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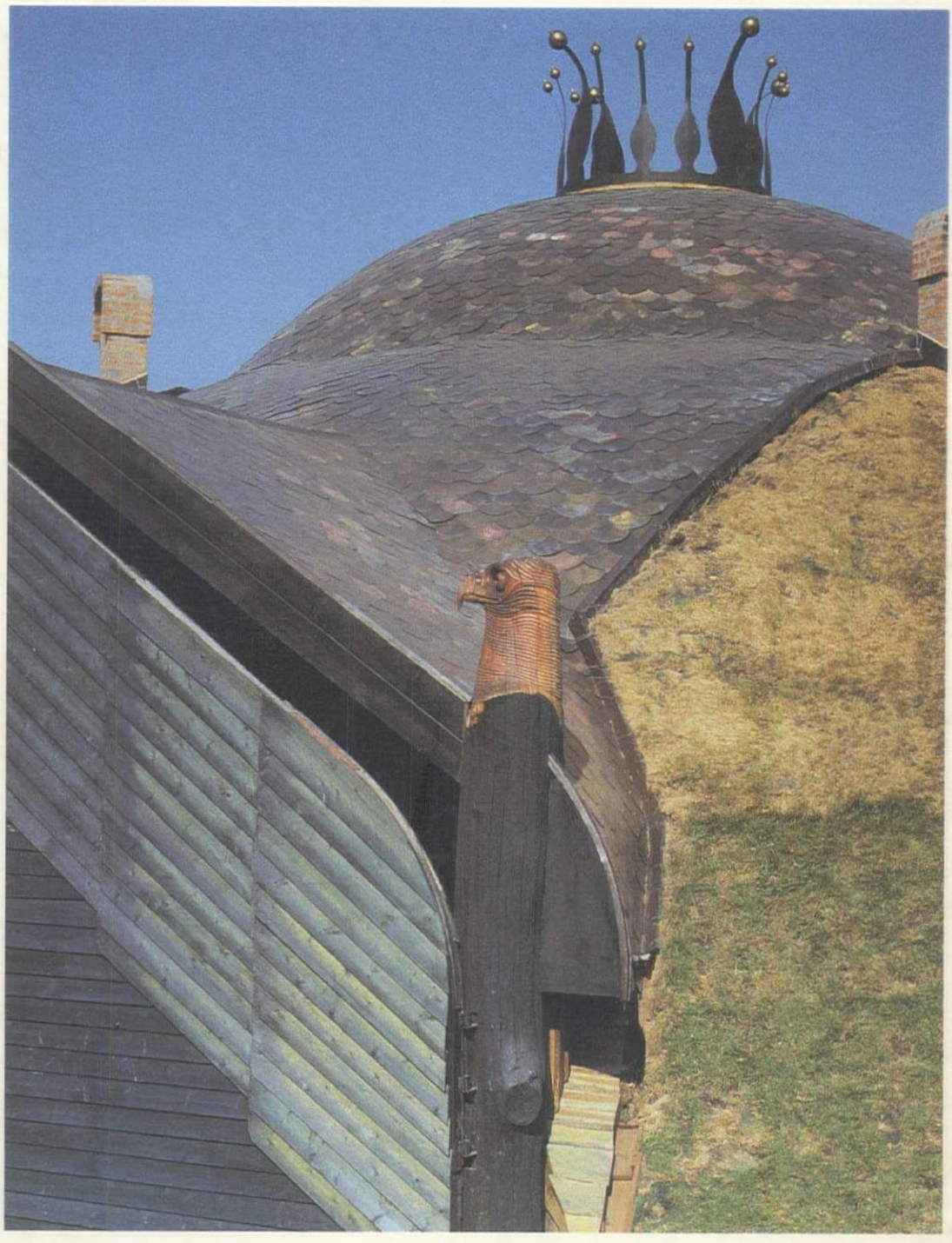

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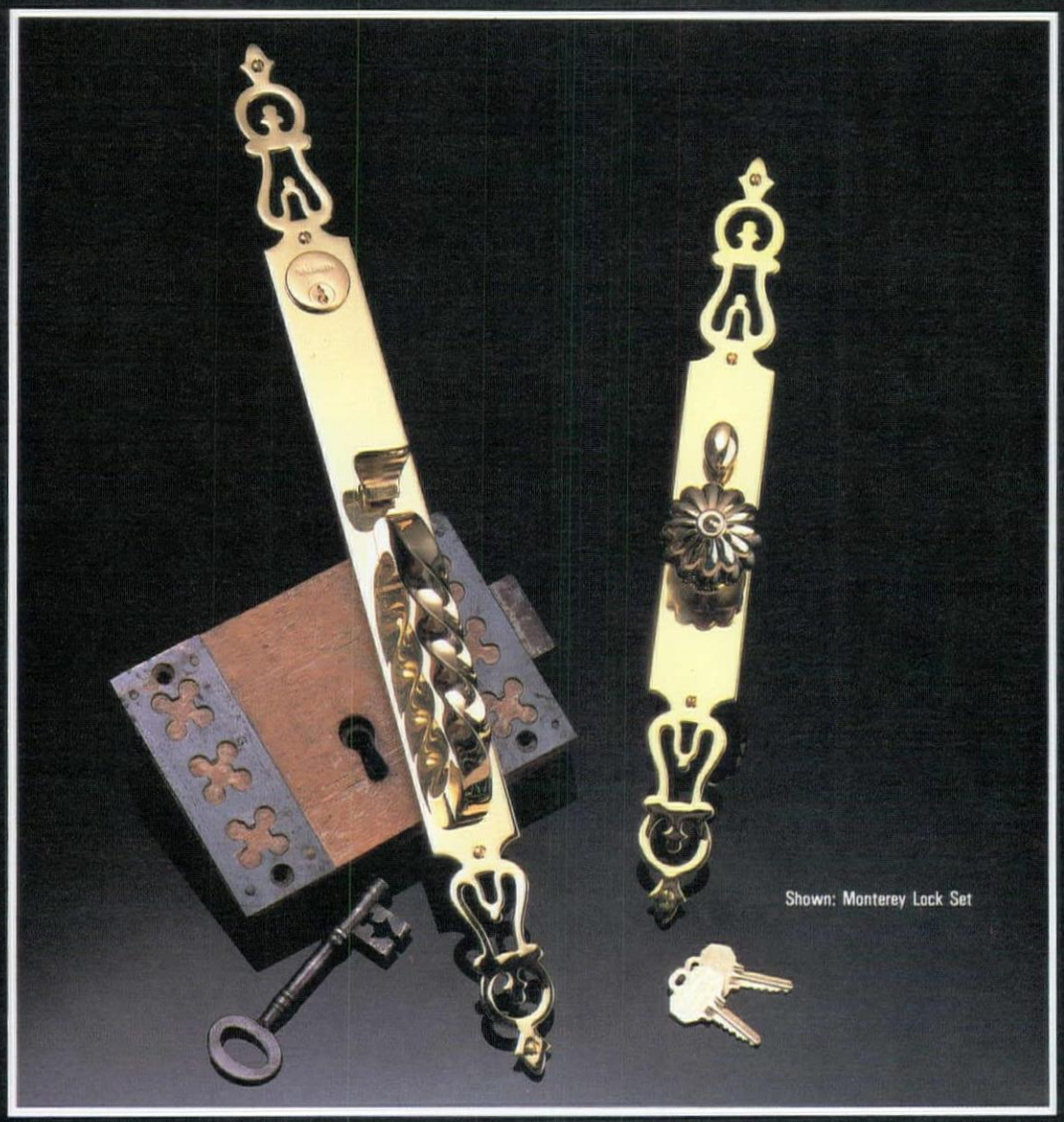

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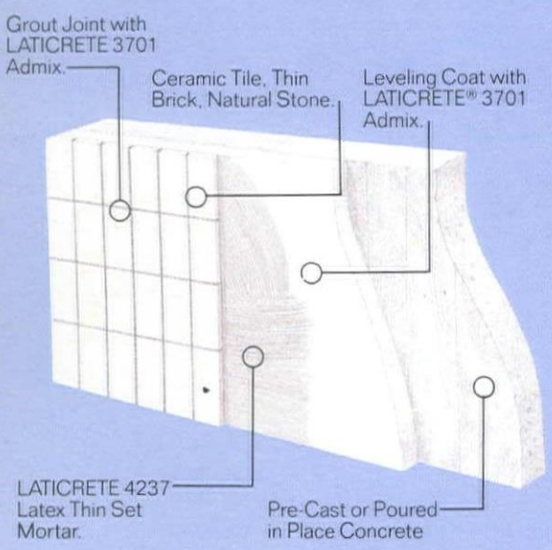

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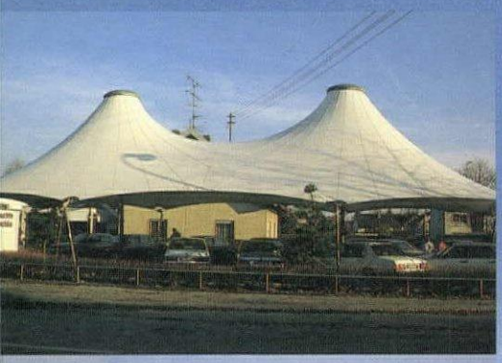

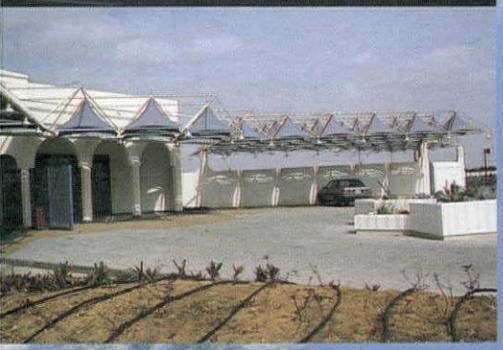

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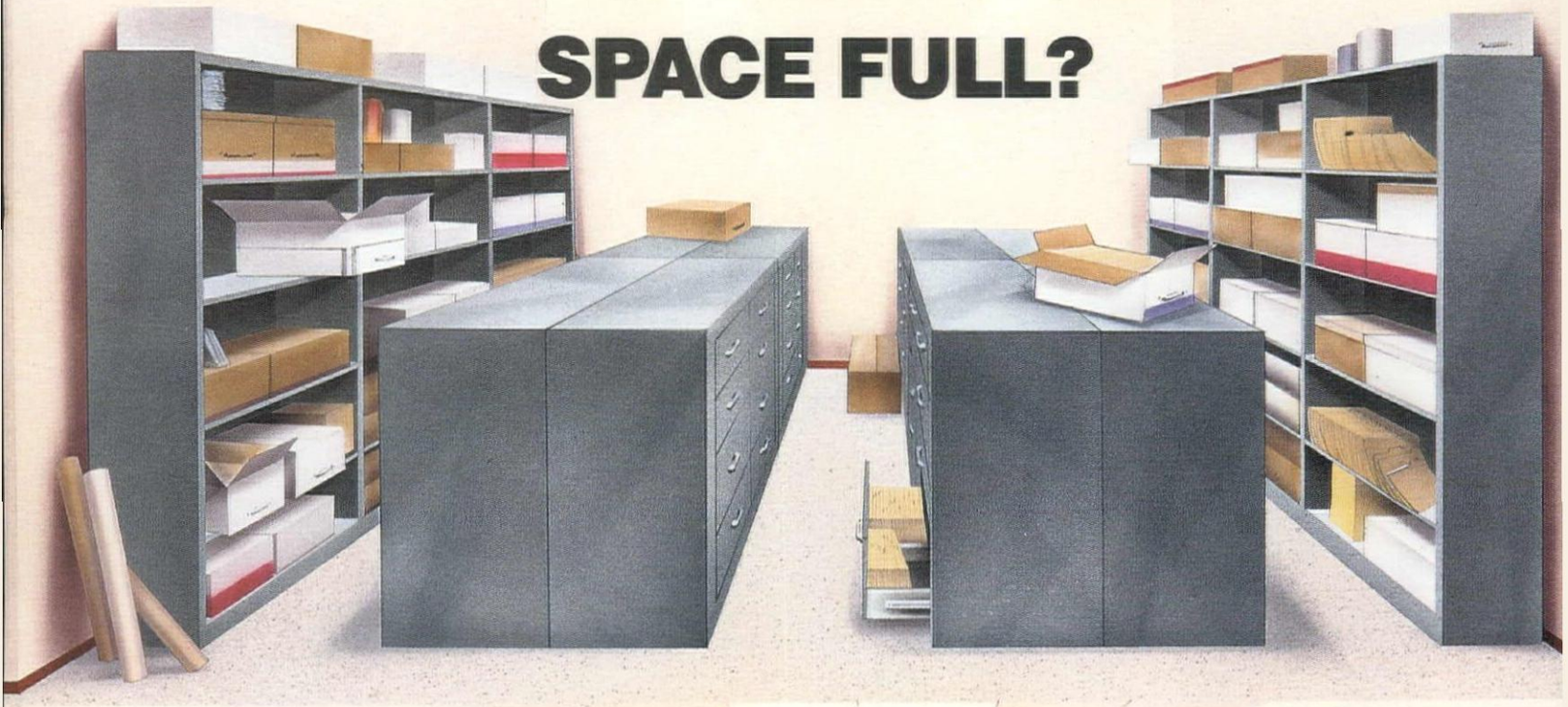

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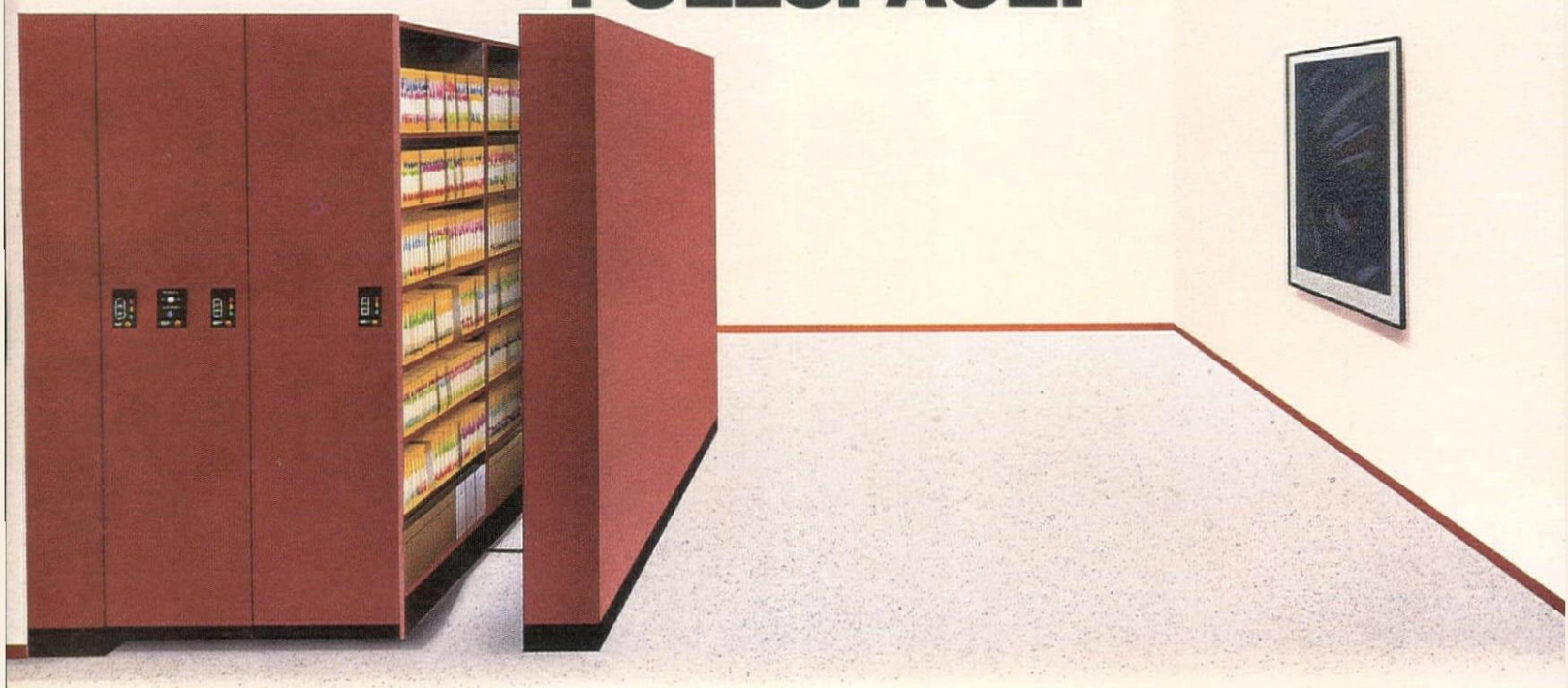

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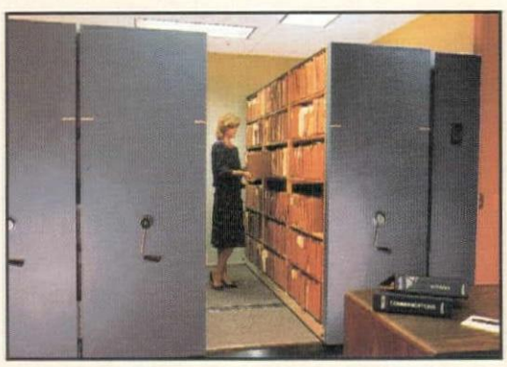

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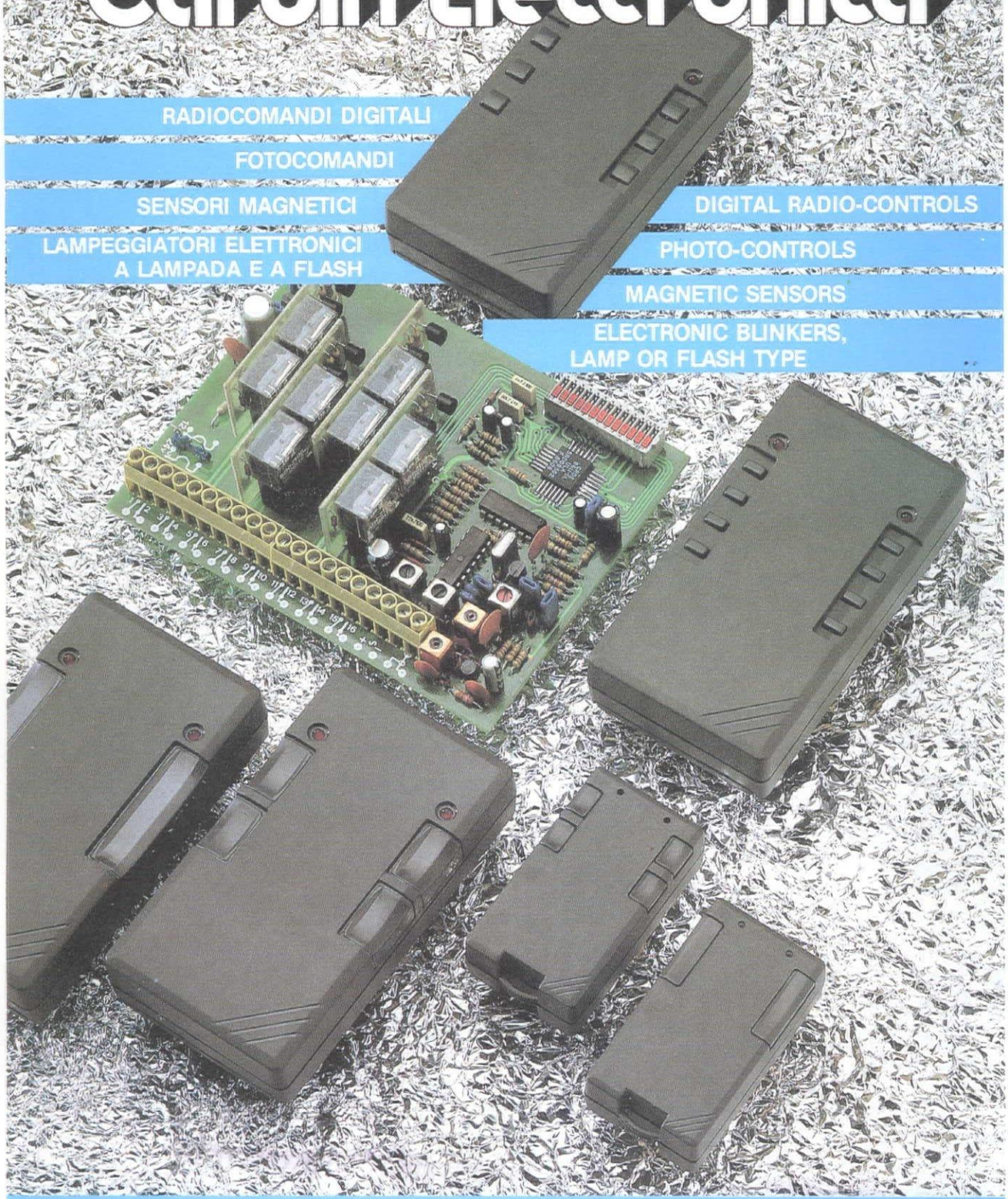

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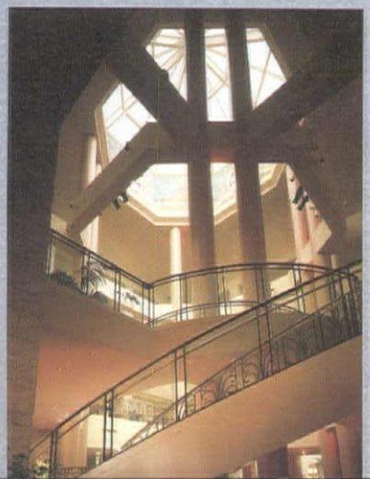

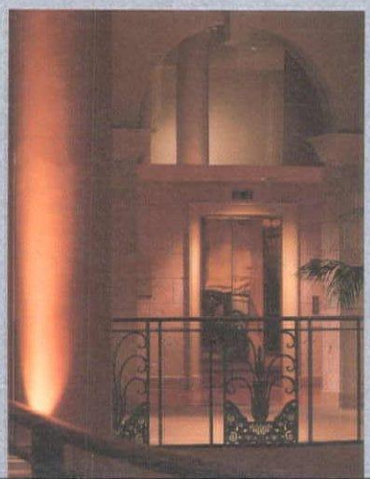

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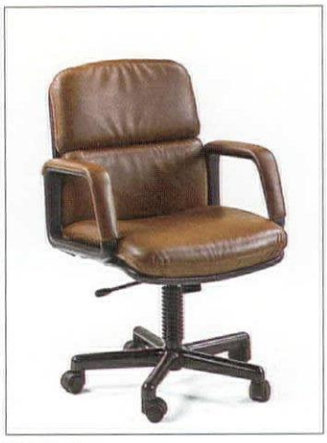
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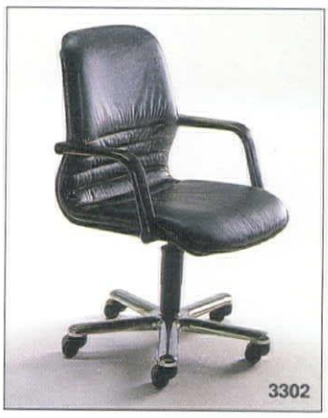

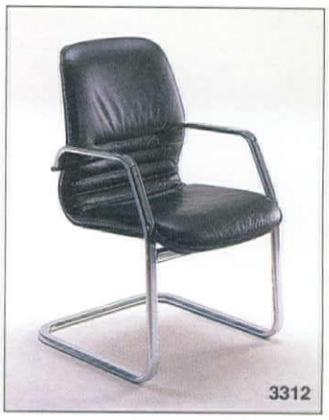

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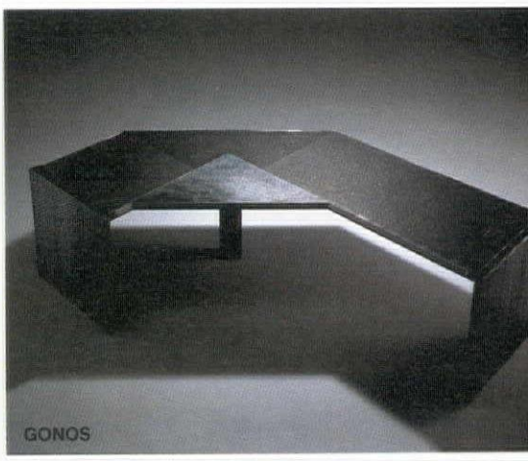

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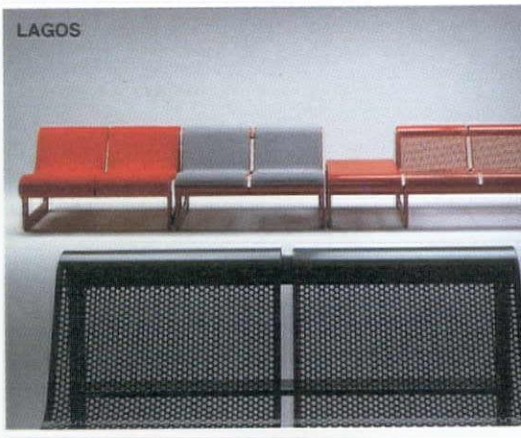

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2 Porto Garibaldi, Milan. Our photograph shows the pediment of this striking 24 storey post-modernist, Astrawall-clad building

3 Professor Natalini's award-winning design for the Rural and Artisan Bank in Alzate, sensitively combines Astrawall with polished granite

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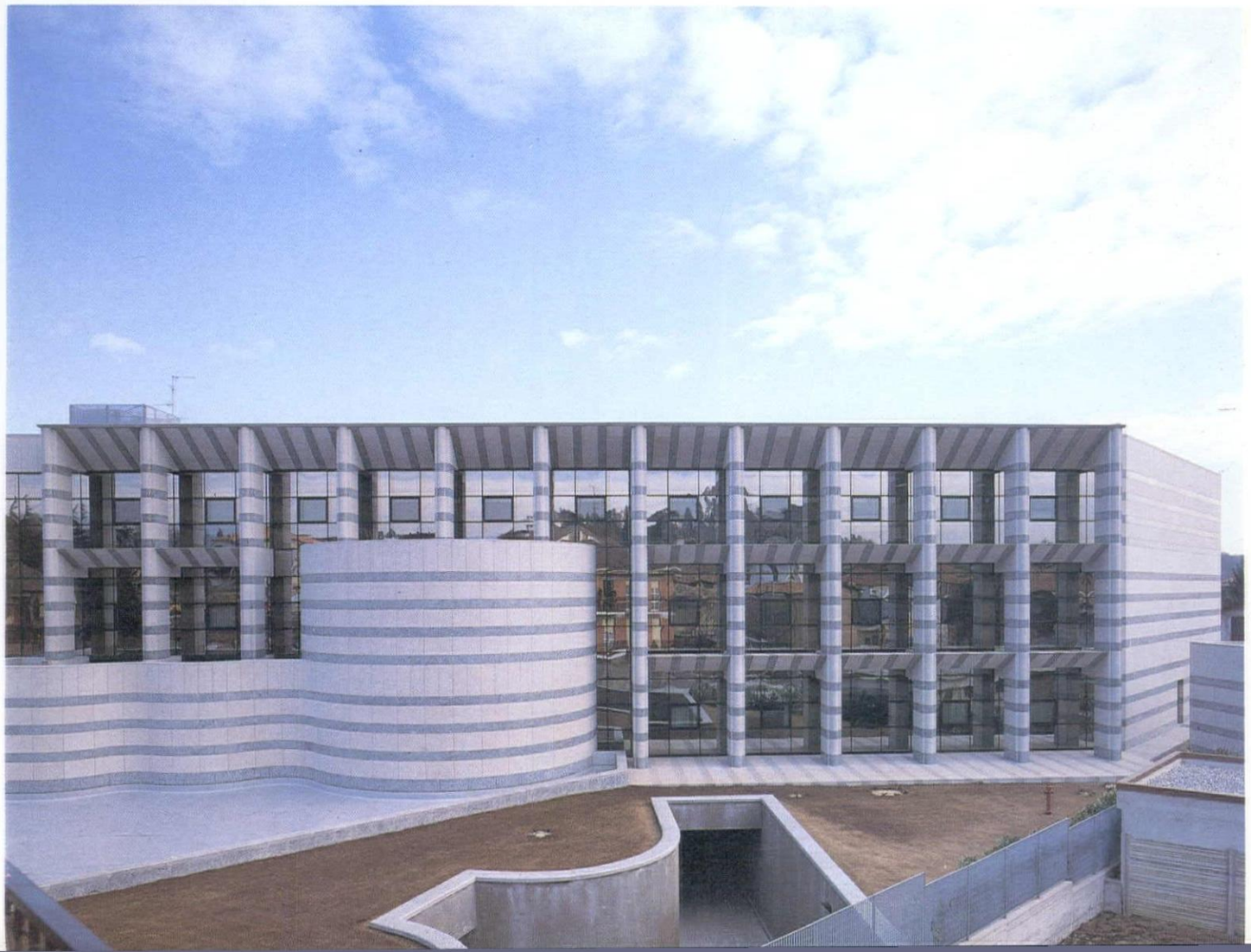
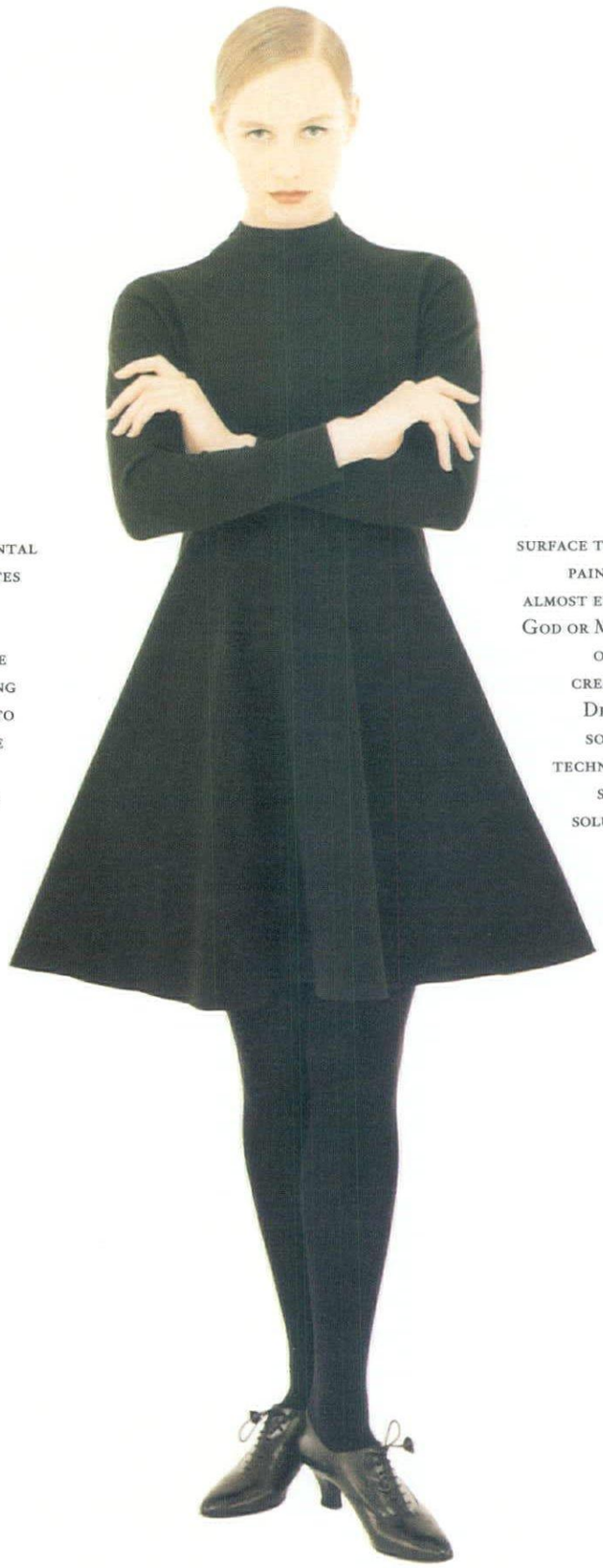
3



Who tempts creators to play with the physionomy of architectural design ? Seriously.



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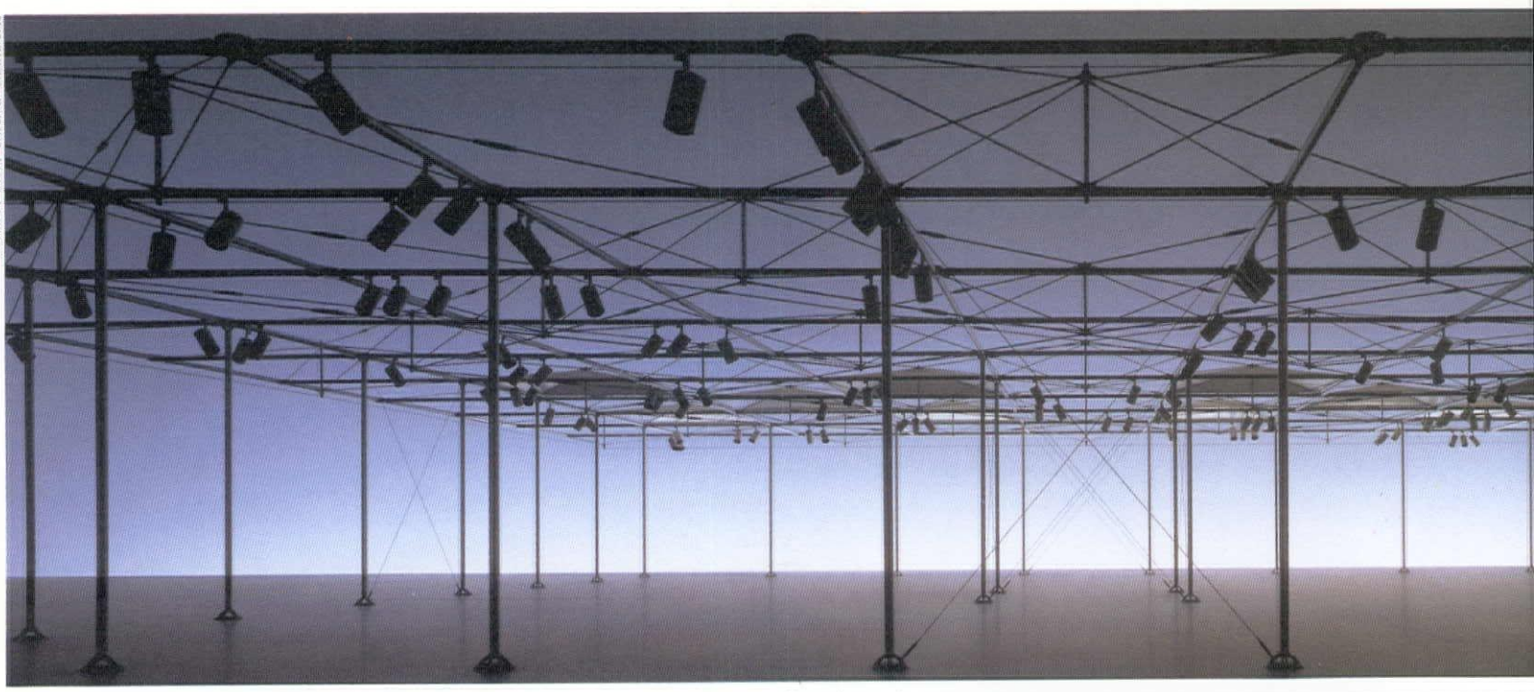

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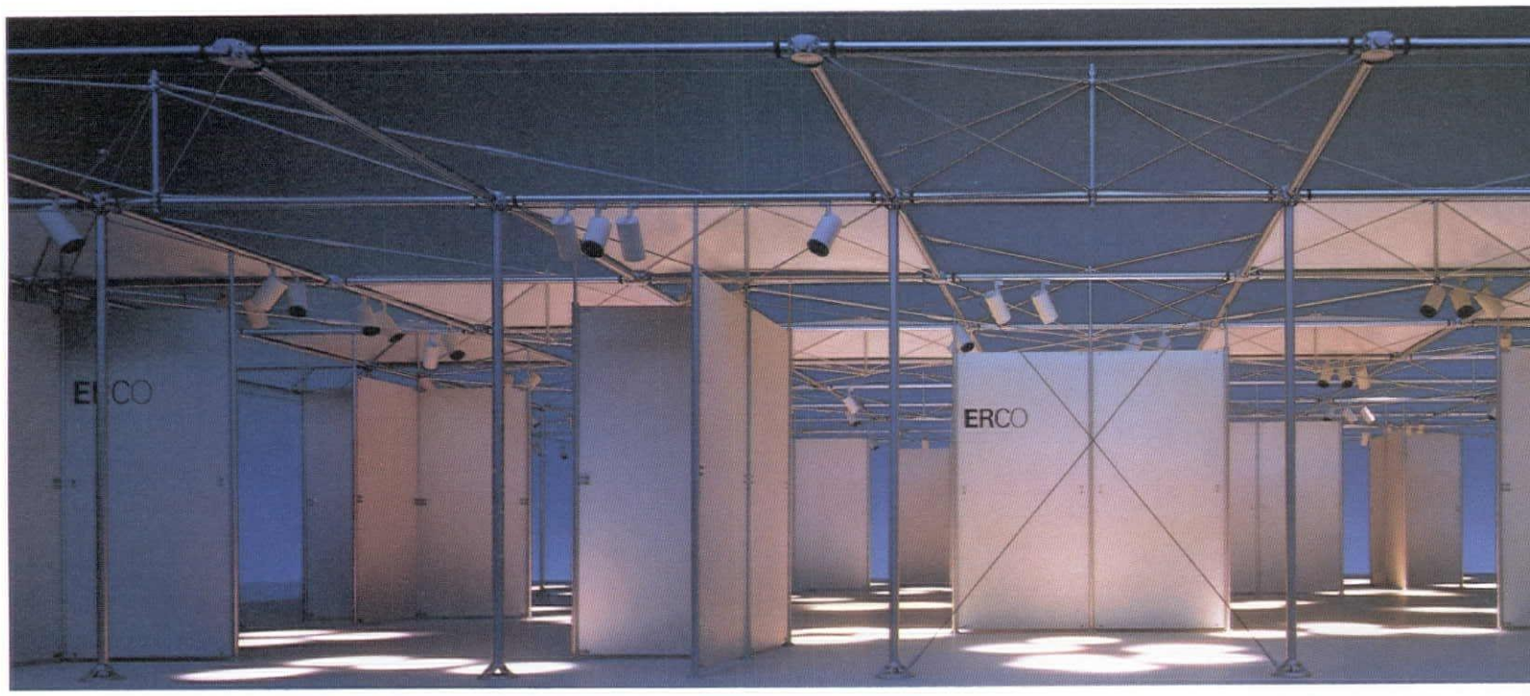
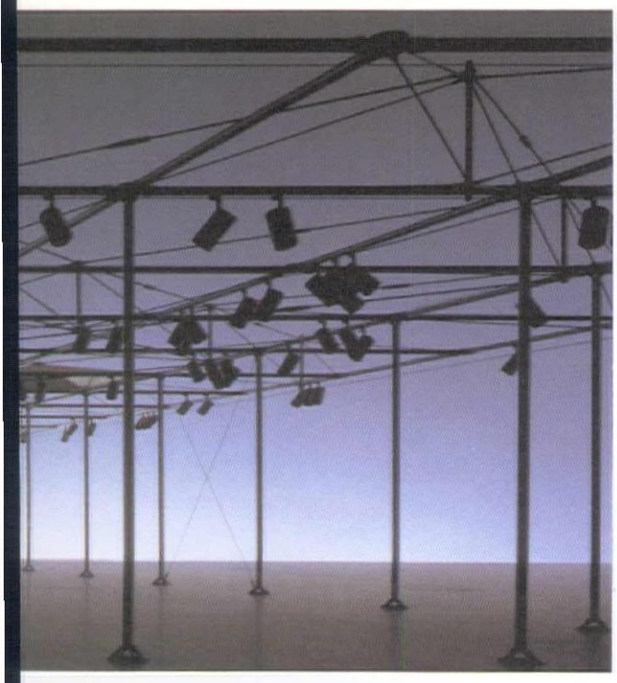
Canopies, made of light transparent material, can create a ceiling effect. The canopies are placed over diagonal braces and closed by a zipper. The corners are connected at the Axis nodes. In the Axis modules, tension and compression are finely balanced.





Each square module comprises four tubes joined to nodes at the corners. A module is braced by means of eight tension rods that run from the nodes to the upper and lower ends of the central hub.

A New Way For Light To Structure Space.

It is really quite simple to use large spaces effectively. Luminaires are attached to a structural element, dividing space, thereby creating smaller spaces.

So far, so good.

But how to retain the openness of a large space? How to attain effective light?

In collaboration with the designer and architect, Roy Fleetwood, (structural analysis: Ove Arup & Partners), we have developed a new structural system called Axis.

Axis is a wide span lighting structure which integrates electrical circuitry.

Lighting track, fluorescent lamps, and decorative lights can all be integrated within the tubes of this system.

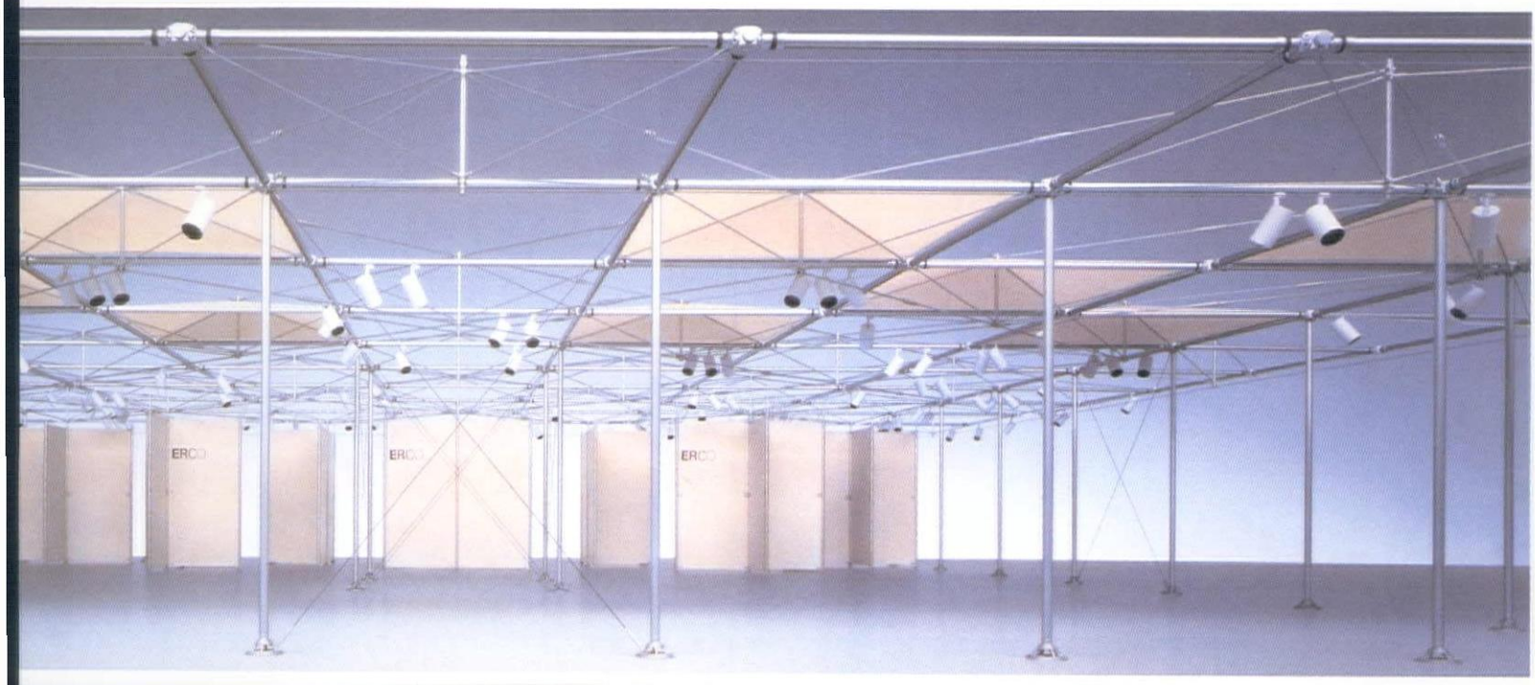
Axis shows clearly the way in which engineers solve problems. The required application is defined precisely and the most obvious technical solution is applied. The resulting design is aesthetically and technically correct and uses no added effects.

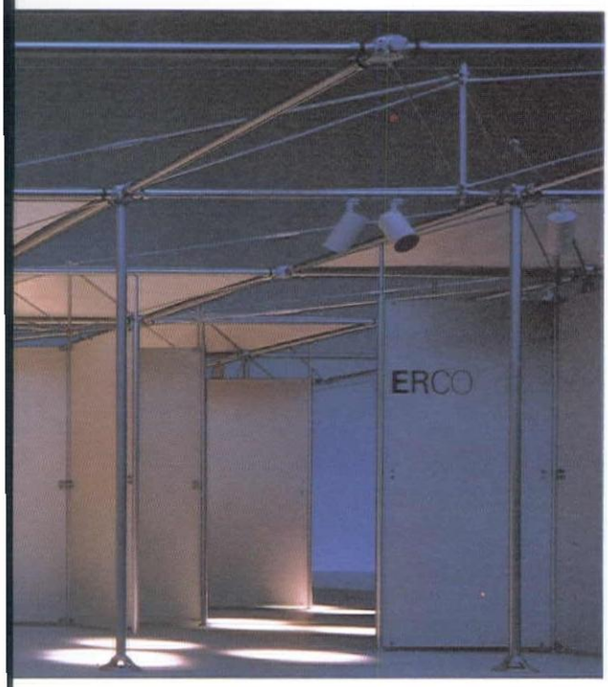
Axis will adapt to any style of architecture whether this happens to be in an exhibition hall, a museum, a shop, a gallery or a discotheque.

In all these places, structures can be built with prefabricated parts of the Axis module system.

The square modules in the Axis system are arranged about a 2.4 m axis and can be assembled to form larger grids. The largest unsupported span is achieved with a 5x5 module grid covering 12x12 m.

Thus Axis offers numerous ways to structure the same room in an entirely different way and giving it a new light.





Axis may be suspended from the ceiling or supported on columns. The column, maximum height 3 m, and its base can be through wired and incorporates a 50 mm adjustment of level.

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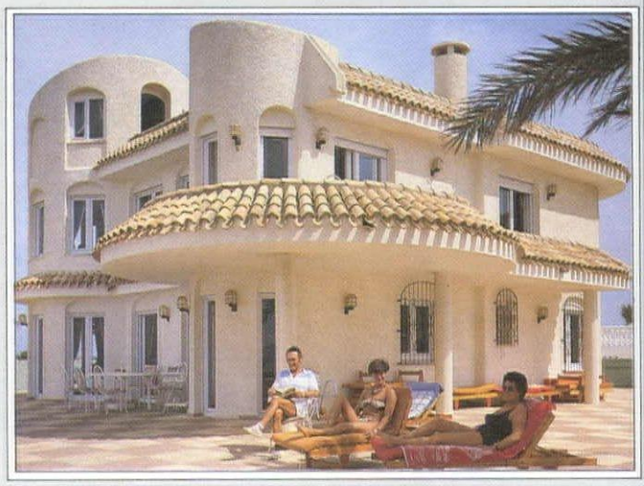

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At high altitude

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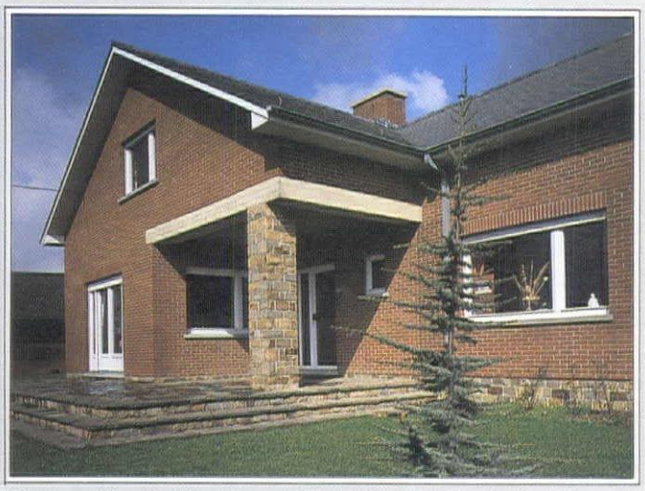

House in Assesse, Belgium. Benvic S window frames fitted more than 20 years ago show no sign of deterioration

These brown window frames withstand weathering for more than 10 years (Building in Roeselare, Belgium)

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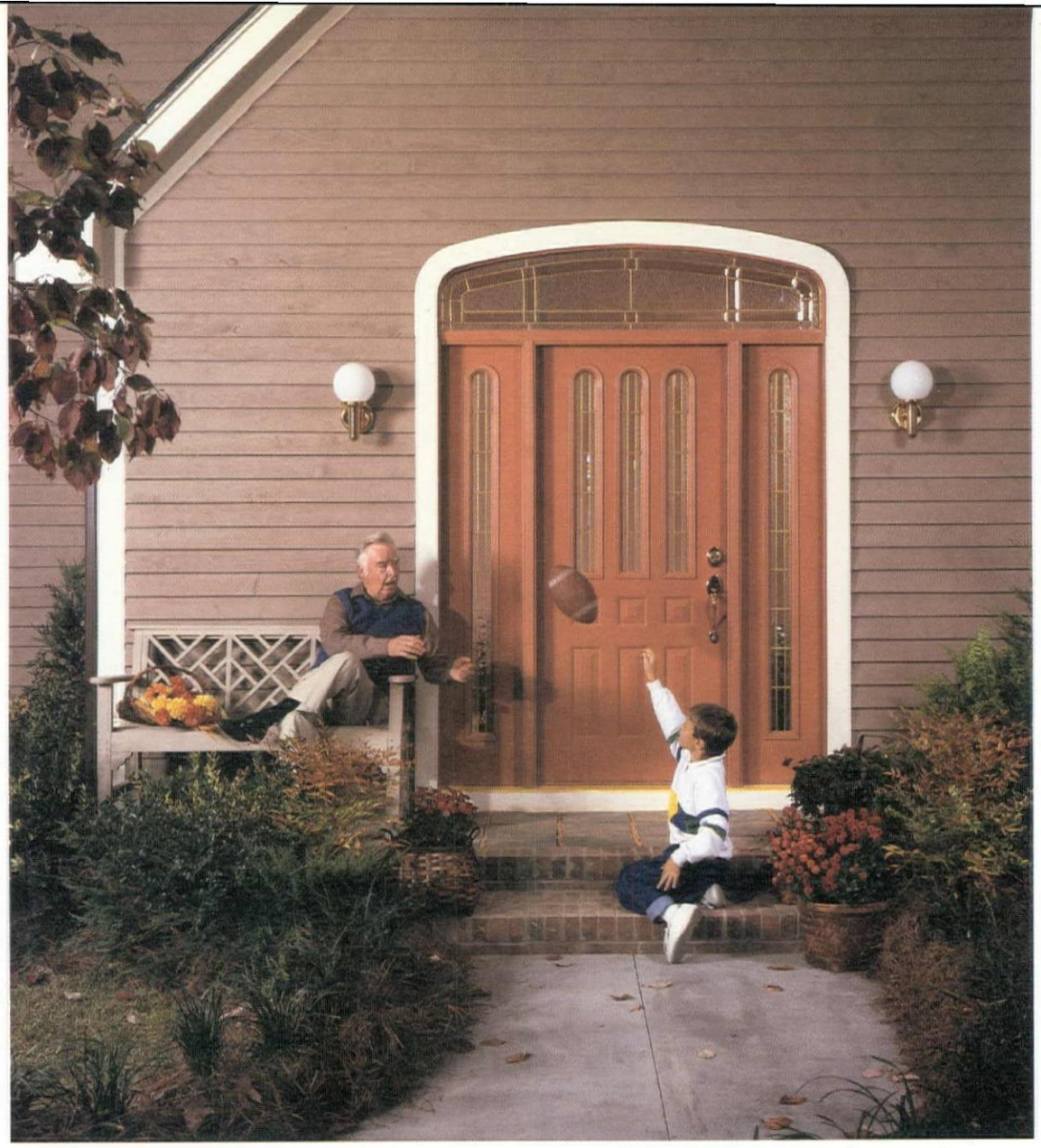

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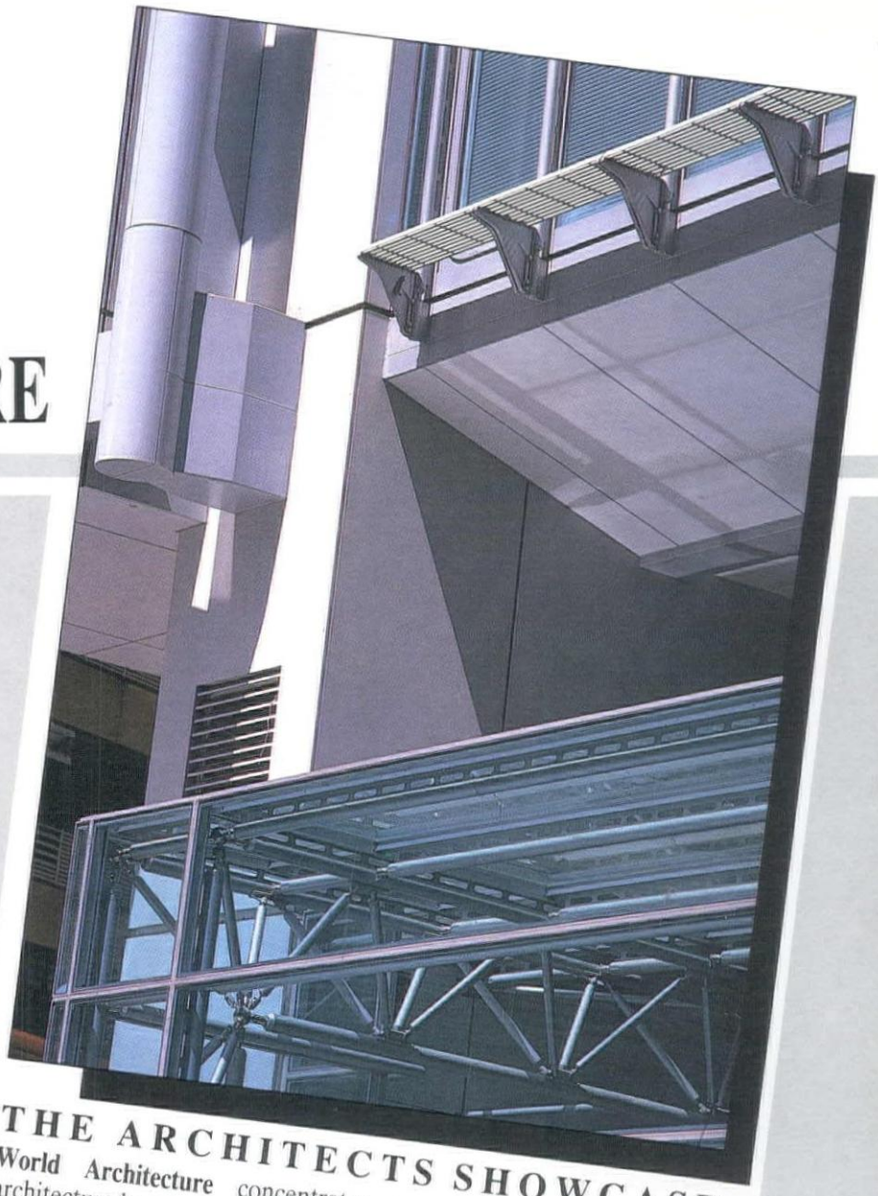

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World Architecture is NOT full of products demanding your attention, it IS about architectural excellence, trends and changes within the profession, and the personalities and projects of today.

World Architecture is edited by Jonathan Glancey whose brief is to seek out and report on new building projects around the world, even behind the Iron Curtain. Norman Foster, as Consultant Editor brings a balance between the contemporary and the conservative.

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Each issue contains a profile on the work of one architect, together with a major essay on a subject of importance to the profession.
Current developments from around the world are examined together with an analysis of the indigenous style of a particular region.
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WORLD ARCHITECTURE

This, the second issue of *World Architecture* , takes the journal a little closer to the goals set by the International Academy of Architecture. One of the goals is to produce a magazine that draws together the interests, thoughts and innovations of architects worldwide. Such a gathering together is not, of course, an end in itself. The ultimate goal is to help architects intervene humanely and constructively in the affairs of other people.

Architecture is an intrusive business. So too is magazine publishing. Today, every new magazine has to ask itself whether it has any purpose beyond that of inflating both the egos of those who appear in it, and the profits of its publisher. Both ego and profit are important matters; but we live in a time when every extra call on the earth's resources must be queried. After all, the trees, water and electricity required to produce twenty thousand copies of a 100-page magazine are not inconsiderable; neither are the petrol and other resources entailed in the distribution of the journal across the world. Thus, we have a duty to make a magazine that is genuinely informative, helpful and critical.

For Western readers, we hope that the work of Imre Makovecz will be a genuine revelation. Here we have an architect whose work, though far from perfect in all aspects of its utility, offers an aesthetic, and an approach to symbolism, which speaks loudly of nature and community – two powerful themes in human culture. Makovecz is not easily categorised – he does not fit easily into either the 'modernist' or the 'post-modernist' camp. We have labelled him, not too arbitrarily we hope, as 'organic.' The thread running throughout this issue concerns the concept of 'organic' as a theme for symbolism in architecture and the human-made environment.

THE ACADEMY

The IAA Programme for 1989 includes seminars and research activities on the following themes:
- 'New Housing Policy"
- Denmark, Holland, Belgium and Finland;
- Leisure parks on the Caspean Sea and at Baklach Lake;
- Joint IAA-UNO seminars on the 'Provision of Municipal Public Services in Developing Countries' and 'Preservationand Rehabilitation of Historic Districts, Towns and Monuments in some developed countries and its relevance to developing countries;
- International competitions and conferences led by the IAA
- International competition for a Symbolic Element of INTERCITY CONDORDIA
- International conference on Philosophy and Architecture' to be held in Austria

In addition, the IAA is involved with the following organizations:
- IAA branch in Nicosia, Cypros;
- Ethopian branch to be established in Addis Ababa;
- HABITAT
- Ministry of Construction, Cuba
- Initiative Committee of the International Fund for Mankind Survival and De velopment
- Ministry of Culture and the Art Academy of USSR
- National Academy of Architecture of the Union of Mexican Architects
- University of Kartum, Soudam
- Vrije University of Brussels
- Faram, Italy
- Memorandum of Understanding between the Government of PR of Bulgaria, United Nations Dept. for Technical Cooperation Development and the IAA
- Grosvenor Press International, London
- FAPA
- CIANA

INTERARCH '89

World Architecture no 3 will review the fifth world Biennale of Architecture held in Sofia, Bulgaria 20 - 24 June, 1989

INTERNATIONAL FORUM OF YOUNG ARCHITECTS

Diary of Events 1989

27 February - 5 March Moscow,USSR
IFYA Bureau Session

First Regional Meeting of IFYA "Coordination of the Activities of Young Architects"

10 - 19 June Baltchik, Black Sea, Bulgaria
"Recreational functions of Baltchik - Albena seashore" —
International competition

20 - 26 June Sofia, Bulgaria
Fifth World Biennale of Architecture
Fourth World Forum of Young Architects: "Concordia - an imaginary City-Island"

1 - 8 July Dublin, Ireland
"Revitalization of a central riverside section of Dublin"

26 June - 16 July Santo Kiriko School of Advanced Studies, Bulgaria
Third IAA Workshop: "Structures for the Research Centre in the Science City of Plovdiv, Bulgaria"

1 -11 September Skyros, Greece
International Workshop of Young Architects: "Town Planning and Architectural Interventions on the traditional fabric of Sykros"

12 - 22 October Tbilissi, Georgian SSR, USSR
International Workshop of Young Architects: "Proposals for the development of a sector in the historic area of Tbilissi"

Projects Under Development For1989

Urgent professional aid to Soviet Armenia following the earthquake in December, 1988.

International Contracted Workshop 'LYULIN 89', Bulgaria

Opening of the Jacob Chernikhov exposition at the Fifth World Biennale in Sofia. Will move on to Belgrade, Athens, Venice, Frankfurt, Dublin, West Berlin, London and Vienna.

International Architectural Studio 'Lyulin'

The IFYA and the Community People's Council 'Lyulin' has developed an International Architectural Studio (IAS) attached to the IAA for the purpose of creating a public and residential environment for the housing complex 'Lyulin'. This is to be done with the aid of architects from the USSR, the Netherlands, Greece, West Germany and Bulgaria.

The aims:

To create a coherent policy for the development, in line with world standards of architecture and social quality.

To establish an experimental design and construction to solve key problems of the capital, drawing on the professional experience of overseas architects.

To encourage cooperation between Bulgarian and foreign schools of architecture.

The Project:

'Lyulin' - a residential complex in the public and residential area of Zahari Stoyanov Boulevard.

- a club-restaurant
- cinema/video club
- complex for public facilities
- residential
- commercial
- disco and youth club
- market place

The development is planned in three stages, starting in June, 1989 and reaching completion in December 1991.

IAA REPORT

Armenia: Earthquake Proposals Report of the International Seminar of Architects, held on March 9, 1989 at Erevan.

Thousands of people were injured, some died, and many thousands more lost their homes when an earthquake struck Northern Armenia on December 7, 1988. It caused severe damage to 20 towns and 358 villages across the country.

It has been encouraging to see the number of countries who are giving aid. The task facing the architects, urban planners and engineers involved is twofold — rebuilding the towns and restructuring the lives of the inhabitants.

Architects, planners and engineers, all members of 'Goskom' Architecture (USSR), the Union of Architects in Armenia, The International Academy of Architecture and the United Nations Centre for Human Settlements (Habitat) met in Erevan to discuss this rehabilitation project, looking in particular at the progress made to date in designing and rebuilding a number of towns in Northern Armenia. The discussion centred on the three most severely affected towns: Leninakan, Kirovaakan and Spitak.

Each town was considered in the light of its former character, its present situation and the proposals for the future. One of the main problems to emerge is the lack of time available to produce a high-standard redevelopment scheme. Re-housing has to take precedence, but a well-planned infrastructure for the town is vital for the future of the town and its inhabitants.

At the time of the earthquake, Leninakan, an influential town of 250,000 inhabitants, boasted a great cultural and historical heritage. Leninakan had some 1,600 buildings of historical architectural importance — the town centre is under State protection — but the earthquake destroyed nearly 80% of the buildings.

Proposals for the redevelopment include the location for residential (100,000 square metres) and public buildings, and town planning for the next decade. Concern was expressed at the 'stiffness' and sketchiness of the proposals, and the monotony and uniformity of the town's environment envisaged in the plans.

In evaluating the proposed layout of Leninakan, the members present emphasised the need for well-planned spaces; for pedestrian areas; greenery; for residential and public areas to be intermixed, with theatres and cafes to keep the town centre alive.

In contrast, Kirovaakan, which lost over half its residential buildings, demands even greater care in its planning and redesign. Chemical industry, which before the earthquake was a part of the town's manufacturing capability, is no longer viable under the seismic and topographic conditions of the area. Moreover, the planned rail and road layouts need rechecking before the location of 1 million square metres of residential areas are confirmed.

Nevertheless, Kirovaakan is ideally situated in beautiful countryside and pleasant climate and the development of tourism and leisure as a new industry for the town should be seriously considered.

Spitak, the symbol of the disaster, stood at the epi-centre of the earthquake. It was virtually annihalated. The town is to be relocated 45km away from the old site and homes for 10,000 - 12,000 people is the first stage of the redevelopment. This figure is expected to double.

The meeting requested the Government to extend the deadline for the urban planning of Spitak and to consider the following suggestions:

1. A national competition for a master plan for Spitak should be established — IAA representatives would assist as a jury — and an international building construction concept competition for Spitak should also be organized.
2. An expert panel of IAA members can be made available for professional assistance during the design processes of the town.
3. Four or five team-groups should be organized to work on the Spitak Master Plan, in collaboration with foreign architects, under the auspices of the IAA.

The meeting also put forward some practical suggestions concerning earthquake architecture. Any area chosen for residential buildings should be closely analysed and only construction methods highly resistant to earth tremors should be followed. The monolitical method is proposed. The quality of materials, products and construction should be closely monitored.

Finally, courses should be organized not only for the production managers, engineers and technical staff but also for the builders, to increase their awareness of the importance of exactness and quality of workmanship in such a project.

The IAA and Habitat are always available to give assistance in the redevelopment projects of the Armenian earthquake disaster.

THE CRITICAL PROBLEMS OF CONTEMPORARY ARCHITECTURE

A meeting, organized by the International Academy of Architecture and the European Cultural Centre of Delphi, on the theme:'The Critical Problems of Contemporary Architecture' was held from the 9th to the 11th September in Delphi, Greece.

Participants at the meeting stated that some of the problems already have a long history in the 20th century and, not yet being solved, continue to exist in the present state of architecture. Among these problems is the continuing development of megalopolis cities, which is a particular danger for Third World countries, and population over-concentration, which gives rise to endemic social, economic and environmental problems.

At the same time, some new points for professional concern have appeared in recent years.

In this context, the ecological, moral, social and aesthetic developments in architecture in recent years were also discussed.

The meeting noted that:

- today, both the urban and the natural environments, and man as a biological and social creation, are in a dangerous ecological situation because of the uncontrolled process of industrialization;

- the present-day social problems of the post-industrialized world are virtually out of the hands of the architectural profession because of the profession's low status in society;

- the multivalence of styles in contemporary architecture, and their rapid evolution, has led to the disappearance of criteria for true professionalism and mastery in the architectural profession;

-the poetics of present-day architectural languages do very little to use and express the current technological revolution in post industrial society;

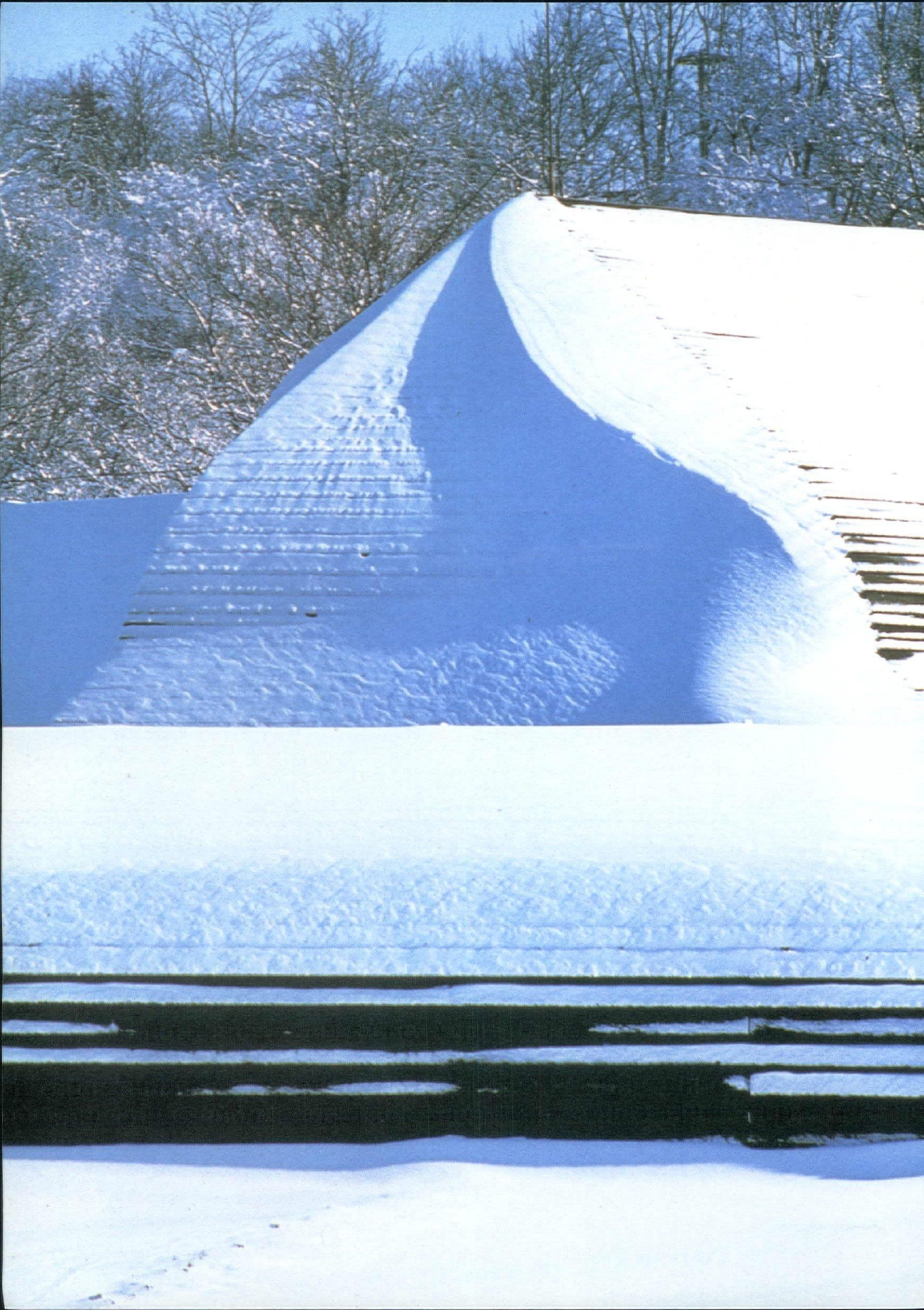
- there is no satisfactory system of communication between the architectural profession and users, on the one hand, and those who commission projects and take decisions, on the other.

The new duties and responsibilities of the architect in this situation were discussed. It was noted that as a result of the re-evaluation and evolution of the modern movement in architecture, new directions have arisen in the architectural process which are playing an important role in the professional scene.

One important conclusion reached at the meeting was that due to the complexity of the present day world and the necessity of responding to it, the architectural profession is extending its frontiers to include new social, ecological, technological and other aspects of the human environment.

Participants at Delphi

Suzanna ANTONAKAKI, Greece
Dimitris ANTONAKAKI, Greece
Carl AUBOCK, Austria
Georges CANDILIS, France
Justus DAHINDEN, Switzerland
Dimitris FATOUROS, Greece
Eleni HADJINICOLAOU, Greece
Jan HOOGSTAD, Netherlands
Maria KALBOVA, Bulgaria
Kiyonori KIKUTAKE, Japan
Yannis LIAPIS, Greece
Frei OTTO, FRG
Juri PLATONOV, USSR
Alison SMITHSON, UK
Peter SMITHSON, UK
Kelly SPEARMAN, France
Georgi STANISHEV, Bulgaria
Georgi STOILOV, Bulgaria
Alexander TONBAZIS, Greece
Pierre VAGO, France
Jean-Louis VERET, France
Bernard ZEHRFUSS, France
Bruno ZEVI, Italy.



Imre Makovecz has developed an interesting and bold series of decorative motifs that act as 'flags' or focal points around which the community may gather.

Imre Makovecz, an academician of the International Acadamy of Architects, has made a profound contribution to late twentieth century architecture. It is not an overstatement to claim that Makovecz has helped architecture to regain it's soul. Very few contemporary architects – and none who work in the bankrupt 'post – modern' style – have, as Makovecz has done, so clearly articulated their aestheic and moral values through their buildings.

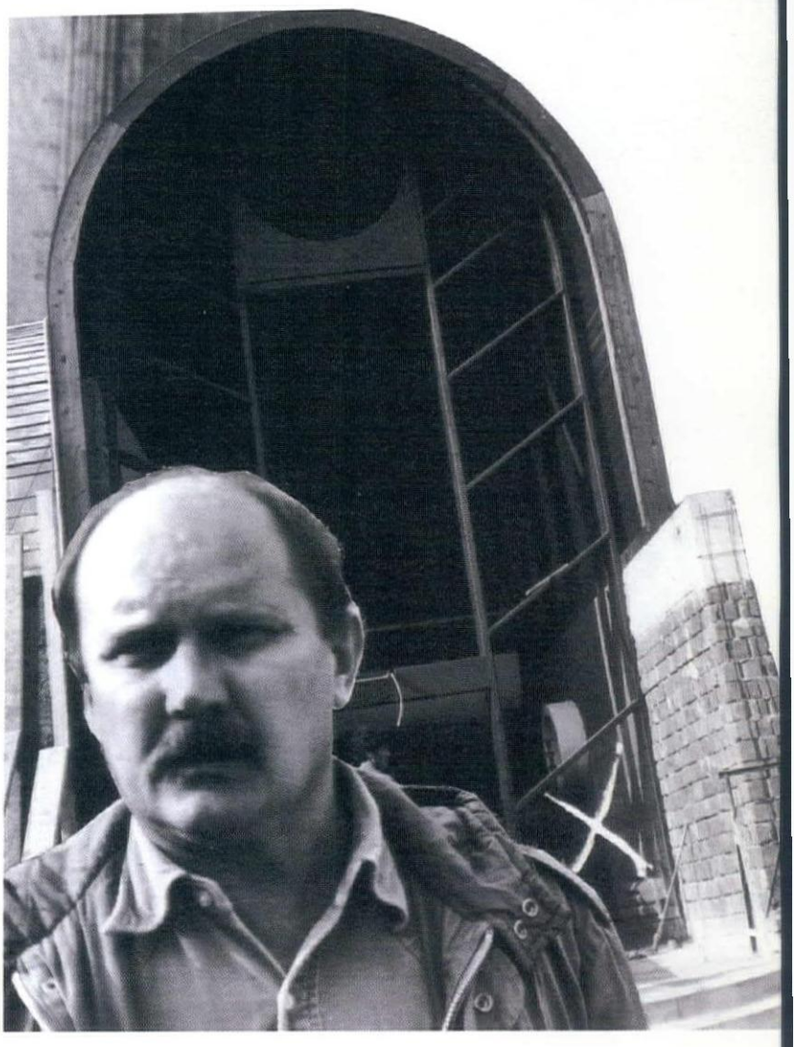
Makovecz is rare, however, in that his values as an architect coincide with those who make, and those who use, his buildings. Jonathan Grancey profiles the man and his work.

IMRE MAKOVECZ

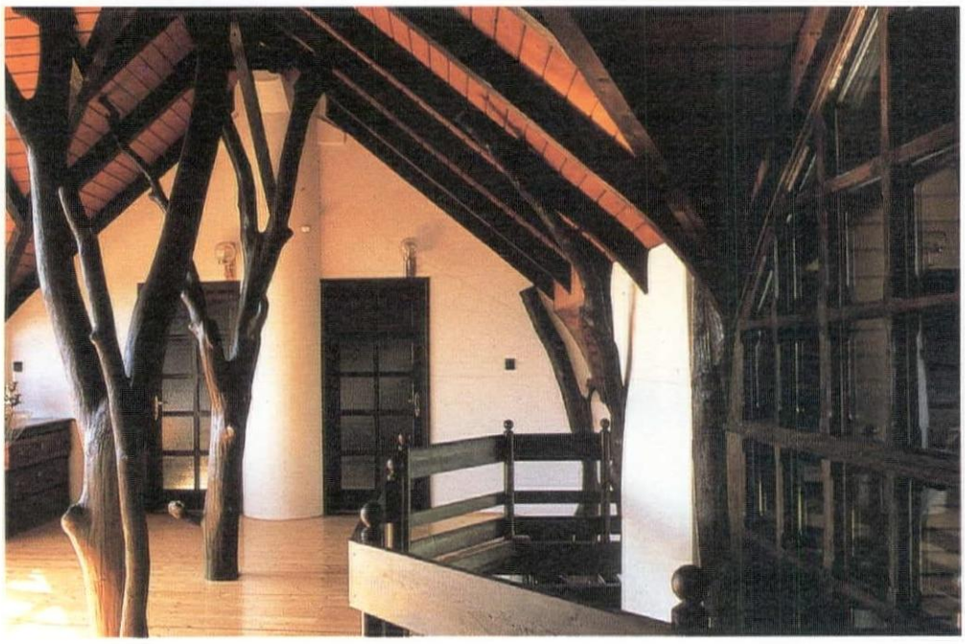
A mortuary chapel in the suburbs of a capital city is not a building type on which any architect expects to establish a world reputation. Yet the chapel that Imre Makovecz designed and built between 1975 and 1977 in the Farkasret cemetery in the Buda hills, a short walk from the Citadel of the Hungarian capital, is both a starting point for an understanding of this extraordinary architect's work and a powerful blow to the emotional senses.

The chapel at Farkasret is built into the ruins of an old cemetery chapel. At first it is like entering the belly of a whale, but as Imre Makovecz explains, this anthropomorphic structure is in fact based on the rib cage of a man, a giant model of the human chest. Powerful ribs of dark stained wood curve up from the floor forming the walls and roof of the chapel, joining together in a central rib that courses in undulating fashion along the length of the building. These wooden ribs, a masterpiece of organic geometry and the carpenter's art, change in height, width and angle of curvature from one end of the chapel to the other. Rarely has a building felt so alive.

Inside, the atmosphere is expectant with movement. This abiding impression of a building come alive, what Makovecz calls a 'building being', is heightened by the sentient beings carved out of wood



Imre Makovecz, Visegrad



A common feature in Makovecz's work is the use of the tree, barely shorn, as a pillar. Sometimes he likes to use nature without interfering with it.

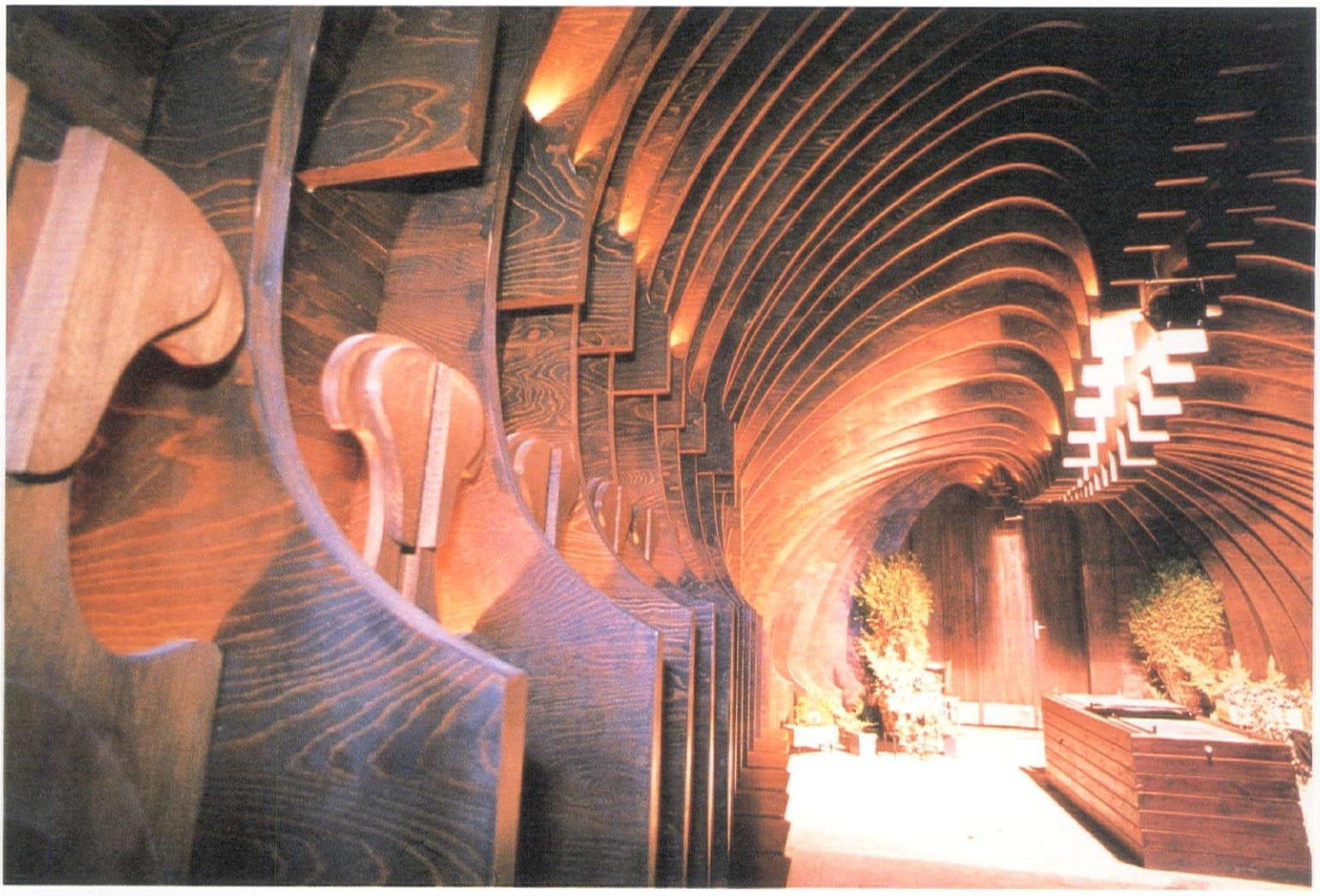
that parade along both sides of the chapel like ghostly mourners. These creatures are abstract figures designed by Mak-ovecz's long term associate Gabor Mezei. They are in fact the stalls in which mour-ners at a funeral sit or lean against during a funeral service. Yet although this building speaks eloquently of death and mourning it is also symbolic of the life of the spirit and of resurrection. From here the spirit passes into a brighter world after death. Although it is dark inside the chapel, the doors are kept open during the funeral services: sunlight, foliage and birdsong are seen and heard. The chapel also explores the notion of a building as a living creature rather than as a scientific tool or glorified cardboard box.

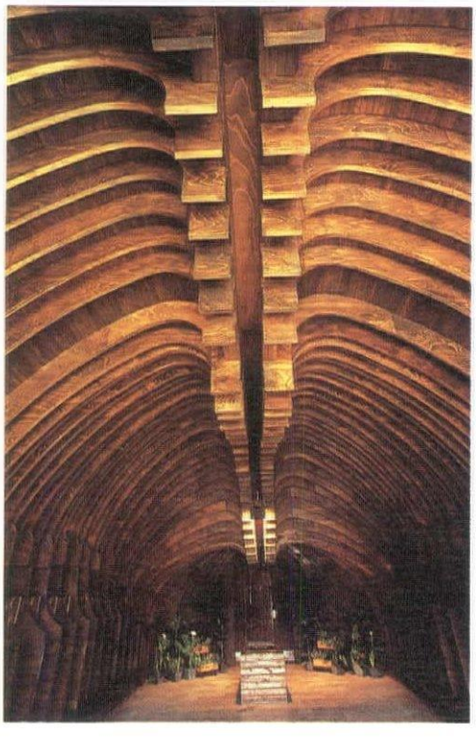
The mortuary chapel was built at an important stage in Imre Makovecz's career, the point between his leaving the large bureaucratic state architectural offices and his taking up the lonely post of Architect to one of Hungary's forestry companies. It was from this point that Makovecz's own creative spirit seemed to be freed. Since 1977 he has been developing an architecture that not only symbolises freedom, but also demands the craft input of free, responsible workers. His architectural vision of the past twelve years has proved to be as popular for those for whom he designs as it at first appears esoteric.

This was also more or less the same time that Makovecz first began to incorporate trees into his buildings in place of 'artificial' columns. Trees, primitive columns, are more alive to Makovecz than any transformation of nature or natural materials can ever be when applied to a building. In 1975 Makovecz used a living tree as the central support for a bird-watch tower looking over the River Tisza. Since 1977 has has used trees to form colonnades, trees to support deep eaved roofs, trees to hold up the great timber roofs his carpenters make. His many houses and community halls spread across rural Hungary can be seen as sheltered glades in a forest. Makovecz had emerged from the state run architectural bureau to walk a free man in natural surroundings.

But is Makovecz's architecture deliberately rustic, almost folkloric? Does it accord in any way with the demands of an industrial society? Does it belong to the late twentieth century? In developing his own version of the Abbé Laugier's 'Primitive Hut', has Makovecz turned his back on the City? Is his architecture a purely local phenomenon, the product of eccentricity or whimsy, a private vision rather a significant contribution to contemporary architecture and society? These are questions that must be answered, for, on first acquaintance with a Makovecz building, the observer is only too aware of a powerful and highly personal guiding spirit informing this unfamiliar architectural terrain. But to be an *observer* of Makovecz's architecture is to guarantee a misunderstanding of his motives. His is an architecture of *participation* as opposed to observation.

Look, for example, at one of the many community halls that Makovecz has designed over the past decade. Each building has been designed on a minimal budget. Makovecz discusses the buildings with local people who, in rural Hungary, have little money to spend on the luxury of new architecture. Such discussions are not based on function alone - the need for a dance hall, theatre, cinema, club-room, cafe or bar, lecture hall





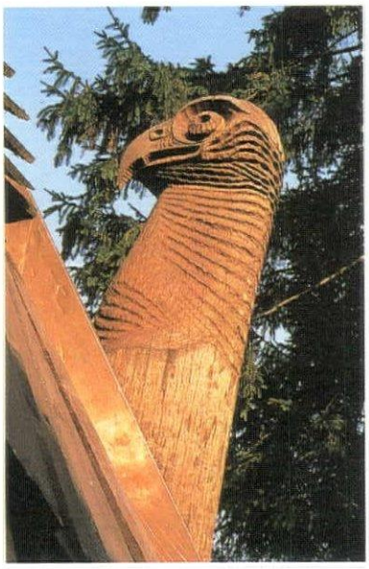
Mortuary chapel in Budapest. Completed in 1977. The rib-structure deliberately echoes the human rib-cage.

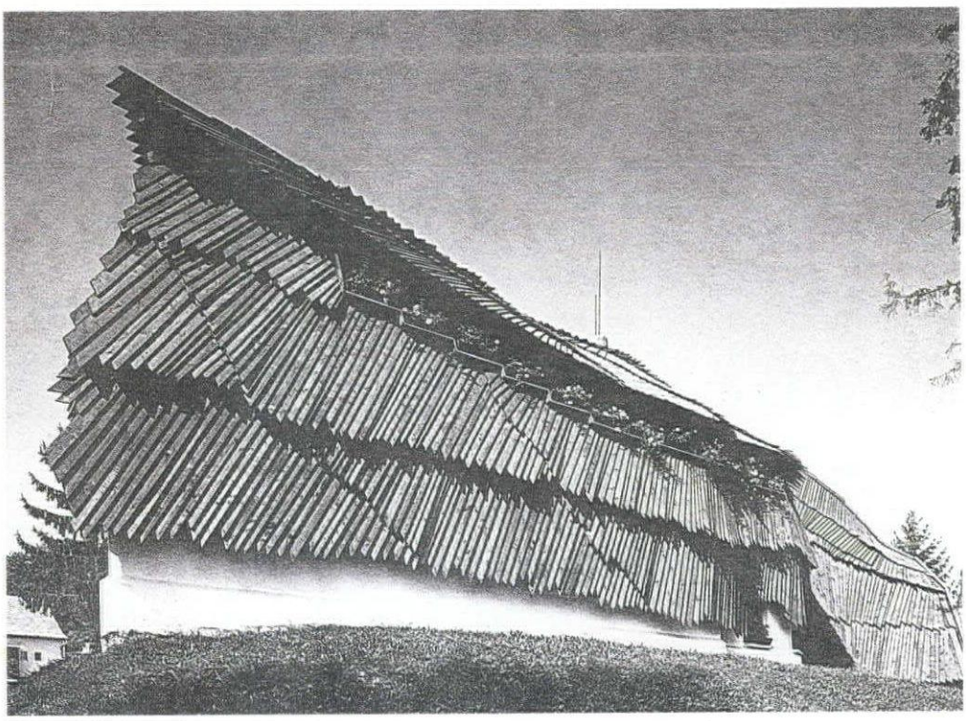
or craft centre - but on the spirit and collective memory of the community, its people and *genius loci*.

So the community house at Bak in western Hungary (1985-88), for example, takes its form from a great eagle, its wings spread. The image is surprising, even a little shocking, when first encountered, yet it is not gratuitous. The wings of the wooden eagle embrace the collective activities clustered underneath. In form and plan this highly expressive building in Bak represents the collective wishes of the rural community it serves as well as new found social freedoms.

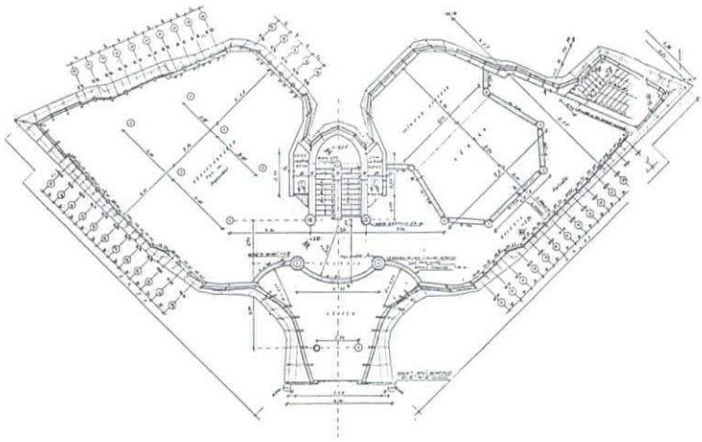
Its form also recalls a particular eagle that once perched on top of the war memorial standing in front of the community hall.

Representation aside, a community hall like Bak is the work not just of the architect and his assistants, but of the local community. These buildings are not the work of the state construction industry nor the work of local contractors alone, but of the people of Bak themselves. Like traditional communities elsewhere in the world they build for themselves. In this way a building that emerges from Makovecz's drawing board is no abstract work of art, no ego trip for architect or client, but a living building that belongs in body and spirit to the community it serves.





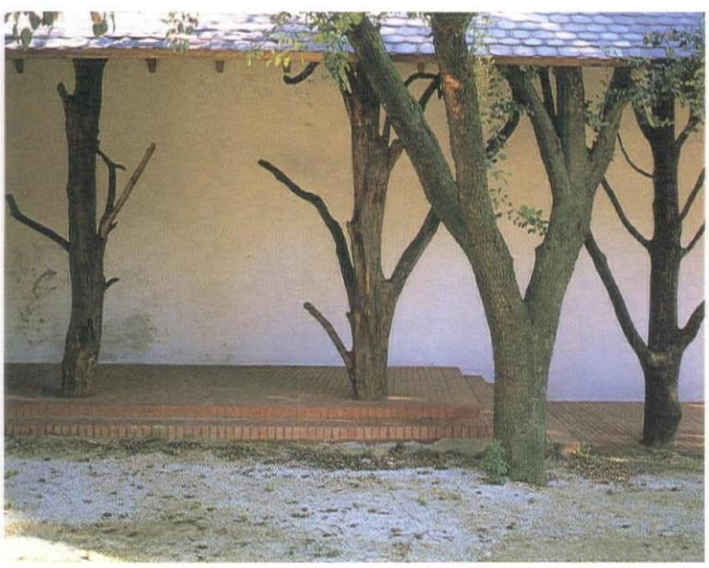
The community hall in Bak takes its theme, spirit and floor plan from the image of an eagle.

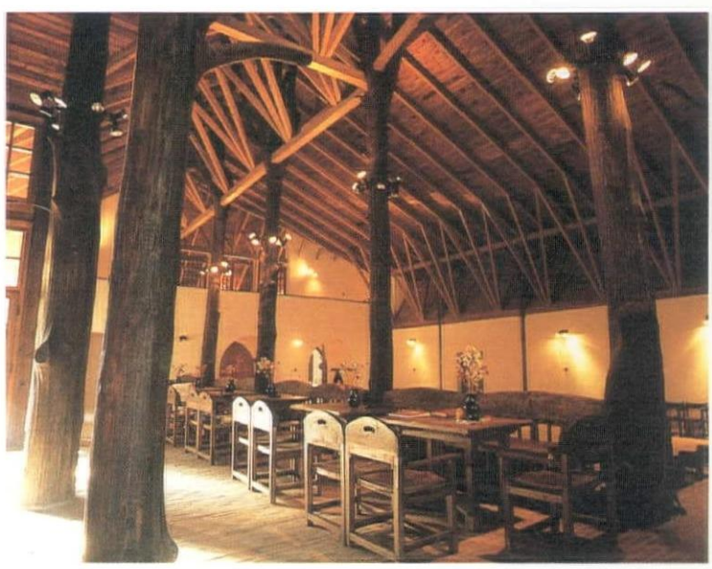


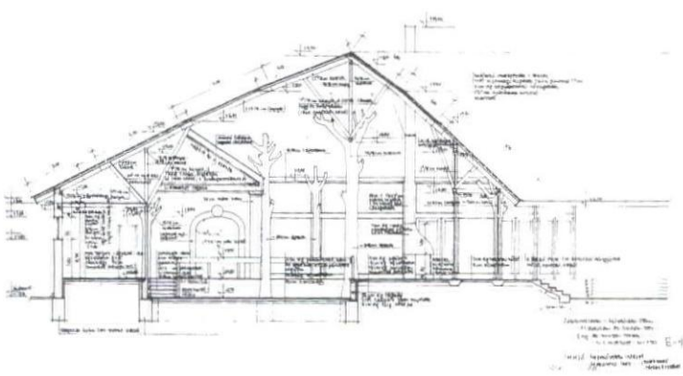
Naturally the technological input of such buildings is low, although the craft element is high. This is not because of any rejection on Makovecz's part of modern materials. It is more a question of the cost, availability and practicality of materials. Makovecz is able to build a community hall such as the examples at Bak or Zalaszentlaszlo, for roughly half the price of those proposed in new materials by the state architectural bureaux. In Zalaszentlaszlo, for example, the caretaker of the community hall Makovecz designed in 1983 is keen to show visitors the drawings presented in 1981 by the architects' department of the Technical University. This unsympathetic steel and glass drawing board building designed without thought for local conditions, architectural or social, would have been beyond the means of the community either to fund or to maintain. In contrast, the Makovecz building, a fusion of a restored peasant's house, a local grocery shop and a former flat-roofed building housing shops and a pub transformed into a 'tree house', *belongs* in every sense.

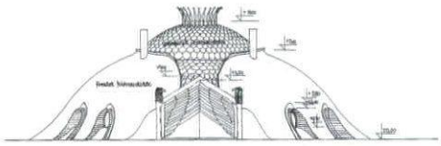
By working in cheap, available, easily fashioned materials Makovecz is able to design and build much larger buildings than would otherwise be possible in small communities. The cultural centre in Sarospatak (1977-74), for example, seems a notably large building for a once grand

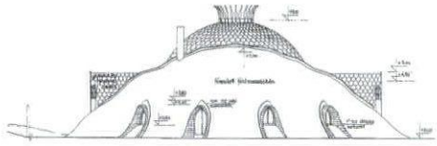
Community hall at Zalaszentlaszlo. Community halls are secular buildings but in his designs Makovecz creates a quasi-religious emotion of solace and consolation.

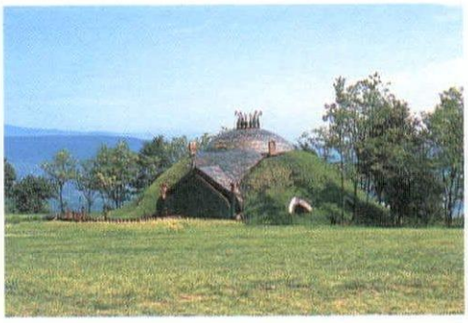


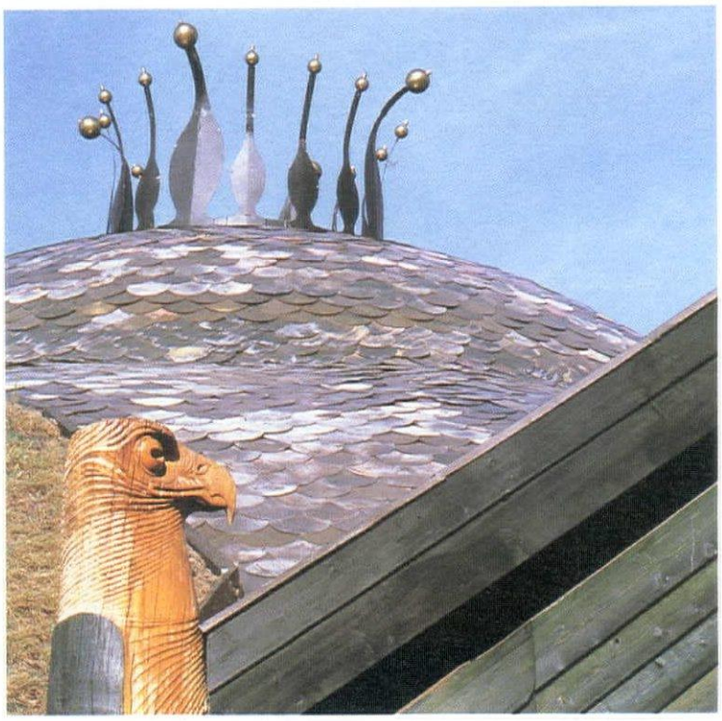




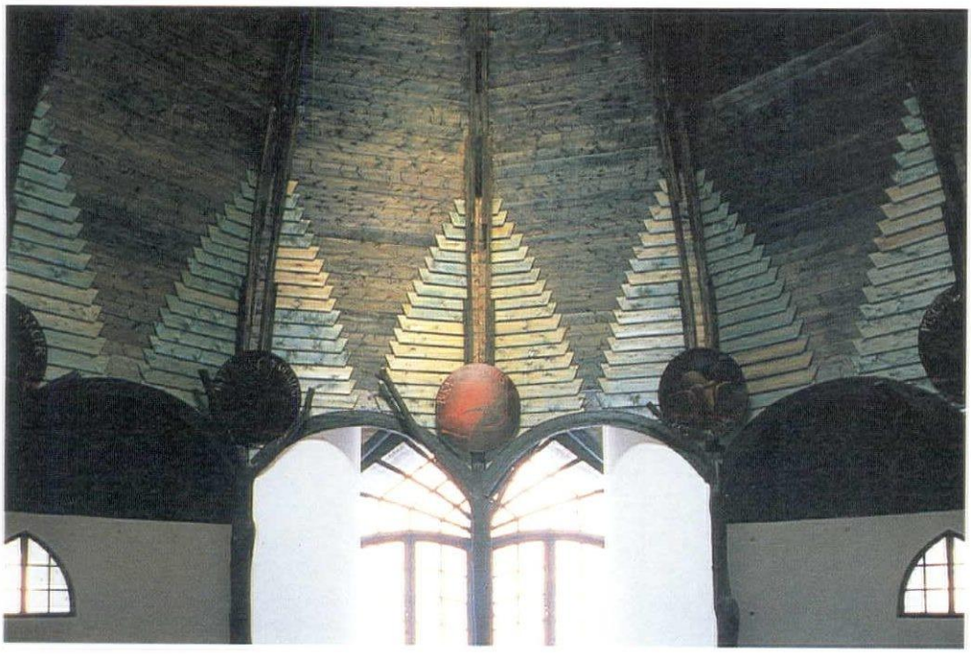


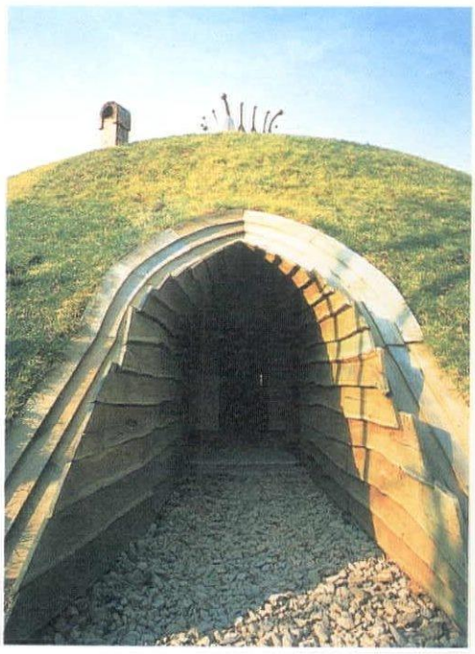


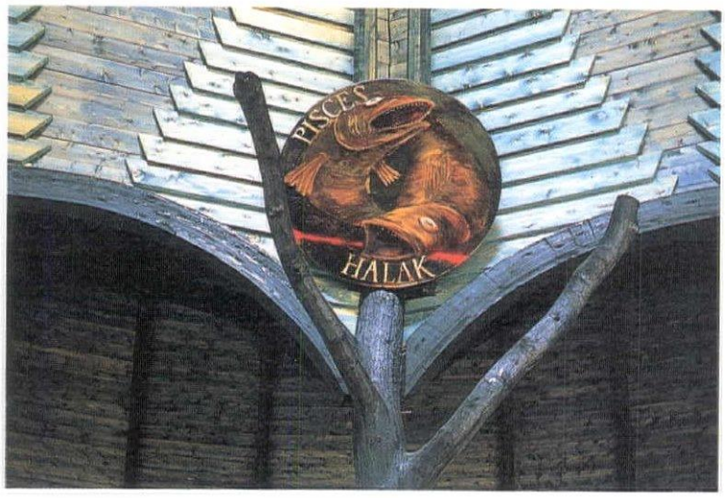


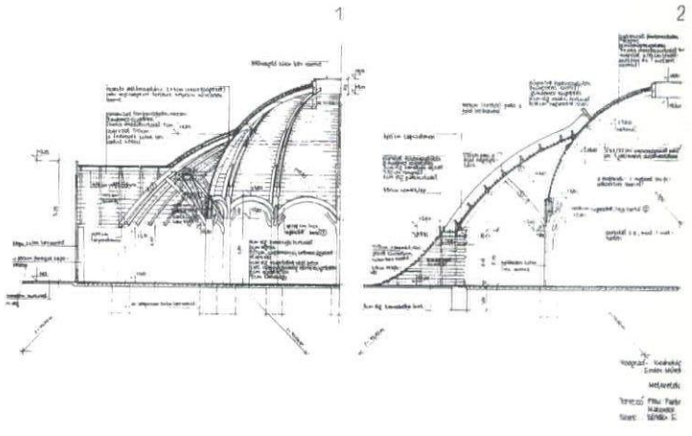


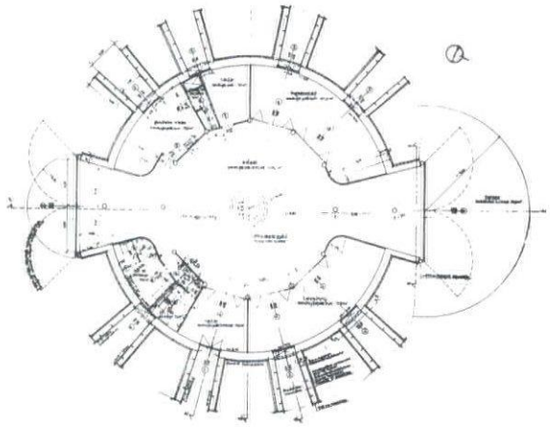
This forest community centre at Visegrad is rich in symbolism and allusion. The creation of an earth mound structure calls to mind the burial mounds of early Europeal civilizations. In this case it is also practical because it is an energy efficient structure. The metaphor of the womb also comes to mind. Why does so much of his architecture stress security and protection?

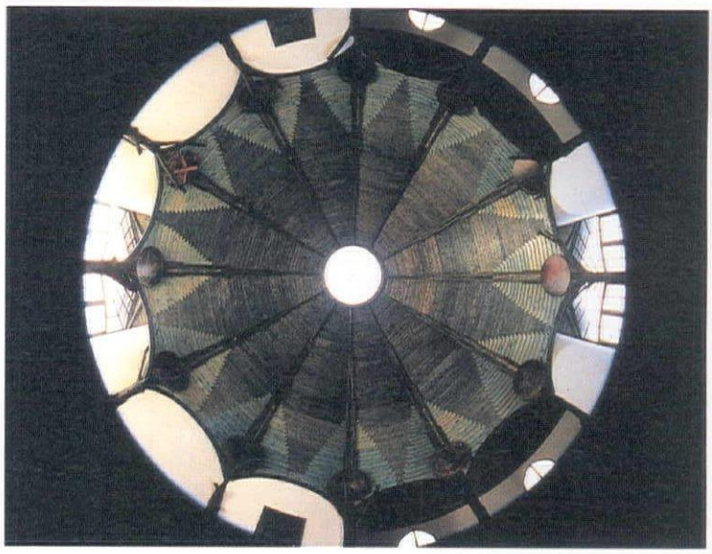


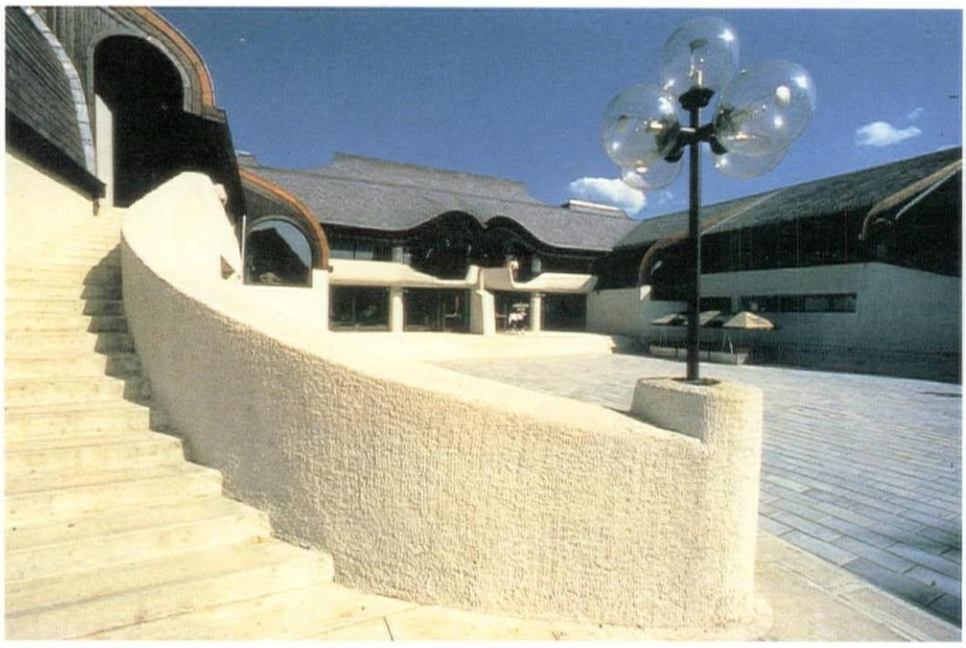




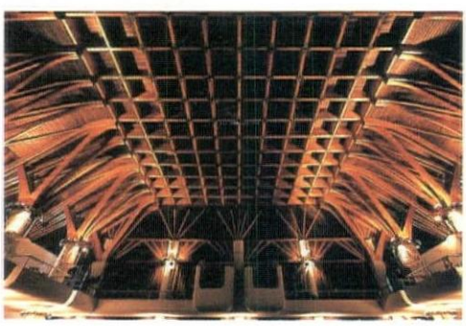








House of Culture, Sarospatak, 1974-1977. The canopies over the verandahs are strongly reminiscent of the Vienna secessionist style, itself rooted in art nouveau — a strongly organic art movement.



and still elegant town that now has a population of just twenty five thousand. Yet although ambitious in scope, plan and form, the building is made of roughcast concrete, block-work, timber and tiles. It is significant that the only concession to modern materials - the use of bent plexiglass in the eyelids of the great first floor windows overlooking the courtyard - has weathered badly. In this instance Makovecz really did need a little more money. Glass would have solved the problem and will at some point replace the crazed transparent plastic. This ambitious building provides remarkably generous and elevating spaces for all local meetings.

Working at low cost in natural materials was the way that Makovecz was able to develop his own language of architecture free from the restrictions imposed by the state bureaux and the systematised Hungarian construction industry. Low budgets have proved to be no real hindrance to an architect who cannot help but turn accepted canons of architecture upside down.

The meanings that the unusual plans and forms of Makovecz's anthropomorphic buildings convey to different users and visitors will not necessarily be the same as those that Makovecz intends. Yet, this does not worry him. Through his years in the hills and forests based in Visegrad, some twenty five miles along the Danube north of Budapest, Makovecz has been able to develop a language of architecture that is at once intensely personal and yet populist and likeable.

'What my buildings mean to people is a very difficult question to answer. It is difficult because people use these buildings without worrying about their deeper import. In Hungary architecture exists in a generalised and subconscious sphere. Yet I believe that my buildings are awakening in people forgotten knowledge and forgotten senses'.

That Makovecz has his feet planted firmly on the ground cannot be denied. The sheer output of his office is extraordinary, particularly when many projects have to be run on a shoestring, when nearly all of the buildings he works on are

a long way from Budapest and when people need to learn how to build again, to use new found freedoms and to develop their creative skills. As a thinker and a dreamer who is able to realise his architectural visions in the most uncertain circumstances, Makovecz is sensitive to criticism, but only when it accuses him, as the English critic Dennis Sharp has done of wilful 'individualism'.

In my buildings (the critic) sees only the unique shapes and use of material, something unique, something that cannot be continued, an exception, a mutant phenomenon ad adsurdum, a sick sprout, something outside normal society'.

Makovecz's work has been given all sorts of absurd labels. The architect pulls them out like poisoned arrows in his side: 'Recently I listed all the words that had been used to describe my work. It is a fantastic collection, a zoo of words that collectively add up to precisely nothing: Neo-Secessionist, Folklorist, Expressionistic, Shamanistic, Anti-Semitic, Nationalistic, Post Modern, Fascistic...'

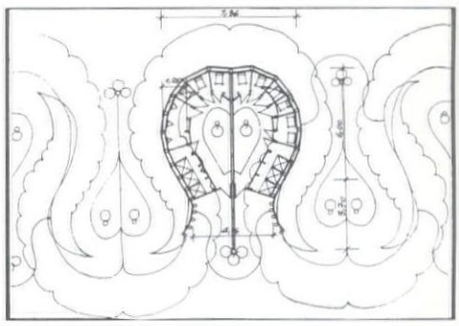
Countering the accusation of deliberate showmanship or the cult of the individual, Makovecz says, 'My work is an experiment (not a technical one) to see how, within concrete social conditions within the given power structure and the way our civilisation is shaped and working with my fellow men I can make the forgotten archaic world reappear. What I mean is that the spirit of a place, geological conditions, remnants of folk art, local materials, vegetation and the indigenous people for whom we build can be the motifs as well as the motive force of the drama of architecture'.

Makovecz believes that, as perhaps in ancient Greek drama, the whole people participated in the chorus, so this must be true of architecture if it is to ever really mean anything to the people for whom architects build. He believes that through the anthropormphic approach he has adopted, through the folk symbolism he has adapted, that people will be able to recognise in this new architecture, universal symbols, forms and motifs.Reconnecting people to their culture, helping to recreate a whole out of a splintered society is Makovecz's aim. 'For me', he says, 'all forms of apartheid are equally painful'.

The apartheids that Makovecz sees include not just those separating people of different coloured skins, but also of eastern and western Europe, of nature and technology, of buildings and their locale, of people and architecture. Because Makovecz sees the world in all its guises as a living being, he believes that architecture is part of a living tradition that has to be nurtured. While he is happy to admit that the buildings of, for example, Norman Foster or Richard Rogers are 'fantastic' structures, he does not believe that technology should ever be so dominant in architectural expression. Such overt displays of technology should stay in the realm of fantasy.

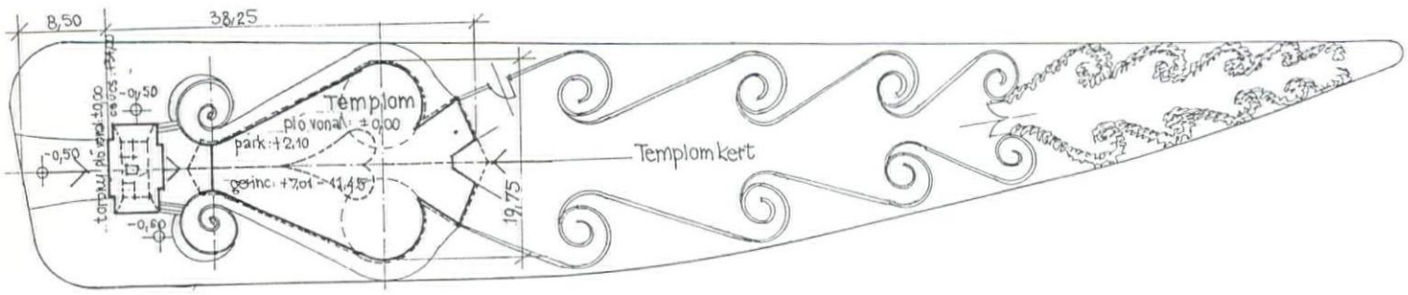
As with technology when taken to extremes, Makovecz distrusts and avoids the use of pure symmetry for its own sake. His plans are never symmetrical in the mathematical sense. However, in the organic sense they are. 'Symmetry can have an imaginative dimension. Look at the human face. It has a symmetry, yet both sides are always different. Man has a natural, core feeling of his own special symmetry. For me symmetry is not a question of a certain form as in Greek architecture, but an organising principle'.

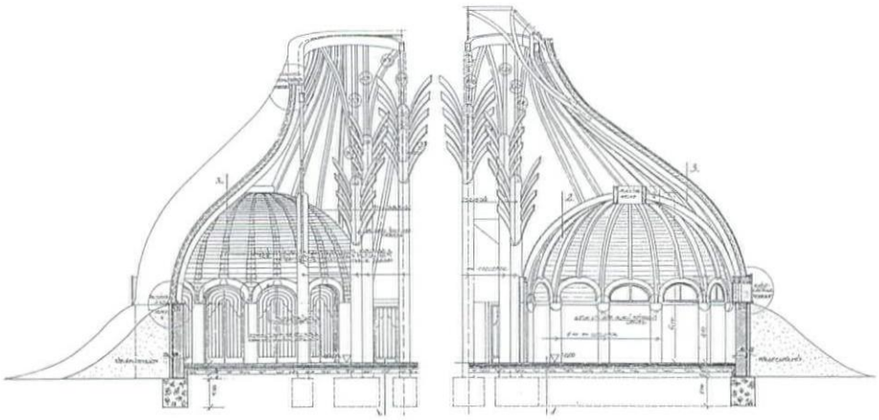
The plan of the Roman Catholic

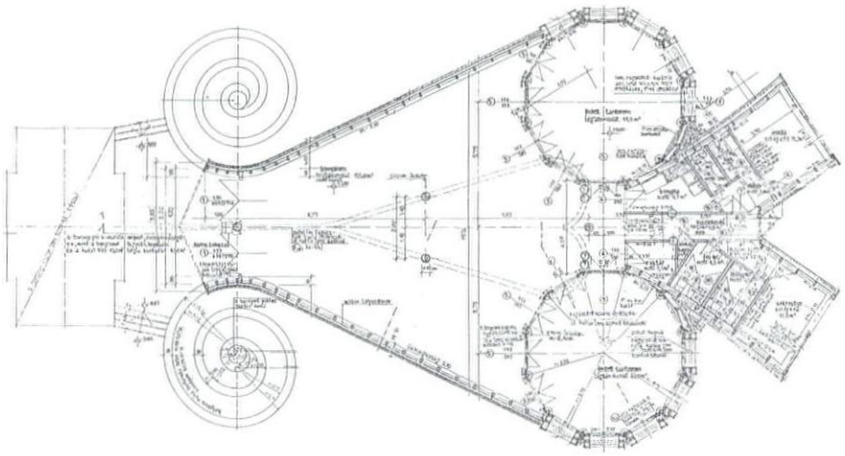


Views of a public lavatory for use by campers at visgard

A Catholic church at Paks, currently under construction. The imagery reflects Makovecz's interest in Celtic design.







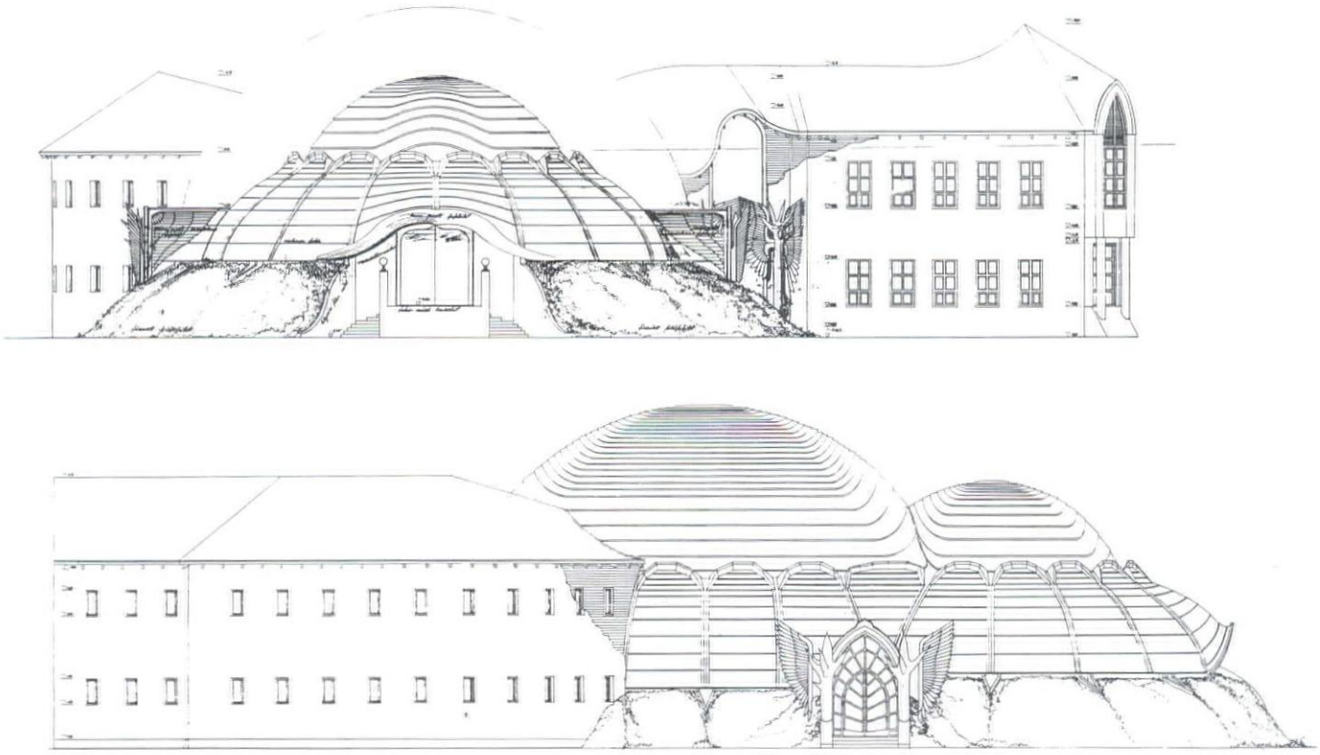
church Makovecz is building at Paks reveals his use of symmetry at its purest. The plan is based on two facing runic signs drawn from ancient Celtic culture. For Makovecz these signs are not gratuitous, although it might seem curious that the Catholic church should want to be represented by pre-Christian symbols. The opposing signs represent the male and female character of the church; they also represent for Makovecz the connection between peoples from west China to the west coast of Ireland who form the largely forgotten union that Makovecz believes is one potentially, if forgotten, bond between people who are divided by arbitrarily imposed national boundaries, Iron Curtains, empires or economic systems. As Makovecz sees history, there are two huge ancient realms connected to one another, the Celtic in northern and western Europe and the 'Heavenly Empire' from eastern China to eastern Europe. In this sense the runic sign symbolises the joining together of people in a manner more ancient and more powerful than that created and evoked by the Catholic church. The sign is also mirrored both inside and outside the building. The point at which the signs erupt in a physical manifestation in the church building at Paks, is simply one part of an imaginary chain that extends through the pattern created by the sign infinitely.

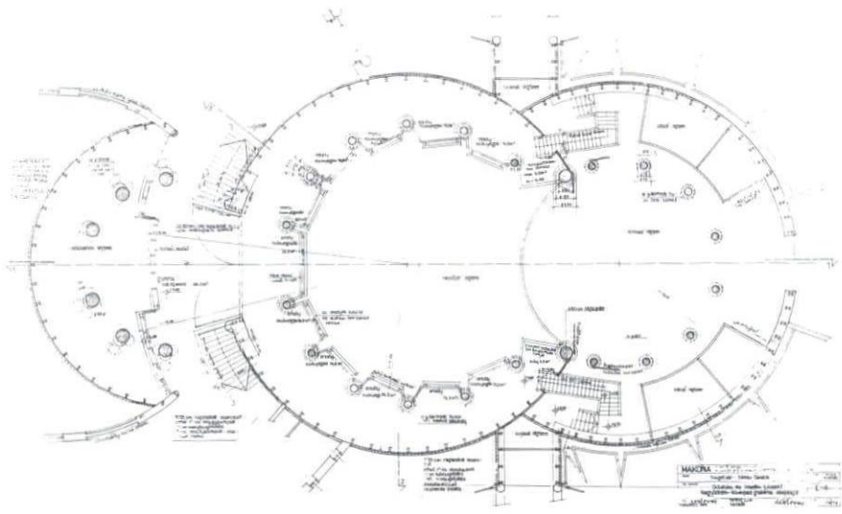
This is a poetic way of thinking and yet it does two things that a simple church based around the movement of the liturgy can never do. First it leads to a building that will have as powerful a physical presence as any pre-reformation parish church did and, second, it is a three dimensional manifestation of the universality of the Catholic church. In fact in certain respects there is often little or no gap between much of pagan and Christian sentiment. The Catholic church annexed the souls of millions of people in different parts of the world by adapting local creeds, legends and symbols into ones that had a place in the bosom of the church. If this symbolism proves to be arcane to ordinary people using the new church, Makovecz (born and brought up as a Catholic) is satisfied that at least they will recognise its form as being based on a familiar motif that has appeared, noticeably in textiles, in Hungarian folk art for centuries.

This actual construction of such a formally complex building is normally a dialogue between architect, local community and building team. Makovecz is constantly surprised to find that complex structural forms provide little difficulty to carpenters.

'I will never understand how a people

This cultural centre, a building comprising three interlocking domes, is being built at Szigetvar and will be completed in 1990.



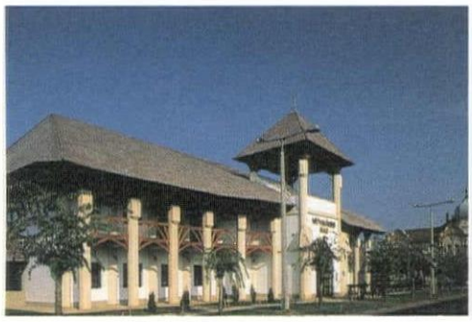


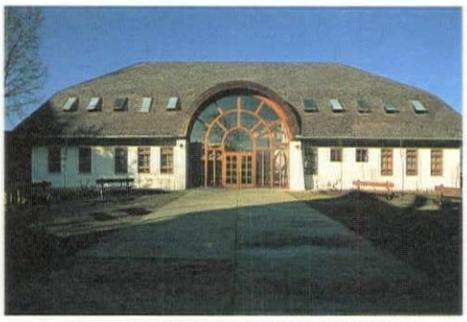
who have been destroyed over the past fifty years morally, politically and financially have still such spirit.'

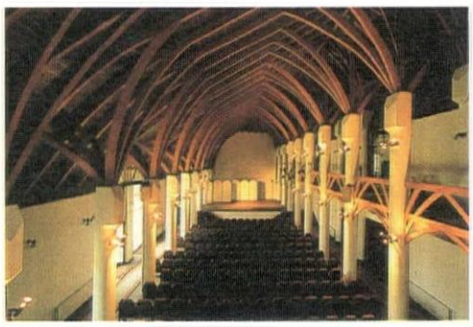
Makovecz now expects local builders to be able to solve their own problems on site. If it appears that there are two possible ways of making a joint he recommends that they make the decision and choose the one they feel happiest with. Bricklayers in Paks earn as little as seven thousand Forints a month (less than one hundred pounds sterling), yet, after years of working on drab, uniform buildings, they say they prefer to work on a project that offers difficulties to resolve and thus intrinsic interest. Because of this enthusiasm the standard of workmanship on the new churches at Siofok and Paks is of an indisputably high order. The bricklayers at Paks say that, yes, they are poor, yet they prefer to work on a difficult and interesting building. Makovecz can only bring them bottles of wine on his visits and admire their indomitable spirit.

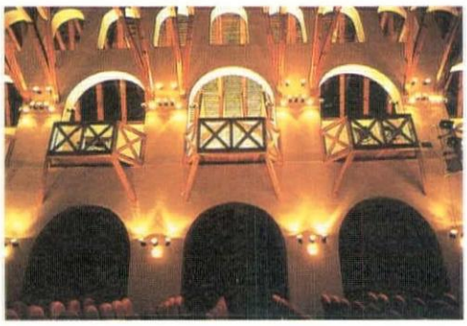
Recently asked to work in West Germany, Makovecz found that he could not rely on the intuition and natural enthusiasm of a capitalist work force which appeared to be just as demotivated as their counterparts in the communist bloc. This means in effect that a Màkovecz building in West Germany would be an expensive proposition as the work force would have to be trained specially to work in natural materials.

To encourage local workers to understand the construction and the poetry of traditional materials, Makovecz now gets local contractors to organise bus trips for carpenters and bricklayers to visit the private houses he is building to see how he means them to build. The idea of these trips came about during the early days of the making of the cultural centre at Szigetvar (destined for completion in 1990). Makovecz's design at Szigetvar consists essentially of three interlocking domes. Construction began hastily for reasons associated with the timing of local authority budgets and led initially to poor workmanship, the irresolution of









Two buildings here show makovecz's stylistic range. The conventional looking cultural centre at Jaszaapati (left) is strongly Mediterranean in its ambience, while the community hall at Jaszkiser (right) is more typically organic.

joints and much cursing on site. By taking workers to see how other Makovecz buildings were made the situation was resolved. To Makovecz this interaction between workers, architect, technique and materials is all part of the social drama of architecture. The positive side of the rows that erupted on site at Szigetvar was that it showed that everyone cared about getting the building right. It is this drama of construction, this involvement with local people and site that makes Makovecz such an arch enemy of Post Modernism.

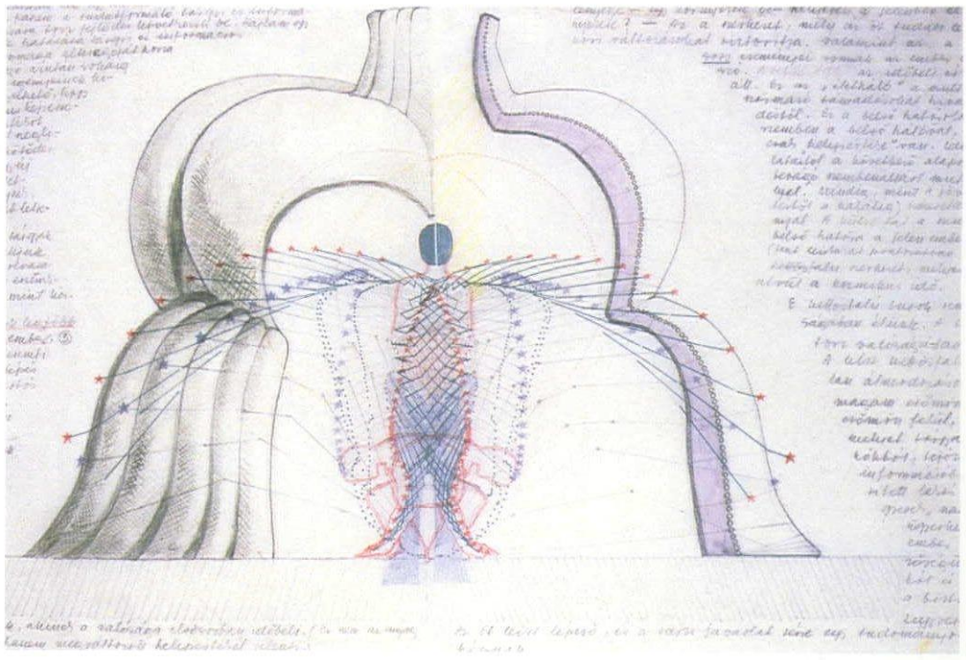
Take the Piazza d'Italia by Charles Moore. Instead of real presence in the process, the architect presents an ironic overview of the site, of the situation. The architect should be fully involved'.

The architect's role is a highly political one for Makovecz. This is because every public gesture in Hungary is seen as a significant political act. But with perseverance the architect can by-pass the procrastination of bureaucratically minded politicians. Makovecz cites the example of the building of the community hall at Zalaszentlaszlo. This building was only able to go ahead because Makovecz won the support of the local people and called popular meetings of the whole village which was able to outmanoeuvre the local authorities. When the building opened, it was to the sound of nationalist hymns. For Makovecz this rural drama was exhausting, yet he would far prefer to involve ordinary people in the architectural process in a poor Hungarian village than sit at drawing board designing a smart new international hotel.

Yet despite his extraordinary record in building a popular community architecture in villages and small Hungarian towns, Makovecz freely admits that his architecture also serves his personal need for architectural expression. The influences that he admits to in his work are diverse and complex, from Jung, Heidegger, Steiner and Frank Lloyd Wright to Celtic mythology and culture. What he searches for in these disparate philosophies and cultures is a means by which he can create a holistic architecture that serves functional, aesthetic, historical and spiritual needs. As such, he is much influenced by the Hungarian philosopher Bela Hamvas. Hamvas, who died in 1968, and could find no more exalted position in modern Hungarian society other than as a warehouseman for a state construction company, was an expert on ancient religions, myths and belief. His strength for Makovecz was in being able to fuse ancient thinking in a holistic fashion with currents in contemporary philosophy and psychology. Like Hamvas, Makovecz rejects St. Augustine's concept of original sin and of any kind of such religious or philosophical dualism. They serve mostly to destroy natural harmony. On the banks of the Danube below the summer camp outside Visegrad where Makovecz teachers and students construct a small building during the summer months from found given by the forestry company materials, you can find a Ying Yang symbol dug out of the stone banks. This was made by Makovecz's students, a symbol of the reconciliation of opposites.

In fusing together the spirit of a place with both his and the popular imagination, in reconciling craftsmanship and contemporary architecture, in reducing the architect's ego and encouraging people how to build creatively for themselves, Imre Makovecz is possibly unique. That, as he puts it, he has had 'to struggle for every line' in a political climate hostile to freedom and only nominally concerned with the interest of the community makes him something of a phenomenon.

IMRE MAKOVECZ
A CAREER



An experimental design (1972) which is the central figure is part foetus, part adult and part animal/fish — it is like an evolutionist's pastiche of Leonardo da Vinci's famous drawing showing the proportions of the human figure.

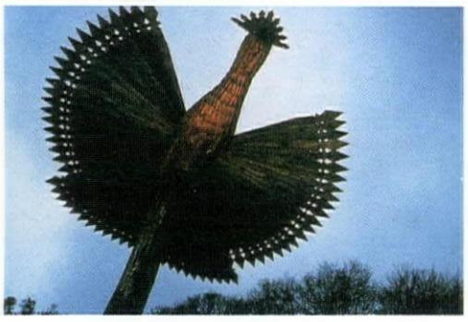
Imre Makovecz was born in Budapest in 1935.

Imre Makovecz has always, somehow, managed to practice an architecture representing and nurturing human freedom since he qualified from Budapest's Technical University in 1959. To have been able to create an architecture owing nothing, indeed contrary, to the spirit of scientific mass production, of faceless building systems, of pre-cast concrete panels, of regimen-tation *throughout* the 1960s, '70s and '80s is an extraordinary achievement. This achievement is all the more impressive given the fact that the vast majority of Makovecz's buildings have not been for wealthy private clients, but for impoverished rural communities, public buildings in villages and small towns.

Makovecz worked in different state offices from 1959 to 1977. During that time his work ranged from the conversion of a ruined monastery in Sarospatak into a hotel, to a co-operative supermarket in the same town, through to social housing. In 1977 he was appointed Architect to the forestry company Bilis. It was in this period that Makovecz's distinctive organic architecture developed its expressive and unique character. Working more or less alone in a small studio outside the monolithic state offices, Makovecz allowed himself the freedom to explore the possibility of a truly Hungarian architecture that was true to nature, to local materials, to the emotional as well as the physical and practical needs of those who used his buildings.

The work in the forests consisted mostly of a network of summer camps. While such projects mean little in western Europe, they are of considerable importance in a country like Hungary where

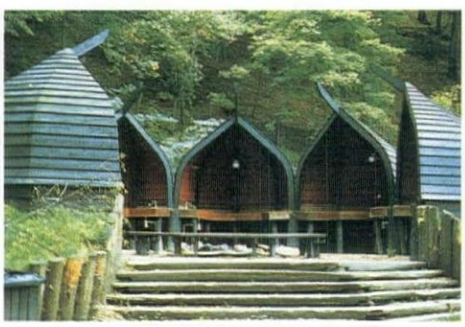
Supermarket at Sarospatak. Designed by Makovecz when working for the State Architectural Office, 1969-70.



Detail of a decorative motif employed on a camp building at Visegrad.

Watch tower built by students of makovecz from found materials. Summer school, Visegrad, 1984.

Farm building at Visegrad.



Kitchen and dining room facilities at the forest camp at Visegrad, 1976.

masses of people flocked to low cost camps in the hills and forests to recharge their urban batteries each year. Rather than building the 1970s equivalent of nissan huts, Makovecz developed an increasingly sophisticated series of wooden shelters that, although powerfully expressive in form were, nevertheless, naturally rooted in the forests. Few buildings convey the idea of *shelter* with such immediacy.

While there have been overt influences on Makovecz's architecture, such as the work of Frank Lloyd Wright (his books were banned in Hungary at the time of Makovecz's training), Herb Green and Rudolph Steiner, his years in the forests high above the Danube saw him return to Budapest fully fledged with his own aesthetic, methodology, ideology and design process in 1983.

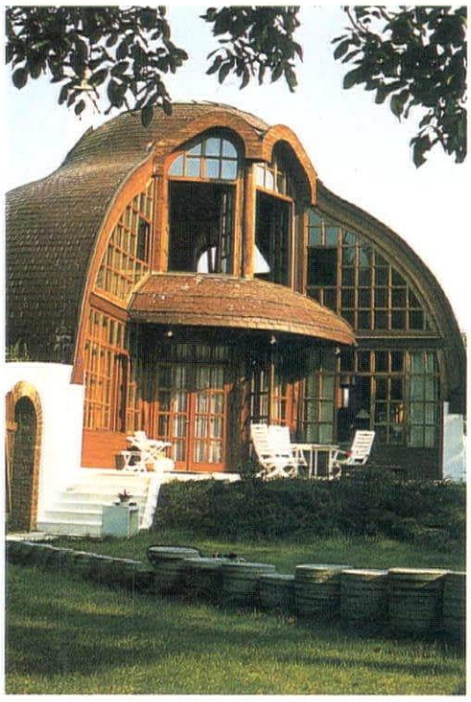
In that year Makovecz set up a private office in Budapest. Today he fronts 'Mankona', a co-operative of mostly young architects - some from other Eastern European countries who have been attracted to Makovecz's architecture as well as to his powerful and endearing character. The volume of work passing through the office is quite remarkable. Makovecz alone has designed and built numerous community halls in far flung villages as well as shops, schools and sports halls, major cultural centres such as the one at Sarospatak and both social and private housing. He is currently building a Roman Catholic and a Lutheran church, numerous houses and community projects.

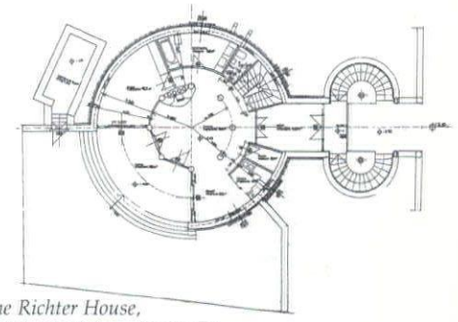
Like the young architects that work with him, and the local men and women who raise the majority of his buildings, Makovecz's prodigious output earns him little money. In the west he would be rather wealthy. But to build the architecture he is committed to, a truly expressive community architecture, a shelter for both the human soul and body, an architecture that feeds on and nourishes Hungarian folklore, collective memories and dreams, an architecture that deliberately presents a diametrically opposed alternative to soulless building systems, he has needed to work at the fringe of Hungarian architecture for little material reward. It might

sound a little pious, but such rewards really do seem to matter little when an architect has carved out a new school of building that is now winning great support in Hungary and increasing attention in both eastern and western Europe and the USA.

Makovecz works with teams of local craftsmen and women and builders. To ensure that design and craft skills are not merely resurrected, but sustained and enriched, Makovecz is setting up a master school of architecture and a master school of building craft. The idea is that young architects will be able to move through six offices rather like medieval journeymen learning a wide variety of skills before settling in a particular studio. Makovecz would like the system, a kind of guild training, to be extended to western Europe, but he fears that young western architects would be unlikely to settle for bed and board in return for the best training that money *cannot* buy. Craft workers will be offered the same wandering guild education. The scheme has the necessary financial backing from the Hungarian steel industry to get it going and the master school for architects begins work in September 1989.

There should be little doubt that the architecture and ideas of Imre Makovecz are making some of the most enduring contributions to a new found culture of freedom in Hungary, eastern Europe and the Soviet Union. His work also suggests how a true community architecture can be an architecture of deep rooted collective consciousness as well as of an individual creativity. Imre Makovecz has described his architecture as "a struggle for every line". A thirty year struggle might have tired this humorous, emotional and deeply intelligent man physically but his indomitable spirit and profound architecture proves that freedom will always beat down tyranny in the long run and that freedom of architectural expression can be best used not to pander to the luxury of the rich, but rather to enrich the lives of the physically, if not the spiritually,poor. □

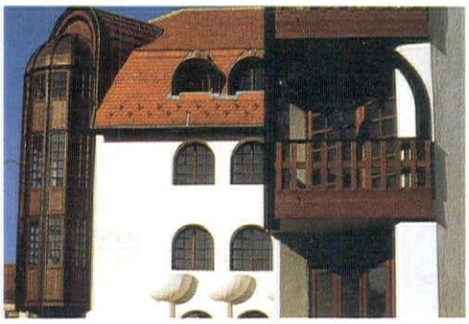




The Richter House, Budapest, 1985 — the heavy lidded windows tend to brood like a semi-submerged animal.

Private house, Budapest.

The use of the tree as a support and the tree as a representation of the outside world is used to great effect on the threshold of this building.



Apartment block in Sarospatak, 1984-7.

REQUIEM FOR HUNGARY'S RHAPSODY IN BLUE

In Hungary, Imre Makovecz's homeland, the Danube and surrounding land is turning sick; it is another assault on Europe's environment.

Many readers of this issue of *World Architecture* will naturally question the validity of the expression 'organic architecture.' They will question whether 'organic' amounts to anything more than a vague label, like 'post modern.' Nevertheless, the term 'organic' suggests an interest in nature and the environment. In the work of Imre Makovecz we can see a commitment to making architecture which symbolises an attitude to life in which the natural world is respected and worked with, rather than opposed, beaten down and polluted.

Ironically, Hungary, Makovecz's home country, is the site of another one of man's more damaging attacks on the environment — it concerns the pollution and misuse of the Danube. Hungary is not alone in misusing the Danube, as we shall see. And neither is it the case that the misuse of the environment is exclusive to the Eastern bloc countries. The West is as bad. But everywhere a combination of bravery, research and a commitment to telling the truth and exposing it is beginning to persuade our political leaders that they must take care of nature.

The key issues affecting the environment are, obviously, economic. The demand for economic growth — more jobs, better housing, better things to buy, more motor cars — depends, in part, on the availability of cheap energy, especially cheap electricity. Generating electricity pollutes the environment unless extreme steps are taken to clean the emissions from power stations. The other major pollutants come from the petro-chemical industries — energy and petro-chemicals are the foundation stones of a modern economy.

We are unlikely to find ourselves — whatever the ideology of our governments — in a situation where people will passively accept a situation of *no* economic growth. People expect things to get better. And, in the 20th Century, progress is equated with having more things. However, if we are to avoid the situation of environmental breakdown — in which the water, earth and air are each poisoned such that poisons enter our bodies at all levels, including the food chain — then a pan-national approach to pollution is essential.

But a pan-national approach depends upon individual countries, individual regions and, of course, individuals taking responsibility for asking questions and challenging, wherever possible, environmentally damaging policies.

Secrecy is a common barrier to improvement. In Britain, for example, many of the rivers are now dead — despite a century of legislation which is meant to have controlled the pollution of rivers. Industry is still insufficiently regulated and worse the public is not allowed access to information regarding the amount of effluent which is being pumped into British waterways. And, in 1985, the French government secret service blew up the Greenpeace boat, *Rainbow Warrior*. (Greenpeace is an international organization which has campaigned successfully and courageously on a variety of environmental issues: it is non-partisan — it criticizes capitalist and communist or Marxist-Leninist governments without fear or favour.) In Brazil some business interests have hired assassins to murder conservationists. And, until recently, the Italian government was very happy for its chemical industry to dump toxic chemicals on unsupervised sites in Nigeria, until, quite rightly, the Nigerian government created a furore and refused further shipments.

And so, what of the Danube, once blue and life-giving to both man and beast; once one of the world's most important natural wildlife centres? It is slowly choking to death in industrial effluent. It's 2,000 miles of once beautiful waterways are now banked by chemical, nuclear, electrical plants all pouring untreated wastes into its waters.

The Danube is caught between political factions down the length of its dying waters. Rumania is fighting a desperate battle to catch up with the industrial revolution, at the expense of both nature and human kind. At Giurgiu, Rumania's major industrial centre, the air people breathe, the water they drink, are all highly contaminated. Across the river in Bulgaria, they have been campaigning to stop the pollution, but to no avail. The national pride prevailed.

The northern border of Yugoslavia is delineated by the Danube, and Yugoslavia is abusing this natural division from its neighbours in just the same ways as Rumania.

Just as the Rumanian people are living under the shadow of economic de-

IAN POLLOCK

pravity, the Yugoslavs are suffering political torment and great poverty. To both countries, the river represents power — electrical power. The Danube used to flow strongly along the borders of Yugoslavia and Rumania until the construction of the Turnu Severin dams, which has tapped that strength and converted it into electricity.

But again, the river, which should symbolize co-operation between the two countries, has proven a source of further aggravation. The pollution flowing down from the industrial sites upstream no longer rushes past, but wallows in the stagnant waters below the dams. Insufficient electricity is produced to satisfy the demands of either country; and Rumania has taken out more water than originally agreed, until the level of water available for the Yugoslavian plants fell below the safety level. The Governments have been so busy arguing over this that they have failed to register a far graver situation: the amount of petro-chemicals which both countries are pouring back into the river.

As one travels down-stream, the after-effects of pollution from the chemical industries can be seen. Belgrade, the grand capital of Yugoslavia, was once sustained by the Danube, but is now suffering from its demise. Fishing was once a major source of income for the locals but now the fish are dying out and their flesh is poisoned by the pollutants. Disease is increasingly rife — all traceable back to the untreated waters.

But until the ecological battle is won upstream between the rivaling countries of Hungary and Czechoslovakia, the environmental state of the low-er reaches of the Danube will never improve. Once again, it is the economic situation in these two countries which is destroying the river: both countries are attempting to make a run for quick economic improvements. Hungary is bowing down under the weight of unemployment.

South of Budapest is the Poksh nuclear site, Hungary's greatest environmental threat. Hungary is concentrating its nuclear industry on the banks of the Danube where fishermen catch their daily wage and birds have bred for decades. The Government now plans to enlarge the plant, making this nuclear site the largest in Europe. Despite Hungary's 'western' awareness, very little information is released on the site or their plans, except for rumours about leaks. Hungarians are worried about this site and environmental groups are campaigning in public but the Government continues to ignore these protests.

The level of water in the Danube is falling as more and more industry takes out the water and replaces it with pollution. What will happen when the levels fall so far that the cooling towers can no longer work efficiently?

But such questions fade into relative insignificance when compared to the Hungarian/Czech plan for a new dam project, one which will destroy the last vestiges of the blue Danube. Concern is now world-wide for two reasons, firstly the environmental issue and secondly that Austria is financing the project.

The scheme is to build a 40 mile long canal along the borders of the two countries and to divert the waters of the Danube into this canal. This would then create an enormous reservoir and provide ideal sites for a network of much needed hydro-electric power stations. The Czechs are defying international protest, claiming it is too late to back down now although the scheme is totally illogical. They would be paying Austria back in interest and in electricity for the next twenty years, thereby not feeling the effects of any benefits the scheme may offer for a long while yet.

But what about the environment? The damage will be wide-spread as tributaries dry up too; rare forest areas will be drowned or parched to death, as will the wildlife which rely on the river for their existence.

Austria has backed the scheme with the funding and equipment which went to waste when their own scheme was forced down by environmental protest at Haimburg. It took the death of a protester before the Austrian Government withdrew plans for the building of a dam at that site. Hungarian protesters need all the support they can get from those victorious Austrians and from the rest of the world if they are to put a stop to this horrifying project devised by their leaders.

But even if they win this fight, there are many more battles to be fought before the Danube can hope to flow free again. Farmers are using crude fertilizers on the soil which then run into the river, and downstream new industrial sites are constantly being erected in the East's attempt to challenge the West. Unfortunately, the Eastern block countries are making the same mistakes as the West in regard to pollution.

As far as the Governments of these countries, struggling under economic and political strife, are concerned, industry symbolizes new wealth and future prosperity, but what will the future be without health, without a thriving natural environment?

Before any major developments can be made there must be communication between Eastern countries and between East and West. To date, we know very little about Eastern bloc industry and Governments will be unwilling to admit to environmental issues as this will consequently affect the political and social status of Eastern block countries and they would be forced to alter their schemes for industrial progress.

'Green' awareness is on the increase, but without a great deal of support it is now doubtful whether the Danube will be saved before it turns into a sluggish open sewer. □

Note

Since this article was written, there is news that Hungary has ordered work to be suspended.

Environmentalist, and co-founder of The Danube Circle, the group which has campaigned against the dam, Janos Vargha, is pleased with the announcement, but not over-optimistic about the eventual outcome. Until Czechoslovakia also withdraws from the £1.5 million($ 2.5 billion) project, the fate of the river is in question.

REVILING COMMODITY ARCHITECTURE

Professor Carl Aubock urges a change of attitude among architects — away from the flippancies and cynicism of stylistic preoccupations.

Population growth on the Earth towards the end of this millenium has created a situation that could easily be compared with the eve of any revolution — only much more dramatic. Adequate, satisfactory shelter for the majority of the people in the world appears so much out of reach, that nobody should be surprised if their despair and misery will lead to a socio-political pressure, if not explosion, of an unforeseeable magnitude.

Planning for the real problems and needs in the man-made environment — including housing — in a fast changing world means an almost endless process of new definitions of them. In most cases, the actual users of new environments unfortunately have very little or no influence in planning processes. Trying to improve this rather unfortunate situation will inevitably lead to new aspects in architecture that will indeed have very little to do with the traditional, academic image of it now.

To the extent that we confine ourselves to space created for the daily use of people, we have come to realize that while the basic rules of architecture may not have changed, their context has changed greatly. As we know, the traditional, historic background within which the architect-client relation worked provided intimate contact between planner and user. This relationship ceased to exist a long time ago.

It is apparently impossible for today's architect and planner to become intimately acquainted with the specific needs of five thousand or five million people. Furthermore, there is no channel through which he can make his needs known. Now, if he has few real choices, if he has no effective way of making his needs known, if the real decisions affecting his immediate environment are made by remote, anonymous committees concerned with everything but the user's real needs, planners more often than not arrive at the point where the only possible architecture seems to be the one dictated by financial or political speculators.

In such situations, where architects more and more become a 'quantité negligeable', the real relations between architecture and real life, which could be positive, liberationist and creative are perverted by the pressures of 'success' or of architectural egos.

An architect, if he wants to survive as a professional, therefore must assume a dual responsibility: social and personal. Can these two responsibilities be compatible and complementary? If he really claims to be one of the few elements in the development chain for the improvement of the environment that is concerned with the needs of the user, and if he has no way of establishing contact with him, how does he design? For whom, in reality, does he design? The answer obviously depends to some extent on the architect himself. If he has eyes and ears open and his antennas out, he simply cannot help seeing the situation in its depressing clarity: the almost universal timidity of decision

TIM VYNER

makers, their general lack of convictions, concepts or values, the widespread tendency to see architecture as another off-the-shelf commodity, rather than the vital process it is.

The concerned, committed and advocative architect usually being very much alone with his convictions therefore has little choice in the future than to become more involved than before with the people. He has to learn the to sense their needs, attitudes, and problems. He has to try to figure out what is real and what is not. He has to learn what is common to people and what is specific. He has, in a word, to become more human if he is to get on with his work, simply because he has no other choice.

The larger segment of the urban population lives not where and how it wants to, but where and how it has to. Moreover it seems to be in human nature that although we are not at all sure what we want as a society, we do seem to be sure that we want it at a bargain price. Concern for meaning and dignity, concern to elevate and celebrate life seems very remote. Unfortunately, this is the climate in which the committed architect usually has to work. Sullivan has said in a free transcription that we design what we were and we were what we designed.

Somehow, in spite of all existing complex difficulties and constraints — perhaps just because of them — and totally independent of material limits — the urban environment and the housing in it must provide benefits and opportunities for the majority. Architects and planners who can translate a society's needs into a meaningful vision, and the politicians and leaders in the community who can establish the necessary means to put them into reality must collaborate to this end or they will prove to be quite useless.

In this important process of development it appears inevitable to involve the future users of the man-made habitat, especially in the area of housing, much more than before. The active participation of the inhabitants and users in the future planning processes, self-construction building systems, and also in the maintenance of their immediate environment will become more and more important. This not only will facilitate the avoidance of planning mistakes and thus serve the needs of users better than before, but will at the same time provide a new and better economic basis for a realistic approach to financing infrastructural improvements otherwise hard to achieve. Let us not forget that our cities need to be places of inspiration and stimulation that permit both privacy and community; centres of human thought and achievement that allow men to develop fully as an individual; they even need to be — though it is hard to believe nowadays — places of beauty.

It now seems to be clear that the problems of the human habitat certainly do not concern only the professionals involved. The role of the individual client has to a great extent been replaced by the public and the justified interest of the public in all planning matters regarding the environment. Consequently, politicians, administration, but most of all individual citizens are much more concerned than before with all the problems of the habitat and will — together with the architect — have to qualify themselves better for their roles as decision makers in important planning decisions.

Architecture in our times — whether we like it or not — is a social art. Consequently, the architect must be able to assume a vital role in reshaping our physical environment. It seems specially fitting to remember today that a primary emphasis of the modern movement in architecture was the expression of a new and better life for the many: the vision of a social promise. Yet, the architect's resignation, or — even worse — the 'star architect's' cynical flippancy. Our space explorations show that we have mastered a technology which could well be applied to improving our physical world. However, the establishment of better planning in relation to our potential alone would not alter our basic values, values that compromise irrevocably the larger intentions of architects.

There can be little doubt that architecture in our times more than anything else seems to reflect and almost symbolize not only the standard of the quality of life in different regions, but also the hopes and aspirations of man, his ability to improve his conditions or his failure to do so.

The human habitat and indeed the context of the society we are living in would be incomplete without the element of advocative architecture as a significant factor for the man-made environment.

Therefore, extending the economy of means principle to a moral level is to reaffirm the ageless idea that truth is beauty. This is certainly a guide for the employment of the materials and techniques that our past and present — in an age of advanced technology — has provided us with.

Thus architecture — in the context of the human habitat — cannot be seen as a 'thing,' a mere commodity. It is a vital process through which technology and myth acquire form. We're beginning to learn again that architecture is a total social activity, not a collection of narrow specialities, and that it is an absolutely undistorted mirror of every society. If the lack of capacity to deal with our social problems — especially the habitat — is part of what we really are, architecture is the process that mercilessly makes this reality manifest and visible.

Therefore, the future of the habitat, good or bad, will be the direct result of the planning efforts of today. It will be up to the decision makers and their sense of responsibility to provide the kind of environment and habitat for the community that will truly add to the quality of life.

A clearer perception of the real needs and tendencies in the present and for the future will, no doubt, enable the concerned architect to make an important contribution to the new concepts of the habitat in which community spirit, environment and indeed architecture will very much determine our existence. □

on the subject of
CONSERVATION

Juan O'Gorman recounts how an act of vandalism destroyed a unique example of Mexico's modern architectural heritage.

In 1947, I bought a plot of land comprising two thousand, one hundred and sixty square metres, situated at 162, Avenida San Jerónimo, in the suburb of Pedregal de San Angel. These conditions were ideal for creating a house where imagination and fantasy could play a major part in the architecture. I began to build this house in 1948 and finished it in 1952. As well as being a home for myself, my wife and my daughter, its main purpose was to be an experiment in architecture in keeping with the lava rocks of the Pedregal in the background, thus preserving a garden of tall trees and plants characteristic of this zone between the house and the street.

Another aim in building this house was to integrate the architecture with the other plastic art forms; painting in mosaics of natural coloured stones and sculptures covered with the same stone mosaics. At the same time, the house was built from plans, the simplest possible, which resolved its utilitarian function. I had to carry out this project as economically as possible as my financial resources were limited and this undertaking was only possible thanks to the very modest price of the land.

Now, to elaborate on my theoretical base, I must briefly set out the principles stated by the great North American architect Frank Lloyd Wright, whose ideas on the subject explain this creative process of architecture. *Organic Architecture* means the relation of form, colour and material between the building and the visible landscape surrounding it. Within this concept, architecture becomes the vehicle of harmony between man and the earth. In addition, organic architecture endeavours to bring up to date the architectonic tradition of the region where it is being employed, thus becoming the vehicle of harmony between people who share the same tradition. These concepts are based on the relation between geography and history and culture, and represent a continuity in humanist thinking which, through its very nature, rejects concepts of commerce and fashion in the aesthetic expression of any kind of art at any time.

For my modest experiment, I felt it was necessary to observe the character-

istics of the Pedregal within whose rocky zone the little structure of the house was to be built. If you looked down from an aeroplane and saw the petrified sea of lava produced by the eruptions of the Xitle, you would see that the molten rock had solidified into curves as it cooled, resting on the different levels of terrain. These curved forms told me that the plans of the house should have curved lines. On the other hand, if you look at Pedregal as a landscape from the ground, you see craggy peaks and irregular curves. Often, silhouetted against the sky are fantastically-shaped, sharp-pointed pinnacles of stone. The chiseled and aggressive shape of the landscape determined the appearance and the character of the house which, on becoming geometric and human, acquired a fantastic quality, especially the tops of the walls which form a jagged outline against the sky. The living room of the house was formed partly by a lava grotto (the quarry from which the stone used in the construction was taken) and partly by architectonic elements which, I felt, harmonized with the hollow form of the interior space.

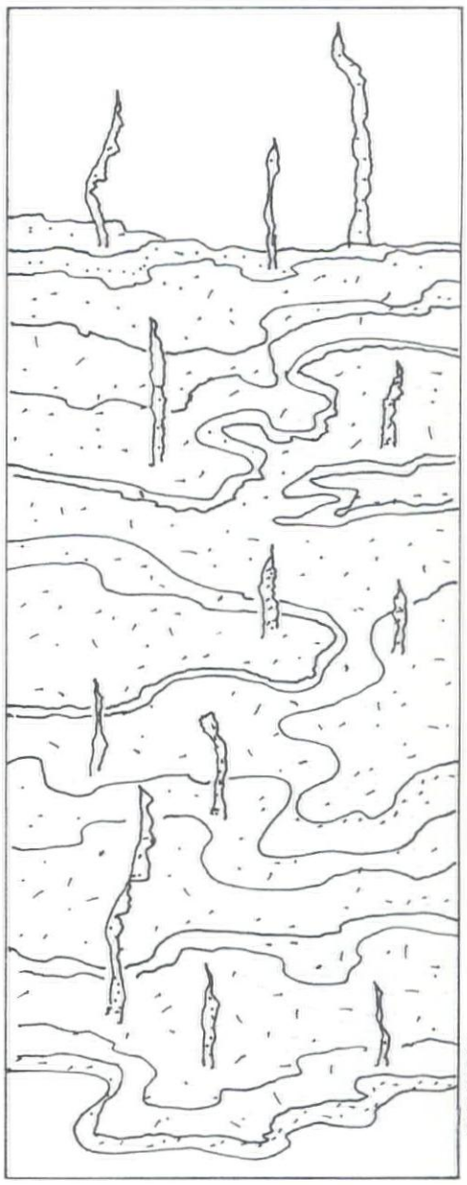
Over the centuries, deposits of fertile soil have built up in the cracks and hollows in this sea of stone, where a regional flora has established itself and become an integral part of the Pedregal landscape. The mosaics of natural coloured stones on the walls of the house, both inside and out, are the architectonic equivalent of this flora, as the metaphor in poetry corresponds to the reality it expresses.

This experiment in organic architecture was a protest against the academic fashion which is dominant today in Mexico and is evident in the so-called international style buildings. This house was built with the primary purpose of being a howl of protest in favour of humanism in the mechanical and technological desert of our 'wonderful civilization.' This house was obviously the realization of one of so many possibilities for original and creative architecture, in complete opposition to the academic concepts of the architecture of our time, and in my opinion it was in this that its aesthetic value resided.

In 1969, I had to sell this property for personal financial reasons, and the person who bought it, having promised to preserve it, destroyed it unnecessarily. That was the end of this work of art, which included ten murals of natural coloured stones, sculptures of two giants which were part of the facade and others which formed the crests of the walls, which I made with my own hands.

There was only formal one act of protest: it was the critic and art historian, Dr. Ida Rodriguez Prampolini who expressed her disagreement and outrage for this act of destruction. She spoke on the local television station run by Jacobo Zabludovsky, who personally welcomed this protest with enthusiasm. Recently, Doctor Rodriguez herself wrote an article entitled: 'Crime in Juan O'Gorman's House: proof of cultural under-development' in her book *A Decade of Art Criticism* . A few paragraphs from her article are cited below:

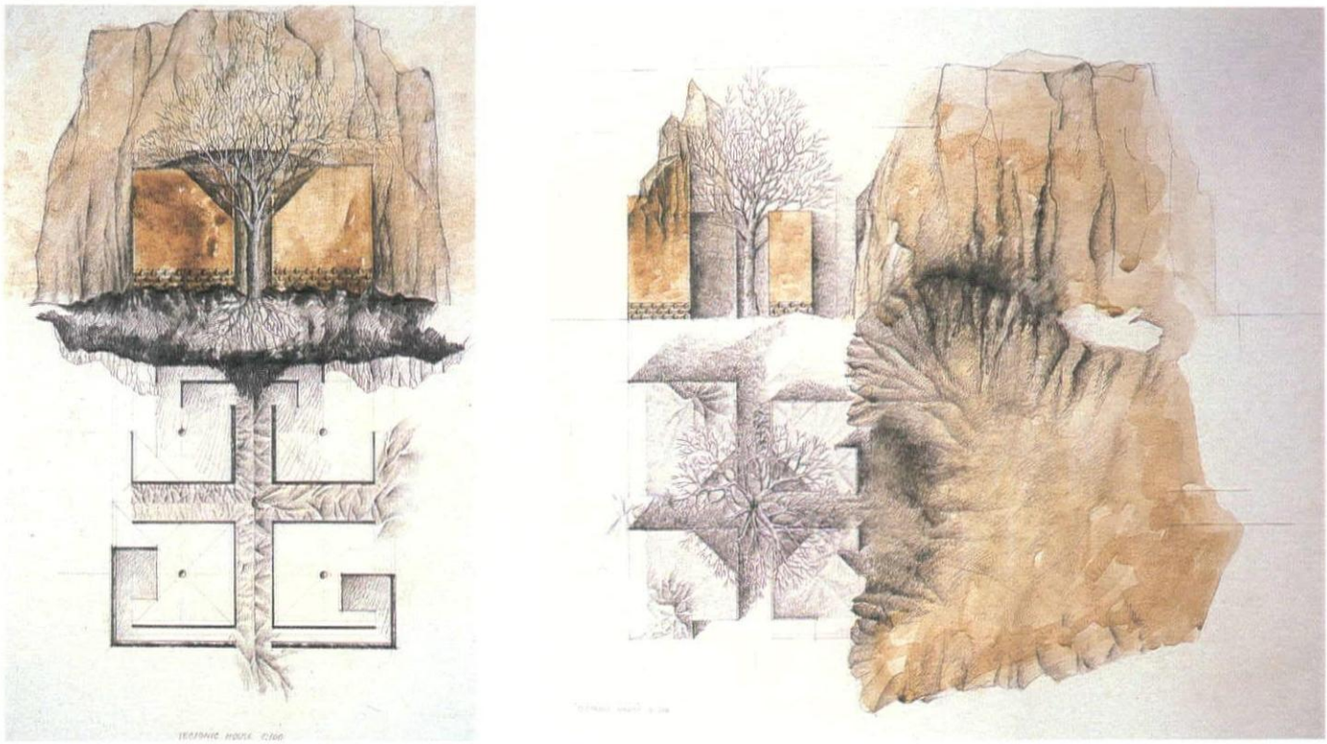
'When there are powerful and unavoidable reasons in the interests of the community, of well-being or progress, destruction can be justified; but to destroy an historic and artistic monument out of pure self interest is nothing other than pathological. The fact remains that it is an act of savagery against Mexican art. The moral and cultural underdevelopment of our civilization is an offence against the life of people, animals and trees; against ideals and sentiments. Why destroy art and beauty? Who should one turn to in the case of Juan O'Gorman's house? To the Mexican President? To the rector of the University? To the art critics? To the architects and artists? In the face of general indifference, the only resort left as a citizen was to create public protest, although the shouts fell on deaf ears and only created enemies. Until people learn that it is impossible to build on a base of vandalism, we will not become emancipated from under-development.'
Arquitecture/Mexico , No. 112, 1977. □



JOHN MARSH

THE METAPHYSICAL SKYSCRAPER

Corrado Minervini uses drawing to explore the emotional landscape of architecture.



Two drawings from 1985 and the beginning of Minervini's current work. Executed in pencil and watercolour on paper

Corrado Minervini is an Italian architect currently studying and teaching in the department of architecture at Tongji University, Shanghai, China.

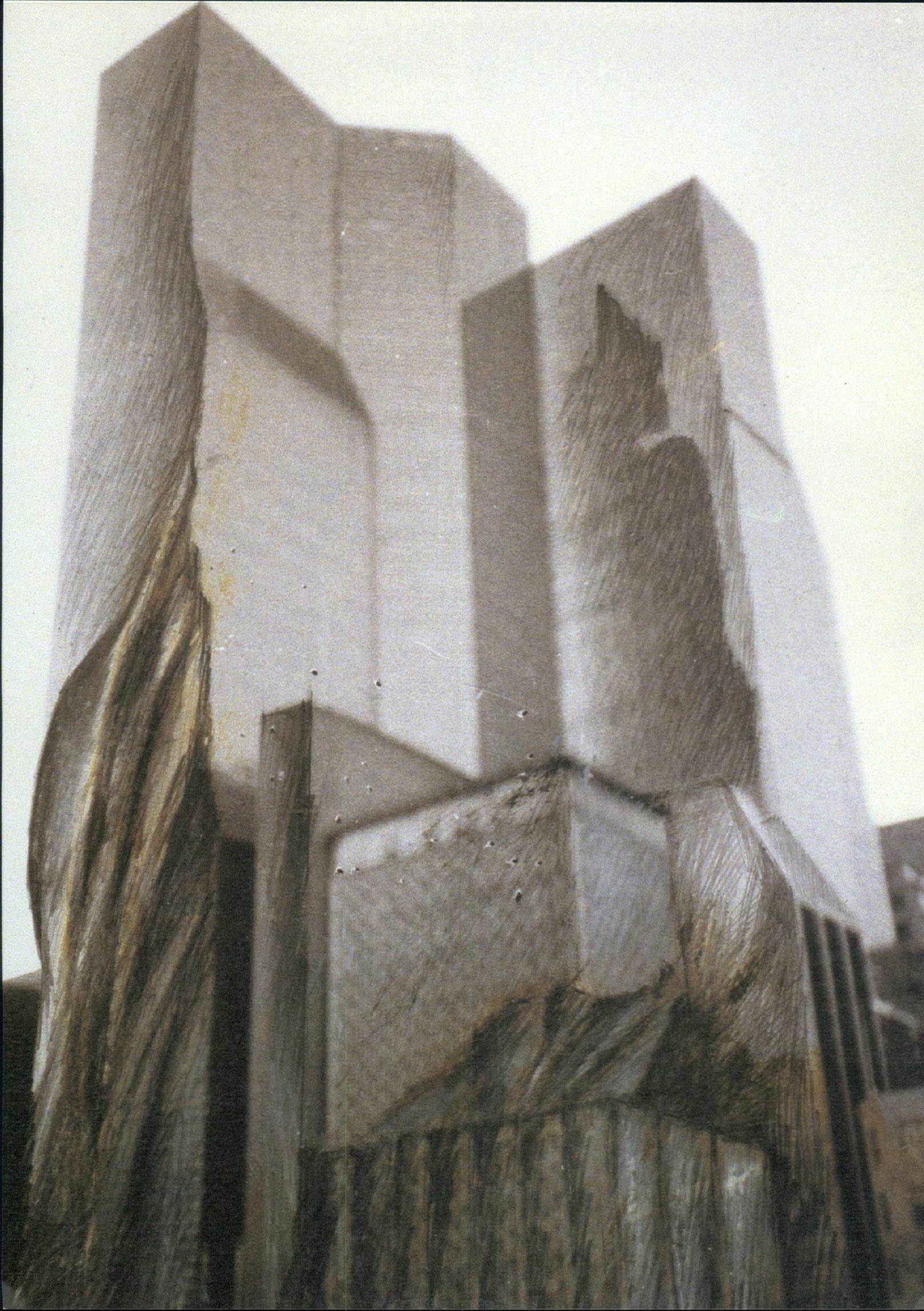
For some years he has been engaged in extending the possibilities of drawing in architecture and, taking sustenance from a number of sources including the conceptual art of the late 1960s and the later developments in *Arte Povera* , he is embarked upon a project concerned more with the metaphysics than the physics of architecture. There are shades of Giorgio de Chirico in his work.

Minervini describes his 'art' as a 'means of performing architecture by drawing, sketches, photographs and writing notes.'

He is engaged in a process of constructing metaphors. His work has roots in the Italian art movement *Arte Povera* . As art critic Caroline Tisdall explains, *Arte Povera* was born in the late 1960s in the hiatus that followed the post-war industrial boom in Italy. Germano Celant, a critic, said in 1968, 'The artists believed that the crisis and discontent of civilisation were caused by their ties with the past and an indifference to the desires and precariousness of life.'

Arte Povera artists hoped that the use of 'worthless' materials such as soil would avoid the traditional idea of art as a commercial product. And the immediate precedents of *Arte Povera* , are found in the work of artists such as Lucio Fantana and Alberto Burri. 'They were,' says Tisdall; concerned with the materials of art as direct conveyors of experience, rather than as indirect filters of reality.'

In a similar way Minervini seeks to create an architecture of direct experience, not through the solid form of building, but through these drawings. Minervini says, 'drawings, sculpture, painting, writing and photographs, can together move towards architectural *sensibility of a place or a landscape* .' □



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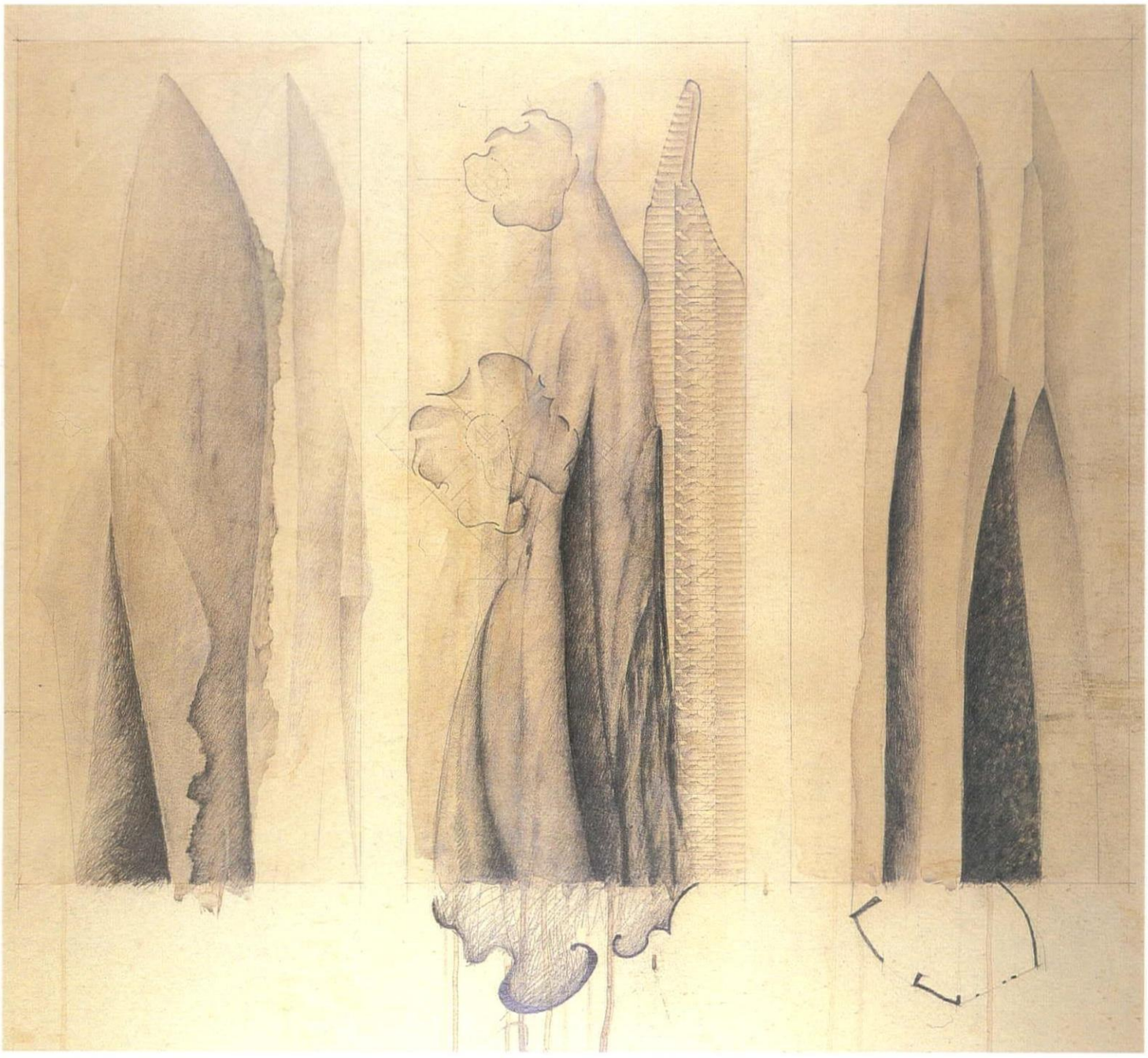
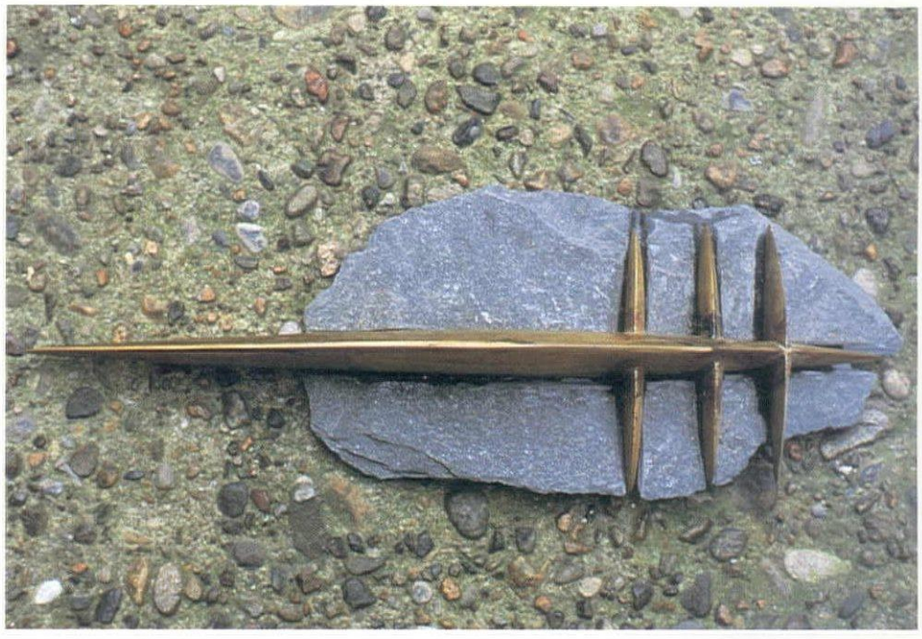
Studying Tectonic Skyscrapers *(1987)—Elevations, cross section in pencil and watercolours on paper. The possibilities of biomorphic Architecture hinted at here and in other drawings by Minervini allude to the increasing breakdown between the notion of man made versus natural, and mechanics versus biology. What is intriguing about Minervini's work is the redefinition it offers the city as a genuinely organic entity; accidentally, for it is unlikely to be intended by Minervini, he has also re-invented the Gothic. We are caught by history again.*

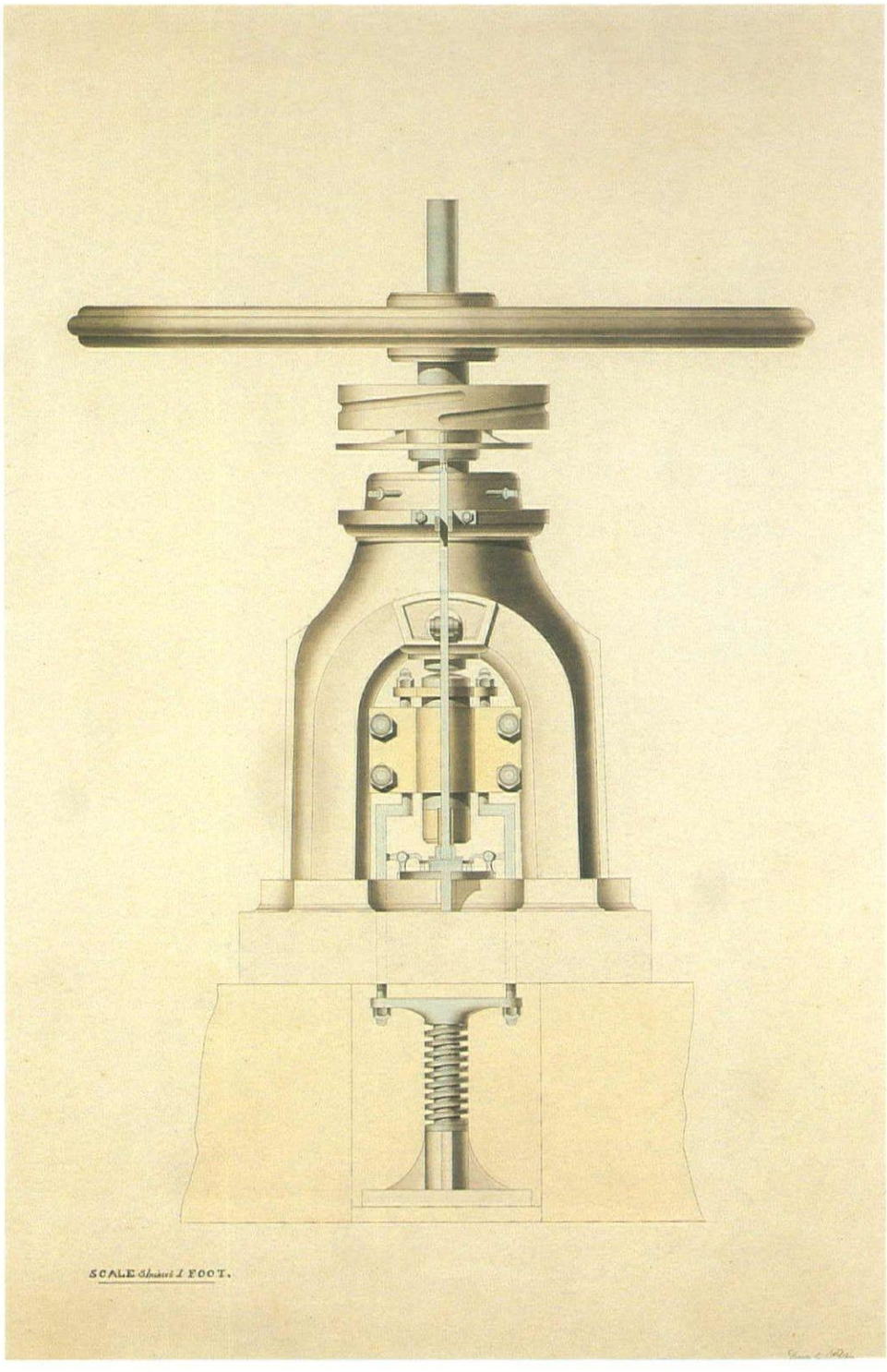




Stones and Bronzes (*1988*). *In this work the recipes are clear; nature and art, the found object and the wrought one. Sculpture on this scale allows the architect to explore the simpler nature/art vocabulary with a directness rarely now possible in the city.*

THE FLOWERING OF THE MACHINE

Yu Chee Chong, art historian, considers the art of drawing the machine — an art which reached its apotheosis in 19th century Europe. This was a time when 'art' and science had not yet parted company and machines were perceived to be as natural as flowers.



C.P. Dobree, c. 1840. A coining press invented by Mr. Hague.
This large and very highly-finished presentation drawing was possibly used for patenting purposes. Mr. Hague was responsible for inventing a minting plant powered by steam. A contemporary engraving in the Encyclopaedia Metropolitana records the astonishing appearance of the whole plant. It shows a battery of such presses arranged around the steam engine which is housed in a Brighton Pavilion Gothic folly.

The astonishing beauty of mechanical engineering drawings from the 18th and 19th Centuries will be a revelation to those expecting to see boring technical diagrams of pumps and locomotives. Drawings from this period are characterised by artistic personality, excellence of draughtmanship — and colour. Exquisitely drawn, the machines are depicted with a realism that makes them almost 'natural.' The comparison which springs to mind is botanical studies where plants are realistically depicted, with their individual parts separately delineated with careful precision. Clearly, art and science had not yet parted company and machines were perceived to be as natural as flowers.

Starting as a craft, the drawing of machines has become today a sophisticated computer-aided science. The earliest drawings with engineering content were in the form of rudimentary sketches by craftsmen such as the 13th century stone mason Villard de Honnecourt whose fascinating sketchbook includes designs for a mobile angel and an articulated eagle. The discovery of mathematical perspective during the Renaissance changed forever concepts of picture-making which had far-reaching consequences for the history of art. The most celebrated scientific drawings from this period are undoubtedly Leonardo da Vinci's empirical studies of nature, experiments and inventions, although they are more accurately described as technical illustrations rather than true engineering designs intended for production. Later artists-architects of the Renaissance — like Alberti, Bramante and Raphael further refined the logical graphic system and used plans, sections and elevations to consistent scale.

The graphic language which developed specifically for engineers owed its origins partly to architectural drawing but also to earlier influences such as naval and military draughting and cartography. By the 18th century, engineering drawing can be said to have emerged as a separate graphic discipline with a style combining scientific clarity and aesthetic qualities. It is interesting to note that at this period scientific and technical pictures appealed not only to practitioners but also to the educated public. Prints abounded in the scientific journals and scholarly treatises that were published throughout the 18th century in England and France.

Foremost among these publications were Diderot & d'Alembert's *Encyclopedie* published between 1751 and 1765. This monumental tome reflected the ideals of The Enlightenment in its attempt to record and categorize every facet of human endeavour in the arts and sciences. Its recipe of ideology and technology made it an important catalyst of revolutionary opinion which did not endear its authors with the government of the *Ancien Regime*. The 3,000 or so beautiful engravings in the book illustrate the multifarious aspects of arts and crafts, manufacturing and trades, engineering, etc. They are presented in the form of composite plates of images treated both realistically and diagrammatically in separate compartments; thus the upper half may contain a general view of a man at work while the operative parts of the machinery and tools used are shown separately below (following much the same format as contemporary botanical studies).

A veritable army of learned scientists and artists contributed to the production of the *Encyclopedie* which comprised 28 volumes in total. Louis Goussier (1722-1799) was a typically talented contributor whose work on fire-fighting schemes and hydraulic projects exemplified the spirit of inquiry of the period. His illustrations in the *Encyclopedie* use the conventions of architectural drawing — plan, elevation, section and isometric projection. The firm outlines in pen and ink enclose carefully laid washes and shadows are cast by each object for realistic effect. An alphabetic key with text was used to further explain individual elements in the image.

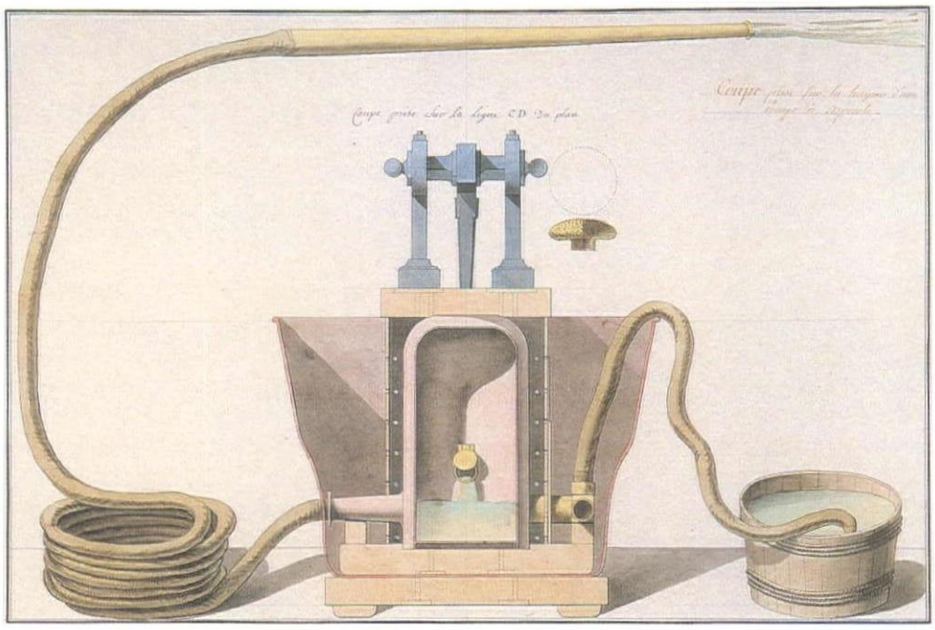
There is no doubt that the *Encyclopedie* was highly influential in the development of a pictorial language for depicting technology. Inevitable with the increasing complexity of machines, its elegant, illustrative technique became redundant. However, Diderot's and d'Alembert's great work remains the perfect pictorial survey of the state of industry during the epoch immediately preceding the next great change in the history of technology.

The Industrial Revolution which began in the late 18th century onwards derived its impetus mainly from the invention of steam power and, not surprisingly, many engineering drawings of that period feature steam engines. In response to more exacting needs for accuracy, mechanical engineering drawings became more precise and coolly logical. Banished from graphic vocabulary were the charming devices of including human figures to demonstrate the operation of machinery and incidental background features to encourage the illusion of reality. Machines were now starkly presented out of context and drawn very precisely to a scale.

Drawings from the Boulton & Watts archive in Birmingham are among the first recognizably modern engineering drawings; several graphic conventions were introduced by these famous pioneers of steam power which continue to be used in engineering to the present day. For example, a more methodical colour code is used to indicate a certain function or material — blue for wrought iron, grey for cast iron and yellow for brass. Other techniques aimed towards clearer explanations of ever-complex engineering were used by 19th century draughtsmen such as the exploded diagram or the cutaway to reveal the internal workings of machines.

As engineering drawing became an essential tool to industry, so the importance of graphic training began to be recognised. The French emigré engineer Marc Isambard Brunel (1769-1849) insisted that his son, Isambard Kingdom Brunel, should from an early age learn both the alphabet and drawing to equal proficiency. The teaching of engineering drawing became an essential part of the curriculum not just in France but also in England, starting with the Mechanics Institute founded by Birkbeck in 1828, and in Design Schools

18th century project for firefighting equipment attributed to Louis Goussier, one of the contributers to Diderot & d'Alembert Encyclopedie.



established at around the same time in Germany.

In France, the Ecole Polytechnique, founded in the late 18th century by the military engineer Gaspard Monge, increasingly encouraged the pursuit of theoretical inquiry in which draughtmanship of a rigorously high standard was a vital requirement. State-encouraged teaching and publication of technical textbooks ensured the wide dissemination of new ideas on methods of engineering and drawing. French machine drawings of the mid-19th century reveal the strict academic training that engineers/draughtsmen were subjected to which also explains the uniformity of style and technique used. Drawings from the latter part of the century display greater freedom in technique and much stronger colours — possibly echoing parallel developments in fine art.

The great proliferation of engineering drawings in the 19th century points to a wider range of their uses other than the traditional ones. The primary purposes of such drawings are theoretical; as a design tool and as a medium for communicating ideas and information where words prove inadequate. Many surviving engineering drawings are in the form of presentation drawings to show clients or patrons how a project would look in its finished state. Other presentation drawings were for the purpose of accompanying legal contracts for shipbuilding and the like, and to patent inventions. The exploration and experimentation of new design concepts through drawings, thus avoiding the cost of producing the actual article, was of increasing importance to industry.

The most revolutionary extension of the functions of engineering drawing came with its incorporation into the production process itself; accurate, scaled drawings were a means of controlling every detail of production. The consequence of this was that the process of thinking was separated from the process of *making*. Thus engineering drawing can be said to have been partly instrumental in bringing about the division of labour and organisation of industry which was to change the very nature of our society.

For the collector of early engineering drawing, the enjoyment is threefold. Firstly, the aesthetic pleasure of viewing an object of beauty and the consummate craftsmanship which brought it into being; secondly, the intellectual fun in 'reading' the image and understanding how the machine works; thirdly, a sort of historical voyeurism — observing the varied changes in styles and technique which in turn reflect the changing perception of this subject over the last 200 years.

Much of the visual appeal of early engineering drawing lies in the subtle balance between realism and abstraction. The machines themselves are solidly and convincingly drawn so that their bodies seem to hum with an inner life, yet placed in the centre of the sheet and isolated from their context they have an abstracted appearance, reminding us of silent, science fiction creatures. Forgetting their practical origins and viewing them as pictures, the technological subject matter conveys a feeling of strength and power, enhanced by the creative energy which comes from the inherent function of these drawings as design tools. Less subtle pictorial methods that conveyed the sense of immediate realism and power are trains enthusiastically puffing out smoke and water issuing from pumps.

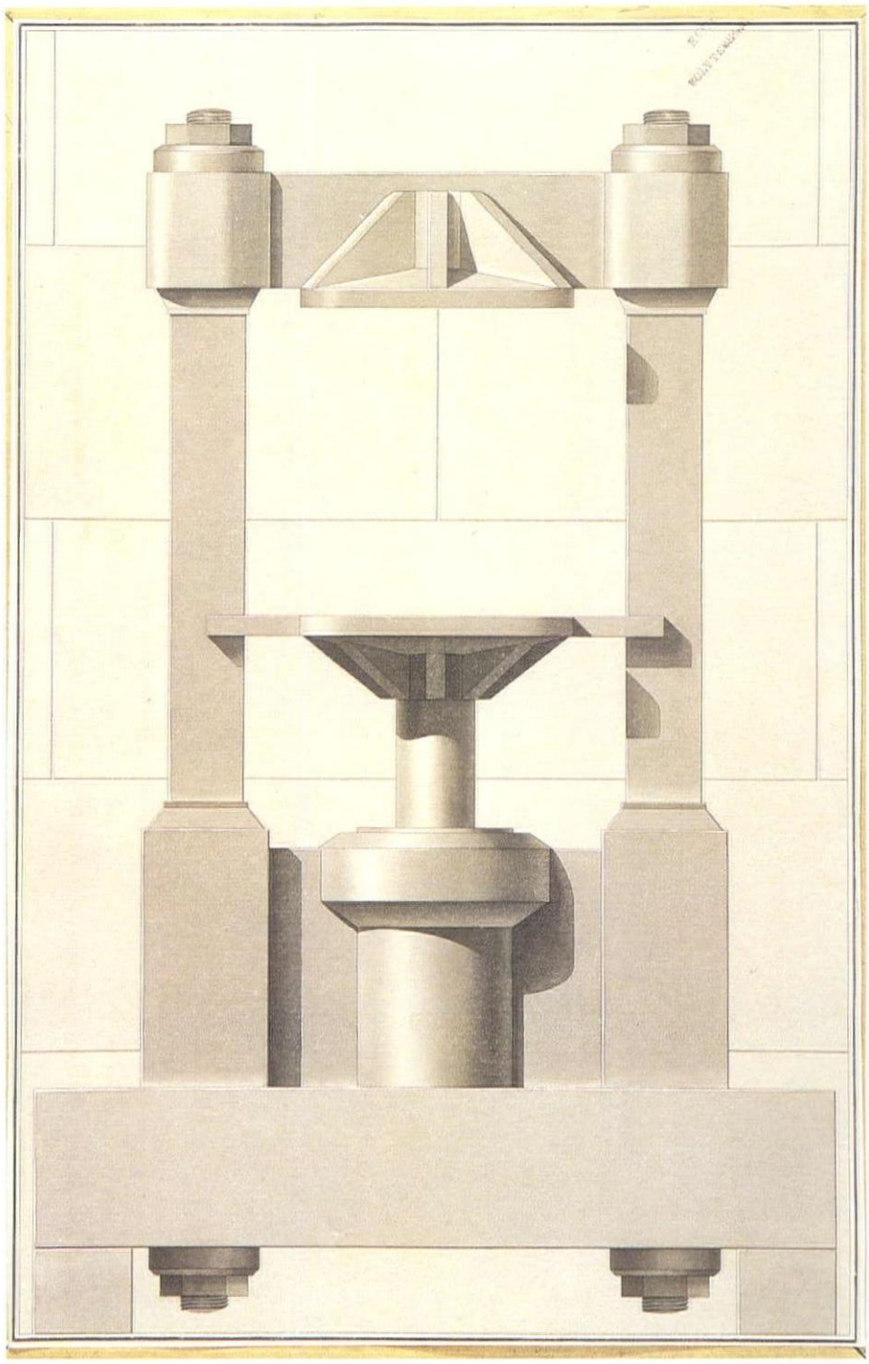
19th century technical draughtmanship was a craft, if not an art in itself — the obsessional perfection of technique is a joy to behold. The washes are so subtly graduated that it is difficult for us to imagine how it could have been achieved without an air-brush. The 19th century engineer took such pride in his skill that these virtuoso feats of drafting were not confined to presentation pieces but also to drawings for his own use. This pride in craftsmanship is demonstrated in an inscription on a drawing which has survived by an early 19th century English draughtsman by the name of John Nuttall: 'Making of this kind of work I was in my glore.' Incidentally, this pride in achievement is the main reason why most of the surviving engineering drawings from the 19th century were either given to public museums or proudly retained in company archives.

The fact that early machines were relatively simple makes the drawings easier to 'read.' The use of ornament, especially of an architectural nature such as Doric columns and Gothic tracery, served to enhance the legibility of the images to the 18th and 19th century viewers. However, a reciprocal rela-

tionship is implicit in that the drawings express the artistic sensibility of the period. This close cultural relationship explains both the realism and technical excellence of draughtmanship of this era.

Machines in our day are so complex that tens of thousands of drawings are required for a single new machine, and more often than not they are made with the help of computers. The style and technique of drawings has changed completely in response to the needs of a highly sophisticated industry; thus the graphic code was rapidly reduced to an abstract system of standardised symbols incomprehensible to all except specialists. Colour in engineering drawings more or less disappeared after World War II for reasons of speed and economy and the need to reproduce them by blueprint of photocopying (ironically, computers have to a certain extent revived the use of colour). Today's engineering diagrams (as they now are) have to be clear and capable of unambiguous interpretation by specialists, so that a car, say, may be produced in five different countries using the same plans. Inevitably the notion of hand-drawing (except on the backs of envelopes) will soon be obsolete.

Clearly, engineering drawings embody the aesthetic sensibilities and technological ideals of their age. In the 18th and 19th Centuries, technological progress was cherished as an intellectual triumph and a means of improving the world — a perception which has been greatly modified in our times. Although we may be disillusioned with the naivety of their Utopian vision we can only be grateful for the romantic idealism which has left us a legacy of fascinating and beautiful documents of our industrial and artistic history. □



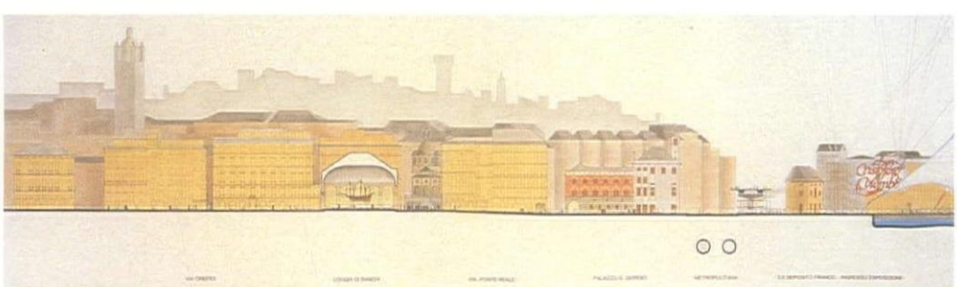
French, latter half of 19th century. Student exercise in shading for Ecole Polytechnique.

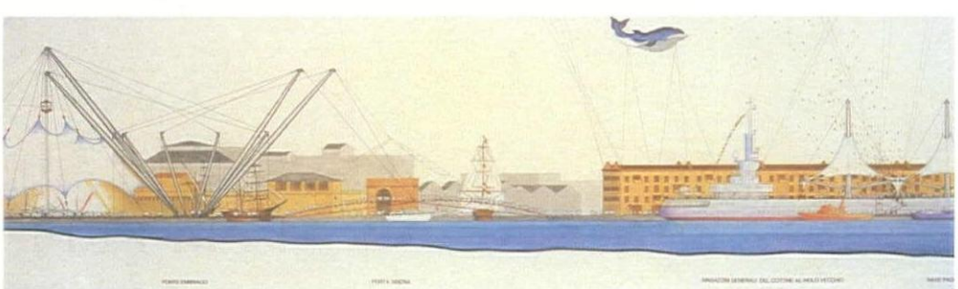
Note

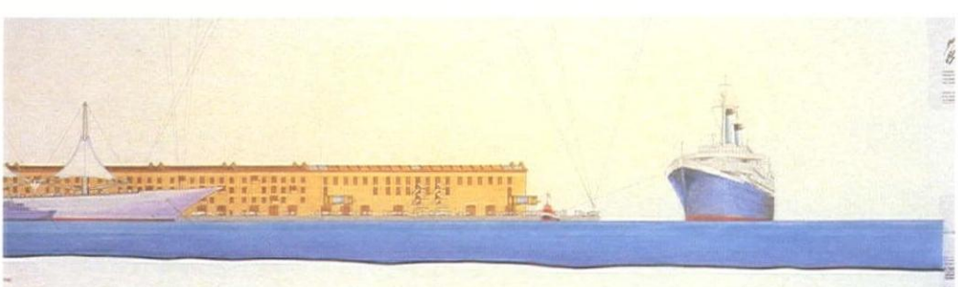
The drawings illustrated are part of an exhibition of Machine Drawings to be held at Yu-Chee Chong Fine Art, Studio 7, Kensington Court Pl., London W8 5BJ (Tel: 01-938 5497/8) in June 1989.

PIANO PLAYS NATURE'S THEME

Renzo Piano is a modern master architect who has a natural sympathy for the organic. World Architecture presents a sample of his recent work to set aside that of Richard Rogers, his former collaborator, and the modern master of the organic, Imre Makovecz.







Panoramic rendered elevation of planned representation of the port and dockside buildings, Genoa. This project will be completed in time for the Columbus quincentenniel in 1992. Aside from refurbished buildings, Piano's intervention includes bridges, boats, pontoons, cranes , new and restored , and flagpoles.

Renzo Piano runs an architectural office that is possibly unique. Although Piano has sibling studios in Paris, Los Angeles and Osaka, the Building Workshop in Genoa is the heart of this radical architectural enterprise. Piano is best known for his adventurous use of new materials and materials technology, for inventive structures and for his joint authorship with Richard Rogers of the Pompidou Centre in Paris, and yet he works like a medieval master mason.

The Building Workshop in Genoa is not named as a conceit. Step up into this grand, faded early renaissance palazzo in the heart of Genoa's historic centre and you will find carpenters and other craftsmen busy making models and experimental building components in their workshop. Here are architects, including Piano himself, inventing new solutions to structural problems but with their hands.

Piano trained in his father's construction business before working with engineers in London and then teaming up with Richard Rogers to enter the Beaubourg competition in 1971, he has an innate understanding of materials.

Once you see how Piano works you begin to understand how a forward looking, unashamedly Modern architecture making optimum use of new technology can also be democratic, humane and close to nature. To begin with Piano has refused to separate himself from his team. Instead he sits in a corner of the office overlooking the Piazza San Matteo and its magnificent black and white striped medieval church. Clustered around him is a polyglot team of architects, notably from Japan and the USA who, while working on specific projects, collaborate closely with other members of the Workshop.

There is no bureaucratic hierarchy. While there is no doubt that Piano is the boss, the man every man turns to for advice, criticism and encouragement, he is 'primus inter pares' rather than 'prima donna'. Unpretentious, affable, straightforward, unafraid of criticism, Piano is able to make anyone feel at home. The only social ritual observed in the office is morning coffee. The entire

Top, IBM Travelling Exhibition Pavilion, seen here in Milan. The structure is prefabricated from laminated timber and polycarbonates and designed to sit in selected parkland settings.

Centre, detail of junction between polycarbonate pyramids and laminated timber ribs.

office troops out like a column of medieval masons and their apprentices to drink coffee in the local bar with the master. Piano does worry that, with the ever increasing workload of recent commissions such as the design of the new Kansai International Airport in Osaka, this familiar atmosphere could be lost. However, by setting up largely self-sufficient executive offices in Osaka and Los Angeles, for example, Piano is able to restrict the work in Genoa to design and invention.

The Building Workshop has been invited to work on projects that for most architects would be out of the question. Experimental cars for FIAT, a travelling exhibition pavilion for IBM, the new Genoa Metro system and a 70,000 tonne cruise liner for P & O California are considered a normal part of a prodigious workload that otherwise includes the Museum for the De Menil collection in Houston, Texas, Osaka airport, a new art museum at Newport, Los Angeles, a fibre research station on the Italian coast at Vesima, a new sports stadium at Bari in the south of Italy, and the redevelopment of the old Genoa Docks as part of the quincentennial celebrations of Christopher Columbus's discovery of the New World. Columbus sailed from Genoa, from a point about five minutes walk from the Building Workshop in Piazza San Matteo. The fifteenth-century explorer would have known many of the same streets and buildings as Renzo Piano does today.

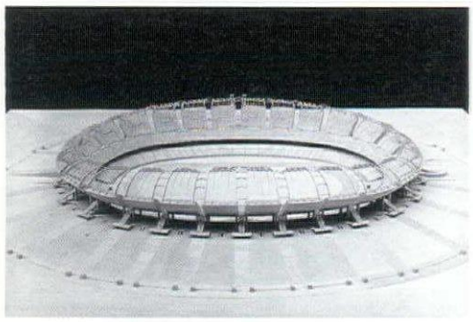
Clearly, Piano's current projects are an extraordinary mix, each characterised by what might best be described as a 'soft tech' approach to new materials and building technology. From the design of the De Menil museum (completed 1985) onwards, Piano has brought nature into his sophisticated buildings. A marriage between advanced architectural structures and nature is to be seen in all new Building Workshop projects.

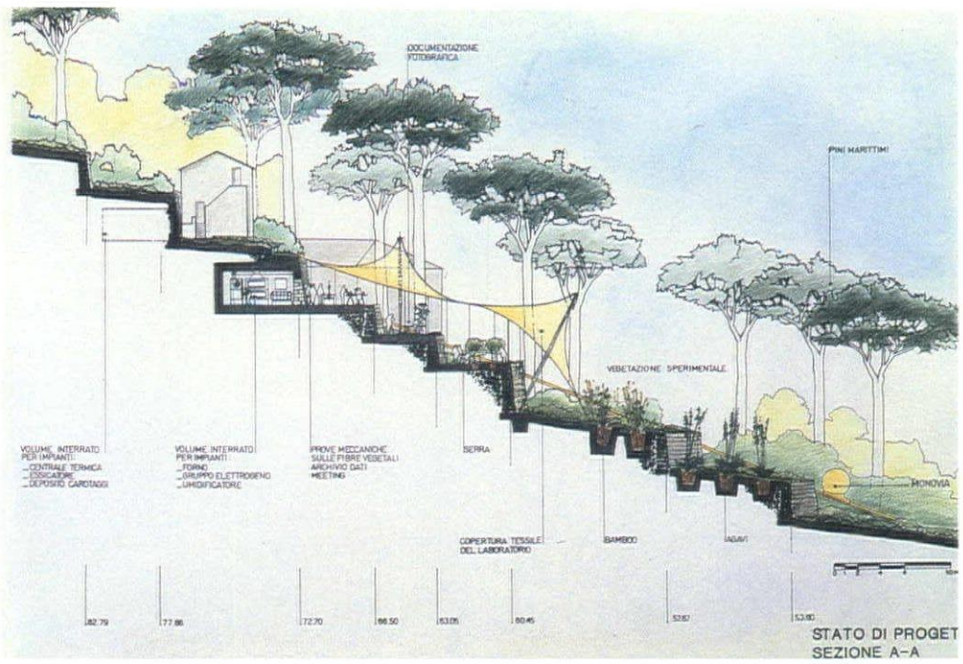
Take the new Kansai International Airport at Osaka, for example. Piano was commissioned to design the new terminal sited on an artificial island currently under construction in the Bay of Osaka.

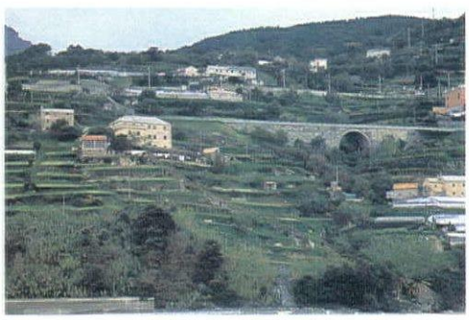
The judges had been impressed by Piano's fusion of structure and nature. Trees are to be planted throughout the length of the striking new terminal building. So, although the formal structure of the terminal building will be a homage to aeronautic engineering, even borrowing the wing sections, struts and lightweight steel of classic aircraft design, this design will not be simply a schoolboy's technological daydream. This harmonisation of technology and nature, creating a new organic tradition out of leading edge technology - from lightweight materials, polycarbonates, tensile structures - is Renzo Piano's most significant contribution to modern architecture.

This organic quality can be seen clearly in the drawings for the Newport Harbour Art Museum USA, currently on the drawing board. This museum of contemporary art will be housed largely underground. Dug into a sloping hillside, the new structure will only slowly reveal itself as visitors walk down through the woods and orange groves from the car park. They will be able to enter the building from stairs or escalators leading down from the top of the building or from the main entrance down the hill at street level at which

Above, experimental car for FIAT, testing a new structural system. The ideas generated in the design of this car were later partly incorporated in the current Fiat Tipo.







Top left, wooden model made in the Building Workshop of the new sports stadium, Bari, southern Italy

Above, close up of model showing one section of the new stands at Bari stadium

Above right, section through new fibre research station at Vesima

Right, existing terraced coastline at Vesima. The research station will insinuate itself into improved terracing.

Far right, plan of research station at Vesima

point this crystal clear modern structure will reveal itself in all its sophistication. Inside, the building will be divided, as in the De Menil collection, by a series of lushly planted courtyards. Art, nature, architecture, new materials and engineering will be synthesised into a new organic whole.

Piano has applied this organic approach to other projects including the design of the fibre research station at Vesima on the coast a few kilometres outside Genoa. This informal, lightweight building, composed partly of a series of polycarbonate tents, cascades gently down a wooded hill to meet the sea. When completed the research station will be the softest machine of all, a gossamer-like construction that barely intrudes on its natural surroundings.

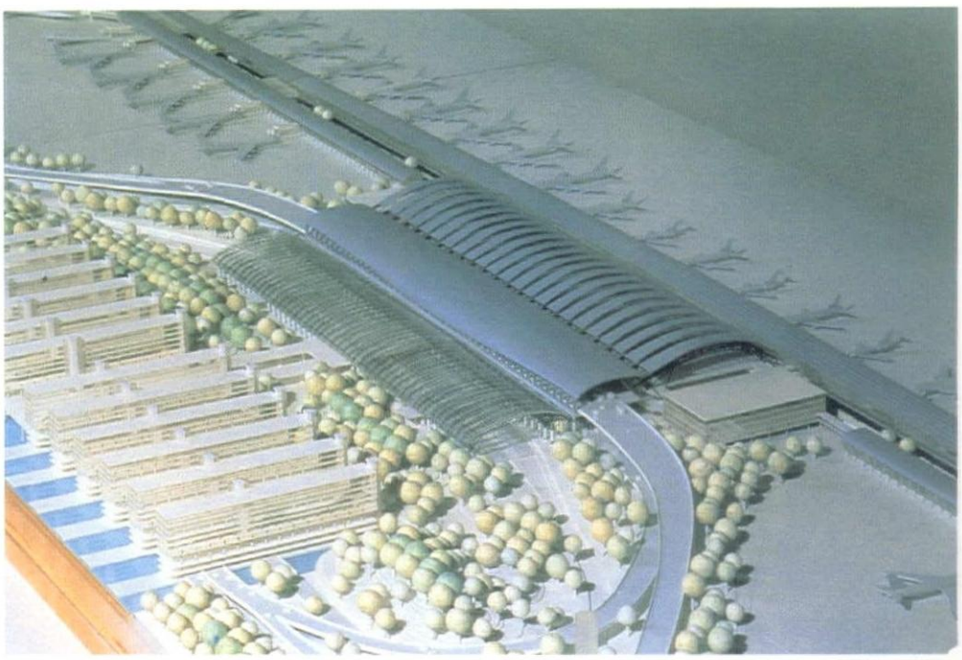
And yet, even in such a hard-edged project as the design of the new Metro in Genoa, Piano brings sunlight, foliage and chlorophyll into the artificial dompain of an underground railway. In the centre of Genoa the new metro will run under the 'supraelevata' autostrada that sycthes a snaking and obtrusive path across the harbour front. Entrances to the new sea front stations will be down through paths from the street that pass through gardens. Plants and daylight will penetrate as far into the stations as possible, so revolutionising the conventional experience of a metro entrance - which is that it is an uninviting hole in the ground.

Even the design of the powerful new football stadium in Bari, in the south of Italy, takes its cue from nature. The stadium, nearing completion, is sited on top of a hill and echoes the nearby Castel del Monte, the castle built by Federico II. The stadium will be seen

Below, Kansai airport will stand on an artificial island currently being constructed in Osaka Bay and linked to the Japanese mainland by train and motorway

Below right, model of Kansai International Airport. Planting extends right through the airport buildings.

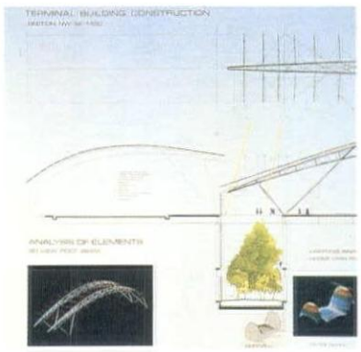
Left, model showing airside of new terminal building, Kansai International Airport, Osaka

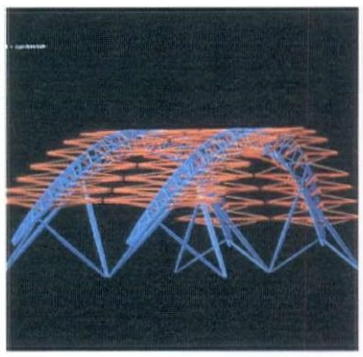


to grow out of its grassy hillside site, rather like some ancient Greek amphitheatre.

Renzo Piano feels no need to philosophise. What he does is what he is, the buildings and other projects speak for themselves. No clever drawings explaining the meaning of a building are offered either before or after a project. Drawings are seen as work tools, while much of the structure of a new building is thought out in three dimensions.

The De Menil museum, for example, began as a problem of how to light an art gallery naturally, with an optimum use of daylight. The ceiling structure was first determined by making a series of models and subjecting them to an exhaustive series of light tests. When the architects felt that they had reached a successful fit between structure and light, they went to England to get the ceiling and roof elements cast in steel and concrete. These custom-designed and custom-made light baffles became the basic design as well as the basic structural component of the building. The design of this reticent, beautifully lit and emotionally charged building was generated around the logic of its construction. So, although Piano's buildings often appear informal, there is an underlying and pressing formality in



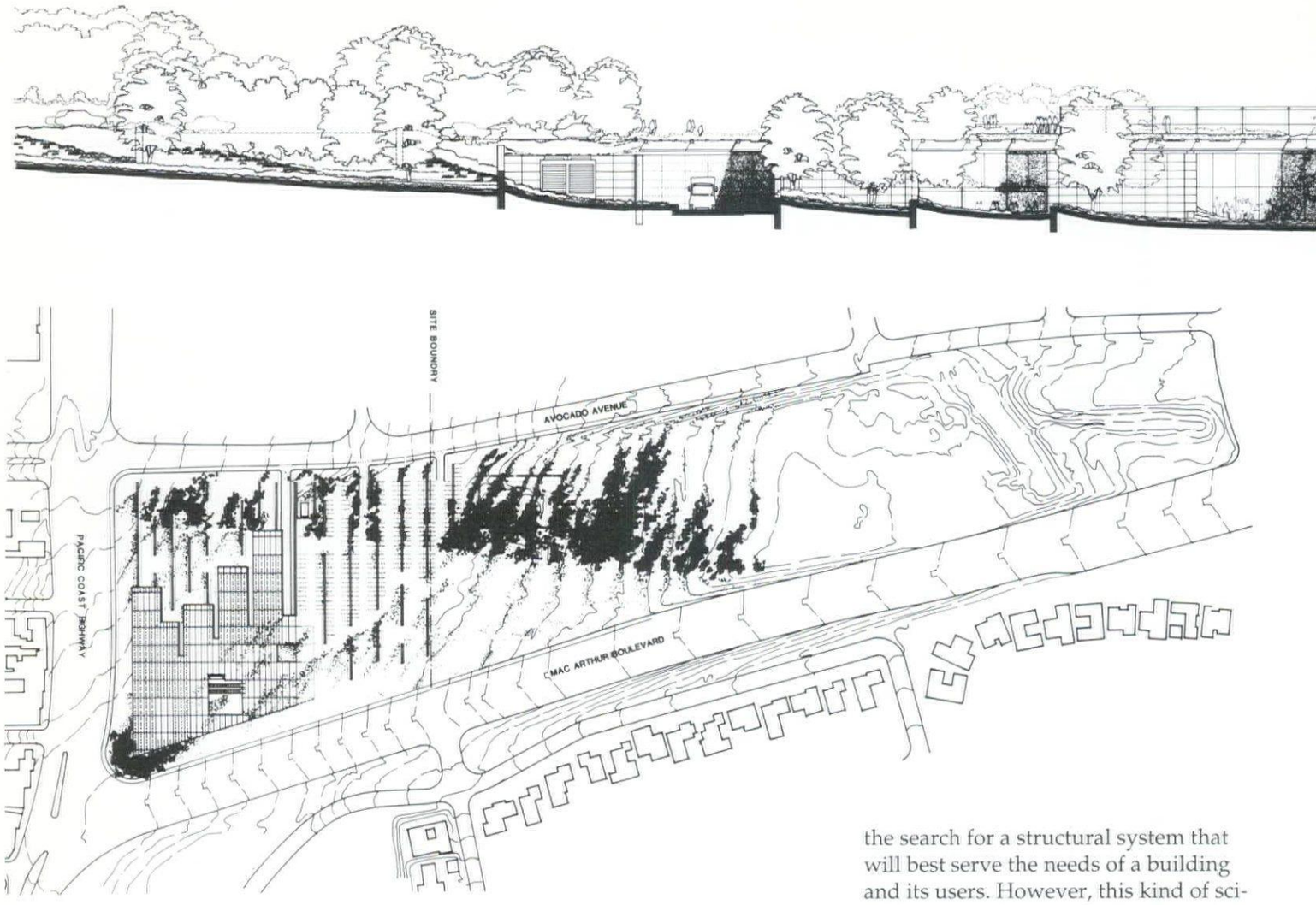


Far left, establishing a new relationship between nature and technology inside the terminal building at Kansai

Left, computer projection of roof structure, terminal building, Kansai

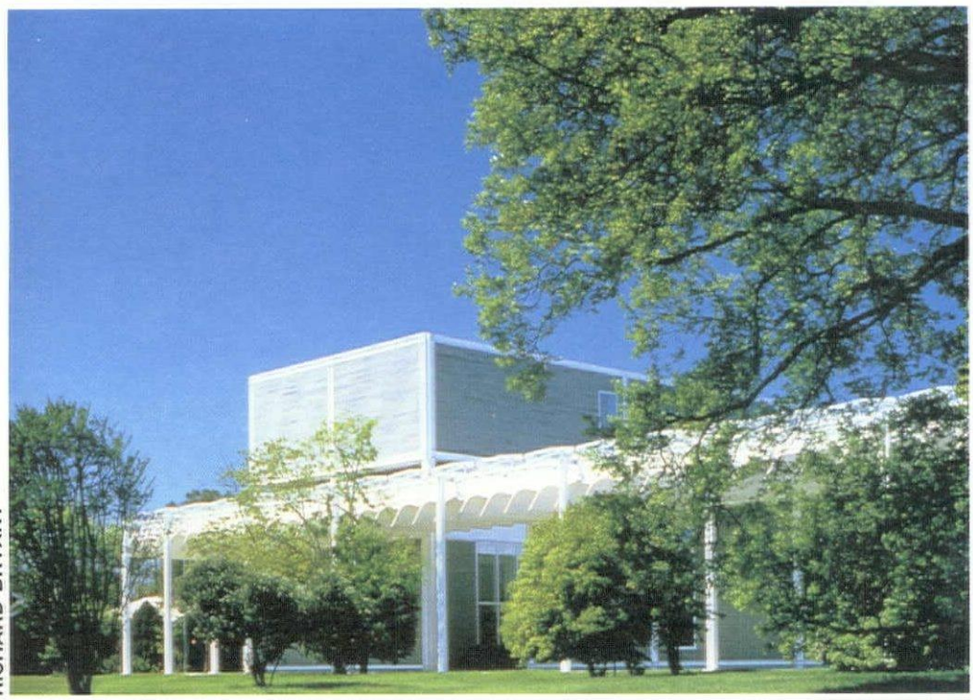
Below, far left, drawing of wing holding lounge, including airport transit running at high level through the foliage

Below left, international departure lounge. Planes are clearly visible through the extensive airside glazing. Passage to the planes is both elegant and logical.



Section and plan of Newport Art Gallery, Los Angeles, California showing how formal elevation to Pacific Coast Highway gradually yields to nature as the building digs in to the hillside.

Understated formality of the De Menil Museum, Houston, Texas



RICHARD BRYANT

the search for a structural system that will best serve the needs of a building and its users. However, this kind of scientific formality requires no elaborate drawings. On these grounds Piano is not the most popular architect among formal archtectural and academic circles. How can you have an exhibition of an architect's work when the drawings are so low key and when mostly what you will see are experimental structural components?

But, because of this absolute relationship between design and technique, this organic approach to technology, Piano believes his architecture is never 'neurotic', by which he means it is never strained, self-conscious or trying to be other than what it is. 'Of course our structures are formal in one sense, but we never strive for effect or to follow one particular line of architectural thought.

The result is that a building might turn out to be the opposite of the way we thought at first it might. We don't invent new ways of building simply for the pleasure of it, but because many ' times you cannot find what you want. This is, perhaps, why our buildings are unpredictable in form, but they are not meant to be a provocation. In fact today our main concerns are with the creation of modest buildings that take their place with nature. Sometimes though, as at

WORLD ARCHITECTURE

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Peter Gilbert
Circulation Manager

1) Of the following which would you say is the best description of your firm

- Architectural practice ☐
- Interior design practice ☐
- Retail Design Consultancy ☐
- Exhibition Contractor ☐
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- Property developer ☐
- Government ☐
- Local Authority ☐
- Armed Forces ☐

In-house studio ☐

PLEASE SPECIFY Type of Co.....

2) How many of your staff are involved in Architectural design

- 0 - 5 ☐
- 6 - 15 ☐
- 16 - 24 ☐
- 25 - 50 ☐
- 50 - 100 ☐
- over 100 ☐

3) In rough terms how many projects do you undertake per year

- 1 - 10 ☐
- 10 - 20 ☐
- 20 - 50 ☐
- over 50 ☐

4) What is the typical cost or range of prices for the sort of projects you specialise in?

(lower) .....

(upper) .....

5) What is your annual fee income?

- under £ 50 000 ☐
- £ 50 000 to £ 100 000 ☐
- £ 100 000 to £ 250 000 ☐
- £ 250 000 to £ 500 000 ☐
- £ 500 000 to £ 1m ☐
- £ 1m to £ 2.5m ☐
- £2.5m to £ 5m ☐
- £ 5m or over ☐

6) What would be the rough value of the projects you undertake ?

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7) Do you specialise in

- Offices ☐
- Retail ☐
- Hotels & Leisure ☐
- Residential ☐

8) Are you a member of any of the following Associations ?

- RIBA ☐
- Chartered Society of Designers ☐
- Incorporated Association of Architects and Surveyors ☐

Other PLEASE SPECIFY .....

9) What is your own job title?

- Partner / Director ☐
- Group Manager ☐
- Designer ☐
- Architect ☐

Other PLEASE SPECIFY.....

10) When you are working on an interior design project do you choose specific materials and finishes

- Alone ☐
- With others in your department ☐
- With the client ☐

11) How many people would have a major say in the materials or finishes used in one of your projects ☐

12) When you have put a scheme together and the client is happy with it, who has the final say on which materials and finishes are used,

- is it largely left to you, ☐
- OR
- does the client get deeply involved, ☐
- OR
- do you liaise closely throughout the project ☐

13) If you wanted to find a particular product that you knew existed but did not know the supplier, how would you find it?

- Word of mouth ☐
- Visiting exhibitions ☐
- Trade directories ☐
- Trade magazine advertising ☐
- Editorial reviews of their products/services ☐

Other PLEASE SPECIFY.....

14) When a product you have not previously used is being considered would you be the person who

- Suggests it ☐
- Evaluates it ☐
- Authorises its use ☐

15) Which magazines do you regularly read

PLEASE SPECIFY.....

.....

.....

16) Which magazines do you receive, but perhaps only read occasionally

Architectural Review	☐
Architect's Journal	☐
Architect & Surveyor	☐
Building Design	☐
Barbour Compendium	☐
Building	☐
RIBA Journal	☐
What's New in Building	☐
Specifier Review	☐

17) Which is your favourite magazine?

(PLEASE SPECIFY) .....

18) What is it that makes this your favourite title?

(PLEASE SPECIFY) .....

19) Which magazine would you say is the most useful to you in your

day to day business .....

and why is this so, ...

20) Do you feel that there are too many magazines in the market ?

Yes	☐
No	☐

21) Do you feel that the existing publications satisfy your needs as a reader

Yes	☐
No	☐

22) What is your reaction to World Architecture

Like it	☐
Dislike it	☐

23) What do you particularly like or dislike

Like.....

Dislike.....

24) Given the following choices would you say that you would read it

very often	☐
regularly	☐
occasionally	☐
rarely	☐
not at all	☐

25) Have you any ideas which would make World Architecture more useful to you

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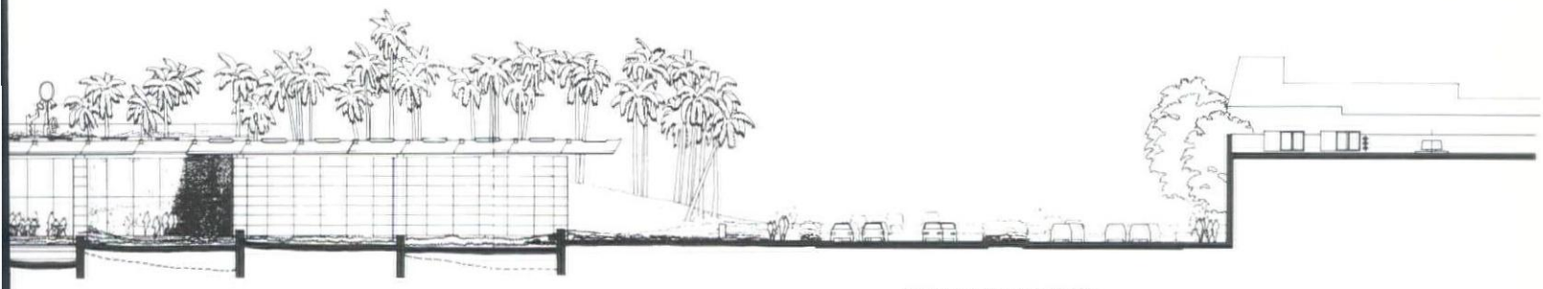
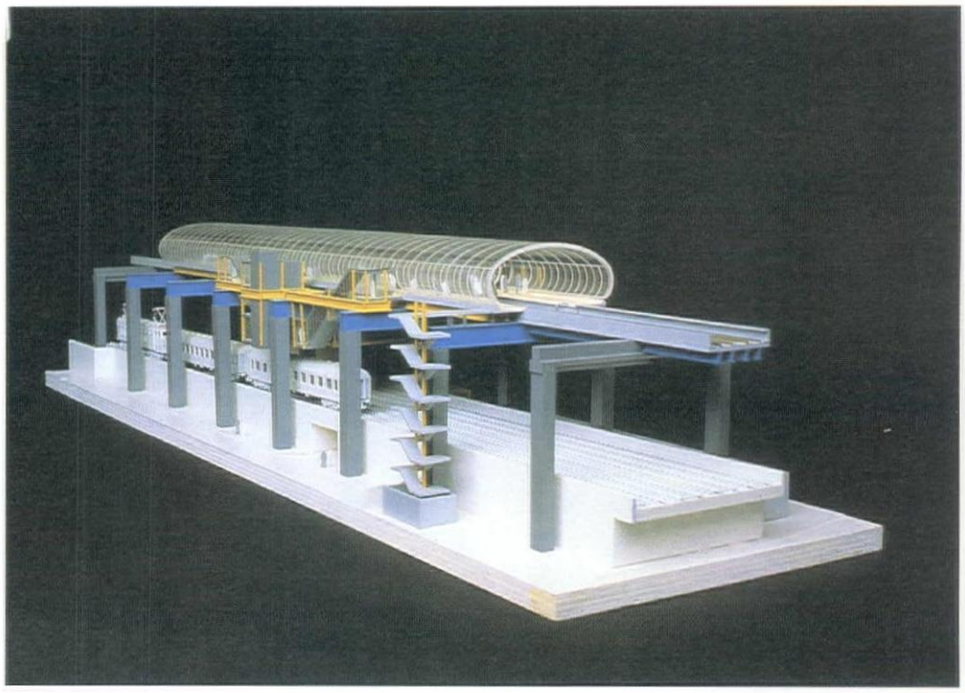


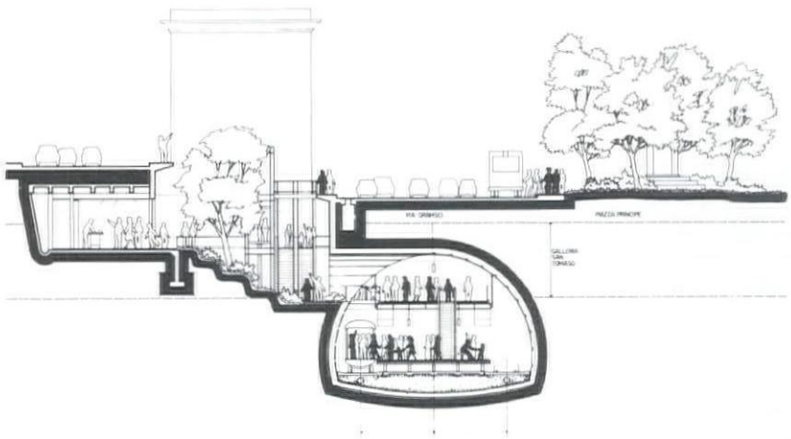
PACIFIC COAST HIGHWAY

Bari, although being a part of its natural surroundings, a building has to be a bold formal expression. The football stadium is at heart a primitive building housing a primitive ritual, a two hour explosion of pent-up instincts and reactions. So here the building is formal, powerful and yet like Frederico II's Castel del Monte, is still a part of the landscape. At Osaka we were faced with an artificial landscape, a new island being created for planes to land on. Here we decided to use the opportunity on a new island to recreate the experience of arrival on some forgotten island. The idea was that this island should be a special place, half organism, half technological, a place of trees, water and daylight as well as jumbo jets and runways'.

Piano does not use new materials simply for the sake of it. The travelling pavilions he designed for IBM were a fascinating fusion of the new art and the old - of laminated timber and polycarbonates. Piano is no slave to particular or overtly sophisticated materials. What interests him even more, is how such materials can create structures that are both enduring and popular with users. There is little doubt that his buildings, from the Pompidou Centre through to the De Menil collection and the new airport at Osaka have been or are virtually guaranteed to be popular buildings. The fact that they need no conventional architectural dressing to do this, neither High Tech or rationalist nor Post Modern or Neo Classical, that they are entirely remote from current architectural fads and fashions, makes them some of the most intriguing buildings to be found anywhere. Piano is finding that a marriage of invention, pragmatism, highly-crafted building skills, daylight, nature and imagination leads to an uncompromising modern architecture that is as popular as it is elegant. The fact that Piano and the Building Workshop remain a unique phenomenon indicates that, although a new organic tradition is emerging in Europe, it remains almost impossible for most architects to climb down from their hobby-horses and to learn the art of informality.



Model of elevated station on the Genoa Metro, currently under construction



Section through underground station at Piazza Principe on the harbour front, Genoa. The station makes use of the traditionally redundant space below the 'supraelevata' motorway that courses through this sensitive historic district.

THE MYTH OF THE MECHANICAL

David Hamilton Eddy considers the imagery of the Lloyd's building. He muses on its claims for innovation and wonders if it is more of a dinosaur than a phoenix

Lloyd's of London started in 1688 in Edward Lloyd's coffee shop in Tower Street by the Tower Prison. Although today Lloyd's is involved in all aspects of insurance it is still most widely known for its provision of marine insurance, first sold in that coffee shop three hundred years ago. The new Lloyd's building opened in the summer of 1986, designed and built by Richard Rogers Architects and Ove Arup Consulting Engineers.

Today, Lloyd's extraordinary stainless steel structure (commonly described as an oil refinery or a space station) dominates Leadenhall Street in the City of London. It is a demonstration of precision engineering.

Everybody who worked on the Lloyd's building was carried away in the excitement of working at the very limits of technical excellence and innovation, resolving problems as they presented themselves, driven by the growing intoxication that attended the realisation that they were doing something wonderfully well that had never been done before.

Frank Duffy, an internationally known authority on office design, correctly identified the character of this edifice as being Gothic. The Lloyd's building has something of the demonic about it. Medieval Gothic buildings explored the Gothic in the form of gargoyles and other grotesque figures built by masons. On the Lloyd's building, the ducting under the fenestration evokes the idea of gargoyles. The ducting of the air conditioning feeds the air between the double-glazing where it provides thermal insulation before re-circulating back into the rooms.

Interestingly, the over-riding need to avoid obsolescence links modern architecture to other 'machines' such as modern warships and aircraft. For example, the "Iowa" class of American battleship first laid down in 1940 will sail into the 21st Century with all the accompanying contemporary radar defence and guidance systems. The intention is that, like the Iowa, the Lloyd's building will continue to develop, taking on board the latest technology as it becomes available.

Right: The Lloyds building is lit up at night to look like a ten dime a time jukebox, an image at odds with Rogers' mechanical mannerist style.

The design philosophy that shaped Lloyds' represents the culmination of the *Archigram* approach to the early sixties in Britain. *Archigram* was to architecture what a telegram was to a hand-written letter. Basic spatial and service necessities could be "plugged-in" to each other. The stylistic formalism of early Modernism was redundant. Flexibility was now the watchword, the potential for change and modernisation being integral to the design. So in the Lloyd's building the number of computer terminals estimated as necessary in April 1982 as 42 soared to 557 by September 1986 and have nearly trebled since then to approximately 1500. It was designed so that although some of the upper floors would be empty to begin with, they could be commissioned as Lloyd's expanded. And, as new technology became available additional computer terminals could be introduced. New escalators could rise to yet dizzier heights.

Archigram grew out of the fascination with military and other technologies that fascinated British boys like Richard Rogers after World War II. In the 1940's and early 1950's pubescent British read a magazine for boys called the *Eagle*. It was filled with cut-away diagrams that exposed the entrails of sports cars, nuclear-powered ships and submarines, and civil and military aircraft. The heroes of these boys were test pilots, men who had inherited the mantles of Battle of Britain fighter pilots. These British adolescents had their equavalents in the Soviet Union with the cosmonaut Yuri Gagarin, and in the U.S. with fighter ace and rocket pilot, Chuck Yeager.

Richard Rogers grew up in this heroic period of British technology; it is impossible to understand the Lloyd's building except in this context. Characteristically, his first design achievement in the mid 1960's was to do something no-one had done before, to colour and bond perspex into rainbow coloured rings and costumes. Traditionally, this early fascination with colour hardly appears at all in the Lloyd's building except at night when the entire structure is suffused in lurid violet light as if on some strange planet.

Rogers inherited the can-do spirit of aircraft designers such as Reginald Mitchell, who designed the Supermarine Spitfire, Sidney Camm who designed the jump-jet Harrier and Barnes Wallis, whose inventions are too numerous to detail. Rogers' architecture for the Pompidou Centre and subsequently at Lloyd's, is 'state of the art'. More importantly, as Frank Duffy has pointed out, the Lloyd's building, unlike many American office buildings, which are mere "skin" buildings or containers for their interiors, has integrity! The exterior precisely reflects the interior. It presumes to be tough, to be without hyprocricy or disguise, as bare and simple and beautiful as a kataka, a samurai sword. It is, therefore, an appropriate image for corporate power in the modern world.

Yet despite the over-riding fascination with high-tech there is another dimension to Rogers' architecture (or at least to the Lloyd's building) that is absent from that of his great rival—Norman Foster. Rogers is willing to let others add to his interiors.

For example, the Chairman of Lloyd's has his own suite of rooms. The centre piece of this suite is the King's Room. Now, in fact, this room was designed by the great 18th century architect Robert Adam because originally it was a part of an 18th century house, Bowood, which is in the south of England. In 1956 the original house was demolished but the King's Room was sold to Lloyd's, who installed it in their old headquarters. When Lloyd's moved to the Rogers' building the Adam room was removed from the old building and installed in the new.

Elsewhere in the Lloyd's building there are other odd, non-technological additions which appear to conflict with Rogers' intentions. The stone entrance from Lloyd's building has been incorporated, so too has the Lutine Bell. This bell, which is housed in an elaborate Baroque mahogany structure, is rung whenever this is a major disaster.

Rogers' architecture, as we have seen is male in its obsession with the military or naval machine but is curiously generous, tolerant and maternal in its intimation that every lost architectural child can be part of the family. His evident capacity to lead, enthuse and inspire the most diverse members of his team has its architectural correlative — there is a place for everything and everyone on board Starship Rogers. This is what makes the Lloyd's building so extraordinary and unique in contemporary architecture.

Rogers appears prepared to acknowledge there are emotional and spiritual limitations to his design philosophy (based essentially in engineering) and to compensate for such aesthetic lacunae by countenancing alien and anachronistic modes. Ironically this attempt to "plug-in" what is aesthetically missing only heightens the sense that the brilliant technology is a kind of hypnotic mask distracting us from the duller features of his design.

We can see this most clearly if we compare the Lloyd's building with Frank Lloyd Wright's Johnson Wax building opened exactly fifty years before Lloyd's.

In the Johnson Wax building the atrium and balconies are around the entrance, rather than the work areas as at Lloyd's, and the main work concourse is celebrated in sparkling light and airy space. The Johnson building's curved forms and gracefully columned interior communicate calm, clarity and order. Frank Lloyd Wright also had a fascination with technology and finish but within the context of a simple and natural spatial and material integration rather than of the individual excellence of assembled parts.

Because Frank Lloyd Wright started from an aesthetic approach that is natural and organic he could only tolerate design features that were consistent with the resonances of the human or animal or vegetable body or which evoke the curved forms of eroded material or the dramatic disjunctions of rift and fracture.

Such intimations of our ancient primitive habitat, such "lineaments of

gratified desire" (to quote William Blake) relax and soothe our spirit, and, although it was totally innovative, the Johnson Wax building felt familiar from the beginnning.

Frank Lloyd Wright's emphasis on organic flow and mental ease for all in a brilliantly illuminated chamber and the emphasis on free and democratic communication contrasts significantly with the Lloyd's building and with Rogers' embodied metaphor of the lowly climbing from the dim obscurity of the ground floor via the shining Platonic stairways of the beautifully glazed and illuminated escalators to the sunny atrium roof and the Chairman's floating Adam room.

The Wright building emphasises unity and flowing heterogeneity, the Rogers building technical excellence, dramatic and thrilling views and 'democratic' spaces. But in reality the old-fashioned hierarchies of space remain. The battleship analogy holds. The Adam room is like the admiral's quarters in the richly bedecked stern on a British ship of the line of Nelson's day, where the grim technics of the gun-decks contrast with the splendour of fine furniture, the spectrum glitter of cut crystal and the voluptuous shades of maroon and blue.

By contrast, the Johnson Wax offices were built in 1936 at the start of Franklin D. Roosevelt's second term of office as President. The emphasis then was on unity not division. Fifty years ago the natural references to stalactities or lily pad or mushroom columns helped to create a friendly and comforting environment for the prairie population of Racine, Wisconsin. It was the high-tech building of its day with its glazed walkways and light diffused by swathes of pyrex tubes in a windowless chamber. No question the imagery of sheaved wheat, pools, caves and meadows was well known to the people of Racine and of America. It was a winner from the start. "They love to stay in the building, be there, come early, enjoy it." (Frank Lloyd Wright).

Conversely, the emphasis on bolted-up engineering and assembled modules in the space age Lloyd's building (impossible to imagine without the NASA Apollo moon flight) entailed an attitude to life on board that is indeed comparable to a space station or an aircraft carrier.

We are talking now about what Erving Goffman, the great American sociologist, called "total institutions". In such places, asylums, military institutions, prisons, hospitals, and aircraft carriers, people discover that what heretofore they had innocently or complacently called ordinary life has undergone subtle but disturbing change. We are talking about reduceded environments. And this leads to my second article (p82) about Lloyd's: this asks, "How do people respond to the engineered environment ?" □

The Kings Room. *The executives of Lloyds meet here in a genuine 18th century Robert Adam room (taken from a now demolished country house) — it sits uneasily within the late 20th century carapace.*

WORKING INSIDE THE BATTLESHIP LLOYDS

In the second of this pair of articles David Hamilton Eddy discusses the successes and failures of the Lloyds building as a place within which to work.

I believe that the relationship of the new post-industrial technology to the existing culture was a critical one, requiring the most delicate management, particularly in relationship to the natural or organic world. We can see the Lloyd's building therefore as a kind of architectural prototype of the computer age. One critic described the Lloyd's building as like an 'unbundled personal computer' in comparison with Foster's Shanghai Bank Building in Hong Kong which is 'bundled'. But how does the prototype perform?

Not too well. According to an opinion poll of underwriters and brokers carried out two years ago approximately 75% of underwriters and brokers found the building not as good as their old building, only 15% finding it an improvement. Specifically, there were problems with: (i) getting about the building; (ii) the entrance; (iii) the speed of lifts and (iv), the escalators. There were also complaints about the main restaurant, the overall lighting, and the ventilation and air-conditioning. Some of these problems should have been anticipated.

Positively, however, according to the same opinion poll, the Lloyd's building would become satisfactory if these and other problems could be resolved. Once again 75% of those polled agreed with this assertion. Interestingly, the complaints were highly specific and work-orientated. More generally, half the brokers (and a third of the underwriters) liked Rogers' interior design and architecture, while only a third of the brokers and a fifth of the underwriters liked the exterior design. Evidently they prefer their computers writ small.

The conclusion of the opinion poll researchers was: We find, therefore, very significant levels of dissatisfaction with the new building which appear to be based on practical day-to-day frustrations in using it, in occupying it and moving around in it.

Currently, Fitch and Co., a London based design company working in conjunction with Rogers and Lloyd's, have been trying to remedy these defects. Taking the research findings as their brief, the designers at Fitch and Co. have concentrated initially on circulation, improving the entrance which is presently awkward and defensive and thereafter generally making it easier for people to find their way around the building. To this end they have already introduced colour-coded carpeting and will be improving the floor level signage for the wall-climber lifts. Ironically, despite its pretensions to flexibility, Giles Marking, co-ordinator for the Lloyd's building at Fitch, stated that Lloyd's was the most *inflexible* building he had ever worked upon. Moving between floors, for example, was difficult and circuitous precisely because services like lifts have been evacuated from the central working areas to the corners of the building. And at Lloyd's on certain floors you have to show your pass as you move in and out of secured areas of the building. The service aspect of the underwriters' boxes, ventilation and computer cabling, made them extremely difficult to manipulate topographically. It is therefore difficult to put the wall climber lifts inside the atrium.

The easiest aspect to alter is the lighting. By fitting pale surrounds to the circular lights, by lightening the tones of the carpets and by replacing the semi-opaque grey glass with clear glazing and fitting uplit plastic cavity units, the overall ambient lighting can be improved a lot. Presumably, the air circulation between the double-glazing would be maintained? Additionally, personal lighting systems could be clipped on to the underwriters' boxes and other work stations. A wattage of 8-10 per PL would accumulate to less than one bar of an electric fire per floor and this would be well within the tolerance of the air-conditioning, although Giles Marking agreed that this was moving towards its limits — especially when staff covered the air conditioning louvres on their desks with sticky tape

to avoid a draught. New designs for work-top louvres were being investigated.

Another area of complaint had been the restaurant; most people felt it looked too basic. As Marking emphasised, if you are paying $70 for lunch you expect dignity, gravity and comfort — not a canteen atmosphere. Fitch propose a general upgrading.

In the same spirit, Fitch's intention regarding the main entrance was to produce an entrance in keeping with the grandeur of the building rather than a 'tradesman' entrance.

In terms of all these modifications, a phased programme of improvements is being implemented and a start had already been made on the carpet-coding. Could these difficulties have been anticipated?

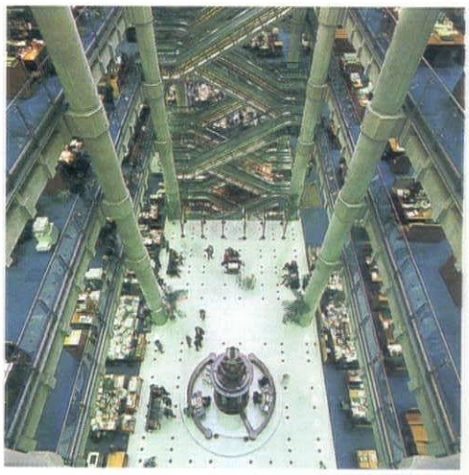
There are indications that they could have been. Disquiet and complaints were expressed by the Lloyds' workers when the building's plans became known.

Specifically, the concerns about the restaurant and the circular light fittings were not heard and these figured prominently in the complaints monitored by the opinion poll. There were also complaints about the internal concrete finishing, the interiors of the toilets and the qualitative distinction between the ground floor and the upper galleries. A London critic pointed out there were indications of an ' instinctive dislocation ' between the culture of Lloyds' and Rogers' product.

Rogers' determination to build his product was inspired by technical rather than social priorities. Giles Marking has described the interior of Lloyd's as being like an aircraft carrier. Now the interior of an aircraft carrier maybe absolutely fascinating to the layman but its working ambiance is specific. It is a tough macho environment where the only decorations are pornographic pinups. The only reassuring evocation of nature is the more or less obscene female form, the degree of nakedness being directly controlled by the appropriate petty office. Everything else is steel and aluminium.

Looking up towards the roof of the atrium— the lofty fourteen storey central space adds grace and lightness to an otherwise quite demanding building.

Looking down towards the ground floor. It is an exciting, theatrical experience to look down on the bustling fair ground of the Lloyds money market.



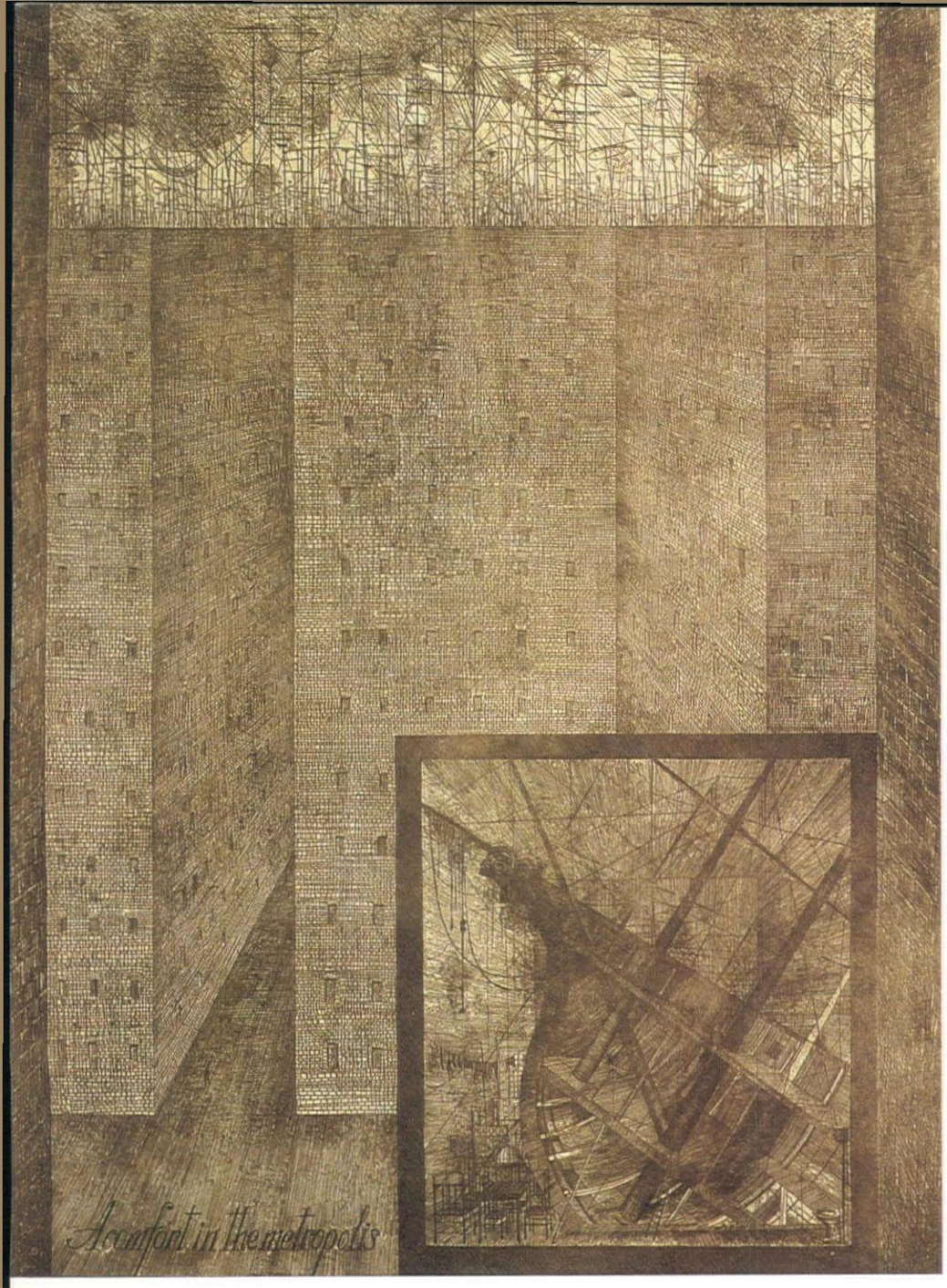
An aircraft carrier, like any ship, is a total institution. You eat, sleep, work and play there. For many it provides a complete security for the duration of their service lives. But total institutions — for those who *choose* to be in them — are most attractive to those who value order and obedience above everything. Erving Goffman in his book 'Asylums', published in 1961, described the lives of *inmates* and managerial staff in prisons, hospitals, monasteries, mental hospitals, ships, military barracks and so on. Now great naval ships may appear to be magnificent or glamorous but Goffman pointed out that these places were not about individuality and freedom, on the contrary they were about humiliation and degradation, control, order and surveillance.

In a strictly limited sense, all office buildings are also about these things, but in the best of them the architect attempted to create an ambience that positively off-set the rigour of work. In some sense the successful building evoked a sense of ease and pleasure. And in general urban terms the more the architect found himself estranged from the natural world of trees, streams and flowers the more he or she found it necessary to make restitution in the architecture. The restitution could be literal as in the baroque or art nouveau or implicit as in the curves of modernism. But *in some sense* it had to be made.

One feels that Rogers' (and others of his persuasion) desire to be honest and unhypocritical has trapped him into a bind where the 'pure' battleship or aircraft carrier with its controls and efficiency and regimentation is superior to forms that betray the sensitivity of the human hand and heart. (I am not speaking of camp post-modernist fakery.) Commodity and firmness there assuredly are in Rogers' architecture, but the delight — though it is undoubtedly there in its dreamy atrium and escalators — is not truly integral to the architecture.

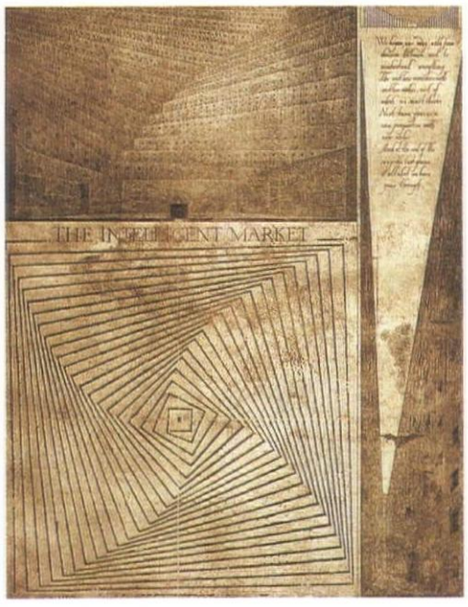
Lloyd's is an extraordinary and in many ways a magnificent building. The sheer quality of most of its construction is moving to those who care about such things. It raises the most profoundly important questions concerning architectural integrity that modern architecture has been about since Constructivism and the Bauhaus; it is in that tradition, Le Corbusier and Ginsburg were also fascinated by ships and aircraft. But in Lloyd's building there is a degree of censorship regarding relations to the street and hence to the city that is disturbing. The censorship of comfort is disturbing.

Architecture must be beautiful, that is the point. If you are embarrassed by that, for the sake of the rest of us stay away from design — until beauty comes to you. Lloyd's is a beautiful building, but it is a difficult beauty. It represents the steely will but also the fearfulness of the modern world. Thus far, Rogers has honestly followed the sentiments of the age. □

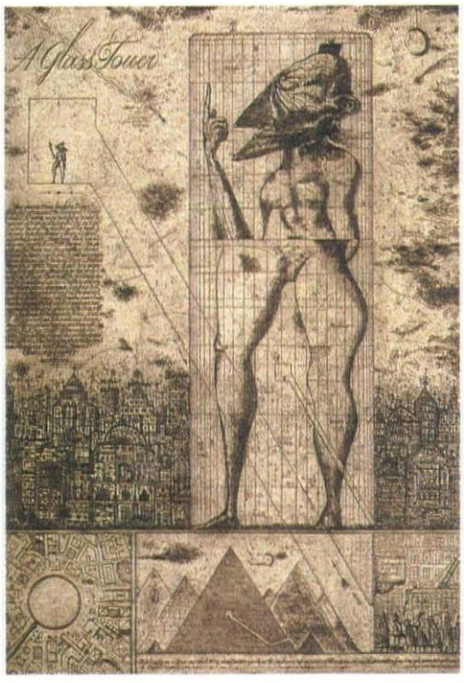


'A comfort in metropolis'

'The Intelligent Market.' Central Glass International Architectual Design Competition, 1987



'Have you ever driven across a city in a tarpaulined truck, looking with interest at streets, buildings and people? The life of a big city, perpetually changing, unpredictable, mysterious, is a theatre for those who know how to appreciate it. The meanings of the performances will soon become clear. A big city is always 'Terra Incognita', no matter whether you live in it for a hundred years or for an hour. He who opens his door and goes to the shop is like a brave explorer ventured on a perilous journey. A mysterious land inhabited by strange creatures scurrying in



an unfathomable dance opens before his eyes. Who are they? Gloomy cannibals or harmless tribes? What language do they speak? What do they think of when casting glances at our lonely traveller? Millions of doors leading God knows where, millions of windows hiding God knows what . . . going to the baker's is more exciting and dangerous than the ascent of Everest. And then, in the evening, back to the ship. The tired traveller repeats the secret and incomprehensible words heard in the daytime . . . '

'A Glass Tower.' 1984

THE FEARFUL AND THE SUBLIME

Alexandr Brodsky and Ilya Utkin are two Moscow architects who have collaborated upon a substantial investigation into the nature and psyche of the city. Using a combination of etchings and short texts they have created a 'paper architecture' of surprising substance. Here Brian Hatton talks to Brodsky and assesses the work.

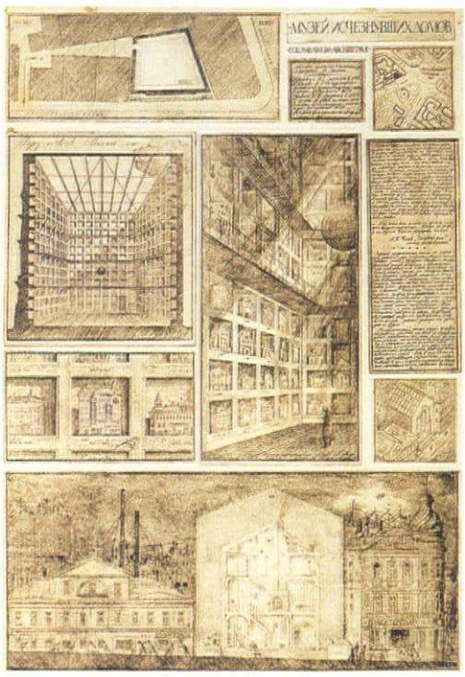
The etchings of Alexandr Brodsky an Ilya Utkin were created in Moscow in a high garret that looks out on a skyline of flats, factory chimneys and wizard-hat skyscrapers from the Stalin era. But they express a mix of wistfulness, affection and dread that all great cities have inspired since the industrial revolution. Ambivelance: joy, fear, dreamy abstraction — the Urban Sublime. 'We really feel some mixed feelings about this city of Moscow and the large city. In our projects it is not just Moscow but any city, because all of them have something close besides great differences, at the same time we can love and hate all of this. . .'.

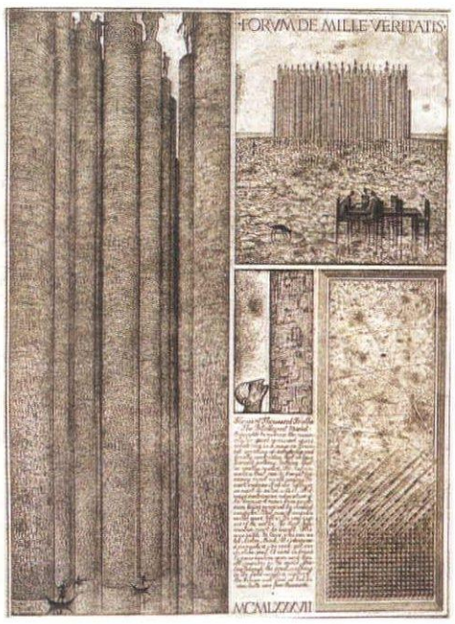
Symbolist poets, above all Baudelaire, Rimbaud and Blok, first described the alterations of mood- exaltation and despair, distraction and boredom — that the new cities provoked. The utopias of modernism were to resolve these alterations into clarity and calm, but they have not done so. Perhaps the fascination of the images that Brodsky and Utkin have committed to copperplate lies in their renunciation of any objective resolution for the sake of a personal response to the waivering extremes themselves. Nevertheless, they are architects for whom etching has been the means of realising definite ideas for building. Although they imagine symbols for specific feelings — gaiety, sadness, intimacy, alienation, enclosure, exposure — they draw their correlatives in the form of very real buildings. One sees the city of Brodsky & Utkin in the inner eye without strain or difficulty. A city of extremes, to be sure, with slums and mazes as well as the most yearning fantasies. The intertwining of opposites in these fantasies lies still deeper in the imagination of Brodsky & Utkin. Their ideas, once found, recur in reversed and inverted guises, so that one seems sometimes to be seeing from the outside into this looking-glass city, sometimes from the inside outwards. They are leaders among the young fantasists who catalysed a renovation of the Soviet architectural profession following the 1984 exhibition, 'Paper Architecture'. Like many Soviet artists and architects they have illustrated books; they have worked in animation, made sculpture and reliefs and have built interiors, notably the Kafe Atrium on Lenin Prospekt in Moscow. Currently they are working on a Dostoevsky museum in Leningrad and in September they will transform the interior of a gallery in New York.

But it is in a series of etchings over the last eight years that they have evolved an imaginary city. The poles of this city are the doll's house and the infinite vista, homely den and the impersonal, endless *prospekt* . It is a city of scurrying crowds, blustery rain and the roar of traffic, like thunder in the mountains. Its streets are canyons between tenements and factories that spike the sky with wires and smokestacks. Through them wander carnival trains and mobile proscenia that focus its boundless spectacle into collective miniatures or frame it in single scenes. Here and there rise wondrous steeples of glass, lenses for profound reversals: the individual magnified, immensity made miniature, limitlessness bottled, the present moment stretched out to eternity. The city has two times: public time, which is unyielding, undivided and unreal; and private time, which is measured by the drip of candlewax, friends' talk and the falling level of a flask of wine. Behind these looms death, a third time, the life and death of buildings themselves, whose museums and columbaria shade sombre counterparts of the glazed towers.

It was such a tower that won Brodsky & Utkin their first notice in 1982, a competition for 'Crystal Palace'.

'Museum of Vanished Houses,' 1985





'Forum de Mille Veritas,' Honourable Mention, Central Glass International Architectural Design Competition, 1987

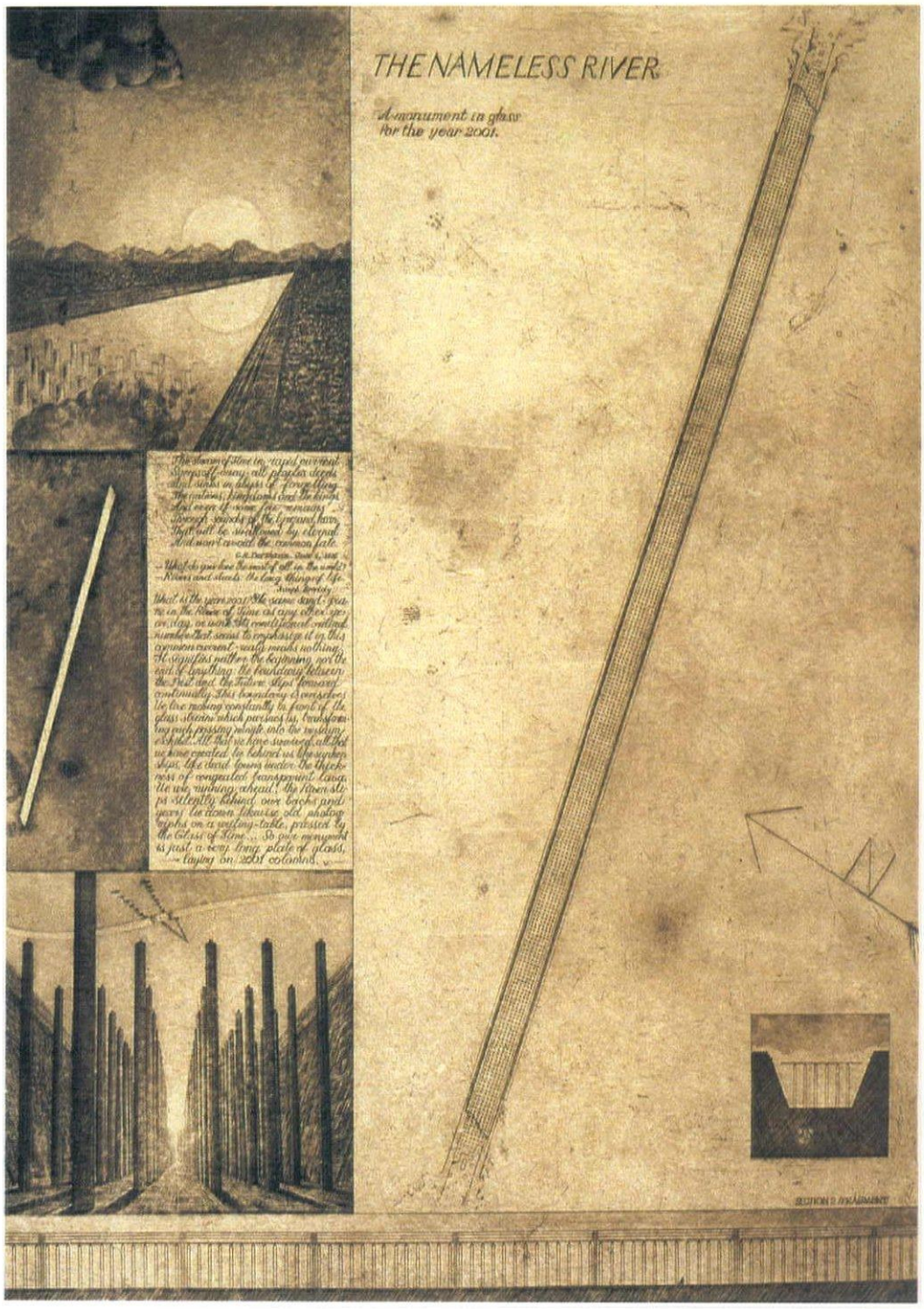
The palace they proposed stands at the edge of town, at the end of a winding path through dumps. It is not a tower at all, but a rank of transparent screens, like stage-flats — hardly there and like the tortuous journey to the tantalizing 'Zone' in Tarkovsky's film 'Stalker', leading only to a question: *'Passing from one glass chink to another, the visitor will walk the palace through and find himself . . . where the landscape commences. Did he learn the very essence of the Crystal Palace, will he desire to visit it once more? Nobody knows . . .'* The pathos of it is the pathos of a monument to the impossible, a city beyond means.

Two years later they drew another glass tower, raised beyond weariness only to collapse back upon the landscape where its transparent ruins are but an enigma to those building towns among them. On their plate, the artists engrave Ecclesiastes I.10.11: *'That thing that hath been, it is that which shall be, and that which is done is that which shall be done, and there is no new thing under the sun. Is there anything whereof it may be said, see this is new? It hath been already of old time, which was before us . . .'* The conceit of Babel is re-enacted with every tall building; it is the true purpose for all towers to declare: 'See how great I am!' In a parallel plate Brodksy & Utkin etched another tower, an enormous magnifying glass, ascended up a thousand stairs by every little citizen to project himself upon the indifferent metropolis. In this glass the city sees a Gogolian burlesque of the hero: the sublime is made absurd and the absurd sublime. Yet his act of defiance resurrects the fallen idealism of the other glass tower in the guise of humourous resistance. A 1985 etching, 'Villa Claustrophobia', depicts its alienated antithesis, an atrium of introspection: *'A house with an atrium is similar to a reserved man wholly plunged into the endless space of his inner world. The inner court is the whole universe for those who cannot or do not want to get out. Our atrium is a mirror-lined funnel set into a windowless house. The funnel is mirror from the inner court but transparent from within the house. All rooms look into the funnel, the inhabitants look from their rooms at each other, but see only endlessness.'* This most pessimistic of all Brodsky & Utkin's etchings echoes lines from the poet Joseph Brodsky: *'Now that I've walled myself off from the world, I'd like to wall myself off from myself. Not fences of hewn poles, but mirror glass it seems to me will best accomplish this.'*

Among the competitions Brodsky & Utkin entered have been those set by Japanese. In both Russia and Japan a con-dition of the utmost pressure upon private space has obtained; in both, urban living space has been at a premium, but also, for differing cultural-political reasons, the house has been a retreat from a barren or overbearing public realm. Brodsky and Utkin are designing a museum to celebrate the writer Dostoevsky. Of the Dostoevsky museum Brodsky said, 'I don't know exactly yet how we'll do it, but I think it will be a dark, dark hole.'

In a period of repression under Brezhnev, artists and intellectuals made their flats their forum; kitchen tables and apartment exhibitions were their meetings and cafes. The intensely personal networks that grew up within the most impersonal mass housing is a basic datum in the work of Brodsky & Utkin and their contemporaries. It was reflected in an etching of a doll's house, which was really an entire child's den, a 'Babel' in miniature, made of nooks, dark holes, shelves filled with objects of fear as well as love, and crowned with a tree. It was, in fact, a city in itself, reduced to the dimension of a toy but with some of the fearfulness of a fairy tale illustration. At their studio, the critic Alexandr Rappaport talked of this: 'Sometimes a fairy tale picture is frightening for a child, but the child lives the life of the picture as if he lives the life of the toy, with one difference, that he plays with his toys, he is master of the situation, and regarding the frightening illustration he is but the subject of the situation . . . There are two ways of imagination: first, that of who plays with toys. He is a master, a God. Second, a playful experience, of fear . . . anyhow, to take part in something

'A Nameless River,' 1986



greater than yourself . . . I suppose there is a part of the roots of the sublime in infant consciousness . . .' The etchings of Brodsky & Utkin work on this double level, of mastery in the intimate realm and a vicarious participation in the fearful but sublime vista of the metropolis.

In 1983 they invented a 'Winnie-the-Pooh House' — an urban dacha, delivered to the site by crane, but quite autonomous, whose *'owners live under a system of measurement of their own.'* It was, in fact, a cross between their own studio and their eery doll's house. On the other hand, the fearful aspect that the toy assumes when it goes out into the city as carnival was explored in a plate of 1984, 'A Wandering Turtle in the Maze of a Big City: A Style for 2001'. They write: *'It is a wandering exhibit amid the debris. The crowd is pushing something huge, cumbersome and terrible, made out of odds and ends, and constantly changing. And endless journey around the city, which more and more people join in.'*

Factories also fascinate Brodsky & Utkin. Brodsky said, *'For me, all these pipes with smoke are very beautiful and all those factories that I hate in some sense, yet I like how they look . . . I even forget their real aim, sometimes I think they were made only for beauty, by sculptors. It seems to me that L. S. Lowry thought like this when he made his paintings.'* If a fondness for phantasmagoric factories is one half of the Brodsky-Utkin sensibility, the other is their admiration for those basilisk towers which Stalin raised in a sentinal ring around the Moscow skyline. Like the factories, however, Brodsky senses in them the work of an unknown agency beyond that of their commission, a primordial impulse that can endow idols with the force of a natural event, beyond criticism: 'I think they are not the best examples of the world's architecture, but for this place they are excellent, examples of some age that is finished . . . I see these strange, huge, ugly buildings as stones from faraway times. For me it is the death of some monsters, the death of some architects, the last of those who could do something with their hands. We were interested in their interiors, the artificial marble, and we spoke with some who took part in their building. They are old now, and they remember this time as something strange and good, their youth when they could make something. Many are dead now and so I look on these buildings with very strong feeling, like the last bones of some great animals that became extinct . . .' *'For me, the main point in our life is to resist that terrible process I can call mixing, making all the same, a grey-brown. It's a very strong connection with all our thoughts about architecture, with the Stalinist buildings, with the last master-craftsmen . . . They are all different people — good, bad, silly, clever, ugly, beautiful — I love all of them, but I don't want all of them painting one colour. So one of the ideas of these projects is some idea of resistance to this process. . . '*

Brodsky and Utkin seem to feel that architecture is almost transhistorical; it is that which is left after the flood of the present has passed on, like the 'moved stones' of a human geology, at most a resistant to interminable forces tending perpetually towards sameness. In an etching called 'The Nameless River, Monument for Year 2001', they symbolise time by the arbitrary number of 2001 huge columns carrying a glass canopy in a trench of immense length. The legend cites Derzhavin: *'The stream of time in rapid current sweeps away all men's deeds and sinks in an abyss of forgetting.'* Their image reminds of Tarkovsky's endless tracking shots in which the camera gazes down into a river in which are sunk the debris and jetsam of history. Another legend on *'The Nameless River'* quotes Joseph Brodsky: *'What do we love most of all? Rivers and streets; the long things in life.'* □

V. Leviash, N. Matussevich, S. Lvov, K. Rubina. Institute of Electrical Engineering, Leningrad, 1986.

SOVIET ARCHITECTURE IN TRANSITION

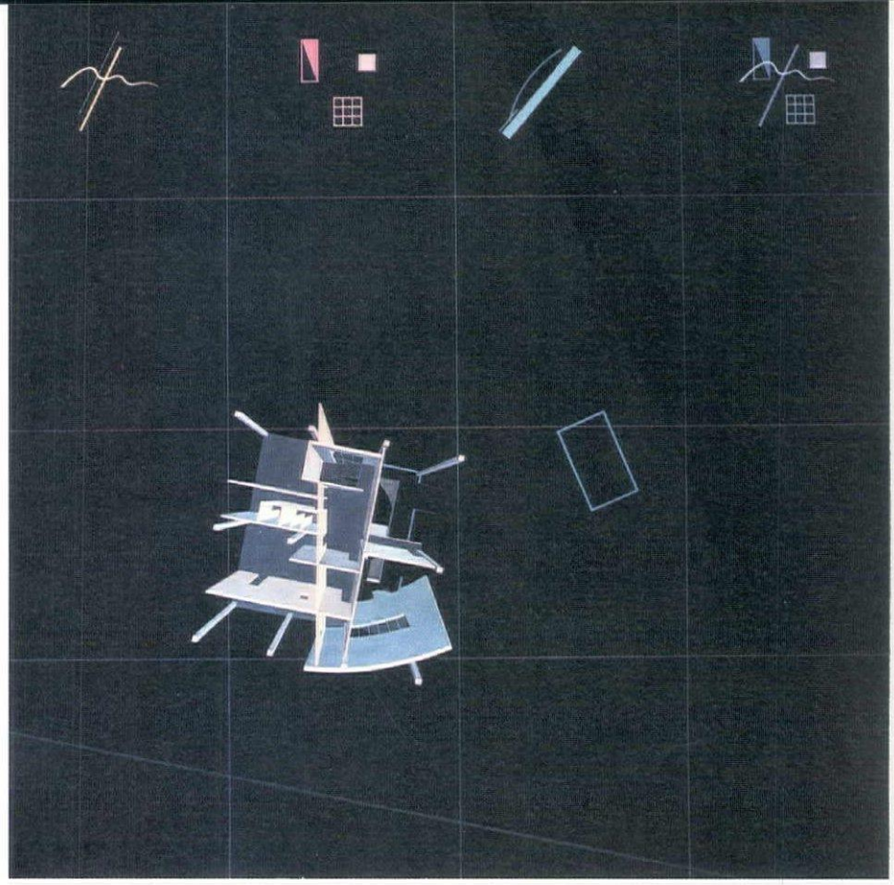
Vyacheslav Glazychev, Vice-President of the CU union of Architects in Moscow, discusses the effects of perestroyka on architectural practices in the USSR.

The Soviet Guild of Architecture, founded in the 1930s, has been divided by the advent of perestroyka. There is an element of Soviet architecture which has been taken by surprise while others have long been preparing for perestroyka to begin. This division has been caused by the 'petrified' beaurocratic structure which had successfully imprinted itself on the subconscious of professionals who were trained to consider its form to be self-evident. But since the early 60s some architects and architectural critics have been promoting the idea of radical changes in the hierarchical order in the profession, arguing that the result could be the revitalization of a rather archaic 'master builder' who would then play a key role with the building process. Others have sought to establish a new model of direct interrelations between an architect and a client — individual or corporate, but not state.

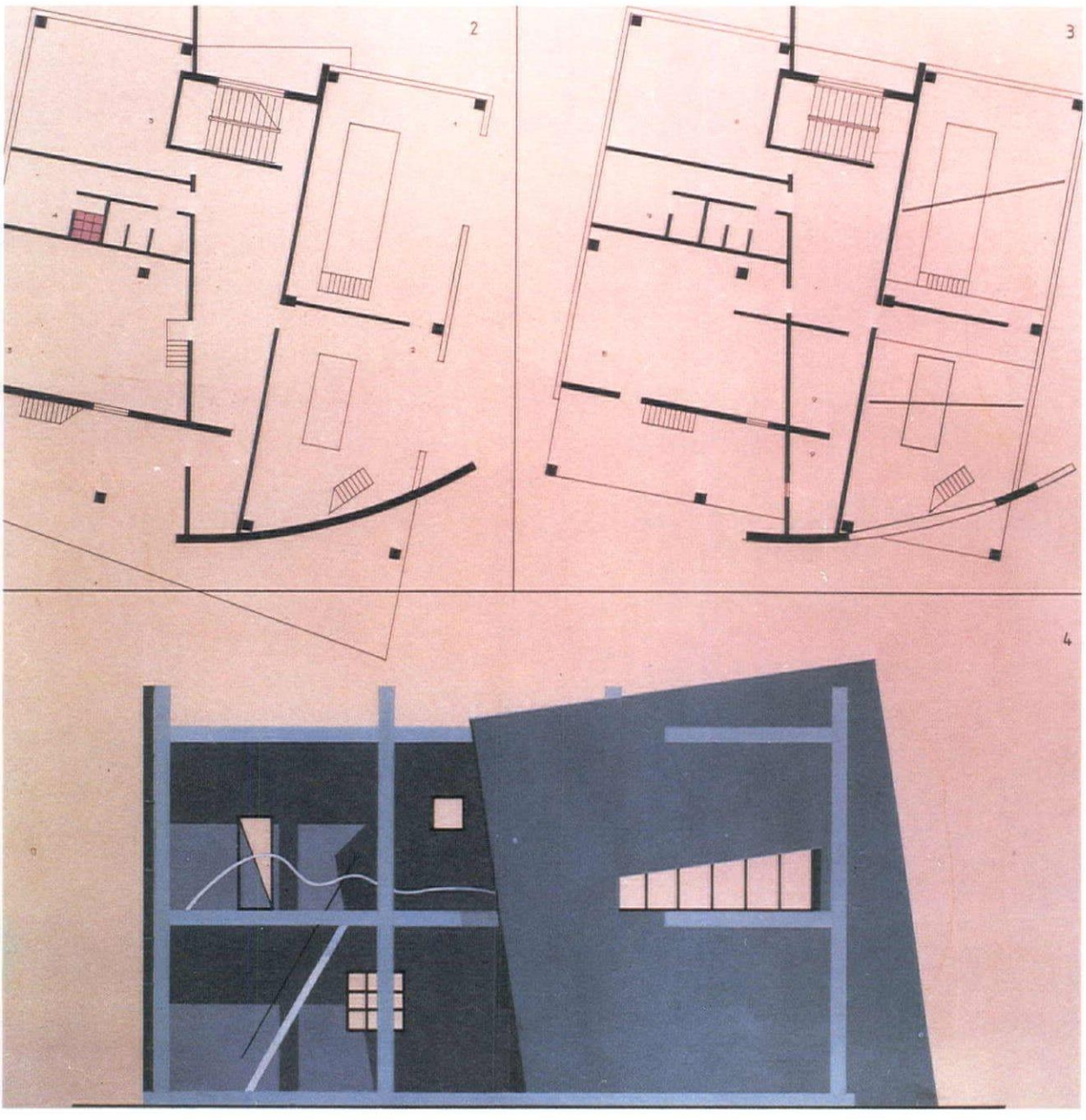
Related yet autonomous too, there are three levels of activity in what is at present a vague and mobile Soviet architectural situation: the social context of architectural activity; the organizational pattern of it; and the change inside the professional union, i.e. the CU Union of Architects.

The Context

By the mid-80s, the public dissatisfaction and anger at the quality of the urban and rural environment had reached its climax. People were angered by the poor quality of construction and dissatisfied with the inadequate character of the built environment. The real possibilities of an architect having influenced the designs were minimal, but traditionally an architect was responsible for everything. With the involvement of certain architects with highly unpopular representational projects or with the new industrial towns thrown up regardless of the cost to the environment and historic monuments, the advent of mass housing could only strengthen public disgust. Writers, painters, ar-



G. Kurznetseva. Pump Station in Mytischchi, Moscow, 1986



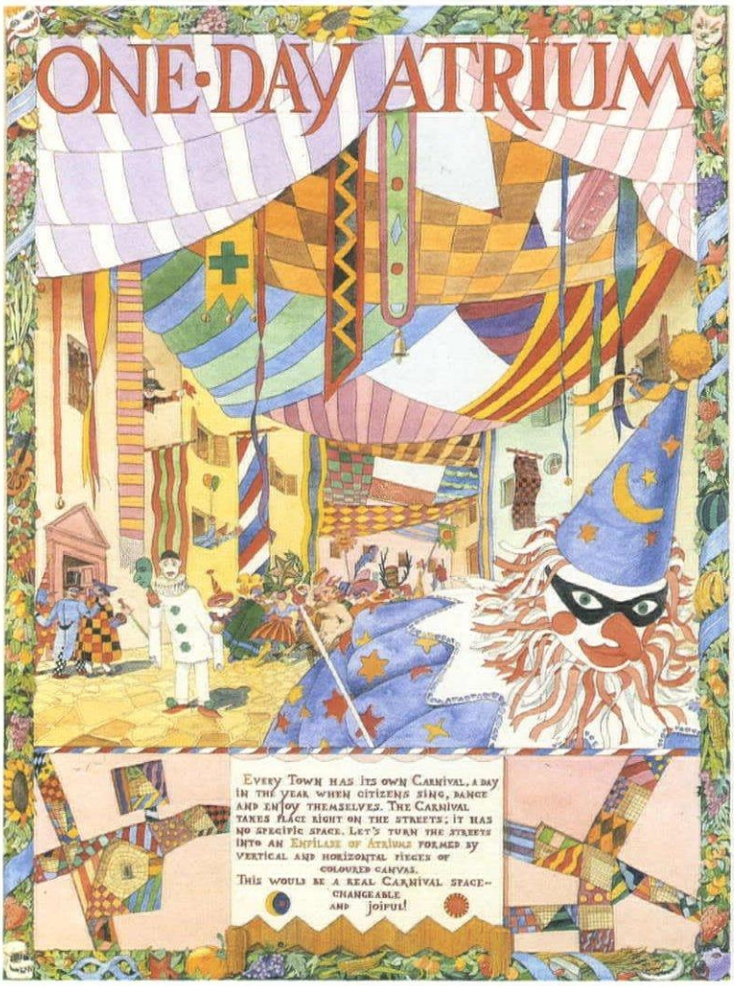
chaeologists and historians, sociologists and ecologists — everyone spoke out with fervour on architects' deadly sins. The very word 'architect' became taboo.

The state bureaucracy of architecture and construction, a technocratic organization, preferred either to ignore the mass protest, or blamed the problems on incompetence at every justifiable opportunity. The new secretariat of the SU Architects Union, elected in summer 1987, made it a priority to break the circle of social isolation around architecture, and to seek for allies in the struggle to free architecture from the control of technocracy.

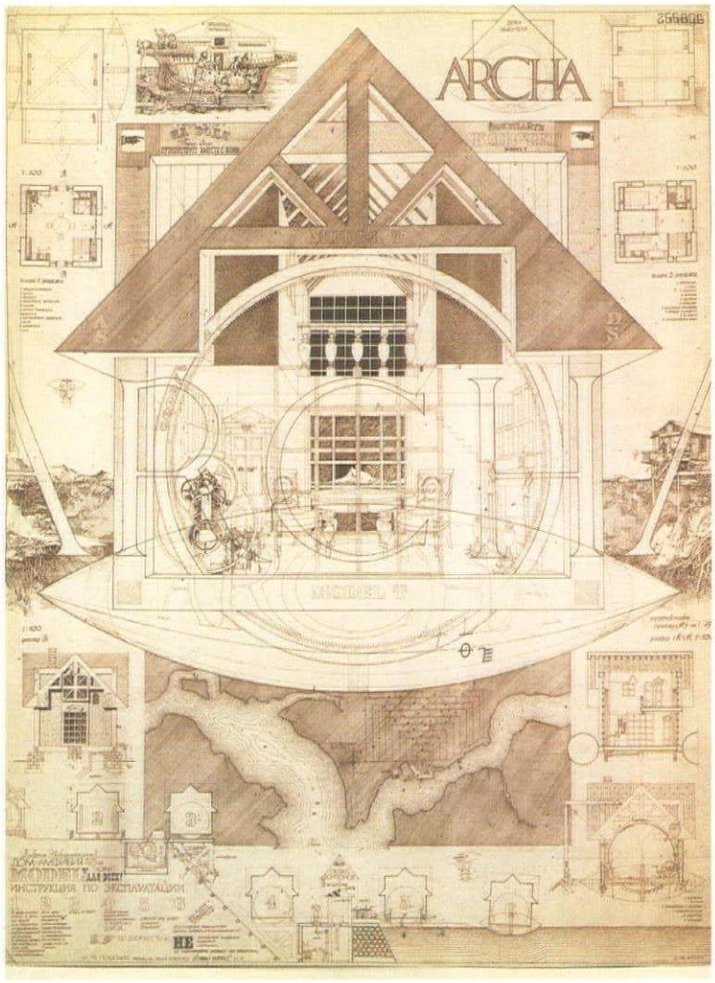
It was mainly due to the achievement of this tactical aim before spring 1989 that the very first steps taken by the new governing body of the Union were to strongly support a public movement for collecting and preserving the memory of those who had perished or suffered during Stalinist purges. For the first time in the 50 years of its existence the Union took a firm socio-political stand in crucial matters and established a direct dialogue with other creative unions and the press. Once started, that dialogue could continue and be widened to include different public movements ranging from The Soviet Cultural Foundation to the Society for the Protection of Animals. Step by step, this dialogue turned into a constant set of mutual cultural programs, such as the preparation of an international festival of Soviet avant garde and its heredity.

The architectural 'shop' initiated moves to reform legislation on the issues of local self-government, the Building Code and the authors' rights in architecture. The Union formed a re-

V. Voronova, A. Ignatjev, A. Petrov. One Day Atrium. Competition project, 1985



D. Shelest A. Shelest. Cross – Country - Cottage. Competition Project, 1985



search group and succeeded in the publication of the draft of the Urban legislation — an act without precedent in Soviet history. To achieve this aim, architects had to establish regular consultations with lawyers and other specialists, bringing with them professional understanding of the special aspects of social interrelations in the built environment.

Last but not least, we started to organize public consultation committees, co-operating with the chief architects of some cities to establish direct contact with local movements for the preservation of natural and historical values and for further democratisation of decision-making processes. This has proven to be a real education both for architects, who learned a lot from the 'ordinary' people and for the pressure groups who now have a greater understanding of architectural processes.

These events have forced the bureaucratic structure of state control of the building industry to reassess its role and to learn about the benefits of communicating with the public.

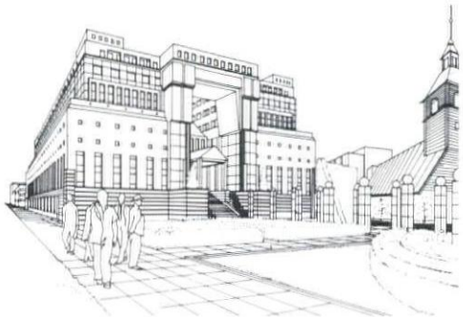
The Organization of the Profession

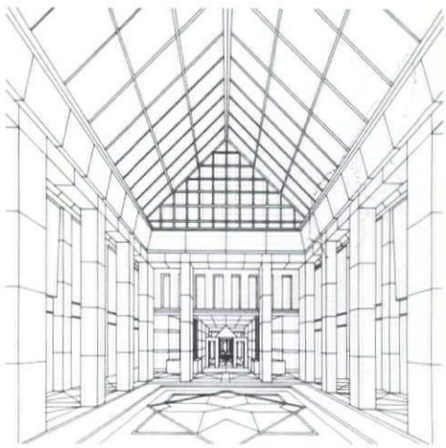
In 1977 I published a book entitled 'The Organization of Architectural Design-Process' in which I attempted to show all the potential possibilities of changing the organizational pattern of Soviet architecture, and the main lines of possible transformation. It influenced the research works of certain colleagues but otherwise went unnoticed. Last year, architects and managers of the state bureaus were overwhelmed by these changes. For the first time in their lives they were confronted with financial issues and the professional guild discovered the state bureaux were unprepared for any major change.

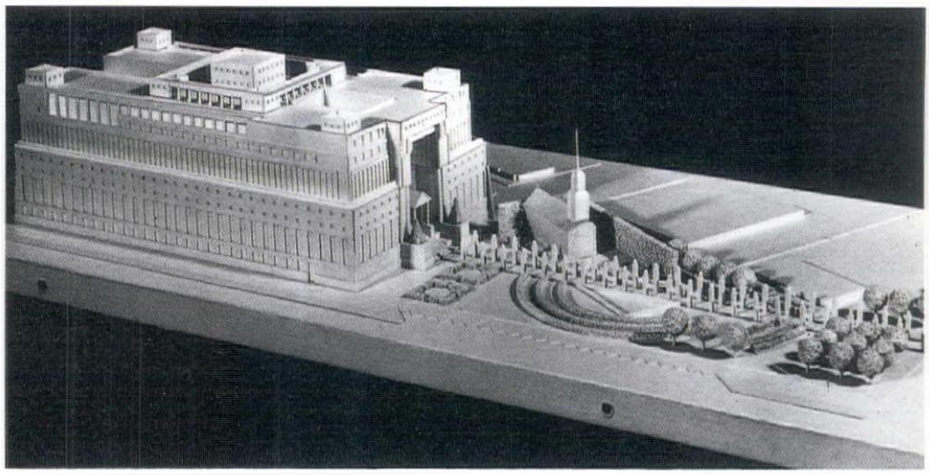
Architects who were always a minority in the state bureaux suddenly found that the interests of the profession were now in conflict with economic demands of the majority — the engineers. Most active architects saw the wisdom in fleeing to the newly opened market of cooperatives. We can now witness the first (rather weak) attempts to juggle organizational patterns in the existing bureaux on a commercial basis. But there is one almost insurmountable obstacle: there is no law to protect both an architect, representing the client, and the client himself.

The Union, being a public organization, was better prepared for the new situation than both the state and municipal bureaux. We patronize the co-ops, but are also to establish full control on their licensing — free from any state interference. The Union has pledged to restructure the whole organizational pattern of the profession in the Soviet Union, bearing in mind its diversity and standing firmly for the independence of republican sovereignty over the Building Code. To lessen the tensions inside the state bureaux the Union has begun a system known as the 'Archproject' with 70 branches over the country. The overall result of its financial activity (to be

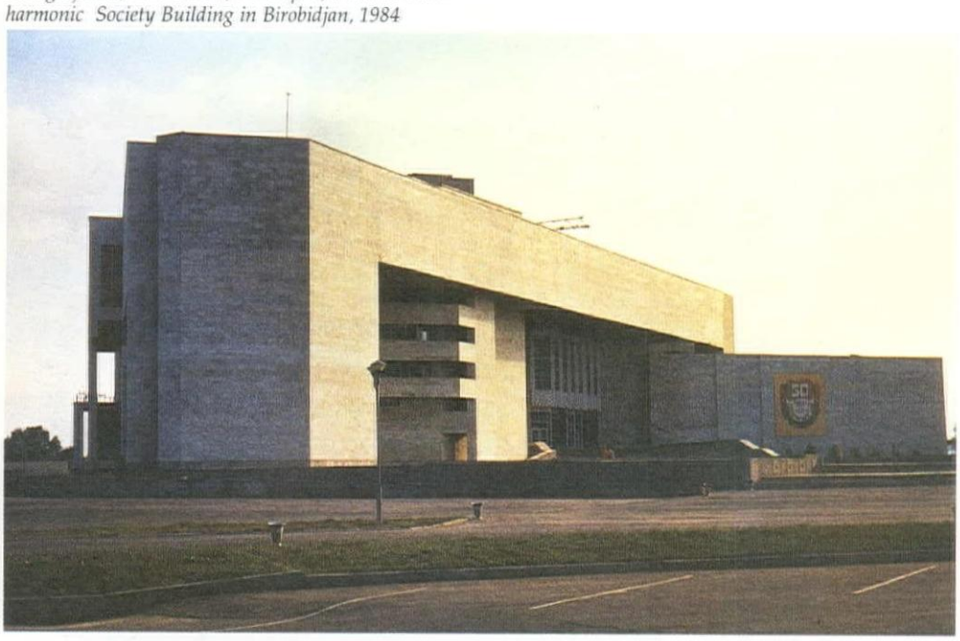
M. Lyoke. State Library of the Estonian SSR, Tallinn, 1982

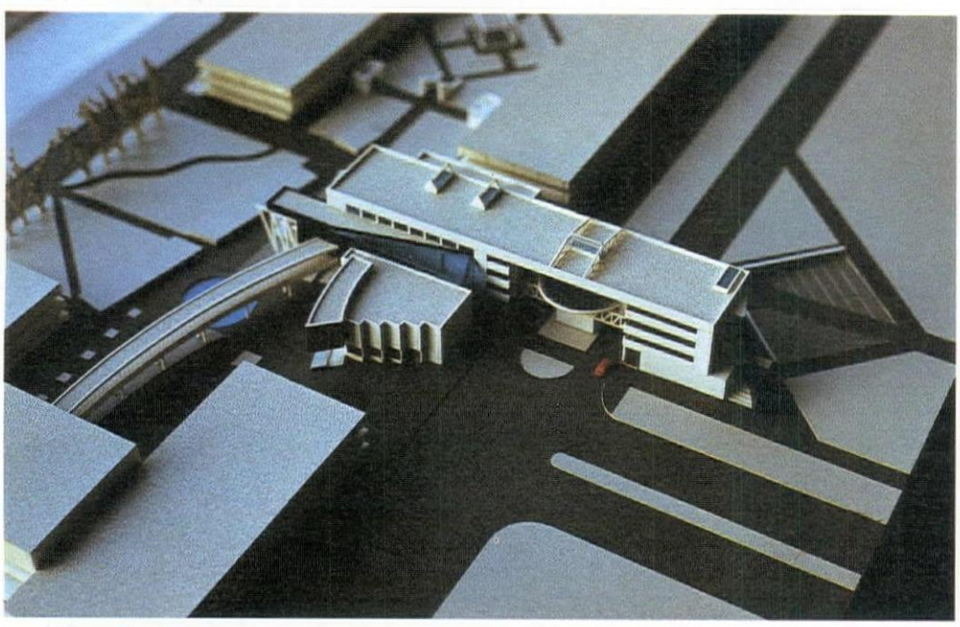






A. Agrafonov, V. Vesselor, G Solopov, District Philharmonic Society Building in Birobidjan, 1984





A. Alver. Technical Centre in Khaabname, near Tallinn, 1986

an intermediary and a manager) has grown tenfold during 1988. Archproject is a managerial system which enables architects who stay at the state bureau, and those who prefer to quit, to receive professional work all over the country.

It is not surprising that the 'silent majority' of architects, who for so long remained rather indifferent to theorists' and critics' outbursts on the professional crisis, now tend to be radical reformers as their financial interests are endangered. Ten years ago my appeals to dismantle the organizational pattern in Soviet architecture, to test new experimental patterns of it, were met with disbelief. Now these ideas are regarded as trivial, so we can expect that the traditional pattern will cease to exist sometime before 1990. This means that the professional guild will be split into different professions: freelance architects and architects-contractors on one side and and municipal experts or employees at the construction company on the other.

The Club

It is obvious that, with all the changes in the social context and organizational pattern of the profession, the Union cannot stay the same. From the date of its initiation in 1937 it was simply the club. Nevertheless, we must remember that, within a club, we managed to establish a group of reformers as far back as the early 70s. This team, called 'a group of perspective problems,' gathered for seminars in various parts of the country to discuss with local groups the necessary reforms. That preliminary work has enabled us to start real changes in 1989 — before the inevitable emergence of the former centralist approach to architecture.

In January 1989, those of the Republican Unions of architects (Russian, Baltic republics, Kazach) that were already prepared for these changes becamefinancially self-governed, using a part of their funds at will to support national programs. The Union has started to establish its own economical foundation, initiating both design bureaus and construction companies that can work with a real client, not with his bureaucratic 'shadow.' The changing role of the club has led to the gradual transformation of the club into a professional (trade) union, strong and active. The foremost tasks are to establish a Bank with development funds (with additional capital from other organizations and from operations abroad), to start an active social security programme for the retired members of the Union and provide a full scale legislative support for members activities.

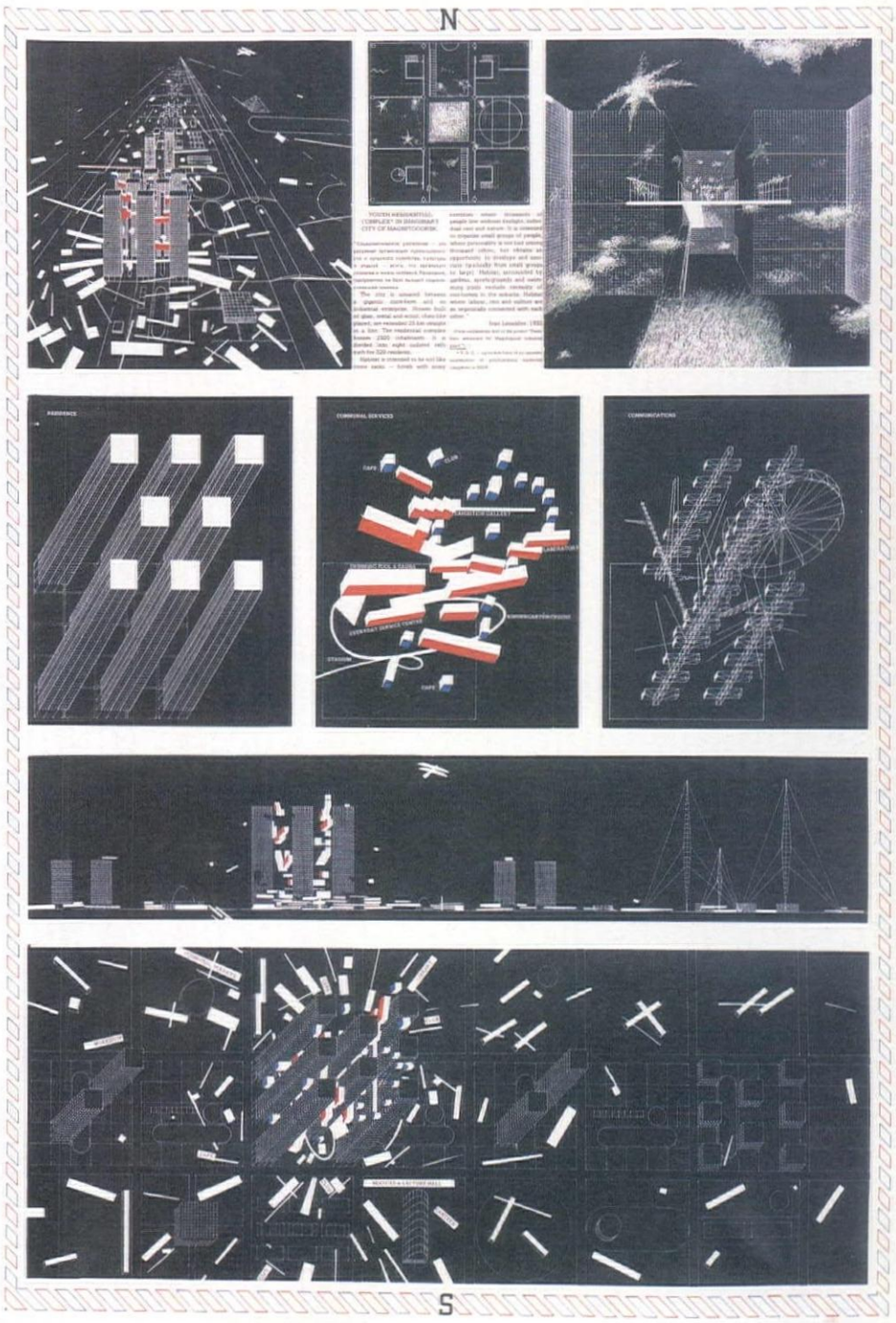
It became obvious that the feedback

A. Golovin, O Shapiro. Scheme for a multi-purpose industrial complex in Moscow 1986

between the Secretariat, the Republican Unions and the local organizations of the Union needed to be far stronger than in the past, so we started publishing a quarterly bulletin in 1988 and are now establishing The UA News, to be published bi-monthly. A self-supporting edition, The UA News will provide every Union member' with the chance to air their views and a new advertising medium.

The 'pyramidal' structure of the Union, the result of the Stalin era, intended as a tool of conformity and total control over the profession can no longer be preserved. The next step (retaining the benefits of the centralisation experience) is to make room for a real federalization. We can see a new outline for the guild as a general federation of different associations and groups which could emerge as specialised groups, landscape architects for instance, or as groupings on a certain creative platform or even as clubs.

Striving for change, we should remember that a swift metamorphosis would be unwise, not so much because of the contextual opposition (though one can't ignore that), but because of natural conservatism. The majority of professionals who are now 55+ *are* conservative, preferring the illusions of security in a state bureau to the risks of the open market. These people make up the very core of the Union, so it would be unwise to attempt real structural reform before the mid-90s. □



A. Avrakumov, Y. Kuzin. Youth Residential Complex in the Imaginary City of Magnitogorsk. Competition project, 1987

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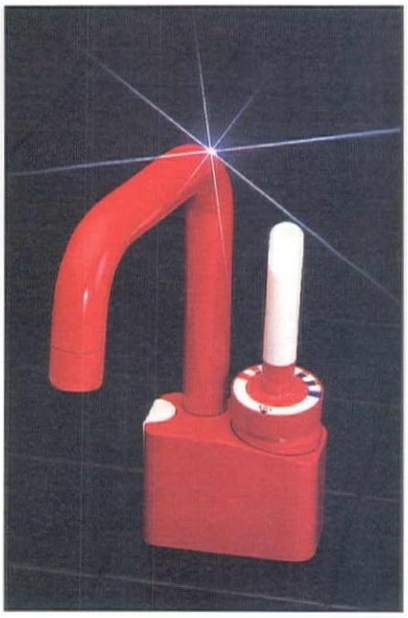
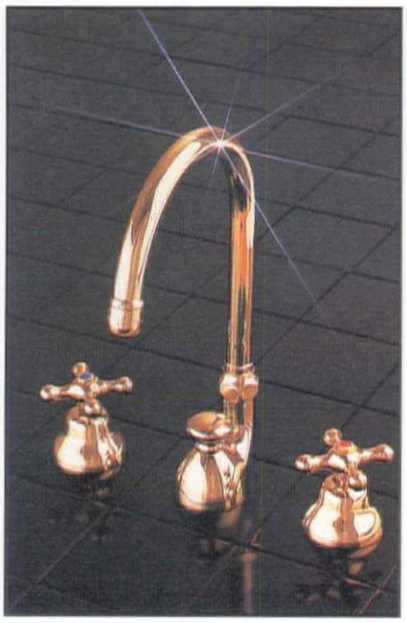
stella
RUBINETTERIE STELLA S.p.A

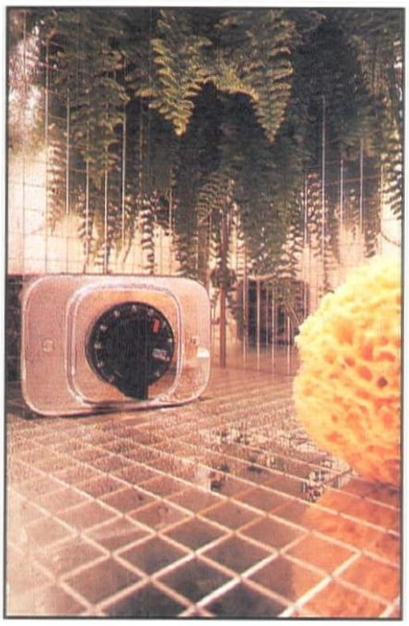
◄ ASTER LINE: widespread washbasin mixer



BOX LINE: single handle ► washbasin mixer



◄ ROMA LINE: widespread washbasin mixer



ISOMIX: thermostatic mixer, ► concealed model

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Box – Single handle mixers
Box is an accurate, funtional single handle mixer. Its design is exclusive and its line is signed by the architect Carlo Santi. Box is unaffected by calcium deposits and fitted with internal protective filters. Box, the single handle mixer which lets you adjust water flow with one simple movement, is produced in chrome, white, red, yellow, blue, green, havana, mat black and protected bright brass.

Roma
The Roma style is not a quotation, the Roma style established itself in the course of time. Roma is the only original and has been produced by Rubinetterie Stella without interruption since 1926. Both for bathroom and kitchen, Roma is available in different styles and in the colours chrome, white, red, yellow, blue, green, havana, mat black and protected bright brass.

Isomix – Automatic thermostatic mixers
The automatic thermostatic mixer most widely installed in Italy is called Isomix. Isomix lets you programme the temperature of the water delivered and hold it constant.
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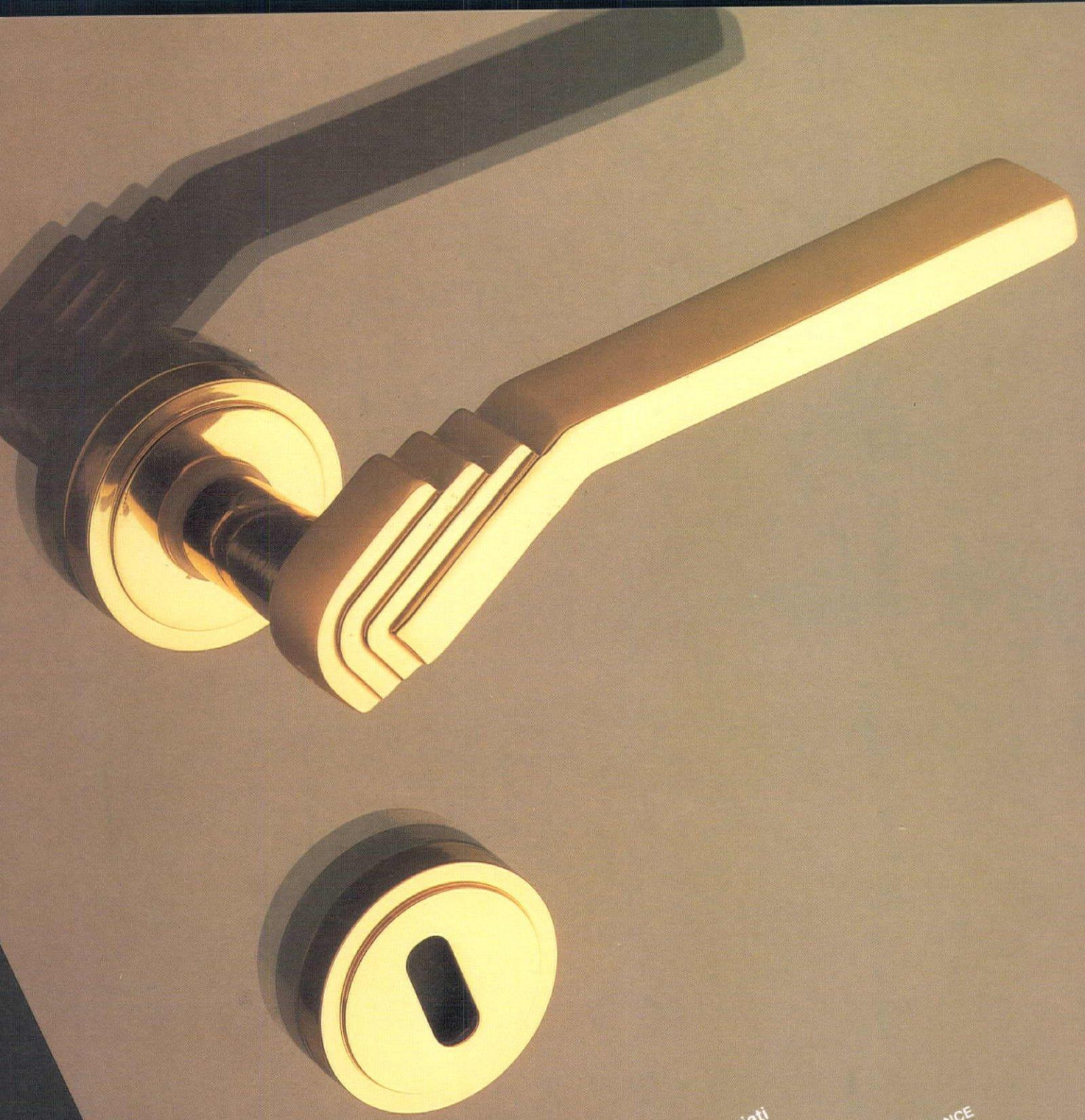

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design Sottsass Associati

materiale:
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MOSCOW'S TV TOWER

MODERNISATION PROGRAMME FOR THE LIFT'S NEW RADIO CONTROL SYSTEM

The fastest and highest passenger lift in Europe by Helmut Müller

Moscow's Ostankino district is dominated by the TV tower which juts into the sky like a giant needle. When the current modernisation work on one of the tower's lifts is finished and its speed uprated from 7m/s to 9m/s, it will be the fastest passenger lift in Europe by far.

The site for the TV tower was chosen quite deliberately. Placed between the historic Ostankino Castle - nowadays an important monument - and the "Permanent Exhibition of the Achievements of the USSR", the tower is a giant symbol of progress to the Russian people.

More than 1000 staff work at the tower and it is one of the most important telecommunication establishments in the whole country. Five TV programmes and numerous other services ranging from cable communication to satellite links are transmitted from it.

As a tourist attraction its drawing power is unrivalled. Since it was opened in 1967, more than 10 million people have visited the viewing platform with its revolving restaurant. The distance covered by the lifts carrying all these visitors is about equal to the distance from the Earth to the Moon.

However, the importance of the tower is not only due to its function as a communication centre or as a tourist attraction. It is important in its own right as a milestone of engineer's skill in tower building. It has become an object of study and demonstration for specialists from all parts of the Soviet Union and from all over the world.

There are four lifts linking the viewing platform and restaurant to the ground. All four have a working height of 348m and can stop at seven main levels and (for servicing purposes) 40 secondary levels. The three passenger lifts can carry 13 people each, corresponding to a weight of 1050kg. So far they have been operating at a speed of 7m/s. The fourth lift, which can carry 500kg and runs at 4m/s, is the service list for the tower restaurant. There is another small service lift running from the viewing platform up inside the 150m tall aerial to the tip of the tower at 528m.

The lifts are the tower's arteries so it was only natural that its managers and the telecommunication ministry should take the opportunity of the tower's twentieth anniversary to undertake a comprehensive modernisation programme on the lifts with the object of:

- securing the long-term lifts of the tower
- improving its availability
- improving safety for visitors and staff to the latest state-of-the-art
- and improving the tower's facilities in order to cope with the demands of future progress.

When the modernisation of the lift is completed and its speed increased from 7m/s to 9m/s it will be far and away the fastest lift in Europe. In future, visitors will take less than a minute to go from the entrance at ground level to the viewing platform 348m up. The new 5-tonne machinery incorporates twin-circuit safety brakes and, in conjunction with the power electronics of the system, will provide an extremely economical and safe service. The speed is regulated steplessly, providing smooth acceleration and deceleration from start to finish.

Because of the greatest height, the confined conditions in the shaft and the swaying of the tower, the control signals between the moving cabin and the machinery are transmitted by radio. This necessitates batteries on board the cabin which have to be recharged at night.

In an attempt to increase the daily service availability, tests were carried out before the modernisation programme was put in hand to see whether in fact it would be possible to employ a hanging cable arrangement. The tests lasted several months and, in the end, confirmed the decision taken 25 years ago to use a design without a cable - the test cable broke.

Part of the modernisation includes the installation of powerful new batteries on board the cabin. They are recharged automatically during the day when the lift is in the parked position and during a few hours at night. A special type of dry battery filled with a gel is used because they have safety advantages over conventional accumulators filled with liquid acid.

A total of 45 different function signals have to be transmitted - door safety signals, stop commands, position indication and speech to five different locations.

Although the original electronic control system is still functioning perfectly reliable and safely, a new system will be installed, partly because obtaining spares for the original system is becoming difficult and partly because the latest control technology allows comprehensive diagnostic facilities to be incorporated in addition to the actual control functions.

A new control centre with remote monitoring of all plant and equipment will greatly improve the overall operation of the installation, which is made difficult by the large distances involved, confined access to certain items of equipment and the naturally restricted space in the machinery and equipment rooms at the top of the tower.

This type of plant monitoring system has already been giving sterling service in highly complex industrial situations and on board modern ships. The system provides transparency for all operating and fault alarms as well as information on the nature and cause of faults to permit fast, objective ratification. All information is presented on high-resolution screens for each lift and can also be printed out for logging or stored in the system for checking purposes.

Special attention has been paid to fire protection. All the cabling in the lift shaft is halogen-free.

One remarkable feature is that the mechanical parts of the installation, including the safety equipment, need no basic modifications at all, apart from being adapted for the higher speed, although the installation and operating conditions of this showcase lift system are unusual:

- During strong winds the tower can be deflected by up to 2m at the viewing platform level and by up to 6m at the tip of the aerial. Of course, the lifts must still continue operating under storm conditions, although at reduced speeds.
- The tower is about 0.5m taller in summer than in winter. This presents a special problem for the lift shaft since reliability, comfort and safety have to be assured under all conditions. The original basic concept of the shaft has proved itself throughout the life of the tower.
- The temperature inside the shaft fluctuates between -20° and +40°C according to the time of year.

The original lifts were built twenty years ago by R. Stahl from Stuttgart and, at the time, were regarded as a technological breakthrough pointing the way forward in solving the specific problems of a structure as complex as the Moscow TV tower. THYSSEN MAN AUFZUEGE GmbH, part of the THYSSEN group and now incorporating the lift business of Rheinstahl, Eggers Kehrhahn and R. Stahl, are currently carrying out the modernisation programme to the very latest levels of technical expertise, in order to achieve greater performance, reliability and safety, so that this unique structure can continue to attract visitors from all over the world, far into the future.

(Right) In future it will take less than a minute for the lift in the Moscow TV tower to travel from the ground entrance to the viewing platform 348m up. It will be Europe's fastest and highest lift. As the first of three passenger lifts installed in the tower in 1967, it is currently undergoing modernisation to bring it to the latest state-of-the-art. By the time it is returned to service in the late autumn of this year, the whole electrical installation will have been renewed and the original control system replaced by one of the very latest electronic systems. In addition to the complex electronic controls, there is also a screen-aided monitoring and communications system. A microprocessor-controlled radio transmission system has been designed for the transfer of data and speech between the cabin and the control room.

PHOTO: Thyssen

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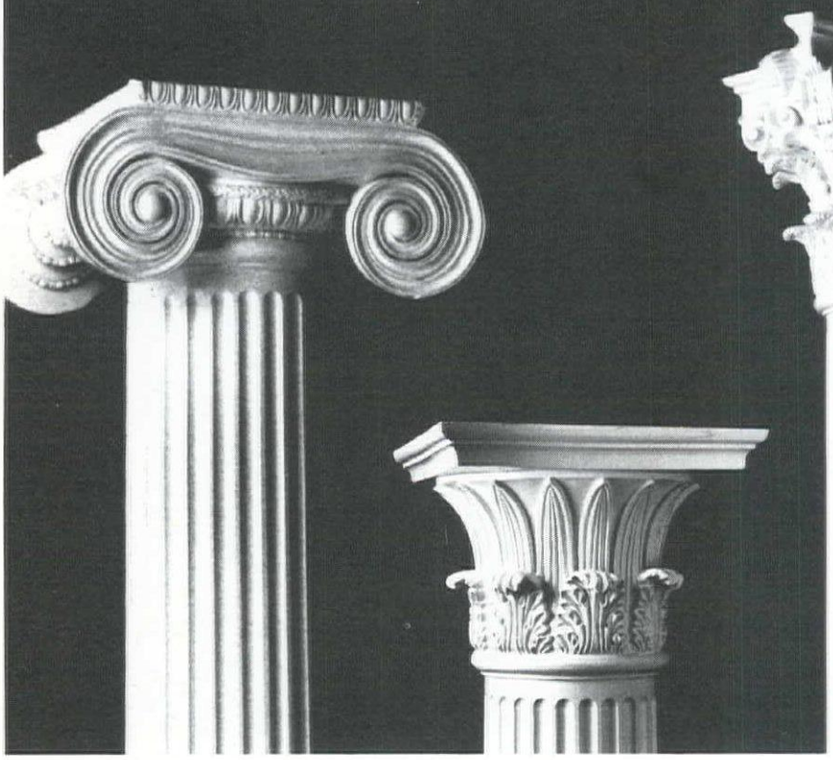

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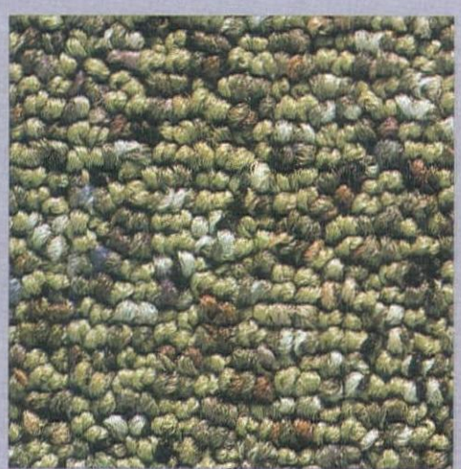

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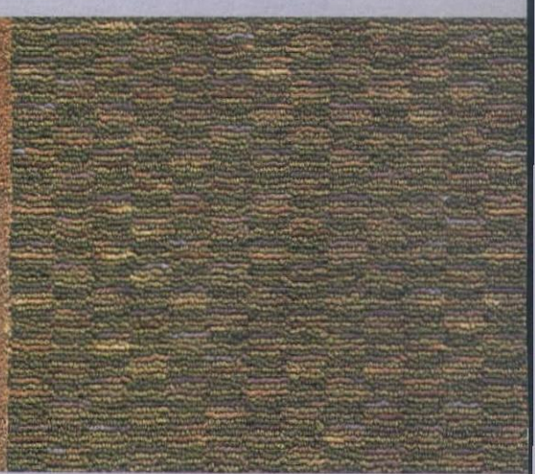

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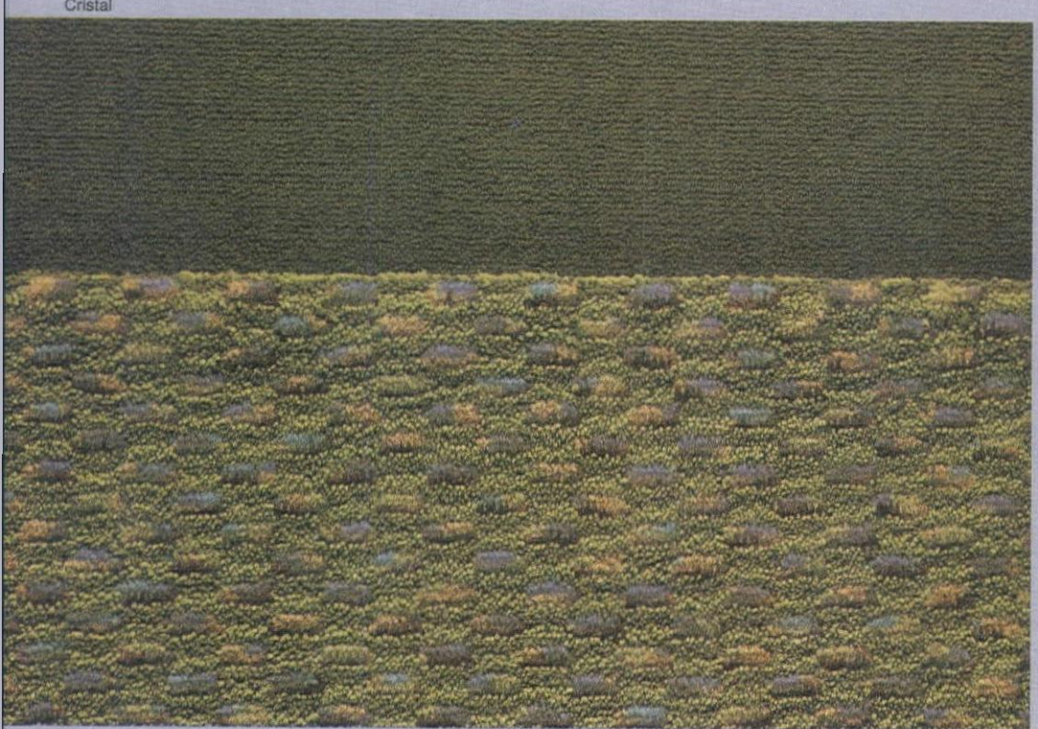

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