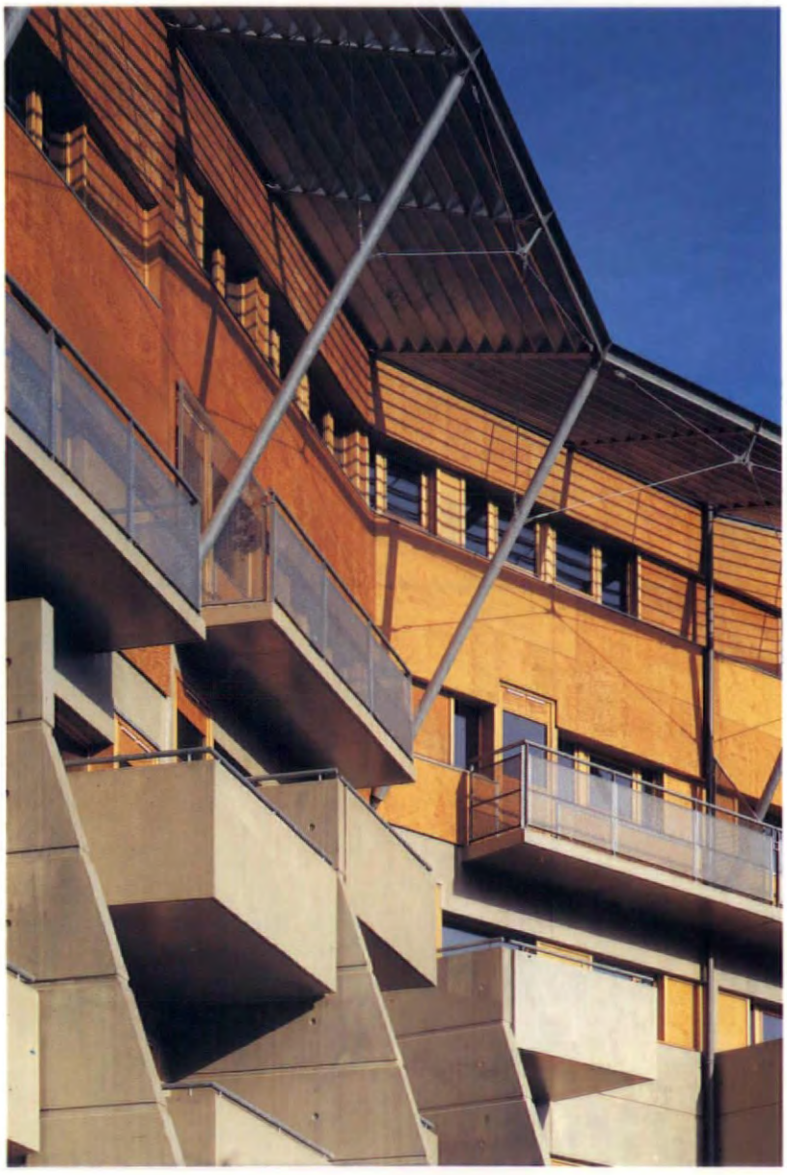
WORLD ARCHITECTURE

ISSUE NO. 29 US$10 UK£10



JOURDA & PERRAUDIN

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STORY OF LIFTS PART TWO

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WORLD ARCHITECTURE

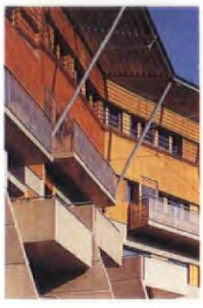
THE INDEPENDENT MAGAZINE OF THE INTERNATIONAL ACADEMY OF ARCHITECTURE (IAA) NUMBER 29

Richard Fleischman & Partners in Ohio

Kai Wartiainen in Finland

BDP in Halifax

Rupert Truman



Cover: A detail of the upper storey of the Tassin apartment building, Lyon, by Jourda et Perraudin, completed in 1992

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A new name-a new force

ABK

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AGROB, AWS and BUCHTAL, three of Germany's leading ceramics companies, have joined forces to form ***AGROB-BUCHTAL-KERAMIK****, or* ***ABK*** *for short and in doing so have become a new force in ceramics. With* ***AWS-Wohnkeramik*** *(tile design for bathrooms and living rooms),* ***CONTECTA-Objektkeramik*** *(as used in industry, commerce and the public sector), and* ***TechnoCeram-Systemkeramik*** *(high-tech applications for facades and double floors), ABK unites all the different building ceramics applications under one roof. This not only offers new perspectives to architects, planners and designers but also encourages innovative problem solving. ABK is elevating the status of ceramics, in both the German and international markets.*

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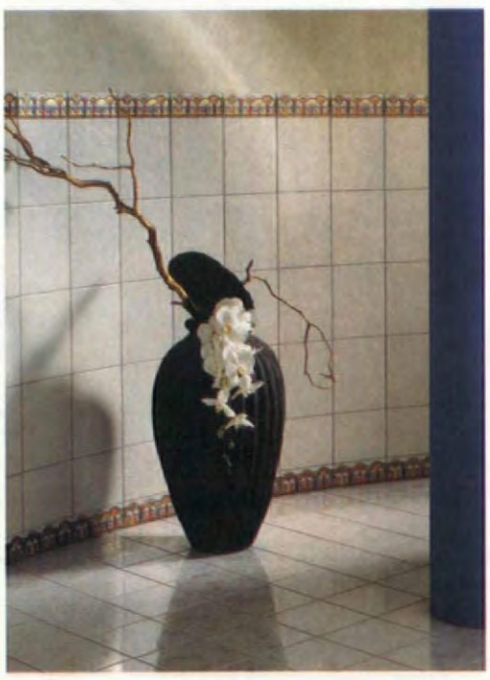

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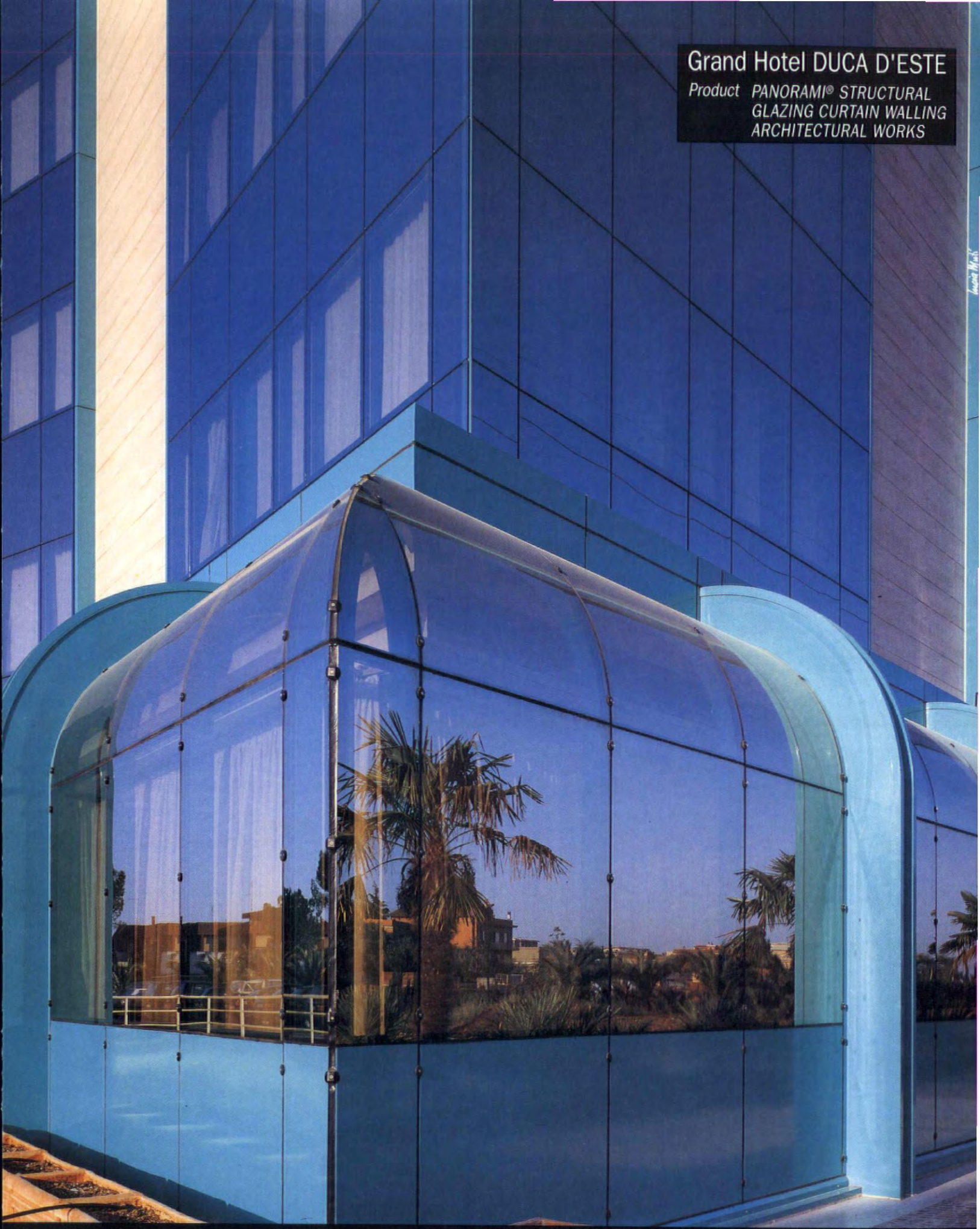

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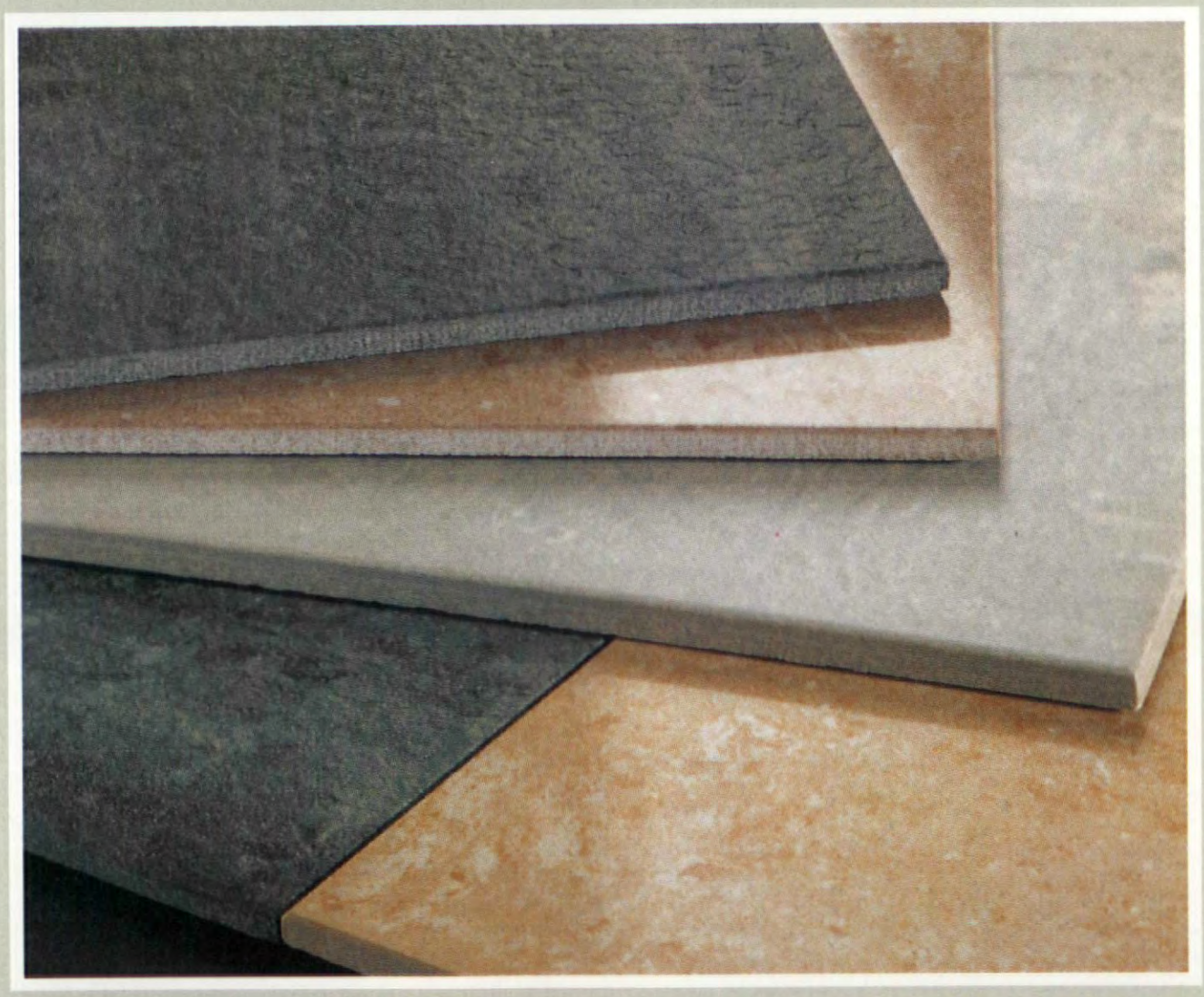
FLOOR GRES PROJECTS

CHROMTECH



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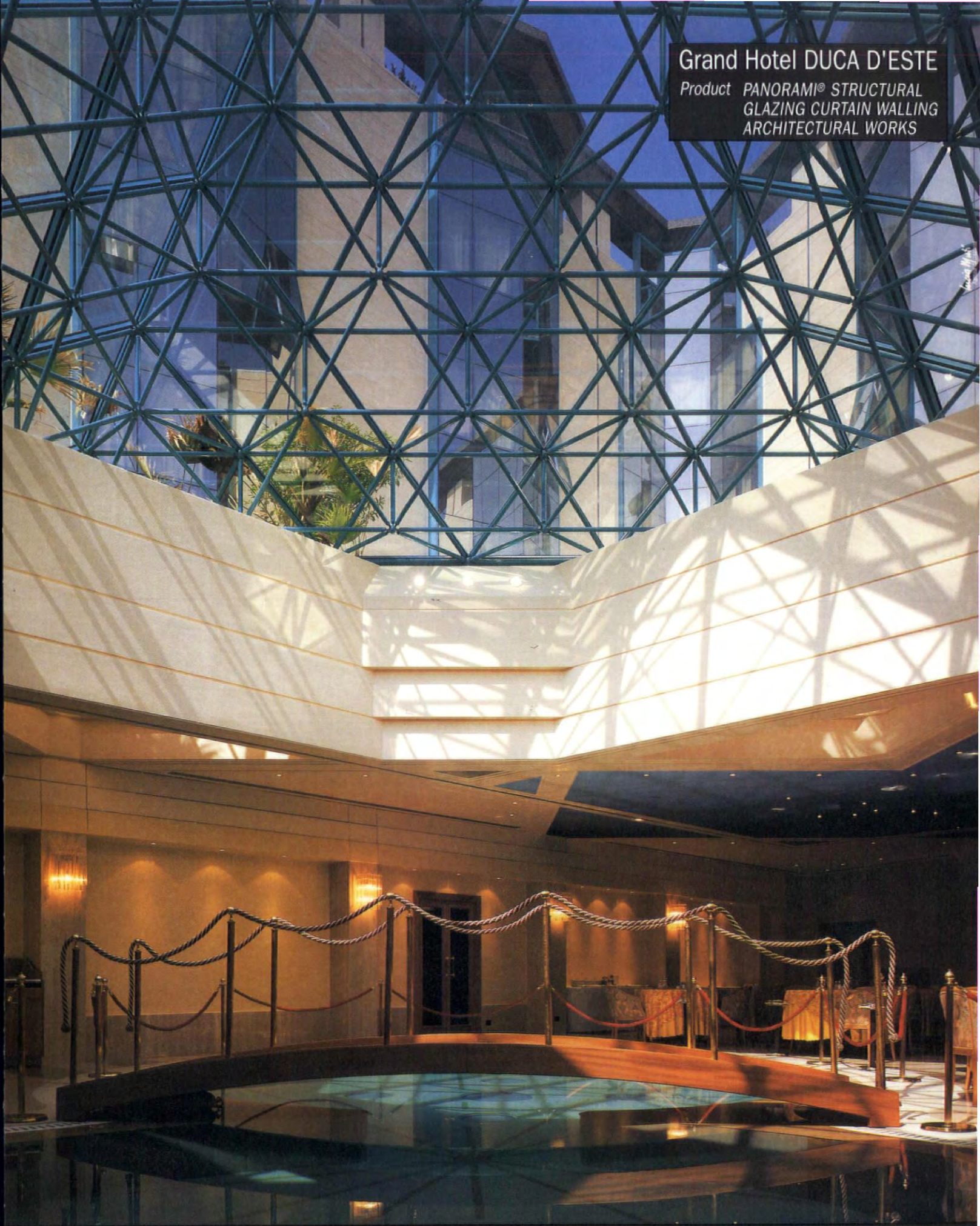

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CANOBBIO

In 1926, Federico Canobbio set to work establishing the family firm that was to carve out a worldwide reputation for itself for its mastery in the field of high-technology textile structures.

In the 1950s the company decided to invest in the textile industry. New materials and new approaches to production were studied and Canobbio was the first in Italy to explore the potential of synthetic fabrics.

A new generation of light structure coverings took flight. The next major landmark came in the 1970s with the development of high-frequency microwaves for welding the PVC fabrics.

In the 1980s the company worked with new light materials and the latest techniques. These included the first use of lamellar wooden arches as a support for the membrane, as well as the use of PTFE (commonly known as teflon) as a coating material for fibre-glass fabric.

In the nineties, Canobbio has extended its reach by enhancing its sales and technical department, as well as by establishing links with some of Europe's leading designers.

The advent of computer technology has changed the way Canobbio's engineers work. For not only can designs be experimented with on screen, but complex calculations, such as load factors and so forth, can be produced, with pin-point accuracy, in a fraction of the time.

Canobbio's work continues to make strides thanks to its contacts with leading design and engineering consultancies, university departments worldwide, as well as its members' active involvement in conferences and seminars. Increased automation of the company's manufacturing processes is designed to ensure constant quality standards while experiments with cable nets, polycarbonates, glass, stainless steel, and light alloys ensure that Canobbio goes from strength to strength.

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Experimental laboratory	Otranto
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Covering for a sale and exhibition area Costa Crociere	Castel d'Azzano (VR)
Chapiteau de Monaco	Principality of Monaco
Theatre Giuseppe Verdi	Montecatini Terme
Covering for a sport installation	Torino
Covering for performance area	Chianciano
Modular Pagoda	Milan
Exhibition in the Medici-fortress	Siena
Various temporary coverings for the Council of Europe	Milan
Temporary covering of the Apollo Epikourios Temple	Greece
Tensioned structure for the Fiera	Milan
Covering of the stadium grandstands	Misano Adriatico (FO)
Research Centre	Venafro (IS)
The Huge BIGO	Genoa
El Palenque	Seville
Avendia Dos	Seville
Pabellon de Tierras del Jerez	Seville
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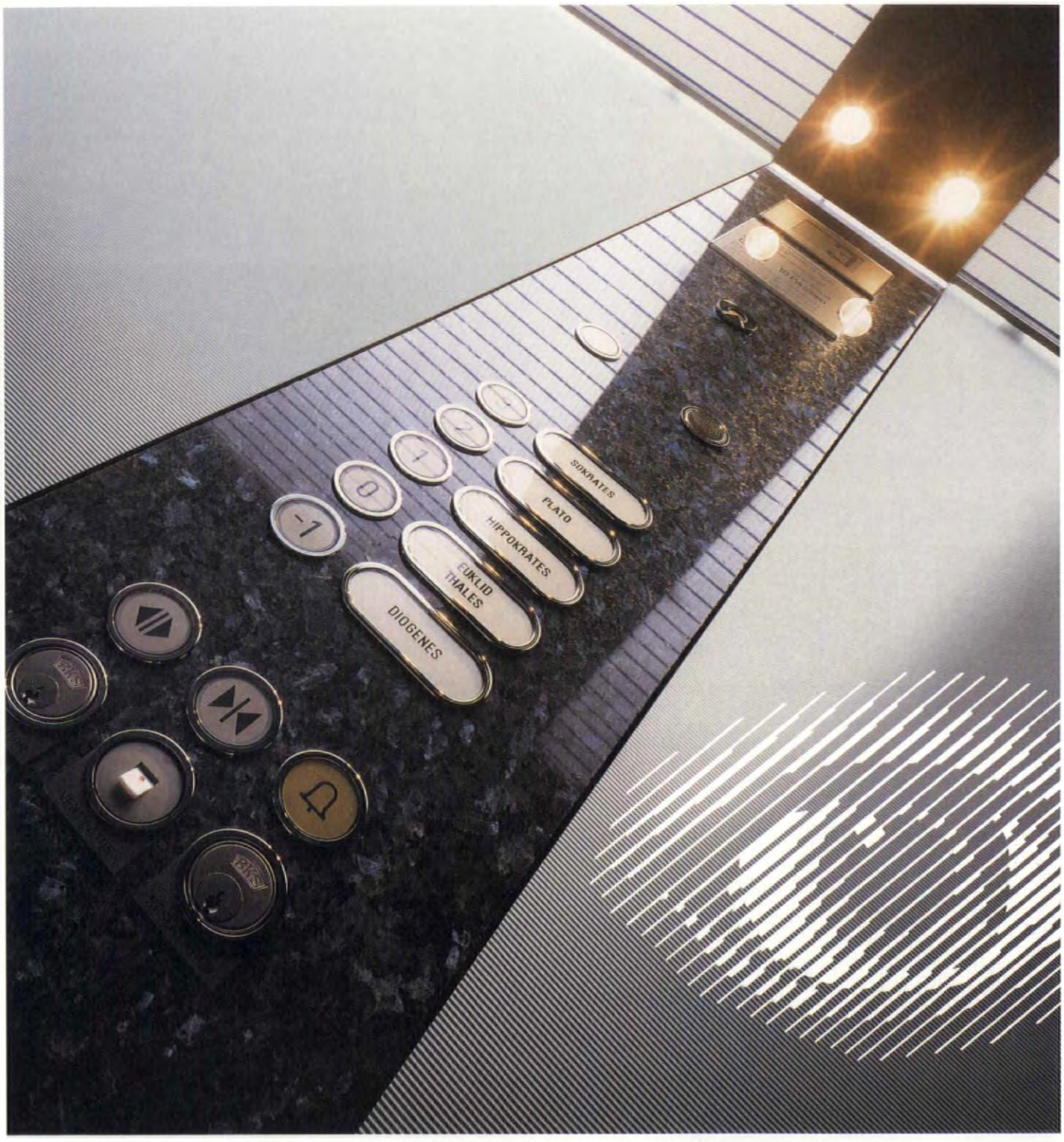

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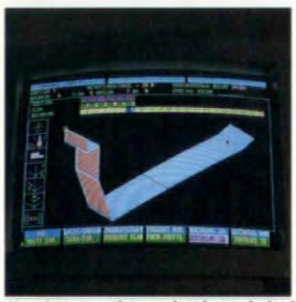
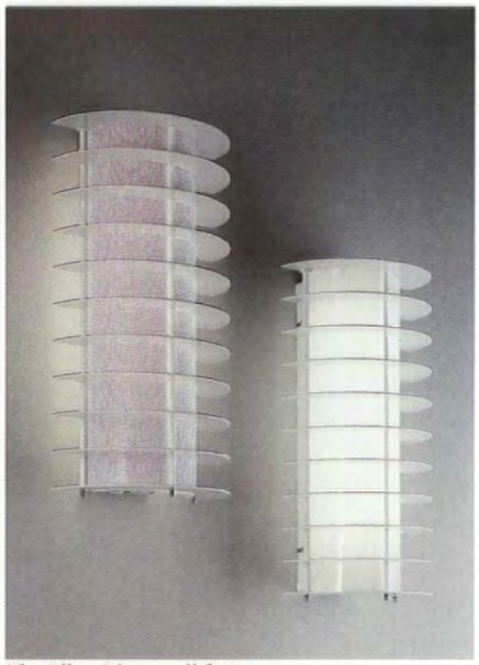
BORÉNS – THE NORDIC LIGHT.

Boréns is a modern Swedish lighting company with strong traditions. A company that has been producing creative and functional lighting ideas for a wide variety of environments for over half a century.



Boréns combines high-tech lighting know-how with decorative designs.

Iris, a classic by Boréns.



The Ellen Lång wall fitting.

Deriving its inspiration from the elusive beauty of Nordic light, twilight and enigmatic darkness, Boréns, the Swedish lighting company, combines its high-tech know-how in lighting with decorative designs in an rare concept of exacting professionalism. The creative results are what Boréns, and their clients, call lighting culture. Boréns' ability to use light to its fullest scope is one of the major factors behind the company's success.

Boréns talent for combining creativity, artistry and technology is a truly valuable asset. The company uses the latest computer technology to analyse the performance of lighting concepts, before going on to produce its patterns and prototypes. Every client can receive advice and solutions to specific lighting problems, all backed up by graphs and calculations on light levels and requirements.

Boréns is synonymous with design, so it is not surprising that the company works with Scandinavia's leading designers to produce light fitings with superb aesthetic-appeal. The success of this approach can be seen in the fact that Boréns lighting designs have not only won many international awards, but are also on show in museums all over Europe.

In a word, Boréns' proves the validity of Swedish lighting culture.

URANUS Pendant uplighter.

HALO GRANDE 1000 Pendant light.
HALO GRANDE UP 1000 Pendant uplighter.

Boréns is a modern Swedish lighting company with strong traditions. We have been making creative, functional lighting for different environments for more than half a century.

Inspired by the Nordic light, twilight and enigmatic darkness, we blend professional design with high-tech lighting know-how to create a lighting culture of our very own.

If you want to know more about us and our light fittings, please contact one of the dealers listed below, or our head office in Sweden.

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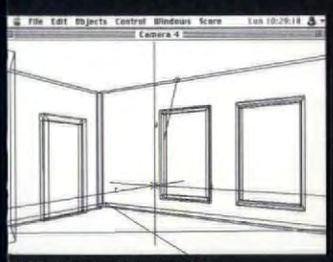
REALIZZATO DA KRONOS sas

DECORSYSTEM
DECORATION COMPUTER GUIDE

MAGE of applications screen



MAGE of a project realized with CAD

MAGE at a project done with OIKOS products

CD ROM AN INTERACTIVE CATALOGUE

Decor System is a multi-media interactive tool with which Oikos, a leading company in the interior design products field, is able to illustrate its vast arrat of products. It's a sort of interactive catalogue that makes possible for the customer to access all the pertinent information about any of Oikos's products by simply keying into the desired category. After initially selecting the appropriate field of application (private houses, hotels-catering, historical structures, public institutions, public works, work environments, commercial buildings, fairs-conventions and furniture-accessories) the customer may proceed to determine which Oikos products best satisfy the specified requirements.
Once a product has been selected, one may scrutinize its technical features, the safety data, the specifications, the certification, how it is applied and visualize possible design and finish scenarios by means of textual information, color images and narrated films, all the latest multimedia features. Another very important service that Decor System offers the is printing of all the textual data that is then transferred along with information about materials onto the hard-disc of the customer's computer so that all of it can be used for his in-house needs (designing a project or compiling an offer, utilization of the materials for illustrating interiors in perspective with CAD). In addition to product information, the customer has access to all information regarding the Oikos company. Decor System is operated with Windows or Apple programs on CD-ROM disc. It may be used on any type of personal computer equipped with a graphic card, color monitor, 4 Mb Ram and CD drive.

COLORANDO
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VHS

In an age of momentous changes, businesses are bound to change their communication methods as well as goals. Bearing this in mind, Colorando, a video course for applicators, represents a giant step in moving beyond the old formulas of business communication in which the message was primarily oriented at creating an image and promoting products and services, of ten employing very sophisticated methods, but their main interest in the recipient was limited to encouraging his consumption and purchase of their product. The colorando video course is divided into five parts. The first part deals with the corporate philosophy emphasizing top quality products that are startlingly revolutionary, conceived to reflect the latest design trends while still respecting an "historical" appreciation of the field's traditions with an extremely vast range of products that are all ecological, free of solvents and completely sensitive to environment and human health considerations. The second part is concerned with color theory and deals with theoretical concepts of perception and the nature of color in a concise but through manner. The third chapter discuses the use of color in terms of the overall interior design's requirements, whereas the fourth chapter provides the decorators with useful tips on how to develop new professional contacts, suggesting ways to best present one's own professional qualifications to prospective new clients. The final section deals with actual methods of applying Oikos products and techniques that will help the decorator to best express and stimulate his own unique creativity, thereby bringing out the best in the product as well.

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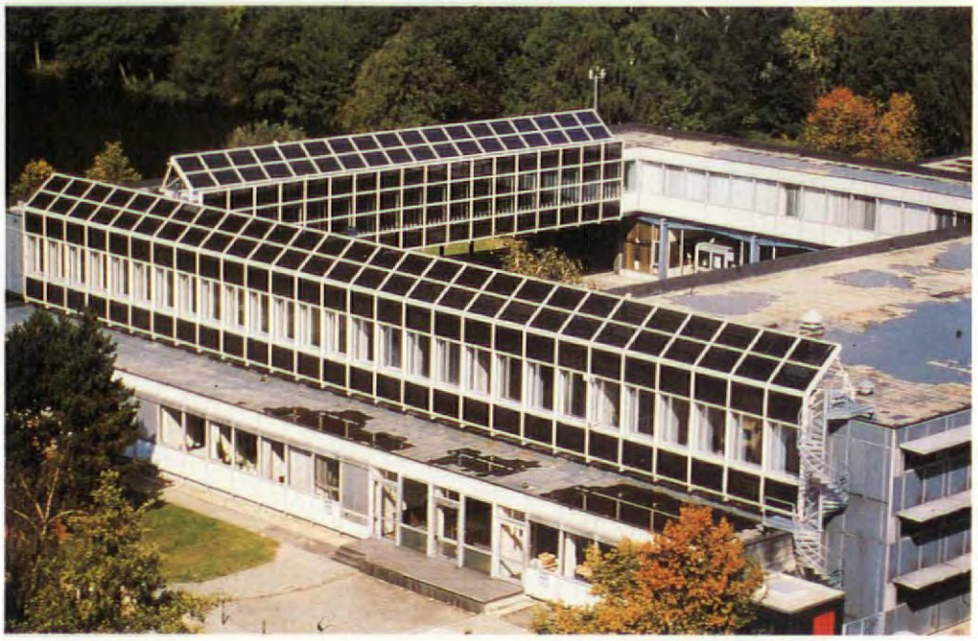
SOLAR ENERGY FROM A CURTAIN WALL

A building curtain wall oriented towards the south is subject to sufficient insulation and at the same time offers the required space for photo-voltaic elements to create solar power by direct conversion of solar energy into electric energy.

The project was brought into being as a demonstration project by the solar work-group of the ministry of science and research of the German county North Rhine-Westphalia. The task was to provide the central library of the research centre KFA in Jülich, Germany with solar energy without coupling to the national grid. At the same time the facade of the building built at the beginning of the sixties was to be upgraded aesthetically. The contract for the new curtain wall was awarded to the companies Flagsol, Köln and WICONA Bausysteme, Ulm. According to the wishes of the research team they developed a curtain wall with integrated solar modules, which was hung in front of the existing old facade of the central library. The photo-voltaic modules are installed in the south-western exterior curtain wall and the south-eastern curtain wall of the inner court. The position of the modules has been chosen in such a way that in the wall area four modules with a size of 1.71 to 1.13 square metres could be installed in the vertical direction. Half of the upper module projects beyond the top edge of the building. On the roof another photo-voltaic field has been put up at an angle of 40 degrees. Behind the curtain wall of the inner court there is a corridor, the windows of which should not be darkened by the solar modules. For this part of the curtain wall Flagsol has developed a new module, which is only partly covered with solar cells. This allows sufficient penetration of light into the corridor comparable with light falling in through half-closed blinds.

The total number of solar modules used in the curtain wall amounts to 220. This corresponds to a module surface of 425 square metres. The total output of the installation is 40 Kwp resulting in an annual energy output of approximately 32 Mwh.

In order to guarantee the efficiency of the photo-voltaic curtain wall in the long run the aluminium curtain wall construction has to fulfil certain requirements with respect to the statics, the integration of the modules, the drainage and air pressure compensation, the cable guiding and the design. Especially for Jülich and the area of application of photo-voltaic WICONA has developed an aluminium section taking into account all of the above-mentioned aspects. The interior of the sections has been designed in such a way that three separated channels are available for the cables. Two channels are used for the separated guiding of the positive and negative cables. The third channel takes the cables needed to connect the modules. This third channel also offers the possibility to include additional cables of measuring instruments. The hollow chamber situated behind the cable channels is used for the parallel and serial connection of the modules. The required connecting box is included in this construction and closed air-tight with a cover section. Thus invisible from the outside all cables as well as the connecting box are placed inside the construction protected and separated from each other. The removable cover section enables quick access to the cable connections.



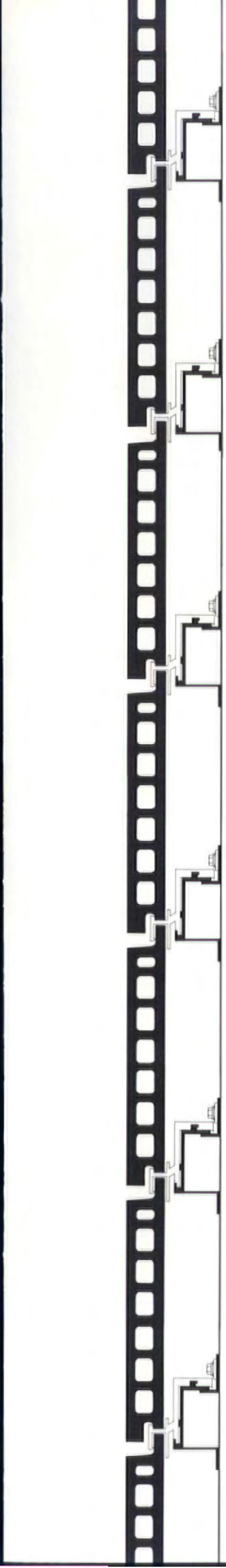
Central library of the research centre KFA Jülich: The solar modules have been integrated into the curtain wall.

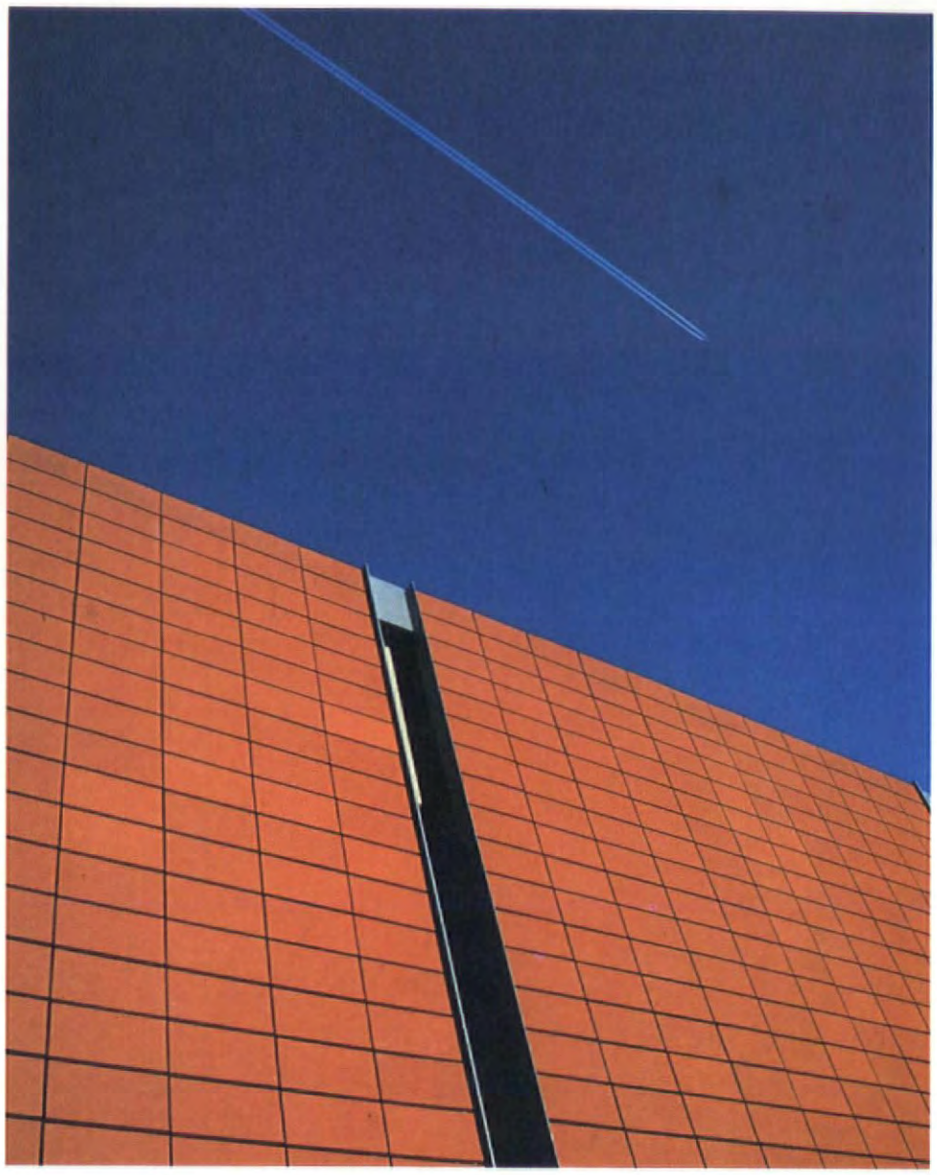
The WICONA photo-voltaic curtain wall is drained per field over the horizontal cover section. The continuous gasket in the pressure section prevents the infiltration of condensation water or rain from elements above. In addition the polyamid thermal break section is sealed towards the transom with silicon. A preformed piece is used as external gasket at the cross point.

Different methods are available for the distribution of the generated solar energy. The electric energy needed at the time of the production is converted immediately into alternating current and used directly by the consumer inside the building. Surplus energy, however, is temporarily stored in two ways: So-called short storage installations consisting of electro-chemical accumulators store the energy that is needed during the night, for example. The remaining energy produced is stored with the help of an electrolytic procedure for the decomposition of water into hydrogen and oxygen. The thus created amount of hydrogen is mainly used to meet the higher energy demand during winter. It is reconverted into electric current by means of a fuel cell.

So far solar elements have only been set up either on roofs or in front of the buildings. The integration of photo-voltaic elements into the building facade exploits this otherwise unused surface as an energy carrier. Furthermore, the use of photo-voltaic elements can improve thermal and sound insulation and can be used as sun protection instead of blinds. The construction of photo-voltaic curtain walls, however, requires supreme care of the manufacturer and the fabricator. Therefore, a close co-operation of the building owner with the manufacturers of the solar modules and the curtain wall construction is indispensable. To this end the Ulm-based WICONA Bausysteme GmbH developing and distributing aluminium system sections and the manufacturer of solar modules Flagsol, a 100 percent subsidiary of Flachglas GmbH, have signed a co-operation contract for the use of solar modules and their incorporation into building facades and conservatories.

Number of modules:	220
Number of cells:	31200
Module dimension:	1710 mm x 1130 mm
Module surface:	425 m2
Total curtain wall surface:	568 m2
Power:	40 Kwp
Orientation/inclination:	SE/SW, 90°, 40°
Cell material:	Silicium, monocristalline
No connection with public network	
Short-term storage with electro-chemical batteries	
Long-term storage with electrolytic hydrogen fuel cell	
Building owner:	AG Solar NRW, Research Centre Jülich
Solar modules:	Flagsol, Köln
Aluminium curtain wall:	WICONA Bausysteme, Ulm





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Design Thomas Herzog

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ALTA QUARTZITE

Flooring, steps, windowsills and cladding

OTTA PHYLLIT

Flooring, steps, windowsills and cladding

Alta Quartzite, Otta Phyllit (Black Lace) and Favang Phyllit:
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ALTA QUARTZITE:

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  ≈ 31° (DIN 51 097), SRT 54.4
- natural smoothness,
  easy to maintain
- pressure resistance (N/mms^2):
  ≈ 328.0 (DIN 52 105)
- bending strength (N/mms^2):
  ≈ 37.0 (DIN 52 112)
- wear-resistance ($cms^3/50\ cms^2$):
  ≈ 7.3 (DIN 52 108)
- frost-proof, resistant to
  chemicals, oil and acids

OTTA PHYLLIT:

- anti slip, also when wet:
  ≈ 25° (DIN 51 097)
- natural smoothness,
  easy to maintain
- pressure resistance (N/mms^2):
  ≈ 190.0 (DIN 52 105)
- bending strength (N/mms^2):
  ≈ 35.1 (DIN 52 112)
- wear-resistance ($cms^3/50\ cms^2$):
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- frost-proof, resistant to
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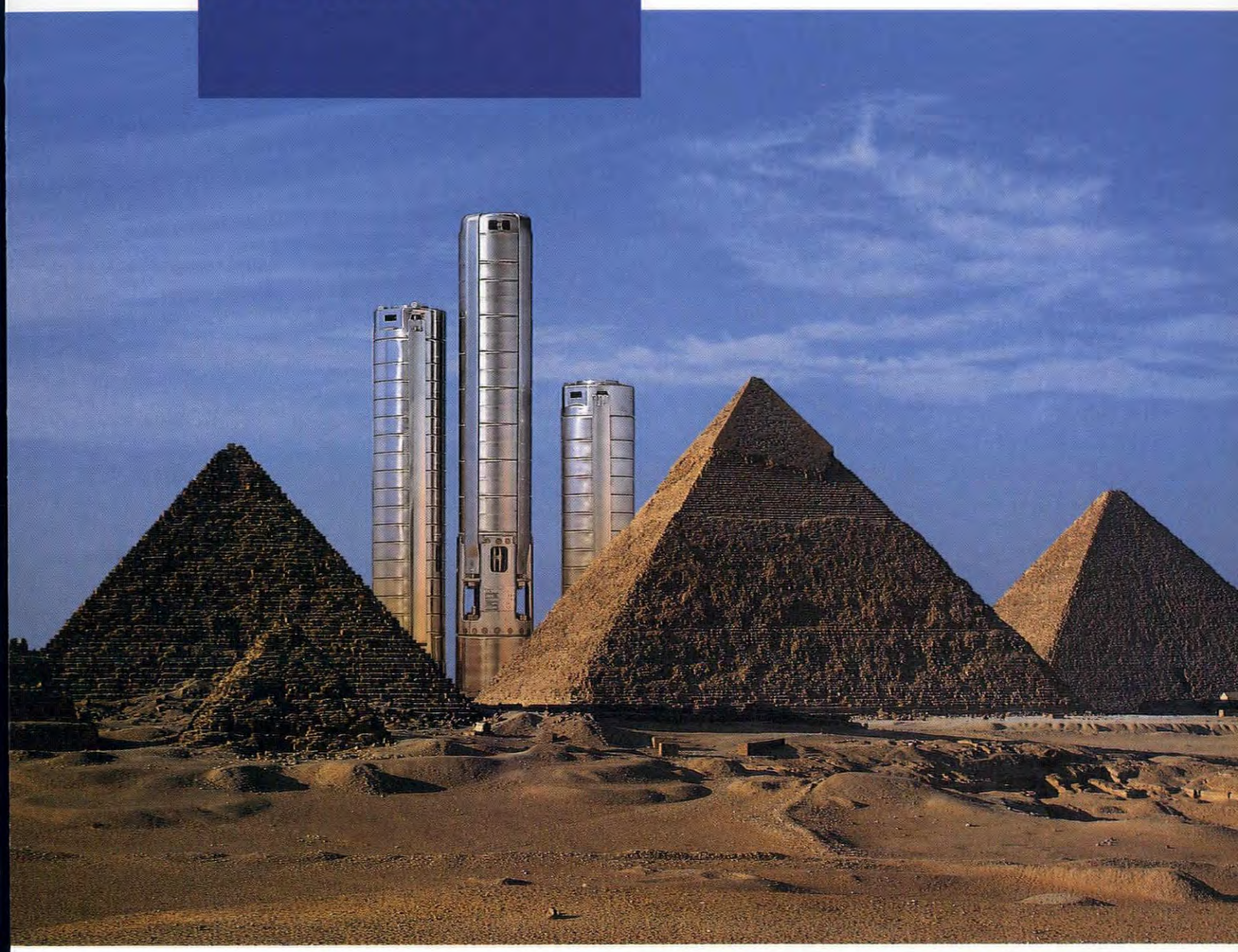

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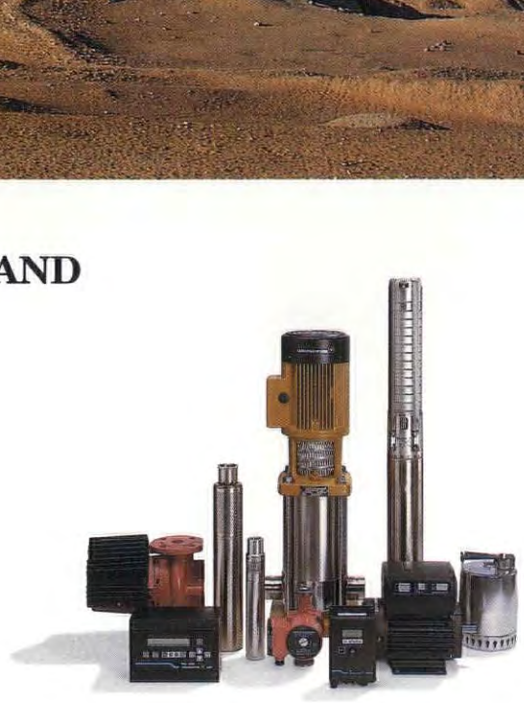

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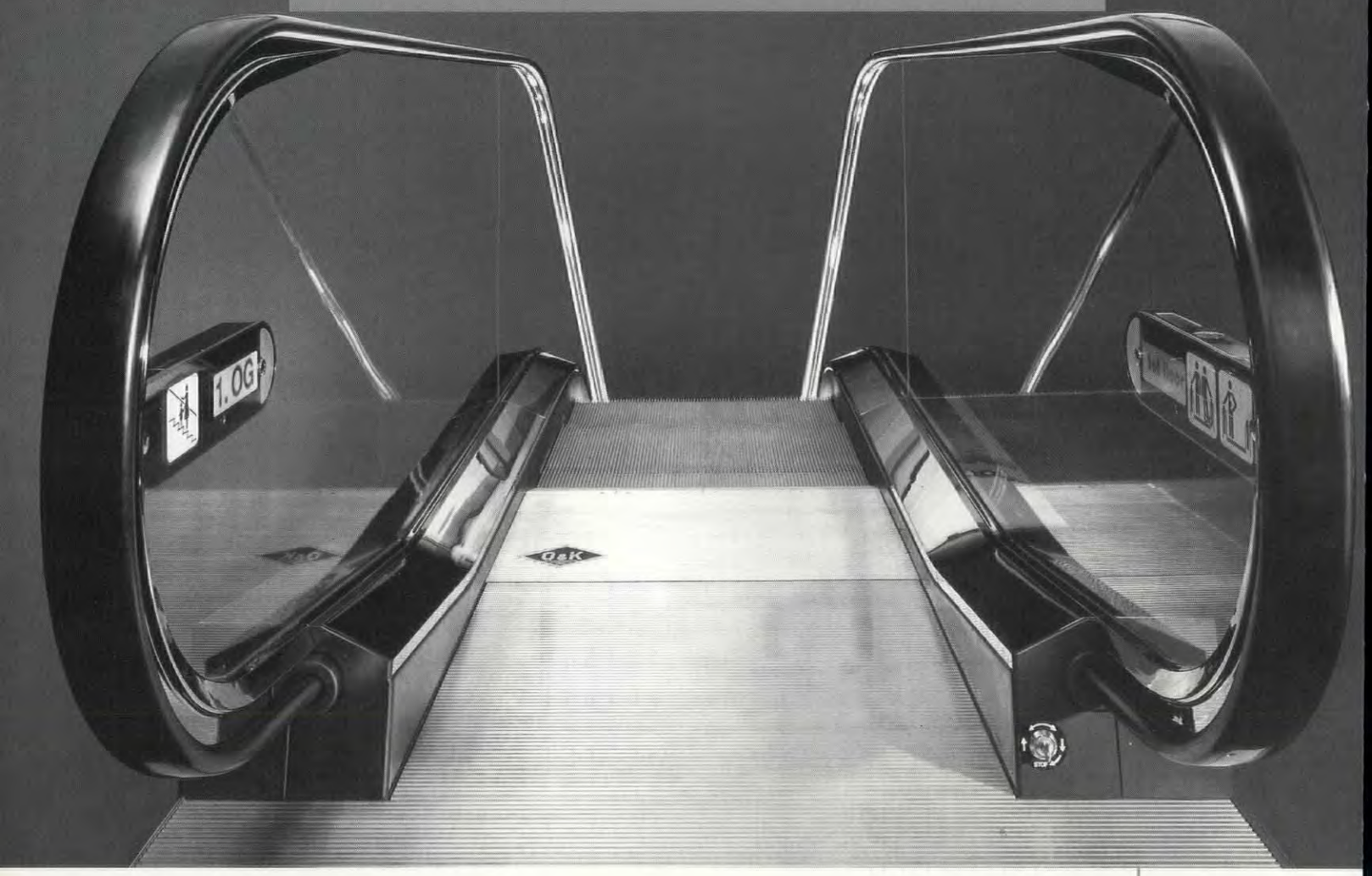

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WORLD ARCHITECTURE

Say hello to the Hanscomb Index

Slowly but surely *World Architecture* is coming together. When this magazine started five years ago it was based on the core idea of the Profile, a feature that has grown into the exhaustive 24 page bi-monthly survey of the life and work of a living architect that is the heart of the magazine today. Over the years Profile has brought *World Architecture's* readers 29 full length, heavily illustrated studies of such great architects as Oscar Niemeyer, Sir Norman Foster, Paul Rudolf, Arthur Erickson, Sir Richard Rogers, Imre Makovecz, Renzo Piano, Gustav Peichl, Fumihiko Maki and many more. Concept too is a feature that has been with the magazine since the beginning. Today it is a much admired, and exclusive, window on the emerging countries of Eastern Europe and the activities of the architectural avant garde all over the world.

Last year we began our major expansion of *World Architecture*. Impressed by the increasing globalisation of design and construction we introduced Global Review, our compilation of reports, information and analysis supplied by readers and practitioners from across the world. Then we added Gallery, our unique series of portfolios of images from the world's best architectural photographers like Richard Bryant, Ben Johnson, Thomas & Collie, Wade Zimmerman and John Linden. Then came the turn of Small Practice, the showcase for the work of the smaller office, and Big Practice, the recently introduced 12-page study of major world practices on the global scene like Murphy/Jahn, KHR, and BDP.

This year has seen more developments on the information front, and will soon see even more. *World Architecture 28* saw the first of our annual "Top 100" practice surveys. The first ever attempt to establish a ranking of architectural practices with global reach and resources to match. *World Architecture 29*, is building on those foundations with the launch of the *World Architecture/Hanscomb Index*, a global construction cost information service supplied by the well known international construction consulting firm of Hanscomb, which operates out of 40 offices in Europe, North America, Africa, the Middle East and Asia. Twice a year, in March and September, the Hanscomb index will provide the most up to date information on construction costs available in any architectural magazine published today.

In addition to relating construction costs worldwide, whenever possible Hanscomb will supply *World Architecture* with National Reports that are synchronised with the country of origin of the Profile architect, thus creating a double level information service, from the best architecture to the state of the practice market place.

Finally, 1994 will see the introduction of a new technical feature called Blow Up. This innovative specifier's guide will work from exploded views of state of the art commercial buildings to break down their finished assemblies into individual products and suppliers. The key component, its name, and the name, telephone and fax number of the supplier will be right there on the page, identified with a clarity never achieved before. As I wrote in this space a year ago: I think you will want to read *World Architecture*.

Martin Pawley

FRUITS OF THE FREEDOMS OF '68

Michel Dieudonné

At first sight Françoise-Hélène Jourda is smaller than her reputation would suggest. A diminutive figure dwarfed by the Chrysler Voyager she has driven to the airport. But that is a fleeting impression. Once at the wheel she demonstrates an unnerving mastery of its controls, speeding through the gamut of motorways, boulevards and narrow streets that make up the city of Lyon. She is the demonstrative partner of the firm, the linguist, the traveller, the tour guide. Her object is to show World Architecture *some of the projects that she and her life and business partner Gilles Perraudin have erected in the 14 years since they set up in practice. The task is not difficult, for Lyon has many examples of their work to show. The city is, in effect, a showcase for the French system of architecture and the municipal benefits it can bestow when unhindered by bureaucracy.*

To start at the beginning. A book about Jourda et Perraudin was published last year on the occasion of a great exhibition of their work. The publisher was the Institut Français d'Architecture. Such an official endorsement is appropriate, for few French architects better exemplify the opportunities created by their own national competition system for public buildings. The surprise is that this system, now admired across the world, is of comparatively recent invention. For most of this century France suffocated under an ancient and corrupt regime whereby the only architects eligible to be commissioned to design public buildings were winners of the Prix de Rome of the Ecole Nationale Supérieure des Beaux-Arts. This system remained intact until the disturbances of May 1968: events whose consequences were to be of great significance for the development of the education systems of countries as far apart as France and China.

After 1968 the Beaux-Arts system was discredited and architectural education in France entered a period of near-anarchy that few who took part in will ever forget. At the end of this period a new architectural education system was born, entirely separate from the old Beaux-Arts hierarchy that continued to rule in the ateliers of painting and sculpture. Under President Giscard d'Estaing it was decreed by the Ministry of Culture that all new French public buildings should be designed by architects chosen in competition, and that the competitions should be open to all architects, young and old.

In a fatal tactical error the established architects of the Prix de Rome system boycotted the first of these competitions, sure that the method would fail. But it did not. Instead young French architects obtained relatively large and challenging commissions early in their careers, and this process soon created the cadre of a new architectural establishment. The awesome regiment of young architects paraded by France at the 1991 Venice Biennale — all under 40, and all with major commissions already to their credit — was a direct result of the success of this new competition system. Typical of its beneficiaries are Jourda et Perraudin.

In 1980, the year they set up in practice together, Gilles Perraudin aged 31 and his wife Françoise-Hélène aged 25, won a European

Community competition for the design of passive solar housing. In 1981 they entered a competition to design new courts of justice for Lyon; a competition to design a maternity home at Cergy-Pontoise, and the well-known competition to design the Institute of the Arab World in Paris. The following year they won a major competition: the design of the new school of architecture at Lyon to replace the one from which they had both graduated only a few years before. The school they created, with its great concrete arched plinth, its flat glass roof and glass-clad upper floor, its undulating fabric sunshades and its strange timber-forested studio spaces, was a great critical success. It is the first stop on a tour of the architects' buildings in Lyon itself.

As the Chrysler Voyager deftly turns into the school carpark and stops. Françoise-Hélène lights a cigarette. Entering the building she is joyously greeted by two middle-aged gentlemen. There is an exchange of pleasantries before she moves on down the great central aisle towards the stairs.

"My old professors", she explains, and stubs out her cigarette in a tin full of sand.

Fourteen years after they first set up in practice, Jourda et Perraudin have a world reputation. Thanks to the competition system, neither has ever worked for another architect. Nor indeed did they receive much formal instruction. In the old school the events of 1968 struck like lightning. As Françoise-Hélène remembers it;

"We had no professors. We did not travel. We had to teach ourselves. In a sense the school was more practical for us then than it ever was before or after." Indeed, even later, when Françoise-Hélène did travel it was not an elevating experience. She was invited to teach in Minneapolis and was annoyed to discover that she was regarded as a curiosity — a French woman architect. Still exasperated by the experience after several years she remembers; "Only female students enrolled for my classes".

In any event, like characters from some unwritten architectural operetta, Françoise-Hélène and Gilles met in the studios at Lyon, married and then, by chance, came to redesign the place in which they met. Inside the school there is a full-height semicircular hall with tiers of administrative offices around it. Below the floor slopes asymmetrically in the shape of a shallow frustum, down from a kind of speaker's place.

"We wanted one space in the school that no one could fill up with furniture or partitions so we gave the floor a 7 per cent slope", she explains.

"Everyone can hear you if you stand here."

Standing on the flat top of the shallow frustum this proves to be true. The reverberation is palpable. Upstairs in the studios, the forest of angled timber struts supporting the mezzanine may be remarkable, but down here in this hollow space the symbolism is more specific. This is an echo of the liberating force of the fundamentalist democracy of 1968: an era that is in the very bones of the new French architecture. An episode of history that explains the observation that Françoise-Hélène makes later, as she surveys an uncompromisingly anti-graffiti-coated in-situ concrete low-cost housing scheme that she and Gilles have built in another part of the city.

"It is too late now to oppose Modernism in France. Once you win a competition for a public building here, there are no restrictions on what you do except the budget. Nobody can tell you how to design. The private sector is completely different. There is no real innovation in the private sector."

Proof of this statement is everywhere that the Voyager travels in the course of that day. The vast, sparse grey concrete Lyon International School has an internal floor surface of tarmac, no smoother than a recently repaired road. Did no client or user object to this?

Françoise-Hélène shrugs. "It was the budget. We wanted this great atrium like a street. This was the only way to afford it. They are talking now about replacing the tarmac with stone."

The glass-clad walls of the long, snaking classroom block at the International School are heavily louvred to open up when it is hot. Does this system really work? Again Françoise-Hélène is philosophical; "For three days last year the school was unusable because it was hot and there was no wind. But it was the same out of doors in the open air. It was too hot everywhere."

Multitudinously perforated by angled stanchions and steel tension bars, the roof of part of this building is covered in grass, although it will not bear anything other than maintenance traffic.

French critics are neither sparing nor consistent in their praise of Jourda et Perraudin. "Architecture has the right to realise what it has conceived", says one, so the pair can be described as "structural rationalists who refuse to compromise" because they have a "taste for materiality". At the same time they can be celebrated because they are "liberated from technical demonstrativeness." Their "ascetic high-tech" can create soaring roofs that are "tangible firmaments", and floors that are roads. In the same confusing way their work is widely supposed to be influenced by Kahn and Le Corbusier when it is clearly more eclectic.

Taking lunch in the converted grand central station at Lyon it becomes clear that it is not fruitful to challenge Françoise-Hélène on the subject of critical contradictions. She responds to them with a dismissive gesture;

"We do what we want to do. We change our ideas. We try to demonstrate not a single logic in any of our buildings, but the closer and closer combinations of different logics." Thus were born the great floating "airships" of the Toulouse Congress Hall and the Tokyo Forum competition; the rows of neat student housing for the university in Lyon, perfect boxes in steel and glass in the spirit of Ernst May and the Bauhaus. Thus too is born the German glass box soon to start building, and the series of motorway bridges and sound barriers for the new east-west motorway, and the parasol Parilly métro station, still awaiting its air-rights building.

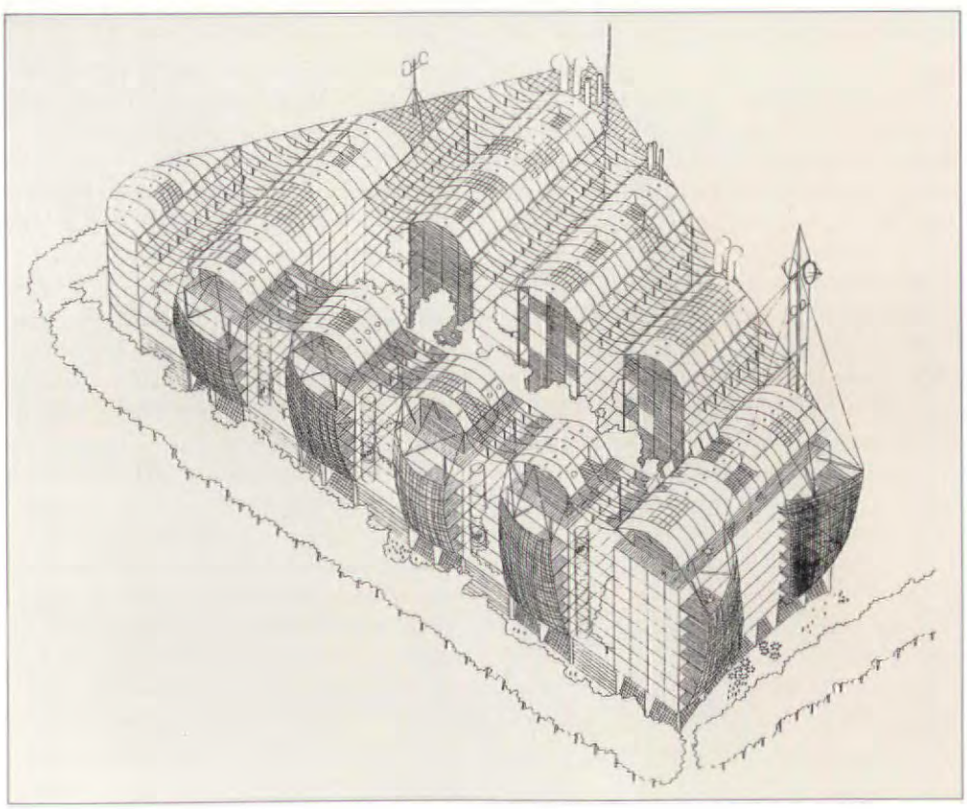
One of the different logics of Jourda et Perraudin was the logic of chance. In 1986 Norman Foster was appointed assessor for the award of a French national architectural prize. He selected their newly completed school of architecture at Lyon. From the consequent meeting came the collaboration over the médiathèque at Nîmes and the formation of a short-lived practice called Foster Jourda et Perraudin. One outcome was a Jourda et Perraudin scheme for the shelved King's Cross development in London. reflecting on it now, Françoise-Hélène exhibits a surprising sympathy with the views of Prince Charles; "I think he is right. London is such a mess. You need some peace, some control there. Some restraint to create a proper identity again."

Eventually the tour in the Voyager terminates at the Jourda et Perraudin offices in the nineteenth century walled villa of a priest who once ran a hospice and chapel long since demolished. Here the office staff of 20 work with Macintosh, Claris and models, most notably upon the the great motorway project.

Here the visitor meets Gilles Perraudin, the other half of the partnership. A quiet, soft-spoken man. A quick tour of the office and then, behind a simple hoarding, their celebrated house. An uncompromising, teflon-parasolled plywood vaulted steel framed structure with its own walled garden. In its modest yet drastic way it demonstrates more than the whole tour. One glance at the power of this act of liberated creativity in architecture is enough to show that, as Françoise-Hélène has said, it is far too late to oppose Modernism in France. □

PER ARDUA AD ASTRA

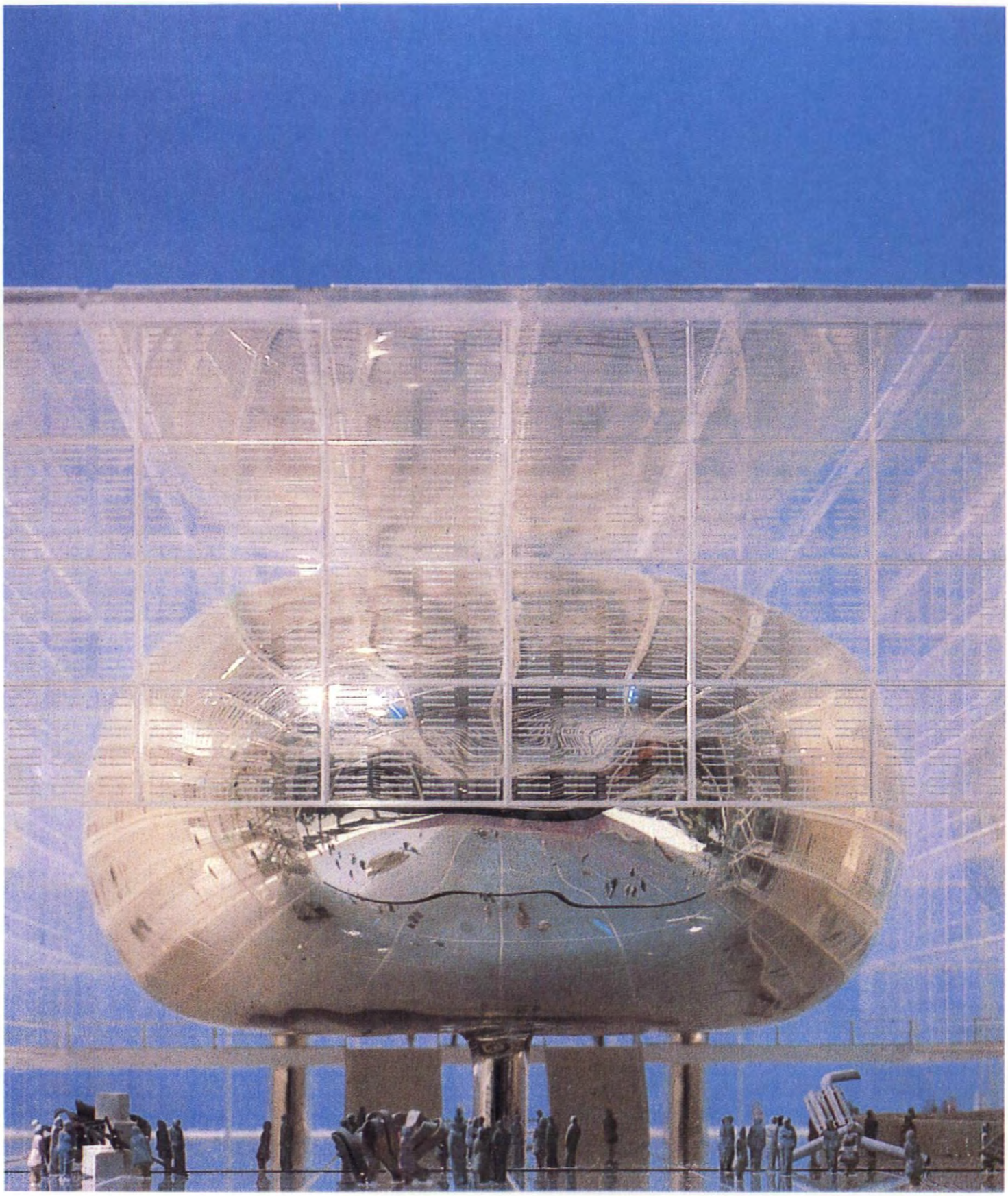
The partnership of Françoise-Hélène Jourda and Gilles Perraudin is one of the most successful in French architecture. It stretches from structures in rammed earth to the most advanced "filter-wall" glass enclosed buildings. Here Jean François Pousse outlines their achievements over the last 14 years and contemplate the triumphs that still await them in the future.



In order to understand the work of Françoise-Hélène Jourda and Gilles Perraudin, it must be seen in relation to the dynamics of their constant research and the permanence of their relationship to architecture. Ever since they joined forces in 1980, each new project has been used as an attempt to broaden their field of study and investigation.

This positive attitude confirms a taste for matter, for the shaping of matter subordinate to a global conception. During his time at the Engineering School of La Martinière in Lyon, Perraudin explores numerous techniques, but more importantly manipulates, weighs and balances materials: clay, cement, wood and steel. Their hands, their muscles, their touch, have made them familiar with the sensations of lightness, of heaviness, of cold, of roughness and smoothness. This familiarity grows as they continue their exploration, rewarded as they go by the joys of discovery. Yesterday, and today, they keep up to date with manufacturing processes, inventing specific uses for new materials. And so they visit quarries and sawmills and foundries. This taste for materiality is accompanied by a taste for fabrication: Perraudin likes to make things with his own hands, to form and deform, to knead into shape. In 1973, during his architectural studies, he founds the company MRA (Module Rhône-Alpes) with friends (Claude Ivorra in particular) able to conceive and construct space and structures as well as building materials. A little later (1975), he goes away to Algeria for a year, under the supervision of André Raverau at the Institute for Sahara Studies.

It is a time of confrontation with the earth, with stone, with the scarcity of materials available, with reduced technical possibilities, with the choice of solutions adapted to a given context. Before completing his degree, he undertakes to conceive and build a wooden house. The project is not to be carried out. All that remains to indicate what this art of construction is based upon is a series of hyperbolic paraboloids: it is the art of conceiving structures, frameworks, links and knots. Technical know-how can help to render architecture more easily accessible. Through his studies, Perraudin is well-armed from the outset. In 1984-85 Françoise and Gilles continue to explore the possibilities of dried earth, baked earth, projected earth, etc., with a series of dwellings in Isle d'Abeau; those of wood, steel, glass and PVC with the School of Architecture in Vaulx-en-Velin; and those of concrete with the under-

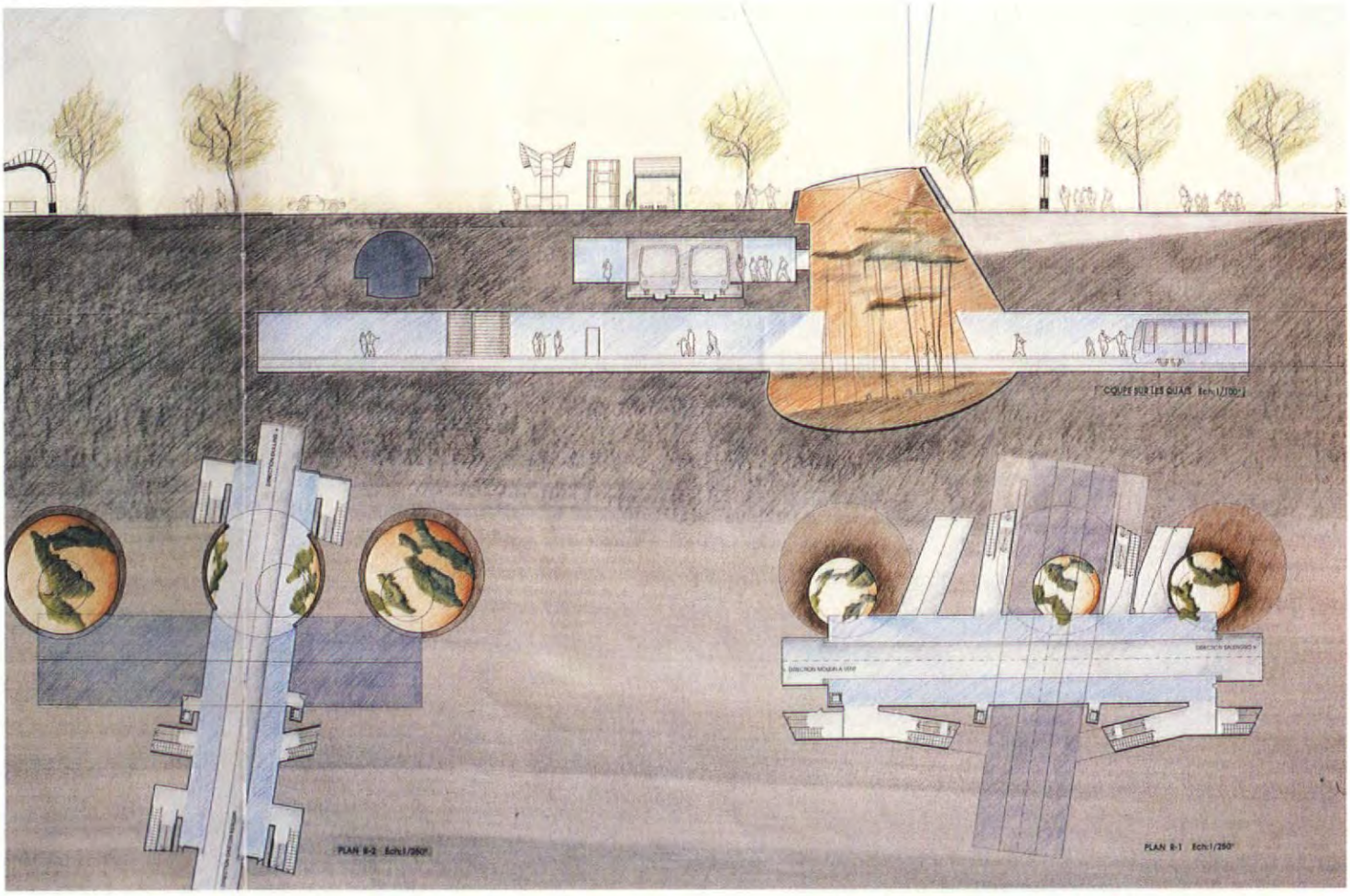


ground station in Parilly (in construction in Lyon from 1982-89). So much so that these last two projects enable them to free themselves, to go beyond the frontiers of technicality. Their liberation from technical demonstrativeness has immediate effect. Having proved their prowess in the matter, they no longer need to impose it upon themselves or on others. Technique surrenders to other goals.

But what are these? For them, architecture is a grave matter. A deep-seated taste has brought them to it. They are encouraged neither by their culture nor by family antecedents. The wish to build suffices. Perraudin has a desire to construct before beginning his architectural studies. Jourda too, before finishing school. Yet there is more to it than this. For them, architecture is a founding principle, it is the possibility to organise man's interior, to magnify it and to project it into that which is beyond him. This is a profound convic-

Project for offices and housing at King's Cross (opposite) and Toulouse Congress Centre project 1989 (above)

Lyon Gerland Métro station project 1991



tion, based on rigorous evidence, preceding all conceptualisation, underlying a specific evaluation of the architect's trade, a sensitivity to man's need with regard to his space, in short a conception adapted to the gravity of what is at stake.

Refusing compromise and "bread and butter" commissions, their objective is to build the project as it is, for, defined as such, it appears essential to them. A rugged determination which has already led them to stop work in progress (the Institut Vatel) rather than toning it down for economic and diplomatic reasons. It is also the strategy of their practice, this conviction that architecture has the right to realise what it has conceived, the certainty that in the long run only quality pays.

In the wake of 1968, Perraudin, like others, rejects the standing of the architect retreated to his lonely tower, the wise man outside of social and technical reality. The idea of involving society at large, of working on its evolution, leads him to participate in a number of collective actions. His stay in Algeria plays a role in this confrontation with the triad man/environment/means or culture/geography/economy, one of the recurring themes in the practice.

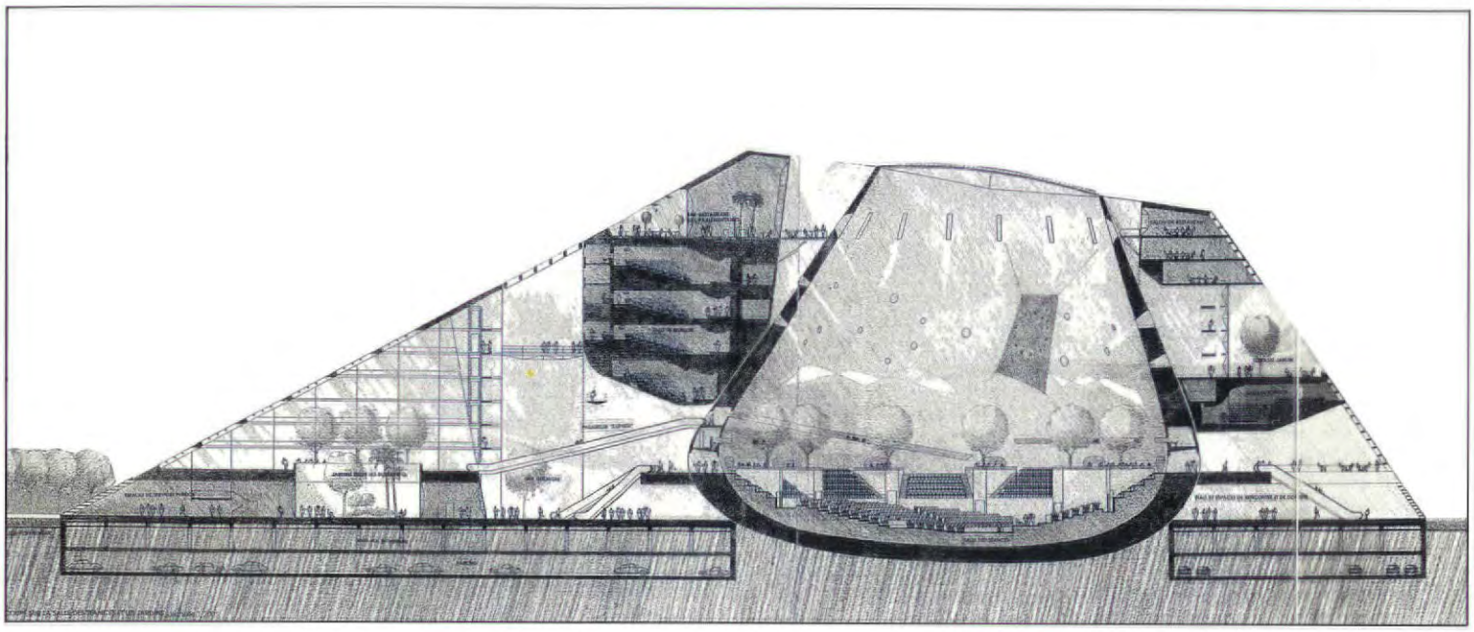
Subsequently, on his return to France, his dissertation investigates *The Participation of Occupants in Housing Conception*. This paper is both theoretical – it is presumed that each person has the right to dispose of and invent his own space - and experimental – people are asked to design their own dwellings. It is a disappointing study. Most of them confine themselves to choices symbolic of their culture and their social ambitions, expressed by the situation of their house in the city and in its layout. Few go any further, and the spaces they propose are disconnected from technical necessities, their fittings lacking in imagination. Instead of inducing a sense of failure, his dissertation gives him the opportunity to review the situation. It becomes obvious that occupants are not normally in a position to plan a spatial entity by themselves. It is up to the architect to play this role.

If this is so, if architecture shapes humanity, if the project manager, the specialist, is the only one capable of defining space, the gravity of his action and of his responsibility towards the occupants becomes even greater.

For Jourda and Perraudin, this search for a spatial substance capable of breathing life is rooted in time, and nourished by a handful of principles taken to be timeless. Absolute. In time, for mens' needs change along with their understanding of the world. Absolute, for as Jourda and Perraudin posit, humanity finds its true value in a vertical dimension, by surpassing itself, guided by a sempiternal aspiration to immersion in perfection, where the intrinsic identity of the individual unfolds, merging with an impeccable All.

As often in religious architecture, their projects become condensed. One must concentrate the essence, or at least evoke it, so that desire may be born. Perraudin (he's not the only one) tells of the powerful impression his first visit to Thoronet made on him. Romanic architecture isolates before giving. So in its way does that of Jourda and Perraudin. Their house, the project for La Villette, that for the Indira Gandhi Centre

European Parliament project 1991



for the Arts, are organised around an interior axis. The opposite of the road leading off to other horizons, it innervates a world in itself. For several years this backbone remains rigid: a straight line. Today it is evasive, meandering, transformed into an interior city and the apprenticeship of space (the International School in Lyon).

Through Kahn's influence – essentially the will to submit the centrifugal forces in architecture – most of their projects lock together in a close geometric network where rhythms and sub-groups connect, repeat, perpetuate themselves. This authorises a hierarchy, a step-by-step exposition of the essential and the subsidiary, it facilitates the play of an obvious dialectic. Like the body, architecture can be divided into parts and sub-parts. The exaggerated decomposition of the plans, the stratified materials with their stressed characteristics weave a path of recognition, of identification. The School of Architecture is a prime example. Besides providing a metaphor of construction for the students, the layout, the cross-section, the choice of materials organise a discovery of architecture, letting the visitor take over the place and be taken over by it in turn. This singular, yet forceful impression is repeatedly found in their work.

There are many many examples, yet apart from enabling understanding and discovery, they introduce other dimensions. Perraudin, who rarely speaks, utters the word "archetype" from time to time. This word implies eternal spatial figures and formulae, everlasting aspirations, shared response throughout time and space.

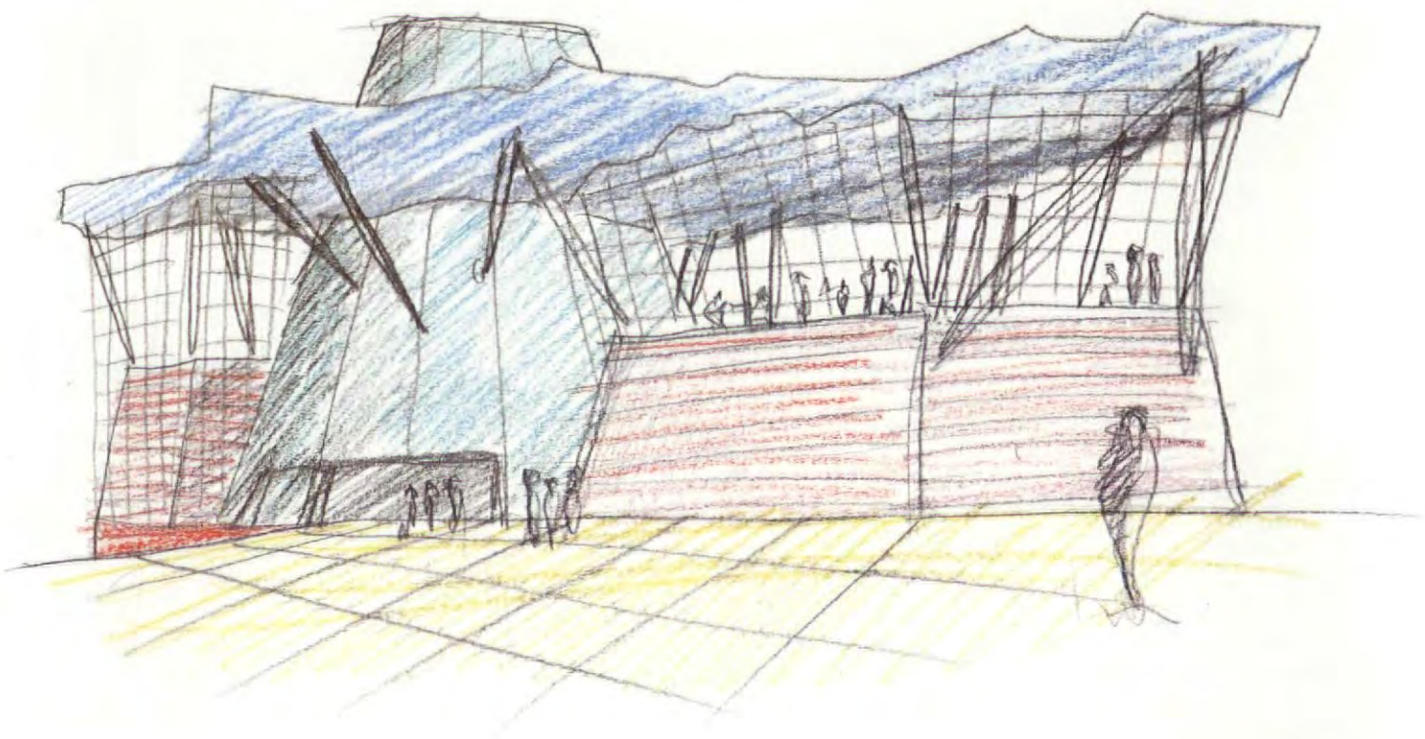
Françoise and Gilles are no adepts of the ancient formula, emptied of meaning and reused for contemporary ends. When they use the vault in the School of Architecture, it is a way of reinforcing its intrinsic meaning. The same may be said of the plans: round, square, interlocked and superposed, they all refer to structurings of the spirit rooted in Western memory. The space itself reproduces a secular impression. The projects for the Cité de la Musique at La Villette, their house, the Indira Gandhi Centre for the Arts, the International School in Lyon are all sheltered beneath an independent blanket, as man under a tent, or yesterday's prehistoric man under foliage. A manner of referring to the way one is situated, to the sense of being both object and scale, but by inventing new frontiers, new forms. A manner of reinterpreting the obvious, directly related to fundamental physical realities, water, earth, the sun that rises and sets. Day, night, the rhythm of human life.

In this respect, the project for the Charles de Gaulle bridge marks a kind of frontier, which nonetheless has its place in the clearly defined evolution of their projects. Using an architecture particular to the heart of bone structure, they modify its content, add ligamental tension, polish the result with streamlining, material, colour, resistance, texture. A project bursting with impatience, straining the leash, eager to be gone, to be elsewhere, while respecting the same fundamental demands. A series of competitions gives them the opportunity to advance further: the International School in Lyon, the Hôtel du Département in Marseille, the Conseil Général in Toulon, the European Council in Strasbourg, an underground station in Lyon, other projects including street furniture, also in Lyon.

The memory of the practice is threaded throughout, honed-down propositions, tensions and paths that are in the process of being deciphered. The International School heralds these developments. The project dates from 1989. The site plan is startling. A sort of question mark stretched out along the edge of the Rhône.

In the building on the river two geometric logics come together: the general curve, the slanted roof and the straight line. Towards the river, behind the curtain walls, internal circulation replaces the facade. Two truncated cones interrupt the flow. At the back, a suspended envelope is formed by almost blind naves turned in against themselves. Here, the eye wanders horizontally from inside to outside and back, between the sky mingled with water and the actual body of the building. There, an interior three-dimensional universe. The sensation of outside/inside, mixed with the discovery of a complex world along the interior paths show an accumulation of their potential. Cadence, rhythm, punctuation.

The school is the starting point for new research on another structuring of space: the interior street, which has been encountered elsewhere, is now only a basis, enhanced by transversal visions, a geometric spilling-over; a cross-section reveals the building on the Rhône; the volume of the Village, which has its own



internal logic, is microcosmic. It brings understanding of the macrocosm by means of sequential visions and the horizontal accumulation of volumes aspiring to verticality.

The project for the Hôtel du Département in Marseille emphasises and illustrates other fields of investigation: the computation of an envelope responding to its environment, the search for a symbiotic relationship between landscape and architecture, the elaboration of an interior spatial universe complying with these requirements, yet surpassing them.

The practice has long been interested in materials capable of fulfilling new needs in the long term and of responding to specific environments. In 1987-88, they propose a building situated at the confluent of Rhône and Saône, covered by a skin which can respond to the extremes of the climate, of pollution, of future atmospheres, a sort of living matter that will open or close itself up as the need arises. Not just protection – active, innervated tissue. In Marseille, in stone, but in the same spirit, it is to be found again: insulation and respiration.

Part too of an attempt to reconcile landscape and architecture. A project in the shape of a truncated cone seems somehow incongruous on the horizon. In fact, Perraudin was suggesting a different logic. Stone, stone-cutting, ageless form reinvented from the pyramid, the very size of the voids, the thickness of the walls seemed to him to re-establish a link between the underlying reality in the countryside and its history: the omnipresent rocks at the entrance to the city, the density of accumulated time and the future, intermingling of sky and mineral, vegetable and air.

Yet beyond this, the envelope is fed by other sources. It changes into a preamble and an end result. A moment of silence, an interval during which noise and disorder are cast aside. Clearly the practice is moving away from the problem of exterior appearances. Their intentions are concentrated in the heart of the building from which the facades derive.

This option is further explored with the Congress Centre in Toulouse, so much so that one forgets the general envelope, recalling only the voids and the masses framing the bowels of the building. The question mark shape of the International School is also reminiscent of an ear. A play of waves on the edge of water. Perraudin now sees here an intuition confirmed. A form which comes to complete a musical composition, the echo of a score based on intersection, superposition, compression, the logical development of algorithms. A computation of the aleatory.

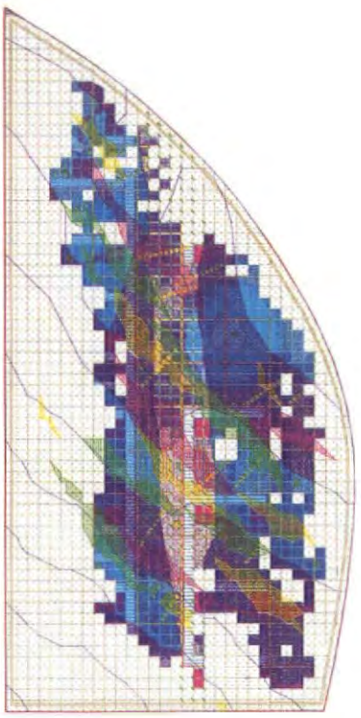
Ever since the founding of the practice, Jourda and Perraudin tend to define entities, worlds not exactly closed, but capable by their coherence and their multiple transgressions of providing access to new sensations and aspirations. Far from being an accumulation of images, architecture is transformed into an interior temple.

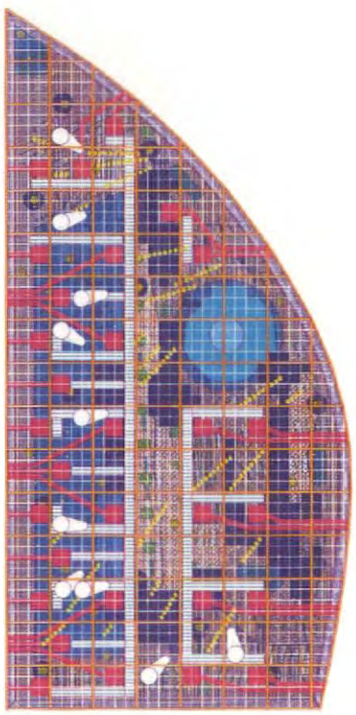
Their project for the Strasbourg headquarters is isolated on an island, a question of programme of course, in order to better emphasise the extra territoriality of a place consecrated to Europe. From the outside, it resembles a dug-out rock. An anti-facade, an anti-image.

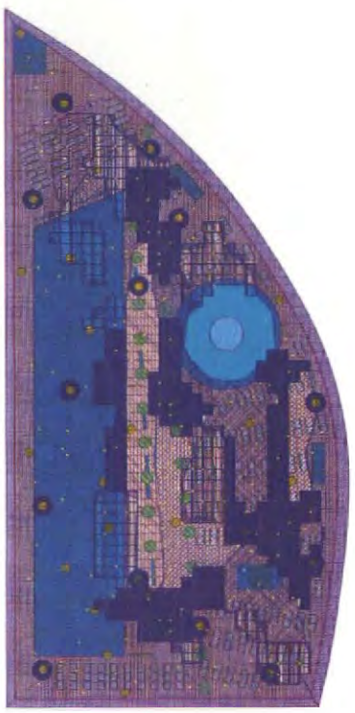
The Congress Centre in Toulouse, reflecting the Gandhi Centre for the Arts, is sheltered under a roof/blanket conceived as an over-sized pergola. The curtain-wall facades, veiled only by pare-soleils, let light filter in everywhere, revealing the tension between the void and the mass. A sort of giant pebble containing conference rooms appears to be suspended. Hooded in steel, it is like a lake of ice reflecting all around the misshapen image of the building's geometric envelope.

The confrontation between the rational framework, between a shape that is aleatory in the first place, and their reflection perturbs the ordinary sense of perception. The notion of top and bottom is disturbed. The project for the underground station in Lyon pursues the quest

University of Marne la Vallée 1992-94, sketch (opposite) and planning studies (below)







in a radical way. It is buried in the earth. The envelope disappears. Dug-out space remains. Essential now. Three amphoras planted in the earth and truncated at the top are crossed by the rails. Logically speaking, the programme imposed burial. Françoise and Gilles deviate the meaning and define a place at once autonomous, closed in upon itself, a reservoir of sun for the tall germinating stalks and a halo/signal for the city, signifying subterranean activity. This sealing-off enables the invention of autonomous space and the definition of a volume englobing path and trees. The opening is elevated, aspiring to the nimbus of light, to immersion in space.

The choices are made clear with the pyramid of the Dijon auditorium and the rock (or space station) of the Strasbourg Parliament ensemble. Chiselled interior volumes emerge at times or can be glimpsed through light-engulfing apertures.

The force of interior composition predominates and is growing stronger. It has to do with soaring masses, with the computation of radii, with the use of a few monochrome materials, with the amplitude of the void emphasised by cross-section, essential from now on to grasp their work. Those of the Dijon Auditorium, and more so of the offices and the hemicycle of the European Parliament show constructed volumes in suspension. It is the space of heights, of over-hanging cliffs. To evoke Piranese would be to bias feelings. Here there is no profusion, only concentration in great autonomous bodies. Compact, they look like solid blocks. Their sheer size leaves the reassuring shores of geometry behind.

The practically linear development of the practice, from one project to the next, is quite astonishing. From their vantage point on the frontier, Jourda and Perraudin survey territories. The choices they make are unsettling for some and call for involvement on the part of the design team. And they certainly won't stop at this. Once it has been completed, the International School will provide a yardstick, already overtaken by new projects.

Architects capable of this fiery strength are few and far between. It is a strength that relies on a practice where old friends are working - Amilcar dos Santos the architect, Giorda the painter. A practice that is impelled by rationalisation in the design process, which means tight economic management as much as the generalised computerisation that has banished the drawing-board to the realm of memory.

As in all true stories, this one is only partly or not always true. The latest commissions for social housing and student accommodation in Lyon, the competitions they have won for the university in Marne-la-Vallée and the training institute in Herne-Sodingen in Germany give Jourda and Perraudin a chance to show their mettle.

Subsequent to the International School, these projects provide an opportunity to concentrate and develop their researching on a large scale. A synthesis of the themes they have worked out over the years can be discerned, whilst beyond this, a long-nurtured ambition is breaking through.

Having ascertained the exponential complexity of the project, they no longer try to submit its incidences to the square of principles. And so they now work on the superposition of functions, their mutual enrichment, friction between networks, fluids, energies. In fact, all architecture is a creature, made of interlocking, interlacing, infinite networks, a particular, a specific palpitating body, a metaphor of the complexity of the world, of the city, with which it is in contact.

Thus the idea of responsive architecture takes shape, an architecture sensitive to nature, to manmade surroundings, no longer schizophrenic, definitively closed off, but relating, almost evolutive. The roof of the university in Marne-la-Vallée resounds with this idea. It will respond to the wind, conduct natural light, tell by its pulsations and vibrations the state of the sky – freezing or warm, cloudy or clear. Interaction and exchange crystallise the vitality and the profusion inside and out. □

PROJECTS

New school of architecture, Lyon, France 1987

The theoretical teaching areas (classrooms, library) and experimental areas (laboratories) are juxtaposed and assembled to form the ground floor, or "base" while the areas devoted to the apprenticeship of project-running (workshops) form the continuous space of the first floor, or "superstructure". The exhibition and discussion areas irrigate the entire length and height of the building, forming the public spaces (street, square).

This strict dissociation of space entails a strong architectural opposition between foundation and superstructure, materialising the legendary antagonism between the necessary acquisition of knowledge and the indispensable, inevitable, personal experimentation. Thus the thick, heavy base is both a support for the workshop space above the materiality of the earth, and the necessary anchorage for the light, articulated structure which houses the students' work areas.

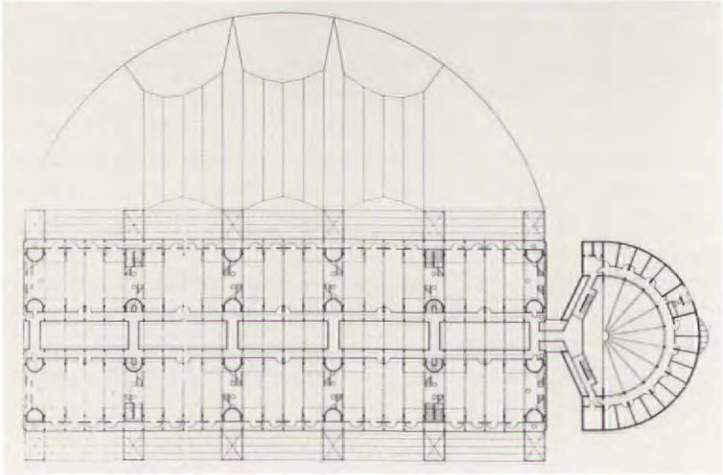
This stratification is broken along the length of the building by the central street, where events, exhibitions and discussions take place, a public space on the scale of the building, servicing the entire premises and delimited by the continuous workshop facades, the laboratories and the classrooms. This federating axis, punctuated by the central square containing the Arts Café and the library, links the teaching areas to the hall of an independent building, the administration block.

The workshop superstructure ensemble forms a continuous blanket that spans the central street. The framework of glued and laminated wood, whose separate parts are articulated by metal components, is assembled on the base according to a rigorous grid; its alignment forms two large naves above each laboratory and classroom base. Both portal framed and diagonally braced, each element of the framework has a 14 m range, reduced by the underbracing, and suspends the pod elements of the workshops.

Each construction system associated with the typology of the architectural teaching areas is expressed in its technical reality: the classroom arches are composed of prefabricated voussoirs, dry constructed on curved wooden shuttering. The keystone of the diagonal arches is the only element cast on-site. The glued and laminated frameworks of the workshops are articulated by means of moulded steel parts whose form directly derives from the analysis of the forces they have to transmit.

As with all the other materials used in the School, the measurements and thickness of the silicone sealed and bolted glass panes composing the flat glass roof over the central street are calculated so as to respond very precisely to the demands they must meet.

Fabric "superstructure" (right and below) floats over massive concrete base with arches opening onto inner circulation space



Plan (right) shows axial composition of school along central circulation space, with semi-circular meeting area to right

Architects' own house, Lyon, France 1987

The organisation and surface area of this house, intended for a family with four children, were conceived in an evolutive fashion so as to respond to changing family needs.

It is built in the orchard of a presbytery situated within the city on a site enclosed by high walls. In order to preserve the existing vegetation, the house is supported at a small number of points, thus "floating" slightly above ground.

The main structure is in steel. Entirely prefabricated, it was erected in a few days. The roof, a real artificial canopy, an extension of the neighbouring plane trees, was hung in one day, thus providing an effective shelter for the rest of the site. The actual habitat is a wooden box (of plywood, generally used to manufacture packing cases): two layers of plywood on wooden stiffeners enclosing thermal insulation. The same material is used for ceilings, floors and partitions.

The east, west and north sides are completely opaque while the southern facade is made entirely of glass. The glass front is composed of single-glazed removable sliding panels, creating physical and visual continuity between the dwelling as a whole and the garden to the south. This continuity is emphasised by the exterior prolongation of wide terraces sheltered by the roof, making real outside living rooms or games rooms.

The house is endowed with its own "respiration", thanks to the play of the openings and closures of the facade panels complemented by blinds, and to the growth cycles of interior and exterior vegetation controlling the luminosity.

Set in the walled garden of an old house and concealed from prying eyes, this structure has been extended by the inclusion of two plywood "igloo" bedrooms (top picture). The original arrangement is shown above, left and right

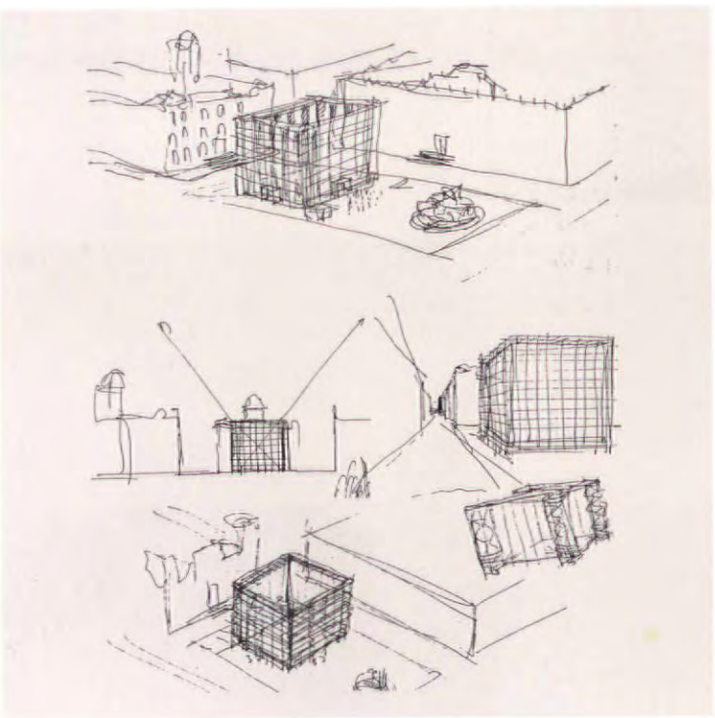
The hollow square encloses a raised mirror in which everyone can see themselves reflected against the sky and contemplate their responsibility for the events of the German occupation. The structure itself is finished on the outside in steel mesh (above left) and, on the inside in white plastic sheeting (above right). Sketches and rudimentary design drawings are below

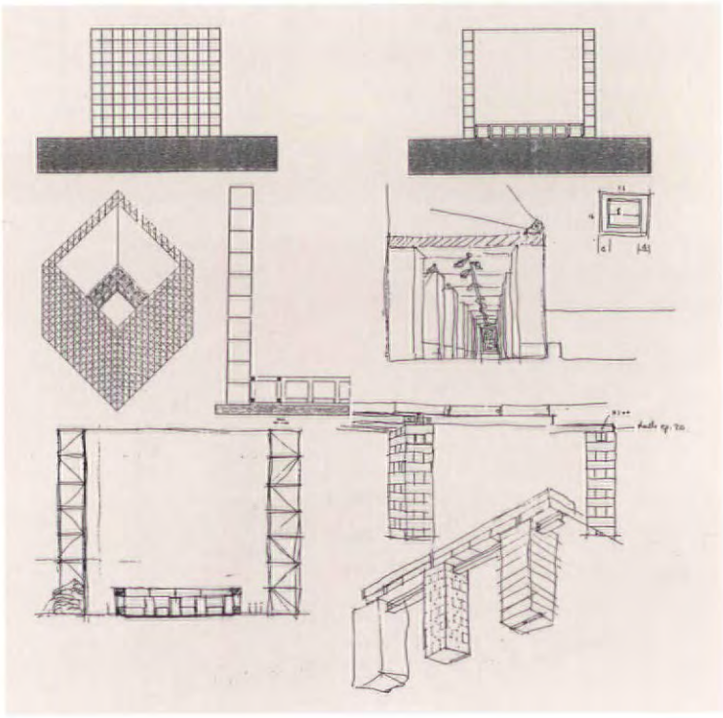
Memorial to the deportation of the Jews, Lyon, France 1987

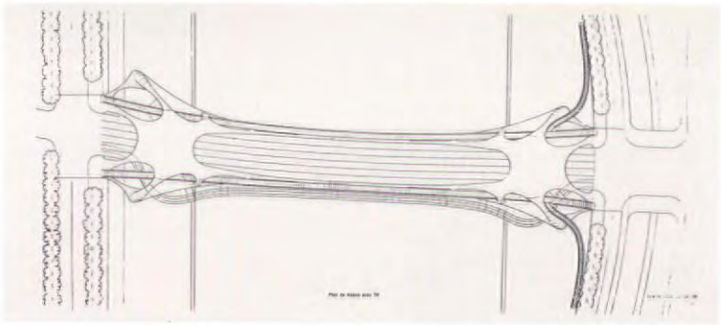
Built on the Terreaux square in Lyon during Klaus Barbie's trial, this short-life building was conceived in one night, designed in three weeks, erected in 38 hours and taken down two months later.

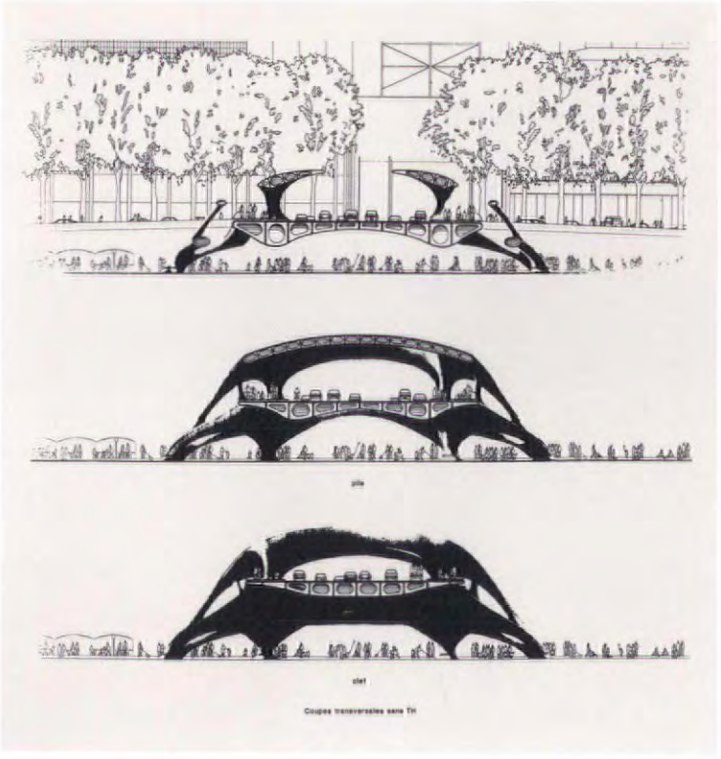
It housed an exhibition of photographs and childrens' drawings from concentration camps, and a room for contemplation where the names of each camp with the number of victims were listed.

"The fewer images, the smaller the amount of history, the less words the better. Just one large horizontal mirror so that, in just one movement, we can bow our heads to the sky". (Alain Fraggi)









Second Austerlitz bridge project, Paris, France 1988

Spanning 120 m, the forms and the geometry of this shell-structure bridge are directly derived from the constraints with which it must comply: motor and pedestrian traffic must be considered as fluids, the shape of the bridge is taken from the curves which will facilitate their flow. Matter is precisely arranged so as to achieve the equitable distribution of forces throughout the entire structure. The structure itself, which can be compared to the porous structure of bone, is composed of fine interlaced membranes; on a larger scale, it forms a homogenous material.

With the help of computer programmes hitherto used in the nuclear industry, the geometry of the structure and the thickness of the membranes can be adapted, almost interactively, to structural constraints.

The resulting shapes are close to natural forms, while the construction techniques – such as the automated plasma cutting of the steel sheets – are borrowed from ship-building. The envelope is made of composite sheets of stainless and carbon steel with the stainless steel side turned outwards on all visible facings, and contributes to the structure's resistance.

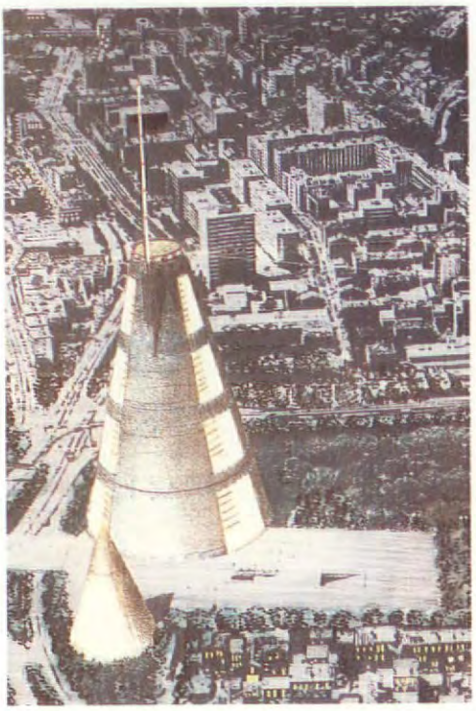
Organic "bone structure" of bridge is clear from photo-montage (top). Plan and sections (left) show unique structure and form

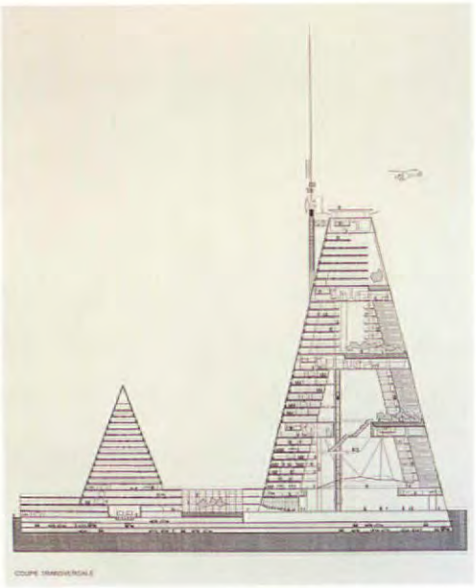
Project for Hotel du Departement Marseille, France 1990

Situated in a suburb to the north of Marseille, this project comprises two cone-shape towers on an esplanade, one filled and intended for archive storage, the other hollow, housing work and conference areas for the local government of the Bouches du Rhône.

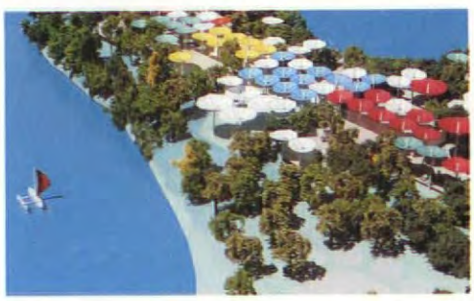
The main tower, 180 m high, explores the concept of the vertical city, reinterpreting the urban structure of Mediterranean towns on the scale of one building. It is composed of superposed gardens and squares which provide a varied array of spaces and itineraries for users, and above all, in sharp contrast to its monumental function in the landscape, introduces the convivial scale of the traditional town into the large halls that stratify the building.

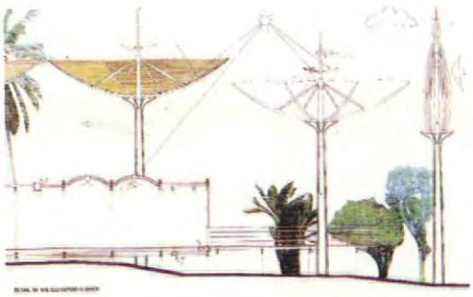
As in Mediterranean towns, the squares are protected from the harshness of the climate: they are cool and shady in summer and sheltered from the North wind in winter. Their large windows, hollowed out of the stone, overlook the city and the sea in the distance.





Competition project shows large hollow frustum and smaller cone structure towering above the city



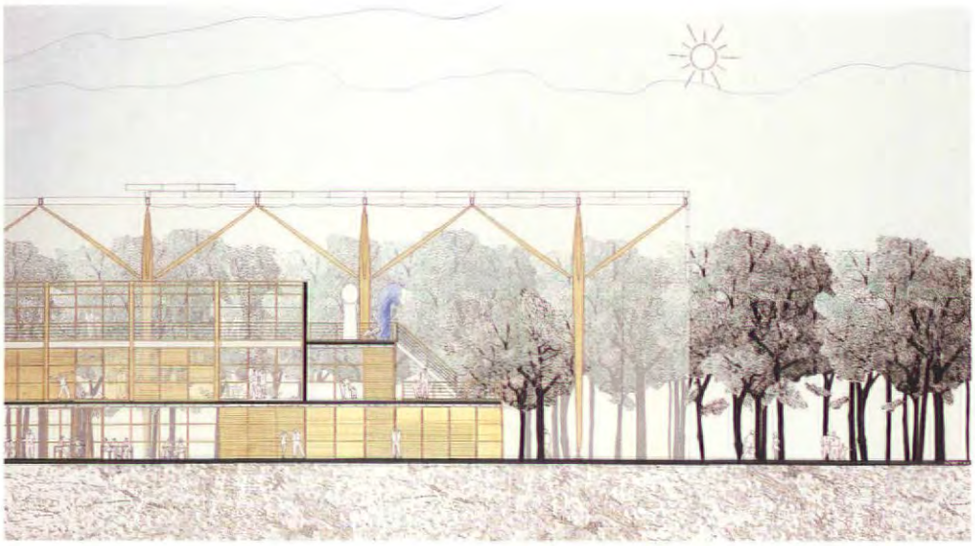


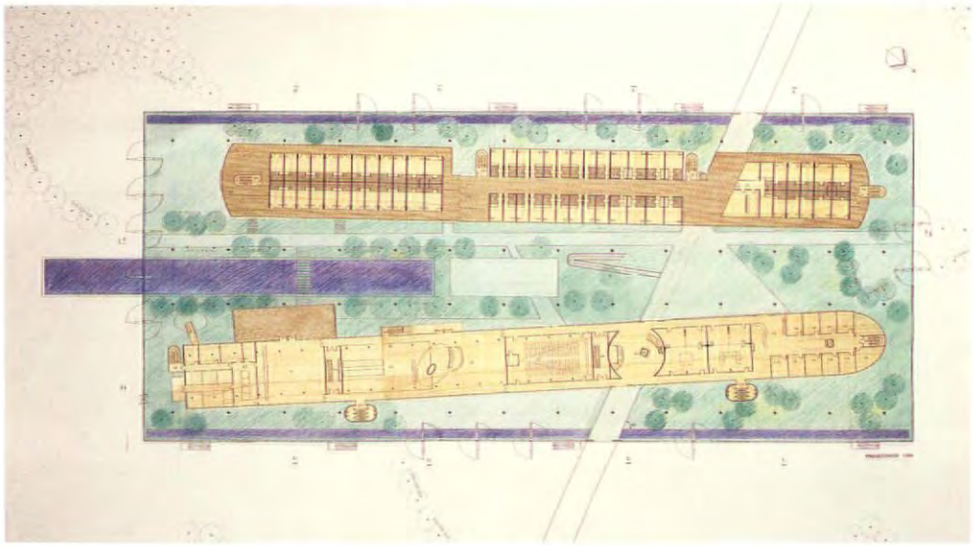
Scheme is dominated by inverted umbrella structures that double as sunshades. Lightweight shelters beneath follow the pattern established by the 1987 house in Lyon

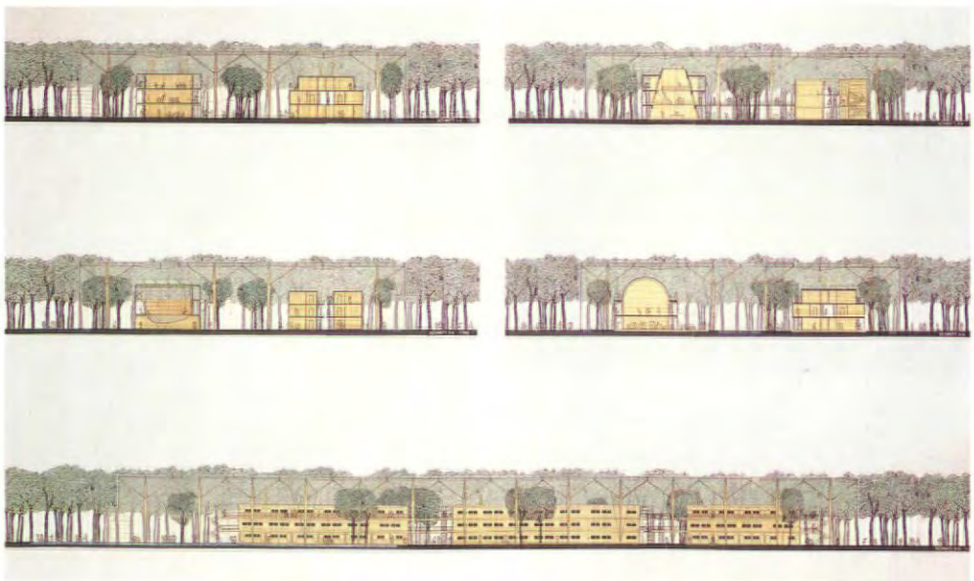
Jean-Marie Tjibaou cultural centre, Noumea, New Caledonia 1991

The climate in New Caledonia is so mild, and nature so generous that there is no real need for protection against it. The traditional dwelling is no more than a lightweight shelter.

The cultural centre is not a building, and so it testifies to the foundations of this culture, born of a symbiotic relationship with nature. Just a few enclosures, a few shelters are carefully placed on the ground, terraces and gangways brush gently against it. The main circulation areas are protected by flower-shaped structures, alternately open and closed in an effort to capture natural energies, thus responding to the passing changes in weather conditions and opening out onto the views in the distance.







North Rhine Westphalia district training centre, Herne-Sodingen, Germany 1992

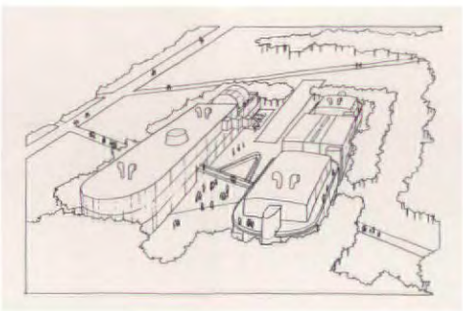
Situated in Herne Sodingen, as part of the IBA Emscher Park, the Academy of the Ministry of the Interior of North Rhine-Westphalia is to be one of the dynamic elements involved in revitalising the Ruhr region by economic, social, architectural, landscaping and ecological means.

The building is to be constructed in a park in the centre of the district of Herne-Sodingen, on the site of the pithead of the mine around which the town grew up after the beginning of the century.

The project proposes to extract a piece of the park, to protect it by a glass box measuring 13,000 m² and to create in this parallelopiped a temperature micro-climate all year round, controlled by extensive natural ventilation, sprays, sunscreens etc.

This gigantic shelter is a glasshouse, constructed according to the logic of industrial manufacturing, supported by large mixed wood and metal tree structures, perfectly mapped out, regular and extendible.

Within this new ecological environment, two long wooden buildings house the training and accommodation facilities. Built in the shelter of the glasshouse, they can subsequently be easily modified and adapted.



A development of the umbrella shelter approach into a free-standing glass box, fully enclosing two long buildings in a climate-controlled envelope. The alignment of the buildings and the roof height related to the treescaping are noteworthy

Underground station and roof, Vénissieux-Parilly, Lyon, France 1992

Situated in a progressively urbanising part of the suburbs of Lyon, the station lies at the junction of several main roads.

Its construction gave rise to the creation of a development scheme including a building with an area of 10,000 m² to be erected above the underground station. Its main hall was also to serve as an entrance to the station. For economic reasons this building has not been built.

In the underground station the mixture of two geometries (orthogonal 5.40 x 5.40 m grid and the 71 degree angle of the rails in relation to the grid) led to the creation of a structure of arches and crossed vaults made of exposed concrete, according to a geometry that optimises the forces to be transmitted from the upper slab (ground floor of the building) to the ground below.

Each of the elements (shafts, chapters, arches, vaults) was designed in relation to the manufacturing techniques employed (metal shuttering, on-site concrete casting, pre-fabricated vaults).

The temporary roof is a later addition designed to provide shelter in the absence of the air rights building. It demonstrates an advanced use of diminishing diameter "tree" structure supports.

"Tree" supports of free-standing roof stand out in night shot (top and above). Expressionist concrete work marks structure of underground station proper

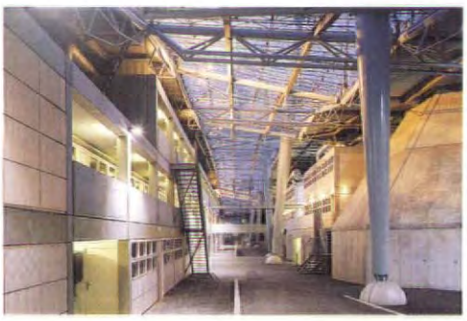
Enclosed roof area is grassed over with continuous rooflights

International School building, Lyon, France 1992

Facing the confluence of the Rhône and the Saone, the classroom building unfolds along the banks of the river and decreases gradually from 7 levels in the north to 3 levels to the south, its curves delimiting the different academic units.

The western face to the river is entirely made of glass and contains an atrium 7 m high and 300 m long where stairways, footbridges, podiums, technical blocks and interior gardens are placed. This temperate area is entirely open in summer thanks to a system of motorised glass plates.

To the east the building circumscribes the "Centre of Life" that regroups all the spaces common to the three schools (primary school, intermediate school, upper school) – a village covered by a suspended and planted blanket. The collective buildings are organised under this roof. They are concrete and wooden buildings between which the "exterior" yet



sheltered public spaces of the Centre of Life are to be found: interior street, terraces, gymnasiums.

The roof protecting these buildings measures 8,000 m² and is hung at a height varying from 4 to 12 m above the ground floor. It is cut out of a grid of 8 m² beams in horizontal projection and connected to the three halls of the school. This regular blanket has been deformed, lifted at each of the grid's intersections in order to obtain the optimum height and so comply with functional and technical constraints.

The masts are inclined, becoming perpendicular to the tangent of the roof's approximated curve at this point. The covering is made of ribbed steel sheeting forming uneven surfaces. It carries waterproofing, drainage and a layer of vegetation.

The glass roof of the Centre of Life is also an uneven surface comprised of 800 panes of variously angled diamond-shaped glass, all different, bolted and stuck together with silicone.

The entirely glass-faced East and South faces of the classroom building are protected by suspended brise-soleils whose angles vary with the position of the sun during class hours.

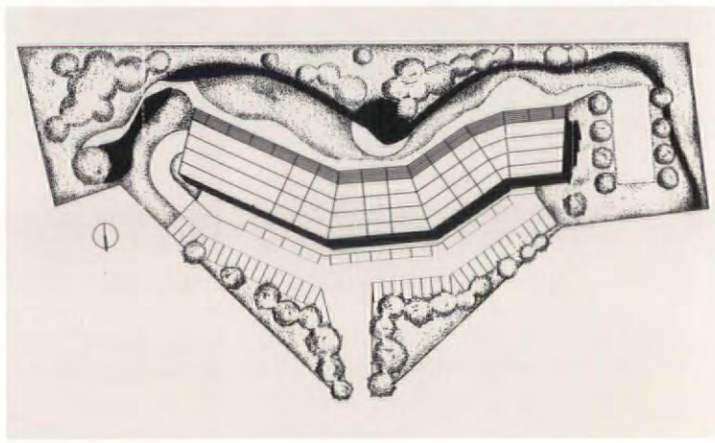
Junction of undulating grass roof and rooflights

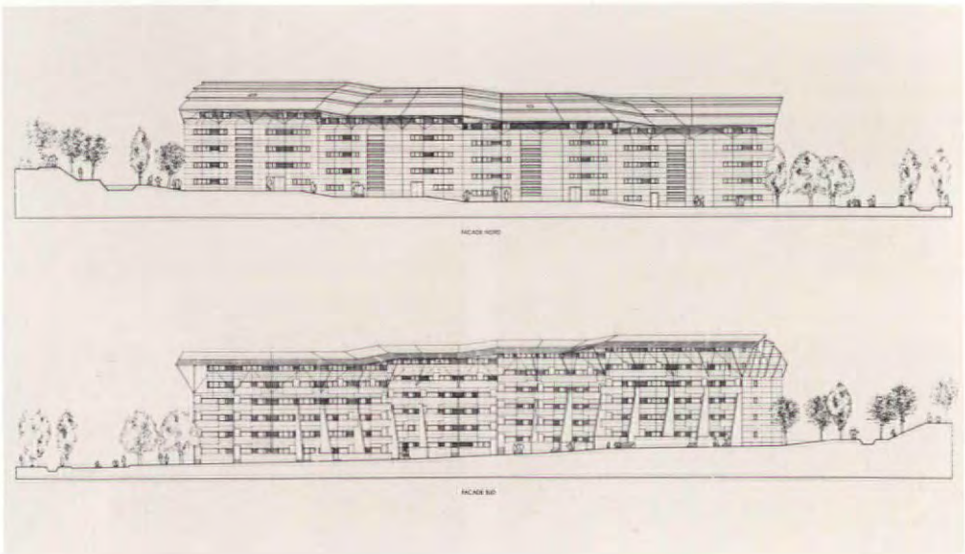
South-facing sunshades protect glass wall

Low cost housing, Lyon, France 1992

Situated in the middle of a housing scheme and linked by a narrow lane to the main road, the building containing 66 social housing apartments does not comply with the "traditional" requirements of urban logic such as alignment, the conception of open space etc. On the contrary, it openly states its links with the surrounding countryside and geographic structures (orientation, geometry of the site, "destructured" urban environment).

The building deliberately turns its back on the north, on the city, on the wind and the rain, opening out to the south and accompanying in its geometry the course of the stream that flows through the area. The roof forms a protective shell, its sunscreens shelter the balconies and the plywood facades of the duplex apartments. The building raises its buttresses from the clayey soil, its ramparts protect the last remaining suburban fields devoted to market gardening.





Generous roof overhangs shelter plywood-skinned upper storey. Base finished in concrete is a favourite Jourdin & Perraudin theme

Grenoble-Sisteron Motorway, France 1994-

Two perceptions of the motorway imply two levels of understanding.

First of all, the driver's perception. At 130 km/h the motorway appears as a broad, extended ribbon, with long, gentle curves, a smooth continuous trajectory without obstacles. The landscape flashes by like a cinematic image projected on the windscreen – 20 kms goes past in 10 minutes. The driver's comfort is directly related to the ease of the curves, the calm of the setting, even if "interruptions" are necessary to relieve the excessive monotony of the journey. Given the beauty and variety of the landscape, monotony is not an issue.

The second type of approach to the construction within its site is static, either from close at hand (persons permanently or occasionally close to the road) or from afar (local inhabitants, walkers). This approach is all the more important as the valleys and mountains of the site permit exceptional distant views. The motorway then appears as an element at the scale of the landscape, but as a function of different landscape sequences or "viewpoints".

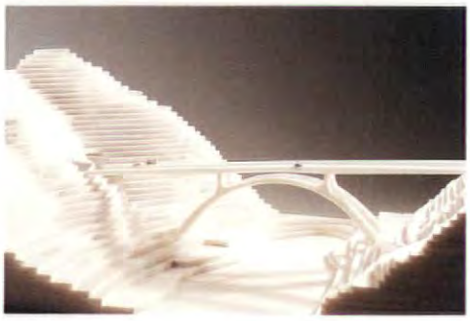
The motorway's diversity of landscape, complexity of topography and sinuosity of line – at its own scale – allow the landscape to be approached as independent sequences, each characterised by the unity of the perceived landscape.

Bridges, tunnels and viaducts, then form an integral part of a landscape unit, sometimes as places of transition or rupture between units. A tunnel is generally a rupture, the entry belonging to one unit, the exit to another.

The approach to such constructions must be developed on the basis of the landscape unit, whether it tries to blend them into the landscape or seeks to the contrary a form of deliberate transformative or sublimatory expression. In this way, these constructions will necessarily differ from each other, as a function of the landscapes to which they belong, for they are adapted to geographical locations, both in terms of their geometry and of their architecture.

The motorway can be considered to be a virtual tube, sometimes closed in within its lateral walls, its supporting or protecting shell, adapting to the environment by changing its skin. It is a fluid, linear object, in continuous curves, which expresses functionality, speed and efficiency.

Early models of motorway bridge structures (below)



Insect, or bat-like tubular structures carry wings of polycarbonate over sheltered areas.

Bus and underground canopies, Lyon, France 1991

In order to enhance the prestige of public transport, the idea of the bus or underground journey must be given a clear and attractive identity that is comprehensible to the user. These sculptural canopies, carrying all necessary passenger information, testify to the significance of "underground life" and spring up out of the earth to signal the entrances of the all the main stations and interchanges.

They are manufactured in moulded aluminium shell, granulated, and varnished with an anti-graffiti substance; the transparent sections mounted onto the articulated limbs on the main body are made of polycarbonate.

Street furniture in Lyon, France 1993

Extract from competition statement 1990:

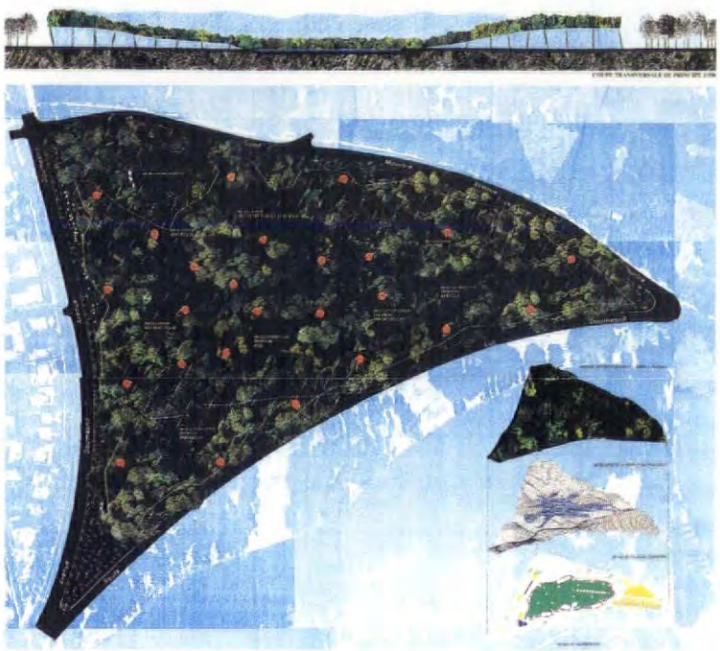
"The spirit of a city is neither in its functionality, nor its technicality. It is in its history, its secrets, its territory, its geography. The history of Lyon ferments in the underground, in its galleries and passageways. It has been ripening for centuries, creating a concentrated energy that emerges from time to time, producing remarkable men and works of art.

"In Lyon, the soil is not a surface. It is a fragile boundary between the underground world and the aerial world, the sacred world and the profane world, each thing, each man in Lyon takes his roots in the depths of History. Nothing is superficial. Everything must be anchored in the spirit of the place.

"Let us awaken these dreams, let the testimony of those who emerge from subterranean mutations be heard in the city.

"From the earth they will shoot forth, those mysterious objects, vegetable and mineral at once, amazing materialisations of a powerful natural site covered over in time by Man, but never entirely dominated."

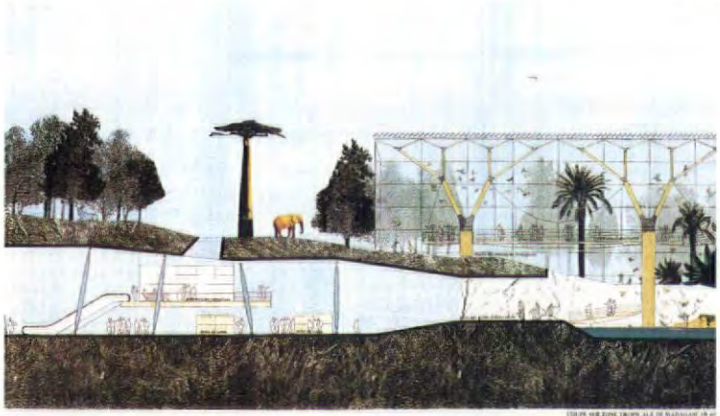
Zoo at Vincennes, France 1994



Plans show artificial ground level for wild life. Sections show servicing area below

The present zoo is set in 15 hectares of parkland surrounded by streets and buildings. The present organisation of the zoo buildings on the site is inefficient and too much exposed to pollution and noise. This results in undue exposure of the animals and excessive noise.

The new design reverses this situation by creating a new zoo environment isolated from the urban scene by an architectural barrier. Within the area of the site a "natural" space has been created for both animals and humans. The interface between animals and visitors will be developed into a visual and sensory adventure in accordance with the most advanced zoo practice. Architecturally, by using raised levels the actual 15 hectares is increased to an effective 30 hectares. This creates a large "green" natural surface containing habitats for various creatures, with different climates and forms of land and waterscape, all of which will be observable by visitors to the zoo through a series of natural apertures in the landscape. The superimposed landscape also permits easy servicing of the operational animals through ground level access traps.



Appearance of simple metal boxes is transformed by fabric awnings

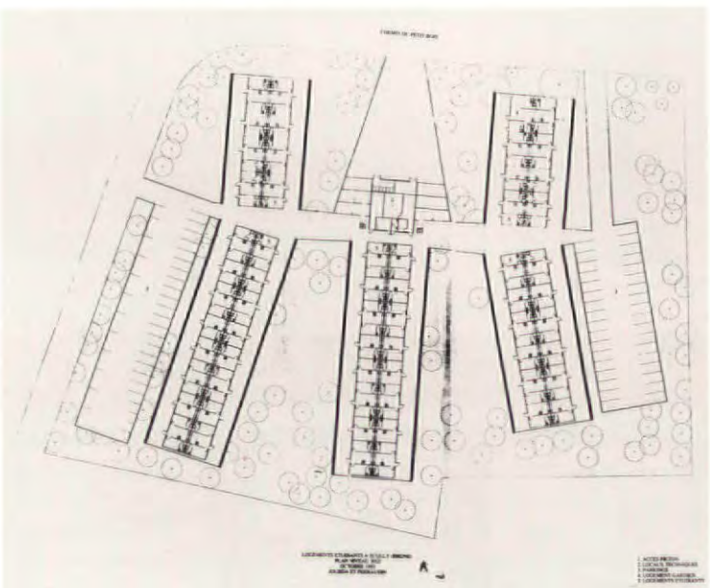
Student accommodation in Lyon, France 1993

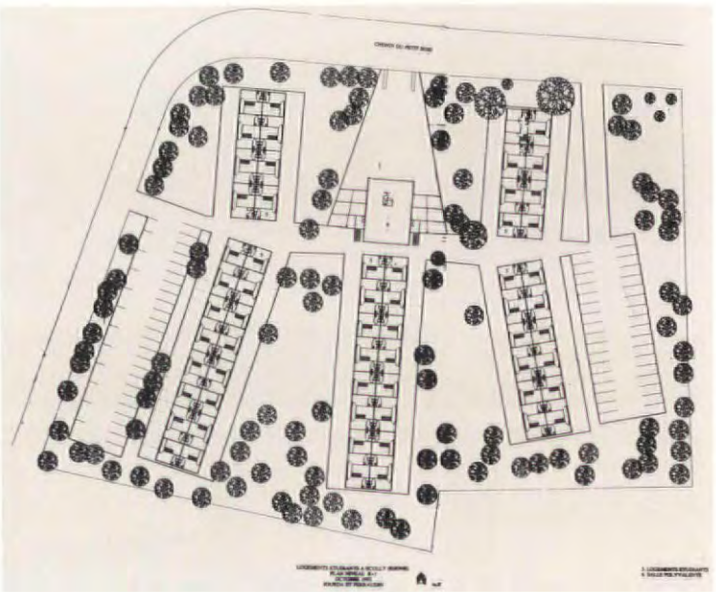
The living conditions in this accommodation, intended for the students of a nearby higher education institute, will differ greatly from any existing development: the students and trainees will live in three or four-bedroomed duplex apartments with a shared living room in the middle.

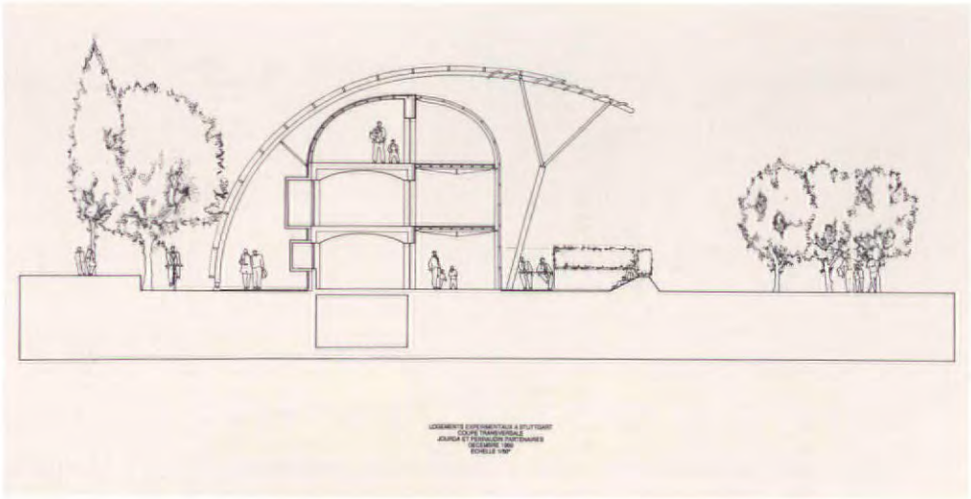
All apartments are accessible from the ground floor; they comprise modules forming a linear, doubly orientated building.

Large translucent awnings protect the individual entrances and the mainly glass-faced facades, creating sheltered circulation spaces in continuation of the landscaped environment.

The modularity and the precision of the buildings are expressed in the strict simplicity and lightness of the construction: prefabricated metal framework, aluminium and screen-printed or transparent glass facade.





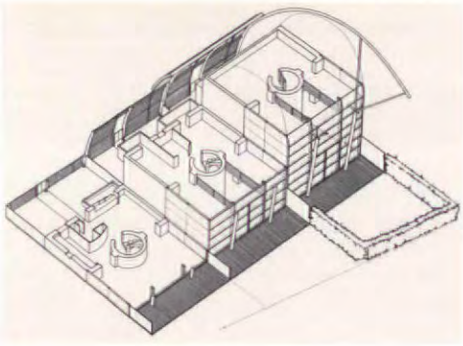


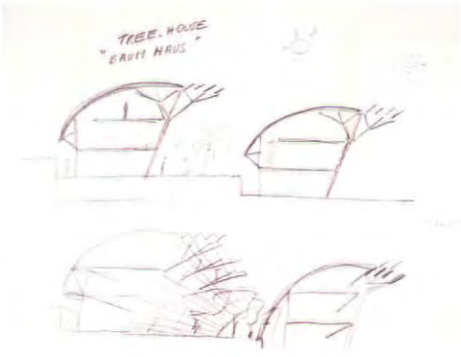
Experimental houses in Stuttgart, Germany 1993

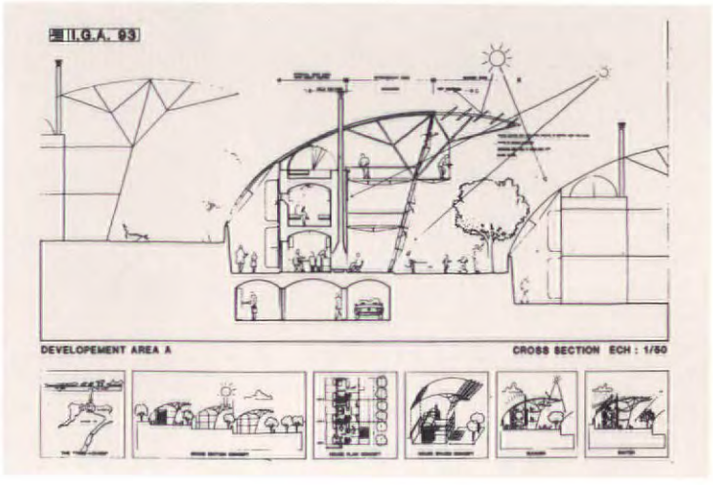
These three experimental houses, which were opened to the public at the inauguration of the International Gardening Exhibition in Stuttgart in April 1993, were intended to illustrate new lifestyles closely related to the environment.

A metallic roof shell supported by two tree structures to the south protects the terrace and the houses.

Each house consists of: a "stone house", a "minimal house", a refuge area and a glass house opening onto the garden. According to the climate, the occupants will take up their abode in one or other of these comfortable areas, experimenting with a kind of nomadism within the house.







Urban and architectural composition, Paris, 1994

The project is a response to the imposing edifice of the Bibliothèque de France by means of an architecture built on the roofs of the city, which in the varying height of its awnings expresses a new way of living.

The project thus separates three kinds of superimposed spaces:

A transparent base which allows visual communication between the street and the interior garden of the block;

A stone building with horizontal lines, respecting the impact of the Bibliothèque de France on its neighbouring environment;

Buildings beneath the awning, which rehearse the plastic diversity of the Parisian roofscape, providing a space for a freer practice and testifying to a possible reconciliation of city and nature;

A sloping garden, the green fifth elevation the block presents to the world.

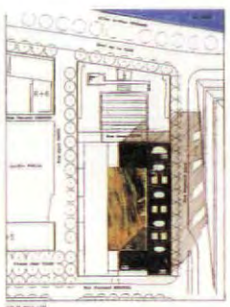
The main body of the building makes a horizontal statement with the continuous slots of the loggias facing on to the street, harbouring broad glazed inset facades. The rhythm of these hollowed spaces, seemingly cut out of a massive stone, is simply achieved by a change in the grain of the stone facings at a right angle to the horizontal projection of the north-west corner tower of the Bibliothèque.

On the interior of the block, the stone building is adapted to a more private scale by means of timber balconies whose positions at each level are varied to allow the separate identification of each dwelling.

Between the stone faced building and the inclined plane of the awning are five small timber clad duplex apartments separated by private garden terraces.

The project includes 103 dwellings, from studios to 7-roomed apartments. The 87 dwellings in the stone building are all single-storey apartments, except for the two duplex apartments giving on to the garden.

The structure of the building as a whole is of reinforced concrete (floors and supporting internal walls), with a supporting structure at ground level to allow for the superimposed load on the pilotis, thereby freeing ground level open space. Beneath the awnings, the five buildings are faced in timber, while the bulk of their facades are clad in stone. The roof is supported on a steel frame structure with decking and a waterproof membrane. Above this is vegetation specially selected so as to need no maintenance, and above all requiring no cleaning as a result of new leaf growth. The loggias are paved in stone.

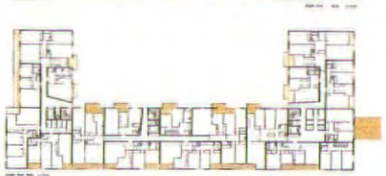













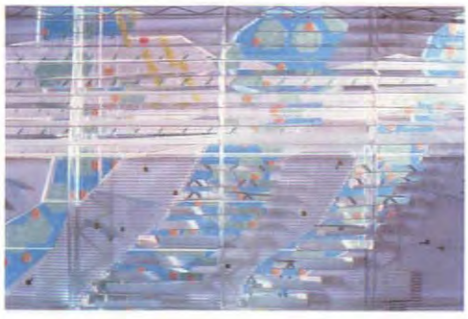

University of Marne la Vallée, France 1993-

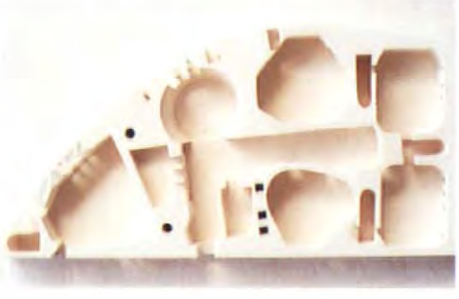
This current project involves two distinct buildings. The first, the "module building" houses conceals teaching and research spaces. The second superposes a food-court above lecture theatres. Both fit into a side plan made up of small islands defining their geometry and their dimension.

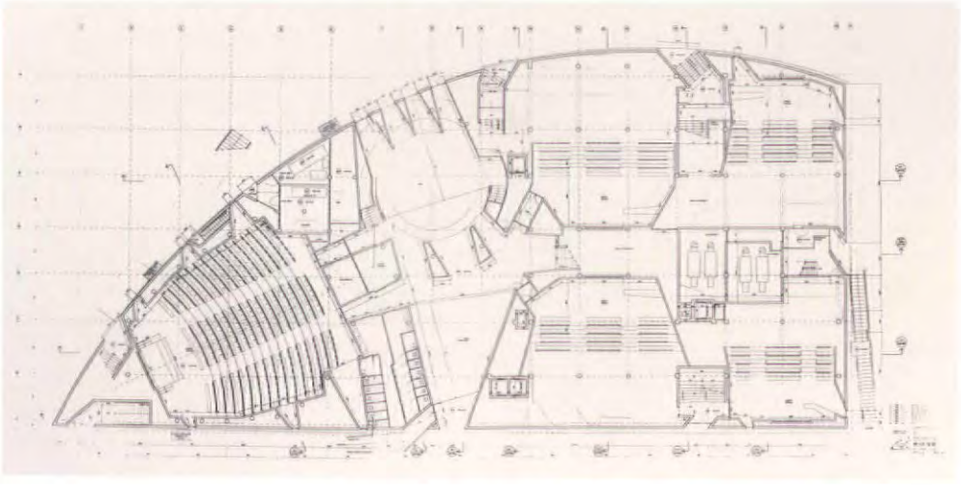
The module building groups its flexible plateaux around a central street. The studies of its envelope are based upon the specific concept of layers. The lecture and catering building is the signal building of the university ensemble. Its architecture takes advantage of the acceptance of the contradiction between the two programmes by referring to two particular concepts – the first is inclusion, the second is the atmospheric roof – exploiting the necessary cohabitation of the two systems.

The atmospheric roof proposes a concept of the systematic superposition of systems, considered as independent "materials", together with a concept of the administration of the places where they collide (gumming process) and of the exploitation of these interferences. It creates an "atmosphere" that is a direct result of the different instruments that control the climatic, luminous, acoustic and functional space.

The system proposed goes even further: it is not merely intended to confirm this "atmosphere" within the limits of a "minimum comfort", which would be to smooth the curve of "spatial emotions"; on the contrary, it proposes within these limits to amplify the exterior "vibrations" and to transform them in order to render perceptible the changes in the environment in the very context of the building's internal comfort: the "spores" or leaves on the glass will be swayed by the breeze, reflecting the sun, creating mobile light effects, transforming wind energy into light movement.







Jourda et Perraudin: a biography

Gilles Perraudin was born in 1949 and Françoise Hélène Jourda in 1955. They both studied architecture at Lyon and graduated in 1970 and 1979 respectively. Gilles Perraudin taught at Lyon between 1974 and 1981. Francoise Helene Jourda has taught in Oslo, London and Minneapolis. They established their practice in 1980 with a competition win to design the new school of architecture at Lyon and quickly followed this with a primary school at Cergy-Pontoise and their own much admired house. Throughout the 1980s the practice attracted critical attention with their project for the Hall of Congress in Toulouse, the European Parliament in Strasbourg, and the recently completed International School in Lyon. Today their practice is engaged in designing bridges and buildings for the Grenoble-Sisteron motorway, and beginning work on the North Rhine-Westphalia state government training centre in Herne-Sodingen, won in competition.

Selected projects

1980	European passive solar house competition victory
1980-87	New school of architecture at Lyon
1982-85	Lyon metro air rights building
1982-92	Lyon metro station "Parilly"
1988	Project for a bridge over the Seine, Paris
1988-93	Experimental housing at Stuttgart
1989	Kings Cross office and housing project London
1989-92	International School at Lyon
1989-92	Roof over metro station at Parilly, Lyon
1991	Metro station Lyon-Gerland project
1992	Project for the French pavilion at Expo '92 Seville
1992	North Rhine Westphalia training centre, Herne-Sodingen, Germany
1993	University of Marne la Vallée project
1994-	Grenoble-Sisteron motorway structures

BUILDING IN FRANCE

France has an area of 210,026 square miles (543,965 sq km). It's contiguous neighbors are Luxembourg and Belgium on the north-east, Germany, Switzerland and Italy on the east, the Mediterranean and Spain are south, and the Atlantic Ocean and English channel borders the west and north-west respectively.

France's natural borders include the Ardennes mountains that extend from Belgium in the north-east, the Pyrenees along the Spanish border and the Alps along the Swiss and Italian borders.

Population: 56.4 million (1990), Urban 73%, Rural 27%

Language: French is the national and official language, spoken by 93% of the population.

Capital: Paris

ECONOMIC DATA

Consumer Price Index: 1980=100

1986	1987	1988	1989	1990 (Oct)
162	167	172	178	187

Exchange Rates: Francs per US $

1986	1987	1988	1989	1990 (Oct)
6.46	5.34	6.06	5.79	5.09

TRAVEL INFORMATION

Time Difference: France is one hour ahead of GMT and six hours ahead of Eastern Standard Time. Add one hour for summertime.

Dialling Code: France's country code is 33; the international dialling-out access code from France is 19.

GENERAL CONSTRUCTION INFORMATION

Construction Outlook: By 1993 the confidence which had returned to the French economy in the late 1980s, began to evaporate. As a result, there has been a considerable slow-down in the construction industry. Nonetheless, the public sector continues reasonably strong with heavy investments in low cost housing and civil works – mostly transportation projects. The commercial and industrial sectors are very quiet and are not expected to pick up until 1995.

Rates of Inflation: - Construction prices have been very stable and, for the first time in many years, have not increased over the previous year. Neither is any increase anticipated over next year.

Forms of Contract: In common with other European countries, there is a great deal of regulation, both formal and informal of the construction industry in France. This is particularly applicable in the public sector for which a detailed range of compulsory procedures is laid out and in which the role of the architect is heavily protected. In the private sector however, there is as wide a range of options for design and construction as there are in the US Here are some particular points of difference between France the United States that need to be understood:

- The architect's role is considerably diminished in the private sector and is usually limited to conceptual design. Architecture is considered an art with all the practical details left to engineers.
- The architect's position is however protected by law and a registered architect must produce the drawings submitted for a building permit (*permis de construire*). This permit is submitted to the local Mayor if a schedule for land use (*plans d'occupation des sols*) exists, or to the DDE (Department for Resource Management) if it does not.
- Engineers dominate the professional side of the industry. The *Bureau d'Etudes Techniques* (BET) do not really have an equivalent in the US, being generally an amalgamation of engineering disciplines, usually with project and construction management capabilities in addition.
- Some BETs are very large. Almost all of them are owned by contracting organizations or financial institutions, creating a potential ethical problem. Some BETs are quite small and specialize in one discipline.
- Due to separate trade contracting being the prevalent method of procuring construction, a strong construction management profession has developed in recent years. These may be called *Pilotes* who provide OPC services (*d'Ordonnancement*, *Pilotage*, and *Coordination*).
- There is no Quantity Surveying profession in France, but there are cost consultants (*Economistes* and *Metreurs*) who work either for architects or directly for owners.
- The use of professional project managers in France is growing to improve the coordination of many parties involved.

One key difference in France that needs to be understood is the fact that it is usual for designers to take designs only to a point comparable to perhaps 60% design completion. The work is then bid at this stage on a lump sum basis and it is the contractor's responsibility to complete the design.

There are several methods of contracting in France:

1. The traditional method is by separate trade contracts (*Lots Séparées*). General conditions are parcelled out between the trades and there is a complex method of back charging a fair distribution of these site overhead costs. In this situation the BET or a separate construction manager (*pilote*) appointed by the owner will coordinate the work.

2. The *Groupement* approach is a variation of separate trades in which group trade contractors bid for the work together. Each is separately responsible for his work. Occasionally they may join together in a kind of joint venture.

3. In France the general contracting scene is dominated by a small group of very large and powerful contractors. The larger general contractors invariably own several trade contractors and usually a BET.

4. There are some signs that the use of Construction Management contracts is beginning to grow. Here a general contractor acts like a *pilote*, but holds the trade contracts.

This offers the owner a choice of sub-contractors without the bother of multiple contracts.

Due to the fact that bids are called on incomplete design documents requiring design completion by the bidders, bid analysis can be a protracted business and often involves a second round of bidding and/or negotiation.

French contractors (general and trades) are highly flexible and arriving at an agreement can be a lot easier than in many other countries. There is more reliance on a handshake gentlemen's agreement and far less litigation.

Insurance Coverage: In addition to the usual insurances carried by designers, contractors, and owners, there is a legal requirement for compulsory defects insurance to meet the so-called "décennal" requirements of the law, which holds all parties involved to a ten year responsibility for defects and failures rendering the facility unusable for its intended purpose.

As defects arise they are remedied on a no-fault basis which is very convenient for the owner. The insurance companies then pinpoint blame between themselves rather than leaving this to the owner to sort out.

The insurance companies will require a Bureau de Controle to be retained by the owner to insure that the quality of the design and construction are satisfactory before they will issue an insurance policy.

Design Professions: The architectural and engineering professions are heavily regulated and are very watchful of their rights and privileges. As noted, the Engineers tend to dominate the professional end of the business, with the BET's being particularly powerful. There are some signs that the architects may be remodelling their image as simply artists, to one closer to the US pattern.

France is well supplied with all necessary design professionals and, in the private sector, there is a great deal of flexibility and choice available to owners as to how to organize the designs. About the only constant is that an architect must apply for the building permit but thereafter there are no obligations of continuing to retain one.

Contractors: As noted above, the industry is dominated by a dozen or so very large general contractors who are almost conglomerates, and by a wide range of trade contractors who are very powerful politically.

Most building contractors are officially registered under the OPQCB system which grades contractors on a six point scale, determining the size of project which they are suitable for and their insurance limit.

There are very few foreign contractors operating successfully in France. The six largest French general contractors are - Bouygues, SGE, GTM-Entrepose, Spie Batignolles, Dumez, Cegelec.

Governing Codes and Standards: France is a country of written rights. The codes and laws governing construction are numerous and invariably written by the central government. Key codes are: civil, urbanism, construction and habitation, insurance. Laws and ordinances govern architects, contractors and real estate.

Specifications often refer to some or all of the following technical standards:

- DTUs - which are codes of practice that define design and workmanship standards
- Normes - produced by AFNOR applying to specific products
- Avis Techniques – which are advisors particularly for new materials and components

CONSTRUCTION MATERIALS AND METHODS

Material Availability: With the opening up of national markets encouraged by the EC, there is now an extraordinary range of materials and components available on the French market. Specific comments would be:

- Reinforced concrete was invented in France and continues to be the material of structural choice
- Sophisticated air-conditioning equipment will invariably be supplied by American companies.
- No particular shortages are currently evident.

Labour Availability: Some regions report a few skilled labor shortages. Otherwise, supply is adequate.

Equipment Availability: The full range of equipment is available from European sources.

USEFUL ADDRESSES

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51, Rue de Raynouard
75016 Paris
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Fax: (33) 1-45-24-02-78

Federation Nationale des Travaux Publics
(French Contractor's Association)
3, rue de Berri, F-75008 Paris
Phone: (33) 1-45-63-11-44
Fax: (33) 1-45-61-04-47
Telex: FNTB 640675 F

Federation Nationale du Batiment
(French Contractors Association)
33, Avenue Kleber, F-75784 Paris Cedex 16
Phone: (33) 1-40-69-51-00
Fax: (33) 1-45-53-58-77
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Chambre des l'Ingénieurs
Conseil de France
Maison de l'Ingeniere
3, rue Leon Bonnat, 75016 Paris
Phone: (33) 1-45-24-43-53
Fax: (33) 1-42-88-26-84

Union Internationale des Industries de Carrieres et Materiaux de Construction
3, rue Alfred Roll, 75849 Paris Cedex 17
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World Architecture *and Hanscomb would like to thank GEMO for assisting us in the preparation of this In-Country Profile.*
G.E.M.O.
19, Rue Auber, 75009 Paris, France

Approximate Construction Costs:
The following square meter unit rates are provided for rough comparison purposes.

	Franc/m²
Industrial Building with offices	3,500-3,900
Office Building, 5-10 Stories,Shell & Core	6,500-7,000
Office Building, 11-20Stories, Shell & Core	6,500-7,500
Hotel, Mid Rise (4 Star)	10,000 - 12,000
Apartments, Mid-Rise	6,000-7,000

GLOBAL REVIEW

GASUNIE GIFT

PRIVATE EUROMONEY

BOVIS DIVIDED

TEL AVIV MODERN

PROJET SANS FIN

CULTURAL WASH

PROGRESS REPORT: THE NEW GRONINGER MUSEUM

Four architects, one building. Given that the designers collaborating on the New Groninger Museum in the Netherlands are Alessandro Mendini and Michele de Lucchi from Italy, Philippe Starck from France, and Co-op Himmelblau from Vienna/Los Angeles (replacing New York's Frank Stella, who dropped out), it is perhaps not surprising that the museum's director, Frans Haks, describes his building, which opens in October this year, both as "surprising and festive" and as "a sample-sheet of contemporary architecture".

Groningen, an agreeable northern city in a country dominated by its southern metropolises, is keen to get on the map architecturally, and has of late taken the view that the more audacious, the better. It is one of the sites for the "Europan" housing competition for young architects (winners in Groningen are the British architects Jonathan Woodroff and Dominic Papa) and has been notable of late for a number of eye-catching new office developments. However, the New Groningen Museum is entirely unlike anything that has so far happened in the city. And, being a late example of Memphis-influenced post-Modernism, it is unlike anything else in this still sternly Modernist country.

Mendini, as much a theorist as a working architect, is the lead architect on the project, assisted by his brother Francesco (project architects are Groningen's evocatively-named Team 4). Since the museum possesses a number of very different collections – contemporary art, Chinese porcelain, and local history being three of them – Mendini decided to express the collections as separate but linked elements. Rather as Stirling tended to do, he has pulled the components of the building apart to make a little village of smaller buildings. The grand gesture, however, is to plonk the whole assemblage down in the water of the city's main perimeter canal, scooping out a new basin for the purpose. A new pedestrian/cycle bridge spans the canal through the museum, effectively making it a gateway for the city. The slightly hallucinogenic effect of this semi-submerged city block is increased by the fact that some of its windows go below the waterline.

There are three main elements: a central complex (admin, shops, café) dominated by a tower – the museum's storage space – covered in gold laminate as if it were a precious casket. West of this a low square brick pavilion (history and archaeology), designed by de Lucchi, is surmounted by an aluminium drum housing Applied Arts, – interior by Starck, including a sub-floor aquarium.

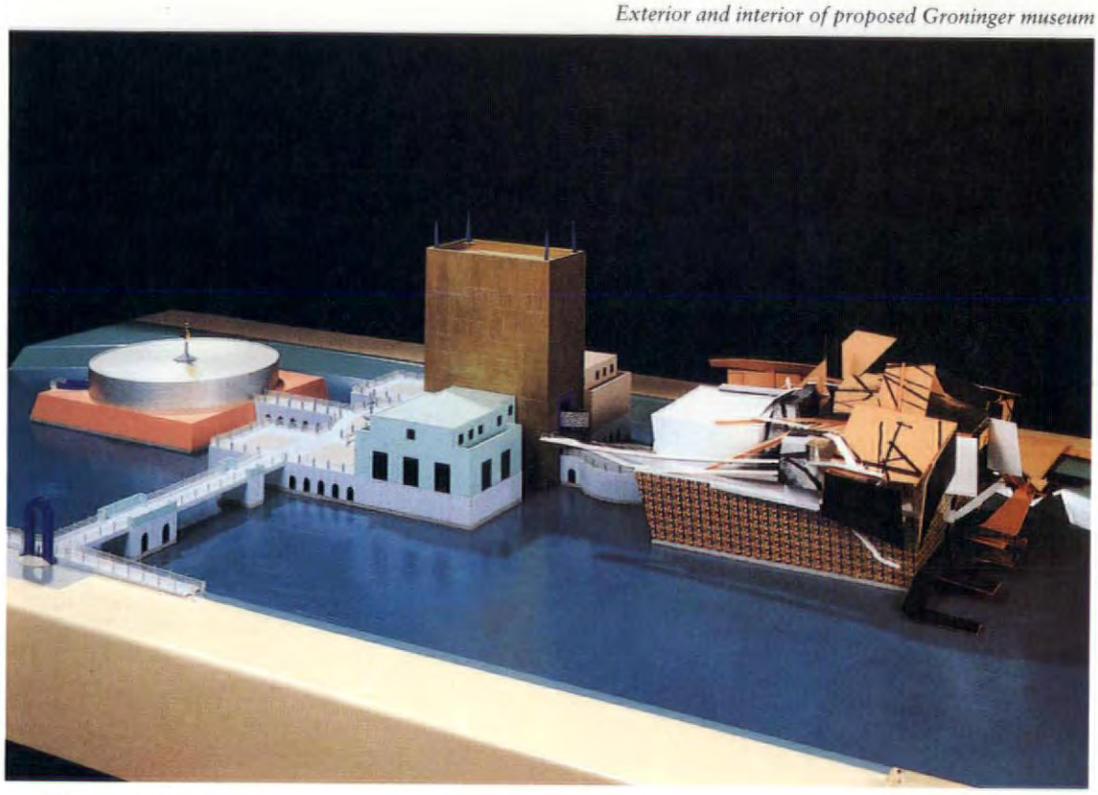
East of the central complex is a three-level pavilion: bottom two floors by Mendini (clad in pointilliste laminate) housing temporary exhibitions and modern visual arts, above which is Co-op Himmelblau's Old Visual Arts pavilion, consisting of seemingly randomly assembled plates of steel which never quite touch, their interstices sealed with glass.

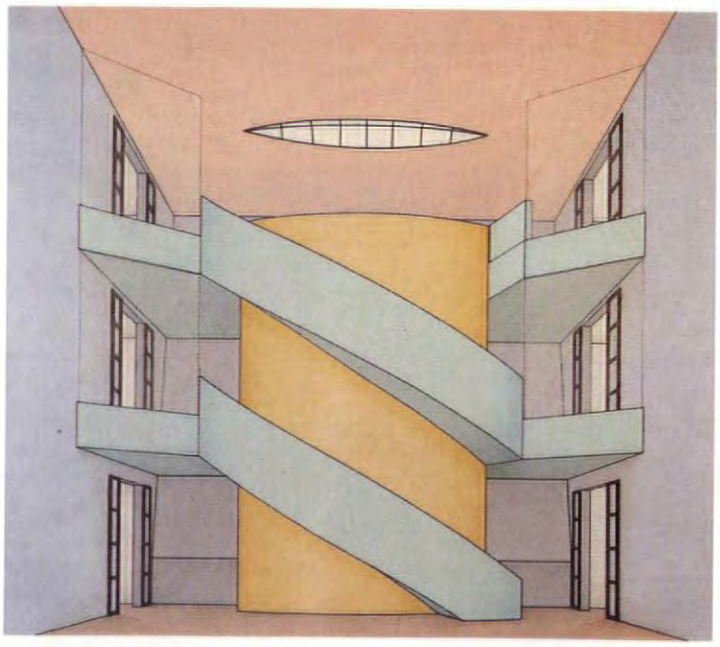
Groningen is still a somewhat conservative city, despite the presence of a large university. The museum is, not unnaturally, a talking point. "The scrap metal is going on the roof now," reports our man in Groningen with relish. "Everyone in the city has a view on this. Opinion is divided."

Funding note: just over half the cost of building the museum (47 million Dutch guilders) came in the form of a donation from

Dutch Gas (Gasunie), which has exploited the gas fields of the province of Groningen for the past 25 years. It seems the company wanted to give something back. At the same time as handing over this money, Gasunie was building one of the most dominant pieces of new architecture in the city, the battered fortified castle complex of its own headquarters, designed by the Amsterdam practice of Alberts en Van Huut, completed in 1993.

Exterior and interior of proposed Groninger museum





EUROPEAN FUNDING

Anyone travelling through the nations of what is now called the European Union will notice the EU symbol – a circle of stars on a blue background – on an increasing number of building sites, along with the signboards of contractor, architect, engineer and so on. Long associated with infrastructure projects such as roads and rail links, the Regional Funding of the EU is available not only for buildings, but also for buildings in the private sector – this despite the fact that the fund is widely seen as a public sector prop.

The Fund is allocated in five-year tranches, and in the budget period 1994-99, the total money spent on EU regional funding will be around 176 billion ecus (in sterling terms, £140 billion). By no means small potatoes: yet the different nations of the EU vary widely in how, or even whether, they dip into this huge kitty. France, Spain and Ireland, for instance, are adept at using the Fund: Ireland's Office of Public works, with a high-calibre architects' department for new buildings, has used EU funds extensively for a network of visitor centres across the country – the funding being justified on the grounds that such buildings encourage tourism and therefore trade.

Spain, when it entered what was then called the European Community, sent experts to Brussels to find out how the EC operated and how it could use the funding: the new buildings and transport links around Seville for the 1992 Expo, and Barcelona for the Olympics, were among the first beneficiaries.

Even in Britain, not usually noted for its alertness in prising funds out of the EC/EU, the highly-regarded new Tate Gallery in St. Ives, Cornwall, designed by architects Evans and Shalev, was made possible by European funding. Greatly increased visitor numbers to this high-employment region of the United Kingdom in the year since the new Tate was completed would seem to vindicate this use of European money.

And yet, according to the independent funding consultancy Euroconsult, a joint venture with the cost consultants Northcroft, not enough privately-funded developers are aware of the assistance available. Under EU rules, the funds can be used for private sector projects as long as they satisfy the criteria laid down – basically job creation and social benefits – and the EU funds are matched by domestic money. A business park, for instance, could be built in a declining industrial area or poor rural area, such as the Ruhr or southern Italy, with a three-way division of funding between business, EU, and national or local government.

The fundamental problem, according to Euroconsult's Elizabeth Jones, a construction lawyer, is merely one of awareness that the funding could be

applicable to a given privately-originated scheme. "Given the large sums of money in question, the distribution of these funds is obviously something which companies and their advisers should take into account in planning the development of their businesses," she says. Britain, for instance, is entitled to 2 billion ecus (£1.6 billion) of the new tranche, to be spent in declining industrial areas including London: Jones points out that under an earlier scheme, the European Commission (which administers the money) complained that not enough suitable projects were coming forward to claim the cash.

Remember what it's all about: the Regional Aid funds are part of the EU's "Structural" funds, so called because they are intended to further the pan-European structural policies of the Union. The priorities are:

- Helping regions whose development is lagging behind;
- "Reconverting" regions seriously affected by industrial decline – that is, introducing new industries;
- Combatting long-term unemployment;
- Integrating young people into working patterns;
- Modernising agricultural methods;
- Developing rural areas.

The Regional Development fund is one of three "structural" funds, the others being the huge and controversial Agricultural Guarantee Fund, and the European Social Fund, which is mostly for education and training. Grants of up to 75 per cent of costs are available.

In addition to this, the poorer countries of Greece, Ireland, Portugal and Spain are entitled to the "Cohesion funds", a product of last year's Edinburgh summit, which are meant to help iron out economic differences across Europe. Spain gets most of these, between 52 and 58 per cent.

The highest-priority regional funds (for what are called "Objective 1" regions) also apply to the whole of Greece, Portugal and Ireland, plus parts of Italy, Spain, Belgium, East Germany, Corsica, and the UK.

Euroconsult (European Consulting Services Ltd) has offices in London and Brussels. Its short guide, The EC Regional Aid Funds: a UK User's Guide is available from: Elizabeth Jones, European Consulting Services Ltd, One Horse Guards Avenue, London SW1A 2HU. Phone +44-(0)71 839 7858 or +44-(0)303 891243.

BOVIS DIVIDED

Bovis, the mega-construction company that is a subsidiary of the even larger P&O conglomerate, has, in an unconscious echo of Caesar's Gallic Wars, divided the world into three parts, and Europe into a further three.

Such corporate shufflings tell us more about the way the world works than any politician since Caesar. Architects considering setting up overseas centres would do well to study such firms as Bovis – rather as the fast-food chain Macdonalds, when it first came to the United Kingdom, chose its locations not by doing its own market research, but simply by placing its restaurants as near as possible to the outlets of a famous British chain store which was known to study its locations very thoroughly.

So to Bovis Inc (America and Japan) and Bovis Asia Pacific (Pacific Rim and Australia) we must now add Bovis Europe, which has just been set up. Europe, however, splits into three smaller regions. Bovis Construction Ltd deals with the United Kingdom and Ireland; Bovis International West broadly covers the former Western Europe, while Bovis International East operates not only in such places as the Czech Republic, Poland and the former Soviet Union, but rather more surprisingly also in the Middle East, India and Pakistan.

Making these latter areas part of Europe, corporately speaking, tells us interesting things about how the European economic base is now perceived. Also, it reveals just how far the economic importance of the Middle East to the construction industry has fallen since the 1970s: these days it does not even merit its own corporate sub-division and is lumped in with Byelorussia and the Ukraine.

TEL AVIV MODERN

Following the coincidental discovery of an intact Bauhaus-style house in Leipzig by Adolf Rading (WA28), the growing interest in the work of those European architects who, like Rading, emigrated to Palestine rather than Britain and the United States, is being commemorated in Tel Aviv.

As it happens, the municipality of Tel Aviv-Yafo contains the largest concentration of Bauhaus/International-style buildings in the world. Built by European and European-trained architects during the 1930s and 1940s as a joint expression of architectural and nationalist ambition, they fell into the long sleep of the unfashionable until 1984, when a new master plan for Tel Aviv called for the identification and preservation of key buildings in the city's history. A decade later, 1,000 of the 1,500 buildings designated as significant are in the International Style: and this rediscovery coincides with the arrival of new Modernism, happily re-establishing the tradition.

Being a modern country in political terms, Israel has had no qualms about declaring a Modernist heritage. "The preservation and study are not passing nostalgia but a powerful force for future development," insist the event's organisers, who are working under the wing of UNESCO. It is undeniably remarkable that while the influence of the Bauhaus and its followers resulted in a limited number of buildings in Europe during its pioneering years, in Israel whole neighbourhoods were established, not only in Tel Aviv but also in Haifa (where Rading became city planner), Jerusalem and several kibbutzes.

The main focus of the event is a conference on May 22-28 at the city's Habima Theatre, with speakers from the United States, Holland, Germany, Canada, Cuba, France and Italy as well as Israel. There are also exhibitions, theatrical events, tours, floodlighting of key buildings and (this being a thorough country) an educational programme extending from junior high schools (with a new textbook on the subject) to schools of design and architecture. The aims of all this are large: not only to celebrate Tel Aviv as a city but to re-establish the supremacy of the International Style internationally.

In Tel Aviv itself, there is a need to get a grip on development, which is currently proceeding at breakneck pace. It is hoped that some of the lessons of the Bauhaus boom of 60 years ago can be applied to the massive expansion of the city today. Not that the International Style ever died here: an exhibition of photographs by Irmel Camp Bandau records 120 buildings faithful to its principles built in Tel Aviv between 1989 and 1991.

For information about the Tel Aviv events, contact Idit Ya'aron or Tali Katchko at Gitam Promotions, Israel (0)3-5752885, fax (0)3-7525496.

Shawzin's "Athlete II"

PRAGUE TURNS RIGHT

While the much-criticised European Bank for Reconstruction and Development (EBRD), though decentralising madly to eastern European countries and slashing costs at its lavish London base, continues to attract criticism for its policy of favouring private-sector investment in nations with a public-sector culture, one former communist country is doing so well that it is almost overlooked: the Czech Republic.

The one-time Bohemia (still, apparently, thinking about giving itself a new name), having undergone its Velvet Revolution and quietly dissociated itself from what is now Slovakia, wants more private western investment, the harder-nosed the better, rather than state assistance from the west. This is not merely the conclusion of analysis in traditionally capitalist nations: it is the stated preference of the Czech prime minister Vaclav Klaus.

The Czech miracle was not merely to achieve bloodless revolution, but then to quietly get on with being almost boringly stable, both politically and economically. Not for the Czechs the pain of transforming to a market economy that has so plagued Poland and Russia. It is now such a good bet as a safely-growing economy (about five per cent growth a year for the next 15-20 years, according to banks who have moved into Prague) that, to all intents and purposes, it must be deemed to have arrived as a western nation, rather sooner than anyone expected.

This being the case, it's to be hoped that its maturation as an economy will lead to a revival of the architectural and design talents that made this nation famous in the inter-war years. Too much second-rate imported developer's architecture – already a problem in Prague, where office rents, having climbed steeply, have now fallen back to around DM 55-60 per square foot – risk making every great former Eastern bloc city look the same.

Although Prague has not been spared, either in-town or in the form of out-of-town retail and business parks – one encouraging sign (while waiting for the Czech functionalist revival) is that several new developments involve the conversion and amalgamation of existing buildings – along the lines of Glasgow's Merchant City or Dublin's Temple Bar. An example is an apartment block being made at Belgicka 3 in the Vinorhady district of Prague. Prague Investments – an American-Czech joint venture involving American architect Steve Miller – is converting a 1920s block into 13 apartments: elsewhere the firm is becoming a specialist in such rescues of run-down property. The stability and growth of the Czech economy should at least ensure that such ventures remain viable.

A *Handbook for Real Estate Investors in Prague* has now been produced jointly by accountants Price Waterhouse, property consultants Healey and Baker, and the City of Prague Municipal Assembly. It's available in Czech, English, French, German and Spanish. Healey & Baker's Prague office: +42/2-242 228 02.

WEST SIDE SCULPTURE

New public open spaces in Manhattan tend to be thin on the ground, unless they are the kind of fountain plaza one associates with big commercial centres. The latest, Robert Moses Plaza, is however different in that it is a sculpture park on the Lincoln Center Campus of Fordham University, and is designed for the use, not only of students, but of the West Side public.

This hard-soft park, on Columbus Avenue and between 60th and 62nd Street, is in fact a re-working of a pre-existing space (no land in New York stands idle for too long) by the landscape architect M. Paul Friedberg & Partners. The opening exhibition is of the work of South-African born sculptor Stella Shawzin, running until mid-October 1994.

The idea of the plaza/park was to create a communal meeting-space between town and gown in this mid-town area, where since 1961 the Jesuit/humanist university campus has occupied eight acres next to the Lincoln Center for the Performing Arts (its original and biggest campus is over in the Bronx). Walkways and a sequence of public spaces allow the sculpture to be seen from all angles, and an ampitheatre and a glass extension to the campus's Lowenstein cafeteria open up the space further.

After the Shawzin show closes one of the works – the 17-foot "soaring figure" – will be installed permanently at the entrance to the plaza facing the Lincoln Center.

NOUVEL MINCEUR

Despite being an architect unfairly described recently by one Parisian critic as "someone who makes all his buildings look like leather bars", and despite a dramatic shrinking in the size of his office, Jean Nouvel manages to keep some regular clients going during the French recession. Among them Cartier, the jewellers and goldsmiths, for whom he has just completed a new art gallery in Paris.

The "Immeuble Cartier" at 261 Boulevard Raspail in Mont-

Jean Nouvel's Cartier Foundation, Boulevard Raspail, Paris

parnasse, which houses the Cartier Foundation for Contemporary Art, shows nothing of what some critics have criticised as a decadent tendency in Nouvel's work in recent years, for this is Nouvel in purist mode, working almost entirely in glass, using the material to dematerialise external and internal spaces, what Nouvel describes as "Incapsulation and transparency".

This means a building in a tree-dotted urban garden where the facades have a tendency to leap out as freestanding screens rather than merely serving to enclose space, as at his otherwise not wholly dissimilar 1987 Institut du Monde Arabe. But the building, although it provides an 8-metre high gallery at ground level (opening date: May 11, 1994), also has the practical purpose of containing 4,000 square metres of office space for Cartier France.

The address has a particular resonance for the French, however, being the one-time home of the post-revolutionary romanticist writer François Chateaubriand who planted a Lebanese cedar that is still there, flanked by two Nouvel glass screens and under which you must pass to get to the new building.

This is Nouvel's third building for Cartier, following his two factories at Fribourg and St. Imier in Switzerland in 1990 and 1992. Normally three different exhibitions will run concurrently: two of artists commissioned by the Foundation (Richard Artschwager's imaginary objects and Pierrick Sorin's video installations are first up) and one "happening" kind of shock-eclectic exhibition that is so fresh it cannot possibly be planned in advance. Ah, the French.

Fondation Cartier, 261 Boulevard Raspail, 75014 Paris, France. Phone France 42 18 56 50.

PROJET SANS FIN

Will Jean Nouvel's perpetually-awaited Tour sans Fin or Endless Tower, at La Défense in Paris ever get built? This slender tube, planned next to Otto von Spreckelsen's Grande Arche, is still ominously classified, in the Nouvel project list, as a "study in progress", dating back to 1989.

Nouvel's developers will be anxiously watching a big forthcoming test of the reeling Paris office market. Five new or nearly-new office buildings at La Défense, totalling 138,000 square metres, are all to be put on the market this spring.

As with London, which got hit around three years earlier than Paris, a distinction is emerging both between new and old offices (new ones let, old ones don't) and between the old central area and the outlying office city (for central Paris and La Défense, read the City of London and Canary Wharf).

La Défense commands office rents around half the level of prime central Paris locations such as Étoile-St. Honoré. It also has new buildings and (unlike Canary Wharf) is well-established and has excellent transport links. Hence the stirrings in the market in this still-astonishing French version of Manhattan. If all that space can be shifted, then the floorspace proposed at the Tour san Fins, which would have the attraction of being the single most desirable address at La Défense, would start to make sense. But Nouvel is probably counting no chickens just yet.

IRISH PRODIGY

Despite some famous indigenous practices such as Scott Tallon Walker and (more recently) de Blacam & Meagher, architecture in Ireland has tended to remain in the shadow of the European mainstream. In an attempt to rectify this, the first all-Ireland architecture award (covering both the Republic and the UK province of Northern Ireland) was judged recently.

The award, sponsored jointly by the Republic's Royal Incorporation of the Architects of Ireland, and an expansionist English newspaper, homed in on two aspects of recent Irish architecture: Euro-funded visitor centres in remote parts, and urban renewal in Dublin.

The award was shared between the stone-turf and glass pyramid of the Ceide Fields centre on a neolithic site in the far west of County Mayo (designed by Mary McKenna and others in the Republic's Office of Public Works) and the Irish Film Centre in Dublin's Temple Bar by O'Donnell and Tuomey: a twin cinema, restaurant, bookshop and film archive ingeniously contrived from what was originally just a couple of Quaker meeting halls.

Jean Nouvel's Cartier Foundation, Boulevard Raspail, Paris

A close runner-up to these, given a "highly commended" tag, was the non-denominational Glenveagh special school in Belfast by Kennedy Fitzgerald and Partners: a somewhat derivative arrangement of glazed steel trusses, brickwork plinth, and snaking central mall that nonetheless provided all the light and flexibility that the staff and severely handicapped pupils needed.

CULTURAL WASH

It seemed almost tasteless, in the middle of the desperate war that was destroying Bosnia, to start complaining about the heritage being damaged. But as anyone who has spoken to those involved in any war will know, the monuments of a nation take on a particular symbolic value during a conflict. The act of removing them now has a sinister new name: "cultural cleansing". Plans are now being laid for the post-conflict restoration of the former Yugoslavia.

At an earlier stage in the battles for control of the former Yugoslavian regions, it was the pounding of Diocletian's Palace at Split in Dalmatia that provoked outrage from cultural quarters across Europe. However this was as nothing compared with the destruction late last year of the comparatively modest Old Bridge in Mostar, the victim of sustained Serbian shelling.

The bridge at Mostar was part of a recently-restored urban composition that had won an Aga Khan award and was a UNESCO World Heritage site (thus regarded as being on a par with the Taj Mahal, Stonehenge, Durham Cathedral or the Grand Canyon). A relic of Ottoman influence in the area, the bridge was notable for being "mathematical" – its single high arch built without mortar, held in place under its own weight, thought to be designed by a pupil of the Ottoman architect Sinan – but it was the link represented by the bridge that was at least as significant. The Old Bridge, built in 1566, spanned the river Neretva to join the Catholic lands of the west with the Muslim interior. It had come to epitomise cross-cultural understanding.

The loss of the bridge has however served to galvanise those who were already highly concerned about "cultural cleansing" – though a strongly-worded condemnation from the Council of Europe to President Franco Tudjman had as little effect as you might expect in the circumstances. Soon after, a conference was called in London by the Bosnia-Herzegovinia Heritage Rescue Foundation (BHHR) in conjunction with the Courtauld Institute of Art, to examine ways to salvage the shattered areas once hostilities cease. The BHHR, currently based in Britain but expanding internationally, is acting as the centre of documentation for the Bosnian heritage sites. For further information contact Dr. Marian Wenzel on +44 71 433 1142. □

THE WORLD ARCHITECTURE HANSCOMB COST INDEX

World Architecture *frequently receives inquiries concerning the level of construction price differentials around the world. In response to this demand, we are pleased to bring you on a biannual basis the Hanscomb Index. This is produced exclusively for* World Architecture *by the well-known international construction consulting firm of Hanscomb, who operate internationally out of 40 offices in Europe, North America, Africa, Middle East and Asia.*

		Exchange Rate to US$*	Index Range Low	High
EUROPE				
Austria	Asch	12.38	119	131
Belgium	Bfr	36.19	123	135
Czech Republic	Koruna	30.33	76	89
Denmark	Krone	6.86	140	155
Finland	Markka	5.71	101	118
France	FFr	5.96	119	132
Germany	DM	1.75	134	148
Great Britain	£	0.68	105	117
Greece	Dr	253.00	101	112
Hungary	Forint	103.00	86	99
Ireland	I£	0.71	95	105
Italy	Lira	1696.00	112	124
Netherlands	Guilder	1.97	113	125
Norway	Krone	7.59	119	139
Poland	Zloty	22048.00	82	95
Portugal	Escudo	177.00	91	101
Russia	US$	1.00	117	137
Spain	Peseta	143.00	86	95
Sweden	Krona	8.13	124	138
Switzerland	SFr	1.48	151	167
Turkey	Lt	18450.00	76	89
NORTH & SOUTH AMERICA				
Canada	$C	1.34	82	90
Mexico	NPeso	3.10	78	86
United States	US$	1.00	95	105
Bahamas	US$	1.00	98	108
Jamaica	$J	29.50	76	85
Puerto Rico	US$	1.00	95	105
Virgin Islands	US$	1.00	105	116
Argentina	Peso	1.00	71	83
Brazil	Cruz.	533.00	75	87
Chile	Peso	429.00	75	88
Columbia	Peso	818.00	76	89
Panama	US$	1.00	76	88
Peru	N Sol	2.19	80	89
Uruguay	Peso	4.51	80	88
Venezuela	Bolivar	110.00	81	90

Attempting to compare construction prices from one location to another is far from an exact science, especially when the comparisons are taken over international boundaries. Here are a few examples:

•Government regulations in Germany require every permanent work space to be within 6.5 metres of natural light. The design implications increase the wall-to-floor ratio (and costs). This has a significant influence on building footprints and efficiency.

•Seismic design codes in Japan are much stricter than most other areas of the world. The resulting increase in member sizes produces an average of 138 kg/m³ of steel for office buildings in Japan v. 88 kg/m³ in the US

•In Spain, the use of galvanized metal ductwork is the exception rather than the rule - most ducts are built out of plasterboard.

•In many countries in the Middle East the soil contains a heavy concentration of sulfates requiring the use of sulfate resistant cement and the protection of sub-grade concrete with protective membranes.

It is probably fair to say that the construction industries of every country are very conservative and adopt change very slowly. Thus, we see the continued use of wet trades, i.e. plaster, when drywall is available; the continued use of sand and cement screeds when monolithically finished concrete is feasible and of better quality; the use of brick instead of concrete block, etc.

Then design styles vary from country to country and client expectations may be quite different. American clients in general do not

		Exchange Rate to US$*	Index Range Low	High
MIDDLE EAST				
Egypt	E£	3.34	105	116
Israel	NSh	2.99	78	87
Lebanon	L£	1705.00	83	96
Oman	Rial	0.39	97	108
Kuwait	Dinar	0.30	91	106
Qatar	Riyal	3.64	97	108
Saudi Arabia	Riyal	3.75	95	105
UAE	Dirham	3.67	95	105
AFRICA				
Nigeria	Naira	22.00	99	110
South Africa	Rand	3.45	89	99
Zimbabwe	$Z	8.13	93	108
ASIA & AUSTRALIA				
Australia	$A	1.40	92	101
China	R.Yuan	8.70	76	84
Hong Kong	$HK	7.75	129	142
India	Rupee	31.37	76	85
Indonesia	Rupiah	2117.00	90	99
Japan	¥	108.00	194	214
Malaysia	Ringgit	2.77	84	93
New Zealand	$NZ	1.75	81	90
Pakistan	Rupee	30.40	76	88
Philippines	Peso	27.57	96	107
Singapore	$S	1.59	114	125
Taiwan	$T	26.42	111	123
Thailand	Baht	25.44	82	91
Vietnam	Dong	10860.00	79	87
South Korea	Won	808.00	112	123

* February 1994 exchange rates are used.

expect their buildings to last as long as European clients; British industrial buildings tend to have wider column-free spans than American. And, then, there is the issue of quality and performance, where every country feels that its buildings are better than its neighbours, or, if you are an owner who has to pay for them, are over-designed in relation to others.

Finally, contractual, procurement, and design management procedures vary from place to place quite significantly. In some countries open competition at all levels tends to produce more efficient and lower price construction. In others, the construction industry may be more regulated or cartelized, thus restricting competition and forcing up prices.

There can also be a significant difference between "cultural" expectations as to facility types. For example, an apartment building in Ghangzhou can probably be built for the equivalent of $100/m^2$, which would produce a relative cost factor of 0.15 at this location v. 1.00 at say, Chicago. However, the products that are being compared are quite different in terms of finishes, equipment, and design, e.g., the Chinese apartment building will have shared toilets and kitchens, no applied finishes, no built-ins or fixtures, minimal heating, no air-conditioning, a single elevator (if any), etc.

Given all these factors, the measurement of price differentials between countries is particularly hazardous and it is important that our readers understand how Hanscomb arrive at their index figures which appear on the facing page:

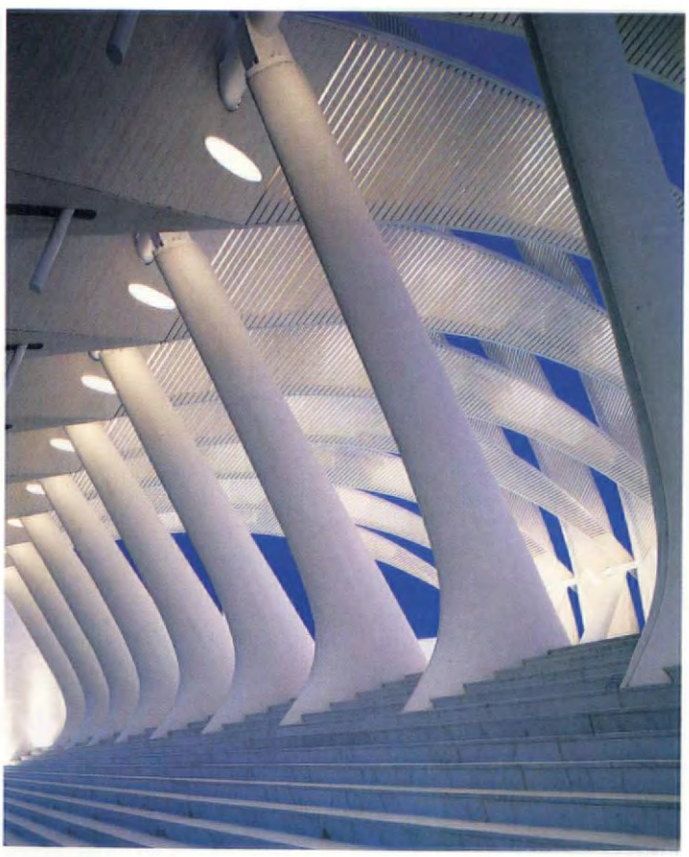
- Construction to "Western" (i.e. USA/ Western Europe) standards at location.
- The index base is 100 in Chicago, Illinois, USA at first quarter March 1994.
- The index reflects construction at the outskirts of principal cities, not for rural or highly urban locations.
- The index is based on private or institutional building construction, i.e., it does not reflect differences in civil, heavy industrial, or residential construction. Also, note that the index does not attempt to compare price differentials for highly sophisticated buildings such as hospitals and laboratories, which may show a different pattern of index from simpler building types.
- Exchange rates are as stated. As these can vary substantially over short time periods in some countries, be sure to refer to the rate that was used before using these indexes. In some countries as exchange rates deteriorate, inflation increases and the ratios (the index) may well remain very similar.
- Due to the vagaries of comparing construction prices, an index range is provided.
- The index reflects differences in construction prices only and excludes any arising from site costs, furnishings and equipment, design and management fees, financing or any other recoverable tax.

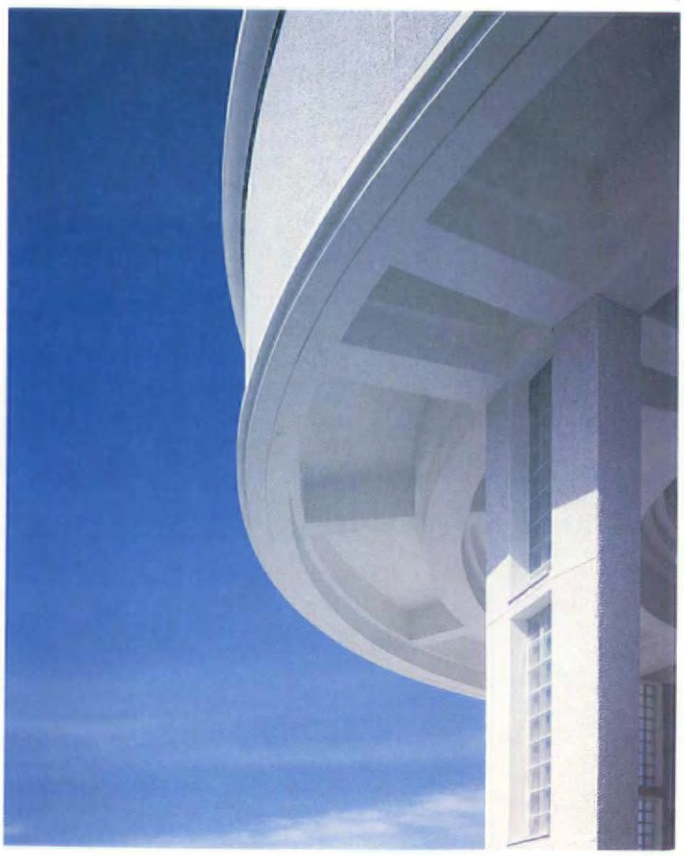
Finally, the Index is intended to provide general guidance only and should not be used for definitive estimating purposes.

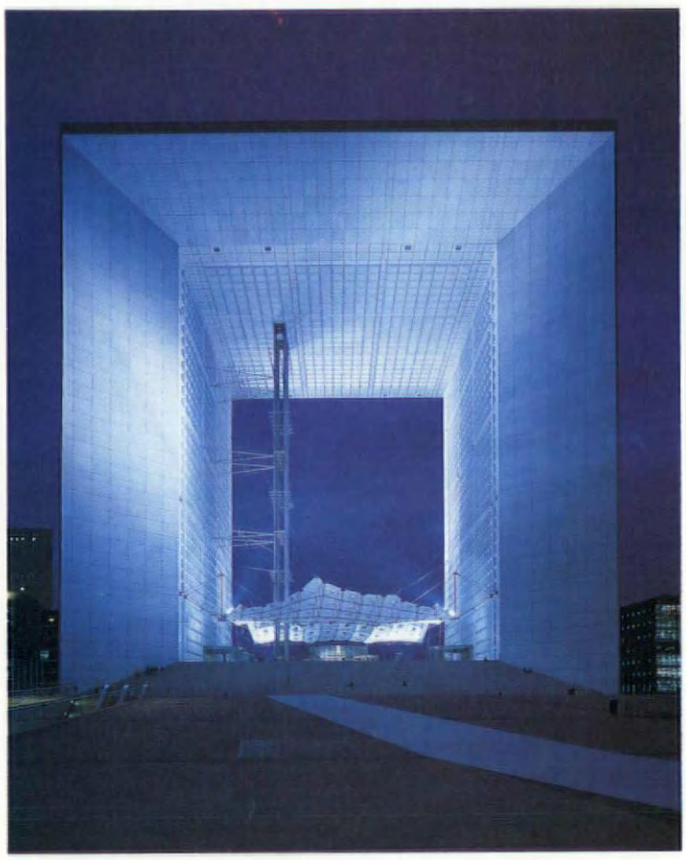
The Hanscomb Index is produced for *World Architecture* by the Hanscomb group of companies, international construction consultants and project managers. The editor for this series with *World Architecture* is Gary Mardon in Hanscomb's Chicago USA office, who coordinates input from over 70 countries around the globe. □

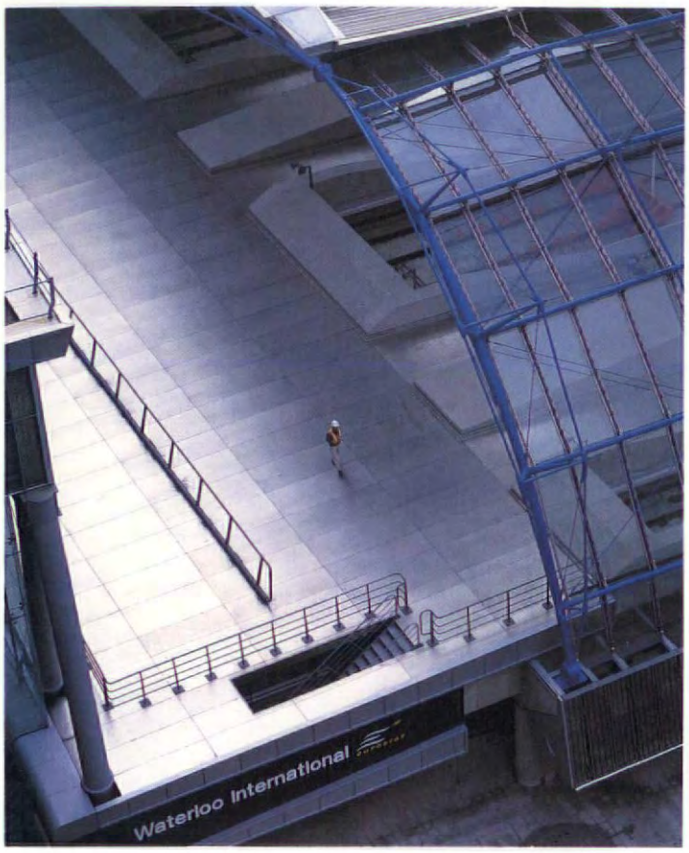
JOHN EDWARD LINDEN

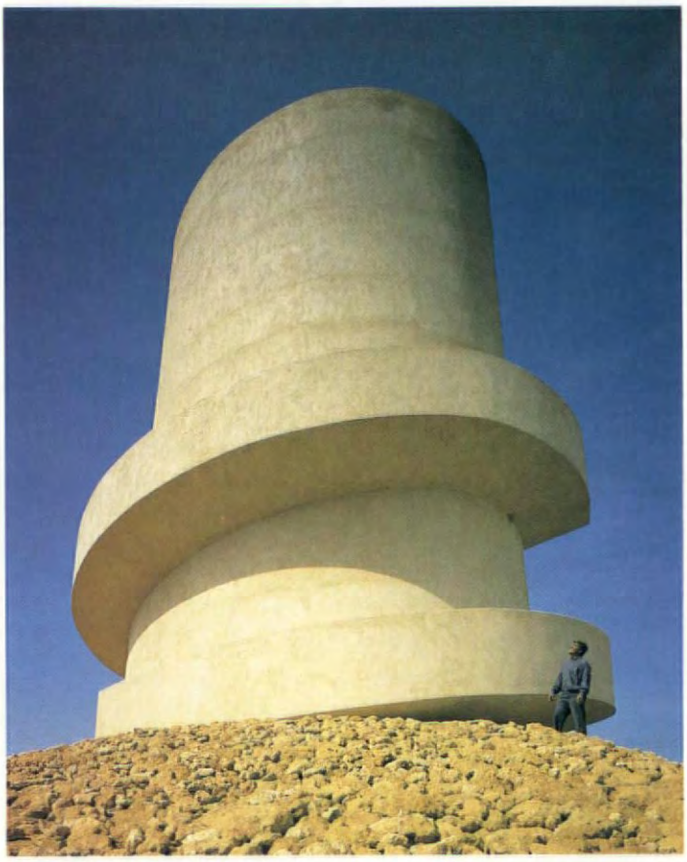
John is an American-born photographer who has been based in London for the past three years. Since then, his work has taken him across Europe and appeared in numerous publications. The following pages show a selection of what he has seen.
John can be contacted on 071 289 8525.

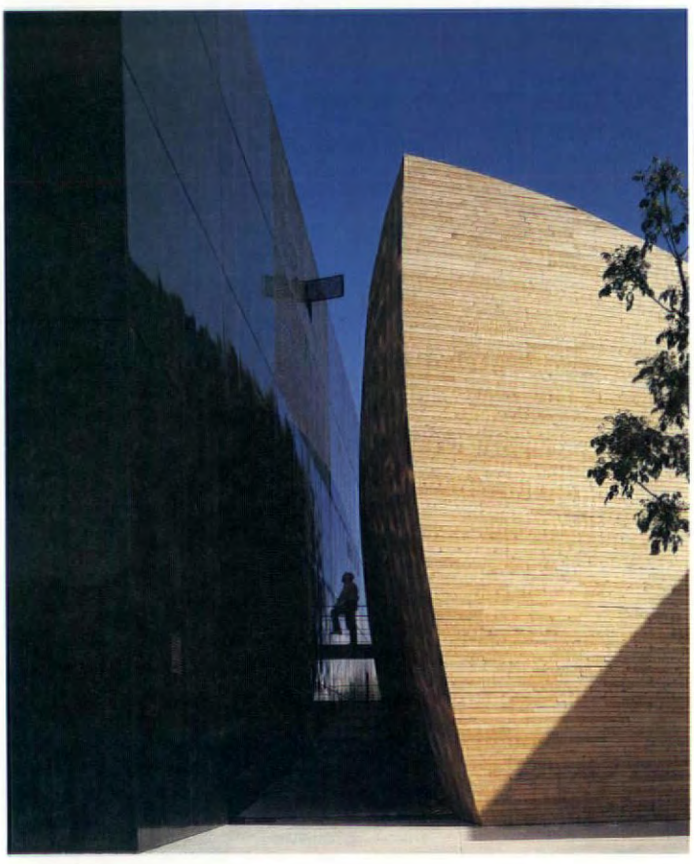


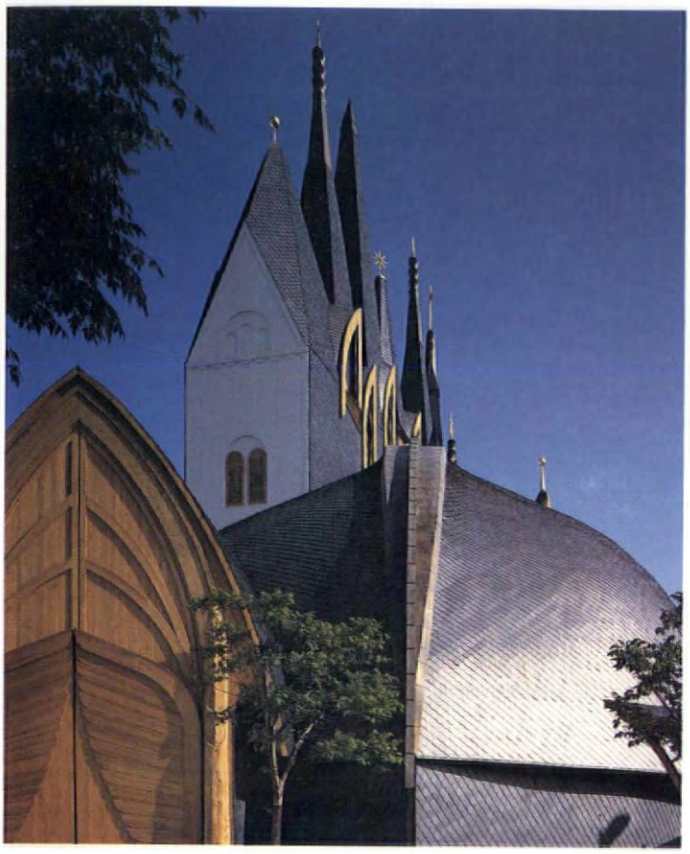


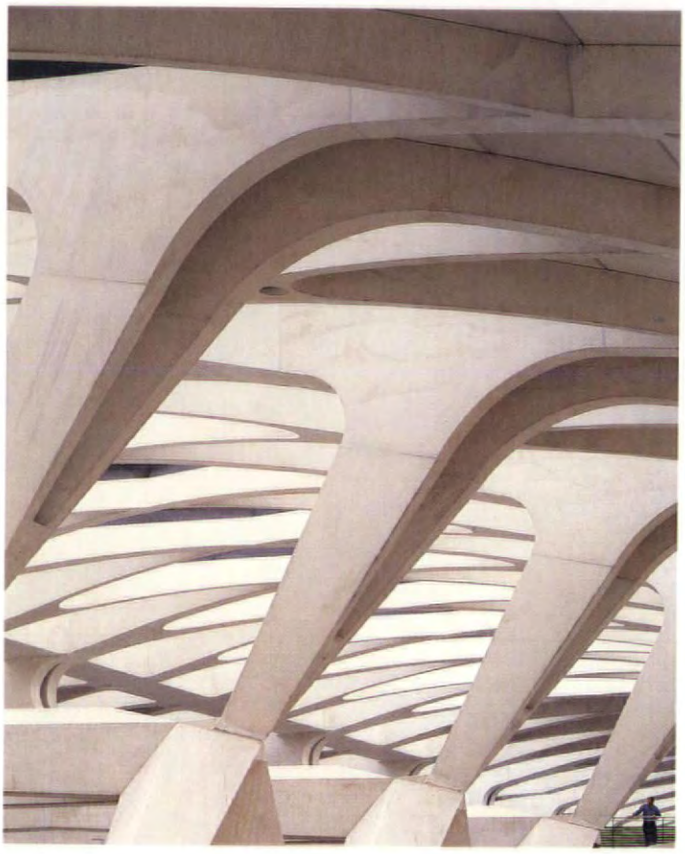


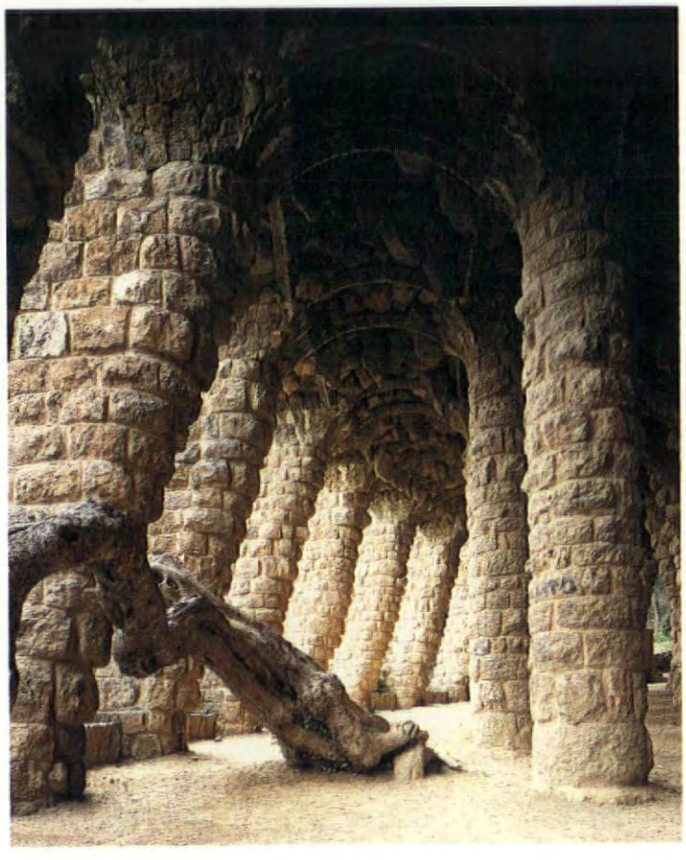

Waterloo International

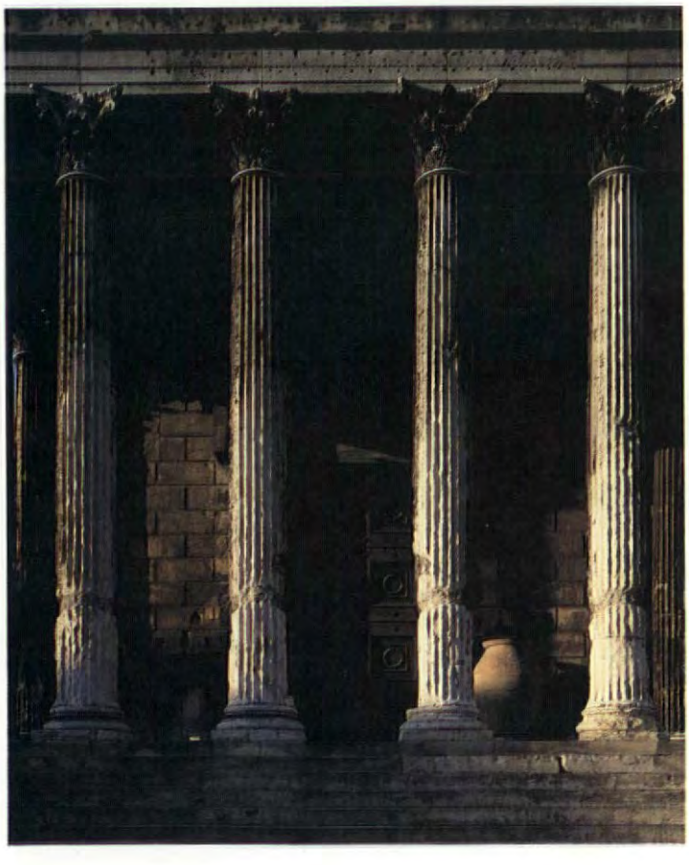


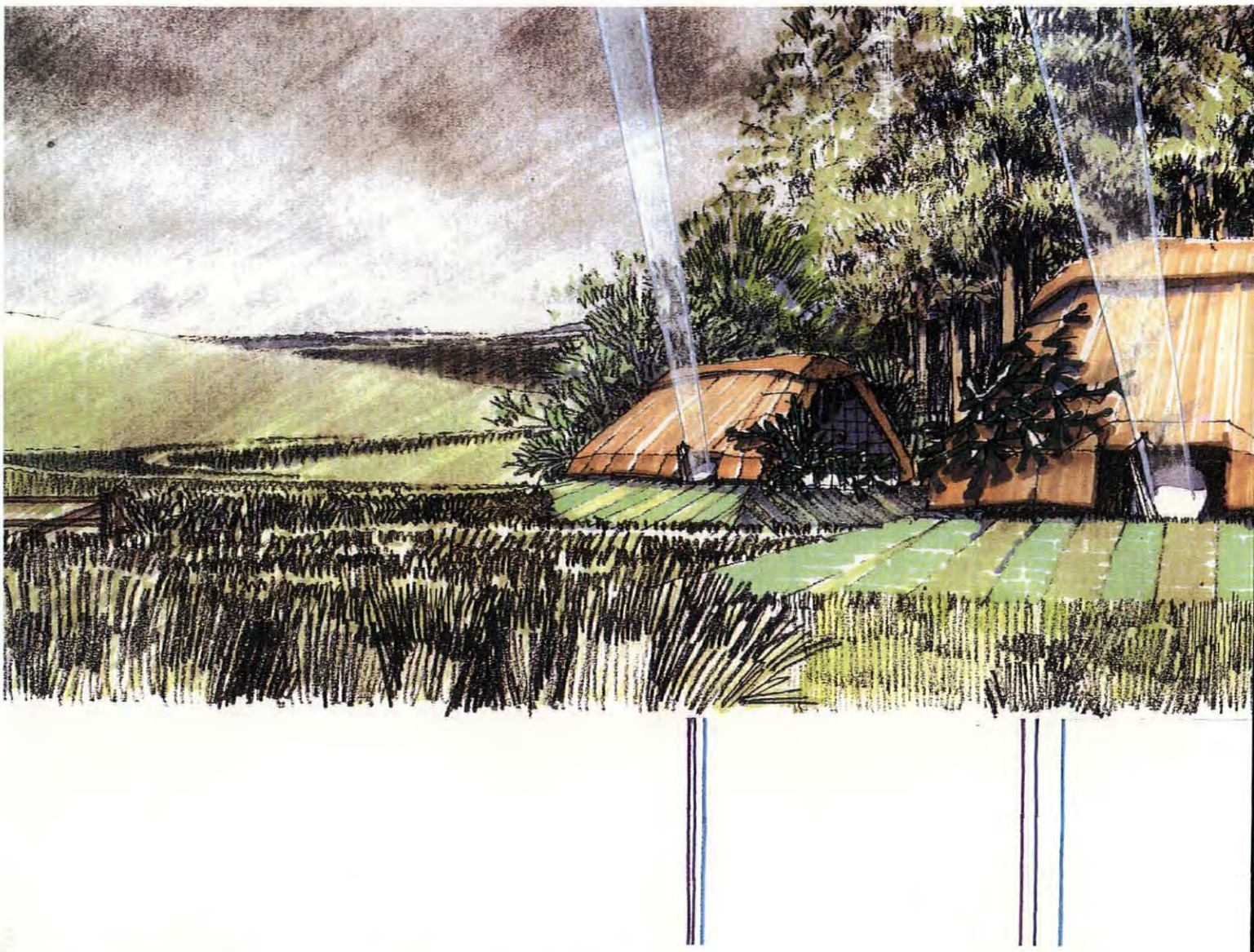












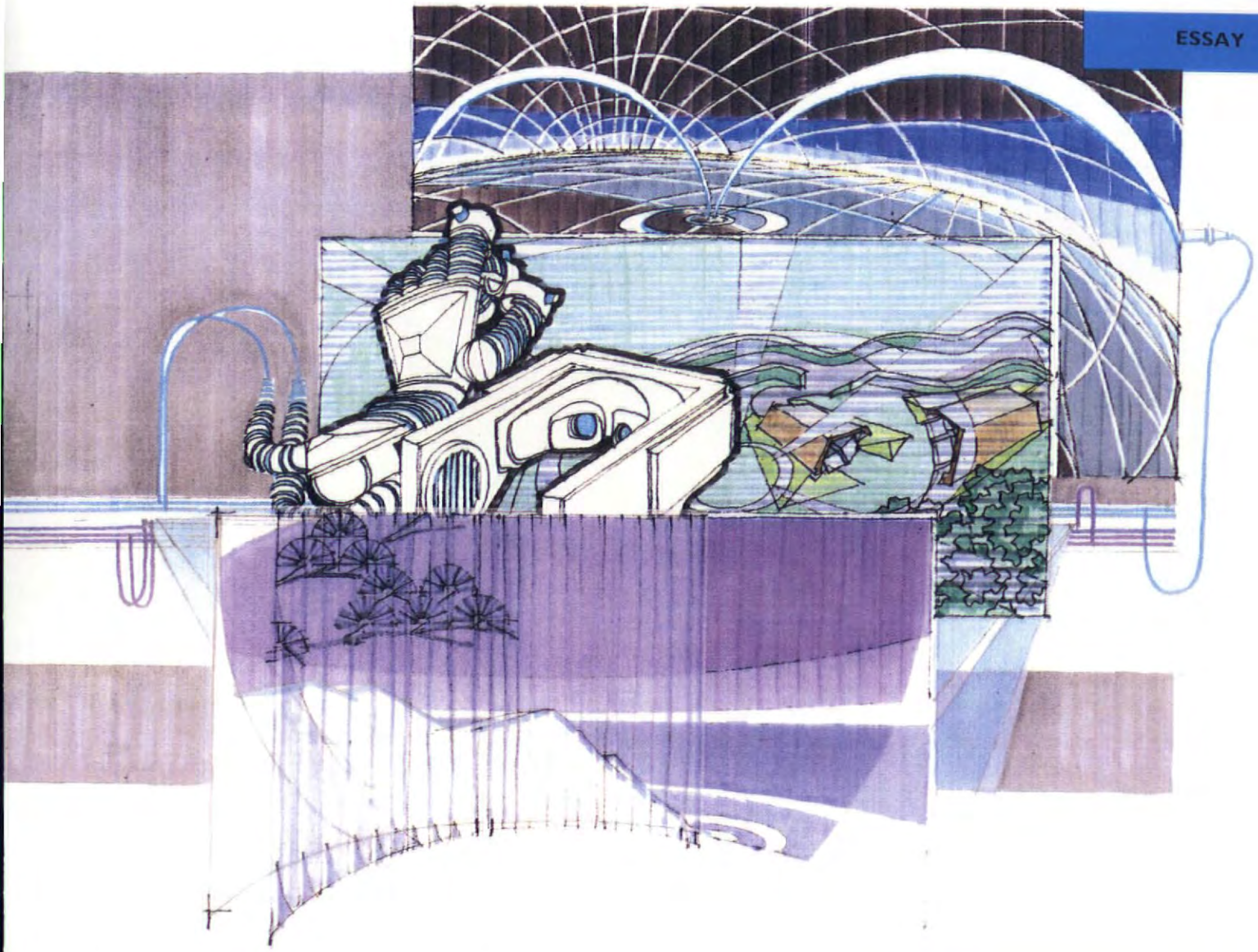
INFORMATION *plus* VERNACULAR *equals* THE FUTURE

Readers will recall Nigel Gilbert's predictive article on the effect of VR on architectural practice in the 21st century ("Condition Zero" WA 26). What follows is the second stage of his argument. The words describe how communications technology and the traditional pattern of English building are now the only significant factors in the creation of a new totality of the environment. The pictures show the design consequences of this cultural schizophrenia for the new "home".

Wandering around a small town, or driving along the edge of a village, it is still possible to come upon a group of untouched houses in an untouched street, or around an untouched yard. There are no signs, no names, no significant colour. The stillness, the fall of light and shadows across the texture of wall and quiet curtained windows, all combine into a sudden compelling vision of a world where everything and everyone is known and has a place. The world of this waking vision is present in cine-film of pre-war England and behind the figures that people our old family photo albums.

What compels our attention, however, is not that this vision is of a world still within living memory, but rather that the vision possesses a quality that persists through time, both forwards and backwards. Last year was the same as this, next year will be too, and the year after. A pageant of renewed personalities, the generations, moves through a scene that itself changes only imperceptibly, naturally. To appreciate this quality of timeless order is to experience a Sense of Continuity.

Architects, being optimistic agents for change in the external, outer scene, have had a blind-spot for the virtues of Continuity.



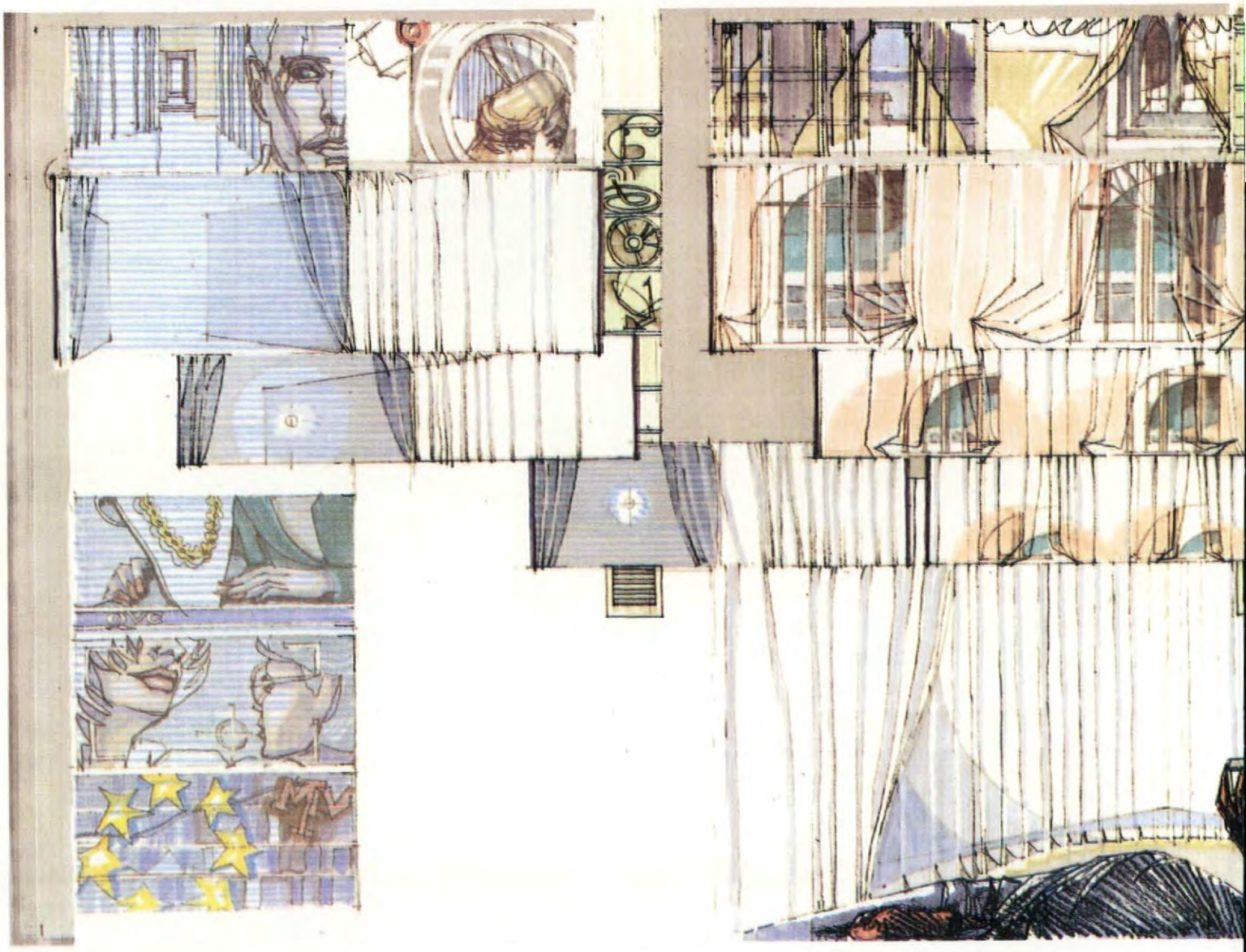
Such a selective vision has been at the profession's peril now that Continuity has risen to the surface of public consciousness and floats exposed as the collective goal of committees, pressure groups, and preservation societies in all matters of building development. Whatever the original motivation, Continuity now directs the fundamental aesthetic regulations that govern development: that is the requirement for uniformity of mass, material, and detail treatment. Uniformity being the matching to architectural models, or paradigms, in a selected existing scene. This scene embraces village, country, city, and suburb and is the touchstone of Continuity – tangible proof of its persistence.

Wherever this scene in London has been significantly threatened by change over the last decade, the agency of that potential change has suffered a very English fate – death by a thousand cuts. Pressure, prevarication, precedent unearthed, and privileged interference are the instruments deployed for this lingering torment. National Gallery, Mansion House Square, Langham Place, Paternoster Square, King's Cross, Parliament Buildings – the mere mention of places renews the hunted look on architects' faces.[1]

But the determination not to accept a face for architecture except one clearly associated with Continuity is usually ascribed to the inbuilt preferences of a particular class value system at work "where it counts", coupled with the failure of alternatives, i.e. Modernism, to deliver aesthetically, socially or technically. This assessment does not explain the ready and widespread welcome afforded to Continuity as it has grown to eclipse the popular enthusiasm for "contemporary" culture and style that swept England after 1945. Nor does it explain the ferocity with which transgressors of Continuity's environmental-correctness are eliminated from the field. Something more is at work here.

That we live in a "post-industrial", "post-Modern" condition is a truth degenerated to truism and become invisible to us. The profound changes to the pattern of our lives within this "post" environment created for us by our electric information technologies are discussed as though they had only economic consequences. Debate takes place in business, monetary, industrial and political terms. Viewed in the light of these remote abstractions, the intimate circumstances of our lives fade out of control into a sort of transparency.

We only need to dwell now – connected by landline, cable, and satellite – in enclaves secure in status and interest. Here, "home" features an exterior approximation of a vernacular cottage paradigm, and an interior programmable to respond to mood and activity.



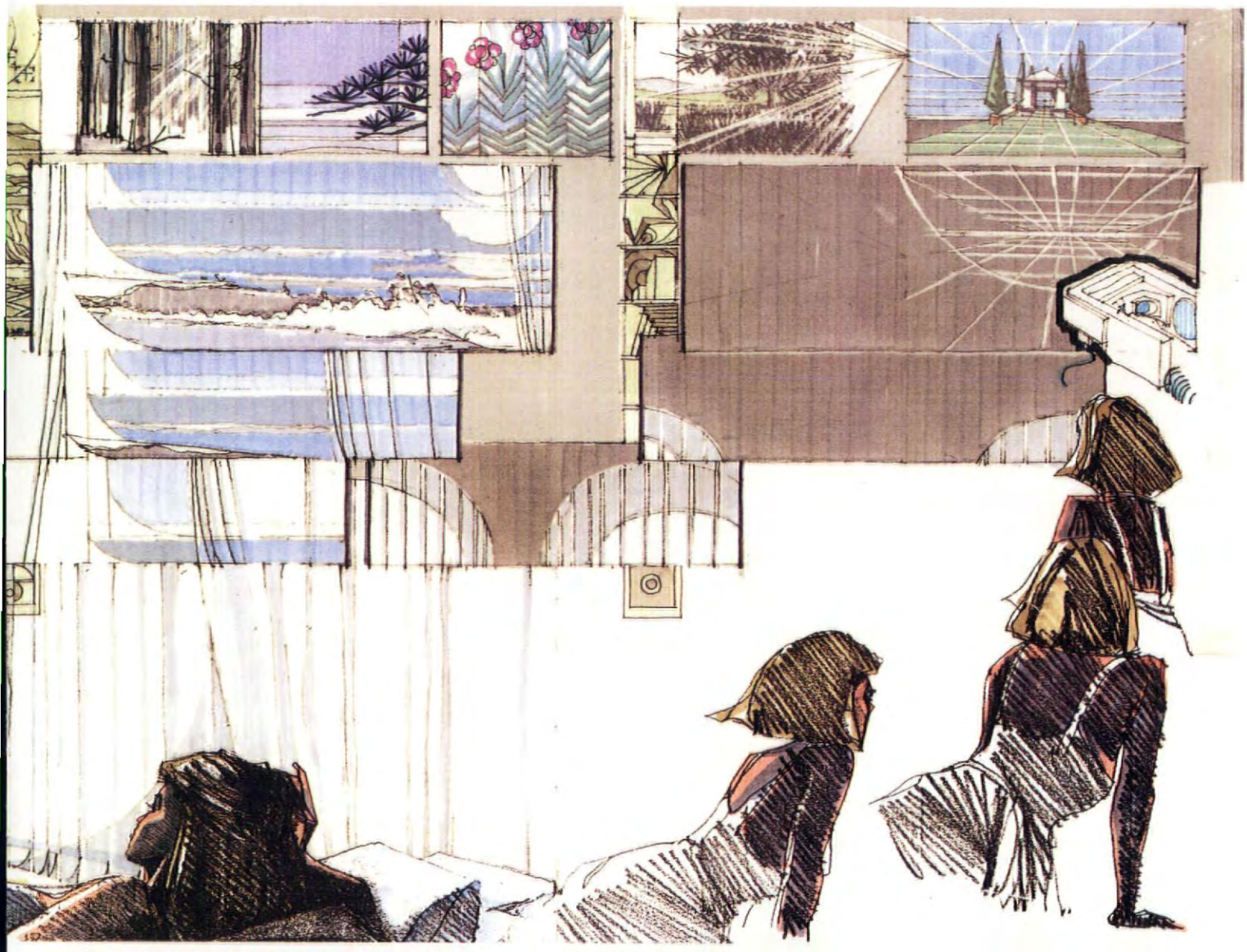
Whole areas of experience come to resemble random and inexplicable phenomena, like "crime". The "problem" of unemployment comes closest to exposing the dislocation between public and personal experience, but discussion here quickly returns to the closed circle of economics. As for the withering of artistic expression and meaning, well this is a minority interest since Art abandoned representation with Picasso. Our myth making capacities have dwindled to a limited range of easy certainties in Technicolour or knowing quicksands in print and on stage. We may be thrilled, we may be confirmed in our cynicism, but the catharsis of revelation is denied us.

Our explanations and our stories no longer connect to, or illuminate, our experience in the electronic information environment and the digital approximations of self we find there. Anxiety gives way to indifference. Our retreating souls turn away from their present condition, dreaming of a world where we are no longer strangers. So it is that we come to our Sense of Continuity and its ready-made vision "where everything and everyone is known and has a place". And in coming to it, we achieve a cliched catharsis of recognition, if not revelation, denied elsewhere.[2] A new zeal is born to recover the image, the touchstone, the "scene" of Continuity.

Here is the motivation for the authoritarian control over the appearance of the outer scene, and the will that sanctions the absolute necessity to preserve selected aspects of it.[3] Our surroundings have to carry the burden of acting as a kind of consolation: reassurance writ large against continuing dislocations spreading from successive waves of electronic innovation. As a like-reaction to a threatened world scene, "green" sympathies fall in easily beside Continuity's zeal on the path to preservation and recreation – hedgerows renewed, wildflowers reseeded, butterflies, bicycles, and endless summers...

The cycle of innovation, change and dislocation, however, is not actually disposed of in this way. Control of our outer scene has to be one half of an unconscious bargain with ourselves, that on the other hand abandons our inner world to those very dislocations. Here, the best that can be hoped for is a cosmetic job: the wishful thinking that information technology merely brings speed and convenience to the transactions of life, and the pretence that interactive entertainment and computer games are "harmless" distractions – "dreams of a fuller life" like films only in cyberspace.

The "cyber" space of electronic communications is the simultaneous space in which our lives are really enacted, and exists dimensionless and locationless in parallel with 3-D visual space. This, the old "real" space, and our occupation of it, was brought into existence by a mechanical and methodical separation of life's activities into "uses". A specialised enclosure was built for a "use" i.e. rooms, house, office, factory, supermarket, cinema. Uses were connected by specialised



Inside, is a soft curtain surround: layers of fabric hung as screens to display multiple light projections. This visual surround is synchronised to an aural surround of hidden sound speakers. All this is "wired" to both a CD-Rom system and to satellite, cable and ISDN telephone networks.
From this multi-media capability, a hand-held tuner accesses three types of display mode, materialising around you, on and within the layered fabric screens. From far left to right, these modes are:

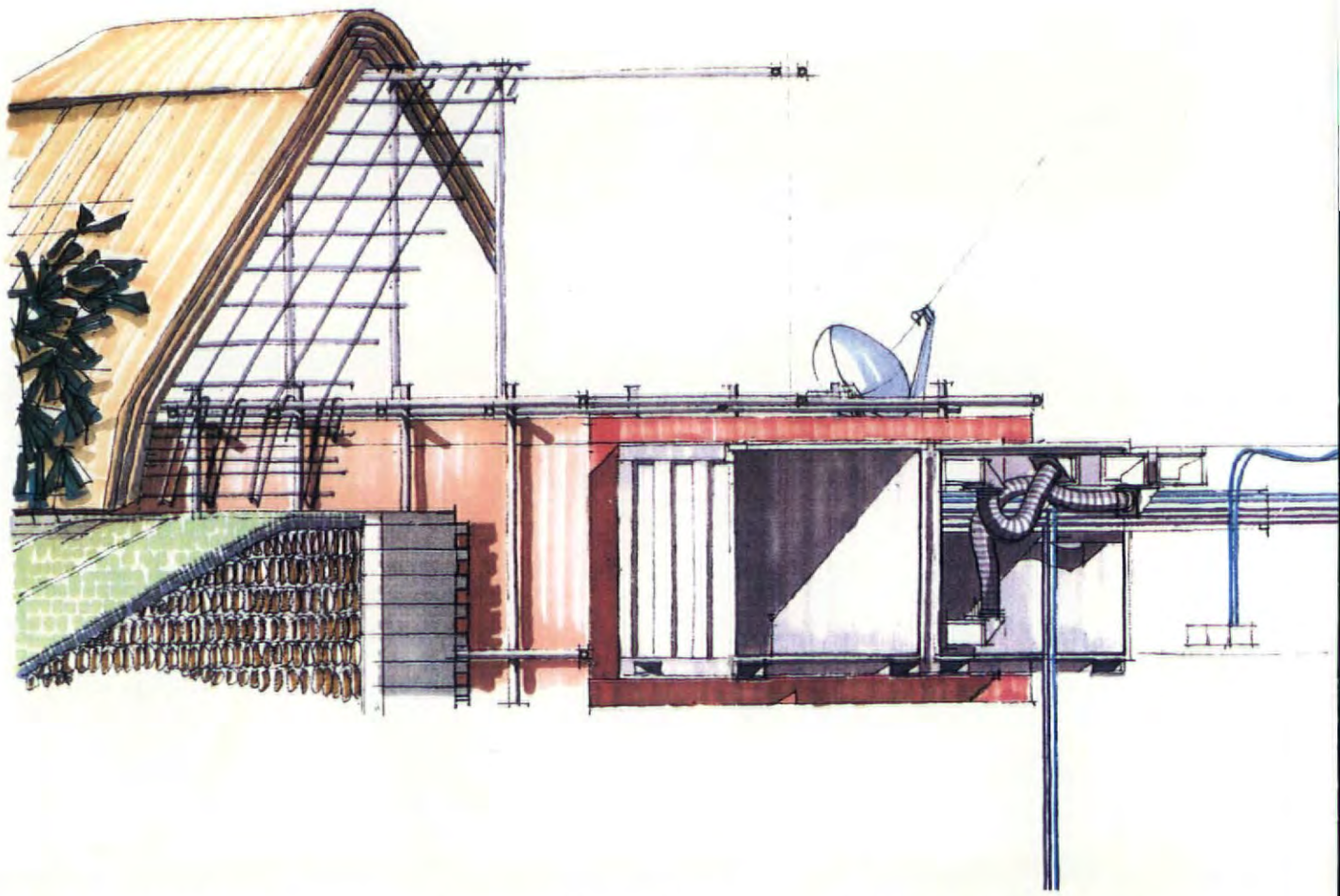
1. Screen: wall-scale projector TV merging personal and transmitted space and featuring
- *video-conferencing via mutual camera link*
- *satellite channel shopping*
- *cable channel news and music*
- *interactive games and entertainment*

2. Stage: light generated locations, both interiors and landscape scenes. Interiors built up from choice of
- *window type and placement*
- *light quality and time of day*
- *foreground break-up light and shadow*

landscape scenes built up from choice of
- *landscape element*
- *vantage location*
- *weather character and animation*

3. Blackout: optimum conditions for Virtual Reality system with headset, datagloves and track for
- *exploration of artificial environments*
- *individual or competitive networked gamespace*

or for camera obscura projection of "real" house garden and surrounds.



linkages i.e. landing, corridor, lobby, street, mall, atrium, and accompanied by a duplication of support facilities i.e. toilets, kitchens, stores, car-parks. Cyberspace, "where" the bank's computer keeps your money and "where" phone calls take place, renders much of this specialised enclosure of space redundant. Look at the derelict acreage of former "heavy" industrial use in and around towns and cities. Listen to the message of freelance homeworking for offices and administration buildings – not to mention schools and colleges. Believe that the mail-order shopping potential of TV promotion channels coupled with credit cards is not even at dress rehearsal stage, etc., etc.

This shrinkage from the use of 3-D space and from the occupation of the outer scene suits Continuity well for it leaves the fabric of the scene, landscape and buildings, as a husk, free to be manipulated purely for symbolic, ceremonial, and recreational purposes. [4]

We only need to dwell now – connected by landline, cable, and satellite – in enclaves secure in status and interest, "where everything and everyone is known and has a place". These enclaves will be the new telehamlets, hypervariants of the present model-village estates of the volume housebuilder. Here, "home" is a vivid demonstration of the dislocation of outer from inner life: an exterior approximation of one of Continuity's vernacular cottage paradigms, and an interior programmable to respond to mood and activity – pick 'n' mix from a simultaneous potential of stage-set space, virtual game space and communications cyberspace. □

Notes:

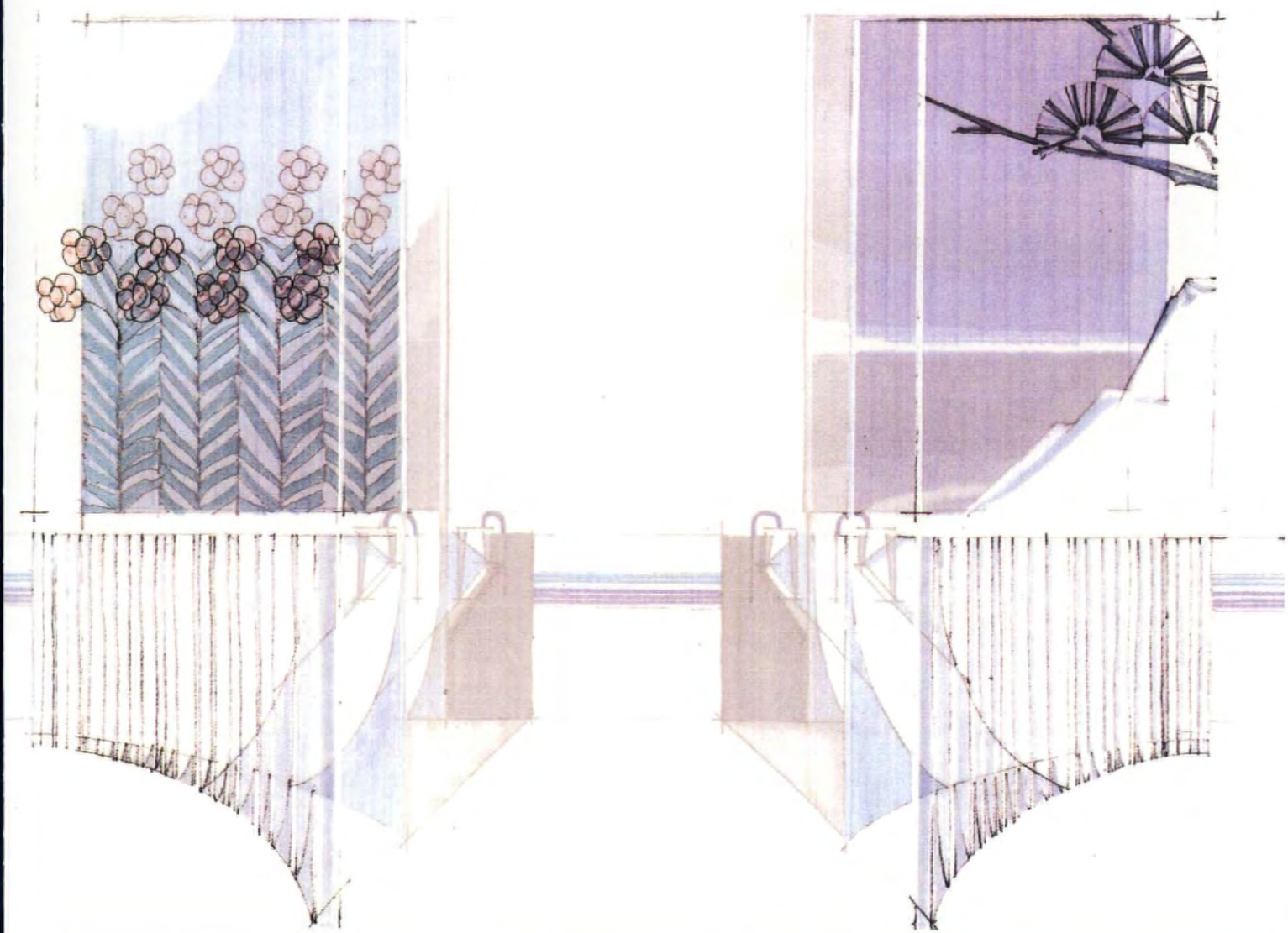
1 The tabloid headlines and weekly columns of minutiae of Building Design *magazine ensures that the whole nation's architects are embroiled in the capital's design "disasters". Their response has been as ingenious as it has been desperate: the invention of a contradictory "contextual" Modernism, the very public flotation of a reproduction style inflated to giganticism, and the surrender of priapic potency above the skyline of the scene to name but a few.*

2 The relationship between such a sense of loss and a compensatory vision is infinitely complex, see Raymond Williams' The Country and the City *pp 357-58.*

3 A singular paradox in a "free-market" dominated society.

4 This may be the culmination of a long history of cultivation and settlement, organisation and control, that gradually "tamed" the wilderness of the natural English landscape. Here, this history would be recast as the process whereby the outer scene of our lives became wholly artificial. It is only necessary to pause at the view from the terrace windows of any stately home not to be surprised by this.

Both W G Hoskins in The Making of the English Landscape *and Lewis Mumford in* The City in History *have described in detail the many stages in this history of our surroundings, including the mention of earlier examples of "shrinkage" from established use, such as the transforming retreats from cultivated and settled land following the Black Death, and the Acts of Enclosure.*



A cottage is made up from prefinished modules which are craned into place on site, and locked together. The modules are then wrapped in a deep layer of insulation. Over this a tubular scaffolding armature is put up to accept and locate the key exterior features of the cottage:

a. "Thatch" – rockwool insulation layers mechanically stitched to a stainless steel mesh.
b. Embankments – artificial grass on consolidated "Leca" clay aggregate,
c. Planting – pressed pvc segments dressed onto net scrims.

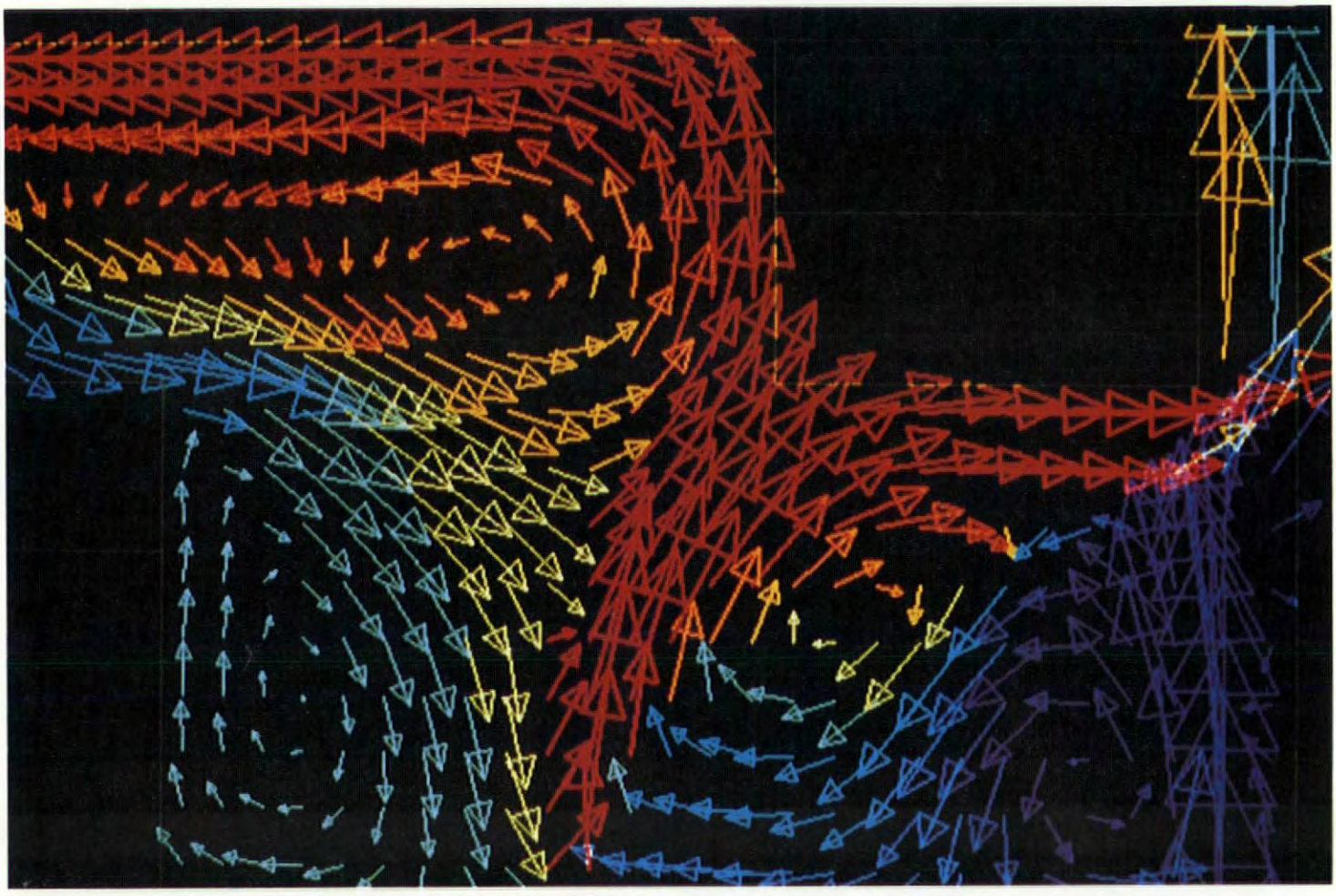
As analogs for parts of the traditional English building landscape, these features "fade" the cottage into the surrounding scene. Features can vary with the local vernacular: in "stone" areas stacked gabions filled with large aggregate can replace embankments, and in open country, "grass" can roll over a low profile roof to mimic earthworks.

Modules are twinned down one long side, with one operating as habitable interior and the other as services intake and distribution conduit. Hardware (environmental, communications, security, and display) is simply stacked or hung to be readily accessible for maintenance and upgrading.

The interface between habitable and service zones is the curtain surround with outlets around, behind, and between the fabric layers.

In addition to the main display modes, Screen, Stage, and Blackout, fixed "wall-paper" in light separations can be generated. Colour, pattern and saturation are all variable from FX motorised attachments to pinlight spots.

Dimmer controlled, full-spectrum artificial daylighting and ionised tempered air would be synchronised to the display programmes as well as sound.

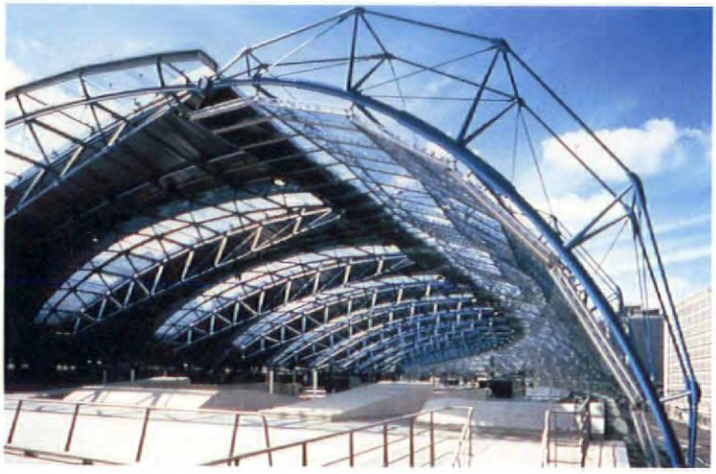


TECHNOCRACY: THE DAY OF THE ENGINEER

With the aid of CAD the engineer is liberated from his humdrum calculations and propelled into the world of the imagination. So runs the conventional wisdom amongst architects dismayed to find that their structural consultants are becoming better at form-giving than they are themselves. Paul Jodard takes a look at the struggle for supremacy from the engineers' side - and finds a ray of sunshine.

While there is little doubt that the architectural profession is under threat, whether this threat is only economic, or more fundamentally ideological – that the architect is not merely being driven out of business, but that there is no future role for architecture – is not so clear. Nor is it evident who would be the beneficiaries from a decline in architecture's status, but the risk of the engineer or project manager taking centre stage in place of the architect, is one possibility. The engineer Peter Rice's recent autobiography (which was mainly written before the effects of the recession bit so deeply) saw the threat to architecture in terms of the anonymity of industrial processes, and the conformist power of the construction business, which both stifle individual creativity.

Other engineers working in architecture today share similar concerns over the future working relationships between architects and engineers. Anthony Hunt, of YRM Anthony Hunt Associates has worked on many "High-



Jo Reid and John Peck

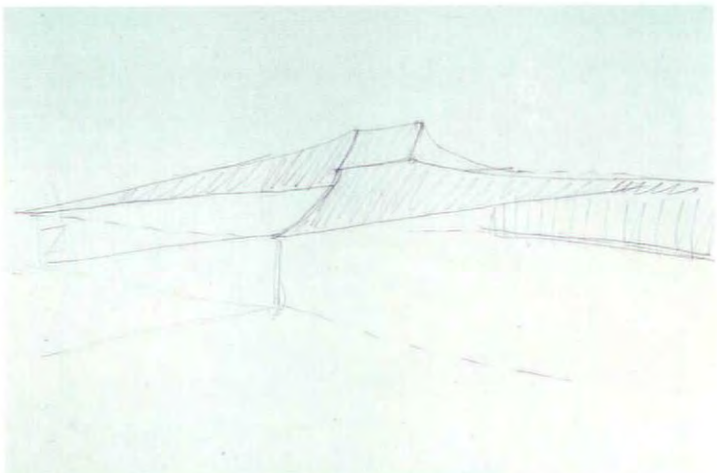
(Above) Nicholas Grimshaw's Waterloo International Terminal. (Left) Swanlea School, London, designed by the Percy Thomas Partnership, with Anthony Hunt as structural engineer. (Opposite page) Fluid dynamics diagram showing airflow in an atrium building, created by Battle McCarthy

tech" architectural projects. He feels that architects and engineers have different contributions to make, and the key to success is in respecting each other's skills. He stresses the importance of the engineer thinking out the concept before turning to materials or calculation, and he accepts that the engineer's contribution may well rest invisible. "On the Waterloo terminal," he says, "the compression members in the roof appear uniform, telescopic shapes. In fact, calculating the exact shape of each to match the changing contours of the site was an exciting challenge." Sometimes the engineer is the source of the final structure, sometimes the architect. "In the last 20 years a certain number of architects have become interested in structure for themselves. What then happens is a kind of double helix between the architect and engineer – a leap-frogging of ideas about structure, some coming from the architect, some coming from the engineer, to achieve a final solution." The engineer's responsibilities are for buildability and safety, the architect's for the form, but, he says, the demands on the engineer from the complexities of modern building (to say nothing of building and structural regulations) have increased, and many engineers are bothered by the lack of credit they get. In his view, often the architect and engineer need to work together "to deliver a piece of architectural space that is better at its job than the client knew he wanted."

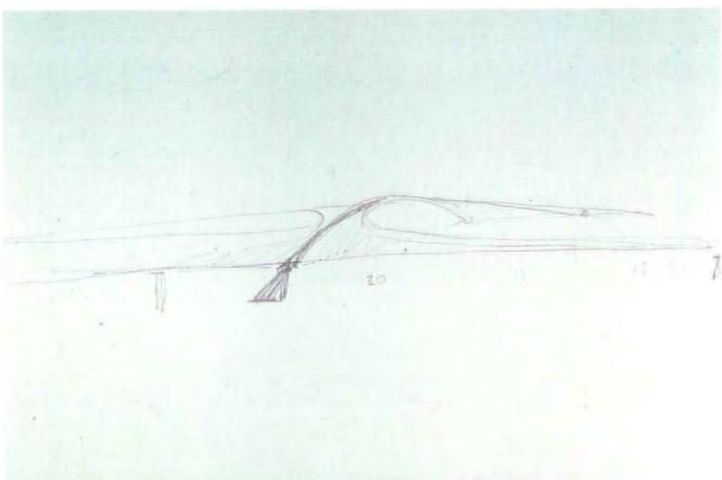
Peter Rice also argues strongly for such added value as the test on a design's success, the importance of an engineer being innovative and creative. He goes further, saying that such creativity is the actual activity of any engineer. "Probably every solution put forward has some unusual element, but it is not recognised because it is buried in an otherwise conventional solution... Every solution involves some original thought, some special contribution which we would classify as innovation. This need not be spectacular, it is enough to be new or original."

Mark Whitby, of the engineers Whitby and Bird, agrees with this. "Engineers are basically in the business of solving problems," he says, "while architects are in the business of setting them." For him, there is a natural match between the two professions, in which mutual understanding is essential. For Whitby and Bird, getting to understand the architect's intentions and the client's requirements to the full is the key part of completing a brief successfully. "What is exciting at the moment is that the engineer can solve rapidly the technical aspects of most solutions, thanks to the computer. But this places a new responsibility on the engineer and presents a new opportunity to be more closely involved in the architectural dialogue." In the past, he suggests engineers tended to design structures they could calculate, rather than designing with a fully open mind. Today, the computer frees up the engineer. His own firm's computer-based approach has been recognised in a string of design awards, for example for David Mellor's cutlery factory and for the Cascades building in Docklands.

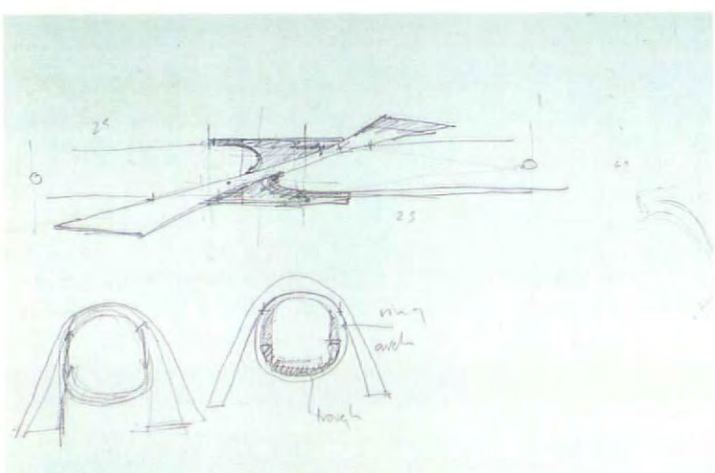
According to Paul Acker, director of concrete research at the French national engineering laboratory, engineering practice has moved through a cycle, beginning with the nineteenth century entrepreneurs such as Eiffel who built almost by eye, through a period of control and regulation, in which engineers had to devote increasing time to calculation. With the arrival of computers the engineers' time is again free to use creatively in the design process. And more and more tasks can be put through the computer. Paul Acker's own group has developed and marketed a



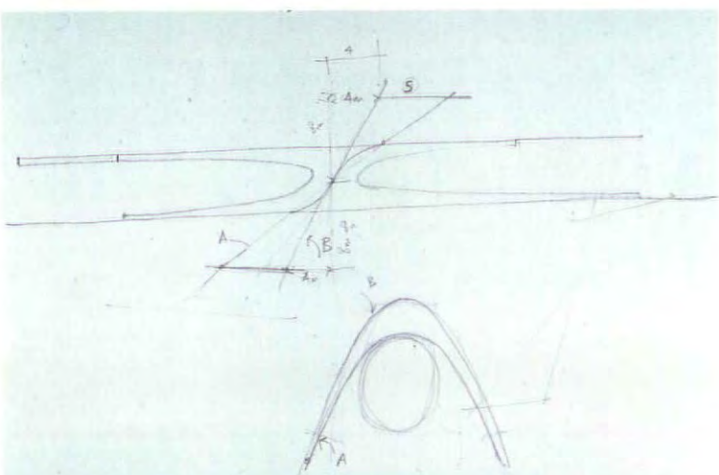
Rail over rail bridge, scheme development sketches: Traditional skew box . . .



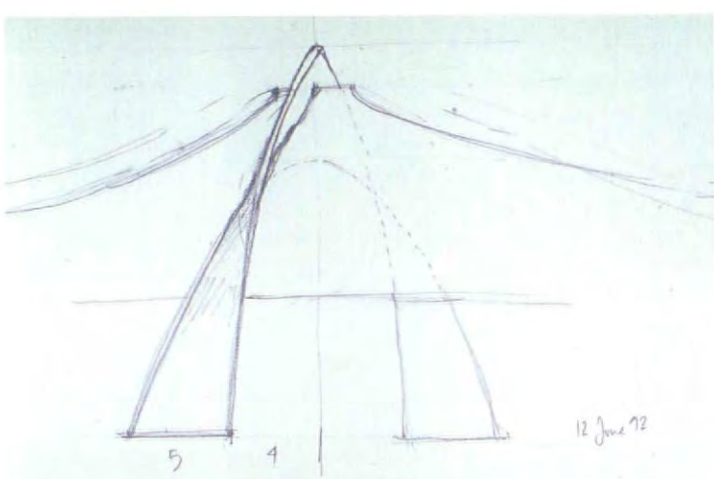
which tends to arch between the two opposite supports that are closest . . .



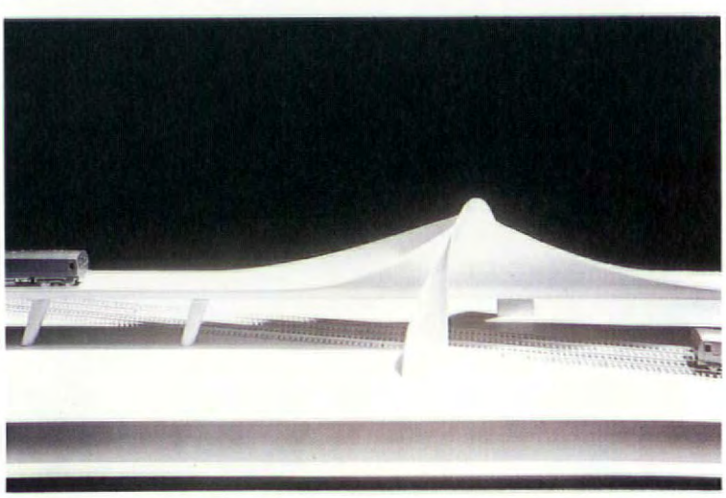
so elements may be seperated out, with the effect that the supports . . .



from trackside below can be pulled into a position almost opposite to . . .



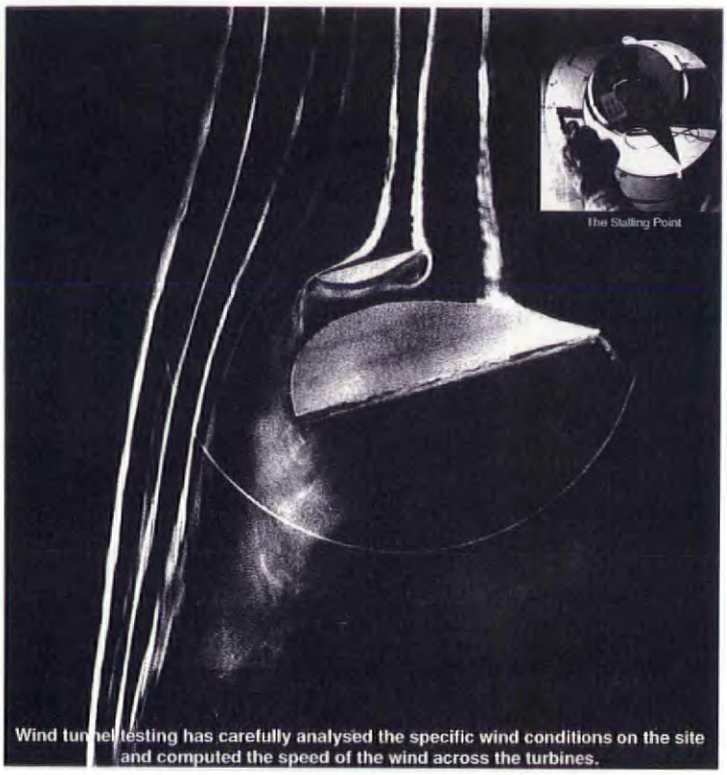
one another, and made into a form that has a kinaesthetic experience . . .



in what is otherwise a mass of railway lines two miles south of London Bridge

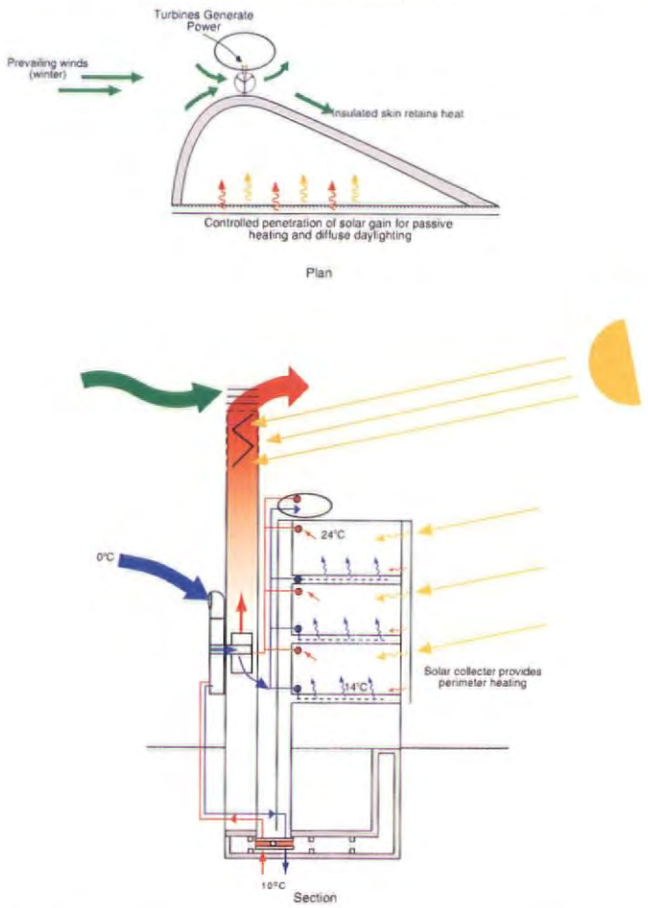
A series of sketches for the rail over rail bridge at New Cross, by Mark Whitby of Whitby and Bird, showing the evolution of the design, and the final model

(Below) Wind tunnel tests on Richard Rogers' Tokyo Turbine Tower, engineered by Guy Battle and Chris McCarthy while at Ove Arup, with (right) an engineering study of heat exchange system in the Turbine Tower



Wind tunnel testing has carefully analysed the specific wind conditions on the site and computed the speed of the wind across the turbines.

Winter sun is used to warm the building during the day and ground water preheats the cold winter air.



simple computer programme which will help an architect or an engineer specify the correct concrete mix – including additives or special treatments – appropriate for the loads, wall thicknesses, etc. of a specific task, as well as listing quantities required, setting times, and suchlike. "With the update we're going to allow you to specify colours," Paul jokes.

The wider availability and greater power of computer systems offer new possibilities but also makes new demands. There are many ways the computer can now display the interaction of structural materials and form, and even physical and climatic forces. All this information is for the architect to use in the search for diagrammatic expression. Instead of a sheet of figures, a computer is as likely to produce a diagram, chart or effects map. According to Chris McCarthy of Battle & McCarthy, this requires a new kind of visual sensibility on the engineer's part. "We are particularly concerned with creating buildings that do not challenge the environment, but interact with it positively. So a lot of our work is in creating models for air flow, people movement, heat exchange and so on in buildings. This information has to be read and understood visually." Guy Battle, his partner, stresses the increasing importance of services and facilities engineering. "Buildings are not going to get less complex, rather the demands on them to be energy efficient, even energy autonomous, and architects and engineers need to work together to achieve this." Appropriately, one of the firm's current projects is a study centre for the Centre for Alternative Technology.

The threat of the computer to architecture lies in the complexity of the information it can accommodate, manage and present. This threat works two ways: either architecture will become entirely dominated by the image, currently in graphic form but shading later into virtual imagery, or the architect, without the resources to organise and manage the complexities of modern building projects, will become just part of the team led by a project manager. This latter threat is the nearer one – the recent documentary *Architecture Armageddon* suggests 40 per cent of British projects are now "design-and-build", run by construction companies rather than architects. I think that there are two rays of hope in this situation. Firstly, immersive Virtual Reality is going to have to get a lot better (and a lot cheaper) before it can compete in terms of visual experience even with bad architecture. Cyberspace offers an interesting intellectual challenge, and the new graphics, based on new technologies and the mathematics of chaos, create a visual challenge, as in the work of architects Spiller Farmer, but these represent only one direction for architecture – and perhaps a dead end.

The other and more immediate problem is architect's loss of a leading role. To the extent that this is a management problem, the new technology can here ride to the rescue of architecture. New programmes such as Reflex, which has just been adopted in a joint venture between Sir Richard Rogers and Partners and Bovis, allow total project conception and management within the one programme, which can in turn communicate with specialist programmes used in engineering, for example, or with older generation CAD programmes such as Intergraph or AutoCad. Since Reflex is not graphics based but data-based (though presenting information in conventional graphic form on screen) it allows the architect using it the possibility of controlling not only the design process but also the planning and construction aspects. But more importantly than any particular technology is the general agreement among the engineers that I talked to, that architects and engineers are a partnership in building, and that each would be poorer without the other. If this solidarity can be maintained and developed, Armageddon may not be just around the corner. □

TOOLS FOR LEVITATION

Brian Russell

The story of vertical movement in buildings began with the manual hoist and is approaching the age of linear induction. Tim Ostler concludes his survey of vertical movement systems with a look at the present and future of the panoramic wall climber.

Given an aeroplane, we can fly – noisily and expensively. But given a glazed lift or an escalator, we can levitate – individually, silently and for free. It is the nearest thing to a "fly-through" experience we can achieve, outside of virtual reality.

Odd, then, how lifts remained unglazed for so long, staying buried in "dark shafts" deep within buildings. The exposed lift in an internal atrium can be traced back to 1893, and George Wyman's Bradbury Building in Los Angeles. Four decades on, Alexander Korda & H G Wells' film *Things to Come* shows a space very like a modern atrium in which glass lifts go up and down in glass tubes. But it was not until the mid-'60s, when John Portman borrowed an idea developed by Otis for fairground observation towers, that the wall-climber lift really took off.

Now glazed lifts and escalators are everywhere, not just in hotel lobbies and in Tube stations, but in offices, insurance markets and shopping centres. Those looking for the secret of popular architecture need look no further: when available, glazed lifts are so heavily used that Otis recommend that they are not the sole means of vertical circulation in shopping centres.

In their day, Portman's lifts in the Atlanta Hyatt Regency Hotel played the pop futuristic image for all they were worth, light-bulbs delineating the cigar-shaped cars like Flash Gordon spaceships.

But according to his book *The Architect as Developer*, Portman's reasons for using them were primarily architectural: "Riding in an elevator," he says "is [an] important transitional experience, and there is no reason why you must ride in a closed-in box. Pulling the elevator out of its shaft and opening it up with walls of glass makes it another way of experiencing architectural space."

Wall-climbers, he implies, also have beneficial social effects. Riding in a dark-shaft lift or waiting in its lobby, however luxuriously appointed, is a basically uninteresting experience: as Portman pointed out, "When people step into an ordinary elevator, all conservation tends to stop; [but] when people ride in a glass-enclosed elevator they are much more likely to go on talking. That happens because they are taking part in an interesting and humane experience; they are not isolated and shut away."

This phenomenon means that choice of drive mechanism, structural considerations and acceptable waiting time can all interact in a virtuous circle. For instance, in their design for glazed lifts at Wiggins Teape 2 in Basingstoke, Arup Associates wanted to avoid dominating the atrium with too weighty a lift shaft structure. This pointed towards a hydraulic lift, which would have allowed the motor room to be at ground/basement level.

Hydraulic lifts are slow, and there was some concern that this might be a problem.

Glass Otis lifts at Grosvenor Place 1993 (opposite), and as visualized in 1936 for the HG Wells film Things to Come

Photograph courtesy of CTE

But in the event it was found that the "entertainment" provided by the atrium meant that time spent by passengers waiting for the lift did not drag. Furthermore, because the journey itself was more interesting, once passengers were in the lift the slow speed of hydraulic lifts was almost an advantage. After all, for most people a journey in a panoramic lift ends too soon, and certainly before there has been time to enjoy the view.

With examples like this, it could be argued that the quest for faster journeys and lower waiting time – which lift manufacturers have built into something of a religion – results from the mere desire of passengers to get the whole boring business over with as quickly as possible. Were it the norm to provide lifts with the same degree of outside awareness expected in most building spaces, perhaps the concern would not arise.

Thanks to its prominence the wall-climber lift inevitably enhances building legibility. People instantly know where to go up. But some architects like to go one step further and reveal more of the working parts of the lift itself, demonstrating it to be satisfyingly resolved at the detail level.

Making the invisible visible certainly has great entertainment value. But following such a rigorous discipline to its logical conclusion has a cost attached. "It's a lot more work," says Arthur Branthwaite, who has worked on several glass lifts at Sir Norman Foster & Partners. "Everything becomes a visual question."

Director Robin Partington agrees. "Lift shafts are not pretty things: they're full of brackets, guide rails, bolts, bits of angle-iron sawn off and nailed there with a bit of cable hanging from it...You can go to all this effort, and suddenly end up looking into a space which is like a sackful of spaghetti."

Cleaning, too, becomes more onerous – although lift shafts have to be kept clean anyway for operational reasons. But a degree of visibility can be achieved for a surprisingly low cost. Partington describes the process that led to one such example at the ITN headquarters.

"We couldn't afford glazed lifts, so we tendered for a standard lift frame. But when working with Otis, we said, 'Okay, forget

Otis lift at the Colonnades Shopping Centre, Bath (left) and a wall climber at Saatchi's in Berkeley Square

"glass lift": imagine it's a standard car – except you take out one side wall and put in a sheet of glass. What's that going to cost? The answer is, for a very small sum, you've got a glass sidewall to your car."

To get his glazed lift, ITN ended up paying for two things over and above the cost for a standard lift: the extra-over cost of the glass, and a nominal sum for cleaning out Otis' spray guns and refilling them with white paint. "It was already going to be painted Otis Blue," explains Partington, "and we managed to persuade them that changing a pot of paint for six lifts was actually a very minimal on-cost."

It is possible to distinguish between five categories of visible lift, each with its own disciplines. The lifts at ITN were an example of the first and simplest of these categories: a conventional lift in which the rear wall and the wall of the lift shaft is glazed.

Second and much more involved is the specially-designed glazed lift in a glazed shaft, as at the Hongkong Bank. These have been somewhat overshadowed by other more spectacular features. But they are beautiful, like little Japanese rooms hurtling up and down glazed shafts on the outside of the building. The cars themselves were the subject of mock-ups made by Fosters and others by Otis.

"We tried to look at the lift car in a very simple way that expressed the structure of the car," says Branthwaite. "All its component parts, like the structural sling, the head operator and the guide shoes were exposed." Regrettably, client cold feet about user reaction led to a decision to clad the lifts themselves in Shoji glass, a form of obscured glass – which rather diminishes the point of the clear glazing to the shaft. Certainly, users get a clear impression of movement by shadows falling on the glass as they travel: but the experience of the ground receding at seven metres a second in the middle of a typhoon is one that employees of this bank at least will be denied. Glazed lifts at the Frankfurt Commerzbank, due for completion in about three years, are very similar.

Wiggins Teape 2 is an example of the third type, the short haul lift in an open or lightly clad shaft, also seen in Fosters' Médiathèque at Nîmes. Lifts of this kind are, for the reasons outlined above, often hydraulic. But even with traction drive, the enclosing walls of the well can sometimes be dispensed with, as at 33 Grosvenor Place by the EPR Partnership. The most extreme example of exposure is the lift in I M Pei's Louvre Pyramid, which consists of a cylinder mounted on a ram that rises like a piston out of the floor.

Fourth is the classic Portmanesque wall-climber, where the car moves apparently unaided outside the wall. The shaft still exists, but its front wall is widened considerably, its rear wall removed and side walls of limited protrusion conceal the guidance systems, counter-weights, control gear and travelling cables. The car itself has to be cantilevered from guide rails at one end, creating eccentric loads and a substantial support structure that can dominate the atrium. Ironically this can cut the lift lobby off from the atrium and deprive it of the desired "entertainment" value.

A stainless & glass wallclimber at Redhill (left) and Express external lifts on the Lloyd's building by Sir Richard Rogers

Meanwhile the shape of the cars, which are often octagonal or curved, can also hamper passenger movement, a situation complicated by the fact that people are in no hurry to get out once they arrive.

Finally there is the external wall-climber lift, famously at Lloyd's but also now at Rogers' headquarters building for Channel 4, due to open in April. Even today, with many successful installations carried out across the world, this kind generates controversy. According to KONE's Jorma Lumme, for instance, "an architect that specifies such elevators to his client's building will do that client a huge disfavour....

"Any responsible elevator manufacturer would caution the customer against doing this," he goes on. "... If you put steel, copper, electric power, rainwater, humidity and suchlike together, what do you get? You get green gunge. You have a moving element, and it is impossible to seal it off against the elements."

Richard Rogers' Lloyd's Building was not the first external wall-climber installation; but it was a landmark of the genre: one of the first to act as a prime mover in a rainy climate, with no down-time allowed even during the worst weather conditions. Small wonder that Rogers had trouble finding a supplier willing to tender for the job.

KONE, we can assume, were not keen to tender. "We know about the lifts at Lloyds," says Lumme, "and I think a price is always paid for such daring defiance of the elements in a building."

"There's no doubt they need more maintenance," says Stig Larsen, a director at Rogers and one of the lifts' chief designers, "but then, you have a feature. You could say you could have put a glass wall around them, but that would have been very costly as well and then you get all the problems of cleaning the screen."

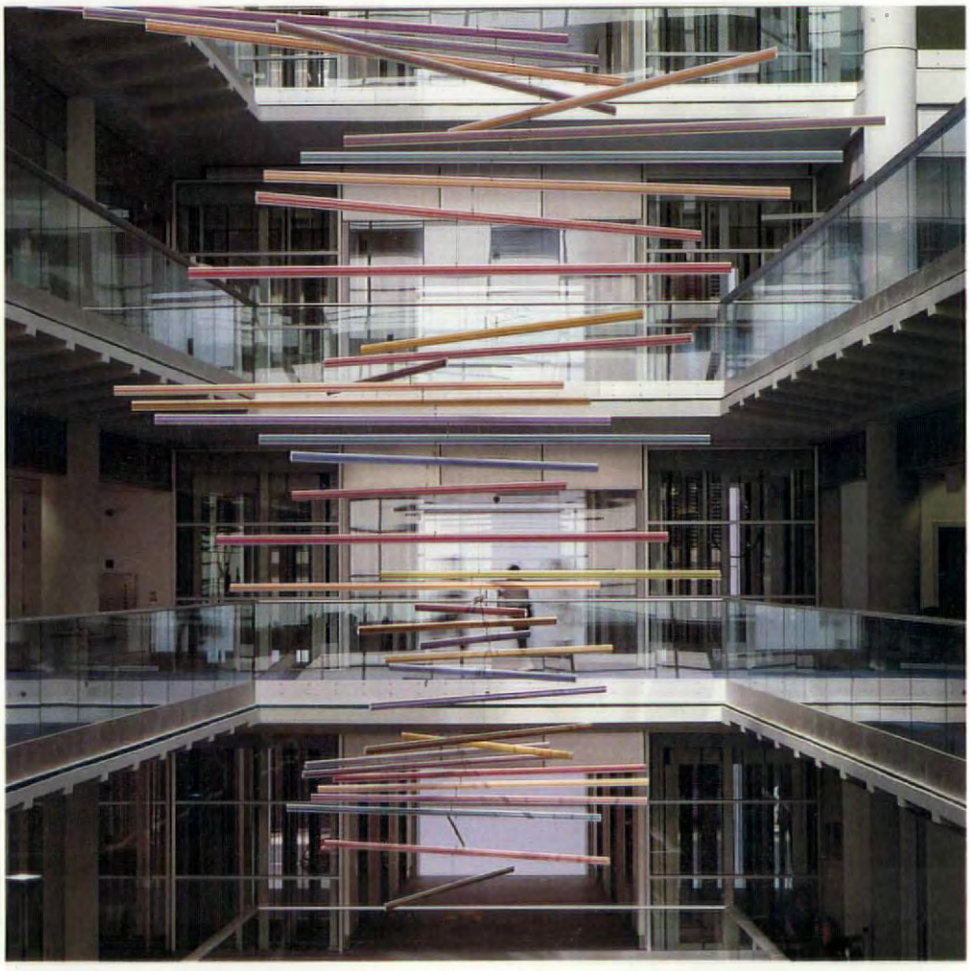
The contract was awarded to Express Lifts. "Even when they had got the contract," says Larsen, "they continued to try to get us off the idea." The cars had to be air-conditioned, each of them carrying its unit below it, and providing an opportunity for yet more expressive stainless steel ductwork. Meanwhile, to stop the wind from producing disconcerting movement in the externally-mounted glazed lifts, each glass "box" was designed to be structurally detached from the rest of the lift.

The result of all this effort was that any lightness the cars may possess is strictly visual: each car finally weighed over four tonnes. This created a knock-on effect throughout the installation, with stronger and thicker guide rails and lead-filled counterweights 5 metres long.

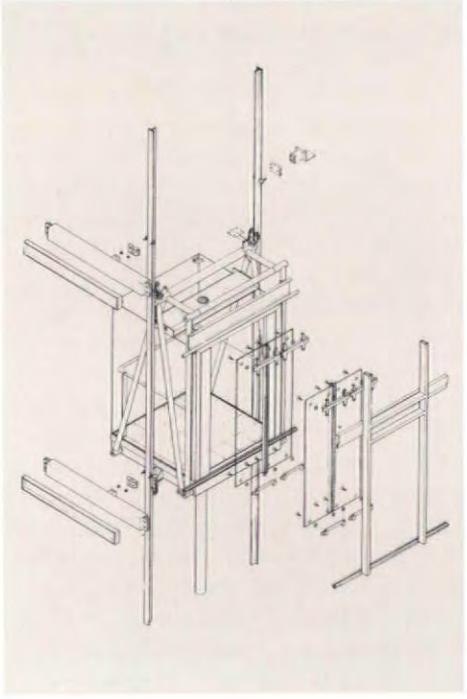
By the time Rogers were in a position to invite tenders for the external wall-climbers at Channel 4's headquarters the market had changed considerably, with several firms now able to demonstrate relevant expertise. Otis, who won the contract, had more than most – notably on the C N Tower (tallest self-supporting structure in the world), offices at Nathan Road in Hong Kong and even Blackpool Tower (they had also done the curious "bubble" lifts at the Grande Arche, in which the two lifts counterweight each other, like cable cars). The disciplines were much the

Richard Davis

Richard Davis



Otis Lift installations by Foster Associates and Sir Norman Foster and Partners. Clockwise from top left: Hongkong & Shanghai Bank; ITN building; Nimes Médiathèque; and exploded view of glazed Stannah lift car at Stockley Park



Timothy Soar

Robin Partington

Alimak external lift on Barcelona television tower, by Sir Norman Foster & Partners 1992 (left). Hillside escalator link, Mausell, Hong Kong 1993 (above and right)

same as Express Lifts had to confront at Lloyds, and the solution arrived at looks very similar – which testifies to the thoroughness with which Rogers and Express Lifts analysed the problem at Lloyds.

For its single external glazed lift, Fosters' Barcelona Tower features the rare use of a rack and pinion system, normally only used for lifts on construction sites. Here, Fosters were faced with a shaft that was too small to take a lift shaft: the only option was to put it on the surface.

"We persuaded the client that a glazed passenger lift in this instance would be a real benefit," says Partington, "because the ride is absolutely stunning...We went for a rack and pinion lift because the tower is so high that if you have a counterweight and ropes, it just doesn't work. For maintenance reasons, and a whole host of other reasons, the total weight of the ropes would be crippling.

"With Alimak we developed a GTi version of their lift, where the motors had a progressive acceleration, rather than a sudden jolting start like they normally have. And we also devised special running gear for the lift, which worked on a rubber vibration absorption system. So the quality of the ride is actually very very smooth.

"The car itself is actually wider than the shaft it's travelling up. The back wall is solid. So if you try to look round the side, you can't actually see the shaft you're travelling on. So the ride is incredible: you're actually floating, being lifted by an invisible means of support."

But what of escalators? When Jesse W Reno invented it in 1894 – without steps – he intended his invention as a functional alternative to the lift, but initially had to make do with a sale to Coney Island as a funfair ride.

Today we see the two machines as complementary, and several of the most prominent buildings that make good use of glass lifts rely as much, if not more, on escalators, now invariably with glass balustrades, often with exposed and colour-coded mechanisms.

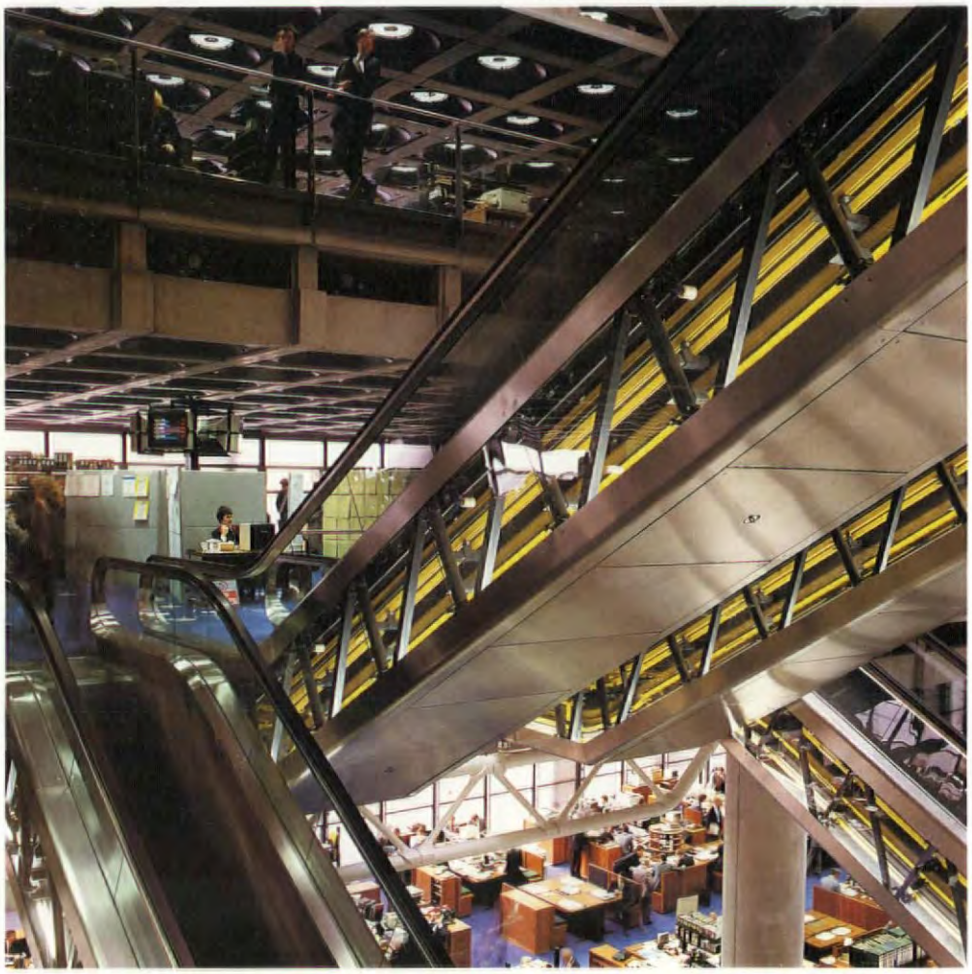
The market for escalators today remains small, running at 9,000 units annually worldwide. O&K, vying with Otis and Schindler for market leadership, are currently celebrating having won the huge order for escalators on London's Jubilee Line extension. Their TransVario, like the products of most of the leading contenders, responds to demand amongst architects, led by Rogers and Foster, for exposed inner workings. Schindler, meanwhile, in their "Escalant", even boast an escalator designed by car designer Giugaro.

One of the few fundamental innovations since Otis bought all the practical escalator patents and combined them in 1921 has been the development in Japan of the curved escalator. Quite apart from its obvious aesthetic appeal, for the first time users can enter one floor at the same point on plan as the one they left.

Escalators are most commonly used not for high-profile works of architecture, but

Foster Associates Marryat & Scott escalator banks at Willis Faber Dumas, 1973, (below) and Otis at Hongkong & Shanghai Bank 1986 (bottom).

O&K escalators in Lloyds building 1986 (right)



for mass-transit applications. Jean-Marie Duthilleul, Chief of the Building Department at SNCF, stresses the role of escalators in the composition and intelligibility of spaces. If they are placed perpendicular to the entrance the layout of the circulation system, he says, is immediately apparent. Equally, he favours exposing the works not for aesthetic reasons, but because it's the simplest and most unmistakable way of showing that the escalator is working or not – and in which direction.

The most spectacular trend in the use of escalators for mass transit is taking place in Hong Kong. In 1993 Maunsell Consultants Asia completed a suite of 20 covered escalators and three travelators extending over 800 metres and rising 130 metres from the Central Business District to the residential Mid-Levels on the higher slopes. Plans have been mooted to extend it to a total length of 2.8 km.

Before Piano & Rogers' Centre Pompidou, the architectural potential of the escalator had rarely been exploited. The escalators snaking up the facade became the Centre's unmistakable trademark, even if many of those who travelled up them only went up to see the view.

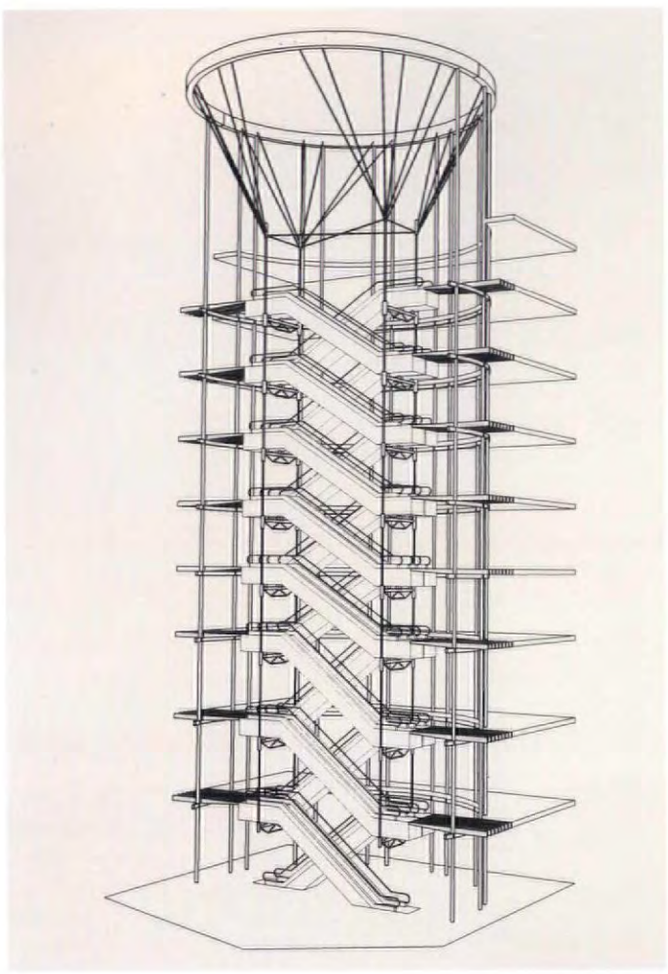
Fosters' offices for Willis Faber Dumas in Ipswich provided a wholly more serene model, the escalators wafting down from the space-frame roof like a slow-motion waterfall. The traffic on them must have been a fraction of the load normally considered necessary to justify the expense of an escalator; but the client testified at the time to the way they had encouraged a family atmosphere, the open system of circulation generating frequent serendipitous meetings between members of staff.

At the Hongkong Bank and more recently the Commerzbank, Fosters have adapted this principle to a multi-storey situation, in combination with a system of high-speed lifts. In the former, the lifts serve double-height lobbies from which users travel up or down a maximum of three floors by escalator. One effect of this is to give the building an openness and interpenetration of space between floors previously unheard-of in a skyscraper. Meanwhile at the Commerzbank, lifts will stop only every three floors, final journeys again being made by escalator.

Lloyd's demonstrates another application of escalators, what might be called the "virtual floor" principle. The nature of Lloyd's insurance market required, ideally, as large a space on a single level as possible; Rogers' famous stack of escalators, which with its exposed workings resembles a Swiss clockwork toy, were intended to minimise the barrier between one floor level and another.

GMW's neo-Gothic 3 Minster Court, now fitted out by YRM as the London Underwriting Centre, observes the same principle. Here the wall-climber lifts originally installed were actually removed in favour of a monumental stack of sixteen escalators – the tallest in the world – hung from four clusters of six rods suspended from a metre-

Double Thyssen escalator banks at Minster Court, City of London, by YRM 1993 (left and below) University Centre at Minster Court (bottom)



Peter Cook

high ring beam around the top of the atrium.

The escalator must be considered overdue for a radical redesign. Unfortunately the market is so small that economies of scale dictate the maximum degree of standardisation. For architects who like to control the finer details, there is therefore considerably less freedom than with a lift.

The chances are that whatever progress there is will be in response to demands by the small number of architects of the calibre of Fosters, working on large projects that can support their own research and development budgets. If there has been an undue emphasis here on the work of Rogers and Foster, it is because they draw the boundaries of architectural intervention deeper into the machinery than most other architects. An American architect might call it overdesign. But it is élite architects such as they who show manufacturers what can be done with their own products, and so enhance the range of components that is generally available. □

Peter Cook

CONSORTIUM OF SPACE

The Ohio Aerospace Institute consists of nine separate universities and a number of private corporations that came together with the State of Ohio to commission Richard Fleischman Architects Inc. to design an entirely new kind of $10 million space academy. One where, as Institute president Michael Salkind has said, the glass is not there for gratuitous reasons, but because it creates an environment where interaction and collaboration are guaranteed.

Three storey entrance level opens onto full height glass volume. Battered glass wall terminates slope

Both in its interior spaces, and as an object in the landscape, the Ohio Aerospace Institute's design is intended to reflect the excitement of the aerospace enterprise. Because of its proximity to the Cleveland Hopkins Airport, its appearance from the air is considered important. While a literal reference to spacecraft is not appropriate, the forms convey an image consistent with the building's use.

Modern technology is utilized to maximize energy efficiency and acoustical quality in the building. The specially coated window assemblies are filled with argon gas and lined with tailor-made gaskets for optimum insulation.

Three different types of glass make up the curtain wall: reflective glass for areas that house closed offices, classrooms, administrative offices, the auditorium, and the skylight; tinted glass for the front of the building where the entrance and three-storey atrium are located; and tinted glass with a low-emissivity coating for faculty-student work areas.

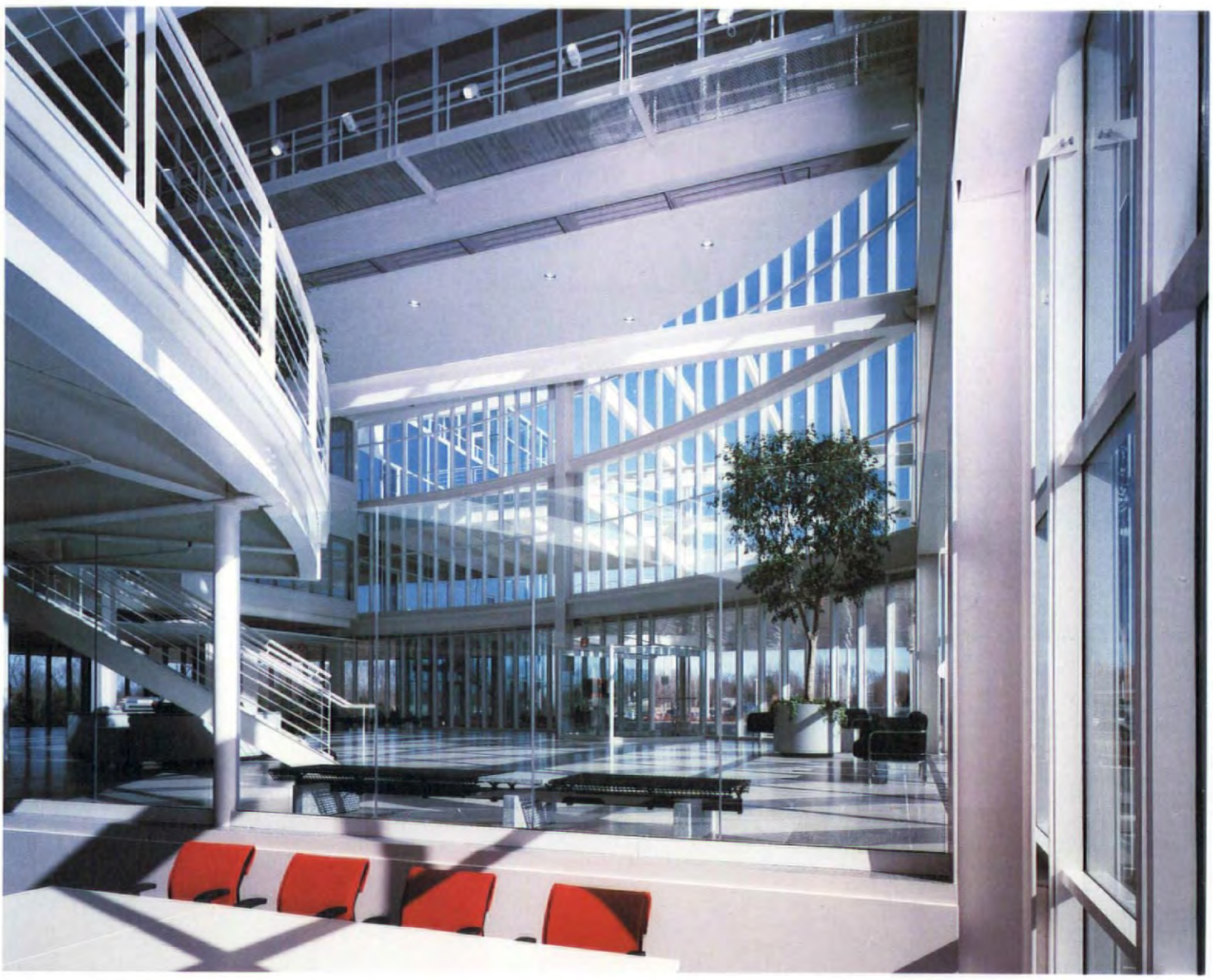
The Institute creates an atmosphere which is stimulating to both faculty and student and makes unplanned contact easy, indeed, unavoidable. To this end, single or double faculty offices are interspersed with student open office workstations. Common areas are located at key points of circulation so that chance encounters can be turned into formal conversations around tables or in lounge furniture.

The dual nature of the Institute is reflected in its design. The public side is entered through a three-storey atrium, serving as the entry point for the two building functions. A lecture hall, equipped for many forms of electronic communications, opens off the atrium. The second floor houses classrooms, seminar rooms and a multi-purpose room. The president and the administrative staff are on the third floor.

Although the student-faculty portion of the facility will not be open to the public, it will be visually accessible. This has been accomplished by offsetting each of the three floor levels. The two upper floors, mezzanine and balcony, step back in plan, so that they overlook the floor below. The entire space, including the atrium, is enclosed by a softly curved roof.

This multi-level educational research facility is essentially one large volume. It allows for students and faculty to interact as they pursue research projects. Since all the student population continues to be enrolled at their specific universities, time constraints

Entrance (above) shows exposed steel beams. Interior (above right) shows visual complexity . Exterior (right) reveals balanced composition. Mezzanine (far right) shows full volume



are critical both for laboratory and classroom accomplishments. Each doctoral or graduate student has his/her individual workstation which allows for instant faculty consultation. The use and type of glass compliments the openness of planning required for this project. It permits this institute to convey to the community the nature of activity taking place in this complex.

Each workstation, whether office or open area, is fitted with a large Gesika modular workdesk, file cabinets, and locker. All workdesks are equipped with a built-in wire management system below the desk top. In addition, areas are equipped with circular tables by KI. Many of the visiting faculty, students and researchers bring their own computer equipment. OAI staff has a complement of Macintosh and IBM systems. Dedicated researchers in the building use high-powered Unix stations. All systems are linked through a building-wide Ethernet system and interconnected with NASA Lewis Research Center.

Classrooms are quipped with Tate access floors and AMP floor access boxes. The boxes contain four power plugs, Ethernet connections, and microphone connections for students. Access floors allow for flexibility in wiring systems and for educators to bring in future technologies.

Telecommunications technology is a driving force at OAI. To ensure that the facility can accommodate future technological needs, the project team included individuals from NASA Lewis Research Center's Computer Services Division. The result is a network with fibre optic cable running between Lewis Research Center and OAI, category 3 unshielded twisted pair for horizontal wiring, fibre optics for video and vertical data, and a coaxial cable television network.

The steel frame is constructed to allow for maximum flexibility and the glass has been engineered to recognize energy constraints. The central heating and air is located on the lower level and tempered air is transported vertically in the core of the structure. To date the educational complex has operated well below the projected consumption of gas and electricity. In fact, one half would be more realistic realizing major savings. □

RESPONSIBILITY, RECOGNITION AND REWARD

The multi-disciplinary practice is far from dead. In fact its promoters argue that today, "continentalised" rather than globalised, and integrated by instantaneous electronic communications, the concept is more valid than ever. In his investigation into Building Design Partnership, Britain's largest architectural practice, Colin Davies uncovers what the three Rs really mean

It used to be called "multi disciplinary design", and it was the principle upon which BDP was founded 28 years ago. Ken Draper, the chairman of the practice, now prefers to call it "integrated design". And when he is talking about the future, he calls it "networking". But the basic idea remains the same: designing buildings is a collaborative art and it is best done by a team of professionals – architects, engineers, quantity surveyors, landscape architects, interior designers and so on – working side by side in one organisation and learning from one another in an atmosphere of mutual respect. According to Draper the idea is far from dead. The rise of new professions like Project Manager, and new procurement patterns like Design and Build only confirm the fundamental soundness of the original concept. Clients increasingly expect responsibility for design and construction to be concentrated rather than dispersed. Other practices are responding to the demand by setting up temporary associations to tackle specific projects under a single appointment. In BDP, the association is permanent. The different professions work in the same office; they know each other, they trust each other and they don't waste time climbing up the learning curve.

Integrated design relies on a certain critical mass. It is no good having just one representative of each profession, the practice must be able to offer a range of skills in different combinations at different times. This is why BDP has been able to make it work where others have failed. Like every other British design practice, BDP has been hit by the recession. It is only half as big now as it was four years ago. But with a total workforce of 750 it is still the biggest practice in Britain by a wide margin. The Guildford and Preston offices have closed but that still leaves London, Manchester, Sheffield, Glasgow, Belfast,

BDP's Channel Tunnel Terminal building, Folkestone 1993

Dublin, Paris and Berlin. Its organisation can be seen as a federation of semi-autonomous offices, each with as near a complete set of professions as possible, or, alternatively, as a group of specialist practices, spread geographically. This "matrix" model remains intact and continues to function satisfactorily.

Surprisingly for such a big practice, BDP has never carried out much work abroad. Even back in the seventies, when everyone was scrambling for work in the oil rich middle east, BDP concentrated instead on consolidating its UK network. There have been the occasional forays – the practice has good connections in Portugal, for example – but for the most part BDP partners have preferred, in Ken Draper's words, "to go home at night and be paid in sterling." But in the run up to 1992, the time seemed right to go European. France, Spain and Germany were the targeted countries, and BDP began to look for estab-

lished local firms with which to form associations. In one sense this policy was no more than a continuation of the pattern of expansion in the UK. BDP's branch offices have traditionally had strong local roots. But they look after the local clients, rather than the local jobs, and this means they occasionally poach on each other's territory.

It soon became clear that, after all the excitement of the Barcelona Olympics and the Seville Expo, the Spanish market was temporarily exhausted, but suitable practices were identified in the other two countries: Group 6 SA in France, and Rohling GmbH in Germany. New practices were launched in new premises in Paris and Berlin. The French and German offices are still small by BDP standards, but the work has begun to flow, including a shopping centre and mixed development in Paris and a new headquarters for the General Motors car maker, Opel in Russelsheim. These cautious steps into Europe, carefully planned before the recession took hold, have broadened BDP's base, putting it into a good position to take advantage of the upturn when it comes, and of the new Europe-wide market in architects and architecture.

The move onto the mainland has also brought less tangible benefits. Seeing how things are done in other European countries has sharpened the focus on developments at home. It is interesting to note, says Ken Draper, that while in Britain the practice of fee bidding has spread rapidly through the whole procurement system to the point where it threatens the very basis of independent professional practice, in Germany the standard fee scale is accepted without question. And if anything it is even more generous than the old British equivalent, now scoffed at by every client in the land. Perceptions of quality are also affected. Concurring with the findings of a recent Arts Council report, Draper reckons that, when compared with comparable work on the continent, the general quality of construction in Britain has reached dangerously low levels. A new breed of client has emerged – newly independent hospital trusts, for example, or government departments that no longer have the benefit of in-house professional advice – that is obsessed with accountability in the procurement process but cares nothing for the quality of the resulting building. Their job is not to produce good buildings, but to make sure they are as cheap as possible and that somebody else takes the blame when they turn out to be unsuitable.

The Bentalls shopping centre, Kingston 1989

A European perspective also highlights possible new markets for BDP's special combination of skills. For example, according to Ken Draper, continental landscape designers tend to be strong on details like the analysis of soils and the selection of species but lack the comprehensive sweep of the English landscape tradition. BDP's integrated design method encourages a view of landscape and buildings as part of a single design problem, and sometimes the landscaping is more important than the buildings. The practice has designed a series of public and operational buildings on the huge Channel Tunnel terminal site in Folkestone, but its most important contribution has been in the design of the site itself, integrating the roads, railways, car parks, train parks and buildings into a new form of landscape that is urban in scale but rural in character. Landscape planning on this scale requires more than just horticultural skills.

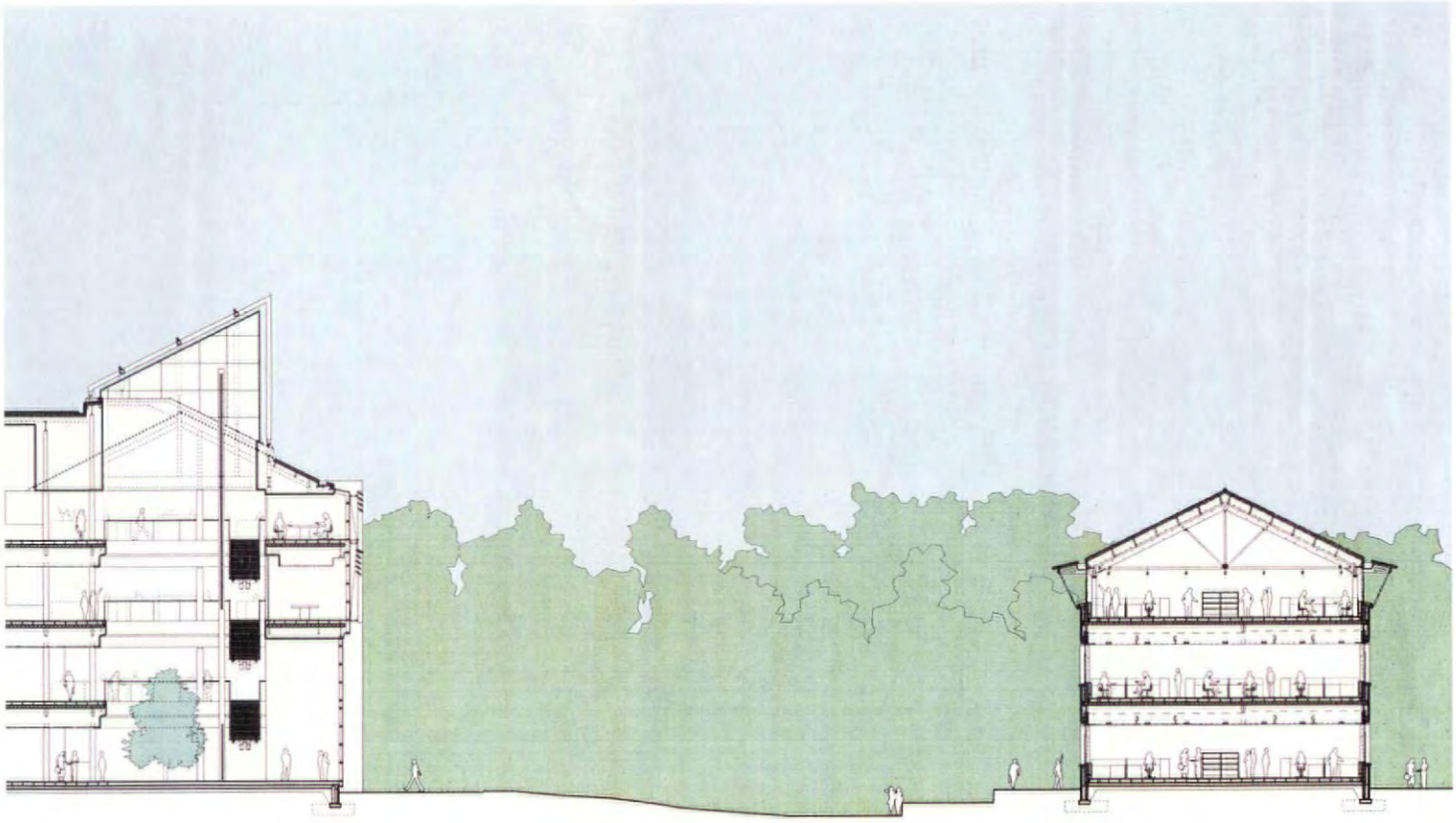
Rupert Truman

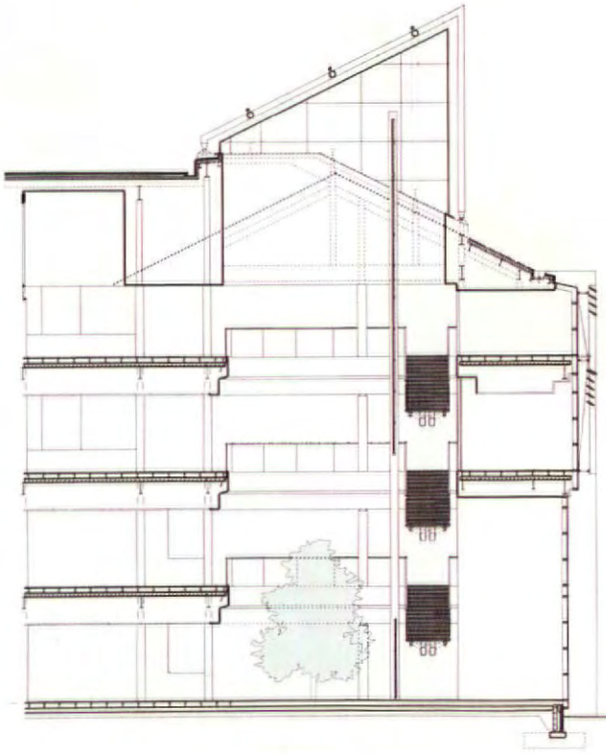
Two scales of BDP operation. The Eureka museum for children in Halifax (left and above), and the Schonbuhl shopping centre, Lucerne (below). Both 1993

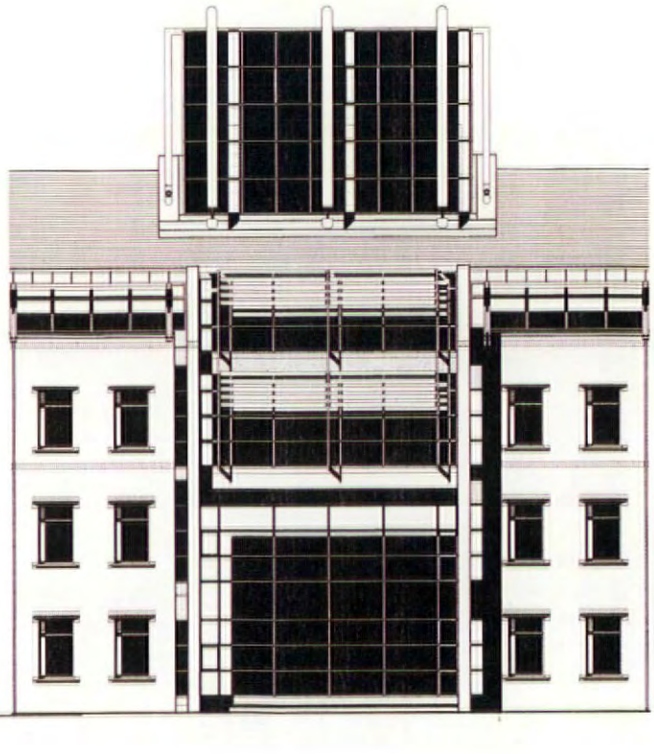
Franziska Bodmer-Plancia

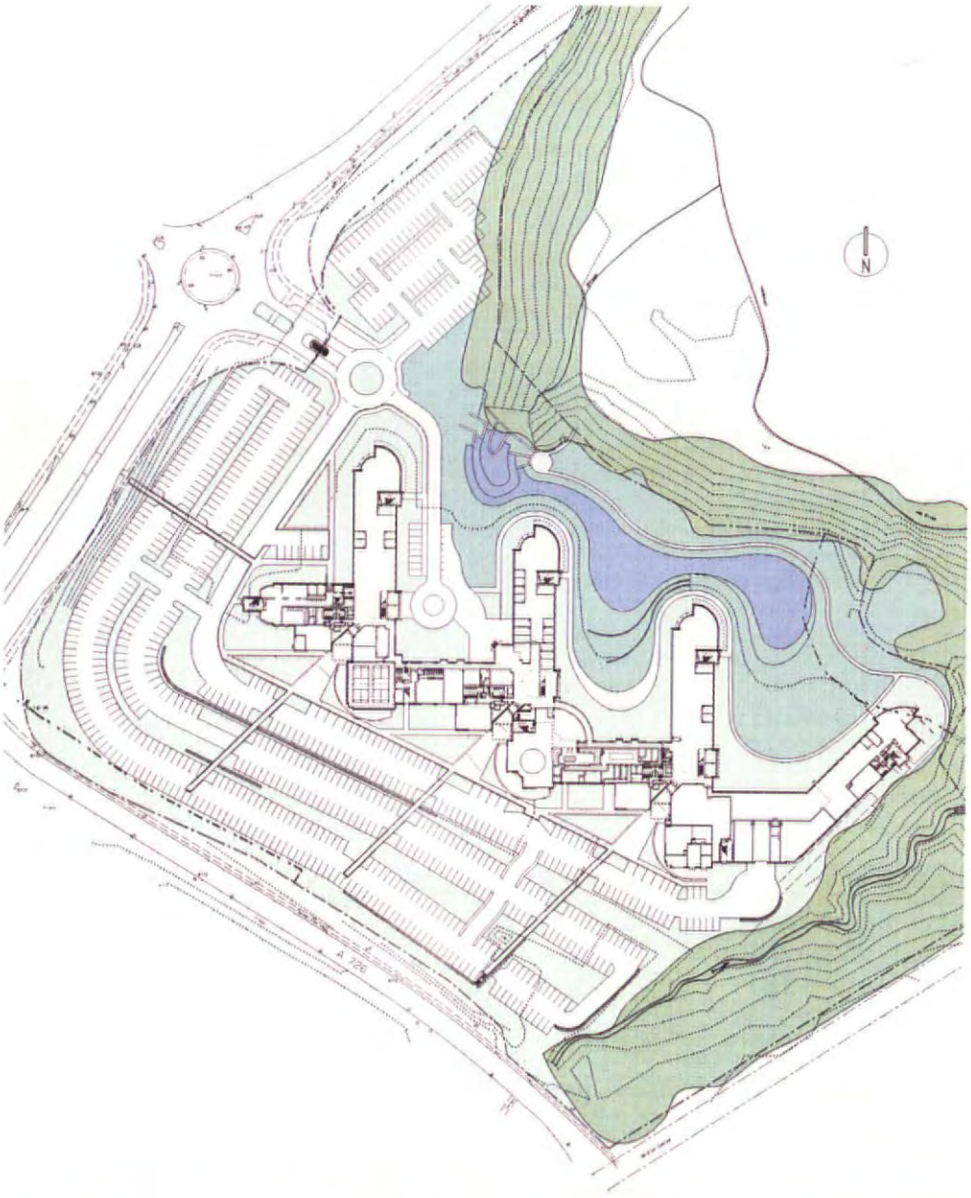
Energy saving in buildings is a theme that is now exercising the minds of all conscientious architects. It is a problem that BDP, with its integrated design method, is well equipped to tackle. The proposed new office building for the Inland Revenue in East Kilbride has a shallow plan, with a number of energy saving features including triple height atria that encourage cross ventilation by the thermal stack effect. But here again the European experience is proving to be a spur to further technical developments. Among responsible German clients, energy saving has become the number one architectural priority. BDP Rohling is currently working on a competition entry for the new Federal President's Office in Berlin, to be sited in the gardens of the Baroque Palace of Bellevue in the Tiergarten. The brief not only calls for an environmentally friendly building, but actually specifies that there should be no mechanical services whatsoever.

Assuming that the recession is now over, BDP have come through it relatively unscathed. One reason for this is what Ken Draper calls the "flywheel effect" of a few very large jobs started in the boom years of the late eighties: the Channel Tunnel terminal, a couple of City of London Office blocks, some prison work and a clutch of no less than five shopping centres. For a while the flywheel threatened to get out of control and when the practice reached its peak in 1990 it was probably too big. Now it is back in proportion and the momentum is beginning to build again. But there has been

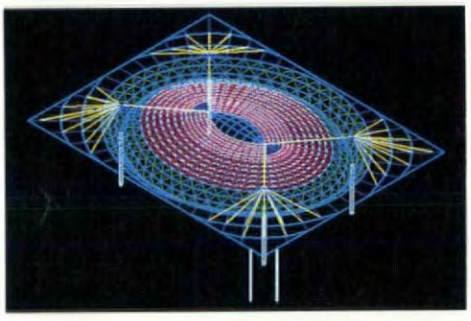


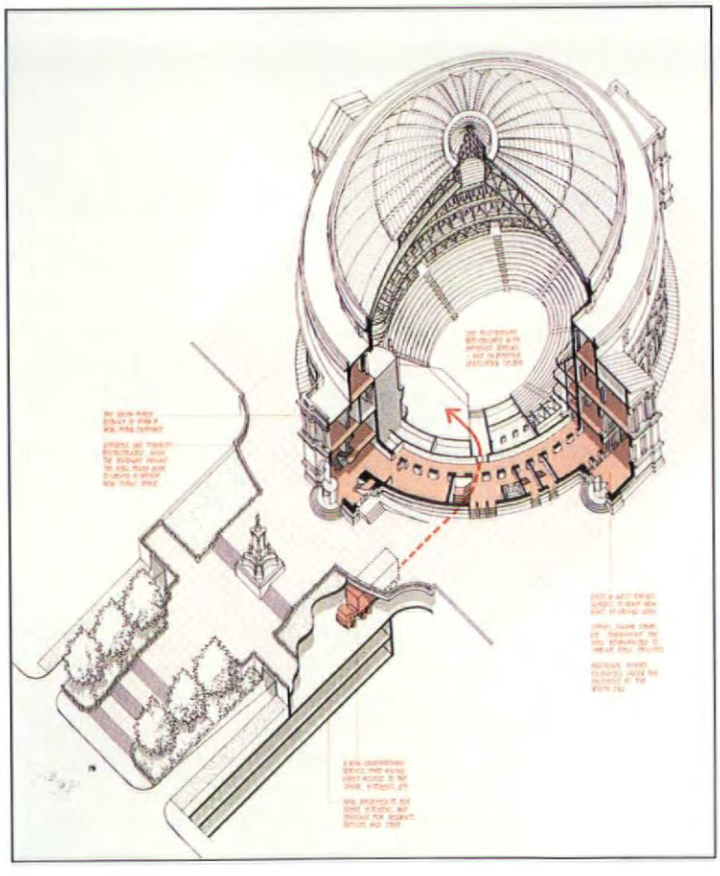






The Inland Revenue complex at East Kilbride (opposite, left and below) exemplifies BDP's mainstream commercial work. A mixture of brick, concrete, steel and energy saving that is still stubbornly Modern



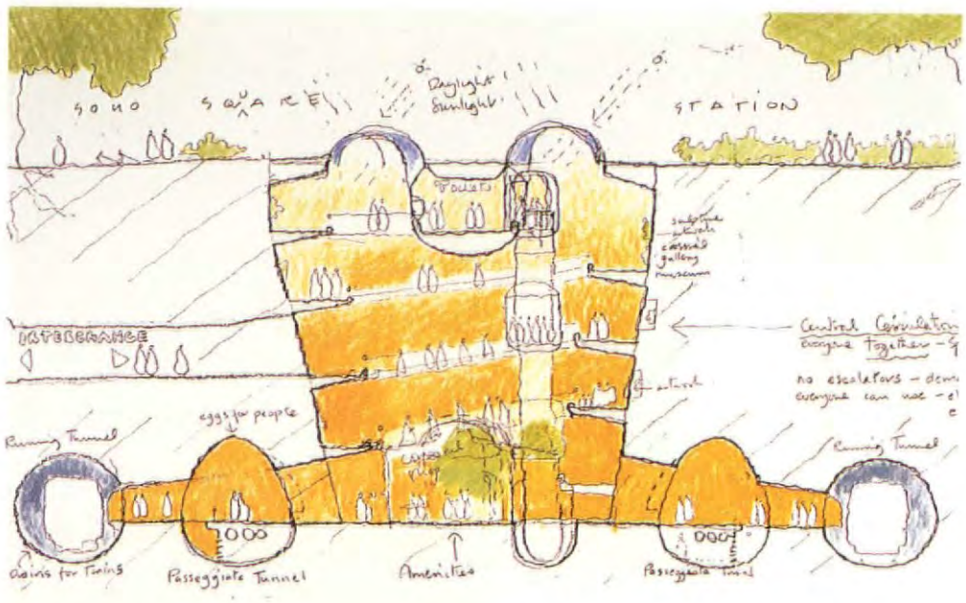


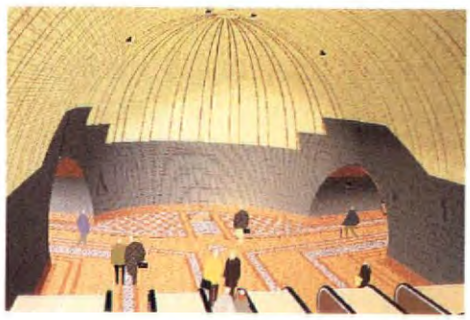
A series of BDP projects. Clockwise from the top left: the National Maritime Museum; the new Opel factory in Russelsheim; Wimbledon; the University of Sunderland; Royal Albert Hall modifications; National Maritime Museum extension CAD image

a change in the nature of the commissions. BDP has always had a business-like attitude to the building market place, being careful to maintain a presence in a wide range of economic sectors. When the retail and office market collapsed, it could still point to its experience in other fields like education, cultural buildings, transport or housing. Its current job list includes an extension to the National Maritime Museum, the refurbishment of the Royal Albert Hall, a development plan for the All England Lawn Tennis Club at Wimbledon, university buildings at Sunderland and Middlesex, and four London underground stations. All these, plus a levening of more conventional office buildings, including one for the Inland Revenue, give the list a distinctly nineties flavour, with the emphasis on public, rather than commercial, buildings.

But a change in the nature of the commissions does not necessarily mean a change in the style of the architecture, for the simple reason that there has never been a recognisable BDP style. This is a deliberate policy. "Responsibility, recognition and reward" were the three pillars upon which the practice's founder, George Grenfell Baines, built his management philosophy, and the partners still quote them today. The implication is that talented designers, whatever their profession, will be given the opportunity to develop their own style and method. The result is a radical pluralism. Sometimes, especially on very large jobs, pluralism becomes eclecticism and several styles are represented in one building. The five shopping centres completed in 1992 illustrate this well. While the covered malls themselves all exhibit the playful superficiality characteristic of eighties retailing, the exteriors range from repro vernacular through complex layered post-Modernism to expressive high-tech. The Buttermarket at Ipswich has all three. Of course, this is as much a response to context as an expression of the different preferences of the job architects, but it demonstrates BDP's basic wish to please clients and planners without allowing architectural dogma to get in the way.

Of Grenfell Baines's three Rs, recognition is perhaps the most questionable. Certainly there is recognition for design talent within the practice, but to the world at large the best architects in BDP remain anonymous, subsumed in the carefully cultivated corporate



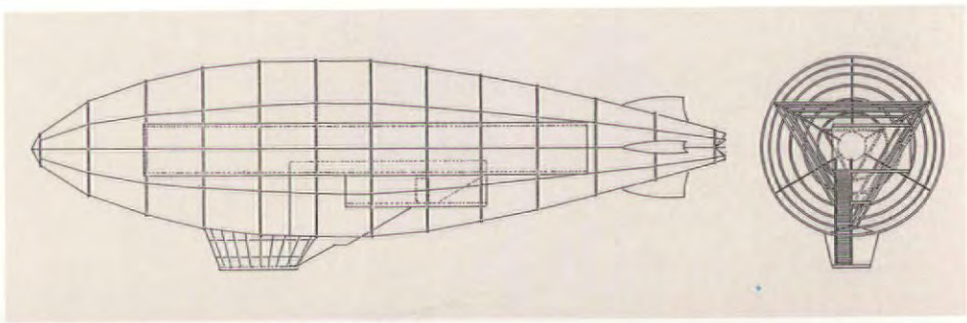


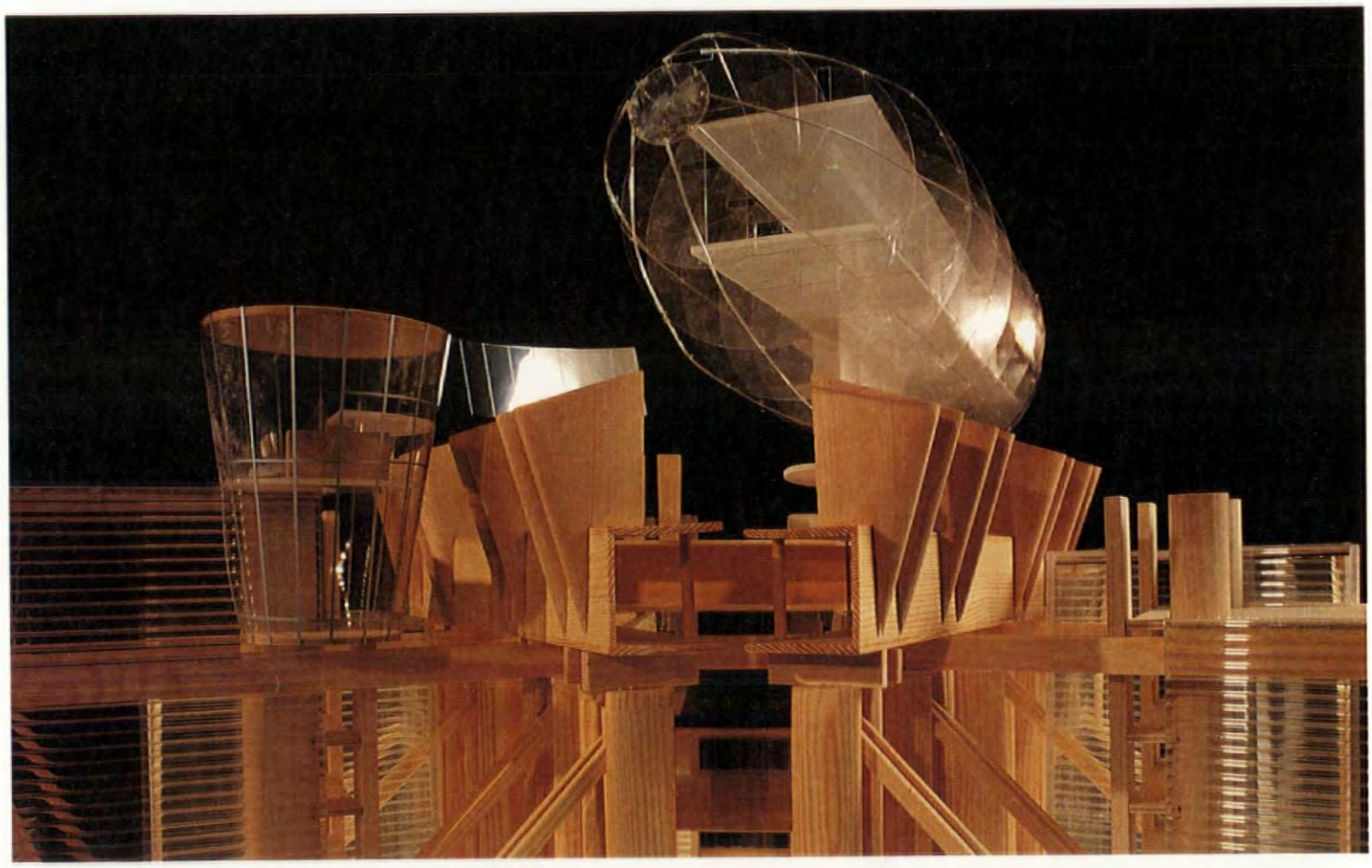
BDP CrossRail station studies. Section (top) and artist's impression (left)

image. But there are signs that this might be changing. Clients and potential clients were recently invited to the London office to view a small exhibition of work-in-progress. Its purpose was specifically to show off the design talent in the practice and individual credits were included in the project descriptions. The practice has recognised that sometimes corporate culture can benefit from an injection of imagination and flare from an independent designer: someone, for example, like Ralph Erskine, with whom BDP is collaborating in the design of four underground stations for London's proposed new CrossRail line.

Even a big practice like BDP is in no position to cure the ills of the British construction industry. It is forced to bid for work like everybody else and to join the contractor-led Design Build teams that now carry out so many of the country's major building projects. And in any case these new developments are not necessarily bad for the art of architecture in the long term. The end of the recession should mean the end of absurdities like nil fee bids, and there is nothing wrong in principle with healthy competition as long as there is a match between the service offered and the fee charged. And, potentially at least, Design and Build is simply an extension of the integrated design method to include the construction process. One of Ken Draper's functions as chairman of BDP is to plan for the future. His dream, and as yet it is no more than that, is that one day BDP will step across the increasingly arbitrary dividing line between design and construction and become a building contractor. The practice already has most of the necessary skills. Indeed it already manages the construction of small scale interior design jobs. It would be a logical step. It might even start a trend for architect-led Design Build that would restore the confidence and self respect of the British architectural profession. □

Editor:
Georgi Stanishev





UPGRADING MODERNISM

Present day Modern architecture in Scandinavian countries is based on radically different preconceptions to the dogmas of the original. Here Kai Wartiainen, a leading young architect in Helsinki, and 1993 Iakov Chernikhov Prize winner, traces the principles of his revisionist beliefs. The interviewer is Georgi Stanishev.

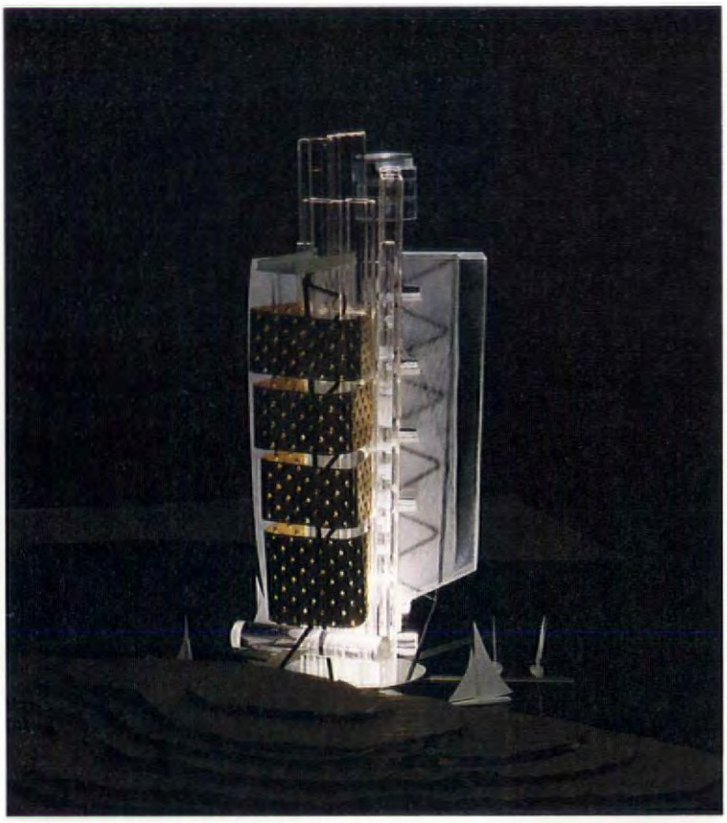
G.S. Finnish architecture after Aalto and Pietila is an "organic", or "soft" version of Modernism. What is the connection between your work and this classical Finnish approach?

K.W. I have always tried to step out of standard Finnish Modernism. After Aalto and Pietila this tradition was watered down or compromised. My early influences came from Sweden, I stayed there for considerable periods when studying. Swedish architecture has always irritated Finnish purists, which also suited me well. Swedish architecture is soft in a different way to Finnish. It is not organic. Swedes are very conscious of culture and very interested in materials, colours and decoration. If Finnish architecture is organic, Swedish architecture is cultivated. Swedish grace even tries to sophisticate Modernism.

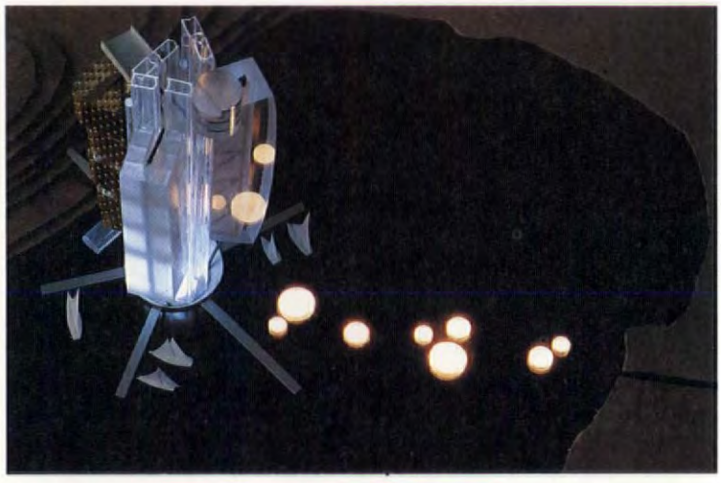
Aalto disliked colours or art on his walls. Aalto's white walls revealed forms. Even when using wood he stripped it of all culture and presented it as all his materials – very plainly. The Swedes use their walls as backgrounds for decoration or paint. It was this Swedish way of looking at buildings that helped me to see the post-Aalto and post-Pietila architecture with new eyes. I think the worst thing about contemporary Finnish architecture is that it leaves really essential problems unsolved, while still trying to look modern and rational.

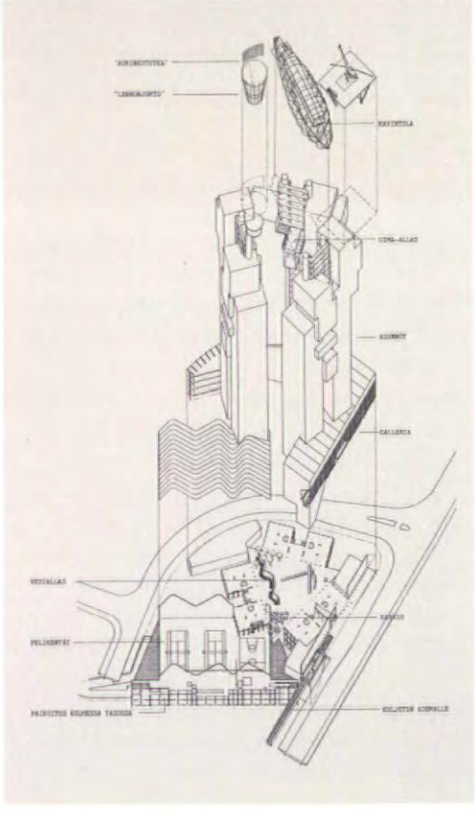
Beside the Scandinavian context there are traces of other traditions, schools and languages to which your architecture may be related. Would you outline your wider influences?

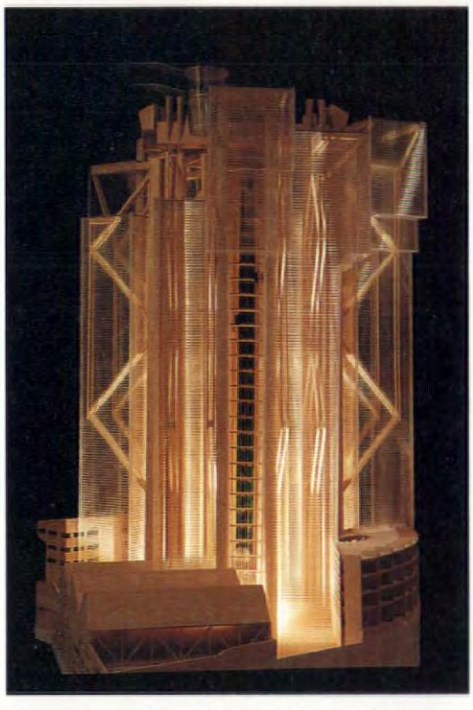
In the beginning of the 1980s I was interested



SWEDISH-JAPANESE HOTEL. Japanese investors commissioned a tall hotel placed in a small bay near the centre of Stockholm, so that the foyer should be under water. The site, an old industrial backyard, was to be converted into a Japanese garden with a pagoda like hotel structure rising from the water







Opposite page, left and above: IBX – HOUSING MACHINE (Home Of The Future). The project was commissioned by a Finnish playwrite who dreamed of an apartment on top of a high-rise. The theme has to be realised in the theme of flying. To add a spectacular feature a legend of a Zeppelin crash was created. The vessel collided with the tower in a fog. Next day it was realised that the Zeppelin could not be freed. To make use of the remains a restaurant was created there. A full size apartment was realised for a technical fair to illustrate the possibilities of technology in the future. See the "flying wash-basin"

in Aldo Rossi's thinking, who was and is generally considered here as a Messiah of bad taste. Despite my interest in Rossi I never fell into the trap of historicism. Then, in the second half of the '80s, I became acquainted with the work of Rem Koolhaas as I became reinterested in Modernist expressionism and its possibilities. It was more the ability of Koolhaas to solve problems than Zaha Hadid's wild perspectives that caught my eye.

But your works also show serious attention to the poetic dimensions of architectural form, surface and material. What about for example the "material collage" techniques which you use in a very "Gehrian" way?
It is true that Frank Gehry's work is an important source of inspiration for me. It was his work that made me definitely aware of the contradiction between modern and traditional construction. The expression of a traditional building cannot be achieved with modern techniques. The difference is like that between photography and water-colours. You can achieve the same outline, but the image in the picture is totally different. As Gehry works in warm climates, I was interested in how his principle of material collage would work in Nordic climate. A change of climate could be described as a change from watercolour into oils.

Top and above: THE APPLE IRON PROJECT. Finland's biggest concrete company wanted a representative production unit along a crowded street in Helsinki. The idea was to leave the historical facades and outer spatial ring intact and to create a modern shiny compass in the middle of the block. The glazed and punctured stainless steel drum contained two volumes leaning towards each other. The complex was treated like a big surrealistic sculpture, a concrete anvil on which objects could be placed. A can of deodorant, a set of rapidograph pens and a half opened chocolate bar, were the metaphors used to protect the design process. The use of materials underlined the modern condition of subjective choices

Top right: THE FUTURE THEATRE. Designed in collaboration with Joel Majurinen. This project started as a theoretical study aimed at the elimination of the stage tower from the theatre building. An alternative system of stage sets was developed instead. Avoiding the tower cut the building cost tremendously. The capacity and speed of stage changes in the towerless theatre were doubled at half the cost

At the same time as I became aware of Gehry I found out that Gotfried Semper and Otto Wagner were discussing the same thing at the end of the nineteenth century. They wanted to separate the surface as a picture, from construction in materials. Today modern building technique has made facade materials into a subjective choice for the architect. In this way Talma Golf Club is a homage to Gehry as Factory 2000 is to Semper and Wagner. Both buildings are strongly influenced by Marshall Berman's book *All That Is Solid Melts into the Air*. The title is borrowed from Karl Marx's *Communist Manifesto* in which he describes the conditions of modern life and the development of modern societies.

Within this network of relations with today's professional scene, is there a trend or circle of young architects to which you belong?

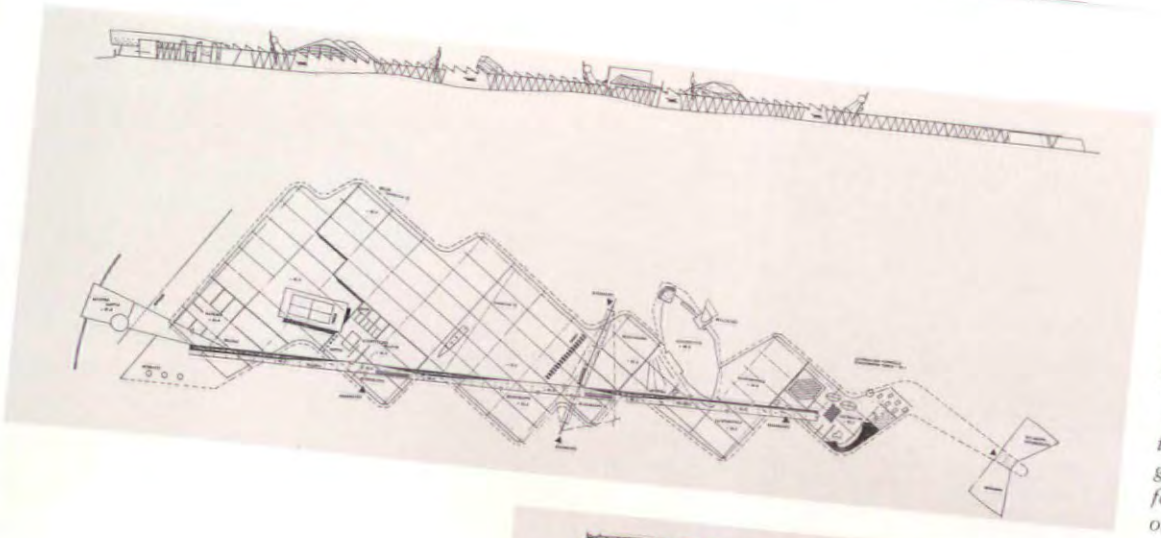
No, I do not feel part of any movement or circle, and I think this is a common feeling among architects today. I feel I am swimming in a sea of ideas. The ideas behind solutions matter most today, compared to issues of style or modes of expression. I would like to see myself as an architect who generates original solutions on a conceptual level, finding new ways of looking at things. Look at the Avant-Garde of today, it consists of names, not of teams or stylistically bounded groups. In addition to Koolhaas and Gehry I would have to list Kazuo Shinohara, Eric Owen Moss, Norman Foster, Jean Nouvel, Hans Kolhoff and for certain reasons Aldo Rossi. The circle mentioned above has very different goals and ideologies but I get from each of them a strong feeling of movement. The Avant-Garde today does not move in a bullet-like trajectory, it is an explosion going all directions at once.

What do you understand by the Avant-Garde today? Are you in it?

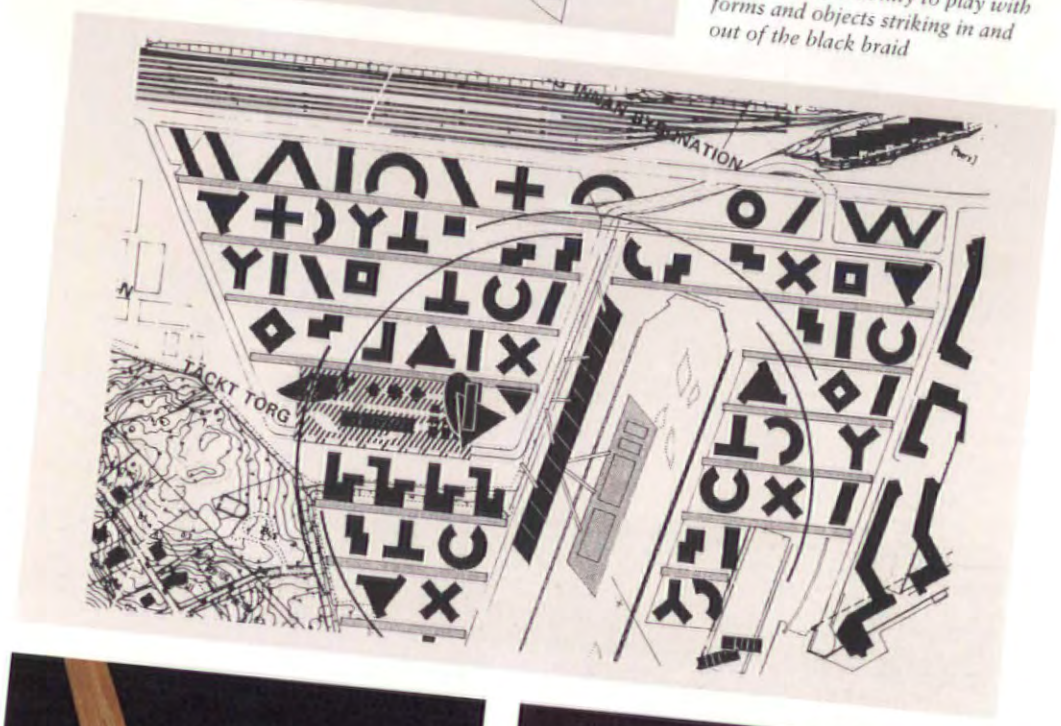
The Avant-Garde was more visible when it used to illustrate the new possibilites of advanced technology. Today it is hard to predict the direction of real progress. If we think of a grenade flying forward which explodes in the air, we perhaps might get the picture. The centre of gravity of the explosion continues to move forward but the pieces fly all over the place, some might even go backwards. It is impossible to see the centre of gravity after the explosion but it is flying there, somewhere. It is this dynamic state of things that makes it hard to define the Avant-Garde and my position in it. I would like to think that I am moving forward with the centre of gravity. But who knows? Maybe I'm moving backwards or being completely sidetracked.

Is there anything constant in architecture today? What constant conceptions, lessons, prejudices, are you permanently with?

The constant in architecture is an intention to



Left: THE CHINESE BRAID. The programme called for two big markets and small shops along a glazed mall between an old highway and a new expressway. To get space for car parking we decided to put spaces on top of each other and remodel the terrain producing small hills so that all shops became fixed at ground level. The Z-organisation of the plan, the "gallery" going up and down and the systematic 12x24 motor grid, gave us the possibility to play with forms and objects striking in and out of the black braid



Right: THE GATA PROJECT. The buildings of the housing complex are separated from each other as individual volumes giving the feeling of a moment that has been interrupted

solve problems according to the needs of clients. The needs are constantly changing so there are no fixed points upon which to fasten your solutions. But there are now specific conditions that repeat themselves from job to job, from case to case, thus becoming a sort of pattern.

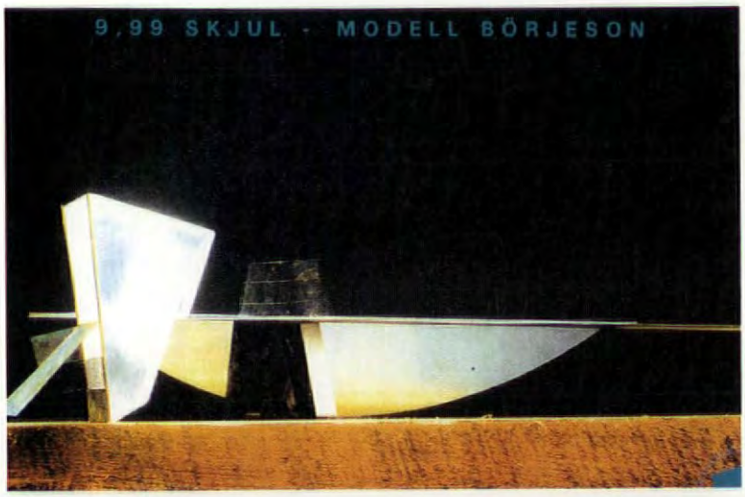
One of these patterns is, for example, the Urban Cup versus the Cage phenomenon. By the Cup I mean the traditional city where the walls and the surface of square and street make a united spatial whole. To reach a similar spatial intensity to that, public urban space today must be formed as a Cage layered over functional city space. The multi-layering of cities has to be understood in terms of their simultaneous co-existence. It depends on the viewer's situation which one of them becomes visible. Or, to use Manuel Castells' conception: "...there is the space of flow and the space of place."

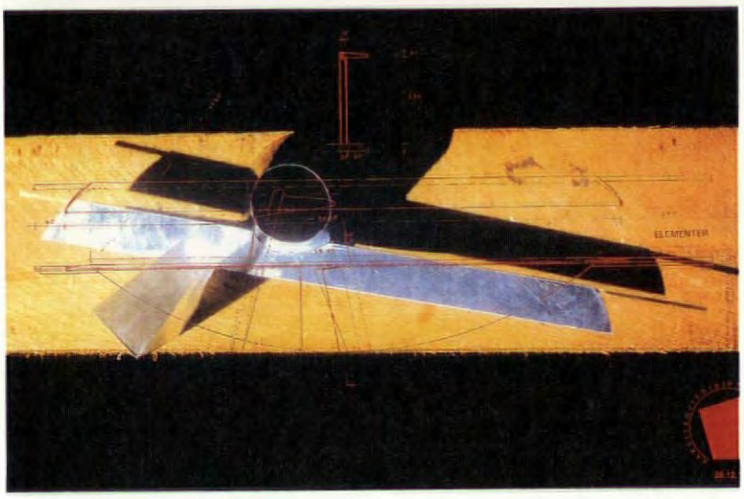
Is that pattern – an element of a wider system of logic – the one that forms your own personal design methodology?

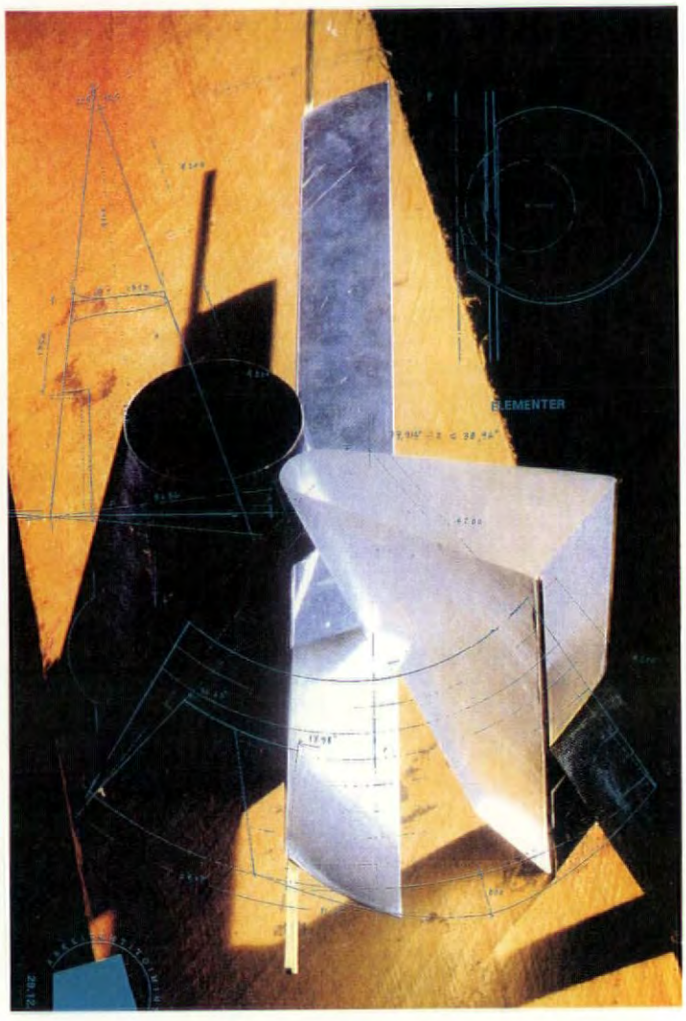
When a project starts we tend to have no clear idea how to solve it. Usually we deal with different aspects, sides, logics or parts of the total problem, which don't have to relate directly to each other. If there is not a problem we create it. As in the case of the Ines chair. Artek, the Alvar Aalto furniture company, wanted a modern chair and I felt we

The INES CHAIR. Designed in collaboration with Kari Virlanen. A prototype of a light wooden chair where pin legs are connected to a plywood sheet without mechanical joints

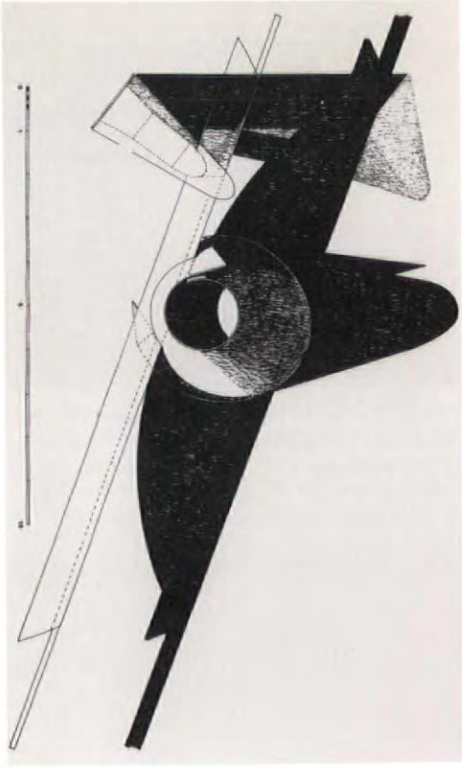
PLAY HOUSE "LEMON". This project was one of the ten "play houses" commissioned to different architects for a housing fair. The floor area was not allowed to exceed 2x2 m. We decided to make a 10.8 metre high structure in yellow wood and greenhouse plastics. The project was intended as a light house for dark winter evenings and mornings







9.99 SKJUL-BORJESON. A sample of photocopy presentation. The building is a small storage space for a gallery in Sweden. The commission was to create a 9.99 m² space that would also be very sculptural. In Sweden, by law, buildings under 10 m² do not need a building permit. The client wants to store two bicycles, 200 m of fishing net and 4 cubic metres of firewood.



could not aesthetically match the thousands of designers who have been dealing with the problem of the chair, unless we found a new angle on the task. So we decided on an elastic chair, like the Wiener chair, and to combine a ply-wood sheet with pin legs without mechanical joints. So, we divided the task, and for each of its separate aspects we searched for a theme and a logical treatment. Then we left the parts to collide and unveiled the surprising effects that resulted. The purpose was to create an interaction between order and surprises, two things that we, as humans, tend to enjoy.

But surely balance between order and randomness, or keeping a certain rate of unpredictability is, in fact, a kind of strategy?

Yes, but we do not have any systematic approach, other than an effort to define the problem at hand in a new way which in the end gives us the possibility of solving it unconventionally. Well, we may call a methodical device our habit to give other than technical names to the solutions in order to humanize the created places, protecting them from the technocrats. These names relate to people and have meaning for them. When we name a control room in a Concrete Factory "an unwrapped chocolate bar" and it becomes an essential part of a surrealistic sculpture in architecture, then it is very hard for the engineer to change it without the architect's permission. Giving names is a practical tool in the design process as it protects against undesired changes, but it also forces us to create meaningful places or spaces.

Do you have the same view of architecture as of textural reality? For example your GATA projects seem to look like a colossal inscription made with buildings - letters of an unknown alphabet. Why?

The idea of architecture as a language is dangerous to the extent that it is part of the conviction that all artists' texts are translatable. In my view you can not express one and the same idea in music, painting, poetry, architecture or a scientific text. Each medium is capable of referring to its own nuances, senses and meanings that cannot be transmitted by another media. Really good architecture has a message that can be said only in architecture. By looking at an inscription you can share a thought. The thought that I wanted to share with the GATA project was, that this site was not a normal part of the city. The site-plan was supposed to tell you that here were the parts of the ship before they were put together in the ship yard. We wanted to have the buildings separated from each other as individual volumes so as to give a feeling of a moment which is interrupted. There is no riddle in the building lines even though GATA – a transformation of the name of the River Gota – means "riddle" in Swedish. The inscription is: This is the place where the ships are built.

Referring to your manifesto at the Twenty IFYA Architects Exhibition at the RIBA in London, one gets the impression of a hidden hedonism in the machine's perfectionism, determinism and universality. Where does this Romantic attitude to the Machine come from in an era of skepticism and nihilism?
I see a manifesto as a romantic way of expression. It would have been funny to write a manifesto in a calm tone. But sincerely I really do assert that the Machine is an inevitable mediator in modern society. Technology is an essential part of our everyday life and if in factories it is very visible then it is visible in bedrooms. "Sleep" and "rest" do not belong to the world of the machines, but technology is present in any modern bedroom in lights, radios, alarm clocks etc. The way of using the machine in this world is an architectural choice. I suggest that we are in a process of rediscovery of the conception of Modernity taken in a new key, where the linear relations and simple hierarchies in society, city organisation, architectural design etc, are replaced by a multiple network of virtual possibilities. I feel that there is great potential in the way things are today. The traditional classical beauty in most cities is lost, but it is being replaced by new possibilities for experiencing beauty. This collage beauty is hard to see at first, but as we get used to it we can reach new levels of aesthetics which can be more rewarding than anything we have experienced before.

Do you experiment in other artistic fields which could be related to architecture? For example is the montage or collage technique in your work based on some cinematographic method?
The only area other than architecture, in which I am interested artistically is copying with copy machines. I have been very dissatisfied at how architecture and design are exhibited by the Museum of Finnish Architecture where architectural drawings and original sketches are presented like priceless icons. That is why I am preparing an exhibition which rejects "original" drawings, replacing them with the possibilities of the copy machine. I want to illustrate that the difference between bad and good building is not in the way they are drawn, but in the way they are thought out. I think that by copying originals, i.e. producing cheap images, we could really put built architecture on the scene. □

Top: ROIHUPELTO CONCRETE MIXING PLANT. Fragment. The building is situated on a plot that is too small and it was not possible to build a straight gravel conveyor. The composition works as a 3D sculpture collage

Above left: THE HOGFORS OFFICES. Designed in collaboration with Sari Schulman. The offices were realised in the old factory space as a "man made landscape" with meeting rooms, toilets and storage

Above: TALMA GOLF CLUB. Designed in collaboration with Harkku Stevanen and Selja Peltonen. Different materials are used to correlate the different parts of the building

Building K25 Dedemsvaartweg, The Hague 1992

Architects: Kees Christiaanse, Art Zaaijer with Han van De Born
Photographer: Michel Claus

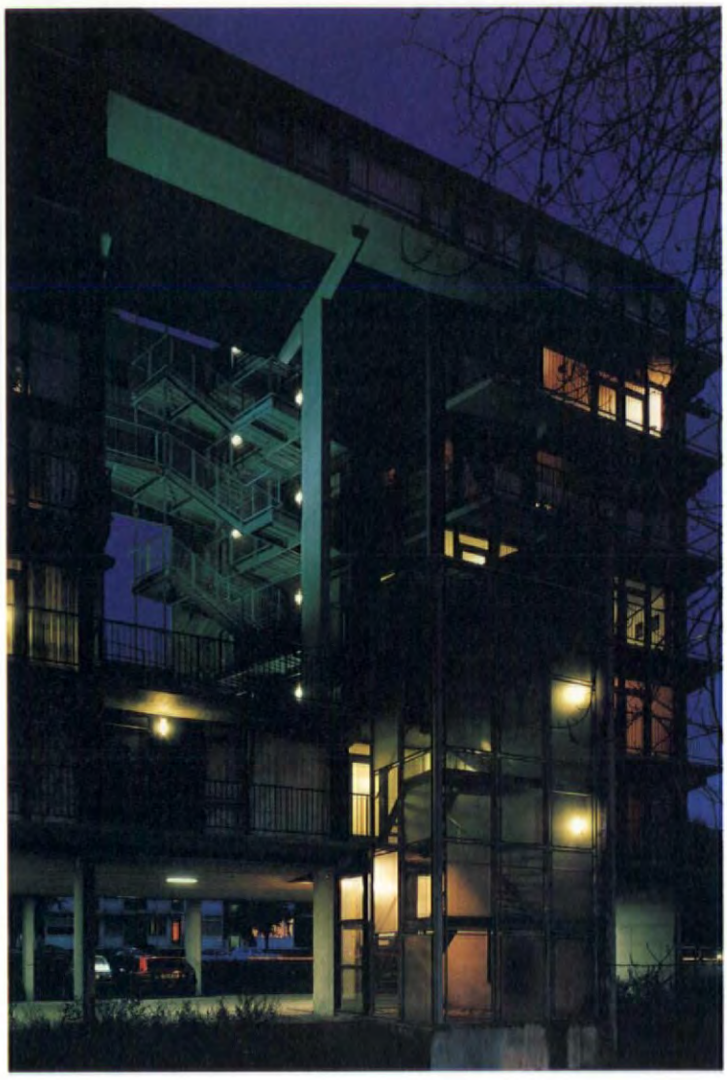
The building is situated on a strip of parallel landscape elements (street, trees, channel, dike) which forms the transition between a residential area and a green zone. The site is part of the housing festival in The Hague. The situation is reflected in the design: the street facade is a slab of stone behind which a "living" zone in wood, glass, corrugated metal is created. The facade towards the green zone is made exclusively of glass and balconies.

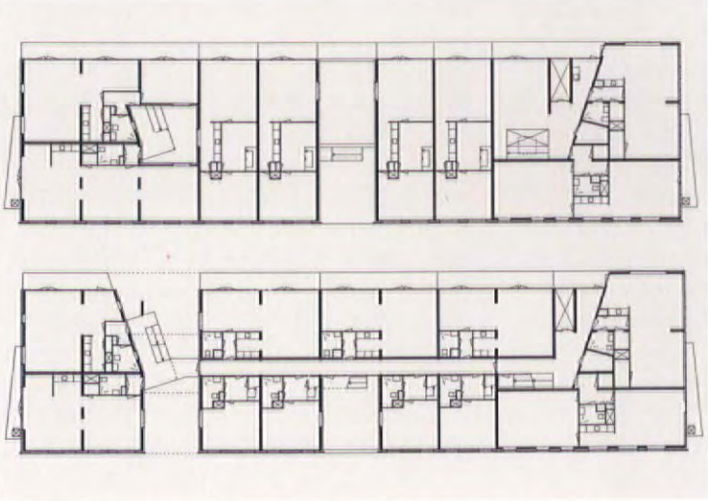
The slab-like character of the building is lightened by a number of perforations that make the building transparent towards the green zone: the building floats above a lowered parking place and has big holes around the staircases with communal spaces outside.

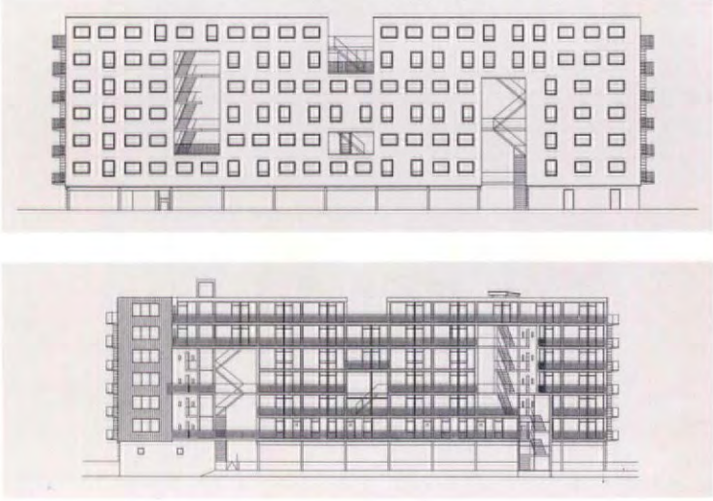
The large perforation which houses the elevator, together with the smaller perforation which contains the staircase, divide the building into northern, central and southern parts. These parts, each with their own circulation, contain 45 flats, two communal rooms and terraces.

There are 11 different types of flats, varying from 55 to 110 square meters. The small number of flats and their variety make this a manageable building for a pluriform population. The lower flats focus toward street level, the middle flats are duplexes, and the upper ones are focused on the roof.

Inside the dwellings, kitchens and bathrooms are organized as compactly as possible, and the number of partition walls is kept to a minimum. The plan allows for the greatest flexibility and thus the building is suitable for disabled people, single people, couples and families.

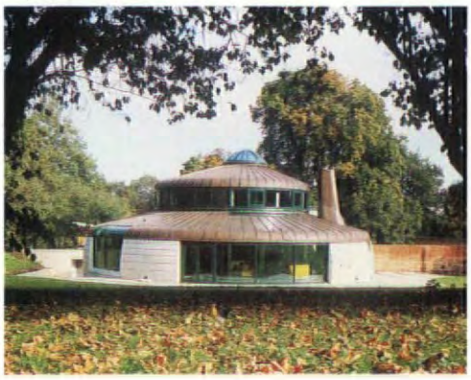






House in Surrey, England

Architect: John Newton, 1993
Photographer: Joe Low



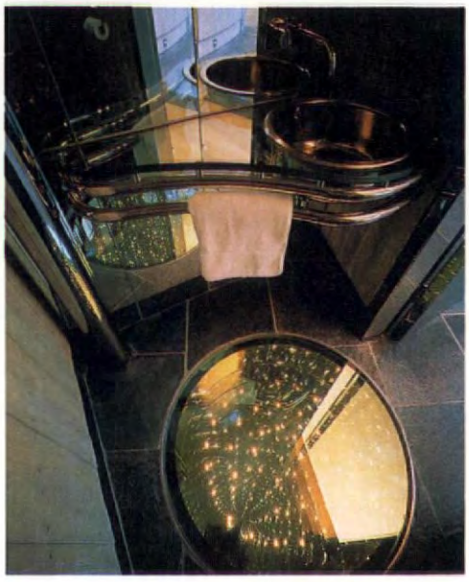
The site, in Surrey, is almost totally surrounded by trees, has good topography and secluded access. The house is based on a "spiral" plan form developed by the architect in answer to the client's desire for a "round" house.

The house is arranged on three levels. The lower ground floor contains service rooms, an indoor swimming pool and terrace. On the the ground floor are the main living rooms with a north facing kitchen/breakfast area overlooking the pool below enclosed by a mini-atrium. On the first floor are bedrooms and an east facing roof terrace. The core of the house contains a central spiral staircase linking all three levels. A separate music studio building in the form of interlinked post tensioned concrete domes stands adjacent to the house.

Construction is of insitu reinforced concrete walls spanned by either glass or copper covered plywood roofs on steel or steel reinforced aluminium members. At the perimeter load bearing precast reconstructed stone blocks form an insulated cavity wall with the inner leaf being of insitu concrete. An insitu concrete chimney serves fireplaces in the study and living room and extends through the roof as one of the key elements in the structure.

Each individual room is provided with zoned underfloor heating, the hot water being supplied either from a central condensing gas fired boiler or an air-cooled heat pump. During the summer the heat pump is used to remove heat from the rooms utilising the same water coils embedded within the screed.

The internal heat gains from people, light and equipment, plus solar loads, is also removed from individual rooms via a zone controlled air displacement air-conditioning system which supplies filtered fresh air to the rooms at temperatures and ventilation rates necessary to hold the required internal space conditions. The ventilation system uses maximum free cooling effect of outside air temperatures prior to utilising the cooling plant. During the summer a water/water chiller is used to store chilled water within an eutectic tank and to heat the swimming pool using off peak electrical energy. □



ARCHITECTURE THROWS AWAY THE KEY

Architecture & Order: approaches to social space. *Edited by Michael Parker Pearson and Colin Richards. Routledge. 248pp, £40.00 (hardback).*
Buildings and Power: freedom and control in the origin of modern building types. *By Thomas A. Markus. Routledge. 343pp, £75.00 (hardback) £25.00 (paper).*

Review by Ronald Green

It takes only the wail of a police siren to tell us that we are imprisoned by our cities. Ten minutes stopped in a tunnel turns an underground journey into a nightmare. Less drastically we are taught urban imprisonment by the traffic planning of streets, so that whole districts of towns and cities turn into mazes of one-way systems with speed bumps, bollards and culs-de-sac. Even inside our buildings we are trapped. As Karl Marx observed, "the architect builds the cell in his mind before he constructs it." So thought the German Modern architect Mies van der Rohe, who said "buildings impose order." Perhaps it was the French philosopher Henri Lefebvre who got nearest to the truth when he wrote in *The Production of Space*: "Monumental buildings mask the will to power and the arbitrariness of power beneath signs and surfaces which claim to express collective will and collective thought." Scratch the surface of planning, urban design and architecture and you find a kind of power. In a way buildings represent power above all other things. It explains the deep-seated suspicion in which their designers are held by ordinary people, who live in a world where, as Annie Bartlett ominously observes in her essay in *Architecture and Order*, "The everyday is getting smaller as the professional gets larger."

Studying the power embodied in architecture makes a good occult alternative to the bland art-historical litany of styles and periods. For a start it throws up unexpected anthropological data. "Like some strange race of cultural gastropods", we read in *Architecture and Order*, "people build homes out of their own essence, shells to shelter their personality. Then these symbolic projections react on their creators, in turn shaping the selves that they are. The envelope thus created is not just a metaphor." Indeed it is not. It is a lengthy paraphrase of a remark of Winston Churchill's that is never seen in context: "First we shape our buildings and afterwards our buildings shape us." But here the authors, two lecturers in archaeology, Mike Parker Pearson and Colin Richards, are using it to describe contemporary suburban life, with its arrays of consumer durables, and its obsession with house prices and mortgage traps. As they rightly observe, "the environment is rarely neutral; it either helps the forces of chaos that make life random and disorganised, or it helps give purpose and direction to one's life."

Architecture and Order is a collection of essays and papers that range from the interesting to the unreadable; few of them impinge on contemporary life. *Buildings and Power* is a very different kind of book. Not a collection of essays but an epic study by the Emeritus Professor of Building Science at the University of Strathclyde, who endeavours to analyse what he calls the "social meaning" of the major new types of building that came into existence between 1750 and 1850. Again the idea is to create an alternative taxonomy to that of aesthetic style and architectural celebrity. Thus nineteenth century hospitals, prisons, asylums, workhouses, libraries and factories are exhaustively, but wittily and readably described, and lugubriously illustrated with original prints by their designers. This monochrome presentation gives the book a pleasing uniformity of appearance which is not belied by its contents. Markus deploys massive scholarship in naming, dating and illustrating all the definitive or surviving examples of this or that organisational mode of building. His only problem is uniformity of another kind. As his text and his grim pictures make clear, there is a leitmotif of oppression running through virtually all the new building types of the industrial revolution. Hospitals do not escape it, nor do schools, churches (which can be converted into law courts). Perhaps only libraries do. Markus is forced to acknowledge that there was little to choose between architect Sampson Kempthorne's "Workhouse for 300 paupers" and the architect James Bevans's "Gaol for 600 prisoners", both of which featured the same cartwheel plan and cellular interior. Nor indeed did things change much where "pestilential cholera" was the enemy or the confinement of the insane the object. In the end this endless succession of distinctions without differences makes it clear that "power studies" in architecture may turn out to be as arid as the art historical classifications. All buildings are oppressive — or at least they were between 1750 and 1850 — and, oddly enough, even the Roman houses illustrated by Clive Knights in *Architecture and Order* make the same point. But this is a reader's view. Markus himself appears to entertain no such doubts. He ends his book by proposing a new kind of "subversive" architecture based on the power study of buildings that could, by means of skilful design, enable tomorrow's architects to bring about "shared power relations" in place of the "oppressive power relations" their clients throughout history have clearly wished to perpetuate.

Markus admits that the creation of order is the purpose of all architecture and that this embodies a fatal paradox. It is touching that, at the close of this monumental study, he can only speculate upon simple technical means — easily altered partitioning, user-controlled information systems, occupant-determined shapes and images — that an architect of the future might use to disempower the tyranny of the forces that employ him.

SO LONG FRANK LLOYD WRIGHT

Frank Lloyd Wright the Lost Years 1910-1922: a study of influence. *By Anthony Alofsin. University of Chicago Press. 456 pp, 314 halftones. £43.95*
The Frank Lloyd Wright Companion. *ByWilliam Allin Storrer. University of Chicago Press. 508 pp, 960 photographs, 635 plans. £59.95*

Review by Michael Naismith

Frank Lloyd Wright occupies an unique place in the architecture of the twentieth century. William Allin Storrer confirms it by joining Ludwig von Kochel in devising a definitive numbering system for his master's works. Along with Wolfgang Amadeus Mozart's "K" numbers, we now have Frank Lloyd Wright's "S" numbers. The Storrer Index now lists 433 individual buildings and pro-

jects between 1886 and 1959. Whether it will completely supersede the older Taliesin Index, whose "T" numbers designate projects in annual groups, remains to be seen.

In any case there is clearly vast academic mileage left in Wright, even excluding predictable discovery of doubtful "lost masterpieces". After exhaustively hailing the genius of another great white male, American scholarship is now staking claim to his sources of inspiration. And here Wright is again proving fruitful, for if Anthony Alofsin is to be believed, his American talent may have been influenced by Europe after all. This is contrary to the received wisdom that the European architectural avant-garde was electrified by the publication in Berlin in 1910 and 1911 of two books devoted to Wright's work and thereby was greatly influenced by him. The next interaction, Wright's other historians and biographers agree, did not occur until 1936 when the first design of his to show European influence, "Falling Water", was completed.

In many ways the interaction of European and American influences in architecture is an unrewarding study. True, European architecture was the only cultural legacy of the former American colonies. True too that it can be argued, as it was by Adolf Loos and Richard Neutra, that advanced American building technology was the mainspring of all real Modernism. But, by the same token, if iron and steel construction, lifts and skyscrapers all stemmed from Yankee ingenuity, it can still be argued that it took European Bauhaus radicalism to convert it into the bald steel and glass see-through office buildings that became the architectural calling card of the twentieth century.

Drawing the line anywhere between these transatlantic stations of the cross requires an act of decision. Wright made his in the 1939 lectures by rejecting the colonial legacy to America as "an Italo-French-English stumbling block that we still have to fight." He ignored the European Secession (a creative movement wiped out when both its empires were overthrown in the Great War and, in any case, never more than a decorative inspiration for him), and then moved on to the inter-war Modern European urbanism advocated by the Bauhaus Modernists of the 1920s. Like Georgian architecture in America, "Collectivised" Modernism did not appeal to him. Frank Lloyd Wright saw "negation" at work, both in Europe's Classical heritage in America, and in its inter-war preoccupations in Europe. This "negation" was something quite unrelated to the "affirmation" that he claimed to be expressed in his own work.

When Wright had arrived in Europe in 1909, as well as the decorative art of the Secession, he had found a nascent Modernism already inextricably involved with urban ideas. Over the next fifteen years, aided by the horrors of the Great War and its terminating revolutions, this strain of architectural thought came to him to seem a "negation".

Wright had no sympathy with the European Modernists' three dimensional metropolitan centres with their motorways, train stations and airports incorporated into the design of office towers and apartment blocks. Such drastic European notions as sun angles and wind directions that determined the orientation of housing without reference to physical topography, or the most economical pattern of movement for an assembly crane used as the determining factor for the distance between rows of apartments, was wholly unacceptable. Terraced housing in principle was anathema to him. In all these things he saw architecture enacting the physical submergence of the individual into the group, and the disappearance of his own brand of nineteenth century individualism.

If an endless extrapolation of Broadacre City, which emerged during Wright's lifetime in several forms from "The Disappearing City" of 1932 to "The Living City" of 1958, was the architects' long term practical answer to Europe, then this in itself answers Alofsin's hypothesis. Indisputably Europe exercised an influence upon his architecture, but it was an influence that helped drive him into more and more American solutions.

WRAPPING THE REICHSTAG

Christo: The Reichstag and Urban Projects. *Edited by Jacob Baal-Teshuva. Prestel. 160pp, £25 (paper).*

Review by Tracy McKeown

When last February, to the rage of Chancellor Helmut Kohl, and the joy of Speaker Rita Sussmuth, the German parliament voted to authorise the wrapping of the Berlin Reichstag by the Bulgarian artist Christo, an era of German history came to an end. The question is, did an era in art history end too. There is, after all, a sameness about Christo's wrapping projects that is enhanced by their extensive prevision in drawings, photomontages and books like this one. Seen in these pages the Monument to Victor Emanuel in Milan, the Pont Neuf in Paris and, yes, even like the wrapped footpaths in Kansas City, all share this ho-hum quality. Christo has done other things too, of course,but his high-profile project to pass the parcel in Berlin is not one of them. Even the details about recycling the vast quantity of PVC-reinforced fabric to the Third World, and fitting special cages to protect "delicate protuberances" fail to lift the narrative above the gloomy suspicion that wrapping up the Reichstag is just another kind of graffiti on a historic building, after which the old place can never be the same.

As though to head the charge of mercenary opportunism off at the pass, Christo's editor makes much of the fact that the project began in 1971, when there was still a Berlin Wall, and has since undergone an ordeal of permissions, approvals and changes of mind matching those of the British Library. This may be so, but now the project is scheduled to be executed in 1995, when there is one Germany that is a very different place.

Despite its world reputation, the Berlin Reichstag was the seat of government in Germany for only ten of the 100 years that have passed since its completion. Ever since 1894 the Reichstag, the creation of an otherwise unknown Frankfurt architect named Paul Wallot, has enjoyed a history dogged by misfortune. Now last year's competition for the transformation of the building, from which Sir Norman Foster and Partners emerged triumphant, threatens to collide with Christo's unique solution to all architectural swamps of lost opportunities. Not that any of this is Sir Norman Foster's fault, any more than it is Christo's. Nonetheless it does seem that the building is cursed, and that nothing will ever change its historic role as a grim reminder of the rise of Nazism and the terror bombing of Germany — not even the timely pre-production of this jolly book, ready last year, and now probably destined to go on selling till the end of the century. □

THE THREAT OF VIRTUAL REALITY

Sir,
Ever since I dubiously accepted one of your subscription offers I have repeatedly had occasion to wonder whether *World Architecture* lives on the same planet as other architectectural magazines. This was particularly the case when I read the rantings of Nigel Gilbert ("Condition Zero" WA26) about "Virtual reality". Now however I am beginning to wonder whether *World Architecture* might not be right, and all the other magazines wrong. When your own national heritage department announces its intention of digitising ancient monuments so that they can be viewed in "virtual" space after they have collapsed, been turned into supermarkets, or been demolished, then clearly the future is nearer to us than we might otherwise have expected from all that talk about "tribes" of secretaries living in the country.

In fact it seems to me, if my memory serves me well, that it was none other than your editor who first advocated this course of action at the Docomomo conference in Eindhoven in 1990. Then he was dismissed as a philistine, and that was by the defenders of Modern buildings! How different the position is now. There is, as Gilbert suggests, a tremendous future ahead of virtual reality — or more correctly virtual space — and, for architects, a distressing amount of it looks likely to come out of the budget once labelled "architecture". If all the sensory inputs of a great monument like Chartres or Saint Paul's can be simulated in a helmet, or on a large television screen, what is the point of endlessly renovating the original at enormous cost. Of course less active minds see the heritage issue somewhat differently. In my country as well as yours it is the anomalous tax status of alterations, demolitions and repairs to historic buildings is what triggers the interest in VR. Nobody seems to connect that potential with its ultimate destination, which is a miniaturisation of architectural space.

At a time when I am reliably assured that graduates from English schools are writing up to 50 letters of application for jobs every week, perhaps this is exactly what nobody wants to think about.

George Montfort
La Roche Guyon
France

PRAYER VERSUS VIRTUAL REALITY

Sir,
Excellent! Excellent! The juxtaposition of reactionary Polish church building with Nigel Gilbert's exploration of the consequences of virtual reality for full-size architecture (WA 26). Both articles showed the contradictory beliefs of their writers and countries with absolute clarity. Where architecture is still a powerful ideological tool in Poland, it is clearly already well on the way to becoming a conceptual backwater in England. Perhaps when all communications becomes image-based, there will be no need for full-size buildings at all. But when that happens which culture will get there first? Prayer, or digitised imagery? Thanks for showing us such an inspirational contrast.

Dr Mike Smith
Winchester.

DER RING DES CONTENTS PAGES

Dear Sir,
I am a German architect. Last week I saw your magazine sold openly on the on the streets of Salzburg.

I bought a copy. Very expensive. Now I must write to tell you that most of the contents of *World Architecture* is nonsense. It may be interesting to some people to see photographs of the work of ancient Oscar Niemeyer, a famous communist as I recall, but it would be far more relevant if your glossy journal abandoned its historical, futuristic and arty style and concentrated instead on the real world. Where are the reports on architecture practices in different countries, with up to date information on market conditions? Where is the deep coverage of state of the art building construction, with contemporary masterpieces dissected so that every single component can be identified and its suppliers contacted by phone or fax? Where are previews of forthcoming exhibitions and conferences? The themed issues dealing with offices, airports, hospitals, education buildings? Why is there almost no space given to interiors? Why is there not more use of architectural drawings in place of the ubiquitous and, I am sure, expensive colour photography that seems to be overtaking all real information like a plague? None of these elements is revolutionary. All are to be found in other magazines. *World Architecture* seems dedicated to following a quixotic editorial policy. No technical content. No contributions from professors or respected world architectural organisations. Only the servile worship of architectural photographers, articles by English artists and German, French and Czechoslovakian philosophers, a complete indifference to post-Modernism, and pictures of buildings destroyed by terrorists. I almost begin to believe that you publish everything that is sent in to you. Have you no standards?

Stefan Robbinz
Salzburg

OUT OF TOWN SURPRISE

Sir,
What are the consequences of out of town development for city life? It is surely far too simplistic just to say that the one kills the other and there is no turning back (Foreword WA27). What seems to me much more likely is that the present unacknowledged urban perimeter — made up of out of town developments, ring roads, motorway exits, bypasses and the like — will sooner or later become the acknowledged perimeter. Thus London will expand to fill up the interior of the M25, just as Paris has already expanded to occupy the interior of the peripherique. What we will get at the end of this process is not the beginning of an "even distribution of urbanism all over the world", but simply a much larger and better serviced typical city. This of course was what should have been allowed to happen when the size of the typical supermarket and shopping mall (with its carparks) outgrew what you insist on calling "medieval street plans". But it did not. The planners kept the big stores out then because they thought they were too big for the city: now it turns out that the city can still grow to engulf its previously out of town sites, and thus become big enough for them after all! A pity about the so-called "heritage centre" though. The hole in the doughnut I suppose.

Bernard Radmarck
Sheffield

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A LOST OPPORTUNITY

The city is a subject of inexhaustable fascination, to those who experience it, remember it, visualise it and hope one day to change it. Exhibitions can draw eternally on this interest, but sometimes, as Pierre Vago explains, the promise of the city leads to disappointment, as it did at the recent Centre Pompidou exhibition, upon which he reports here.

The city, art and architecture: what an exciting topic - even if I would have preferred another, less limiting title. Even if I regret a little that other limitation: "in Europe". I can well understand that an exhibition cannot present a history of the city from Antiquity, or indeed prehistory. The choice of starting point will always have to be arbitrary. The organisers have chosen 1870. Why not?

But what an unique opportunity to present to the vast public that visits the Centre Pompidou in Paris the problems of the modern city and the solutions that architects have tried to find for them - as have those, who for some time now have been called "town-planners". The problematic of the twentieth century city in its various aspects. The diversity of situations: from historic cities to new towns. From medium sized cities to the megalopolis. Cities which have developed harmoniously, and those whose growth is almost impossible to direct or control: sick cities. (There are such cities in Europe, too, without having to look to the Third World.) To show how people have tried, how people have sought to make possible, and even agreeable, the life of men, women and children in these urban agglomerations – small, middling, large and monstrous. How you can get around them. How you can maintain (or encourage) the essential urban function: human relationships, meetings, communication. How you can respect the past while being in the present, and planning for the future. How you can preserve, or re-introduce, Nature. How you can create Beauty, without introducing arbitrary constraints.

And how has the town been seen, how is the town seen, by artists? The town seen by painters - and by photographers? And how are painters, sculptors, landscape artists and other creative workers integrated within it?

Even if one leaves aside the nonetheless fundamental political, social, technological and economic aspects ... and one could go on ...

But let us get on to Beaubourg, and join the queue. The exhibition occupies the whole length of the Grande Galerie on the fifth floor. But alas! It is cut in two, down the middle, along its length. On the one side, the architecture, on the other, the art. This is, obviously, the most simple solution. The easiest. The most basic. The most disappointing, too. Two organizers, and no coordinator. A pity.

I will speak only of the architecture, or rather, the town planning and architecture, because there is very little architecture in the whole series of city plans (Vienna, Berlin, etc.) presented on the walls. These are above all beautiful drawings: here I am speaking of the older ones, and not the graphic lucubrations of some of our contemporaries, which will excite only the trendy.

As the visitor cannot judge the intrinsic virtues of a development plan put forward at the beginning of the century for a capital city or metropolis he doesn't know, there remains only the quality of the drawing, a certain image. And it is clear that the organizer of the exhibition was interested above all in the drawings he was able to obtain, and in the original if possible. The long walls are covered with hundreds of documents, forming a heterogeneous mosaic of rectangles of different format. I didn't succeed in discovering any logical order. The rare texts, unhappily very fragmentary, superficial and (physically) difficult to read, could certainly not be considered to be educational. Often they did not even allow the images to be identified. I often could not find the legend corresponding to such and such an image. (For example, I thought I recognised an aerial view of the Drancy towers, taken by Marcel Lods, also there without any apparent reason, without explanation or identification.)

The exhibition is limited to Europe. This explains some regrettable absences, as important as Chandigarh, Brasilia, Navoi and so many others; but it doesn't excuse the absence of Marle, Wulfen and Louvain-la-Neuve, and why not some French examples? (Are Canberra, Philadelphia etc. in Europe?)

The exhibition includes neighbourhoods, details, sometimes even single buildings. Here again the choices are surprising, and naturally, unexplained. (In fact: are these designs of buildings already made? Proposals? Utopias?) And why present projects from the IBA Berlin 84, where there was no urban planning work, while neglecting IBA 57, which after all produced the Hansaviertel?

There are so many lacunae to regret, and yet I have wondered what was the function in this exhibition of photomontages of the Niagara Falls, desert views, pictures of a family, and charming fantasies, "whose meaning was obscure to me" as Dante would have said. Or those clever sketches, the already old-fashioned graphic games which can only disconcert the visitor without teaching or contributing anything.

I left disappointed and discouraged. All that hype for a fine opportunity completely missed.

The city, today, tomorrow? That exhibition has still to be organised. □

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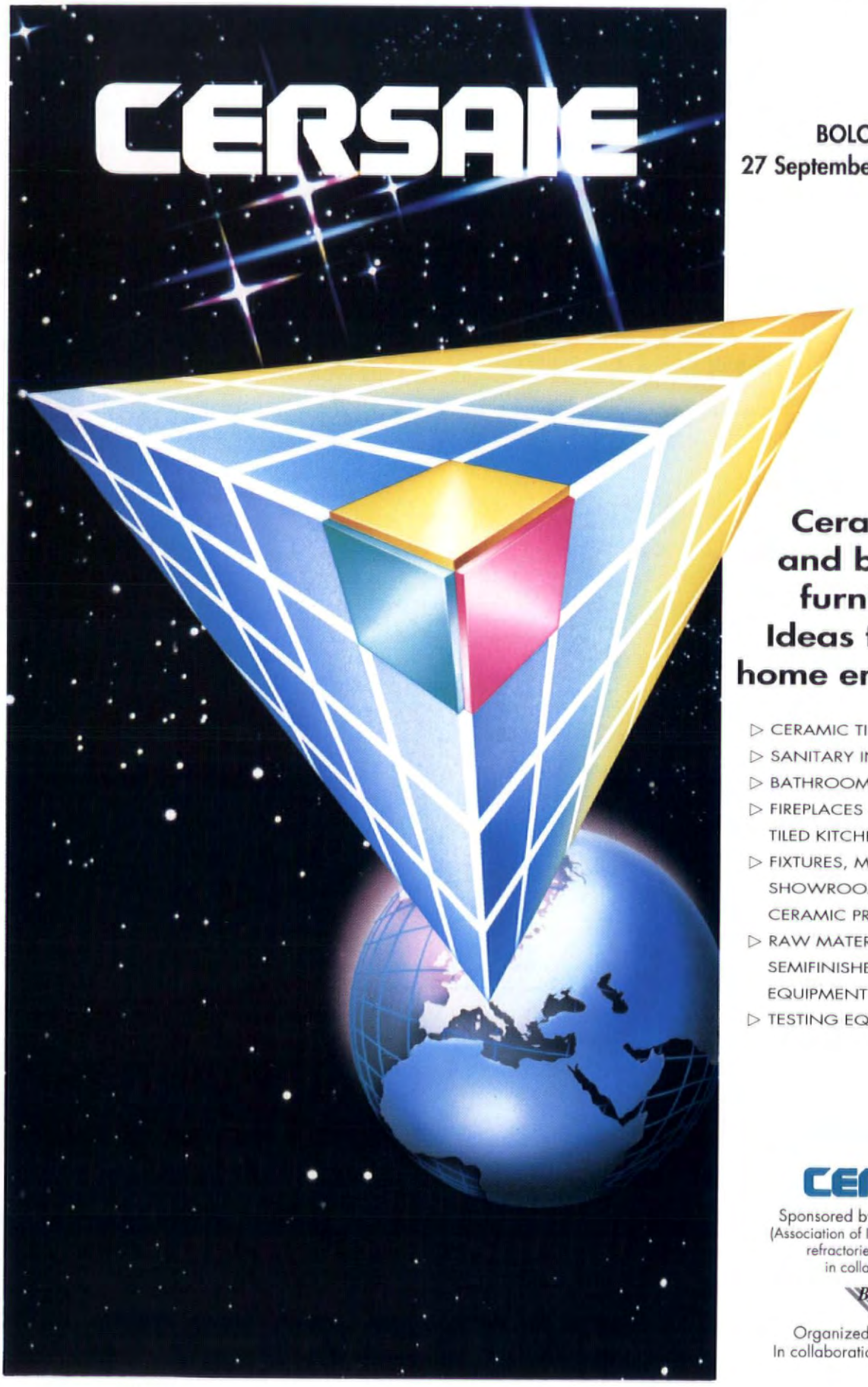

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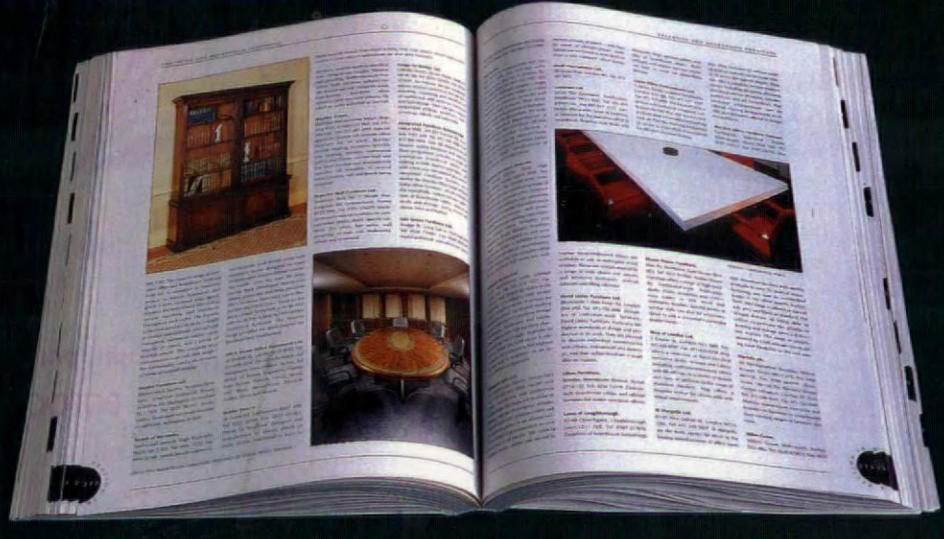

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