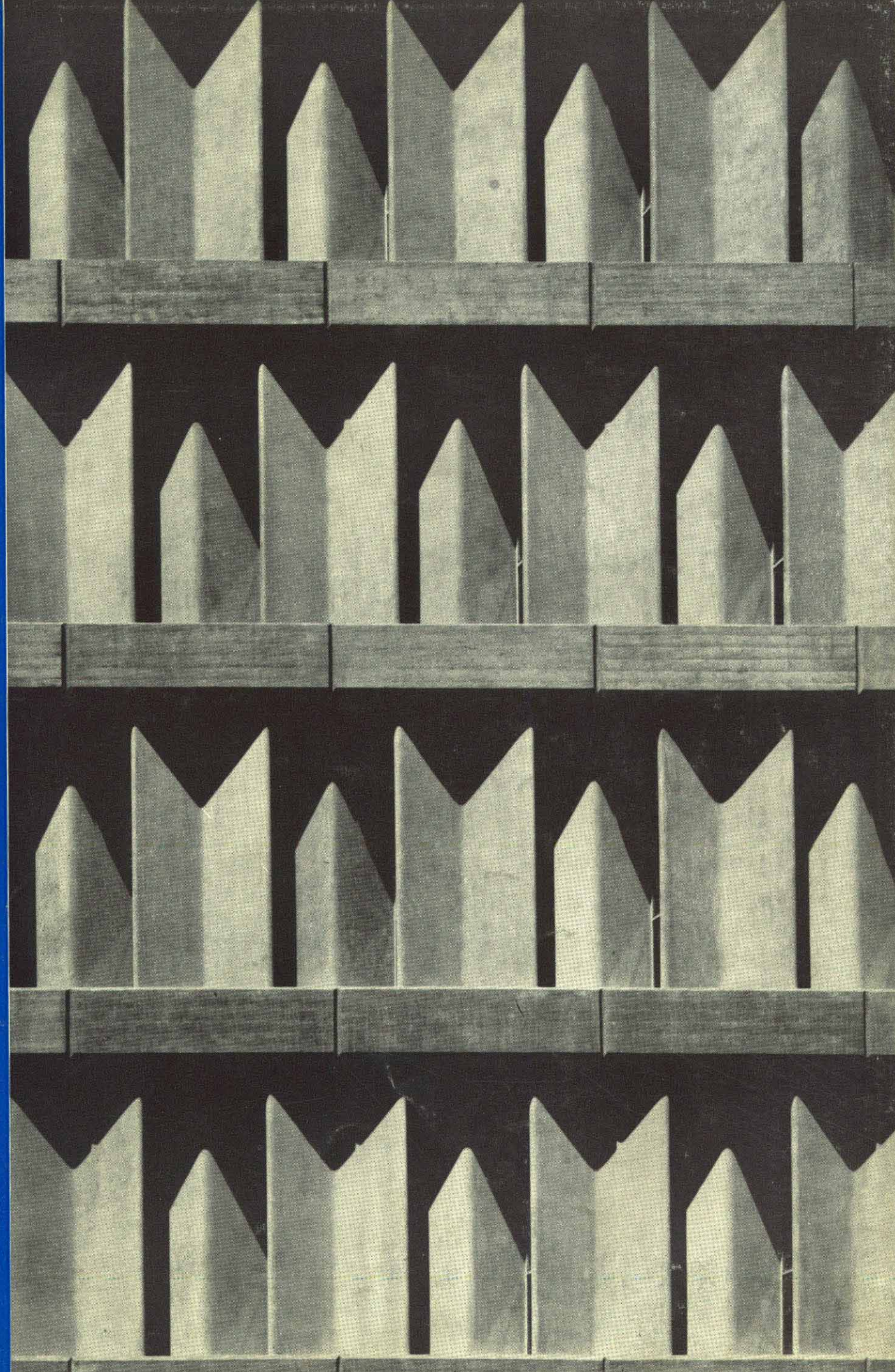
CONCRETE QUARTERLY 87



Cement and Concrete Association October-December 1970 Price Ten shillings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CONCRETE QUARTERLY 87

OCTOBER–DECEMBER 1970

Contents

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Designer : W. STOTESBURY, MSIA

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FRONT COVER : *Miguel Fisac's precast concrete brise-soleil system, IBM Building, Madrid (pages 10 and 11).*

FRONTISPIECE : *St. John's Beacon, Liverpool – a reinforced concrete shaft 137 m high with a restaurant 24 m in diameter topped by a viewing platform. Architect : James A. Roberts ARIBA ; consulting engineers : Scott, Wilson, Kirkpatrick and Partners ; Contractors : Trollope and Colls Limited.*

It appears to us, in the late 20th century, that we live in times of rapid change: the rate of technological progress is now so fast that we might well be misled into thinking that, in some mysterious way, we ourselves have changed too and acquired different needs and values. The fact that we cannot keep up with all this increase in technical knowledge is an added source of confusion. But of course the fact remains that, although man may now fly across oceans and continents in a few hours and go to the moon, he has not himself changed in any fundamental respect over the centuries. His basic requirements remain constant. And this is surely something that we can take heart from, if only to help us decide what sort of world we want to live in – and to enable us to see clearly what we don't want. For if much that surrounds us seems like the shifting sands of fashion, there are basic necessities of human life that – like man himself – do not change at all: fresh air and fresh food, for instance, and light and companionship and the enjoyment of nature. Technology and town-planning may persuade us to live fifty storeys up or work in a room without windows or eat out of tins. Such things are possible. But we should not be deluded into thinking that they are desirable.

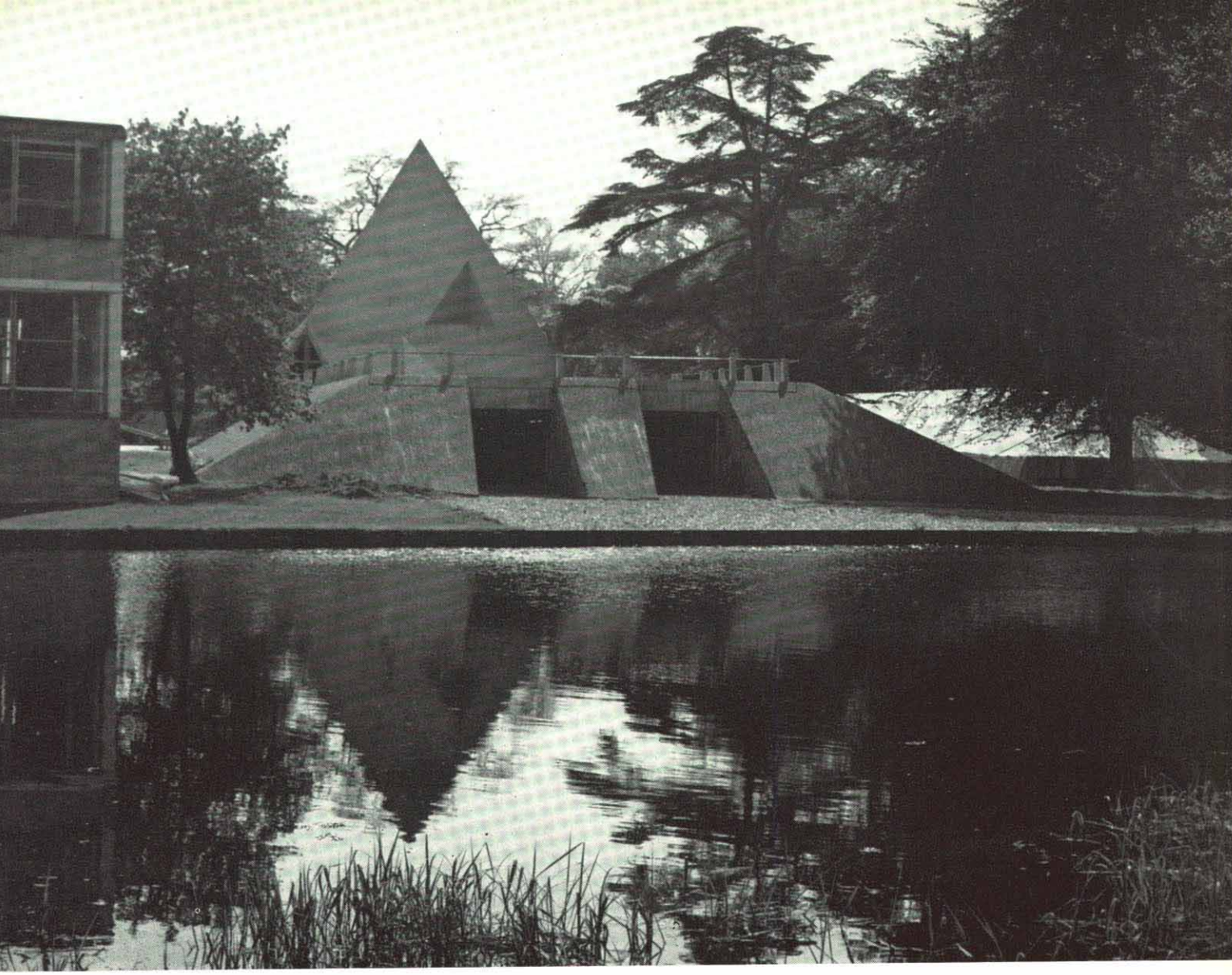
So it was with a sense of real delight that we came upon an editorial in the *Architects' Journal* for 1926 on that fast-changing subject Concrete. Although written 45 years ago – and what changes have taken place in the concrete world in that space of time – it is heartwarming to find that the sentiments of the writer are still applicable today. "Large quantities of ink" it begins "have been spilt on the subject of concrete . . . Never was a subject brought to such a state of intellectual confusion" (agreed). There then follows a passage on the importance of the architect controlling design, rather than any other member of the building team, and continues "Because a material *can* do certain things, this is not an adequate reason why it *should* do them. For architectural design is governed by certain social and formal considerations which have nothing whatsoever to do with the qualities of materials . . ."

Now this, surely, is a truth that we might well remind ourselves of today. How often do we see all kinds of unsuitable extremities of design, simply because the designer has become obsessed with the potentials of his material rather than its social implications.

The editorial also puts forward a hypothesis that if Nash had had reinforced concrete at his disposal, there is no reason to suppose that he would have departed in any essential way from his designs. Considering the delight that his work still gives us, let us hope not. "Perhaps it will presently be realized" the writer continues "that as far as street architecture is concerned, the age of concrete should be a stucco age". Now there's a statement and a half. In fact, when you think about it, it's an interesting idea – particularly when one considers the cream-coloured terraces of the 18th and 19th centuries that still, mercifully, can lend to our towns moments of brightness and elegance. Well perhaps some of them have been painted, and of course paint means maintenance (and why not – occasionally). But in general, the principle of rendering, which latterly has gone out of fashion, is still as valid as it ever has been and surely should be part and parcel of the vocabulary of concrete design.

As a conclusion, let us quote the stirring final sentence of this 1926 editorial which, for all its high-flown sentiment, might serve as a rousing New-Year message for 1971: "It is for architects, therefore, to convince not only the general public, but engineers as well, that the social and aesthetic factors of design, founded as they are upon reason and propriety, cannot be disregarded without detriment to civilization itself".

And on that elevated note, may we wish our readers good fortune in 1971.



View from the river showing access to the boathouse and the pyramid exhibition hall in the background.

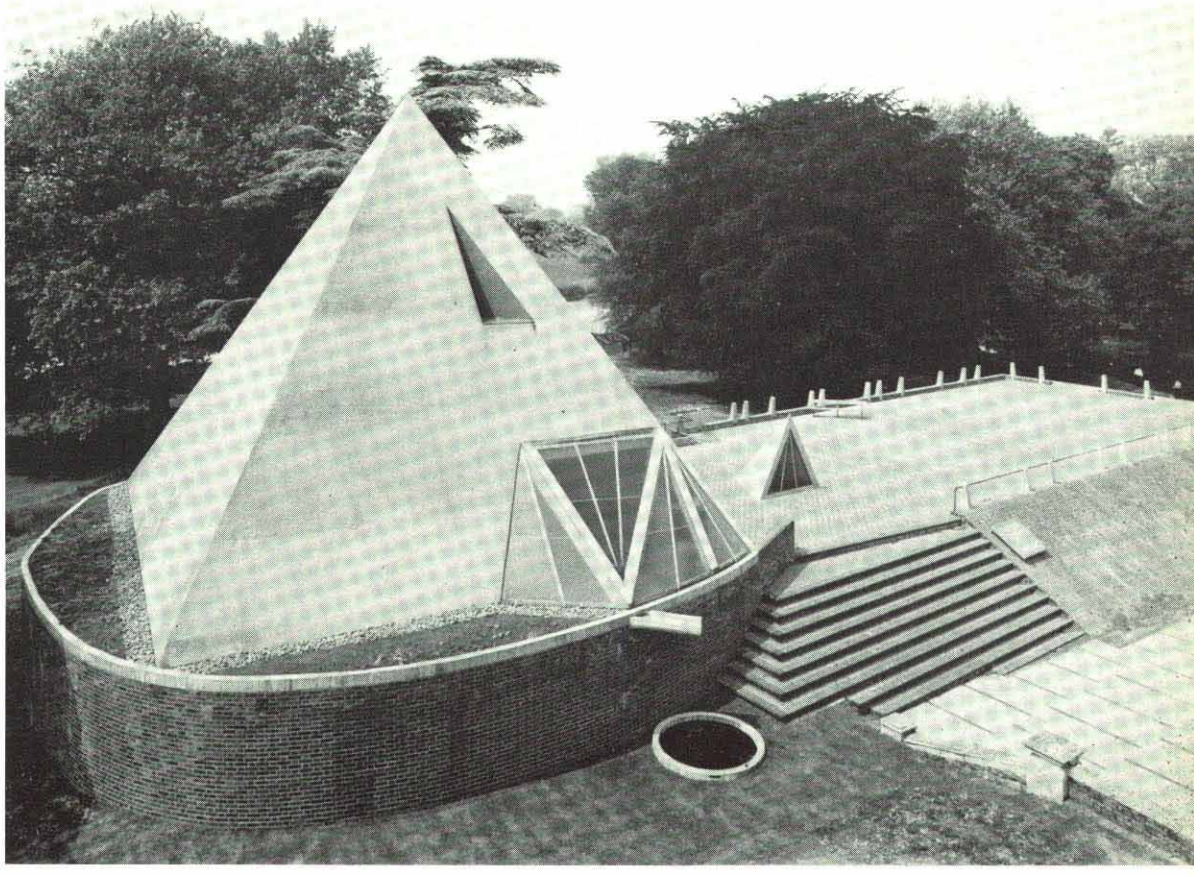
Exhibition hall and boathouse

Julius Gottlieb Exhibition Hall, Carmel College, Wallingford

Architects:	Sir Basil Spence in collaboration with John-Urwin Spence
Structural engineers:	W. Paszkowski and Partners
Contractors:	James Longley and Company Limited
Concrete sub-contractors:	Cement Gun Company Limited Concrete Utilities Limited

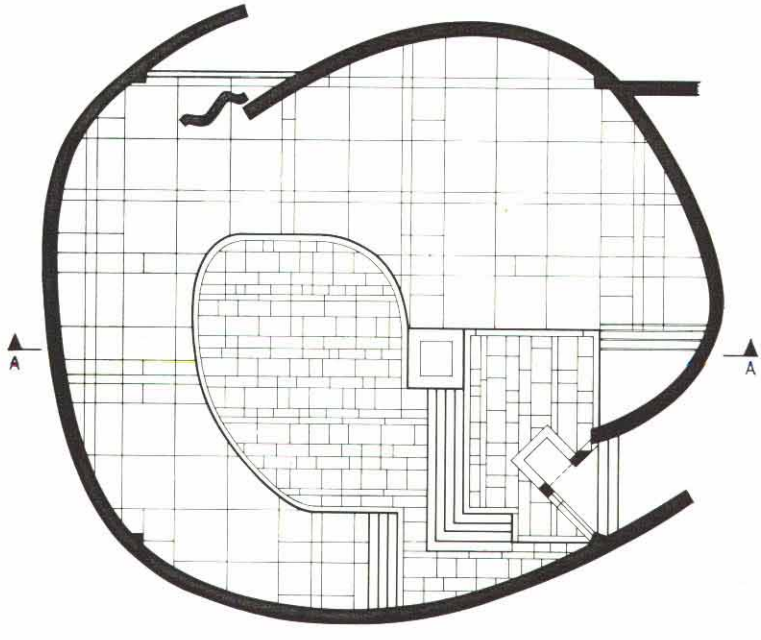
This building, which houses an exhibition hall and boathouse, is at Carmel College, Wallingford, on the borders of Berkshire and Oxfordshire. It was presented to the College by one of its governors, Lieutenant Commander E. J. Gottlieb, as a memorial to his father Julius Gottlieb who was a talented wood-worker and lover of the arts. The building was opened last summer by Lord Snowdon.

The exhibition hall will be used as a centre for exhibiting the best in art and design – but with a difference. Exhibits will include paintings, drawings, sculpture and fine work in rare metals and fabrics, but

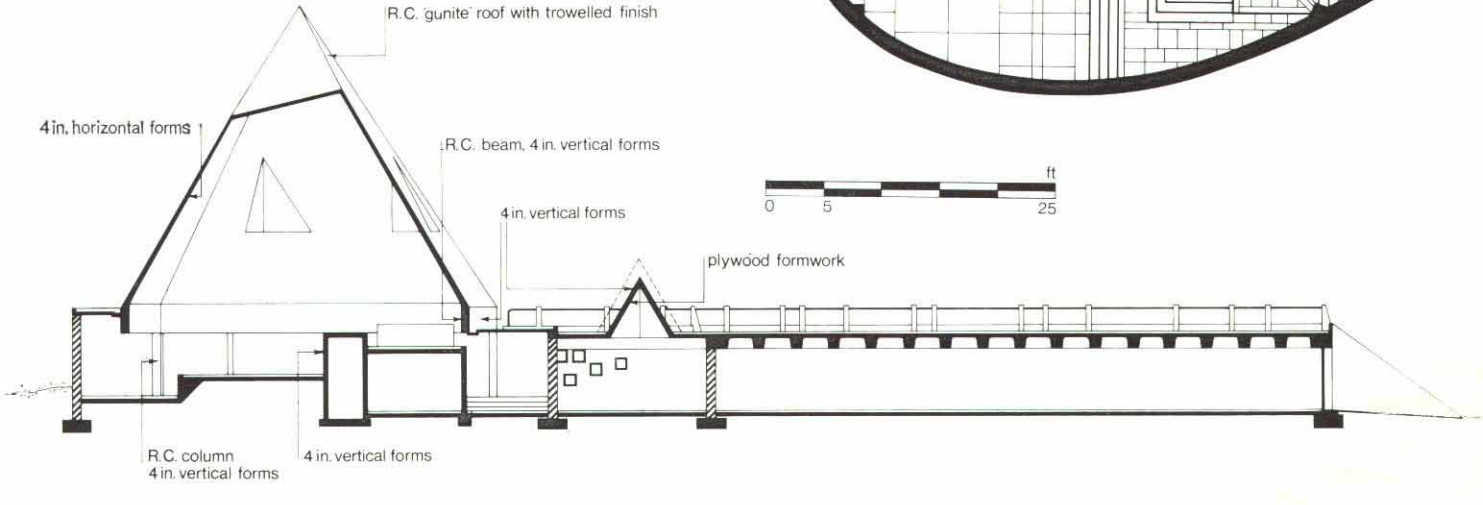


The sprayed reinforced concrete pyramid of the exhibition hall with the boathouse on the right.

Plan of the exhibition hall.



Section A-A through the exhibition hall and boathouse.



The approach to the exhibition hall is well laid out with concrete and brick paving, trees and benches.

EXHIBITION HALL AND BOATHOUSE
continued

in addition there will also be the best designs in domestic and industrial products as well as machine parts and models of well-fashioned machines.

The exhibition hall takes the form of a sprayed reinforced concrete pyramid, the base of which is 12.2 m square, rising to a height of 14 m. This is set on a plinth of curving brick walls. Inside, finishes are of boardmarked concrete and white painted brickwork which provide a good neutral background for exhibits. The pyramid is pierced with triangular openings so that shafts of light, both artificial and natural, shine onto specific areas of the hall. The openings are fitted with toughened plate clerestory glazing.

The architects were asked for a building which would not only be an exhibition hall but would also serve as a memorial. With this in mind, they chose a pyramid as being the best solution. For not only is this a shape traditionally connected with memorials; it also gives a feeling inside of great space and scale and is suitable for very tall exhibits.

The structure extends to provide a boathouse, the roof of which has been kept proportionately low so that the pyramid is the dominant feature.

Carmel College was founded in 1948 as a residential school providing a high standard of general studies together with comprehensive Jewish training. It now has 350 pupils from over twenty countries.

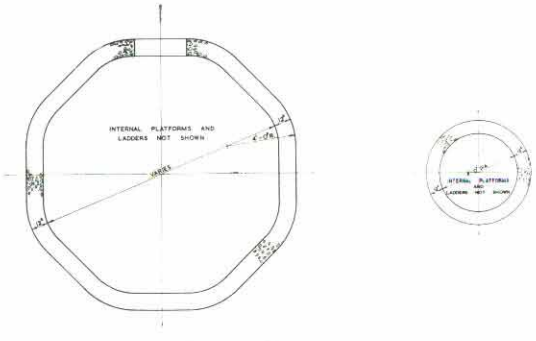
Navigation beacons at Milford Haven

Consulting engineers: Posford, Pavry and Partners
Contractors: Tileman and Company Limited

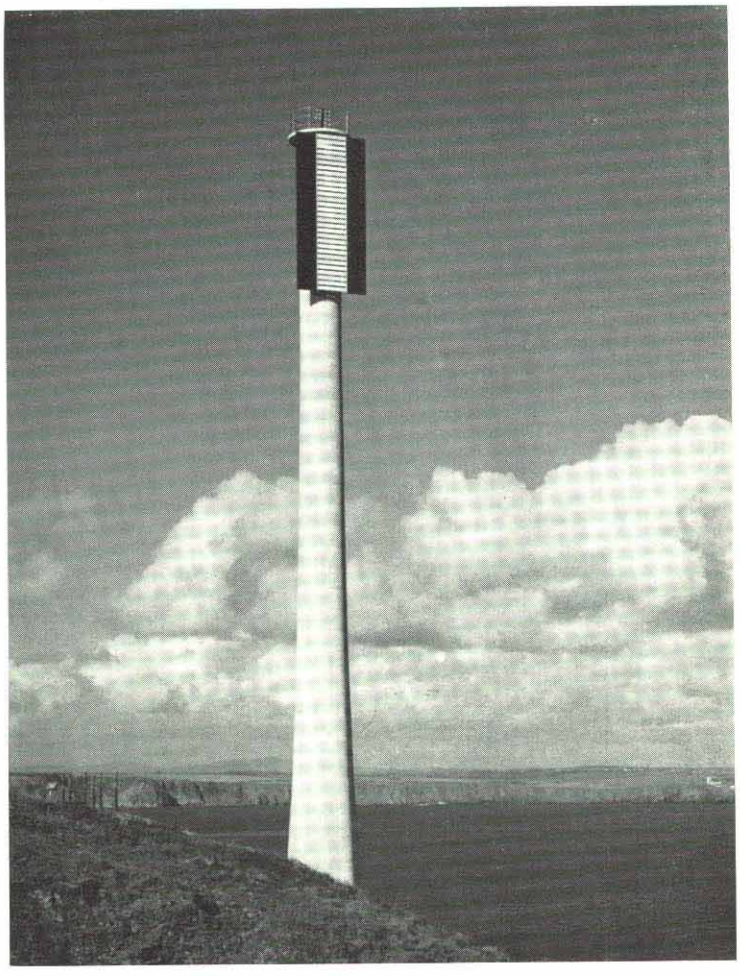
Two sets of white concrete beacons have been built on the coastline at the entrance to the deep-water harbour at Milford Haven, now one of Europe's leading oil ports. The increase, in recent years, of shipping traffic and the size of tankers has led the Milford Haven Conservancy to undertake a major programme of dredging and straightening the approach channel and of improving navigation aids.

As much of the coastline in the Haven is a National Park, it was particularly important that the structures should be of a high standard of design, at the same time providing easily visible day marks and navigational lights. White cement concrete was chosen to give a clean appearance as well as good visibility and maintenance.

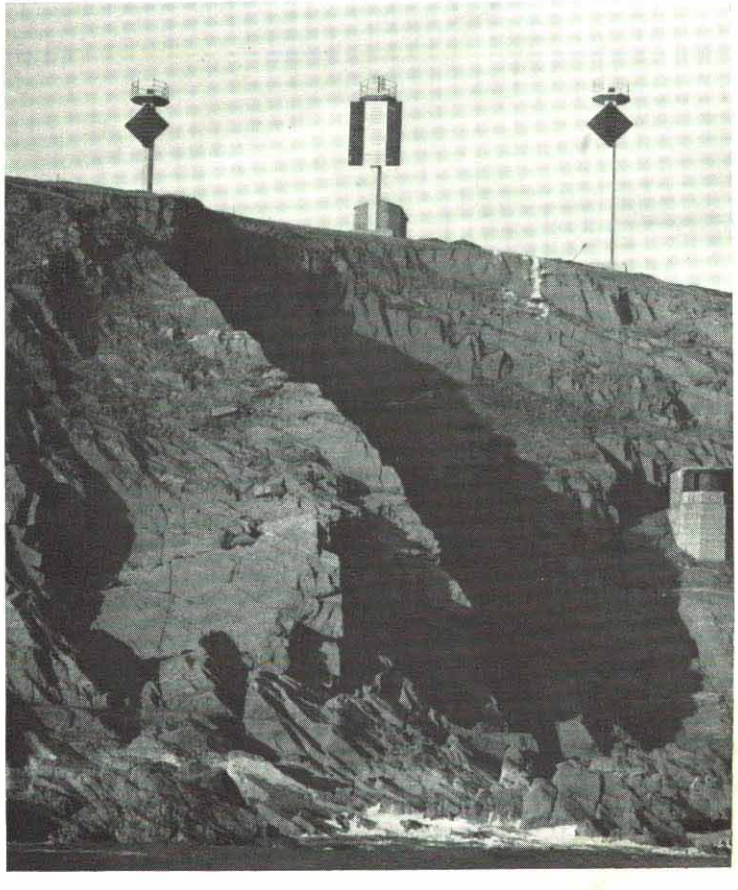
One set of beacons at West Blockhouse consists of three octagonal reinforced concrete columns 9.2 m, 10.2 m and 12.7 m high with day marks fixed to them and surmounted by platforms for the lights. The beacon at Watwick Point is 48.5 m high and of a conventional 'lighthouse' shape. It has walls 300 mm thick enclosing a hollow shaft which gives access to the platform at the top and enables control equipment to be fitted at ground floor level. This beacon, with its tapering profile, has a particularly simple and attractive appearance. Climbing formwork was used for the in situ construction.



Sections through the lower and upper parts of the Watwick Point beacon.



Watwick Point beacon.
Beacons at West Blockhouse.

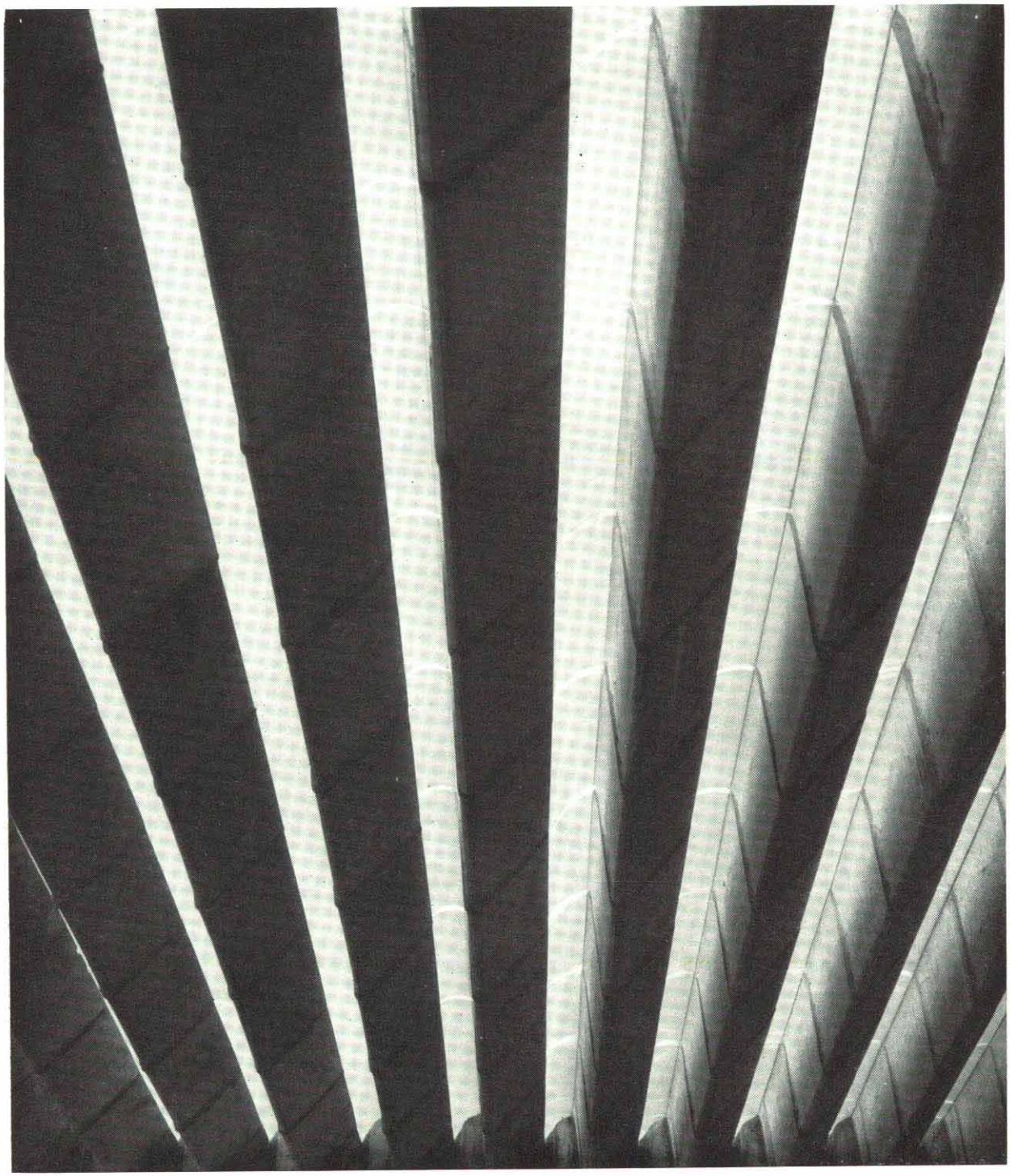


The work of

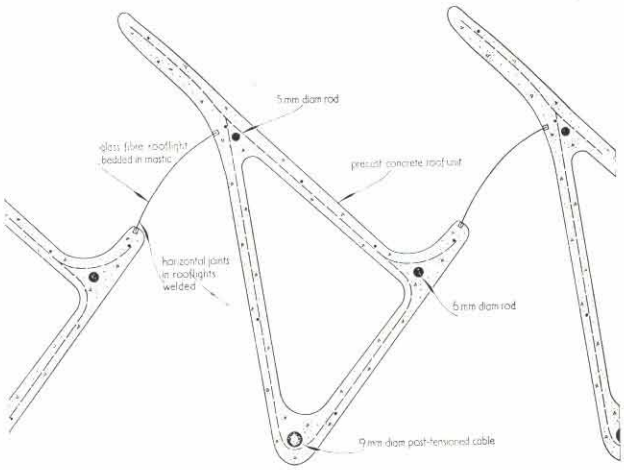
Miguel Fisac

by J. L. Gill del Palacio

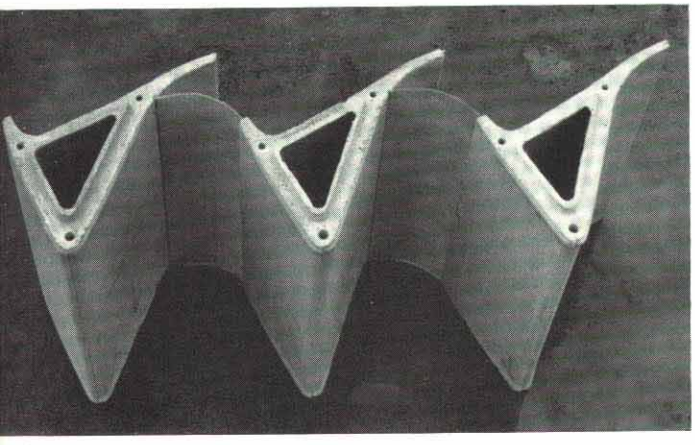
The work of the Spanish architect Miguel Fisac shows a remarkably inventive use of structural concrete. Of particular interest are his hollow precast roofing units – thin membranes of concrete post-tensioned together and spanning considerable lengths. These he uses in every type of building from church to factory, as can be seen in this article.



Underside of the factory roof at Vich showing the roof units.



Section through roof units, factory at Vich.
(Drawing by courtesy of The Architects' Journal)



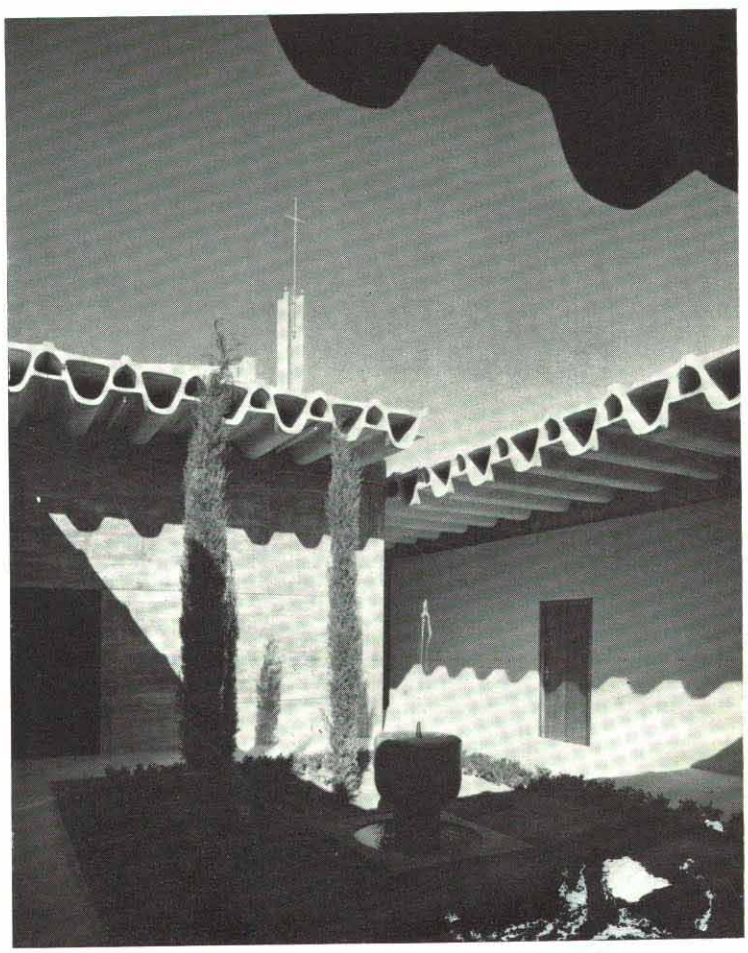
Roof units, factory at Vich, before assembly.

Factory at Vich

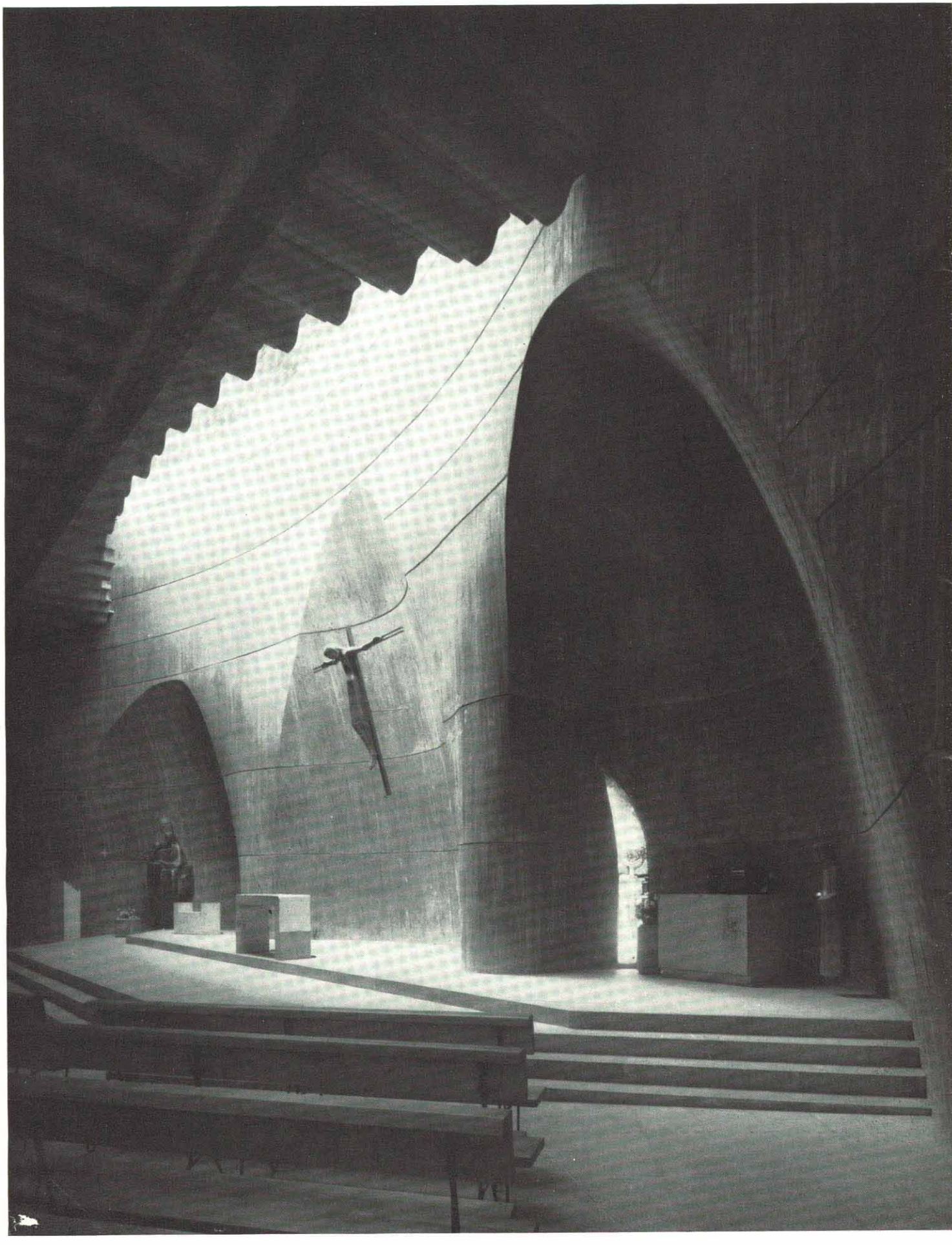
A factory has been built at Vich in Spain for the manufacture of Fisac's prefabricated post-tensioned concrete roof units. The roof of the factory is itself built of these units and incorporates strips of glazing. The result is a neat ceiling of good appearance and with good uniform top lighting. Other factories have been built in the area using a unit of similar design and this is already patented in this country and the USA. At Jerez, Fisac is building *bodegas* with units spanning 16 m, and there are other projects with spans up to 50 m. There are also examples of spans between 16 and 20 m which have a total uniformly distributed load of 1,500 kg. Fisac is currently working on a design for the National School of Football in Madrid in which he is using several types of prefabricated concrete units. The French construction company which built UNESCO in Paris also has a contract with him which allows them to use his unit designs.

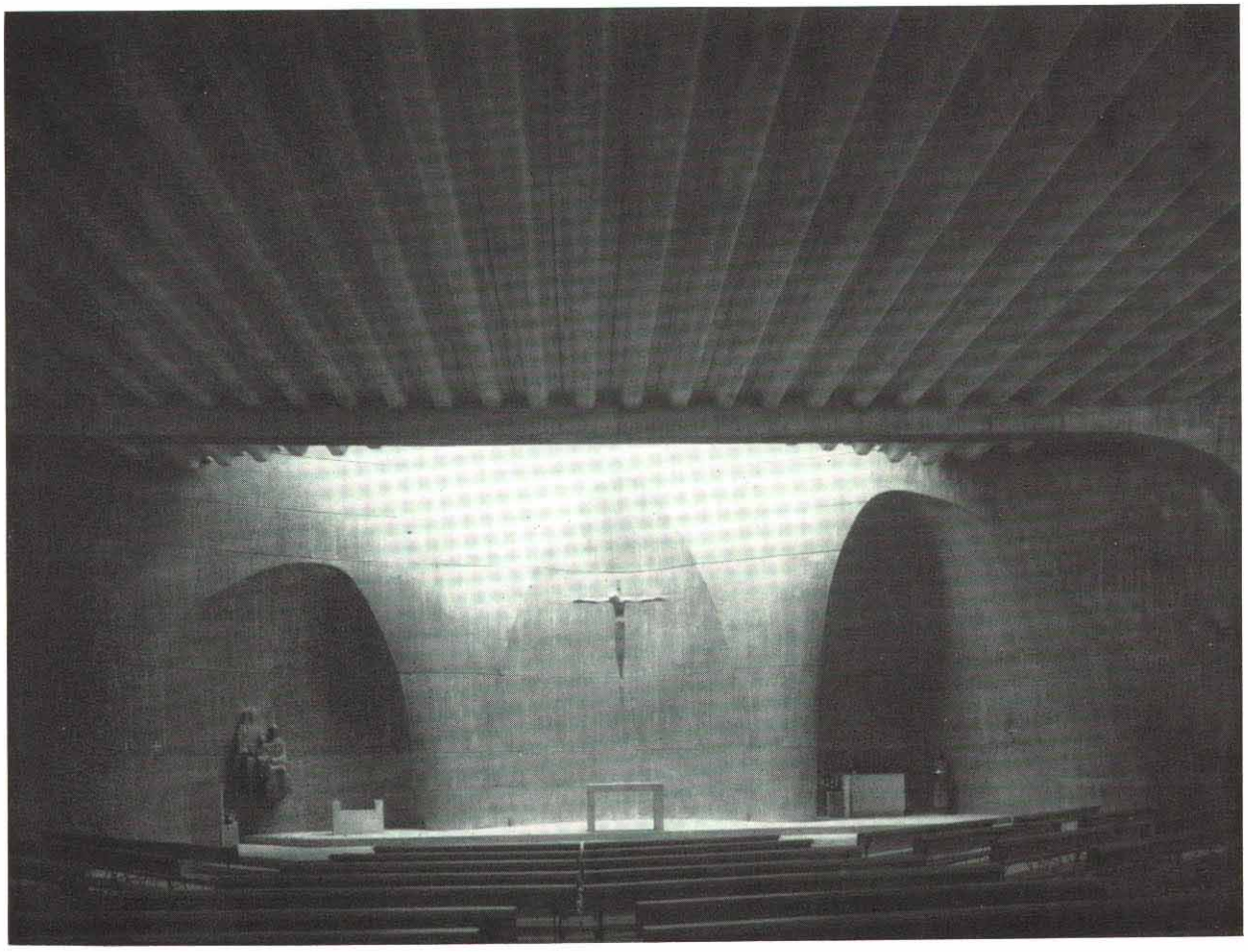
The church of Santa Ana, Moratalaz, Madrid

This church forms part of a complex development including social and office buildings. Although very different in character, all the buildings have in common the same roof structure which is typical of Fisac's work. The walls are curved (see over) and of in situ concrete which is left natural inside and out. The back of the church has convex walls internally to improve sound distribution. The three arched recesses facing the congregation contain a statue of St. Anne, the altar, and the tabernacle – this last lit from inside by a small concealed window. The hollow precast and post-tensioned roof units are 20–30 mm thick and span between 6 and 20 m. The units are left exposed underneath and result in a corrugated ceiling. The use of indirect natural lighting to create a suitable atmosphere is an important part of the church design and comes either from the back of the church or from above. In the latter case, light is directed onto the altar and this is achieved by stopping short the precast roof units in varying lengths and cantilevering them from a beam. The total effect is restful and dignified.



Church of Santa Ana, interior courtyard.





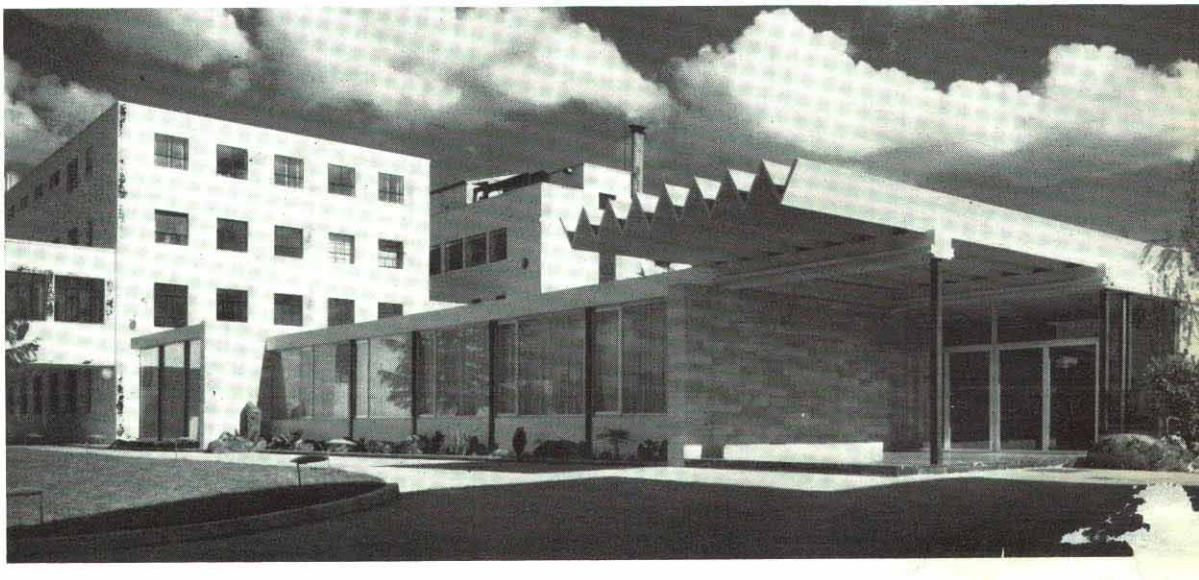
Left : Interior of the church of Santa Ana showing the roof units stopped short in varying lengths to form top-lighting to the altar. Above : General interior view, church of Santa Ana.

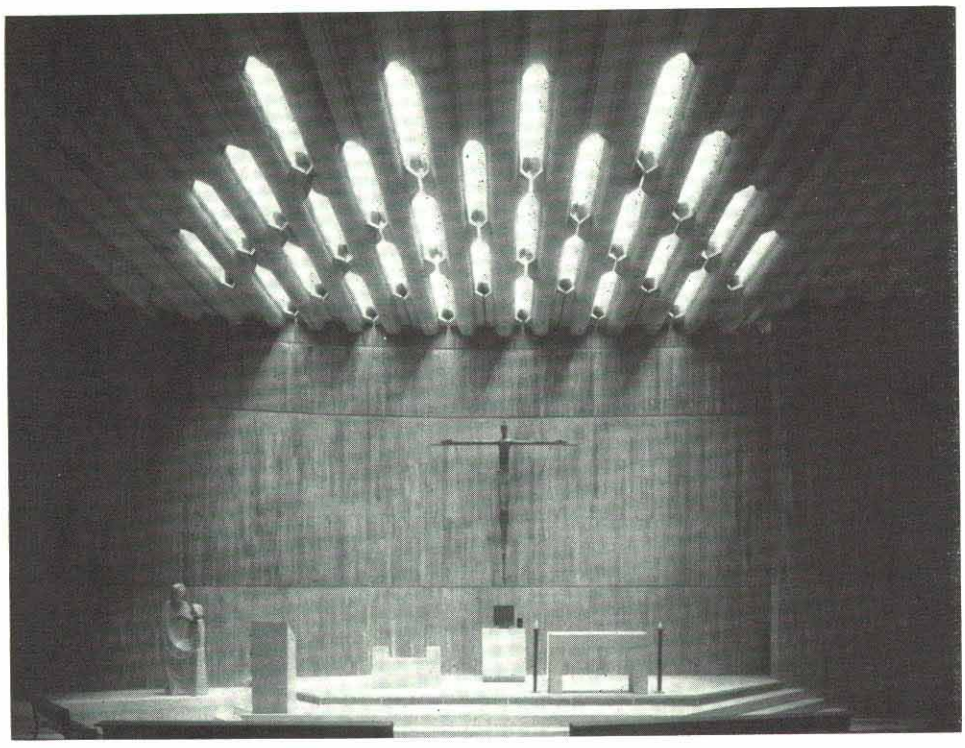
MIGUEL FISAC
continued

Alter Laboratories

This was one of the early buildings designed by Fisac. The corrugated concrete membrane is here used only for the main entrance canopy. But it indicates the beginning of Fisac's ideas about precast concrete roofing.

Entrance canopy, Alter Laboratories.





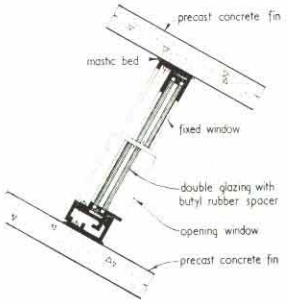
Left and below : The use of prefabricated roof units in the church at the Collegio de la Asuncion.

Girls' school, Alcobendas, Madrid

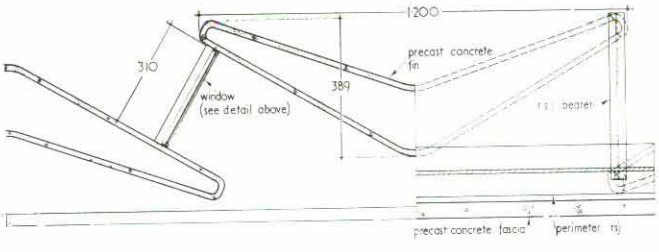
The Collegio de la Asuncion is a secondary school for 1,500 girls. At the centre of the various buildings is a church, simpler than that of Santa Ana but with similar precast roof units and in situ concrete walls. Top lighting, however, is provided by piercing the units rather than stopping them short. Artificial lighting is placed within the roof structure in such a way that the lighting effect at night is similar to that in the day.

IBM Building, Madrid

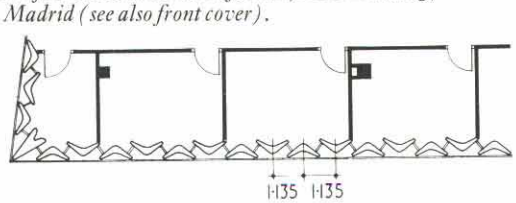
This is a comparatively recent building of Fisac's. It is almost square on plan and has a vertical core of communications and services. All floors are air-conditioned. The ground floor houses computers, and on other floors there are lecture rooms and offices. The first floor is given over to training. All floors have an open plan to give maximum flexibility. The south facade has almost continuous sunshine from April to September, and for this reason Fisac has devised an ingenious *brise-soleil* wall system made up of prefabricated elements which are shaped in section like a boomerang. Each consists of a hollow 15 mm-thick concrete shell filled with insulating material. Between the units there are small windows 300 mm wide. The storey-height wall elements are placed between floor slabs and are staggered on adjoining floors to prevent them reading as structural elements. The building has proved to be very satisfactory in operation, and IBM consider it to be one of their most successful projects.



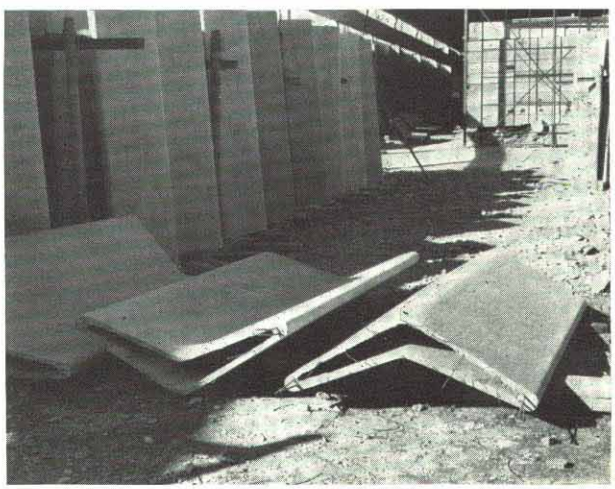
Details of window (left) and facing units (below) in the IBM Building, Madrid. (Drawings by courtesy of The Architects' Journal).



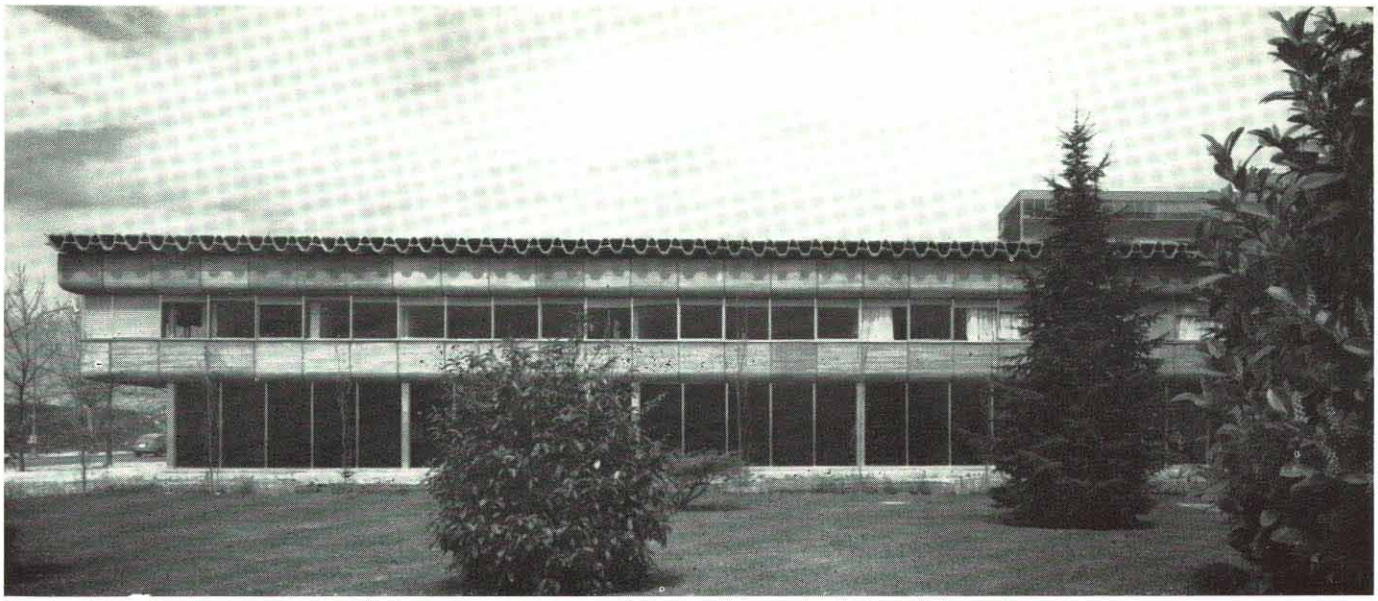
Prefabricated brise-soleil facade, IBM Building, Madrid (see also front cover).



Plan showing the arrangement of the facing units, IBM Building.



Right : The prefabricated facing units for the IBM Building before assembly.



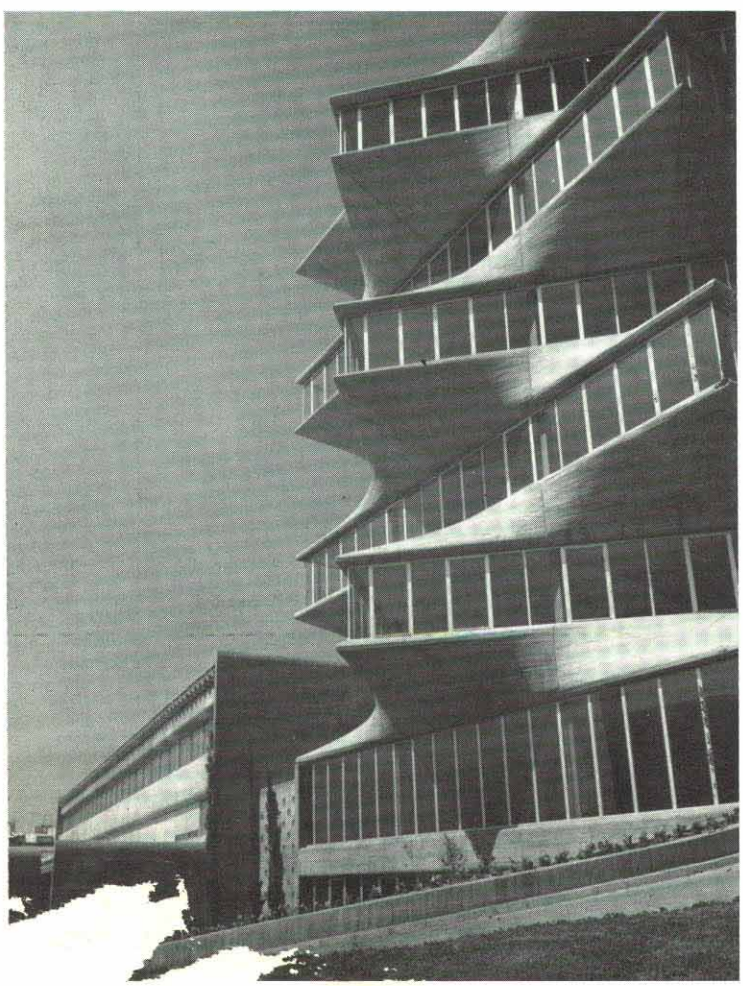
Electricity Building, Madrid.

MIGUEL FISAC *continued*

Electricity building, Madrid

The Centro de Calculo el Electronico in Madrid has three floor levels. Electrical installations, records and a computer are housed in the basement. The other two floors contain lecture, staff and waiting rooms and a library. Air-conditioning ducts, services and roller blinds are accommodated behind the concrete spandrel walls above and below the windows. The building is rectangular on plan and has prefabricated roof units spanning 14 m.

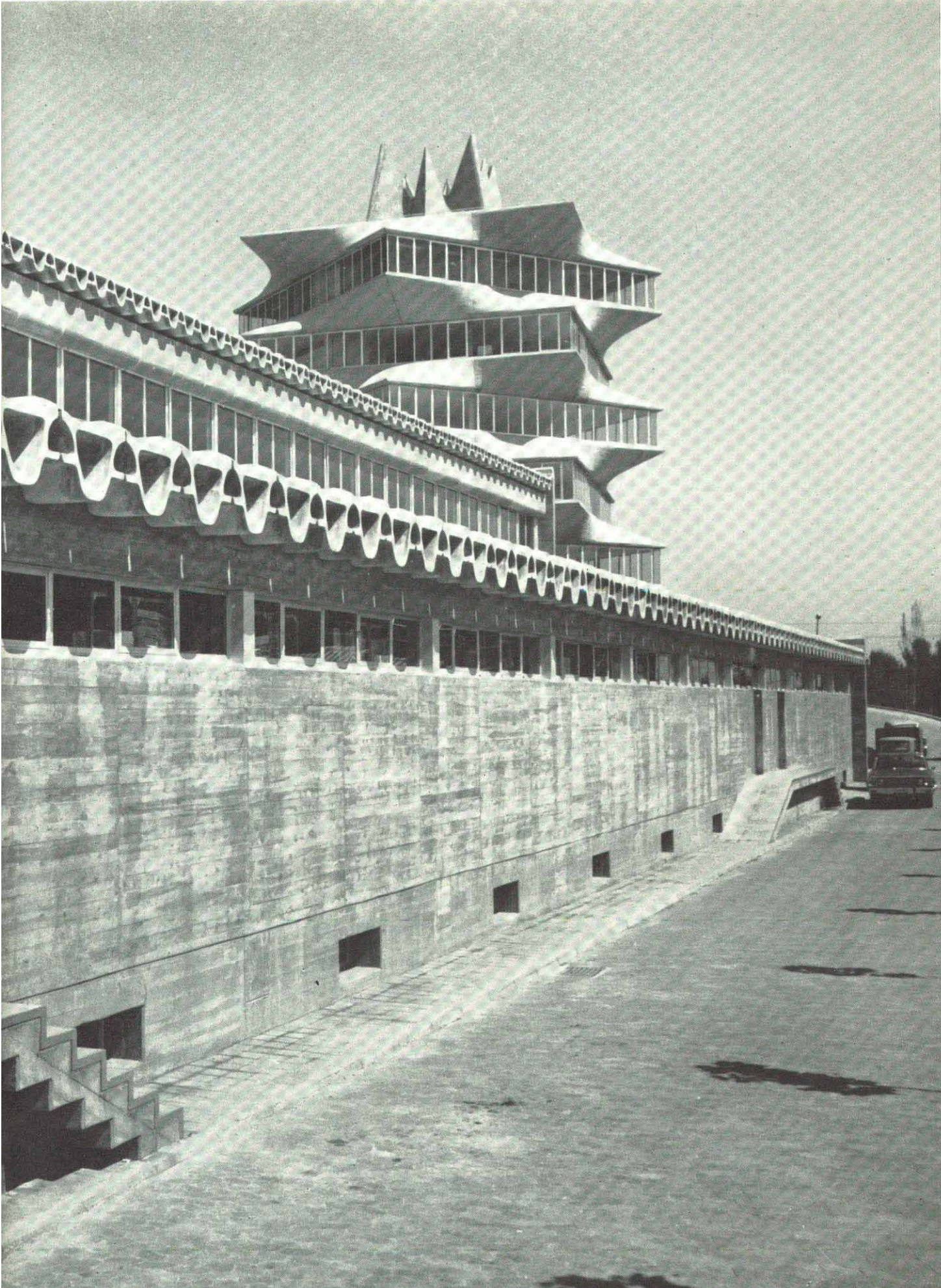
The tower block of the Jorba laboratories.

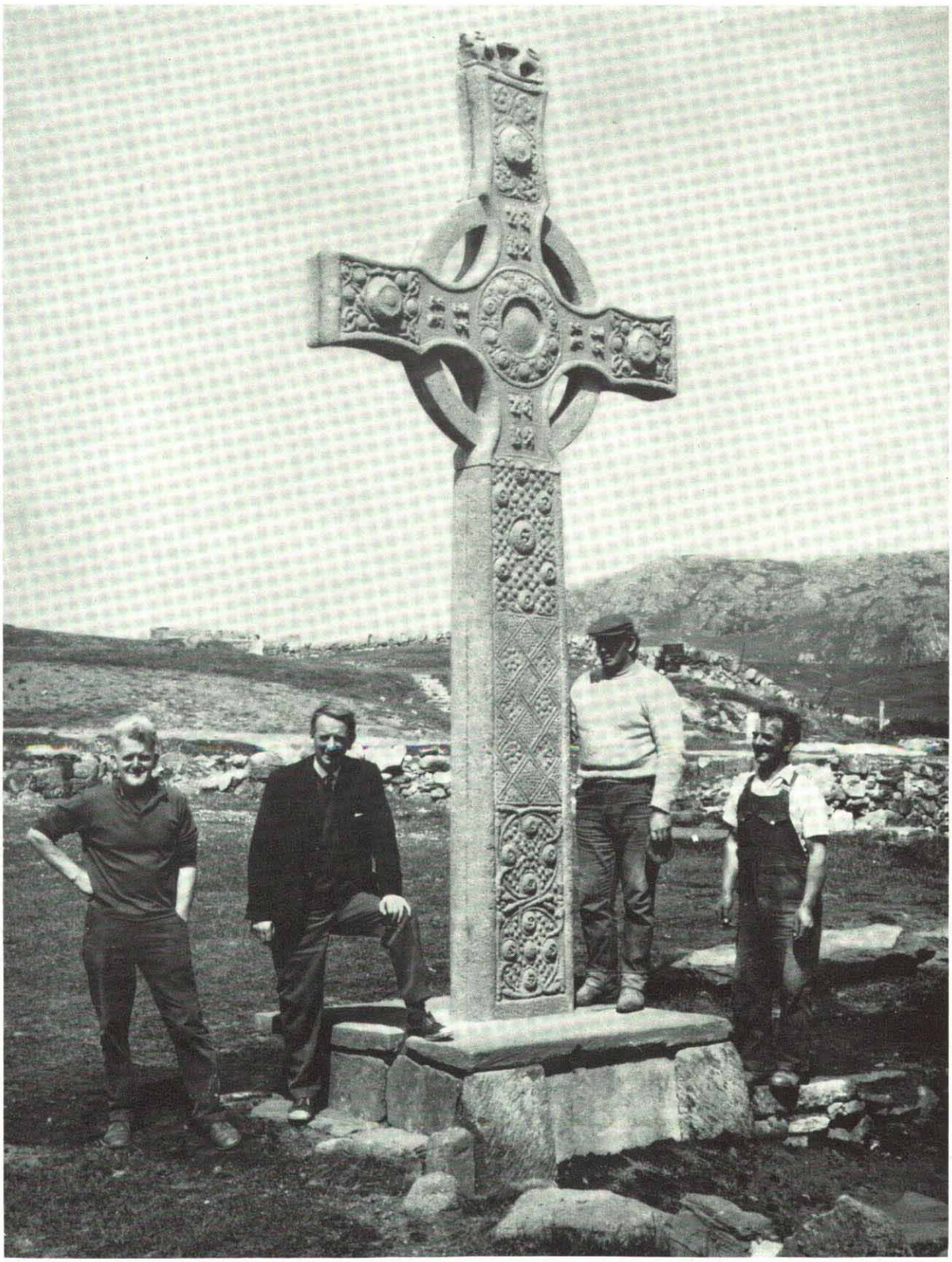


Pharmaceutical laboratories, Madrid

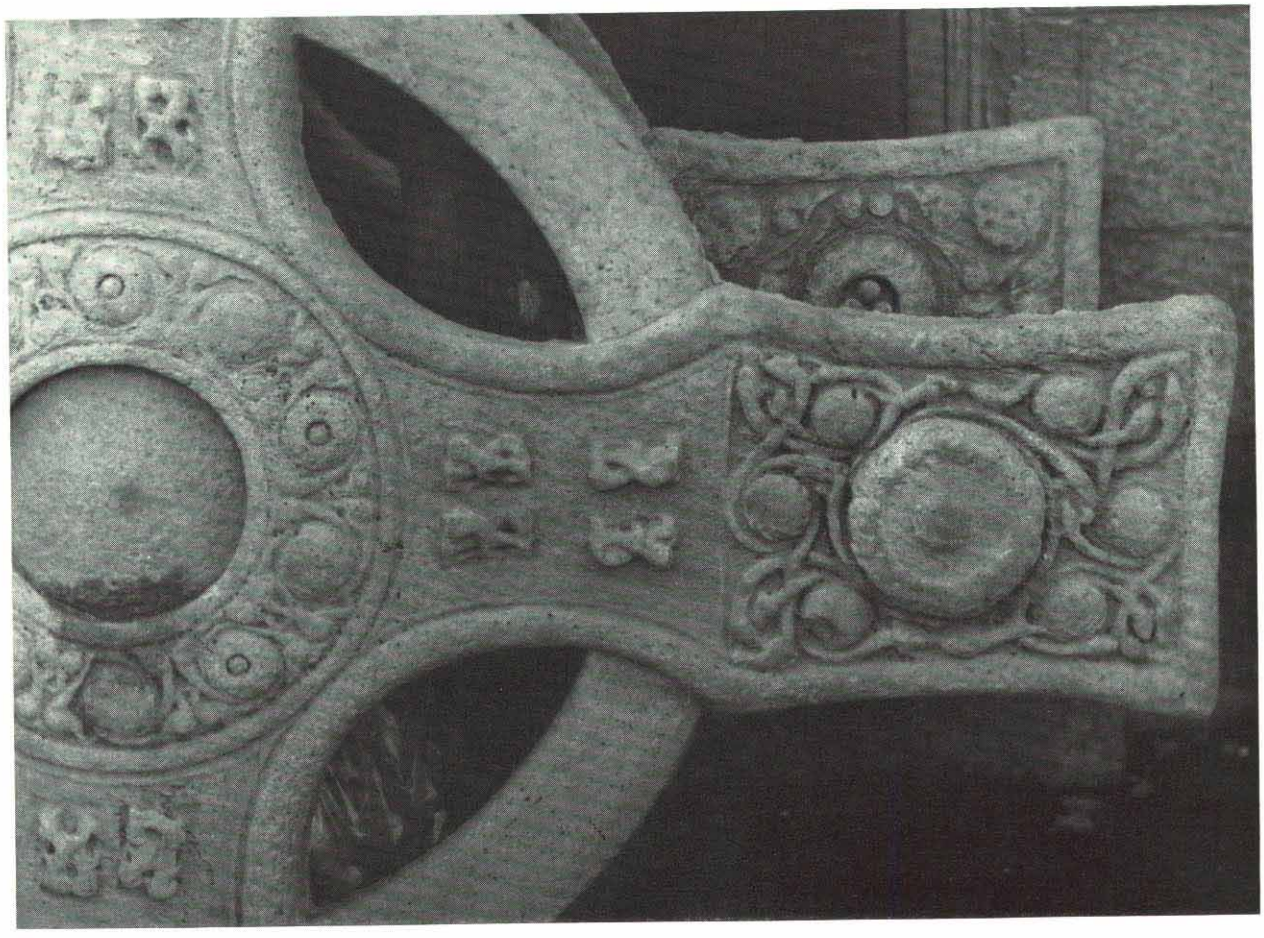
The Laboratorios Jorba is remarkable not only for its use of hollow precast units for the roof and 'balustrades' on the main elevation, but also for the tower block of in situ concrete, each floor of which is 16 m square and skewed diagonally over the one below. The resulting silhouette, with its pointed roof structures, is one of considerable interest. In this building, with its two markedly different uses of structural concrete, one may see Miguel Fisac's appreciation of the material as a plastic and versatile medium.

Right : General view of the Jorba laboratories.





the new cross of Iona



Close-up showing the finely cast detail on the cross.

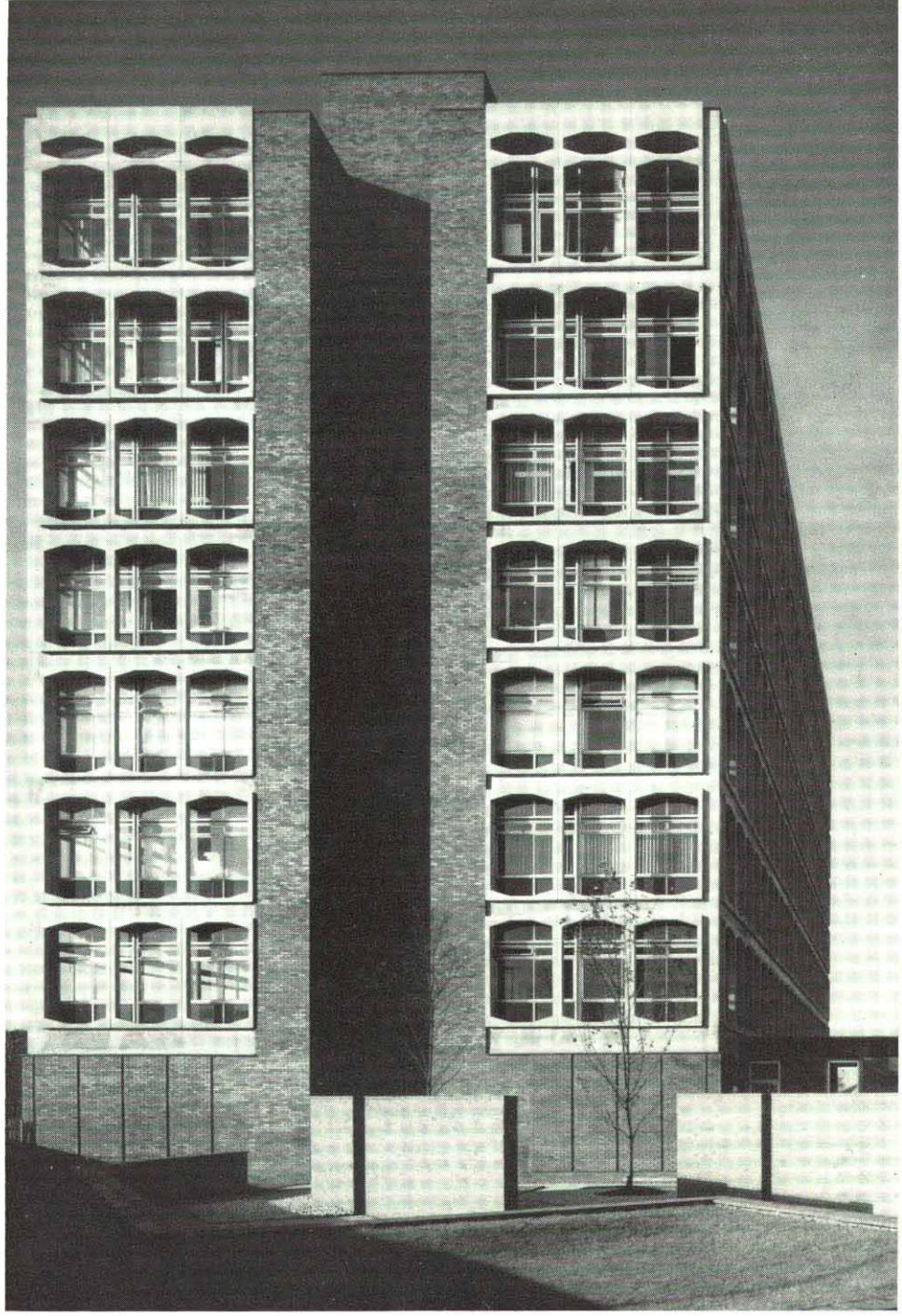
After many centuries and vicissitudes, a new St. John's Cross is now standing on the island of Iona – burial place of many of the early Scottish kings and famous as the base from which St. Columba operated in the 6th century. The ancient Cross of St. John was one of the most beautiful and celebrated monuments to Celtic art in Iona. It was probably carved at the end of the 8th or the beginning of the 9th century. Free-standing and of the Irish type, it measured about 4.4 m (14 ft. 6 in.) high, 2.1 m (7 ft.) across the arms, but had a shaft thickness of no more than 240 mm ($9\frac{1}{2}$ in.) at the base. It is likely that with inadequate tenon joints to meet wind forces, it fell down several times during its long life. In 1926-7, Professor Macalister of Dublin collected the fragments and had it re-erected. After that it stood until further falls in 1951 and 1957. In the February gales of the latter year, the upper part of the cross was blown down; thereafter the fragments were boxed beside the museum and later the stump was removed.

The new cross is cast in concrete to withstand the ravages of time and weather, and is a painstakingly exact replica of the original cross. It has been made for the Iona Cathedral Trustees at a cost of £5,000. The cross has been erected on the site of the original outside the west door of the abbey. The original shaft will be on view to the public in a specially built shelter.

The replica was first cast in plaster from the broken fragments – a delicate and laborious process of reconstruction carried out by George Mancini of Edinburgh, an artistic bronze founder of wide experience, with the guidance of Norman Robertson of the Ministry of Public Building and Works. Gelatine moulds for the concrete were then made from the plaster model, and the concrete cast face down on the moulds. This method was selected to reproduce accurately the finely sculptured detail of the original. The design and construction of the concrete replica were carried out by John Scott, a graduate of Strathclyde University and John Lawrie, lecturer at Edinburgh College of Art, both of Exposagg Limited.

The cross was made in five main parts, later assembled into three parts – head, shaft and base. There are 400 bosses on its two faces. The whole has been post-tensioned vertically with eight 7 mm (0.276 in.) diameter high-tensile wires to resist a wind force of 54 m per second (120 mph).

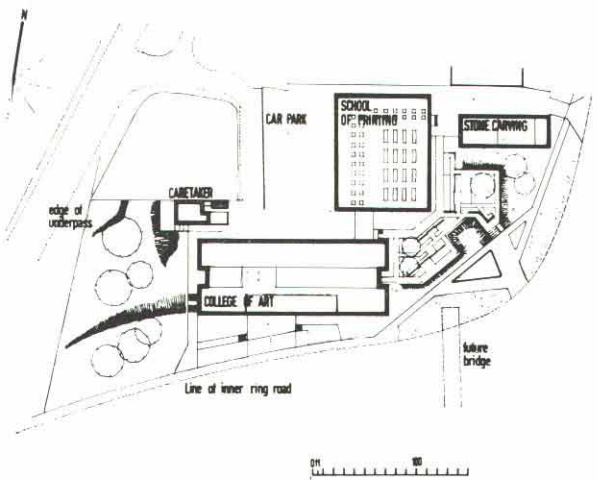
Great care was taken to match the colour of the concrete with the original stone. A natural green Dolorite aggregate was used with a very small quantity of black iron oxide. The cross was cast in the yard of D. & J. Borthwick, Edinburgh. The parts were then taken to Ayr docks and transported to Iona by the 'puffer' *Kaffir* on top of a cargo load of coal.

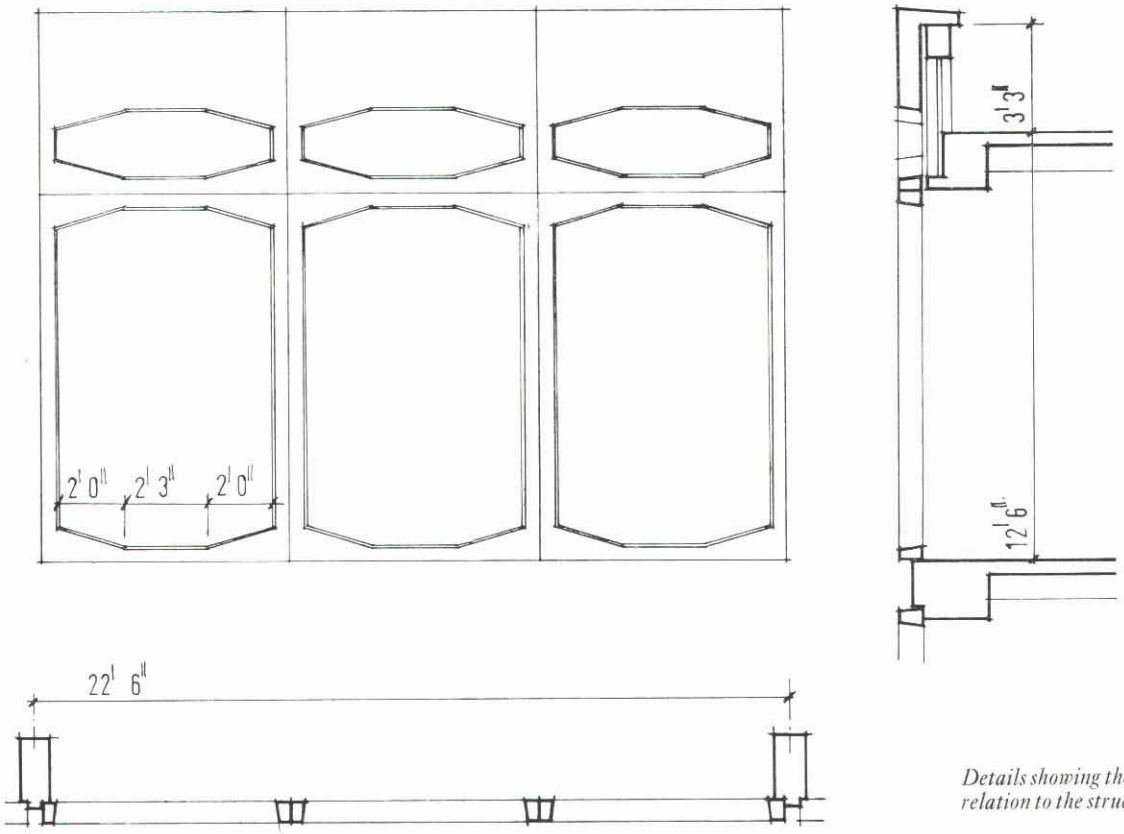


Precast concrete frames on the College of Art building.

College of Art

Wolverhampton Polytechnic





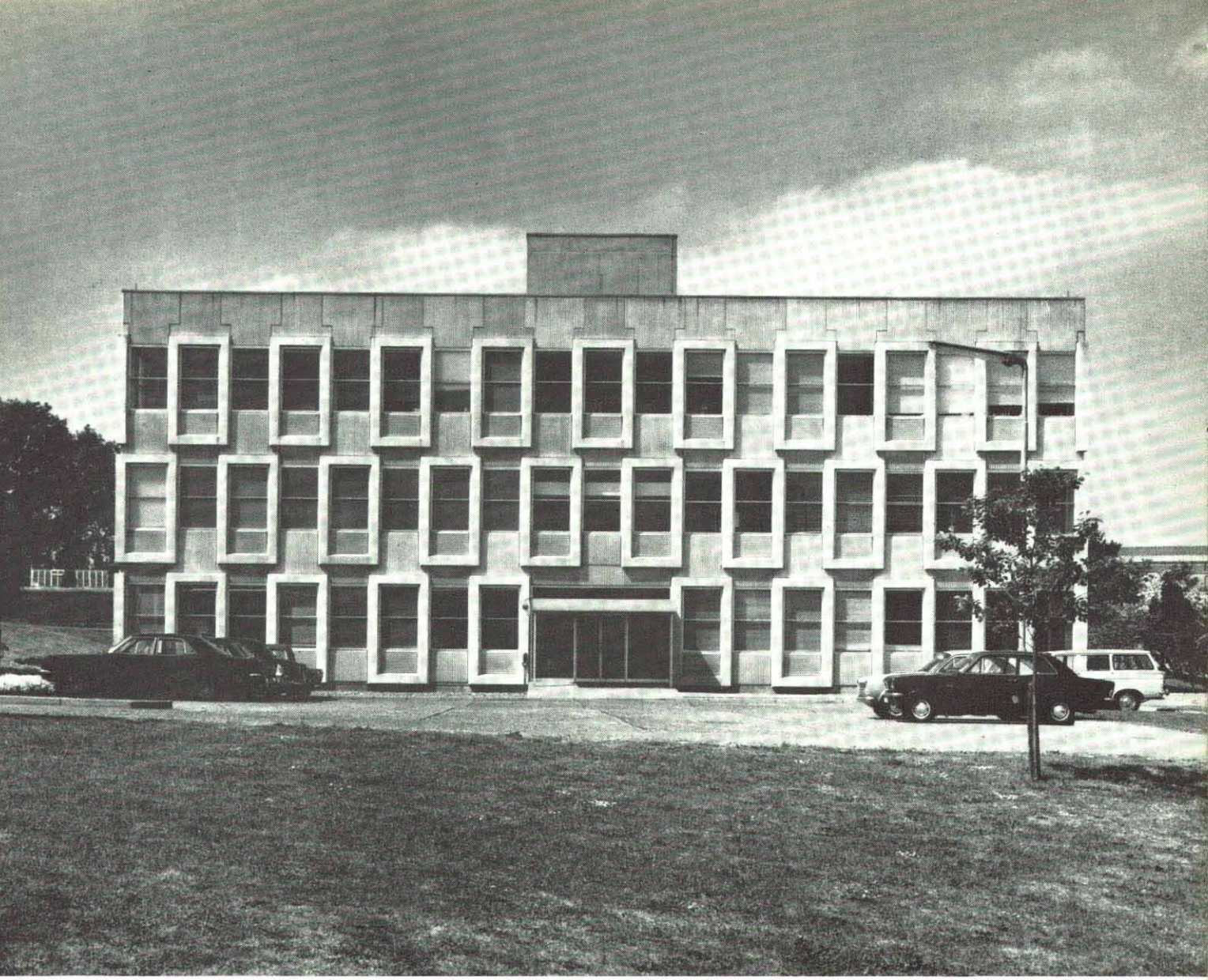
Details showing the frames in relation to the structure.

Studio interior showing the effect of the frames from inside.

Architects:	Diamond, Redfern and Partners in association with A. Chapman, ARIBA, AMTPI, Borough Architect
Structural engineers:	Truscon Limited
General contractors:	Wilson Lovatt (Midlands) Limited
Precast frame manufacturer:	J. A. King and Company Limited

This new College of Art, which forms part of the Faculty of Art and Design at Wolverhampton Polytechnic, shows an interesting use of precast concrete frames applied to a tall block. In this instance, they form a screen hung on the outside faces of the main in situ concrete structural frame. In this way, they provide a measure of sun protection for the large and continuous studio windows of the building. Aesthetically, they provide depth and modelling to the facades as an alternative to a flush curtain wall. The frames have an exposed granite chipping aggregate.

The building houses some 450 students and is constructed generally of in situ reinforced concrete with an exposed rough boardmarked finish. Floor slabs have deep ribs running from the external beams to the concrete core walls. The group of Faculty buildings includes a school of printing and a sculpture school, with some carefully worked out landscaping between.



Front elevation of the laboratory.

System-built laboratory

Markinch, Scotland

Architects:	Wheeler and Sproson
Structural engineers:	John Laing and Son Limited
Contractors:	John Laing Construction Limited

An interesting example of a system-built laboratory and office block has been completed at Markinch in Scotland. This is the central laboratory for Tullis Russell and Company Limited, well-known paper manufacturers, who have also built a new paper mill nearby.

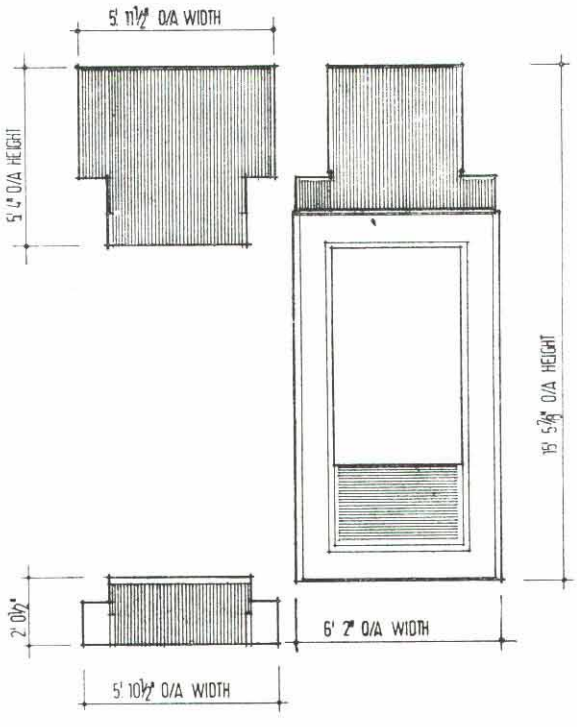
One of the most important aspects of building was the time factor. The programme involved the demolition of an existing old laboratory building, and as the removal and reinstallation of the equipment could only be done during the firm's annual summer holidays, the new laboratory had to be ready for occupation within nine months of the initial briefing.

In order to achieve the very tight building programme, the use of an industrialized building method was considered essential. Since the architects Wheeler and Sproson had been developing, in consultation with John Laing and Son Limited, a variation of the 'Laingwall' system of precast concrete frames, this seemed a very suitable use for it. Subsequently, a negotiated contract for the erection of the new laboratory was entered into with John Laing Construction Limited.

The building is planned as a three-storey hollow square with a central courtyard which can be roofed over if extra space is needed. Chemical laboratories are placed on the top floor, offices and staff rooms on the middle floor, and the physics laboratories, with their heavy equipment, on the ground floor.

Oblique view of the front elevation showing in detail the Laingwall frames and the ribbed concrete.

Elevations of the three main units.



The rectangular precast concrete frames are load-bearing structural elements designed with a high finish to form the external facades of the building. Each frame, weighing about 3.5 tonnes ($3\frac{1}{2}$ tons), was designed with a 1.5 m (5 ft.) module and contains an aluminium sliding sash in each window. The frames are set at window-width intervals and staggered the one over the other to give a chequer-board arrangement. From the architectural point of view, it was considered essential that the frames should be designed in such a way that corners could be neatly turned without the addition of mullions or other structural members. The fine finish was achieved by acid-etching the surface of the concrete which includes the use of white cement and Creetown granite aggregate. The frames were cast in specially designed fibreglass moulds.

Complicated services were, of course, required in the building. Continuous horizontal service ducts are formed around the perimeter walls from floor to sill at each level, housing cables and pipes for gases and liquids, all of which are on tap at any position required for laboratory benches. Air conditioning ducts are housed in corridor ceiling spaces.

HOUSES AT CASTELLARAS

South of France

by George Perkin

Entrance courtyard. Note the rough grass forming an upper terrace.

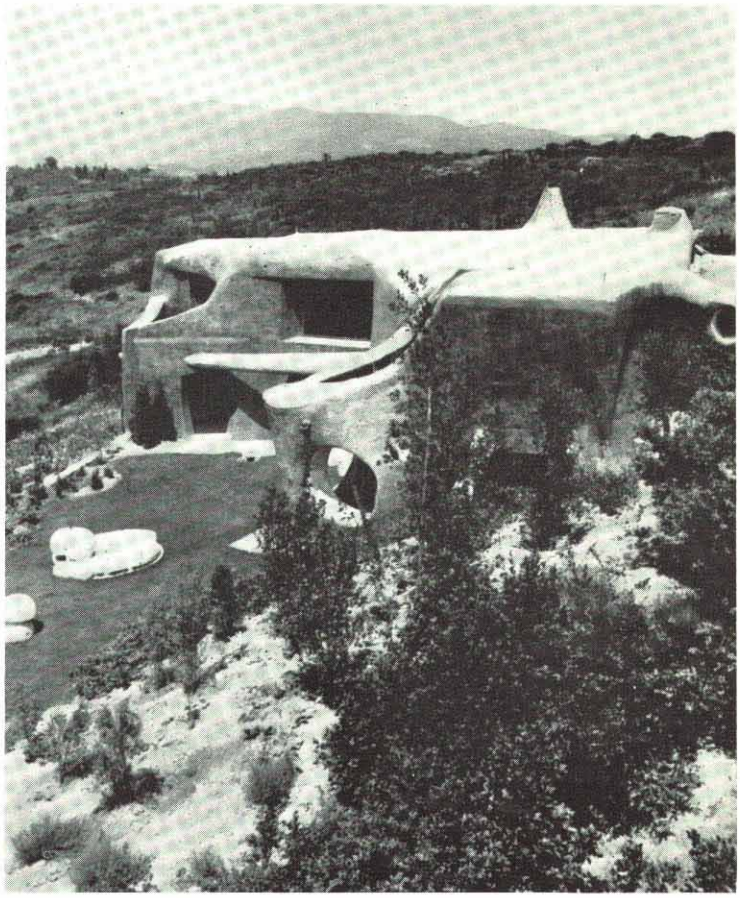
Architect: Jacques Couelle in collaboration with José Notari and A. Petithuguenin

A few years ago I was talking to an architect, who is also an artist and sculptor, and we were discussing the proper relationship between these different branches of the arts. It seemed that it was difficult to establish. "But in any case" he concluded "architecture is not the proper medium for personal expression". The conversation has stuck in my mind over the years because there seemed a lot of truth in it. And one wondered how many architects would have taken up their profession in the first place if they had fully realized it.

Even so, there are some rare designers who seem to manage a good deal of personal expression in their work. And a case in point is Jacques Couelle, a Frenchman, who seems to have been in his time a poet, visionary, sculptor, artist, biologist, archaeologist, philosopher – all sorts, in fact. He was born in Marseilles in 1902 and brought up in Provence with its hot rocky landscape which was to influence his whole way of thinking. For Couelle, building is nothing if not a medium for personal expression of his passionate beliefs. He began at 25, after studying archaeology, and built an extraordinary and rather grand villa at Grasse for an American financier. It was a strange marriage of stone and gardens, made up of ancient fireplaces, wellstones, vaults and porches culled from all over France. These he blended into the landscape so that they almost seemed part of it. A friend, Armand Lanoux, has written of him: "The young builder had only to continue the way he had begun in order to achieve a dazzling career. But he was driven by the need for originality and the absolute. He went on building, and that generously, but only by fits and starts, taking time off to dabble in biology and the esoteric arts, and the result was a complete mastery of the secrets of stone and fire. He patented invention after invention: concrete made on the analogy of living cells, torsion beams that were the talk of all the architectural magazines, electric conductors based on the nervous system, walls and floors whose inspiration was the whale's skin. He was a sorcerer, himself bewitched by too vast a universe".

This was the man who years later was to design and build near Grasse the two villages of Castellaras-le-Vieux with its traditional type of houses, and Castellaras-le-Neuf – the group of houses illustrated in this article.

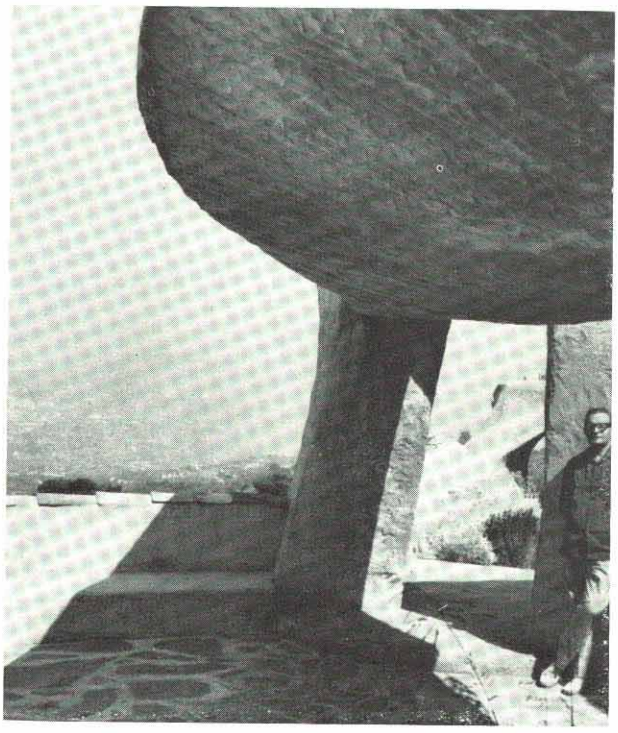
I visited Castellaras last summer, driven there one sweltering July morning from Cannes by Monsieur Petithuguenin, *coordinateur* of the building work. The village lies some 15 kilometres behind Cannes in the rocky hills overlooking Grasse – a curiously arrid landscape, full of the scent of dried grasses, pines and wild thyme; silent except for the cicadas like a distant orchestra of castanets. The village is built round a 17th century chateau which forms a social centre and has been restored with guest rooms and a restaurant. Nearby



General view of a house and garden and a typical piece of landscape.

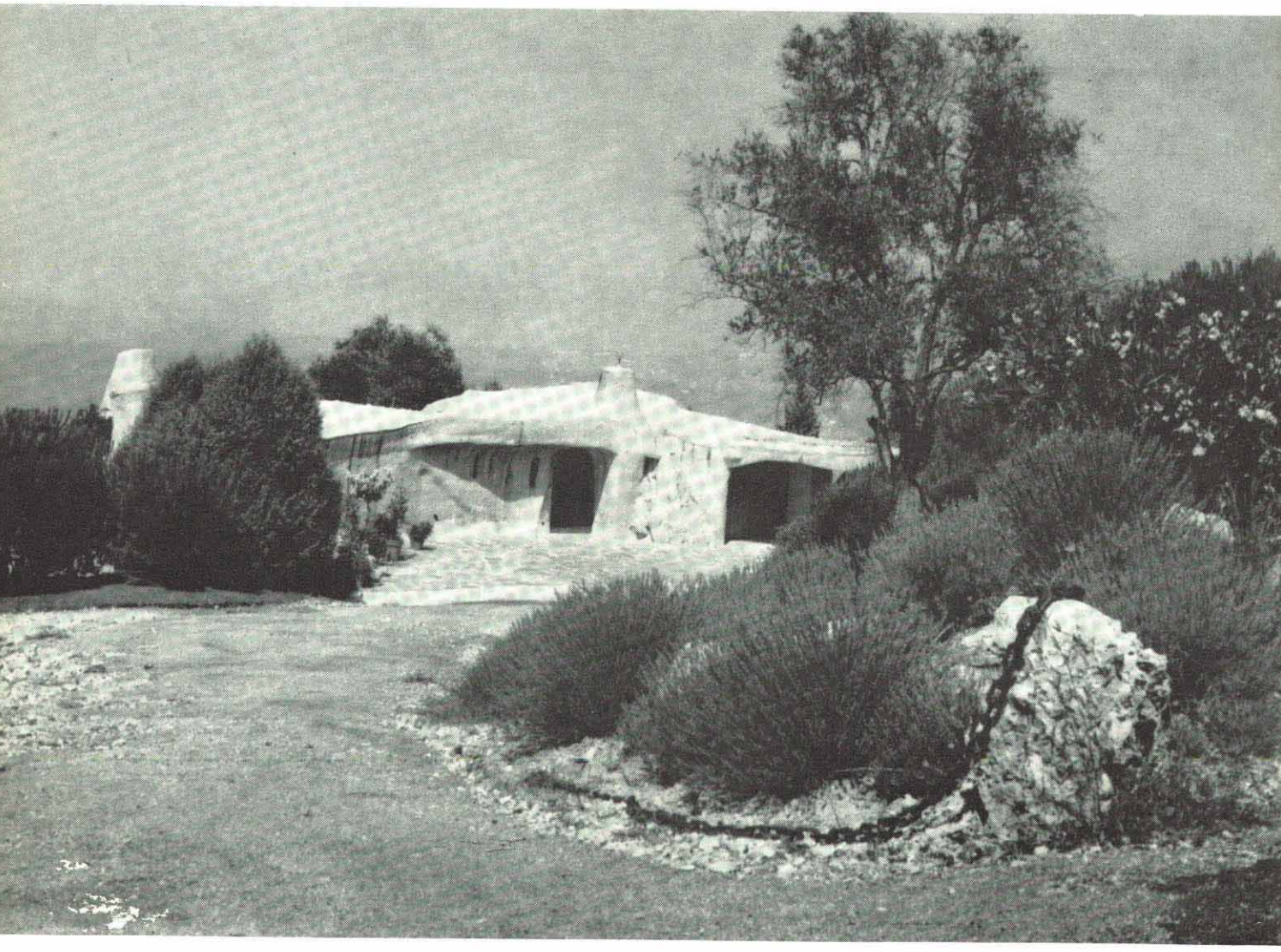
Another view of the entrance courtyard shown opposite, demonstrating how the architect has succeeded in trapping the untrained landscape within the house.

(Photograph by courtesy of 'Beton Prisma').



Paved terrace with a cantilevered roof above supported on one raked column. There is a fine view over Grasse in the background.

The front door and paved approach of one of the houses.



General view of the house shown top right from the main road.

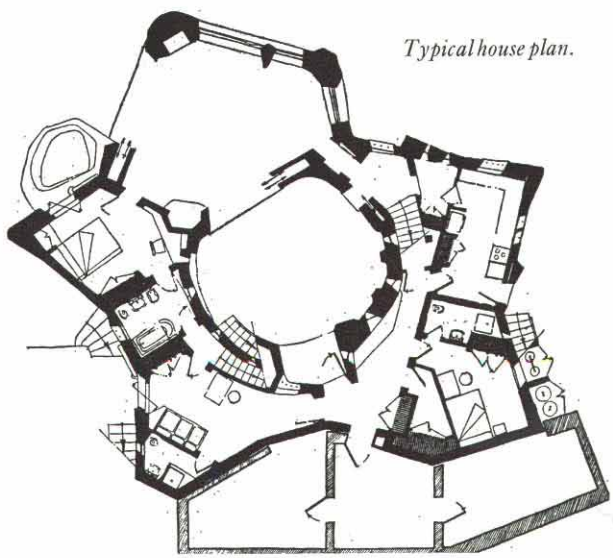
Reptile-like concrete column comes down beside a pool in an entrance courtyard.

(Photograph by courtesy of 'Beton Prisma').

there is a large cool green kidney-shaped swimming pool which, in this parched terrain, is absolutely irresistible. At the entrance to Castellaras-le-Neuf there is a gate and a lodge from which emerges a woman to ask if we have permission, thus immediately establishing the fact that the estate is 'exclusive'.

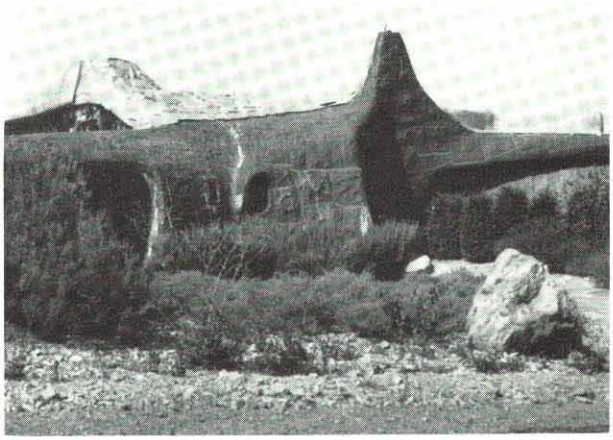
Along the road lie Jacques Couelle's houses. 'Lie' is perhaps quite a good word. Certainly they do not 'stand'. More accurately they could be said to 'crouch' over the baking rocks from which they grow like outcrops of stone themselves. From the outside, there is not a straight line or a rectangle (Couelle points out that in nature they don't exist). All is sculpture, some houses look like caves, others have twisted Gaudi-like concrete shapes: the work of Gaudi is what one immediately thinks of. Approaching the front door of a house with my camera, a gardener appears from the oleander trees, his skin tanned like old leather, and at the same time a thin, sharp, angular lady in a white linen dress opens the door. "*Vous avez permission?*" she asks on a high rising note. Castellaras is that sort of place.

The houses are built of what the French call *beton projeté* – concrete sprayed onto mesh reinforcement which may be placed around core walls of blockwork. Couelle's ideal, Armand Lanoux says, is to work on site with a megaphone, directing operations, "digging with a pneumatic drill into the rough-hewn rock and adding the missing volumes with a cement gun that vaporizes a dry-mixed concrete". "My houses", Couelle says, "are living beings . . . they have a nervous system, a stomach, intestines, a heart. They are built like madreporic sponges". Couelle also says that he is not really an inventor, merely an observer. He has, for instance, made a long study of cranial structures, adapting their principles to his constructions. He also spent seventeen years searching for the 'absolute' i.e. "striving to transpose the peculiarities of the animal and vegetable realms". And in all this he keeps coming back to the sponges. In Paris he founded *The Centre for Research in Natural Studies* which, apparently, was to study "the lessons of the sponges". In language that seems less high-flown, Couelle simply says that his houses are



Typical house plan.

A gardener ascending the steps which wind round the walls of this house.

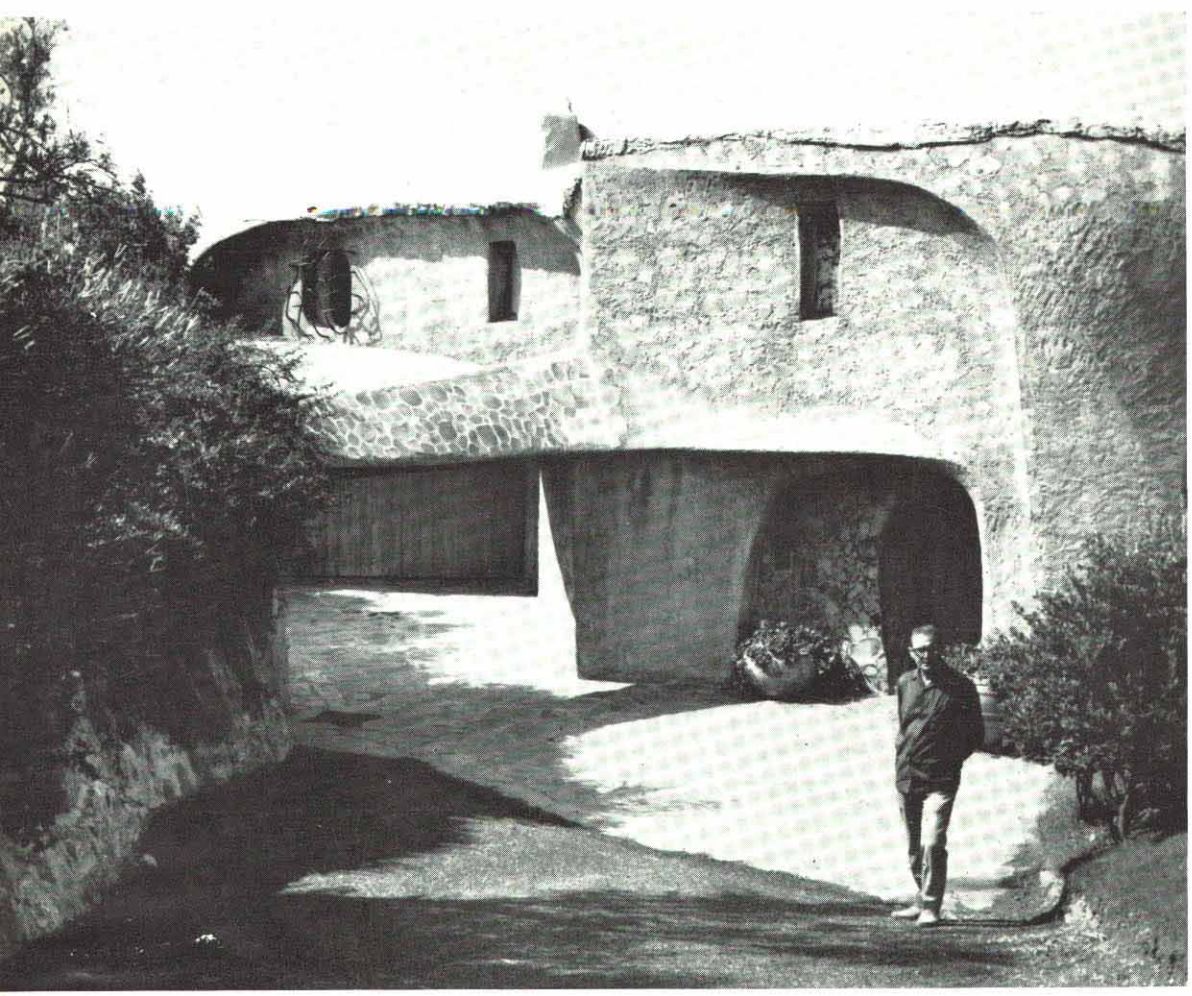


Some of the houses have a strange primeval quality about them.

inhabitable sculptures. And that is certainly what they are.

There is also, in Couelle's philosophy, a good deal about the sun and the siting of the houses at Castellaras. The sun, he says, is one of the "dimensions" of architecture and he can go to lengths to get a perfect play of light and shadow in a dining-room. "Look, there's my sun coming right now . . ." Couelle says, pointing to openings in his concrete walls which are filled with coloured glass, like multi-coloured goblets. And in due course, they become filled with a fiery light. Couelle's houses are said to "catch and trap the light". So that's another thing about them. But it isn't only the light that he seeks to trap within his houses: it is also the landscape. And in this he says he is the opposite of Richard Neutra who stripped the landscape bare before bringing it into the house. Couelle seeks to encircle the landscape as it stands, coming upon it unawares. At least that seems to be the idea. There's a lot more in Couelle's philosophy of building that one might mention: all sorts of dark broodings about Freud and womb-like structures and protection, but maybe this is not the time or the place to elaborate on them. No doubt, from a cursory glance at the pictures, you will get the general idea.

It is easy to be flippant about Couelle's ideas, but

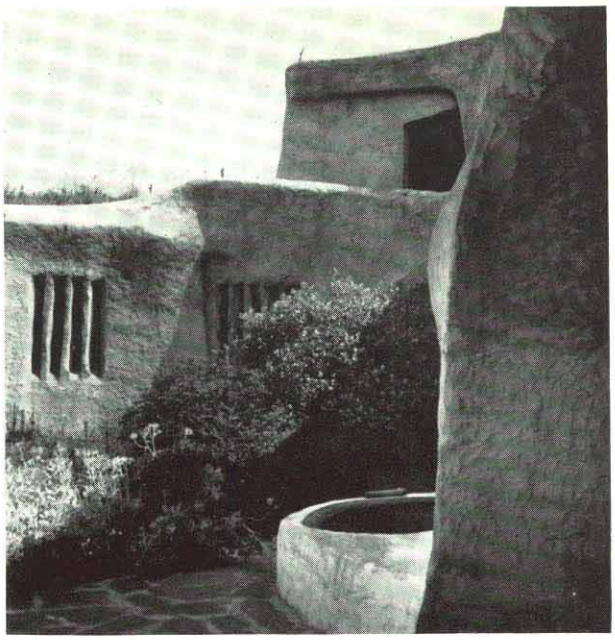


HOUSES AT CASTELLARAS
continued

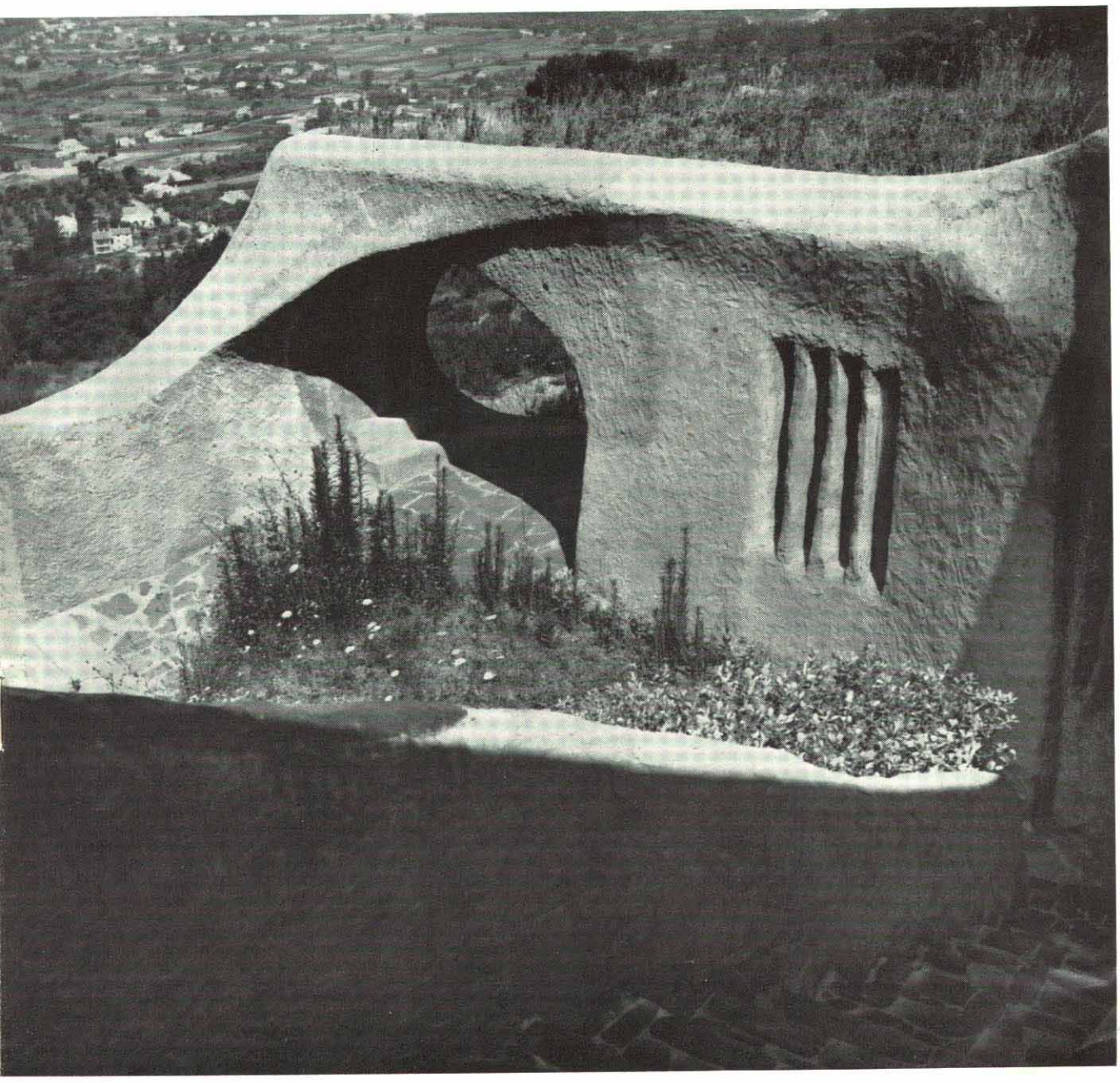
Left: Monsieur Petit-huguenin, building co-ordinator, stands at the bottom of a driveway. The front door is behind him and the garage to the left.

Right: View from a stair which descends from an upper terrace to the entrance courtyard, with an extensive view over Grasse beyond. Some of the windows are no more than narrow slots which are enough in the intense heat.

heavens knows we could do with some of them – sometimes. In fact, the houses are fascinating to visit. It is the sort of fascination that one can remember as a child when one was taken to look round some new place full of unexpected corners and places to explore. At Castellaras, in fact, one is always wondering what is just round the corner and the eye is led irresistibly on – up the steps which lead into the courtyard which leads round onto the terrace which leads up onto the roof which leads down into the living room which looks out onto the vast wide Provencal sky and earth and rocks. So you think it wouldn't do in Preston or Penge? Perhaps not, but one can think of contexts where it would. But anyway, one can't deny that Jacques Couelle has managed to make his architecture a medium for personal expression and that – in this day and age – seems rather a pleasing thought.



Approach to the house shown below.



Hotel Stavrby Skov seen from the coastal road, showing the integration of building and landscape.

Two Danish buildings

A contractors' training college and a hotel

by Graham Brooks, ARIBA

Graham Brooks is a partner in the Cardiff firm of Hird and Brooks. A short while ago he went to Denmark to see Knud Friis, one of the architects for these buildings, and was shown around. He was very much impressed by what he saw and says that the architects have understood completely the right materials to put with boardmarked and precast concrete. This aspect of complementary materials has, as yet, received surprisingly little attention so we are pleased to include here Graham Brooks' remarks.

Architects: Knud Friis and Elmar Moltke Nielsen

These two buildings can be described together as they are essentially the same in construction and finishes. One is a Contractors' College at Ebeltoft, and the other is the Hotel Stavrby Skov at Middelfart. Although their purpose may sound very different, this is in fact not so. The College is essentially an hotel with attendant lecture rooms. Courses last two to three weeks and it was felt important that the accommodation should be of a high standard with good social amenities, as this would add greatly to the value of the courses.

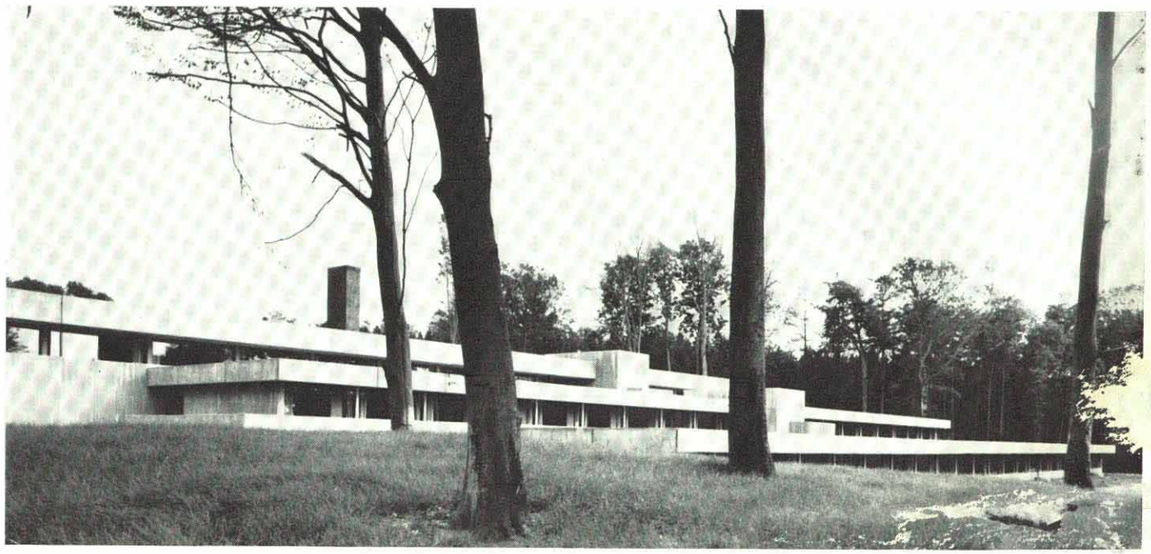
In both buildings, walls and columns are of in situ boardmarked concrete; beams (all exposed) and the deep fascia panels in the hotel are all precast and have a smooth surface.

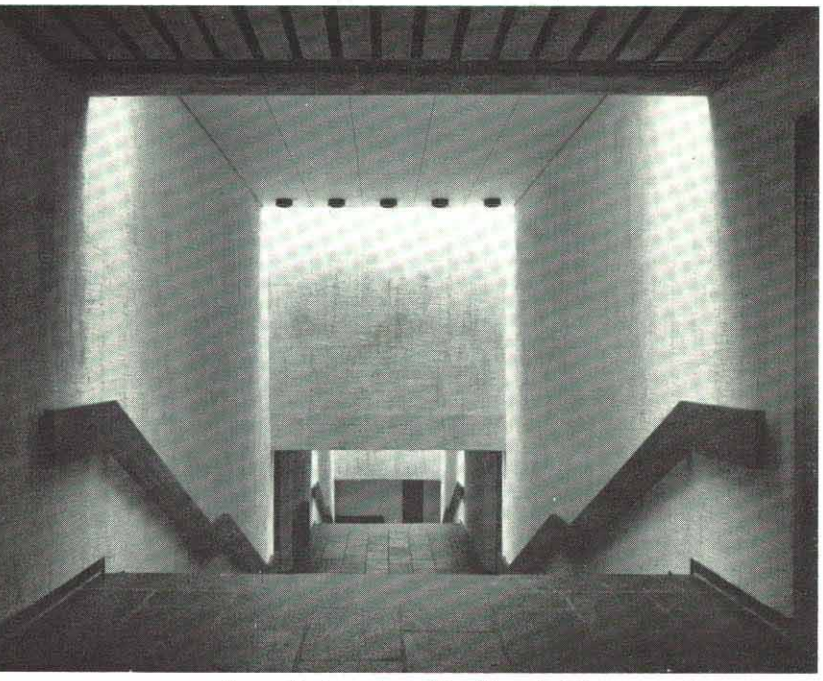
The quality of both the in situ and the precast work is remarkably good without trying to be too perfect. Irregularities in the in situ work are uniform and the smooth precast concrete is even throughout. The uniformity of the natural effects of concrete is the vital ingredient in the success of both buildings: consistent workmanship and an acceptance of concrete's natural tendencies have, together with the right choice of complementary materials, produced two excellent buildings.

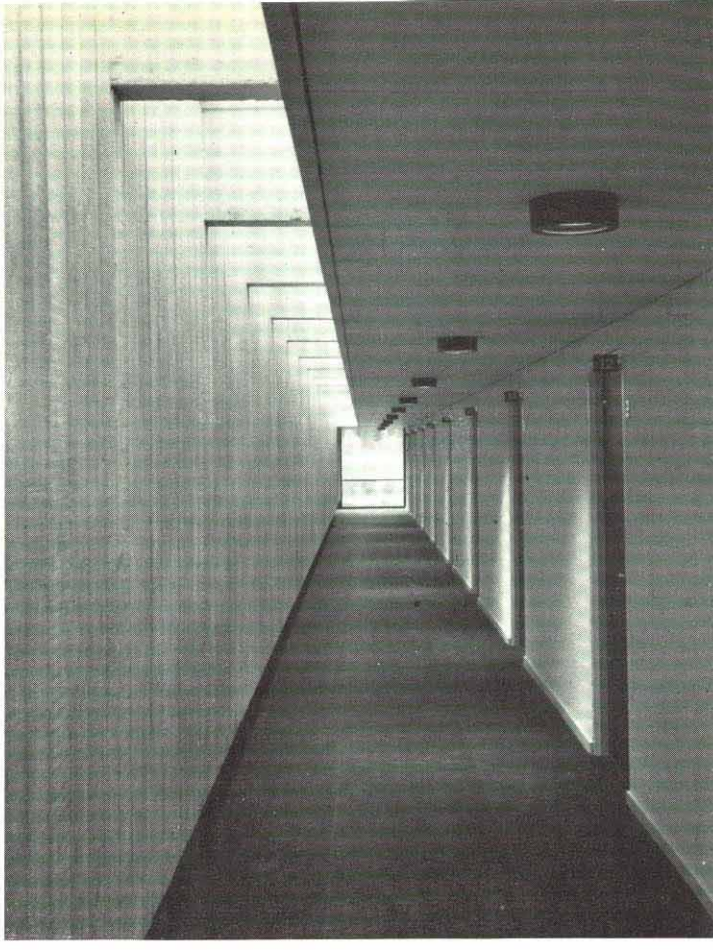
Floors in the main areas are of cleft black slate with wide joints. Some walls are finished with raw stained boards or with unpainted heavily textured rough-cast plaster. Benches are of leather and seats in strong colours. Ash trays and light fittings are of asbestos-cement or aluminium. The suspended ceilings in the hotel are of raw stained boards finished a concrete grey colour.

The basic theme of natural colours is given life by just the right amount of strong colour and white. The robust staircase balustrade in the College, for example, is painted a dark green. Externally in the hotel, the solid opening casements are painted red and blue in a random fashion. All sun umbrellas and outside table cloths are dark blue. Virginia creeper and ivy have been

Hotel Stavrby Skov. The three parallel buildings follow the sloping ground. Restaurants are in the top building, bedrooms in the lower wings.





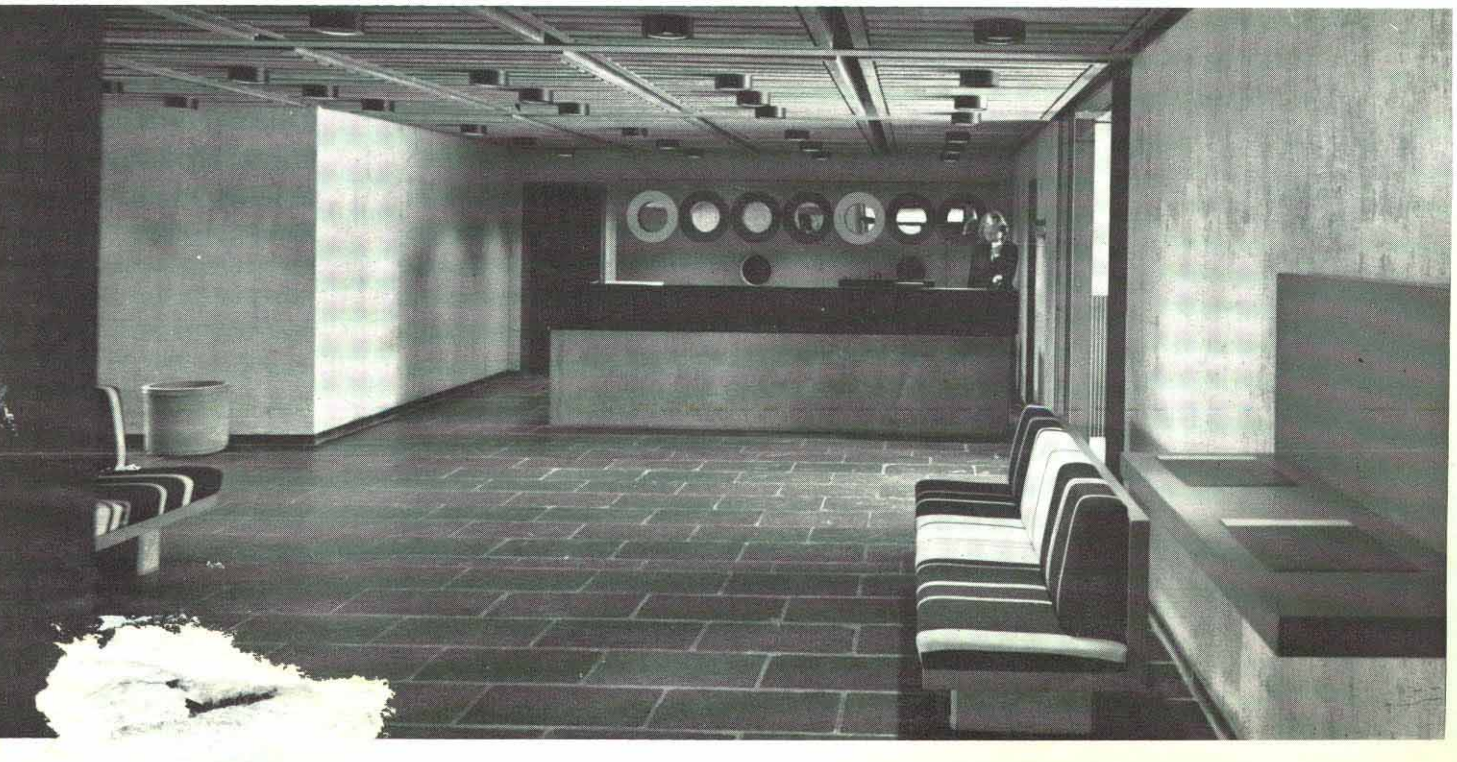


Above : Stairway in the Hotel Stavrby Skov, connecting bedrooms with vestibule. Floor and stair of black slate, wall finishes of heavily rough-cast rendering unpainted.
Right : A bedroom corridor in the hotel with dark blue carpet.

planted against stretches of concrete wall on both buildings, enhancing the link with nature.

The architects were concerned that both buildings, set as they are in areas of natural beauty, should be very much subordinated to nature, and here I feel that British architects could learn a great deal. The utter simplicity of both buildings is pure poetry. The College is designed like a bunker with grass roofs; as it is set in the open countryside, the long grass comes right up to the students' window sills and – as with the grass on the roofs – is left in its natural state. The only man-made landscaping externally is the courtyard with its large concrete flags, trees, water and copper lights. By contrast, the hotel is set in a glade with views of the sea and pebble beaches. Here again, the building is very sympathetic to nature, with its bedroom wings set down a slope, its upper building housing restaurants. Roofs are finished with large pebbles. Natural and artificial light

Hotel Stavrby Skov, reception area. Floors of black slate, walls heavily rough-cast rendering unpainted ; ceiling of raw-sawn boards painted concrete grey. Furniture is black and white with brilliant colours round port-hole mirrors for focal point.



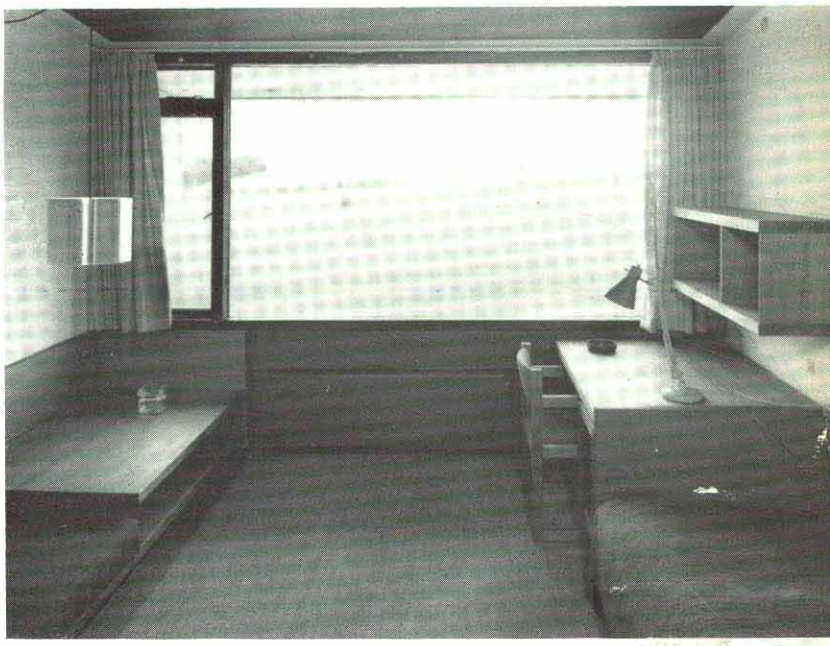
Contractors' College, Ebeltoft. Grassed roofs integrate the buildings well with the landscape.

in the hotel are as well conceived as everything else: natural light from continuous fibreglass strips over staircases and bedroom corridors (these top lights directly abut the walls) throws up the heavily-textured natural concrete walls. Artificial lighting in public areas and corridors is 'black hole' lighting and serves to illuminate the black slate floors and dark blue carpeted corridors, producing a remarkably cosy atmosphere.

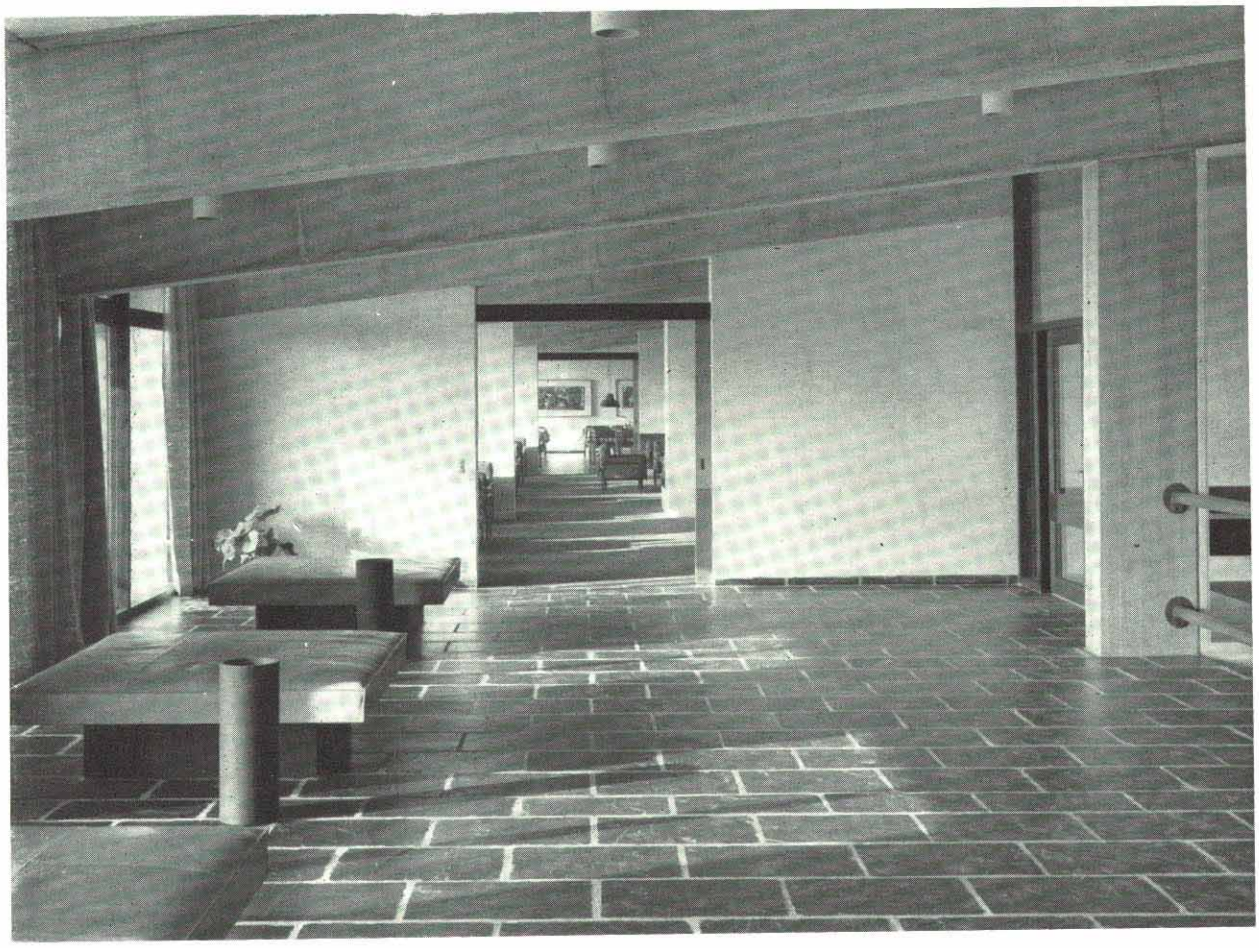
The ground between the hotel and the surrounding woods is terraced by means of earth walls which frame and hide the large car parks.

Both buildings illustrate to a marked degree a combination of artistic and practical qualities – a reflection, of course, of the architects themselves.

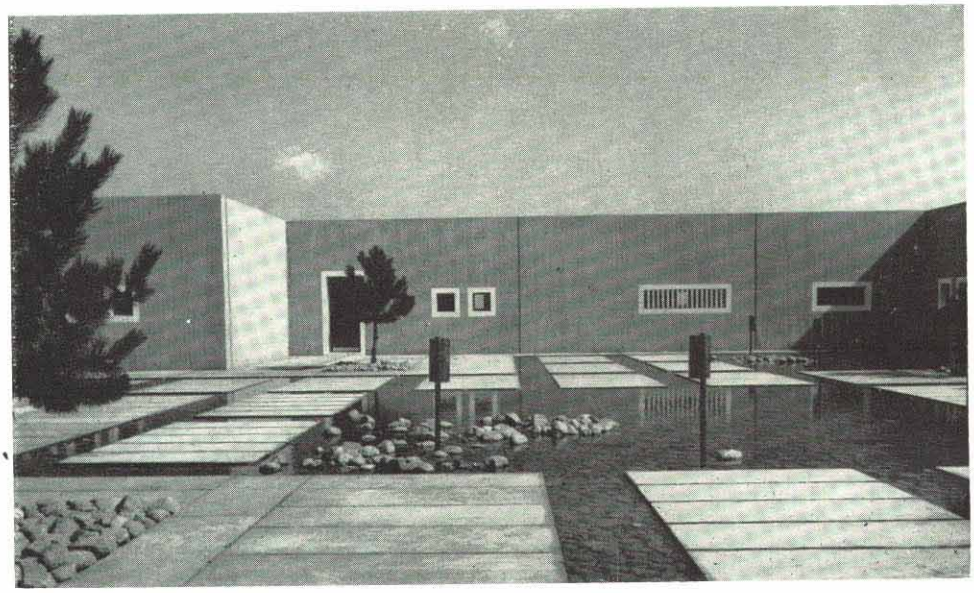
From my experience, concrete is a material that demands more from an architect than most other materials. After speaking to Knud Friis, it is clear that



Contractors' College. One of the forty identical bed-sitting rooms. The floor is covered with sisal.



Above : Contractors' College. Library, common-room and dining-room seen from the vestibule. Built-in square benches are covered in leather, the cylindrical ash-trays and light fittings are of asbestos-cement, floors are of black cleft Finmark slate.

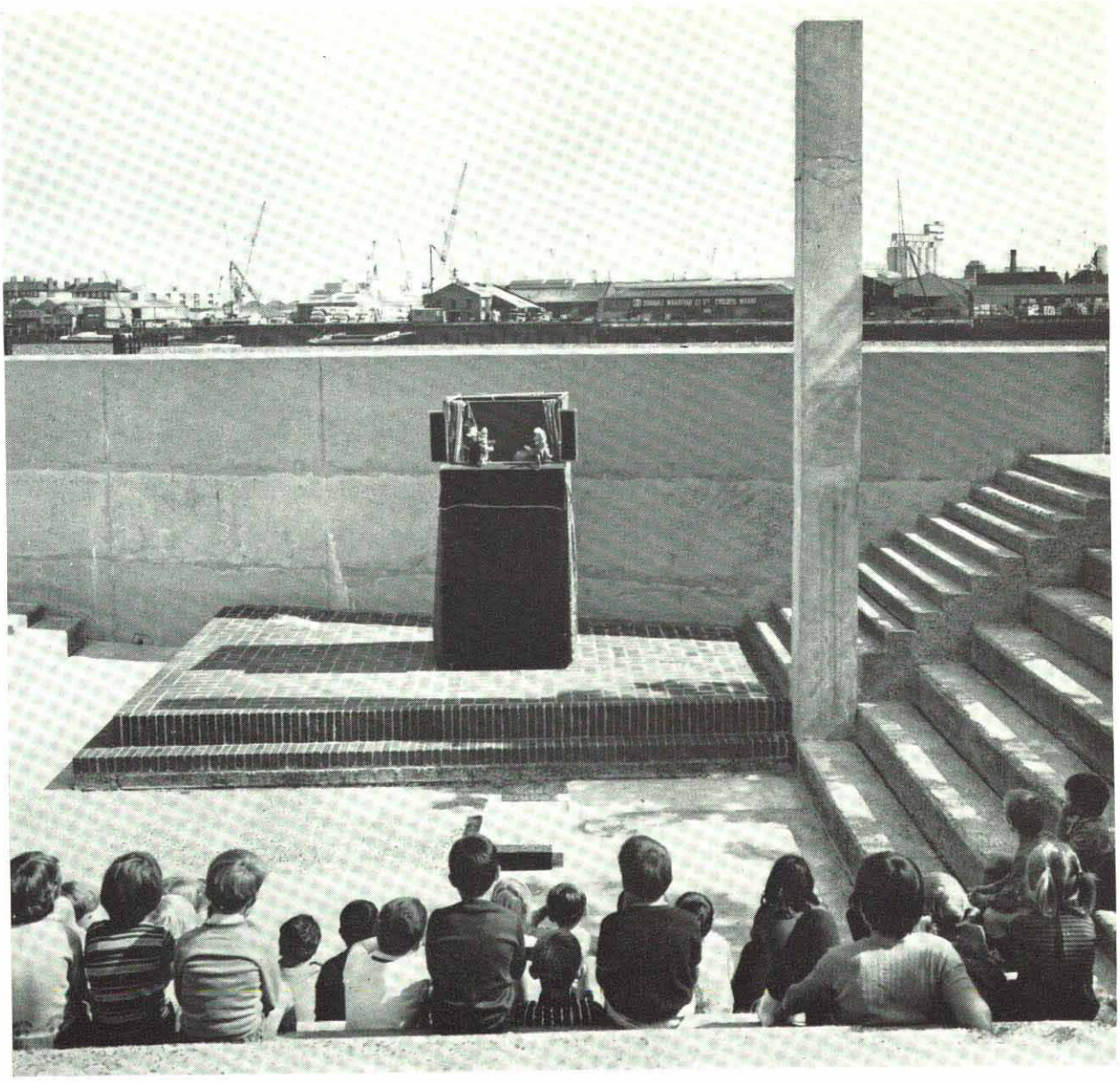


Right : Pools are formed in the courtyard to the Contractors' College by omitting some paving slabs ; lamp-posts are of copper.

the plastic form of the material has provided him with a big challenge which he has, in my opinion, understood and mastered completely. The concrete in these buildings looks as natural as stone in the walls and vaults of a cathedral.

In common with many other people, I have not liked many concrete buildings in this country because the ill-conceived use of accompanying materials has so often made the concrete look out of place and unfinished.

These two buildings are perfect examples of the right way to use concrete. Knud Friis and Elmar Moltke Nielsen have produced other buildings in concrete – most recently the Scandinavian Training and Conference Centre outside Aarhus. This I saw under construction, but even then it promised to be a most exciting building to experience on completion.



A Punch and Judy show in progress with the river beyond.

Photographs by George Perkin

Thames-side children's theatre

at Pepys Park, Deptford

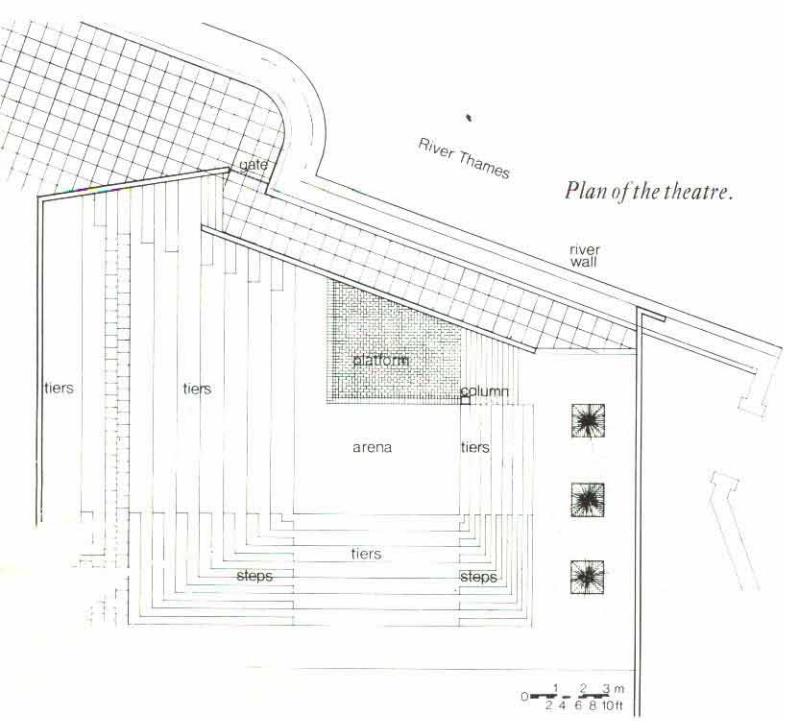
Architects:	Peter Barefoot and Associates
Structural engineers:	GLC, Architects' Department
Contractors:	J. S. Bishop and Company Limited

In the East End of London, at Pepys Park, Deptford, there is a new open-air children's theatre right on the edge of the Thames. This is a small but inspired human touch in a new and densely built-up area not especially remarkable for human touches. In this little sunken arena, on the sunny August morning that we went there, a Punch and Judy show was going on with quite a large audience, as the pictures show. But the theatre can also be used for plays and all sorts of performances. The fact that it is only separated from the Thames by a concrete wall, with all the cranes, barges and river traffic behind, adds greatly to the drama of any performance being given.

The theatre has been built for the GLC Parks Department as part of a playground in a twelve-acre park development (perhaps we mean a '4.8562-hectare park development') along the river frontage. It is on the site of the former naval victualling yard and near the Pepys Estate housing development.

The architects have provided an open arena to serve both as a play space for small children and as an open-

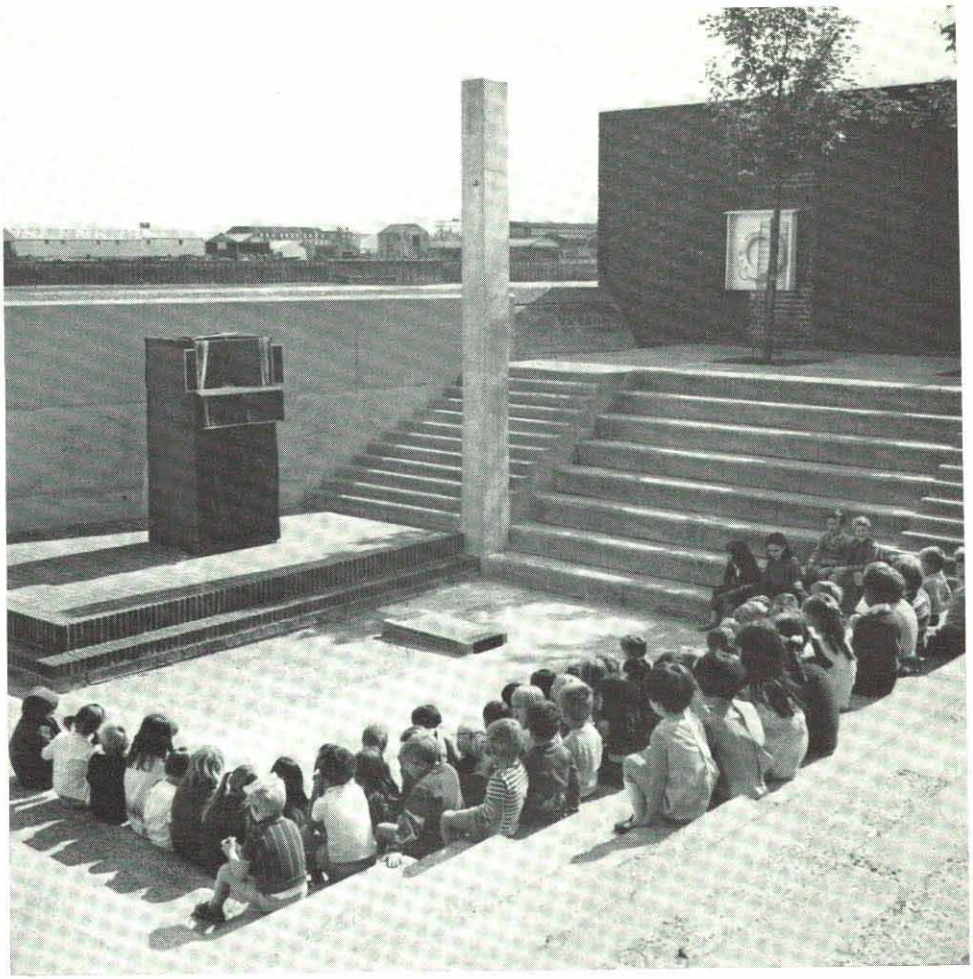
An enthusiastic audience seated on the concrete tiers. The Pepys Estate housing development is in the background.



Plan of the theatre.

air theatre. It takes the form of stepped concrete tiers of seats on three sides of a brick-paved platform which is the stage. Behind the stage, a plain concrete wall provides sound reflection, a barrier against the river, and wind shelter. A free-standing concrete column has been built to one side of the stage to act as a vertical focal point and also as a support for bunting, lights or a velarium. Three semi-mature sycamore trees have been planted on the top terrace on one side.

The terraces can hold an audience of four to five hundred children, but the theatre is also suited to informal smaller groups. It was first used for a public performance in July 1969, and is expected to be in use every summer. It certainly should be.



Oblique view of the theatre showing the sycamore trees planted on the top terrace and the free-standing concrete column which can be used for bunting, lights or a velarium.

The end of the performance.

The spaces between buildings

by Anthony Matthes

Anthony Matthes was the first winner of the Kirkwood Dodds Travelling Scholarship which was set up in 1969 by The Concrete Society for the study of concrete in its widest sense – i.e. engineering or architecture, techniques of design, construction or management, materials or economics. The subject chosen by Mr. Matthes was the use of concrete in the spaces between buildings. He is himself an architect specializing in landscape work and is at present practising in Suffolk and is third year Landscape Tutor at the Gloucestershire College of Art and Design.

Our trip through the Continent was a search for interesting uses of concrete in the spaces between and around buildings. It lasted four months, covered 15,000 miles and involved staying in 35 different places. The journey was confined to a narrow belt of western Europe as it seemed that there would be more to find in this area than anywhere else. Places visited included Holland, West Germany, Austria, Switzerland, France, Liechtenstein, Berlin through East Germany, Denmark and Sweden. The success of the trip was largely due to the kindness and patience of many people without whom we would not have known about many of the best examples.

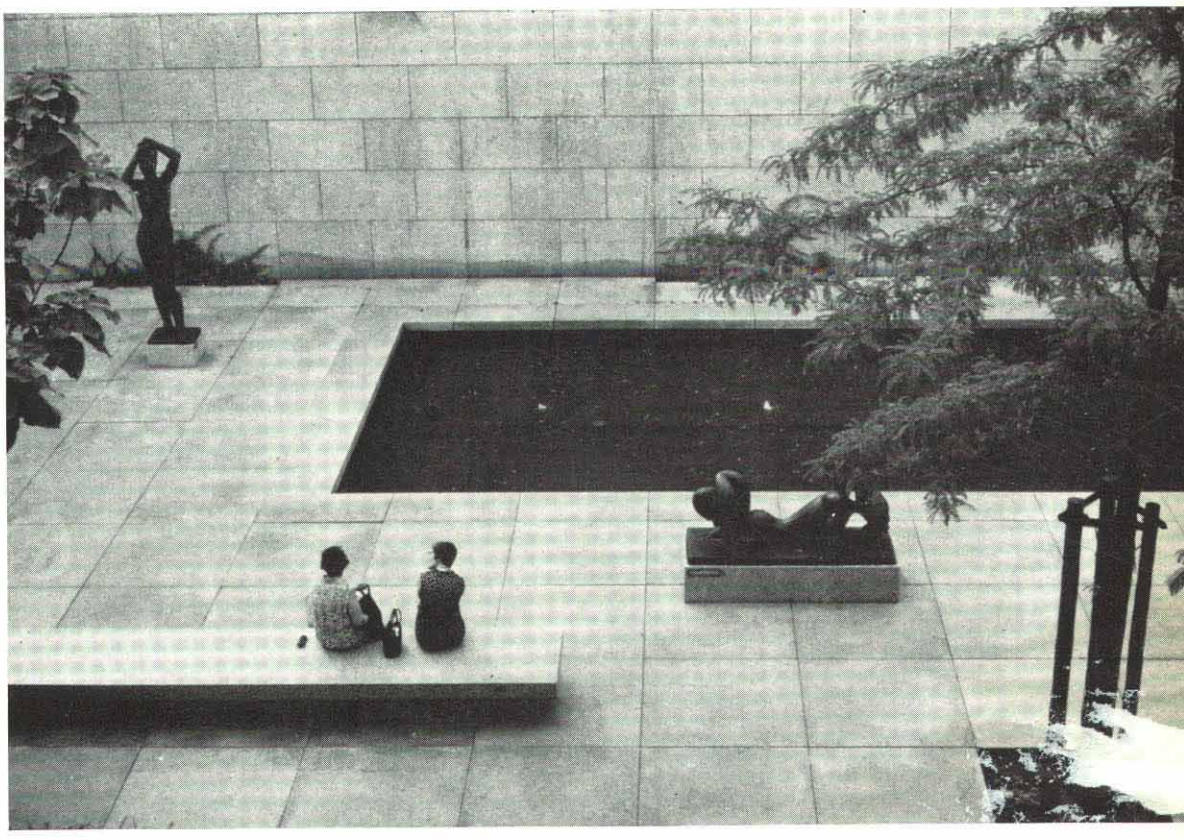
We did not find a superior concrete technology on our journey, but we did find a whole new approach to external design. For the first month it rained almost incessantly so it was possible to see concrete in a climate even wetter than our own. The consequent pattern staining, which is so evident here, seemed to exist just as much elsewhere – possibly more – but because of the excellent and imaginative planting hardly seemed important.

The play of concrete and plants is possibly one of the most lasting impressions of the whole trip. Plants are used that do something all the year round, not just plants that are dead in winter. Almost always – except perhaps in Switzerland where they have 'discovered' concrete in a big way – there is a contrast to the concrete of some sort: concrete with brick, granite setts, stones, sand, water, textures of exposed aggregate. The vertical surfaces may be in situ concrete straight from the hairiest pine boards, but often you find the ground paved with good slabs of local rounded exposed aggregate. The Germans call this *Waschbeton* – a beautiful slab made throughout the country. If you want to pave your garden with some of these, you just go down to the shop and buy some, which makes life very much easier.

For children, there were interesting uses of concrete everywhere: playground sculpture for climbing on or through or over but – very sensibly – no concrete on the ground under swings, as is common in this country. There were some excellent concrete paddling and swimming pools, and one particularly interesting use of the material: open-air chess played on 2 ft. square black-and-white precast concrete slabs. These make splendid 'arenas' for the local intellectuals. In addition, there were imaginative examples of concrete screen walls, retaining walls and steps. And there was also, of course, the magnificent Karlsruhe Gartenstein.

Pedestrian streets were particularly noticeable, the best of which must be the Hotorget (Haymarket) in Stockholm where the whole city centre is being renewed. This has been conceived in such a comprehensive manner that it is difficult to fault it. Black and white concrete paving slabs are used throughout, laid

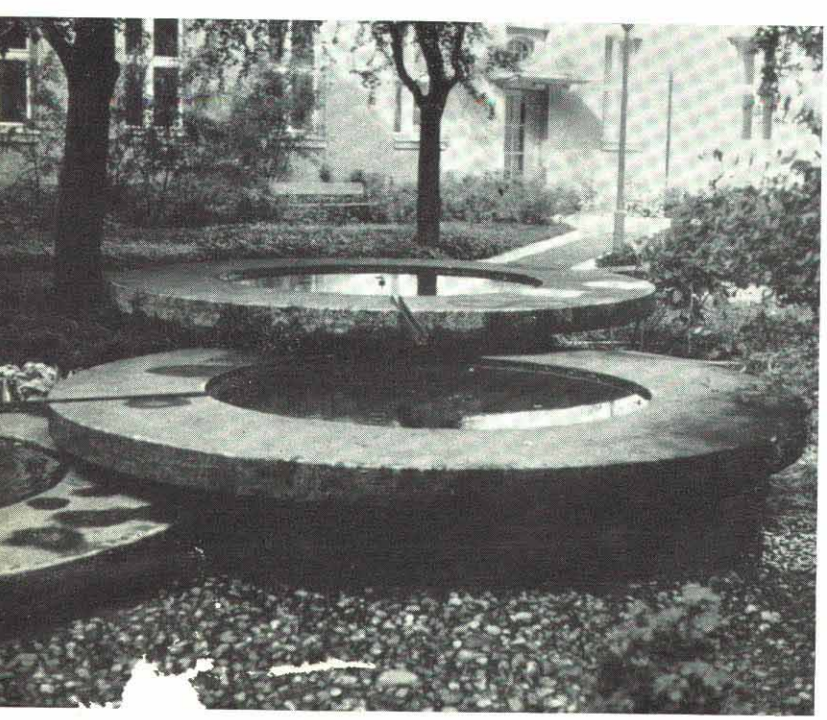
Swimming pool and courtyard at the 'Euroflor' exhibition, Dortmund.



The courtyard of the new national gallery in Berlin.

A chess game on the roof of Berne station. Black and white exposed aggregate slabs are used with 'Waschbeton' slabs round the perimeter.

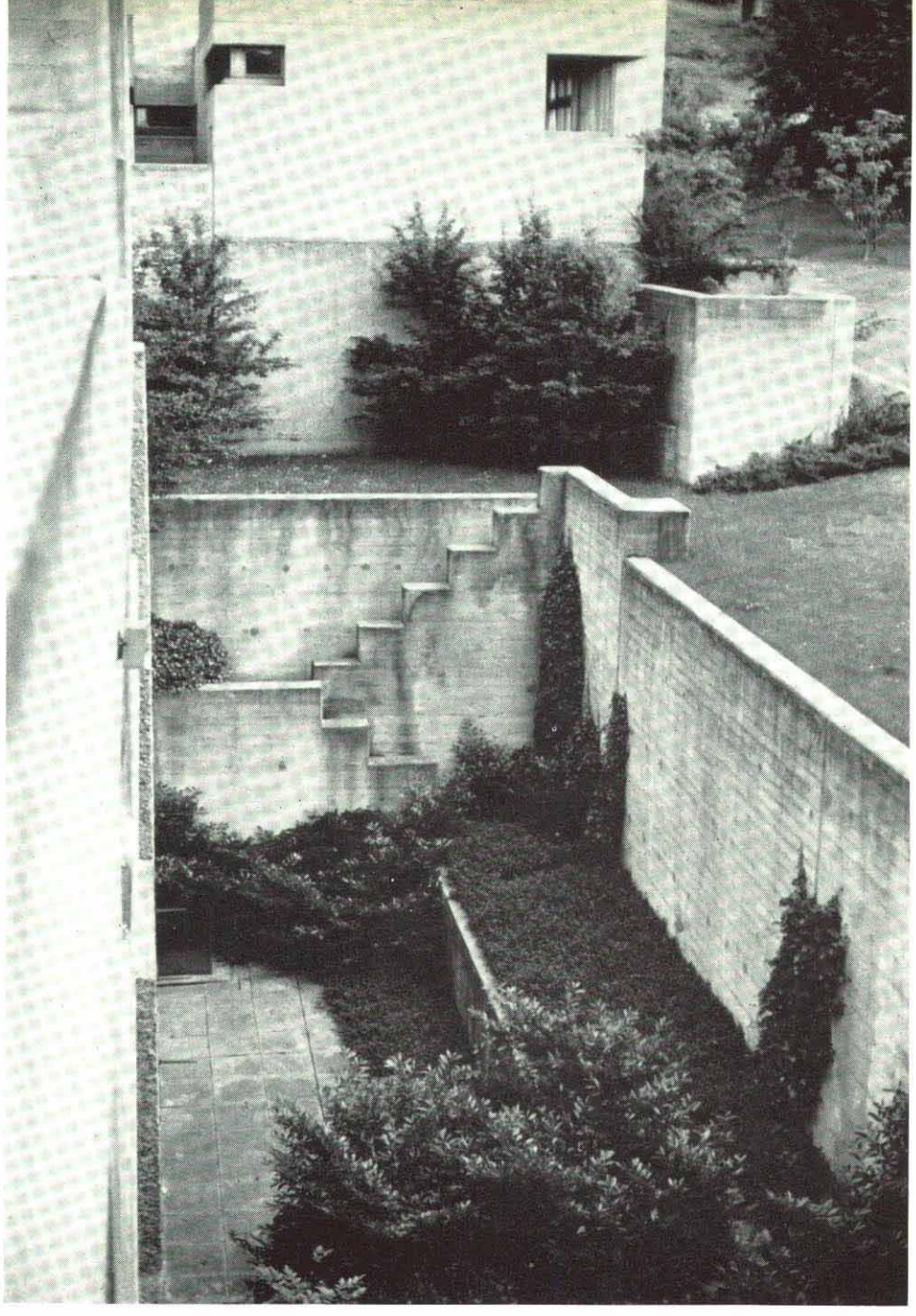
Fountain in a residential courtyard, West Berlin. The saucers are of black concrete and a minimum amount of water is used, the effect depending largely on the trickling sounds.



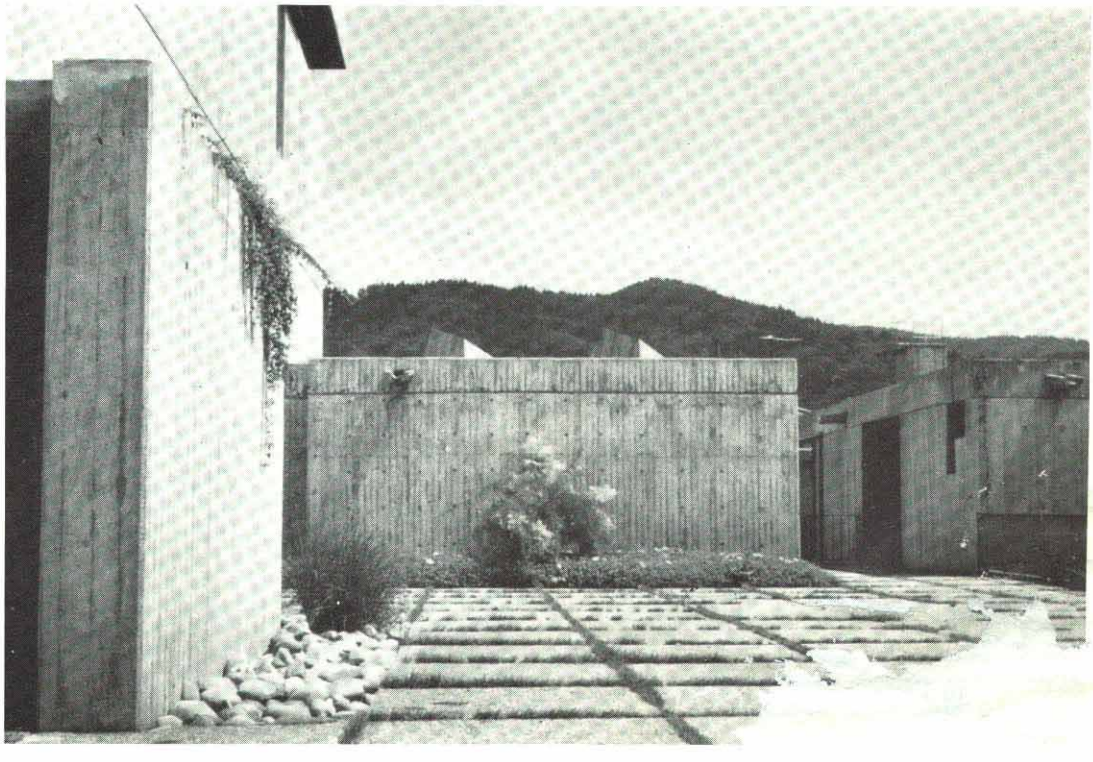
in various patterns with heating beneath. The installation costs are paid by the city and running costs by the shopkeepers. On the whole, though, in Sweden we found natural stones and setts popular because of their comparative cheapness.

In Holland, of course, brick is largely used but we found some brilliant playgrounds which included concrete, designed for Amsterdam City Council by Aldo van Eyck. These are often on temporarily vacant sites which we would have fenced off.

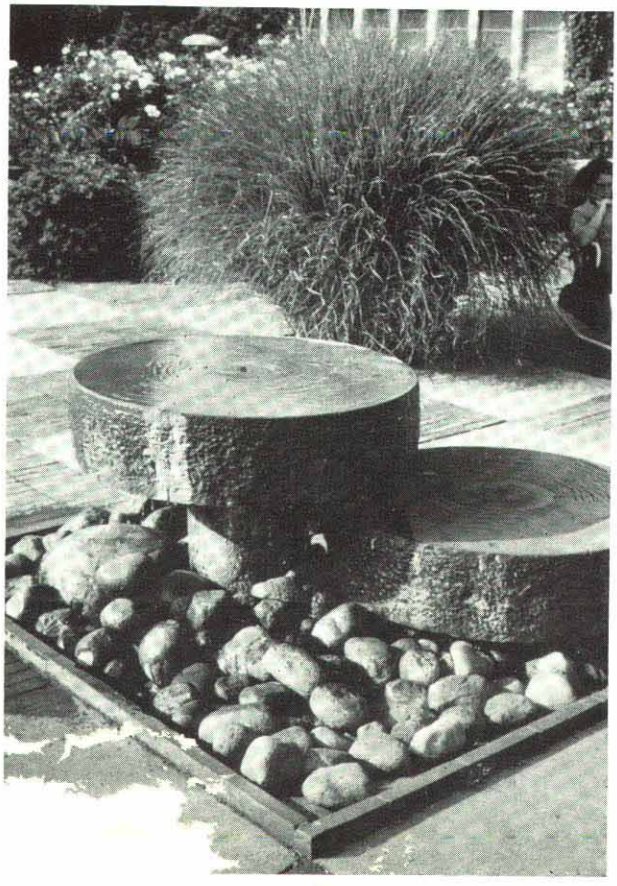
The West Germans have been involved for some time in the effects of pollution and have been among the first to try to solve the problems – as, for instance, in the Ruhr valley. Perhaps this is why some of the best parks and gardens are to be found in the most unlikely places – in Hamburg, Dortmund and Essen, for instance. Dortmund and Essen were really chosen to show what can be done in the very centre of an industrial complex. I think that the Germans have succeeded here as perhaps only Germans can. In these parks there is usually a group of pavilions which represent houses. They



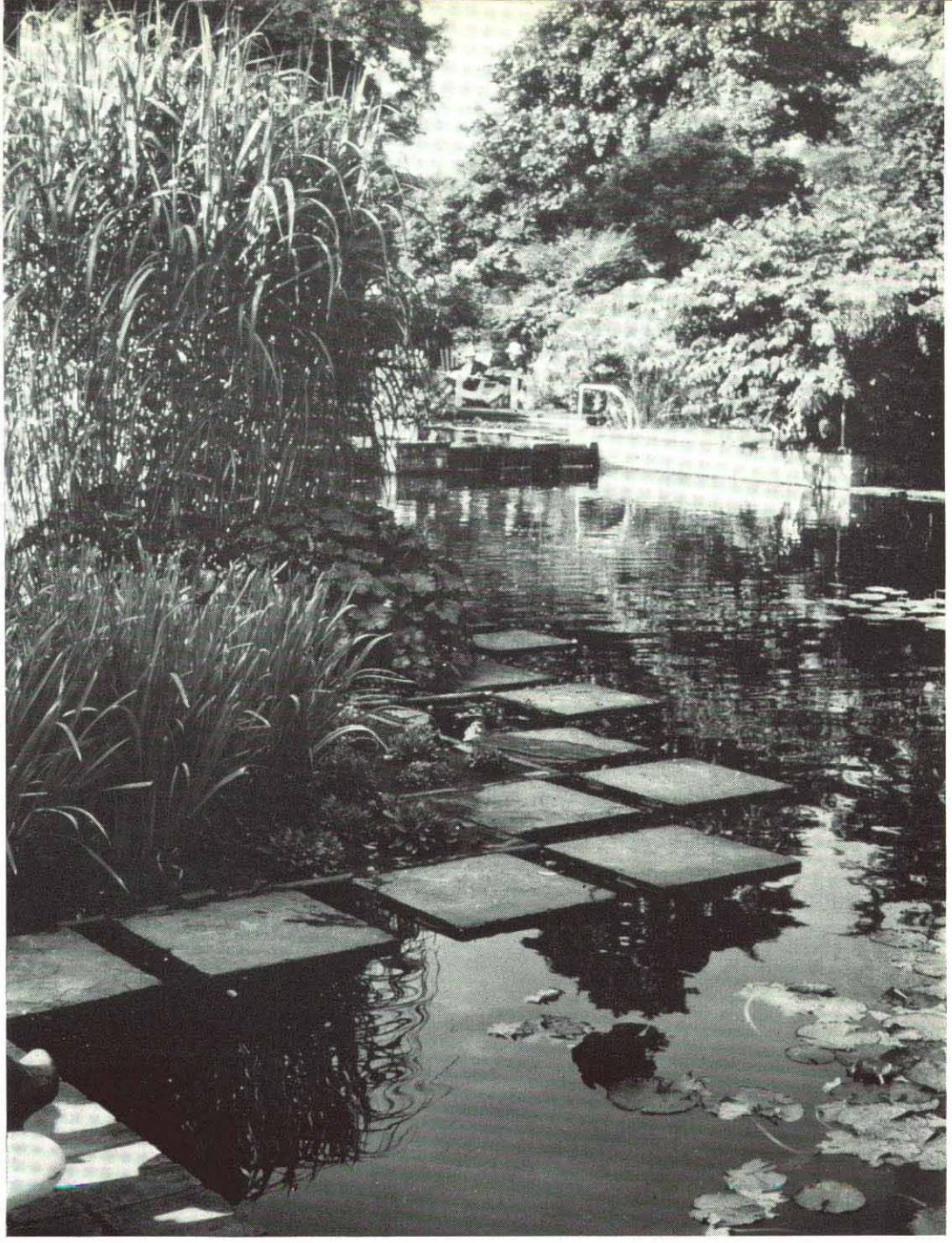
The use of in situ concrete and year-round planting in a sunken area in a grammar school at Aesch near Basle.



In situ concrete walls, 'Waschbeton' paving slabs laid with wide grassed joints, and cobbles in the forecourt of a churchyard at Freiburg, South Germany.



The 'Pflanzen und Blumen' display at Hamburg. Top left : Exposed aggregate steps. Above : A stepping-stone bridge. Below : Detail and general view of original millstones and rippling water making a feature in a paved garden.



Stepping stones, 'Pflanzen und Blumen', Hamburg.

consist of a linked series of walls and roofs, the intention being to demonstrate the possibilities of house and garden, at the same time providing a shelter from rain. They are visually very exciting and this is an idea that could well be copied. The parks have been developed on a scale non-existent in Britain since Victorian times.

Although this study mainly involved small-scale structures, we occasionally became involved in some tremendous engineering works. Probably the most memorable of these was the new Rhine bridge at Dusseldorf. This is in the true tradition of elegant Dusseldorf bridges and although we actually saw it three months before completion, it was interesting to discover that the planting around the approach roads and tunnels had actually been done some eighteen months previously. We also noted that wherever we went, the planting was not all ruined by children or hooligans – even in the city playgrounds.

Denmark was the last country visited and although it is primarily a brick country, there is an interesting paving tradition of concrete and granite setts. The whole paving system of Copenhagen is like this and is often repeated by householders for terraces and garden drives. The local authorities like it because the setts are only bedded in sand and therefore they are easy to lift and re-lay for access to services.

Arriving back at Harwich, the first thing we saw in a lay-by was a green-painted precast concrete sewage pipe, about 3 ft. in diameter, with 'Litter' painted on it. It was leaning at a slight angle and had rubbish spilling out in all directions. It would not, of course, be fair to say that this sort of thing is representative of our country as a whole, but after the high standard we had become accustomed to on the Continent, it came as something of a jolt.

Courtyard to an insurance office, Copenhagen.

SPACES BETWEEN BUILDINGS *continued*

Concrete and granite setts round a bench, botanical garden, Copenhagen.

CASTING AROUND

a quarterly column of notes and comments

We have just had an Experience at the Elephant and Castle. Well we went there in the Underground to get a taxi to Peckham, because that's what the man said we should do if we wanted to come to the opening of the housing scheme. Have you, by any chance, ever been to the Elephant and Castle on foot? It is not to be recommended. Because unless you work in one of the large office blocks there or want to go to the cinema (you will not be attracted by the shopping centre), there is nothing except swirling traffic and a labyrinth of underground passages into which the poor pedestrian is forced. And it was out of these, through various holes in the ground, that we finally emerged in quest of a taxi. Well perhaps you might say that the Elephant and Castle is not the most likely place in London to find a taxi. All the same, we did – after going down and coming up several times on the other side of nowhere – actually perceive a lone prowling taxi in the distance. But we were hopelessly separated from it by a roundabout, a ramp, a railing and a solid stream of traffic. So that after we had shouted and waved and run down again into the passages to reappear where the taxi had been, it had gone. It was at this point that a dear old man in a tatty mackintosh came up to us and said rather breathlessly and uncertainly "Excuse me . . . but I am not quite sure . . . where I am going . . ." So we said What a Coincidence: nor did we. And we went and had a cup of tea in the caf. to discuss the matter. It seemed that he wanted to get to somewhere – he was sure it was somewhere – just the other side of Over There. At least it *used* to be over there. But nowadays, he sighed – staring mistily beyond the traffic and the office blocks into the distance – you never could quite tell . . . If only there was a bus, he felt he might be able to manage it. But even with buses you couldn't always tell nowadays – apart from the expense. He said he had tried standing at one of the stops, but wasn't quite sure if he was pointing in the right direction. We said that we knew the feeling exactly, and wasn't it strange that all this was supposed to be Town Planning. The old man said Yes he had heard of it and agreed that it was very strange indeed. So finally we steered him gently out into the vortex again and set him on a homing course and off he went quite happily, still wondering about Over There, while we went back into the Underground. Because, of course, the housing scheme at Peckham had long since been declared open, and there was nothing more to do but go home.

* * *

Although it may seem, when it comes to Man versus Redevelopment, that the latter always wins, it is heartening to be able to record an instance of the reverse. The district in which we live consists of a small-scale Chelsea-like network of streets in south-west London with a nice mixture of old terrace houses and shops. It has a strong village feeling of community and embraces people from all walks of life and income groups: there is a man reputed to be a millionaire at one end of our street, while poor Mrs. R. next door still has gas brackets and no bathroom. The peace of this little community was shattered one day by the announcement that the main shopping street which winds through it down to the river was to be widened, a flyover built over the railway and about 200 houses demolished in the process. This would, in fact, have meant destroying the whole neighbourly character of the area and dividing it sharply in two. Apart from which, the scheme had little virtue. General consternation all round. What to do? In no time at all, an Action Committee was formed and the entire neighbourhood met in an upper room of the Red Lion. We were photographed by the press shaking our fists in defiance, and the whole atmosphere was reminiscent of the war. It seems there is nothing like a disaster for drawing people together. People that one never knew existed volunteered to form A Resistance: solicitors, architects, journalists, politicians emerged overnight like daisies in a field to take up the cause. A notice board was erected in our committee chairman's front garden and regular bulletins issued to keep us informed of developments. Then followed some weeks of tension and anxiety whilst we all comforted each other in the grocer's and said It Must Never Happen. And then one day the notice board blossomed into a fanfare of scarlet balloons and, instead of the usual maps and typewritten bulletins, there appeared simply the words: "We won". And that night there was singing and dancing in the Red Lion. So it can happen sometimes.

* * *

Of course, all writers love to carp (why one wonders?), so continuing our bit of carp about The Environment, we find that 1926 was a fruitful year for prophetic articles in *The Architects' Journal* (see our editorial, page 1), among them something entitled 'The Menace of the Motor'. It is interesting to note that they were worrying themselves sick about the impact of cars on the environment 45 years ago. Writing in the *Sunday Times* that year, the article says, Lord Montagu of Beaulieu suggested that we should stop encouraging a vast influx of motor-cars into our already crowded towns. Parking places should be provided at the outskirts etc. Well, of course, we have heard the argument before, but didn't realize that people were saying this 45 years ago. One wonders if they will still be saying it 45 years hence. The final paragraph in this 1926 editorial is well worth quoting as a reminder of what is actually happening in 1970: "Unless such a check is placed . . . civic architecture is destined to suffer grievous injury, for ever more and more streets will be widened, famous buildings will be sacrificed to the greed of the motorist for more road space. *Yet it does not follow that motorists themselves would gain satisfaction thereby, for we may find that even after we have spoilt our towns at their bidding, the traffic problem will be just as far from solution as ever*". It seems there were some very far-seeing people in 1926.

* * *

Some time ago we wrote about the confusion that modern typography and lack of punctuation can cause with letter-headings and the new postal numbers, so that one is never quite sure if one is writing to the telephone number. With designers, the problem seems acute, and the more aesthetic they are, the smaller and more difficult to decipher are their letter headings. If the writer is a foreign aesthete, then you need your magnifying glass to decode it. Still, it's all very well for us to cast stones. The other day a letter came in from Spain addressed to "George Perkin issued by the Cement and Concrete Association". So you see it can happen to anyone.

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