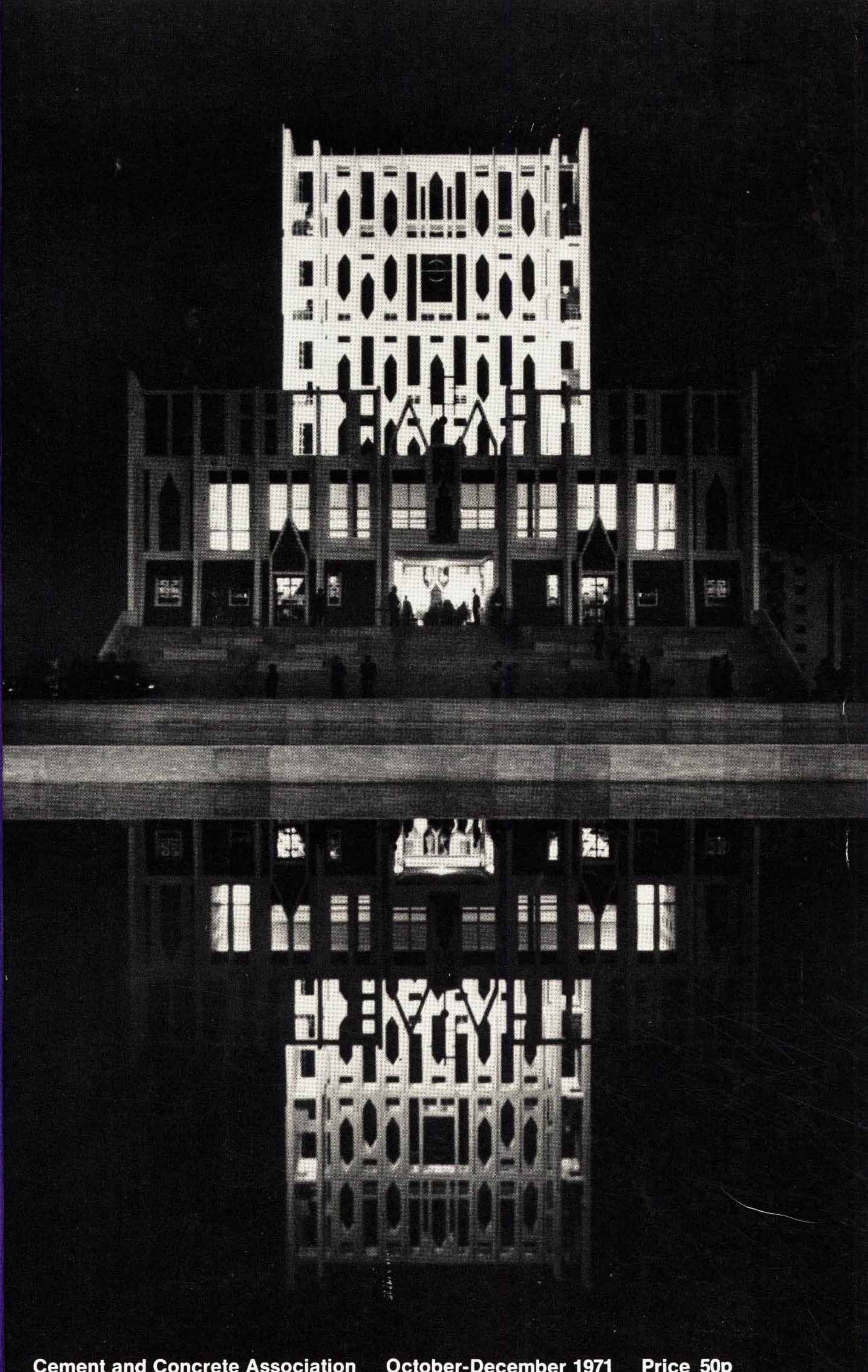
CONCRETE QUARTERLY 91



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OCTOBER–DECEMBER 1971

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FRONTISPIECE: *The recently completed church at Hérémence – a mountain village near Sion, Switzerland. The architect W. M. Förderer was trained as a sculptor which explains the strong modelling of the in situ concrete, carried out by unskilled local villagers.*

FRONT COVER: *Taranto Cathedral, southern Italy, at night (page 24).*

Doing its own thing

This issue contains a contribution by the Italian architect Gio Ponti (page 24) which caused us to get his *In praise of architecture* out of the library. Everyone should read this who needs his faith restored in the sheer joy of designing and experiencing architecture. The chapter on materials reminded us of what we have been trying to say for a long time, only of course we don't say it as well, namely: that every material – like people – should Do Its Own Thing and that the trouble only comes when it doesn't. Professor Ponti has something to say about most of the materials in current building use. In each one he finds something to marvel at, from plastics to paper by way of concrete, ceramics, timber, steel, glass and others. The chapter ends with the question "Are they all marvellous materials then?" The answer is "Yes, all of them and each of them, for they permit architects to accomplish marvellous things".

Recently we returned from a long journey through seven countries to see what this marvellous material concrete could do for low-rise housing (page 57), and we did indeed find some marvellous things. The advantages can be quite specific and we thought we might attempt to pick out some of them – very briefly, because we hope to devote space to the subject in our next issue.

In Britain, we found the technique of no-fines concrete making a very useful contribution, both from the design and practical points of view. In Scotland it is now considered almost 'traditional'. Officially classed as a system, it is not only very flexible but also provides excellent thermal insulation; not least, houses can be built fast and cheap. Also in this country we found some good pioneering examples of concrete blockwork, with a fair range of colour and texture – particularly good in traditionally stone districts.

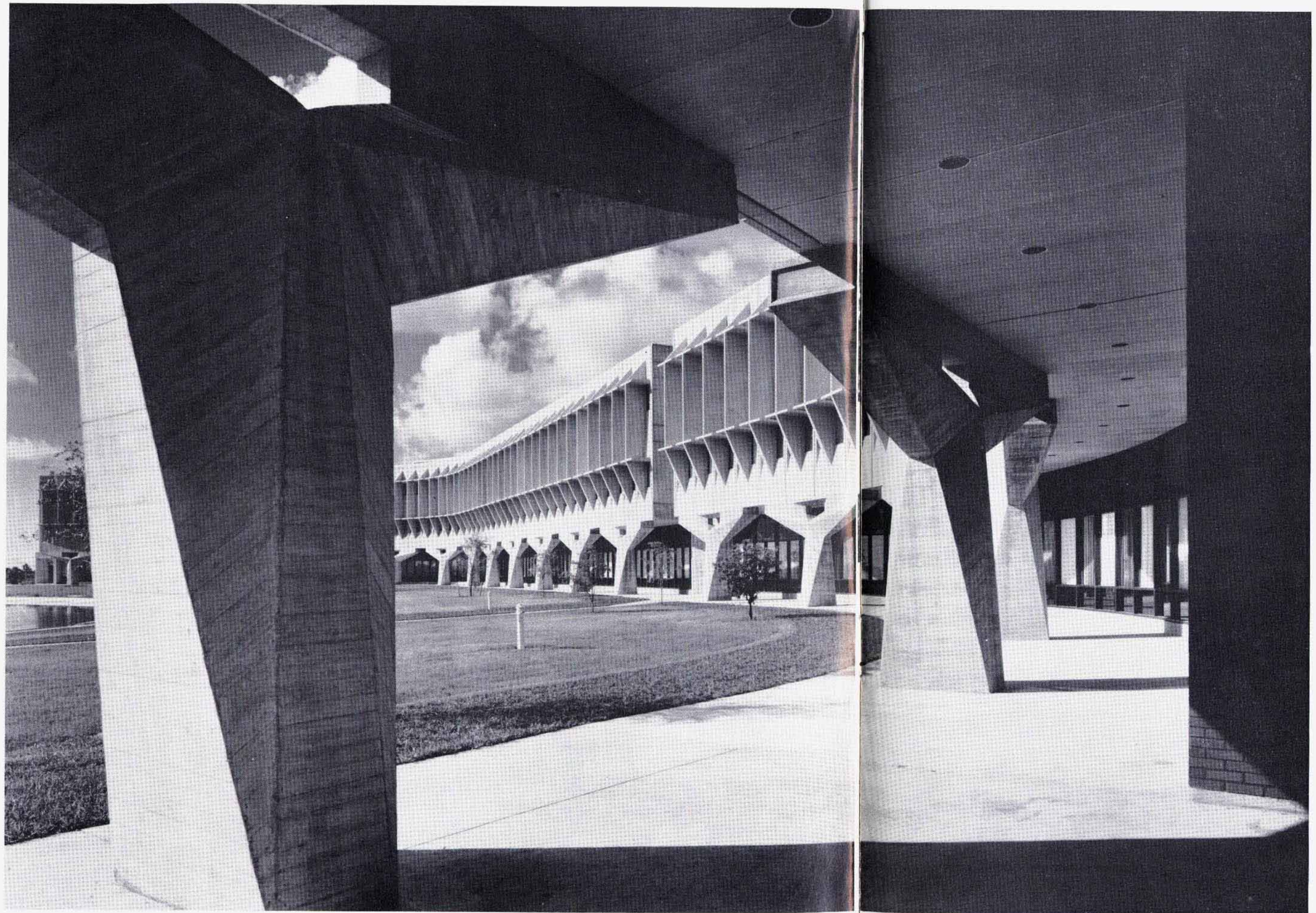
In Denmark, precasting is almost a way of life, with heavy Government backing for system building. There, the much-famed introspective Albertslund, with its plain white precast panels, is still one of the best concrete low-rise schemes in existence and has had a good deal of influence in other countries. Then, of course, in Scandinavia generally there is Siporex, extensively used in Sweden and Finland for single- and two-storey houses: very lightweight, as easy to handle as wood blocks and just as easy to cut and drill; the thermal insulation is outstandingly good. In Norway, the universal form of building is now the in situ concrete open-ended box, found to be the simplest and quickest way of building all sorts of housing from single-storey upwards; externally, finishes are often a combination of dark stained timber and white painted precast units which look most attractive. In Switzerland, we also found in situ concrete usual for housing, and for sheer delight, nothing could compare with the stepped tiers of hillside apartments with broad cantilevered garden terraces: this form of Swiss housing is well worth studying. In Sweden, the Do-It-Yourself house of rendered lightweight concrete blocks seemed an idea we might think about. The other thing we might think more about is colour – that much avoided subject by most architects. Renderings seem a practical way of providing colour, and in this country we note that people like them. We do not think this a superficial subject – it seems fundamental to the look of any street or district.

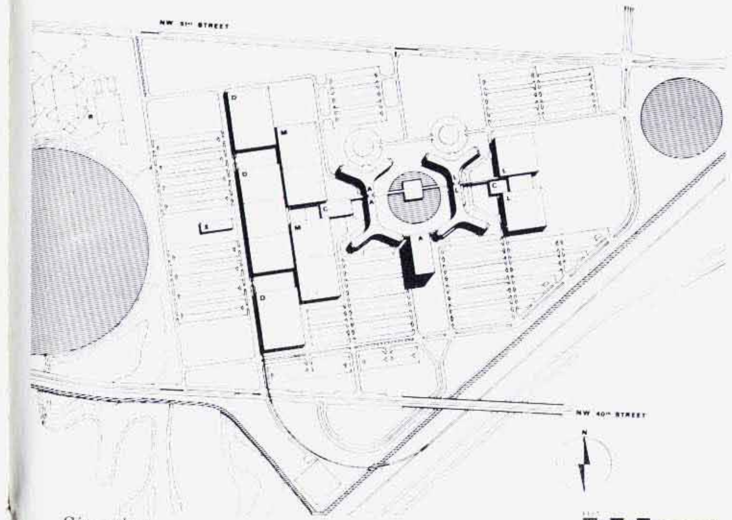
But no matter what country we were in, the one conclusion to stand out above all others was that the success of all low-rise housing depends on landscaping. In fact, we almost thought that we should call our study Landscaping instead of Low-Rise Housing. For nearly all housing, no matter how good, looks bleak and unlovable without the complement of nature. So that (leaving aside the essentials of trees and greenery) details of paving, kerbs, flower boxes, low walls, refuse containers (page 57), lighting fittings, paths, access roads, steps, ramps, playgrounds, fountains, pools, sculpture and seats – all the things that obtrude at ground level – become matters of consequence. Quite often they are most naturally, and therefore successfully, done with the aid of that marvellous material – concrete!

The latest Breuer

IBM Building, Boca Raton, Florida

The lakeside arcade of the administration wings.





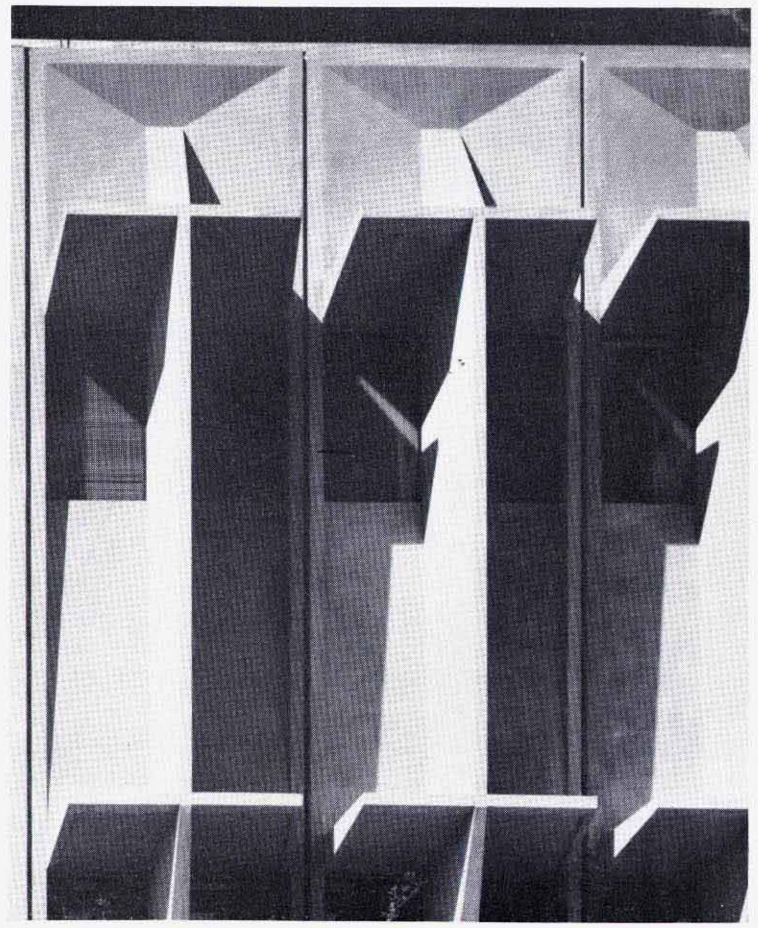
Site plan.

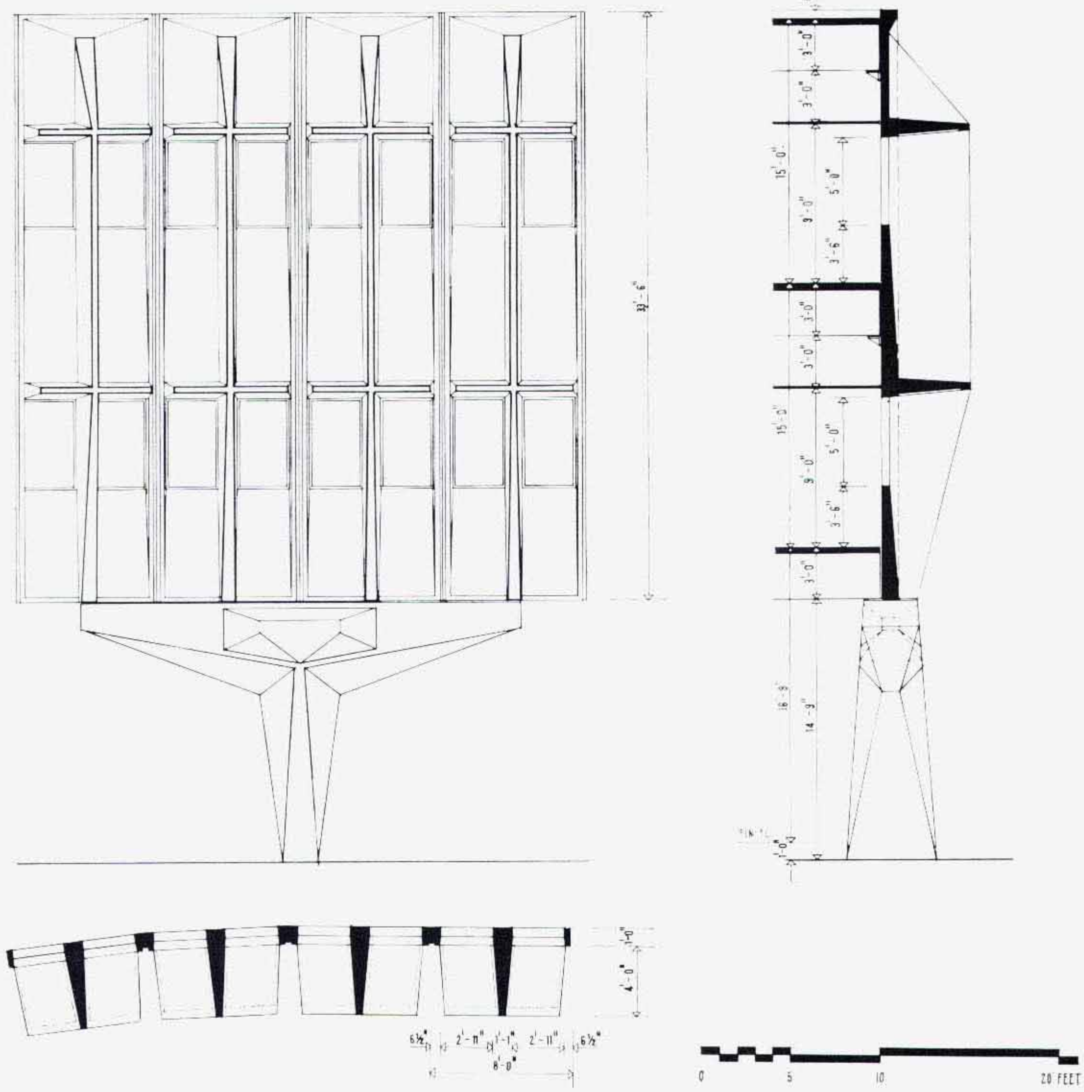
Architects: Marcel Breuer and Robert F. Gatje

The new building at Boca Raton, Florida, for The International Business Machines Corporation represents a further development in the series of heavily modelled precast concrete buildings which have come from this office over the last fifteen years or so and which clearly demonstrate Marcel Breuer's philosophy of precast concrete. This can be traced from such buildings as UNESCO in Paris (perhaps even earlier work), through the IBM Research Centre at La Gaude in France, the office block at Torrington, Connecticut, and the ski resort at Flaine in the Haute Savoie. As one who understands the sculptural possibilities of concrete in relation to its practical and architectural values, it would be very difficult to beat Breuer.

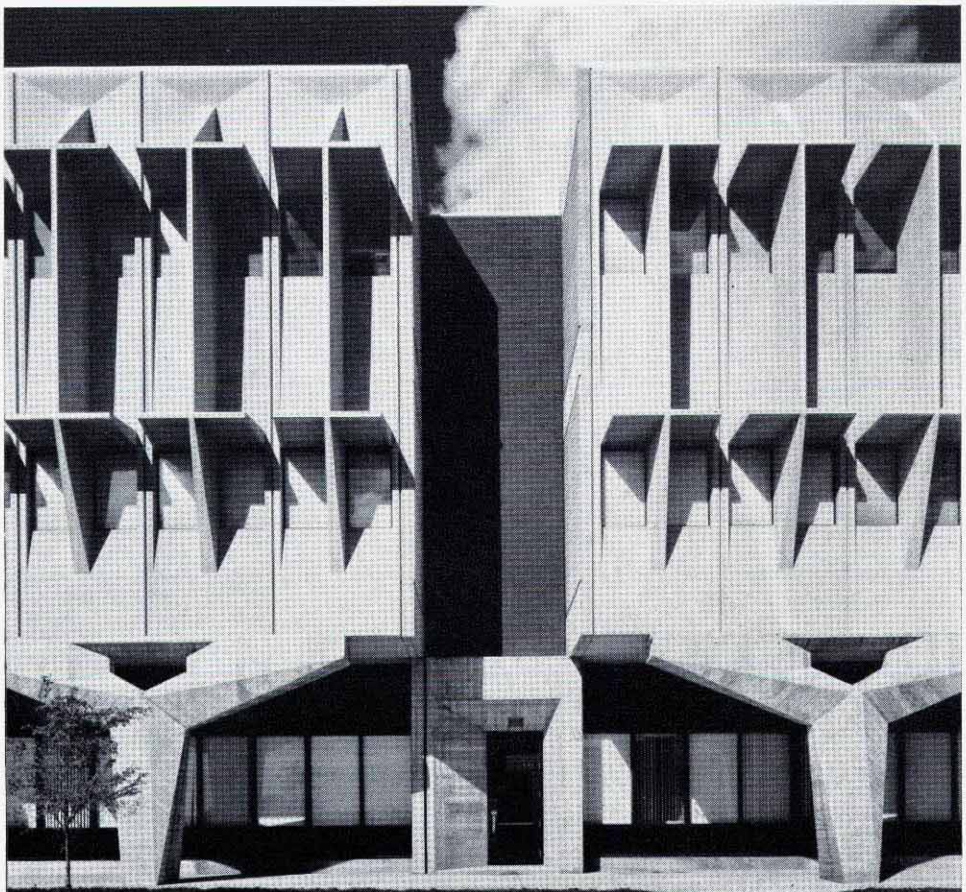
The site for the building is low and flat – about 10 ft. above sea level – and lies $2\frac{1}{2}$ miles back from the Atlantic coast. Flood control is provided by a network of canals leading to the sea. In order to minimize the effects of possible flooding and hurricanes, it was found advisable to place the lowest floors at a height of 16 ft. above the ground; parking lots and roads are at 12 ft. The large amount of fill for this could only come economically from the site itself, and for this purpose three artificial lakes have been planned from quarries for the sand fill. Two of these have been built, one of which is the focal point for the whole building complex. The Y-shaped

Detail of precast facing panel, administration wing.



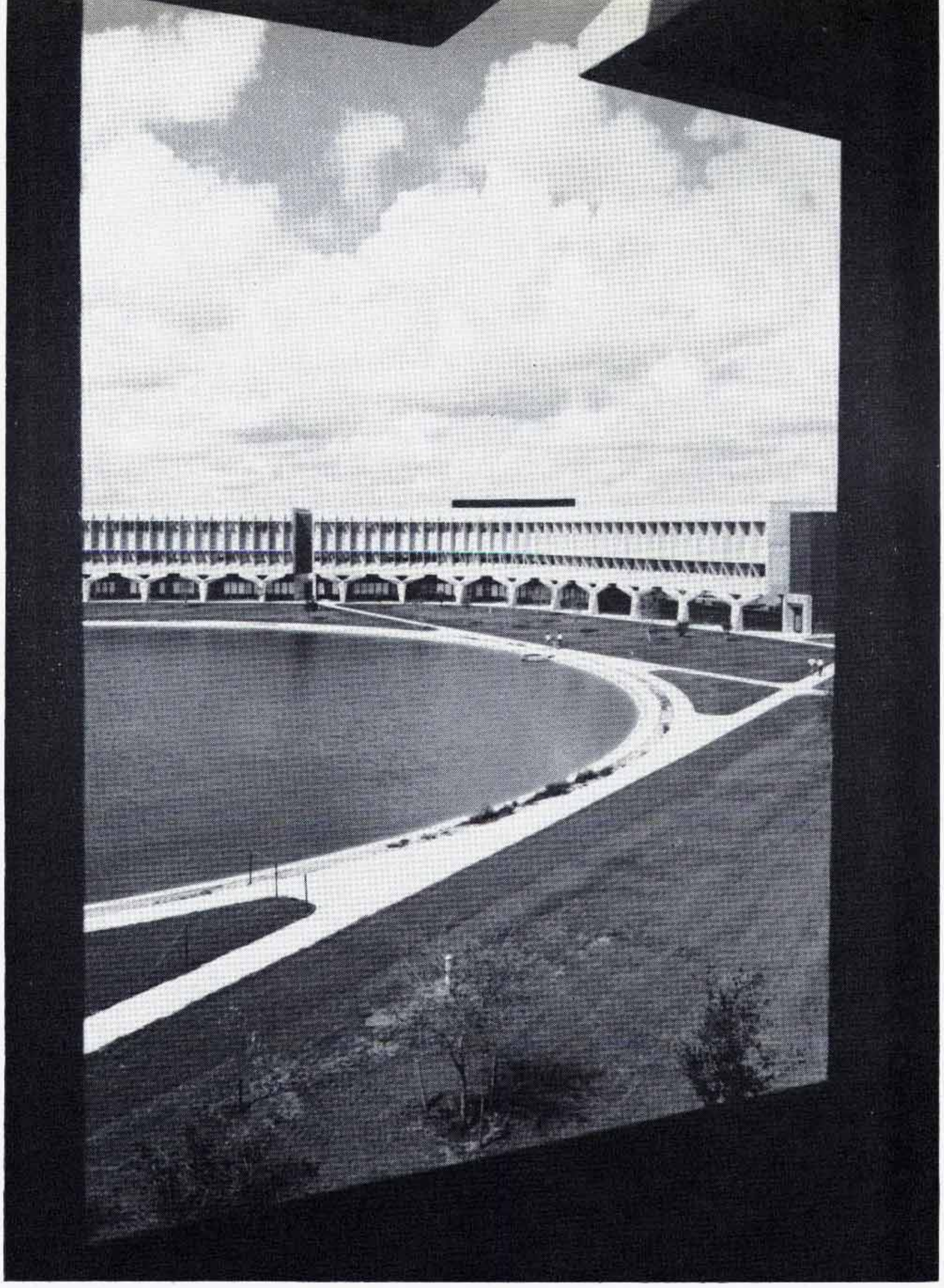


Plan, section and elevation showing details of administration wing façade panels.



Left: View of laboratory wing from the north-west.

Right: Stair tower and entry between administration wings.



The administration wings as seen from a window of the laboratory wing, with the artificial lake.

Administration and Development Engineering Laboratories flank this lake, and there is to be a sculptured island in the centre. These three-storey Y-shaped wings will be dominated by a taller building on the main planning axis.

A highly developed local industry, as well as the repetitive elements of the planning, suggested the extensive use of precasting both for structure and for the cladding components. It also proved possible to speed up construction schedules considerably by precasting the elements in advance.

The deeply modelled façade panels are for the most part loadbearing. They feature a rhythm of vertical ribs and horizontal projecting canopies which form a stiffening framework and shade the windows. The surface of the concrete has been lightly sandblasted. Steel forms of a highly sophisticated design were stored between building phases and have now been brought into use again for the latest phase. A dark brick provides a contrast to the patterns and textures of concrete.

In the office-laboratory wings, the external loadbearing panels are of considerable proportions – 35 ft. high and 5 ft. in depth giving a strong play of light and shade to the façades.

Floor and roof systems generally are composed of long-span prestressed T beams, both single and double. All concrete beams and columns were for the most part precast. However, notable exceptions are the 'tree columns' – a characteristic Breuer device. These define the arcades of the Y-shaped wings and are of in situ concrete; the wood and steel forms for the columns are demountable and are being used again for the next phase. The upper chord of these elements is post-tensioned with five $1\frac{3}{8}$ in. diameter bars.

Foundations, in the recently filled areas, rest on soil consolidated by the 'Vibro-flotation' technique which, in effect, creates 30 ft. deep 'piles' of the sand itself. Slabs can then be laid direct after normal compaction procedures.

Stairs, lifts and toilets are the only fixed elements in the interiors. Changing patterns of circulation and use are allowed by movable metal partitions. The 60 ft. clear spans of the office and laboratory wings allow maximum flexibility.

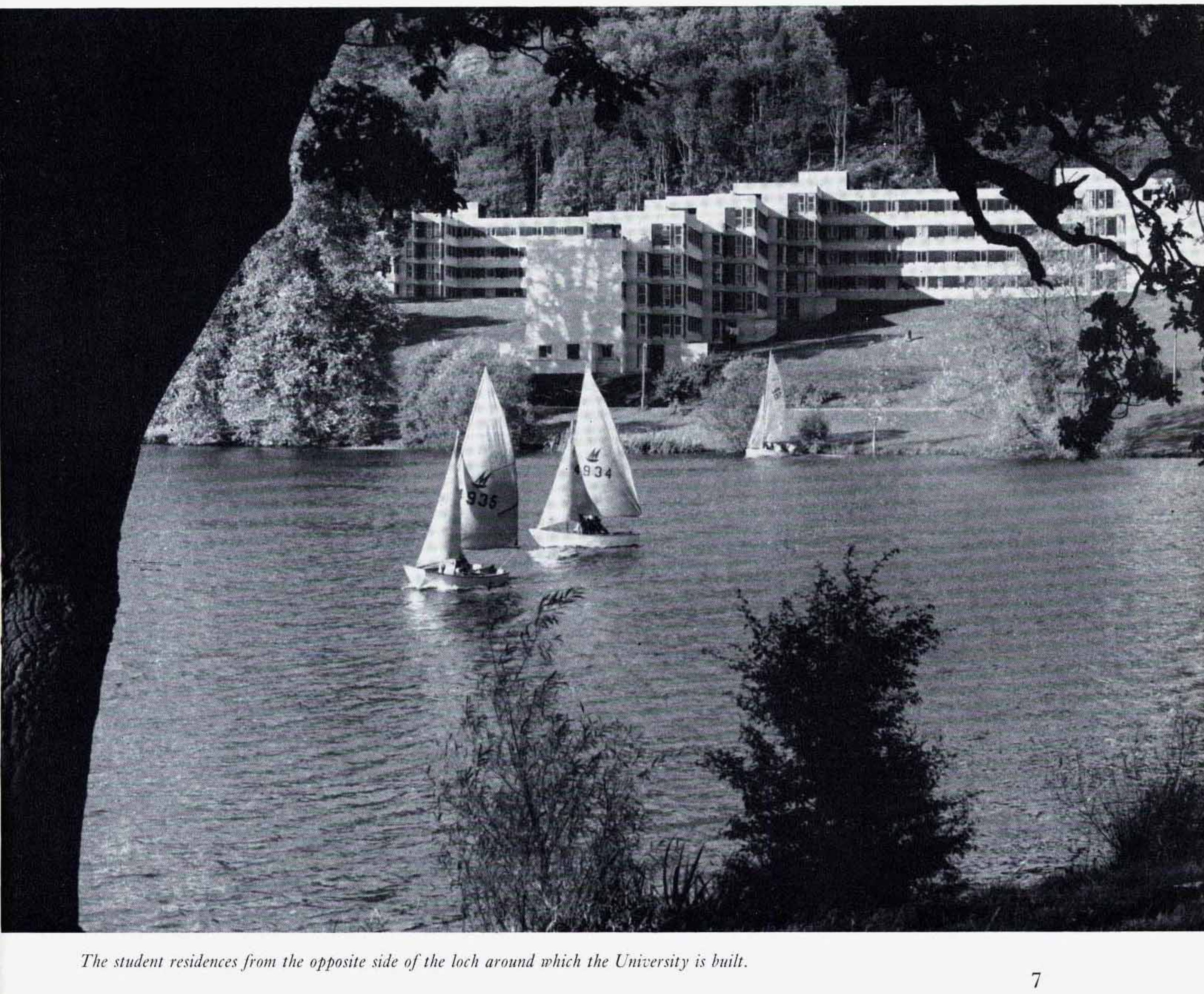
Halls of residence

University of Stirling, First Phase

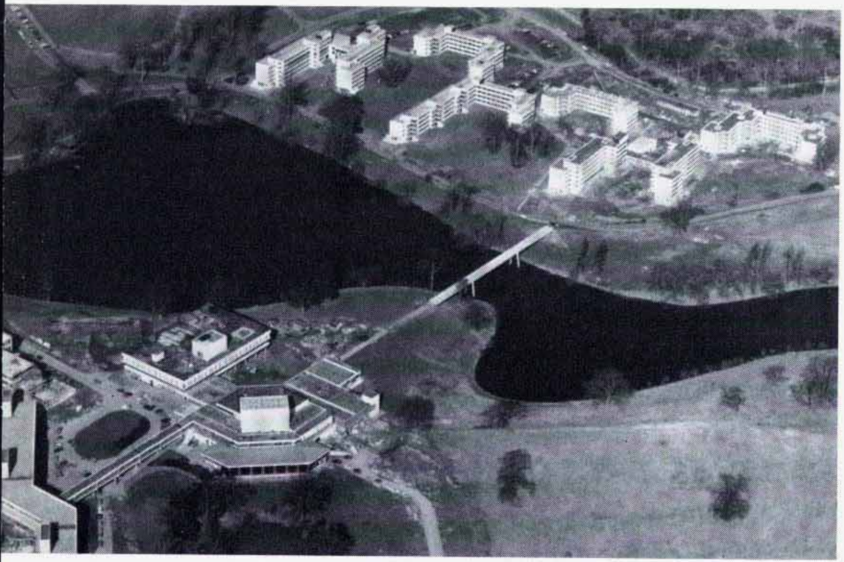
Architects and consulting engineers:	Robert Matthew, Johnson-Marshall and Partners
Contractor:	Whatlings (Building) Limited
Loadbearing blocks:	Aglite Limited
External blocks:	Flynn Brothers (Concrete) Limited
Floor units:	Edenhall Concrete Products Limited
Edge beams and sill units:	James K. Millar Limited

This first group of student residences at the University of Stirling received a Certificate of Commendation in The Concrete Society 1971 Award. It is linked by bridge with the University centre on the opposite side of the small loch around which the University is built. The site is extremely beautiful with over 360 acres of park and sloping woodland.

The accommodation comprises a Hall of Residence and two blocks of flats. The Hall has 264 single and 14 double study bedrooms plus 8 staff flats. The blocks of flats have altogether 323 single and 16 double bedrooms plus 5 staff flats. There is parking space for 178 cars.



The student residences from the opposite side of the loch around which the University is built.



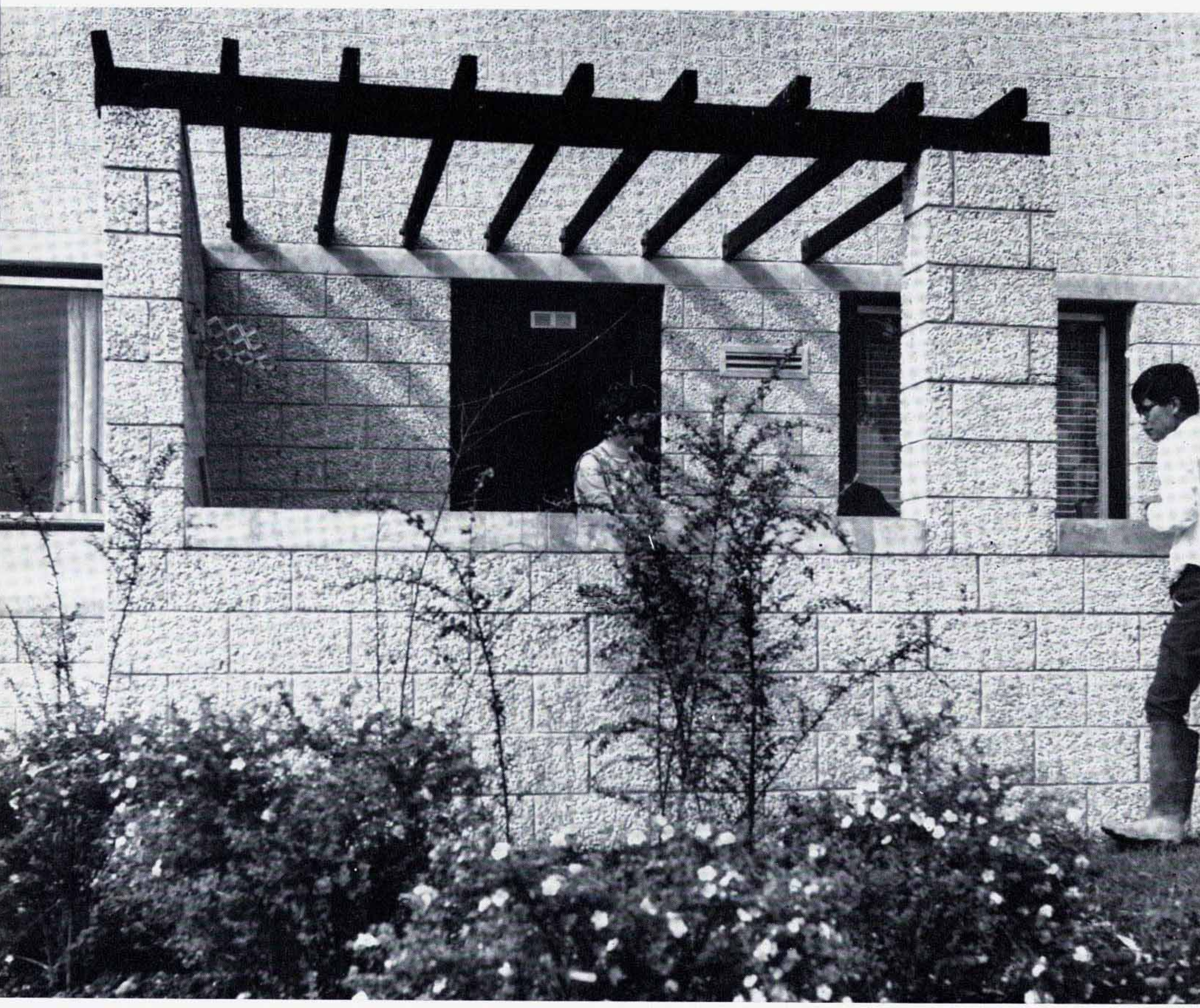
Aerial view of the University campus, with the halls of residence (top) linked by bridge with the University centre (bottom left).

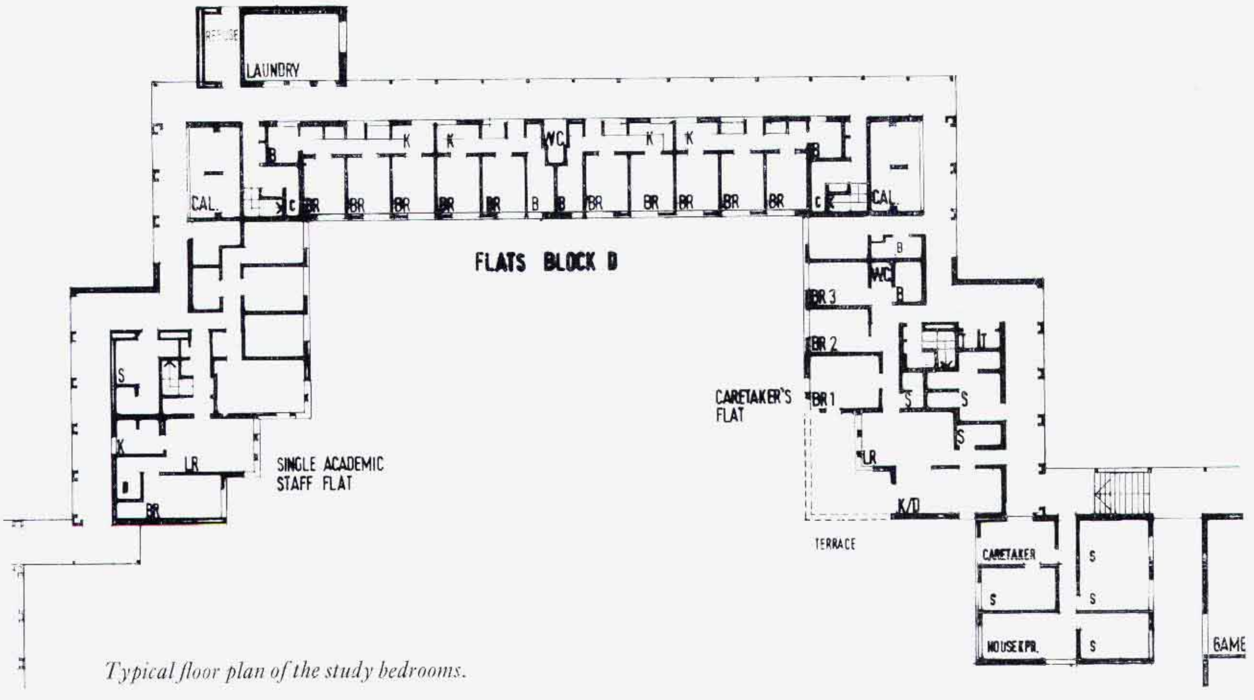
UNIVERSITY OF STIRLING *continued*

Detail of the caretaker's flat, showing the strongly textured exposed-aggregate concrete facing blocks used throughout the halls of residence.

The four-storey buildings increase to six-storeys as they step down the site. The crosswalls and external cavity walls are of loadbearing concrete blocks. Floors are of precast concrete, and roofs are of timber joist and board construction. Internally the concrete blocks are emulsion painted and the ceilings covered with a textured plastic paint; in the bedrooms, the outer walls are lined with pin-up board, and close carpeting is laid direct on in situ concrete topping. Elsewhere, floors are finished with vinyl tiles also laid direct on the concrete.

The design problems were complex. Good sound insulation was required and the cost limit was rigid (£920 per student place), the scheme being self-financed. In addition, the University Development Plan called for a high residential density of 90-100 persons per acre. These factors had to be reconciled with the creation of an attractive environment which would preserve the natural beauty of the site. The building system devised is cellular and capable of repetition in a variety of shapes.





Typical floor plan of the study bedrooms.

Unplastered concrete blockwork provides inexpensive sound insulation between rooms. The specification of crosswalls built of 6 in. by 8 in. by 6 in. loadbearing blocks dispensed with the need for a structural frame and was cheaper than the 9 in. thick brickwork which would have otherwise been required. 'Aglite' blocks were specified to BS 2028/1364 with a crushing strength of 1,000 lb. per sq. in. for the lower two storeys. Both leaves of the external walls are of 4 in. blocks, with some 8 in. blocks used in a limited number of situations. The exposed aggregate finish of the external blockwork was chosen for its appearance, its low maintenance cost and because the roughcasting, normally used in Scotland, would have entailed another site operation. The exposed aggregate was Arclyt set in a white cement mortar.

Floors, edge beams, sill units and mullions are all of precast concrete. Precast floors were selected to reduce construction time and to avoid the problems of erecting and dismantling scaffolding in the confined space of a study bedroom.

On plan, the Z formation of loadbearing crosswalls ensures that the buildings are sufficiently stiff in both longitudinal and transverse directions. Precautions were taken to ensure that any crosswall, corridor wall, or gable wall could be removed without causing progressive collapse.

The judges' comment on the building was as follows: "The sloping tree-covered site in attractive rural surroundings has been used imaginatively to maximum advantage to effect an exciting balance of nature and building. The total conception is impressive. The students' residences, in comparatively large units set against the falling ground and emphasizing the levels of the site, have – particularly in terms of the facing material – a human scale. This facing material is in concrete block with an exposed aggregate which makes a significant contribution to the total design".

General view of the residences.

The south front overlooking Princes Street.

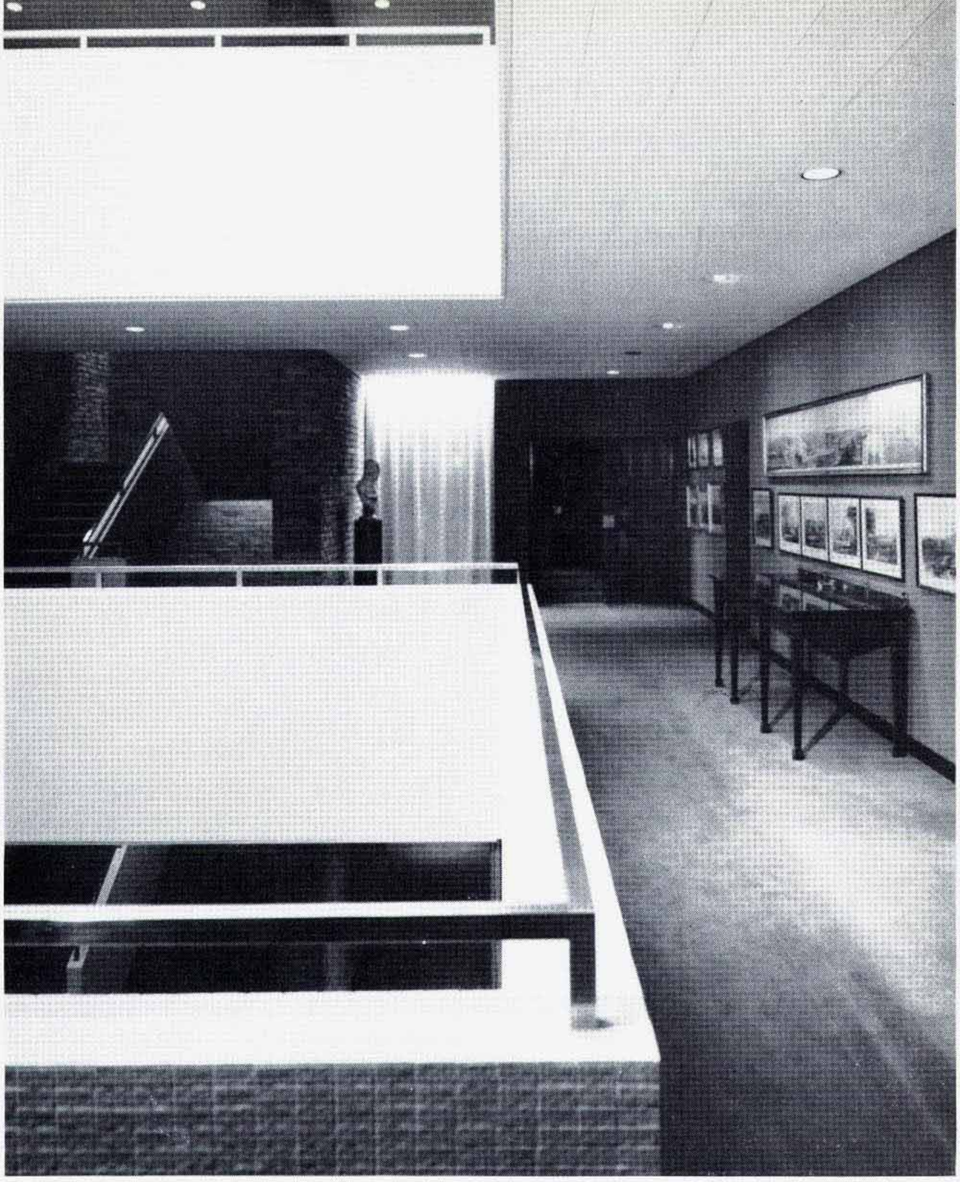
The New Club

Edinburgh

Architects:	Alan Reiach, Eric Hall and Partners
Structural engineers:	Blyth and Blyth
Contractor:	Sir Robert McAlpine & Sons Limited

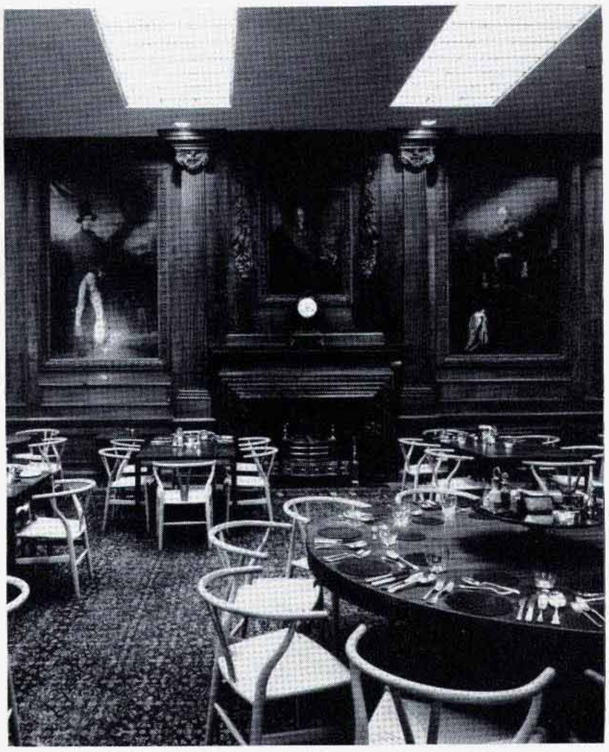
The New Club is one of the oldest and most famous of Scottish clubs, founded in 1787. It was originally in St. Andrew Square, Edinburgh, but in 1834 moved to a new building in Princes Street designed by William Burn and later extended by the architect David Bryce. In 1964, the club decided that in the economic context of the day they would have to rebuild on this extremely valuable site.

The club has been planned at second floor level over two floors of shops with car parking for both shops and club in the basement. The new accommodation pro-



The hall and stairs at second floor level, with the main sitting-room on the right.

Below: The members' dining-room which incorporates portraits and panelling transferred from the former premises.



vides all the facilities the club originally had but scaled to modern requirements. A central foyer rising through three storeys forms the essential focus of the plan. The main sitting rooms are on the south front overlooking Princes Street and a magnificent view of the castle. Bedrooms are in a four-storey tower at the back.

Sited as it is, The New Club has had to meet certain stringent requirements: it has the approval of the Royal Fine Arts Commission and the Princes Street Panel which controls and co-ordinates heights, profile and materials. One of the Panel's requirements was the upper level walkway which has been provided for first floor shopping.

The structure is of in situ reinforced concrete with cladding to Princes Street of Rubislaw granite. Elsewhere a combination of exposed aggregate precast panels and grey brickwork has been used. Windows are of anodized aluminium and double glazed for insulation against traffic noise.

Internally, walls are frequently panelled and finished with veneers or Chinese silk. Other areas are hessian covered.

Emauzy Church and Monastery, Prague

General view of the church and monastery with the new concrete towers.

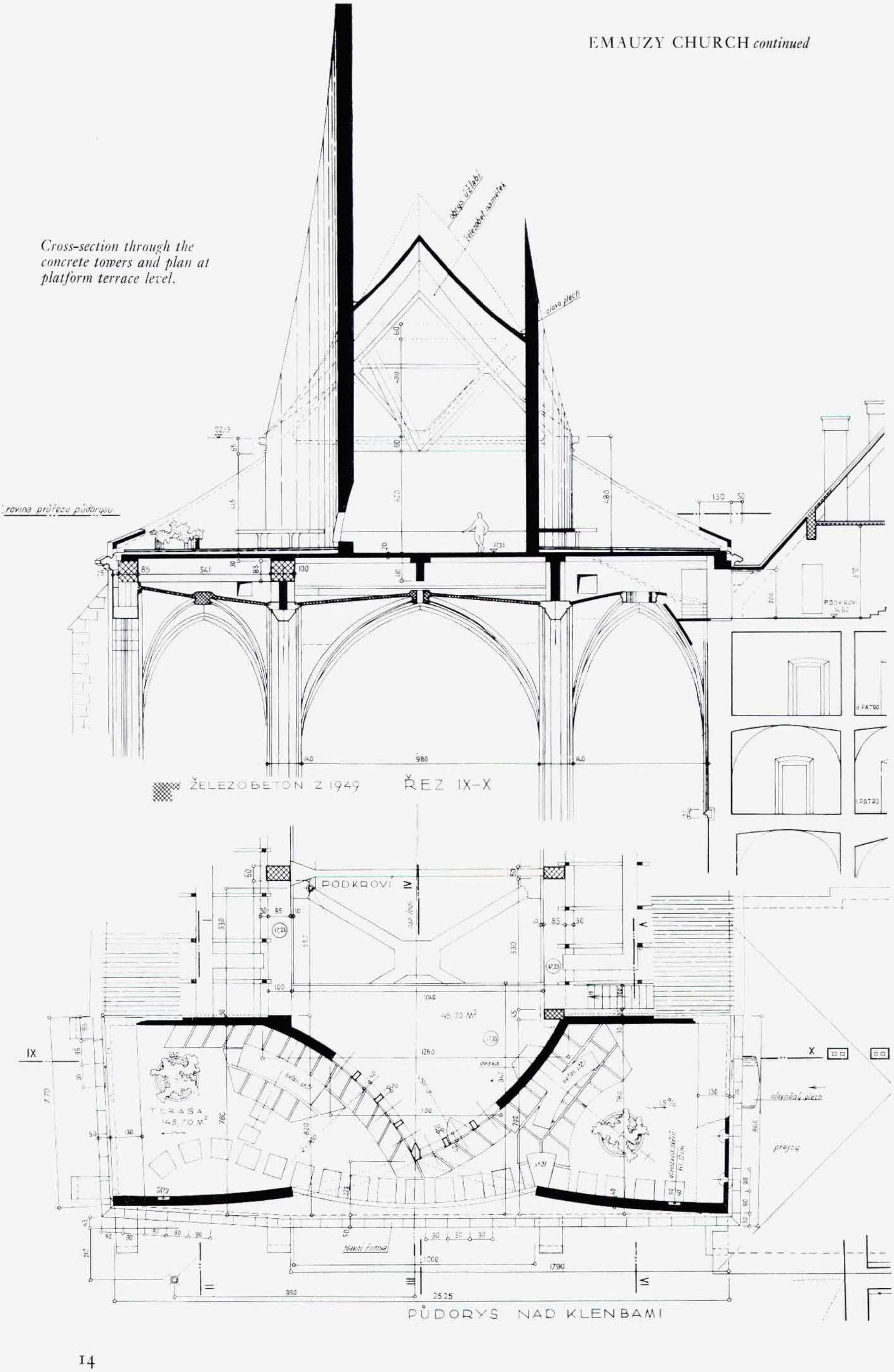
Architect: F. M. Cerny

The church and monastery of Emauzy in Prague were founded by the Emperor Charles IV in 1347. They were settled by Slav monks of the Benedictine order who created in Emauzy a great cultural centre famous for book art and paintings. Murals of biblical scenes have been preserved to the present day.

This fine early Gothic monument to art and architecture was ruined in an air-raid at the end of the last war. Soon afterwards the monastery and church were reconstructed except for the front: the two ruined towers had formerly been rebuilt in the baroque style and then rebuilt again in the neo-Gothic style during the nineteenth century. Subsequently, ten years of indecision passed as to how the towers should be reconstructed – whether they should be rebuilt as they were in the nineteenth century which was not the original style, or whether they should be built in an

Detail of the gold-tipped towers. The concrete was cast against corrugated fibreglass.

Cross-section through the concrete towers and plan at platform terrace level.



entirely modern manner. About eighty different designs and models were prepared in every conceivable style – modern, eclectic, pseudo. The beautifully simple modern design which was finally executed was the outcome of a competition.

The winning design was extremely bold and unconventional in conception and construction. The two soaring wings of reinforced concrete, tipped with gold, created exactly the right feeling of lightness and grace and at the same time were wholly in sympathy with the Gothic spirit, creating a harmonious and unified composition. This courageous modern addition to a traditionally designed church is probably a unique experiment.

Because the new concrete towers are much lighter than the old baroque stone ones, it was possible to remove the stone walls – over one metre thick – which had been necessary to support the old towers but which were in fact spoiling the beautiful Gothic nave of the church. The Gothic foundations to the original fourteenth century towers have been reconstructed.

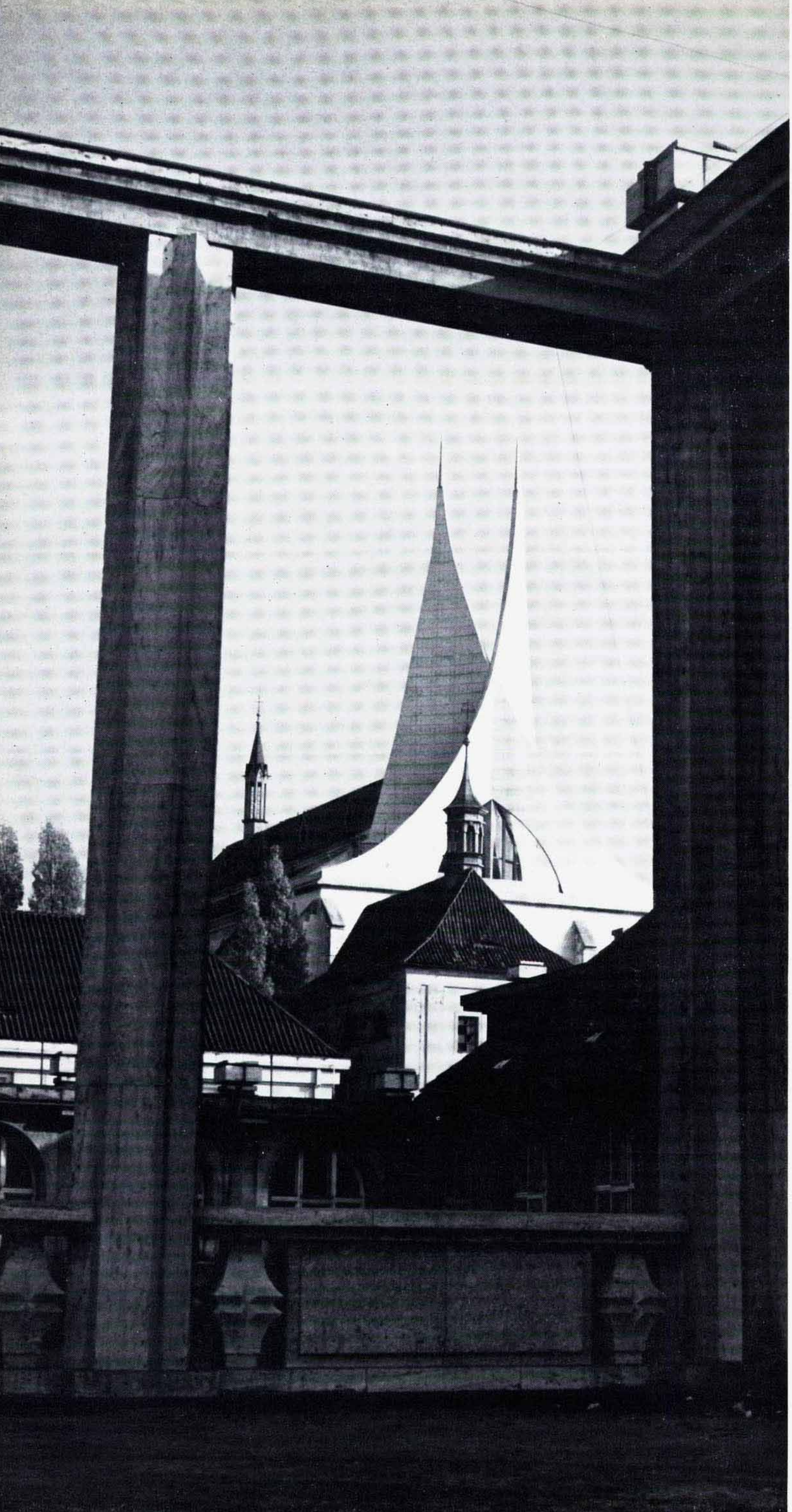
The two concrete wings forming the new towers intersect in the vertical plan and are curved on plan. This form allowed plenty of space for construction which was therefore very much simplified. At the base of the wings, below their intersection, are apertures which lighten the structure and at the same time allow fine views from a platform terrace. This last is a reinforced concrete slab only 200 mm ($7\frac{3}{4}$ in.) thick made possible by the relative lightness of the concrete wings above even though they are 30 m (98 ft.) high. The two wings are anchored into this concrete slab which is placed over the church vault on the level of the main church ceiling and strengthens the rather damaged 600 year old walls. The platform is a paved terrace about 20 m (65 ft.) above the ground, the height of the whole church to the tips of the wings being 50 m (164 ft.). The wings are of white concrete which included white and rose-coloured marble aggregate and sifted river sand; they are 400 mm ($15\frac{3}{4}$ in.) thick.

A very smooth surface was required for the wings and in order to achieve good quality concrete, formwork of transparent fibreglass was used which enabled the placing of the concrete to be fully visible and therefore carefully controlled. It was thus easy to check the distance of the reinforcement from the surface, the formation of air bubbles and the consistency of the concrete during vibration. The fibreglass was mounted in small wood-framed panels and has resulted in a very smooth and almost shiny concrete surface. It was also surprising how easily the formwork could be removed. This was because the heat generated by the concrete during hardening created a thin layer of steam between the surface and the impermeable fibreglass, enabling the latter to come away easily from the concrete. The formwork panels were 666 mm (2 ft. 2 in.) high by 1.35 m (4 ft. 4 in.) long.

The construction of such huge concrete shells by means of small formwork panels placed together at varying angles obviously had its problems – primarily, of course, how to keep the curved shapes accurate and free from deformation. It was decided that the best idea would be to use fibreglass with horizontal corrugations. These were at 110 mm ($4\frac{1}{4}$ in.) intervals and strengthened the fibreglass at the same time producing a smooth corrugated concrete surface which emphasizes the fluid curves of the shells and enhances the play of light and shade. The corrugations also had the advantage of lessening the slight variations in colour which have occurred in different parts during the placing of the concrete. As a result, the surfaces appear perfectly finished and are considered to more than justify the expense of the formwork. It was also thought that ordinary timber formwork would have created problems and been much more expensive for this type of construction if a high quality finish had been required.

The new twin spires of the Emauzy church and monastery form a brilliant symbol expressing the spirit of this age and linking it with that of past centuries.

Apertures at the base of the towers lighten the structure and allow views from the platform terrace.



End view of the intersecting concrete wings of the Emauzy Church and Monastery, forming the new towers.

Oxford college infill

Additions to Jesus College

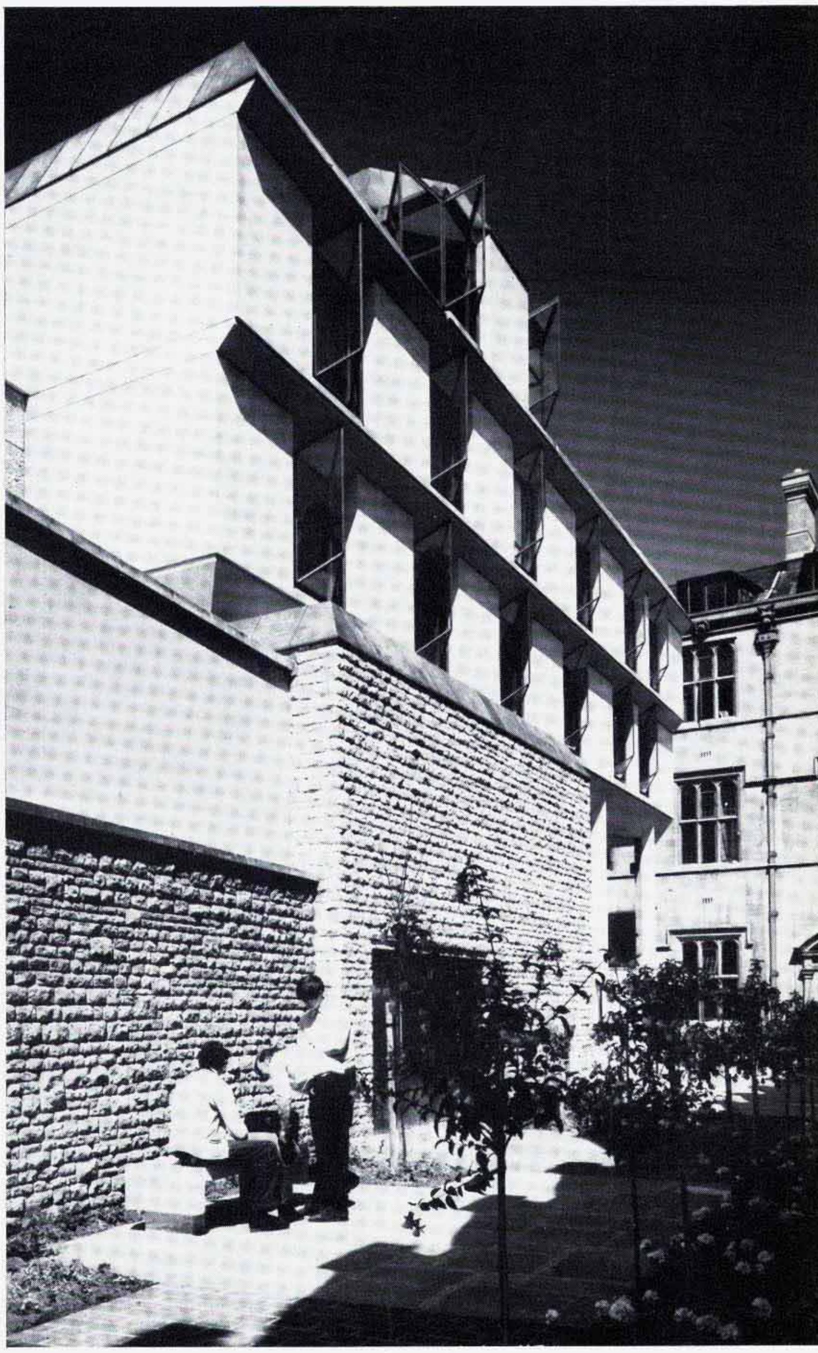
Architects:	Architects Design Partnership Partner-in-charge: John Fryman FRIBA
Engineers:	F. J. Brand and Partners
Contractor:	Knowles & Son (Oxford) Limited

A new building which is another excellent example of college infill at Oxford was opened on June 12 by Prince Charles. This is the Old Members' Building at Jesus College. The opening was timed to coincide with the quater-centenary celebrations of the founding of the college by Queen Elizabeth I in 1571.

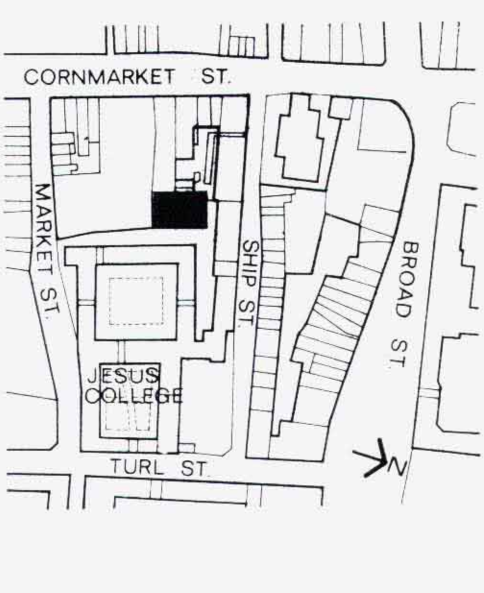
College infill is, of course, an architecturally demanding exercise: space is always at a premium and harmony with the existing townscape a problem. Yet the architect was asked for new buildings which would give a "sense of spacious enclosure". The college was prepared to sacrifice some amount of accommodation to obtain a scheme of architectural merit, the main requirement being "a satisfactory architectural completion of the college buildings in this area".

Within a small space, tightly enclosed by existing college buildings and the rear of shops facing onto the Cornmarket, the architect has managed to provide twenty-four study bedrooms, three seminar rooms, a music room and a workshop – this in addition to a bookshop and electricity sub-station which had to be incorporated in the new development.

The most difficult problem was to resolve the composition of the Third Quadrangle – a long irregular space with some fine original building. External terraces have been carved out of the new building cube at ground level for extra space on a restricted corner. The



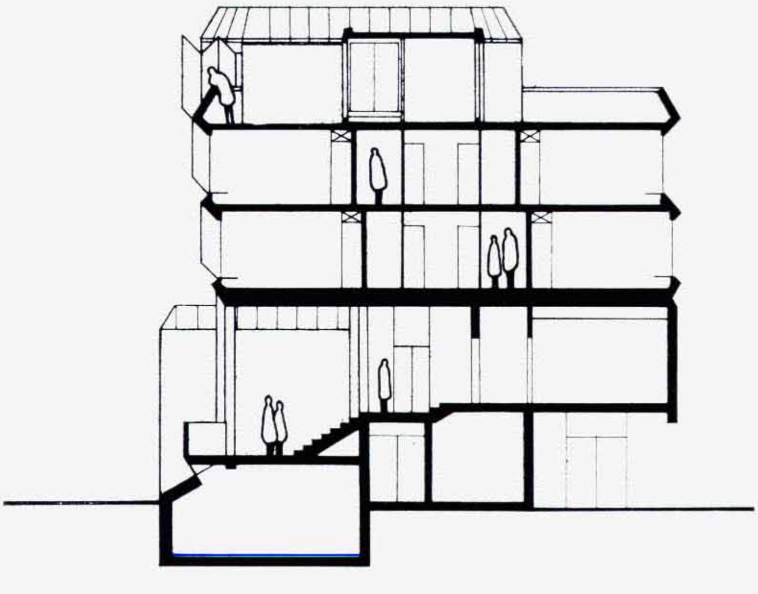
View looking north into the Third Quadrangle from Market Street.



Site plan.

The music room on the top floor.

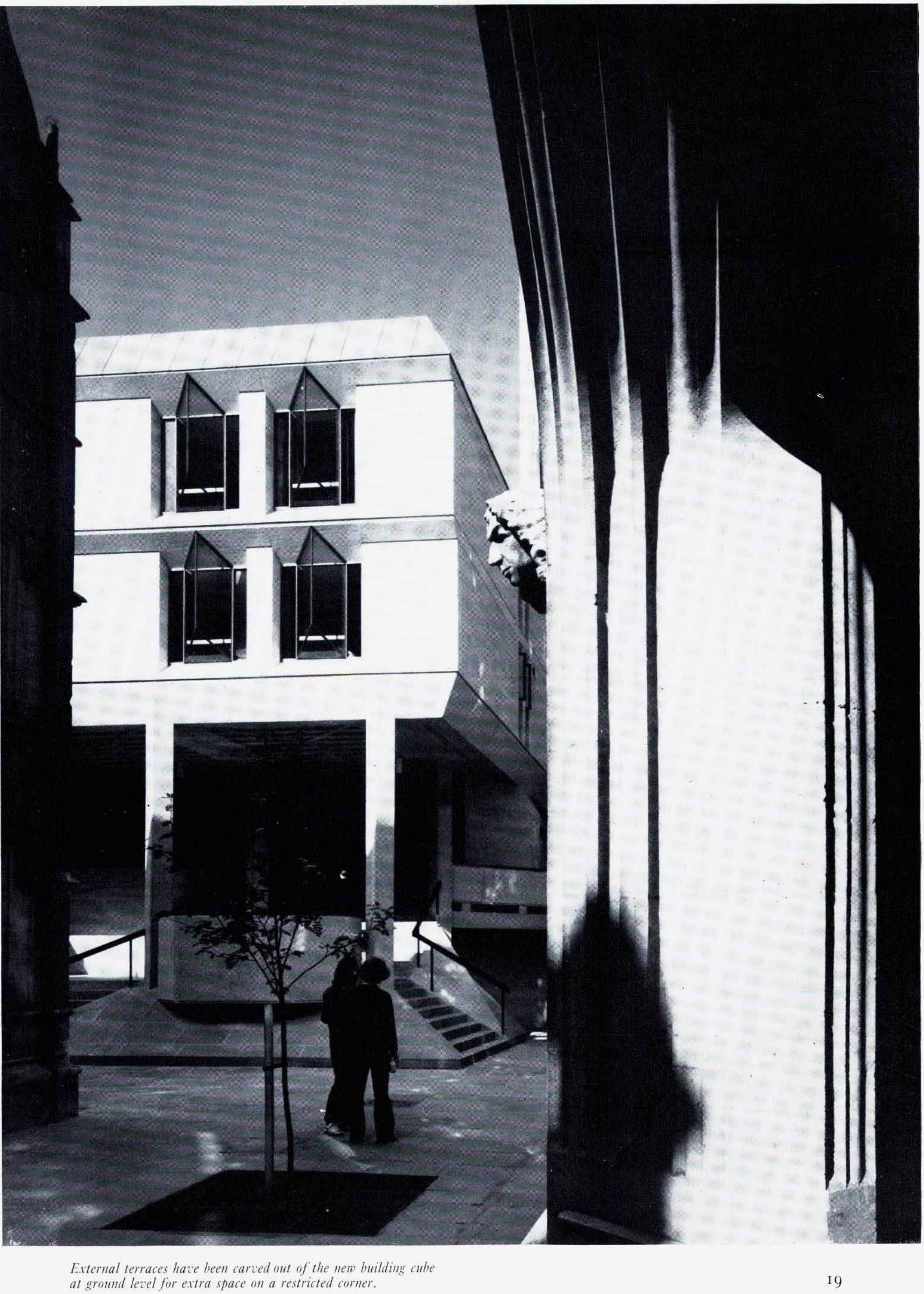
Cross section.



OXFORD COLLEGE INFILL *continued*

terraces connect with the undergraduates' accommodation above. At this upper level, the form of the building completes the enclosure of the quadrangle. The faceted projecting windows are not only decorative: they also provide undergraduates with a better view. Even the floors overlap to allow vertical views down into the narrow quadrangle. A shop extension for W. H. Smith and Son penetrates the building up to second floor level. On the top floor there is a music room which looks back over the whole of Jesus College and the spires and turrets of surrounding colleges.

The structure has an in situ reinforced concrete frame with precast floors. Finishes are designed to be in sympathy with existing buildings: stone, reinforced concrete and bronze windows. These materials are intended to lighten the quadrangle which is often in shadow. The total contract cost was about £130,000.



External terraces have been carved out of the new building cube at ground level for extra space on a restricted corner.

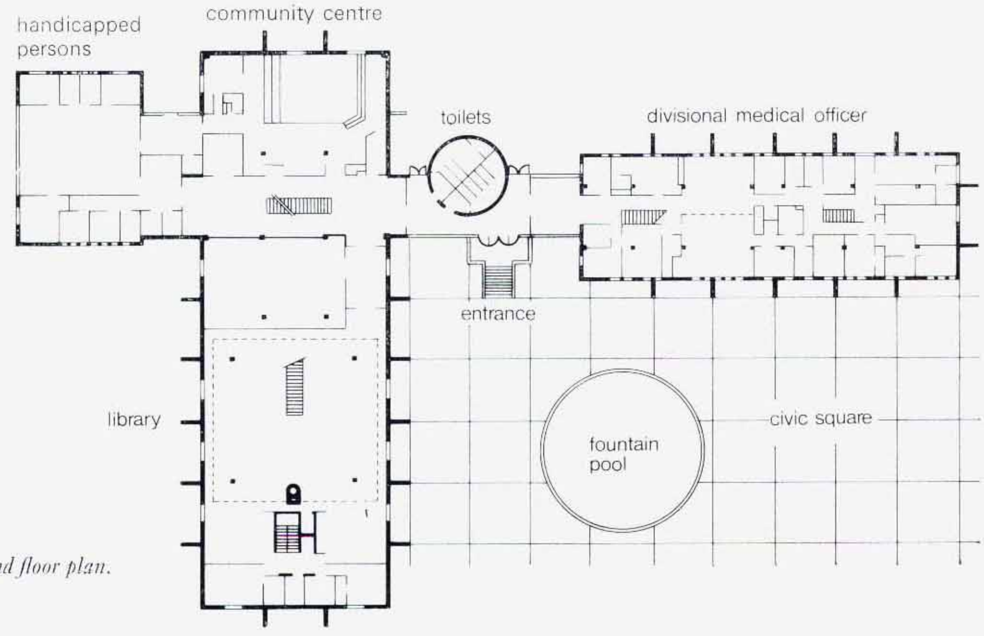
The main approach, with the library wing on the left.

Bebington Civic Centre

Architects:	Paterson, Macaulay and Owens in collaboration with T. H. McGrath, Bebington Borough Engineer, and E. Taberner, Cheshire County Architect.
Structural consultants:	W. G. Curtin and Partners
Contractors:	Sir Robert Lloyd and Company
Precast concrete cladding:	Naybro Stone (Stoke-on Trent) Limited

Local authorities have joined forces in Bebington, Cheshire, to produce a much needed civic amenity. The borough has long needed a bigger library, new civic rooms, a health centre and facilities for the handicapped. The new civic centre, now built on a fine open site opposite the Town Hall, was begun by the Borough of Bebington with the building of the new Joseph Mayer library and a set of civic rooms. Cheshire County Council then joined in to provide the health centre, the handicapped persons' unit and other offices. A new sub-divisional police headquarters has also been incorporated. The Centre was opened on 1 July 1971 by the Duchess of Kent.

The main approach is across a large civic square



Ground floor plan.

above the sloping lawns which extend from the main road. It has fine views across the Mersey and is landscaped with a large circular ornamental pool (partly financed by the Arts Council).

The building is constructed on piled foundations and has an in situ reinforced concrete structure. The frame is clad on the main ground floor with blue brindled facing bricks and on the first floor with large precast concrete slabs which have an exposed aggregate surface of white Skye marble. The building plinth which encloses the ground floor is sloped and forms a strong base, visually and structurally, for the upper floors. It is paved with ribbed precast concrete slabs.

Internally, the library areas have acoustic ceilings of sprayed asbestos-cement fibre. Coffered rooflights give a diffused but high level of daylighting without glare. Walls have a Tyrolean rendering. Floors are either covered with vinyl tiles or felt carpeting.

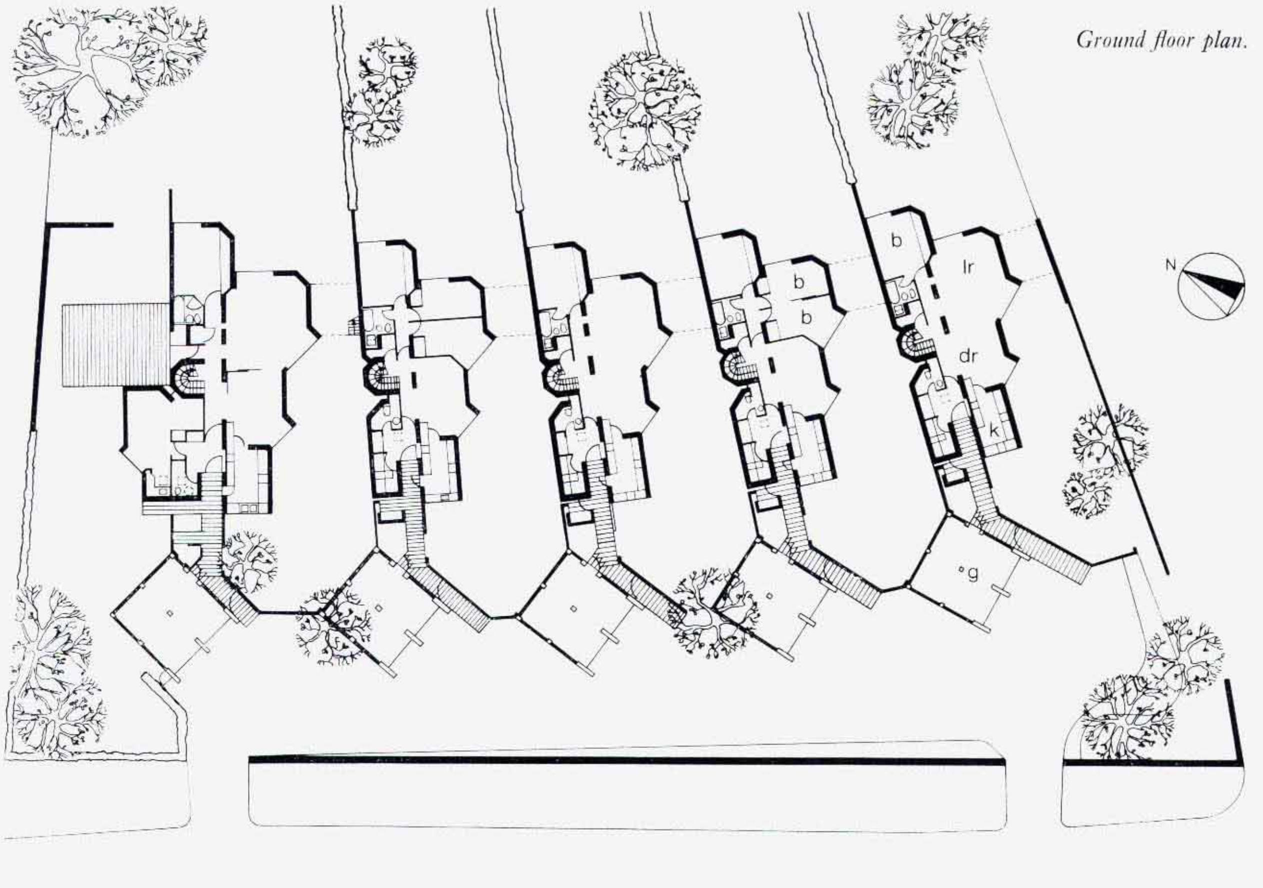
The secondary entrance to the building, with the community centre and handicapped persons' unit in the foreground.

The houses overlook open country to the north.

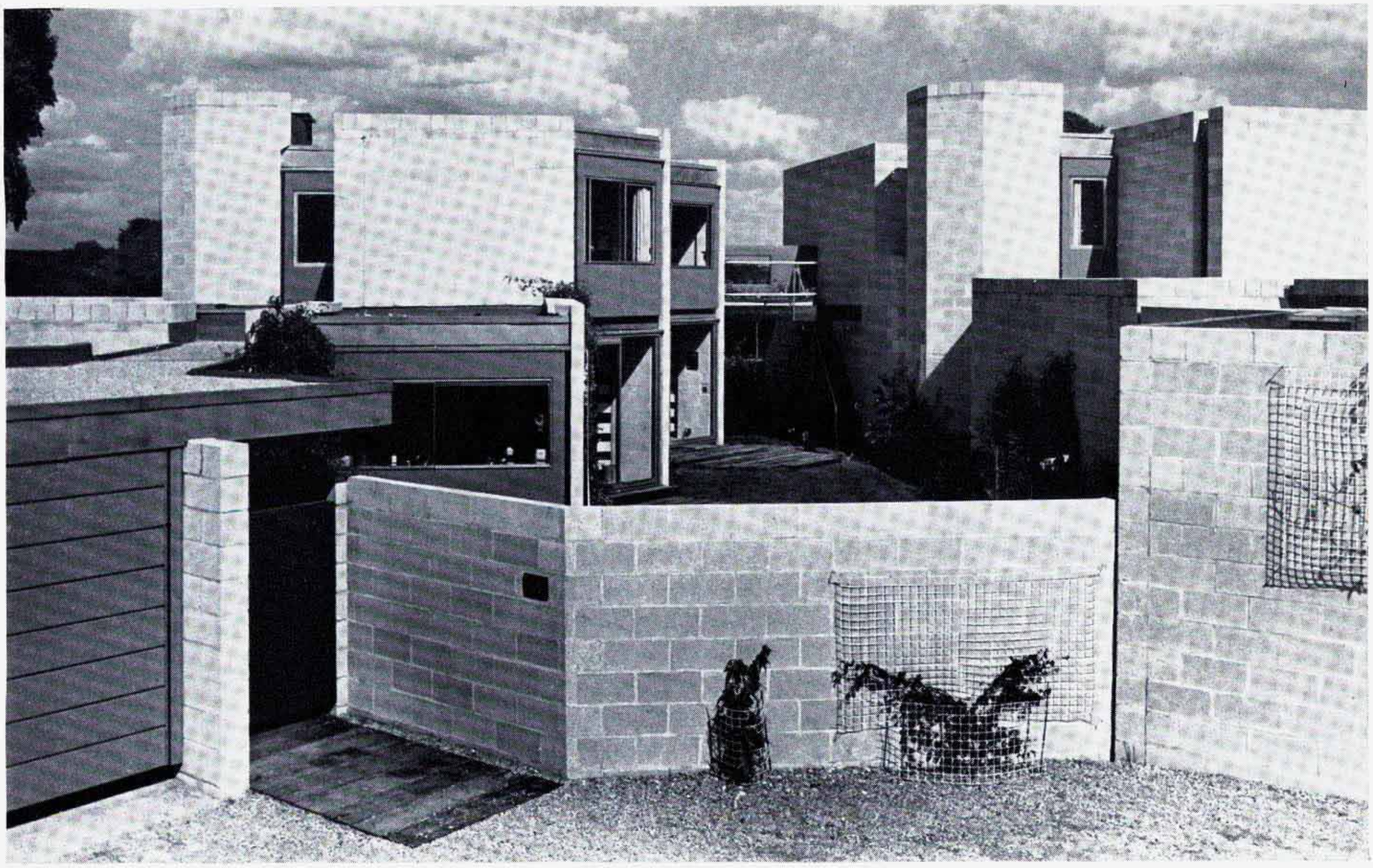
Houses

at Dunstan Road
Old Headington, Oxford

Architects:	Ahrends Burton and Koralek
Structural engineers:	David Powell and Partners
Contractor:	Ephraim Organ & Son Limited
Loadbearing concrete blocks:	Forticrete Limited
Partition concrete blocks:	Thermalite Limited



Ground floor plan.



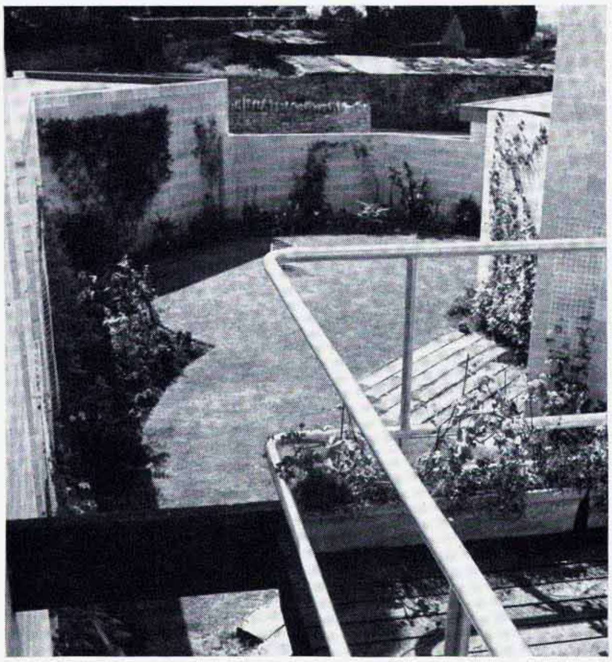
The fronts of the houses showing garages and entrance in the foreground.

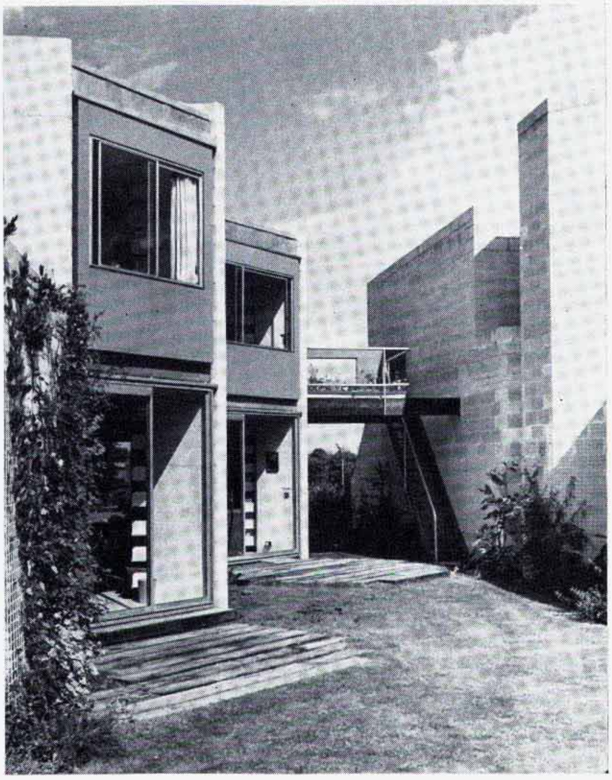
The scheme consists of five privately owned houses built on the edge of Old Headington village. The house owners formed themselves into a consortium for the purpose of the design and execution of the contract. The site slopes down gently towards the north and has good distant views over the country to the north and north east.

The intention was to provide relatively cheap space by building fairly basic shells of basic materials with finishes reduced to a bare minimum. The provision of such a shell recognizes the degree of internal flexibility which owners will want over the years. Planning also provides owners with a number of options.

Construction is of loadbearing concrete block cavity walls with timber first floor and roofs. Sealed birch plywood sheets provide a deck and a finish over the joists, whilst flat asphalt roofs are laid on pre-screeded woodwool slabs. Internal walls and partitions are of lightweight insulating concrete blocks which are laid fairfaced and painted. Storey-height panels incorporating windows and doors are of insulated sandwich plywood panels painted inside and out.

Below and right: Garden views showing how the concrete block garden walls form an extension of the houses.





ponti

Most readers of this journal will be acquainted with the work of the Italian architect Gio Ponti – if not through buildings such as that slender and most exquisite of all modern towers, the Pirelli Building in Milan, or through his prolific work as an industrial designer, then perhaps through his writing, with its fascinating philosophy of design.

It is now nearly fifteen years since the Cement and Concrete Association gave a reception for Gio Ponti at which he held 120 guests spellbound with a trilingual talk on design in concrete. Betty Campbell, who was then editor of *Concrete Quarterly*, wrote at the time: "Professor Ponti has a delicious dry, dead-pan humour, masking a deeply-felt sense of aesthetic purpose. He is, he claims, no calculator (there are others who can do that for him). But, like Niemeyer in Brazil, to whom he gave high praise for his free and expressive forms, he does claim intuition: intuition about his material and what it will do."

As can be imagined, we were delighted when we learned from Professor Ponti, now 80 years of age, that he would be willing to write for us a description of his new and marvellous cathedral at Taranto in southern Italy (surely one of the most interesting religious buildings of this age), and that he would include something on his philosophy of modern architecture.

It is therefore with the greatest pleasure that we present his article on the opposite page – an article which, characteristically, he has taken the trouble to design and lay out himself, and which we have left as much as possible exactly as he sent it.

Perhaps as a post-script to this introduction, we might well quote from Gio Ponti's book *In praise of architecture* – first published in 1960 but still as fresh and irresistible as ever:

"Concrete is the material that identifies structure with architecture in essential and pure forms. It liberates us from the right angle. It is the material that assumes the form by which a building stands, defining and enclosing it in itself without any other limits. What Nervi did in the auditorium of the Unesco Building in Paris is marvellous; it is Greek; it is Attic. His stadium in Rome is also marvellous."

"Do not leave gaps in your culture. Become acquainted with the Hennebiques, Perret, Maillart, Nervi, Danusso, Morandi, Freyssinet, and Torroja. Become acquainted with those intuitive architects of concrete who have achieved the most wonderfully surprising and poetic architectural fantasies – Niemeyer (a genius) and Candela."

Gio Ponti tells us about his

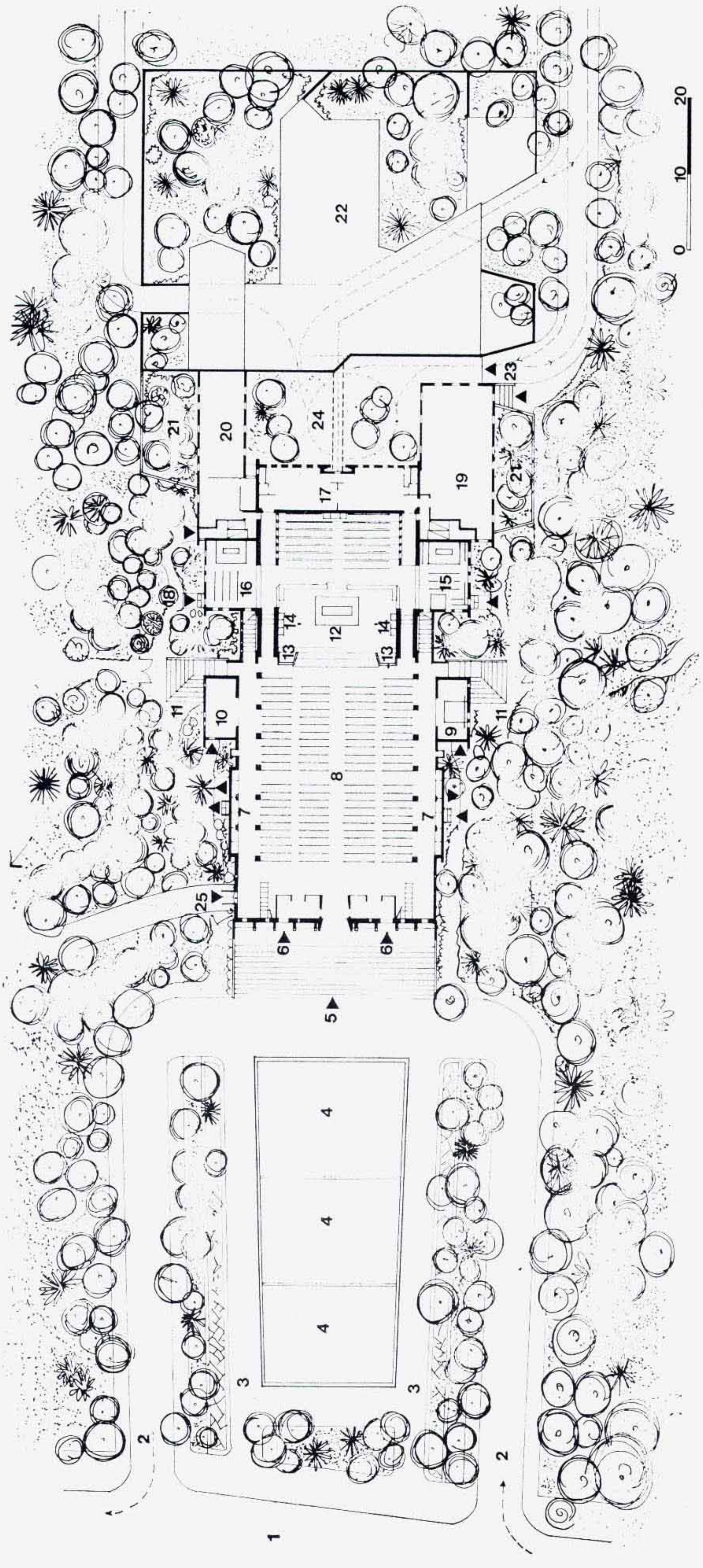
Taranto Cathedral

Architect: Gio Ponti (Studio Ponti, Fornaroli, Rosselli)

When I was kindly requested by *Concrete Quarterly* to publish on their pages my Taranto Cathedral – consecrated in December 1970 – I wanted immediately to point out that it was not an example of an exclusive or typical use of concrete, or of some peculiar or especially interesting or daring design in concrete, as we so often hear about nowadays. On the contrary, I emphasized that it was architecture built by primitive building methods with a structural frame of in situ reinforced concrete incorporated but not expressed and covered with plaster, with solid walls between the columns using the normal perforated bricks. In this way, we could say that the invisible supporting skeleton of this building is of concrete, the supported body of normal walling and – to carry the analogy further – the skin is of plaster.

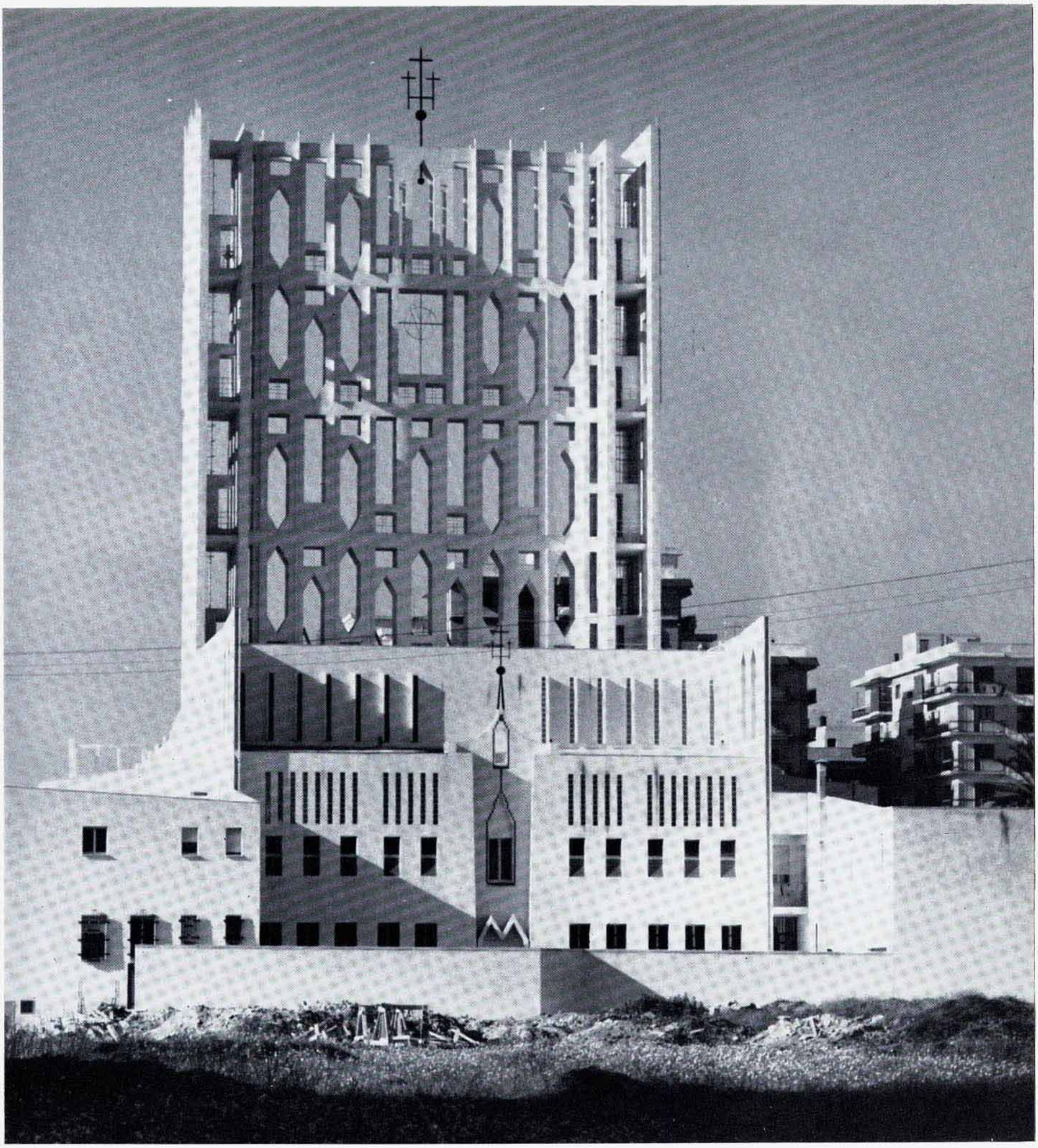
But I said too – and this is the 'historically' important matter in my opinion – that "*without the existence of concrete, not only could this architectural design never have been realized, it could not even have been thought of, in that it was only possible to imagine it in relation to the possibilities offered by concrete*". And *Concrete Quarterly* fully understood this approach.

At the very birth of my design for this cathedral there



Plan

1 Viale Magna Grecia
2 Entrance drive
3 Processional way
4 Three pools
5 Entrance steps
6 Entrances
7 Confessionals
8 Nave
9 Baptistry
10 Seamen's chapel
11 Side entrance steps
12 Main altar
13 Pulpits
14 Thrones
15 Chapel of the Madonna del Mantello
16 Chapel of the Sacrament
17 Sacristy with choir over
18 Entrance
19 Parochial offices and residences
20 Parochial services
21 Parochial garden
22 Planned external area
23 Access for vehicles to crypt
24 Cloister
25 Entrance ramp for invalids



The rear façade of the cathedral. Offices and priests' residences overlook the courtyard cloister. (See front cover for main façade)

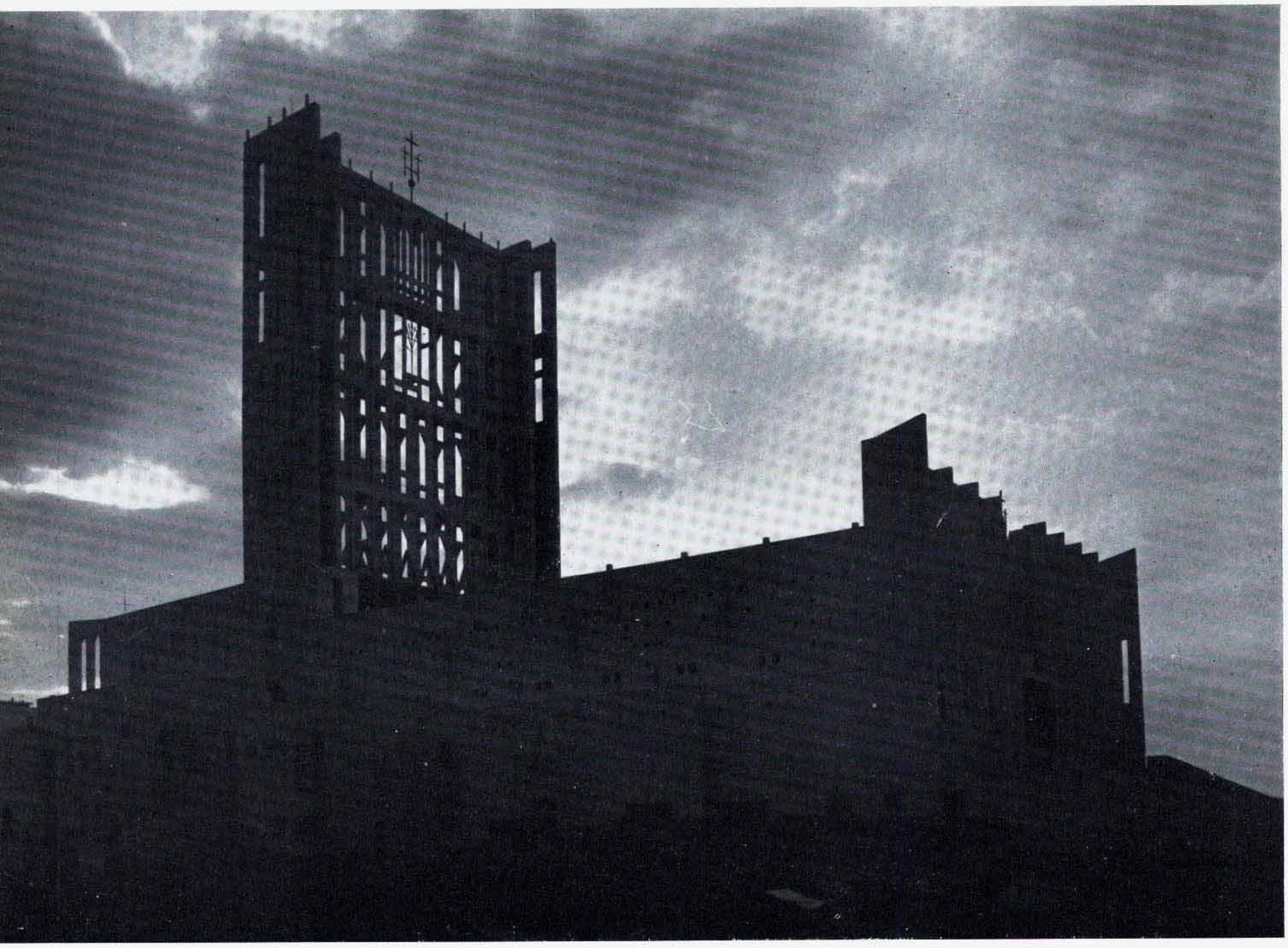
were two religious themes to be expressed: the first one was the entrance wall overlooking the main steps, treated like a banner in high-relief and fully perforated – because this is the wall that anticipates the cathedral nave i.e. the interior space receiving the believers. The second religious theme to be expressed was the higher façade wall behind which is the presbytery where the high altar is accommodated. This wall is 160 ft. high.

These two themes are linked and not separable: the first wall is the door into the long and low nave interior where the prayers of this religious community, or of a single person, are offered in front of the altar, where liturgical ceremonies take place. The other wall, immediately called by the people 'the sail', is another door – the door to the skies, and means that if the Creator is everywhere, and He is in the interior of the Church, He is also in the immense space of the skies.

This 'sail' is made of two equal façades, one in front of the other and built one metre apart. These façades are perforated overall with many windows overlooking the Creation. Among these windows there is one larger than the others and this is 'the door to the sky' opening onto the immensity and the mystery of space and time.

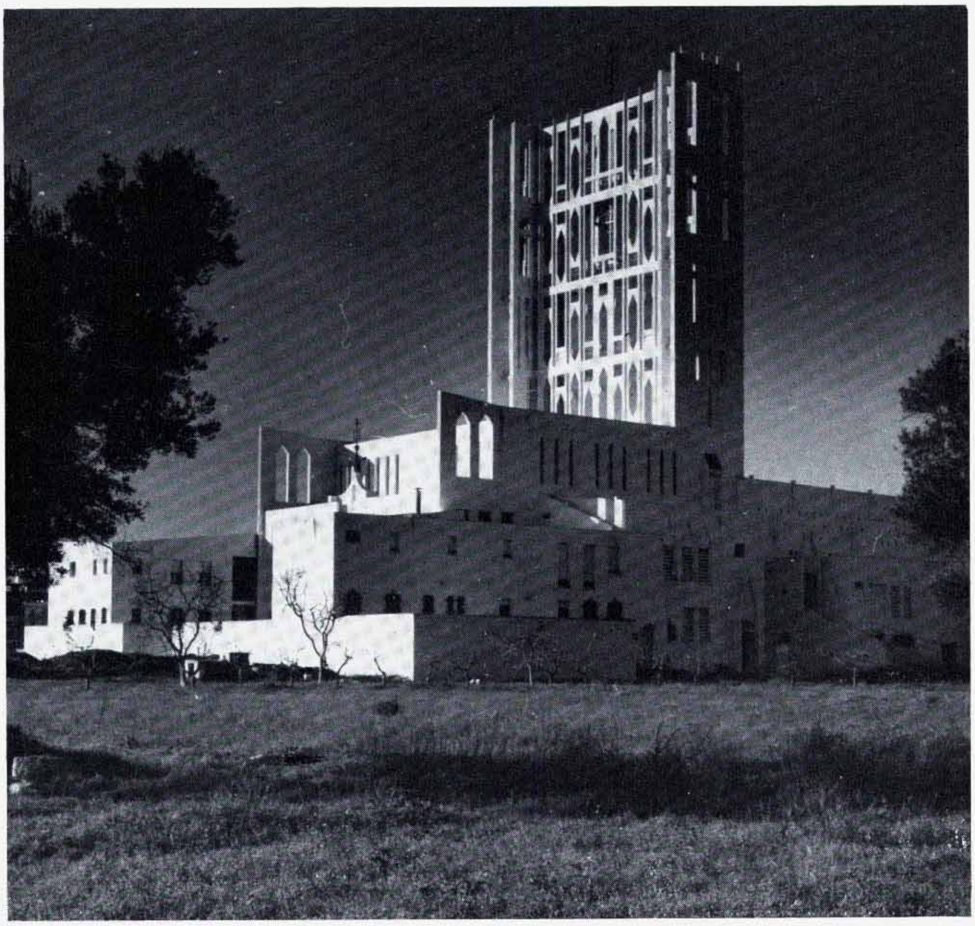
All the above is based on my 'philosophy' of religious

continued on page 32



Above: The cathedral and the 'door to the skies' seen in silhouette.

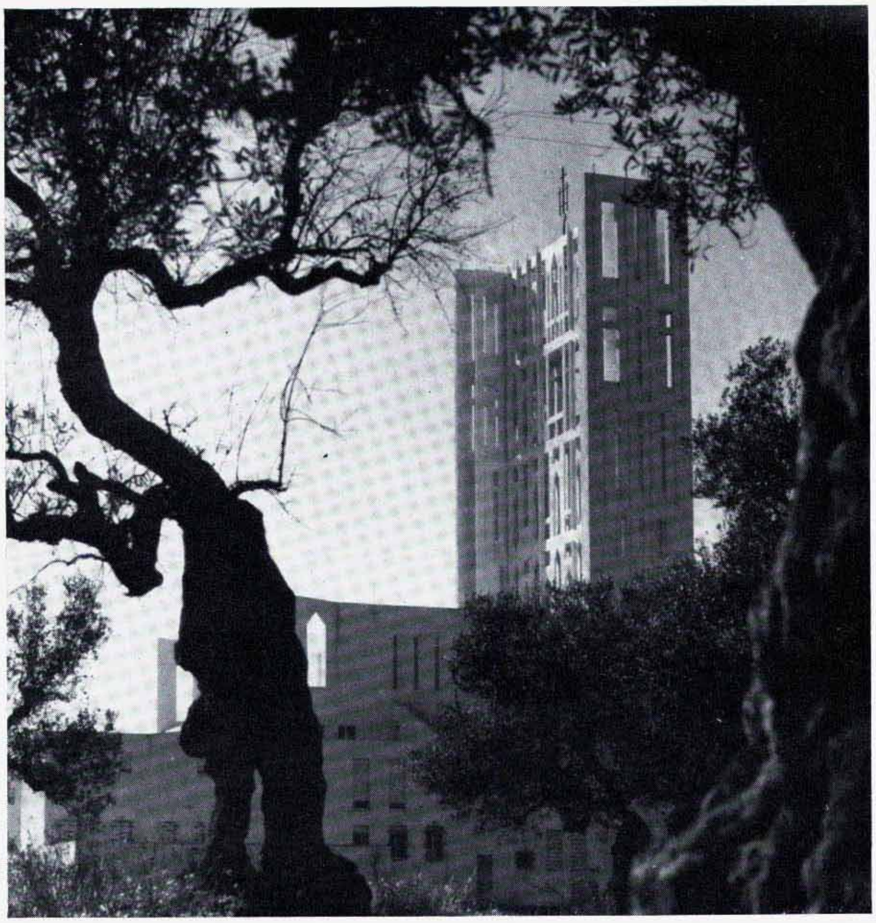
Right: Rear view from the north-east.

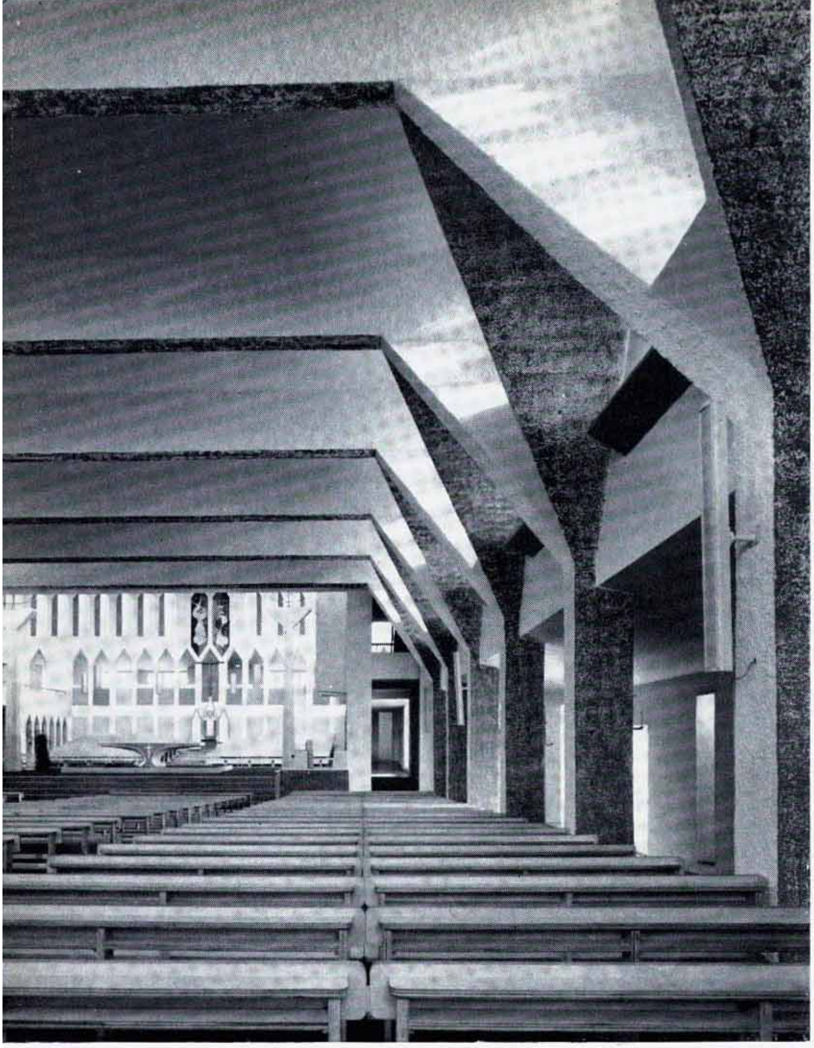


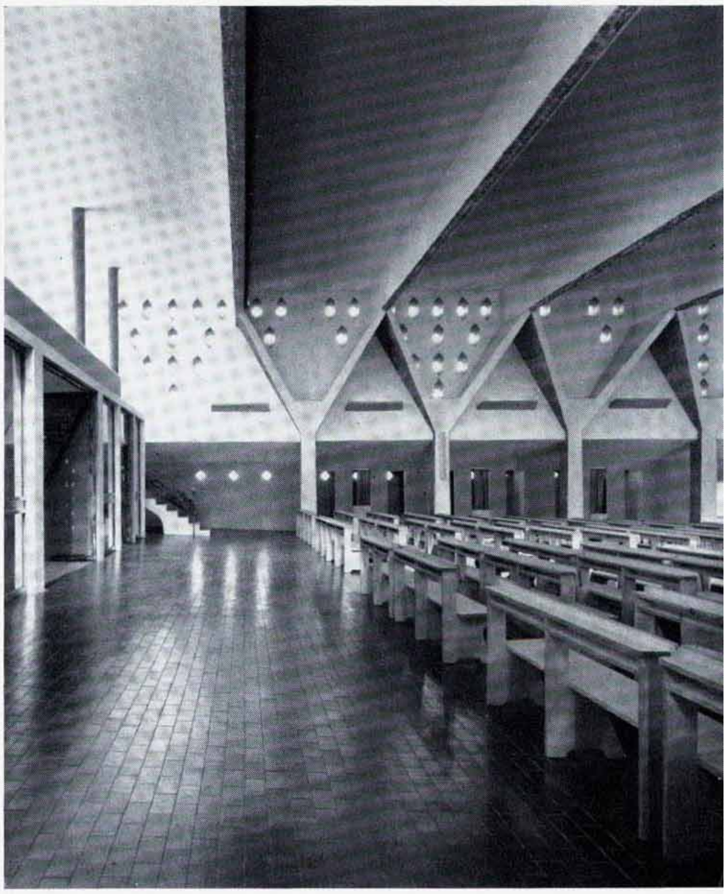
TARANTO CATHEDRAL
continued

Above: The south façade.

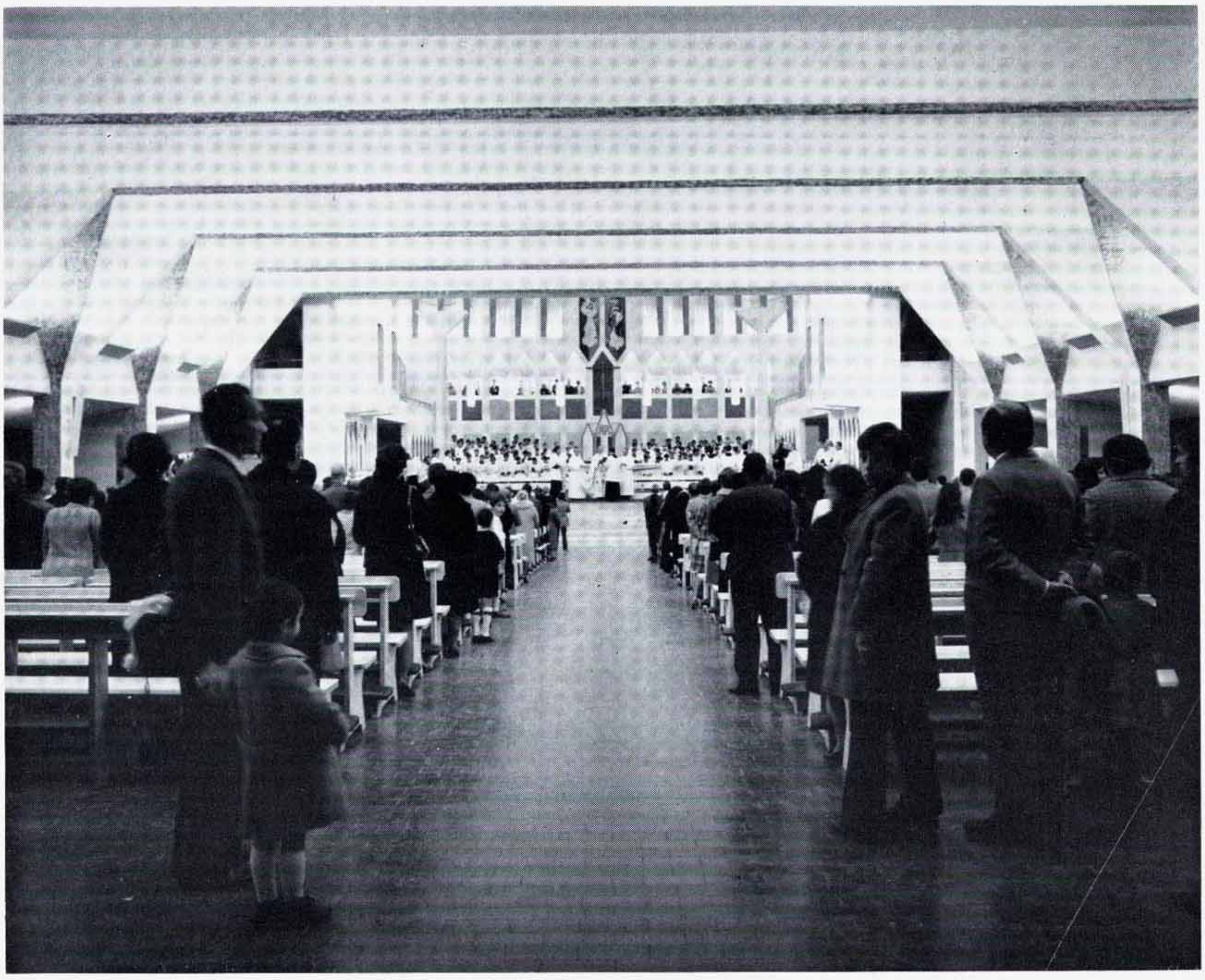
Right: Gio Ponti hopes that the whole cathedral will be surrounded by the greenery of climbing plants, oleanders, eucalyptus and bushes that grow in the Tarentine climate.



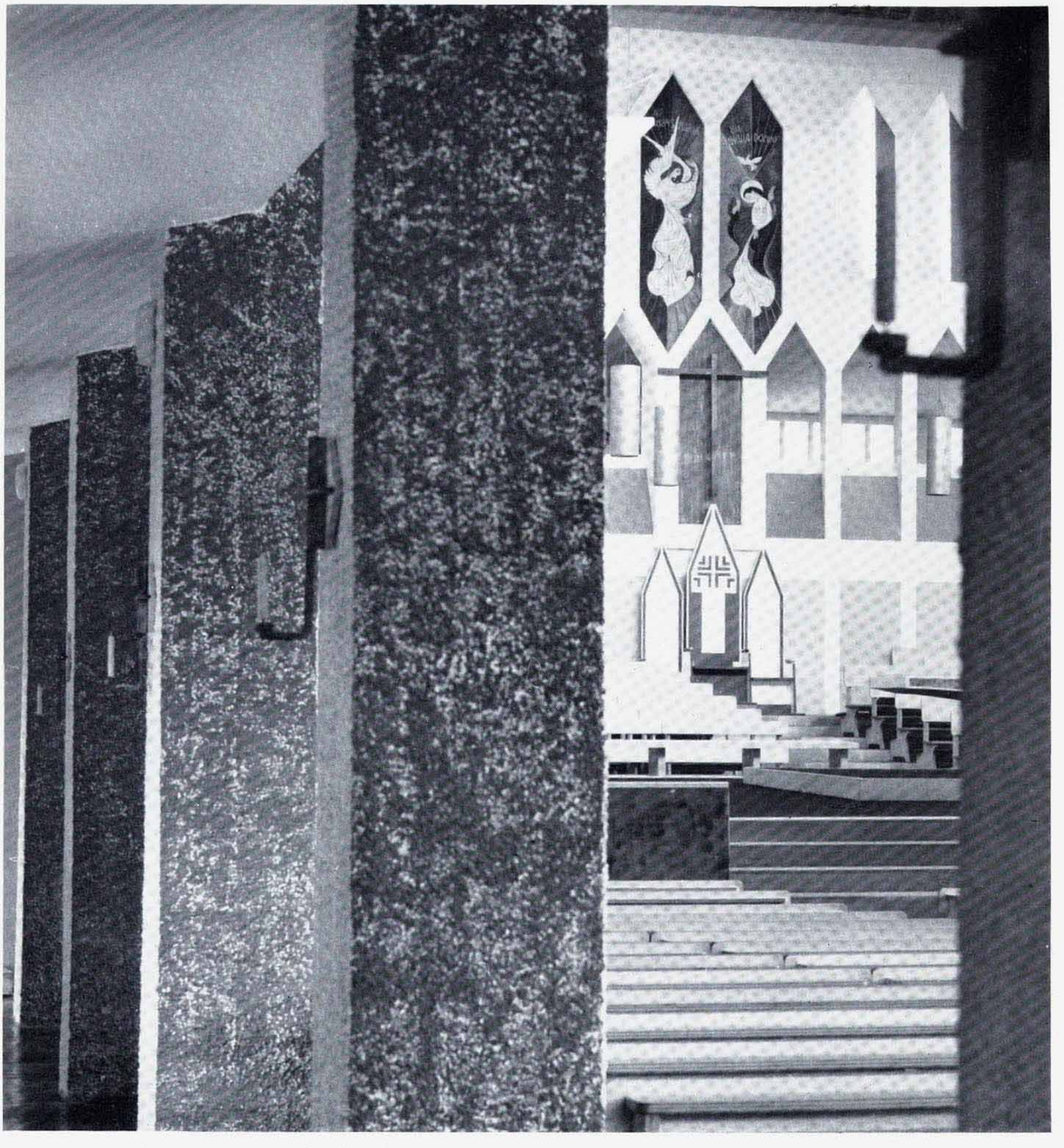




Above and below : The concrete structure is expressed internally with projecting winged columns which reduce the spans of the beams.



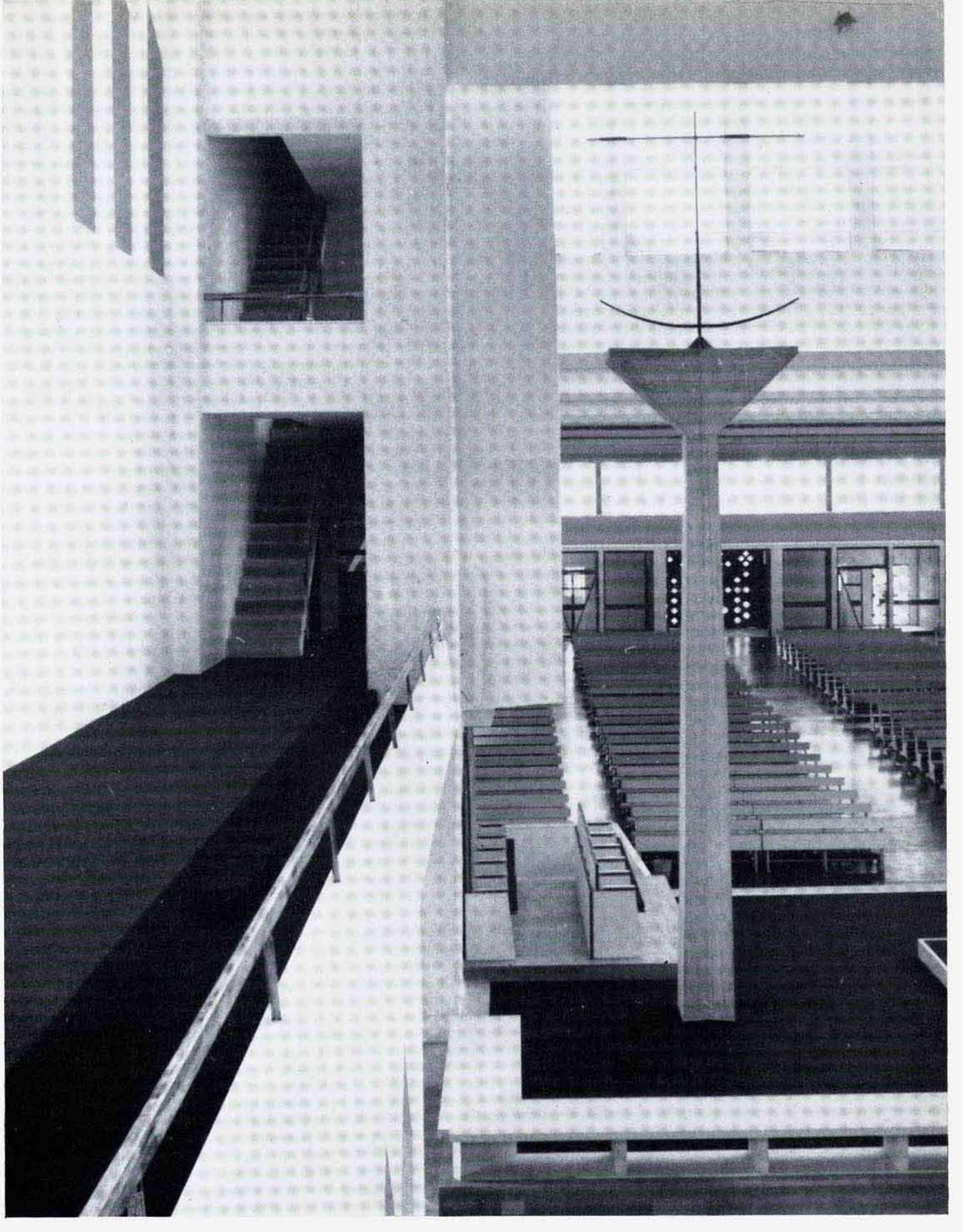
Above and opposite: Various interior views. Walls are pure white, floors are of green ceramic tiles.


The Annunciation is painted by the architect.

TARANTO CATHEDRAL *continued*

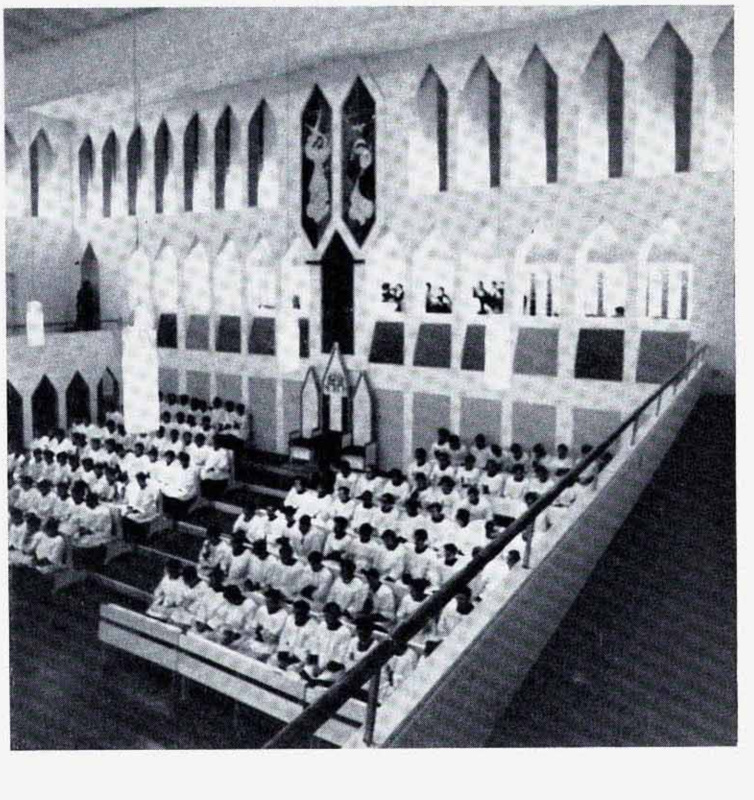
architecture. According to my view, religious architecture, before being a matter of architecture, is a matter of a sense of religion. Therefore the very first thoughts must be about intensity and expressive force of religious feeling, rather than about architectural treatment on the basis of architectural criteria such as proportion, relationship of volumes and spaces, design etc. as would be normal in all other kinds of buildings.

In the belief that I have devoted all the energies of my spirit in the most intense possible way to the expression of such inspiration, I ask liberty to relate two episodes that are connected with this cathedral. The first episode took place during the solemn and austere ceremony of the religious consecration. Something happened that perhaps has no precedent in the history of architecture: the architecture itself was given unexpected and prolonged applause – in the presence of its architect – from all the people pressed into the cathedral: clapping which began repeatedly and went on for long moments at a time without stopping.



View from the choir stalls behind the main altar, looking down the nave. The column of natural concrete supports only the symbolic cross and anchor.

Choir stalls.



When did it ever happen that an architect was applauded? What was applauded in fact – as those people have no other dialectic than gratefulness – was the identity that they found, I think, between the architecture built and the expression that they had hoped for – the thing that they had hoped they would enjoy seeing.

Nor am I able to ignore the second episode which, for its graciousness, is the most charming and poetic tribute ever expressed to an architect. A country nun stopped me and said "Thank you, my architect. I hope

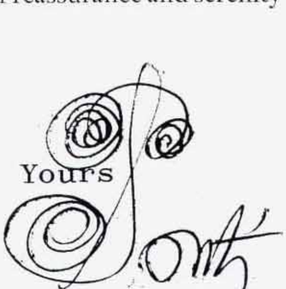
The south façade from the entrance drive. The freestanding structures over the doorways are designed to be covered with creepers.

that when you pass away and go to Paradise, the Paradise will be as beautiful as here". And she turned and went away.

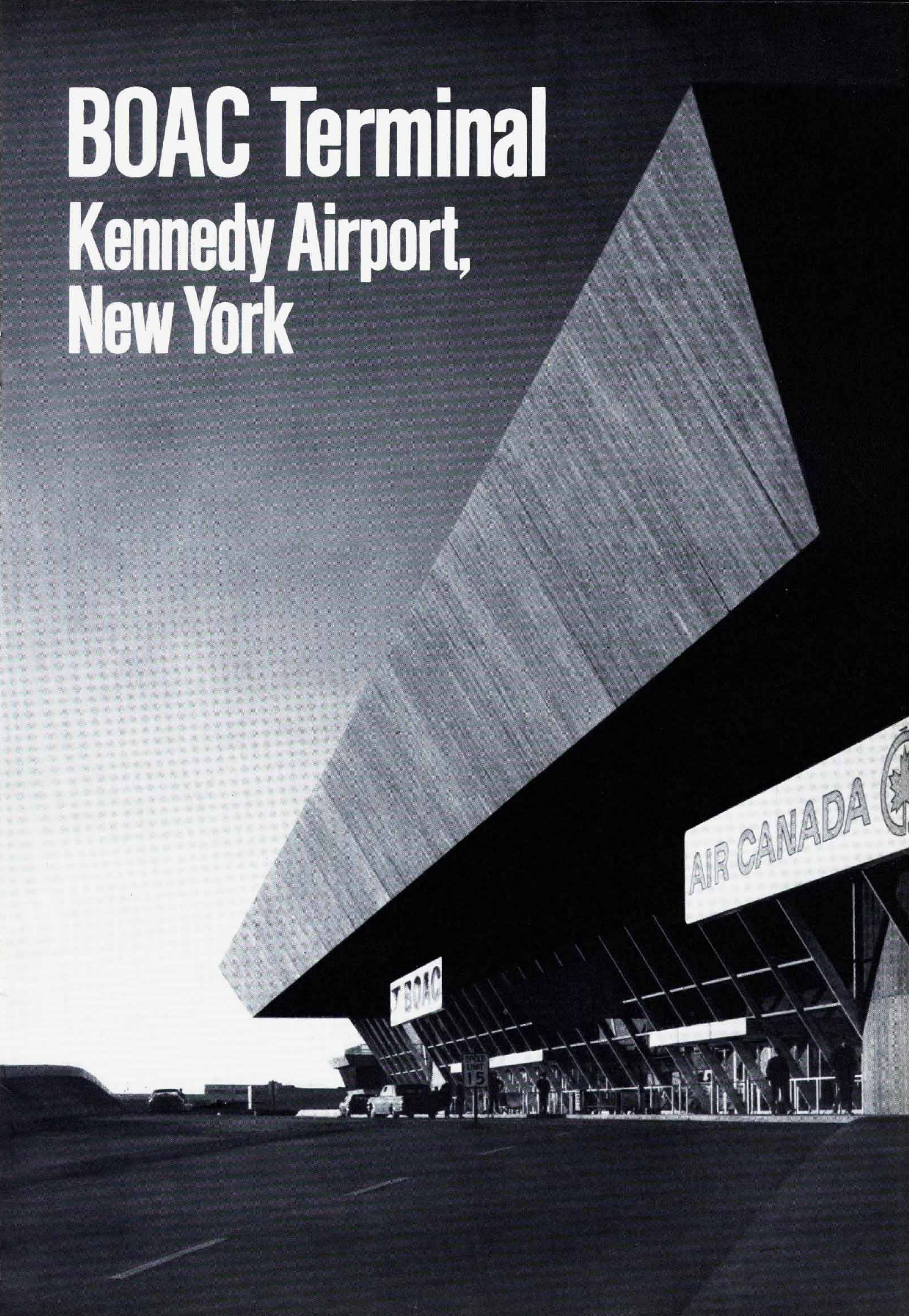
In the thoughts that accompany me at my age – perhaps I am the most aged of architects (80) – I see the reality of architectural values in the measure that they coincide with the idea of 'happiness for human beings' or – as in this case – when a form is created with which people can easily identify their religious feelings and which realizes their simple-hearted expectations. Both we and our works as architects must be judged on the constancy with which we exercise the possibilities of this earthly consolation and on the happiness that we are able to bring to the one and only life that human beings have.

And our urban design, as well as our architectural design, must be such as to create fresh visual aspects, or to preserve those already existing which give pleasure to those who look at them or live with them. For architecture is also meant to be looked at, by everybody.

Finally, the positive contribution of an architect can be measured by the feelings of reassurance and serenity which his works arouse.

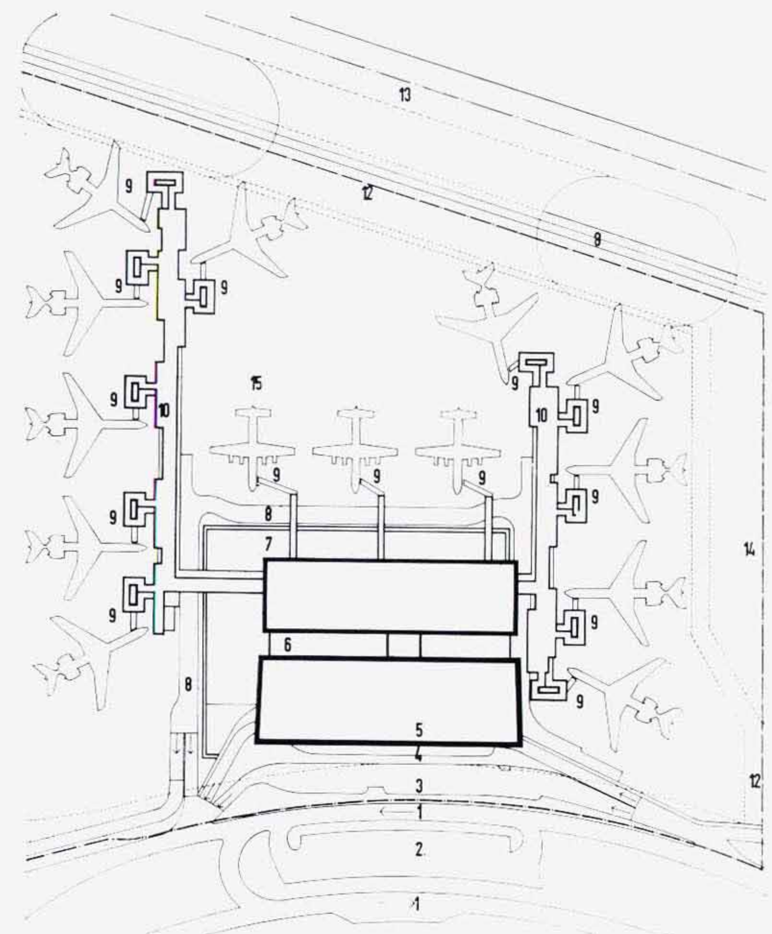


BOAC Terminal
Kennedy Airport, New York



The terminal building from the airport road.

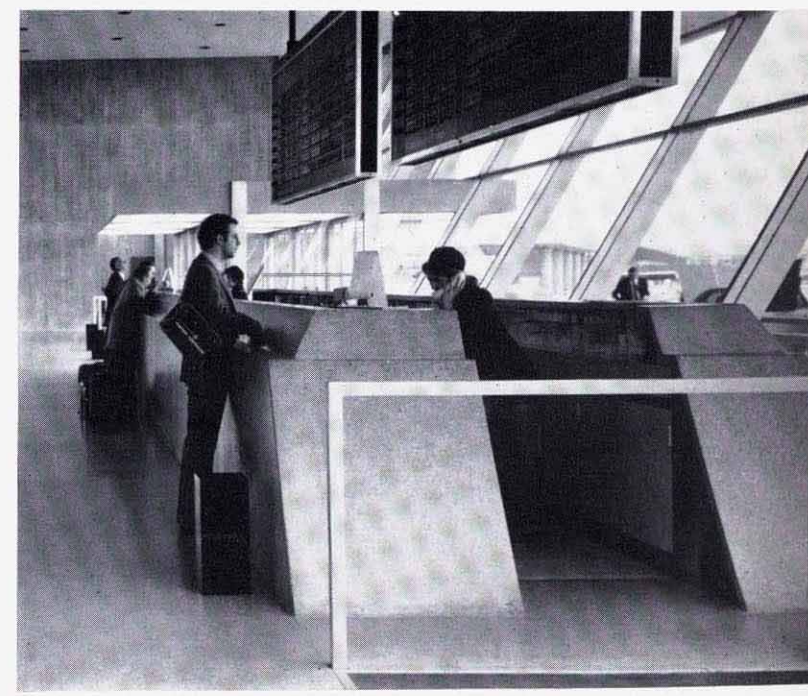
Photographs by Henk Snoek



Site plan

1 Airport road
2 Car park
3 Inbound road
4 Outbound road
5 Projected heliport
6 Open court
7 Terrace
8 Service road
9 Aircraft access ramp
10 Finger
11 Building line
12 BOAC property line
13 Taxiway
14 Common taxiway
15 Apron

The information counter in the outbound concourse. The counter is of terrazzo-faced concrete.



BOAC Terminal

Kennedy Airport New York

American award winner

Architects: Gollins Melvin Ward and Partners

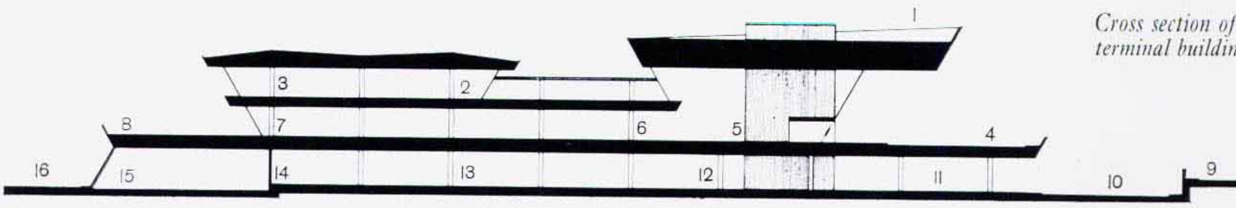
The new BOAC Terminal at Kennedy Airport in New York is surely a good ambassador for British architecture abroad. Pure and uncluttered in form and layout, it makes a simple statement of fact but with just the right amount of panache for a building that may be one's first and last impression of the States. Kennedy International Airport has airline terminals of many different architectural styles built as the airport developed. The total effect is no more harmonious than at London Airport (surely one of the most disorientating places in England). The architects have therefore wisely chosen to design a terminal of very simple appearance arising directly from a straightforward plan. In this, it might be compared with Helsinki airport terminal building which has something of a kindred spirit and is also of extreme simplicity.

The terminal makes use of the minimum number of materials and finishes. The sloping glass walls follow control tower ergonomics and reduce sky glare and reflections for the occupants; at the same time some shading is provided, which helps the air-conditioning load, and lightness is given to the architectural form. The only materials used externally are natural coloured aluminium, dark grey solar glass and board-marked concrete of a uniformly high quality. Internally, the same materials are used together with vinyl and melamine finishes to walls and fittings, and acoustic tiles and acoustic plaster ceilings throughout.

The terminal building is rectangular on plan, measuring about 400 ft. long by 300 ft. wide, and has three levels of concrete floor slabs – inbound, outbound and mezzanine levels – supported in parts by concrete walls. The outbound and mezzanine floors are 14 in. thick waffle slabs spanning 31 ft. in each direction. The gallery structure, peripheral on three sides of the terminal building, is entirely concrete framed.

The 8 in. concrete slabs are supported externally by vertical walls and internally by concrete stair cores spaced at intervals. Concrete bridges, spanning over the service roads, convey passengers to and from the aircraft.

The east end of the outbound concourse at night.



Cross section of the terminal building.

1 Projected heliport
2 Press and TV
3 VIP room
4 Outbound road
5 Concourse
6 Ticketing
7 Outbound lounge
8 Viewing terrace
9 Airport lounge
10 Inbound road
11 Inbound lobby
12 Customs
13 Baggage claim
14 Immigration hall
15 Baggage hall
16 Service road

Scale of feet
0 25 50 100

Detail of terrazzo-faced concrete check-in desks in the outbound concourse.

BOAC TERMINAL *continued*

In general, exposed concrete inside and outside public areas has a lightweight aggregate and a very high quality boardmarked finish. An interesting point is that the check-in desks are also of concrete with a terrazzo facing and integral with the floor structure. Although internal planning is designed for a certain amount of flexibility, it was not thought that these desks, linked with the complex baggage handling below, could ever economically be changed.

The architects recently received the 1971 Annual Award of the Concrete Industry Board Inc. for the terminal. The citation said that the airport represented the best in conception, originality and application of concrete in design and construction. This is the first time that a British firm of architects has received such an award in the USA.

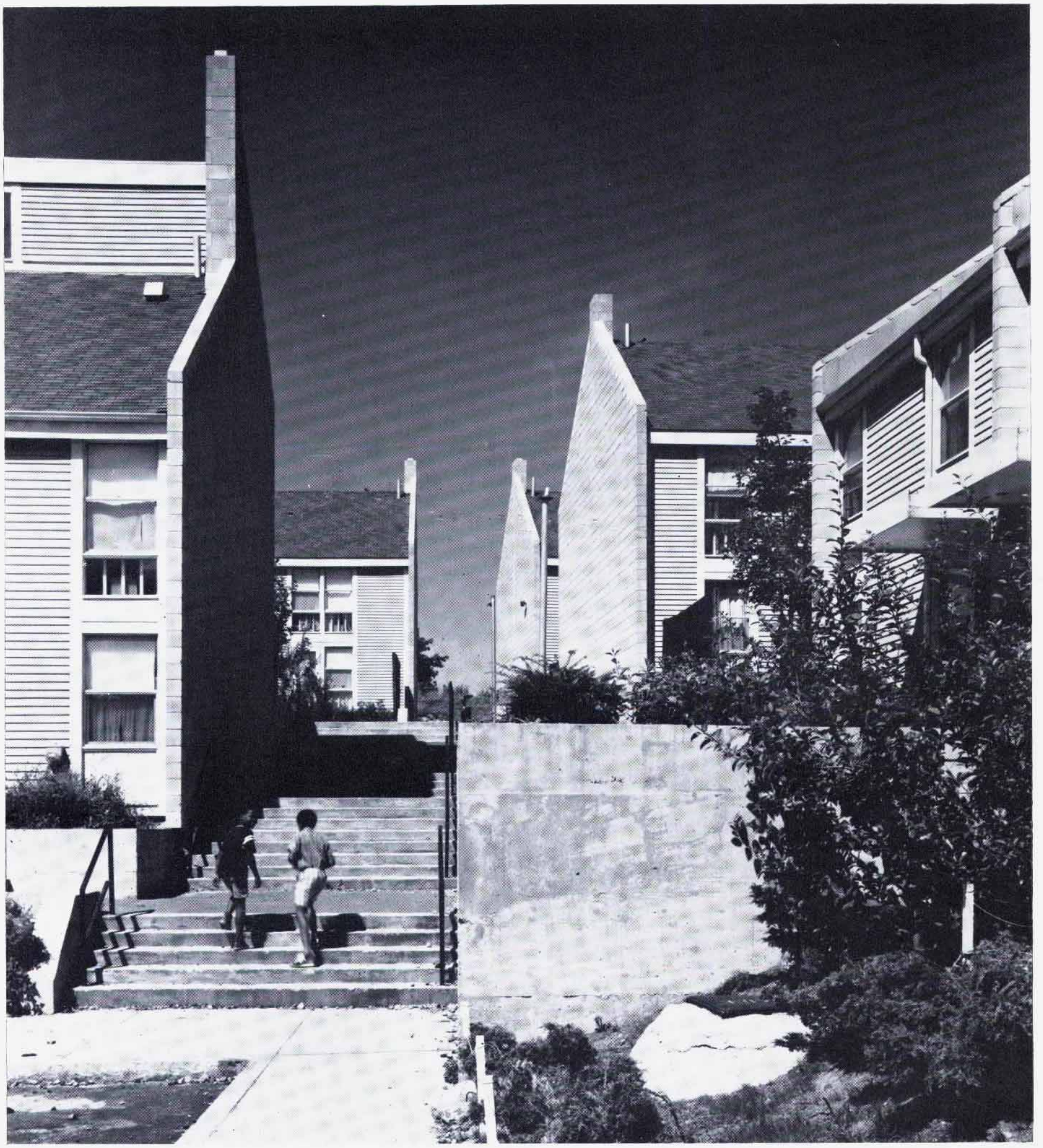
The terminal building from below the canopy.

Low-rise low-income housing

Warren Gardens, Roxbury, Massachusetts

Architects: Hugh Stubbins and Associates
Ashley, Myer and Associates

The housing at Warren Gardens, Roxbury.



Nine awards were made from 78 submissions in a competition held in the United States in 1970 for low- and medium-income housing. The competition was sponsored by The American Institute of Architects, the National Centre for Low- and Moderate-Income Housing, the National Urban Coalition, and the Urban Design and Development Corporation. The jury concluded that the competition proved that a low-cost housing programme need not mean inferior architecture, and that in the hands of good designers a superior end product could be achieved. Many architects in this country will not agree with this, having found through bitter experience with stringent cost limits and yardsticks that it is extremely difficult to produce a decent living environment on a shoe-string. However, this is surely an interesting exercise to see just how far a shoe-string will stretch. The jury wondered whether the private sector of building, in its efforts to anticipate public demand, did not often produce an inferior product. It also said that if cost limitation was a discipline that could produce good architecture, so was "architect selection". A further consensus of opinion was that high-rise dwellings were not appropriate for family living and none of the high-rise solutions submitted was given an award.

The housing illustrated here at Warren Gardens, Roxbury, Massachusetts was one of the nine winning entries. Basically it consists of two- and three-storey houses laid out in straight terraces and crescents. Cross walls and gable ends are of concrete blocks, the party walls projecting externally to emphasize individual living units. Timber facings are used between.

The programme was to provide 228 low-income dwellings on a rocky wedge-shaped site. A 'town-house' rather than a high-rise scheme was found to be more economical, maintaining the traditional neighbourhood scale of the area and allowing each family a private garden. Changes of level have been used to advantage, with some terraces stepped down slopes. The character of the neighbourhood has been determined by the relationship between play courts, culs-de-sac and housing clusters. In the planning of the houses, kitchens have been regarded as "control centres".

The concrete blocks are lightly textured and measure $7\frac{5}{8}$ in. by $7\frac{5}{8}$ in. by $15\frac{5}{8}$ in., scored vertically to give the appearance of square faces, and with special quoin and gable blocks at roof level.

Plans of typical crescent three- and two-storey houses.

Site plan.

St Antony's College Oxford

New hall and common-room

by John Partridge FRIBA

The new hall and common-room building for St Antony's College, Oxford, had the distinction of gaining a double award in 1971. It received an RIBA Architecture Award for the Southern Region, and was the joint winner of The Concrete Society Award. The architect John Partridge, a partner in the firm that designed it, here describes the building.

Architects:	Howell, Killick, Partridge and Amis
Consulting engineers:	Harris and Sutherland
General contractor:	Norman Collisson Constructors Limited
Precast cladding units:	Trent Concrete Limited

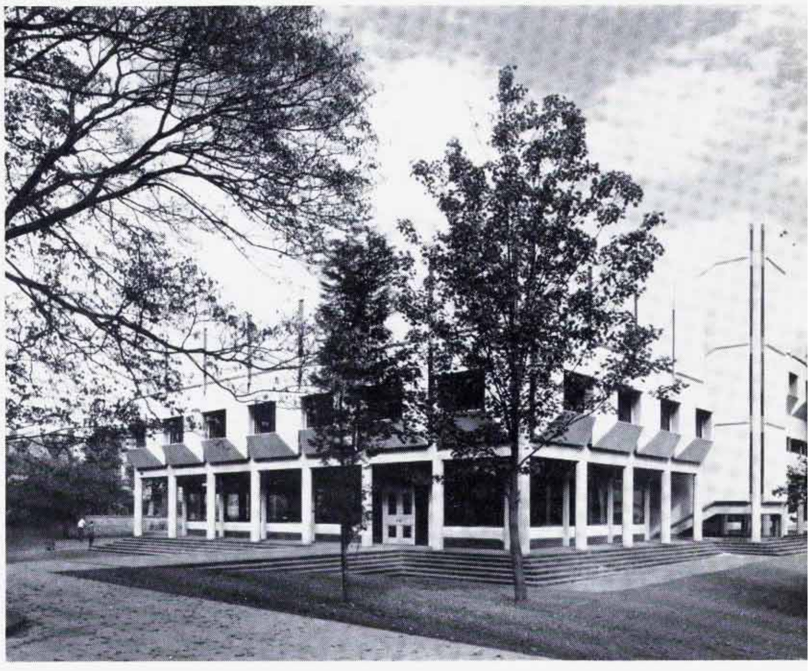
Entrance and elevation to Woodstock Road.

Any architect who is asked to build for an Oxford College cannot fail to be acutely aware of the historical context of his work. This is true both in relation to his attitude to recent work as well as to the older architecture of historic Oxford.

So when we were asked to design a new dining hall for St Antony's as the first part of the College development we knew that this building would have to take its place in the long line of College dining halls dating from the Middle Ages and extending to Jacobsen's St Catherines of the early 1960's. It was also foremost in our minds that such philosophic considerations should in no way impair the efficiency of the day-to-day workings of the hall, its kitchens and its private dining-rooms.

St Antony's hall is planned to be on the first floor of the new building with its kitchens at the same level. This arrangement enables a simple circulation through the ground floor so that the building will connect easily to a future residential wing on one side and on the other to the proposed new teaching building and the convent,

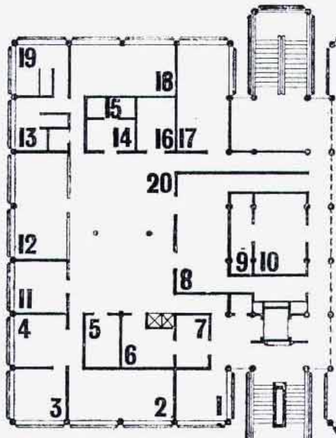
Photograph: Bruno de Hamel



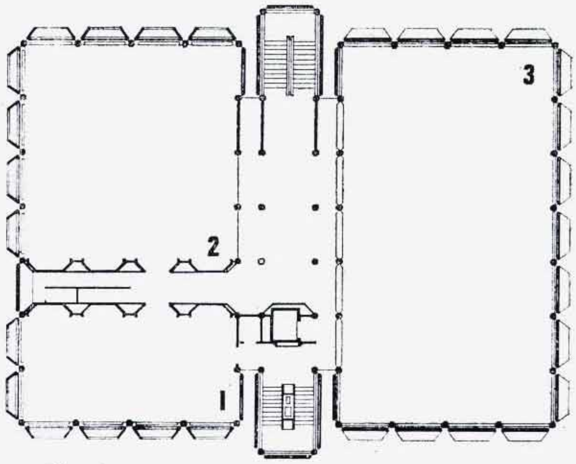
View from the south-west corner.

The dining hall extends through two storeys. The diagonal structural grid over is artificially lit.

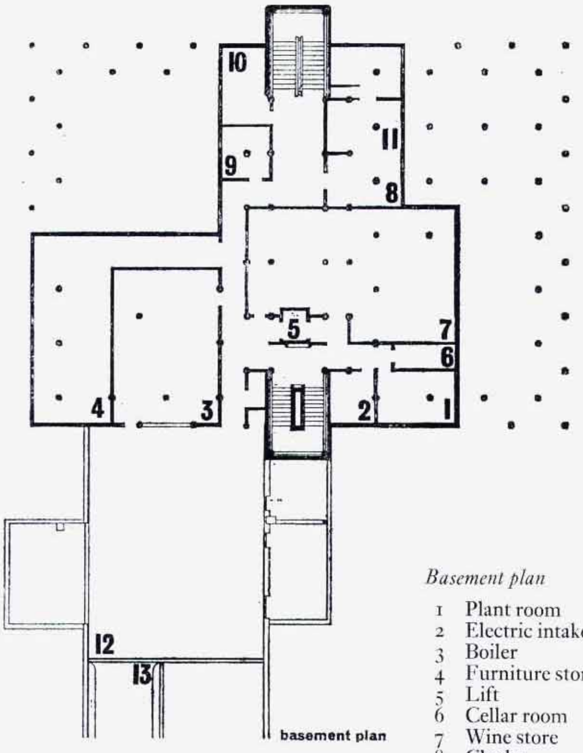
Photograph: Brecht-Einzig Ltd



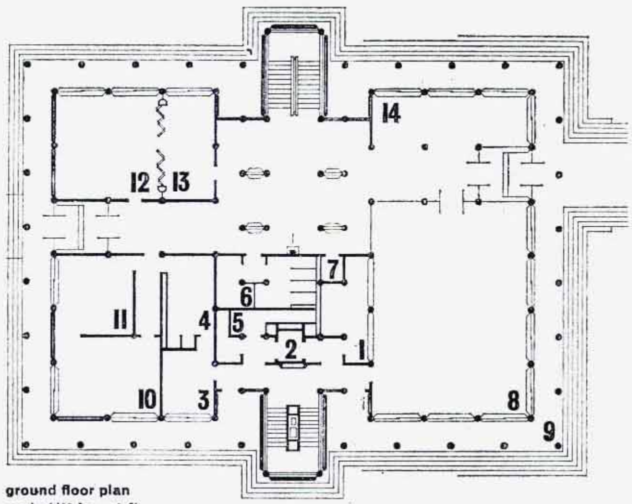
first floor plan



second floor plan



basement plan



ground floor plan
scale 1/40 in = 1 ft

Basement plan

1 Plant room
2 Electric intake
3 Boiler
4 Furniture store
5 Lift
6 Cellar room
7 Wine store
8 Cloaks
9 Lockers
10 Store
11 Men's cloaks
12 Service yard
13 Ramp

Ground floor

1 Bar
2 Lift
3 Staff dining room
4 Pantry
5 Men's cloaks
6 Women's cloaks
7 Cleaner
8 Buttery
9 Peristyle
10 Small dining room
11 Secretarial staff dining room
12 Large dining room
13 Anteroom
14 Entrance hall

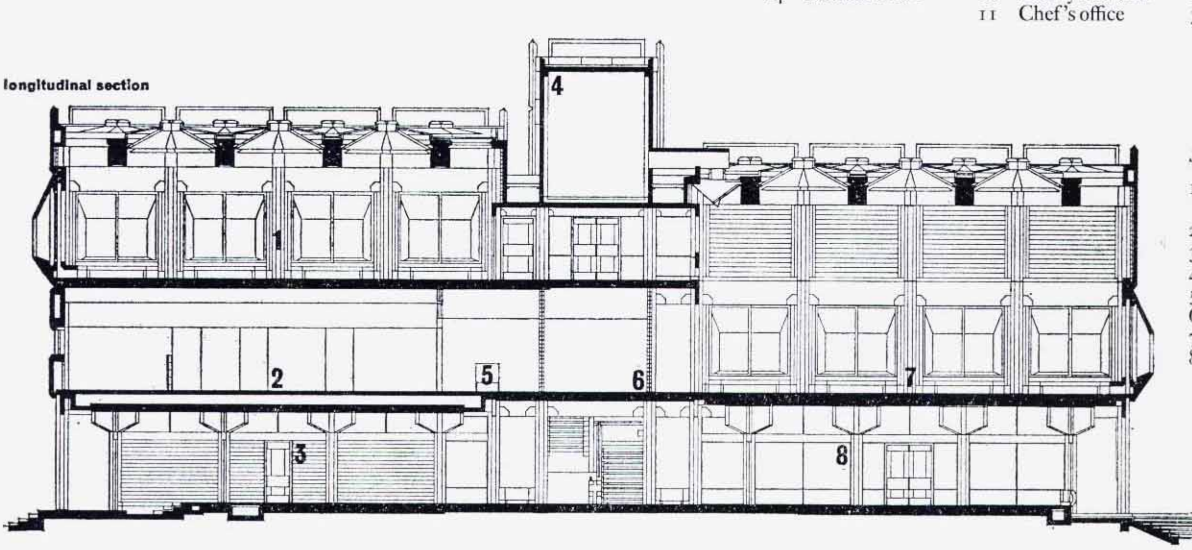
First floor

1 Store
2 Main vegetable store
3 Larder
4 Meat and fish preparation
5 Cold store, deep freeze
6 Vegetable preparation
7 Second vegetable store
8 Servery
9 Silver store
10 Pantry and still
11 Chef's office
12 Pastry preparation
13 Women's cloaks
14 Drystore
15 Utensils store
16 Pot wash
17 Wash up
18 Staff dining and rest room
19 Men's cloaks
20 Kitchen

Second floor

1 Senior members' room
2 Common room
3 Upper dining hall

longitudinal section



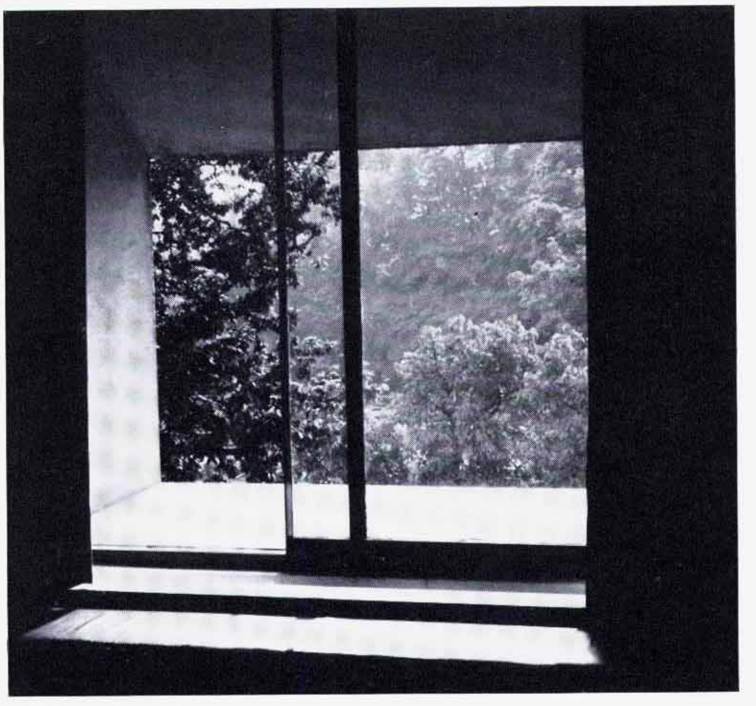
Section

1 Common room
2 Kitchen
3 Entrance hall
4 Plant room
5 Servery
6 Pantry
7 Dining hall
8 Buttery

up till now the headquarters of the College. The hall seats some two hundred people and its tables have been designed so that the seating arrangement can be either formal or informal. It extends in height through two storeys and has a gallery on the second floor overlooking it and leading into two common rooms, one of which is a general common room and the other a senior members' room.

Most traditional dining halls are characterized by their lack of windows, apart, that is, from clerestorey or roof lighting. They are based on medieval halls and they evoke the corporate qualities of more protected inward-looking groups. At St Antony's we set out to get the best of both worlds – to design a hall that was both outward and inward looking. This meant that the view windows had to be designed so that they did not lessen the impact and strength of the walls enclosing the space. The splay-sided projecting concrete windows previously used by us in an entirely different way at St Anne's *(Concrete Quarterly 82)* contain the view of the College garden as seen from the first floor and effectively cut off the space so that there is no sense of the flow of landscape outside. The concrete facets of the insides of the window are on the outer side of the glazing and at night can be lit up so that the view does not become 'dead' and so that the room can be partly lit through the timber slatted blinds.

The slits of glass between the columns and the window cladding units not only emphasize the clear functional distinction between these elements but allow a small amount of light to play on the various faceted surfaces of the structure. The main quality of the space derives from the rooflighting system in each square of the diagonal structural grid. Artificial lighting illuminates the grid and its grey timber infilling facets and pools of light are also thrown from this source down to table top level. The main dining hall tables and chairs are made from oak and dark olive green leather and have

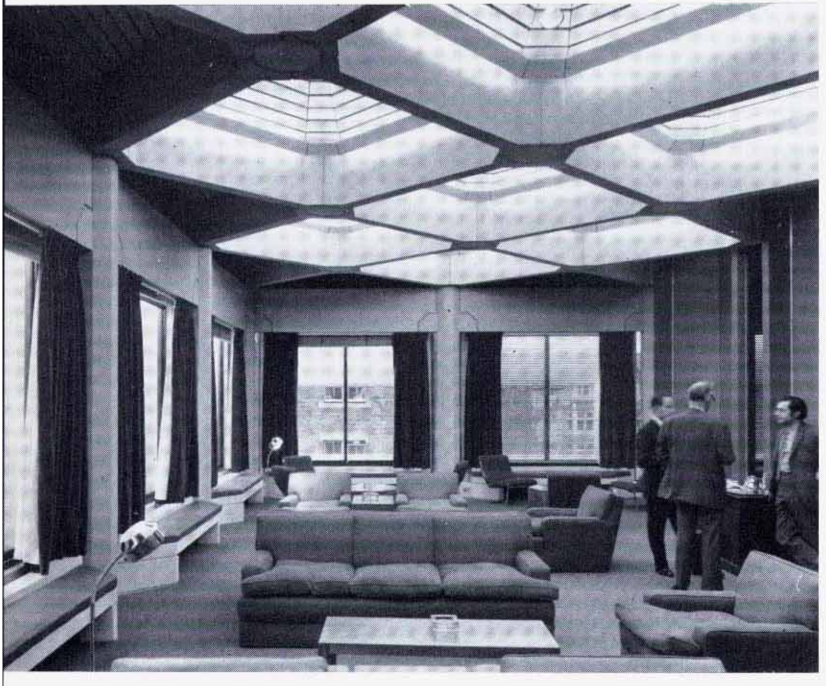


View down into the garden through one of the splay-sided projecting concrete windows in the common room.

Below and left: Two views of the cladding units on the elevation to Woodstock Road.

Photograph: Bruno de Hamel

Photograph: Brecht-Einzig Ltd



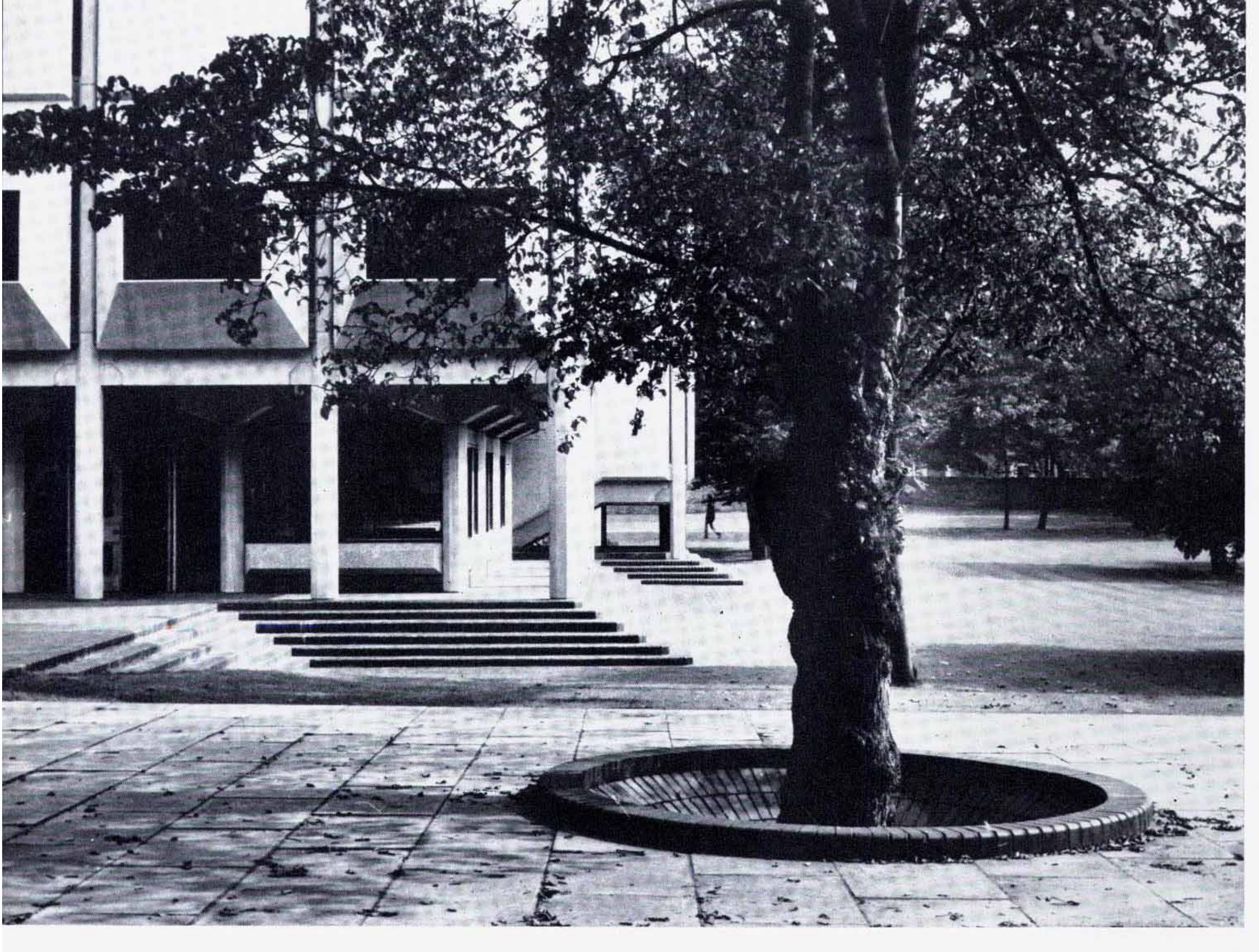
Senior members' room.

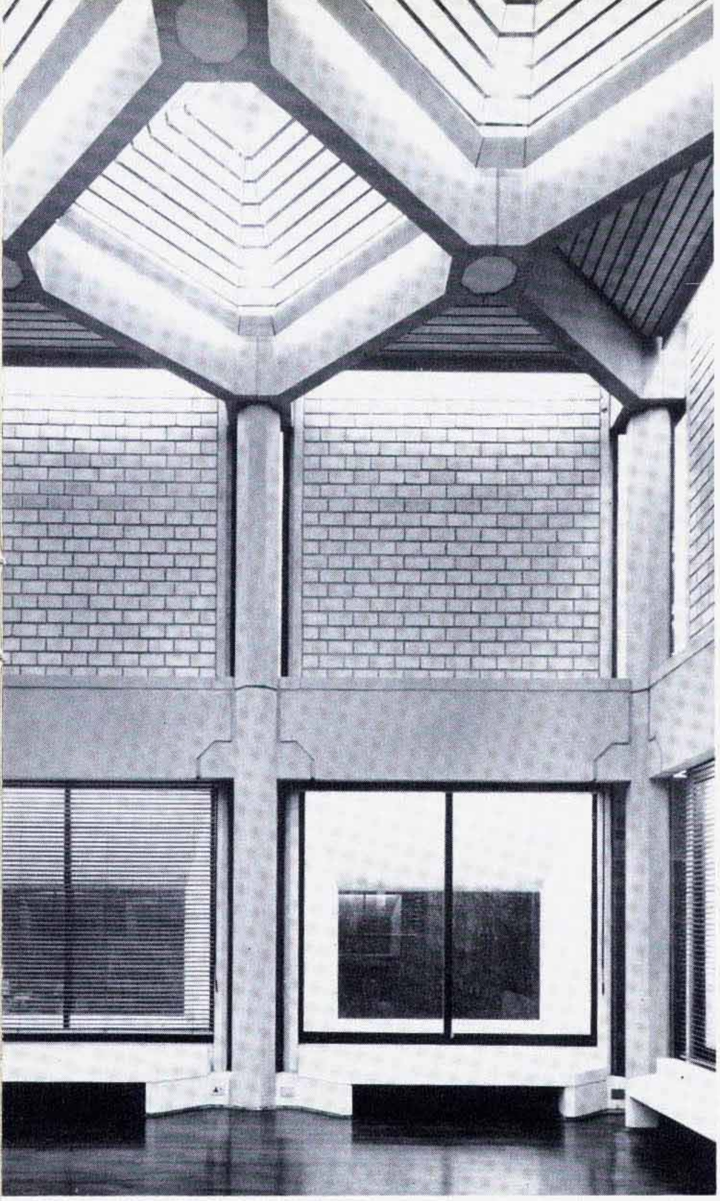
been designed to complement the structural aesthetics of the interior of the building. They also echo the bleached oak and dark green glass used in the doors and the interior generally.

Apart from its floors the structure and cladding of the new building are entirely formed from precast concrete. The roofs of the large spaces of the hall and common rooms are made from precast post-tensioned diagrids which in addition to providing the structure, form the geometric basis of the natural and artificial lighting system. The ground floor structure is like an undercroft to the larger rooms over it. The columns support the floors through large splayed concrete cross-heads set on the diagonal. The spaces, although cavern-like in some ways, are extremely well lit with large windows set back from the face bringing the panorama of the College garden into the rooms.

All the elements of the structure including the diagrids are based on the use of octagonal columns with

View from south-west corner into the garden.





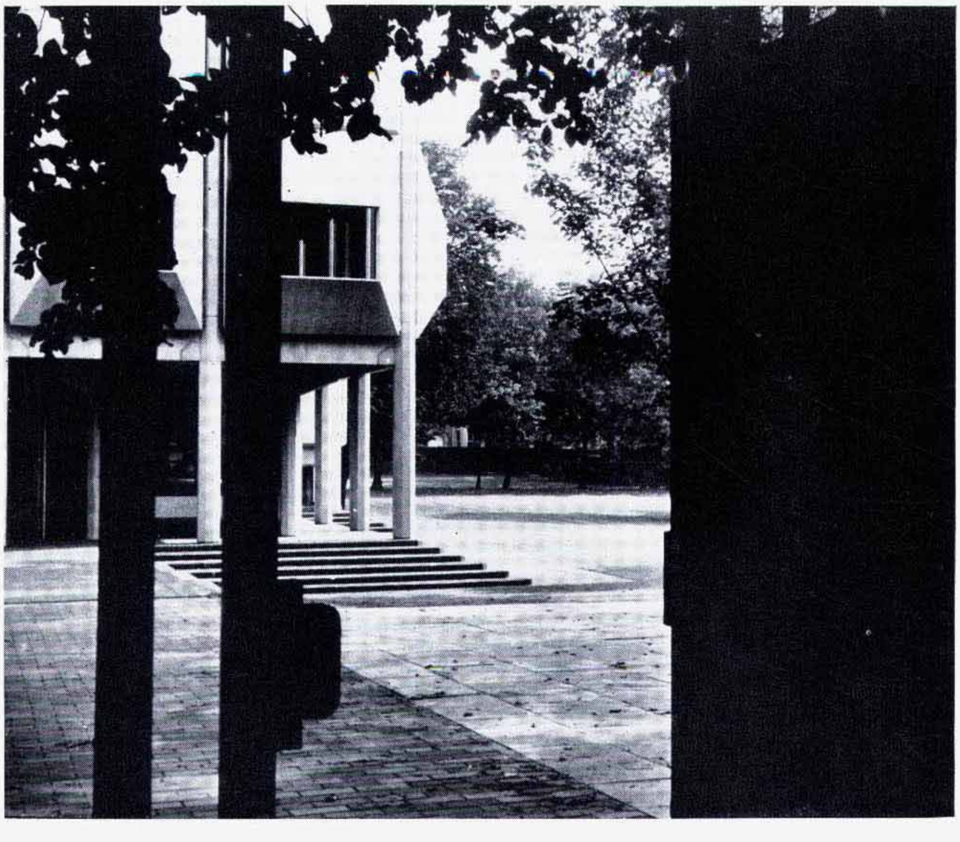
Photograph: Brecht-Einzig Ltd

6 in. faces and the beams, column heads and cladding edges all line up with the column faces, the diagonal directions being used almost as much as those square to the building. A fine acid-etched finish is used on all the structural units while the cladding panels and window units have a larger Cornish granite exposed aggregate. The cladding panels are very large in scale and incorporate complete projecting window units each about 10 ft. by 12 ft. in elevation and weighing about 6 tons.

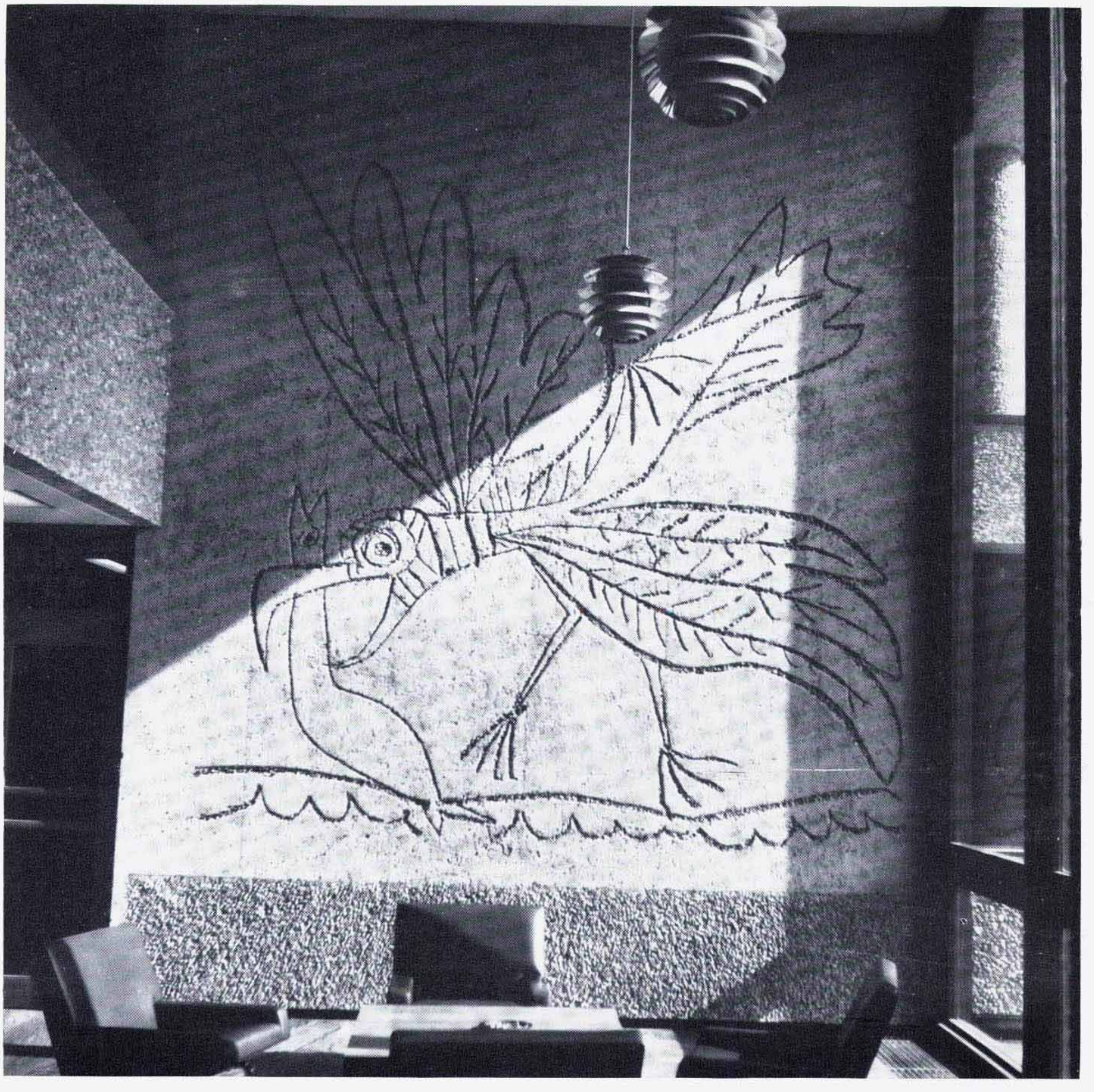
Having chosen to use concrete internally and to exploit its sculptural qualities we felt it necessary to use brickwork (in this case in 5 in. courses) to give a scale reference to the interiors. Concrete is an infinitely mouldable material and the pieces made can vary greatly in size. Brickwork is made up of small regular units which can be aggregated to make different sized and shaped walls. It can therefore give scale to the spaces of a building and provide a reference for the eye to gauge the different size of volumes and areas. The brick we have used is a concrete one, a light warm grey in colour harmonizing with the acid-etched concrete structure.

The completion of the new building has enabled the College to move many of its activities from the Victorian convent and so release space for additional library and teaching work. A fairly extensive conversion of the convent is now under way and is intended to make this building into the major work centre of the College.

Dining-hall detail showing precast elements.



View through the entrance gates in Woodstock Road.



Picasso
in Oslo

This mural is in the entrance hall of the new Government Building extension in Oslo designed by the architect Erling Viksjo. The building is of Naturbetong (sandblasted concrete) and the mural was designed by Picasso and sandblasted in concrete by the Norwegian artist Carl Nesjar. The concrete includes local rounded aggregate and white cement. There is another concrete mural on the outside of the building also by Picasso who has for some years shown interest in this medium. Other murals of his, done with the same technique, occur in the original Government Building in Oslo and in the Architectural College of Barcelona.

Port La Galère

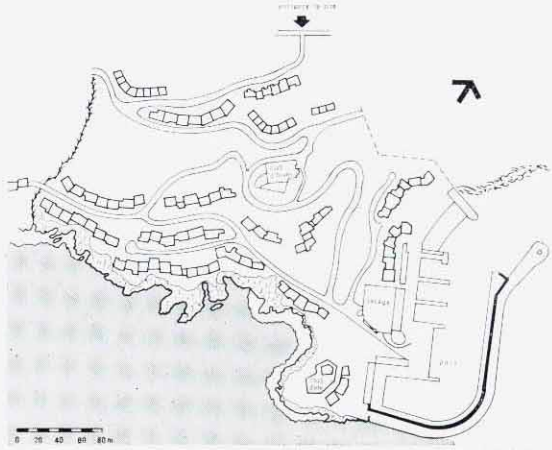
Photographs by George Perkin

A new Mediterranean village in France

Designer: Jacques Couelle

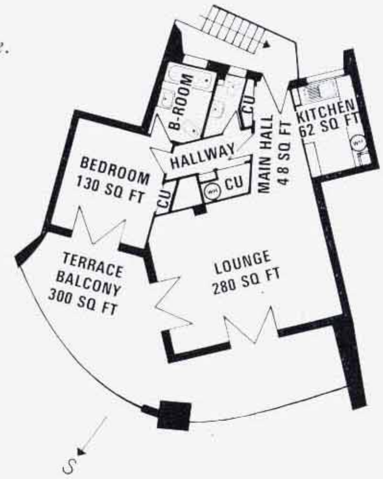
About eight miles west of Cannes, just beyond Théoule, the new village of Port La Galère has just been built. It is an extraordinary place consisting of a series of terraced and galleried houses cascading down a steep hill to a private beach and harbour in the rocks at the bottom. From the sea, it is at first glance like other Mediterranean seaside villages – a cluster of white houses descending a hillside to the water. Close to, it still preserves much of the Mediterranean vernacular, but with a difference. Port La Galère was designed by Jacques Couelle who also designed the village of Castellaras in the hills near Grasse (an article on the village and Jacques Couelle's philosophy of design appeared in *Concrete Quarterly 87*). Here he has managed to preserve the essence and spirit of this part of the *côte* but with houses of modern materials geared to modern needs which at the same time achieve a remarkable degree of organic unity with the landscape.

Above and below left: The village seen from the beach. The houses achieve a remarkable degree of organic unity with the rocky landscape. Below: Site plan showing the first phase of the village.

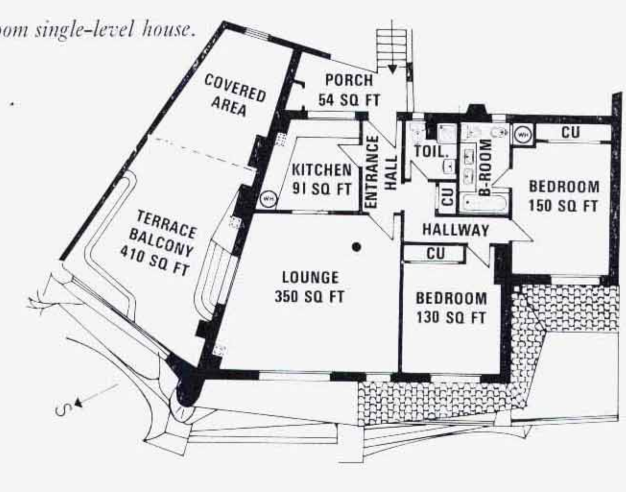


Drawing: "Building".

Deep balcony terraces control the external appearance of the houses.



Two-room single-level house.



Three-room single-level house.

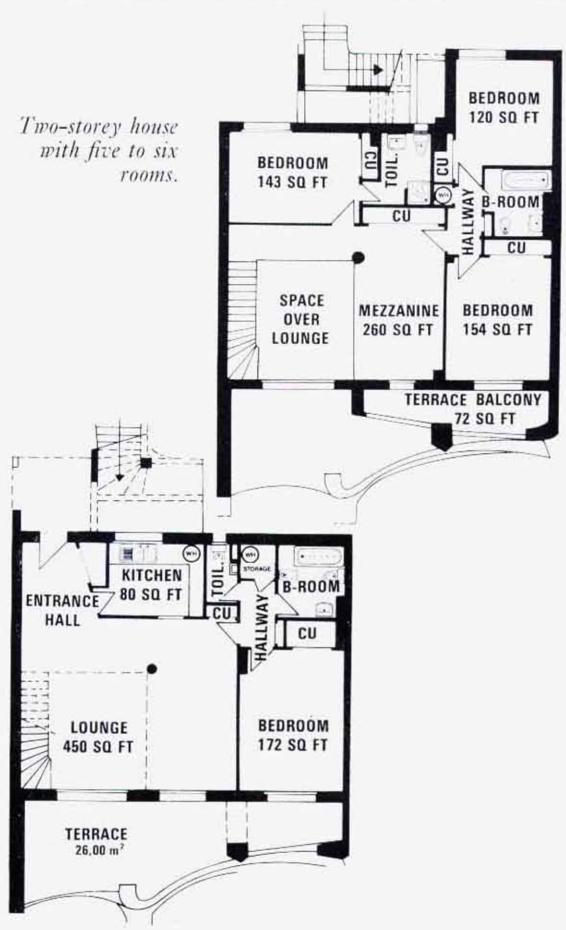
It is, of course, terrible to see what has happened to the Côte d'Azur since the war: indiscriminate 'campings', cafeterias and – more recently – mammoth though lucrative apartment blocks of almost shocking brutality. No doubt it is because of these that the developers of Port La Galère (Tiffen Promotion) have been determined that it shouldn't happen in this still beautiful little enclave of the coast. Unfortunately, though understandably, the only way they have been able to do it is by making the place exclusive (the same thing has happened along the coast at Port Grimaud). At the entrance to the village at the top of the hill there is a road barrier with a guard in a box. The casual visitor (like the editor of this journal) is put through a gruelling cross-examination and very likely refused entrance (nearly but not quite in this case). The brochure on the village, designed to attract house-buyers from Paris, London, New York and the like, has a page entitled "Well-conceived bliss enjoyed by the few". The developers say that they wish to keep the place quiet, without intruders, minus paper bags, beer cans and fruit juice bottles, with the flower-beds untrampled and the shore kept clean: "Guardians are there to watch these special points so that you and your friends can enjoy the delectable existence you have chosen . . .".

Once past the barrier, it does in fact look fairly delectable. From here a road winds quite steeply down

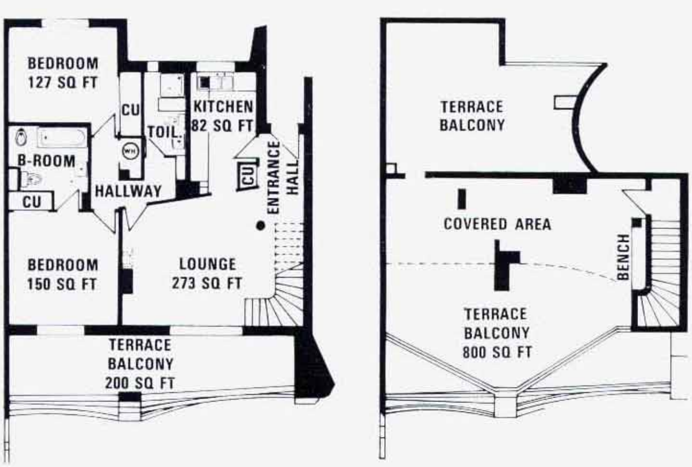
View looking west across the bay.

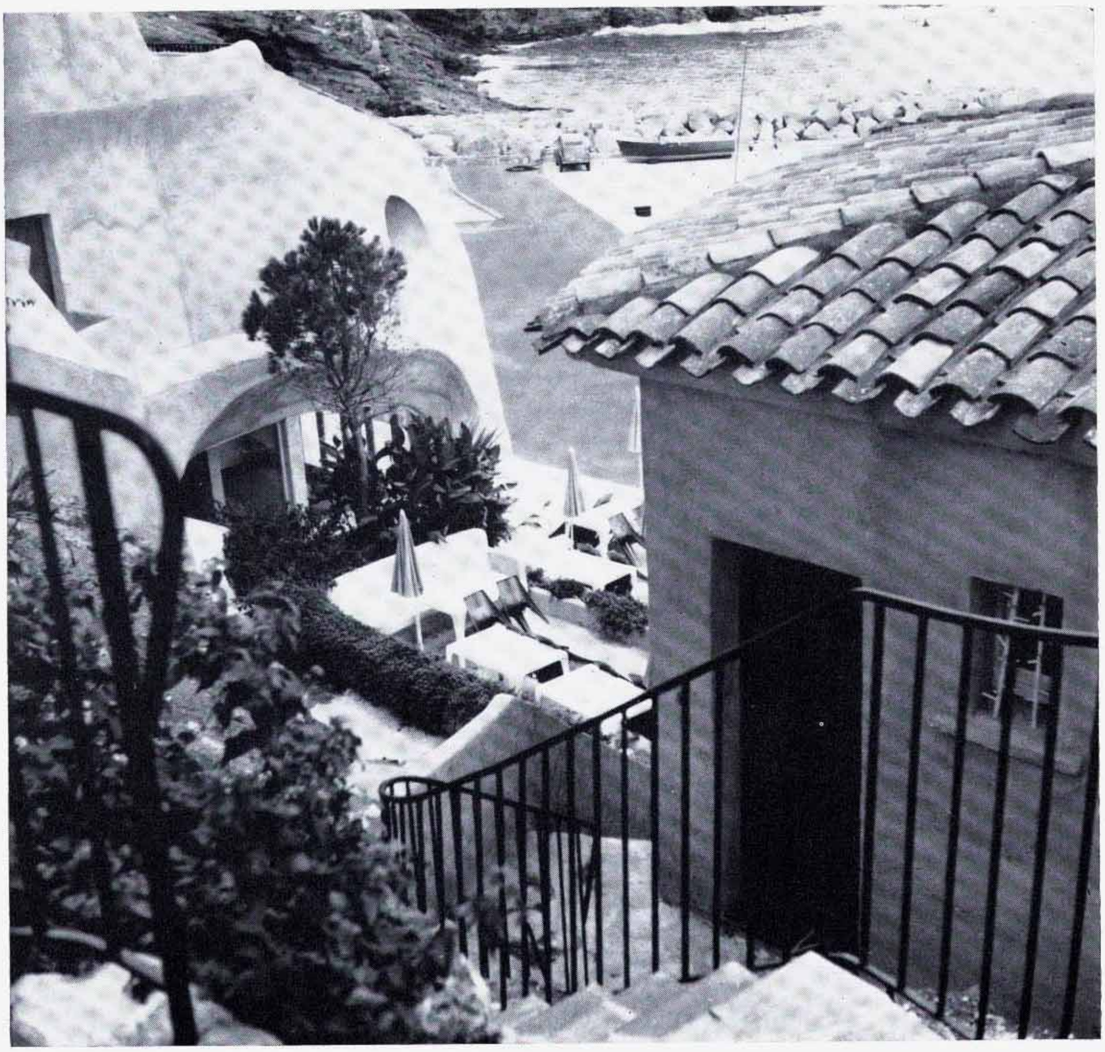
PORT LA GALERE *continued*

Two-storey house with five to six rooms.



House with three to four rooms and an upper terrace.



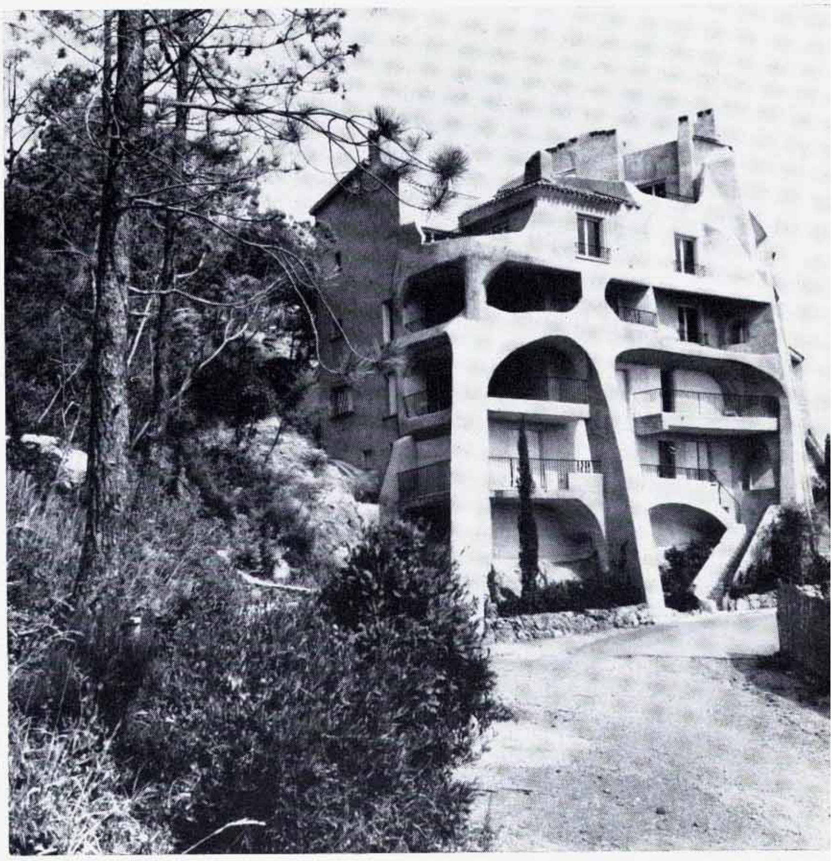


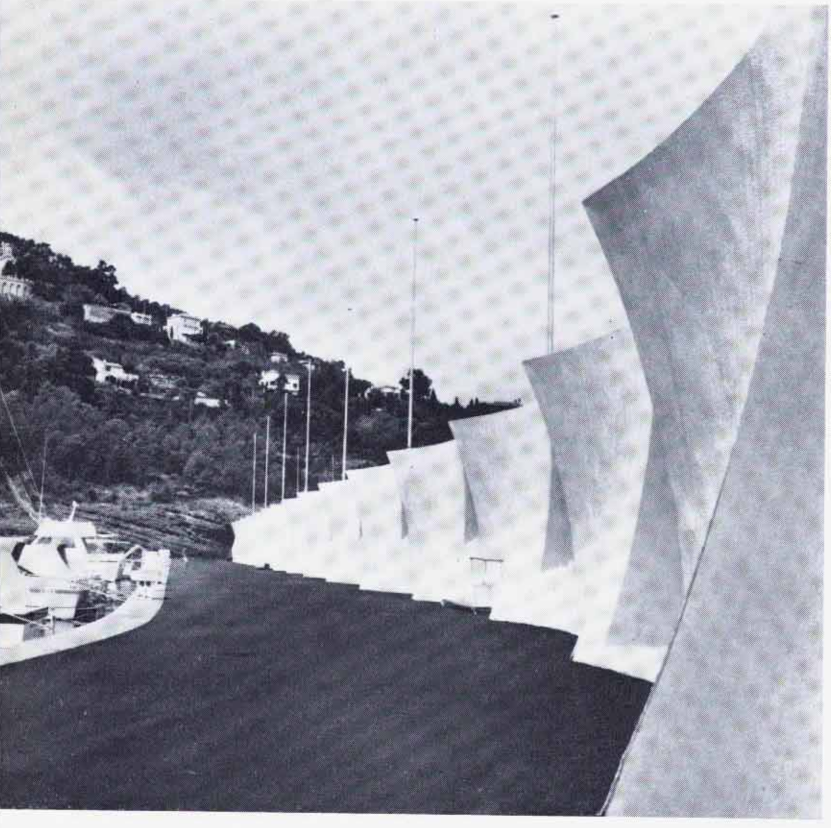
Steps down to the harbour.

through the pines past the first sculpturesque houses, white, pink, ochre, looking like outcrops of the rocky soil itself on which they are built – down towards a beautiful little secluded beach of sand and rocks on the one hand, and a fully equipped harbour lined with cafés and shops on the other hand.

From the social point of view, Port La Galère is no doubt a bit like a club, and in fact two clubs are provided (one for winter, one for summer) with bars, a restaurant, a reading room, a discothèque and a large swimming pool with seawater in summer and freshwater in winter. Visitors can be put up there. In addition, staff can be supplied to look after a house while the owner is away, or even while he is there. A variety of domestic services is offered. And how much does it cost to live there? The agents quoted houses from £15,000 which did not seem excessive for this part of the world, but which is probably for the smallest house without a view. Houses vary greatly in size and accommodation. Some may have two rooms, others six and they may be one, two or three storeys in height. Sizes vary from 700 to 2,000 sq. ft. Although this village as a whole gives the impression of not having a straight line or a right angle in it, the plans are in fact quite rectilinear. The sculptured arcades, terraces, balconies and galleries which make up the external expression are only external. But this is not to say that

Some of the houses are reinforced concrete framed.



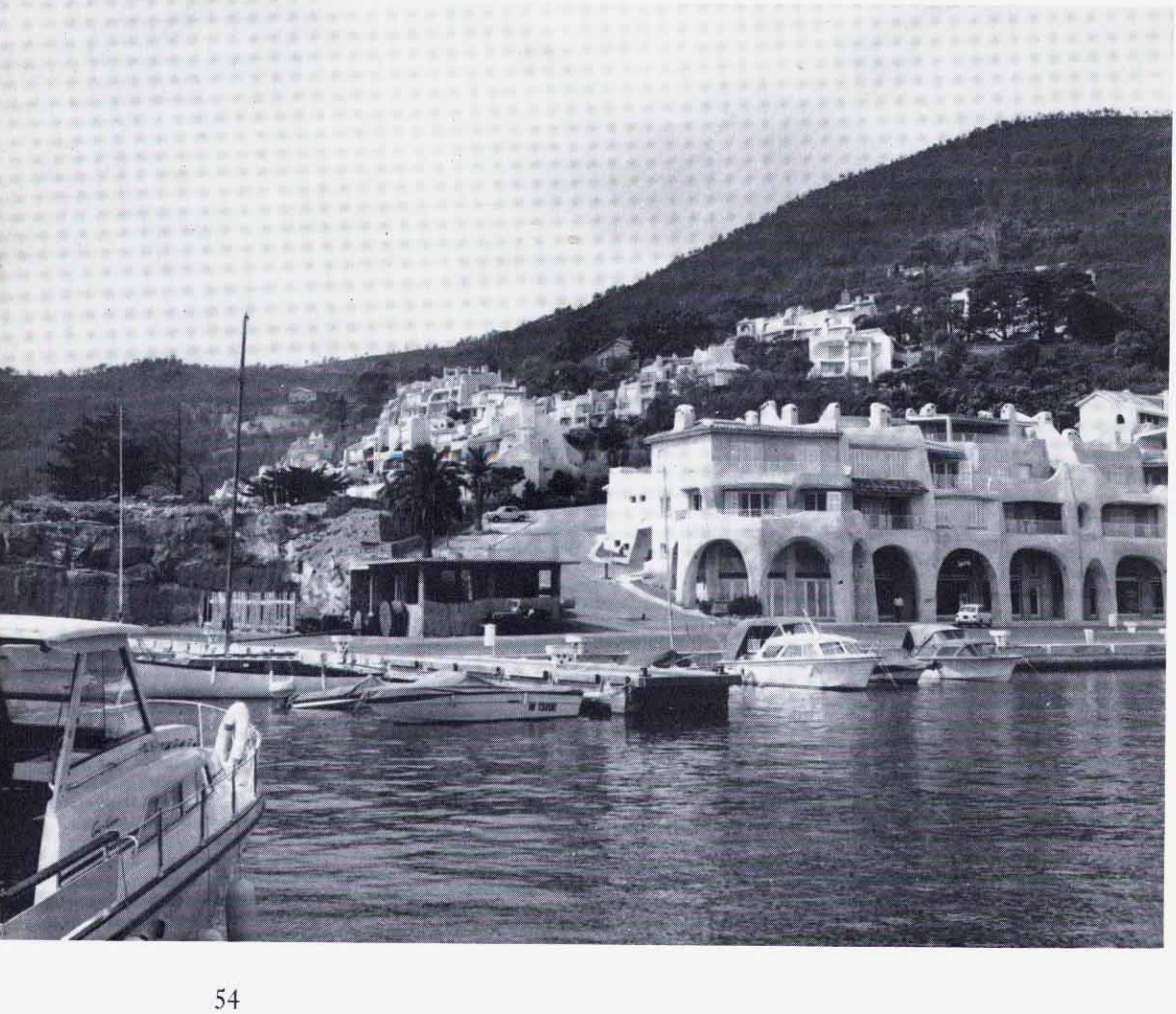


The harbour has a 250 yard jetty flanked by a reinforced concrete sea wall 14 ft. high.

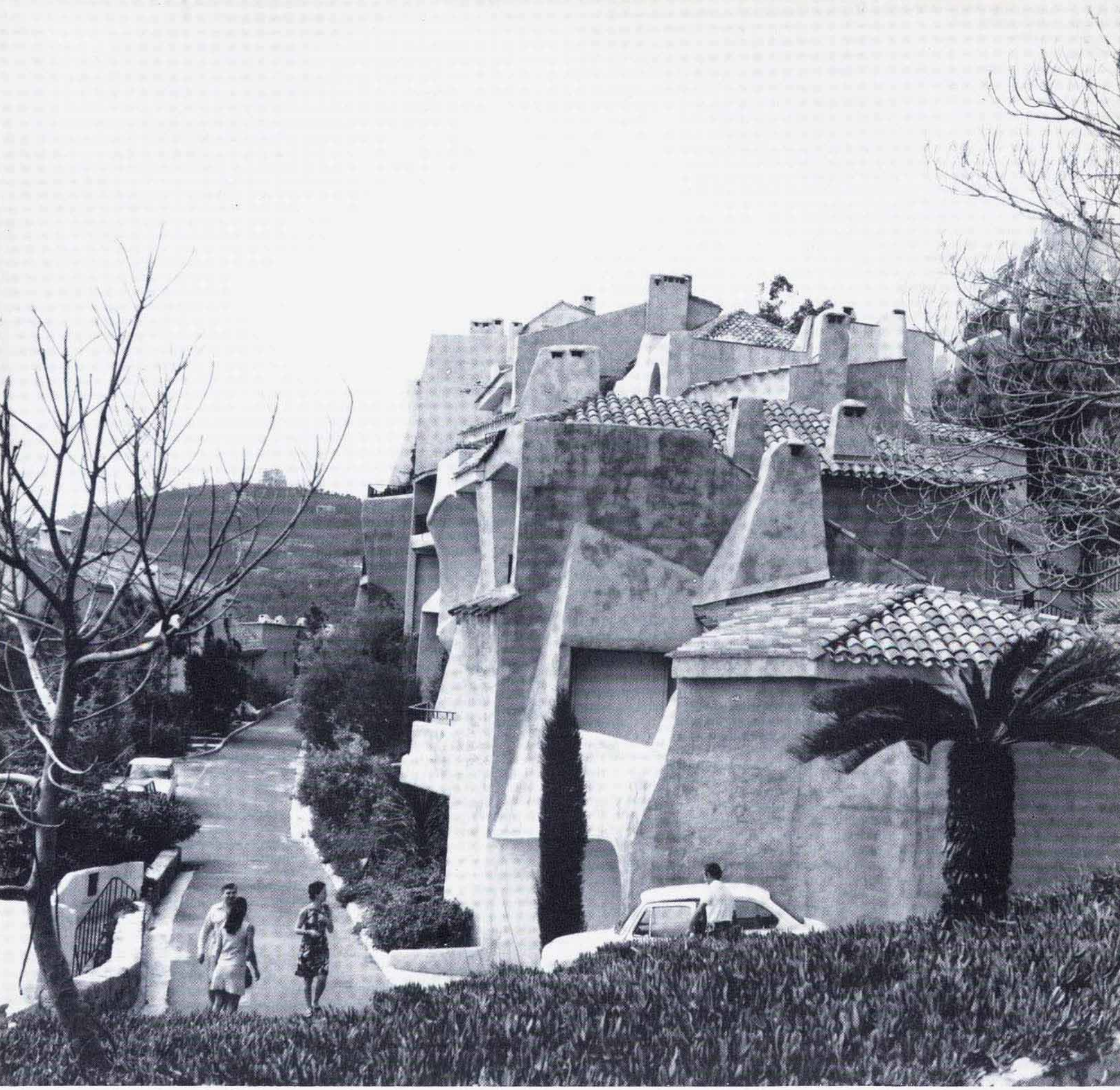
they are superficial decoration: in this climate and with these views, outdoor living is at least as important as indoor, and the provision of cool terraces for sitting out, with barbecues and their chimneys, and of deeply shaded rooms is really the essence of life here.

Construction includes in situ concrete foundations and basements. Outer walls are generally of cavity concrete block construction although some of the houses are reinforced concrete framed. Partitions are of hollow or solid concrete blocks. External block walls are covered with mesh and sprayed concrete *(beton projeté)* which is Jacques Couelle's favoured method of achieving a sculptured architectural expression. The houses have an external rendering which includes pigmented white cement to produce the light terracotta and sand-coloured façades. Roofs are tiled. Internally, walls and ceilings are rough plastered and generally painted white. Floors are tiled and laid on a floating insulated concrete slab. Bathroom walls are covered with Italian faience tiles.

The harbour is slightly apart from the beach and the main body of the houses but presents the same galleried façades to its main quay and jetty, containing shops, a restaurant and bistro with living accommodation over.



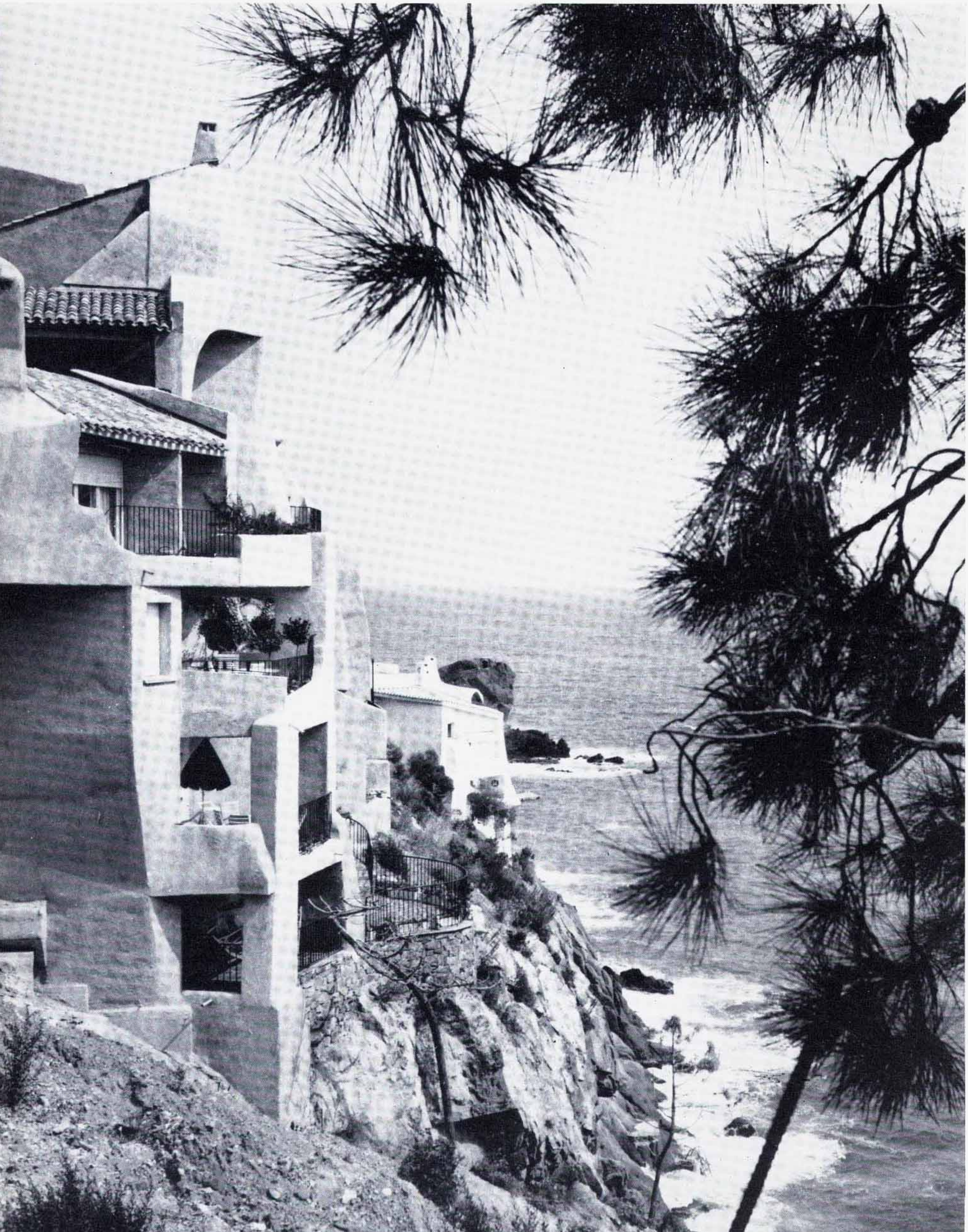
The harbour with the village beyond.



One of the main streets through the village.

The harbour takes something like 180 craft and has been dug out on the east coast of the La Galère point. It is provided with a 250 yard long jetty, flanked by an impressive reinforced concrete sea wall 14 ft. high which is modelled in a series of fluted projections and recesses which are functional as well as decorative (see photograph). The harbour entrance is 50 yards wide and there are three types of berth for craft up to 40 ft. long. All the basic harbour services are provided. The designers have avoided the obvious trap of creating a sort of stage harbour atmosphere: the place is strictly a working harbour, but it appears to belong entirely naturally in its surroundings.

Perhaps nobody but Jacques Couelle, as deeply rooted in the soil of the Midi as the red rocks and the pines which grow out of it, could have designed anything so unmistakably Mediterranean as Port La Galère without making it purely imitative or sentimentalized. It is neither of these things. With its rock-like clusters of houses it is obviously one man's personal vision and a brilliant conception at that. Some say that they believe Port La Galère to be the most original and successful architectural triumph around the Mediterranean basin. They are probably not so far wrong. Certainly it is one of the most appealing and a far cry from other new developments along the coast.



Some of the houses at Port La Galère are built up on the cliff edge.

CASTING AROUND

a quarterly column of notes and comments

After a journey through Denmark, Sweden, Finland, Norway, Germany, Switzerland and the U.K. to see what's happening on the concrete low-rise housing scene (see editorial), we find ourselves with a bulging file of notes and two drawers full of photographs. It has been a very interesting experience, and although we plan to let *Concrete Quarterly* readers know more about it later, we thought we might at this stage jot down a few of our notes from the file.

* * *

Why do people say they feel isolated in tower blocks? With several doors opening off a corridor and the chance of meetings in the lift, you would think that sociability would be simple. A woman who had moved from a tower block to a low-rise housing estate near Birmingham gave us one reason: in tower blocks, the children do not play together very easily, for obvious reasons. Therefore the parents aren't encouraged to meet. But in low-rise housing estates, the children are naturally drawn together – all round the houses – and so inevitably are the parents. It's as simple as that.

* * *

The flowers and gardens of Scandinavia are generally a riot of colour. We may be garden-lovers, but we make a poor showing at flower boxes. What is the hallmark of the average Scandinavian flat? It is a balcony hung with flowers – in baskets and boxes – not just a few straggly things, but big masses of pink and scarlet petunias and geraniums. Where there is a garden, even a tiny patch, it is tended with loving care. All this takes the edge off even the bleakest building. And if there isn't colour in flowers, the Danes use brilliant strips of washable canvas wound in and out of the vertical balcony rails. These can change the appearance of a block of flats quite dramatically. Superficial maybe, but very conspicuous.

* * *

Colour again. Painted concrete in most countries except this one – often just white, but a wide range of colours as well. Maintenance is thought to be worthwhile – occasionally. Some said that the paint lasted ten years. Colour is thought much more important in Scandinavia than here. We remember the pale sepia concrete walls of some flats in Swedish woodland. The blending of colours was perfect.

* * *

In Scandinavia and elsewhere it was a relief not to find the sharp social distinction between council tenants and the rest, such as we are accustomed to. In general, housing is financed by large housing associations and co-operatives which may be government subsidized. But even the less well-off workers may have a financial stake in their homes: the financial commitment is thought essential to house pride. Perhaps this is why in Norway we found people tending communal grass plots and flower beds. They were not obliged to, but said they liked to have the place looking tidy. We remembered the disenchanted ladies we once met outside a block of local authority flats in outer London. The roof had leaked in the night during a storm. "Why" they were asking, arms akimbo, "don't They do something about it.. ?" It's the business of They that bothers us.

* * *

"Excuse me mister are you from the council?" We were photographing the one and only mature tree – a fine chestnut – that was gracing the back yard of a new Midlands housing estate. "Because if you are" the voice continued "I'd like to ask if you would have this tree chopped down". We said we thought it was beautiful and improved the whole area. "Oh yes" the voice went on "it's lovely in the summer, but then we have to sweep up the leaves in the autumn".

* * *

Danish paving. Small, simple, plain, grey, square or rectangular concrete blocks measuring just under 6 in. by 12 in. or 6 in. square. These are commonly used and look splendid for domestic paving – or indeed anywhere – and give a good scale. Architects like these better than the more complex shapes and we're not surprised. Amateurs are making them in their back yards. These small units are easily handled and bedded on sand and can be quickly laid – often in traditional brick paving patterns.

* * *

These small paving blocks were particularly noticeable in Albertslund, that new suburb of Copenhagen well-known for its single-storey concrete houses looking inward onto garden patios. Now some eight years old, we thought this was still one of the best things on the low-rise scene. It has not been without its influence: we found Albertslunds in Finland, Norway and Germany. You would think that one or two over here might suit us introspective privacy-loving Britishers.

* * *

Small domestic details we liked. Swedish bathrooms may have a single swivel mixer tap serving bath and wash-basin, and you can put a bucket underneath. Light flexes in Denmark come out at the tops of walls and are then taken to movable ceiling fittings so that a pendant light can hang down low in any position to suit the furniture. In Denmark and Finland, we found window glazing fixed, and opening panels of wood. It seemed to simplify window details and, presumably, double-glazing.

* * *

An innovation we admired, in Sweden and Finland. The Do-It-Yourself house. At Tensta, a new Stockholm suburb of mountainous slabs of flats, there is a corner of detached single-storey houses of concrete and wood, beautifully landscaped, which have been built by the occupiers. We spoke to one – an office-worker who had spent six months working on the house every evening and week-end. The family of four lived in a caravan nearby meanwhile. Construction was of lightweight concrete blocks, easily handled, on a concrete slab, and rendered on the outside. There were wood strip floors, timber roofs and outhouses. He had saved some £3,000 on labour. Construction was supervised and carried out to a schedule so that overall building work in the area proceeded at a uniform rate. We gathered that he might not rush to start on another house tomorrow, but that the savings and satisfaction in the work had made it all worthwhile. The house was spacious with a 30 ft. living room, a bedroom wing and two bathrooms – all furnished like a show-flat in Heal's. In Finland we found a very interesting area of two-storey terrace houses built by occupiers for about £2,000 each. DIY houses are not uncommon in Scandinavia. We could imagine them catching on over here with labour costs as they are.

* * *

Dustbins. Near Skärholmen in Sweden we found some new terrace houses with low, square, partially-sunken, concrete boxes integrated in the front garden landscaping. They had an exposed aggregate finish, aluminium lids and looked neat and unobtrusive. Inside each there was a metal ring holding a disposable garbage bag. It is a simple operation for dustmen to remove lids and bags and makes our own usual arrangements seem very clumsy, not to mention insanitary.

* * *

In Switzerland we thought that for sheer delight, nothing on the whole trip surpassed the Brüggliacker (Oberrohrdorf) and Mühlehalde (Umiken-Brugg) housing schemes – apartments stepped back into rising ground with really generous terraced gardens to each. Deep upswept concrete cantilevers contain luxuriant garden growth. From below, the whole thing is a cascade of greenery and blossoms. Inside one, a lift goes up on the slope like a funicular. The hillsides, it should be noted, are no steeper than are commonly found in this country and were chosen for two definite reasons: the land was cheaper than on the flat, and architects find that this form of stepped and terraced housing gives more individuality, privacy and architectural interest. We can see their point and think that they would be fine over here.

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