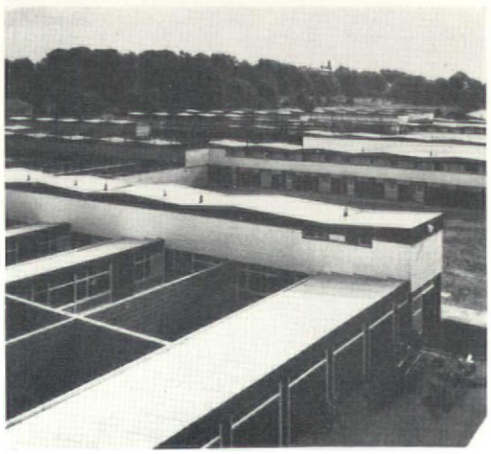

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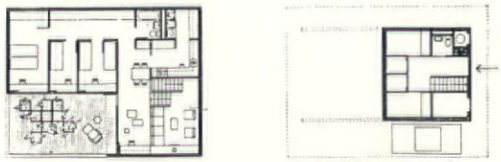

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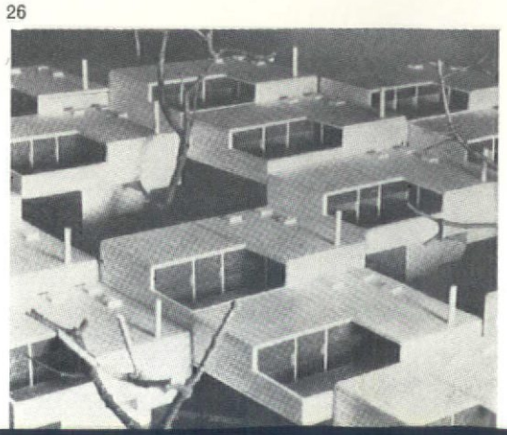

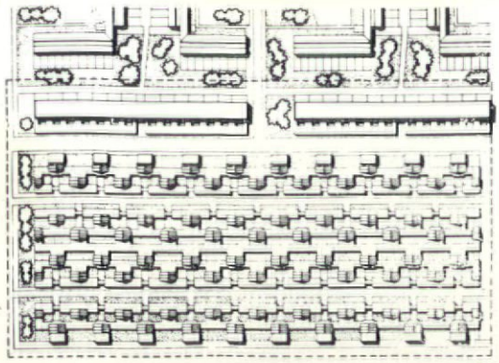

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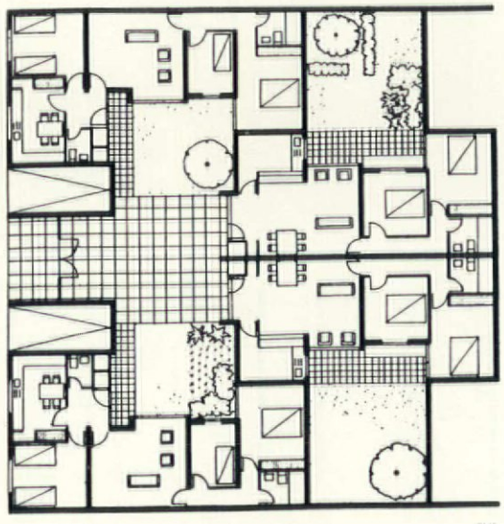

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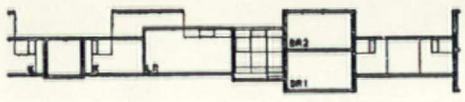

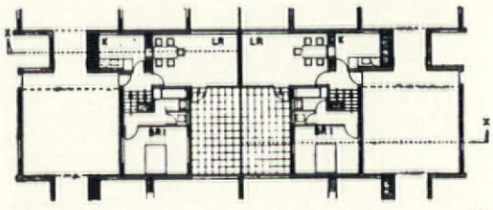

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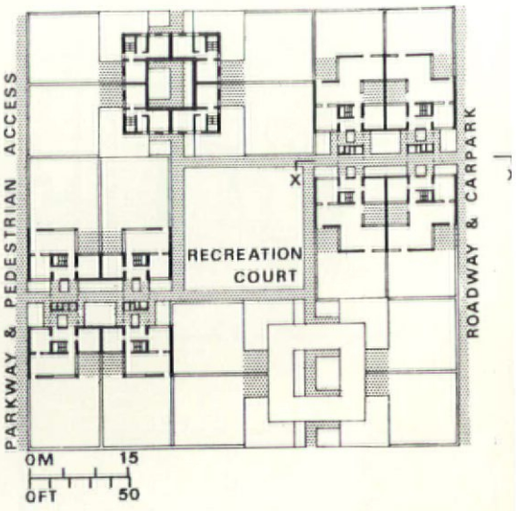
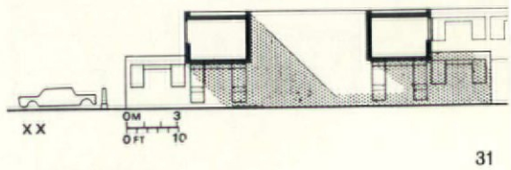




31

32

balancing the slightly greater area of external wall enclosing the internal courts. The inward nature of the plan facilitates orientation towards sunlight, and since glazed areas mostly face inner courts there is less cold infiltration.

On the matter of density, low-level compact housing is perhaps most successful when it approximates 15–25 dwellings per acre, when public open space for park and recreation may be achieved in sufficient area to balance the small private open spaces of the individual dwellings.* Exact density figures are, however, irrelevant. Density of dwelling units depends on accessibility, parking standards, garden size, land costs, and so forth; densities must be varied and flexible, allowing for local conditions, and precise figures are useful only as a general yardstick. Nonetheless, the amount of land required by a single dwelling is drastically reduced **27, 28**; side yards are omitted, front and rear gardens are incorporated into the living area, and the setback from the road reduced since the view is independent of the street. This also results in a far closer relationship between street and building **29, 30, 33**. The pedestrian way may also occasionally be built over, increasing the density, and adding greatly to the urban texture.

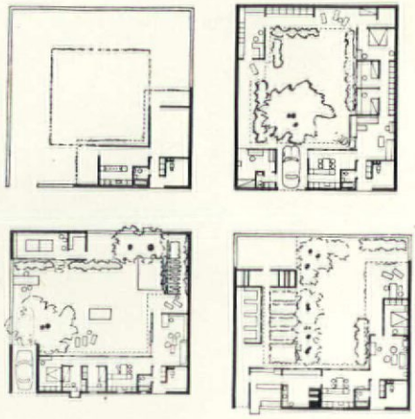
At the same time, low-level housing at a higher density than usual carries a number of implications, since what is acceptable for the detached dwelling or simple row house may be quite different in compact housing. To maintain property values, a certain degree of planning control and lands for communal use is required, and a number of general regulations must be accepted by residents. The average floor area required for daily living activities has remained similar for centuries, and low-level high density housing is in any case flexible enough to allow for larger families. Therefore, even though the site area must be quite small to achieve 25 units per acre or above, if land values are high an intensive use of patio garden is acceptable.

Changes in family structure, the changing hours of work and leisure, the rising standard of living and the growing influence of prefabrication, all increasingly tend to alter the requirements demanded of a dwelling.

Change itself is not a new phenomenon. In a

* Typical densities in persons per net acre illustrating broad categories of low level compact housing for comparative purposes, could be taken as: detached single family homes in a suburban subdivision 15; row housing with front and rear gardens 35; single-storey L-shaped courthouses with pedestrian access 50; single-storey narrow development with several small patios 50; L-shaped courthouses with two-storey wing 60; two-storey houses with adjacent garden, in checkerboard formation 65; narrow-frontage multi-storey row housing on hillside (Siedlung-Halen) 70; single-storey patio houses around entrance court (the Living Suburb) 90; two-storey row housing with single garden and pedestrian access (LCC, Angrave Street) 120; split-level L-shaped courthouse in close packed formation with minimum court (Chamberlin, Powell & Bon) 160.

33



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27 & 28
Patio house development (90 p.p.a.), 'The Living Suburb', Chamberlin, Powell & Bon; G. Shankland, D. G. Jones

29 & 30
Housing project (160 p.p.a.), Chamberlin, Powell &, Bon

31 & 32
Extendable house project, W. W. Pearlman

33
Haggerston Estate, Angrave Street, London, chief architect to the LCC

34
Plans of court houses, Elsinore, Denmark, J. Utzon

35
Rates of growth and change

36
Prefabricated structure, A. Mangiarotti

37
Flexible house system, W. Ramstein

38
Extendable compact house design, J. Lehrman

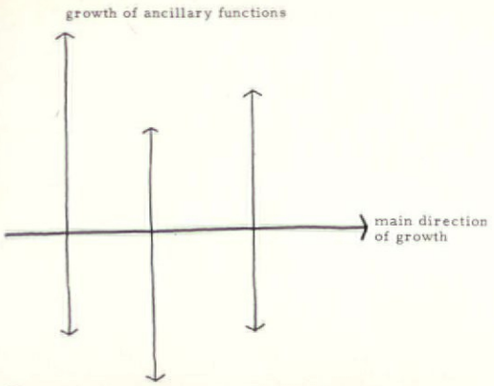
39
Master system, Bredalsparken, E. Kristensen

40
Traditional Japanese house—allowing for growth and change; infinite variation with overall unity

41
Separation of pedestrian and car

42
Pedestrian way, Albertslund Herstederne, Denmark, Bredsdorff, Nøgard, Møller-Jensen, Arnfred, Pedersen, Sørensen

43
Atrium houses, 'Tonttukalio', Espoo, Matinkylä, Finland, Korhonen and Laapotti



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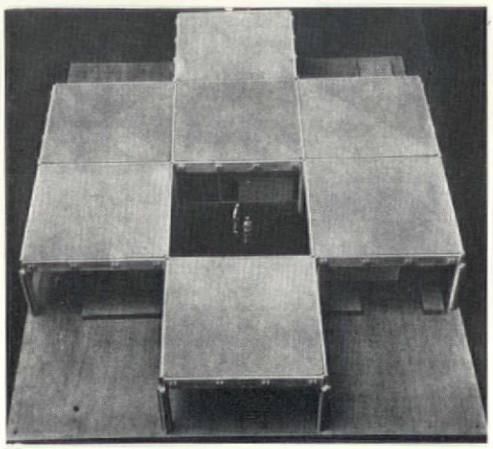

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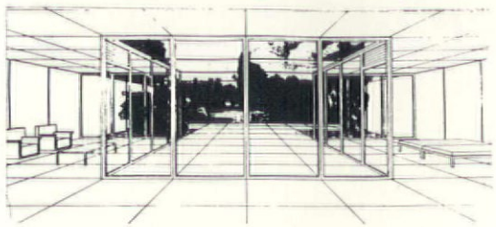

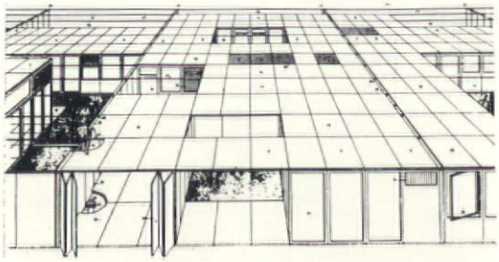

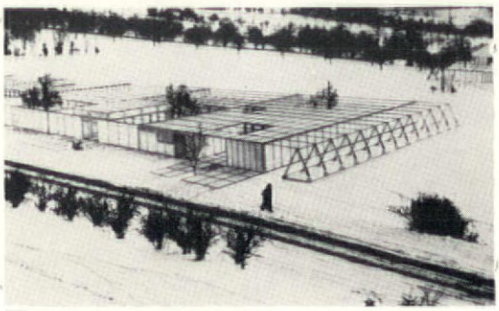

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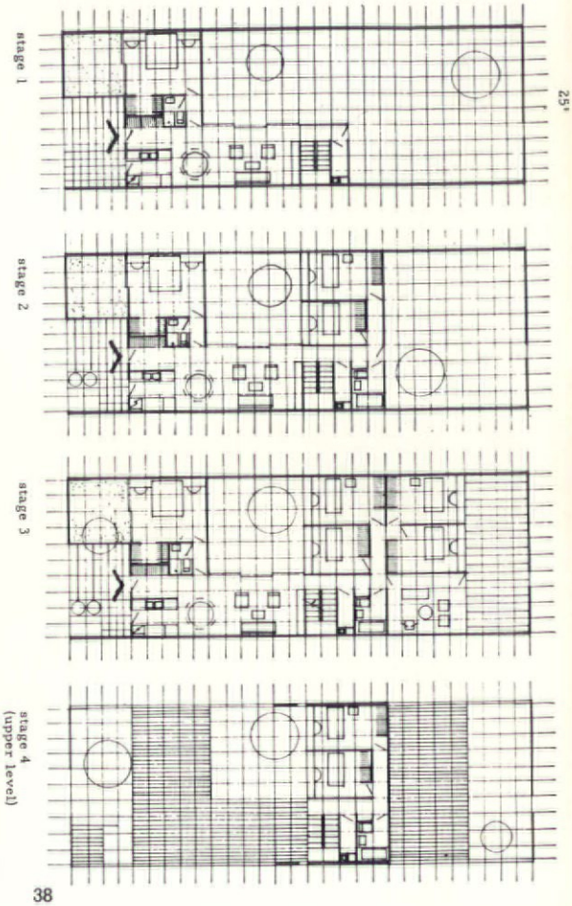

38

house, alterations are continually being made **34**. But the inevitability of growth and change is rarely accommodated, even though its need is recognized, and the problem is not often solved merely by re-arrangement. It can really only be solved either by building for a limited life span and subsequent replacement, or by allowing for future growth and change **31, 32**.

Various parts of the dwelling tend to grow and change at different rates, and there are in fact two recognizable life-cycles, the first of short-lived items that are frequently replaced, and the second of larger scale items such as the structure, which tend to last longer **35**.

Logically, these factors should imply a new kind of building organization and a design approach more appropriate to new technology **36, 37**. This in turn would affect both the grouping of dwellings and the design of the dwelling itself. For example, allowance for growth and change is made more by a method of building than by a plan. Master plans and megastructures are authoritarian, and almost invariably outdistanced by events, but a master system is evolutionary, and anticipates unforeseen developments. In terms of housing, such a master system may be based on circulation or transportation systems **39**; a structural grid, module, or on a system of prefabrication built only when and where needed; or a series of multi-functional spaces, since the less a shelter is made to fit a single function, the less it becomes obsolete **40**.

In compact housing, inherent limitations of space intensify the problem of growth. But change is inevitable, and the accompanying example **38** suggests how a core unit may expand to suit individual requirements within the narrow site limits of high density housing.

Naturally there are limits to the changes that may take place. But obsolescence bestows a vast and insoluble problem if the means and time to replace it are not available.

Within a transportation system that is graded for all speeds of movement, the slow-moving vehicle, its storage and the ultimate scale of the pedestrian, are the aspects that most immediately affect housing layout. The principle of separation of pedestrian and car is generally accepted **41**. Flexibility in overall layout may be achieved by parking at the perimeter of a group

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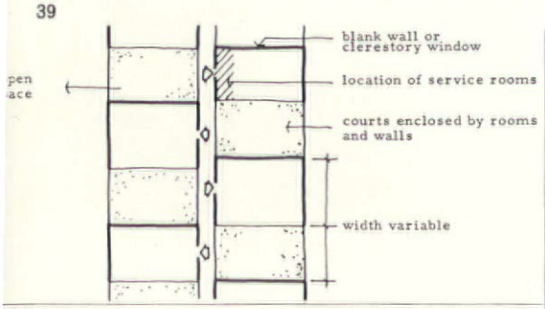

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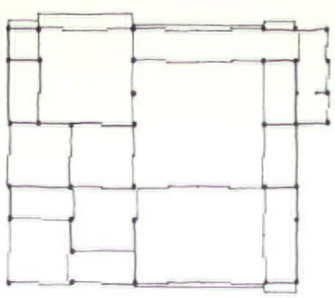
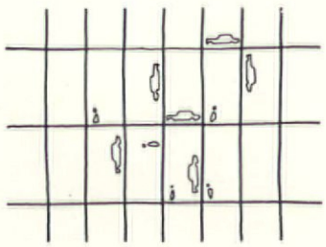
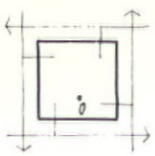


traditional Japanese house —
allowing for growth and changes in internal functions
relating interior to exterior, and affording
infinite variation within overall unity

41





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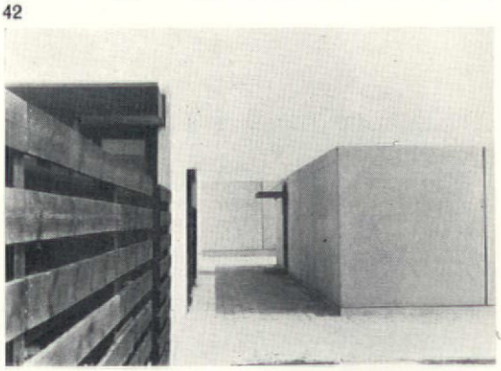

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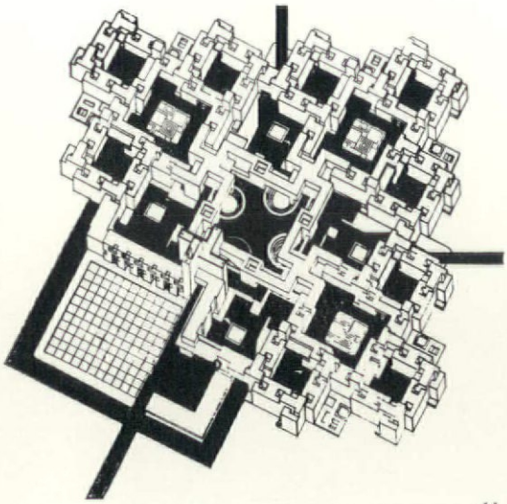

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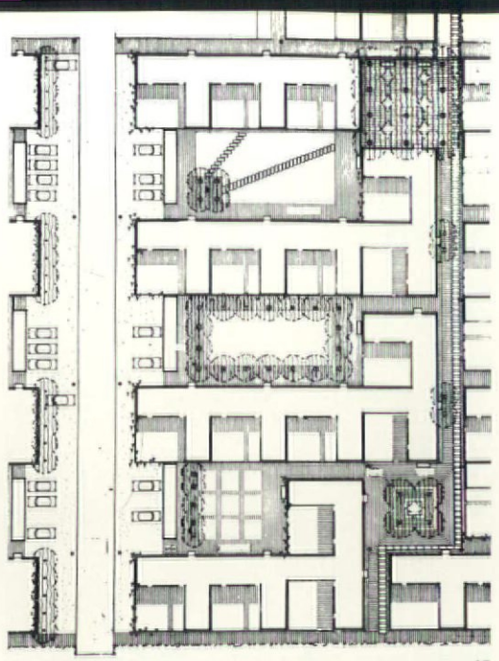

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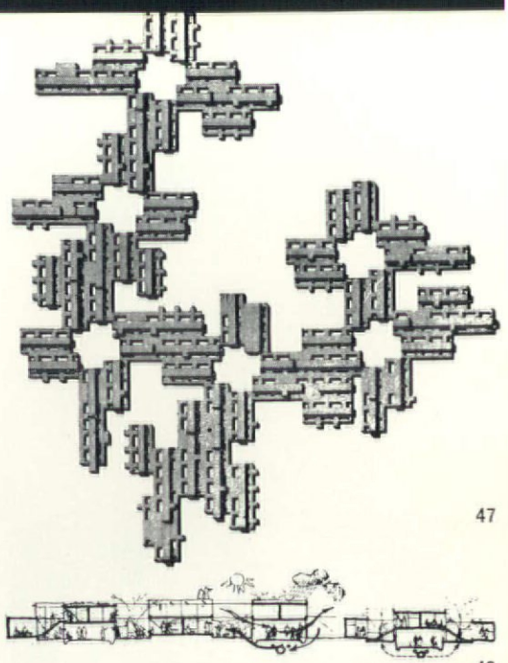

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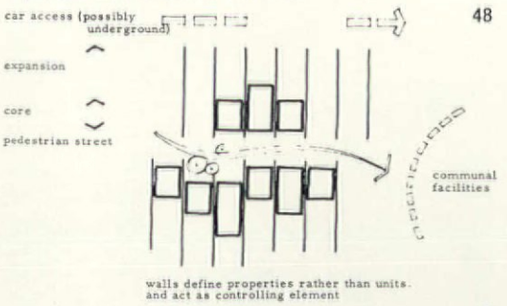
of dwellings or by parking below ground. Initial cost of this latter solution may be relatively high, but is countered by increased amenity value of the land and higher building density. On the surface, parking may be broken down in clusters and screened.

Separation of pedestrian and car leads to pedestrian streets considered in their own right, distinct from roads **42, 43**. This involves, in addition to supplying a means of access, the forming of a *place* with its own social and spatial content and relationship to dwellings **44**. Gardens and public open spaces also assume a new significance **45**.

Without car traffic access ways may be quite narrow in width. They may also be enclosed, either by a light shelter or by occasional upper floor extensions of the dwellings themselves, thus welding small-scale individual units into a larger physical entity **46, 47**.

In areas of low-level high density housing the grouping of dwellings is of greater significance than the design of the individual shelter, and interest lies in the spaces *between groups of dwellings*, each cluster, no matter how small, possessing its own character. Landscaping also has the unique quality of being able to unify and separate at the same time **50**.



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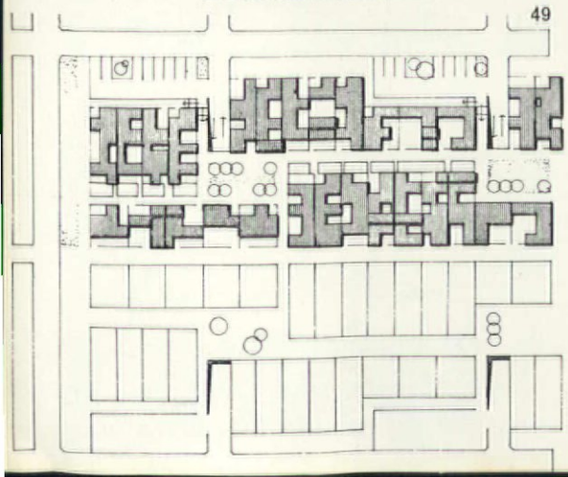

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The front garden of the average house affords little insulation from the street, but when the dwelling and its relationship to open areas is reconsidered, as much if not more insulation may be obtained without involving the usual explosion of street scale. In fact, several small areas of active private use are more sensible than a few large areas used less intensively. As long as the open external spaces of the dwelling are visually linked with internal living uses, and do not just form an appendage, the specific size of the space is less important than the site planning, landscaping and orientation—as we see for example in the small Japanese garden and Persian courtyard.

The patio's main assets are that it offers something worth looking at from every dwelling, as well as change and isolation from the movement of the outside world. By its nature, it is more integral with the dwelling than the separate garden of the average house, and thus easily becomes an extension of the various internal dwelling areas.

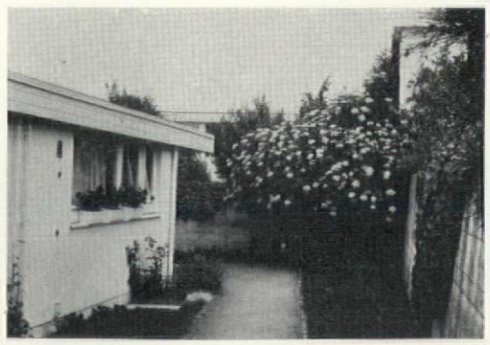
The varied nature of the patio's functions, however, really requires more than one private outdoor space for each dwelling **51**. This would result in a distinction between areas of varying degrees of privacy; the advantage of more than one view; a greater sound insulation between the various zones of the dwelling; and a principle which integrates well with a house built in stages.

An enclosed courtyard has a micro-climate of its own. Clearly, shadow is affected by the time of day and season of the year, and penetration of winter sun imposes minimum dimensions between walls and buildings, and affects roof pitch and overhang. A wall of six to seven feet in height will afford protection from direct horizontal winds for a subsequent 30–40 feet. Walls also act as a wind barrier to pedestrian access ways and adjacent open space

Within a meaningful city plan, all the elements —workplaces, public buildings and shops, parks and transportation routes—are combined within a total meaningful order. Within this order, housing plays its part, to which low-level high density dwellings introduce a change of scale. Such housing is a valid urban form, suitable for piecemeal infill and large-scale development.

Mixed types of population all contribute to the city's vitality, and to segregate them would achieve little. Low-level high density housing is not suggested as the only cure for present housing ills. But it does provide an environment that suits the household structure of those families who at present have no choice between the apartment and the suburb **48, 49**.

50



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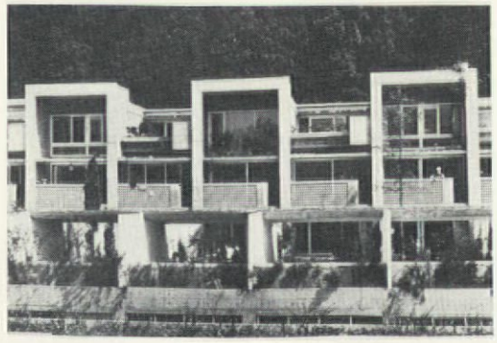

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Village, P. Blom
45
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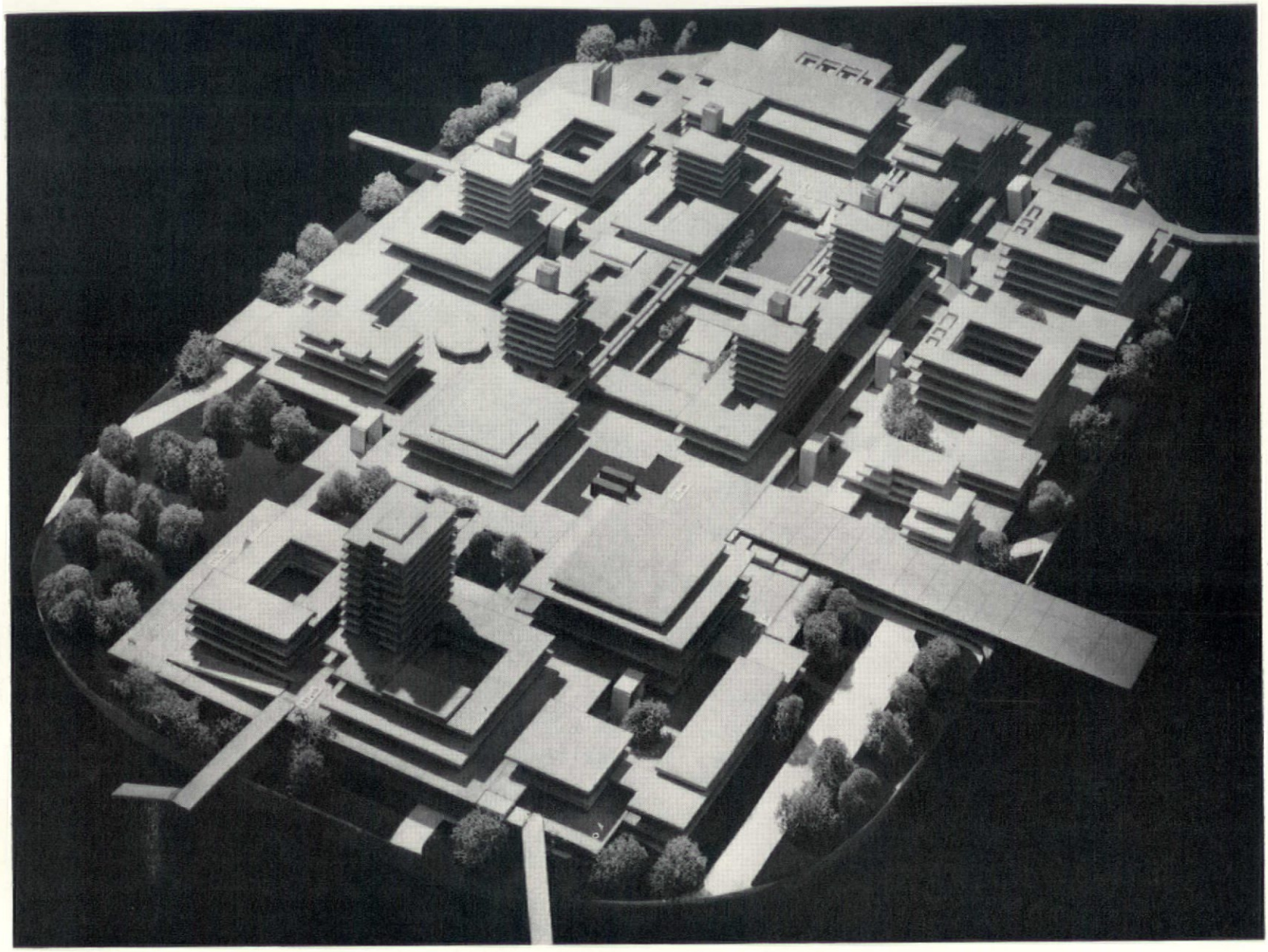
Illustrations
1 J. Lehrman; 2 Ulm No. 6; 3 Progressive Architecture, December, 1964; 5 Le Corbusier, 'The House of Man'; 10 A. Winkler; 13 F. Waldvogel; 18, 19 & 20, Architects Journal, December 24th, 1950; 23, 25 & 26, Peters' Atriumhauser; 24 M.o.P.B. & W.; 27, 28, 29, 30 & 31, The Architect and Building News, September 1958, April 1960; 32 LCC Architects' Department; 34 The Architect's Journal, November 20th, 1963; 36 Domus, September 1962; 37 Ulm 10/11; 42 J. Lehrman; 43 H. Havas; 44 Forum I, 1963; 46 & 47 Le Carré Bleu, I, 1965; 50 J. Lehrman; 51 A. Winkler



1

Nordweststadt Centre, Frankfurt

Apel & Beckert

The American type of suburban shopping centre, though still the exception in Europe, is finding some support in W. Germany; for example, there is the Main-Taunus shopping centre on the outskirts of Frankfurt, and Stuttgart is planning a surrounding ring of such centres. But in general this is not the aim of German planners. Rather do they seek to establish urban centres within new or existing dormitory towns, combining in them the social and cultural needs of the communities. One of the most advanced conceptions is the Centre projected for Nordweststadt, a large housing development for 50,000 people in Frankfurt's green belt. The Centre, on a traffic-bound island site 250m × 400m, was the subject of a competition won in 1962 by the architects Apel and Beckert.

Their solution completely separates traffic and pedestrians, with a large parking area below ground connected by lifts, escalators and stairs to the upper levels. In designing the layout of the Centre, they endeavoured to create beautiful environments, with open places that allow distant views, as well as three-level development; a combination of vertical and horizontal links. Pedestrian circulation is on three levels, with a main NW–SE shopping axis with three shops linking all levels. Water, flowers, open squares and narrow passages alternate. Interspersed in the commercial area are cafés, restaurants, cinemas; and right in the middle, fronting onto a large open space, is the civic centre with an adjacent museum area. Offices separate the active from the quiet areas of the Centre. Dwellings are kept to the upper levels only, with open views and away from noise.

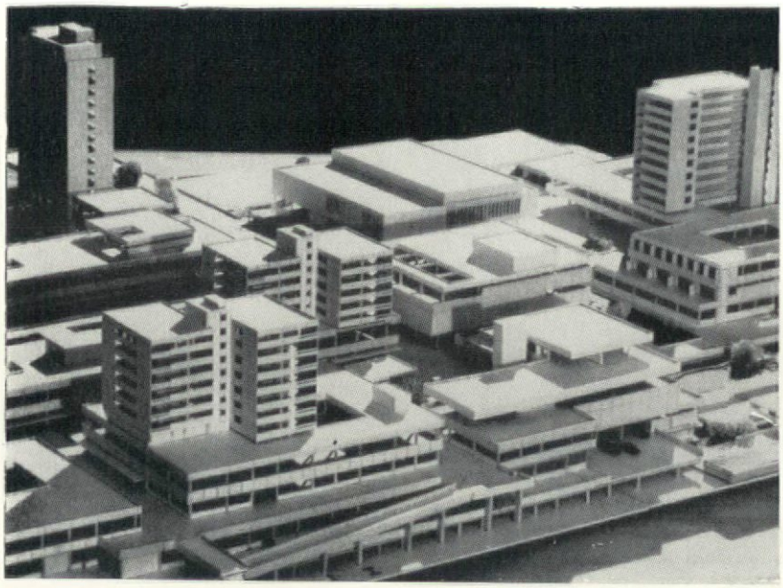
Within commercial areas, the aim was to contrive such a mixture of activities that no district should remain 'dead'.

Though numerous lifts and escalators connect the different levels, the designers tried to ensure that mechanization remains an accessory and not a controlling factor in the design. They also have brought into the scheme as much of the surrounding green as possible—with trees and grass on the periphery and with

▷ 88

1
Model of the Centre seen from the north-west. The centre is encircled by a boulevard and connected by footbridges to the surrounding residential areas

Photos Rainold Vieweg



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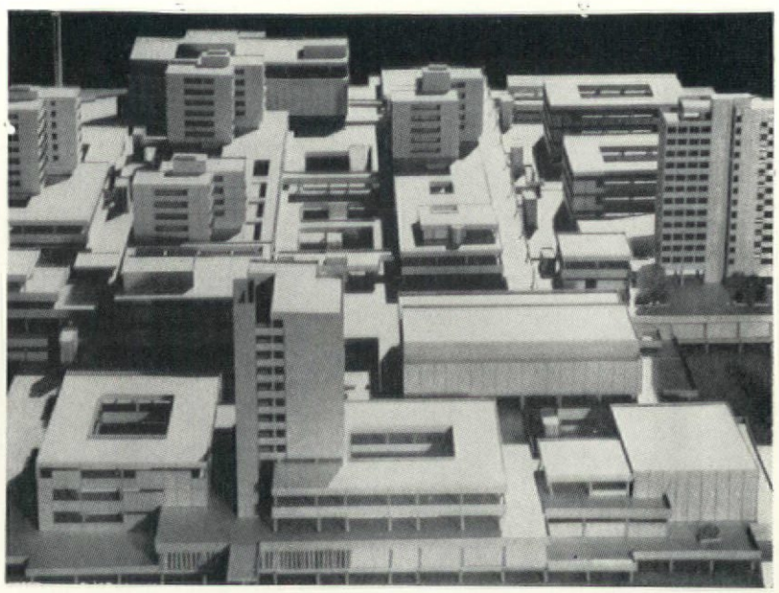

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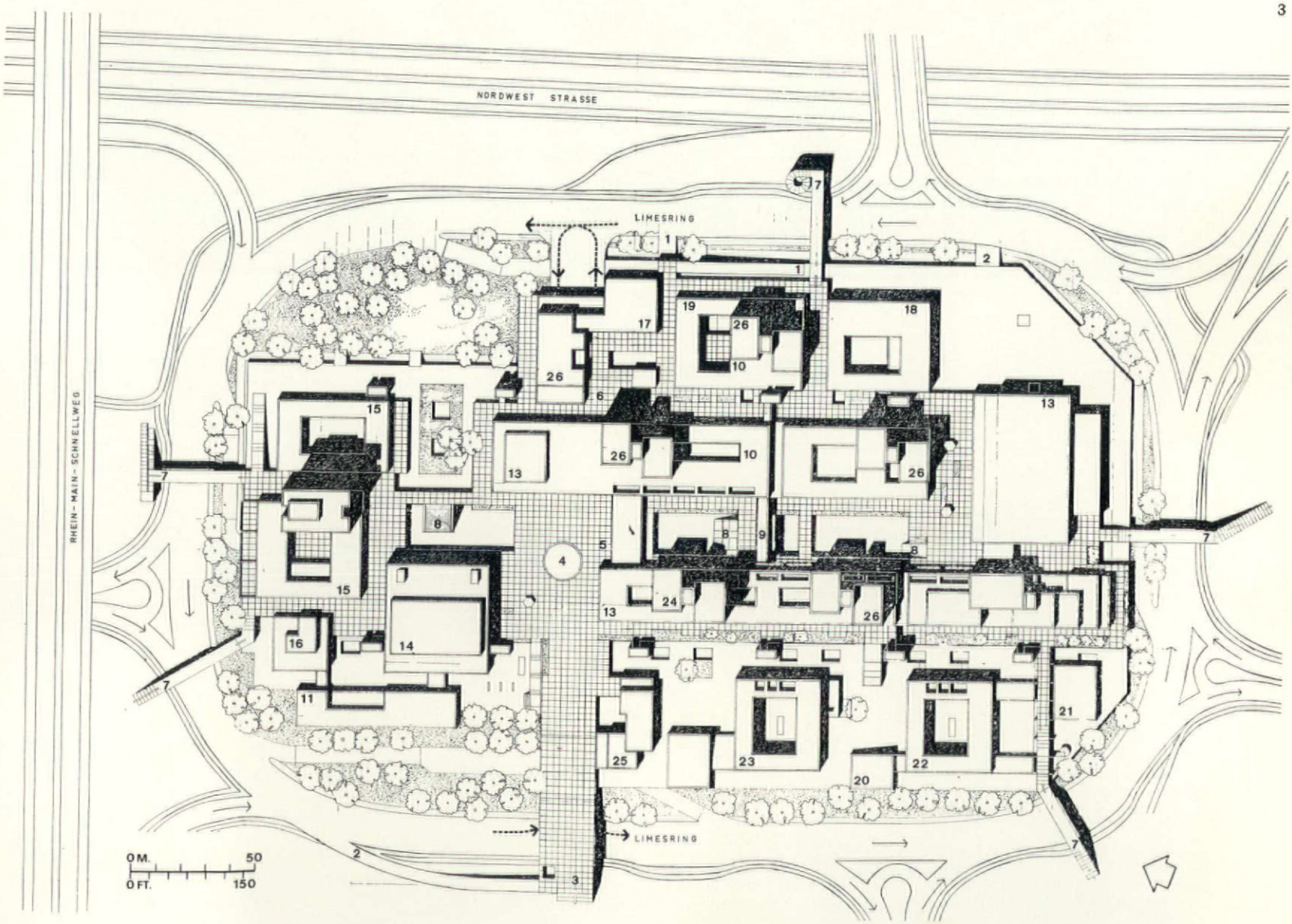

NORDWEST STRASSE
LIMESRING
RHEIN - MAIN - SCHNELLWEG
LIMESRING
0 M. 50
0 FT. 150

◁ 86

planting and green islands in the middle of the town. Wherever possible views of the Taunus hills have been ensured.

For the construction of the Centre, the architects and their associate engineer, Mr Becker, have designed a complete assembly line system of concrete elements, and reckon that actual building of the Centre should take only two years.

1
The model seen from the east

2
View of the model from the north-west

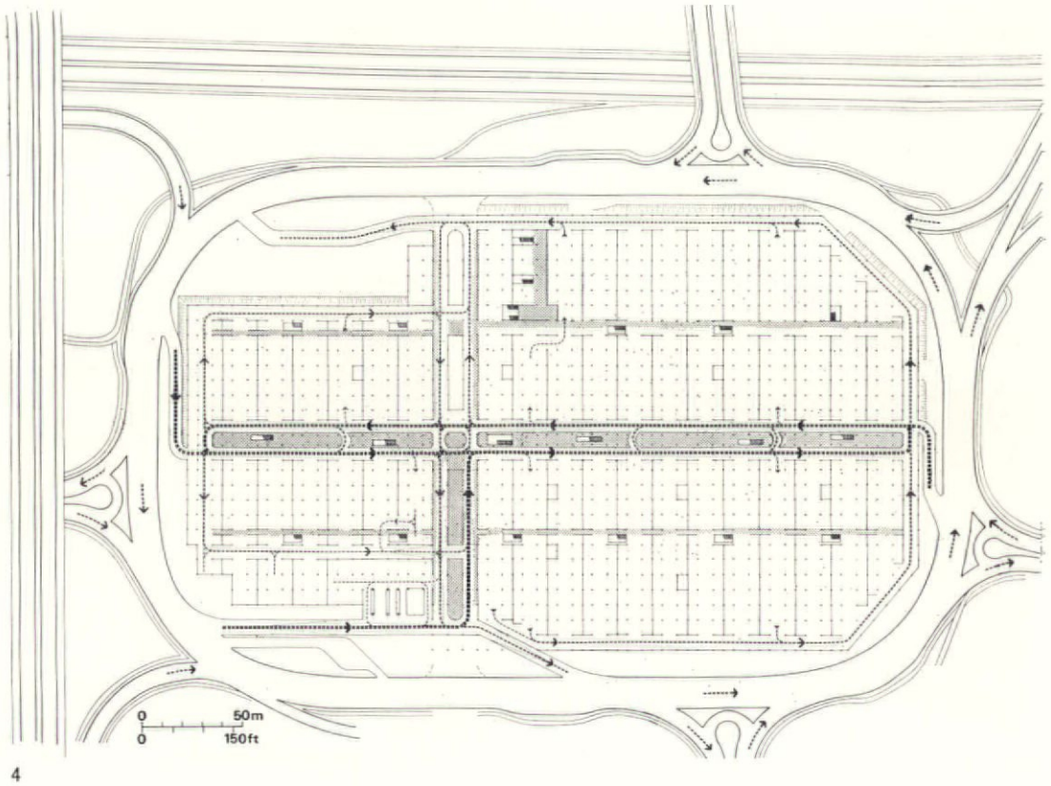
3
Main and upper levels (121.50m and 126.00m)
These levels are purely pedestrian, the lowest one connected with the surrounding town by seven bridges. The principal vertical subdivision is north–south. Private offices are on level 126m; private dwellings at the top

1 police and post access
2 fire brigade access
3 pedestrian way
4 piazza
5 access to buses and parking
6 access to subway and buses
7 footbridge
8 main vertical access
9 shops around court
10 shops
11 museum
12 supermarket
13 department store
14 civic building
15 social centre
16 indoor swimming pool
17 post office
18 fire brigade
19 police
20 auditorium
21 gymnasium
22 College of Social Work
23 College of Economics
24 café
25 boarding school dormitory
26 residential

4
Plan at parking level (113/00m)
Parking is provided for 2,166 cars, 50 motor-cycles and 100 mopeds, with three controlled access points and two exits, one-way traffic and no crossings. Three NW–SE footpaths subdivide the area, the middle one being the main one connected by escalators to the heart of the Centre. Some of the lifts by the staircases go as far as the upper pedestrian level. At the N end there is a car repair shop

5
Plan at service level (116.25m/117/25m)
There are two controlled entrance and exit points to this level, and one-way traffic in two loops. Here are all storage, workshops, garaging for 178 shop owners' cars, postal service, service lifts. There is direct vertical and horizontal access between the stores and the shops. The NW–SE channel formed by shops and the lowest floors of the three department stores is the first shopping level and is traffic-free; it is also the arrival point of the escalators from the car park below
The lower level on the west provides school playground. An open site on the north-west is reserved for the museum

6
Section SE–NW
A Upper pedestrial level
B main pedestrial level
C service level
D parking level



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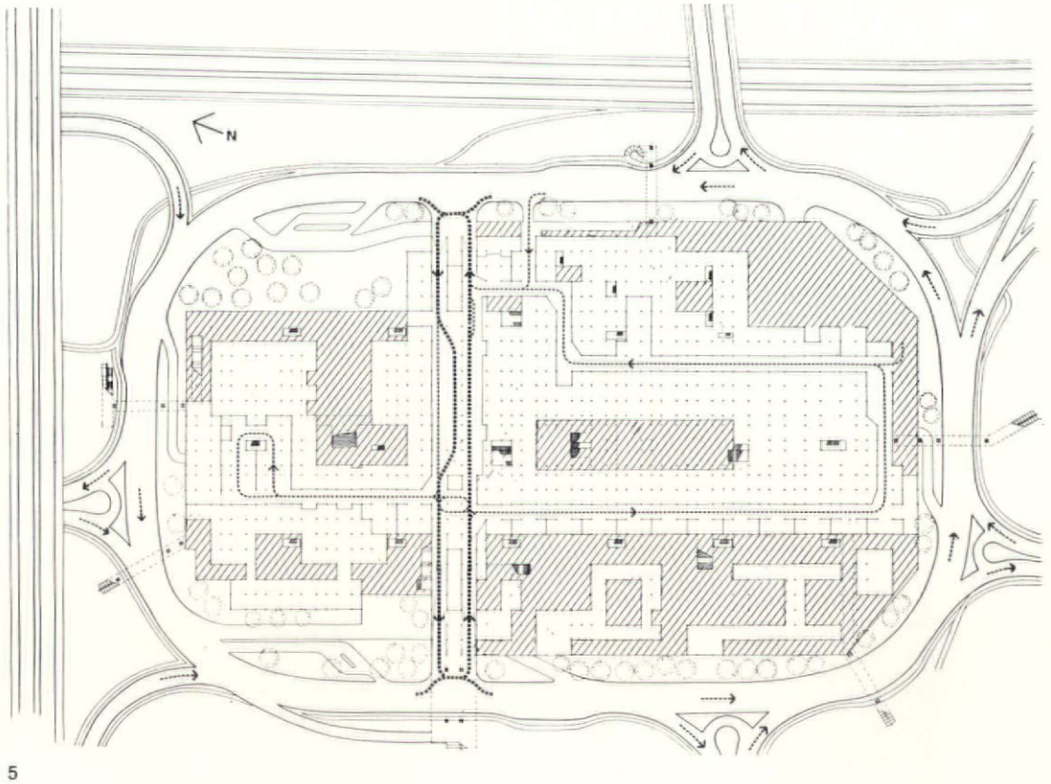

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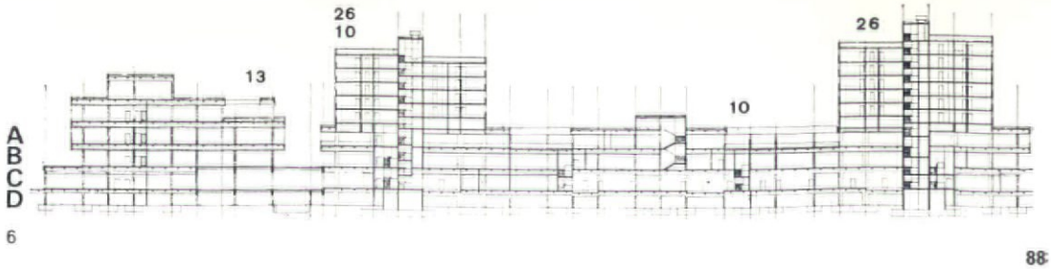

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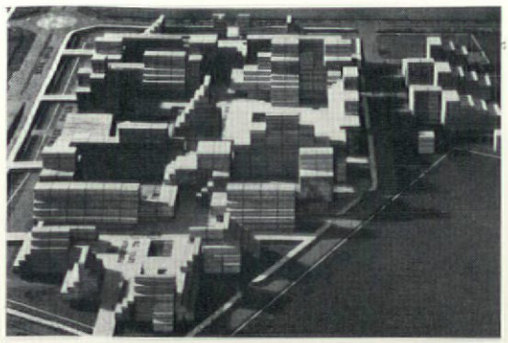
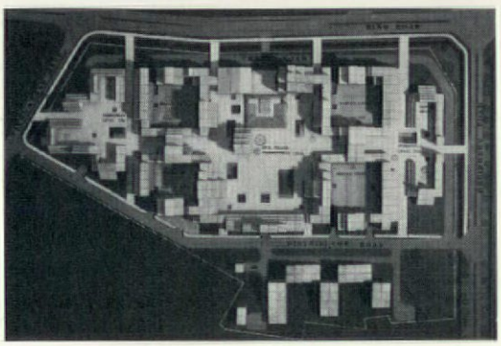
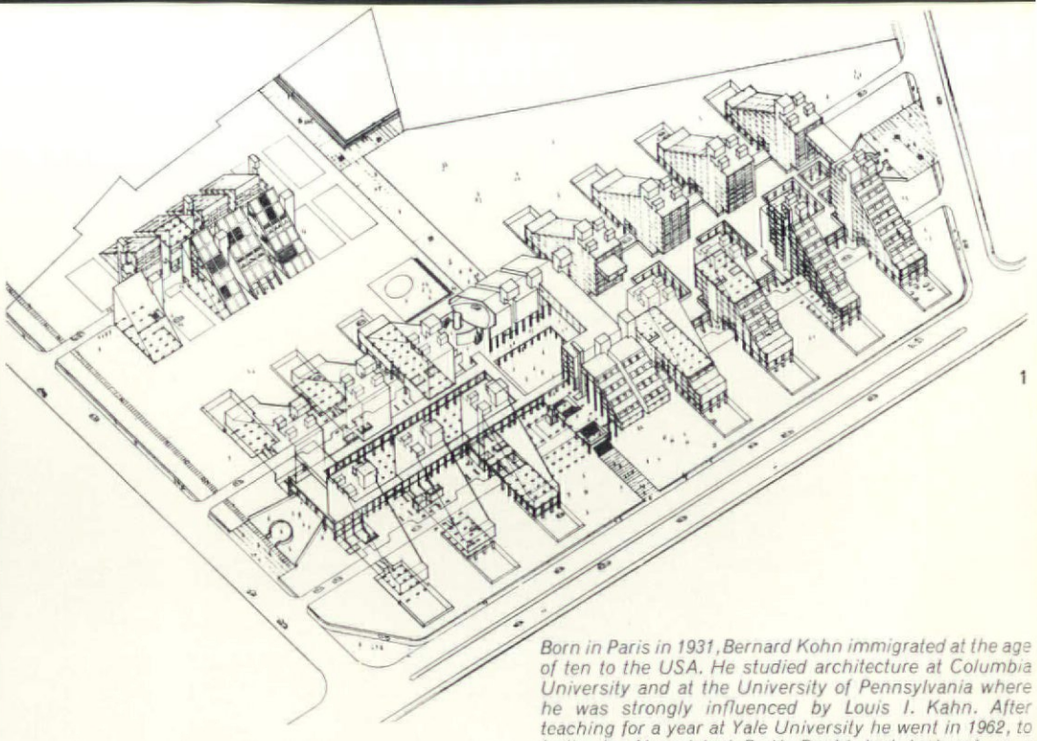






1

Born in Paris in 1931, Bernard Kohn immigrated at the age of ten to the USA. He studied architecture at Columbia University and at the University of Pennsylvania where he was strongly influenced by Louis I. Kahn. After teaching for a year at Yale University he went in 1962, to India. In Ahmedabad B. V. Doshi had just set up a school of architecture of which Kohn became joint director, responsible for the new curriculum. He teaches there still, while running his own expanding practice

Bernard Kohn in India

Ramkrishnapuram District Centre Competition entry

Ramkrishnapuram competition

The competition for the district centre at Ramakrishnapuram, Delhi, was sponsored by the Indian Ministry of Works and the Institute of Architects. Competitors were asked to provide accommodation for shopping and light industry on an irregular, 35 acre site, in such a way that the whole would become a communal rather than a commercial centre. While plots would be sold to individual owners for development the resulting structure was to be firmly unified. The programme stipulated: 1,400,000ft² commercial area for offices, a cinema for 750 people and a 100-bedroom hotel; 1,500,000ft² for shopping. 200,000 ft² for light industry; parking for 1000 cars, filling stations, bus stops and service buildings.

Forty-nine architects entered this competition. From these the assessors selected five designs, those of Raj Rewal and Kuldip Singh; Ram Sharma; Bruno Dias Souza, Bijit Ghosh and Oscar Pereira; Bernard Kohn; and Suryakant Patel; all of whom were asked to submit further drawings and details. The winners were Raj Rewal and Kuldip Singh, whose design is illustrated in this column. The success of their scheme relies on their effort to build up a sequence of pedestrian precincts with low and long buildings, intended for a mixed development, in such a way that though there is considerable variety between the spaces—both internal and external—they are part of a continuous whole, very much in the manner of the traditional Indian Bazaar.

The design philosophy is based upon the following pre-requisites of function—the major district centre should be of a character which will stimulate and focus the imagination of the community, and provide a clearly organized functional framework for all activities. The framework should have a common core for all activities; within it, each separate activity should have a definite, recognizable position and an understandable relation to other activities. The development may take place in any number of stages.

The elements of the architectural concept are the separation of activities into a commercial shopping area and an industrial area, each to have its own circulation and services, from which units of use can grow horizontally and vertically. Commercial/shopping and industrial units to be joined to the framework as needed; sub-division provides for independent development of any activity to meet a variety of needs. There are to be clear cut pedestrian and vehicular systems, allowing unimpeded movement of each.

The design solution consisted in two parallel linear structures, one for commercial/shopping, one for industry. The major (commercial/shopping) spine goes across the site, parallel to the ring road and linking the two subsidiary roads. Vehicular traffic is on the ground, with direct access in each of the spines to parking areas and service bays. Parking is directly related to the areas of use. The major pedestrian walkway (commercial/industrial spine) is on a two-level plaza with easy access between the levels. Shopping is adjacent to the pedestrian walkways and around landscaped courts. Community activities are focused at the centre. Commercial activities are on either side of the major spine, in multilevel unit structures. Industrial activities are on either side of the secondary spine.

The entire circulation system, vehicular and pedestrian, forms a separate 'building structure' which can be built in stages or at one time. All other facilities can be joined on as required. The vehicular one-way loop is directly related to parking, service, and vertical circulation access to all commercial/shopping or industrial levels. Ample parking is provided in separate areas each adjacent to particular activities. Two-level covered parking under commercial, single-level under the main civic area (outdoor parking supplementing each of these) and out-door for industrial use. Separate facilities are provided for cycle paths and cycle parking.

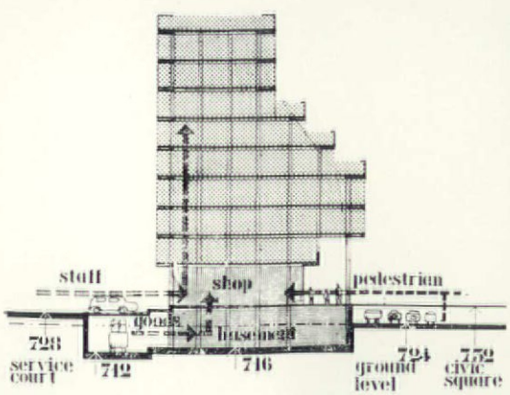
Pedestrian circulation is in the central area of the major spine, on the ground floor running the length of the axis plus on the main upper plaza level. Pedestrian ways are always directly related to landscape courts.

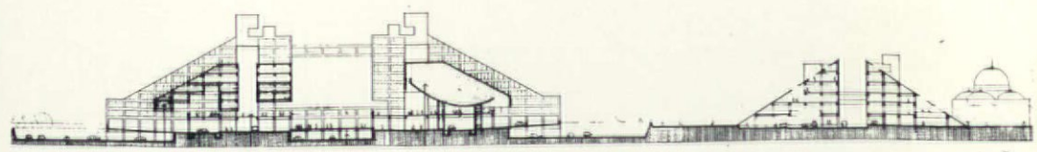
Large open spaces are landscaped with a view to maximum use and simple maintenance. Existing site factors, such as a large tomb and run-off pond, have been brought into the design. There is immediate access to the outer open space from commercial and industrial buildings. Shopping facilities form a continuous open and closed environment accessible on two levels.

Shopping spaces are modular, but grouped in a variety of sizes and areas as required by the programme, the central spine can be built independently of shopping, which can then be added in individual parcels.

Commercial blocks are related directly to the two-level plaza, with, in the lower-level car and cycle parking and servicing lifts and stairs. Blocks can be built by individual owners or by a central agency for leasing. Designs are modular, allowing variations in type of rentable space.

Industries are grouped together in one area. Flatted factories are in eight modular structures, related to the central service spine. Buildings have adjustable floor heights to suit particular industrial needs.





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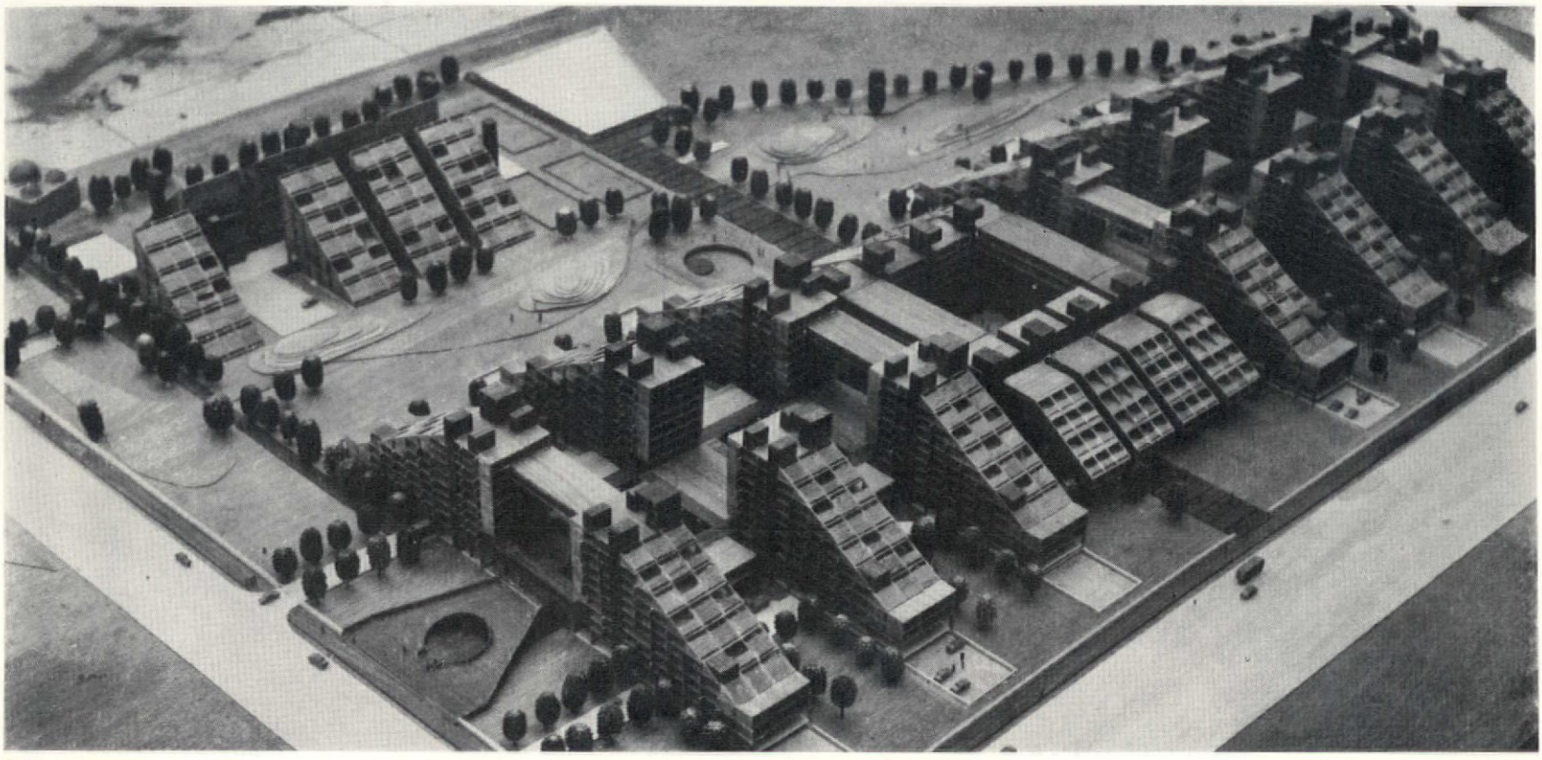

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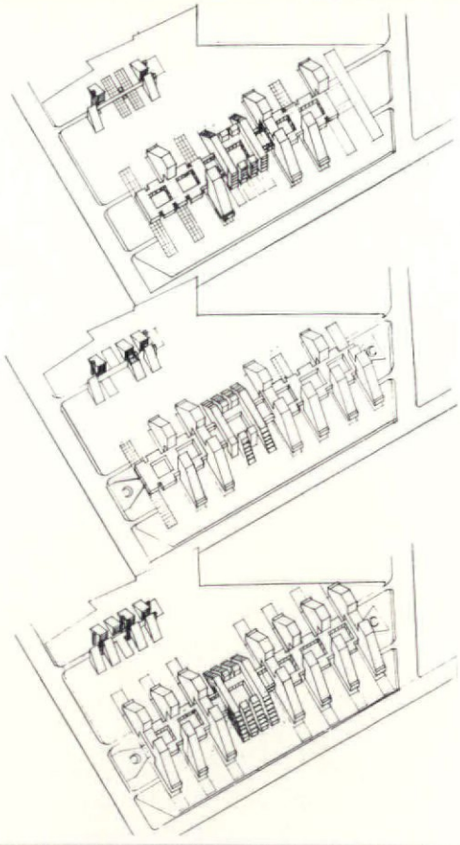

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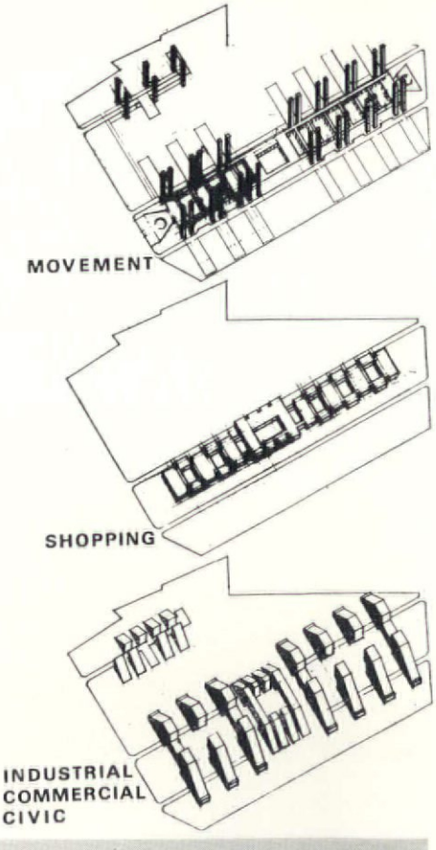

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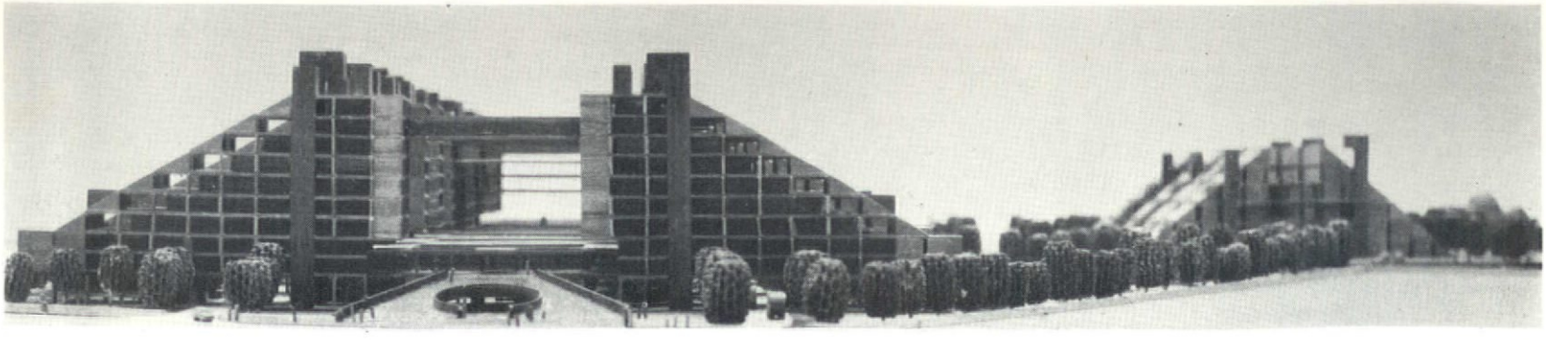
1
Cut away axonometric of Bernard Kohn's design for the Ramkrishnapuram district centre

2
Section through the commercial and shopping spine and the industrial building

3, 6
Model of the proposed centre

4
Diagrams indicating how the buildings could be developed piecemeal

5
Diagrams showing the breakdown of architectural elements



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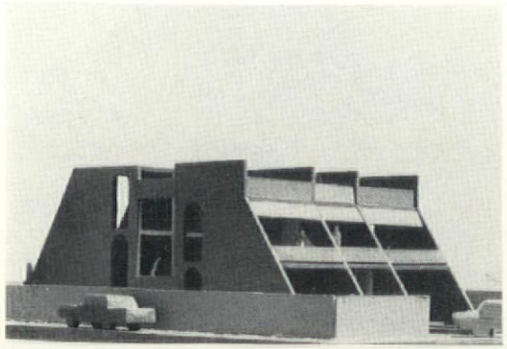

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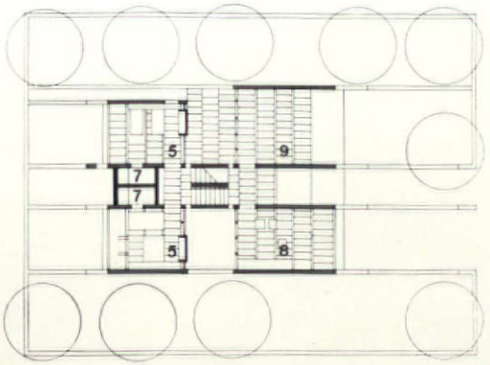

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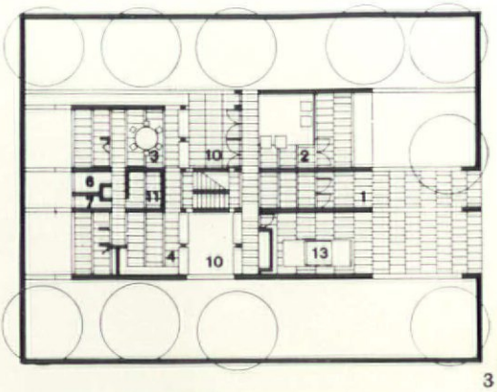

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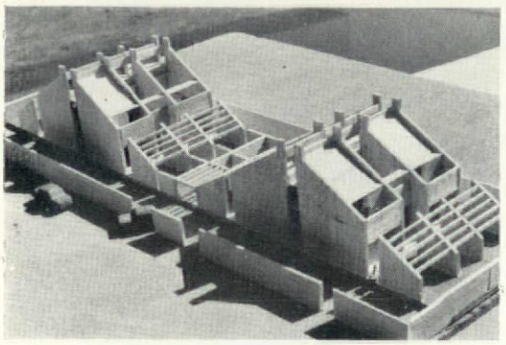

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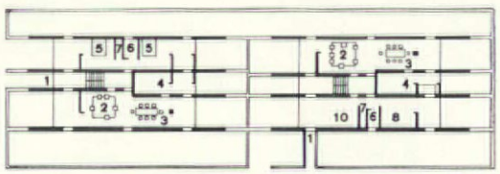

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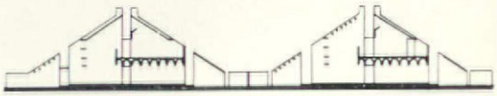

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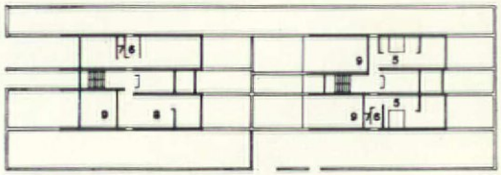

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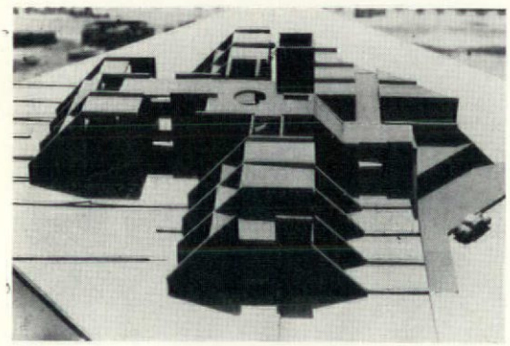

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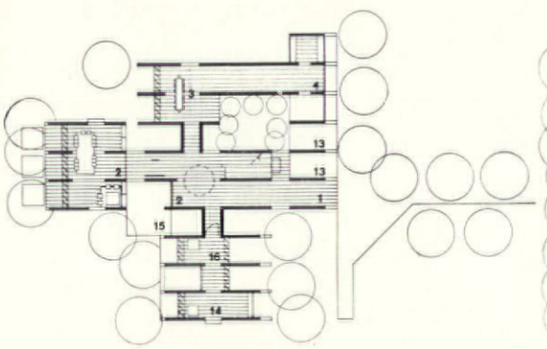

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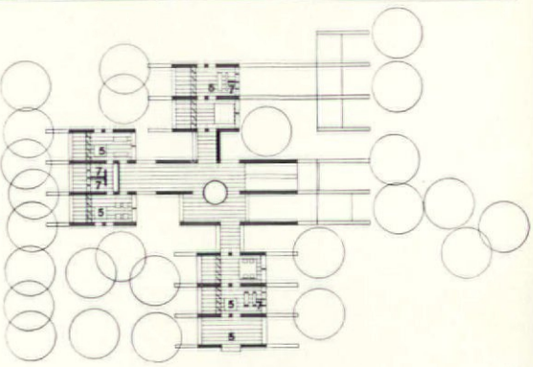

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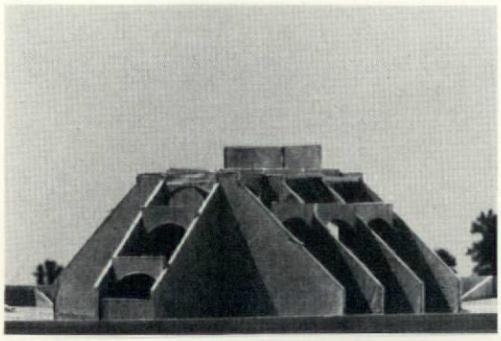

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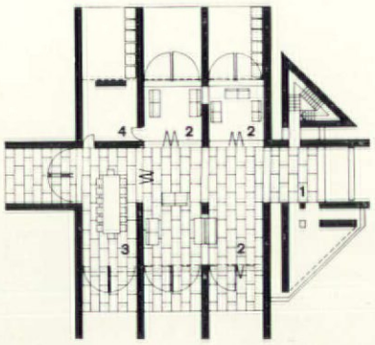

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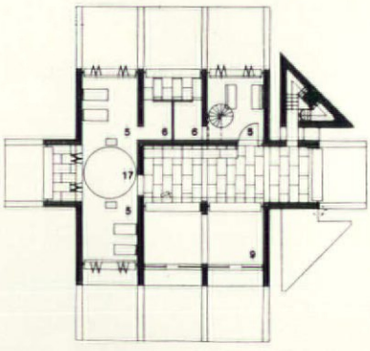

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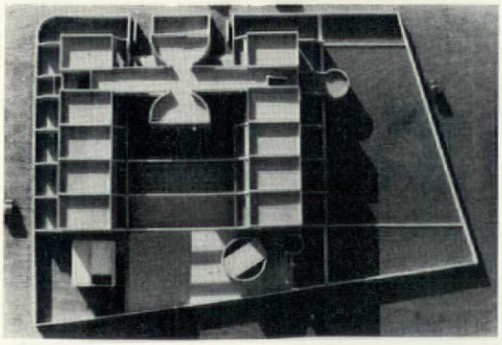

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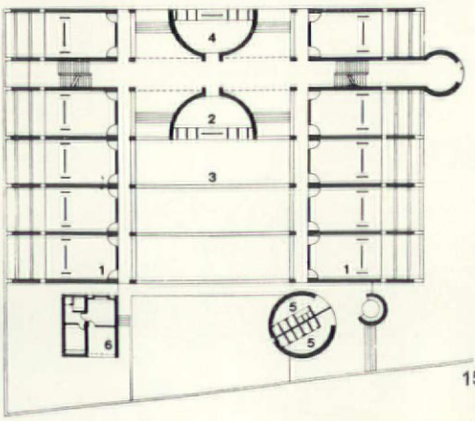

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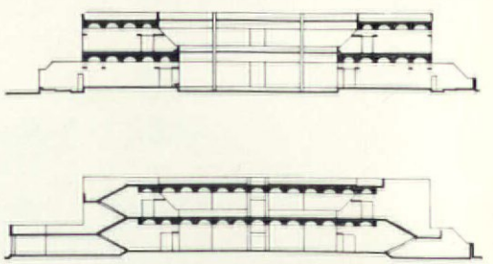
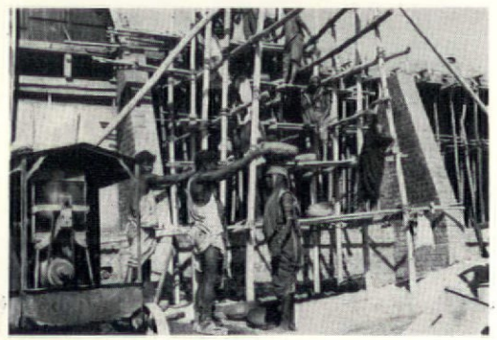


16

All the buildings shown on these pages are in or around Ahmedabad, a city of over one and a quarter million, with a rapidly developing economy originally based on the manufacture of textiles but now expanding into other fields. There is, however, little technological acumen. Materials are limited, even more now with a severe shortage of cement. But for Bernard Kohn this is a challenge. He has almost as few materials as fingers on a hand: rough handmade bricks for walls, stone slabs for floors, concrete for slabs or possibly concrete and brick or all brick slabs and arches, plaster to brighten interior walls, teak or at times, steel sections for doors and windows—an adequate but limited range of services. One is left to rely on basic materials, manual labour, bamboo scaffolding, a set of drawings, and the will of the elements.



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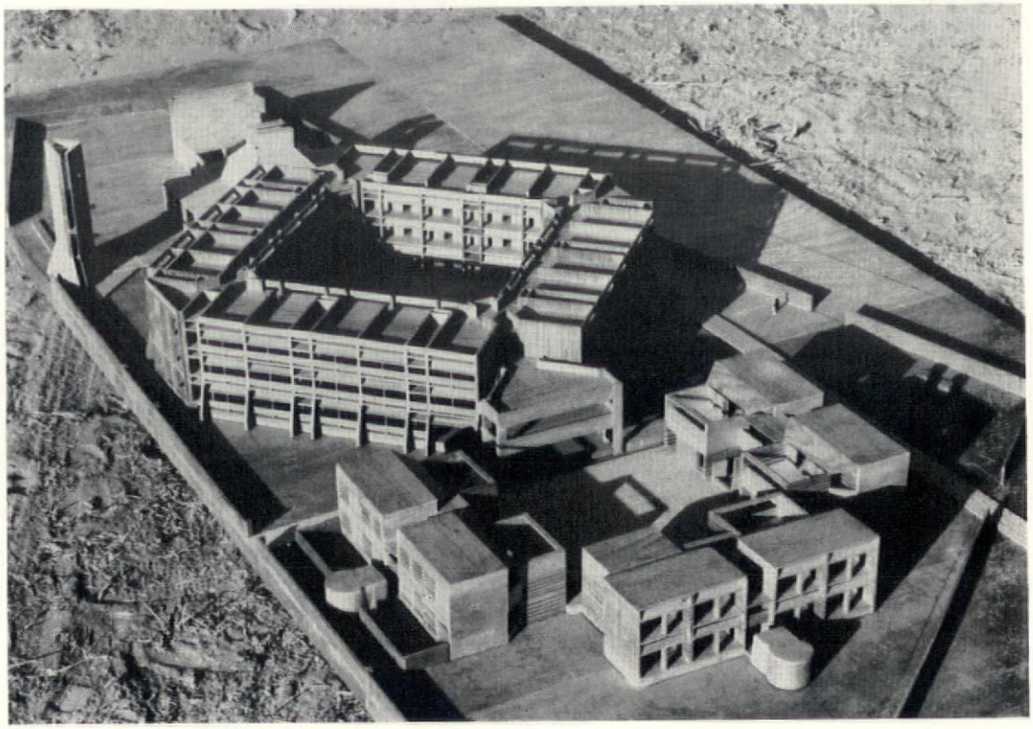

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19

1, 2 & 3
Dave House, Ahmedabad
Model, upper and ground floor plan of a house now under construction.

Key to plans 2, 3, 5, 7, 9, 10, 12, 13

1 entry	7 w.c.	13 garage
2 living	8 study	14 guest
3 dining	9 void	15 pool
4 kitchen	10 court	16 ladies
5 bedroom	11 store	17 play
6 bath	12 workshop	

4, 5, 6 & 7
Ramanathan Houses, Faridabad
Model, ground and upper floor plans and section of two related houses, carefully designed to take full advantage of all natural drafts. Roofs are doubled to provide additional draft ducts and to increase shade.

8, 9 & 10
Himatlal House
Model, ground and upper floor plans for a family house, sited diagonally for the summer winds.

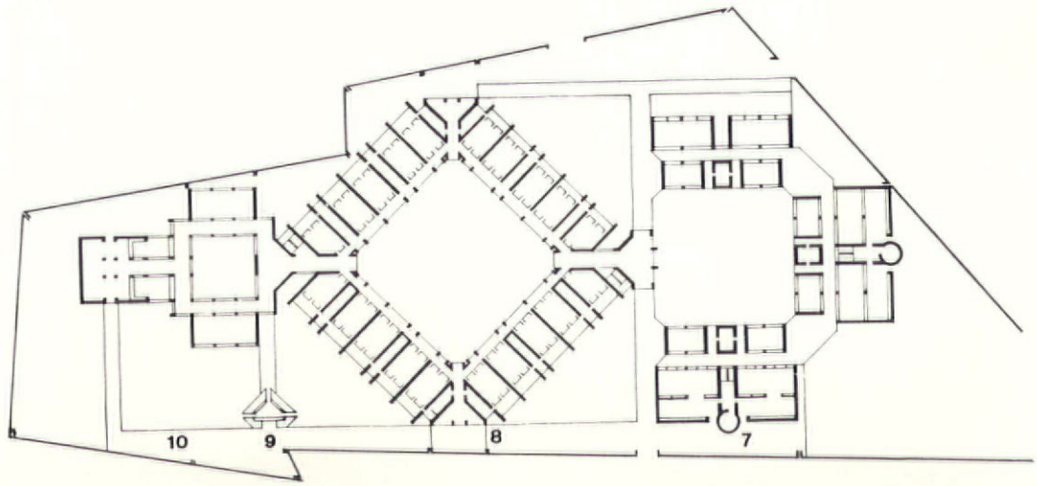
11, 12 & 13
Patel House, Ahmedabad
Model, ground and upper floor plans of a rejected design for a large family house

14, 15 & 16
Primary school, Ahmedabad
Model, plan and sections of a municipal school, now under construction, designed to a severely limited budget but nonetheless providing small courts which may be used for outdoor classes and a central area that acts as an auditorium. Structure is loadbearing brickwork.

17–21
Lighthouse school, Mehmnagar
School for 240 blind girls, now under construction at Mehmnagar. The sequence of spaces—the school, the hostel and the dining rooms—is clear, easily related and identified in the mind's eye, though apparently complex in its geometry. Flooring surfaces are particularly carefully detailed to indicate to the barefooted girls the hierarchy of activities and changes of direction in the pathways.

Key to plans 15 and 20

1 classroom	5 w.c.	8 hostel
2 stage	6 caretaker	9 dining
3 court	7 school	10 kitchen
4 staff		



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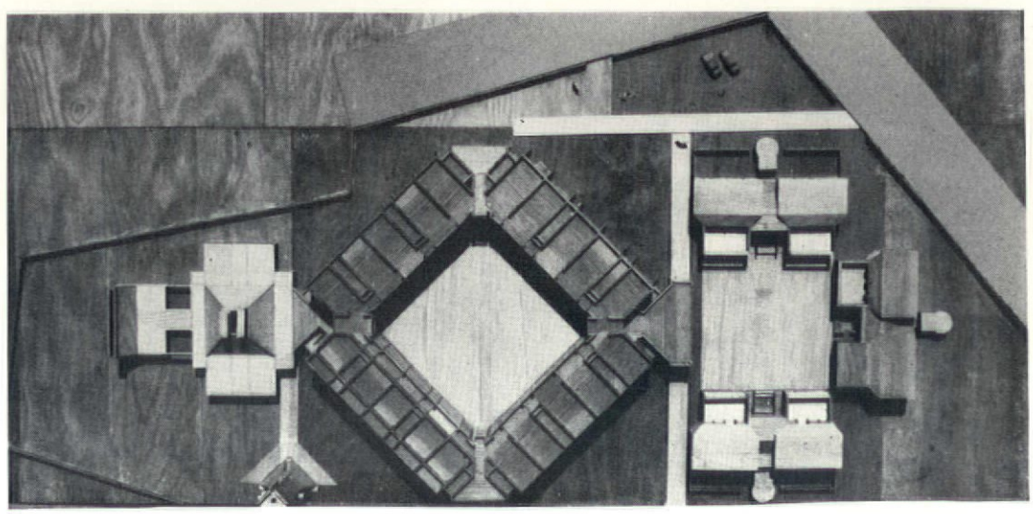

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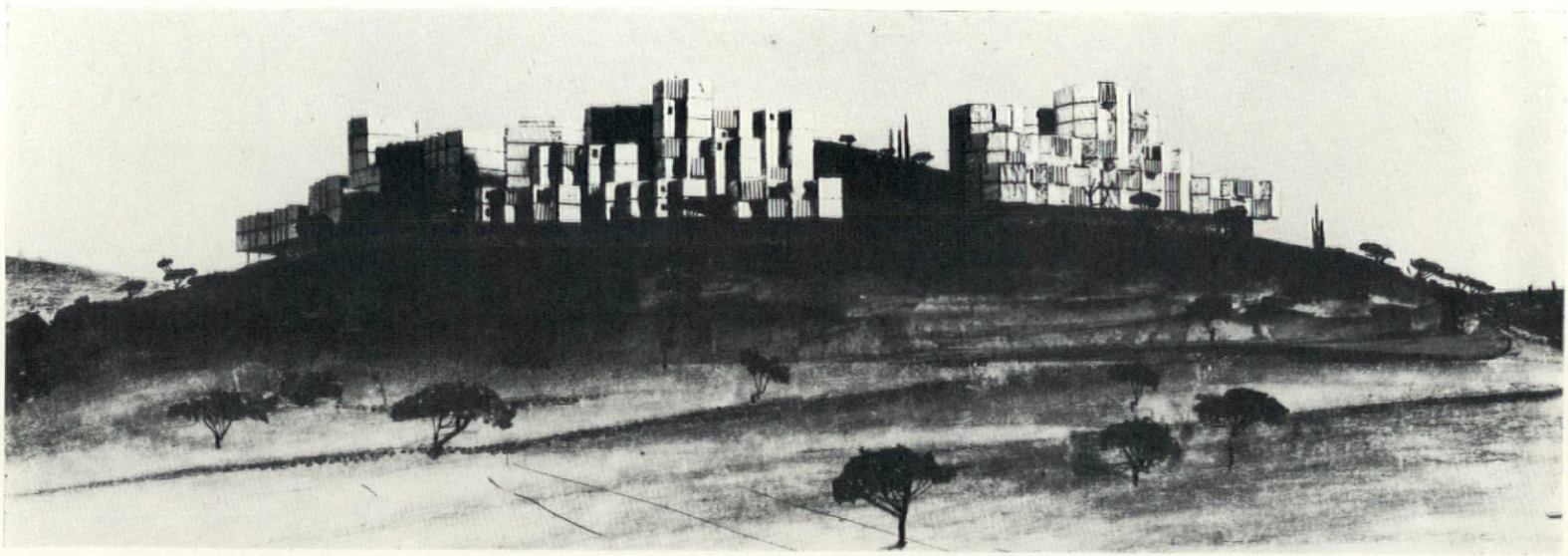
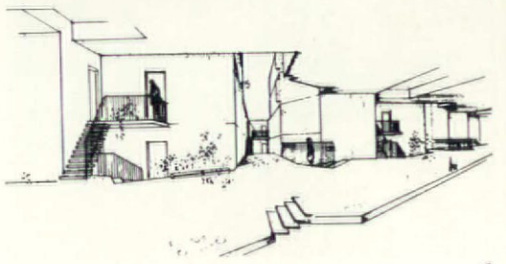


1

High density living

Leopold Gerstel

Firmly convinced that isolated, individual buildings do not relate well enough one to another to ensure that new towns and settlements have an immediate sense of coherence and thus of community, Leopold Gerstel has continued to experiment with massed clusters of housing for new towns in Israel. His well-known ziggurat study (*AD*, January 1964), consisted of a crust of housing set back in tiers over a core of shops and car parks. But though the whole appeared as a solid mass it was everywhere broken by courts,



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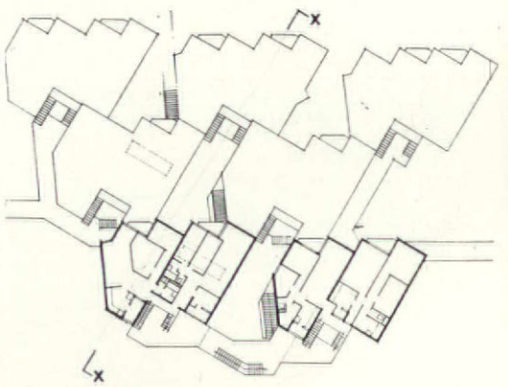

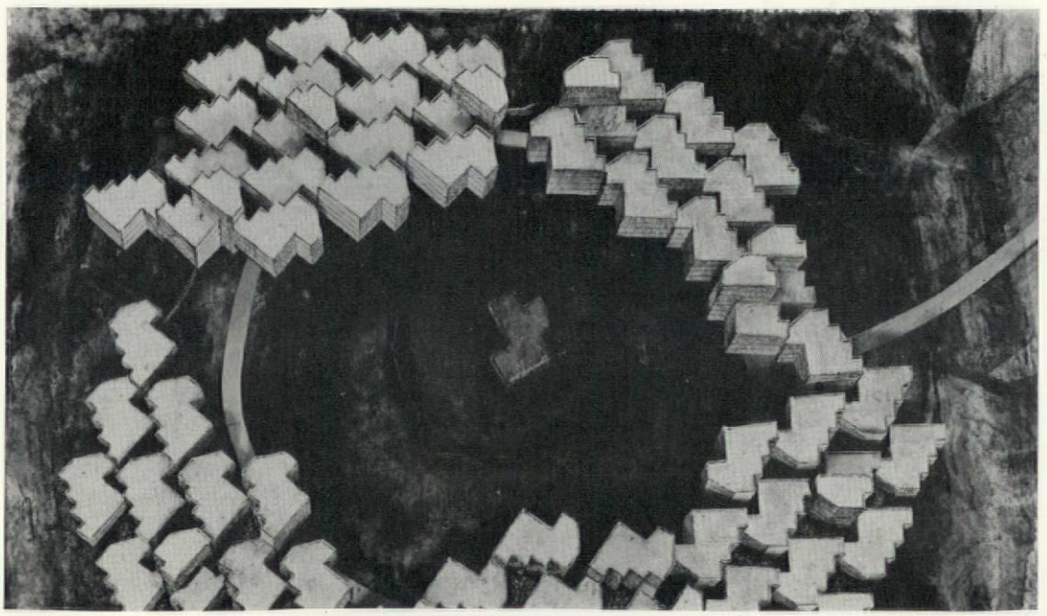

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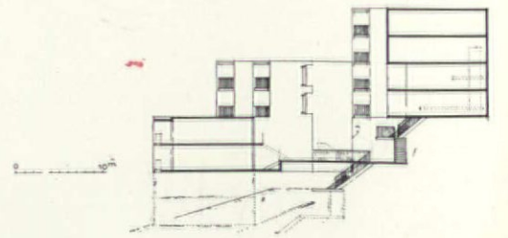

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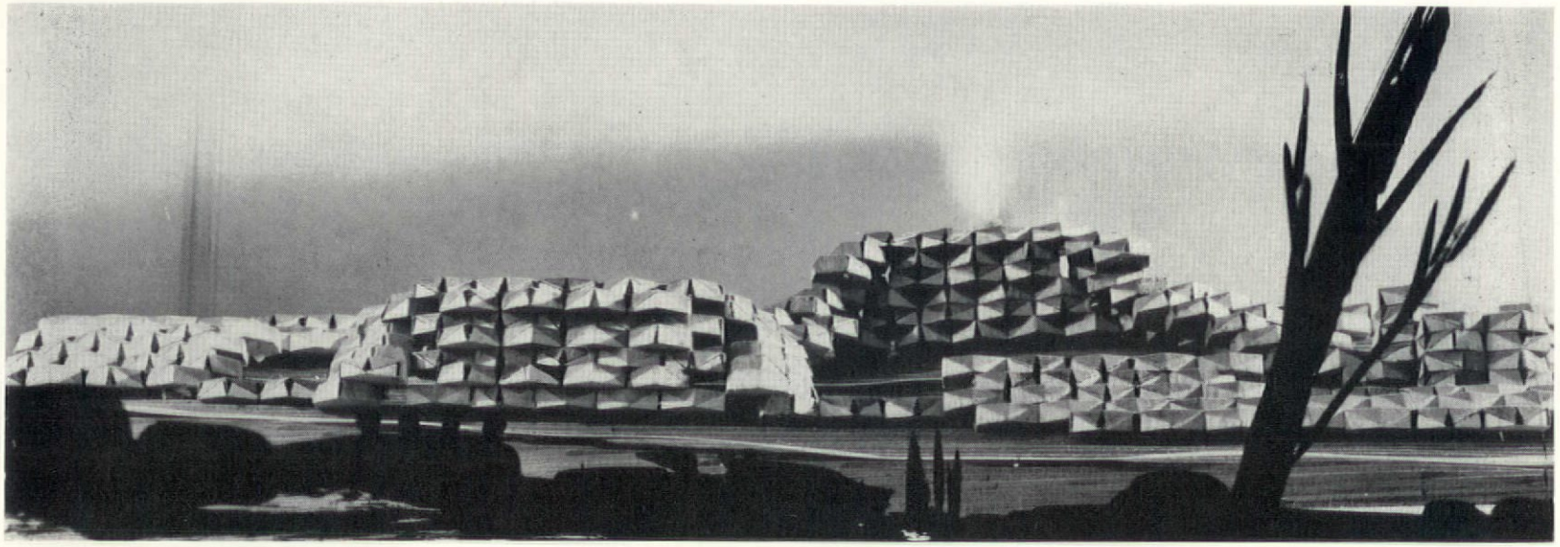

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lightwells, streets and alleys, so that sunlight and air could penetrate even to the lowest levels. The theme of this study has to a greater or lesser extent been developed in each of his subsequent housing layouts.

In a competition design for Ramat Hadar, outside Haifa, the idea of a continuous mass of low level housing units serving to create a series of outdoor spaces that would at once have the coherence and unity of a medieval hill town, was used as a basis for planning, but was not fully worked out. More successful in this respect was Gerstel's Nahalat Itzhak housing scheme **1** to **5**. The focus of this new community is to be an existing farmhouse on top of a hill.

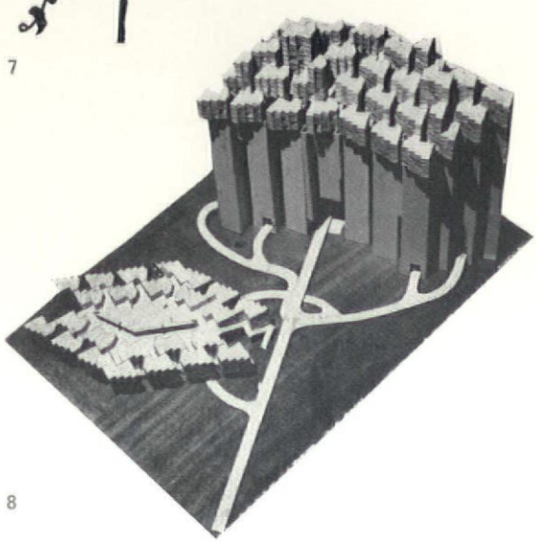
Around this, tight packed clusters of housing units (each having eight flats) are to be built up to form a series of concentric bastions. The individual plans allow the units to be set back to back and very close to one another on all other sides. They are separated by no more than narrow pedestrian ways which widen to form courts. Stairways are in evidence everywhere. For the blocks are stepped and staggered down the slopes of the hillside to ensure that there are some distant views and that the streets do not become narrow gorges. The arrangement, however, is applicable only in hot, dry climate. Vehicle access to the housing is by means of a circular road beneath the complex.

The Neve Josef colony **6**, outside Haifa, was commissioned by the Israel Ministry of reconstruction, who were intrigued by the idea of a ziggurat. The site, however, was so steep that it could be developed only on one side. Here Gerstel determined to build up the 220 living units asked for in such a way that the resulting mass would relate closely to the forms of the surrounding hills and would be broken and modelled in a like manner. His structural units were facetted, precast concrete shells designed so that they could fit against one another to form a homogeneous mass, but would equally satisfy all planning requirements while providing internal spaces that were more cavern-like than the usual rectangular volumes. The whole was to be, quite simply, a cliff dwelling.

The most audacious of Gerstel's recent designs is the Elysian housing **7** to **10**, built up with units similar to those intended for Nahalat Itzhak, but set in this instance on an artificial hill or cliff of offices, shops, factories and car parks—an aerial paradise above the noise and smells of the workaday world.

1
Perspective of the first stage of housing proposed for Nahalat Itzhak, Israel
2
An access street at Nahalat Itzhak
3
Site plan indicating the total development intended at Nahalat Itzhak. The first stage of building will be on the hillock on the left, upon which is a farmhouse
4
Model of the first stage of housing at Nahalat Itzhak with the old farmhouse in the centre
5
Plans and section of the housing at Nahalat Itzhak
6
Housing in a ziggurat form proposed for Neve Josef
7
Site layout of an 'Elysian' development: a tower block in the centre with a surrounding network of low level housing clusters
8
Model of the towering core of the 'Elysian' development with one of the low level housing clusters built up around a central covered court
9
Elevation and plans of an 'Elysian' tower. Housing is at the top, on varying levels, with open access routes shown dotted on the elevation. The lifts for the upper floors are shown black on the plans, vertical communications to the office and commercial floors are indicated with a cross
10
Model of an 'Elysian' tower—parking, offices and commercial areas form the bulk of the building, housing is clustered on top

7



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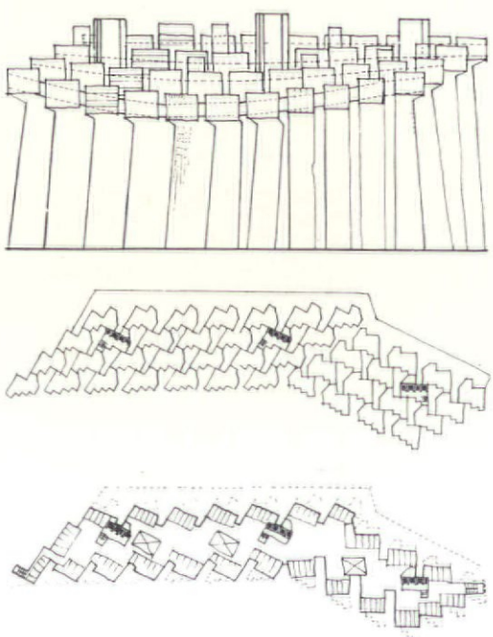

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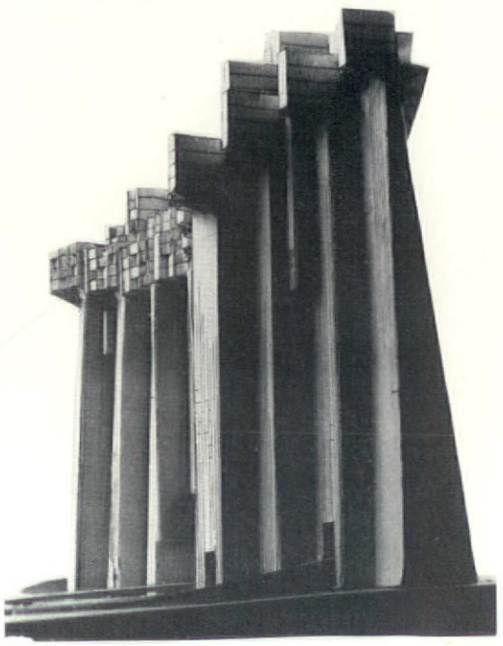

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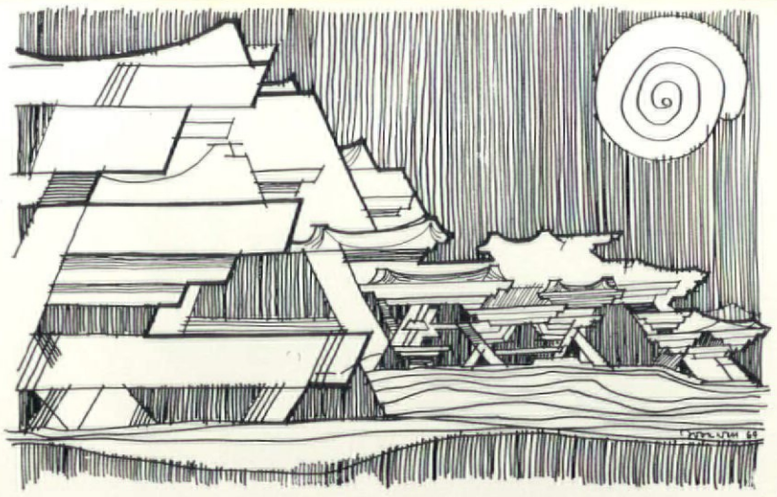

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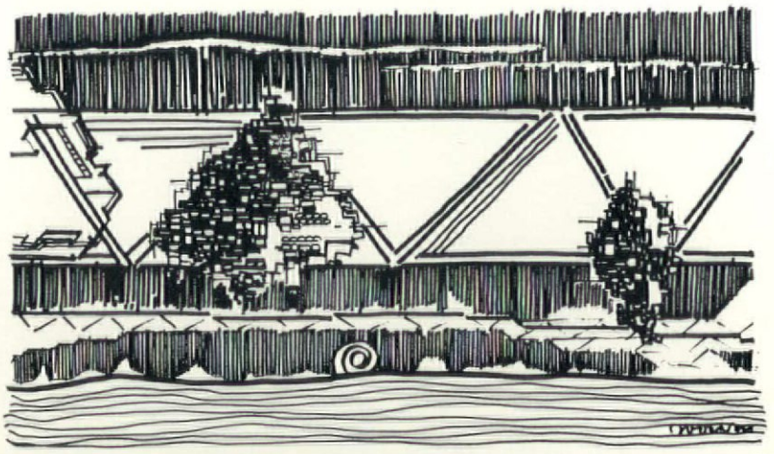


2

Biotecture

Rudolf Doernach

1
Design by Doernach Research for the German Pavilion, Montreal, 1967—'a three-dimensional' mobile urban system, 'space cups' containing smaller 'live' containers of a contractable, transparent material (Unisofoam). Open spaces all climatized

2
America city project by Doernach Research, Biotecture. A three-dimensional anti-gravity and supply frame. Cellular units of differentiated use and size grow from the frame, retreat into the frame and are reliquidized. Growth and climate are controlled in electronic centres

3 & 4
Basic formulae for Biotecture

5
An urban system. The vertical support system contains exchangeable cells. Growth in three dimensions. Units of new reinforced foam system, all faces with controlled transparency

6
Design by Doernach Research for Bayer Chemicals, Leverkusen. Structural sectional units stacked at random. Differentiated, partly climatized negative spaces. Cells of one-shot expanded and reinforced foam system

7
A proposal for chemical product-research: A universal 'live' building material that can grow a mobile urban system:
All spaces and shapes to change quickly and continuously. 'Uni-matter', a chemical, to be re-usable. Skins, muscles and bones are to be built by small electronic slaves—according to their required strength and function

Two thousand years ago a man could not walk around this planet. Today astronauts circle it in a few hours. One thousand years ago man was unable to see molecules. Today we even put atoms on the racetrack in our cyclotrons. Throughout history we have been unable to make safe statements with any speed. Today computers help us to learn complex patterns in one thousandth of a second. Up to now, man could not relate the functions of the brain and the rays of the sun. Today we know they are both dynamic energy systems.

We know (axiom 1) the relationship between relativity, transformability, exchangeability of energy and matter. We can build materialized structures and energy structures and mixtures of both. And we know (moving towards the definition of axiom 2) that energy and matter are organized in related, differentiated and dynamic *systems*.

Through synergetic effects, systems obtain potentials that cannot be derived from their components. Chromenickel steel is stronger than the added strength of its components.

In addition, since matter and energy are polar, exchangeable systems, there must be a dark and terrible thing such as an Antisystem, our third basic axiom.

If specific organization of matter and energy in a system has positive synergetic effects, there must be negative effects between systems, sub-systems and super-systems: death-change, metabolism. The dictionary has many names for these basic polarities. To name only two: order and disorder, safety and hazard. Friends of a famous man presented him a collection of their best scientific writings. Accepting them, he said, 'It is going to be much work to prove that they are all wrong'. He did not mean to contradict primary, axiomatic knowledge. Secondary knowledge, we know, can change. Primary relations, axioms, do not.

As architects become comprehensive building scientists, they will use primary knowledge, principles derived from basic axioms, which cannot be reduced to more basic status.

The basic physical relativity of energy and matter contains the *principle of differentiation*, the Unit Theory. Energy, for example, is a Unit System different from Matter Systems. Energy in space and time, acting upon matter, produces either compression or tension. The two basic *System Units* of all living and technical structures are tension and compression, differentiation and integration.

The Principle of Differentiation necessarily produces the polar principle of integration of unit systems. Unit Systems contain Unit Systems and are themselves contained in Unit Systems. All Principles of Integration, all different interactions of systems are family-members of the Polarity Theory. Living and technical structures demand specific choice and selection from thousands of possible polarities: light or dark, long or short. Life in its many forms is a complex interaction of tension and compression units. Architecture must become an externalized, technical, artificial super-system: BIOTECTURE.

We can build live, dynamic, mobile, fantastic, environment systems, we have the energy, systems knowledge and materials available. Live BIOTECTURE is the greatest challenge to industrial man. Space technology is a pioneer in this new integral discipline.

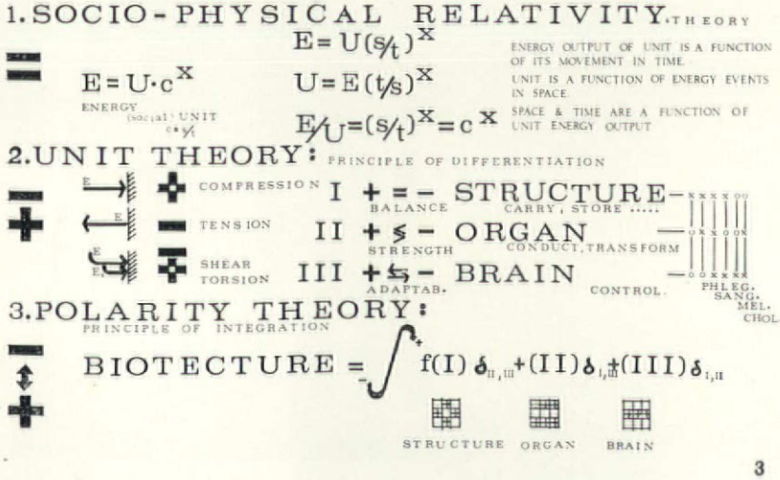
Experiments with mobile architecture are under way. Just the way the Wright brothers experimented with their first airplane, it is not necessary to ask the permission of governments and politicians. BIOTECTURE will float upon the seven seas if current laws on land are obstructive.

Live architecture, mobile architecture, has no history. Systematic experimenting will create new engineering principles. Biology provides system analogies, chemistry provides a wide choice of organic materials. All present knowledge of building should be replaced in the next ten years. Students of today will become practising biochemist-architects. No power lobby of any strength will defeat this challenge. Plastics and organic matter provide physical properties and stability-weight ratios far greater than those of steel and concrete. Organic matter does most things in a complex, dynamic way, similar to a DNS-cell, the bone, skin, and organs or brain in our body. With ten thousand times more energy available than fifty years ago, all physical building and planning of environmental systems will outstretch our present imagination.

Soft and hard, contractable and reusable organic matter, growing automatically as a baby in a mother, will be the universal building material invented and programmed by the environment scientist, the comprehensive architect. Industries producing all kinds of 'killingry' today, badly depend upon activities and developments of the building scientist. An era of great dreams and challenges will produce live and mobile architecture in a very short time. Lack of finance is the most powerful inspiration for those starting all this—guerilla-fashion—in some basement.

General systems theory, theory of structures, theory of processes and network theory, communication, information, and decision making theory are the tools to design and operate live environment systems. Toolmakers among us will quickly invent design tools of powerful capacity. Strategical possibilities to build organic architecture are being discovered in related disciplines at a high productivity rate.

Time is accelerating. Two hundred old years will be packed into 1966. If we spend more energy we have more time. Automation, replacement of labour through systems engineering, facilitates more higher learning, multiplies the number of



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System Matrix

+ = −	+ ≷ −	+ ⇄ −
Bone (Structure)	Skin	Organ (heart brain etc)
B · ·	S · ·	O · ·
B S ·	S B ·	O B ·
B O ·	S O ·	O S ·
B S O	S B O	O B S
B O S	S O B	O S B
= Balance	≶ Preference	⇄ Sequence
B = S = O	B → S → O	B ≶ S ≶ O
B = S > O	B = S → O	B → S = O

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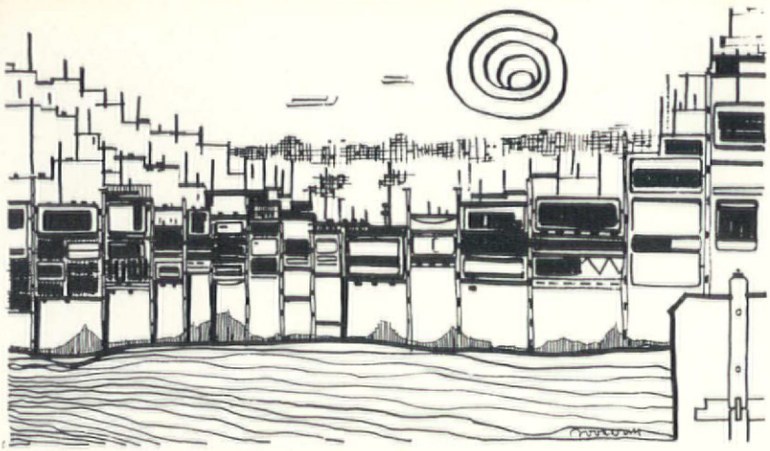

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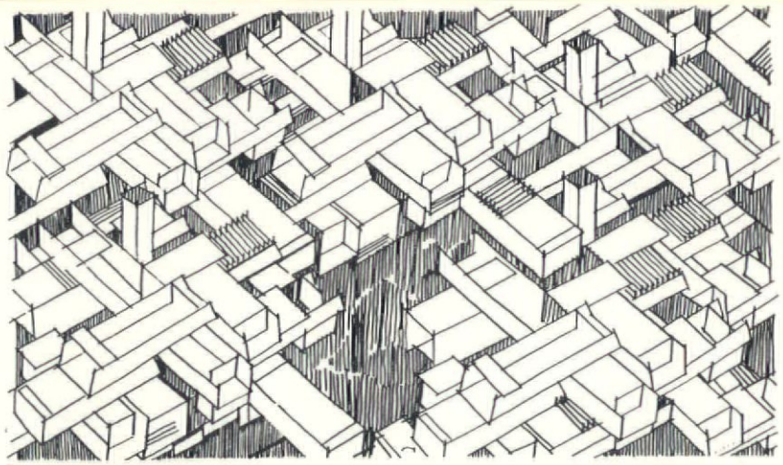

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students, as learning becomes a life-long status in a leisure-society. Professors become designers of learning-and-design tools.

As space engineers fuse into building science, astronautical products will come from assembly lines: miniaturized, light and autonomous suitcase-sized packages to feed, entertain, transport and house us. Imagine us scouting the Southern Seas equipped with such a package instead of building up a savings account. Countries like Japan have to miniaturize all their air-exported industrial products. With weather control advancing quickly, a little Japanese Honda-mobile, with built-in TV, foam spray container for a disposable shelter, will at first seem odd, just like the first car. After a while, accepted by those who still dig in the ground to construct a building, this autonomous environment package will be ubiquitous. The most powerful trend today is the continuous and accelerating liberation of mankind from basic needs, the mobilization of man under nature's principal theory: a Maximum for a Minimum (Minimax). Superfluous society, of course, will produce autonomous BIOTECTURE under this Minimal Theory as well as just the opposite: heavy and bulky stone castles under a Maximal Theory. We can afford it. The polarity of static Stone-Age structures opposed to the quick, disposable autonomous unit is to be enjoyed. It will be the free choice of everyone to use either one or both. The greater challenge however will be to produce live systems. Man as a co-operative system has specialized himself almost to extinction. Integrational and symbiotic systems are urgently necessary to balance specialization, to maintain sanity.

As all these new possibilities arise, man needs to take up the challenge of their fulfilment. Private and public recognition of man, his essentials of life, are products of fulfilled challenges, challenges of the unreal, not yet available. Challenge of UTOPIA integrates man on his forward-trend and liberates him from his own tedious and narrow ego. All technology, all political and social structure has once been Utopia. Religion is a Utopia system to cope with unsatisfactory reality.

On the solid foundation of axiom based socio-physical relations and their executive principles of integration and differentiation, the 'Unit Theory', the 'Polarity Theory' and the 'Minimax Theory', environment of man can change from immobility to life. Many years ago, on a microscopic scale, the same thing happened. Electric charges in the seas touched off inorganic matter. Since then life has pulsated on this planet.

Today we have knowledge of the integral chain of systems relations. The lever, two-dimensional, discontinuous manipulator of energy and matter in time and space, is brother of the ball-bearing system, continuous, two-dimensional energy manipulator under a minimum of friction. The cosmic, contracting and expanding, endless and finite, three-dimensional spiral has related synergy effects with the spiral structure of a cable, thread or alternating currents. DNS-molecules, three-dimensional, BIOTECTURE systems and geodesic structures are 3-dimensional space spirals.

Through further exploration and application of the physical relativity theory, atomic fusion energy and fission energy will be available in abundance. World efficiency of tools will leap from 4 to 12 per cent. Everybody will have his two thousand calories daily, hot wars will be historical.

As industrialized agriculture supplies food for everybody, industrialized central energy systems will climatize our cities, liberate man from cold and wind. No need for aluminium curtain walls any more, all we need then are space platforms, space saucers, space containers, space ships of simplest detail but huge variety. These energetic physical changes will have synergetic social effect: a free society in a mobile environment.

A Socio-physical Relativity System of fantastic new potential will start to pulsate on this planet: BIOTECTURE.

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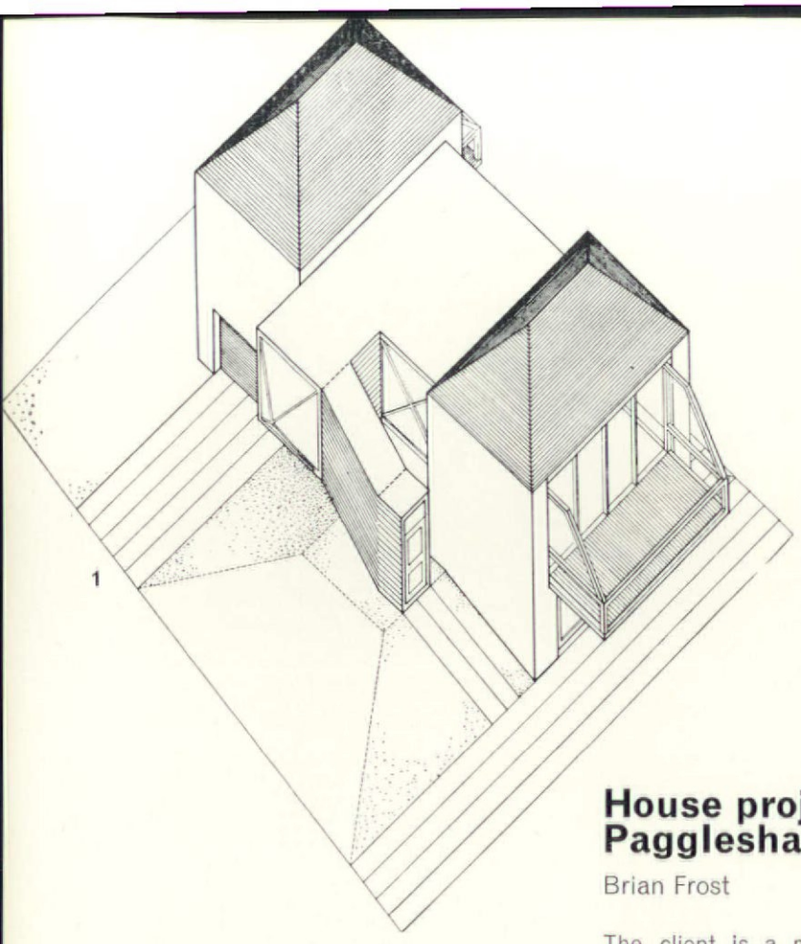

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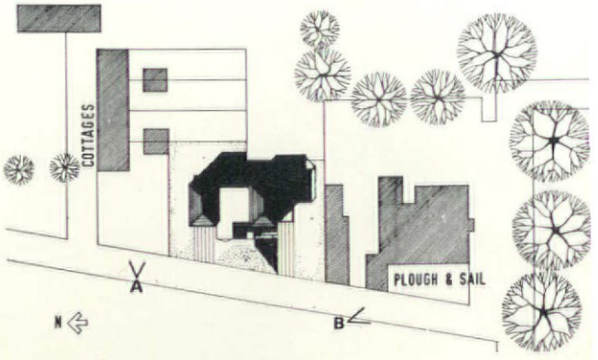

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House project Pagglesham, Essex

Brian Frost

The client is a married scientist with two teenage sons.

The site next to the 'Plough and Sail' in Pagglesham, Essex, is small for the accommodation required which includes study bedrooms and a large general purpose space.

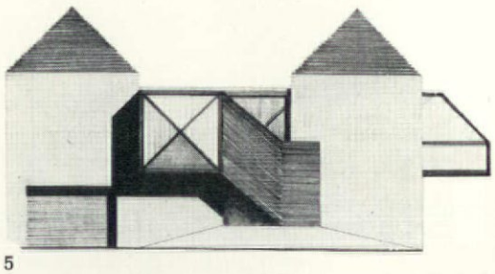
In order to obtain the maximum light and view for the living rooms the main bulk of the accommodation is placed at first-floor level.

The scale of the surrounding residential area was the most important limiting factor. It is for this reason that the house is broken down into small sympathetic forms. The two main parts are interwoven with trusses at first-floor level, which, when passing walls, form the skeleton for built-in shelves and cupboards, which can be inserted into the space formed.

The ground is ramped up to meet an entrance stair which leads to the entrance at first-floor level, formed by two trusses extending out of the building, terminating in a pyramid window. The brickwork will be of white painted Flettons. All timber is to be creosoted; the roof is tiled.

1
Axonometric
2
Site plan
3 & 4
Surrounding buildings seen from positions marked A and B on site plan
5 & 6
East and west elevations
7 & 8
Ground and first floor plans

1 living
2 dining
3 terrace
4 hall
5 kitchen
6 utility
7 bathroom
8 bedrooms
9 bedroom terrace
10 garage
11 workshop
12 wc
13 fuel store



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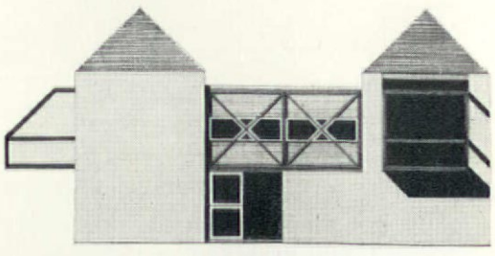

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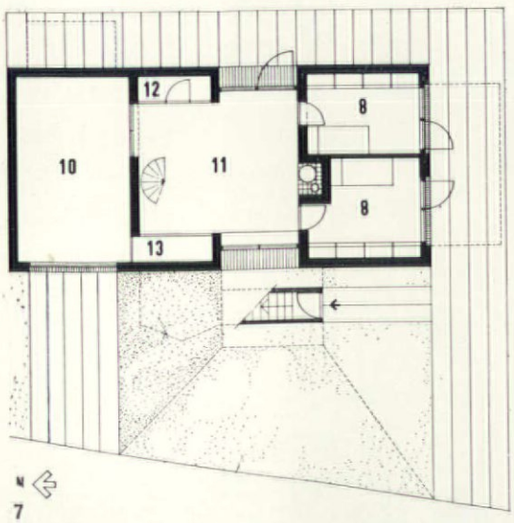

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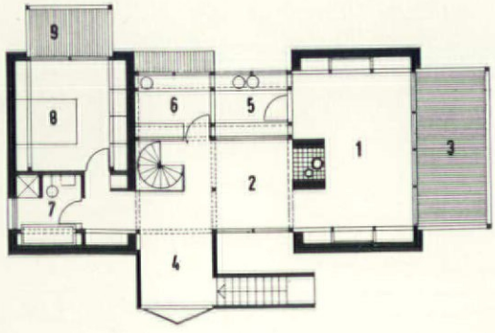

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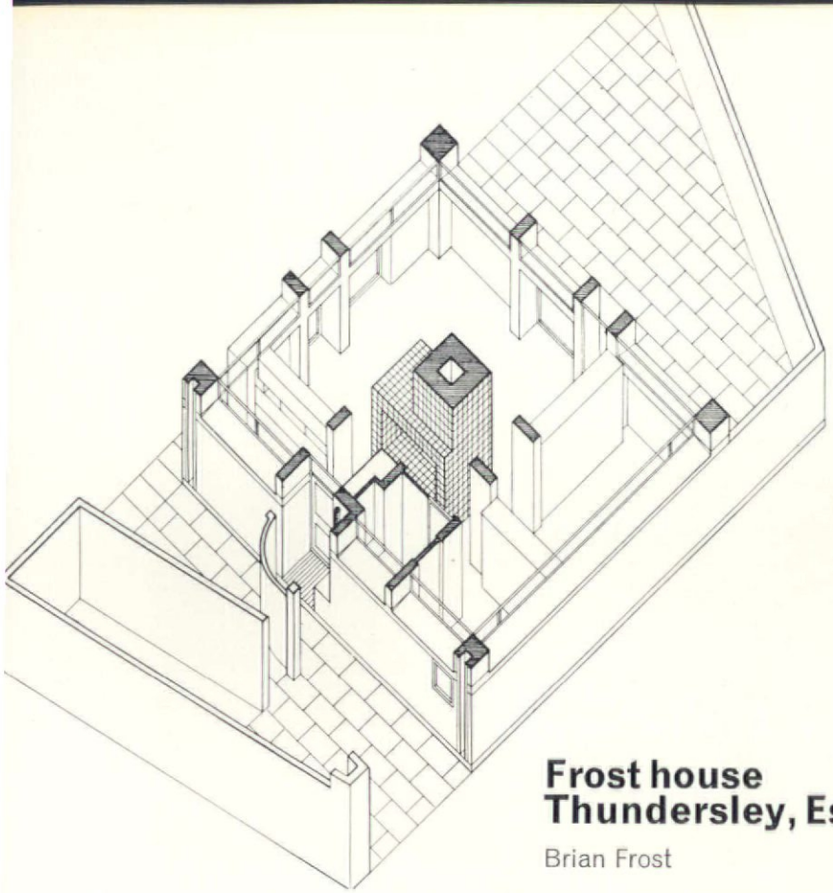

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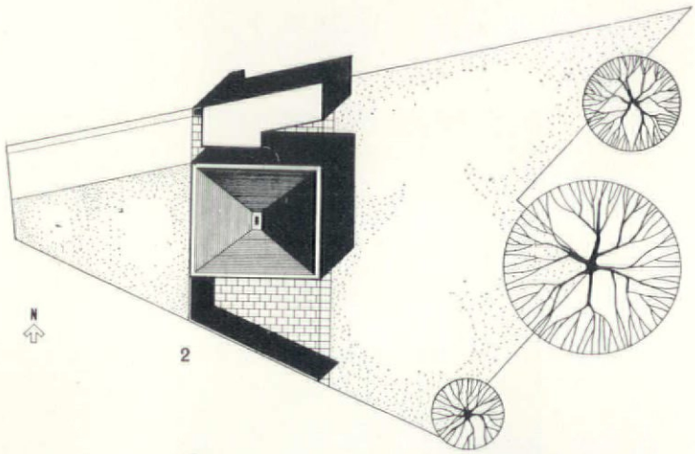
Axonometric



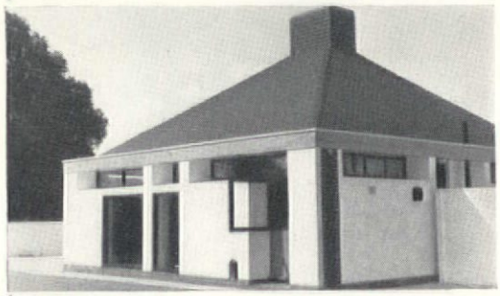
2
Site plan

3
View from the north-east

Frost house Thundersley, Essex

Brian Frost

The house, designed for the architect's parents, was constructed around a large central fireplace. The fireplace is a room within a room and provides a space for maximum enclosure.
The structural piers on the external walls form alcoves into which built-in fittings in Afromosia are inserted. The back walls of these alcoves are plastered and the colour scheme of any room can be altered by changing the colour of the alcove.
The external walls are broken horizontally by a concrete perimeter beam which houses all the concealed lighting, and is continuous except over entrances. The windows below this beam are large viewing windows and above there is a continuous window for toplight and ventilation.
The ceiling throughout is in varnished softwood, the living-room ceiling sloping upwards to the chimney.
Underfloor heating is provided together with a pither stove in central fireplace.
Area: 980 sq. ft. Cost £6,250 with garage and car port.



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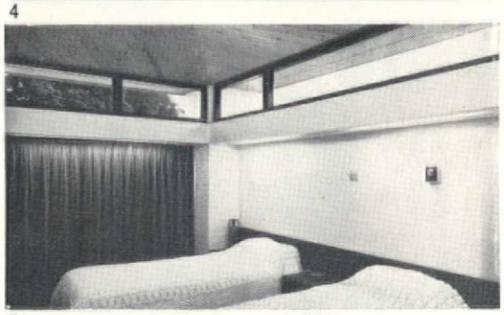


4
Main bedroom

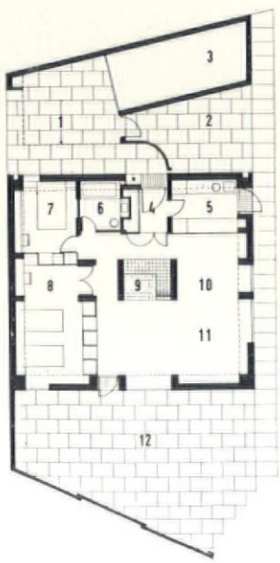
5
Dining room with kitchen beyond

6
East elevation

7
Plan

1 car port
2 yard
3 garage
4 hall
5 kitchen
6 bathroom
7 spare room
8 main bedroom
9 hearth
10 dining
11 living
12 terrace

Photos: 6 & 7 John Woolveridge



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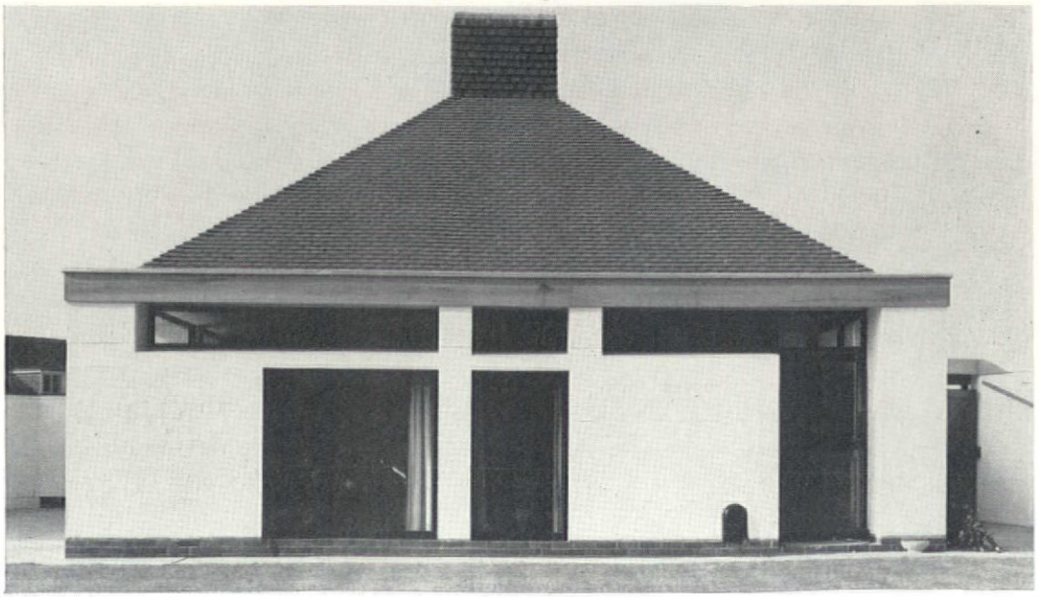

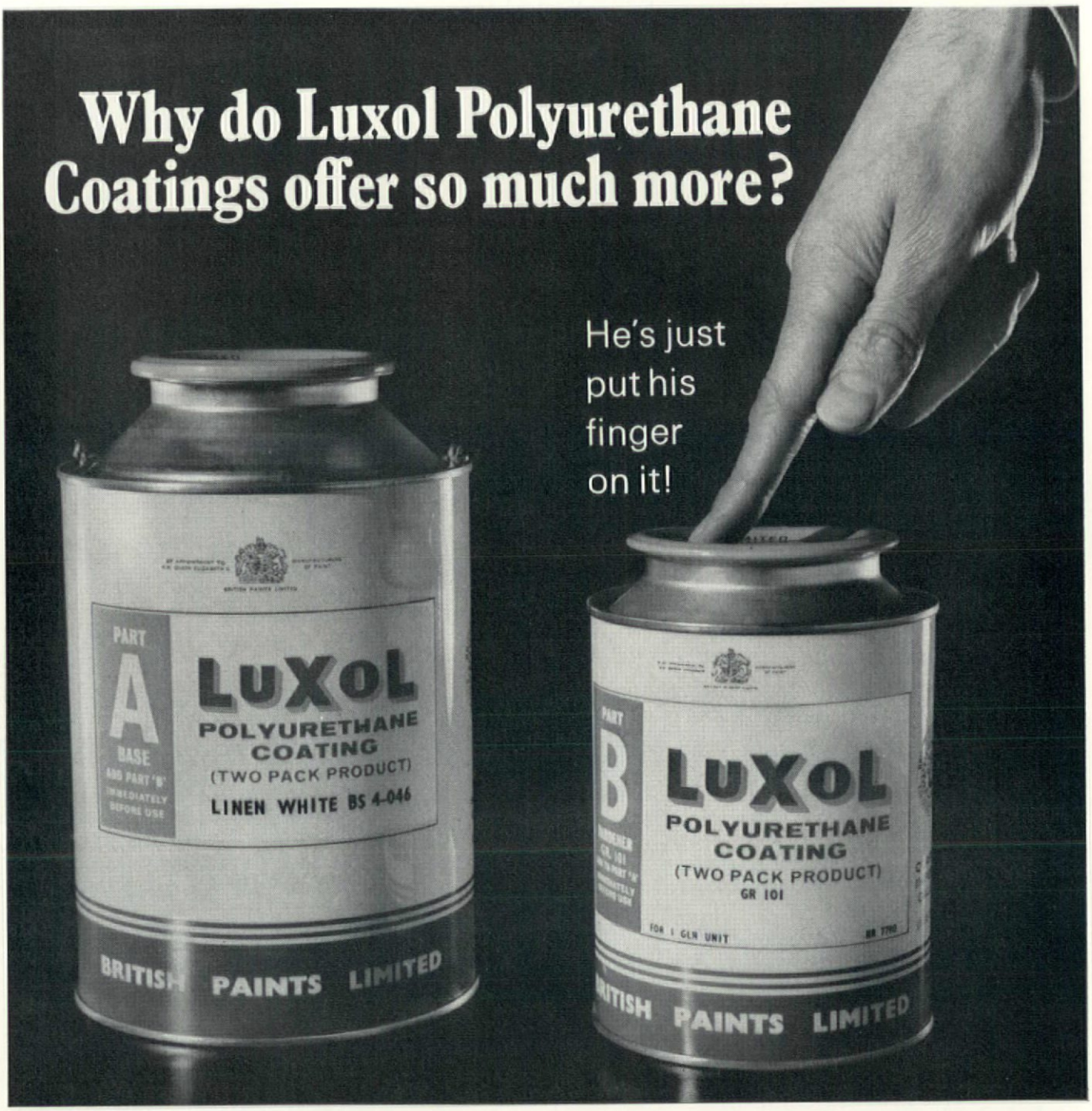

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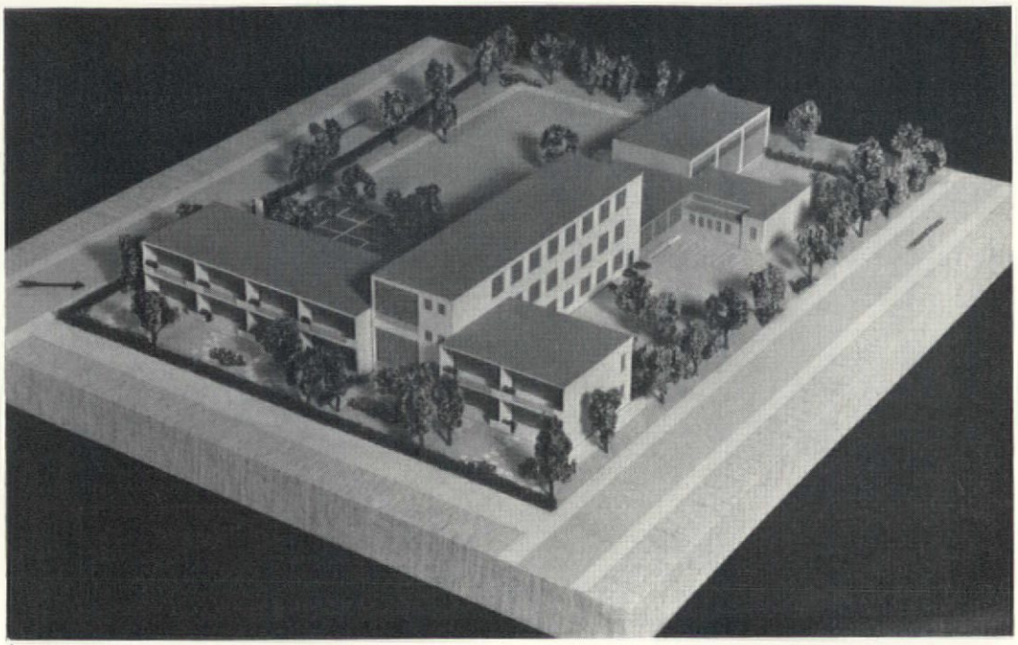

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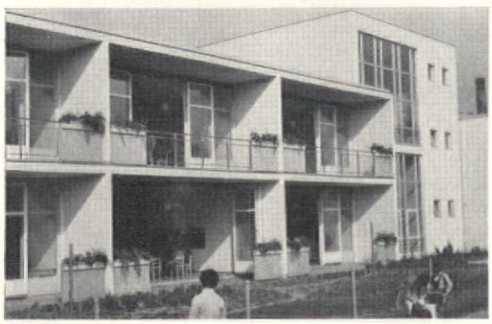

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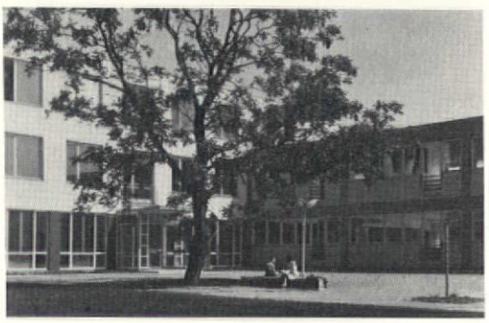

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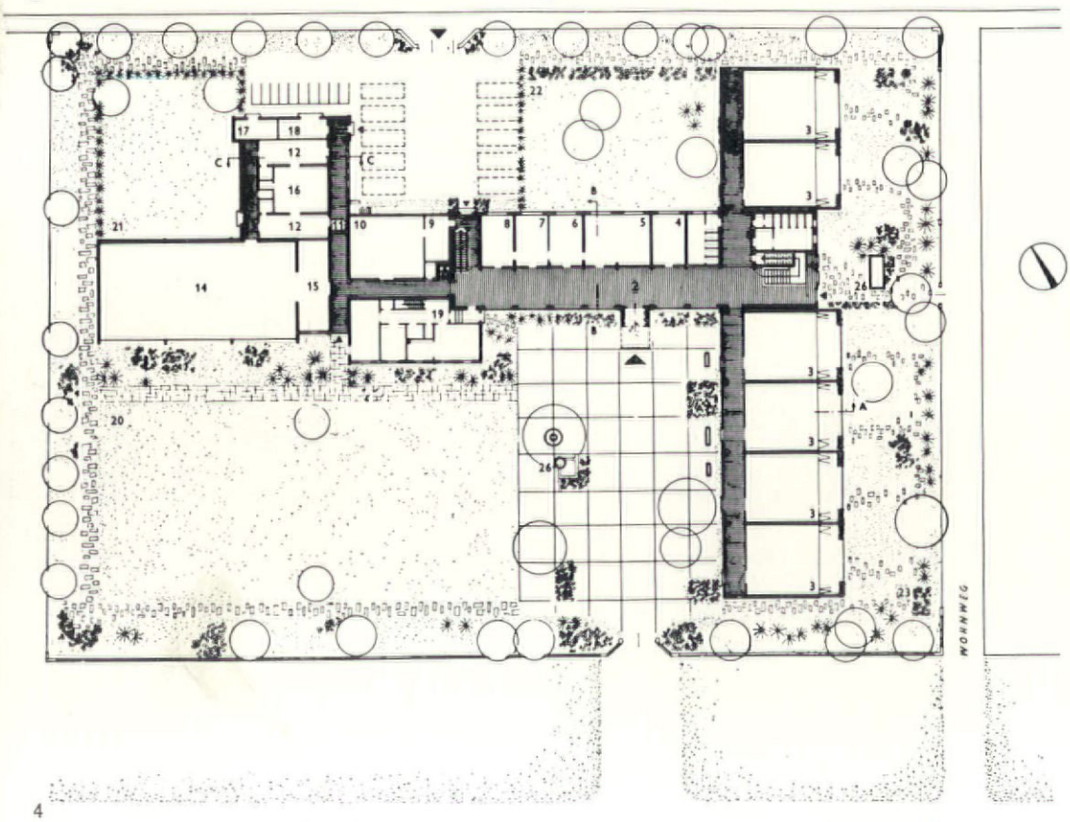


4

Key

1 entrance hall
2 recreation hall
3 classroom with terrace
4 maps and pictures
5 staff room
6 office
7 waiting room
8 doctor
9 equipment store
10 studio
11 shoe lockers
12 dressing rooms
13 sports lockers
14 gymnasium
15 gymnastic equipment
16 showers
17 gardening tools
18 refuse
19 caretaker
20 playground
21 gymnastic lawn
22 garden
23 shrubs
24 recreation area
25 path
26 pools

This school for physically handicapped children was opened in September 1959.

It is a primary and general secondary school accommodating about 400 children in a three-storey building. Since the pupils eat their mid-day meal at school, food lifts and serveries were provided. Formal dining rooms requiring the marshalling of groups of children were deliberately dispensed with.

The 20 classrooms, all of which look onto the garden, were divided into five groups, each with two recreation rooms which serve as dining rooms, so that each group forms a kind of family unit. This allows more flexible service for meals and better individual care, which is especially important in the case of handicapped children.

In each group there are four cloakrooms with special sections for removing outdoor and sports shoes. In the centre of each cloakroom are separate lavatories for boys and girls.

The main school building houses the physiotherapy department and rooms for the teaching of music, typewriting and handicrafts. It also contains workshops and store rooms, the kitchen, and a laundry with special rooms for dry-cleaning and mending clothes.

On the roof there is a solarium for both natural and artificial sunlight treatment with the necessary ancillary installations, as well as a department for electrotherapy.

The therapeutic wing contains a hydrotherapy installation with a pool for remedial exercises, cloakrooms, and a spacious gymnasium.

Since many of the children are severely handicapped, they are taken from and to their homes or collection points by school buses. These buses can, by means of a special driveway, bring the children right up to a door in the school wing screened from the observation of passers-by, where they have direct access to two lifts, one of which can even accommodate an invalid bed.

The less severely handicapped children pass through the entrance hall to the classroom wing. The entrance hall, which serves as a corridor, forms a calming transitional zone between the outdoors and the classrooms.

A separate wing houses the administrative suite, a medical inspection suite with its own waiting rooms, in which school dental treatment is also carried out, a large lecture hall, and waiting and consultation rooms for parents.

A large garden, well planted with trees, provides ample play areas and room for sport and outdoor classes, and completes the amenities of the school.

The school is equipped with a modern central heating and air-conditioning plant and an electric lighting system carefully planned to give an even distribution of light.

All the classrooms and other accommodation have been fitted with built-in furniture, and tables, chairs, and other equipment were chosen with special regard to the needs of handicapped children.

1
Aerial view of model

2
View of classrooms from south-east

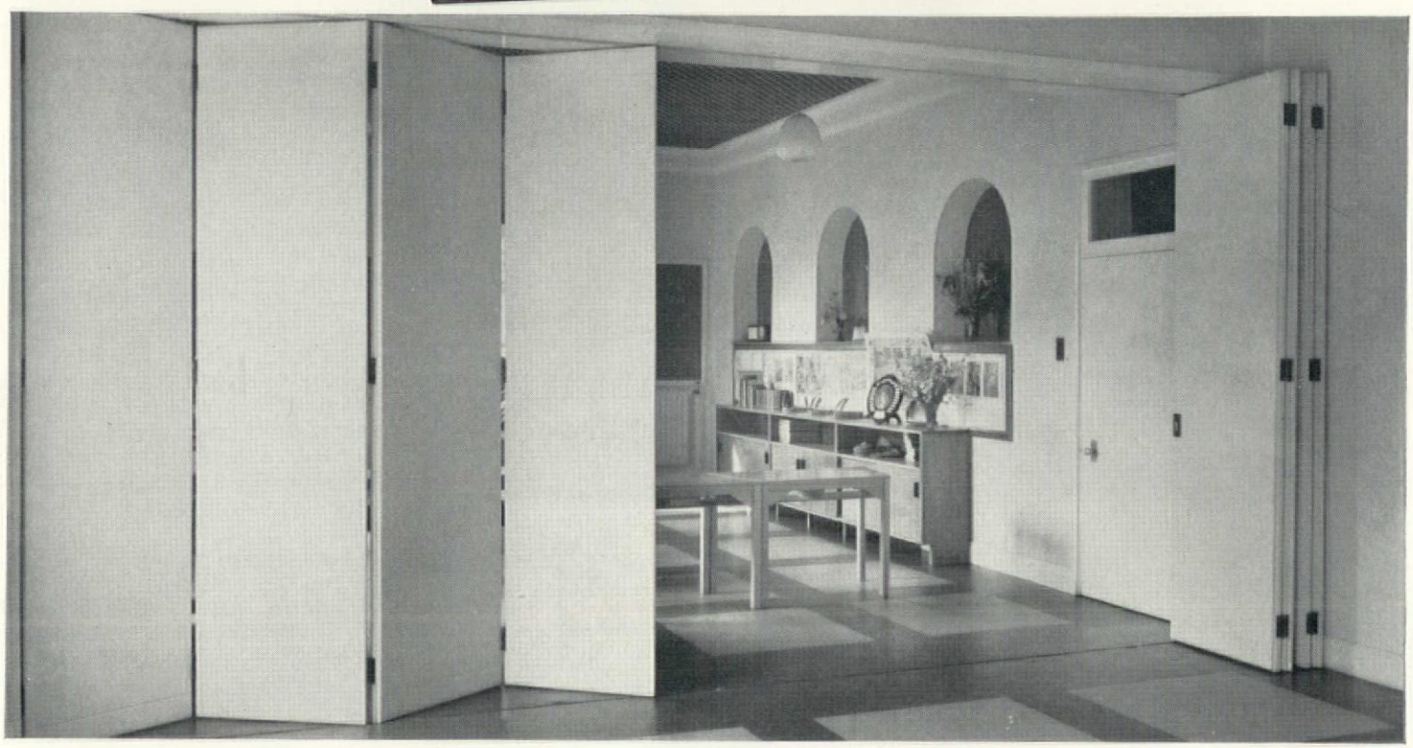
3
Main entrance

4
Ground floor plan

TO BE REALLY SURE

SPECIFY

Henderson



interior folding partitions

For any width of opening up to 16ft. high HENDERSON top hung/bottom roller gear is used extensively throughout the country and with the wide range of partition gear available you can really 'go to town' in specifying for *any* requirements. Make a note now, 'COUNCIL' top hung and 'COLLEGE' bottom roller, better still, why not send for our 156 page comprehensive catalogue, packed with information to have at your fingertips.

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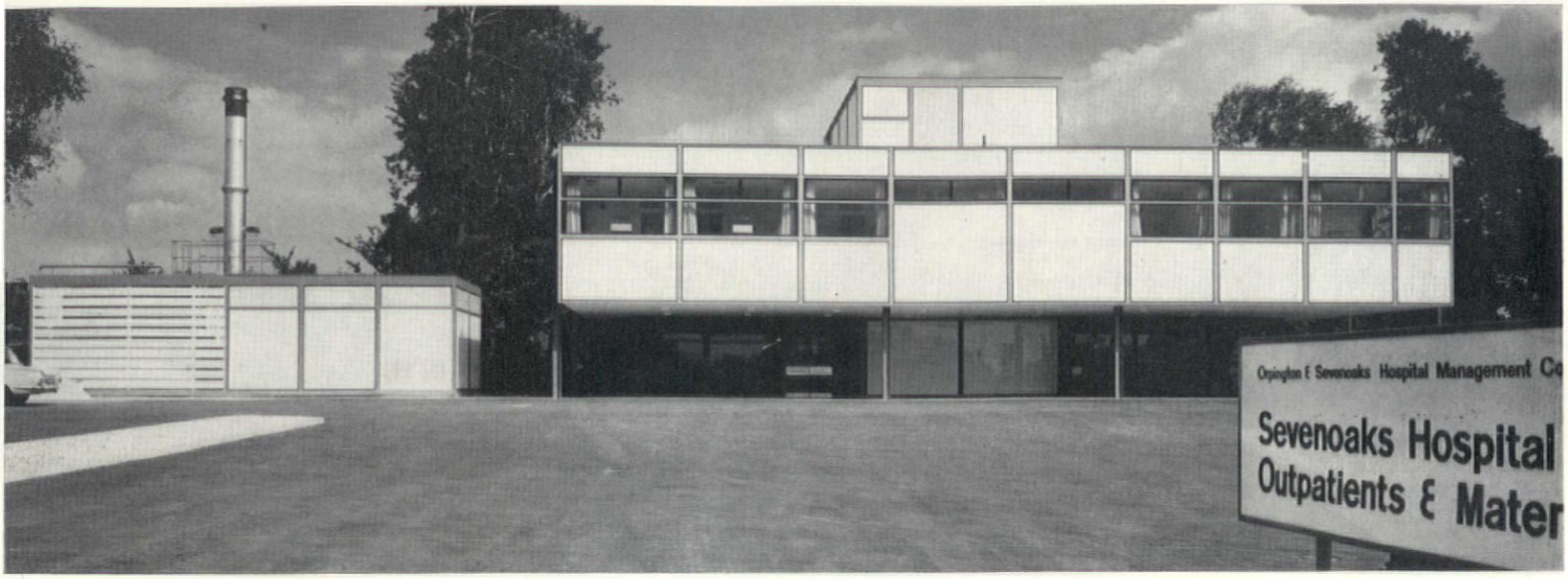
P. C. HENDERSON LIMITED ROMFORD ESSEX *Telephone: Ingrebourne 41111 (P.A.B.X.)*



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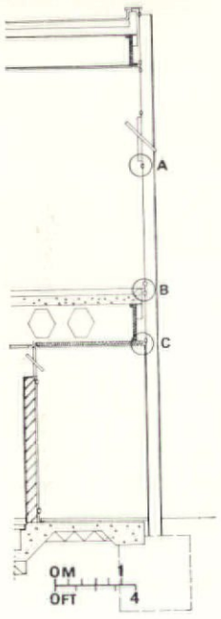

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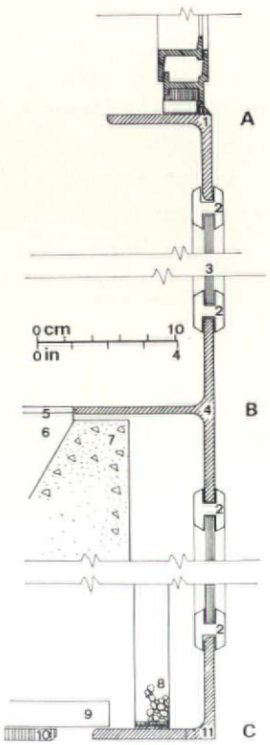


3

Fenestration

Sevenoaks hospital, maternity unit

Gollins, Melvin, Ward and partners, consultant architects

C. F. Scott, regional architect
Clarke, Nicholls & Marcel, structural engineers

1
West elevation

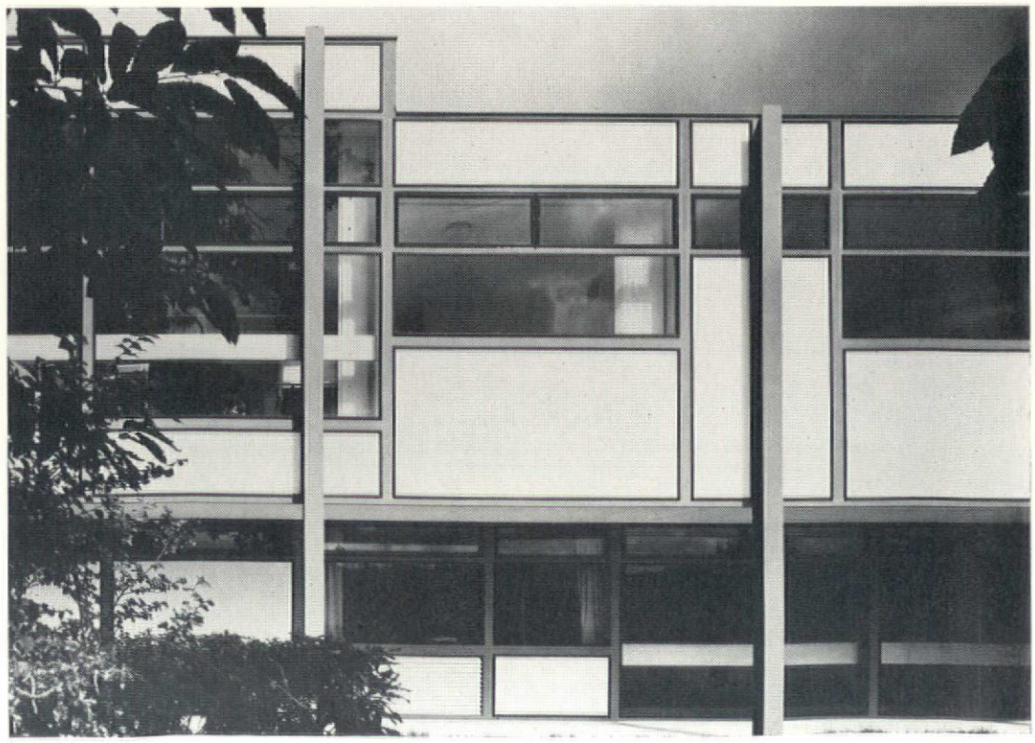
2
Typical section through the exterior wall

3
Details, A, B and C of the curtain wall

1 3″×2½″ m.s. angle
2 neoprene gasket
3 ¼″ clear glass
4 4″×5¼″ m.s. tee
5 4·5mm lino
6 screed
7 6″ hollow tile slab
8 polystyrene
9 ¾″ "Crown 75" fibreglass
10 asbestolux
11 3½″×3″ m.s. angle

4
Detail of side elevation

The structure of the building is a steel frame with reinforced concrete floors; the smaller cladding steel members were welded to the main steelwork and the whole of the fenestration glazed direct on to the structure by means of neoprene gaskets (except for a narrow band of opening lights). The thin black lines of the gaskets contrasting with the white vitrolite on the same plane give the building its crisp appearance. This method of construction, though requiring very careful tolerances by the steelwork erector and the glazing contractor, as the glass had to be cut and the windows manufactured prior to erection of the steelwork in order to ensure that there would be no delay to the sequence of site operations, allowed work on the inside of the building to proceed without interruption during the winter of 1964/65. The building itself with its complicated and compact engineering installation was thus able to be completed within 16 months.



4

Information sheet

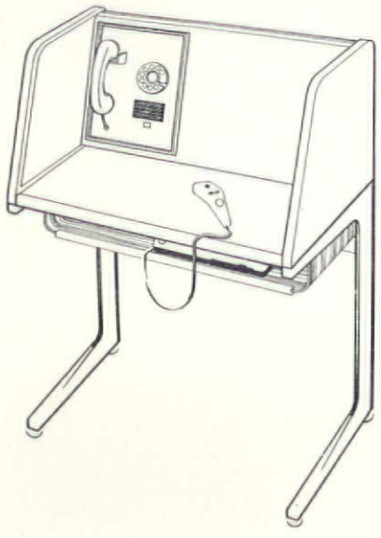
Building

The development plan for the University College of Swansea, due for completion in 1970, will provide accommodation and tuition facilities for 3,000 students. D & C, main contractors for most of the buildings so far completed, are involved in construction works totalling £4½ million to date, including: College House—the cultural and social centre; 2 10-storey Halls of Residence; Natural Sciences building; Applied Sciences buildings; Library and Arts buildings; and two miles of roads, drainage works, paths and playing fields, alterations to the Abbey, earthworks, preliminary landscaping and botanical gardens.

The Demolition and Construction Co Ltd

3 St James's Square London SW1

A member of the Cementation Group



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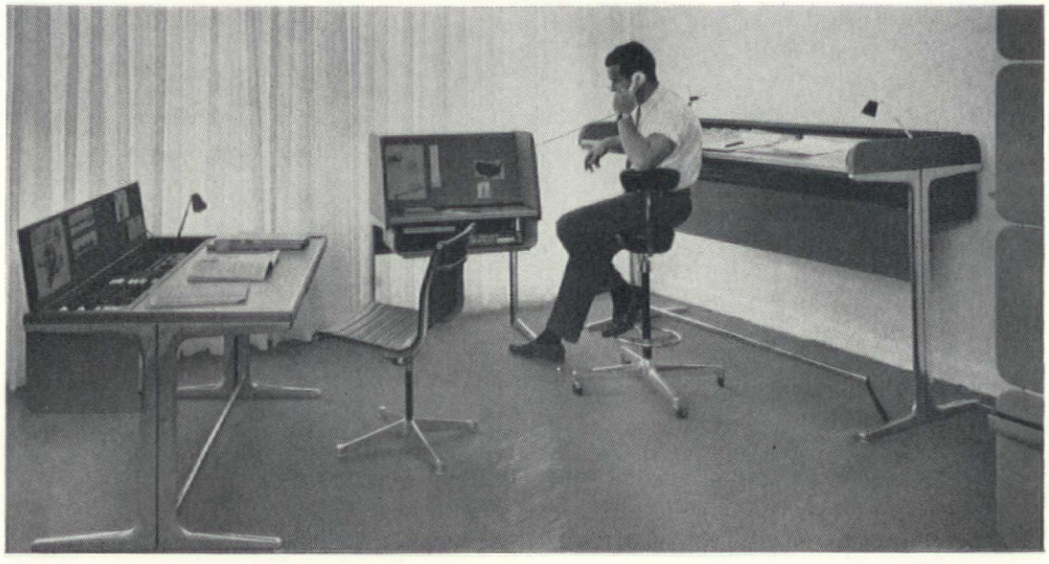


2

Action office

Herman Miller's research division (at Ann Arbor, USA), under Robert Propst, recently made a three-year comprehensive study of the human performer in offices and, in collaboration with George Nelson & Co., produced a total office 'system' that ensures the maximum variety of postures to the users—it being a well-established fact that the average office worker's sedentary existence is bad for both health and productivity.

Some of Propst's premises:

(1) out of sight, out of mind.

(2) the brain stores a maximum of seven pieces of information at once; so storage material must be visible, recoverable, relative, and there must be display space in an office, and meaningfully coloured and labelled folders.

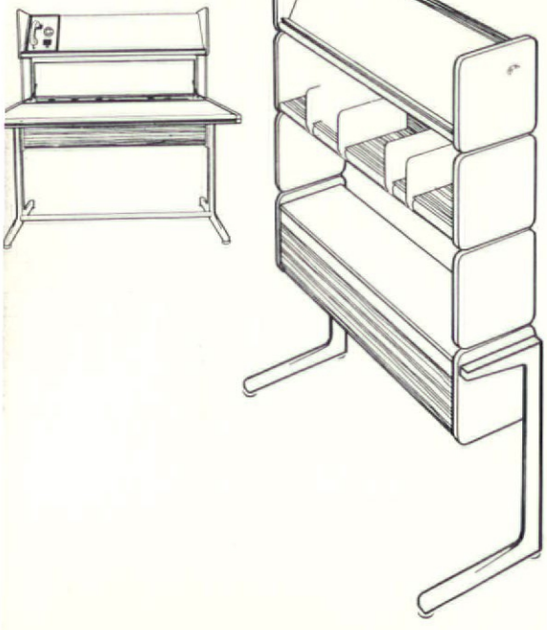
(3) the tidy desk top is a waste of time—hence roll-tops or pull-over desk covers; shallow, however, to prevent accumulation of papers.

(4) the worker must be able to work standing or sitting, and face whichever way he wants.

(5) desks need rounded corners, bumper edges, and flat or sloping tops.

Ronald Beckman (Nelson office) solutions:

All components are modular and are supported by die-cast polished aluminium legs and pedestals, or standard Herman Miller wall track. End panels are of moulded plastic (green, blue, black or yellow), indexed to take track, stops, slots, or tambour. Tops are plastic and can be vinyl covered. Tambours are ash or walnut.



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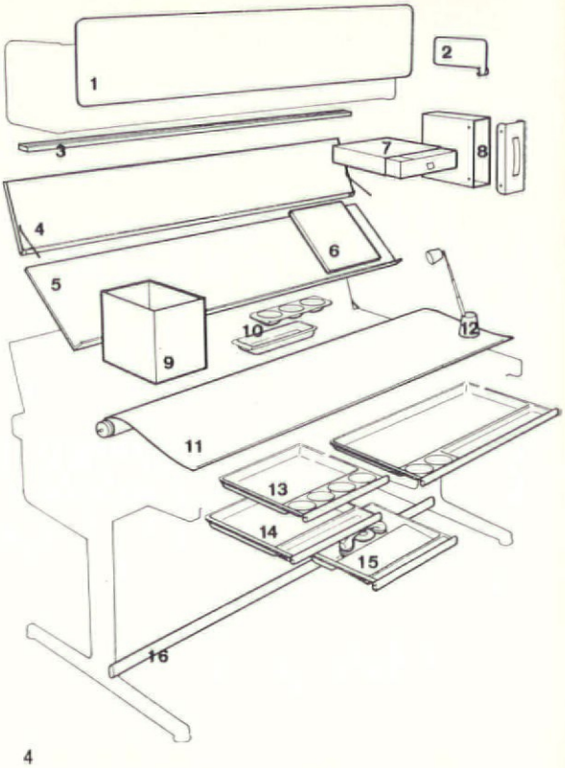


4

5

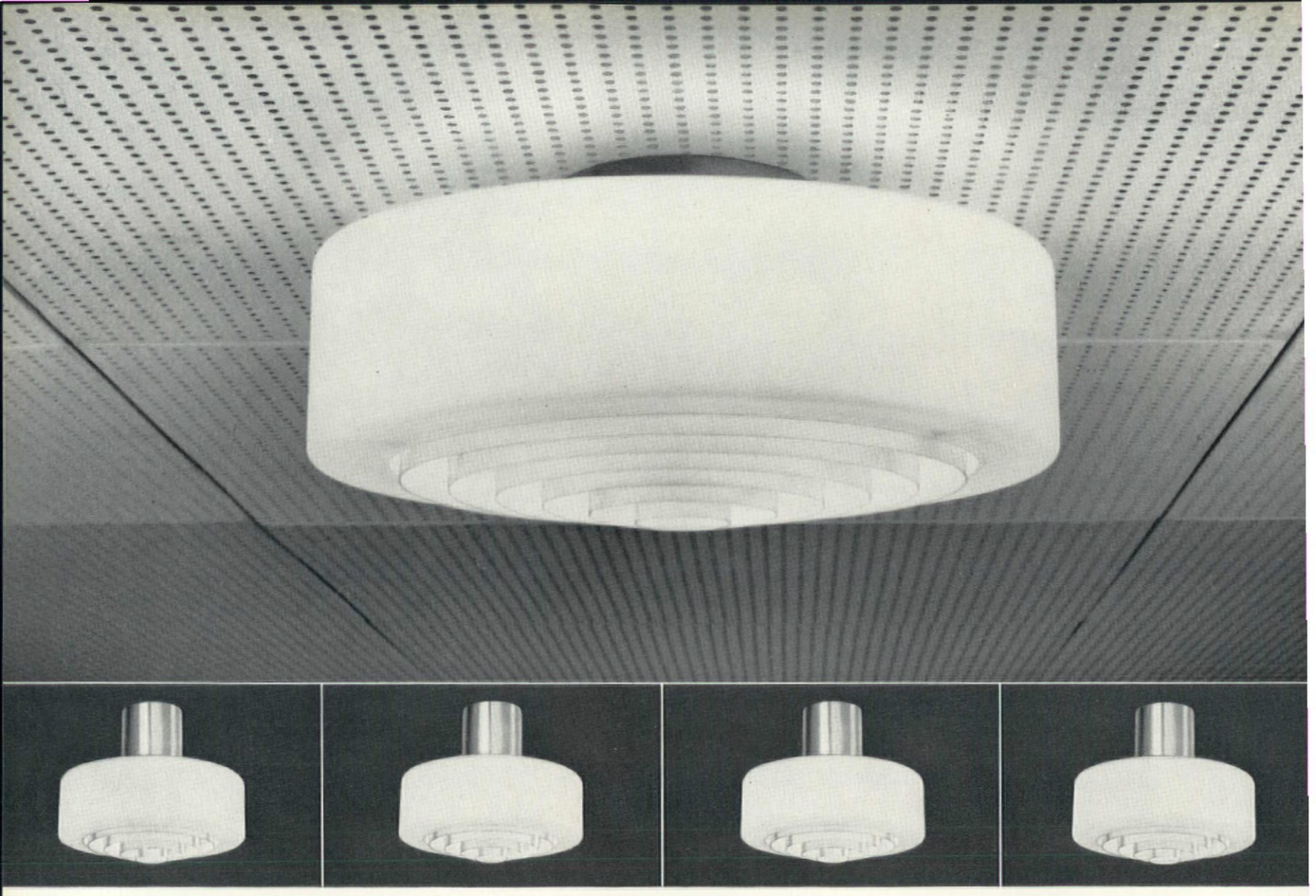
6

1, 3 & 5
Typical assemblies of some of the standard elements: display shelves with or without phone, spacers, high and low desks with tambour-covered filing bins, polished aluminium bases and foot rails, neutral laminated plastic tops

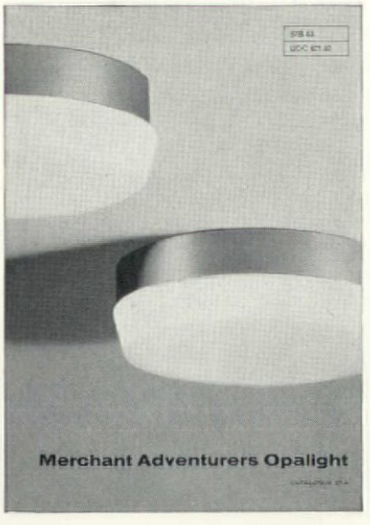
2
An action office in use

4
Action office accessories
1 plastic-covered flipper cover
2 dark blue shelf organizer for use as divider or book end
3 shelf light
4 raw umber flipper cover
5 raw umber display rack
6 letter folder
7 black letter-size drawer and folder box
8 blue or black letter-size folder box with handle
9 black bin box
10 bin utility tray for use on file bin rods
11 raw umber vinyl desk cover
12 light
13 & 14 drawers
15 telephone drawer

6
A tambour-covered high desk with filing space equivalent to four drawers



Louvred 1560 series ceiling units from Opalight catalogue 21A



Opalight 21A

This publication illustrates with photographs, dimensional drawings and prices, some 450 MA lighting fittings using opal glass diffusers and provides an indispensable guide to the best ranges in Opal lighting today

MA LIGHTING

Merchant Adventurers

Head Office :
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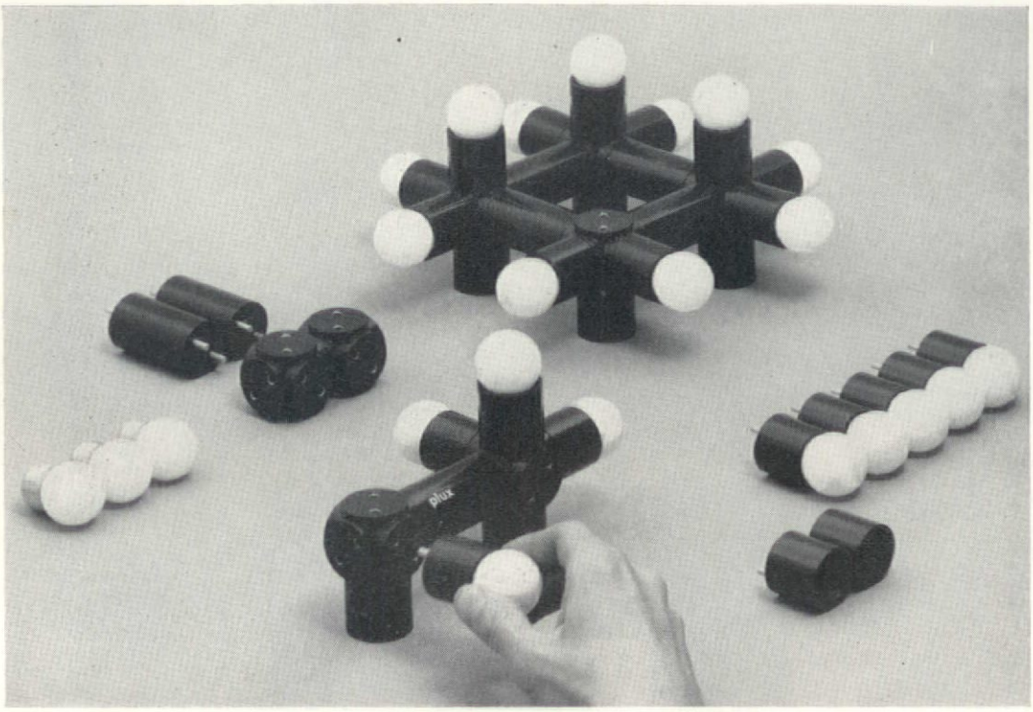
London Showrooms :
231 Tottenham Court Road W 1

Design



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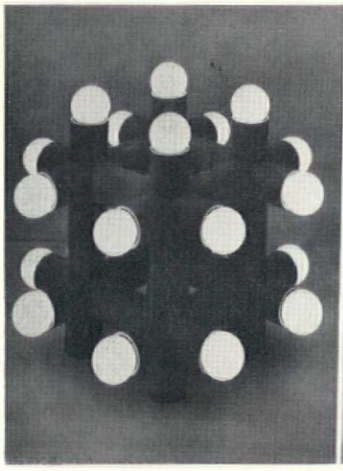

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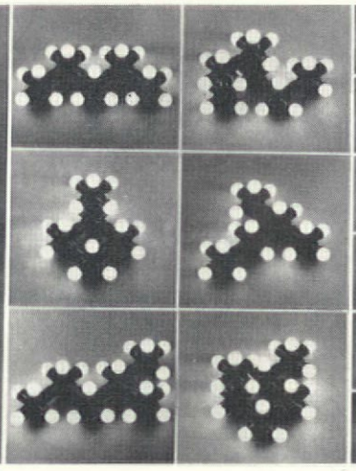

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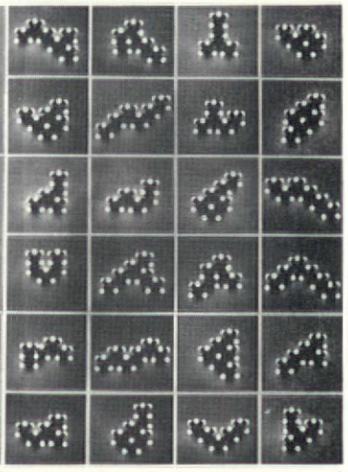

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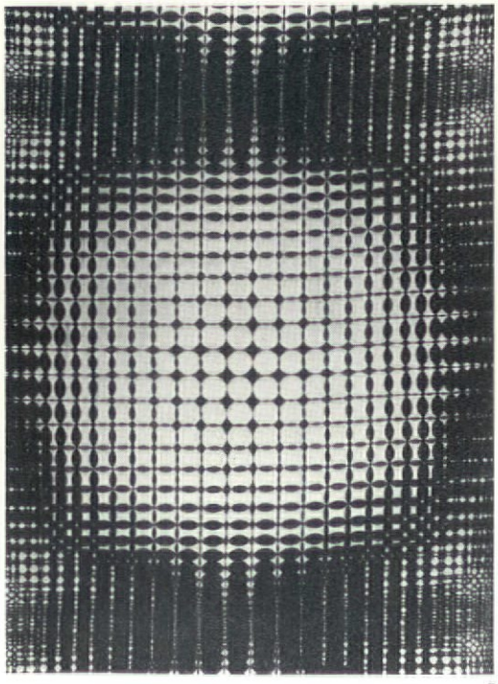

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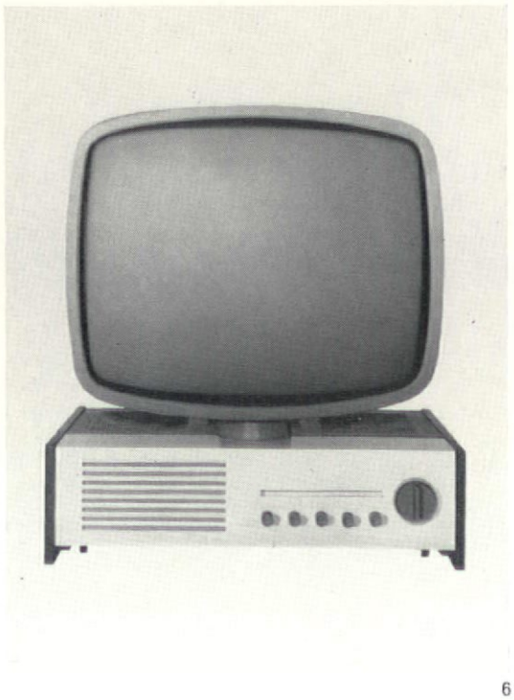

6

PLUX flexible modular lighting

Günter Schmitz, Assistant Professor in the Department of Building at the Hochschule für Gestaltung, Ulm, has copyrighted and offers a first-class lighting idea to the electrical manufacturing world.

So simple that one wonders why no one ever thought of it before, it consists of 6-way sockets, and 2-pin plug-in lampholders and extension pieces **1**, all made out of duroplastic chromatic material with a flat finish, and designed to the decimeter (10cm) module. His photos show the prototype assemblies resting on a horizontal surface **2, 3, 4,** but they could equally well be fixed to wall or ceiling. PLUX is, so far, restricted to cubic space-grids, but other geometrical coordination systems (based on prisms, rhombic dodecahedrons, tetrahedron octahedrons, etc.) could be evolved by a modification of the socket. Manufacturers take note!

7900 Ulm, Federal Republic of Germany

Op

Best value for money in hanging fabrics is to be found in Heal's current range of machine screen-printed cottons; for example, Evelyn Brooks' black and white Op 'Impact' **5** at 15*s* 11*d* the yard.

Tottenham Court Road, London, W.1

'Gute Form'

The Council of Industrial Design had the good idea of inviting their opposite number in W. Germany (Rat für Formgebung) to arrange an exhibition of German light engineering products at the Design Centre, at the end of last year, which enabled Londoners to see at close quarters the very high standard of design and production now being achieved by German manufacturers. The exhibition, which was designed by Professor Arnold Bode of Kassel, is to be the first of a series of COID reciprocal exhibitions with foreign countries.

The TV set, Wegavision 2000 **6**, shown here, designed by Stig Lindberg and made by WEGA-Radio GmbH of Fellbach, is not available in Britain. But most of the participating firms have British agents whose names and addresses appeared in the catalogue.

Carpet for concrete

In West Germany it is common practice to glue nylon carpeting straight onto concrete, particularly in public circulation spaces. Now it can be done in Britain with E. Illingworth & Co. (Bradford) Ltd.'s new *Nylfloor*, a tough Bri-Nylon floor covering made by a non-woven needle-punch process. It is sound-deadening, moth-proof and crush and stain resistant. It can be stuck with a special Dunlop adhesive that never completely dries out, so the carpet can be 'lifted' after several years and the adhesive cleaned off the floor; or it can be fixed with a standard tackless fitting (Smoothedge, Gripperod, etc.).

It needs no edgebinding or stitching, and is sold in 54in and 108in widths, 0·2in thick, weighing 2·7lb per yd². Standard contract price is 32*s* 6*d* per yd² plus tax, with discounts for quantity orders. The colour range includes light and dark grey, two shades of beige, two shades of green, blue, red and 'gold'.

Shelf Milk, Shelf, near Halifax, Yorks.

▷103

What can Hille bring to solve your furnishing problem?

Everything

We do the complete job, floor to ceiling, wall to wall. Starting with an architect's specification or a client's whim, the Hille Contract Division is geared to see any project through to the very last detail. We use exciting, often unique, materials and fittings, integrating furniture from the Hille range and specially commissioned pieces. Experienced in making the best use of space, time and money, we understand the realities of planning and execution over the whole field of interior design. So, whatever the size and nature of your furnishing problem, whether you want to buy or use the new Hille Leasing service contact us at:—**London:** 41 Albemarle Street, London W1. Telephone Hyde Park 9576-9 / **Birmingham:** 24 Albert Street, Birmingham 4. Telephone Midland 7378 / **Edinburgh:** 25a South West Thistle Street Lane, Edinburgh 2. Caledonian 6234 / **Manchester:** Sackville Street, Manchester. Central 6929.

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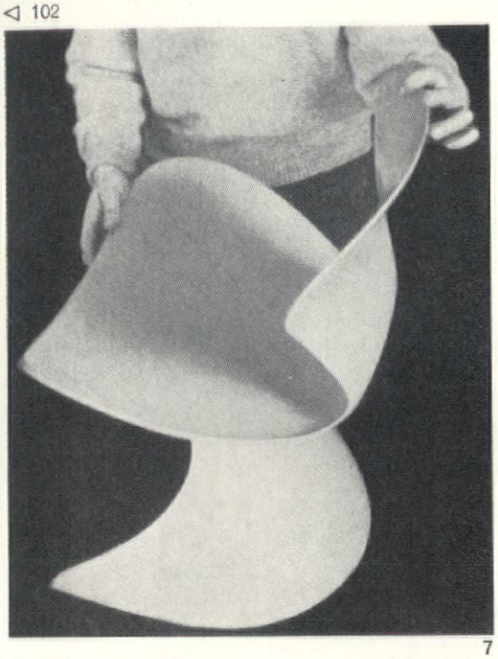


7

Cantù competition

Two Danish furniture students from Copenhagen took first prize in the last Cantù furniture competition—Peter Karpf with harp-like lounge chairs and table of moulded ply, and Aage Egeriis with a machine-moulded fibreglass unbreakable chair **7** designed for quantity production.

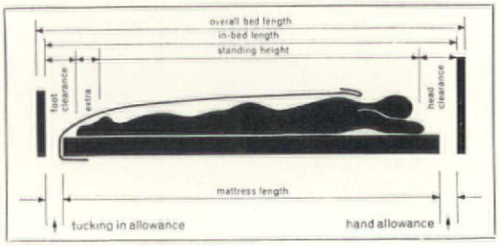
Length of a bed

The standard length of a bed was accepted between the wars at 6ft 2in, and subsequently standardized by BSI. But this is *not* long enough, particularly if the bed has a footboard preventing the occupant from hanging his feet over the end of the mattress to escape cramp. Even 6ft 5in would only accommodate, it seems, 75 per cent of our male population. So we welcome the recent enquiry into the design of hospital beds by Bruce Archer's research team at Royal College of Art, done for the King Edward's Hospital Fund for London.

We show here **8** their diagram for calculating the bed length. To accommodate comfortably 99 per cent of the male population, and allow for the necessary clearances at head and foot, the mattress would have to be 6ft 10in long, and the bed 7ft 3in.

Design 201, 1965

8



Contract Catalogue from Design Index

The Council of Industrial Design has issued a second edition of *Contract Catalogue,* enlarged to include light fittings and sanitary appliances. The good thing about this catalogue is that no manufacturer can just buy space in it; the products he wants to show *must* first have been accepted for inclusion in Design Index, for which they have to be passed by a design selection panel.

The price of the catalogue is £1 1*s*.

Celebratory gear

Alison Smithson has designed 'flags' for flying outdoors or hanging as room decorations on ceremonial occasions. They are tubes of brightly coloured cotton and cost around 30*s* each.

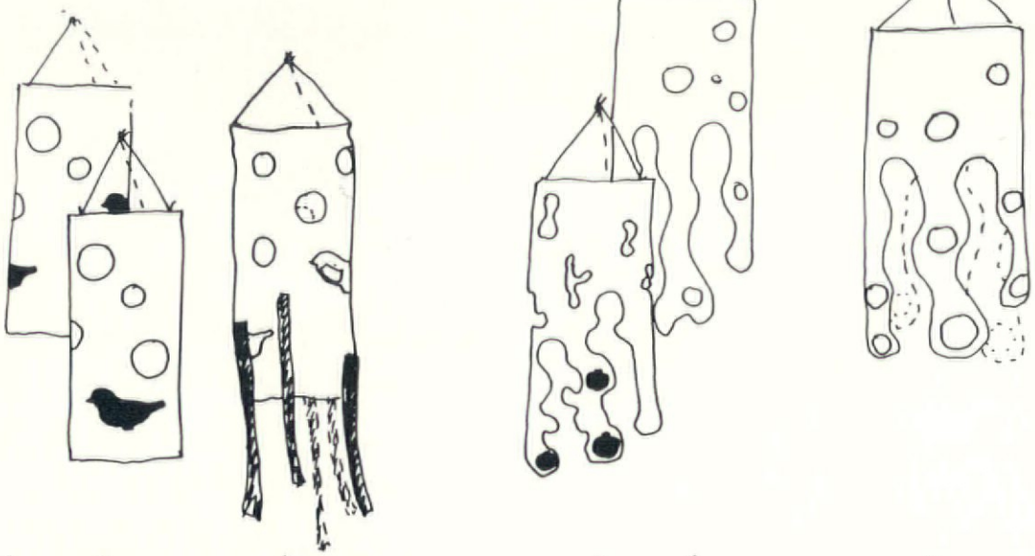
Technocrats Ltd, 10 Northampton Sq., London, E.C.1.

9

Three celebratory groups are catered for.
Easter: (*a*) 'Blackie's bunting' (white tube and blackbirds; (*b*) 'Dickie's drapeau' (flag red tube with blue stripes and white birds)
Weddings: (*c*) 'Blossom's bunting', 'Bride's bunting', and 'Bride's blossom' (white or pink tube, flower cut-outs and appliqué)
Christmas: (*d*) 'Pine's pennant' (greentree tube, red baubles); (*e*) 'Frost flag' and 'Snowflake drape' (blue icicles, white frost spots, made as a tube or a flag)

10

The 'Brides' set flying in the open air on a flag pole



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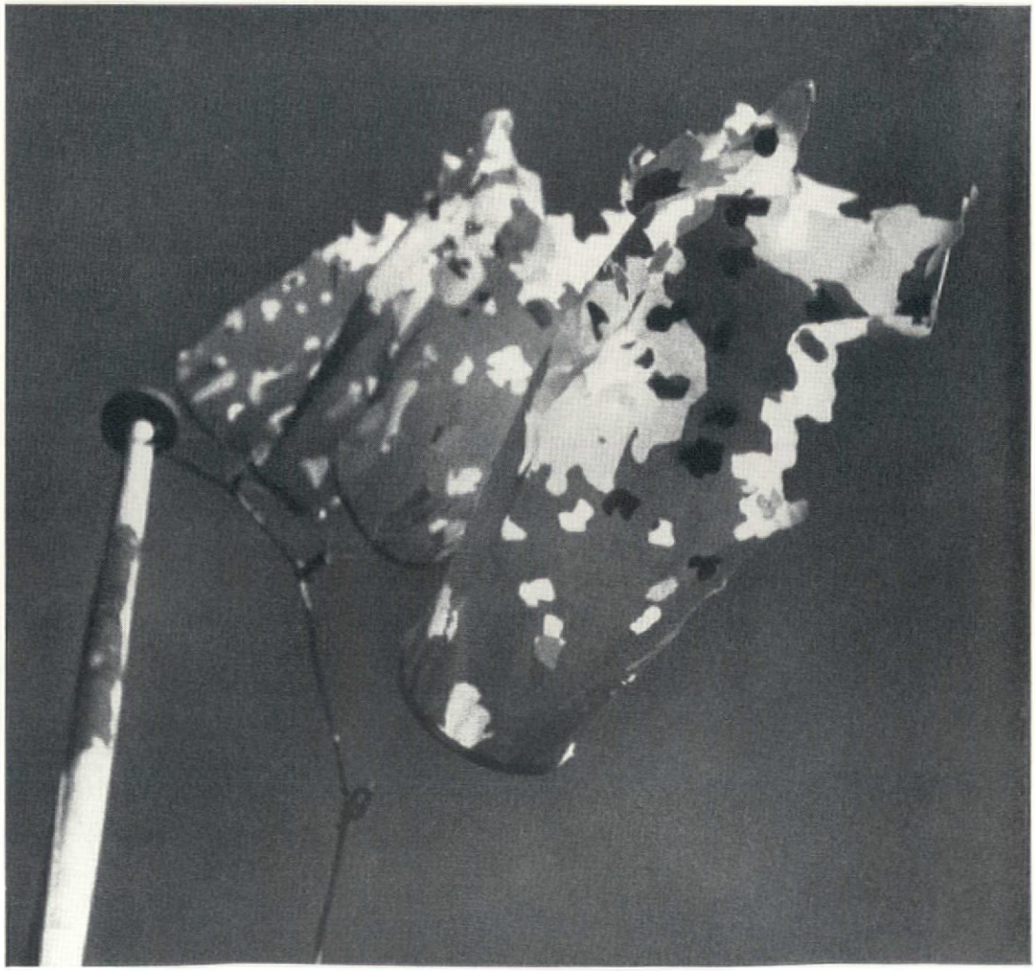

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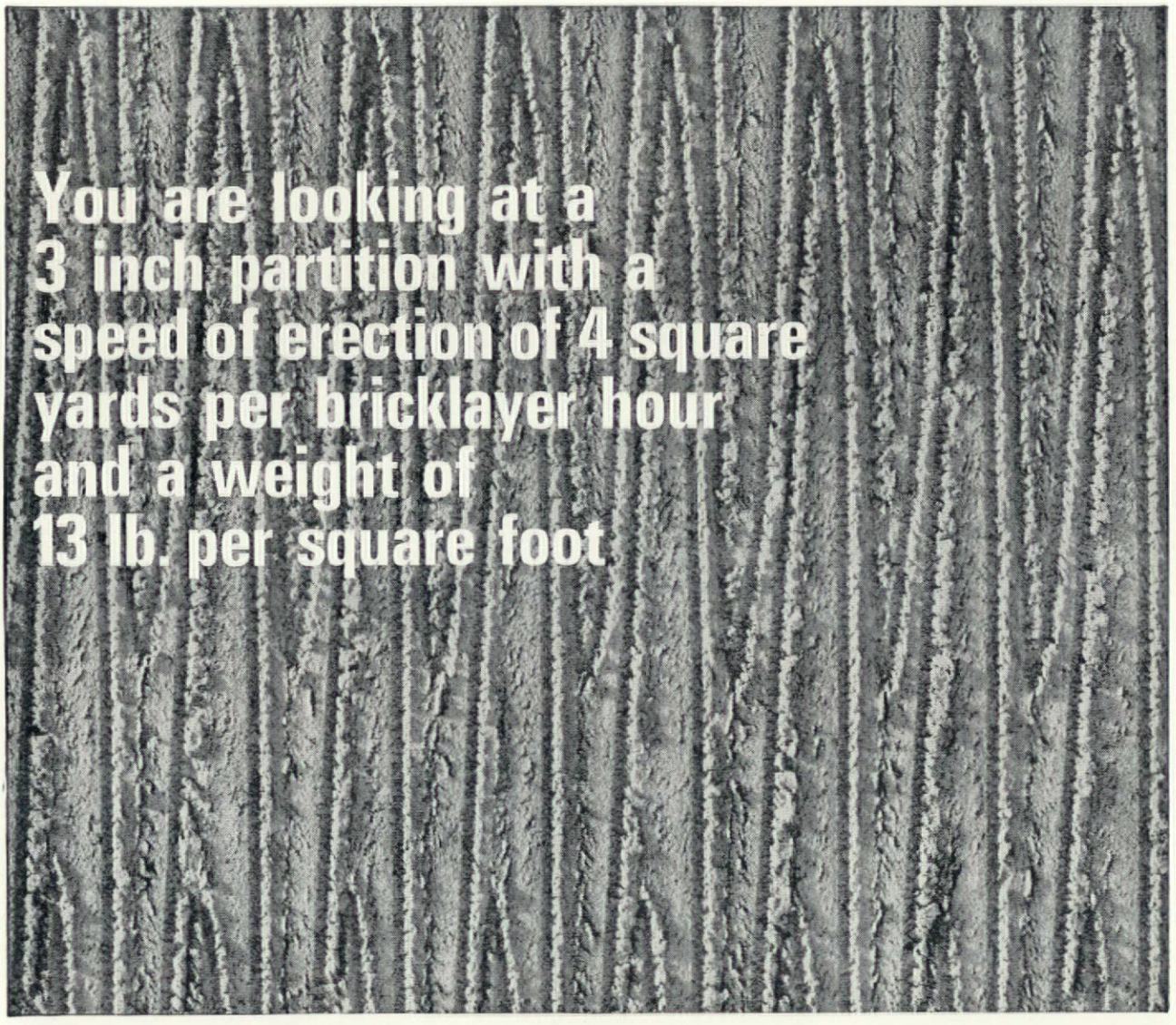


Thermalite is the secret

Set a bricky to lay Thermalite blocks and his surprise will change to delight when he finds how fast he can work. Why? Because a Thermalite block is one hand lift, is much lighter than an ordinary block and one block is equivalent in area to six bricks. With Thermalite, skilled labour time is saved, mortar content decreases, productivity rises and costs fall.

Lightness also reduces dead loads and cuts costs of foundations and structural members. Here are the weights per square foot (including mortar) of the range of Thermalite wall thicknesses —

2 in.	2½ in.	3 in.	3½ in.	4 in.	6 in.	8½ in.
9 lb.	11 lb.	13 lb.	16 lb.	18 lb.	27 lb.	38 lb.

Of course lightness isn't everything. Knowledgeable people value Thermalite for its excellent thermal insulation, loadbearing and fire resistance properties, and because it holds joinery and fittings direct without plugging. Finishing is easy too — either by dry lining, traditional plaster or direct decoration. In addition you can be sure of first class quality, local delivery and a technical advisory service backed by years of experience.

Write for the new 1966 Edition of our brochure or look us up in Barbour Index.

THERMALITE YTONG LIMITED, HAMS HALL, LEA MARSTON, SUTTON COLDFIELD, WARWICKSHIRE. TEL: COLESHILL 2081. A LAING COMPANY

Density
Dry density of approximately 47 lb. cu. ft. Equilibrium density of approximately 49 lb. cu. ft. in protected positions.

Compressive Strength
To British Standard 2028 Type A.

Moisture Movement/Drying Shrinkage
To British Standard 2028 Type B

Thermal Conductivity
'k' = 1.3

Nominal Face Sizes
18" x 9" or 9½" or 6".

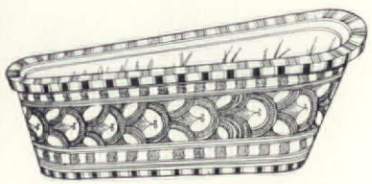
Actual Face Sizes
17⅝" x 8⅝" or 9⅛" or 5⅛"
(tolerance to British Standard 2028).

Thicknesses
2", 2½", 3", 3½", 4", 6" and 8½"
(tolerance to British Standard 2028).
Blocks are also available in modular sizes.

Fire Resistance
Incombustible
4" loadbearing = 2 hour grade
4" non loadbearing = 4 hour grade

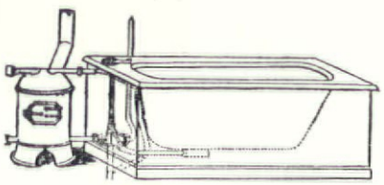
THERMALITE

Product analysis 3

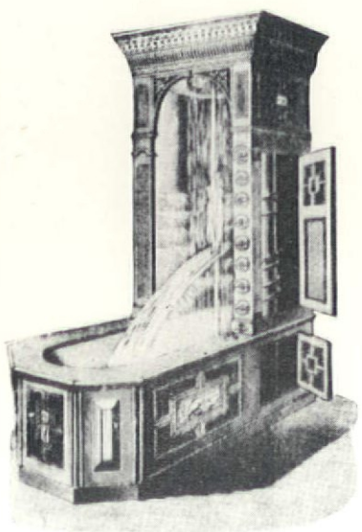


Minoan bath from the Queen's apartment, Knossos

Medieval bath tub



Tyler's heated bath, 1849



Ewart's Improved spray bath, 1882, offering several aquatic variations: hot or cold, spray, douche, wave, sitz or plunge.

Baths

Alexander Pike

The standard of design of building products frequently varies in inverse proportion to the quality of the publicity material. Bathroom equipment is normally advertised in glossy coloured brochures, and if we judge from the illustrations all the fittings are designed to be incorporated, each in splendid isolation, in a room 12ft square.

As a functional fitting, the bath attracts many of the disadvantages of the class of status product to which it belongs. Some status symbols can be permitted wide variations on a standard theme within a rigid conventional framework, but departures beyond tacitly accepted limits defeat the objective and are immediately classified as eccentric. The bath can be included within this category, and as a unit together with its fittings and setting can be used to display a considerable degree of opulence, provided extravagance predominates over originality and departures from the conventions are well moderated. The operation of bathing is so highly personal that many users are anxious to avoid any deviations that may be regarded as signifying abnormality, and it is understandable that manufacturers of the product should be reluctant to exceed these implicitly defined limits.

Initial development

The first unquestionably identifiable bath was found in the Palace of Minos at Knossos and dates from about 1700 BC. Since then, apart from minor changes to cheaper versions (as in the case of the medieval tub) or total disappearance for short periods, it has continued in that form until the present day. It endured the industrial revolution with only traces of whimsy resulting from the use of new materials, and survived the transition from the portable to the organic condition during the latter half of the nineteenth century, retaining its original form but wearing more elaborate casings.

With baths, as with so many other products, Victorian experiments varied from the bizarre to the brilliant; and in stripping away the frivolous incrustations of that era to provide the current 'clean' shape, we have not only shed some of the amenities but also failed to develop the latent possibilities they exhibited. Thus the heated bath of 1849 (with a delightfully simple three-way cock controlling hot, cold and waste water from a single lever) and the versatile contraption of 1882 which gave the choice of six different types of bath, have both lost their lineage.

Materials

The standard material, porcelain enamelled cast iron, has been in use for so long that it has now become traditional. It is undeniably durable, almost unbearably heavy, and covered by BS 1189: Cast iron baths for domestic purposes.

Plastics in the form of moulded acrylic sheet were first introduced in bath manufacture on a commercial scale about six years ago and are steadily gaining in popularity. They are light enough to be handled easily by one man, have integral colouring, and if used and cleaned properly have a lasting finish.

Vitreous enamelled pressed steel baths were first marketed in quantity about two years ago, and are finding increasing favour for large housing schemes. Although heavier than plastics baths they nevertheless show a considerable saving in weight over cast iron. The appropriate standard is BS 1390: Sheet steel baths for domestic purposes.

Criteria for design

Siegfried Giedion, writing in 1947, which in terms of development of the bath may be considered as the present day, claimed:

'It may be said without exaggeration that this standard, the double shell enamelled tub, attains a degree of comfort that had been pursued for thousands of years.'

The remark expresses a dangerous degree of complacency that jeopardizes design advancement, and it is arguable whether the product quoted exhibited a greater degree of comfort than the Queen's bath at Knossos. The adoption of these attitudes has inured us to the shortcomings of the present-day bath and makes it difficult to exercise severe criticism without appearing pedantic, but when analysed against suitable criteria certain failings are evident:

Aesthetics

In the cheaper baths, except for cases of poorly related curvatures, no aesthetic offence is created by the simple shapes. As the price scale is climbed so the shapes become in sequence, arbitrary, dissatisfying, whimsical and vulgar. In all but a few baths the design of the fittings is not unified, many manufacturers preferring to leave an open situation whereby any taps or valves may be used, however inappropriate. Manufacturers who design for a specific range of fittings sometimes separate the valves from the inlet, but fail visually to attain the promise this suggests.

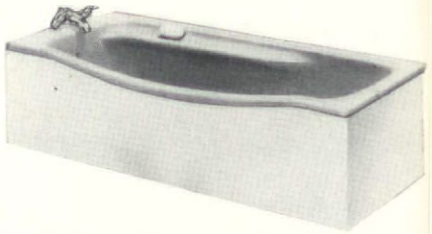
Although baths are frequently sold as part of a suite of fittings, they are normally designed as a unique item, unrelated other than by colour to the WC, bidet and basin against which they may be expected to be seen, producing an overall effect that lacks cohesion.

Production, economics and marketing

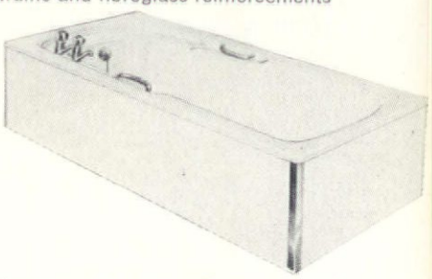
The standard cast iron bath can obviously not be produced very quickly, and of those baths for which other processes are employed the vacuum formed acrylic sheet has a high material cost and the pressed steel requires extremely expensive dies which have to be justified by high quantity production.

The latter type appears to offer the greatest potential for significant price reductions and its increased use for large housing schemes has enabled an economic advantage to be gained over other types by achieving mass-production techniques. By this means the bath, hitherto regarded as a permanent fixture can be sufficiently reduced in price to approach the realms of expendability.

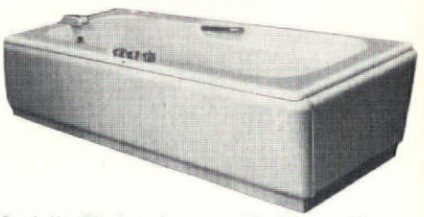
▷105



Shires, Robin, type J, 5ft 6in × 2ft 4in, moulded perspex, with timber supporting frame and fibreglass reinforcements

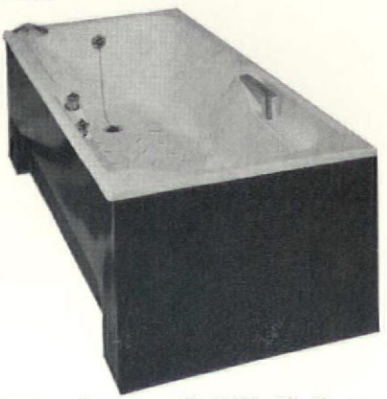


Standard, Kingston, 5ft 6in × 2ft 7in, cast iron porcelain enamelled



Goslett, Elysian Luxury, 6ft 3¼in × 2ft 10¼in, cast iron porcelain enamelled. All controls are at the side

Carron, Swallow, 6ft 0in × 2ft 4½in, cast iron porcelain enamelled, fibreglass side panels



Goslett, Swanlyne, B 10100, 5ft 6in or 5ft 0in × 2ft 6in, cast iron porcelain enamelled, with a chromium plated grab rail and, at the foot end, anti-slip flutes on the bottom for showering

BARBOUR INDEX
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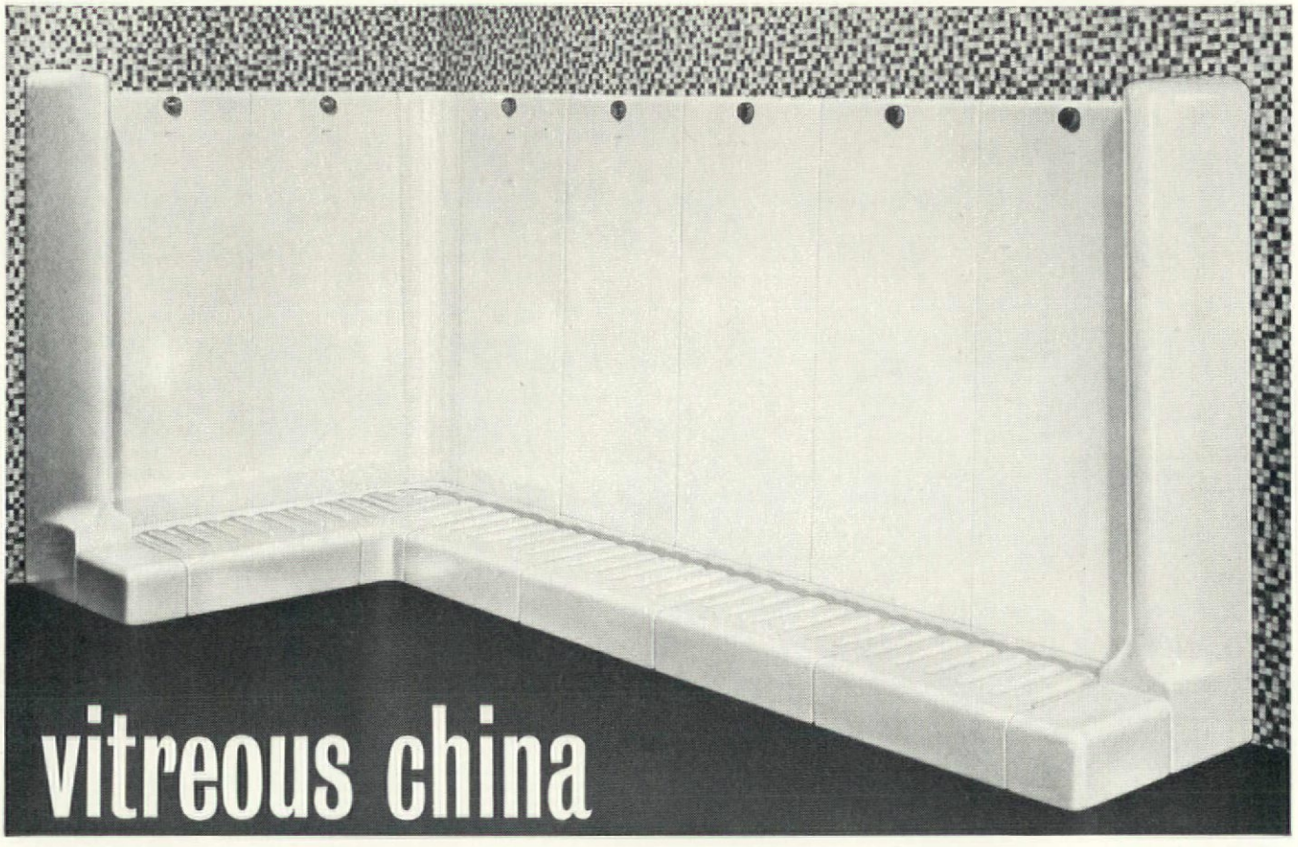
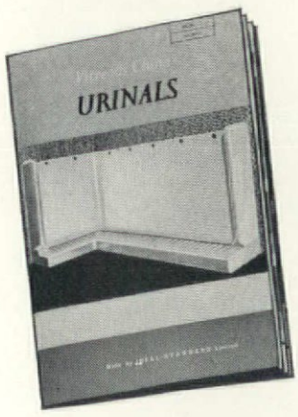
the "Vitural"



vitreous china slab urinal available with corners, risers and treads.



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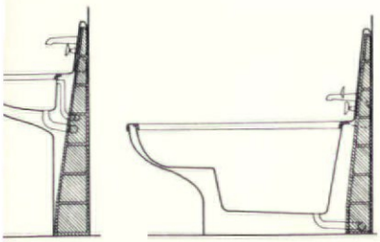
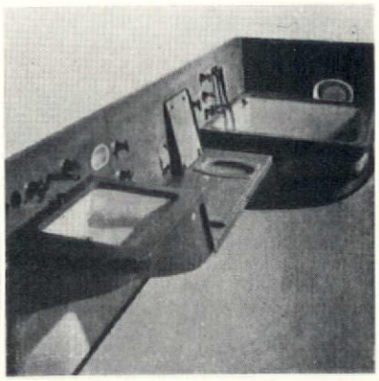
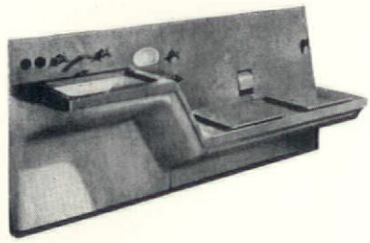
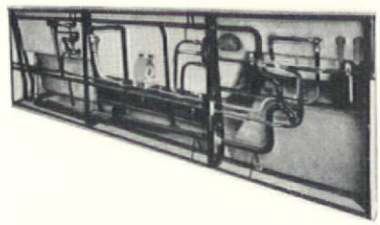


Bathroom designed by Alberto Rosselli, (1957) for the Plastics Research Institute at Catellanza, consisting in a range of plastic units, each with its particular fitting, which can be combined together in different ways



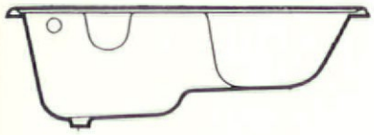


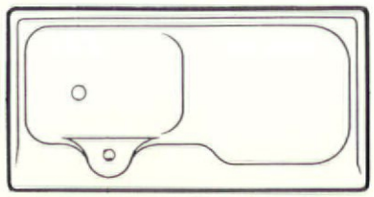
Basin and w.c. units of Alberto Rosselli's bathroom



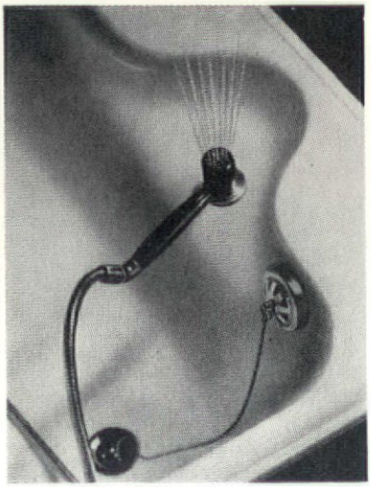
Prefabricated plumbing frame for Alberto Rosselli's bathroom

The Poliban 140, of enamelled cast iron 1·4m × 0·7m, combining a shower, bath and bidet. Sadas, Geneva





Section and plan of the Poliban 140



Detail of the Poliban 140 showing how the shower fitting is plugged into position to act as a bidet spray

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Marketing problems are self-aggravated by many manufacturers who, by stressing the status aspect of their product, find it necessary to diversify production to create the wider spectrum of choice required to satisfy the fickle taste thereby created.

Function and mechanical performance

Taking a bath is such a highly personalised operation that it is doubtful whether one design could grant universal satisfaction. Some feel that the bath is too short because they cannot slide down to a fully reclining position; for others it is too long because they do. Assuming variations to meet this type of demand, the functional requirements of the bath could be satisfied by a far higher degree of standardization than we now accept.

For most manufacturers the function of the bath is limited to a receptacle for water. No attempt is made to exploit the considerable variation of washing facilities that would be welcomed by a wide market, and for this reason the mechanical performance of the bath can hardly be criticized because it is non-existent. Little more than perfunctory attention is given to the problems of filling and emptying. Steamless inlets are available for situations where hot and cold supplies are each on individual storage tanks, but are rarely used and do not entirely solve the problem of steam generated by hot water running over a cold surface. For some obscure reason the Victorian precedent of the heated bath has never been developed and although heated side panels are now available, no manufacturer has explored the possibility of using the bath as a low temperature source for heating the bathroom.

As few homes can afford either the money or the space for a baby's bath, it is most frequently necessary to wash children in the only bath available—a back-aching operation which could be alleviated to some extent by the provision of toe-spaces at the base of side panels. For cleaning, both manufacturers and the British Standards recommend that the bath should be cleaned immediately after use, preferably whilst the water is running out. This operation could be performed more quickly if larger outlets were provided, and the possibilities of a type of flushing rim, for both cleaning and filling, do not appear to have been considered. Difficulty of cleaning seems to be a disadvantage concomittant with the more elaborate and opulent shapes of bath, and the introduction of plastics panels has created completely new sources for very deliberate cleaning at joggles and junctions (to say nothing of the disturbing creakings from closely fitting joints).

Ergonomics

The comparatively large proportion of accidents in the home attributable to baths may be some measure of the failure to relate ergonomic requirements to the design. Beyond creating flattened sections for the base of the bath and grab rails to avoid the possibility of slipping, most designers do not consider ergonomic factors. The shape normally employed would be suitable for a human figure with near-parallel sides, but such examples must be rare enough to be ignored and for the average individual the standard bath is wasteful of water and, for some situations, space.

In all but a few examples the controls for water and waste are located in a position not only well out of comfortable reach for the user but also extremely inaccessible for installation.

Many people sit on the edge of the bath at some time during its use but most rims are entirely unsuitable for this purpose and in the wide range of baths in the luxury category no examples can be found where this facility is adequately satisfied other than in purpose-made installations where a special top is provided.

Structural performance

Baths, in general, more than adequately satisfy the requirements of this criterion. The strength of the normal cast iron bath is beyond criticism, but is accompanied by the severe disadvantage of excessive weight which makes for difficulty of handling and consequent risk of damage to wall finishes, door frames etc., particularly where replacements or conversions are considered.

The pressed steel bath has a strength consistent with normal usage and weight suitable for easy installation.

The plastic bath is intrinsically weaker and requires a rigid support along the base to which it must be bonded with a flexible adhesive to take up differential thermal movements. It is nevertheless extremely light in weight and can be easily installed.

Manufacturers' approach

Most manufacturers appear to have a deeply rooted *idée fixe* that a rectangular shape is the most suitable form for a bath, and consider that the product is virtually self-sufficient, requiring little or no identification with the fittings attached to it or with the surrounding surfaces.

Perhaps we are so accustomed to the notion that the requirements of taking a bath should be satisfied by two separate groups of manufacturers that to consider it as a unified facility is an alien thought, but there seems little excuse, at this stage in our technological development, for our failing to demand and obtain a more fully integrated product for washing the body.

The provision of a shower is usually a compromise addition, poorly resolved, in which the bath is merely used as a shower tray. There is much weight in the argument that if a shower is to be provided and sufficient space exists, it should be a separate compartment, thereby increasing the facilities offered.

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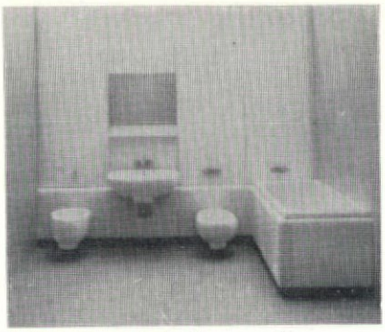
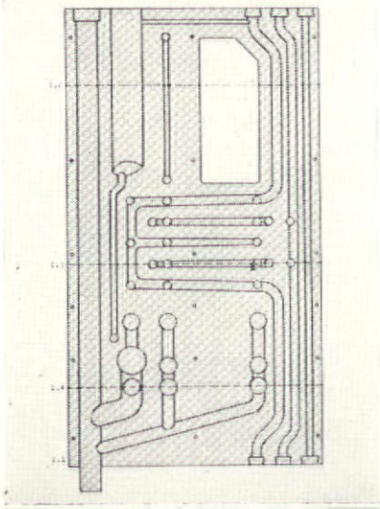
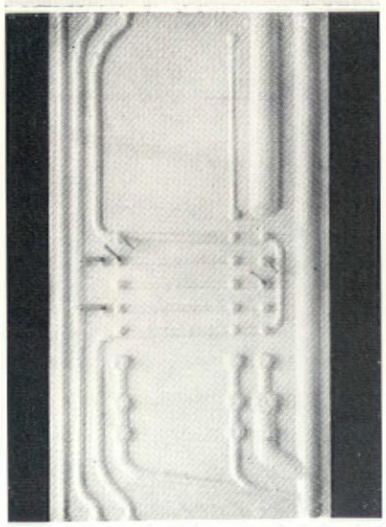


Bathroom unit built up with panels. Design by Heinz Wäger (HfG Ulm., 1962)





Independent plumbing panels intended for Heinz Wäger's bathroom illustrated above, in which plumbing circuits are formed from two vacuum moulded halves welded or cemented together

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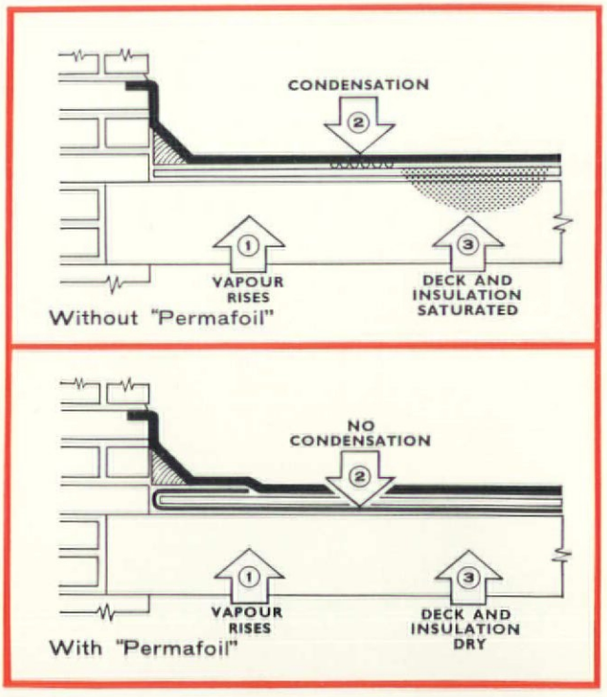
"PERMAFOIL" Metal Lined Vapour Barrier is of the highest quality. It incorporates a sheet of aluminium foil which is protected by a coating of bitumen on both sides and reinforced with a sheet of glass fibre tissue.



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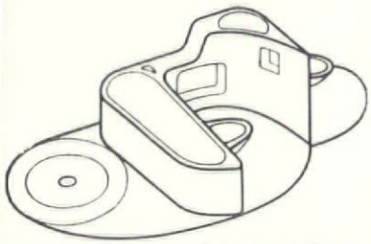
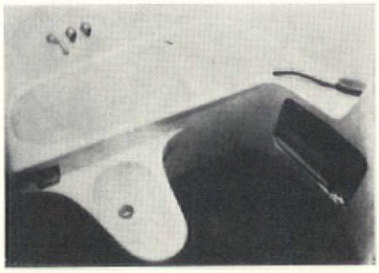
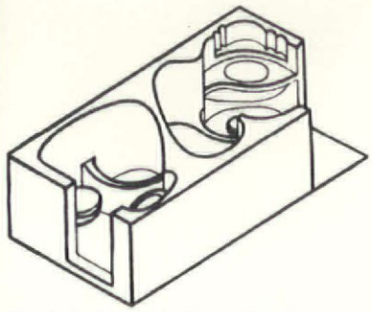
ADVance 4477 (20 lines)

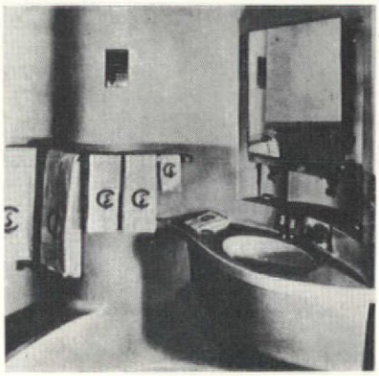


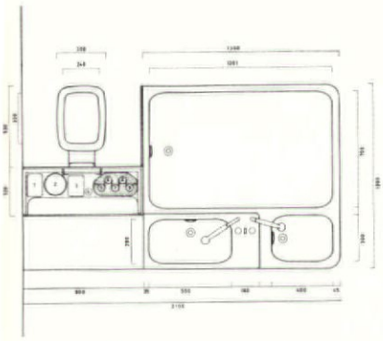
Plastic bathroom unit by Ionel Schein (1956)



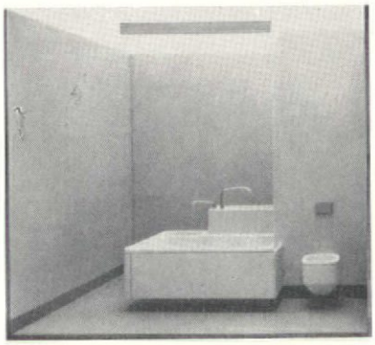


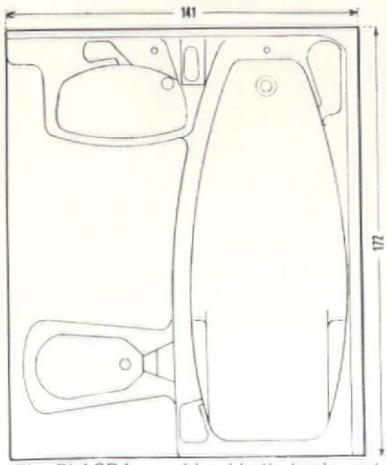
Plastic bathroom by Henry Dreyfus (1957) for the Monsanto House of the Future



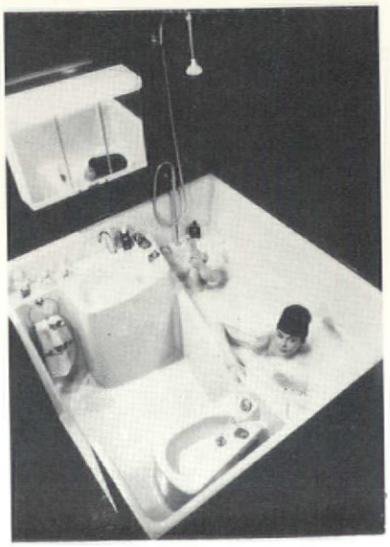


Island bathroom unit designed by Walter Kiehlneker (HfG Ulm), with components closely integrated around a vertical plumbing duct (1962)





The PLASBA, combined bath, basin and bidet in moulded plastic. 5ft 5in, × 5ft 10in, ×3ft 5in. Recommended retail price £210 Barrett (Import-Export) Co. Ltd.



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Criticism

The general design of baths typifies a paramount failure to expand the functional facilities, and apart from the ability to supply water and drain off waste, to which the manufacturer contributes to a very slight degree, the standard product shows little advance in use over the amenities of the galvanized portable bath still obtainable in some areas today. The manufacturers appear to have been too obsessed with the provision of dropped fronts, soap shelves and meaningless panel rigidizing patterns to consider the broader essentials. Attitudes to new suggestions are often defensive. When asked why his firm had not produced a tapered bath to save space, one manufacturer's representative claimed that they had considered this, but had discovered that many people sat in the bath with their back to the taps and felt that they could not decide which way to taper. It should be noted that the same firm does not provide waste outlets in the centres of their baths to relieve the possibility of discomfort, or even distress, amongst their customers who have these unfortunate habits.

Without being too adventurous, manufacturers could display far greater inventiveness in both the plans and sections of their products. The feet do not require the same width as the shoulders, and by maintaining the standard dimension at the centre point and without increasing the volume, more space could be given for the necessary arm movements whilst gaining extra inches at the outlet end for basin, WC or door-swing.

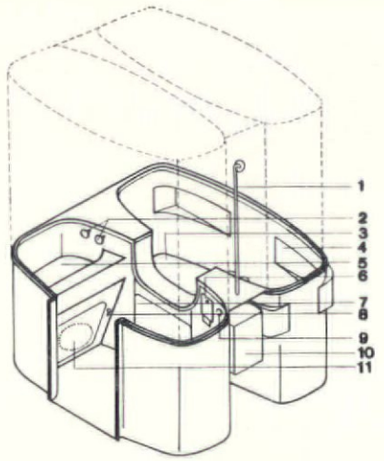
The design of the bath rim usually makes provision neither for the acceptance of tiling or splash panels at the rear nor for comfortable seating at the front, a feature which could be provided, even where space is critical, by the tapering section.

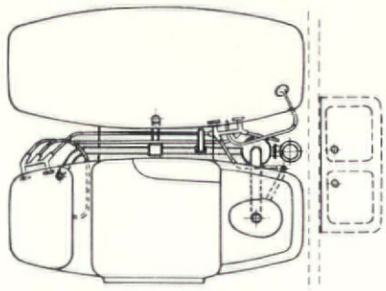
The manufacturing processes for both cast iron and pressed steel baths limit the possibilities for providing awkward cleaning situations, except around taps and behind mixer fittings. The versatility of acrylic sheet, however, can be exploited to create sharp internal corners which require very purposeful cleaning. Many of the more expensive versions are particularly bad in this respect, and at junctions between surfaces, notably on soap shelves and on sunken rims, have lines of roughness that warrant very close inspection.

The future

For those who feel that a bath from Fuller's fog gun is too clinical, that showering is too much effort, and prefer instead to relax, soak and 'gargle in their own bath water', the predictable development of the bath seems to offer limited extra facilities. Present advances show considerable inventiveness in production methods but few innovations in respect of function, and whilst the PLASBA has a shower with an exceptionally long flexible connection for use in the reclining position, and the POLIBAN provides several alternative methods of taking a bath within one compartment, no true development has taken place since the well known but ill-fated Fuller Dymaxion bathroom was produced in 1937.

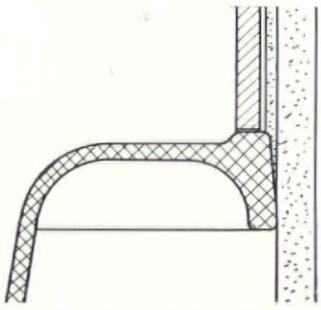
Attempts to integrate fully all the bathroom components have produced interesting results but do not appear to have gained commercial acceptance. The glass fibre units designed by Alberto Rosselli in 1957 were a range of coexistent fittings capable of a wide variety of combinations. More recently, the work of the Hochschule für Gestaltung, Ulm, gave attention to the unification of appearance and assembly of the elements, and included a particularly interesting example of 'printed circuit' plumbing.





Axonometric and plan of Buckminster Fuller's stainless steel Dymaxion bathroom unit (1937) designed for the Phelps Dodge Corporation, New York. Prototypes of these units were used in a house by Richard Neutra, but there has been no general production

1 shower
2 mixer taps
3 bath
4 shelves
5 basin
6 paper holder
7 access panel
8 waste plug
9 w.c handle
10 waste tank
11 electric fan



Messrs. Shanks' Parva bath rim designed to receive tiling

Some manufacturers of baths

Allied Ironfounders, 28 Brook Street, London, W.1

Barret (Import-Export) Co. Ltd., P.O. Box 110, 28a Wellesley Road, Croydon, Surrey.

Edward Curran Engineering Co. Ltd., Sinks and Baths Division, Hurman Street, Cardiff.

Alfred Goslett & Co. Ltd., 127-131 Charing Cross Road, London, W.C.2.

George Howson & Sons Ltd., P.O. Box 6, Eastwood Sanitary Works, Hanley, Stoke-on-Trent.

Ideal-Standard, Ideal Works, Hull, Yorks.

Leisure, 149 Regent Street, London W.1.

P&S Plastics Ltd., Love Lane Estate, Cirencester, Glos.

Shanks & Co. Ltd., Tubal Works, Barrhead, Glasgow, Scotland.

Shires Ltd., Guisley, Yorks.

Sovereign Building Components, No. 2 Factory, Sydney Road, Watford, Herts.

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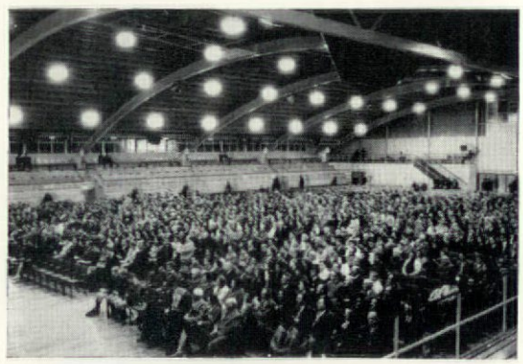

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AP 893

Trade notes

Alexander Pike

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H1 Moisture barrier
Plus Products Ltd., Stella Works, Newburn Bridge Road, Blaydon-on-Tyne, Co. Durham

Designed to combat the effect of alkalinity on the adhesion of screeds to sub-floors and the consequent failure of floor-covering adhesives, Plusbond 30 is claimed to give reliable results with a concrete moisture content of up to 5 per cent. Price 20*s* 6*d* per gallon covering ±40yd².

H2 Polystyrene WC cistern 1
Valor Cisterns Ltd., Ilkley, Yorkshire

The Super Viking Dualflo has a dual-flush action designed to save water. A 1- or 2-gallon flush is provided by immediately releasing or holding down the flushing lever. In white and colours.

H3 Stationery trays
Intercraft Designs, Berkeley Square House, Berkeley Square, London, W.1

Produced in polysterol and accommodating A4 and quarto sizes, with dividers for envelopes and smaller papers. The trays can be slotted or linked into each other and fixed in a variety of different positions.

H4 Door and window furniture 2
Henry Hope & Sons Ltd., Smethwick, Birmingham

The Myron range of architectural ironmongery includes medium priced aluminium fittings and others, suitable for housing budgets, in Delrin and other plastic materials. Nylon bearing surfaces are used throughout and there are no visible fixing screws in the entire range.

H5 Polyethylene waste trap 3
Greenwood & Hughes Ltd., Regal House, London Road, Twickenham, Middlesex

The Grevak Maxflo is claimed to be unaffected by boiling water and resistant to most acids and detergents. Fittings can be supplied to suit copper, lead and plastic waste pipes. Prices: 1¼in, 8*s* 9*d*; 1½in, 11*s* 5*d*.

H6 Building boards 5
Venesta Manufacturing Ltd., West Street, Erith, Kent

The Interwall range now consists of four types of panel and includes the recently introduced Fyretex and Laminair boards. The illustration shows: instant building board, faced with either hardboard or asbestos; Laminair, asbestos faced with extruded chipboard core; Vencoustic for sound insulation; Fyretex, incombustible.

H7 Safety kerb 4
John Ellis & Sons Ltd., 21 New Walk, Leicester

The Trief safety kerb is designed to be unmountable by vehicles, tending to deflect them to their original course. It is not new, but deserves wider acceptance.

H8 Stainless steel mosaic cladding
Decorative Claddings Ltd., Lloyds Bank Chambers, Coulsdon, Surrey

Imported from France but soon to be manufactured in this country, Mosametal cladding is backed with a plastic film which enables conventional adhesives to be employed and eliminates grouting. Claimed to be 35 to 40 per cent cheaper than stainless steel sheet.

H9 Fire alarm system
Cameron Equipment Co. Ltd., 12 Liverpool Street, London, E.C.2

Designed for small installations, the Mini-larm combines operating contact and audible warning in one flush fitting box 3⅜in × 5¾in. May be used independently or interconnected with up to eight other units. From £5 17*s* 0*d* per unit.

H10 Booklet on plastics
Shell Chemical Company Ltd., Plastics and Rubber Division, Shell Centre, Downstream Building, London, S.E.1.

Shell Plastics Advisory Service have produced an excellent 83-page handbook on the properties and uses of plastics, giving their applications and limitations for a comprehensive list of elements. Well worth shelf space.

H11 Insulation board
Pfizer Limited, Sandwich, Kent

Lamithane consists of rigid polyurethane foam laminated between special paper skins, claimed to combine exceptional standards of insulation ('k' of 0·16) with strength, tolerance of high temperature and resistance to water and moisture. In standard sizes from 4ft × 2ft to 8ft × 4ft.

H12 Heating programmer 6
Randall Electronics Ltd., New Barnes Mill, Cotton Mill Lane, St. Albans, Herts.

Suitable for all small bore oil- and gas-fired boilers and fan-assisted fuel systems, the Randall programmer provides a choice of six different programmes for flexibility of both space heating and hot-water control. May be surface or flush mounted.

H13 Skirting duct
Key Terrain Ltd., Larkfield, Maidstone, Kent

Extruded in high-impact PVC, Key skirting duct is 1⅜in deep and available in twin-channel (5⅜in high) and triple-channel (7 1/16in high) versions. Standard lengths 8ft at 8*s* 4*d* and 10*s* 9*d* per ft run.

H14 Electric panel radiators
Mhoglas Ltd., Reddings Wood, Ampthill, Beds.

Using an improved Mhoglas material consisting of a non-metallic heating element bonded into a laminate of asbestos, the radiators have outputs of 1kW, ¾kW and ½kW. Finished in a stoved white acrylic paint in a stainless steel frame. Prices £14 14*s*, £12 12*s* and £10 10*s*.

H15 Mixer tap
Gummers Ltd., Effingham Valve Works, Rotherham, Yorks.

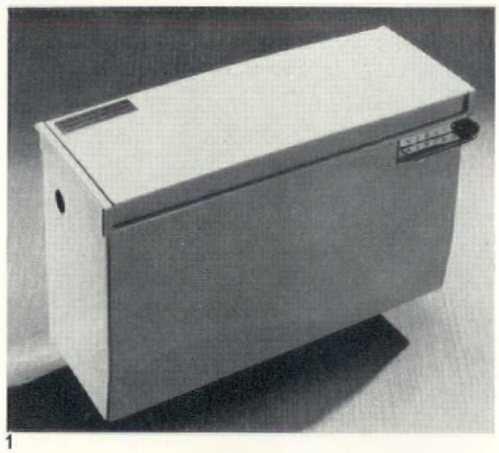
The Solotap is based on an existing shower mixing valve. It has a spray nozzle and one control to regulate both flow and temperature.

H16 Intercom system
General Trade Equipment Ltd., 82-90 Seymour Place, London, W.1.

Operating off a 9-volt dry battery, the 3-transistor system comprises a master and sub-station and has a range of 400yd. Price, with battery and 50ft of cable, £5.

H17 Electric door opener
H. F. Collison (Goodwell) Ltd., Station Road, Coleshill, Birmingham

The Portavox combined door opener and intercom provides the usual facilities for conversing with and admitting callers, and can utilize existing doorbell wiring. The waterproofed outdoor component, 6¾in × 8¾in × 3in deep, can be surface or flush mounted.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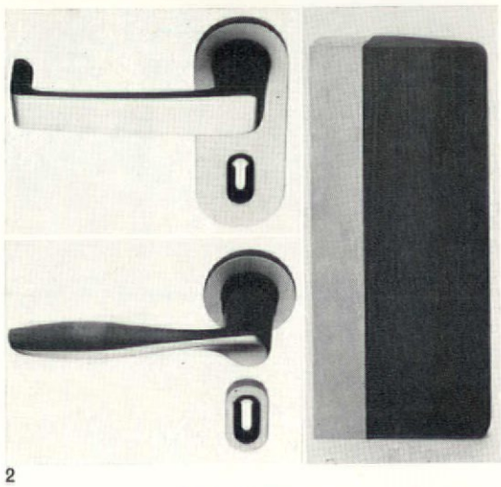
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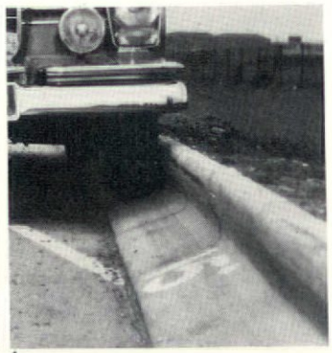
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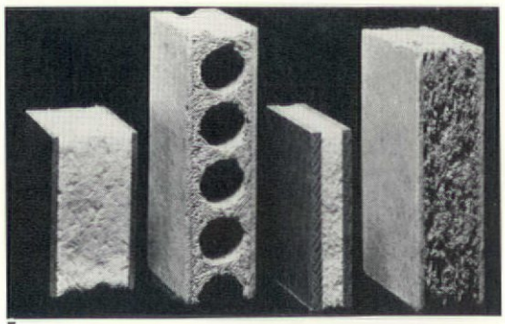
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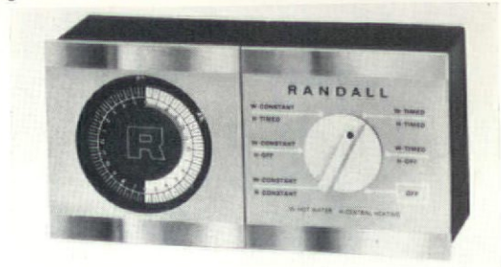

6

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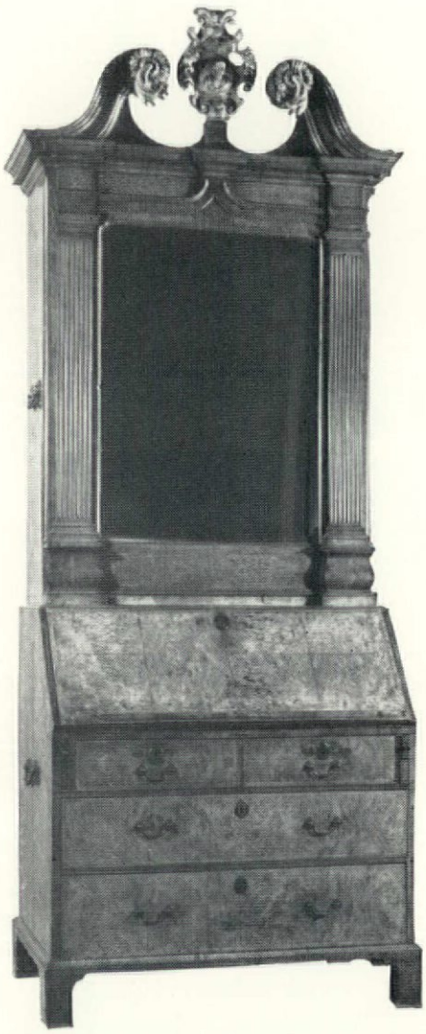
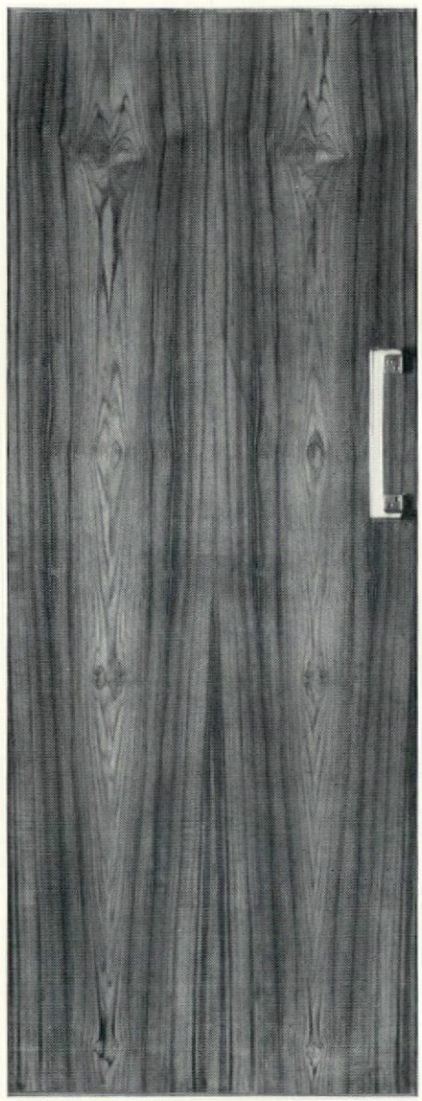
Bureau Cabinet, Walnut inlaid, Circa 1700
by Samuel Bennett. Victoria and Albert Museum.





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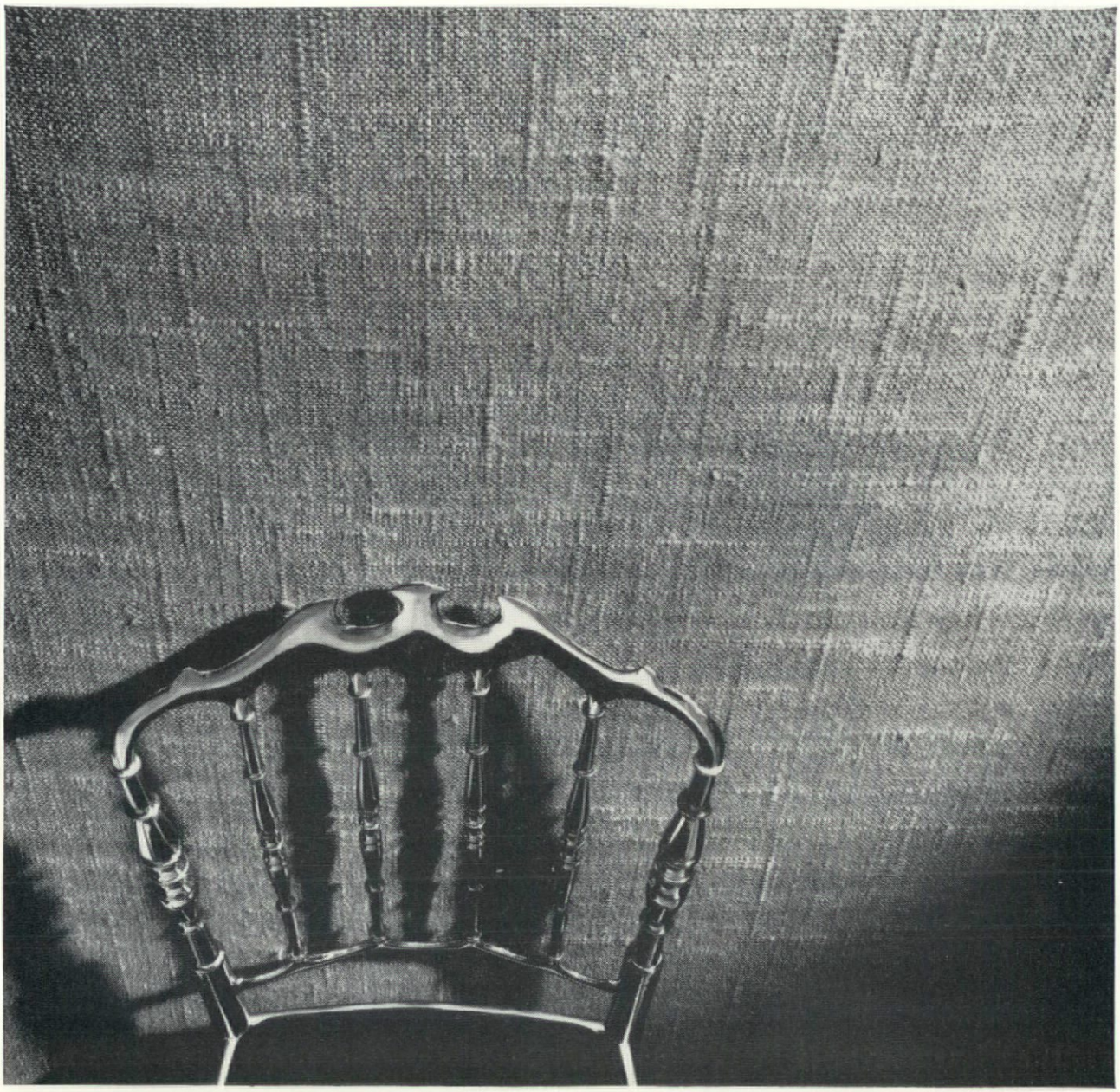

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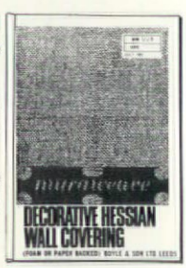

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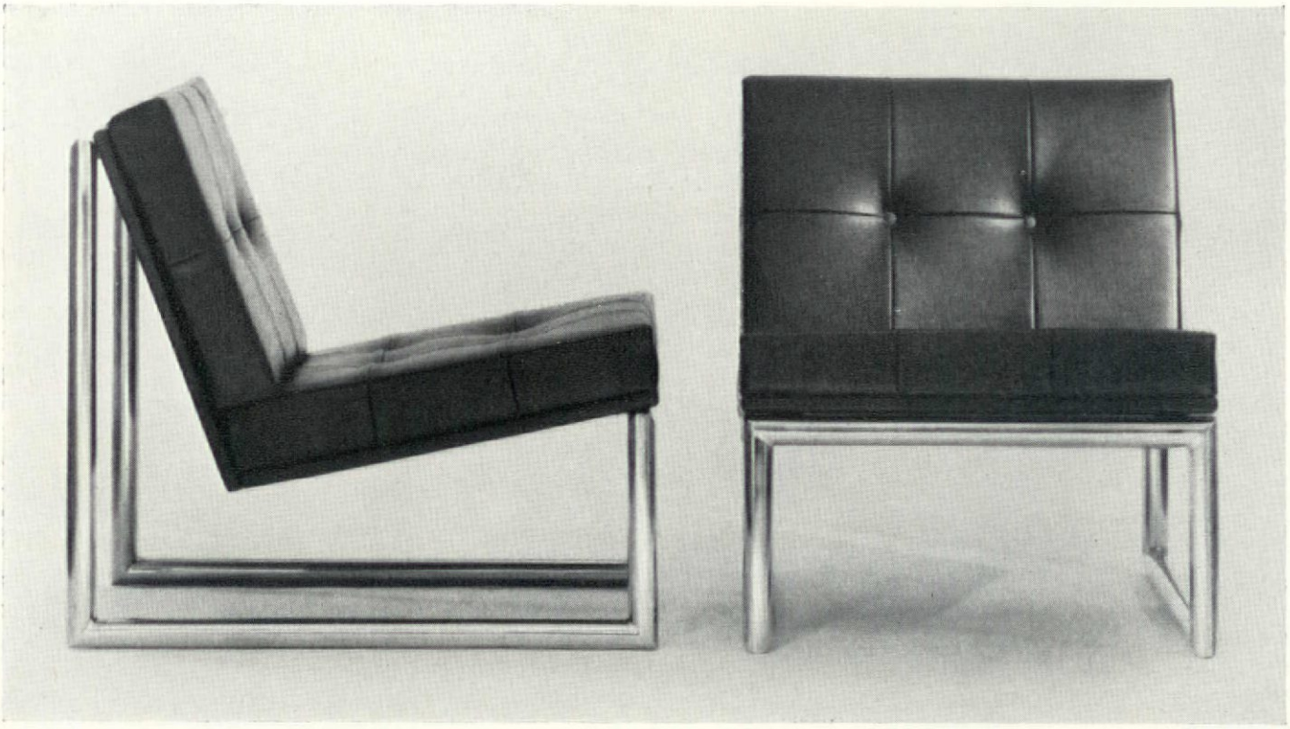

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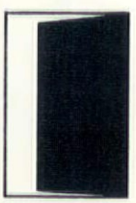

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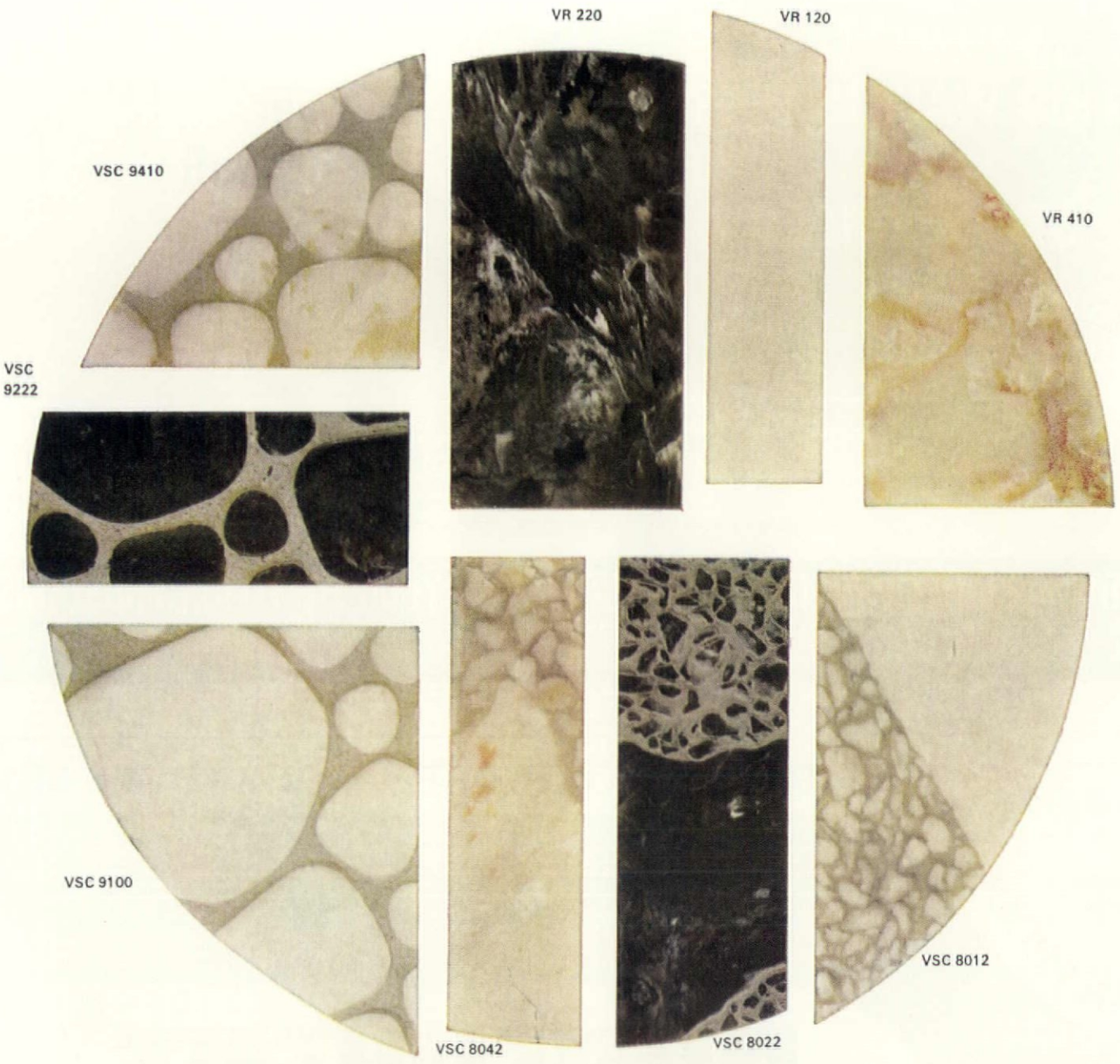

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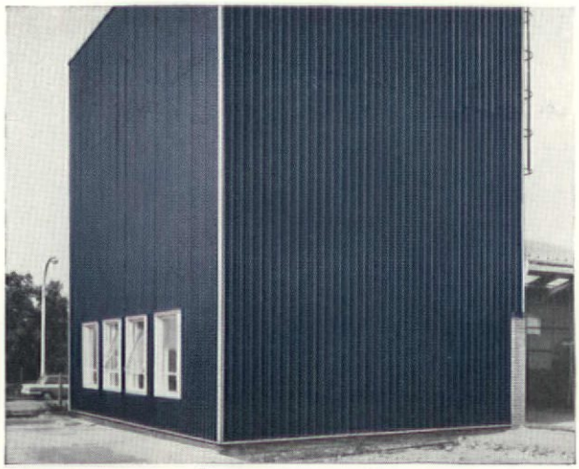

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For further information consult any of the Association Members listed below :—

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Structural Engineer: ALAN MARSHALL & PARTNERS.
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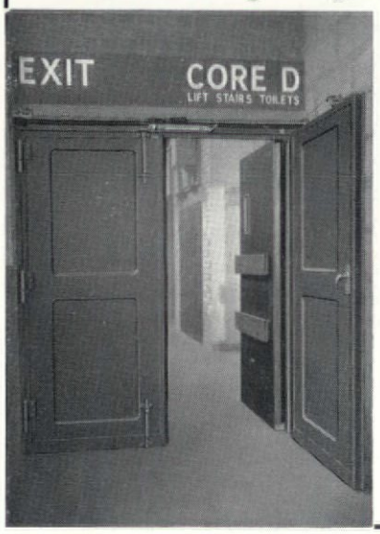

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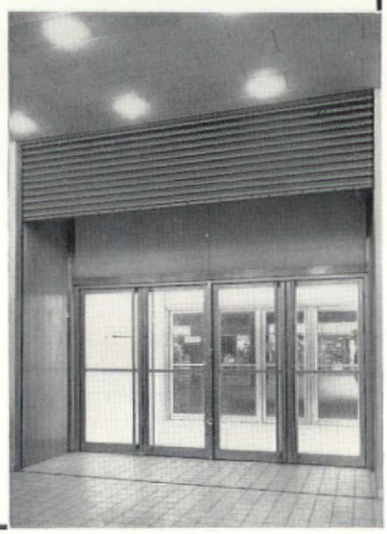

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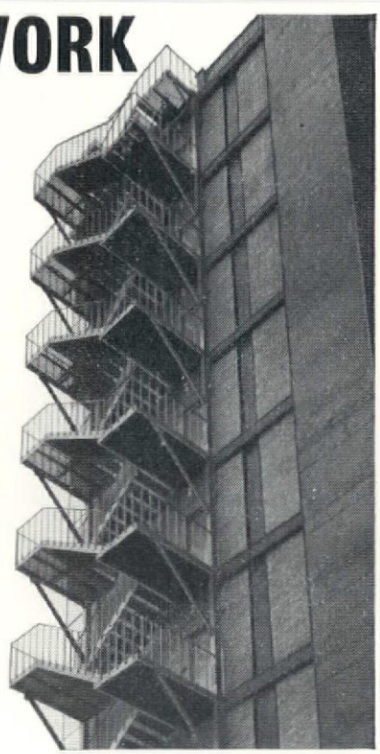

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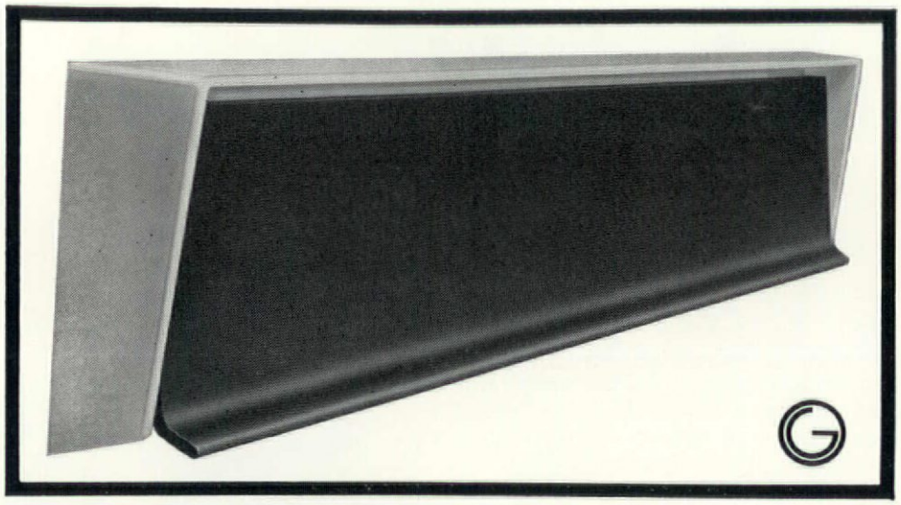

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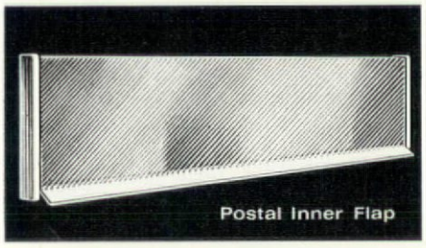

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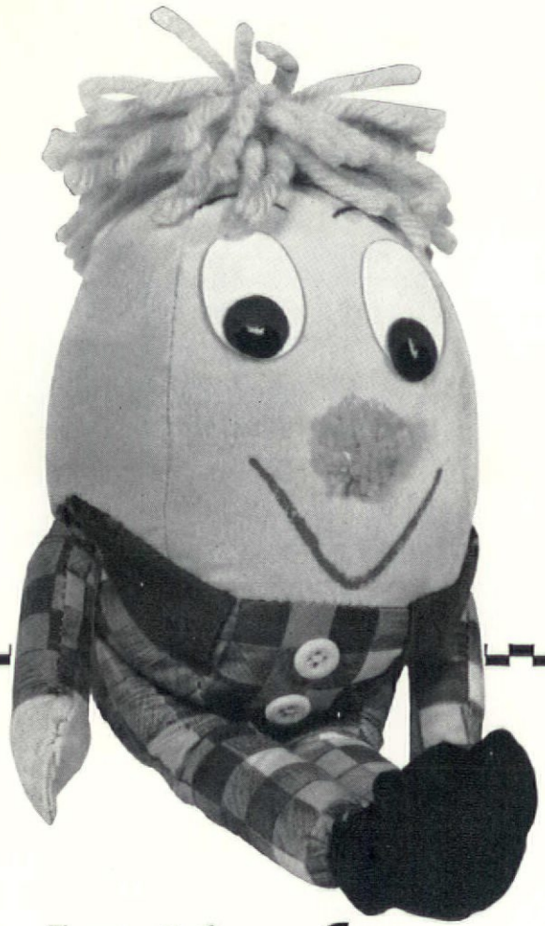

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From time to time various things capture the public imagination, whetting a tired appetite and stirring the jaded palate. Such has been the case with the strange but lovable creature above.

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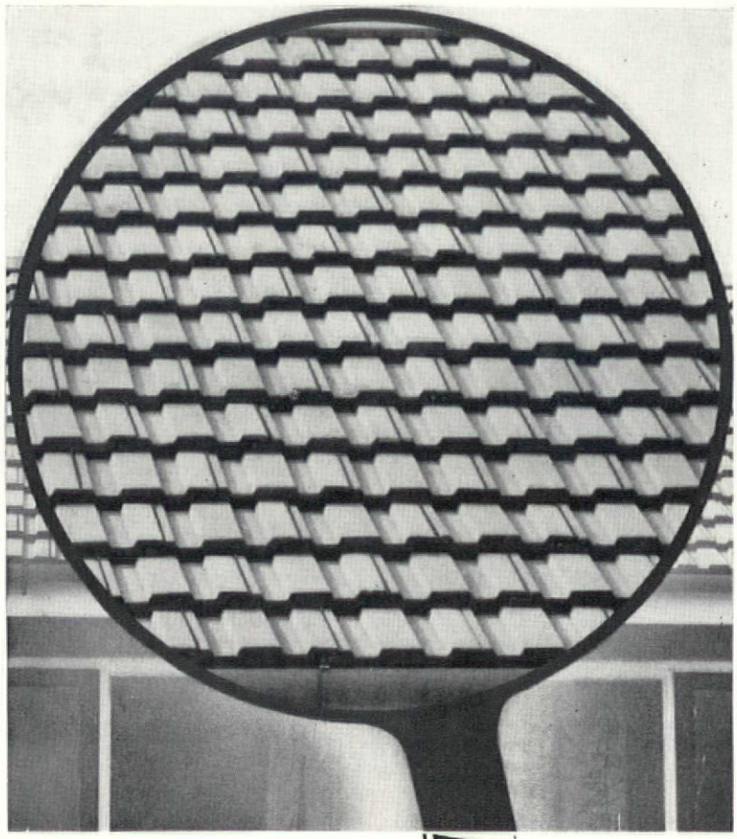

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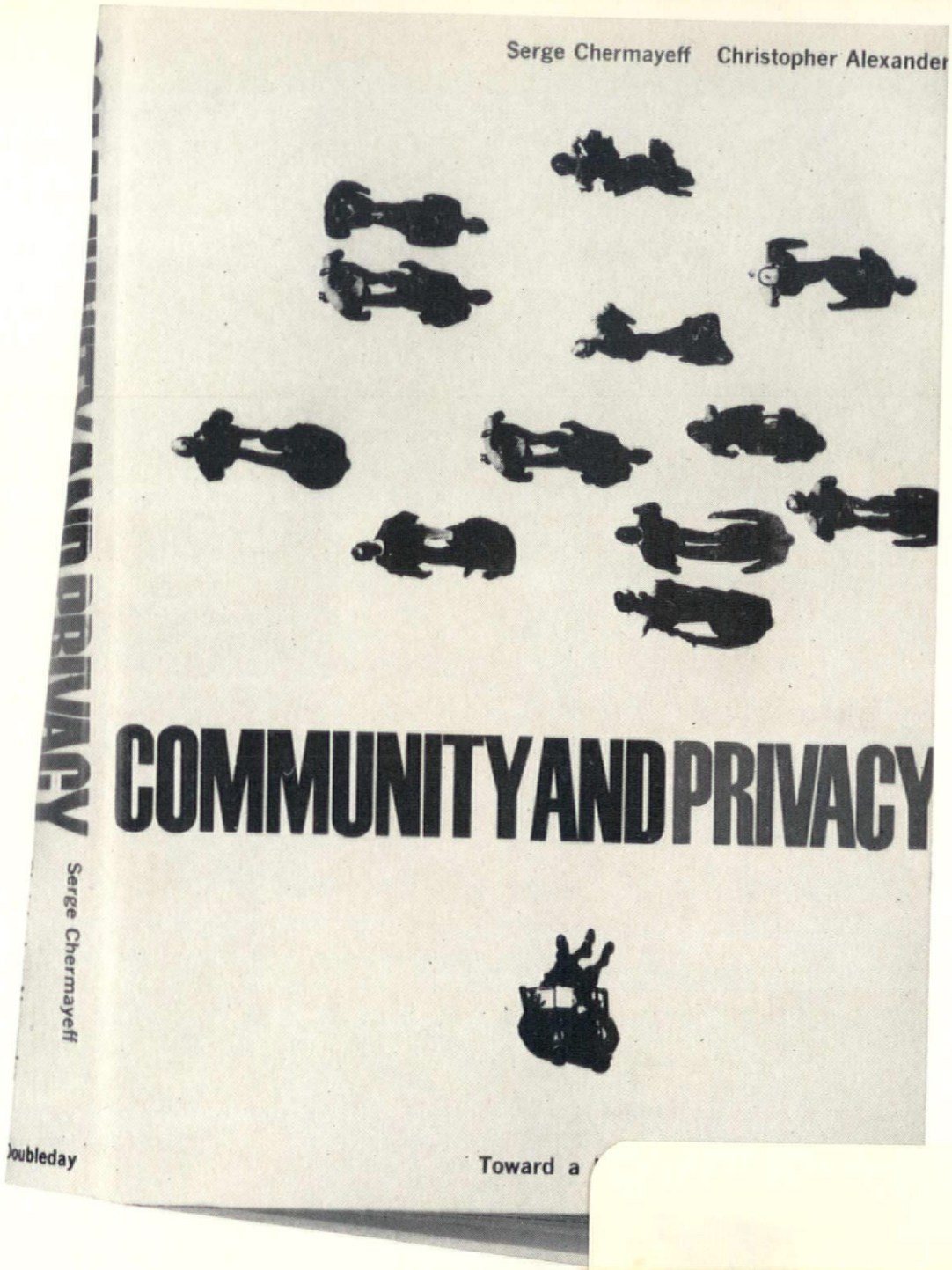

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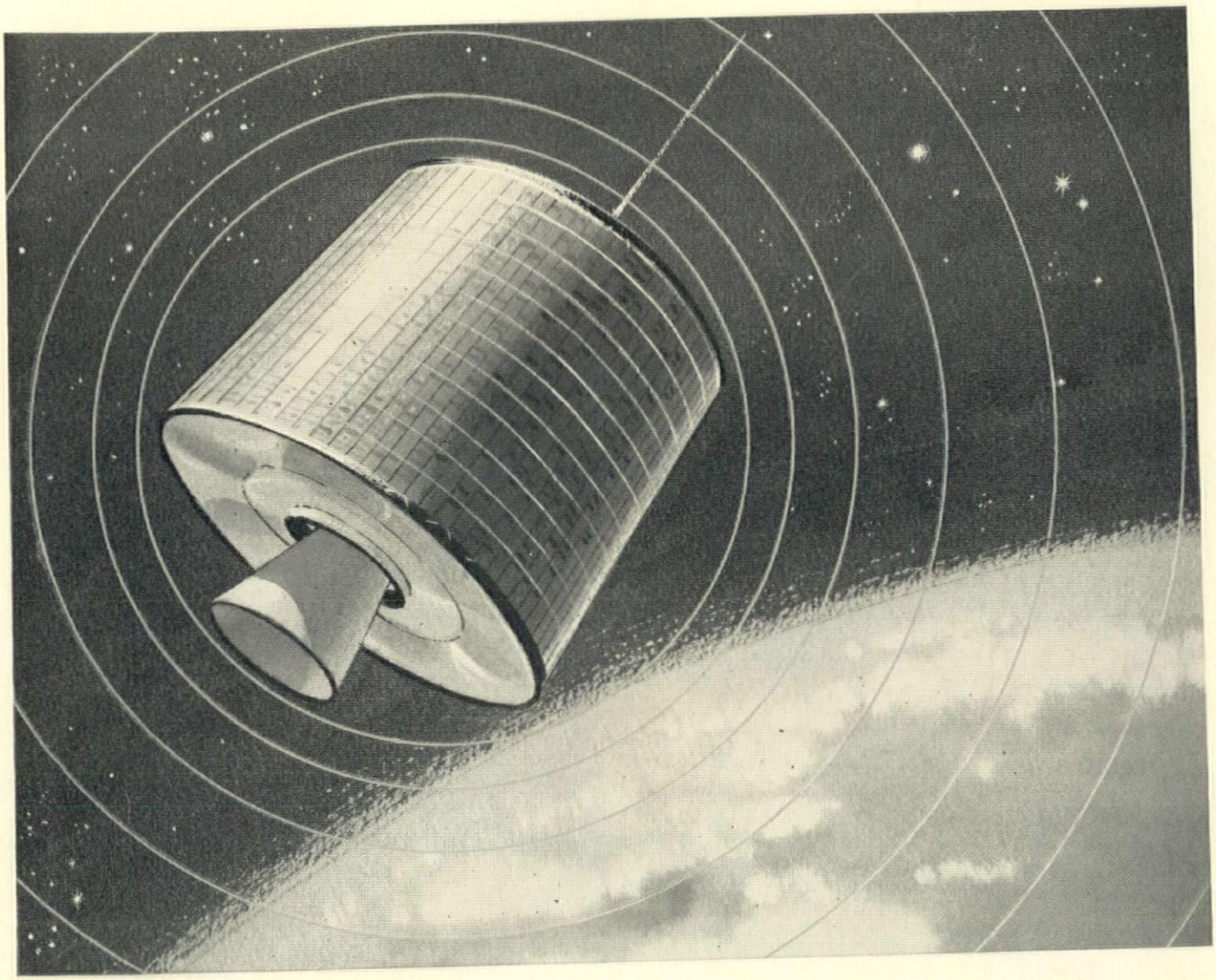

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