ARCHITECTURAL DESIGN
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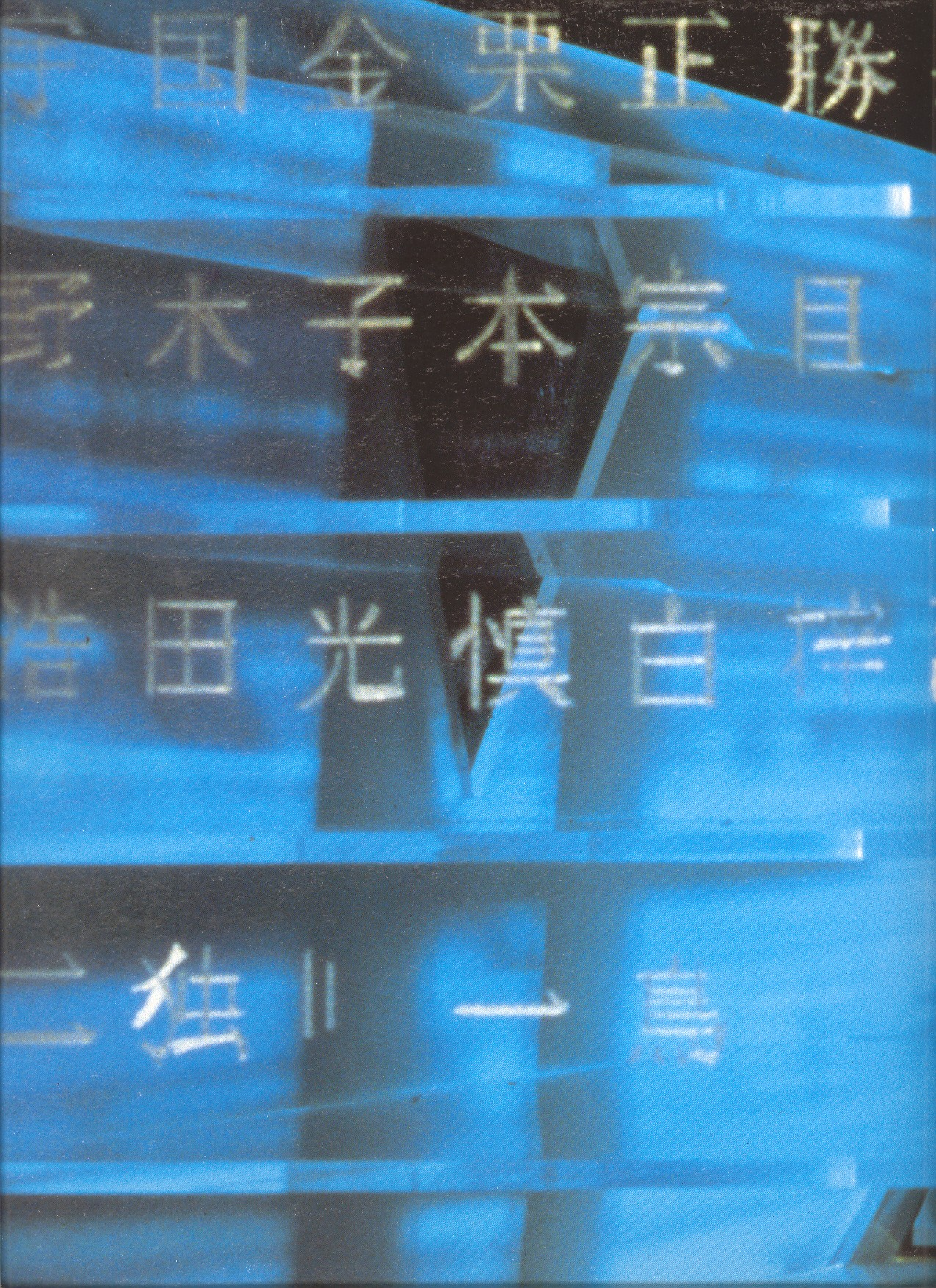
ARCHITECTURE AFTER GEOMETRY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ARCHITECTURAL DESIGN
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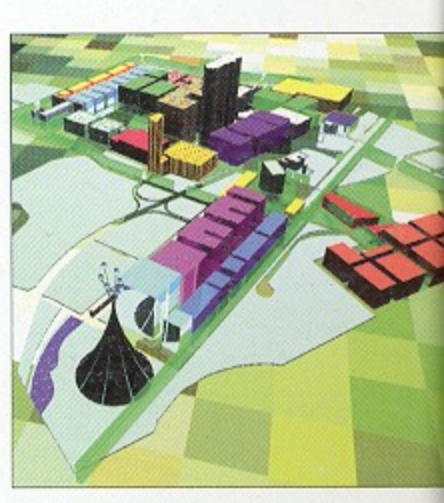

Michael Petry, *The Binary Tower*, a project for Expo 2000 in Hanover

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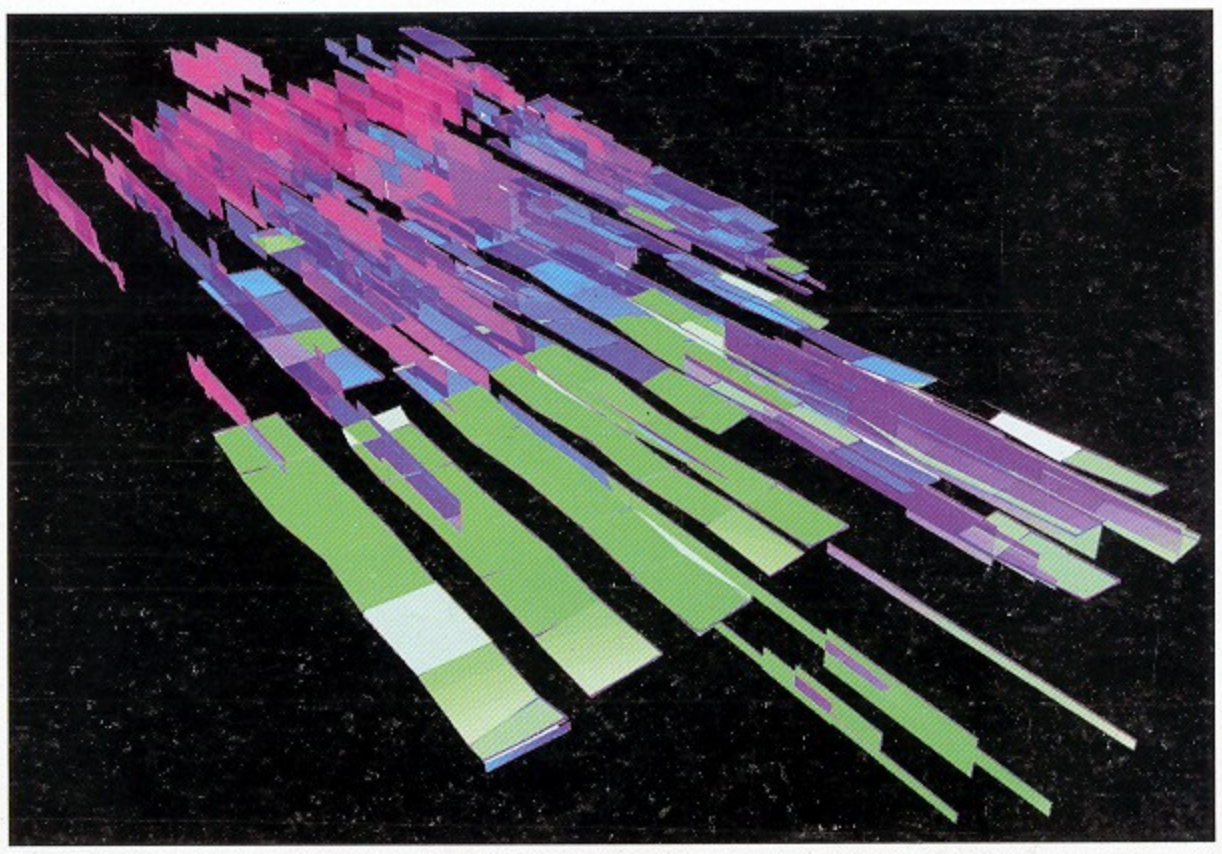


.O.C.E.A.N. U.K., Arabiananta Urban Design (phases 1-3), Helsinki

BATTLE McCARTHY

MULTI-SOURCE SYNTHESIS

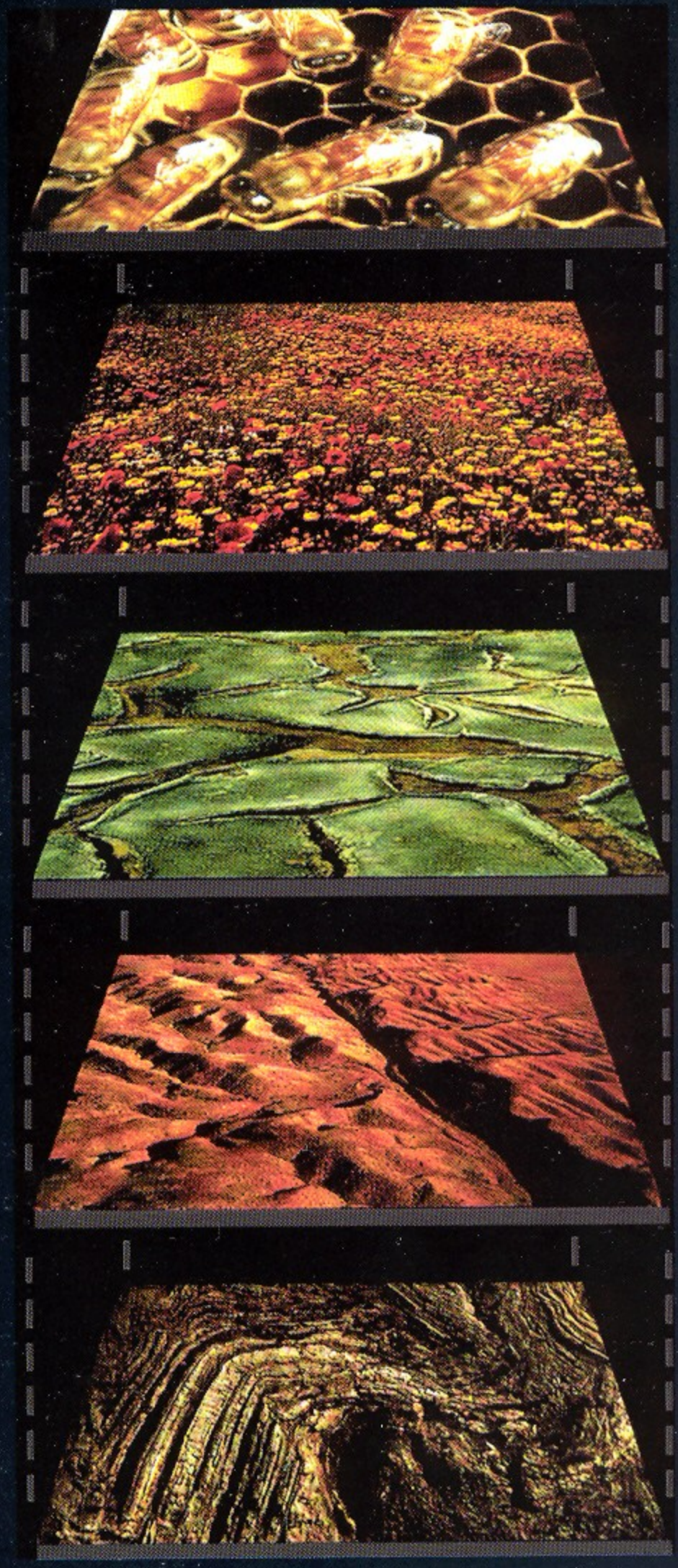
Working with the Elements

Around the turn of the Millennium the . . . population will change from being predominantly rural to being predominantly urban. This compared with 14% urban dwellers at the end of the 19th century, giving an indication of the problems facing the infrastructure of the present city. By the year 2000 it is predicted that 22 cities will have a population of over 10 million, with three of these cites over 20 million.

Statistics from the *Gaia Atlas of Cities*

A response to overcrowding in cities was first apparent in the mid-twentieth century when the transport revolution made it possible to develop new towns and satellite cites within commuting distance of urban centres. In Britain, in the 1950s, 13 new towns were developed. Many of these later proved to be flawed as they had been born on the drawing board rather than evolving as a consequence of human needs and site restraints. Ideological reasoning, rather than a true understanding of the existing ecology of the site or the consequences that a new development would have for an area, often dictated design issues. For example, Cumbernauld in Scotland was built on the summit of a hill with the high street facing the direction of the prevailing wind, producing considerably more exposed conditions than traditional town design. However, these new towns in Britain became a model for planners all over the world, with traditional building systems and devices which responded to climate, ecology and 'way of life' often being ejected.

It is now clear that a new system of masterplanning is necessary if all the particular parameters underlying the development of a new town are to be understood. The designer can then approach the problem from a pluralistic point of view. A more suitable approach to masterplanning is to understand the site on a number of levels so that the town can be designed to work positively with its natural elements. This gives architects/masterplanners a guide onto which they can then project their vision of a town on an ecological basis, by insuring the appropriate site responses and developing a policy of sustainability.



ABOVE: Engineering tools can give an eco-logical understanding to site analysis. An analytical layering system can provide a pluralistic view of the various strata to the site. Layers from above are: fauna, flora, hydrology, topography, geology and soils

Form Finding: Layering

When addressing a brief it is important to have a thorough understanding of the site before conceptual and ideological concerns are considered. An engineering approach to masterplanning can give the site analysis an ecological basis. A matrix of analytical data can be created with a number of layers representing individual factors such as hydrology and topography. This method allows each to be clearly shown and easily understood. The combination of these layers can then point to the virtues of the site and its natural values can be enhanced. The layers are determined under the following headings, and organised to give a cross-sectional view of the site.

Fauna: By monitoring and recording the type and location of the wildlife of the region, the make-up of the natural habitat can be preserved. It is important to prevent a change in the ecosystem of the area as this can often have far-reaching consequences. Provision should be made for animals such as badgers and rabbits as well as hedgerow animals such as wood mice, shrews and voles. Existing waterways may contain fish, frogs and newts and the habitat of the local birds should also be addressed. One solution is to create a golf course within the new development, thereby creating a safe habitat for wildlife.

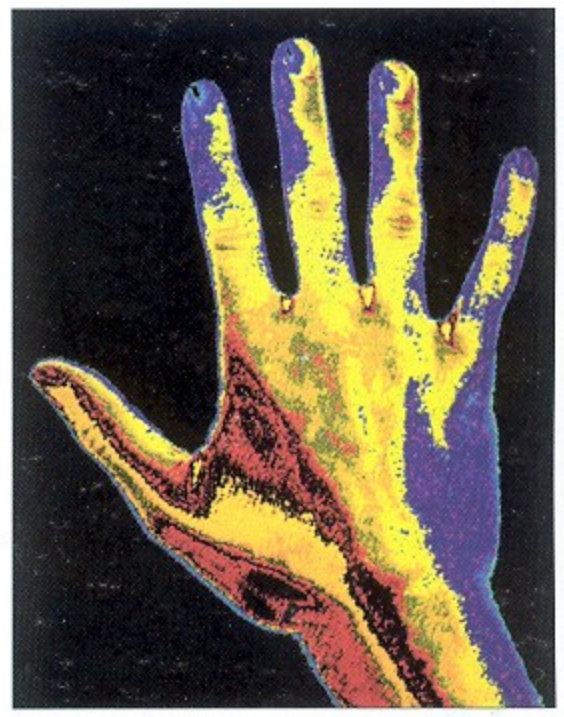
Flora: The species growing on the site and assessed for their visual and physical condition. Woodland, grasslands and hedgerows along with their relevant fauna should all be plotted to allow the designer to produce a landscape which is maintained by the existing ecology. Vegetation can provide a significant level of shelter and it is prudent to maintain the existing vegetation, not only for ecological reasons but because it reduces the cost of replanting and avoids having to wait for new vegetation to grow.

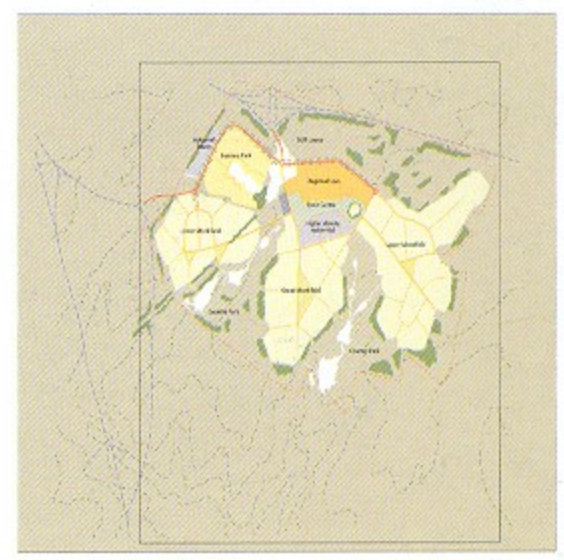
Hydrology: The water table and the natural watercourse across the site can have many implications for the form of the masterplan. Balancing ponds, for example, can ensure a manageable degree of irrigation, as well as acting as a reservoir for summer water supply. Canals between these ponds can also act as a water supply, produce attractive public spaces, and provide a means of transportation. Water is also a feature of innovative new environmental technology such as heat sinks and evaporative cooling. Waterways and ponds provide a natural habitat for many types of fish and wildlife, while fish farms provide an economic resource for the community.

Topography: The topography of the land is instrumental when planning the infrastructure and location of the residential/commercial areas and the landscaping. It should be developed to encourage passive environmental design. There are many advantages of positioning residential zones on south-facing slopes, including solar gains, protection from the cold north winds, natural irrigation, and allowing storm water to run off into the valley – where a country park could be located. The density of the housing should also be carefully planned: high-density housing should occupy the south-facing sites, whereas low-density housing can occupy north-facing sites, as a large plot allows the building to be rotated to face south.

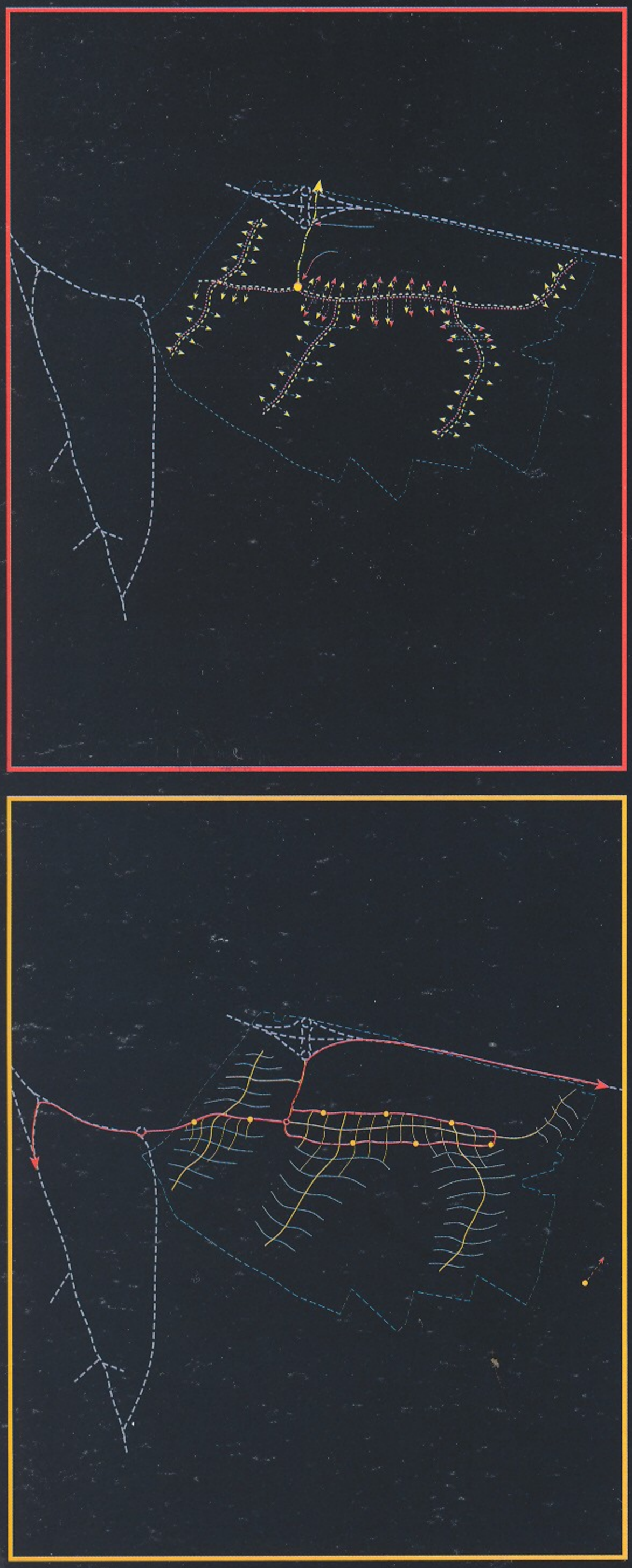
Geology and Soils: The permeability and geology of an area also have a determining role in the positioning of elements throughout the site. It is preferable to build in areas with good drainage and avoid those where water erosion will occur. The clay content and base rock depth will all indicate preferable locations for the town.

This method of analysing the various eco-logical factors that make up the site gives an opportunity to design an infrastructure that works with the natural elements. This has many obvious advantages such as reducing infrastructure and running costs. It should also ensure that a policy of sustainability is adopted, though the success of this relies not only on the systems being set up but on the inhabitants understanding their implications.





FROM ABOVE: Finger plans allow green belts to stretch into the centre of the town, between the 'fingers' of urban development; Cambourne masterplan, Terry Farrell and Partners; Parcbit, Majorca – topographic model, Richard Rogers Partnership



Interactive behaviour maps allow the designer to produce a policy of sustainability for a new town: red plan = energy; blue plan = water; orange plan = transport; green plan = landscape and ecology

Form Finding: Colour-Coded Behaviour Maps

The foundation of rural 'settlements' was based upon an assured food supply from the surrounding countryside. Limited by local restrictions, these settlements developed into towns and cities trading across the country and abroad. Trade and industry are now their backbone. With increasing urbanisation this has dangerous consequences: cities and many countries (for example, the United Kingdom) no longer produce enough food to feed their own populations, relying instead upon trade. To create a balance, a policy of sustainability should be adopted for every new town. Central design themes of sustainability are energy, water, transport, landscape and ecology.

Energy: A community settlement of approximately 15,000 will spend approximately £3 million per annum on energy for heating, cooling and lighting. This conventional design approach will result in the production of approximately 30,000 tones of carbon dioxide and 150,000 tones of sulphur. A sustainable energy strategy involves processes such as Combined Heat and Power, Energy Peak Looping or an Energy Power Generation Strategy. Fuel crops are already extensively used in Europe as an alternative energy source. Coppices are grown on a three-year rotation and harvested in January and February, allowing existing farm machinery and labour to be utilised.

Water: Water should be divided into two categories: fresh water (for drinking) and grey water (for use in bathrooms, etc). Reed bed filtration and sewage treatment are able to convert black water to grey water, providing a means of recycled water. Lakes can act as a form of water storage collecting ground water, which can also act as a heat sink to store energy and support a fish lake.

Transport: Non-vehicular forms of transport should be encouraged and bicycle lanes and paths provided. An efficient, broad-based public transport system can encourage a reduction in vehicular use, although it is impossible to avoid the fact that cars will always have a place in society. The car should not be discriminated against, instead creative traffic planning should be adopted. This involves setting up control systems which alter, depending on the time of day or week and public holiday. These devices can constantly monitor vehicle flow and adjust it accordingly. They should not be seen purely as a means of reducing the weight of traffic, as traffic congestion on a high street can also be seen as a means of reducing speed.

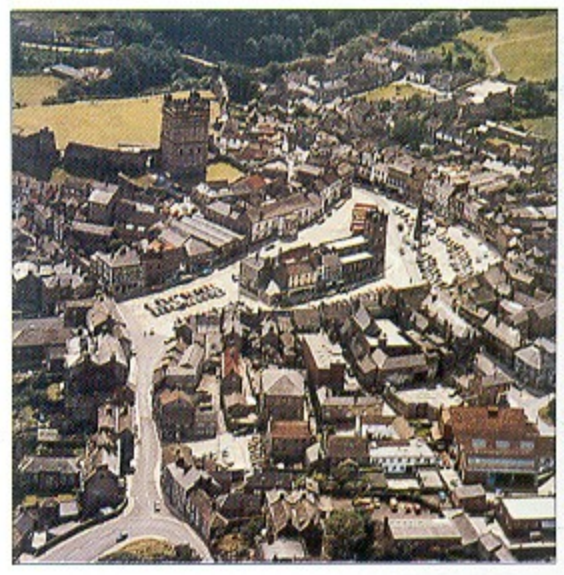
Landscape and Ecology: Landscape should be given a useful purpose whether it is for producing crops, for nature conservation, climatic control or ornamentation. Productive areas can be allocated to grow fuel or food crops. It is also important to provide a suitable area of vegetation for wildlife. The landscaping of an area can also create changes to the microclimate, such as providing shelter belts.

It is the role of engineers to predict the effect that an action will have on our environment over time. Computer software has been developed that enables urban designers to do this. The computer can provide designers with a series of interactive behaviour maps associated with energy, water, transport and landscape/ecology for a particular site.

Spatial Analysis

The study of settlements shows that countries and, indeed, regions have developed different forms and hierarchies. These have evolved due to a wide range of perimeters from environment and climate, to security and society. There are therefore no universal rules for producing a good town design but the emphasis should be on producing an appropriate one.

An example of the danger of imposing unsuitable generic forms is the difference between British and continental settlements. Typical continental settlements are defensive in nature, either being walled or having a perimeter road. This provides an efficient means of distributing traffic as well as producing a feeling of enclosure. A typical English village, however, is linear in form with a high street running through it. The high street is particularly important in social terms and the 'ring road' form is unsuitable for providing the hierarchy that the linear form generates.



FROM ABOVE: Richmond, Yorkshire – informal plan with market street and 'fingers' of landscaping entering the town; Egushien, Alsace – defensive continental settlement where no green space is possible.

TOD WILLIAMS, BILLIE TSIEN AND ASSOCIATES

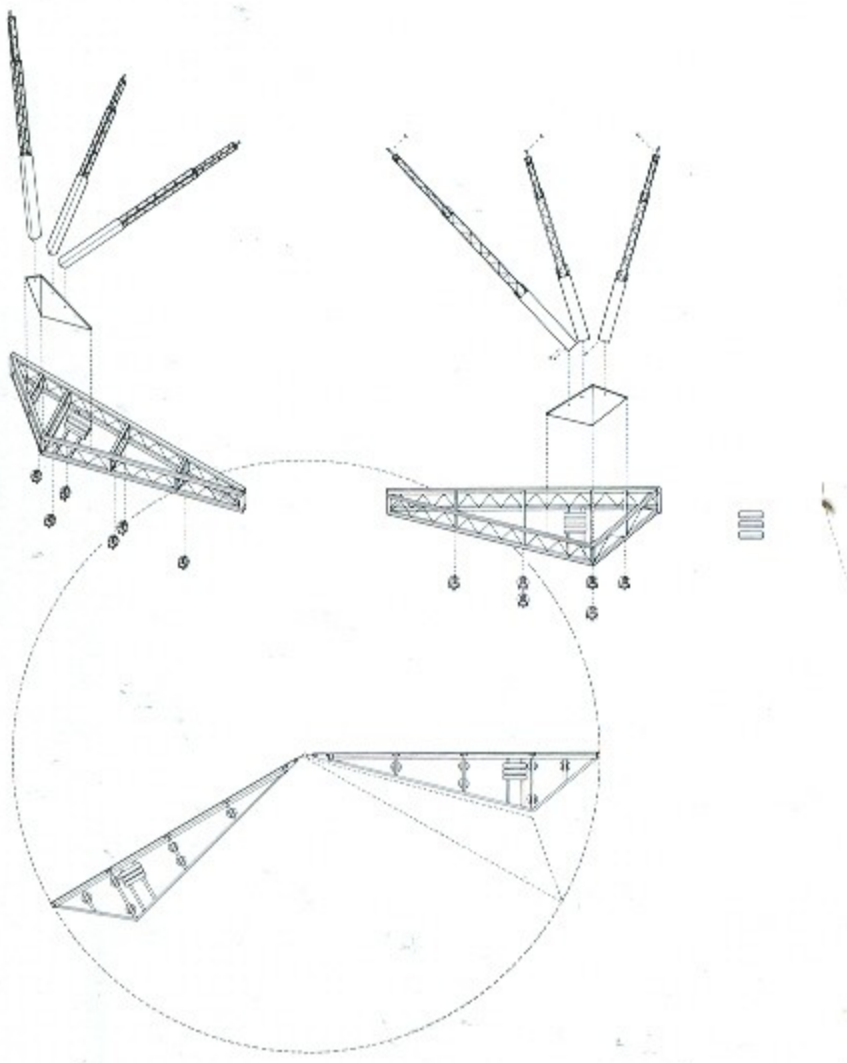
THE WORLD UPSIDE DOWN

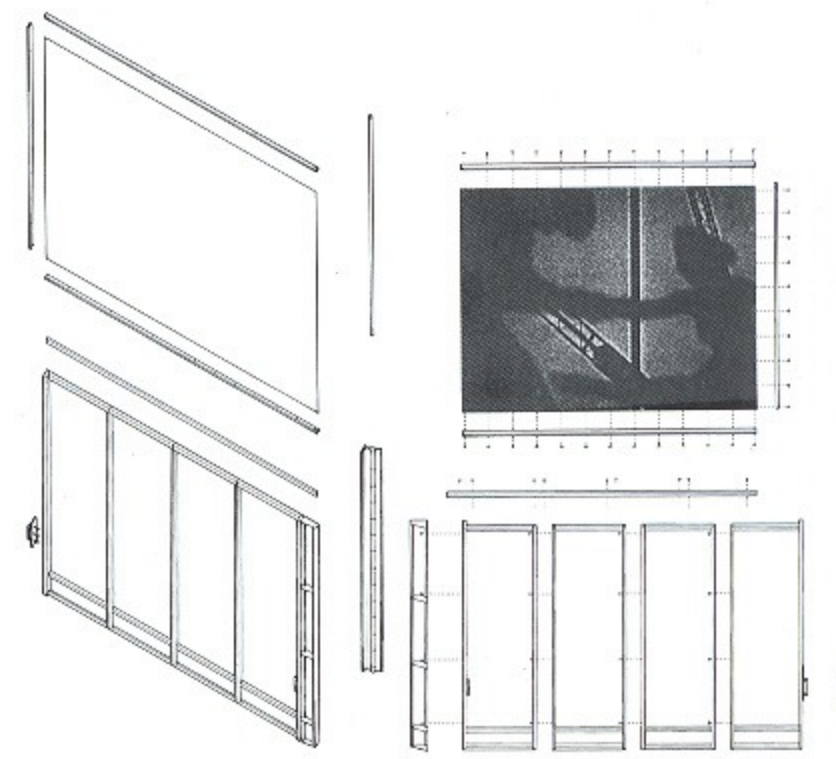
Stage and Costume Design

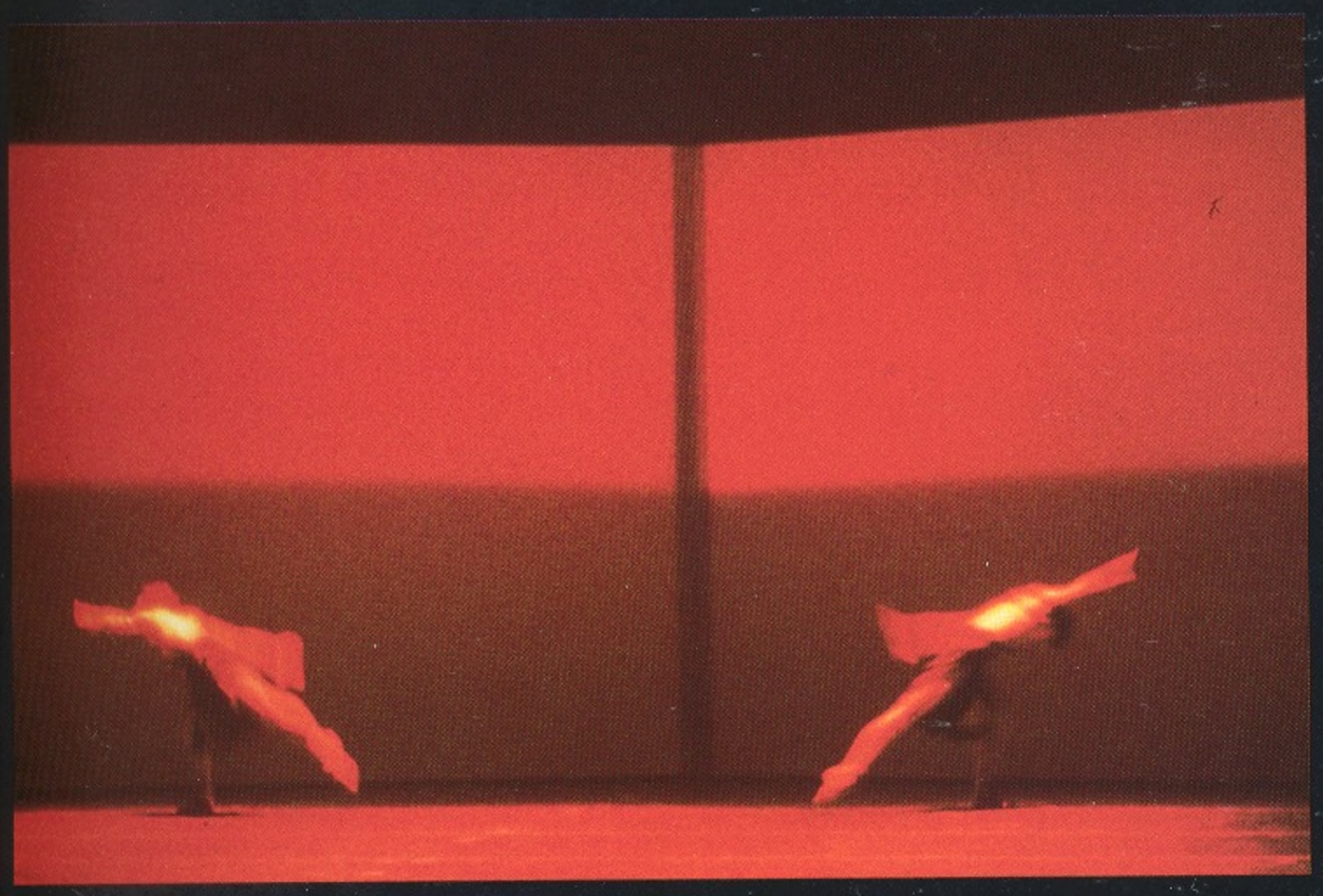
This project is a collaboration with the composer Glenn Branca, the choreographer Elisa Monte, and lighting designer Craig Miller. We designed both the sets and the costumes which were used first at the Hetmuziek Theatre, Amsterdam, and then New York City Centre. The set is essentially a large folded screen which is supported and structured by lightweight aluminium members. It can open flat (as in a traditional backdrop) or close (350°) itself into a wedge shape which can be rolled and cantilevered (half its folded length) off the stage over the orchestra pit. It can be both opaque and translucent to accept or transmit shadows. In its movement on stage the screen becomes simply another dancer. The costumes are simple black two-piece units, worn in various combinations. They have a lining which glows with fluorescent paint. Fluorescent panels that hold the shadows of the dancers rise and fall.

The project is inspired by the idea of a social order transformed. In such a state the outcome is far from certain. That which is normally in the foreground retreats and its shadow emerges. We have created a reversal of order and expectation to involve both dancers and audience in an open dialogue of movement and space.

It is this premise which informs this collaborative act. Elisa Monte, known for using artists such as Louise Nevelson and Marisol to create sets and to commission original music from composers such as David van Tiegham, initiated the project and, as architects, we sought to mediate the territory between music and dance. While our initial instinct was to situate musicians on stage as a vertical backdrop, this idea was abandoned due to the difficulty in cuing between conductor and musician, the loss of sound quality in the fly above stage, and ultimately to a requirement for the dance to be performed in many instances without a full 60-piece orchestra. Released from the constraint of preconception, a simple idea emerged – that of rethinking the premise of the most simple of all sets, the backdrop. Through a series of meetings and paper models we developed a hinged screen which, when opened, utilised the full range of space within the stage. Sensitive to music, to light and to movement, the set became in effect another dancer to be choreographed by Elisa Monte. With one side flat and the reverse exposing its structure, the audience will instantaneously be backstage, witness to the transformation of dance and to the world upside down.

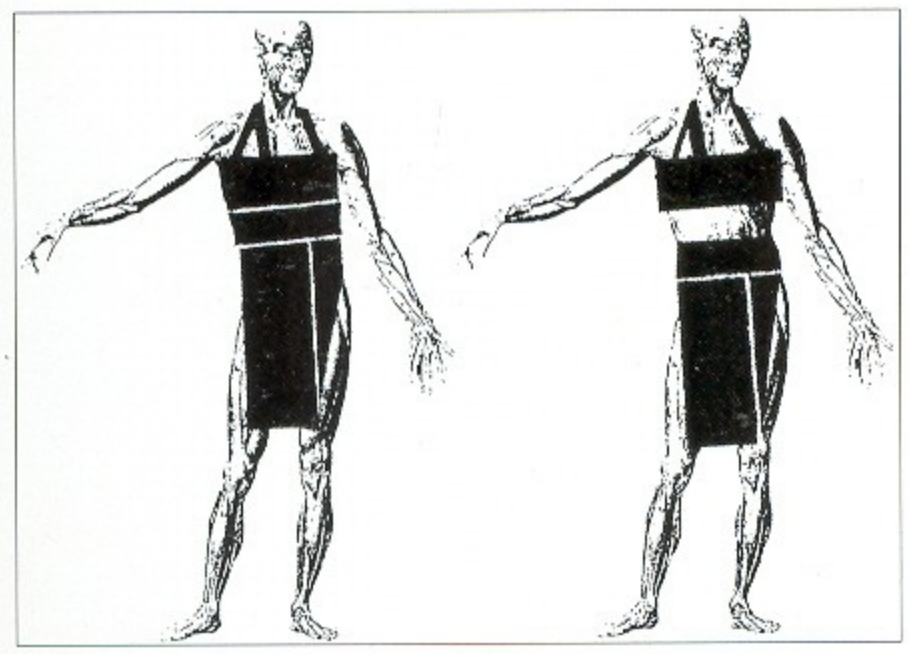


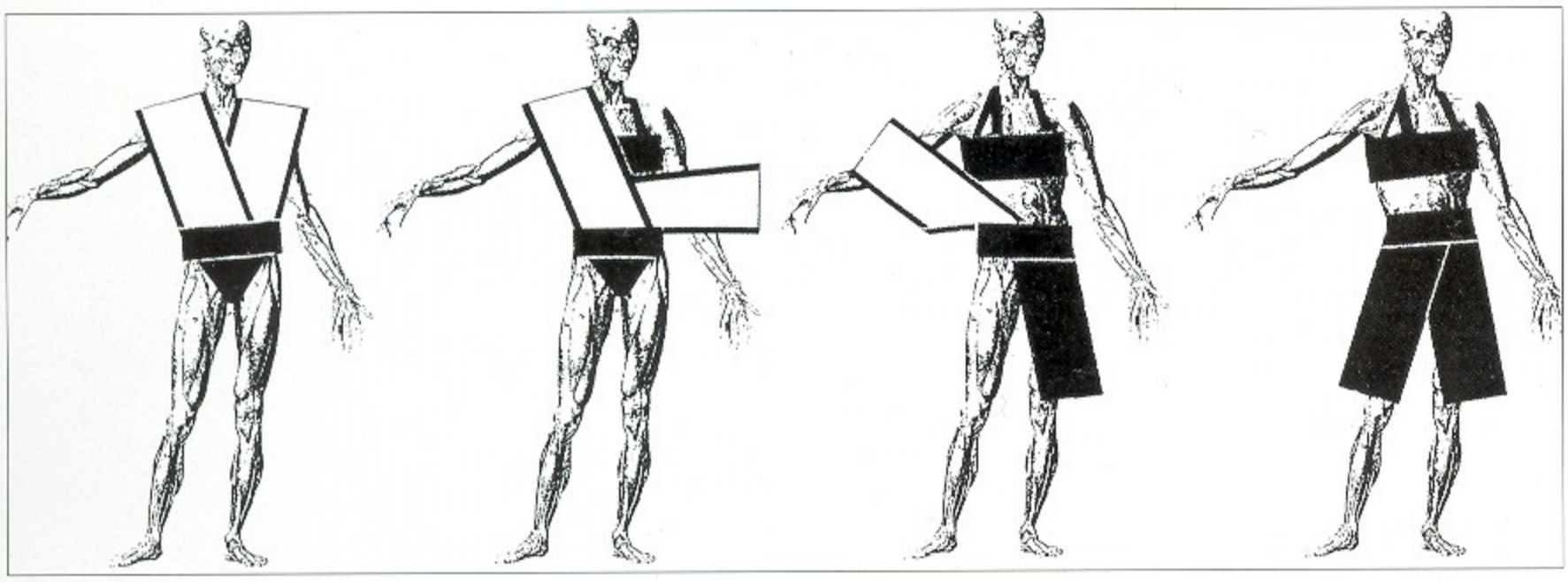


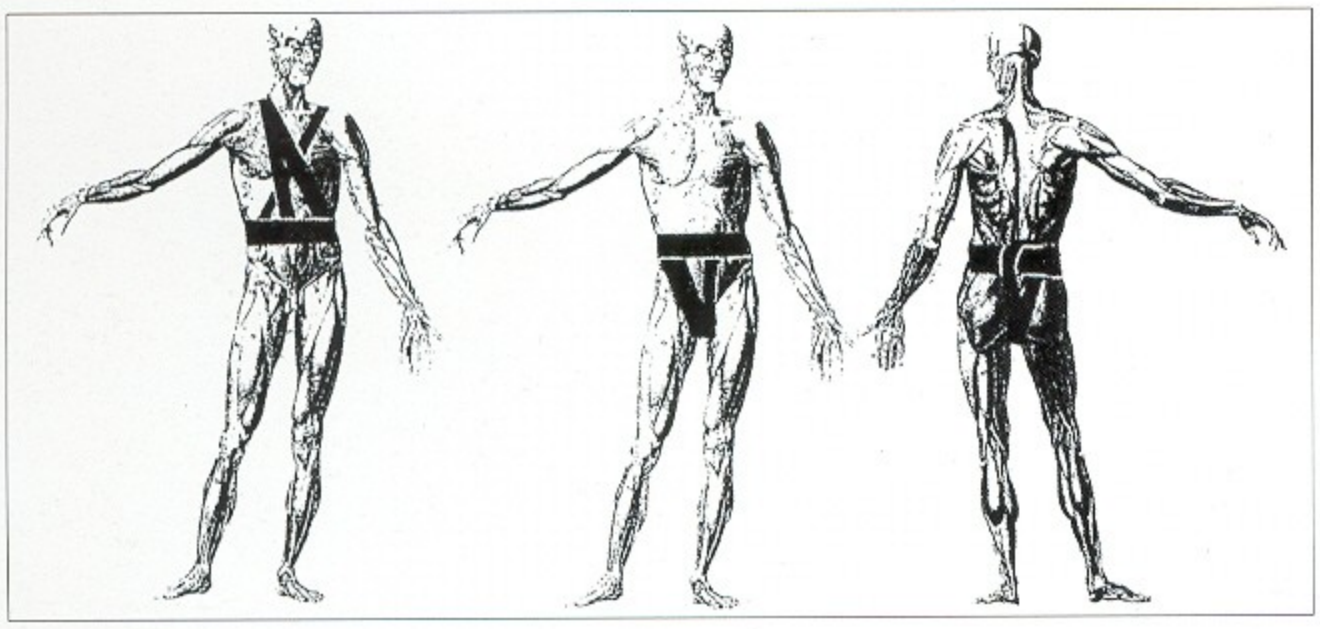


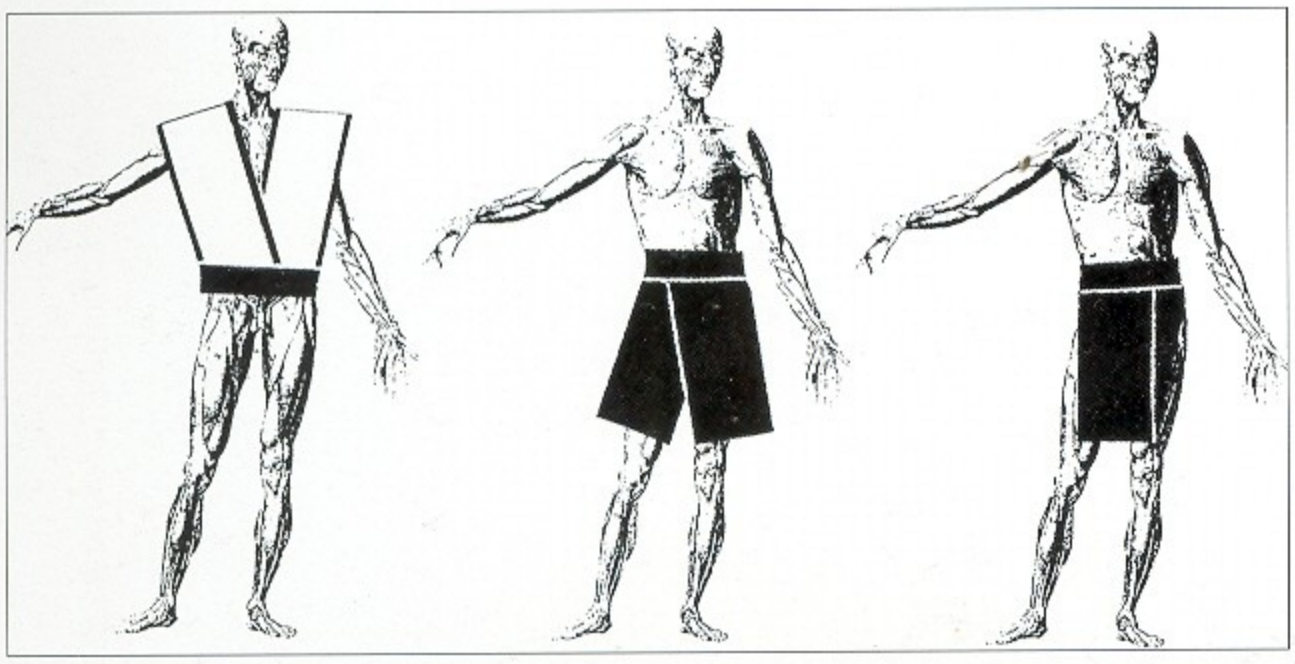
The Set

While the first idea was for a canvas replete with wooden stretchers, this soon changed to a theatrical scrim covering a telescoping steel frame. Ultimately, both the canvas and scrim properties were found in a translucent, heat-weldable rear screen projection plastic attached to a lightweight three-dimensional aluminium truss. (We were fortunate to be given many intelligent suggestions by the set construction shop personnel of the Hetmusiek Theatre.) A piano hinge allows the frame to be folded and the tricasters attached to the underside create enormous possibilities. The set is light enough to be lifted by stage lifts, easily movable by one to three dancers, and can be inverted while moving a full 340° and is capable of cantilevering more than two-thirds of its folded length beyond the edge of the stage.









The Costumes

Remembering our older son's provocative teenage habit of wearing sweatshirts as pants, it was this literal reversal which then suggested similar costumes and transformations. Lightweight jerseys could be worn as pants or with a swift motion inside out, become tops. Another idea again emerged from observations of everyday life, in this case from a visit to the Queen's Museum of Science and a coincidental observation of our younger son, Kai's, sneakers. The result was the use of fluorescent paint inside the jerseys, creating, as with the set, a palpable difference of one side to the other. Dancers are therefore able to create shadows on the glowing background of their own bodies or on glowing screens dropped from the fly.

The Whole

While controlling so many elements in time and space may seem a daunting task, it is a precise formula for the potential of the architectural act. No single person or event should presume to be centre-stage but for a moment, yet each must seize the moment with the humble knowledge that each one plays a critical part in the ever-evolving play of life.

QUIET LIGHT
Akari *Exhibition Design, New York*

When Isamu Noguchi began designing his *Akari* in the early 1950s, he had already achieved a reputation as an important sculptor. The Mayor of Gifu had requested his help in reviving the industry of paper lantern making, since this was the town's primary source of revenue. Noguchi designed a metal frame that allowed the *Akari* to be freestanding rather than just suspended, and these first lamps were produced and sold in the United States as well as in Japan. For over thirty years he regularly produced a new design with the craftsmen.

Although the forms were new, the technique was traditional. Wooden forms were used as moulds around which the mulberry bark paper and thin strands of bamboo were wound. As Noguchi worked with the lantern makers to develop the new forms, we like to think that he was producing a kind of inside-out sculpture.

He called these pieces *Akari* (meaning light as illumination) and saw them as two sculptures, one that produced light, and one that reflected existing light. They, and various knockoffs, were immensely popular as young couples bought them in the post-war years to light new houses. At the time Noguchi was severely criticised for demeaning the integrity of his art with commercial interests. Noguchi answered his critics by saying that he was allowing people who were not wealthy to buy a piece of his sculpture and at the same time, light their homes. He commented: 'It only takes an *Akari* and tatami to make a home.' To anyone who has ever sat in the warm and gentle light of an *Akari*, this is perfectly clear.

It is this issue of the 'reuniting of art with life' that is so important to us. It is the simplest definition of the kind of architecture that we wish to practice. One senses this walking through the Noguchi Garden Museum in Long Island City, as Tod and I and Kai, our son, often do. We pretend we live there and take turns dividing up the studio into living and working quarters with Kai always taking dibs on the second floor gallery with the block and tackle hanging out of the large window. We sit in a courtyard that is both contemplative and a work space with a loading dock below the block and tackle. Here, work and life are blended. Noguchi's studio has become a museum. His partner, the architect Shoji Sadao, continues to practice in an office they shared. A huge round *Akari* hangs over a round kitchen table where meals are prepared and where we shared lunch with Noguchi and members of the studio a few years before he died. Art and life feed each other.

So when Bruce Altshuler, the Director of the Museum and the Takashimaya Department Store, asked us to design an installation of *Akari*, we were inspired by the ethic that we felt so strongly in his work. We wanted to design an installation that would merge the issues of art and life and that could convey the same message to others the *Akari* does to us.

Working with Eric Johnson, the curator of the *Akari*, we were able to inspect the lamps in current production, discontinued lamps, and a number of one-of-a-kind lamps, some of which were made of silk and produced for the Venice Biennale. Each lamp had a strong presence, a clear personality. With that thought we commissioned Lisa Clifford to take portraits of the lamps we chose for the installation. Each lamp became a character: the Shinto Hat Ghost priest, the huge worms, the herd of spotted cows, the homage to the endless column, and the wasp-waisted Vermeer woman.

Japanese department stores traditionally incorporate an art gallery into their spaces. The exhibition was to open on the ground floor of Takashimaya on Fifth Avenue in mid-summer. We wanted to give people entering a strong sense of departure from the heat, noise and commercial bustle of the city. We named the show *Quiet Light*.

We had been experimenting with fibreglass as a material for the sculpture pavilion at the Phoenix Art Museum and saw this as an opportunity to continue the research even though the scale was different. Translucent and comparatively inexpensive compared to glass, this material can be tinted different colours. A few blocks from the Noguchi Museum we found a small art fibreglass and resin factory named Roco Noto. Surrounded by huge fibreglass moulds of football players, cast plexiglass sculptures of naked, pregnant women, pieces of ornamental cornice and two huge Doberman pinscher guard dogs who left their tell-tale hairs in all the work, were a couple men in masks laying up fibreglass chop and

resin. We had five bent shapes made up in galvanised metal and used these as forms to make panels with a sight bend that allowed them to stand up and provided rigidity. A simple system involving wooden dowels and black rubber grommets allowed the screens to be assembled and disassembled for transport. The screens were tinted pale blue and amber – water and fire – and were used to make paths and chambers for the visitors and the *Akari* to inhabit.

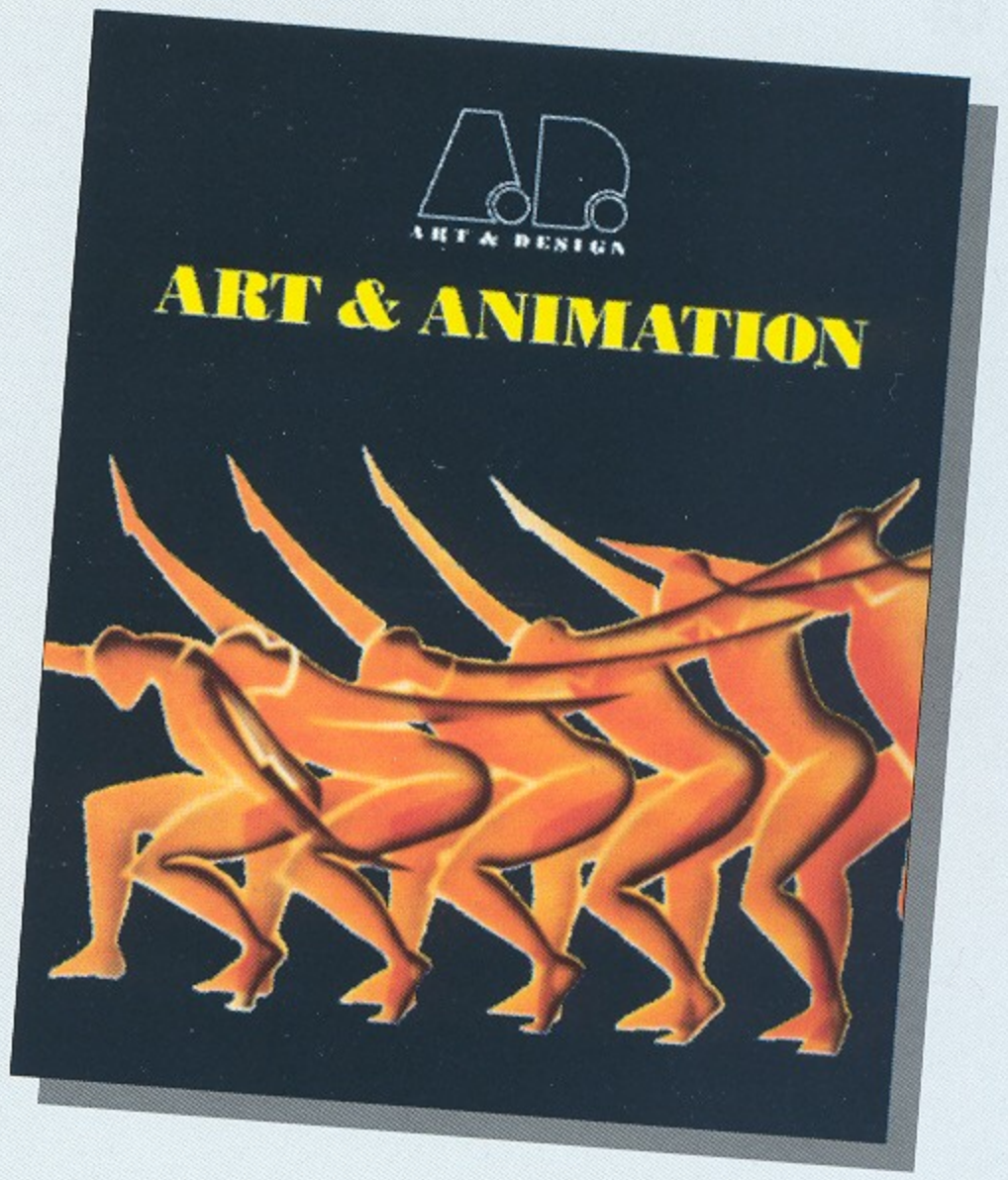
We knew that we wanted to create an equivalent of a garden. Although we could not use water in the installation, we wanted to give the sense of a flowing movement. A long narrow platform was constructed and we decided to fill it with obsidian – black volcanic glass that would glint and convey a sense of subdued reflection. The samples we had were beautiful – black and shiny. We ordered 270kg of it and all 270kg were delivered to the Fifth Avenue store. We opened the bags and thought that there must have been a mistake; inside were dusty brown lumps looking more like dirt clods, bearing no resemblance to the black glass. If we scrubbed each rock with a brillo pad they began to look more like our sample, but this was clearly not a possibility with 270kg. We hired a power washer, the kind they use to blast dirt and bubble gum off pavements and met at 6:00am to try it on the obsidian. Wet dusty clods were the result. Finally, the very formal head of the Takashimaya Art Department came up with an idea: why not use Wesson Oil? We rubbed the oil on the obsidian and it glistened like it was always supposed to glisten. For the next few days the ground floor of this elegant store looked like the site for some kind of tribal ritual. We collected as many old T-shirts as we could and had institutional sized containers of Wesson Oil at our sides. Between 15 and 20 people from our office and from the Takashimaya store squatted in front of the low platform and poured Wesson oil into T-shirts filled with obsidian and proceeded to grind the T-shirts in circles on the floor until the obsidian was perfectly shiny (and oily). The result was a beautiful 12-metre-long black watery stream of glowing black glass leading visitors into the exhibition, or as someone in the office called it, possibly the world's largest hibachi.

This, then, is the reason the stones are so shiny. As for the screens, we tried to make objects of beauty and of use in one's life; they transmit the light and shape of the *Akari*. Both they and the *Akari* give quiet light. We hope that Noguchi would approve. (The show also travelled to a number of museums.)

ART & ANIMATION

Art & Design Profile 53

Guest Edited by Paul Wells



As a genre, animation is currently receiving serious attention from art, film and cultural critics. This profile addresses how fine art and the animated film interrelate. As witnessed by the recent huge success of the characters Wallace and Gromit in Oscar winner Nick Park's *The Wrong Trousers* and Disney's innovative and technologically masterful *Toy Story*, animation is now becoming a force to be reckoned with at the box office.

Art & Animation looks at subjects such as Walt Disney and classic animation; exciting developments in European animation; the extraordinary success of Japanese Manga films; the connections between animation, dance, computer graphics and the puppet theatre; together with the role of animation in art education. It includes features on veteran Disney animator Zach Swartz, Oscar winner Nick Park, ex Monty Python Terry Gilliam, dance animator Erica Russell, Simon Pummell and many more.

This is a particularly visual profile, combining stunning stills with contributions from a host of critics as well as the animators themselves.

Dr Paul Wells is Principal Lecturer and Subject Leader in media studies at De Montfort University, Leicester. He has made a number of film-related series for BBC Radio and has written widely on aspects of comedy and animation.

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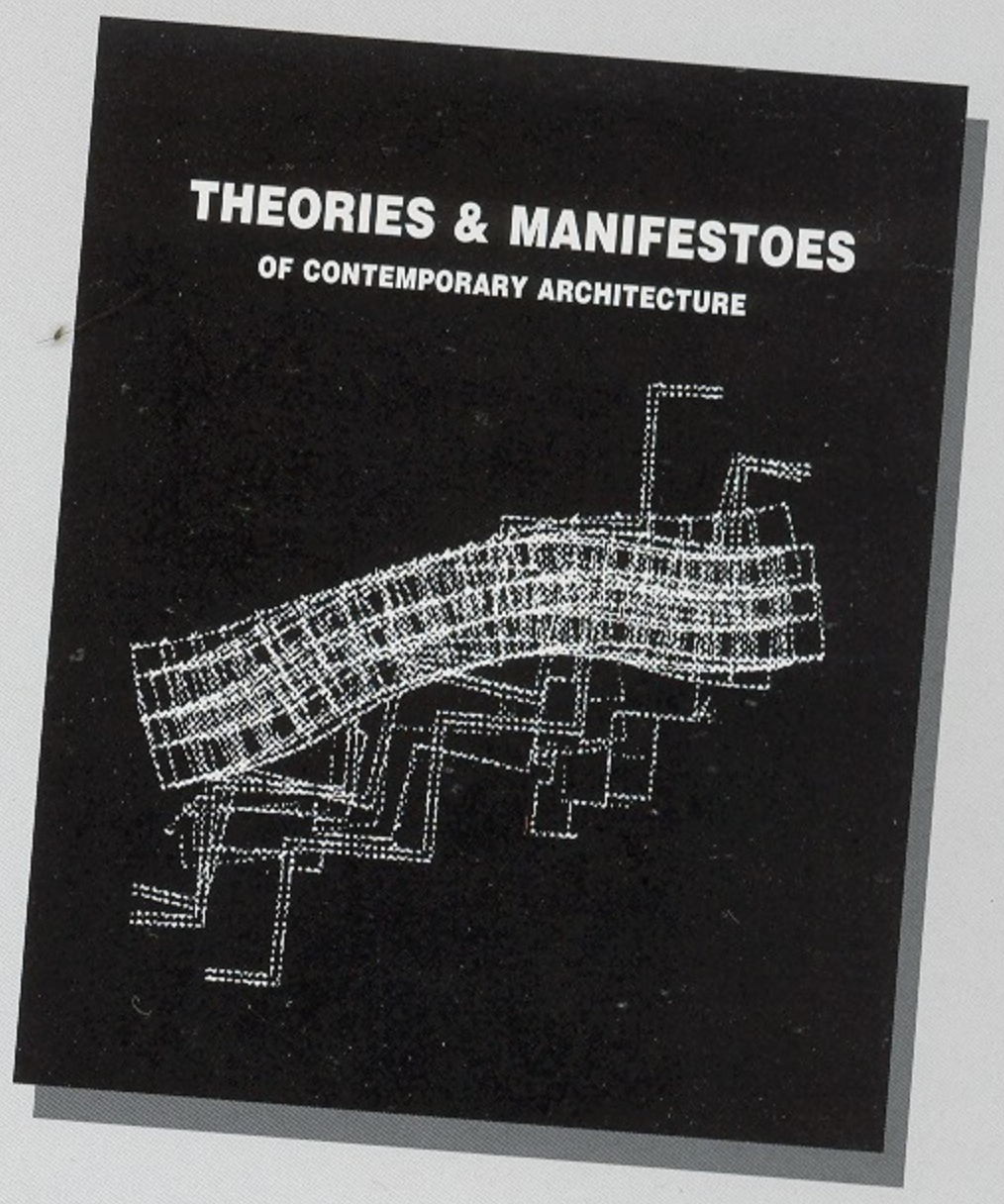
THEORIES AND MANIFESTOES of Contemporary Architecture

Edited by Charles Jencks and Karl Kropf



The last forty years has seen an outburst of theories and manifestoes which explore the possibilities of architecture: its language, evolution and social relevance. With the many 'crises in architecture' and the obvious urban and ecological problems, Modern architecture has been criticised, questioned, overthrown, extended, subverted and revivified.

In this anthology, Charles Jencks and Karl Kropf select over 120 of the main texts which define these changes. They arrange these chronologically and group them according to three main traditions – a critical and ecological Post-Modernism, a High-Tech and sculptural Late-Modernism, and a deconstructive, subversive New Modernism. There are texts by James Stirling, Robert Venturi, Colin Rowe, Christopher Alexander, Frank Gehry, Reyner Banham, Bernard Tschumi, Rem Koolhaas, Leon Krier, Demetri Porphyrios, Quinlan Terry, Prince Charles and others. Many of these are concise, edited versions of influential books.

This volume is a vital learning and teaching tool for all those interested in the philosophies of contemporary architecture.

Charles Jencks is a leading architectural critic and author of many highly acclaimed books on contemporary building and Post-Modernist thought (including *The Language of Post-Modern Architecture*, *Architecture Today*, *What is Post-Modernism?* and *The Architecture of the Jumping Universe*, all published by Academy). Karl Kropf is an urbanist engaged in both theoretical research and practice, focusing on the morphogenesis and dynamics of urban form.

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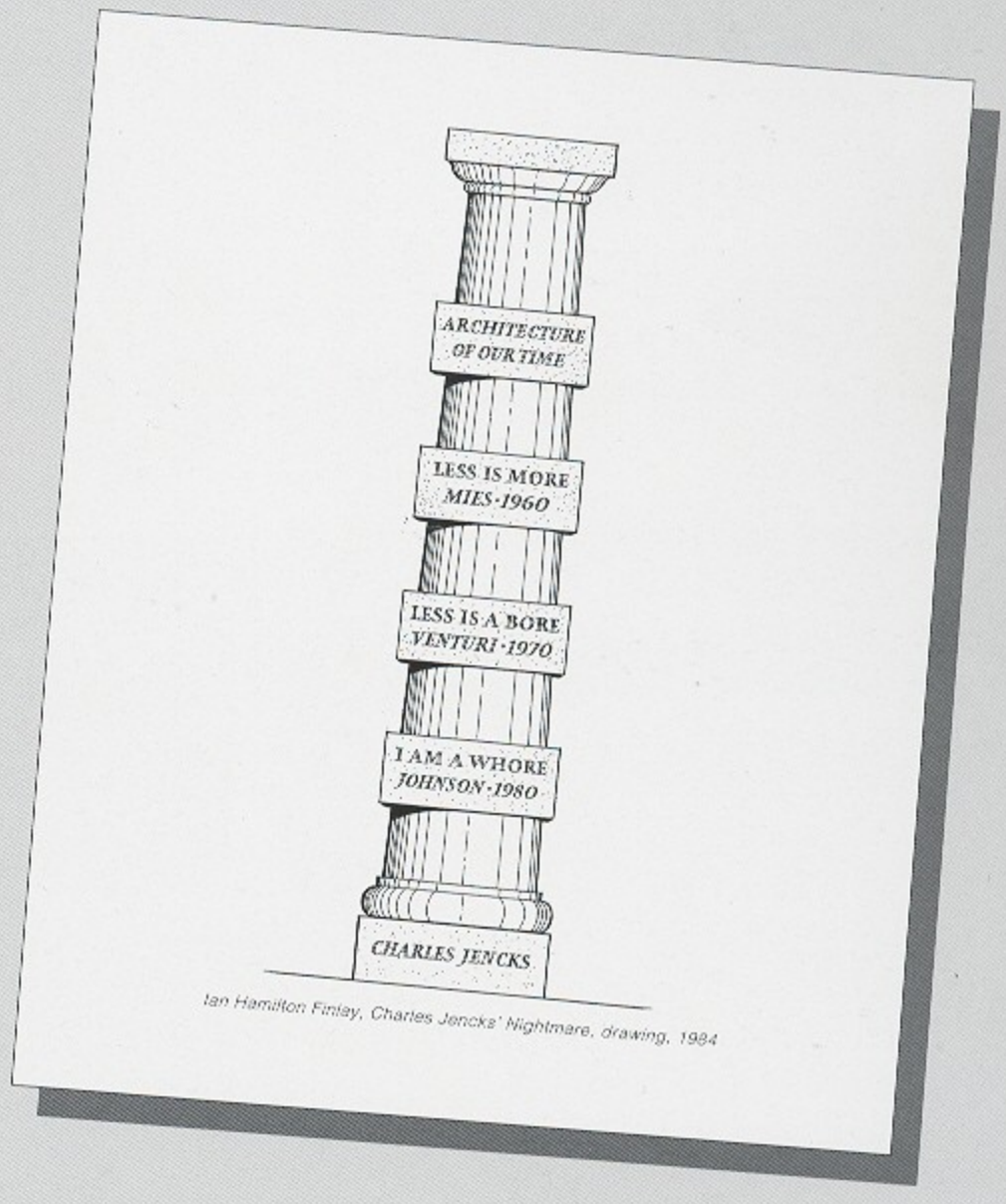
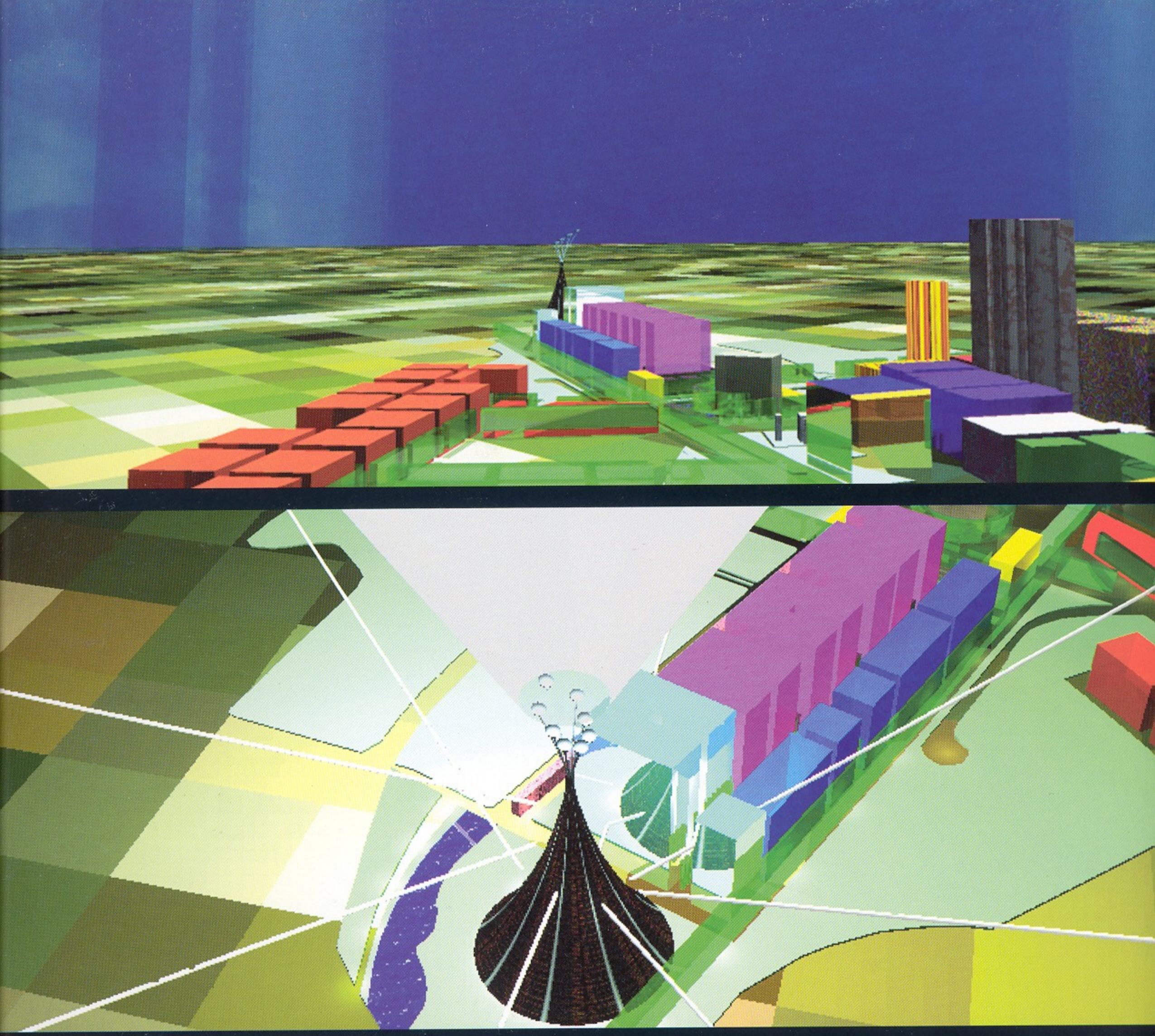


Ian Hamilton Finlay, Charles Jencks' Nightmare, drawing, 1984



THE BINARY TOWER

A MOBILE MILLENNIUM MONUMENT FOR ENLIGHTENED ENVIRONMENTALISM

EXPO 2000 – Hanover, co-ordinated by 235 Media

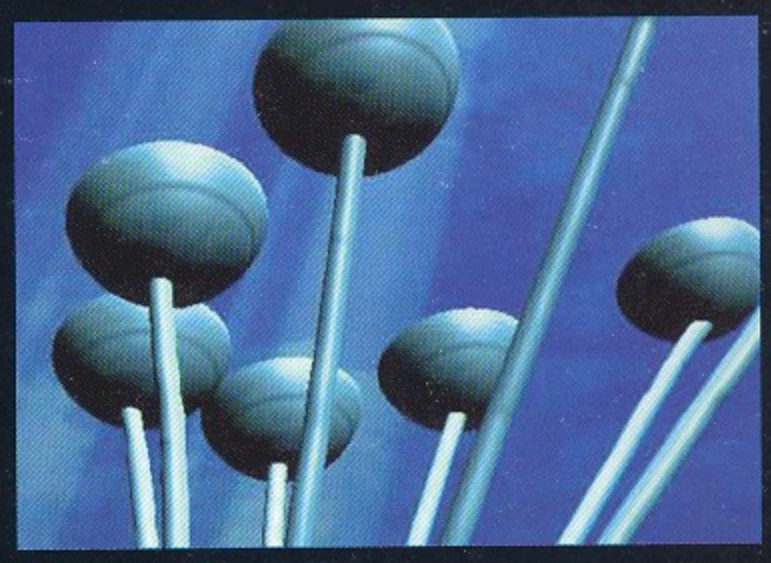
Hanover has been selected as the site for the World Expo in 2000. Michael Petry and other artists have been invited to put forward projects for the site. He has designed a 20-metre-high portable tower and created a four-minute computer simulation video of the tower on the Expo site (with EVision Media and ERA). The virtual tower exists on CD Rom and will soon have an Internet web site.

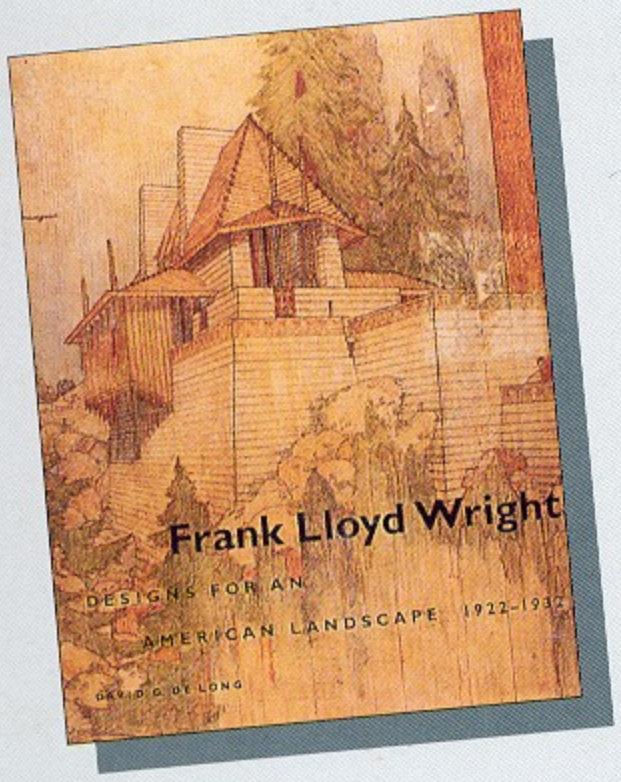
The Binary Tower will be a light-weight structure covered in solar collector panels that will levitate and rotate around its axis at night. The axis will act like a mast to provide stability for the structure and control the rate of rotation – which is clockwise – and energy flow. The tower will collect light energy in the day and give it off at night using 16 large search-lights. The solar batteries, sited inside the Tower on a concrete base, will store whatever daylight energy is available. The Binary Tower will function in a similar way to the transferral of digital information: on and off, zero and one, light and no light.

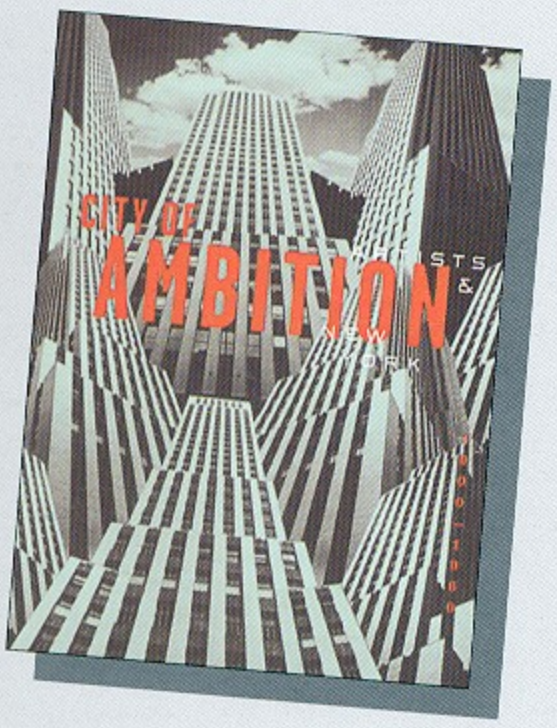
It will use the latest German technology for all aspects of its construction, supported by major companies. The superstructure will be made from carbon fibre or aluminium for strength and ease of mobility. The shape of the Tower will be aerodynamic – channelling any wind up and away from the base, adding to

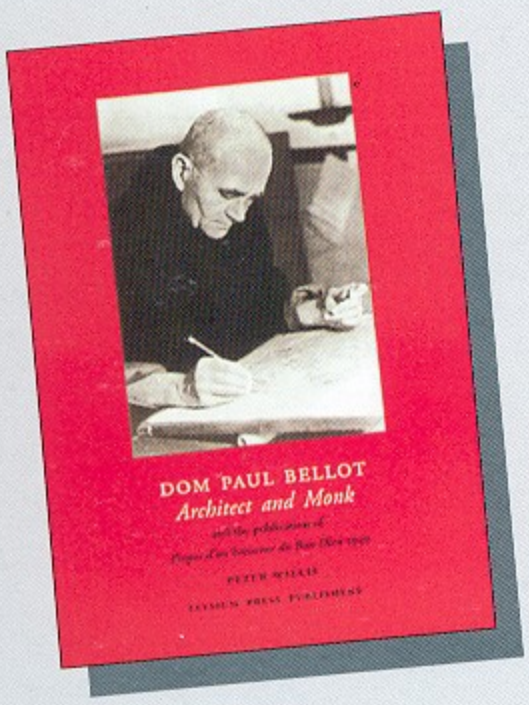
stability – and will also allow for maximum collection of solar energy. The Tower will levitate and rotate via electromagnetic super conductors, similar to those to be used for the new German super trains. It will rise only slightly, enough to enable it to spin at night, creating the illusion of an intersection of two cones of light. For the searchlights German manufacturers will develop lights that have a large reflector surface that draws little power.

The Tower will act as an energy site, storing the daylight to light up the night. The solar panels will collect the sun's energy in the day, and that energy will then be used to power the Tower at night. The Tower will only light up, levitate, and rotate for as long as the energy collected in the day will provide. This will allow visitors to see energy production in a visual metaphor for change, renewal, and enlightened use of our resources.









Frank Lloyd Wright: Designs for an American Landscape, 1922-1932, David G de Long, Thames and Hudson, 208pp, colour and b/w ills, HB £36.00

The premise of this lavish and serious volume of Frank Lloyd Wright's work is that five of his unrealised projects from the period 1922-32 were not only hugely influential but they also gave rise to Wright's subsequent vision of how buildings, the landscape and the changing demands of automobile America should interact. The book accompanies an exhibition of the same name which was first shown at the Canadian Centre for Architecture in Montreal and toured to the Library of Congress, Washington, DC, in the autumn of 1996.

These projects – the Doheny Ranch, Lake Tahoe summer colony, AM Johnson desert compound, Gordon Strong automobile objective, and hotel and houses for San Marcos in the Desert – all exemplify how Wright intended to shape the American landscape. In his own words: 'A struggle against Nature never appealed to me. The struggle for and with Nature thrilled me and inspired my work.' Thus working *with* the landscape led Wright to design structures which hugged the contours of the site, intensifying the experience of the natural environment for the benefit of Mankind – Nature's finest achievement. The organic aspect of Wright's architecture has been discussed endlessly in other books, but here we have only the drawings he left behind to remind us of his vision of an architectural utopia which stood apart from the modernism practised by most of his contemporaries. The beautifully rendered drawings, site plans, sections and elevations are given greater contextual coherence by site photographs and authoritative texts from Wright academics pooled by curator David G de Long, which provide a fascinating insight into the historical development of each project.

As often comes across from preliminary drawings, the architect's vision appears more radical than the structures he intends to give rise to. In the case of Wright's designs, one has the impression that if only planning problems had not got in the way, the buildings would have proved even more visionary than some of those executed.

His design for the Gordon Strong automobile objective in Maryland of 1928 is an obvious precursor to the spiral dynamic of the Guggenheim Museum in New York except that the latter spirals out rather than inwards. Designed primarily as a vantage point 'objective' for day-trippers from nearby Baltimore and Washington, and given its location atop Sugarloaf Mountain – the highest point in the landscape for many miles – the visual impact of the structure would have been breath-taking (not that the Guggenheim hasn't itself achieved 'wonder of the world' status already). Other designs, such as those for the Lake Tahoe summer colony project, incorporate complex geometric patterns and an obsession with structure/site integrity which predate the Scarpa-esque by 30 years (I'm thinking of Scarpa's Brion Family cemetery). Clearly Scarpa was enormously influenced by Wright as indeed both were by Japanese architecture.

The motor car made previously inaccessible locations viable for those wishing to build their homes away from the vast new urban jungles emerging across America. Building in the desert, Wright could design 'groundscapers' to counter Manhattan and Chicago's obsession with reaching for the skies.

This is a book for devoted enthusiasts rather than the casual reader, but it is written to put the record straight over a period when Wright's ideas were developing rapidly in response to the automotive age and in this respect is of interest to anyone with even a passing concern for their environment.

Peter Hinton

Books Received

Modern Matters: Principles and Practice in Conserving Recent Architecture, Susan Macdonald (ed), Donhead Publishing Ltd, 184pp, b/w ills, HB, £35

Guide to Modern Architecture in Rotterdam, Paul Groenendijk and Piet Vollaard, Vitgerverij 010 Publishers, 80pp, b/w ills, PB, £13.00

Guide to Modern Architecture in Amsterdam (revised 2nd edition), Paul Groenendijk and Piet Vollaard, 80pp, 200 b/w ills, PB, £13.00

Impressions of Granada and the Alhambra, Girault de Prangey, Garnet Publishing, 112pp, 29 colour and 15 b/w engravings, £40.00

History of Furniture Design: From Ancient Egypt to Nineteenth-Century Europe, Robbie G Blakemore, Van Nostrand Reinhold, 392pp, 350 ills, mainly b/w, HB, £39.50

Clough Williams-Ellis: The Architect of Port Meirion, A Memoir by Jonah Jones, Seren, 204pp, b/w ills, HB, £9.95

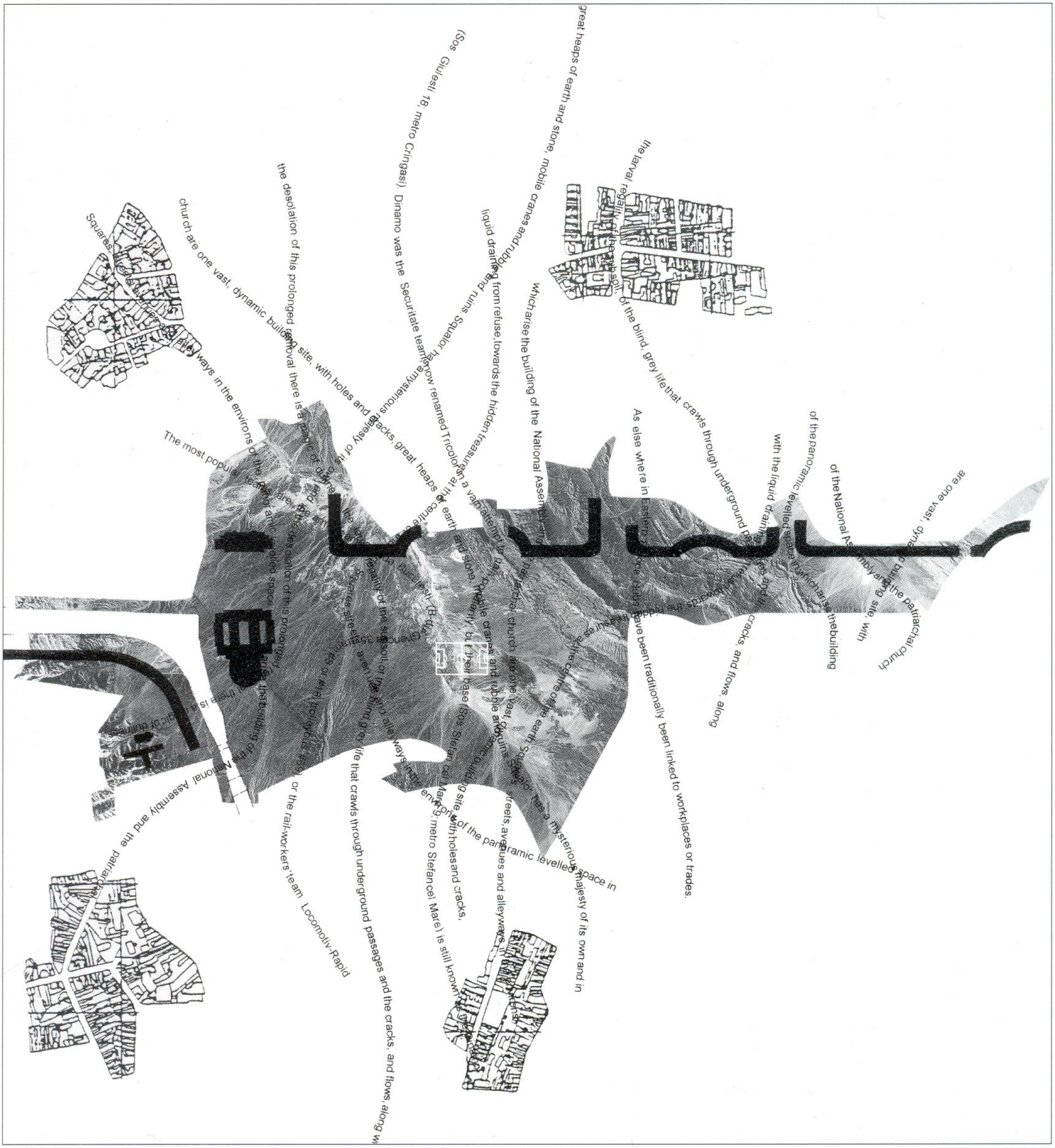
Dom Paul Bellot: Architect and Monk (including the publication of his 1949 *Propos d'un bâtisseur du bon dieu*), Peter Willis, Elysium Press Publishers, 38pp, b/w ills, £7.00

City of Ambition: Artists and New York, Elisabeth Sussman with John G Hanhardt assisted by Corey Keller with an essay by Brendan Gill, Whitney Museum of American Art in association with Flammarion, 144pp, colour and b/w ills, HB, £42.00

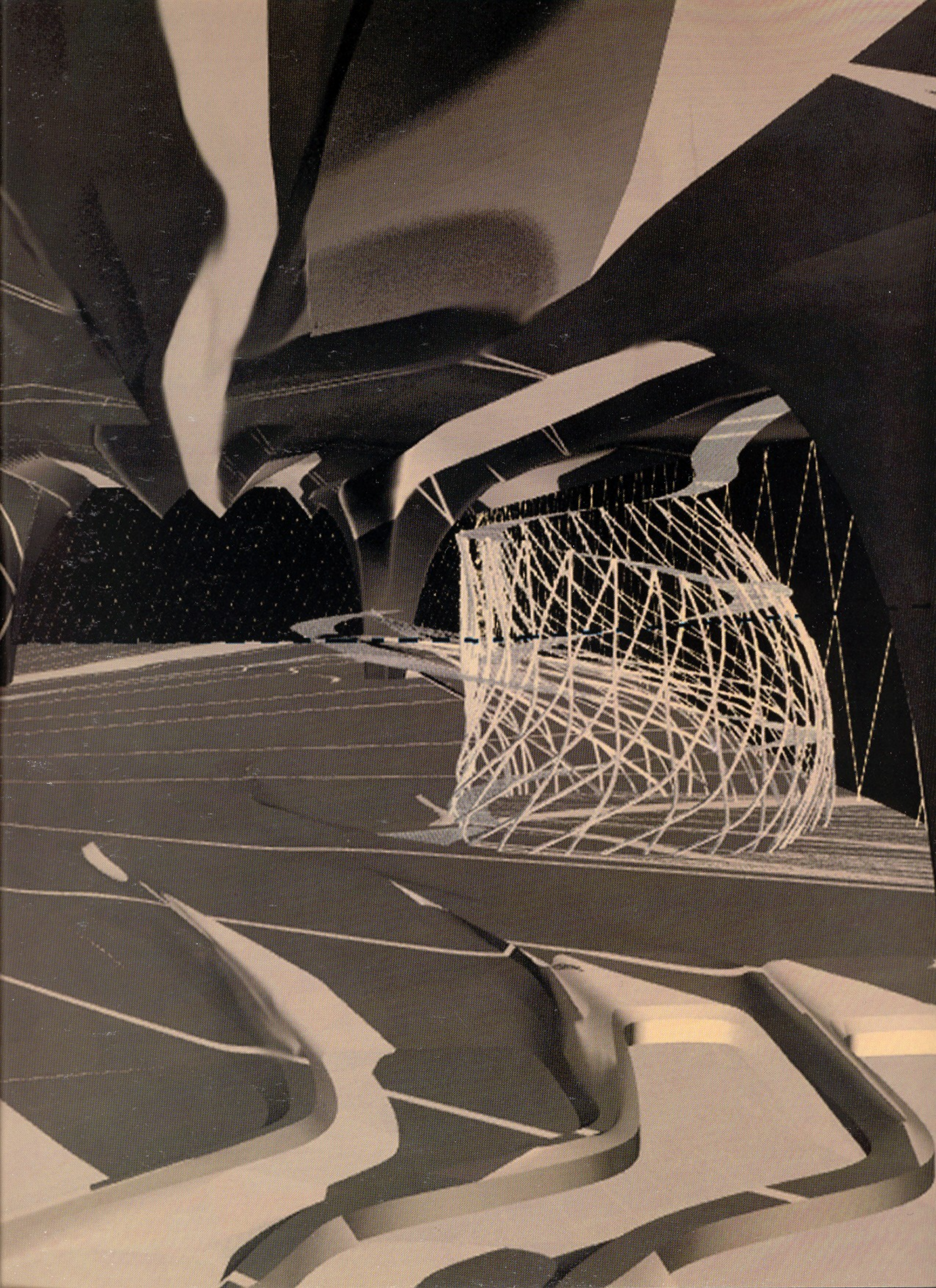
Living Architecture, Rudolf Steiner's Ideas in Practice, Kenneth Bayes, Floris Books, 128pp, PB, £4.99

City 5-6 (journal), 192pp, b/w ills, PB, annual subscription £75 (individual and community groups £30)

ARCHITECTURE AFTER GEOMETRY

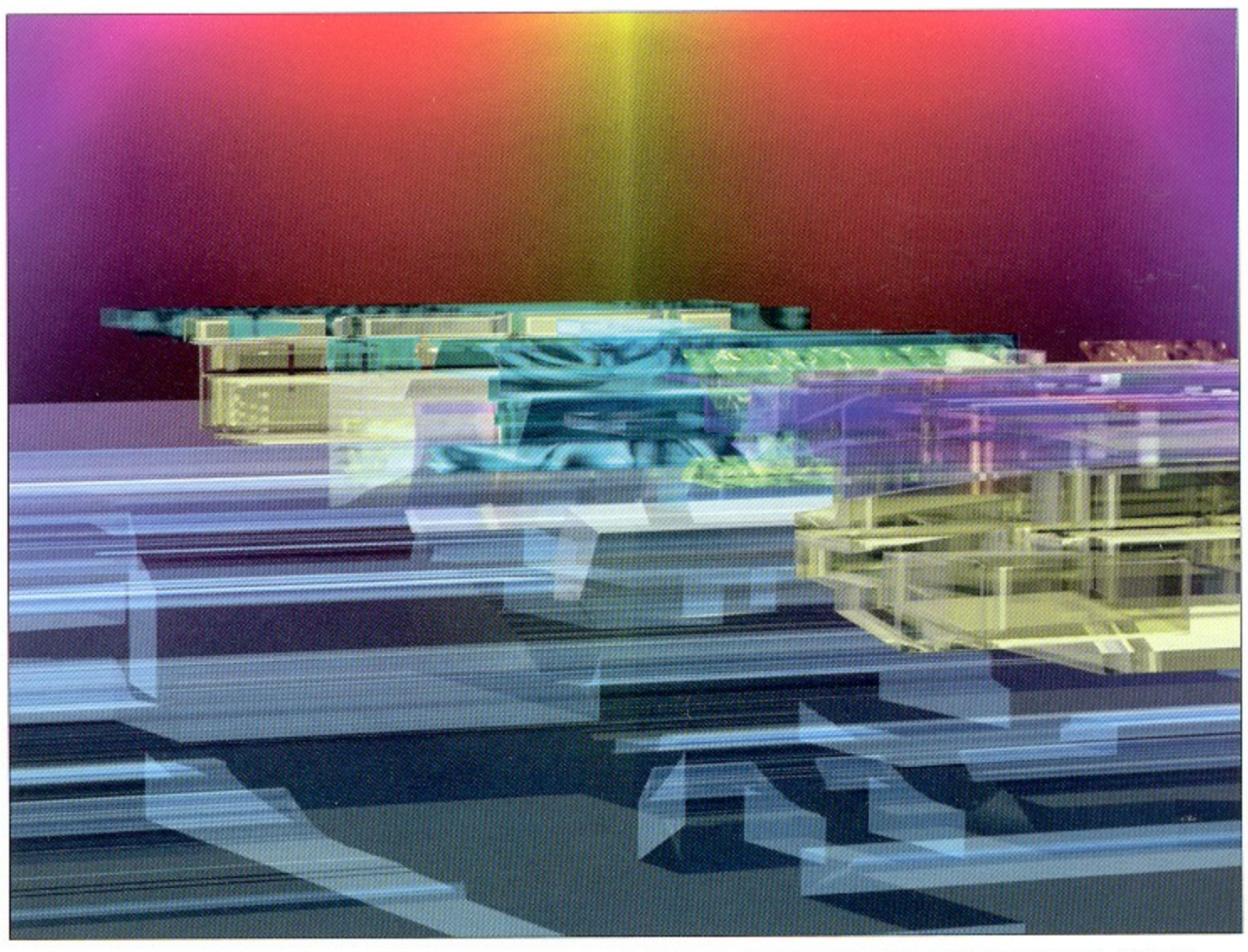


CHORA, 'BLACK SEA': BUCHAREST STEPPING STONES



Architectural Design

ARCHITECTURE AFTER GEOMETRY



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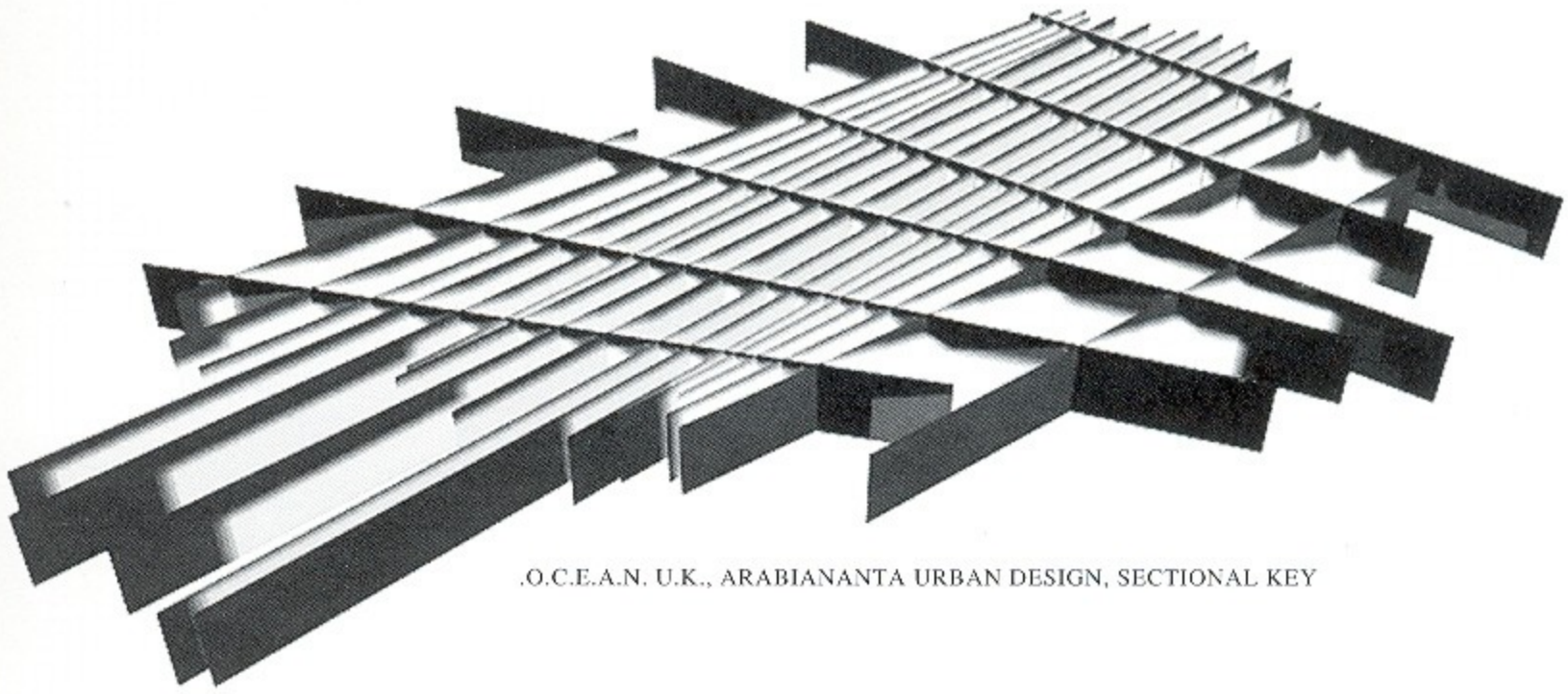

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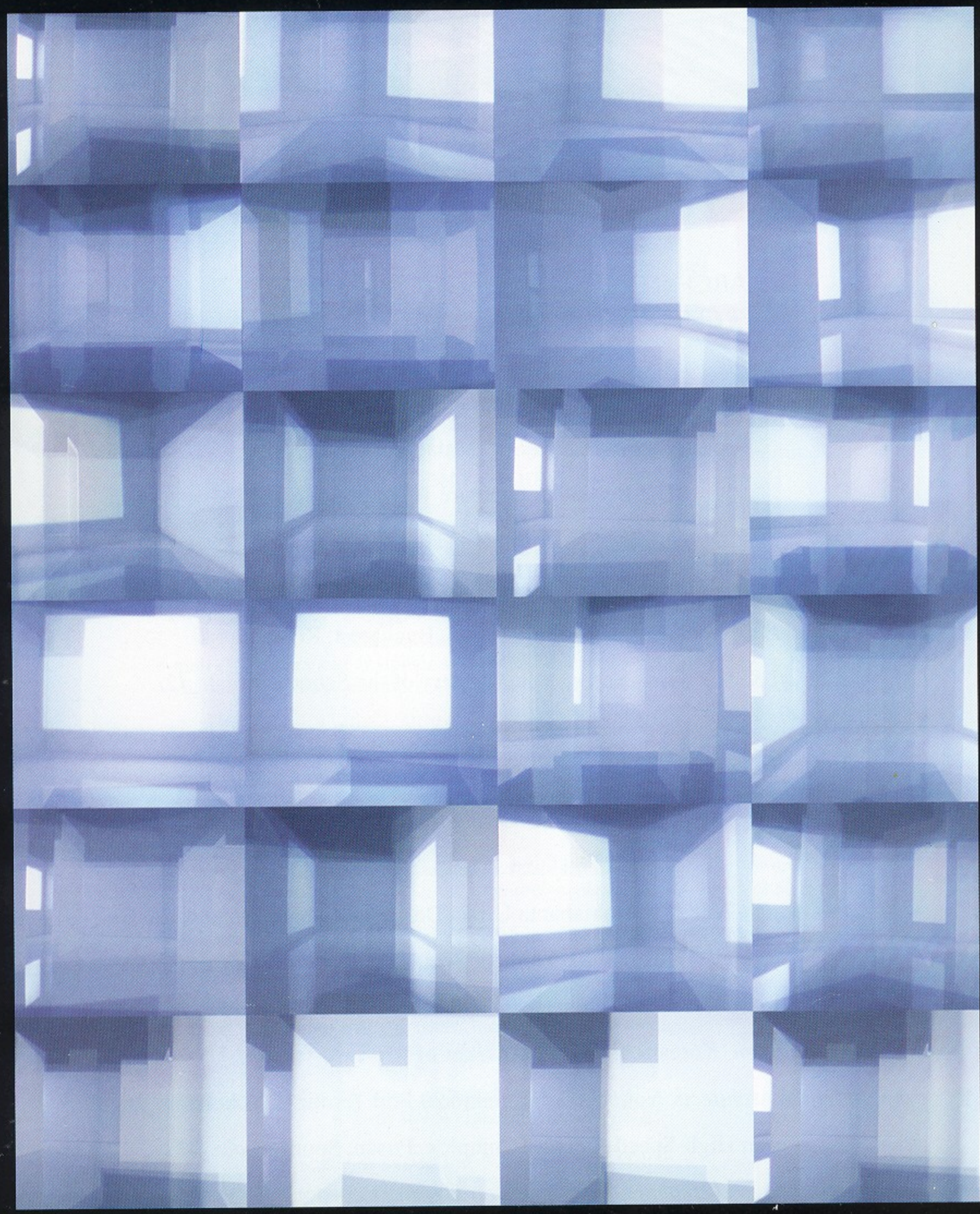


Tomato, John Warwicker – space

PETER DAVIDSON AND DONALD L BATES

EDITORIAL

After Geometry (1)

Architecture has been after geometry for a very long time – if by 'after' we mean 'in pursuit of', 'on the hunt for', 'in a relationship of desire for'. This emotive relationship exhibits all the tendencies of interpersonal psychologies: infatuation, transference, dependency and a faith in the transcendentality of consummation. It is registered by three stages: lust, attraction and attachment. The lust of architecture for geometry is the lust of completion and closure, and it is the lust of being consumed and substantiated by a force greater than itself. Under this category, architecture's dependency on geometry is based on the promise of fulfilment.

Geometry's role has been to provide the armature of substantiation for architecture, but by a profound circumstance, to do so within two broad domains. Architecture's desire for geometry is for substantiation by both a material and sensory discourse, and at the same time by an abstract and cognitive formation. In the first instance, geometry provides the measure and image of a sensate world. For the second instance, geometry is the conceptual ordering which affirms its relevance in spite of the sensory world, as it locates and makes plausible the paradoxes of mathematics through the relation of line to number. In *Lines of Thought,* Claudia Brodsky Lacour details the success of Descartes in achieving this paradoxical linkage:

> Descartes' first and most conspicuous contribution to the modernization of mathematics in the *Géométrie* was his resolution of the problem dating from the Pythagoreans of the numerical incommensurability of linear magnitudes. Greek mathematics conceived of numbers as natural or rational integers, discrete units whose relations to one another in analogous ratios were thought to express the spatial proportions of the natural world. The physical world was viewed on the model of geometrical forms, and the discovery that the relationship of the magnitudes of two commonplace line segments given in geometry – the side and the diagonal of a square – could not be expressed in a ratio of integers, no matter how small the unit of measure applied, contradicted the ancient tenet of the numerical order of nature, setting off a mathematical and philosophical crisis of an order matched in modern times by the development of non-Euclidean geometry, or by the methodological paradoxes identified at the origin of quantum physics.[1]

For architecture, geometry is measure, eidetic image and ordered system.

After Geometry (2)

The story of the origin of geometry in the West (told as a tale distinct from the analytic determination of Husserl to both geometry and its origin – see DF Krell, *Malady of Chains*) is the story of measure and verification. As the story of demarcation and the re-inscription of land ownership after the floods in the Nile delta, geometry emerges as the abstract practicality, able to erase erasure. As certifiable repetition and not mere approximation, geometry offers a procedure (an apparatus) for giving differentiated inscription to an undifferentiated (often featureless) surface and allowing for the restoration of 'propertyship'. In line with architecture, geometry provides for marking (and making) differences and in both operations it is the line which manifests this segregation.

For architecture to be *after* geometry, architecture would have to be seen to have acquired these initiating strategies from the repertoire of geometry. However, the origin(s) of geometry (irrespective of the Husserlian project) and the origin(s) of architecture (irrespective of Laugier and others) do not conveniently differentiate or mark their own boundaries. Geometry, in the service of architecture (under the indictment of Bataille) as measure and certifiable repetition, is also geometry acting in the *form*ation of architecture, providing the eidetic catalogue of architecture's 'proper' form(s).

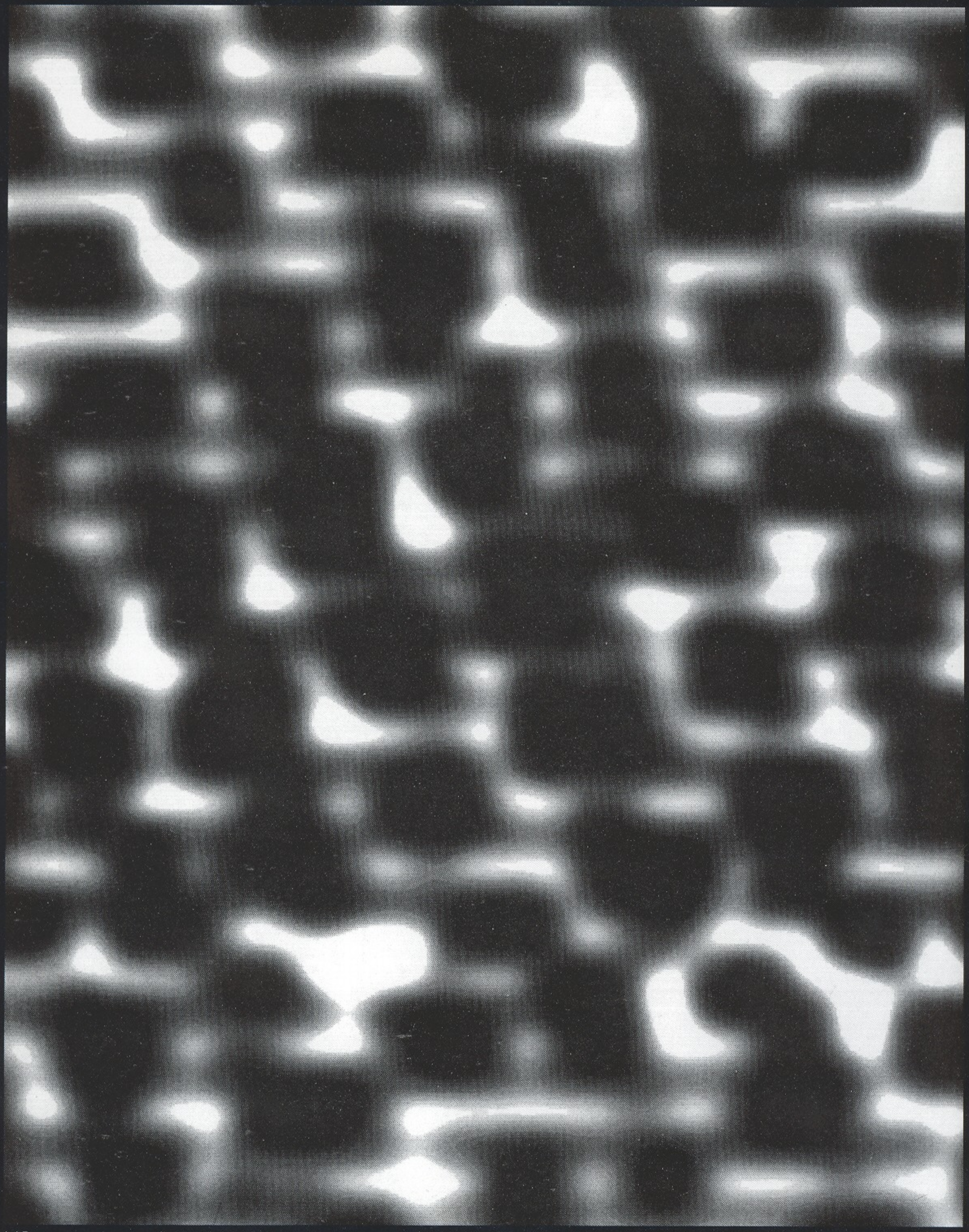
Architecture is therefore certainly 'after' geometry, both in pursuit of its ideal forms and in the institutionalisation of its forms as ideals. Geometry is both ideal image and abstract order, which is given a reciprocal embodiment in architecture through constructed image and material form.

After Geometry (3)

To be 'after' geometry, while in the practice of architecture, neither proposes nor supposes an end to geometry in architecture. After geometry is both all that has been in the linkage of architecture and geometry, as well as a speculation of the effects on architectural production *after* this geometric romance.

This speculation is not based on an overturning or annihilation of geometry in architecture. It is instead a critical speculation on the incorporation and expansion of new techniques and tactics for architectonic ordering and organisation. The permeability of these new techniques and tactics both to include and involve conventional geometries while at the same time fostering their replacement and substitution is in pursuit of their instrumental role. In effect, the works documented in this issue are strongly connected to an understanding of this shift in architecture from grand transcendental strategies to the instrumental effect of new tactics.[2]

As has been suggested, the linkage of architecture and geometry is based on a transcendental imperative. To speculate 'after' geometry is to break that imperative and therefore to evaporate this transcendentality. A parallel can be advanced from the domain of politics and the status accorded to democracy. Like geometry to architecture, the linkage of democracy to liberal, humanist political order appears unquestionable. With the recent disintegration and retreat of strict socialist or communist politics, the affirmation of democracy as a transcendent (or at least satisfied) political order would appear complete. Within



LAB, generated texture field – Helsinki

this current climate, to ask 'after democracy?' seems naive, if not irrelevant. And yet the political force and transformative impulse of democracy seems only valid and regenerative when put to this question of 'after democracy?' It would be mere circumstantial arrogance to assume that the *last* political form came into being during our own time.

Both the experiences and the institutional practices of democracy and geometry will linger long *after* they have been incorporated into other alternative instrumentalities. The ambition of these architectures 'after geometry' lies in the adoption and availability of new techniques and tactics of architectonic production, as well as a commitment against the transcendental imperatives which demarcate and delineate the architectural delta.

Graphic Space

If geometry registers order by the employment of eidetic forms, which are themselves conflated to the status of ideal objects, then tactics of ordering based on non-geometric form or planning have the task of generation and of legibility. Significantly, it is by means of new graphic spatialities that this new work is identified.

On numerous occasions, Jeff Kipnis has advocated an investigation of 'graphic space' – the space made readable out of patterns, textures, implied surfaces and depths, but without the aid of representational or geometric systems such as perspective, axonometrics, chiaroscuro or modelling. Graphic space, both as readable image and as an organisational matrix, is advocated in opposition to collage or collage space. For Kipnis, collage is the exhausted paradigm of architectural heterogeneity:

> Collage is used here as a convenient, if coarse umbrella term for an entire constellation of practices, eg bricolage, assemblage and a history of collage with many important distinctions and developments. This argument is strengthened by a study of the architectural translations of the various models of collage and its associated practices. As we proceed further into the discussion of affiliative effects, one might be inclined to argue that surrealist collage, with its emphasis on smoothing the seams of the graft, might provide an apt model . . . A better model might be Jasper Johns' cross-hatch paintings, prints and drawings. Though these works certainly employ many techniques associated with collage, their effect is quite different. In them non-ideal, grid-like organizations are materialized by grafting elements whose form is disjointed from the overall organization. Moreover, in some of these works, other cloud-like shapes entirely outside of the domain of formal/tonal language are built up of the medium itself and camouflaged within the work. For me, these paintings are good examples of a cohesive heterogeneity engendered out of an intensive coherence in the elements themselves.[3]

This 'cohesive heterogeneity engendered out of an intensive coherence' continues to sustain the work of Kipnis in his shift to what he now calls 'liquid space' or 'school of fish'. This is exemplified more clearly in Kipnis' projects documented in this issue. Beyond their tasks as theoretical and polemical underpinnings, the themes of graphic space, liquid space and school of fish consolidate an important evidencing of the emergent role of *visuality* in the development of a series of new concepts regarding architectural order and spatial structuring.

Visuality in this instance is not the primacy of vision nor is it even the primacy of ocular perception. Rather, it defines a shift in the formation of human cognition, and is detailed as an aspect of the lineage of oral tradition to written (and printed) tradition to an increasingly visual and graphic (soon-to-be) tradition. Gregory Ulmer's book *Teletheory* has provided the most cogent summation of this lineage (in his terms: orality, literacy and the emergent videocy). Teletheory addresses the consequences of such a shift, in relation to a new form of cognition. This shift, which can be assumed to commence in the mid-19th century, is advanced by the introduction of photography, mechanical reproduction of prints and images, colour printing, cinema, television, video, computers and computer and digital imaging, GUIs (Graphic User Interfaces), projection techniques, advertising and reprographics and photocopying. The sheer volume of new technologies dedicated to the transfer, transmission and production of graphics and visual imagery would appear to have affected a new cognitive field.

In the interstices of these technologies and their graphic implications, the group Tomato has re-configured the categorical systems which make commercial use of this new visual attunement. While their production constantly challenges accepted notions of both the product and the process of its reception, it is work which readily assumes a context of heightened visual awareness and a pervasive, everyday accommodation of graphic infiltration.

Whether these changes are as paradigmatic as suggested by Ulmer or not, and whether such formulations underwrites the conceptual domains of all the work in this issue, it is clear that visuality and a new graphic cognition can be identified in each of the projects represented. At stake for architecture is the degree to which this visuality and graphic cognition provides an alternative methodology and sensibility for producing architectural form and spatial order, outside the traditional implementations of geometry, history, or technological determinism – not as wholesale or full-scale replacements, but as transformative adjuncts which expand the vocabulary of form and technique.

It is by no means meant to imply that it is only architects or multimedia artists who are affected by this shift to visuality. In fact, its very premise and provocation lies in the broad, non-exclusive dimension of this change. Because it is so ubiquitous, it is universally affective. For all of the technological dependencies which could be illustrated, this pervasive visuality operates at the full extremes of the technological spectrum. From the most 'wired' point of contact to all but the most remote, images

LAB, urban texture zoning – Arabiananta, Helsinki

(graphic or representational) are available almost without recourse. Therefore, the production of a new cognition is the context in which architecture must operate, whether this cognition is managed, mandated or merely accommodated.

Heterogeneity, Coherence and Affiliation

Progressive theoretical doctrines of the late 20th century advocate, almost without exception, the recognition of heterogeneity as a condition which affects architecture on many registering levels. Heterogeneity is seen as both the *given* condition of late 20th century social, political and material life and as an aspirational vantage point for generating new architectural form. The two most recent theoretical-formal discourses in architecture, 'Deconstruction' (deconstructivism) and 'Folding', have each produced highly synthetic arguments in pursuit of heterogeneity in architecture. The constancy of this theme in recent and current architectural work does not also make it common. The interest here is the manner in which these concerns have now become (with the advantage of time and familiarity) significantly more sophisticated and detailed by research and experimentation.

'Folding in Architecture', *AD* (1993), guest edited by Greg Lynn, can be seen as a companion issue to 'Architecture After Geometry' (and vice versa). The key essays in that issue chart a similar, or at least congruent territory. That these two editions map methodologies and techniques resulting in an aggregation of formal development, is, at the very least, a measure of the fecundity present to the trajectory.

It is, to our minds, informative and critically instructive to compare the operations prescribed in the diverse works of Kipnis, Lynn and Libeskind, as each negotiates the architecturalization of heterogeneity at the level of bookcase, speculative building and urban planning. Clearly these projects and their authors have distinct agendas and sensibilities, but the degree to which they each contribute to a new performance diagram of materialised difference, assists in measuring their resolution of difficult and complex programmes, sites and built form.

Jesse Reiser and Nanako Umemoto also work with the concern of heterogeneity, but they do so formally as opposed to thematically. Their projects display highly articulated objects which emerge from clearly disjunctive origins. The quasi-synthesis which binds the work together is never pushed to the point of complete absorption, such that the combination is almost always left on the verge of release, back to its various moments of origin.

Diagrams and Diagrammatics

The focus on the role of graphic production and emergent states of visuality should not be seen as wholly predicated to transformations into architectonic form, particularly if this is assumed to occur in a linear sequence. The projects of Foreign Office Architects (Farshid Moussavi and Alejandro Zaera-Polo) and the work of CHORA (under the direction of Raoul Bunschoten) offer contrasting forms of production and agency, based upon similar concerns with infrastructures, hidden political and social affiliations and with tactics for procedural encounters within large-scale urban fields. The role of the diagram, as a graphic/informational tool is a feature of both practices. It operates as well in the generative phase of projects by Stan Allen. As a coupling of the graphic and the informational, the diagram is a translational instrument which exceeds both its graphic effect and its informational content.

Texture Fields

The premise of much of the work in this issue is that the potentialities and effects of geometrical ordering are no longer sufficient to embody or project the new social, political and cognitive structures currently evolving. Stan Allen's 'Field Conditions' maps numerous trajectories and their consequences. As mentioned previously, because this work cannot rely upon the ready recognition of a geometric figure, it must find the means to institute or project another form of legibility or visibility. Rather than an operation circulating around degrees of correspondence to a pre-existent figure (grid, axis, concentric layering, symmetry, etc) the development of graphic space, liquid space, texture fields, pattern effects and field conditions is possible only in a context of emergent readability. Rather than complete and distinct figurations which delimit and define a site or programme, these are orderings which are visually apparent but materially indistinct. Instead of a formal ratification by means of correspondence and eidetic resemblance, these are orderings which by necessity must construct their logic of incorporation and affiliation.

Texture fields produce zones of anomalous differentiation such that a consistent (or apparently consistent) pattern within one part of an image begins to emerge as an area or zone of inconsistency, thereby establishing a distinct difference to the original pattern. The repertoire of the resultant ordering arrangements includes conditions of filtered coexistence, involuted and interstitial aggregations, embayments and bleb-like intergrowths, oscillatory zoning and sector zoning.

The work produced during the Berlin Architecture Workshop addressed these issues through an examination of the Schlossplatz, in the centre of re-unified Berlin, basing much of the development on techniques relating to the production of *texture fields*. The projects representing Lab, can in particular be seen as extended experimentations of these themes and their procedural implementation. The textures, patterns, webbings and excessive fields of lines have formed the basis for on-going research into order and organisation produced *after* geometry. The Terragni Office also pursues these practices of manipulation, but with greater dedication to ad-hoc occurrences and intuitive composition.

Notes

1 Claudia Brodsky Lacour, *Lines of Thought*, Duke University Press (Durham/London), 1996; pp55-56.

2 See Michel de Certeau, 'Strategies and Tactics', in *The Practice of Everyday Life*, University of California Press (Berkeley, CA), 1984, pp34-39.

3 Jeffrey Kipnis, 'Towards a New Architecture', in 'Folding in Architecture', *Architectural Design* (London), 1993, p48.

DAVID FARRELL KRELL

A MALADY OF CHAINS

Husserl and Derrida on the Origins of Geometry and a Note to the 'Archeticts' of the Future

Finally, my dear Lou, it's the same old profound and heartfelt plea: Become the one you are! In this regard it is necessary, first of all, that we emancipate ourselves from our chains; but then, in the end, we must also emancipate ourselves from this emancipation! Every one of us, each in his or her own way, has to labour over this malady of chains, even after we have shattered them.

Friedrich Nietzsche to Lou von Salomé, August 1882

Here I shall discuss Edmund Husserl's account of the origins of geometry – in his 1936 essay of that title – along with Jacques Derrida's 1962 'Introduction' to Husserl's text.[1] I shall read these texts with a view to the ineluctable interlacing of architecture, philosophy and geometry throughout the history of all three fields of inquiry. Prodded by the suspicion that philosophy and architecture alike are facing the question as to how life goes on 'after geometry', I shall take up Husserl's and Derrida's texts as though some ancient concatenation, some ancient chain, were being undone in them.

Husserl announces his project in 'Der Ursprung der Geometrie' as an 'inquiry back [*Rückfrage*] toward the original meaning of geometry', an original meaning that he takes to be still decisive for philosophy in the twentieth century – even if these 'original beginnings' of geometry have 'foundered' in obscurity (365-66). Husserl inquires back, looks back, moves back through centuries of the Western intellectual tradition, returning along a historical line or chain that ostensibly guides him back to the time when geometry 'had to emerge *[aufgetreten sein müßte]'* (366). It had to emerge in order to found 'the *one* philosophy' that according to Husserl has dominated Europe from the very beginning. Yet as Husserl moves back toward the origin of geometry, it becomes more and more difficult to take the measure of the origin he means: the geometry of origins proves to be infinitely more complex than the origin of geometry itself, far more complex than a Euclidean geometry could dream of being.

In what follows, I will proceed in a way that at least on the surface is quite similar to Husserl's procedure, that is, by reading his 'Origin of Geometry' from back to front. I will 'inquire back' by citing four extended passages from his essay, following an order that is the inverse of Husserl's order. I shall do this because I regard the earliest passage in Husserl's text as the decisive gesture of the entire essay – the decisive and most problematic. (Derrida agrees that there is a decisive gesture in the essay, but, as we shall see, he locates it elsewhere.) These four passages revolve about the axes of *continuity*, *reactivation*, *sedimentation* and *recollection as a chain of repetitions*.

Continuity

Husserl is drawn to the question of the origin of geometry because of the *continuity* that geometry seems to grant the philosophical tradition, from its beginnings in Plato and Euclid to its moment of crisis in contemporary Europe. For each advance in geometry is linked to its predecessors in such a way that a chain is formed, a chain that is both geometrical and historical. Concerning the continuity of history and geometry, the cumulative advance through new acquisitions or accretions of geometry, Husserl writes:

> That all the new acquisitions express an actual geometric truth is a priori certain, if we grant the presupposition that the foundations of the deductive structure [*des deduktiven Baues*] are actually produced in original evidence, objectivised, and thus have become universally accessible acquisitions. There must have been a continuity that was traversable from person to person, from age to age. It is clear that the method of producing the original idealities from the prescientific givens of the cultural milieu prior to the existence of geometry had to be written down and fixed in firm propositions [*niedergeschrieben und fixiert sein müßte in festen Sätzen*]. It is clear, further, that the capacity to transpose these propositions out of some vague linguistic understanding into the clarity provided by the reactivation of their evident meaning had to be handed down by tradition, and that such tradition was permanently possible [*beständig tradierbar sein müßte*]. (375-76)

Already we catch a glimpse of the architectural metaphor that will underlie Husserl's entire venture, the *Bau* (building, structure, construction, tunnel, etc) that philosophy, at least since Kant, has not been able to live without. We also recognise one of the axial words to come, reactivation, and in Husserl's account of writing down and fixing we suspect we may see something of that sedimentation that is also to come. What remains mysterious is the meaning of 'original evidence' (*ursprüngliche Evidenz*), the transparent givenness of produced idealities or propositions – the *originality* of the transparent givenness that presumably will have to be given when we arrive back at the *origin* of geometry, a doubling and redoubling that perhaps ought to give us pause. Whatever these transparent givens may be, we can only be certain at this point that they must be handed down from generation to generation, age to age, person to person. They must, in Husserl's view, form links in a chain that is unbreakable. *Reactivation* has something to do with the continuity – the linkage – of such a chain.

Reactivation

Husserl has already indicated, however, that the *reactivation* in question is not so simple. Even if the whole body of geometry is handed down from person to person, from link to link, no single person masters the whole of the science, at least not each time a geometric problem is taken up:

> Given the ultimately monstrous growth of a science like geometry, how do matters stand with the claim of reactivation? And what about the capacity to achieve reactivation? If every researcher labours at his [or her] place on the

structure [*an seiner Stelle des Baues*], how do matters stand with regard to the hours of interruption and sleep? Must the worker, when he takes up the task once again, first of all actually run through and reactivate the entire monstrous chain of founded findings all the way back to the original premises? Obviously, if that were the case, a science such as our modern geometry would not be possible at all. And yet the essence of the results of every stage entails not only that the meaning of its ideational being not come later factually speaking, but also, because meaning is founded upon meaning, that the earlier meaning contribute to the validity of the later one; indeed, in a certain way, that it penetrate the later meaning [*geht in ihn ein*]. Thus no structural component [*Bauglied*] within the intellectual construction [*des geistigen Baues*] is autonomous; no component, therefore, can be immediately reactivated. (373)

Even though there is essential *continuity* in the tradition of geometric propositions and ideas from age to age, the *reactivation* of these ideas is mysterious. It is transparently given in principle and absolutely occluded in practice. No worker on the construction (again the architectural metaphor) has to – or can – reactivate the entire tradition, or even his or her piece of it, each morning, or after each coffee break. Husserl explicitly calls the tradition of ideas a *chain* and emphasises that the validity of each link interpenetrates the link before and after it. The problem, then, is how a geometer can start at mid-chain.

Sedimentation

Before we move to the missing link in the chain of Husserl's argument – the link at mid-chain, where the geometer seems to be able to start back to work without hesitation or embarrassment – we should take up the question of the mode of tradition. Husserl defines it as a writing down and fixing of ideas, transposing them from their vague prescientific language into the cut gems of Euclidean geometry – the axioms and principles and corollaries of logical thinking as such. Here we arrive at the gesture Derrida calls *'un geste décisif'* (83):

> The important function of the written, that is, of documented linguistic expression, is that it makes communications possible without immediate or mediate personal address: it is, so to speak, communication become virtual. By its means, the socialisation of humanity is elevated to a new stage. Written characters, when viewed purely as body, can be experienced in a merely sensuous way; they perdure in the possibility of being experienced intersubjectively in common. Yet as linguistic signs, serving as phonemes, they also awaken their familiar significations. Awakening is a passivity; the awakened signification is therefore given passively, in a way that is similar to the way in which every other activity that has foundered in darkness re-emerges once it has been awakened by association, at first passively, as a more or less clear remembrance [*Erinnerung*]. As in the case of remembrance, so here too what is passively awakened has to be transformed back, so to speak, into the corresponding activity: it is the capability that is originally proper to every human being, as a linguistic creature, the capability of reactivation. In accord with this, the writing down effects a transformation of the original mode of being of the sensible image; in the geometric sphere it effects a transformation of the evidence of the geometric image that is coming to expression.[2] The image is sedimented, so to speak [*sedimentiert sich*]. But the reader can let it become evident again, can reactivate the evidence. (371-72)

Reactivation is therefore like the reading of a written text. The oral communications of a prescientific age, vague and imprecise, must be written down not only in order to be transmitted but also in order to achieve the clarity that will make them worth transmitting. Like fine silt, or like the colloidal dispersion in a wine barrel, the meaning-image *(Sinngebild)* will, when it is written down, sediment. Sedimented communication will become transparent again, like the purest fresh water or noblest wine, so that its sense can be reactivated in full evidence. There can be no question but that such sedimentation is a decisive gesture for the *continuity* of a tradition, especially the tradition of a geometry in which each link of the chain or point of the line is contiguous with, or even penetrates, the points or links on either side of it, in the past and future. Yet what does the continuity of sedimentation and reactivation presuppose? How are passive awakening and active apprehension related? Husserl compares them – unless it is something more than a mere comparison – to the function of *remembrance*, as though remembrance were *a chain of repetitions*, and as though every linkage were an act of memory.

Recollection as a Chain of Repetitions

However, what gets repeated in geometry? How are the oldest axioms of geometry transposed from vague intimations to firm propositions? How do these propositions attain their validity? In what does their status as ideas consist? Even if we know how such ideas are communicated, whether by word of mouth or by written notation, and even if we know how they leap from one head to another, so that they can be passed down as self-identical from age to age, how do they leap into the head of that very first geometer? (Husserl will not be concerned whether his name is Thales or whether he can be identified at all.) How was geometry born from that first geometer as Pallas Athena was born from the head of Zeus, fully formed and mightily armed? Such a birth necessitates that *remembering* occur as *a chain of identical repetitions*.

> Yet how does the intra-psychically constituted image come into its own, how does it come into intersubjective being as an ideal objectivity, which, precisely because it is 'geometric', is nothing at all like some psychically real entity, even though, to be sure, it originated psychically? Let us reflect. Original self-existence in the actuality of the first production [*Das originale Selbstdasein in der Aktualität der ersten Erzeugung*], thus in original 'evidence', proffers no sort of perdurant acquisition at all, nothing that could have objective existence. Living evidence passes by, to be sure, in such a way that the activity directly passes over into the passivity of our streaming consciousness, ever paler, of something that just-now-has-been [*des strömend verblassenden Bewußtseins vom Soeben-Gewesensein*]. Ultimately, this 'retention' disappears, but the 'vanished' passing away and its being past has not become nothing for the subject in question; it can be awakened again. To the passivity of something that is at first obscurely awakened, something that may possibly emerge in ever greater clarity, there belongs the possible activity of a recollection [*Wiedererinnerung*]. In recollection, we live through the past experience quasi anew and actively. Now, whenever the originally evident production, as a pure fulfilment of its intention, is

> the renewed production (the recollected), an actual production necessarily enters on the scene in order to accompany the active recollecting, and in this way, in an original 'coverage', there comes to be evidence of the identity: what is now originarily realised is the same as what-has-been, what earlier was evident. Co-founded with this is the capability for an arbitrary number of repetitions with evidence of the identity (identity-coverage) of the image in the chain of repetitions. (370)

Readers of Husserl will recognise in the above passage all the familiar terms of his account of remembrance or recollection back into the remote sphere – one of his most famous sets of phenomenological descriptions, conducted during the years 1904-10.[3] It will not be possible here to show how problematic those descriptions are, although we may get some sense of the problems as we recount the stages – trying to forge them into the links of a chain – once again:

- The problem as stated is that geometric ideas, like all other ideas, take shape in the mind of an individual – they are intrapsychic; yet their status as ideas depends on their coming into their own and achieving objectivity. Husserl wants to know about that transformation, believing that here he will uncover the secret origin of geometry.
- The first productions of the mind, back in some mythic past before geometry, but also in each moment of our own hectic lives, are fleeting; they could never become ideas with objective validity unless they attained some sort of stability – or continuity.
- The living present in the mind streams off and fades away – *but it does not stream into nothingness,* does not fade into the great dark.
- Even when what-has-just-now-been vanishes out of mind and time, it still can be (re)awakened: the mystery of *temporal consciousness,* or what Husserl called 'internal time-consciousness', will uncover the origin of geometry.

That mystery is itself a chain, one that has at least four interconnecting links:

- The possible *activity* of recollection counters the passivity of an at first obscure, approximate (re)awakening.
- In recollection, we live through what seemed to have vanished, live through it 'quasi anew and actively'. This leaves only the *quasi* as a problem, only the quasi to make us queasy.
- An 'actual production' accompanies what we recollect each time we remember it, and the mind can compare these two productions side-by-side, as it were, determining their identity across the lapse of time.
- Yet comparison side-by-side is insufficient: the links of the memory chain must be superimposed, they must 'cover' one another without a hint of residue or discomfort or excess – something that is very difficult for a chain with interconnecting forged links.

The chain of repetitions can guarantee the identity of mental productions only because internal time-consciousness itself is (*quasi*) a chain. The chain of repetitions is linked in the way that the moments of time and history themselves are linked. Yet the superposition of links in the chain, while absolutely necessary, is completely impossible.

Derrida has indicated the terrible undecidability of this linkage of time and mind. For the linkage of the 'living present' to any 'retention', that is, to the 'just-now-having-been' is absolutely indeterminate: in it occurs the blink of an eye – *Augenblick* ('moment') – that opens up (to) the future, the future of 'protentions', which are as essential to Husserl's analysis as the retentions. Yet when the eye opens (to) the future it is vulnerable to all the accidents that can befall both the eye and the 'I'. The ego may insist on its capacity to repeat an arbitrary number of times the identical memory; yet the identity of these productions hangs upon that opening to and of the future. The living present, Derrida notes, cannot dispense with 'this originality that is always renewed by an absolute originality', two originalities being considerably worse than one (46). Eye and mind confront the danger that everything past will be occluded or distorted beyond recognition in the very next instant, which will be the moment or instant through which the identity of ideal objects will bleed, stream and fade forever. Derrida writes:

> Thus the living present possesses the irreducible originality of a maintaining-now [*d'un Maintenant*], the foundation of a 'here', only if it retains the past maintaining-now *as such* and distinguishes itself from it; that is, it must retain the past as a past present of an absolute origin, instead of merely succeeding upon it purely and simply in an objective time. Yet if this retention is not possible without a protention that is its very own form, initially because it retains a maintaining-now which was itself an original project, itself retaining another project, etc; and further, because the retention is always the essential modification of a maintaining-now that is always held in suspense [*toujours en haleine*], always tending toward a next maintaining-now. The absolute of the living present is thus only the indefinite maintenance of this double envelopment. (149)

Husserl hopes that the chain of repetitions will link time and mind, idea and idea, axiom and axiom, himself and the origin of geometry. Yet the death that the maintaining-now can never outrun, as long as it is held breathless in the living present, will also infect the putative identity of the contents framed by each link of the chain. If time is undecidably both a punctuated line and a seamless continuum, then it is neither a chain nor a sprocketed film strip, a documentary of memory: the mind cannot reel time back in order to 'live through' its experiences again. For its experiences are ecstatic and belong to an ecstatic temporality. The more feverishly the phenomenologist insists on the total coverage and perfect identity of his productions, the more evident his malady becomes. For his is a malady of chains.

A NOTE TO THE 'ARCHETICTS' OF THE FUTURE

There are at least eight explicit references to architecture, or *Baukunst*, in Husserl's *Origin of Geometry*.[4] With the exception of the first, which slights 'architectures' as so many decorative styles, each one devoid of ideas and therefore unworthy of being transmitted in the way that geometry is transmitted, all are references to the geometry of architecture and the architecture of geometry. Indeed, one could say that architecture is the site where Husserl's *Origin of Geometry* betrays the geometry of its origins – its impossible passion for the chain. Yet as we shall see, the chain has to be chained to the place where construction starts – namely, to a *foundation.*

In the second half of his essay, Husserl provides something like a genealogy of geometry (383-84). He suggests that there are three stages or phases in the development of geometry. First, there is the primal situation of prehistorical, prescientific mankind, where there is no geometry; yet even here we find something like a predisposition to geometry, inasmuch as things are not mere physical bodies or condensations of mass, since they

are part and parcel of a human world. Second, there is the protogeometric era, which comes with the discovery of (smooth) surfaces, (clean) edges, (sharp) corners, (clear) lines and (?) points. The adjectives are the essential qualities of this genealogy, which in fact is the inverse of the Pythagorean genealogy: instead of one point leaping outside itself to form the line, the line a plane, and intersecting planes a solid in space, we have the discovery of the smooth, clean, sharp and clear. Of course, by the time one gets to the point, no modifiers remain. The punctual point will be – for Husserl as for all metaphysicians before him – the foundation at the heart of each link of the chain. Third, there is the age of technology, ushered in by the techniques of measurement. These techniques correspond to the introduction of the moral outlook, for the sense of justice is a sense of jointure and order. Only in this final stage, instructed by 'the art of blueprints for structures', do human beings pass into 'the theoretical view of the world and of world knowledge' (384). That view opens humankind to a view of '*aeterna veritas*' (385), conducting them to a priori science, morality and religion – all of which belong to the origin of geometry and the geometry of origins.

It is only at this point, the point of the foundation on which geometry should rest, which is the foundation of geometry itself, that Husserl's inquiry comes full circle and links up with itself: 'Only "in the unveiling of this a priori" can there be an a priori science that reaches beyond all historical facticities, all historical environments, peoples, times, and types of humanity . . . Only on this fundament can we base the secure capacity to inquire back from the temporally evacuated evidence of a science to its primal evidences' (385). Not even the evacuation of time, however, can shake Husserl's confidence in the chains of time and time-consciousness that will carry him back in dreams to the point from which the entire architectonic of the West can be constructed. Dreaming of the hardness and the reassuring metallic clink of Piranesi's chains, Husserl's essay dissolves: '. . . only in the unveiling of the concrete historical time in which we live, in which our universal humanity lives, with a view to its total universal-essential structure . . .' (381).

What, then, would 'After Geometry' mean? That was the title of the Berlin Architecture Workshop, for which Don Bates and Peter Davidson requested from me this inquiry into Husserl and Derrida. One could have understood the workshop title in German as *Aftergeometrie,* in the way Kant speaks about *Afterdienst* in the churches of his time. Just as cult and liturgy can be pursued obsessively for their own sake, anal-compulsively, so too can geometry become deleterious for architecture. Indeed, insofar as the geometry of origins is a malady of chains, geometries at some point *must* become deleterious for architectures. Contemporary architecture must work against the dictatorship of fundaments, foundations, technologies of measurement, universalities and idealities. It dare not despise theory, but it certainly must become suspicious of the 'theoretical world view' of which Husserl is so proud. It must pay greater heed to individualities than universalities, as Derrida suggests:

> But how are we to determine the ideality of a work that has only one spatio-temporal incorporation, to which its proto-individualisation is tied? How are we to make its ideality appear by varying its factical exemplifications, inasmuch as the exemplifications can only imitate a facticity and not express or 'indicate' an ideal meaning? In short, what about the ideality of the plastic arts, of architecture? And of music, concerning which the case is even more ambiguous? (89n)

More positively, it seems to me that architecture today must labour in the studio on variations, inversions and distortions of Husserl's three eras, especially the pregeometric and the protogeometric. It must learn to dally with rough surfaces, unclean edges, muted corners, hazy lines and all of it with no point at all. If it can make do with less continuity, sedimentation, reactivation and recollection as a chain of repetitions, it may be able to do more with interruption and innovation. It may become a labour of love, an archeticture.[5]

Archeticture – still spelling it anew – would work toward an ecstatic as opposed to a foundationalist sense of space, time and the human body. Instead of the ideal chain, it would affirm the 'enchained ideality' of a 'culture enchained by its own equivocations', an ideality and a culture that Derrida finds in James Joyce rather than Husserl.[6] In the spirit of such emancipation we may want to cry, 'Architects of the world unite: you have nothing to lose but your malady of chains!' Yet phase two of Nietzsche's prescribed emancipation gives us pause. Once we have emancipated ourselves from our chains, we must emancipate ourselves from our emancipation. If we have to surrender the reassuring chains of time and mind, we will never be sure that we can surrender philosophy. Not even for Nietzsche, not even for our own origins, which are geotropisms without origin.

PAGES 12-13 BACKGROUND: Piranesi, Carceri *(detail – plate 1, 2nd state); PAGES 14-15 BACKGROUND: Piranesi,* Carceri *(detail – plate 5, 1st state)*

Notes

1 Husserl's 'Der Ursprung der Geometrie' is attached as an appendix to Edmund Husserl, *Die Krisis der europäischen Wissenschaften und die transzendentale Phänomenologie,* ed Walter Biemel, published as Vol VI of *Husserliana*, M. Nijhoff (The Hague), 1954, pp365-86; Jacques Derrida's 'Introduction' appears in Edmund Husserl, *L'Origine de la géométrie,* translated with an introduction by Jacques Derrida, Presses Universitaires de France (Paris), 1962, pp3–171. Within this text I shall refer to both works by page number in parentheses.

2 The German sentence is difficult to unravel: 'Danach vollzieht sich also durch das Niederschreiben eine Verwandlung des ursprünglichen Seinsmodus des Sinngebildes, in der geometrischen Sphäre der Evidenz des zur Aussprache kommenden geometrischen Gebildes.' Derrida has: 'Ainsi s'accomplit donc, grâce à la notation écrite, une conversion du mode-d'être originaire de la formation de sens, [par exemple] dans la sphère géométrique, de l'évidence de la formation géométrique venant à énonciation', which might be rendered as follows: 'Thus, thanks to written notation, a conversion of the originary mode-of-being of the formation of meaning is achieved, [for example] in the sphere of geometry, a conversion of the evidence of the geometric formation coming to enunciation' (186–87).

3 I have offered a critical account of these analyses in Krell, 'Phenomenology of Memory from Husserl to Merleau-Ponty', in *Philosophy and Phenomenological Research,* Vol 42: 2 (June 1982), 492-505; see also the discussion of 'The Absolute Past', in Krell, *Of Memory, Reminiscence, and Writing: On the Verge,* Indiana University Press (Bloomington, ID), 1990, pp179-87 and elsewhere.

4 Husserl, 'Der Ursprung der Geometrie', pp368 ('oder wie Architekturen und dergleichen Erzeugnisse'), 373 ('an seiner Stelle des Baues arbeitet . . . kein Bauglied inmitten des geistigen Baues'), 375 ('bei den großen Erkenntnis-bauten der Geometrie und der sogenannten "deduktiven" Wissenschaften'), 375 ('die Grundlagen des dekuktiven Baues'), 378 ('diesen logischen Bau bis ins Letzte in Evidenz verantworten', 380 ('in Enthüllung der konkreten hist-orischen Zeit, in der wir leben, in der unsere Allmenschheit lebt, hinsichtlich ihrer totalen wesensallgemeinen Struktur'), 384 ('Kunst der Aufrisse für Bauten'), 385 ('Nur auf diesem Fundament').

5 See D. F. Krell, *Archeticture: Ecstasies of Space, Time, and the Human Body* , State University of New York Press (Albany, NY), forthcoming in 1997.

6 See Derrida's extraordinary contrast between Joyce and Husserl in *L'Origine,* 'Introduction', pp104-5.

THE BERLIN ARCHITECTURE WORKSHOP

BERLIN, SUMMER, 1996

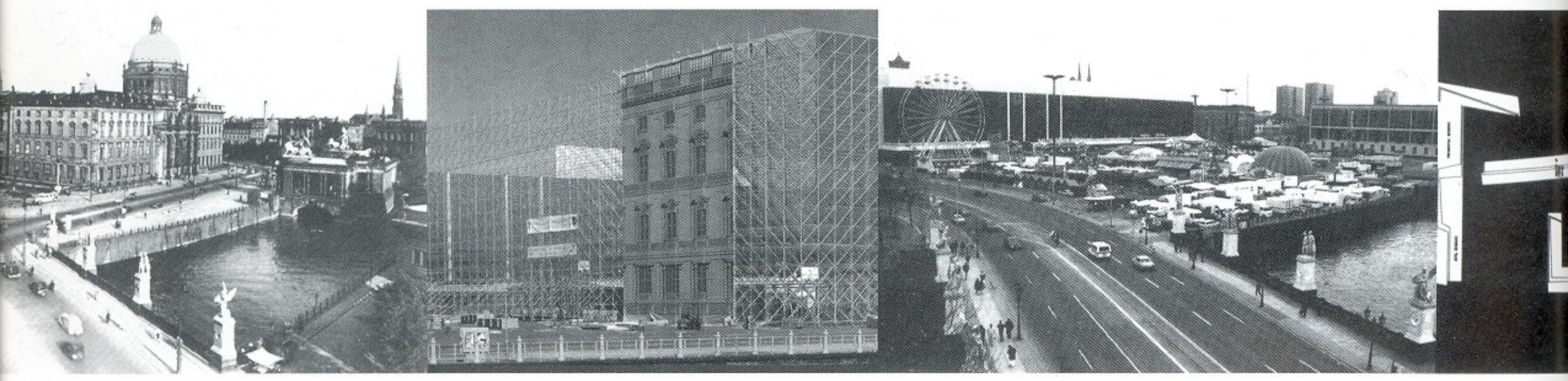
At the Berlin Architecture Workshop, which ran from 25 July until 19 August 1996, 18 students from ten countries came together, under the direction of Donald Bates and Peter Davidson of Lab. The workshop, based in the architectural gallery Aedes West, was accompanied by a series of public lectures held at Aedes East, which is located in the former East Berlin.

Traditionally, architecture and urban planning have given structure and ordering to the landscape, the city or to individual buildings by means of geometry. The grid, axiality, symmetry and radiality, represent the most explicit examples of these techniques founded on an eidetic geometric construct. As elements of geometry, each of these techniques implicates and consolidates the conditions of edge and boundary. The Berlin Architecture Workshop, however, was initiated under an alternative strategy: investigating and utilising the emergence of order out of textural and patterned differentiation. This approach suggests that discernible, identifiable differences (programmatically, tactically or architecturally as form) can be made manifest without the production of boundaries, enclaves or absolute edges.

To commence the investigations, initial graphic material, either found, drawn or computer-generated, was gathered and discussed, encouraging the construction of zones and boundaries not denoted by a single outline but extracted from a series of lines or text superimposed or overlapped. The conditions that visually distinguish between chaos and order were debated, as was how the recognition of patterns of emergence and the ordering qualities of textures necessitated different forms and types of attention. The specific means to differentiate edges and distinguish areas within graphic fields were described in their potential correlation to the demarcation of spatial, programmatic and political entities. All initial studio discussions took place against an analysis of traditional geometrical orderings and organisations of the city, with particular emphasis on Berlin. Historic and recently proposed developments (Schinkel, Le Corbusier, the Smithsons) were presented, examined and critiqued in relation to the spatial propositions they implied.

The graphic work of each studio was then specifically focused, producing a wide variety of non-geometrical, non-representational images. Critical to this operation was the oscillation and differences between images produced by hand and those by computer. The potential use of imaging tools and their correspondence to graphic conditions was investigated, producing specific images using such effects as blurring, shimmering, clouds, fog and smoke.

Once the graphic material had been sufficiently developed, the next stage of the workshop involved the testing of these graphic orderings as alternative forms of imagining and organising urban space and as potential urban descriptions. These initial investigations quickly



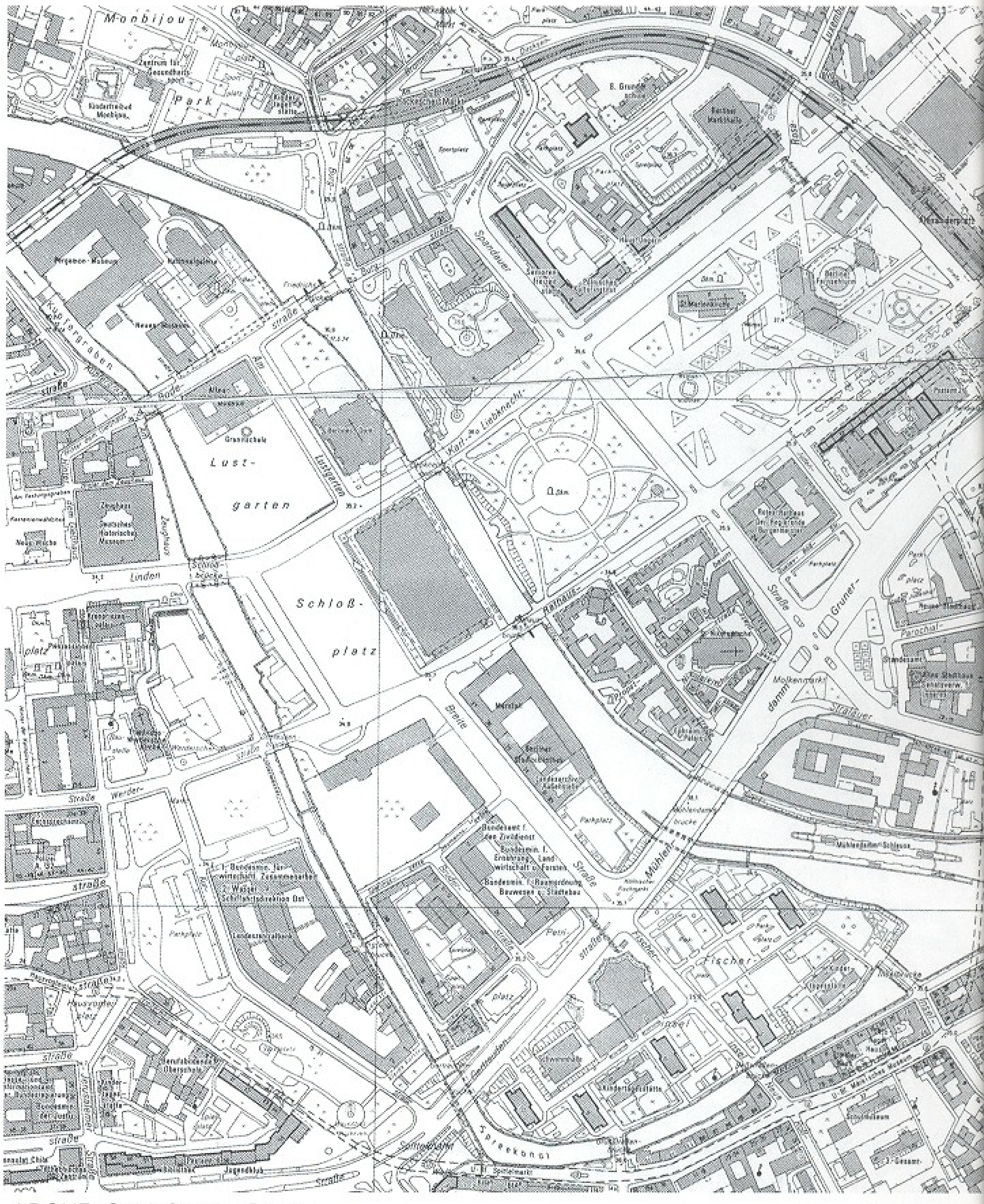
led to a questioning of the very definition of an urban site – what it is or could be – putting into question issues of extent, linkage and affiliation.

A study area and site were proposed, that of the Schloßplatz and the Spree Insel, the island forming the traditional civic and cultural centre of Berlin prior to its partition. Since unification, the site has become the focus of an excessive desire for a symbolic resolution or the reconfiguration of Berlin's glorious past. The graphic material was used as a resource to investigate, describe and formulate an architectural and/or urban proposal.

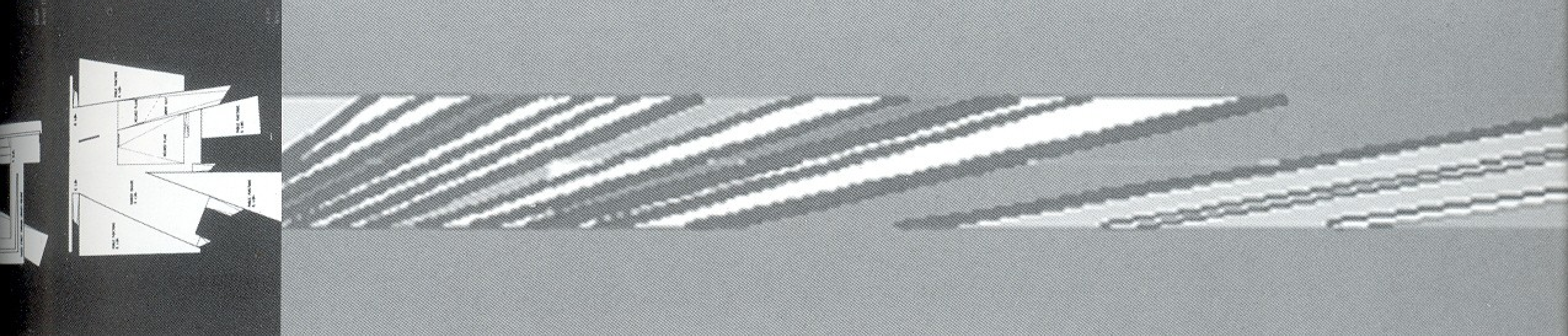
The site has remained a contentious problem since the reintegration of the two Berlins; the GDR Palast der Republik was originally to be retained but now is proposed to be demolished. The site has been the focus of several architectural competitions and proposals, yet its disposition and final form remains unresolved and without any clear direction. Further public debate raised the issue of rebuilding the old Schloß, and to this end a full-scale mock-up was erected on the site in 1994.

To counter this historicist trend, the Aedes Galerie initiated and exhibited a set of alternative proposals from a selected group of architects including David Chipperfield, Axel Schultes and Ben van Berkel.

The scenario of the Schloßplatz has been further paralysed by the apparent



ABOVE: Schloßplatz, Berlin



need to decide and determine an immediate symbolic representation of a reformed unity, even though such a unity will inevitably take a significant time to experience and appreciate. It became an understanding in the workshop that simply to maintain the status quo (under which the site alternates between a fairground and an open space) might itself be an achievement, implicitly acknowledging that it is still 'too soon' to decide anything. Perhaps there needs to be a further political maturity before such sites can or should be approached.

The workshop commenced with the participants operating on an individual basis. As the work and the themes progressed, however, common threads of thought and response were established between several members of the workshop, resulting in the formation of five consolidated groups. Each group initiated its own distinct discourse on the site and each group was self-directed, evolving a strategy that optimised the experiences of each constituent member.

An important role of the workshop was to introduce the use of the computer as a creative tool in the graphic and material description of buildings. Photoshop's and Illustrator's various filter options such as 'find edges', 'blur', 'fuse' and 'crystallise' were employed in order to evolve speculative relations between filter effects and qualities of urban analysis. The introduction of colour gradients allowed indeterminate readings of delimitations, or produced variegated transparency in textures that would normally be perceived opaquely and, vice versa, where vitreous matter seen through magnification highlights the folds in its mass.

Texture maps were recomposed to form new densities: scaled, stretched, and squashed, each time permitting new and emergent patterns and orderings. In some cases the computer was used as a catalytic agent to set off new reactions to the previous texture transformation. Reference was made to particular graphic works of Jasper Johns and Alberto Giacometti, with the examples of both using multiple lines in order to make new discernible relations between the processes of conception, making and organising and their subsequent reception, interpretation and significance.

Three of the projects are discussed below.

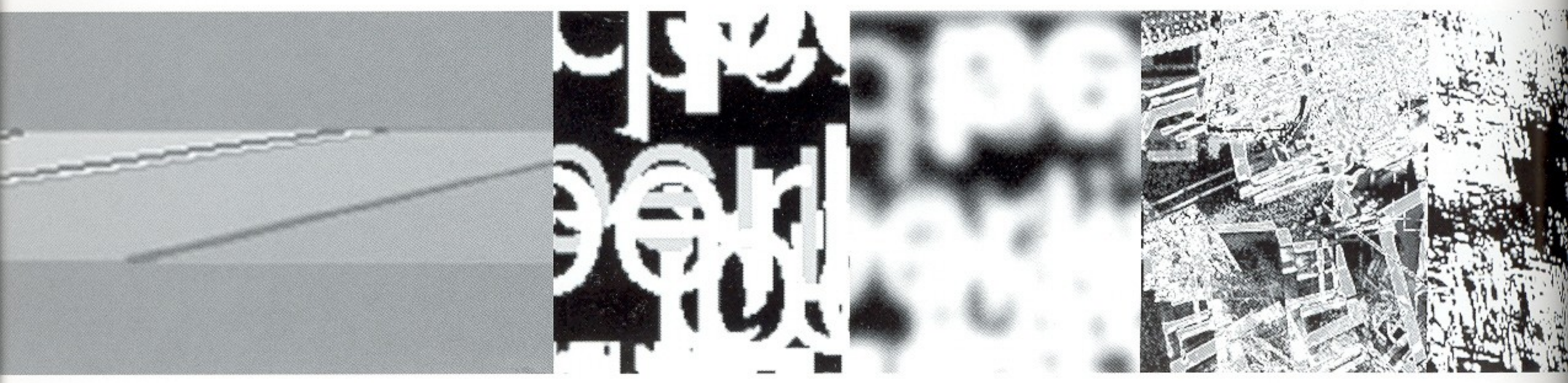
Gunter Barczik and Gese Neffe

Instigated by graphic work derived from repetitive gestures, exploring the boundary between legibility or non-legibility, of a figuration made in the same manner as its apparent (back)ground, this project investigated the mapping of apparent urban territories. The premise of these mappings was the multifarious and inclusive description of effects and zones.

Identifying the site after a number of extensive site visits and then through subsequent map readings this group determined an area for the investigation which incorporated the Schloßplatz, the Spree Insel and a limited area on either side of the Spree river. This vaguely delimited area was taken and subjected to a series of software-generated transformations producing the layered mosaic of fragmentary pieces seen here. Specific techniques attempted to diffuse the site's edges (river–land, land–land, building–building) by applying colour to various determined layers of the mapping processes. The resulting image was then re-examined using the overlap to give a new reading of the space.

This pattern, derived from the site, was then used as a basis to examine the surface of the original site using different colour, opacity and selection infill options on the software. This regenerative process produced diagrams that attempted to escape from the topographic representation of conventional maps. These rely on colour contrast with a low translucency to convey the topographical information. The most successful maps produced by this group were those that broke away from this genre.

The map featured here is one that begins to offer new possibilities in terms of layer, depth, edge and concentration. As the translucency, infill and colour types alter, the representation of the site



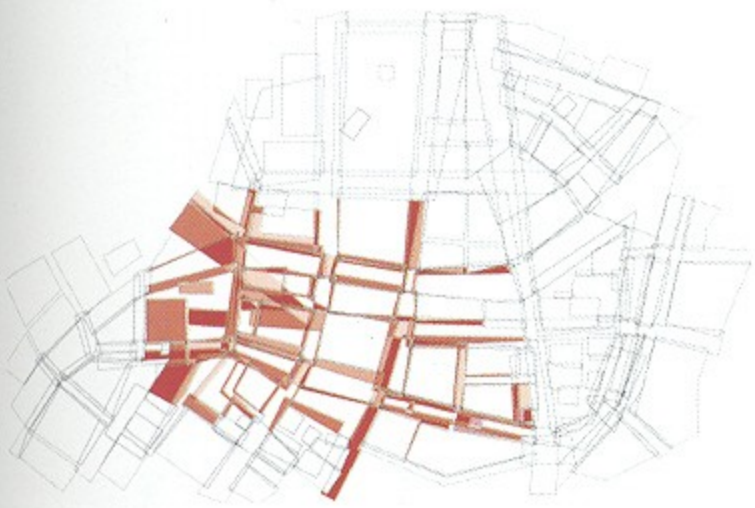
shifts. The sequence runs from an image similar to the topographic representation of conventional maps – contrast is high, edge is clearly defined, concentration difference is unintelligible and there is very little depth; to one where space has become fluid, flowing into concentrations, and where depth is increased and edge is no longer fixed.

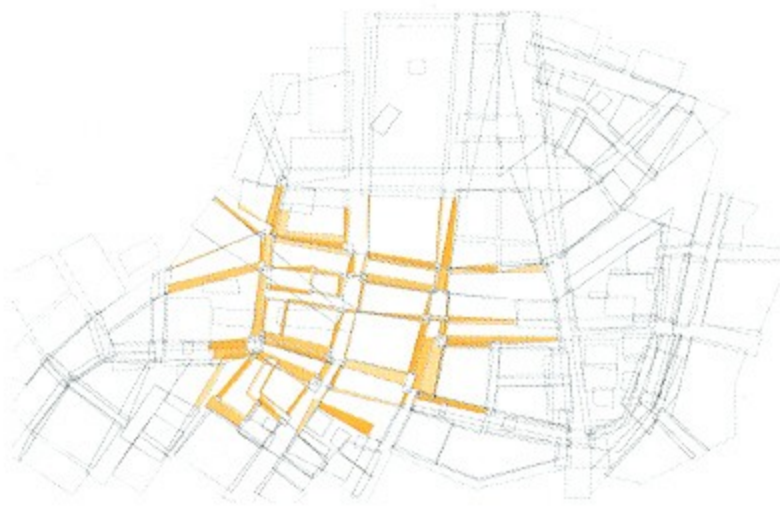
Susanne Harms and Marco Longatti with Stella Kamba

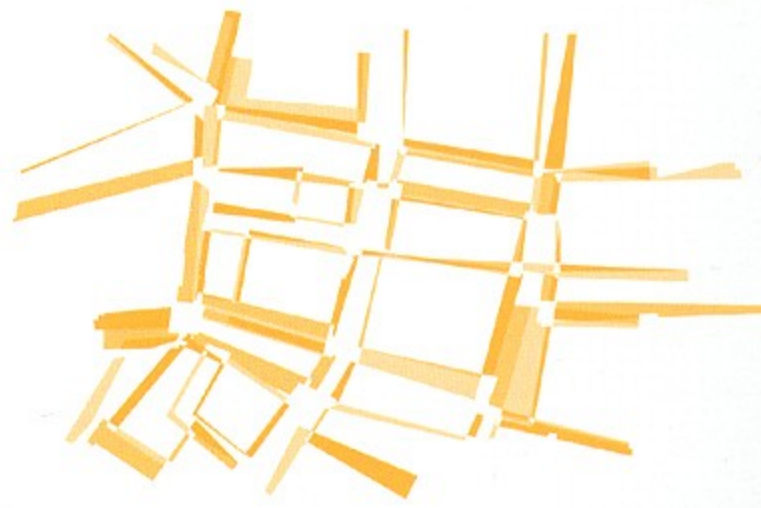
The initial site investigation looked at the event occurrence on the Schloßplatz as described by the changing water boundaries which defined the island over time. This information was subsequently filtered to create a new, more fragmented waterline which could no longer be mapped in a conventional manner. The frayed site fringe was generated by tracing and retracing over previously distorted textures in different orientations. The investigation looked at different water formations in varying physical states, to build up an encyclopedia of solid, liquid and gaseous site margins.

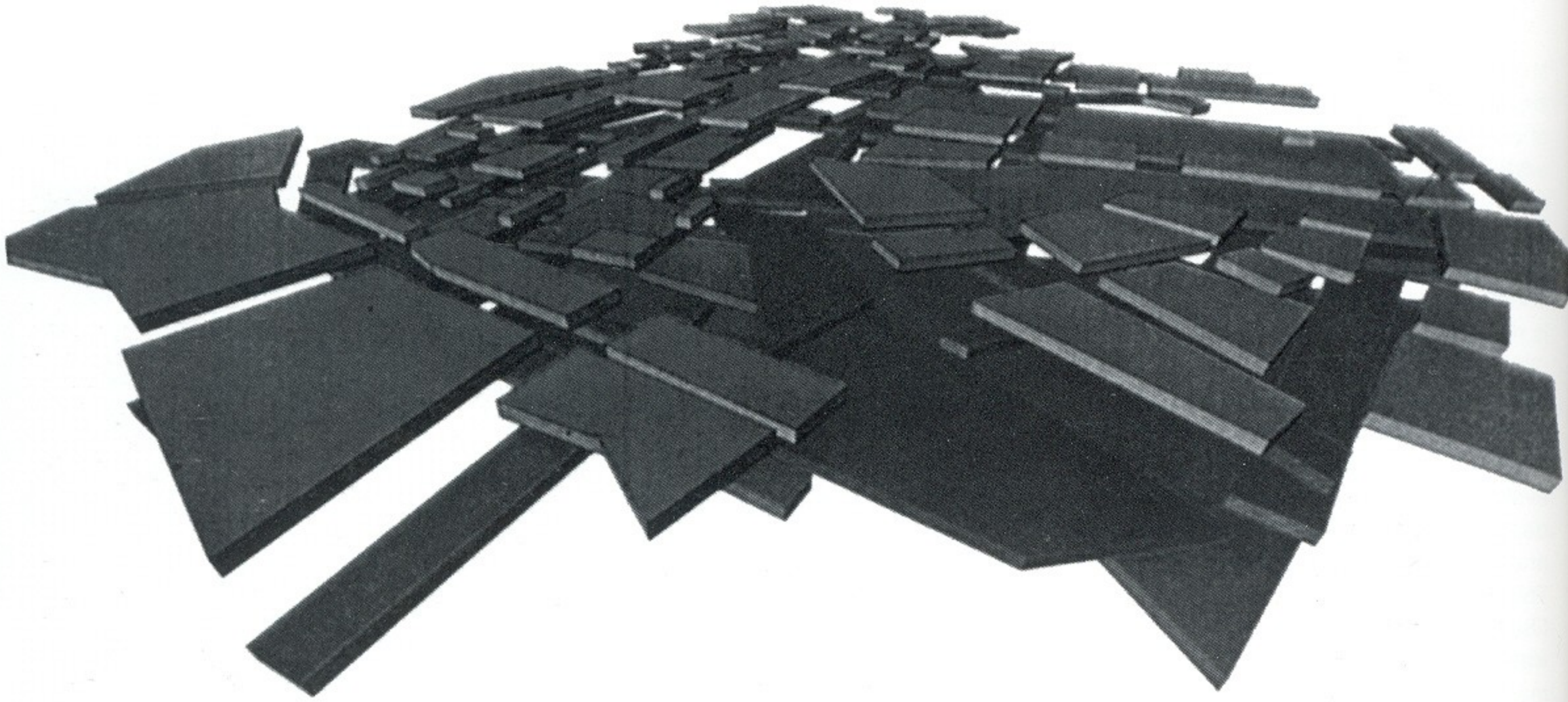
Although the work was initiated on the computer, a more intuitive approach was followed with diagrams and multiple overlays, using the computer-generated texture and the conventional site map as an information matrix to begin a re-arrangement of distinguishable parts of the site. The scales applied to different parts of the site were scripted according

ABOVE: Barczik and Neffe – layered affiliations







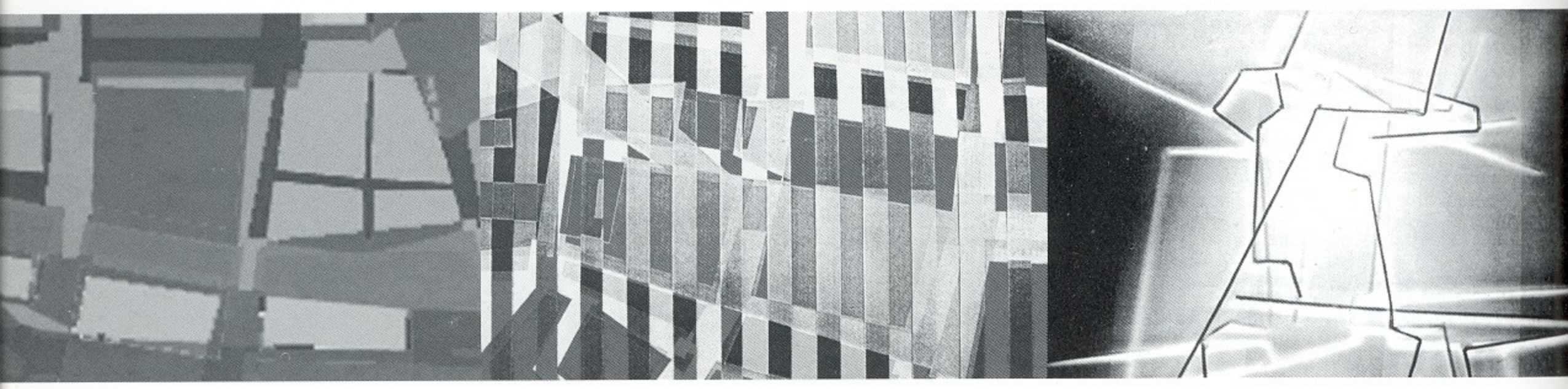


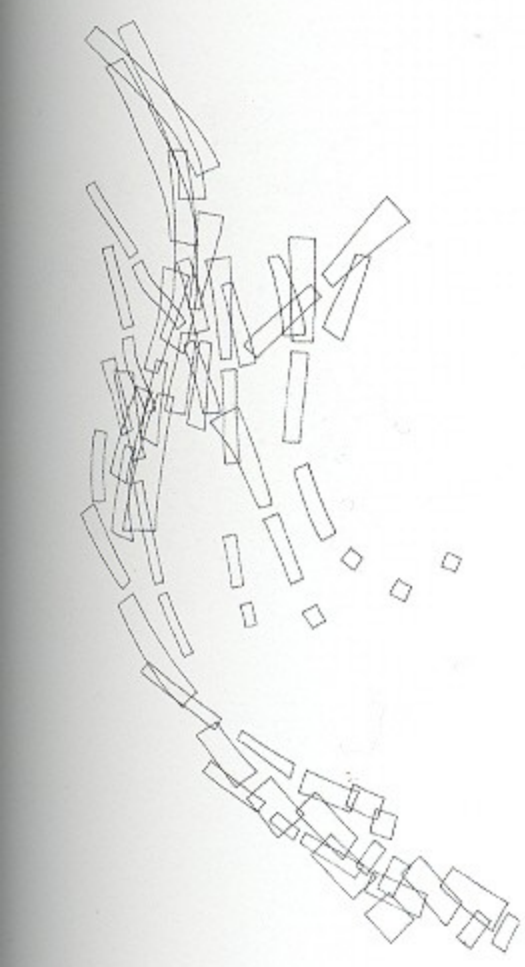
to the programmatic nature of the different areas of the Museum Insel and, to an extent, also dictated by the texture anatomy.

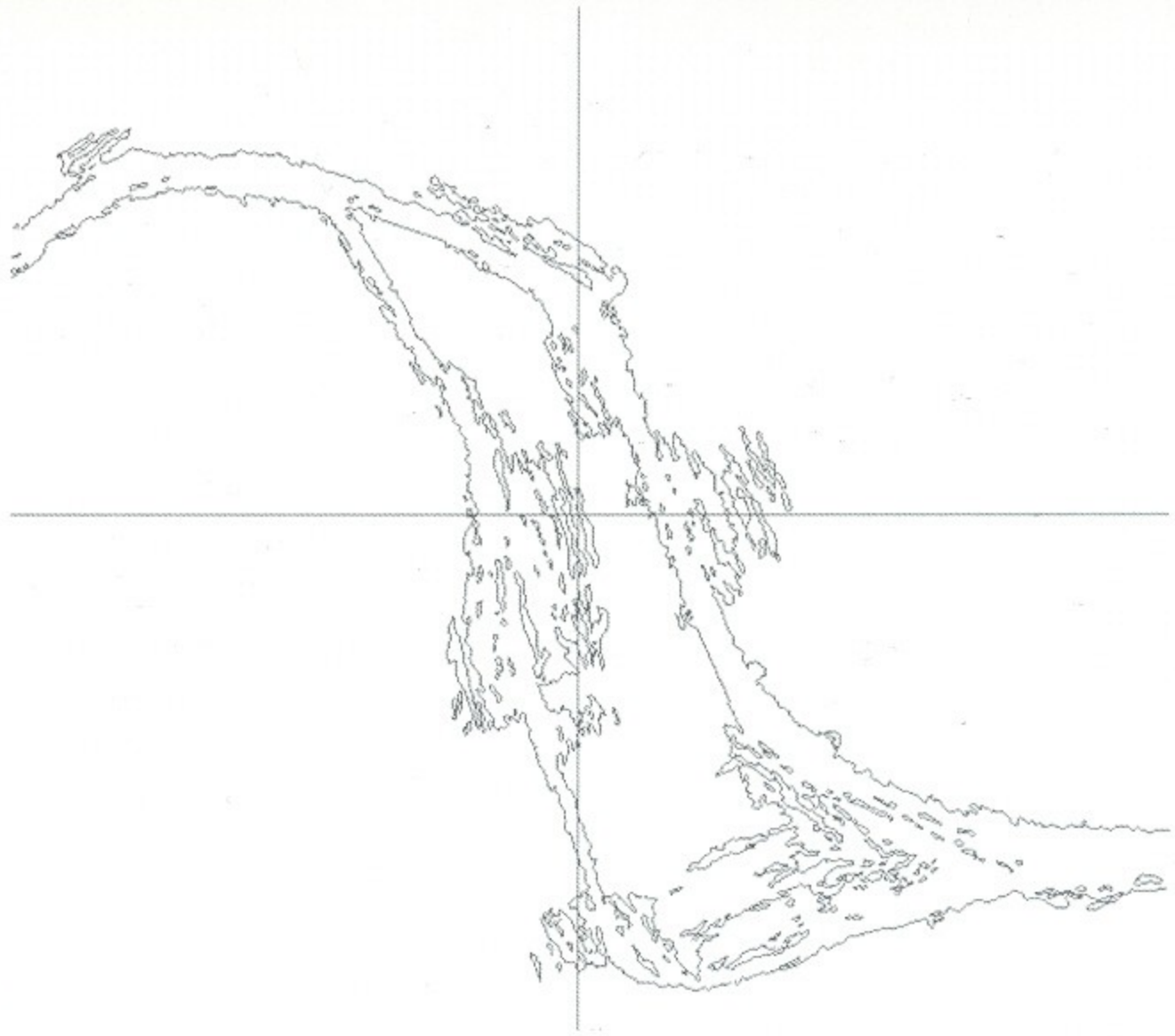
Work was continuously developed with new graphic mechanisms applied as an addition, subtraction or union. This process allowed the group to focus on particular areas of the site without subjecting the work to a reduction for programmatic intent. It was possible for several programmes to be working in conjunction with one another; clashes produced intersections that had to be addressed backwards in terms of possible events happening in that space, and reworked into the fabric of the emanating spaces. In this fashion, spaces were made to be more fluid, pouring into and infecting one another as they mutated.

An interesting investigation was that of figure repulsion, as designated by the underlying textures and maps. Fields of influence were appropriated to different areas of the texture images, which subsequently affected the process and placements of grafted patterns on the derived maps.

The consideration of landscape was investigated by studying various event patterns and biological forces occurring in nature. Foliage formations in the different seasons formed the basis of an



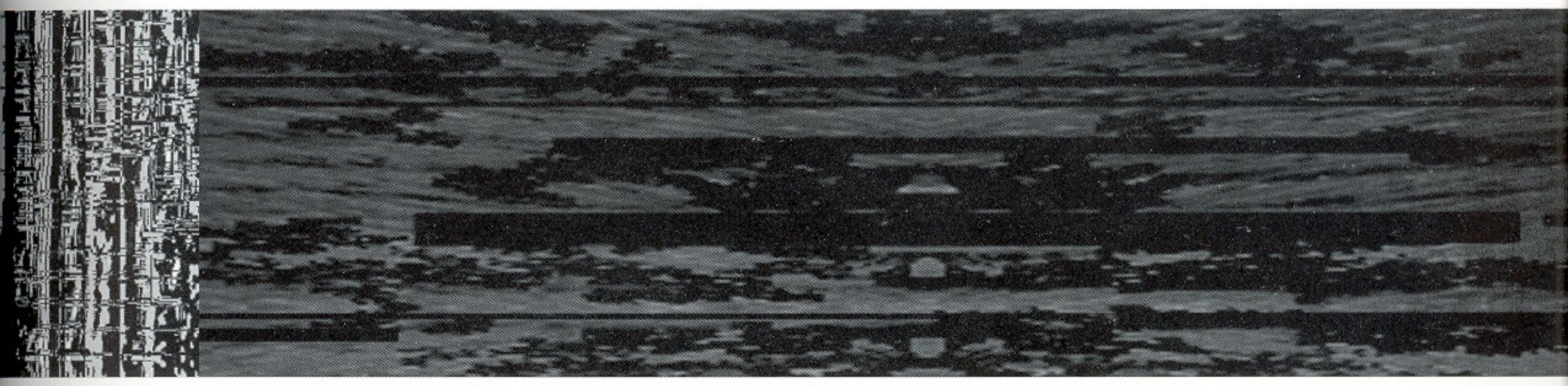




underlay and one which the group subsequently used as a directive to reformat existing parts of the site. Directional forces followed from the underlying texture pattern, creating different densities and magnitudes of events; the intersections were then extracted and placed separately on a figure map of the site, to gain a new topological reading and provide a new interpretation.

The waterline was disintegrated by scanning the 1:5000 site map into the computer; the 'find edges' filter was applied in Photoshop, and lines within a certain proximity connected to form a more ambiguous edge. 'Diffuse edges' was used to soften the boundaries, and then reworked by hand. Camouflage patterns were examined and juxtaposed on to the site to make the edges and hierarchy of the site less discernible. This exercise also provided alternative non-axial links from the island to the surrounding area. Within the new united composition of Berlin, with its duplication of all major public buildings, the group decided to disregard the Palast der Republik.

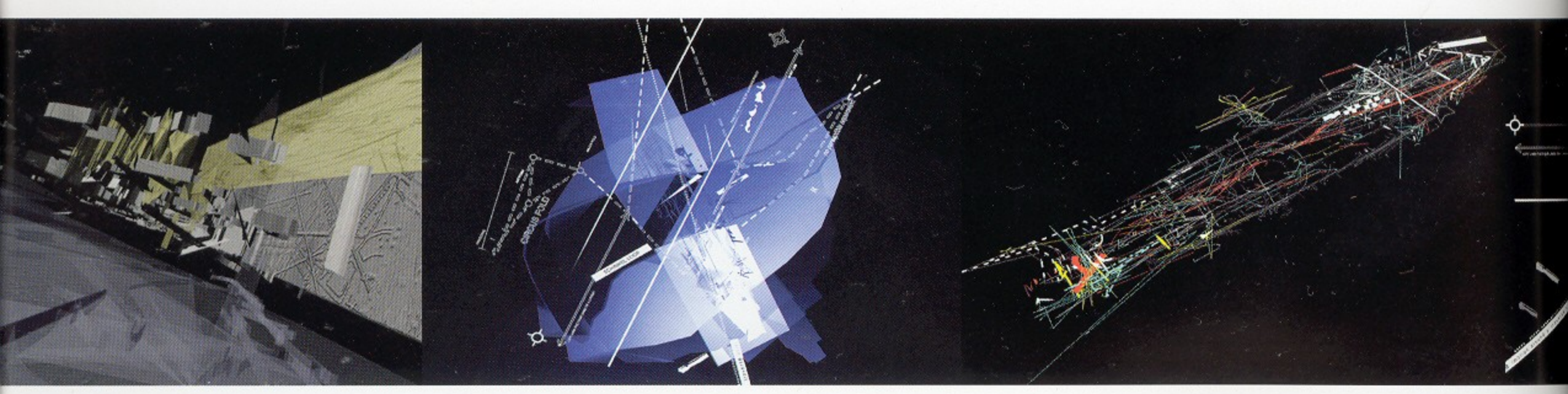
OPPOSITE: Layered site massings and overlaps; ABOVE: Harms and Longatti – edge dispersions



Zahava Elenberg, Mika Cimollini and Igor Kebel

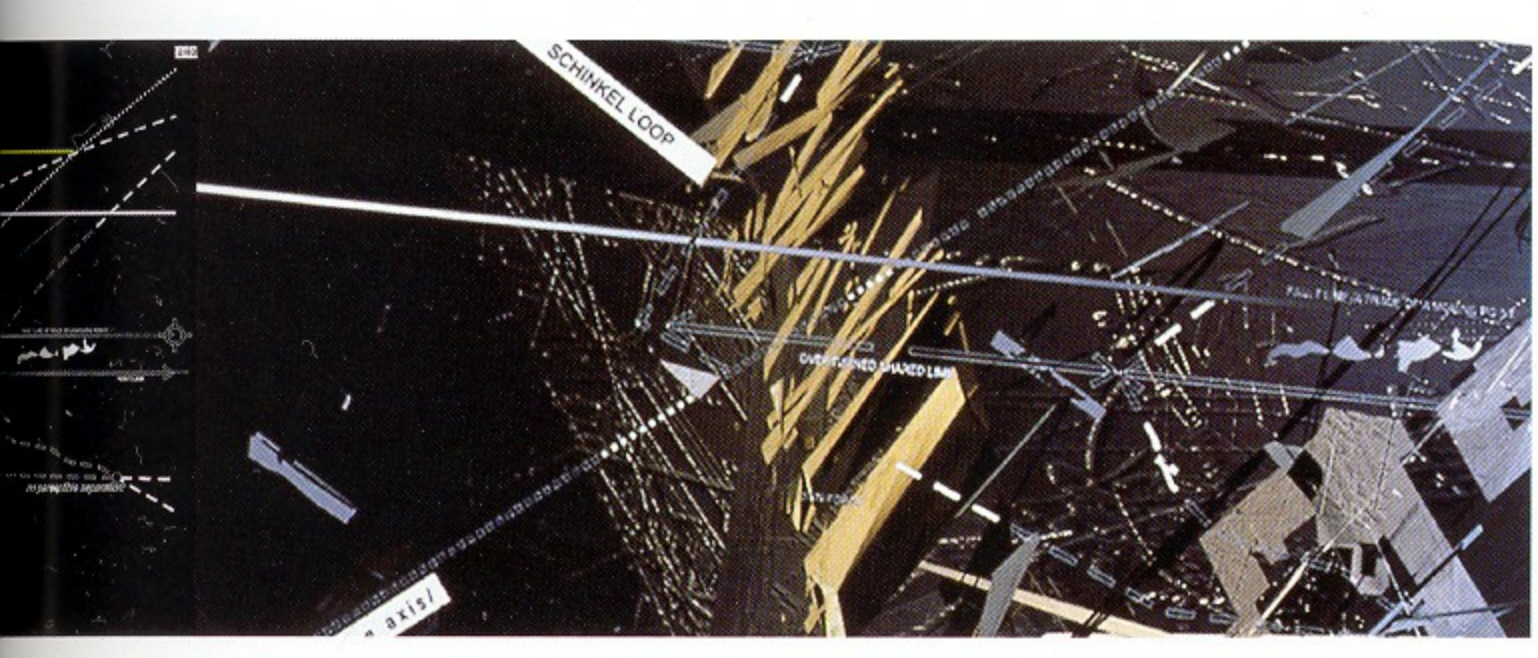
This project imagined a site that extended far beyond the explicit confines of the Schloßplatz. The group's interventions produced a reading of the site as a collision of tectonic plates, shifting and sliding in active relationship to each other. This *geometry of a moving point* treated the site as intensely relational, denying the Schloßplatz itself from being considered as a fixed point of reference. The edge conditions made visible by describing these tectonic plates formed the focus of a localised analysis of the existing conditions. These edges became the exemplary locations for speculating on new programmes and buildings within this larger site.

The Schinkel Loop was used by the group as a device to connect historical precedents (the Circus, the Unter-der-Linden axis, the museums) into a new grouping that exceeds the given island



site. The fractures implied by the tectonic plates do not remain as breaks or disruptions across the surface of the larger field of enquiry in this proposal. Rather, they are the traces of a dynamic action which is continually reconfiguring the site. As a tectonic shift, it proposes both a new relationship of one edge to another, as well as a register of previous, but now disrupted relationships.

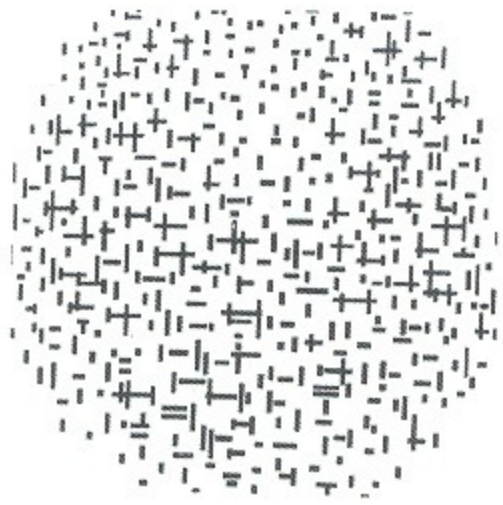
The perspectives produced by this group show the multiple scales at which these shifts are taking place, while respecting the overall site strategy as shown in the site plan. The vistas and massings are preliminary speculations on these new groupings, but which also attempt to describe the transitional nature of this proposal. While never denying the historic and current importance of the Schloßplatz, the project suggests an evolving adjustment to what can be considered the focus of an urban domain.



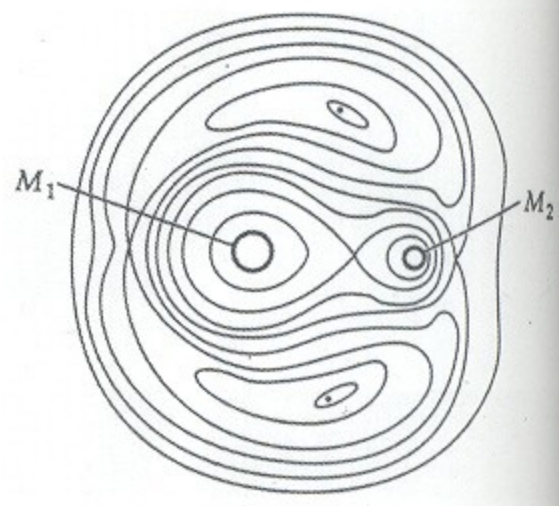
ABOVE: Elenberg, Cimollini and Kebel – volumetric zone of the Schinkel Loop, Berlin
OPPOSITE, ABOVE: Elenberg, Cimollini and Kebel – perspective of the tectonic plate structure of the Schloßplatz, Berlin

STAN ALLEN

FROM OBJECT TO FIELD



1 Mondrian



2 evolutionary change

The term 'field conditions' is at once a reassertion of architecture's contextual assignment and at the same time a proposal to comply with such obligations.[1] Field conditions moves from the one toward the many: from individuals to collectives, from objects to fields. The term itself plays on a double meaning. Architects work not only in the office or studio (in the laboratory) but in the field: on site, in contact with the fabric of architecture. 'Field survey', 'field office', 'verify in field': 'field conditions' here implies acceptance of the real in all its messiness and unpredictability. It opens architecture to material improvisation on site. Field conditions treats constraints as opportunity and moves away from a Modernist ethic – and aesthetics – of transgression. Working with and not against the site, something new is produced by registering the complexity of the given.

A distinct but related set of meanings begins with an intuition of a shift from *object* to *field* in recent theoretical and visual practices (figs 1 and 2). In its most complex manifestation, this concept refers to mathematical field theory, to non-linear dynamics and computer simulations of evolutionary change. It parallels a shift in recent technologies from analogue object to digital field (fig 3). It pays close attention to precedents in visual art, from the abstract painting of Piet Mondrian in the 1920s to Minimalist and Post-Minimalist sculpture of the 60s. Post-war composers, as they moved away from the strictures of Serialism, employed concepts such as the 'clouds' of sound, or in the case of Yannis Xenakis, 'statistical' music where complex acoustical events cannot be broken down into their constituent elements.[2] The infrastructural elements of the modern city, by their nature linked together in open-ended networks, offer another example of field conditions in the urban context. Finally, a complete examination of the implications of field conditions in architecture would necessarily reflect the complex and dynamic behaviours of architecture's users and speculate on new methodologies to model programme and space.

To generalise from these examples, we might suggest that a field condition would be any formal or spatial matrix capable of unifying diverse elements while respecting the identity of each. Field configurations are loosely bounded aggregates characterised by porosity and local interconnectivity. The internal regulations of the parts are decisive; overall shape and extent are highly fluid. Field conditions are bottom-up phenomena: defined not by overarching geometrical schemas but by intricate local connections. Form matters, but not so much the forms of things as the forms between things.

Field conditions cannot claim (nor does it intend to claim) to produce a systematic theory of architectural form or composition. The theoretical model proposed here anticipates its own irrelevance in the face of the realities of practice. These are working concepts, derived from experimentation in contact with the real. Field conditions intentionally mixes high theory with low practices. The assumption here is that architectural theory does not arise in a vacuum, but always in a complex dialogue with practical work.

The article is structured like a catalogue, with one thing after another. Part 1 is broadly concerned with issues of construction – the definition of the field, piece by piece – while Part 2 will treat questions of composition and the urban context.

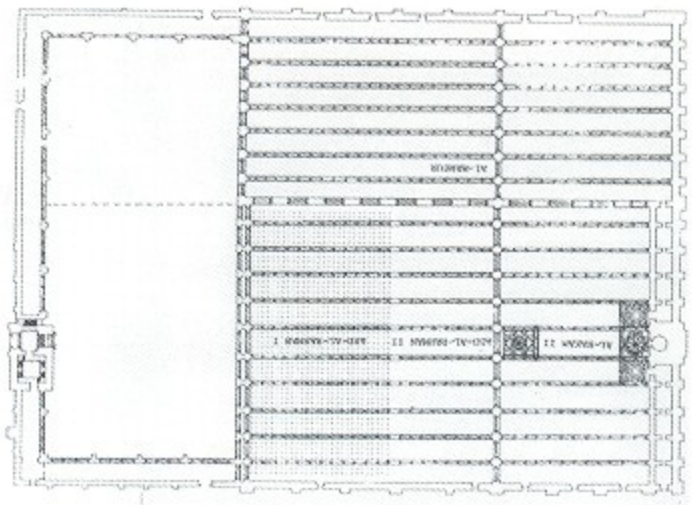
PART 1 – FIELD CONDITIONS: ARCHITECTURE AND URBANISM

Geometric Versus Algebraic Combination

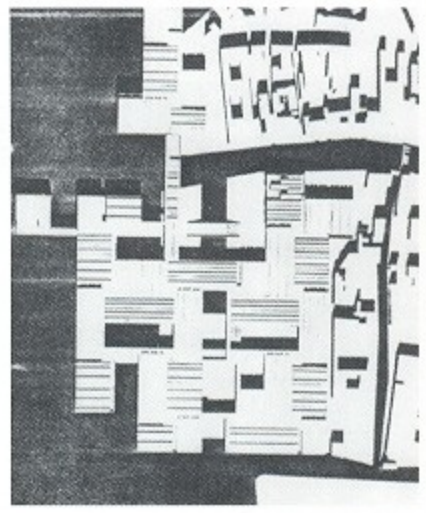
The diverse elements of classical architecture are organised into coherent wholes by means of geometric systems of proportion. Although ratios can be expressed numerically, the relationships intended are fundamentally geometric. Alberti's well-known axiom that 'Beauty is the consonance of the parts such that nothing can be added or taken away' expresses an ideal of organic geometric unity. The conventions of classical architecture dictate not only the proportions of individual elements but also the relationship between individual elements. Parts form ensembles which in turn form larger wholes. Precise rules of axiality, symmetry or formal sequence govern the organisation of the whole. Classical architecture displays a wide variation on these rules, but the principle of hierarchical distribution of parts to whole is constant. Individual elements are maintained in hierarchical order by *extensive*[3] geometric relationships to preserve overall unity.

The mosque at Córdoba, Spain, under construction over a span of nearly eight centuries, offers an instructive counter example.[4] The type-form of the mosque had been clearly established: an enclosed forecourt flanked by the minaret tower, opening on to a covered space for worship (perhaps derived from market structures, or adapted from the Roman basilica). The enclosure is loosely oriented toward the *quibla*, a continuous prayer wall marked by a small niche (*mihrab*). In the first stage of the Córdoba Mosque [*c*785 to *c*800] the typological precedent was respected, resulting in a simple structure of ten parallel walls perpendicular to the *quibla*, supported on columns and pierced by arches, defining a covered space of equal dimension to the open court. The directionality of the arched walls operates in counterpoint to the framed vistas across the grain of the space. The columns are located at the intersection of these two vectors, forming an undifferentiated but highly charged field.

3 digital field



4 Córdoba Mosque



5 Venice Hospital

Complex parallax effects are generated as the viewer moves throughout the field. The entire west wall is open to the courtyard, so that once within the precinct of the mosque, there is no single entrance. The axial, processional space of the Christian church gives way to a non-directional space, a serial order of 'one thing after another'.[5]

The mosque was subsequently enlarged in four stages (fig 4). Significantly, with each addition, the fabric of the original remained substantially intact. The typological structure was reiterated on a larger scale, while the local relationships remained fixed. By comparison with Western classical architecture, it is possible to identify contrasting principles of combination: one algebraic, working with numerical units combined one after another, and the other geometric, working with figures (lines, planes, solids) organised in space to form larger wholes.[6] In Córdoba, for example, independent elements are combined additively to form an indeterminate whole. The relations of part to part are identical in the first and last versions constructed. The local syntax is fixed, but there is no overarching geometric scaffolding. Parts are not fragments of wholes, but simply parts. Unlike the idea of closed unity enforced in Western classical architecture, the structure can be added to without substantial morphological transformation. Field configurations are inherently expandable; the possibility of incremental growth is anticipated in the mathematical relations of the parts.

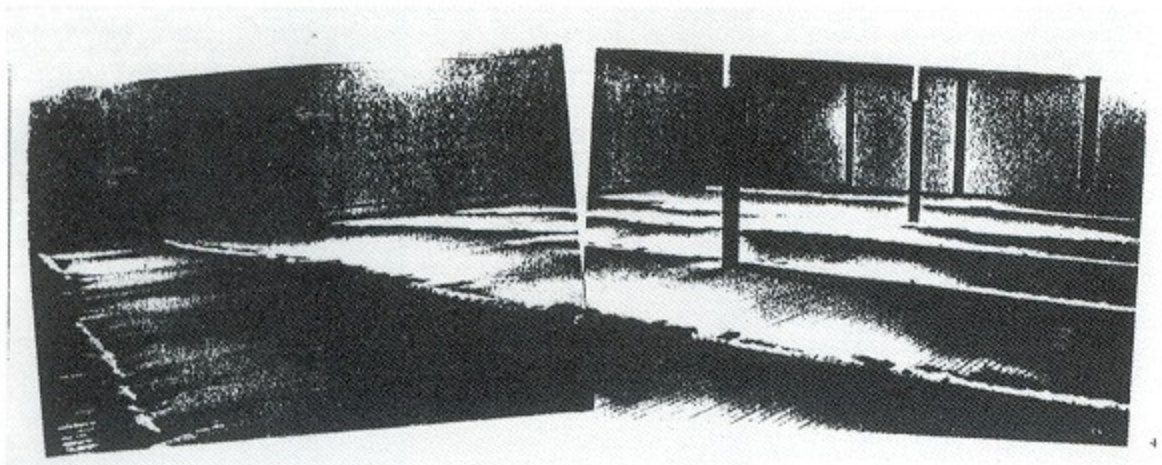
It could be argued that there are numerous examples of Western classical buildings that have grown incrementally and have been transformed over time. St Peter's in Rome, for example, has an equally long history of construction and rebuilding. But there is a significant difference. At St Peter's, additions are morphological transformations, elaborating and extending a basic geometric schema. This contrasts with the mosque at Córdoba where each stage replicates and preserves the previous stage of construction by the addition of repeated parts. And at Córdoba, even in later stages when the mosque was consecrated as a Christian church, and a Gothic cathedral inserted into the continuous and undifferentiated fabric of the mosque, the existing spatial order resists recentring. As Rafael Moneo has observed: 'I do not believe that the Córdoba Mosque has been destroyed by all these modifications. Rather, I think that the fact that the mosque continues to be itself in face of all these interventions is a tribute to its own integrity.'[7]

To extend briefly the argument to a more recent example, Le Corbusier's Venice Hospital (fig 5) employs a plan syntax of repeated parts, establishing multiple links at its periphery with the city fabric. The project develops horizontally, through a logic of accumulation. The basic block, the 'care unit' formed of 28 beds, is repeated throughout. Consulting rooms occupy open circulation spaces in the covered space between. The rotating placement of blocks establishes connections and pathways from ward to ward, while the displacement of the blocks opens up voids within the horizontal field of the hospital. There is no single focus, no unifying geometric schema. As at Córdoba, the overall form is an elaboration of conditions established locally.

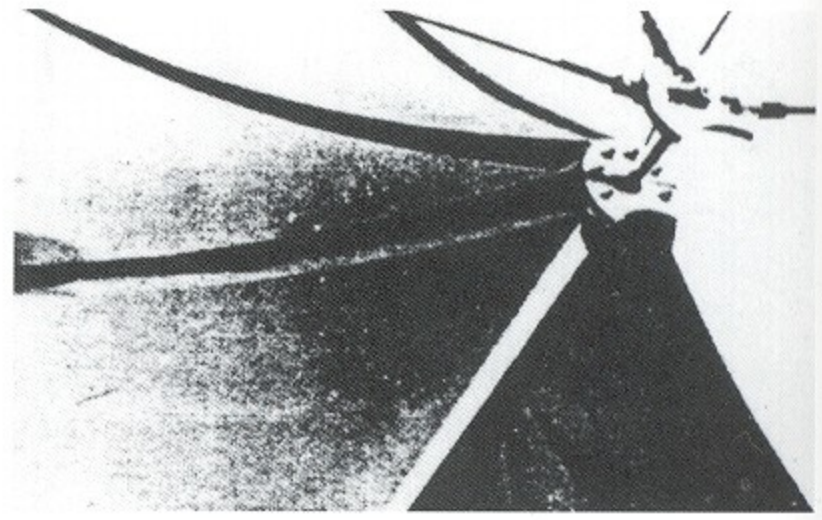
Walking out of Cubism

Barnett Newman, it has been said, used a sequence of plane/line/plane to 'walk out of the imperatives of Cubist space and close the door behind him'.[8] The story of post-war American painting and sculpture is in large part a story of this effort to move beyond the limits of Cubist compositional syntax. Sculptors in particular, working in the shadow of the achievements of Abstract Expressionist painting, felt that a complex language of faceted planes and figural fragments inherited from pre-war European artists was inadequate to their ambitions. It was out of this sense of the exhaustion of available compositional norms that Minimalism emerged in the mid-60s. Robert Morris' refusal of composition in favour of process, or Donald Judd's critique of composition by parts, evidenced this effort to produce a new model for working, a model that might have some of the inevitability that characterised the painting of the previous few decades.

Minimalist work of the 60s and 70s sought to empty the work of art of its figurative or decorative character in order to foreground its architectural condition. The construction of meaning was displaced from the object itself to the spatial field between the viewer and the object: a fluid zone of perceptual interference, populated by moving bodies. Such artists as Carl Andre, Dan Flavin, Robert Morris or Donald Judd sought to go beyond formal or compositional variation, to engage the space of the gallery and the body of the viewer. In written statements, both Judd and Morris express their scepticism toward European (that is, Cubist) compositional norms and place their work instead in the context of recent American examples: 'European art since Cubism has been a history of permutating relationships around the general premise that relationships should remain critical. American art has developed by uncovering successive premises for making itself.'[9] Both single out Jackson Pollock for his decisive contribution. Judd notes that 'Most sculpture is made part by part, by addition, composed . . .' For Judd, what is required is consolidation: 'In the new work the shape, image, color and surface are single and not partial and scattered. There aren't any neutral or moderate areas or parts, any connections or transitional areas.'[10] The aspirations of Minimalist work are therefore toward unitary



6 Barry Le Va



7 Renzo Piano

patchwork

patchwork 2

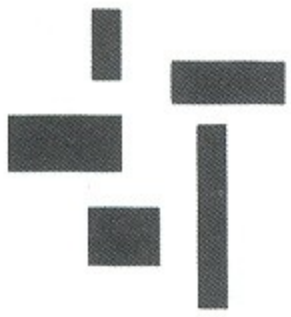
striated

felt

loose grid

striated 2

axial symmetry



peripheral composition

block composition

mosaic

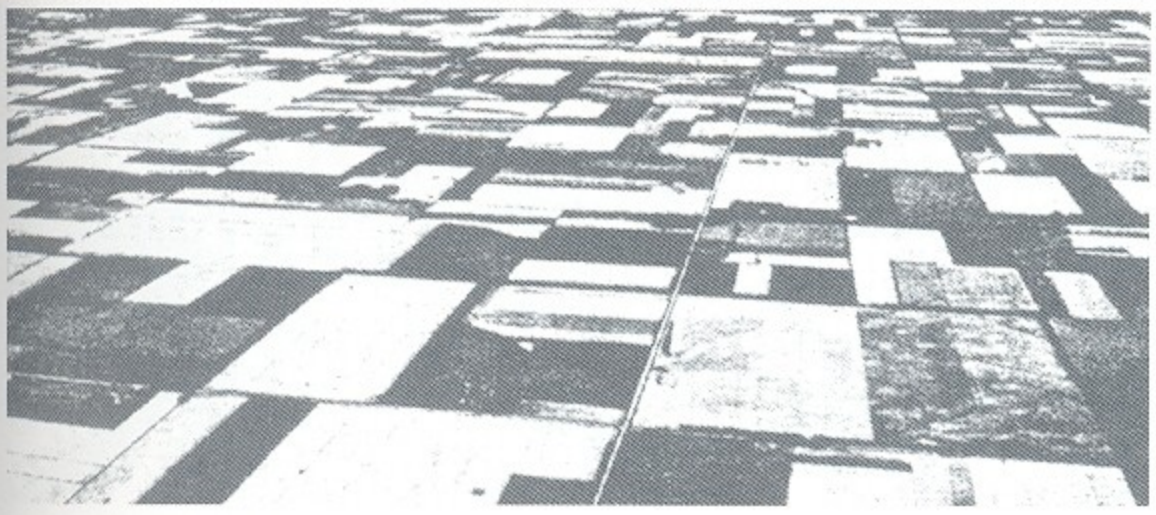
linked assemblies

collision

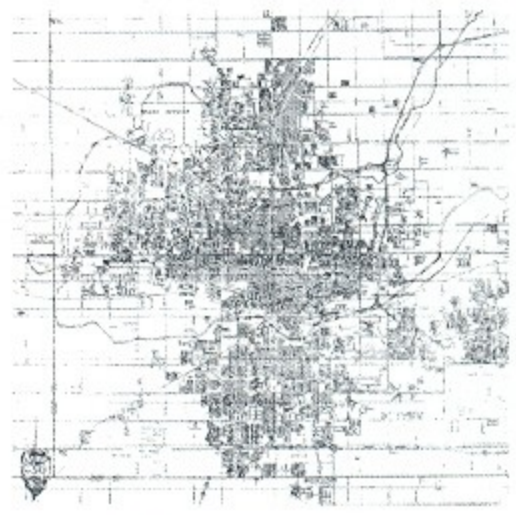
forms, direct use of industrial materials and simple combinations: a 'pre-executive' clarity of intellectual and material terms. Minimalism's decisive tectonic shift activated the viewing space and reasserted the work of art's condition as 'specific object'.

Yet if Minimalism represents a significant advance over pre-war compositional principles, it remains indebted to certain essentialising models in its reductive formal language and use of materials. Its objects are clearly delimited and solidly constructed. (Donald Judd's later architectural constructions confirm this essential tectonic conservatism.) Minimalism develops in sequences, but rarely in fields. It is for this reason that the work of artists usually designated 'Post-Minimal' is of particular interest here.[11] In contrast to Andre or Judd, the work of such artists as Bruce Nauman, Linda Benglis, Keith Sonnier, Alan Saret, Eva Hesse or Barry Le Va is materially diverse and improper. Words, movement, technology, fluid and perishable materials, representations of the body – all of these 'extrinsic' contents that Minimalism had repressed – return in modified form. Post-Minimalism is marked by hesitation and ontological doubt where the Minimalists are definitive; it is painterly and informal where the Minimalists are restrained; it remains committed to tangible things and visibility where the Minimalists are concerned with underlying structures and ideas. These works, from the wire constructions of Alan Saret, to the pourings of Linda Benglis, to the 'non-sites' of Robert Smithson introduce chance and contingency into the work of art. They shift even more radically the perception of the work, from discrete object to a record of the process of its making, in the field.

The artist who moves most decisively in the direction of what I am calling field conditions is Barry Le Va (fig 6). Partly trained as an architect, Le Va is acutely aware of the spatial field implicated by the sculptural work. Beginning in the mid-60s, he began making pieces, some planned in advance, others incorporating random process, that thoroughly dissolve the idea of 'sculpture' as a delimited entity, an object distinct from the field it occupies. He called these works distributions: '. . . whether "random" or "orderly" a "distribution" is defined as "relationships of points and configurations to each other" or concomitantly, "sequences of events".'[12] As with the other examples described above, local relationships are more important than overall form. The generation of form through 'sequences of events' is somewhat related to the generative rules for flock behaviour or algebraic combination. Le Va signals a key compositional principle emerging out of Post-Minimalism, one that is linked to previous examples: the displacement of control to a series of intricate local rules for combination, or as 'sequences of events' and not as an overall formal configuration. And in the case of Post-Minimalism, this is



8 Jeffersonian grid



9 the American city

often related to material choices. When working with materials such as wire mesh (Alan Saret), poured latex (Linda Benglis) or blown flour (Le Va), the artist simply cannot exercise a precise formal control over the material. Instead, the artist establishes the conditions within which the material will be deployed, and then proceeds to direct its flows. In the case of Le Va's felt pieces, it is a matter of relating fold to fold, line to line. In later works from the 60s, the materials themselves become so ephemeral as to function as a delicate registration of process and change.

Field Constructions

The common element in these two examples – one from within the culture of architecture, and one from outside – is a shift in emphasis: from abstract formal description towards a close attention to the operations of making. Questions of meaning are secondary. In the case of the Córdoba Mosque, the architects gave only rudimentary consideration to the exterior form (dictated by and large by the constraints of site), but paid close attention to the measure and interval of the individual elements. Similarly, a contemporary architect such as Renzo Piano works from the individual joint outwards (fig 7). For Piano, the joint is not an occasion to articulate the intersection of two materials (as is the case, for example, with Carlo Scarpa), but is instead a locus of an intensive design energy that proceeds outwards to condition the form of the whole.

What is proposed here is not simply a return to the mystification of construction and the phenomenology of materials. Rather, it is an attempt to go beyond the conventional opposition of construction and form-making. By looking for a precise and repeatable link between the operations of construction and the overall form produced by the aggregation of those parts, it becomes possible to begin to bridge the gap between building and form-making.

In *Studies in Tectonic Culture*, Kenneth Frampton has pointed to the split between 'the representational scene and the ontological construct', expressing a clear preference for the latter.[13] What is proposed here follows Frampton in its refusal of representation. The field is a material condition, not a discursive practice. But I also want to suggest that a return to the ontology of construction – solidly grounded in conventional tectonics – is not the only alternative to a scenographic or semiotic architecture. By remaining attentive to the detailed conditions that determine the connection of one part to another, by understanding construction as a 'sequence of events', it becomes possible to imagine an architecture that can respond fluidly and sensitively to local difference while maintaining overall stability.

PART 2 – DISTRIBUTIONS AND COMBINATIONS: TOWARDS A LOGISTICS OF CONTEXT

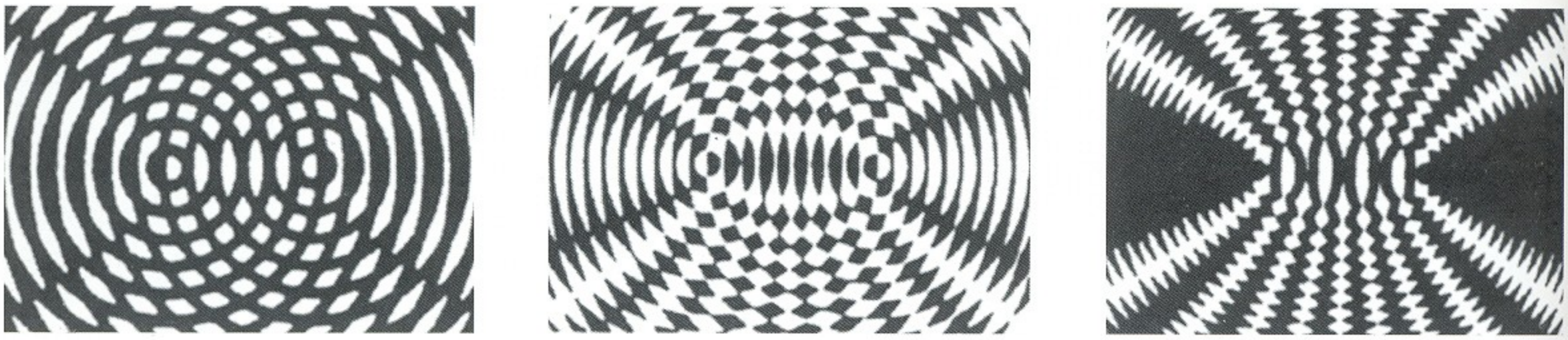
Distributions

'Field conditions' is opposed to conventional Modernist modes of composition as much as it is to classical rules of composition. My thesis here is that in Modernist composition by fragments – montage strategies that work to make connections between separate elements brought together at the site of composition – the classical assumption that composition is concerned with the arrangement of, and connections among, those parts persists. As Robert Morris has put it, 'European art since Cubism has been a history of permutating relationships around the general premise that *relationships should remain critical.*'[14] While painting and sculpture have gone beyond Cubism, architecture, I would argue, is by and large still operating with compositional principles borrowed from Cubism. The organisational principles proposed here suggest the new definitions of 'parts', and alternative ways of conceiving the question of relationships among those parts. What is required is a rethinking of some of the most familiar elements of architectural composition. Field conditions is not a claim for novelty, but rather an argument for the recuperation of an existing territory.

The American City: Open Field

The rectilinear grid is one of architecture's oldest and most persistent organising devices. From the outset, the grid supports a double valence: at once a simple and pragmatic means to partition territory or standardise elements and at the same time an emblem of universal geometries, with potential metaphysical or cosmological overtones. Hence the Jeffersonian grid, projected unconditionally over the open territories of the western United States (fig 8) is at once a symbol of democratic equality and an expedient means to manage vast quantities of territory; an attempt to impose measure on the immeasurable. But as Colin Rowe has remarked in a different context, in America, the pragmatic tends to win out over the universal. Paraphrasing Rowe, we note that in this context, the grid is 'convincing as fact rather than as idea'.[15]

The earliest examples of gridded planning in the New World were Jesuit colonies, defensive enclaves organised hierarchically around the cathedral square in imitation of Spanish models. In sharp contrast to these self-enclosed units, and equally distant from the figural concepts of eighteenth-century town planning in Europe, the American cities of the Midwest and the West are local intrications and perturbations to the extended Jeffersonian grid (fig 9). The town is an elaboration of the order applied to the farmland surrounding it. The grid is given as a convenient



10 moiré patterns

starting point, not as an overarching ideal. Over time, the accumulation of small variations establishes a counter principle to the universal geometry of the grid. In these American cities, pragmatics unpacks the ideality of the grid, in the same way as the unthinkable extent of the grid itself nullifies its status as an ideal object.

These cities are prototypical field conditions. Local variations of topography or history are smoothly accommodated within the overall order; borders are loosely defined and porous. They are connected with one another in larger networks. Organisation and structure display almost infinite variety within patterns that are publicly legible and institutionally manageable. Variation and repetition – individual and collective – are held in delicate balance.

Thick Surfaces: Moirés, Mats

All grids are fields, but not all fields are grids. One of the potentials of the field is to redefine the relation between figure and field. Legal and social theorist Roberto Mangabeira Unger has identified the traditional attributes of religious expression in the architecture of iconoclastic societies (that is to say, where explicit figuration is prohibited): 'The basic architectural devices of this expression were and are: blankness, vastness and pointing – pointing to a world outside this world . . .'[16] The conjunction, within this short catalogue, of concepts which might recall Modernist values of abstraction ('blankness') and even suggest a universal, undifferentiated grid ('vastness') with the more figural concept of 'pointing' implies something more complex than a simple opposition between the figurative and the abstract, between field and figure.

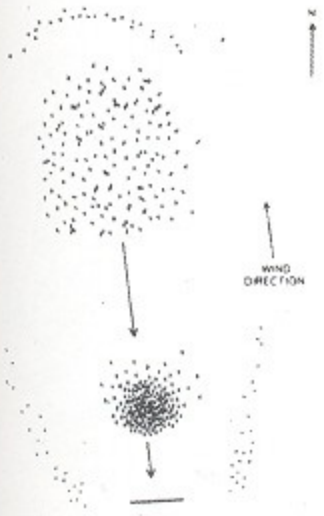
However, if we think of the figure not as a demarcated object but as an effect emerging from the field itself – as moments of intensity, as peaks or valleys within a continuous field – then it might be possible to imagine these two concepts as allied. While recognising a certain dependence on radical Modernist compositional models (Mondrian, for example), it seems important to differentiate this proposition from conventional Modernist compositional strategies. What is intended here is close attention to the production of difference at the local scale, even while maintaining a relative indifference to the form of the whole. Authentic and productive social differences, it is suggested, thrive at the local level, and not in the form of large-scale semiotic messages. Hence the study of these field combinations would be a study of models that work in the zone between figure and abstraction, models that refigure the conventional opposition between figure and abstraction, or systems of organisation capable of producing vortexes, peaks and protuberances out of individual elements that are themselves regular or repetitive.

A moiré is a figural effect produced by the superposition of two regular fields (fig 10). Unexpected effects, exhibiting complex and apparently irregular behaviours result from the combination of elements that are in and of themselves repetitive and regular. But moiré effects are not random. They shift abruptly in scale, and repeat according to complex mathematical rules. Moiré effects are often used to measure hidden stresses in continuous fields, or to map complex figural forms. In either case there is an uncanny coexistence of a regular field and emergent figure.

In the architectural or urban context, the example of moiré effects begs the question of the surface. The field is a horizontal phenomenon – even a graphic one – and all of the examples described so far function in the plan dimension. Instead of refusing this characteristic, I would suggest examining it more closely. Although certain post-modern cities (Tokyo for example) might be characterised as fully three-dimensional fields, the prototypical cities of the late twentieth century are characterised by horizontal extension. What these field combinations seems to promise in this context is a thickening and intensification of experience at specified moments within the extended field of the city. The monuments of the past, including the skyscraper – a Modernist monument to efficient production – stood out from the fabric of the city as a privileged vertical moment. The new institutions of the city will perhaps occur at moments of intensity, linked to the wider network of the urban field, and marked not by demarcating lines but by thickened surfaces.

Digital Fields

Analogue technologies of reproduction work through imprints, traces or transfers. The image may shift in scale or value (as in a negative), but its iconic form is maintained throughout. Internal hierarchies are preserved. A significant shift occurs when an image is converted to digital information. A notational schema intervenes. 'Digital electronic technology atomizes and *abstractly schematizes* the analogic quality of the photographic and cinematic into discrete *pixels* and *bits* of information that are transmitted *serially*, each bit discontinuous, discontiguous, and absolute – each bit "being in itself" even as it is part of a system.'[17] A field of immaterial ciphers is substituted for the material traces of the object. Hierarchies are distributed; 'value' is evened out. These ciphers differ one from the other only as place-holders in a code. At the beginning of this century, Viktor Shklosky anticipated the radical levelling effect of the notational sign: 'Playful or tragic, universal or particular works of art, the oppositions of one world to another or of a cat to a stone are all equal among themselves.'[18]



11 order and chaos: flocks

12 order and chaos: crowds

This evening out of value has implications for the traditional concept of figure/field. In the digital image 'background' information must be as densely coded as the foreground image. Blank space is not empty space; there is empty space throughout the field. If classical composition sought to maintain clear relations of *figure on ground*, which modern composition perturbed by the introduction of a complicated play of *figure against figure*, with digital technologies we now have to come to terms with the implications of a *field-to-field* relation. A shift of scale is involved and a necessary revision of compositional parameters implied.

It might be noted that the universal Turing machine – the conceptual basis of the modern digital computer – performs complicated relational functions by means of serially repeated operations of *addition*. Paradoxically, it is only when the individual operations are simplified as far as possible that the incredible speed of the modern computer is achieved.

Flocks, Schools, Swarms, Crowds

In the late 1980s, artificial life theorist Craig Reynolds created a computer program to simulate the flocking behaviour of birds. As described by M Mitchel Waldrop in *Complexity: The Emerging Science at the Edge of Order and Chaos*, Reynolds placed a large number of autonomous, birdlike agents, which he called 'boids', into an on-screen environment. The boids were programmed to follow three simple rules of behaviour: first, to maintain a minimum distance from other objects in the environment (other boids, as well as obstacles); second, to match velocities with other boids in the neighbourhood; third, to move toward the perceived centre of mass of boids in its neighbourhood. As Waldrop notes: 'What is striking about these rules is that none of them said "Form a flock" . . . the rules were entirely local, referring only to what an individual boid could do and see in its own vicinity. If a flock was going to form at all, it would have to do from the bottom up, as an emergent phenomenon. And yet flocks did form, every time.'[19]

The flock is clearly a field phenomenon, defined by precise and simple local conditions, and relatively indifferent to overall form and extent (fig 11).[20] Because the rules are defined locally, obstructions are not catastrophic to the whole. Variations and obstacles in the environment are accommodated by fluid adjustment. A small flock and a large flock display fundamentally the same structure. Over many iterations, patterns emerge. Without repeating exactly, flock behaviour tends toward roughly similar configurations, not as a fixed type, but as the cumulative result of localised behaviour patterns.

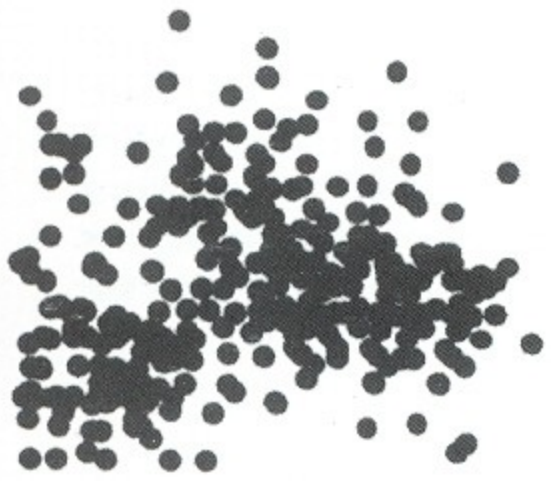
Crowds present a different dynamic, motivated by more complex desires, interacting in less predictable patterns (fig 12). Elias Canetti in *Crowds and Power* has proposed a broader taxonomy: open and closed crowds; rhythmic and stagnating crowds; the slow crowd and the quick crowd. He examines the varieties of the crowd, from the religious throng formed by pilgrims to the mass of participants in spectacle, even extending his thoughts to the flowing of rivers, the piling up of crops and the density of the forest. According to Canetti, the crowd has four primary attributes: the crowd always wants to grow; within a crowd there is equality; the crowd loves density; the crowd needs a direction.[21] The relation to Reynolds' rules outlined above is oblique, but visible. Canetti, however, is not interested in prediction or verification. His sources are literary, historical and personal. Moreover, he is always aware that the crowd can be liberating as well as confining, angry and destructive as well as joyous.

Composer Yannis Xenakis conceived his early work *Metastasis* as the acoustical equivalent to the phenomenon of the crowd. Specifically, he was looking for a compositional technique adequate to powerful personal memories:

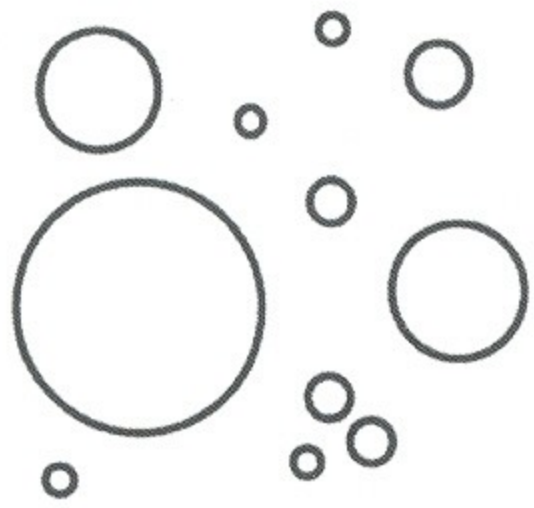
> Athens – an anti-Nazi demonstration – hundreds of thousands of people chanting a slogan which reproduces itself like a gigantic rhythm. Then combat with the enemy. The rhythm bursts into an enormous chaos of sharp sounds; the whistling of bullets; the crackling of machine-guns. The sounds begin to disperse. Slowly silence falls back on the town, taken uniquely from an aural point of view and detached from any other aspect these sounds events made out of a large number of individual sounds are not separately perceivable, but reunite them again and a new sound is formed which may be perceived in its entirety. It is the same case with the song of the cicadas or the sound of the hail or rain, the crashing of waves on the cliffs, the hiss of waves on the shingle.[22]

In attempting to reproduce these 'global acoustical events', Xenakis drew upon his own considerable graphic imagination, and his training in descriptive geometry to invert conventional procedures of composition. That is to say, he began with a graphic notation describing the desired effect of 'fields' or 'clouds' of sound, and only later reduced these graphics to conventional musical notation. Working as he was with material that was beyond the order of magnitude of the available compositional techniques, he had to invent new procedures in order to choreograph the 'characteristic distribution of vast numbers of events'.[23]

Crowds and swarms operate at the edge of control. Aside from the suggestive formal possibilities, I wish to suggest with these two examples that architecture could profitably shift its attention from its traditional top-down forms of control and begin to

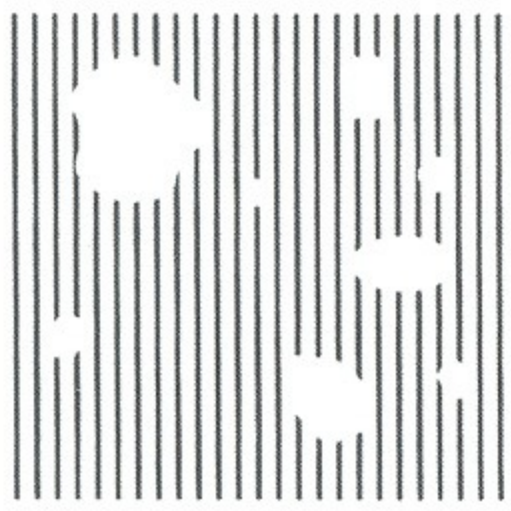


cluster



open cluster

field vectors



striated 3

field vectors

twigs

investigate the possibilities of a more fluid, bottom-up approach. Field conditions offers a tentative opening in architecture to address the dynamics of use, behaviour of crowds and the complex geometries of masses in motion.

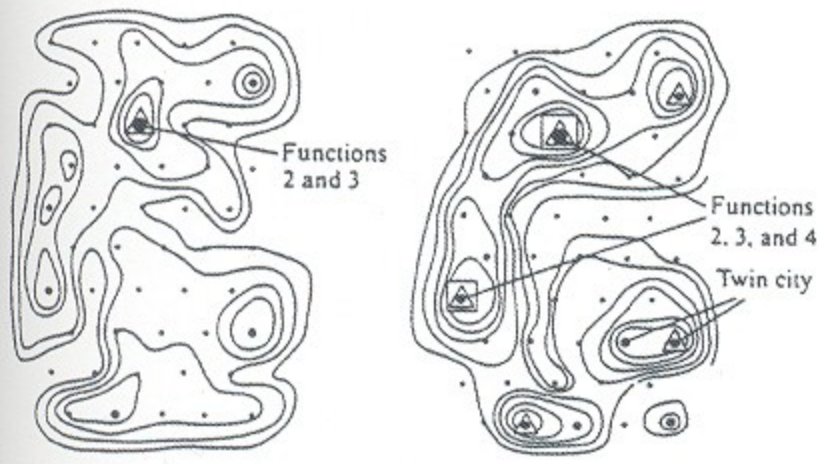
A Logistics of Context

One of modern architecture's most evident failings has been its inability to address adequately the complexities of urban context. Recent debates have alternated between an effort to cover over the difference between old and new (the contextualism of Leon Krier or the so-called 'New Urbanists'), and a forceful rejection of context (deconstruction, and related stylistic manifestations). The potential of a well-developed theory of field conditions is to find a way out of this polarised debate, acknowledging the distinct capabilities of new construction, and at the same time recognising a valid desire for diversity and coherence in the city.

How to engage all the complexity and indeterminacy of the city through the methodologies of a discipline so committed to control, separation and unitary thinking? This is the dilemma of the architect working in the city today. Architecture and planning, historically aligned with technical rationality and committed to the production of legible functional relationships, have had tremendous difficulty thinking their roles apart from the exercise of control. This is all the more true today when the real power of architecture has been eroded everywhere by a swollen bureaucratic apparatus. Architecture and planning, in a desperate attempt to survive, have simply opposed their idea of order to chaos: planning versus uncontrolled growth. But this is a kind of zero-sum thinking, in which architecture can only be diminished in the measure to which it relinquishes control over the uncontrollable. We thrive in cities precisely because they are places of the unexpected, products of a complex order emerging over time.

Logistics of context suggests the need to récognise the limits of architecture's ability to order the city, and at the same time, to learn from the complex self-regulating orders already present in the city. Attention is shifted to systems of service and supply, a logic of flow and vectors. This implies close attention to existing conditions, carefully defined rules for intensive linkages at the local scale, and a relatively indifferent attitude toward the overall configuration. Logistics of context is a loosely defined working framework. It suggests a network of relations capable of accommodating difference, yet robust enough to incorporate change without destroying its internal coherence. Permeable boundaries, flexible internal relationships, multiple pathways and fluid hierarchies are the formal properties of such systems.

Above all it is necessary to recognise the complex interplay of indeterminacy and order at work in the city. 'This place, on its



13 urban growth

surface, seems to be a collage. In reality, its depth is ubiquitous. A piling up of heterogeneous places,' writes Michel de Certeau. These 'heterologies' are not arbitrary and uncontrolled, but rather 'managed by subtle and compensatory equilibria that silently guarantee complementarities'.[24] Even a very simple model of urban growth, ignoring large-scale accidents of history or geography, but incorporating fine-grained difference in the form of multiple variables and non-linear feedback, demonstrates how the interplay between laws and chance produces complex, but roughly predictable configurations of a non-hierarchical nature (fig 13).[25] Field conditions and logistics of context reassert the potential of the whole, not bounded and complete (hierarchically ordered and closed), but capable of permutation: open to time and only provisionally stable. They recognise that the whole of the city is not given all at once. Consisting of multiplicities and collectivities, its parts and pieces are remnants of lost orders or fragments of never-realised totalities. Architecture needs to learn to manage this complexity, which, paradoxically, it can only do by giving up some measure of control. Logistics of context proposes a provisional and experimental approach to this task.

Notes

1 I first introduced the term 'field conditions', and a version of the conceptual structure outlined here, in the context of a studio taught at Columbia University in spring 1995. As the articles collected here demonstrate, I am not alone in my interest in the techniques and phenomena associated with the field. Jeff Kipnis and Sanford Kwinter should be mentioned. Here is Kwinter, for example, writing in 1986: 'This notion of "the field" expresses the complete immanence of forces and events while supplanting the old concept of space identified with the Cartesian substratum and ether theory . . . The field describes a space of propagation, of effects. It contains no matter or material points, rather functions, vectors and speeds. It describes local relations of difference within fields of celerity, transmission or of careering points, in a word, what Minkowski called the world' ('La Città Nuova: Modernity and Continuity', *Zone* 1/2 (1986), pp88–89.

2 Xenakis, who has already an intimate connection to architecture, uses language and concepts very close to those utilised here, as described by Nouritza Matossian in her biography of Xenakis: 'A concept from physics served as a useful cognitive scheme for characterising the experience; the notion of the field, a region of space subject to electric, magnetic or gravitational forces, Just as the magnetic forces create patterns in a field of iron filings, so fields of sound might be created by varying the qualities and directions of the forces, ie dynamics, frequency, duration.' Nouritza Matossian, *Xenakis*, Kahn and Averill (London), p59.

3 'One of the essential characteristics of the realm of multiplicity is that each element ceaselessly varies and alters its distance in relation to the others . . . These variable distances are not extensive quantities divisible by each other; rather each is indivisible, or "relatively indivisible", in other words, they are not divisible above or below a certain threshold, they cannot increase or diminish without changing their nature [my emphasis].' Gilles Deleuze and Felix Guattari, *A Thousand Plateaus* , University of Minnesota Press (Minneapolis, MN), 1988, pp30–31.

4 The following discussion is adapted from Rafael Moneo: 'La vida de los edificios', *Arquitecture* 256 (Sept–Oct 1985), pp27–36.

5 This well-known phrase is taken from Donald Judd's discussion of the paintings of Frank Stella. The order is not rationalistic and underlying but is simply order, like that of continuity, one thing after another.' ('Specific Objects', Arts Yearbook, 1968; republished in Donald Judd, *Complete Writings, 1959 – 1975*, Nova Scotia College of Art and Design (Halifax, NS), p184.

6 The term 'algebra' derives from the Arabic *al-jebr* ('the reunion of broken parts'), and is defined as 'the branch of mathematics that uses the positive and negative numbers, letters, and other systematized symbols to express and analyse the relationship between concepts of quantity in terms of formulas, equations etc; generalized arithmetic'. 'Geometry' on the other hand is a word of Greek origin and is defined as the branch of mathematics that deals with points, lines and solids and examines their properties, measurements and mutual relations in space. Word origins and definitions taken from Webster's New World Dictionary, World Publishing (Cleveland , OH), 1966.

7 Moneo, 'La vida de los edificios', p35.

8 Cited by Rosalind Kraus in 'Richard Serra: Sculpture Redrawn', *Artforum*, May 1972.

9 Robert Morris, 'Anti Form', *Artforum*, April 1968, p34.

10 Judd, *Complete Writings*, p183.

11 In fact much of the work developed at nearly the same time. Posat here implies a certain degree of dependence and opposition rather than chronological sequence. Note, for example, the absence of women in the ranks of the Minimalists; Post-Minimalism would be unthinkable without the contributions of Benglis or Hesse. A certain fluidity in these categories is a required; Robert Morris, for example, is often grouped with the Post-Minimalists. See Robert Pincus-Witten, 'Introduction to Post-Minimalism' (1977) in *Postminimalism to Maximalism: American Art, 1966–1986*, University of Michigan Research Press (Ann Arbor, MI), 1987.

12 Jane Livingston, 'Barry Le Va: Distributional Sculpture', *Artforum*, November 1968.

13 MIT Press (Cambridge, MA), 1995.

14 Morris, 'Anti Form', p34.

15 Colin Rowe, 'Chicago Frame', in *The Mathematics of the Ideal Villa and Other Essays*, MIT Press (Cambridge, MA), 1976, p99.

16 Roberto Mangabeira Unger, 'The Better Futures of Architecture', *Anyone*, 1991, p36. It is, of course, Jeff Kipnis who first called attention to the suggestiveness of Unger's formulation; see 'Towards a New Architecture', *AD Profile* 102: *Folding in Architecture*, pp41–49.

17 Vivian Sobchak, 'The Scene of the Screen: Towards a Phenomenology of Cinematic and Electronic Presence', *Post-Script* 10 (1990), p56.

18 Cited by Manfredo Tafuri in 'The Dialectics of the Avant-Garde: Piranesi and Eisenstein', *Oppositions* 11 (Winter 1977), p79.

19 M Mitchel Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos*, Simon and Schuster (New York), 1992), pp240–41.

20 Linda Roy has studied swarm behaviour and its architectural implications in greater depth. See her upcoming article in ANY.

21 Elias Canetti, *Crowds and Power*, Farrar, Straus and Giroux (New York), 1984, p29.

22 Matossian, Xenakis, cited from an interview, p58.

23 Ibid, pp58-59.

24 Michel de Certeau, 'Indeterminate', in *The Practice of Everyday Life*, University of California Press (Berkeley, CA), 1984, p201.

25 This discussion of the Christaller model is taken from Ilya Prigogine and Isabelle Stengers, *Order out of Chaos: Man's New Dialogue with Nature*, Bantam Books (New York), 1984, p197ff.

PETER DAVIDSON AND DONALD L BATES (LAB) WITH JEFF KIPNIS

FUTURE GENERATIONS UNIVERSITY

Central Coast, NSW, Australia

Design Concept: Patterns of Congruity, Fields of Affinities

To meet the political, pedagogical and environmental ambitions set out for the Future Generations University (FGU), the campus and site are conceptualised as an eco-system according to the following premises:

- Eco-systems are neither nature nor representations or mappings of nature; they are abstract, differential networks characterised by large numbers of diverse components that are highly mobile and linked to one another by one or more modes of communication;
- Vital, stable eco-systems operate at the edge of equilibrium. Their vitality and stability are as much products of the ability to reorganise after catastrophic change as they are effects preservative feedback systems;
- Eco-systems cannot be designed; they must self-organise through evolution. The goal of master-planning the FGU therefore becomes a best effort to structure the initial conditions and the dynamics necessary to stimulate such an evolution. In order to succeed, it must genuinely risk failure.

As such the FGU would be distinguished from typical universities in the mobility of its structures and components, its pursuit of accelerated evolution, and its tolerance of catastrophic change. To achieve this concept, our design process is modelled along the lines followed by artificial-life research, ie, it proposes an initial condition and a set of dynamic rules that are likely to evolve into an authentic, artificial eco-system. The elements of the FGU and its extended contexts are treated as components of an artificial eco-system, including, but not limited to, the curricula, the university rules and regulations, the information technologies, the landscapes, the buildings, the town and townspeople, the staff and students.

These components are organised into an initial condition by a physical *plan*, set into motion by a *programme*, and regulated by *dynamic policies*. Taken together the three constitute the inaugural fitness landscape of the university.

To build an intrinsic evolutionary bias into the fitness landscape, the physical plan, the programme and the dynamic policies must relate to one another but be entirely congruent. The strategy of stimulating evolving communication among the components of the FGU through relational incongruence runs through the scheme, not only among plan, programme and policy, but also within the sub-structures of each.

An initial trial run of ten years is proposed to test whether the initial conditions and dynamic rules self-organise is proposed. If it succeeds, the FGU will become an organism of artificial life. If it fails, it will close, or perhaps simply settle into a pleasant college.

The plan is not a simple composite image, but a series of combined systems whose domain lies at different scales, constituted in a multi-compositional cartographic method, wholly differing from collage. The graphic and thematic correspondences and disjunctions between the fields and figures of each scale are part of the plan. The three scales of combined systems are as follows:

- entire site – connections to town / landscape / movement;
- ecology systems – waste / water / energy / edges;
- (dis)figuration of building programme – campus / residential / centres / high school / retail / staging / landscaping the map – grafted topology / botanic gardens.

Educational Structures and Built Forms

It is not to be despised if, after gazing at a spot on the wall, at the coals in the grate, at the clouds, or at a flowing stream, if a painter remembers and uses some of their aspects. If the painter looks at them carefully, he will discover some admirable inventions of which his intelligence may take full advantage to compose battles of animals and men, of landscapes or monsters, of devils and other fantastic things that bring him honour and fortune. From these confused things, a painter's intelligence becomes aware of new inventions, but above all it is necessary first for him to know well how to draw all the missing parts, such as the bodies of the animals, and the landscape, rocks and vegetation.

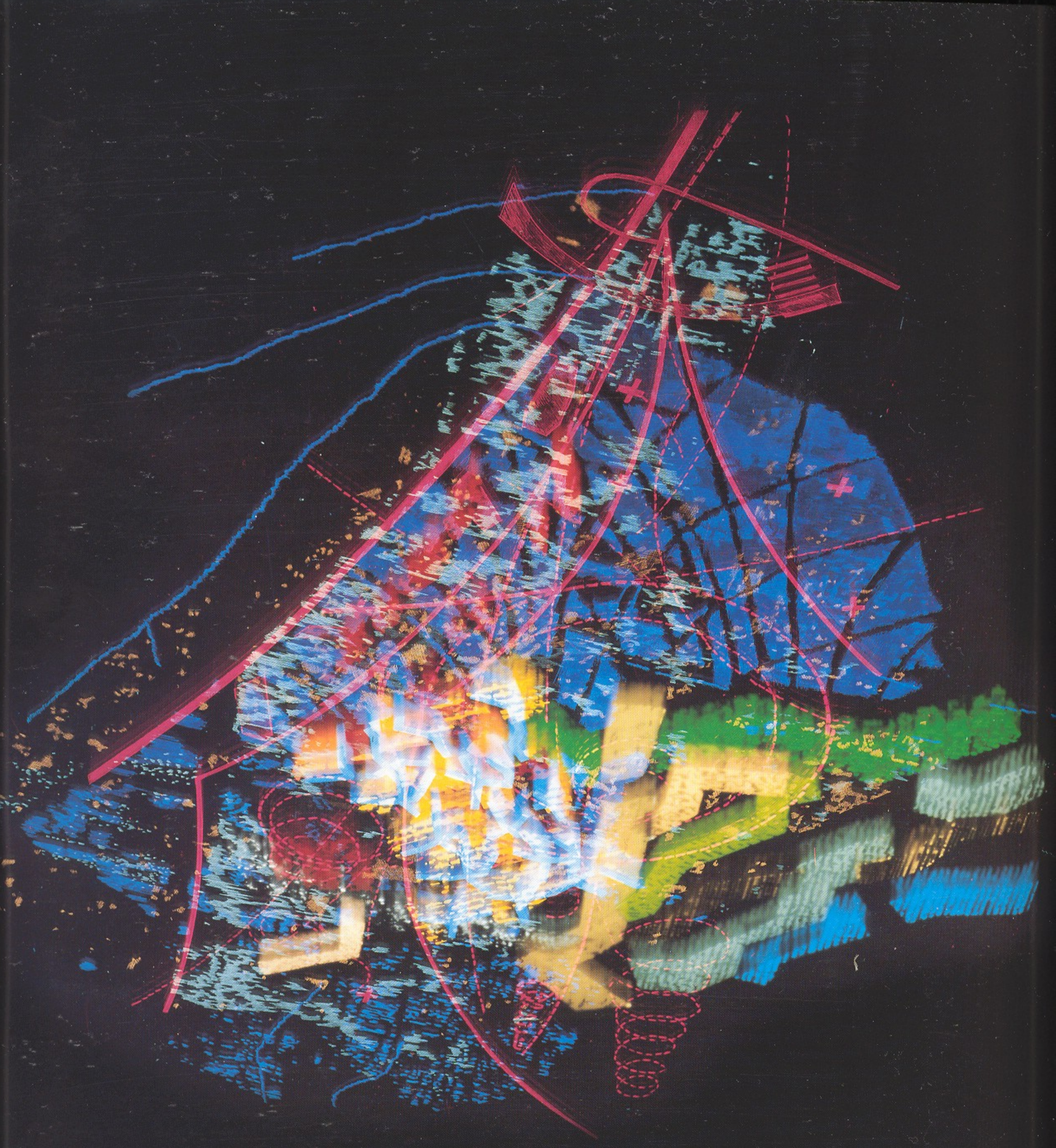
Leonardo da Vinci

Leonardo's brief remark shaped Lab's approach to educational structures and their relations to built form. Not only does it set out the terms and conditions of a substantial pedagogy, but it does so in part on the basis of a radical relationship between material form and knowledge. The implied pedagogy is entirely consistent with our concept of the FGU as an evolving, artificial eco-system.

Leonardo distinguishes between knowledge and intelligence and sets them in a necessary and sufficient relationship. While knowledge is acquired through study, intelligence continuously evolves out of the intercourse of acquired knowledge, innate talents and lived experience. He also stresses that the didactic value of any material form, of coals, clouds, etc, or by extension of buildings and gardens, exceeds every specification of it, whether natural, phenomenological, semiotic or instrumental.

Lab's programme for educational structures emphasises the coordinated acquisition of knowledge and technique in a rapidly evolving context. The programme takes advantage of large, complex problems with real-world applications and firm deadlines to mobilise the entire university, on site and off, and structure it into fluid hierarchies of ad hoc teams. In such a context, knowledge becomes a necessity and at least has the opportunity of maturing into intelligence.

The physical structures of the campus are intrinsic to educational structures. In the traditional sense, they meet the functional demands of the institution and

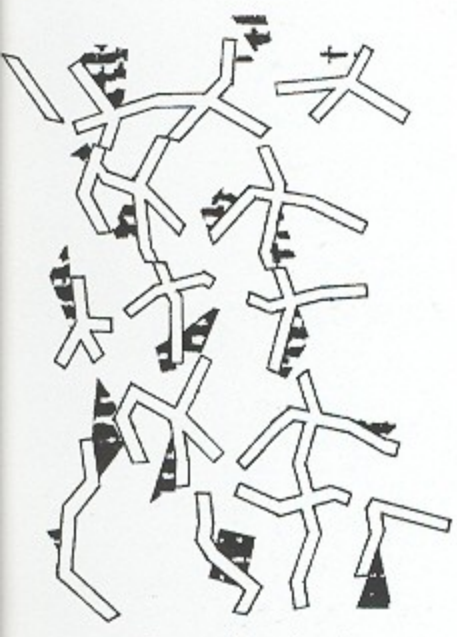


A faculties

A1 intercultural communication

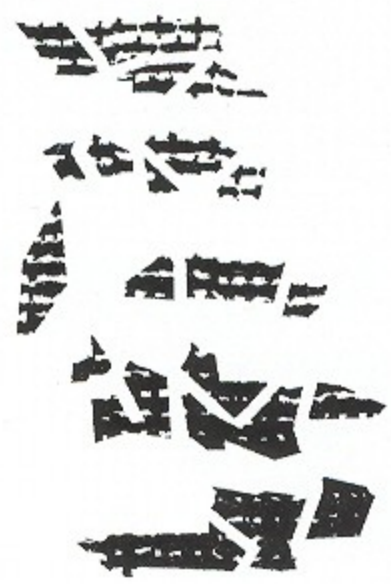
A2 manufactured ecologies

A3 sustainable management



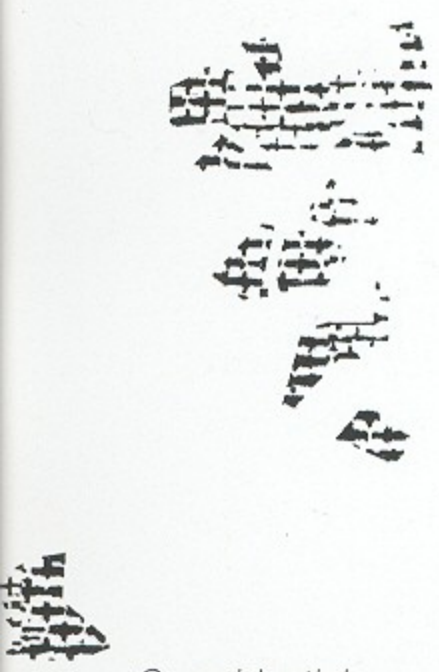
B technologies

C culinary activity / social activity



D common facilities

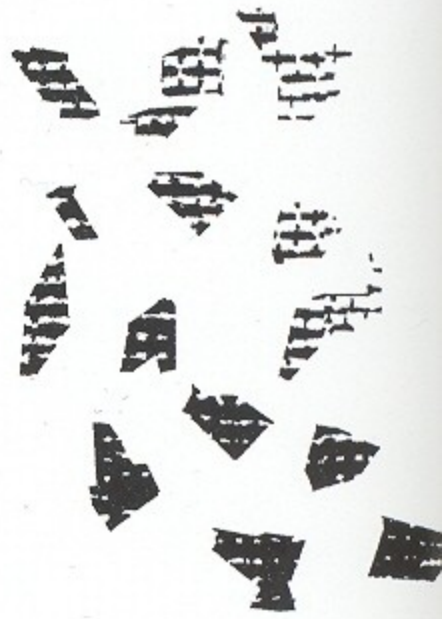
E administration / care activities



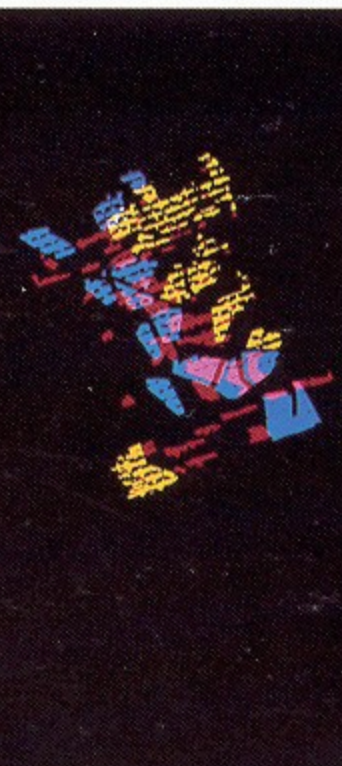
G residential accommodation

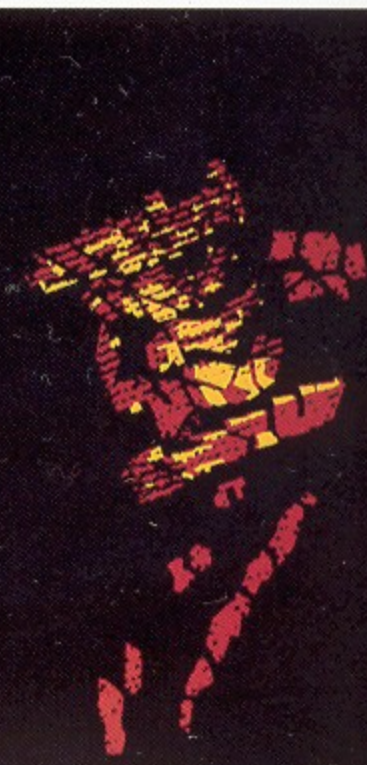
H zones of flux

I common facilities / temporary expansion

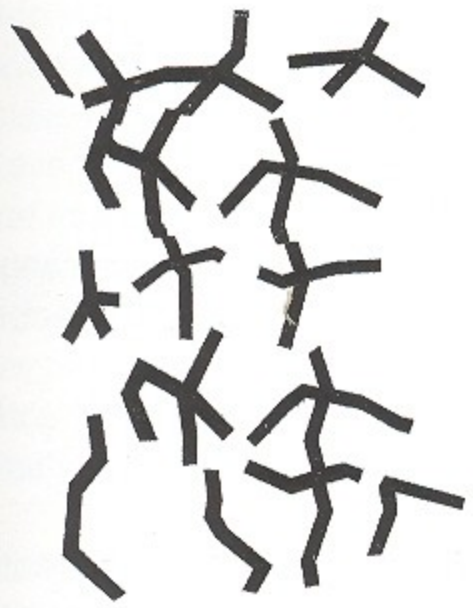


J commercial rental locations

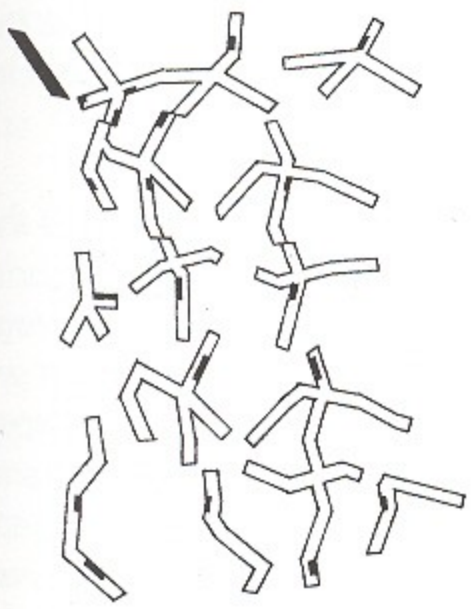




A4 community



F circulation / shear lines



K retail service nodes

create a contemporary sensibility for it. As components of an artificial eco-system, they are designed to evolve rapidly, not only in response to changes but also to initiate change. In this sense the physical structures become both model and member, symbol and instrument of the eco-system. Finally, and perhaps most importantly, the physical and organisational structures are designed in respect of the excess Leonardo so admired, to acknowledge and encourage its use as a wild card, an ongoing but undecidable influence on the evolution of the university.

Landscape and Gardens: Grafted Topology; Manufactured and Managed Eco-systems; Conservational Botanic Gardens

A grafted topology is introduced to the area designated for the main campus buildings to provide a new ground, providing a double mediation between the project and the site. The ground as such is neither original, nor is it likely, given the construction required, to survive. Lab has therefore specifically altered it to provide a distinct area for the campus and to accentuate some topographic features in relation to the specific habitats and conditions for the areas of the conservational botanic gardens.

The projected site construction, landscaping and building proposals imply a new condition for all the ecological systems of the site. The proposals cannot be implemented without change; preservation is not a viable alternative. Concentrating the development reduces the area of impact and facilitates the establishment of a bio-region, where a cluster of eco-systems is able to establish a complex condition that incorporates human settlement into the system.

The very programme of the botanic garden, collecting specimens from other regions, climates and countries, ensures that it is an artificial landscape. Instead of a separate and self-contained area, the various elements of the botanic gardens, each an endangered or pressured landscape either within Australia or from the world, have been organised as linearly interconnecting through the campus itself. This positioning ensures that the specific conditions of these environments can be mediated daily, instead of being placed in a reserve condition.

Each garden, first of all, is circumscribed within a boundary, differentiated by length and width (a minimal condition for the establishment and growth of that particular habitat). The heteronomous relation of each garden – literally out of place with one another – is the starting-point for what will emerge over and with time. Although the garden edges are drawn as a line, this is merely the delimitation of the initial planted area for each. The protectionism of a fenced or bordered reserve is eliminated, thus allowing for the future intermingling and mutation of these initially discrete categories.

The conservational botanic gardens include the following types: coastal wetlands; semi-tropical rainforest; eucalyptus forest; intensive grassland; local coastal wetlands; temperate coastal rainforest; depleted grassland; and deciduous forest.

DYNAMIC POLICIES (†) AND PROGRAMME (•)

† *Simple rules yield dynamic consequences.*

• The design, planning and implementation of the FGU's development itself is a constant subject of research and speculative proposal. The dramatic changes in energy systems, technologies and building construction prevent any categorical commitment to one approach at the present. The campus itself should provide comparative information for ongoing research and thus be a subject and object of study.

† *The curriculum is organised in a specific and particular way:*
i) one project/problem per year in which trans-disciplinary collaboration is required across all sections of the university and in its relations to external organisations;
ii) small groups working and living together in a single building;
iii) individuals working on individual research/projects whose potential relations to others' work is not yet emergent or apparent.

• The prescribed interrelations with the town reduce unnecessary duplication of facilities, enable multiple relations between the town and campus and allow the town to gain the benefits of what a doubling in population might achieve.

† *Nature has no concept of the endangered species.*

• Artificial flows and topography have been introduced, smoothed and interrelated to the existing conditions in order to contribute to the establishment of the equilibrium edge condition.

† *There are different levels of intensity with each (flow) diagram. Flow of matter and energy across boundaries should be encouraged.*

• The campus incorporates additional students, not just during term breaks, but importantly during term time to derive maximum benefit from their attendance and their interaction with staff and other students.

† *Play is institutionalised as a (unconstrained) movement of chaos, which subsequently orders transitions accomplished through it.*

• Changes in the building envelope/volume during the year for residential spaces are achieved by means of buildings composed of inflatable panels, which, using the sophisticated membrane systems now available, can provide complicated control of ventilation/light/heat. The provision for temporary increases should be a minimum of ten per cent of the normal area.

† *Parts of the campus can and should be allowed to split off over time, to become private or to devolve. Through this a new spatialisation emerges between the campus' research and business enterprises.*

• Lightweight movable elements will be used to create temporary areas or volumes of expansion with the faculties as they simultaneously effect appropriate changes in climatic control.

† *An area of the master planning is to incorporate the ideas of other groups.*

• There are zones of flux where the interface between two functions can be fluid over time. Specific adjacencies are prompted because of the variability of their programme, particularly the junction between residential accommodation and teaching faculties.

† *All buildings should physically touch/embed into one another, even if they are not functionally connected.*

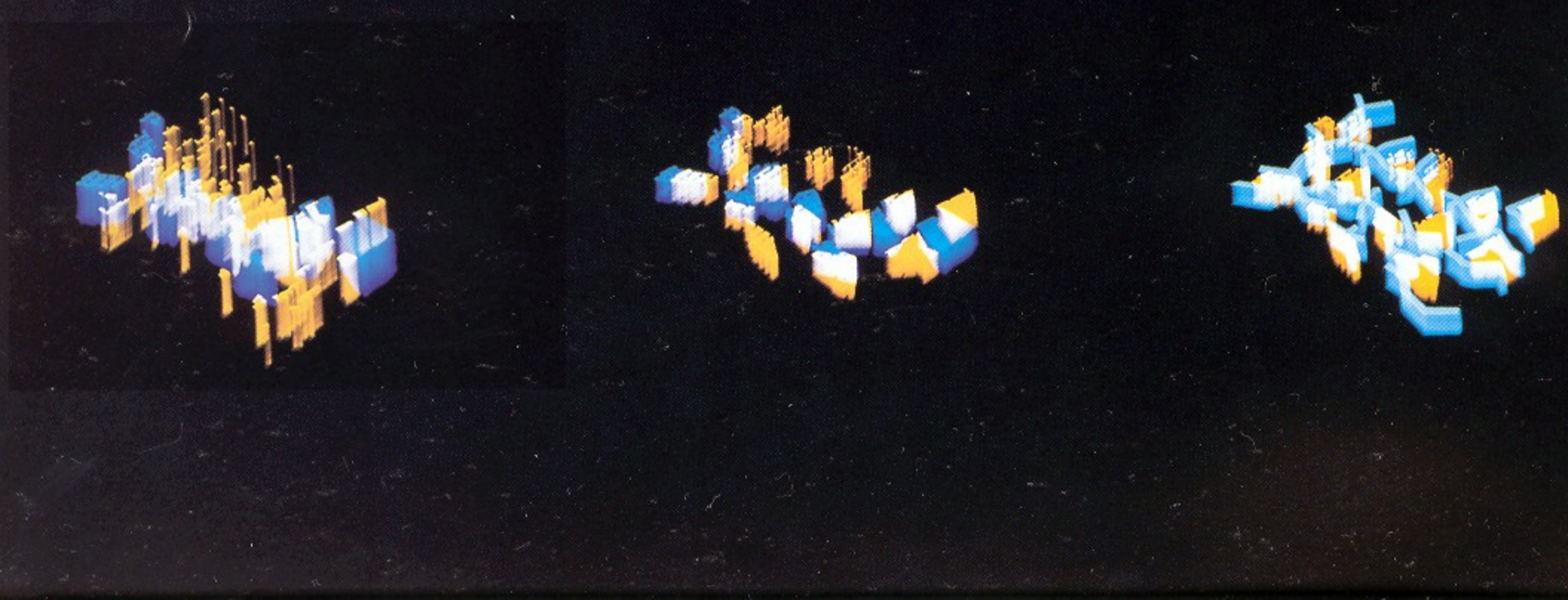
• The buildings in the zones of flux are to be designed to allow for ease of alteration, by open, columnar spaces, and the use of low-cost, maximum recyclable components. Placement of these zones within the campus, rather than on its edges, allows the areas of change to have a potentially greater effect.

† *Evolution of the Campus Plan is related to, but not derived from, the Curriculum Programme.*

• The culinary, through the locations, types, sizes and dispersion of kitchens, cafés, restaurants and dining rooms across the site, will effect and influence the organisation of the campus through the priority given to the multiple kitchens and eating areas.

† *No more than 20 per cent of the libraries' information is to comprise paper-based text. This percentage can be measured by page, by cost and by currency, but not by physical space.*

• Simple rules for service systems which can yield dynamic consequences. Different levels of intensity with each



(flow) diagram. Flow of matter and energy across boundaries creates changes of state.

† *Continuous surfaces should connect buildings through the landscape and allow for direct entry by roller-bladers and interspersion with pedestrians.*

• Prosthetics, such as roller-blades, bicycles and wheelchairs are encouraged to alter the temporal effects of the spatial dispersion of the campus. An engagement with the potentialities of movement allows for different territorialisations and congruities through the campus as a function of the speed of connection between them.

† *Rules of interaction between speeds:*
i) the pedestrian has right of way except on upgrades of greater than 5 degrees;
ii) vehicles move down/ bikes and blades move over.
Occasionally everything is allowed to mingle.

• The implementation of Stage 2 involves a densification and therefore evolution of the plan, not its simple growth or extension. An emergent order in Stage 1 may be consolidated or altered in Stage 2. Attention should be paid to both possible conditions.

† *The construction and density for Stages 1 and 2 proposals are intended for the evolution of the campus, not just increasing it by replication or extension. As the campus develops, its qualities and characteristics should also change.*

• Stage 2 should be planned specifically so as to permit construction within the domain of Stage 1, allowing it be disruptive in a positive way, and thus encouraging temporary or permanent variations in the intended configurations.

† *Between Stages 1 and 2, therefore, the density of certain areas will increase as the campus reaches its proposed completion through the following tactics:*
i) buildings will be altered and added to;
ii) temporary buildings (used for the duration of Stage 1) will be relocated;
iii) buildings will be constructed within the domain of Stage 1.

• Feedback is to be managed and incorporated within all aspects of the planning process, without it depreciating the value of proposals and plans. The implementation of Stage 2 would be likely to include deflection and alterations to that conceived at Stage 1.

• Some building elements, particularly those demountable / inflatable types proposed for temporary accommodation, may be used on a continual basis during Stage 1, and additionally shift their position on site during Stage 2.

• If the location for additional floor levels in Stage 1 corresponds to the position of a building element which takes up a new position during Stage 2, this relation will eliminate the necessity for temporary roofing systems.

† *A Temporary Plan for the site implementation of the project (Stages 1 and 2) should be developed in the next design stage of the project. This plan for the site implementation should provide a transformation between the existing conditions and the proposed campus at many levels. The correspondence between site and proposal attempt to begin the implementation of the university and the project's principles as soon as possible.*

• The campus, both its faculties and residences, might be constructed with deliberate excess accommodation (minimum five per cent to a maximum ten per cent) which is to be rented out for a maximum period of two years. Such accommodation could be used for small/ start-up groups, research and development companies, which may carry out work in conjunction with the FGU.

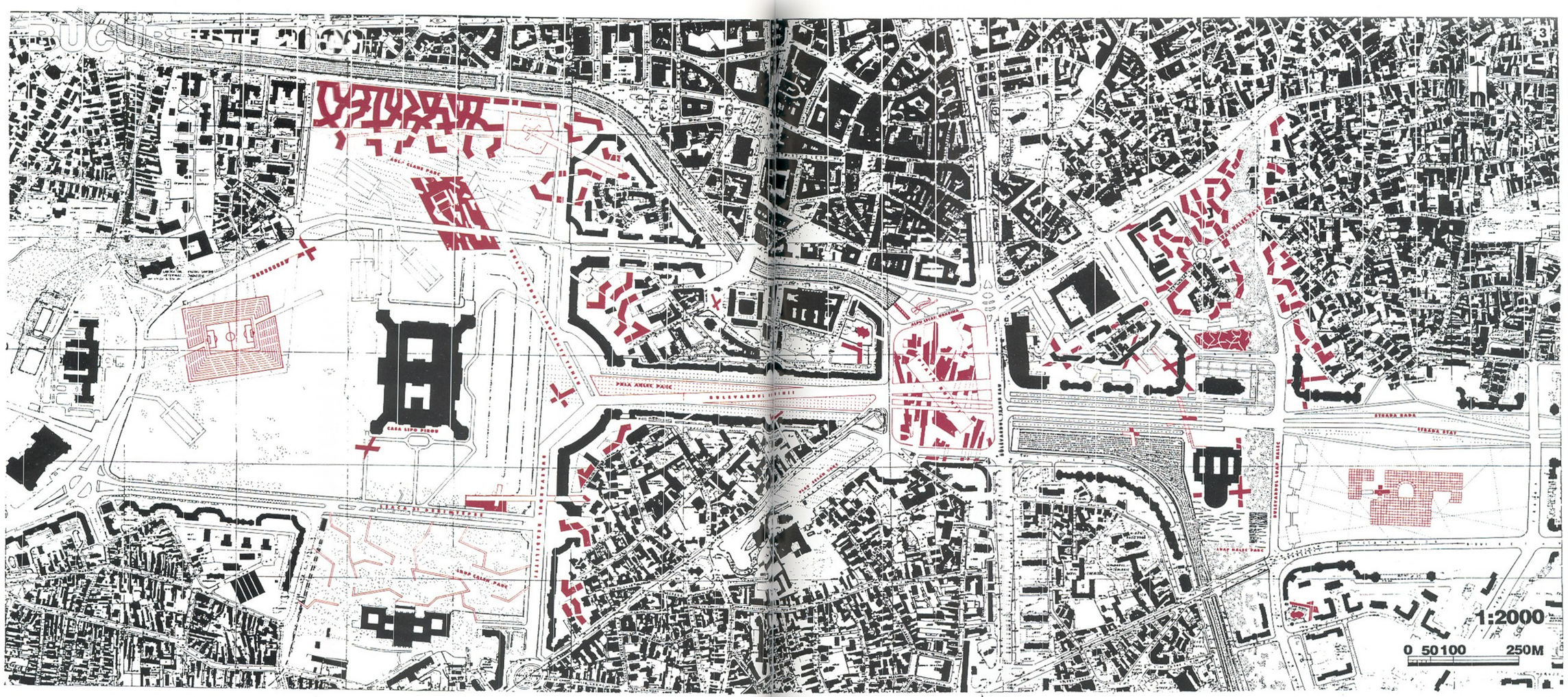
• The Campus Plan and the Curriculum Programme must be replaced over a ten-year span. This means that the existing buildings, site organisation, campus relations, faculty designations, and so on, will be have to be rethought and reconstituted.

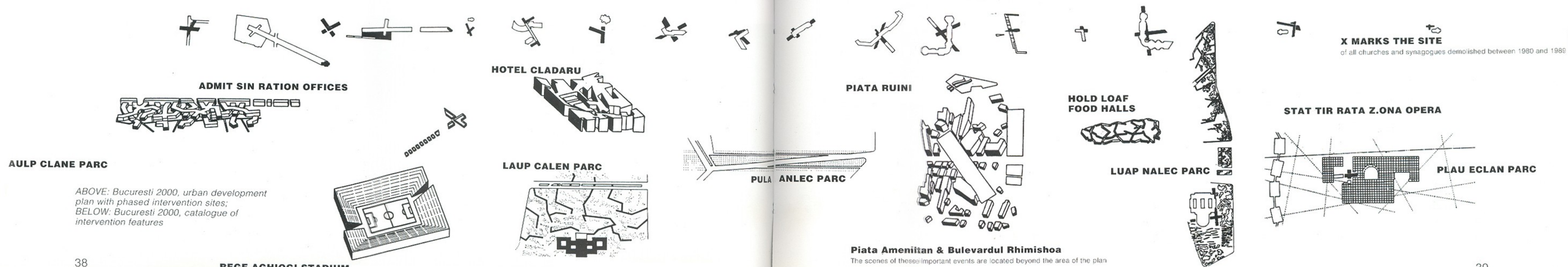
• In relation to this, the detailed design of the conservational botanic gardens should conceive of a ten-year life span, after which a certain (maximum) level of entropy in each garden will have occurred. The originally planted edges to the gardens will have disappeared over time; new edges might subsequently be instated, determined from the then-existing conditions, thereby delineating new gardens.

† *The boundaries or edge of each botanic garden are not to be patrolled, maintained or gardened.*

• Buildings with a short life should be keyed to this same ten-year period so that new policies in relation to materials might be introduced, given the changes expected in technologies.

Combinatorial arrangements of faculties, activities, technologies, accommodation and landscapes showing affiliations and programme/policy interfaces. Each arrangement is a speculation on a possible evolved state, relative to initial conditions.





ABOVE: Bucuresti 2000, urban development plan with phased intervention sites;
BELOW: Bucuresti 2000, catalogue of intervention features

PETER DAVIDSON AND DONALD L BATES (LAB)

BUCURESTI 2000 MASTER PLAN

Bucharest, Romania

Reading Cioran's aphorisms as urban policies might suggest a radical acceptance of the entire city of Bucharest as a given, the supplanting of judgement by an acceptance of possibilities, a refusal to be more interested in the qualities of one part of the city than in those of another. Seeing things as they are, understanding how the emotional significance of the Ceausescu era, and the gigantic scale of its constructions, can keep us from recognising its good sides, would open up new possibilities for the continued development of Bucharest.

Lab's proposals exercise a planning that concedes the transformation of the city will be gradual, lacking a finished or determined image of what is to come. By attempting to retain and re-utilise as much of the existing city as possible, the recent past is allowed to exert both its damaging and positive effects, and continue to be part of the history and life of the city. Only where a few elements provided a fundamental limitation have they been removed.

It is difficult to work with tourist maps and plans of Bucharest without being constantly reminded of the discrepancies between one map and another, between one street name and another. The place and the place name are caught in a game of differences, in the gap between the name and the place it names. Extreme events can stretch this gap. Another name becomes necessary in order to signify the importance of a place in relation to an event. Places cannot merely be designated. Some earn their names through blood. The repetition of naming is also a forgetting, an air-brushing of the streets in order to rewrite history once more. The etymology of places and names is a duplicitous history of slipped accents and bad translations, dates and fictions, erasures and hopes. Explorers named the land as a trace of their experiences and passage, and this, perhaps, is a technique that might serve the renaming of cities.

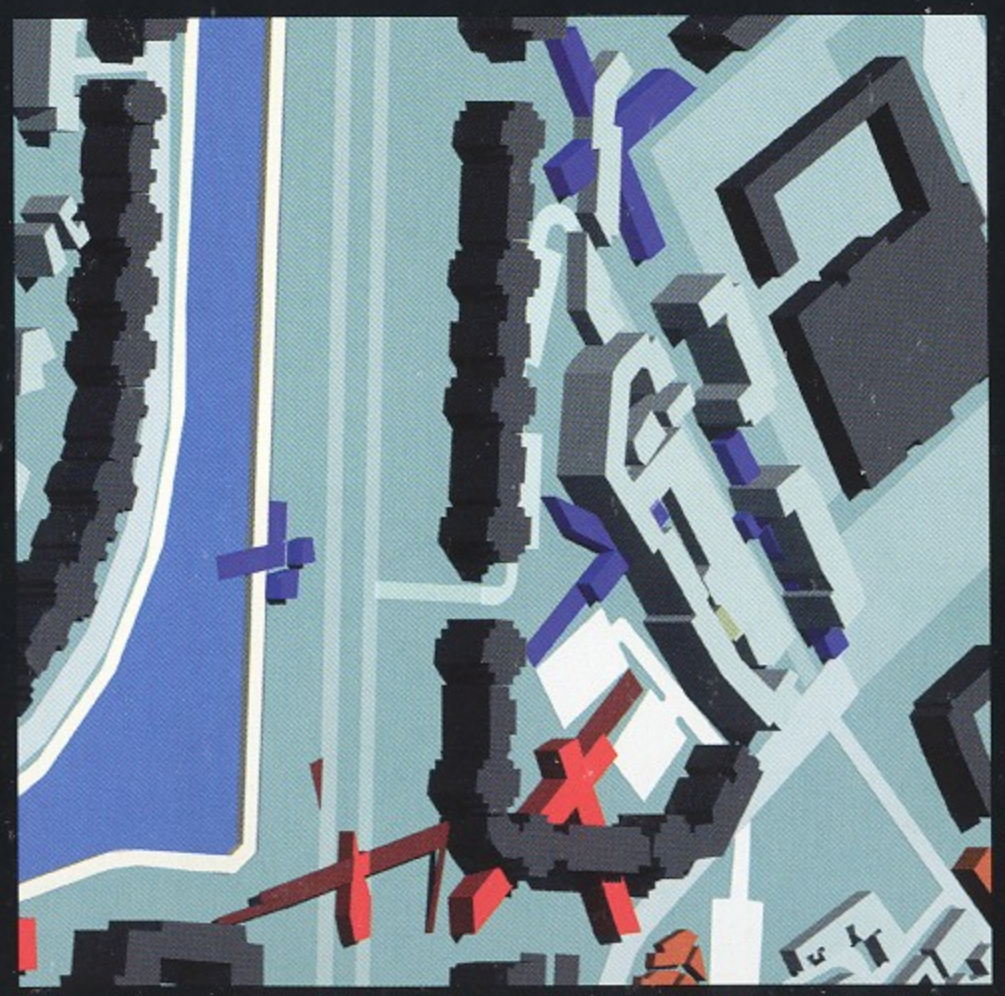
The propositions suggest a transformation of the relationship of existing buildings, both large and small, historic and recent, from geometric and axial alliances to patterned and textured affiliations, where new buildings and landscape coalesce with those already existing to form diverse and yet coherent fields. From the dominance of form emphasis shifts to a mediation of form between buildings.

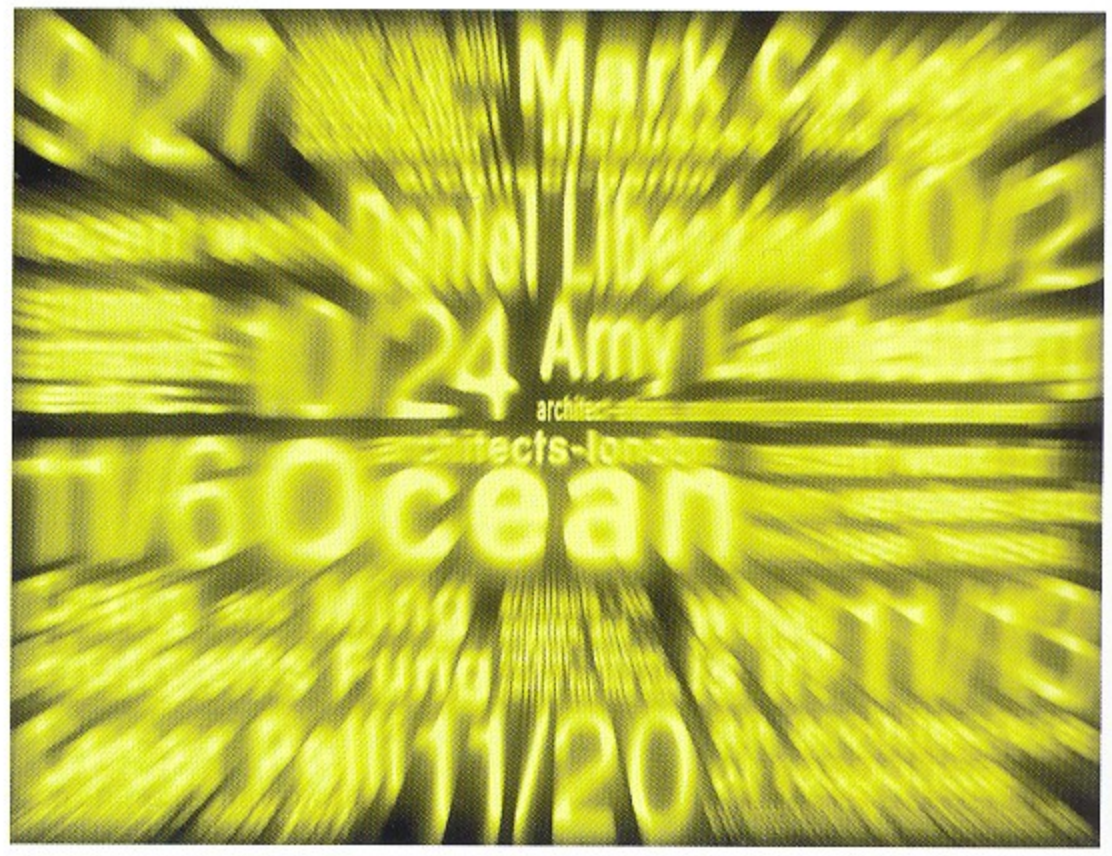
A series of new urban parks of dissimilar sizes, arrangements and qualities is introduced throughout the delineated site, providing a variety of open landscaped spaces for the amenity of citizens and visitors. These parks also provide key urban roles as connectors and solidifiers of the existing buildings and spaces, both during the implementation of the project and subsequently, as their changing form over time is realised.

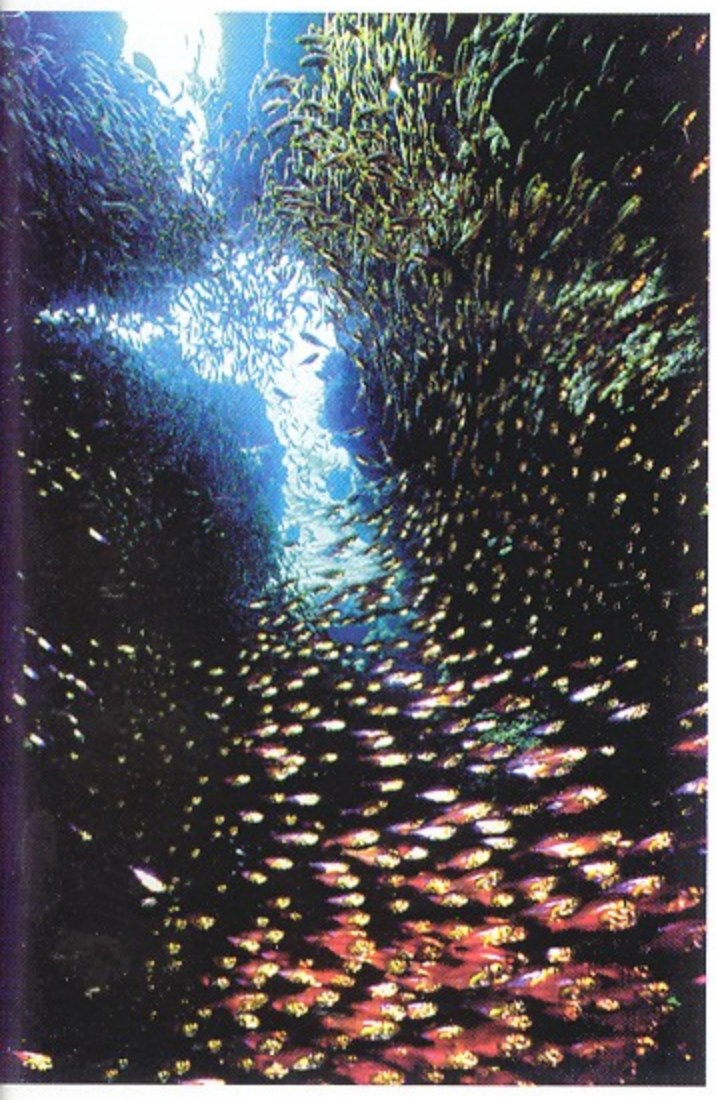
The large vacant and landscaped spaces around the People's Palace are to be left as open as possible, with guaranteed public access across and up to the building itself being a right not an option. This condition may be a pathological one, and as a consequence the building remains apart, connected only partially to the new facilities and the existing adjacent city. The proposal uses a diverse set of elements and functions, such as the stadium and the small-scale public facilities to bring to the area a range of different uses and scales. This combination sets out an alternate space where many aspects of national culture are brought in proximity, political and cultural spaces become intertwined and with it the potential of a consensual project becomes possible.

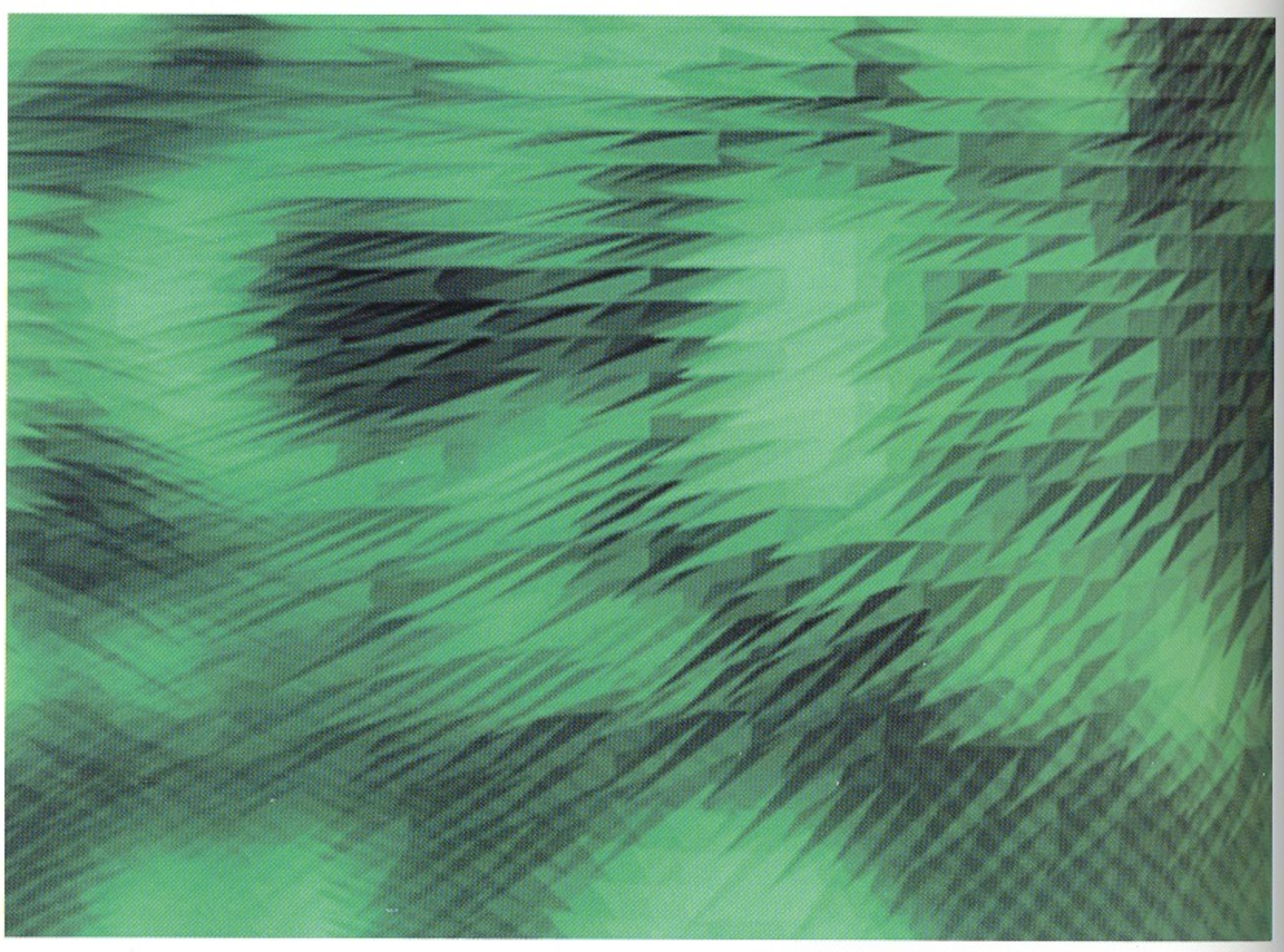
The specific delimitations of sites and/or the differences between what legally constitute sites and what may be the limit of responsibilities extending beyond the specific boundaries would be a significant factor in determining the ground utilisation indices for this project's detailed implementation. While a site such as the new administration complex would be deemed to have a ratio of 2:1 and the Mercea Voda Street housing 1.75:1, the site boundaries and limitations of responsibilities in each case are very different, depending on the specific programmes and contexts. The development code would therefore need to account for these differences in order to affect the built outcome. Intrinsic to these proposals is the introduction of a new type of code – one which blurs the legal and perceptual edges of each site, where the boundary of a site is a series of criteria, through which private and collective spaces, community and responsibilities could be negotiated.

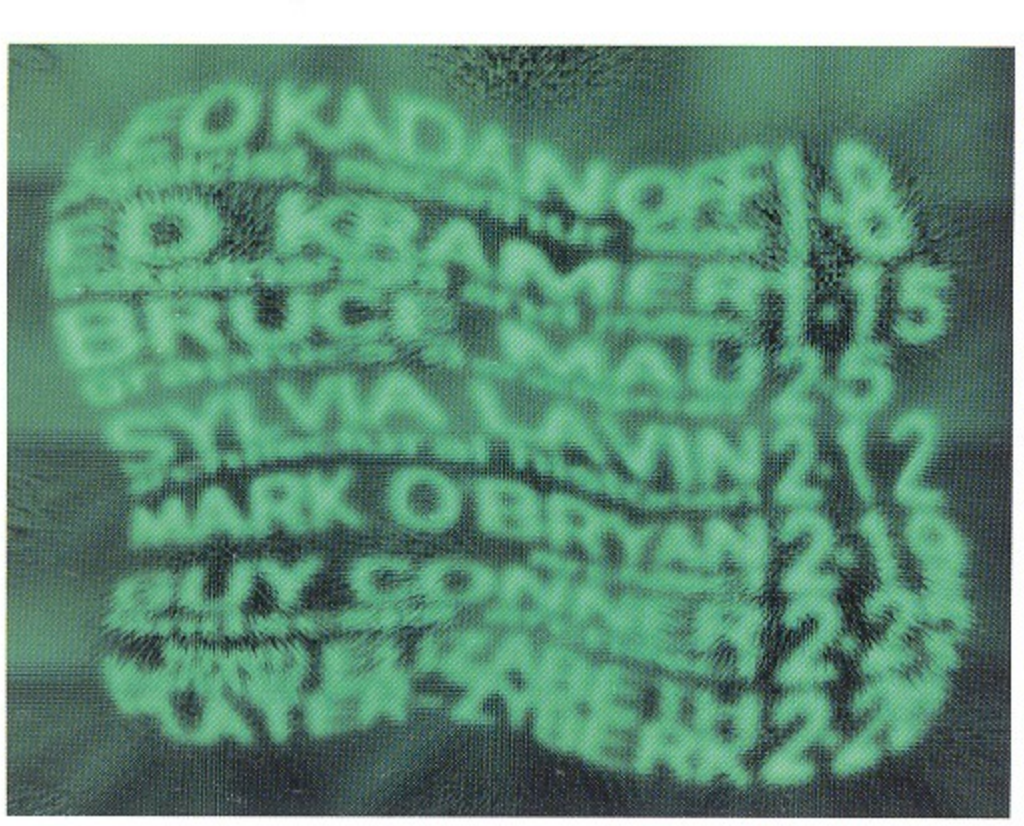
OPPOSITE, FROM ABOVE L TO R: Administration and hotel; Minia Voda monastery garden; Piata Runii; crosses; Luap Nalec Park











LEFT: School of fish; RIGHT, FROM ABOVE: Posters for a lecture series at Ohio State University School of Architecture – for the autumn term; for the spring term (detail); for the spring term

JEFF KIPNIS

(ARCHITECTURE) AFTER GEOMETRY – AN ANTHOLOGY OF MYSTERIES

Case Notes to the Mystery of the School of Fish

The point of critique is not justification but a different way of feeling: another sensibility.

Gilles Deleuze

The Confession

No cultural practice is more indebted to a technical apparatus than architecture to geometry. This for the obvious practical reasons of course, but more importantly because of the Cartesian Imperative, the irrepressible sway that geometric form and organisation hold over our imagination. Each of architecture's major spatial innovations, eg perspectival, baroque or axonometric, have been enabled by geometry. Indeed, only a fool would speak of architecture after geometry, if by that is meant that for some reason and through some new apparatus architecture could forget geometry, abandon it, leave it behind.

Yet I am obsessed by a spatial sensibility that geometry in and of itself is inadequate to engender. What is the geometry of the vast, hushed, viscous, deep space of the ocean, I wonder? For that is the space I desire – to make, of course, but more importantly, to immerse myself in.

I think others desire it as well. Some say so. Toyo Ito writes of 'liquid space', Bahram Shirdel of 'the deep'. So too have Claire Robinson, the OCEAN Network and Amy Landesberg, though perhaps the latter has not realised how important the silence is. Some come at it covertly, obliquely, perhaps unknowingly. Mau, Lynn, Sejima, Kwinter, Reiser + Umemoto, Foreign Office Architects. In any case, I think it is a true emergent sensibility, one that cuts across such vacant, marketplace taxonomies as New Minimalism and Neo-Expressionism.

Of course, geometry is not architecture's only technique. Form, materials, lighting and programming all contribute to a spatial sensibility. Many of the above-mentioned designers compensate for geometry's inadequacies in the pursuit of this sensibility with brilliant employment of the attributes of these other techniques. For example, some use palettes of partial light-transmitting materials, while others explore topological forms.

While working with Bahram Shirdel, the technique we tried most often to capture the space was to float incongruously large objects in a delimited void, like whales in the ocean. Of late, however, I have become more interested in schools of fish: immense, composite, ephemeral, always *in* form, but always *changing* form. As I watch a school's perpetual dynamics, see it change in an instant from opaque to transparent, knowing that its particular configuration at any moment is a contingent resolution of all the forces, influences and flows impinging on it at that moment, I feel I am in the presence of an avatar of liquid space.

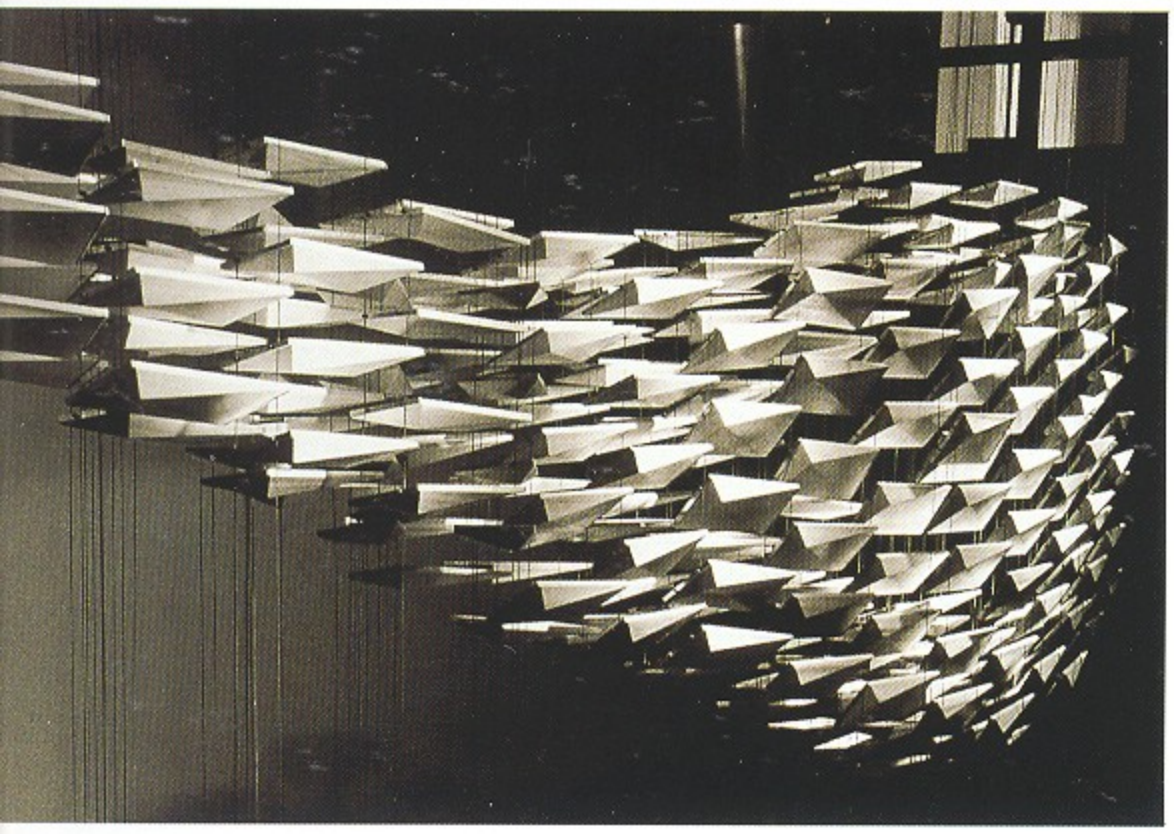
The Infractions

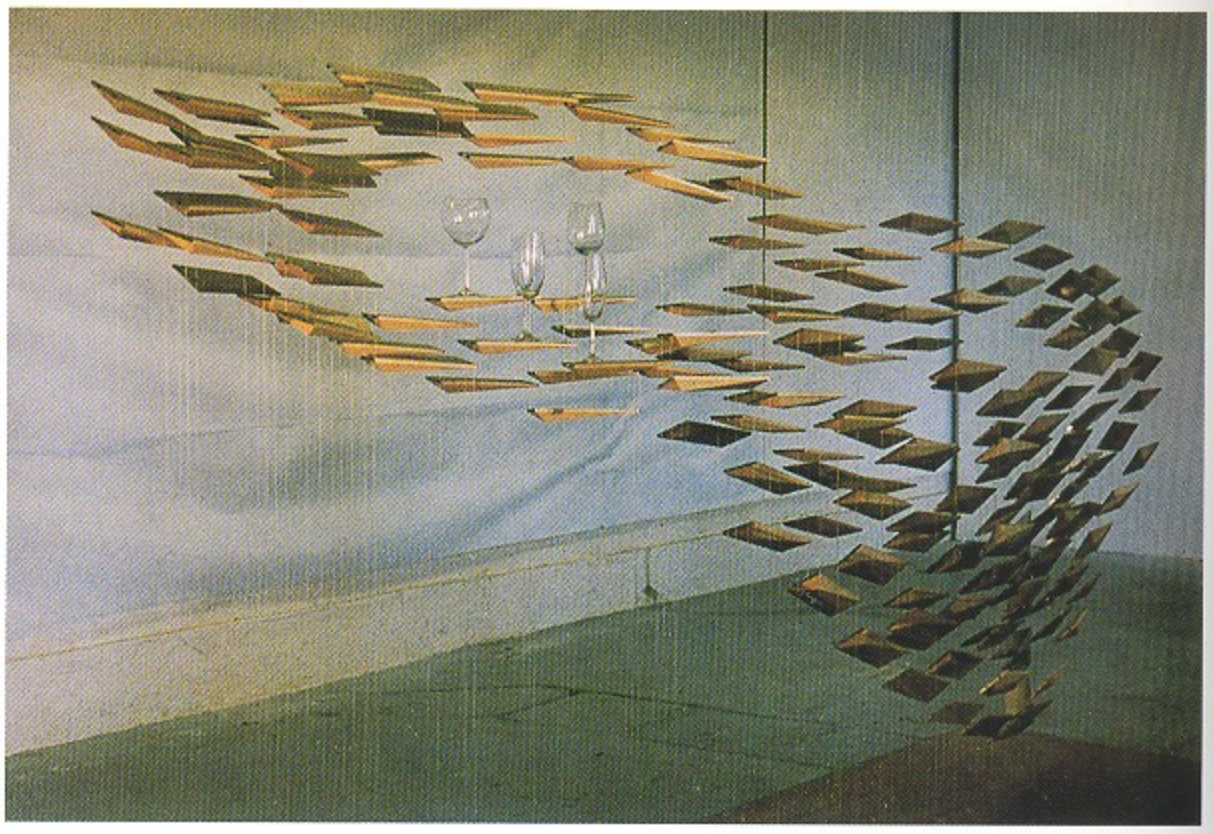
• *The Posters.* No object-font lying on a flat-bed graphic space. Indeed, no boundary condition between space and letter. Instead, a coherent gradient that condenses letter from space. Light in the vast distance. Deep light. For God's sake, no collage, no codes, no clever meanings. Looks cool.

• *The multi-functional display system.* One of the telling characteristics of a genuinely new spatial sensibility is how objects are differently organised and framed for display. Vast, unpredictable, primal. At one moment turbulent, then serene; at one moment empty, then churning with enormous variety of form, material and scale. Each element hand-adjusted – slow, but very meditative.

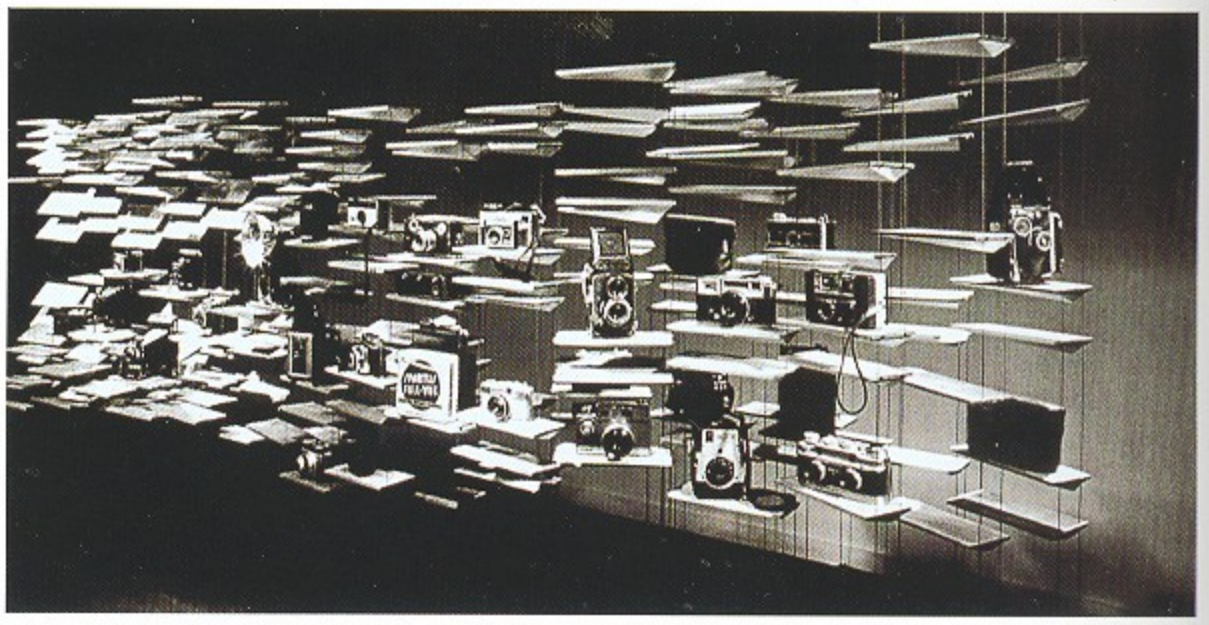
• *Kansai-kan.* Float a grid of letters on a sea of differential light transmission. There is no intrinsic conflict between Cartesian form and deep space.

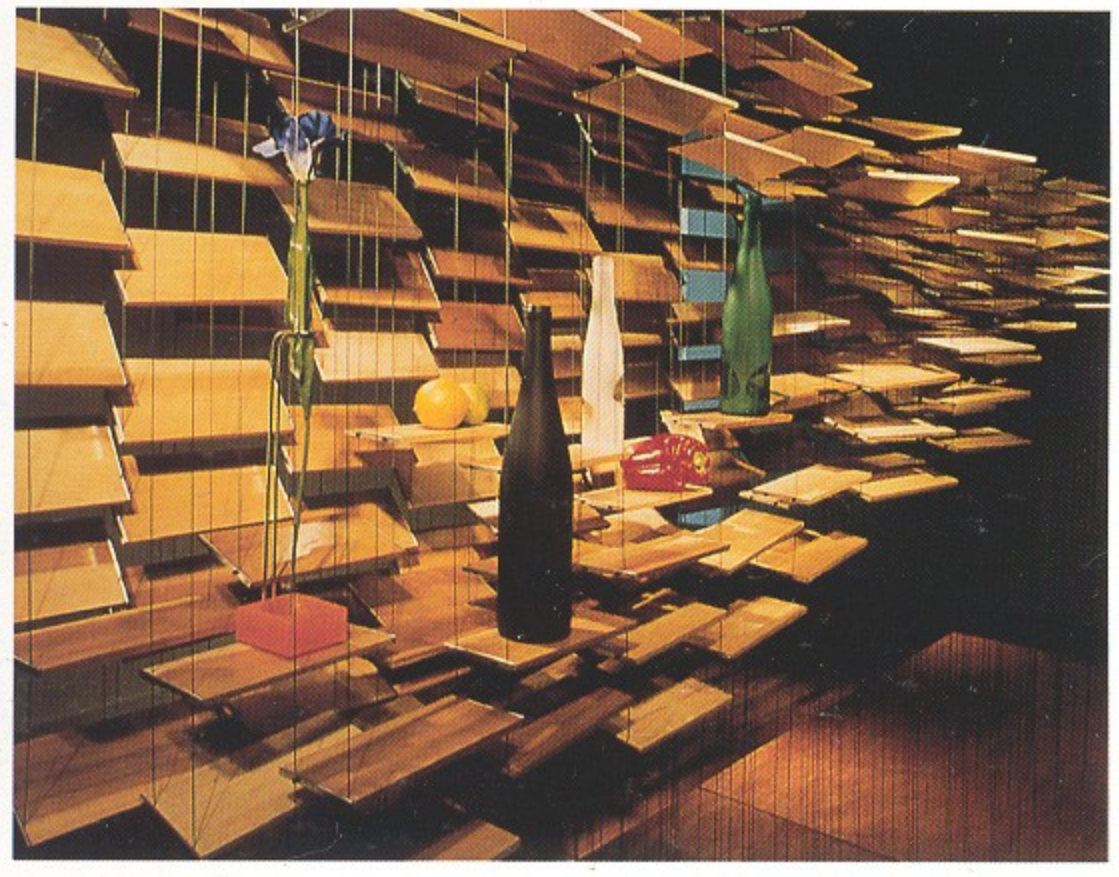
• *Bucharest.* Just lay the school of fish on a city as networked nodes of activation and let the city slowly evolve into a new configuration. Real urban design: the urban as the designer.

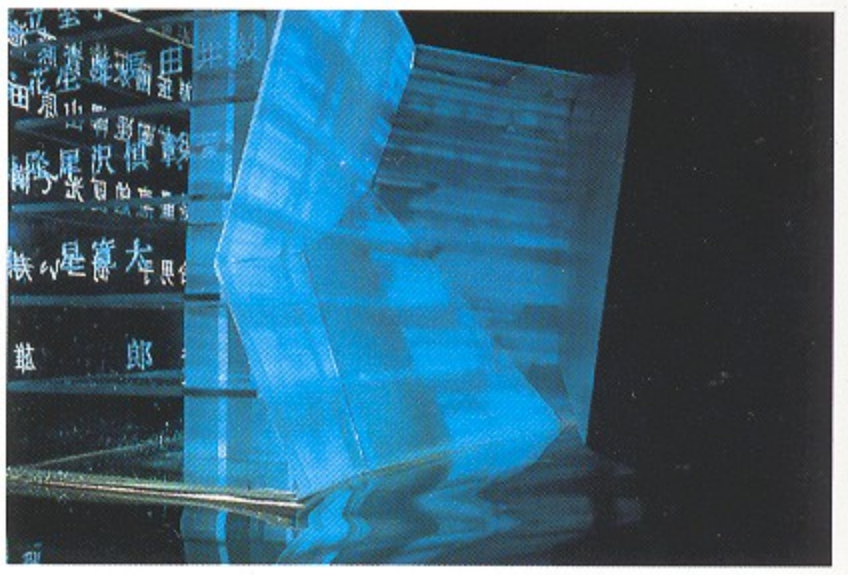


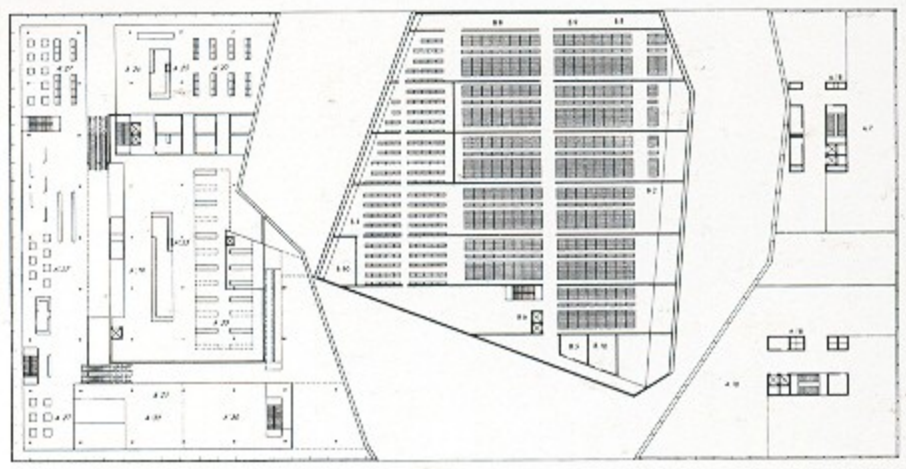


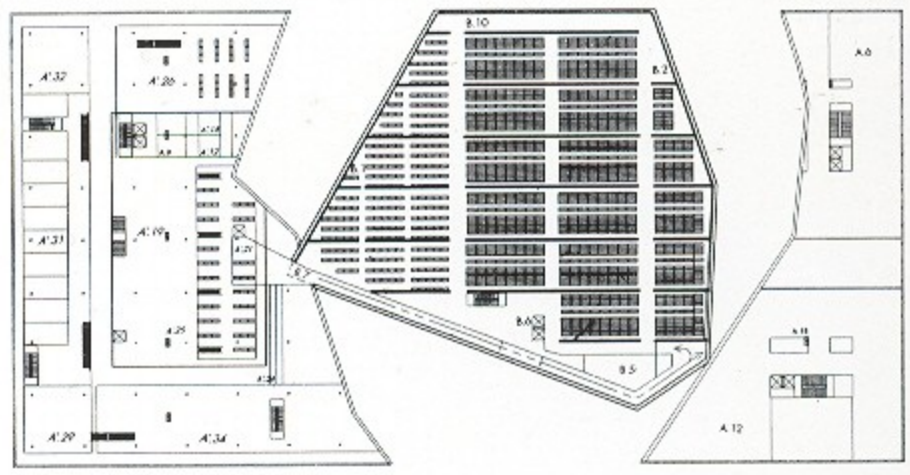
FROM ABOVE L TO R: Multifunctional display system – sculpture; room divider; commercial display; Kansai-kan of the National Diet Library; Residential Display; OPPOSITE, L TO R: Room divider (sectional view); main floor and first floor plans for the Kansai-kan library; view of model of library







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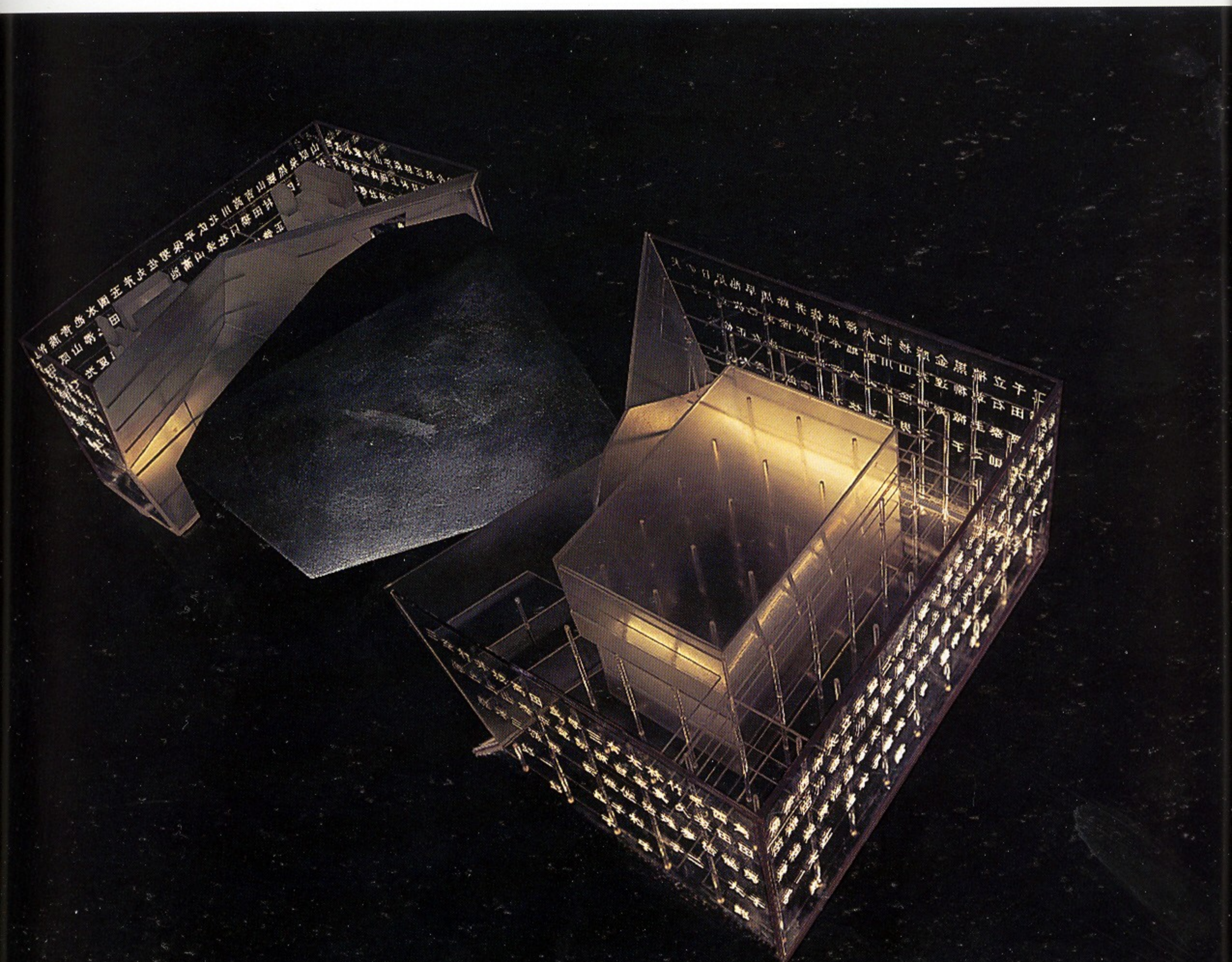
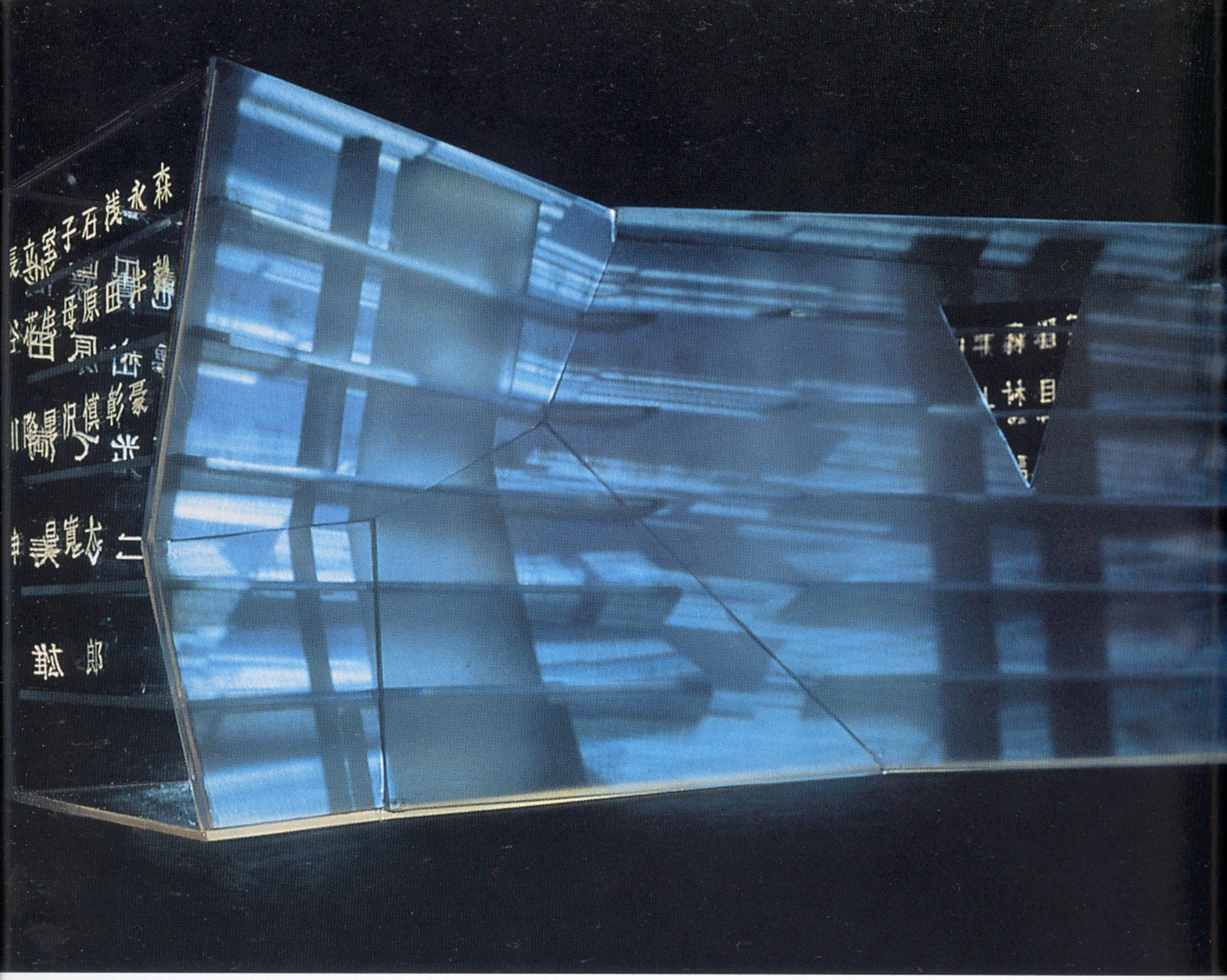
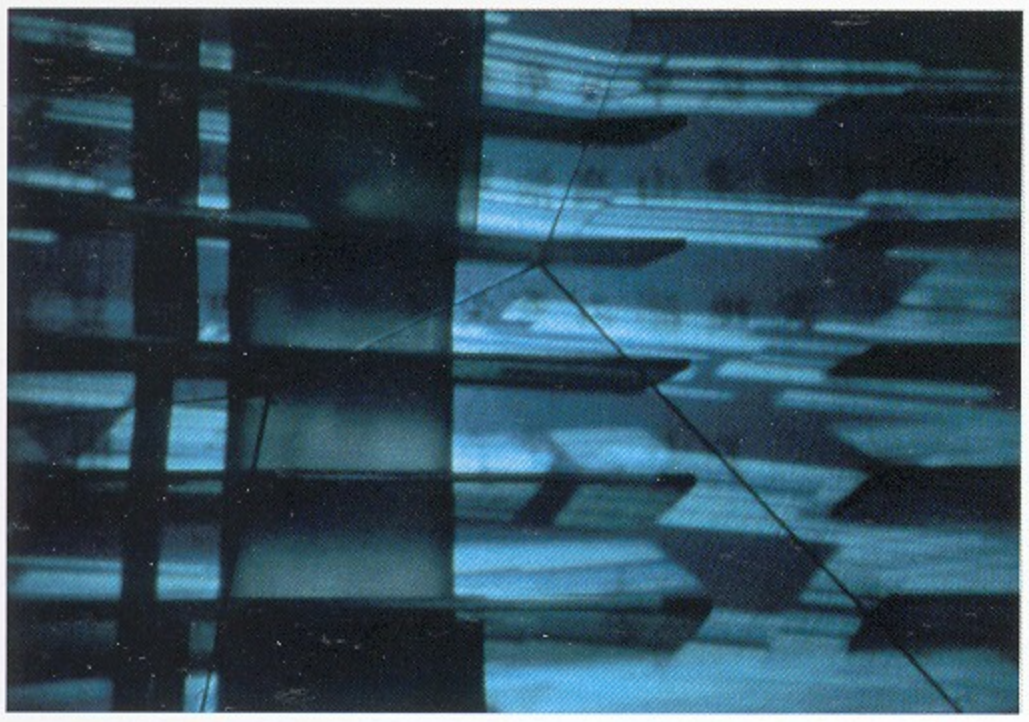
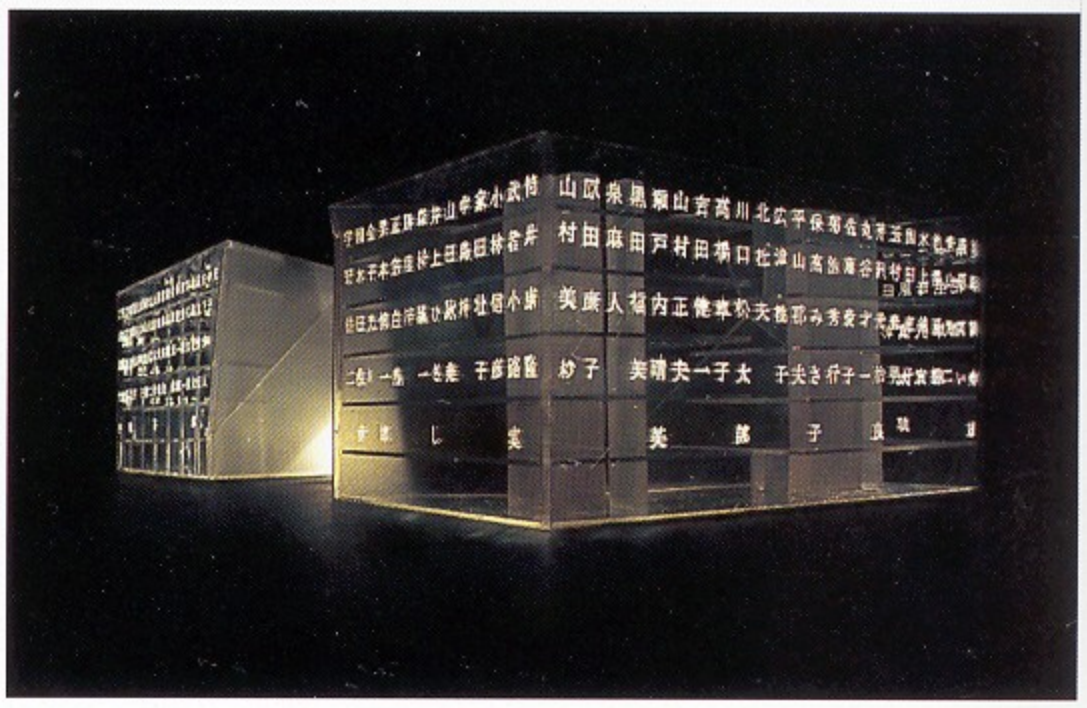
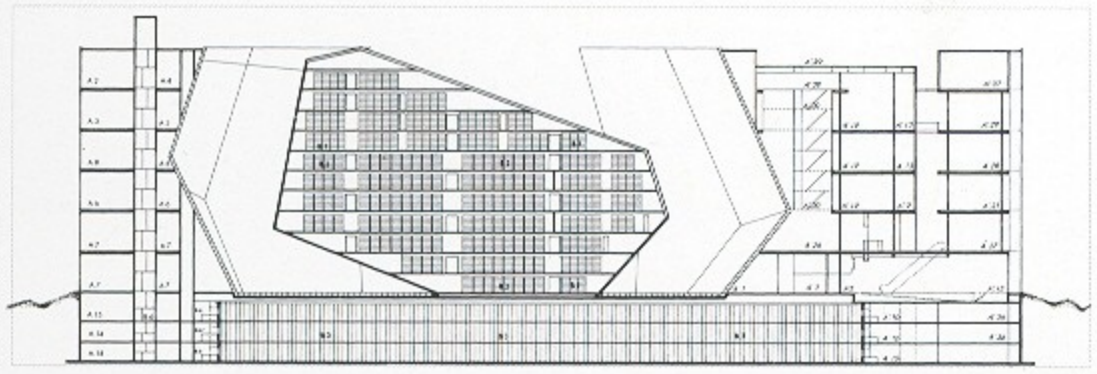
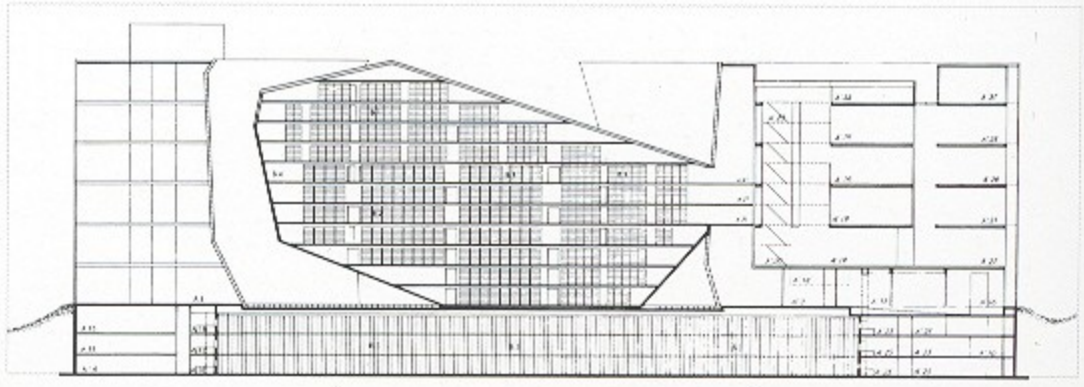


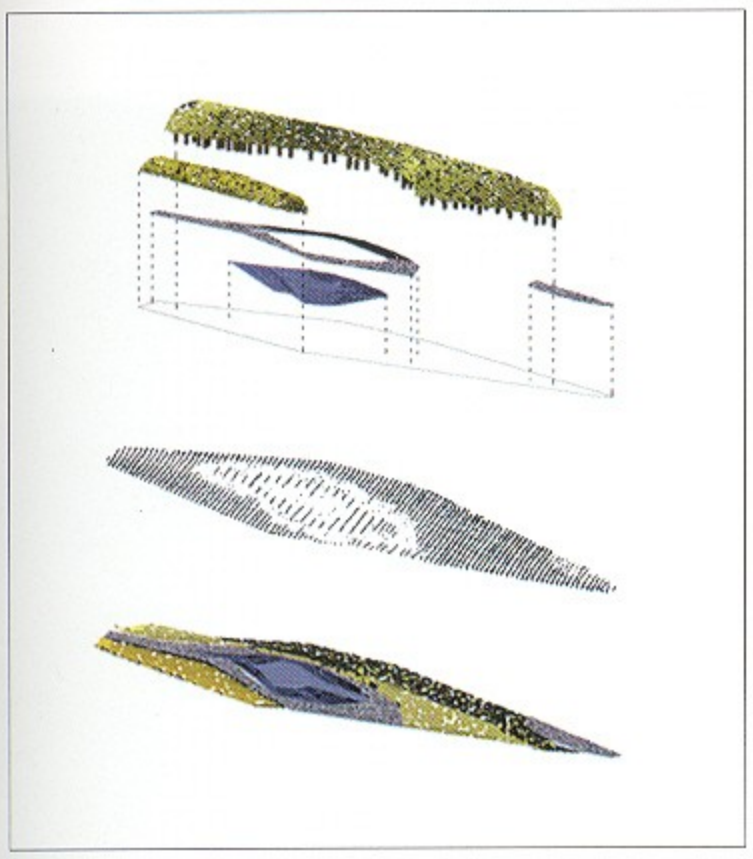


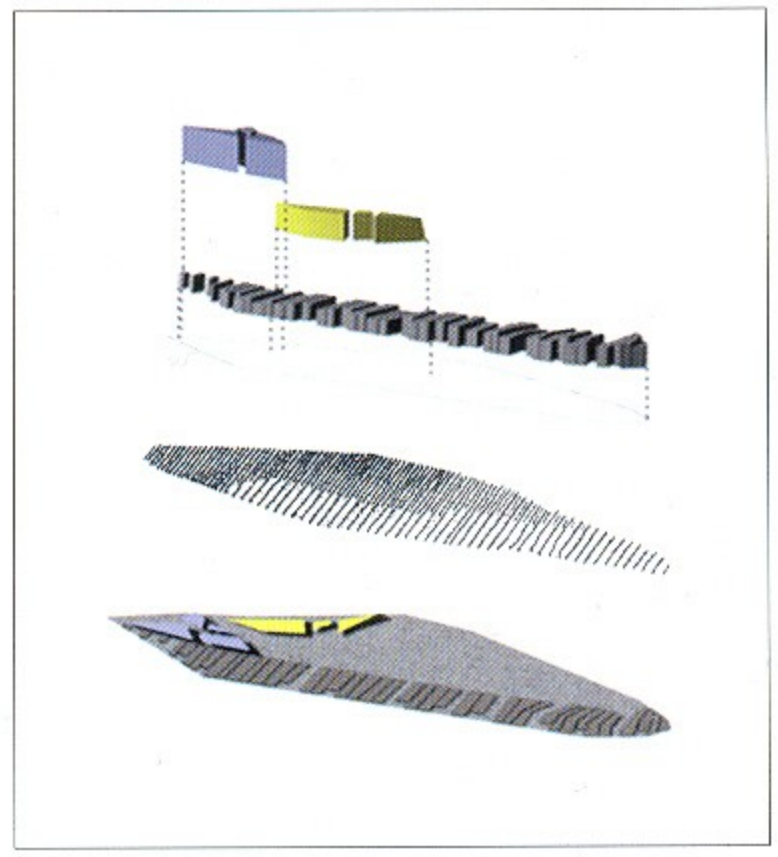


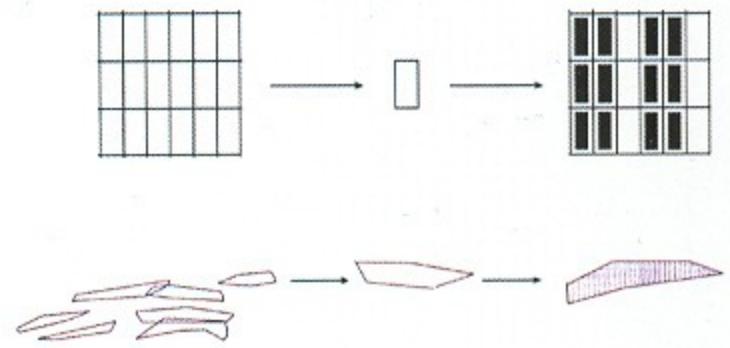


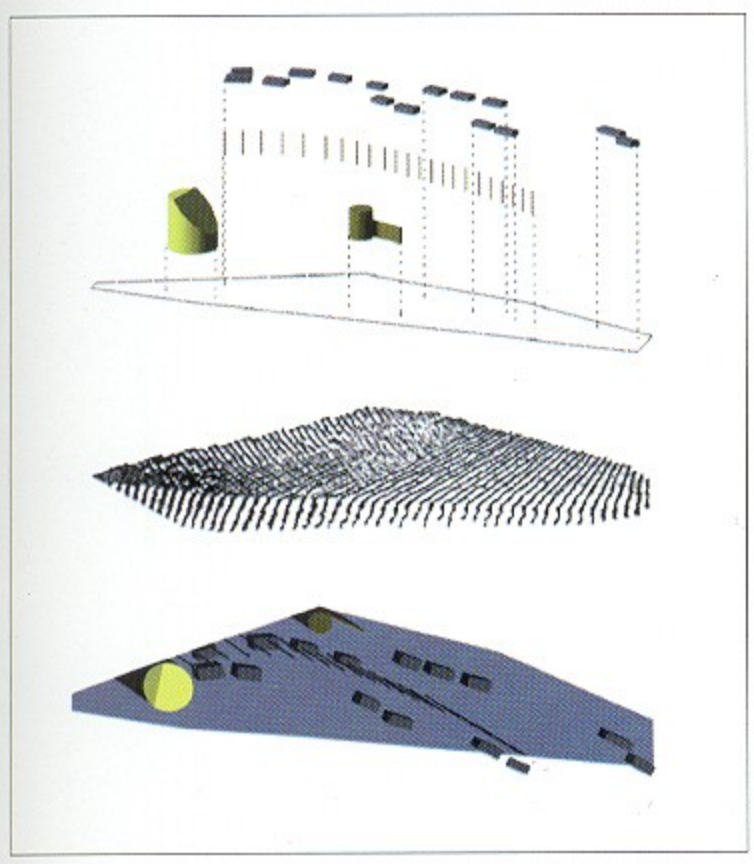


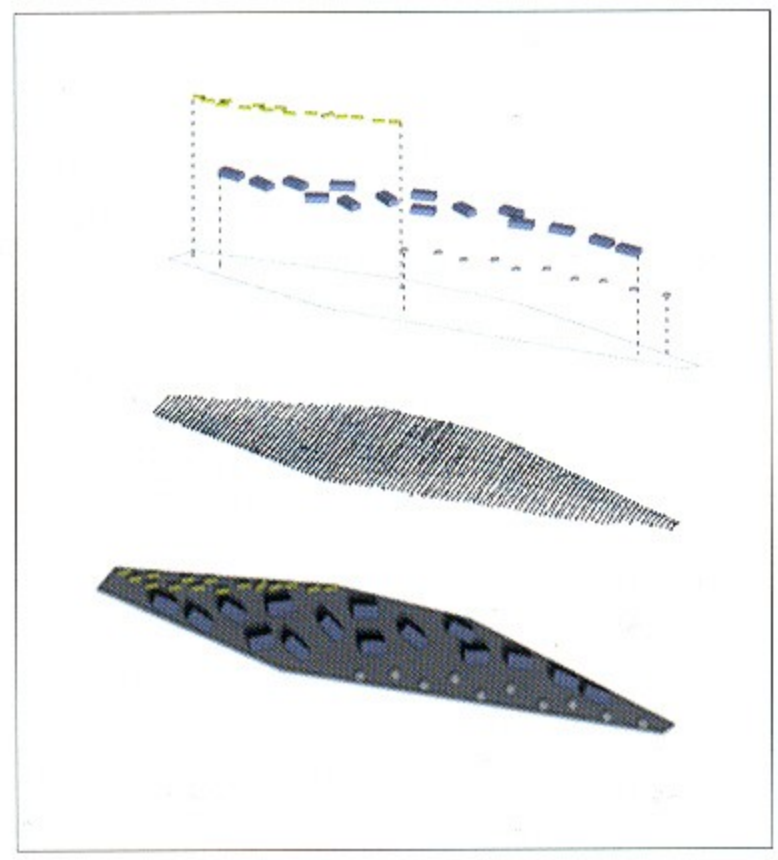




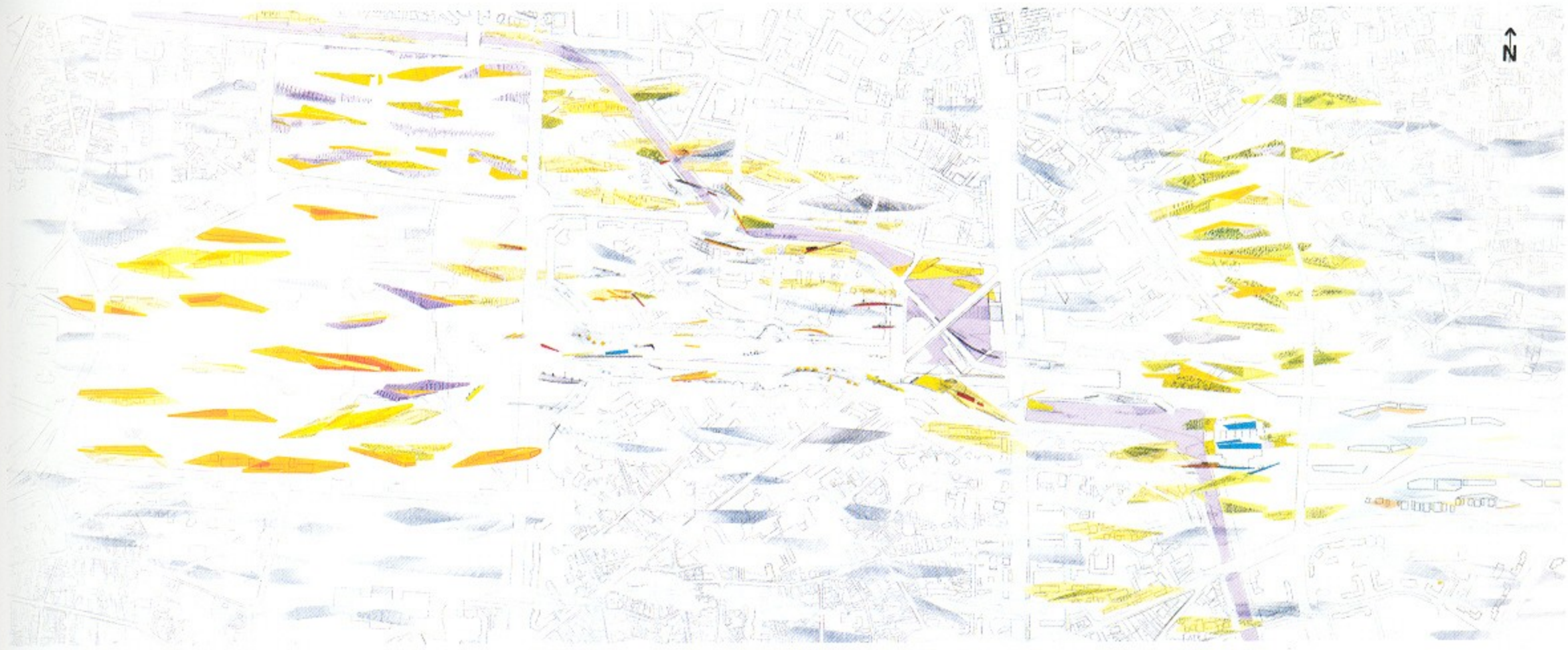


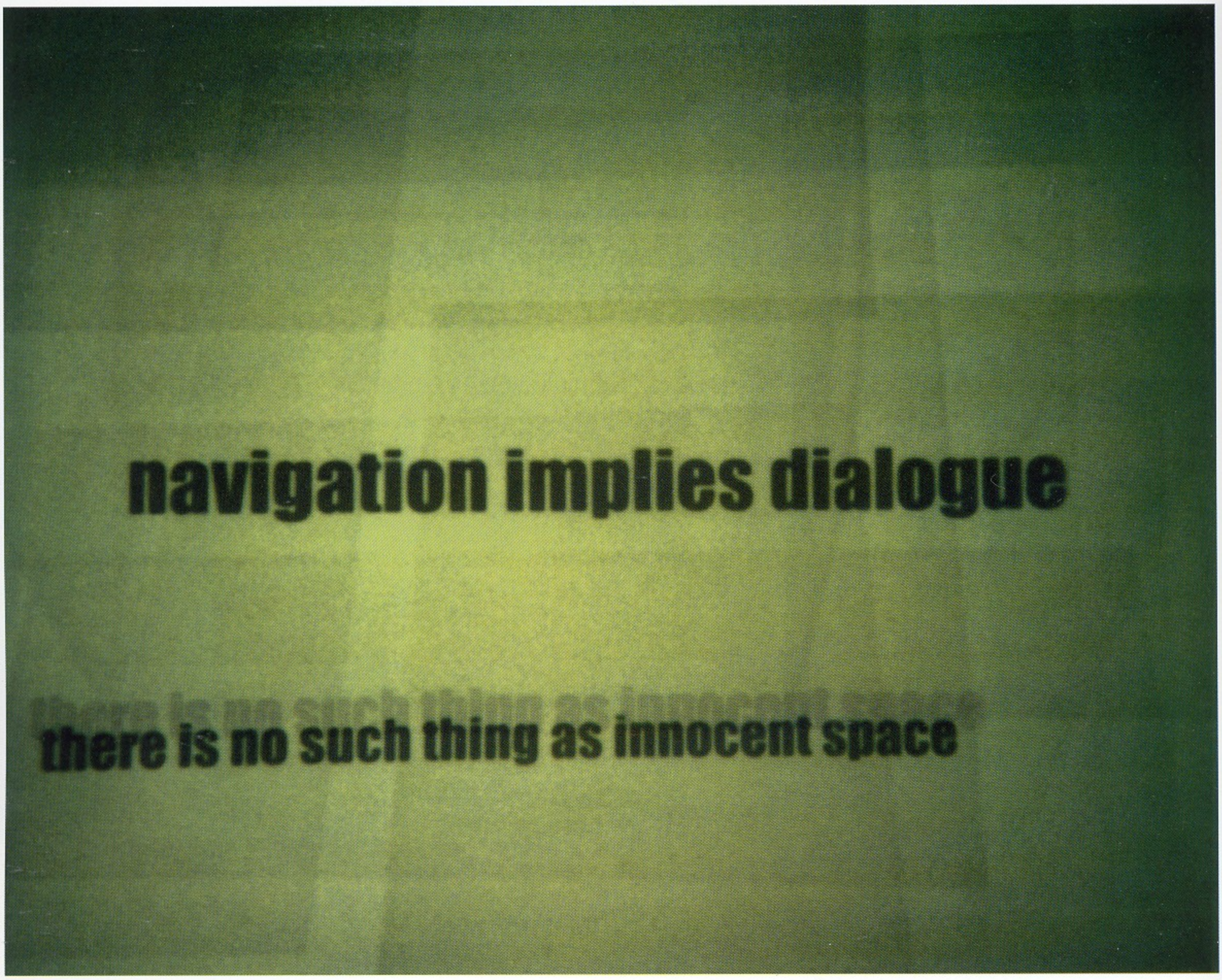






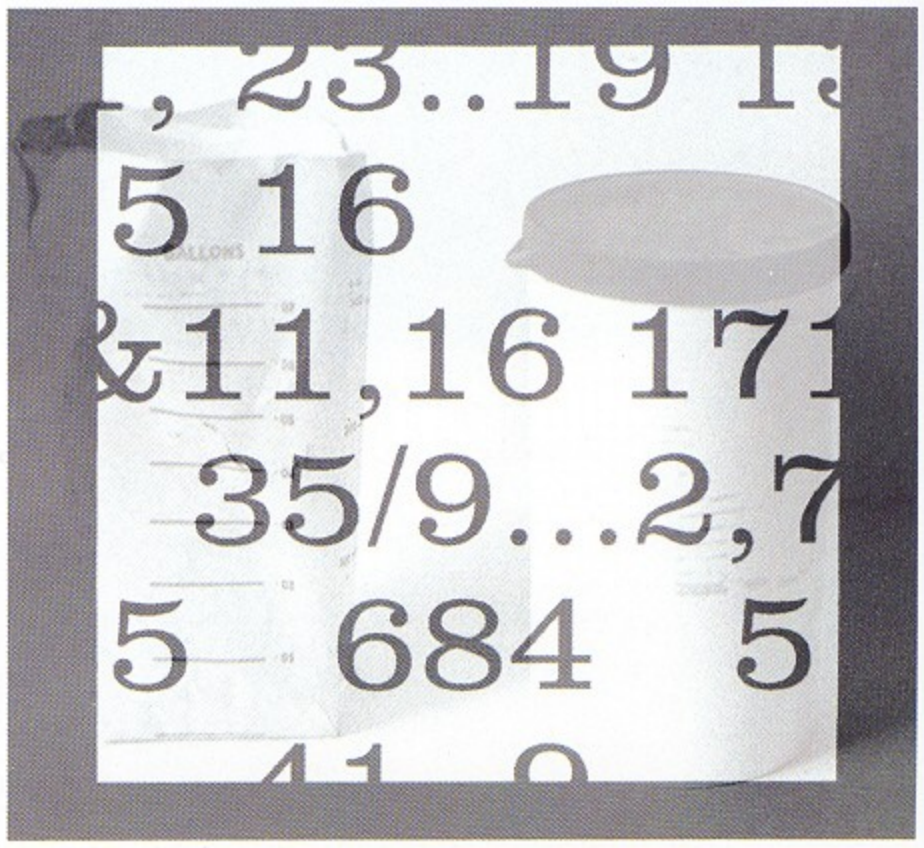
OPPOSITE, FROM ABOVE L TO R: Faceted wall to administration block of Kansai-kan library; view of the library from the south-east; longitudinal section of Kansai-kan library showing administration, public access and stacks; longitudinal section showing General Reading Room; LEFT: Bucuresti 2000 – increasing intensities of infrastructural organisation parallel to increasing levels of contextual involvement; breakdown of proposed programmatic development; cohesive interrelation of sub-structure and context; infrastructural densities; ABOVE: Bucuresti 2000 – comparison of fixed grid versus flexible network organisations; BELOW: Bucuresti 2000 – urban plan

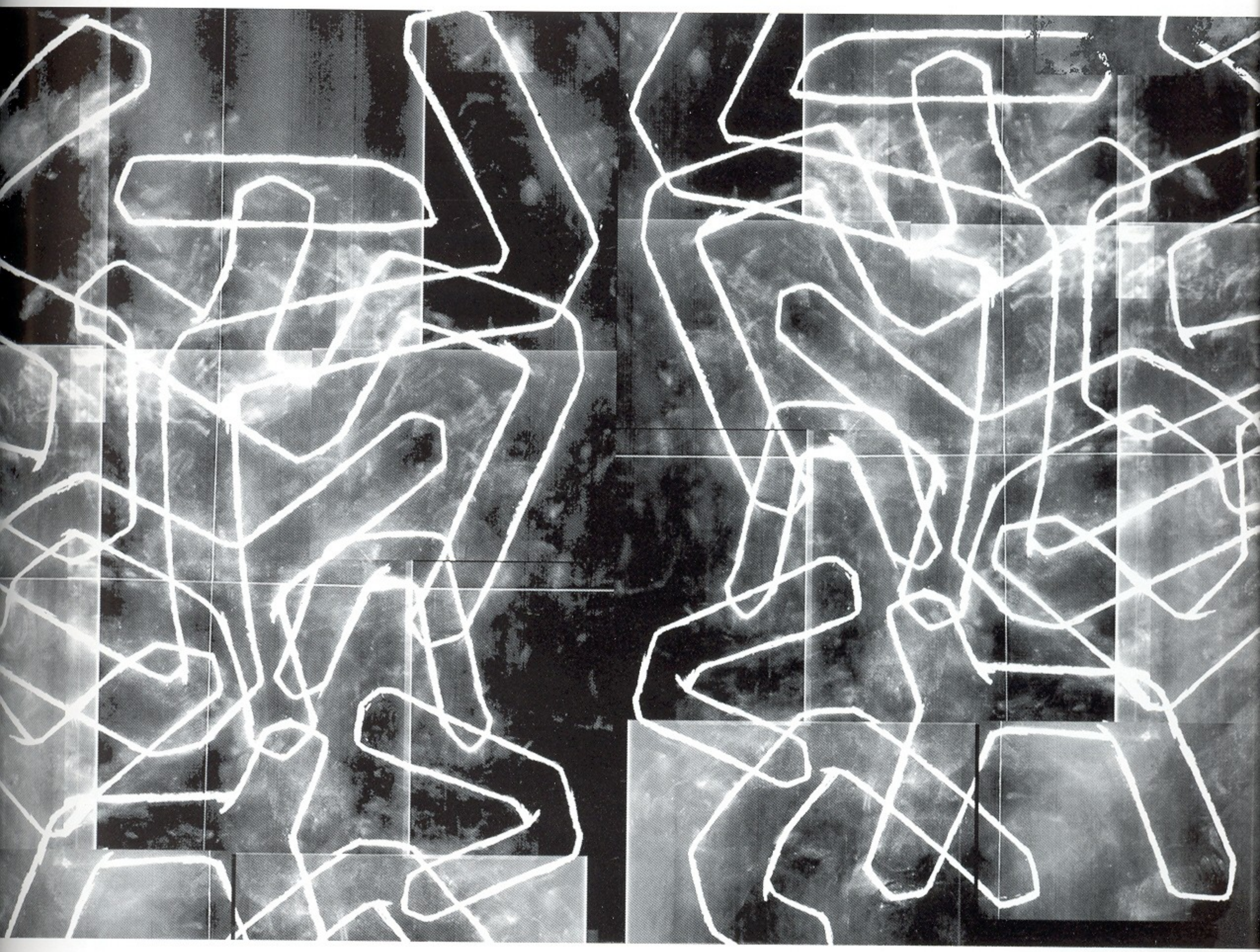


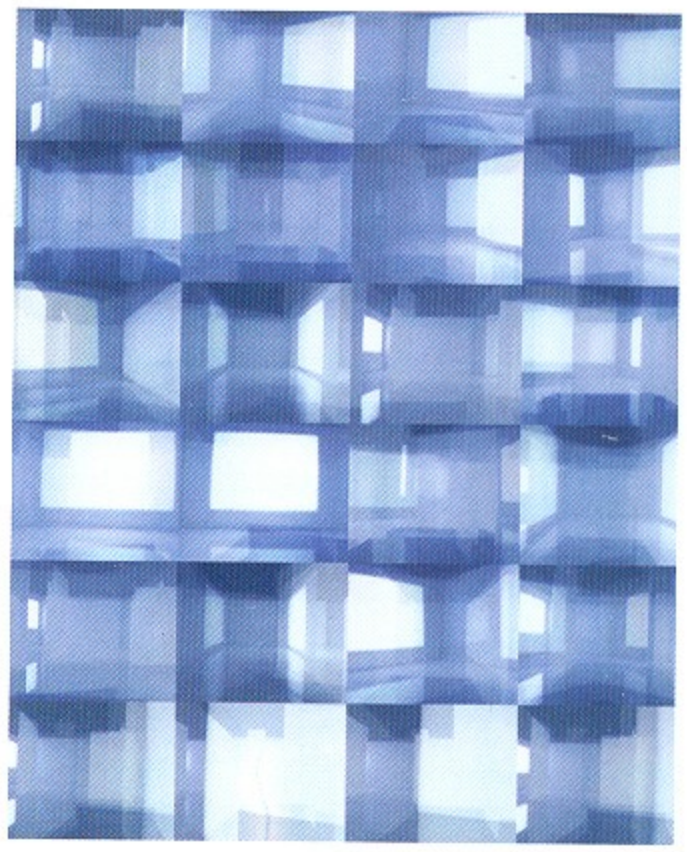


TOMATO

Michael Horsham
Dirk van Doren
John Warwicker
Simon Taylor








LANDSBERGER ALLEE
ÜBERGANG WEST
WEISSE TAUBE
NEUE KREUZUNG
GRÜNER TORWEG
BROKEN BLOCKS
GESTELL
SKALA
DER KEIL
MATRIX
ZINKEL
DER
HEBEL

DANIEL LIBESKIND

LANDSBERGER ALLEE

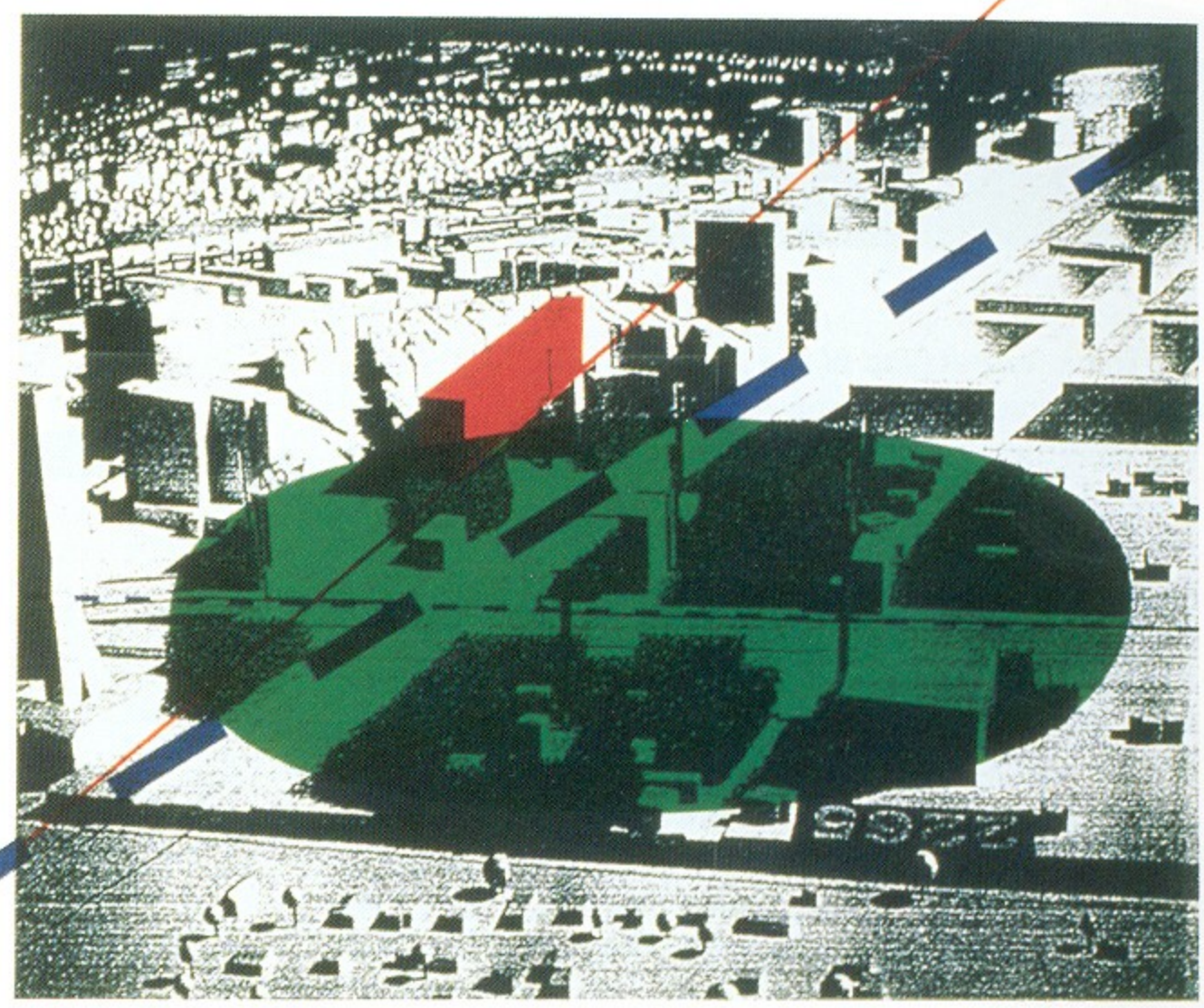
Berlin, Germany

The Landsberger Allee project won first prize in an international urban design competition held in autumn 1994. The competition site consists of 275 acres at the intersection of Rhinstrasse and Landsberger Allee (the former Lenin Allee), one of the main radials of the former East Berlin. The initial expected investment is three billion Deutschmarks

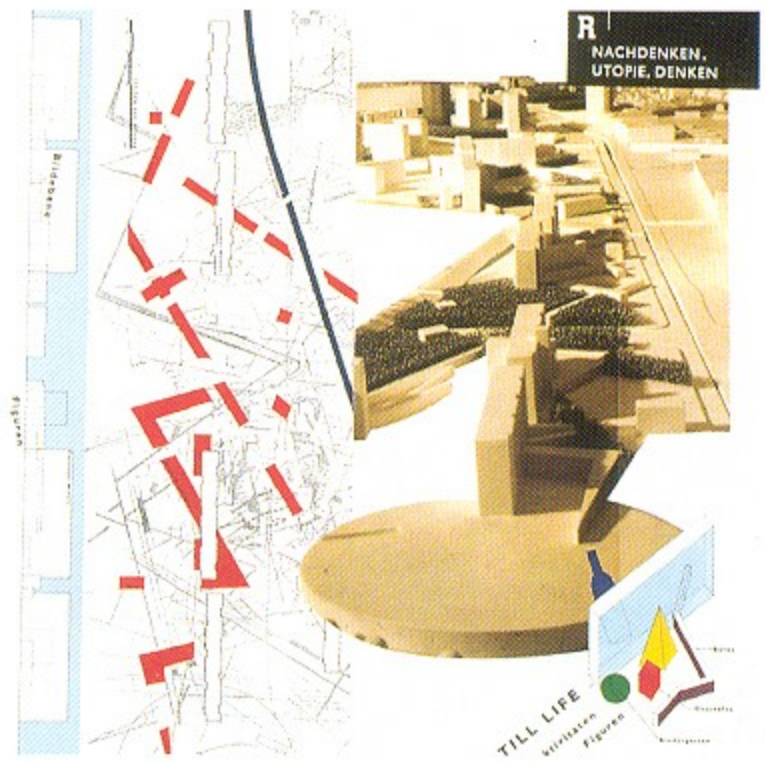
The scheme is a radical departure from the conventional rigid block structures that have dominated development in the area for the last 50 years. It adopts an approach that is neither traditionally contextual nor a replay of the totalitarian dreams of tabula rasa. Instead, it proposes an open, ecological strategy, providing dramatic architectural interventions, transformations and improvements in the existing housing and work areas, and the necessary infrastructure for the tens of thousands of people who live and work in the area.

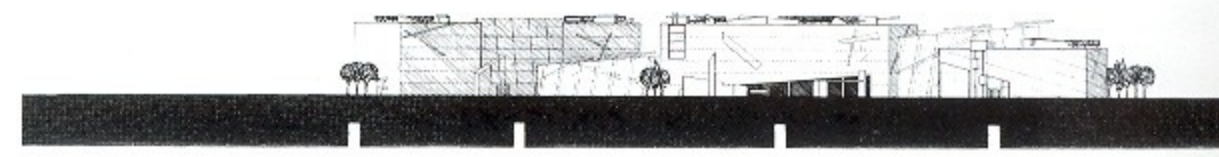
The proposal weaves together a number of heterogeneous elements by incorporating traces of history and the future in an open and flexible matrix. The entire structure of the plan is connected through the development of an ecological understanding, shaping the entire site in terms of density, function and character. Eschewing an academic preoccupation with style and individual buildings, it is the form of the public space connecting the disparate functions of housing, work, shopping and recreation that is thematised and given prominence, making it the leitmotif of the entire development.

The project transforms the Landsberger Allee itself, one of the huge monumental boulevards of the former German Democratic Republic (GDR), from a present-day highway into an urbane street whose rhythm is connected, both visually and architecturally, to the entire district. The future of areas such as these can no longer be controlled by narrow interests, ideologies and dogmas, but must be seen through the full spectrum of social, political and cultural complexities.



OPPOSITE: General site plan; ABOVE: Views of model

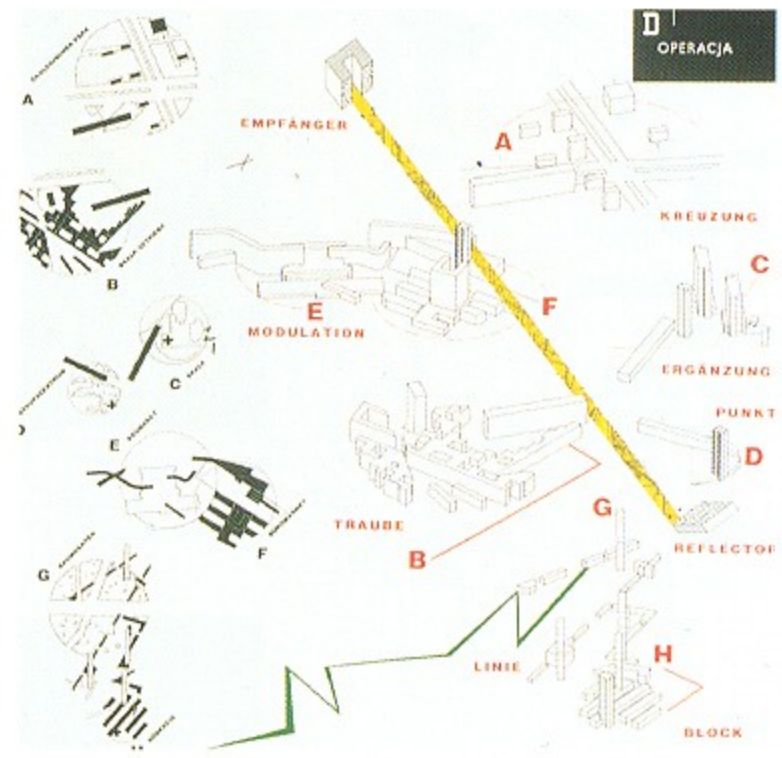


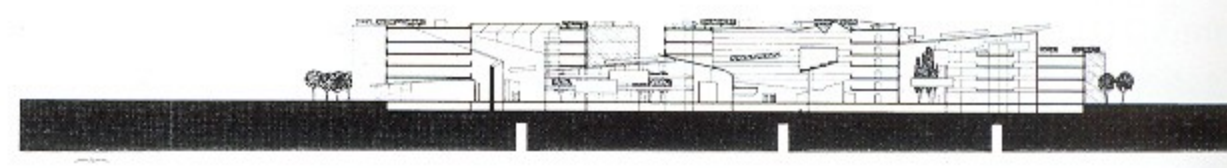


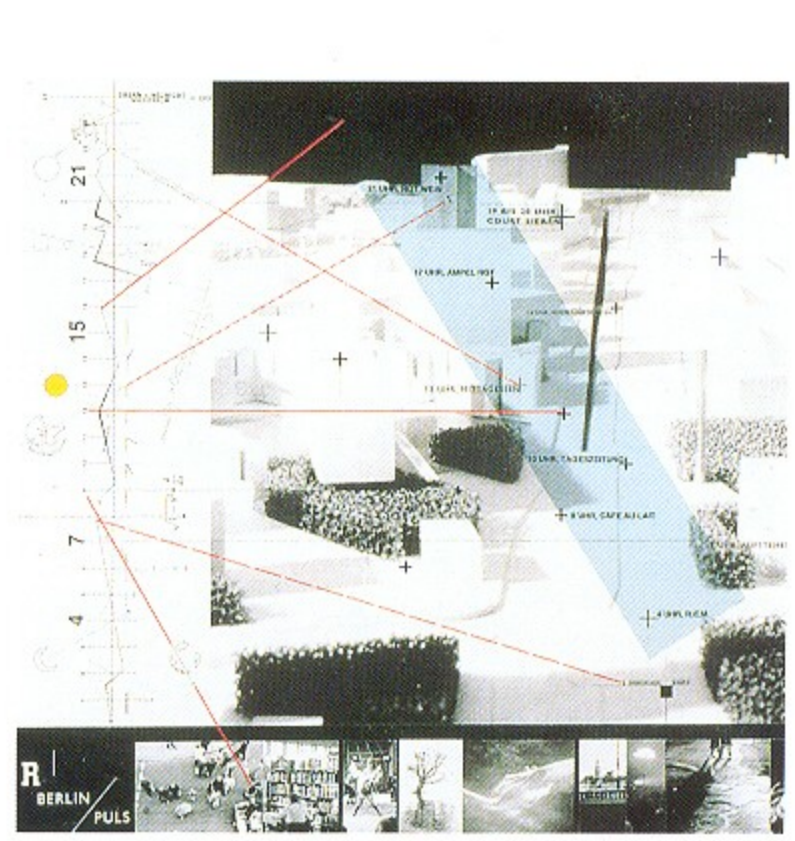
The interpretation of the city as a kind of mechanism has a long history. Traditional urban designs have concentrated on this image either as a metaphor for functional efficiency, or as the point of departure for the systematic organisation of forms. Libeskind, however, has sought to develop a strategy that traces a line between and beyond these discourses. He aims at an alternative morphology, the result of which would be neither the discrete zoning of functions nor the prescription of forms, but which would allow for, and support, the unpredictable – a flexible, dynamic organisation responsive to the fluctuating energies supplied by economics and desire. The area around the junction of the Landsberger Allee and Rhinstrasse, with its history of diverse colonisation and juxtaposition of industrialism and nature, provides an ideal situation for the exploration of such possibilities.

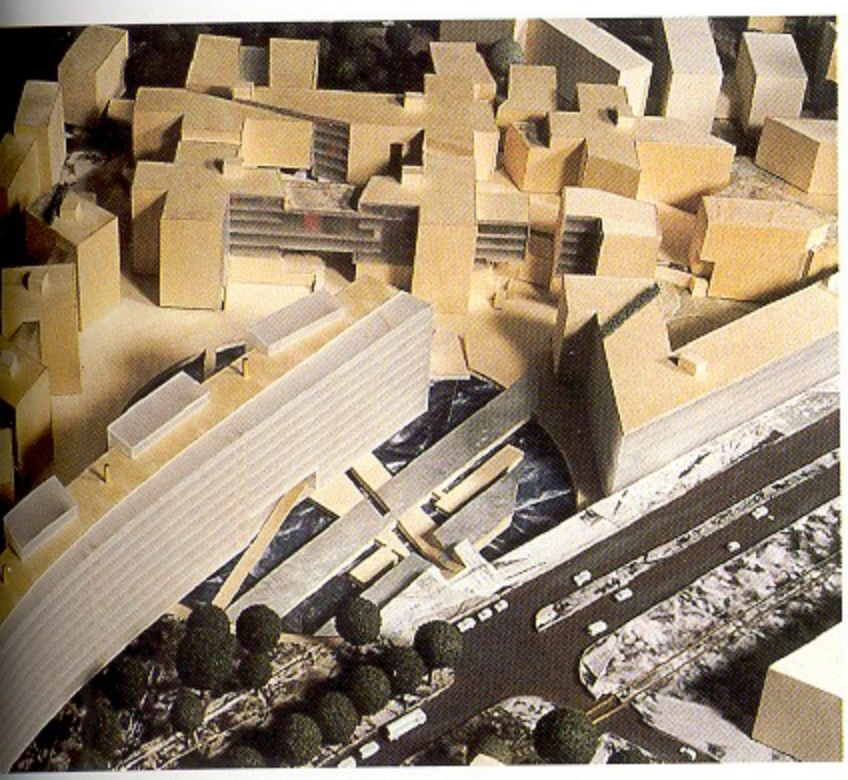
The proposal suggests an understanding of the city, not as an instrument for the subjection of the individual to the homogeneity of the whole, but as a mechanism formed out of diverse ideals and heterogeneous components, defined and refined by their interdependence, plurality and potential. The site is organised as a series of flexible interlocking zones, or 'gears', described in their singularity as formal or functional ideals, and in their plurality by their meshing together.

The Production Wedge is a tapering zone diagonally connecting Landsberger Allee and Rhinstrasse. Parallel to its northern edge, an infrastructural framework carries service pipes and an aerial promenade. In contrast to the intensity of the Wedge, the supply lines run out across the industrial zone along the





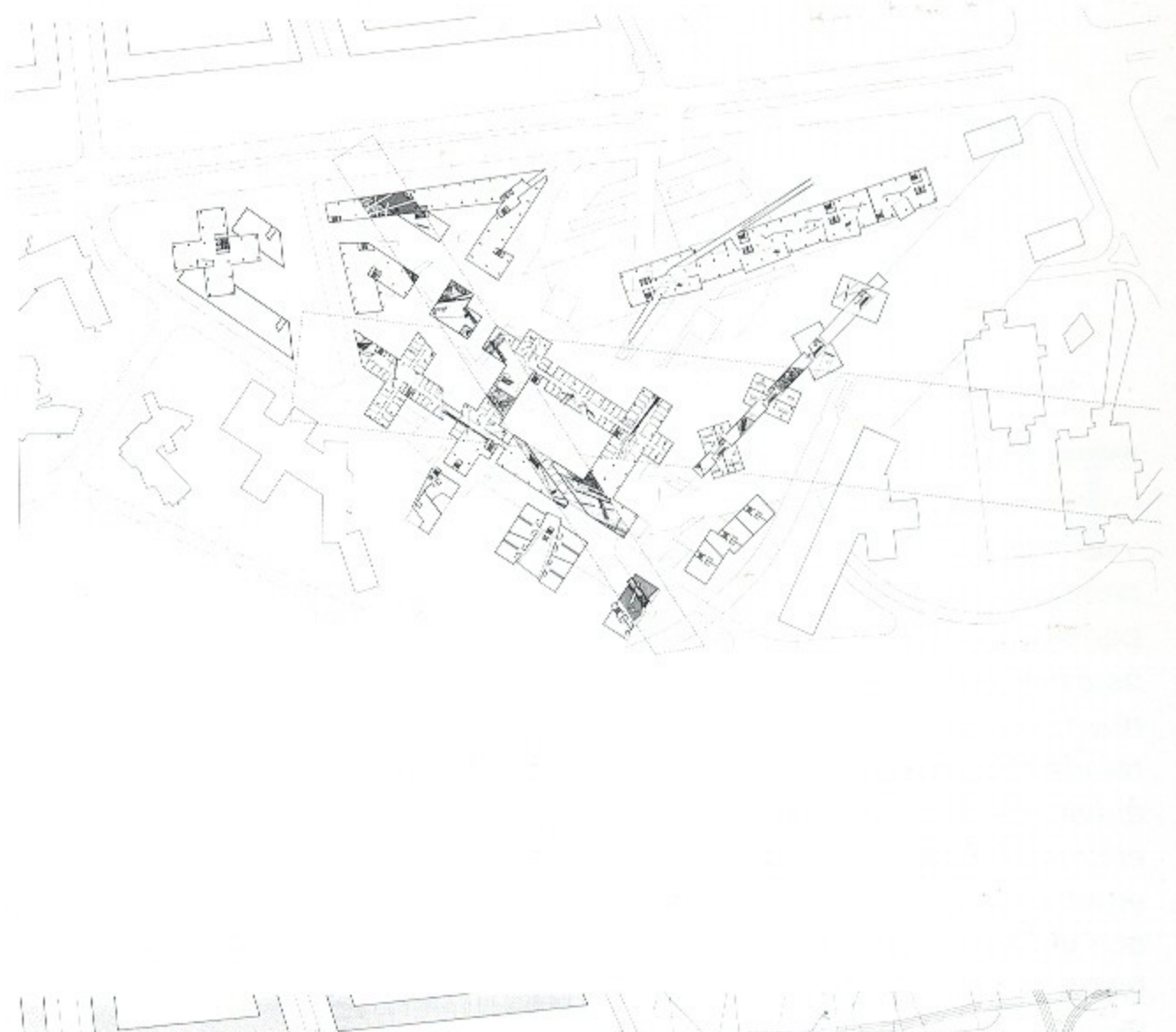


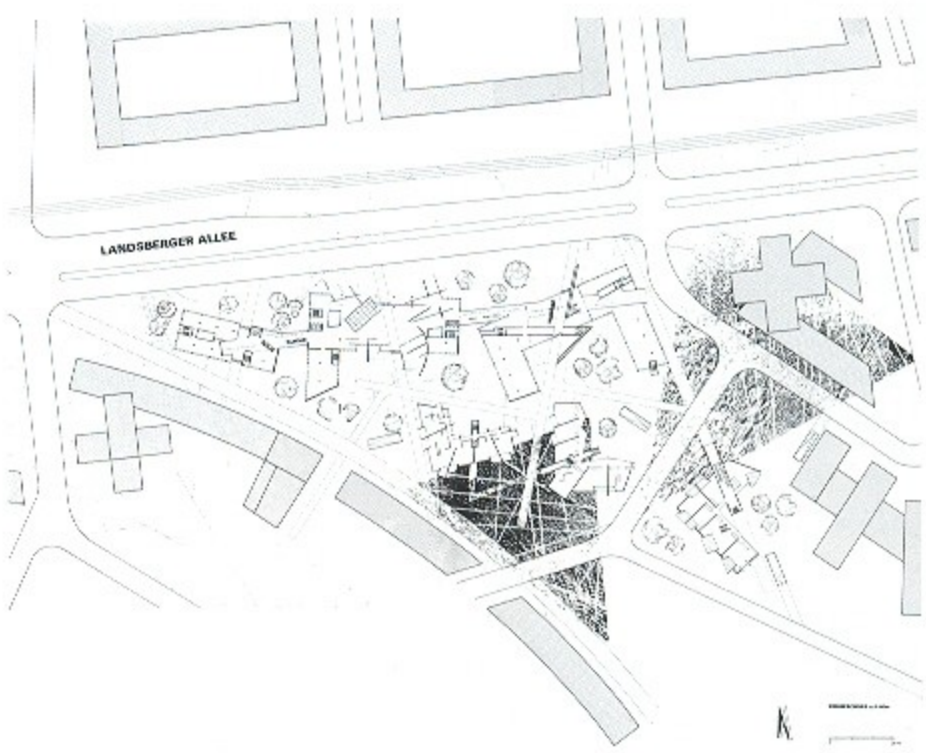


historical geometry established by the Herzberg Klinik. On either side of the Wedge are industrial buildings: the smaller workshops situated among trees to the west, and the larger factories to the east. An interlocking complex of large market buildings with parking beneath provides a differential between the industry and the street.

The definition and extension of the existing housing blocks with business and office space over underground parking (shared by business and housing) creates a complex around a water/ice plaza, called the Dial. At the junction of the Allee and Rhinstrasse is an ecological park, where diverse structures support a variety of functions (including a wind farm, telecommunications tower and crane) and stimulate the development of associated programmes such as self-sufficient dwellings, a school, research units, distributed in a free radical constellation within the park. Situated around a rainwater plaza to the east is a dense bazaar of shops.

The methodologies underpinning much of this century's urban planning, whether functionalist or formalist, have until now proved insufficient to describe the dynamic richness of diverse interactions that make up the contemporary city. The diverse spatial approaches and interlocking functional relationships of the Landsberger Allee proposal constitute a response to new urban possibilities, an armature connecting memory and possibility, metaphor and idea. They outline a potential energy which could, by an act of imagination, be transformed into a new spatial, urban and functional reality: an intersection between the past and the present – a gateway to a democratic future that is rich in possibilities.





OPPOSITE, FROM ABOVE L TO R: View of model from east; thematic representations of urban schema interspersed with elevation showing broken blocks and east–west section showing broken blocks; ABOVE, FROM L TO R: View of model from north; Production Wedge – typical floor plan; Production Wedge – plan of piano nobile*; Production Wedge – ground floor plan*

GREG LYNN

AN ADVANCED FORM OF MOVEMENT

There is an increasing, and implacable, inertia in architecture that takes the form of a reactionary lethargy in the face of dramatic changes to both material and immaterial structures emerging in society today. Architecture is perhaps the last discipline which not only uses Cartesianism for its expedient simplicity, but, more reprehensibly, holds on to a reactionary belief in the ethics of stasis. Architecture is the last refuge for members of the flat-earth club, whose simple ideas of a uniform gravity emanating from the earth translate without critical analysis into simple static models of verticality and orthogonal space. There is a self-induced heedlessness to the complex and dynamic forces of construction, including, but not limited to, windloads, uplift, differential live loads and non-solid ground conditions. This is to say that, both literally and intellectually, there is virtually no movement in architecture. This has always been the case as architecture is, perhaps by definition, the study and representation of statics. And it seems that even the architects would like to keep it that way.

If architects are going to participate in the mobile, often immaterial, shaping forces of the contemporary city, they must embrace both an ethics and a practice of motion. This involves an assumption that the classical models of pure, static, essentialised, timeless form and structure are no longer adequate to describe the contemporary city and the activities that it supports. It is a technical and even cultural inevitability that this ethics of motion must be facilitated by the use of computer technology. It is another mere fact that architects have always been, and will continue to be, mandated to operate with progressively increasing levels of abstraction in order to plan the outcome of material processes. This action at a distance on material form has been the perennial task of architects. It is in response to this necessity for abstraction that architecture's repertoire of spatial, organisational and representational techniques has developed. Yet for its entire history, virtually no attention has ever been paid to the development of motion-based techniques in architecture. This is due to a collective agreement between architects and society that their discipline is inert, that it is the study of statics.

Studies of motion have historically gravitated to those techniques that can manage complex information smoothly, allowing the study of temporal flow. At this moment, certain computer programs seem obvious as the sites for the study of motion. This interest in computation is not for the mechanisation of design but rather for a new medium in which designers can reconceptualise old problems in new ways. Contemporary animation software is of interest because it presents a new medium for design, just as perspective was a technology that quickly became a design medium rather than a descriptive or analytic technique. In other contexts I have outlined the three characteristics of animation software that constitute this new medium; they are: 1. motion; 2. parameters and 3. topology. These three aspects allow architects to approach design in radically different ways.

The idea of motion-form is not new, however; it is merely that the instrumentalities through which it can be thought are now highly advanced. It is important to distinguish between the advanced and the new. Motion and stasis are not new ideas; it is simply difficult, complex and cumbersome to think through a form in motion with a pencil and triangle. Architects are fundamentally simplistic in their techniques so pencils and triangles produce a specific kind of architectural simplicity. Quite simply, with more advanced techniques, it is intellectually and economically possible for architects to design with a more complex concept of motion and stability. Motion is not a new idea, it is an idea that is advancing in its complexity and interest, primarily due to the migration of animation software and hardware into architecture.

The approach to these computational machines must be baroque in spirit, for two primary reasons. First, artistically the baroque was the time where movement and motion processes were most rigorously experimented with in the design and construction of architectural form. Second, it was the last moment of resistance before most of the intellectual disciplines were completely retooled through Cartesian reductionism and mathematicisation. The principle thinker of the baroque period, Leibniz, is a pivotal figure for any discussion of combinatorial motion processes even today. So the approach to computational flow would be more akin to the abstract models of material properties of the baroque period than they would be to the experiments in artificial intelligence of the 1960s, 70s and 80s, or even more so, the Generation-X cyber-culture of the 90s. We can finally stop personifying computers with the metaphor of a brain – the idea that computers could think like an animal, only with artificial intelligence, is now uniformly ridiculed. Instead, the approach to digital technology one often hears is based on liquid metal, particle clouds or a litany of other raw materials. The digital realm is populated by abstract compounds with intrinsic properties and constraints that set interactive limits for shape, form and behaviour in time. These are the attributes of computational mediums which so desperately require new architectural sensibilities and compositional approaches.

The single characteristic that distinguishes all of these computational processes is the integration of temporal flows and shaping forces in the description of form through time. Instead of manipulating frozen, static forms, these methods involve a choreography of organisations through the manipulation of force effects in a time-based environment. This is the design method of motion pictures. By borrowing back the spatial technologies that architects served up to Hollywood decades ago, architects can gain a reservoir of motion-based techniques for both the representation of space and for the simulation of complex organisational processes.

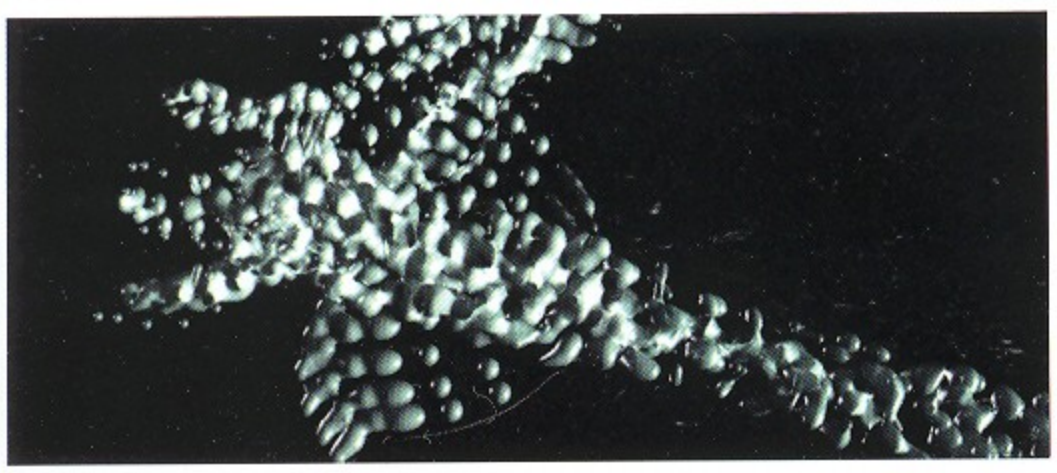
Just as there is a distinction between literal movement and the design of form in terms of force and motion, I would like to

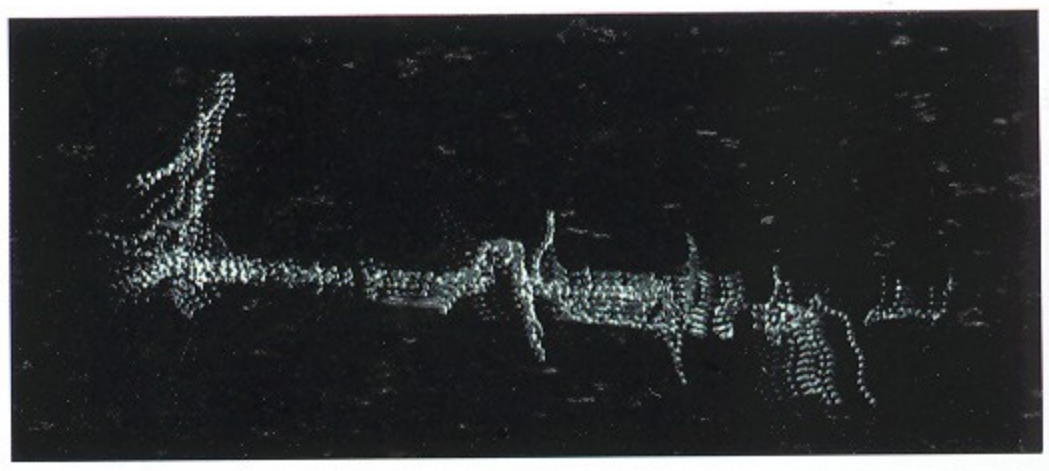
suggest a difference between urbanism and architecture. Architecture is involved in techniques of formation and stabilisation, whereas urbanism is characterised by more diffuse and transitory interactions between overlapping movements, flows, densities and intensities. Architecture's qualities are primarily those of discrete form and urban qualities are identified as gradients within fields. Architecture punctuates these gradient fields with stability. The use of the term stability is intentional as a replacement for the term static. Stability can be achieved within a complex of interacting forces through rhythmic movement and fluctuation. Where statics implies a timeless inert, stability implies a dynamic persistence. Architecture does not need to be static to persist. The key difference is one of time; static architecture is conceived timelessly, stable architecture must be conceived in a time-based manner. In order to exploit the connection between fields and forms new techniques for describing form and its transformation are necessary.

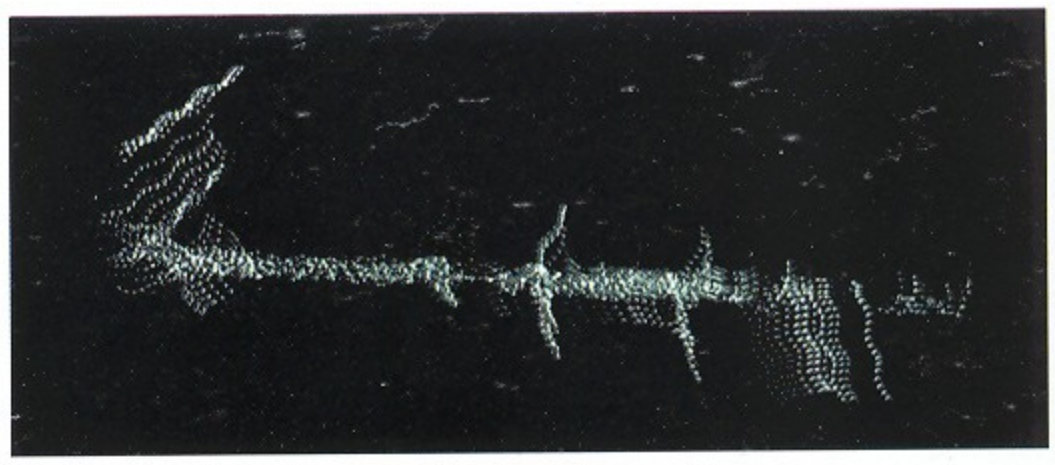
For the entire history of architecture, interests in movement have involved the arrest of dynamic forces as static forms through mapping. Urban fields and movements have therefore always been understood as the fixed lineaments upon which forms could be mapped. In order to work as an architect with urban forces in their unformalised state, it is necessary to design in an environment that is not static but dynamic. It is necessary that architects develop techniques that can relate gradient fields of influence with flexible yet discrete forms of organisation. This would constitute a leap from an architecture designed with techniques based on the equilibrium of Cartesian static space to design techniques within dynamically gradient space. It is not necessary that architecture literally move, but it must be conceptualised and modelled within an urban field that is understood as dynamic and characterised by forces rather than forms. To an architect, urban questions are often questions of large-scale forms or fabrics. In order to address patterns of organisation on the urban scale that differentiate subtly, it is necessary that architects begin to design using dynamic simulation systems of urban forces and fields.

Sites become not so much forms or contours but environments of gradiated motions and forces. Like temperature gradients that have no discrete boundaries or contours, sites are more or less liquid mediums with aqueous characteristics of flow and transformation in time. Although these aqueous gradients might be crystallised into form, an alternative is employed that makes a distinction between urbanistic field effects and the discrete singularities within those fields that become forms. Rather than freezing the fields, flexible prototypes are introduced into these liquid digital force environments. Rather than building the fields, there is a useful distinction made between forces and objects, between flows and the singularities that emerge within them. These large-scale motion effects can then be used to compose and shape discrete heterogeneous elements. In this way, it is possible to make a distinction between the architecturally discrete and the urbanistically continuous.

BELOW: Bucuresti 2000 – computer animations of conceptual massings

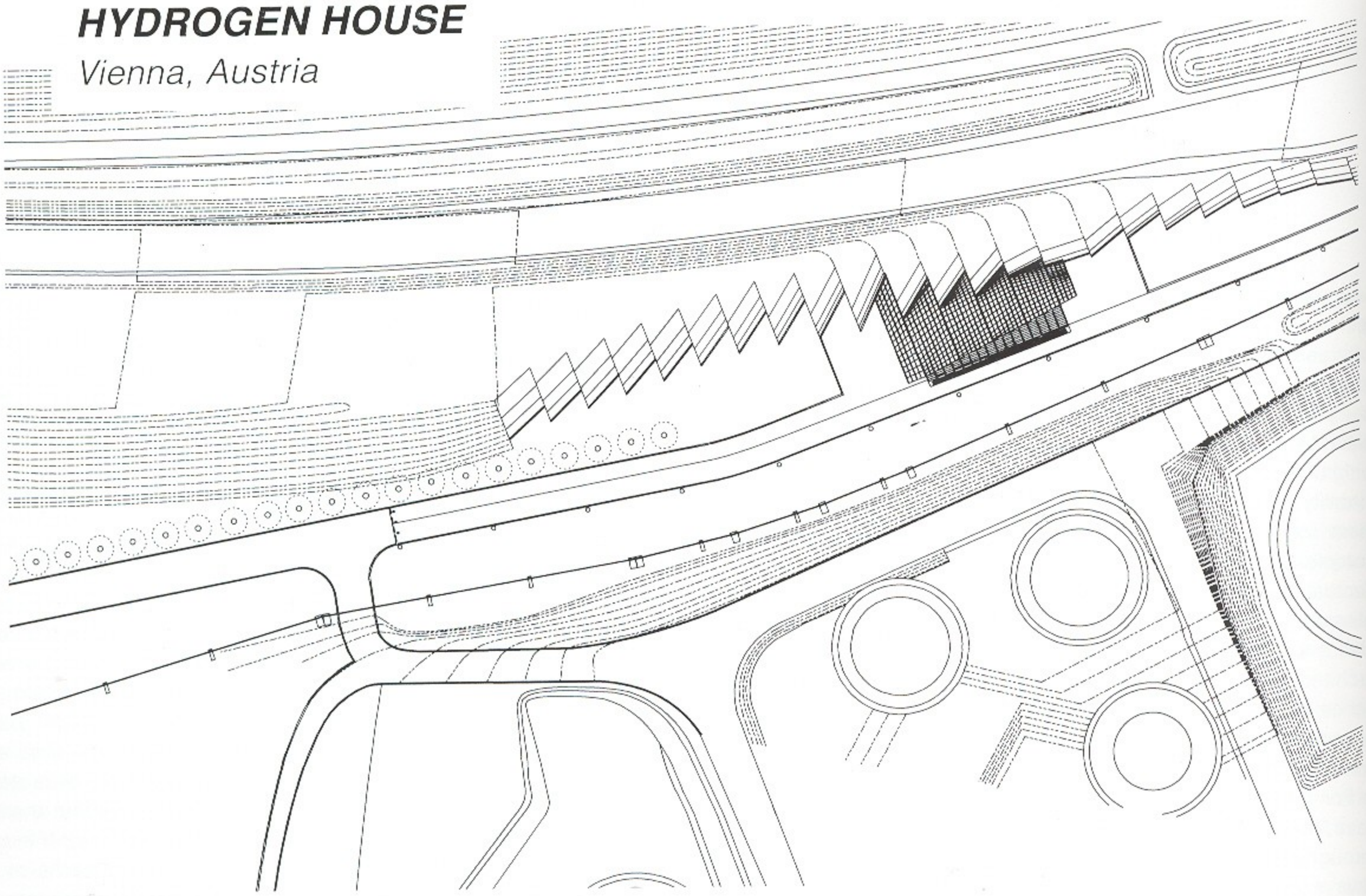




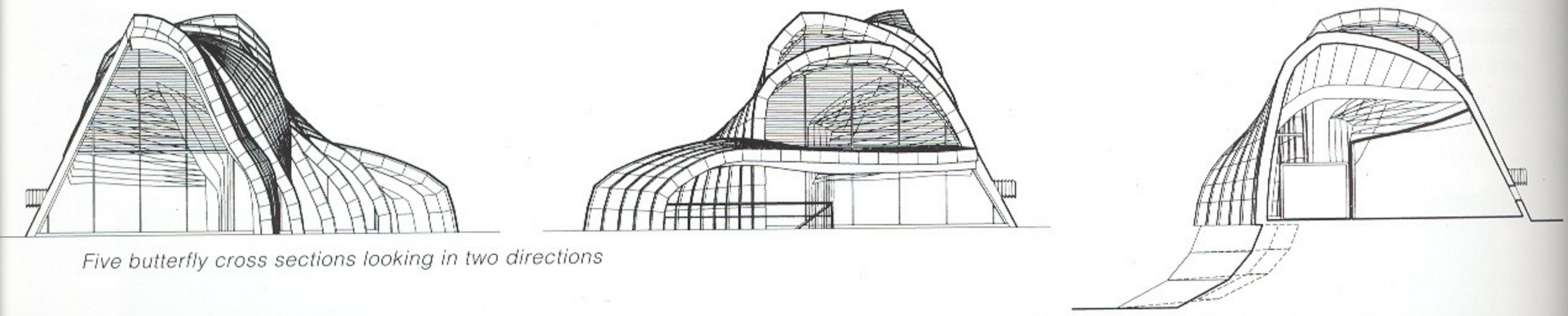


HYDROGEN HOUSE

Vienna, Austria



Site plan



Five butterfly cross sections looking in two directions

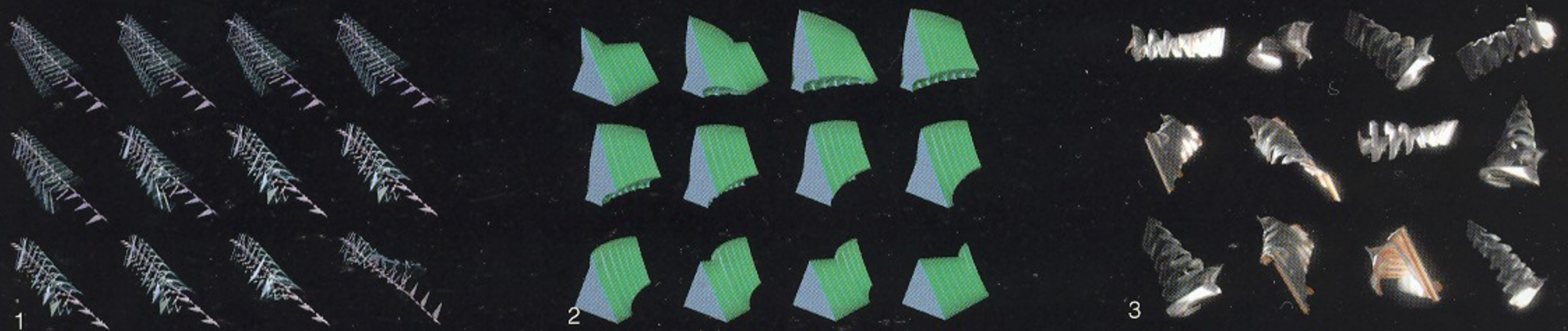
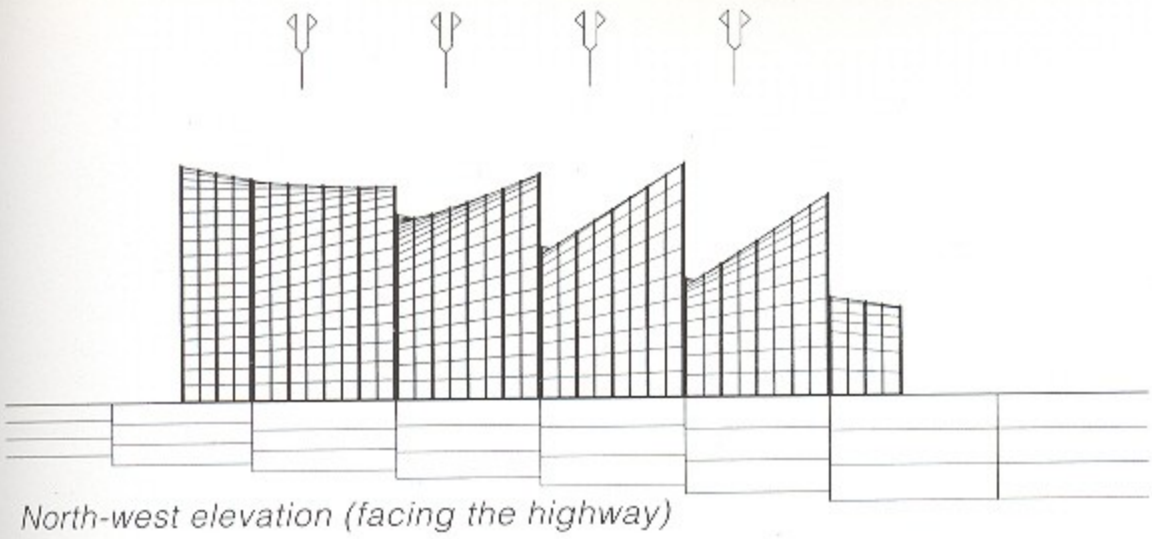
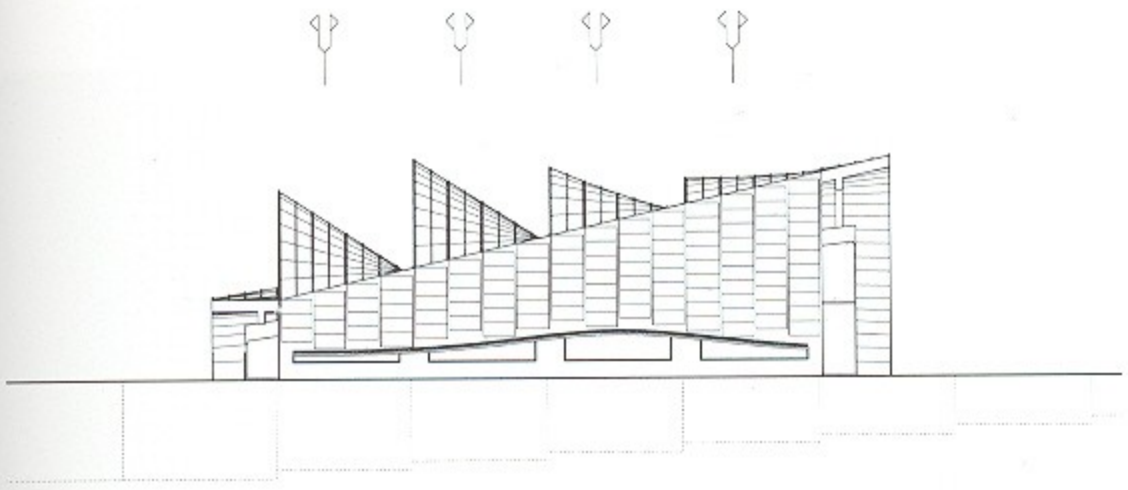


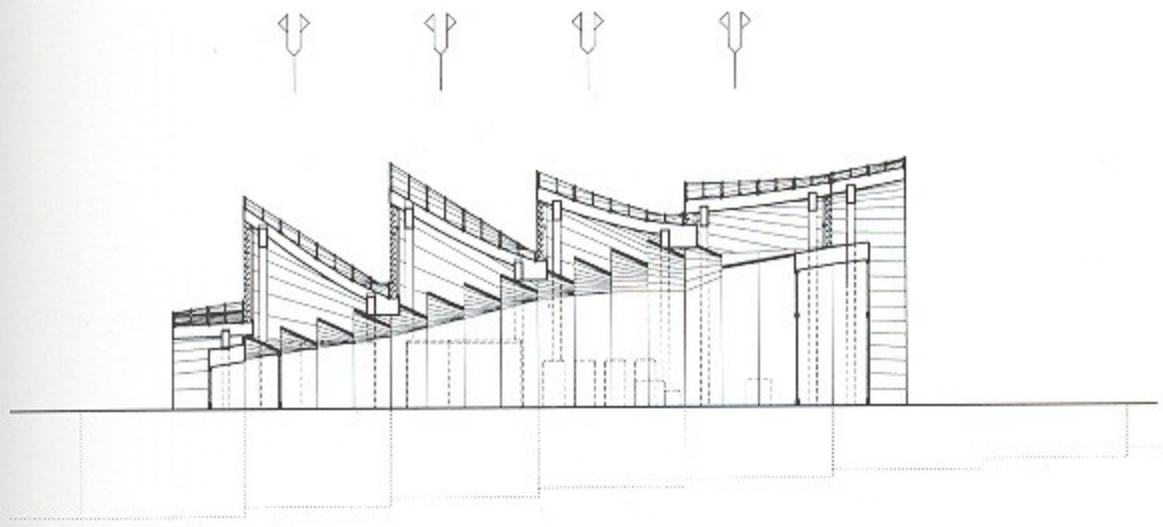
***Fig 1**: Surface envelopes – a series of studies were done to attach surfaces to the skeleton, which were warped as the skeleton tracked the motion on the highway. None were used as it was difficult to select a particular moment in the simulation of a day's traffic above any other element. **Fig 2**: Sun and shadow studies – an A-frame shaped primitive was connected to a force on a moving path simulating the sun. The surface was programmed to expand towards the sunlight and collapse when hit by shadow. The deforming force was animated along three paths, each of which related to the solstice paths of the sun. In this way the surface was inflected towards a solar path rather than selecting an average orientation for the entire building. To eliminate the problem of a mobile sun a series of suns were simultaneously located in the sky making a solar vault of 36 sun forces (12*



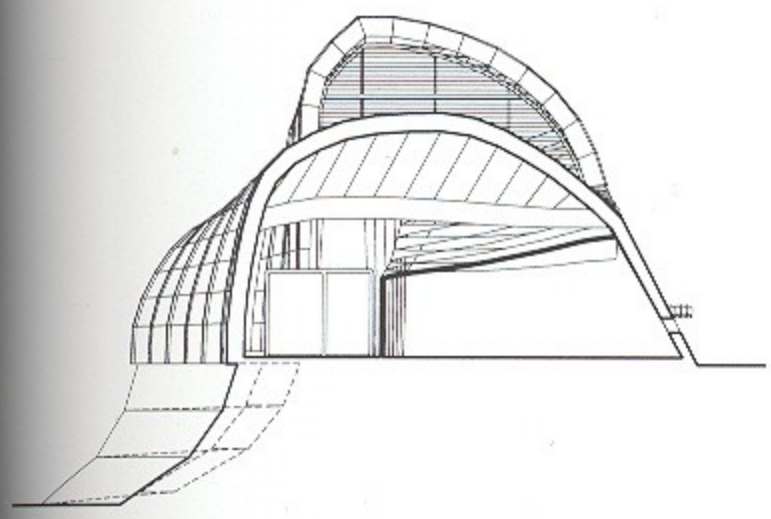
North-west elevation (facing the highway)

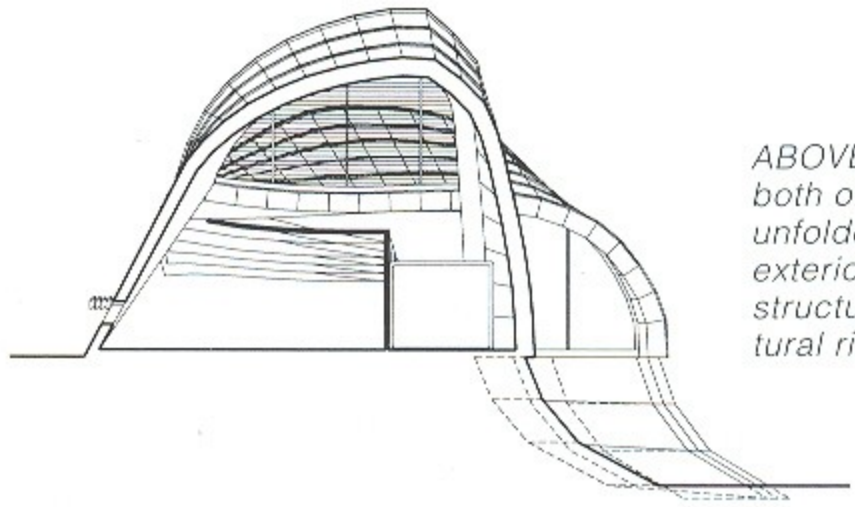


South-east elevation (facing the refinery)

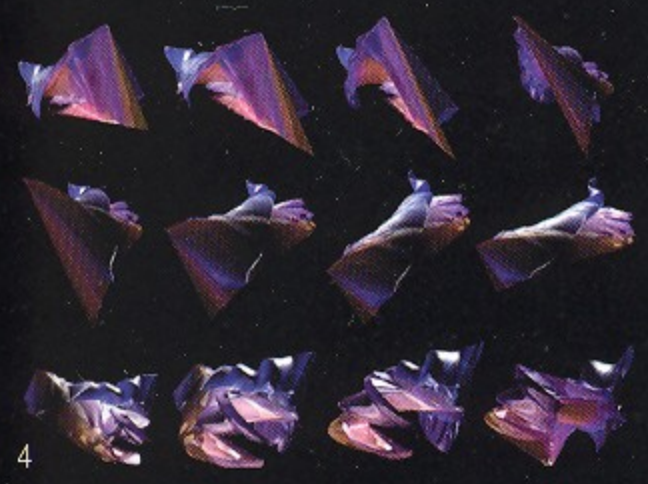


Longitudinal section





ABOVE: Schematic drawings (drawn in both orthographic plan view and topological unfolded view) showing the surfaces of the exterior cladding, the purlin secondary structure, the ceiling and the wooden structural ribs.



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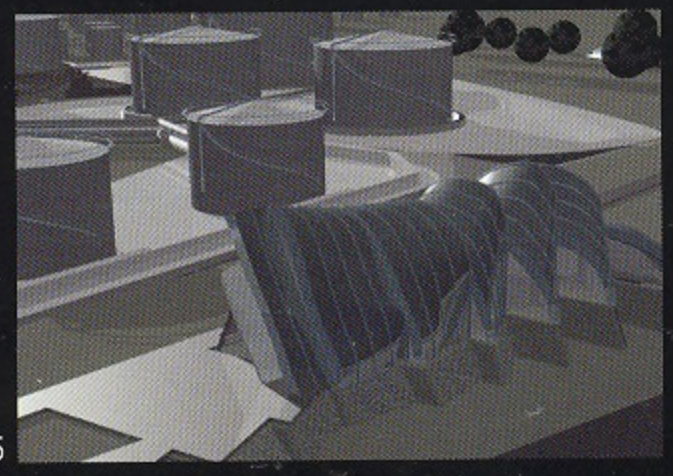
*forces per solar path). This avoided the problem of selecting an ideal time and an ideal day from which to freeze the photovoltaic elements that comprised the surface. **Figs 3 & 4**: Surface sweeps as phase portrait – instead of selecting a moment in the series, splines were drawn in space from the tips of*



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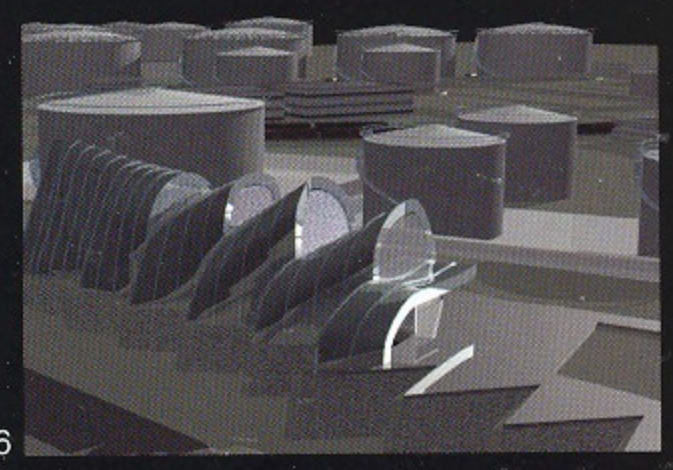
the skeletons, generating phase portraits of the entire sequence as lines in space. From these splines drawn by the skeletons a splined surface was constructed that captured the motion through time from the east to the west. The openings of the building to the highway change depending on the



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*direction of travel due to the capturing of this virtual motion in the surface. In this way it was not necessary to resort to the literal movement of the envelope to change one's perception of the building. **Fig 5**: Perspective view with site from north-east. **Fig 6**: Perspective view with site from north-west*

.O.C.E.A.N. U.K.

ARABIANANTA URBAN DESIGN (PHASES 1-3)

Helsinki, Finland

As a potential urban model for the Baltic region, the aim of this project is to accelerate Helsinki's role as the region's foremost city. The project strives to enhance the coastal condition of Helsinki and responds to its peninsular and archipelagian landscape.

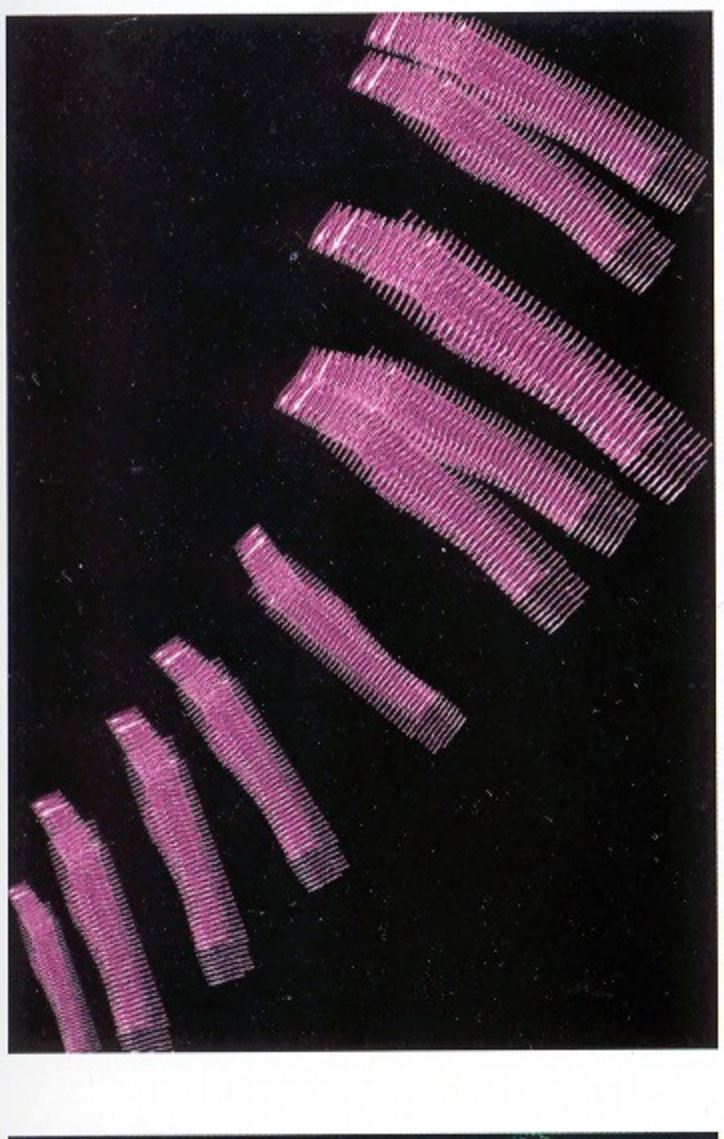
An emergent Art and Science Axis stretches from the new university campus in Viiki to the north, to the centre of the city. As a node of the axis, the University of Art and Design is located in the Arabia ceramics factory building. The scheme integrates the site into the linear park system of Helsinki.

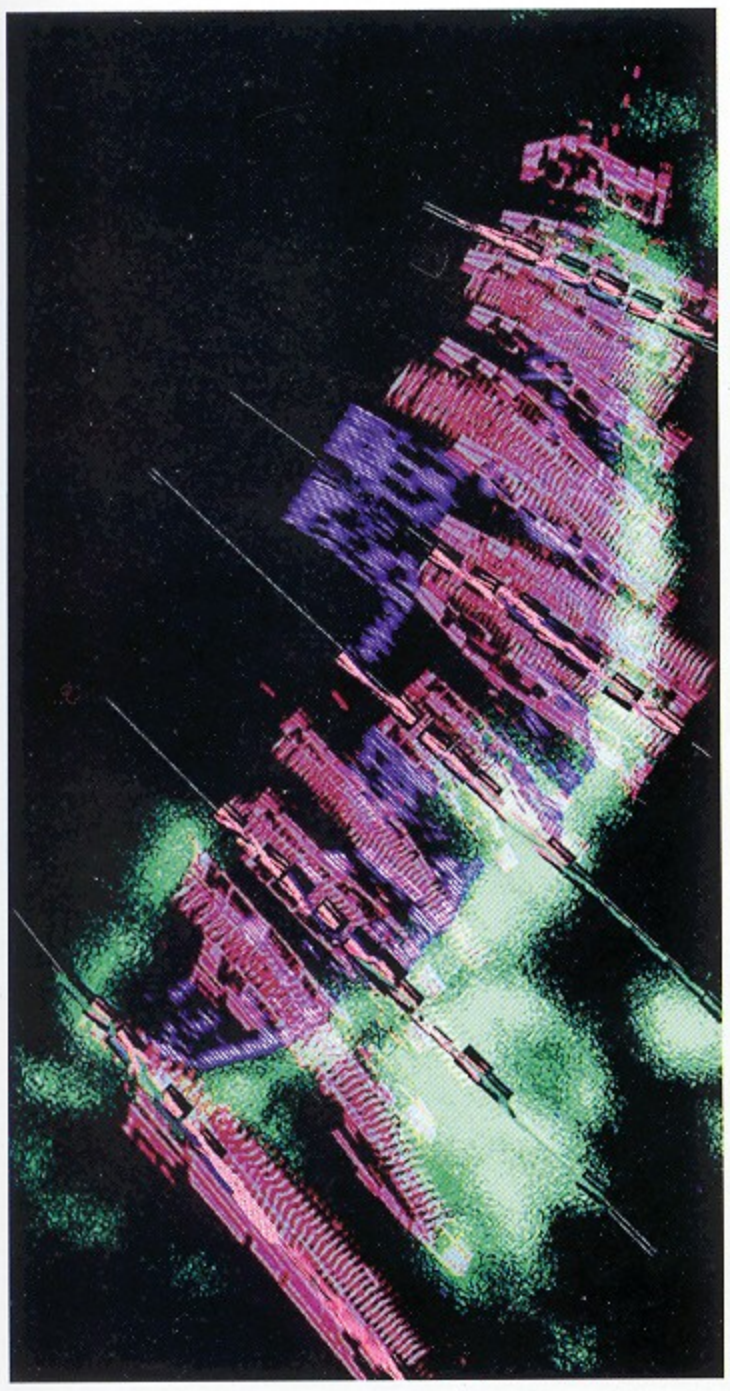
Sectional design policies of blending urban public activity surface, built volume and landscape yield a coexistence of stratified surfaces on each lot. A coherent sectional urbanism is made explicit in the development of generic relationships of urban surface, 'savage' fields and internalising volumes. Surface parameters of zonal continuity and the potential of bounded events offer an interchange between predictive and spontaneous activation.

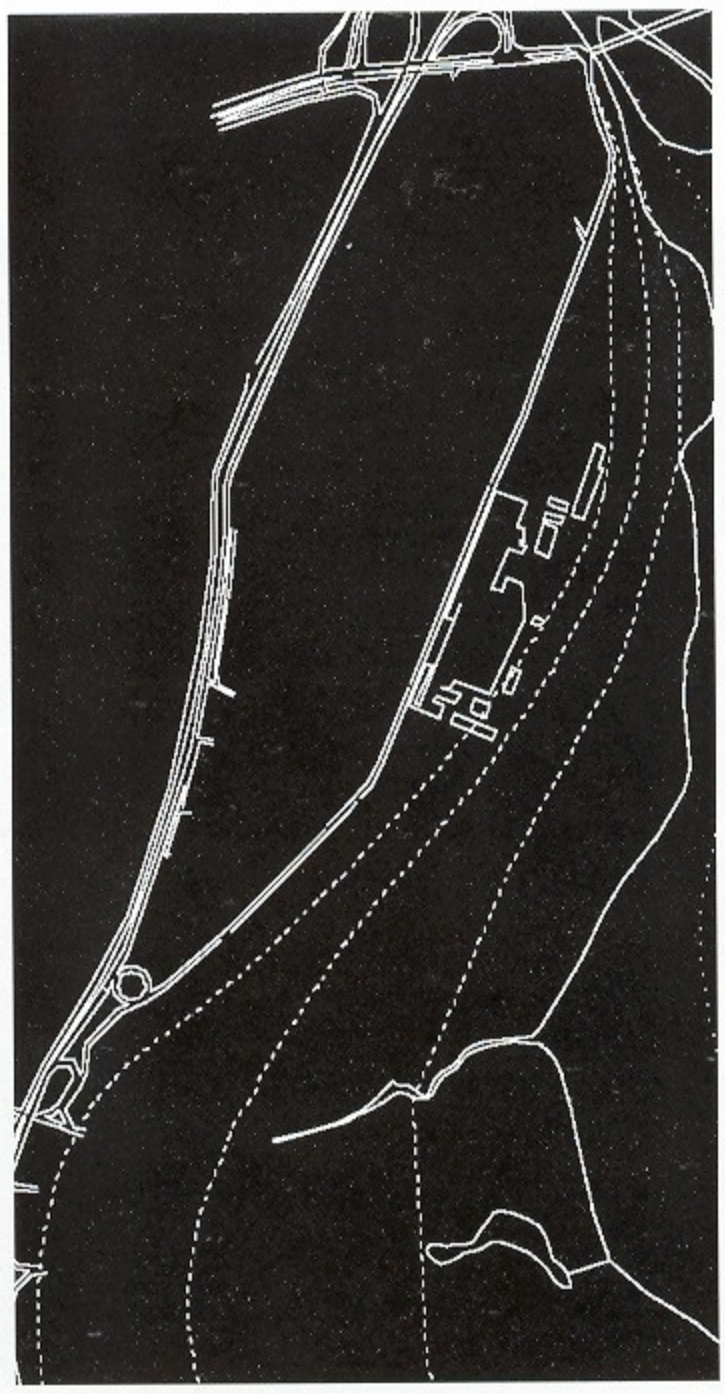
Phase 1

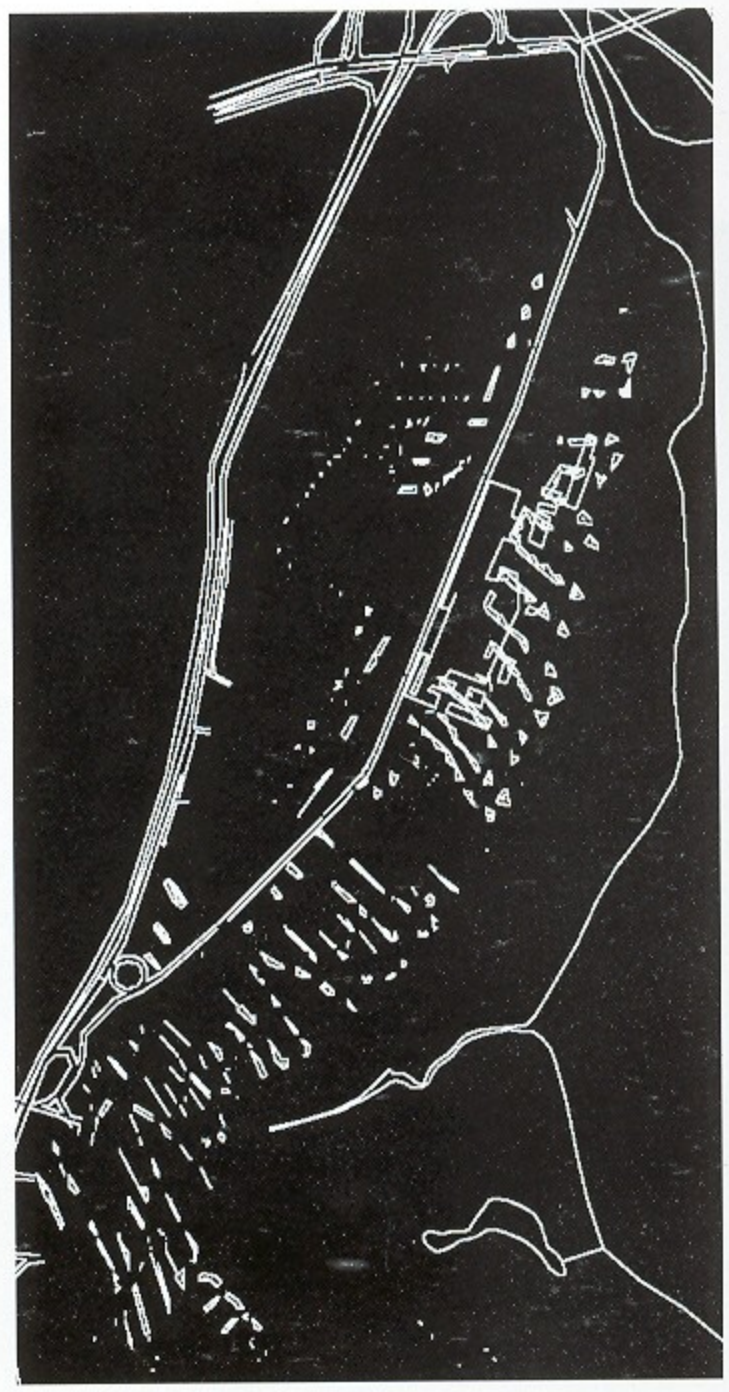
The Arabiananta site is a 3km^2 parcel of polluted landfill located north-east of the historic centre of Helsinki, part of the Toukolanranta area of development, and close to the University of Art and Design. The proposal detects and revises the qualities of the existing Toukolanranta masterplan. A heightened potential unfolds from organisational fluidity and a saturation of asynchronous activities. .O.C.E.A.N. U.K. forecasts an assumed maximum integration of all components and a completeness at any time. An intensified horizontal urbanism evolves a characteristic density and multiplicity. Three-dimensional zones of lot volume enable the potential of architectural difference to occur. Sectional design policies blend *urban public activity surface, built programme mass* and *landscape* systems. This strategy yields a

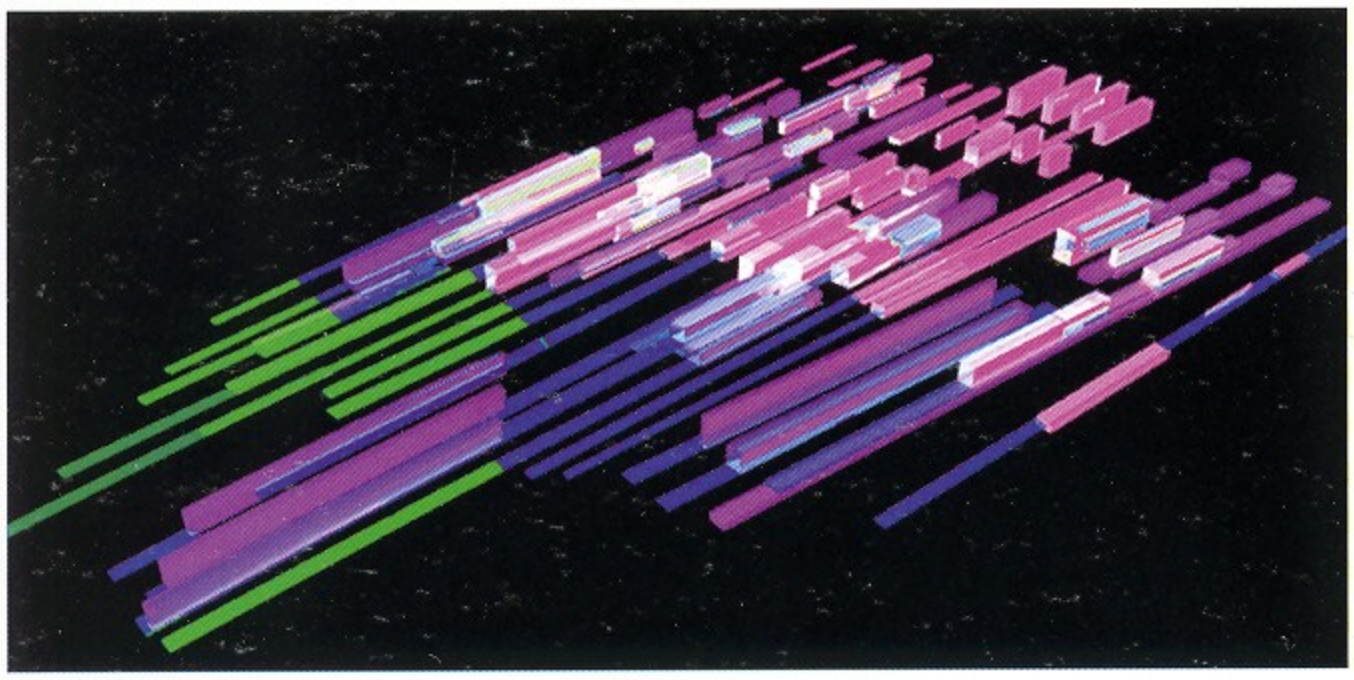
OPPOSITE: Plan – strategic agglomeration; BELOW, FROM ABOVE L TO R: Pliant urbanism; savage fields; micro-landscape; programmed zones, yardspace, coastal green; multiple coastline condition; new housing organisation

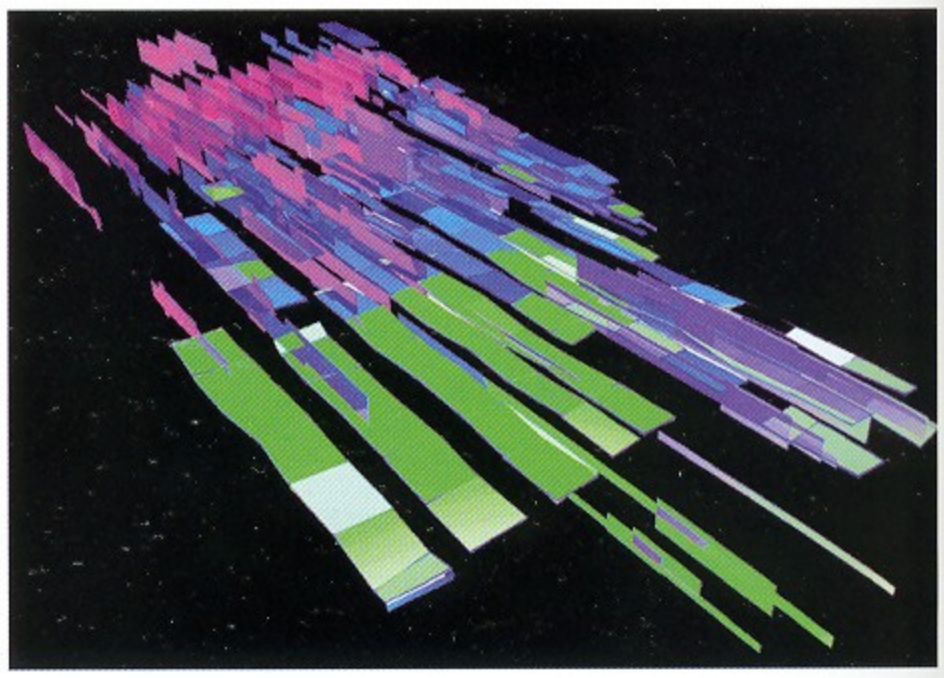












coexistence of multiprogrammed surfaces on each lot, warranting coherent yet diverse relationships.

Charged urban activity surfaces are adjacent to fields of:

- *savage dry* blank event spaces of unregulated surface
- *savage wet* unzoned space of deregulated opportunities of spatial occupation.

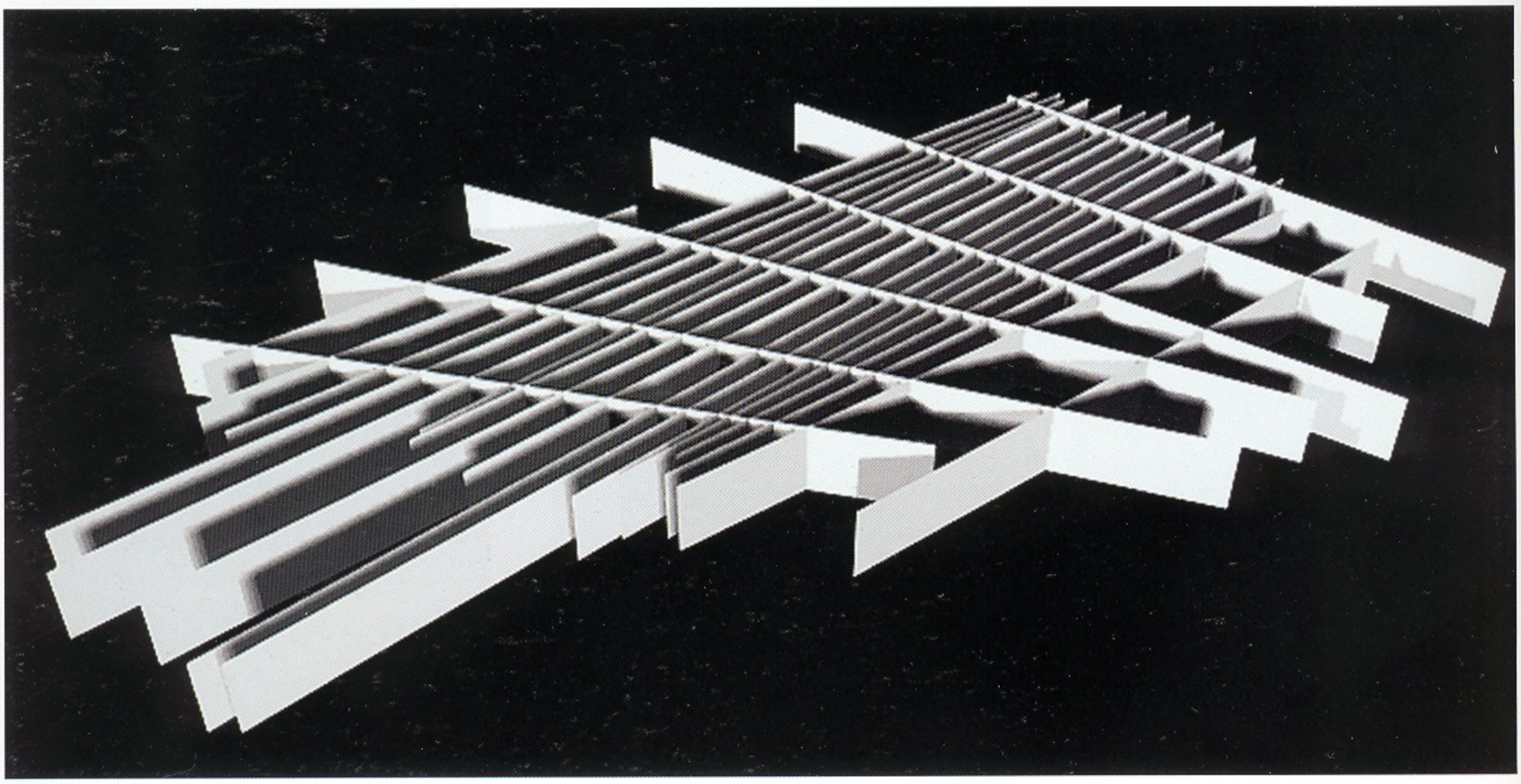
Between the currents, potential is unleashed. Surfaces of variable continuity comprise morphed and multiple programmes (*'edutainment'*– education/ entertainment, *eco(re)search*, *soft commerce*, *infrastructure* and *housing*). Landscape and built mass are organised in a fluid politico-spatial fusion.

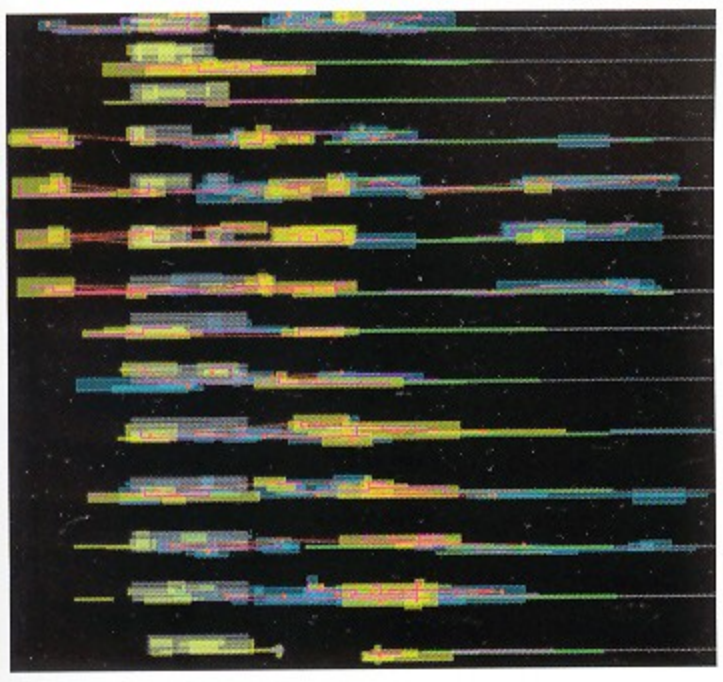
Phase 2

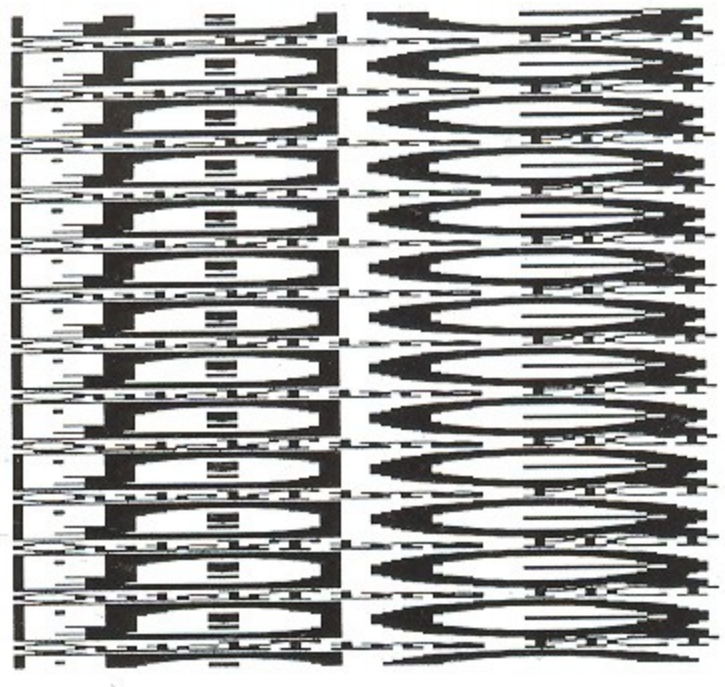
Advancing the themes and contingencies initiated in Phase 1, this merges educational, entertainment and commercial priorities as a joint investiture, via :

- a residential distribution scheme
- site organisation diagrams
- detailed programmed zoning
- a sectional policy model

The *transportation engineering* strategy inscribes multiple coastal infrastructural lines, effecting the north-south flow in a differentiated organisation of vehicular roads, bicycle routes, pedestrian integration, city and suburban bus routes, tramway and metro. The east-west directionality links Hameentie with the







LEFT: Maximum programme; edu/tainment/ scape programmes; combination; intersection; BELOW: Sectional key; axonometric; plan; infrastructural plan

bay front, establishing a permeable archipelagian urban structure.

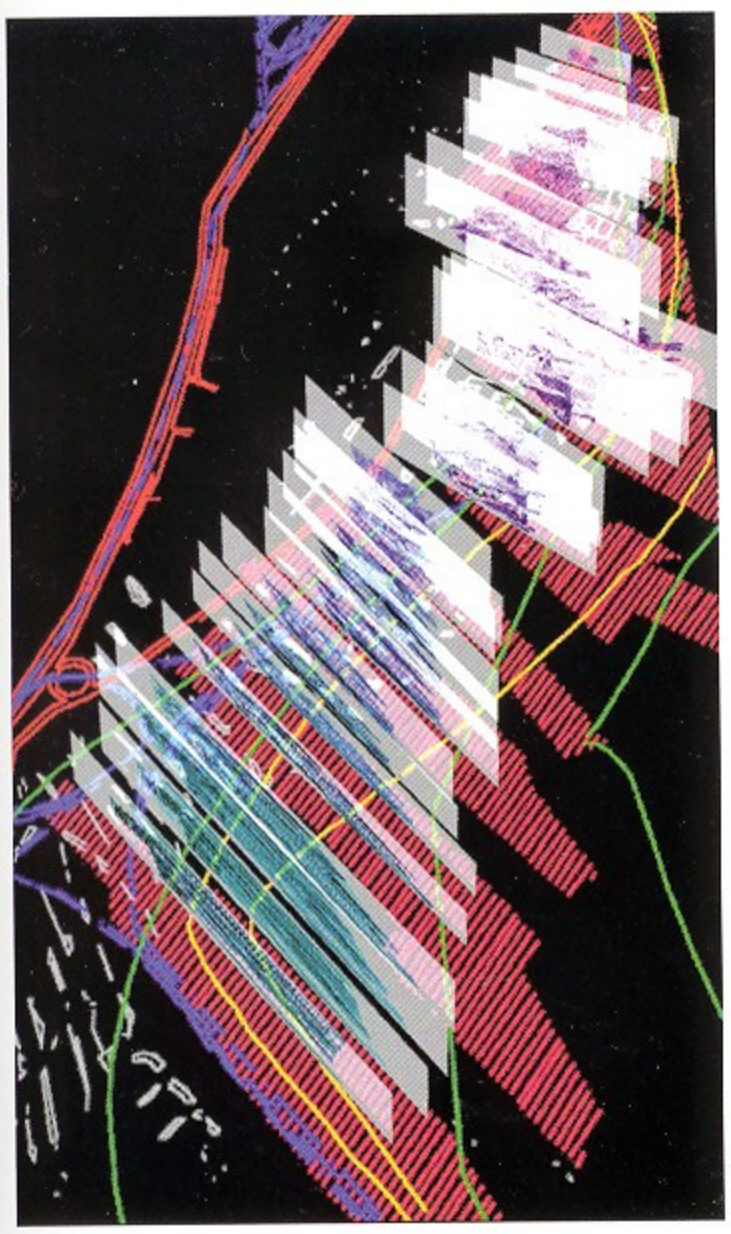
Much of the site is polluted landfill along the coast. A *pollution strategy* details a prioritising system of water regime and soil improvement, enabling the programme zones to be upgraded in a sequence that indicates phasing, density of occupation and the extent of residential zoning. The coastal landscape is to be evolved as an extension of the ecology of Vanhan Kaupungin Bay.

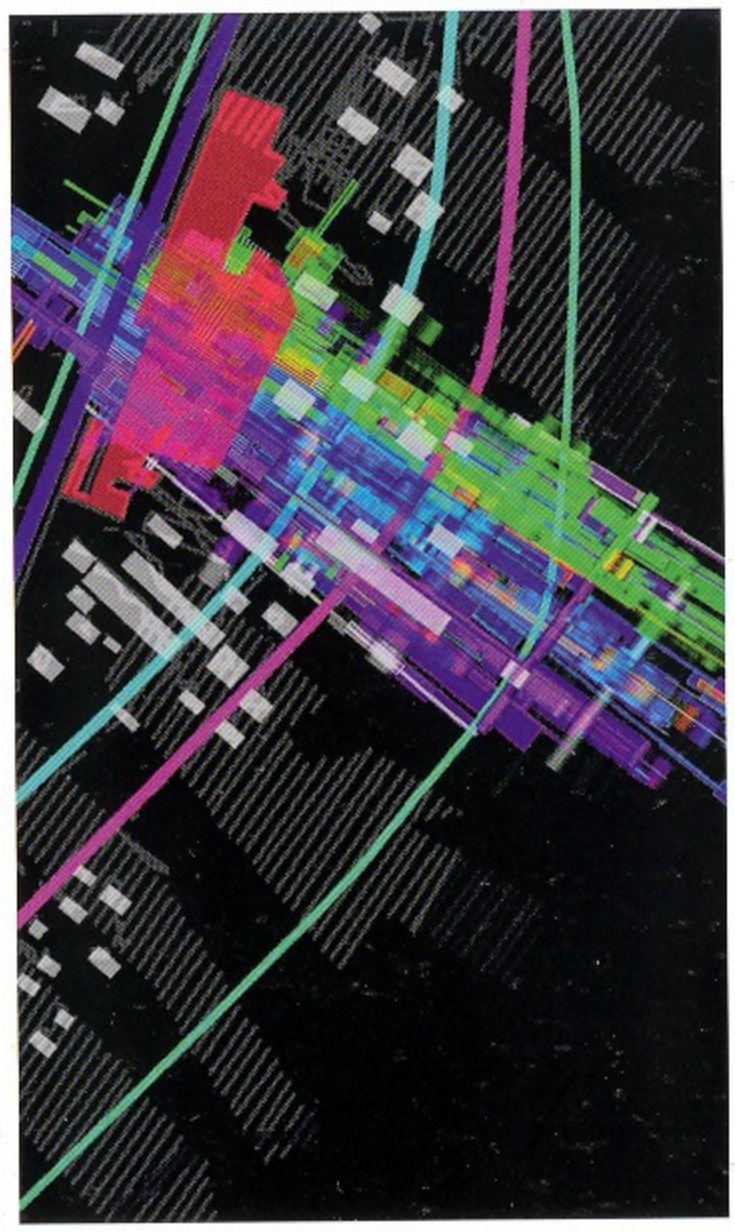
As each programmatic zone necessitates a different degree of environmental improvement, the phasing and gradation is adjusted and diversified accordingly. Rather than proposing a homogeneous and hence cost-intensive treatment, the scheme seeks to formulate a heterogeneous and interactive system. Finance and management of the phased soil treatment can be more flexibly negotiated between the municipality and private investment.

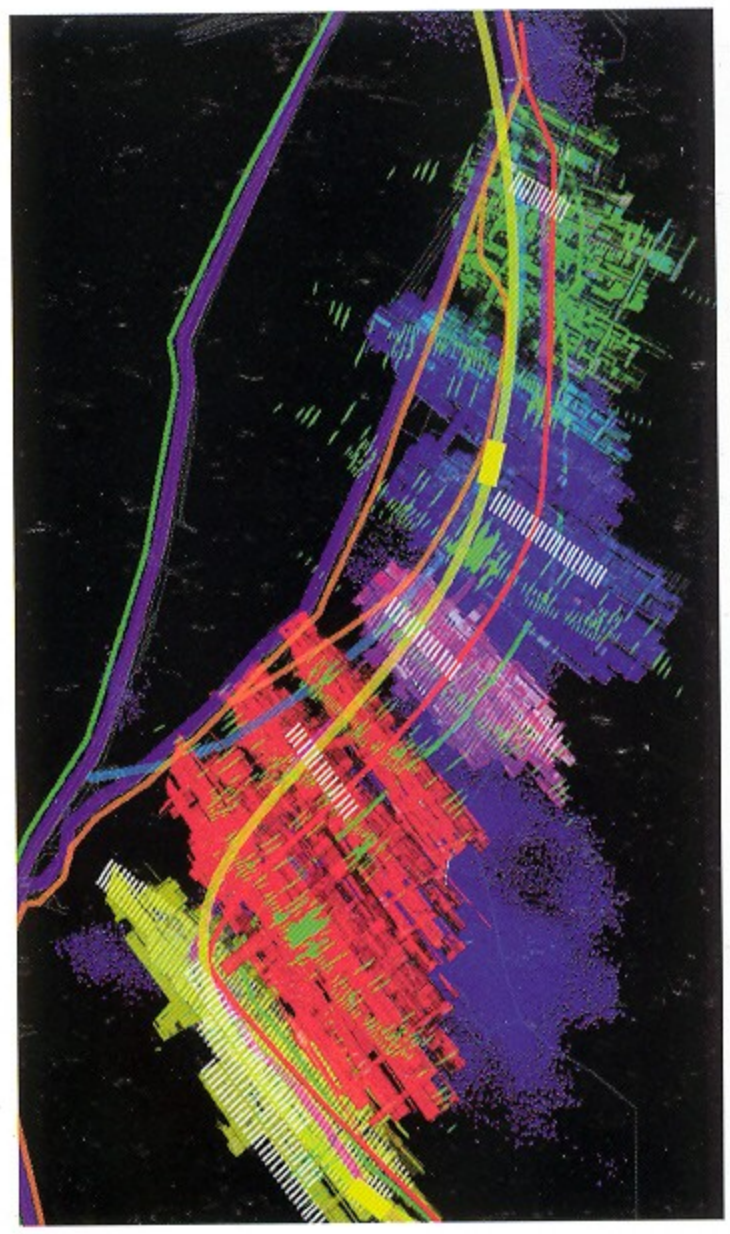
Phase 3

The *Mediacity* is an agglomeration of instituted and non-instituted groups, including research, development and production facilities for the media, with integrated residential and public priorities.

The Mediacity accommodates students, live-work, public housing and private residences, thereby relinquishing the ideological independence of home and office.







JEIL'S HOSPITAL FOR WOMEN

Seoul, South Korea

The hospital aims to promote optimism through the deployment of space. Employing all the available sectional space of the planning setback regulations, the hospital is formed by the space between two visually permeable surfaces, thereby integrating urban and building spaces. This interstitial space is continued into the sequence of the main entrance and turns into a 3D diagonal atrium which folds up, into and through the vertical slabs of the upper floors. The continuous sequence of main entrance to the atrium allows light, air and a dynamic upward view into the interior of the upper floors.

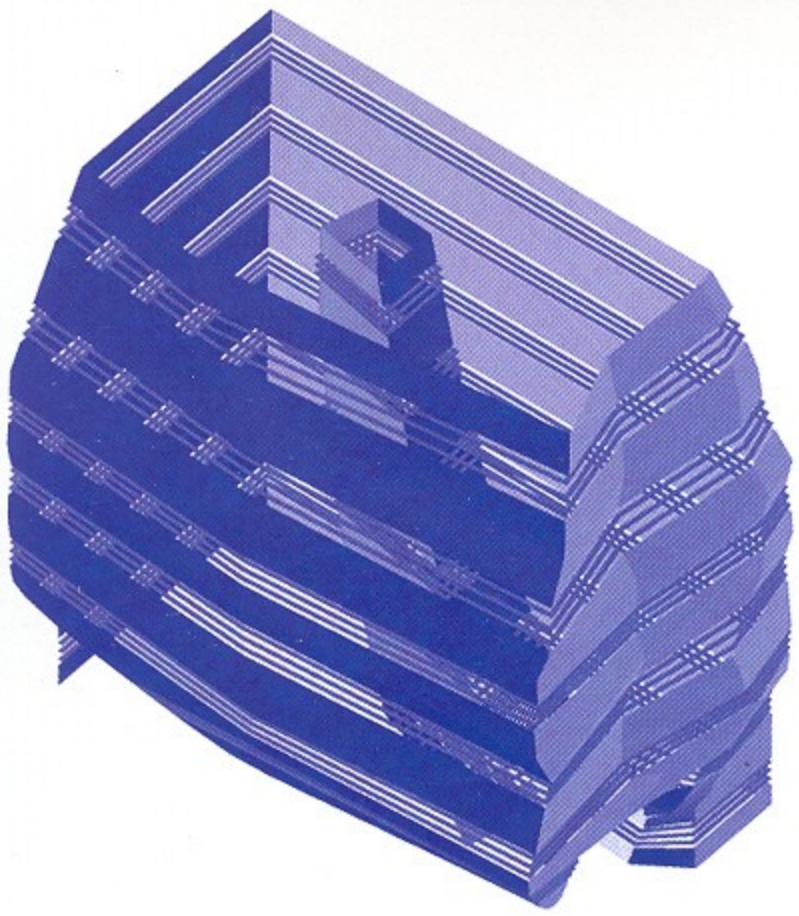
The programme is distributed on both sides of the atrium, allowing an accumulation of densities to frame the lightness of the interior. The patients experience a light, airy and gregarious flow of spaces: the interaction between people and architecture is thereby heightened and movement between public and private spaces of the building facilitated.

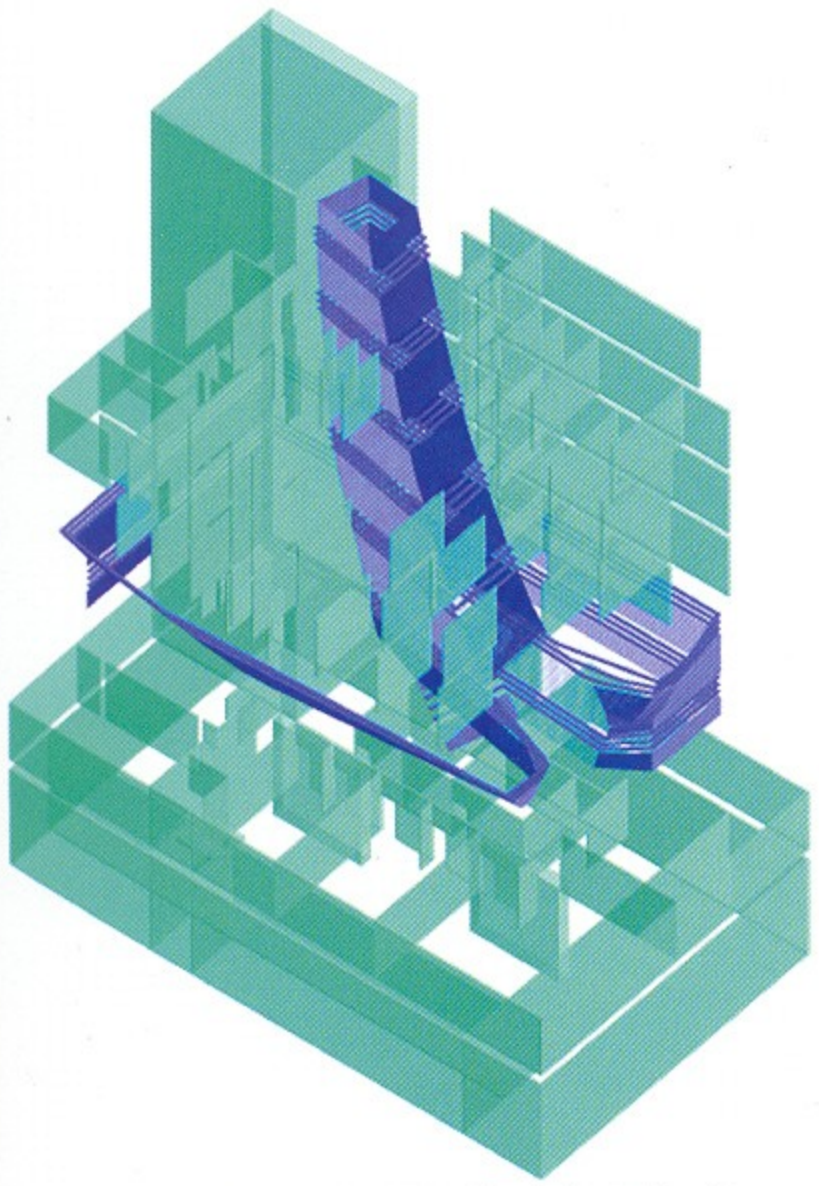
The street level continues to a semi-public submerged garden, underlit to produce an effect of sparkling buoyancy. The combination of lighting and landscaping heightens the perception of texture and directs the eye towards the atrium. The landscape of light continues in the seasonally adaptable interior/exterior roof, where planting and lighting are instrumental in easing the transition from urban to interior space. The interior is lit with a combination of tungsten and incandescent lighting, highlighting the restrained glow of the atrium.

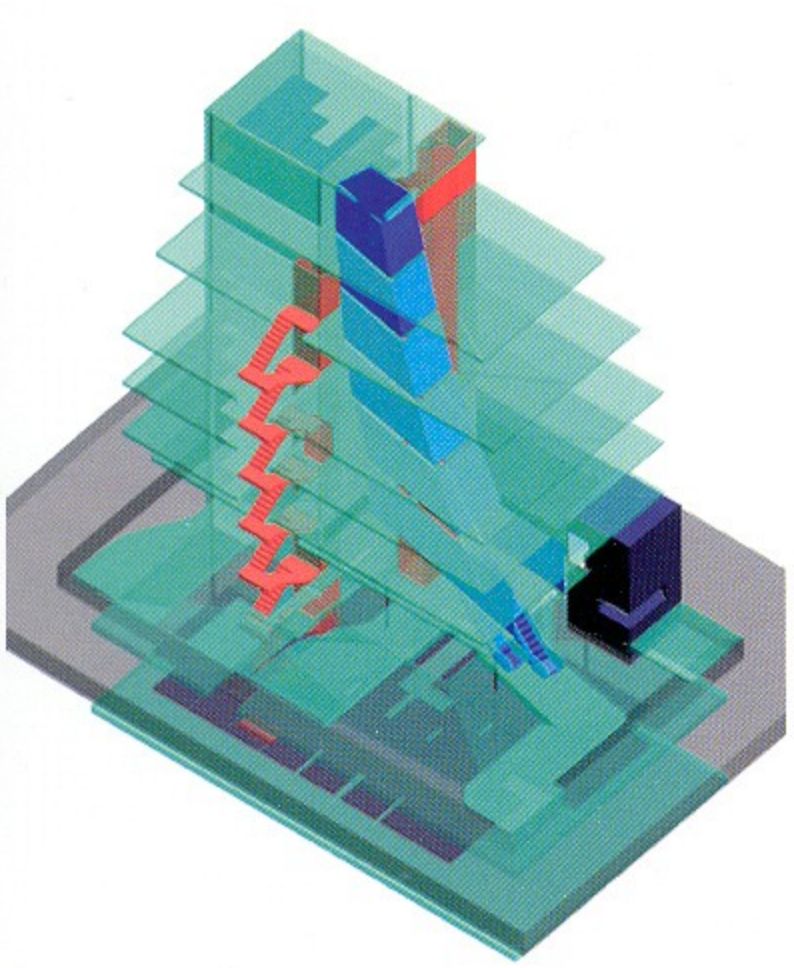
There is mechanical parking both in the translucent tower and the lower basement. Each car park system holds thirty vehicles and is accessed from the main road; security is carried out from a central control cubicle.

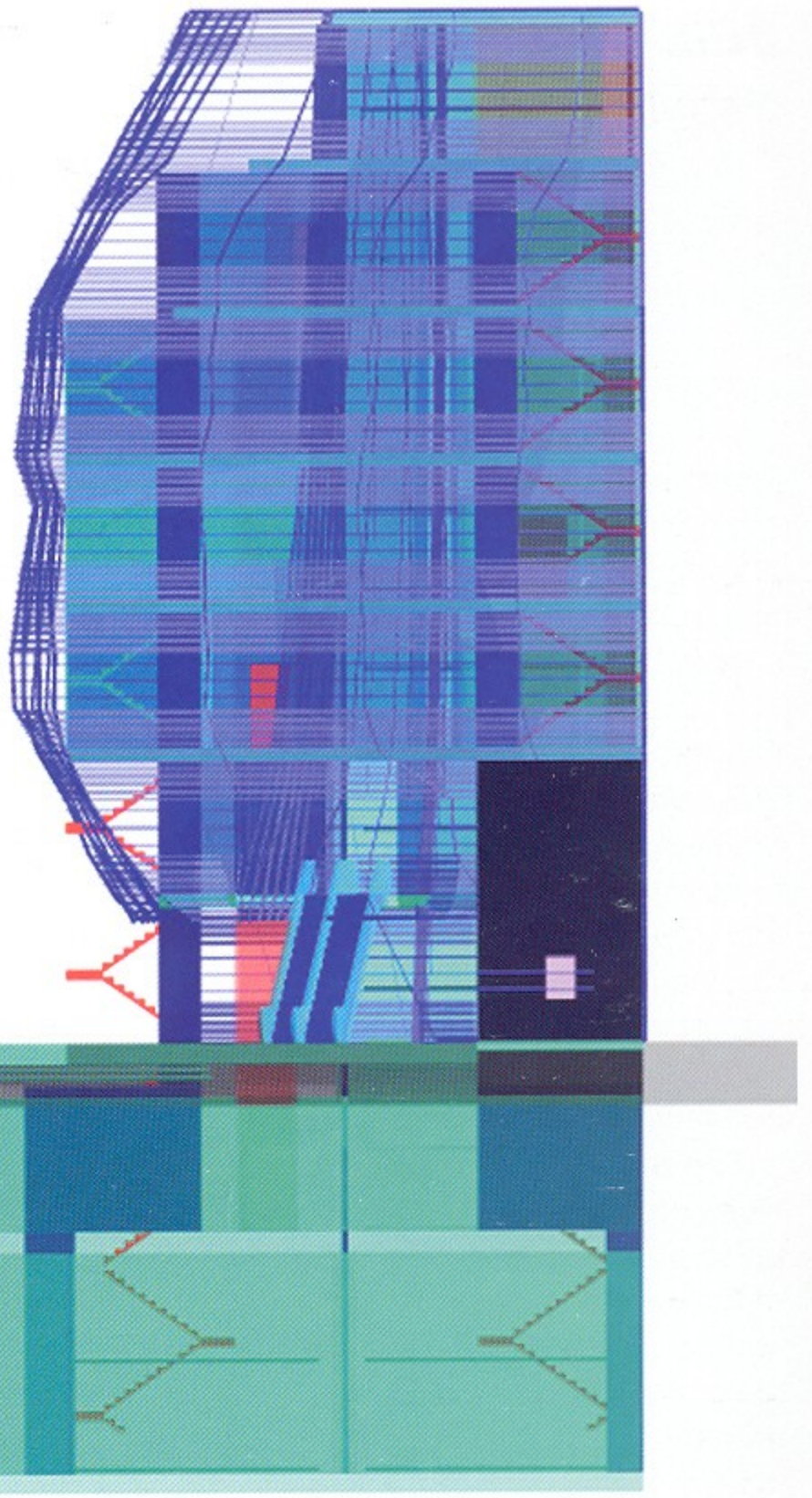
A high u-value curtain-walling system, coupled with two systems of louvres, maintains views out of and into the building. Both systems reveal and veil the interior spatial sequence and are mechanically adjustable, according to the levels of privacy and sunlight required.

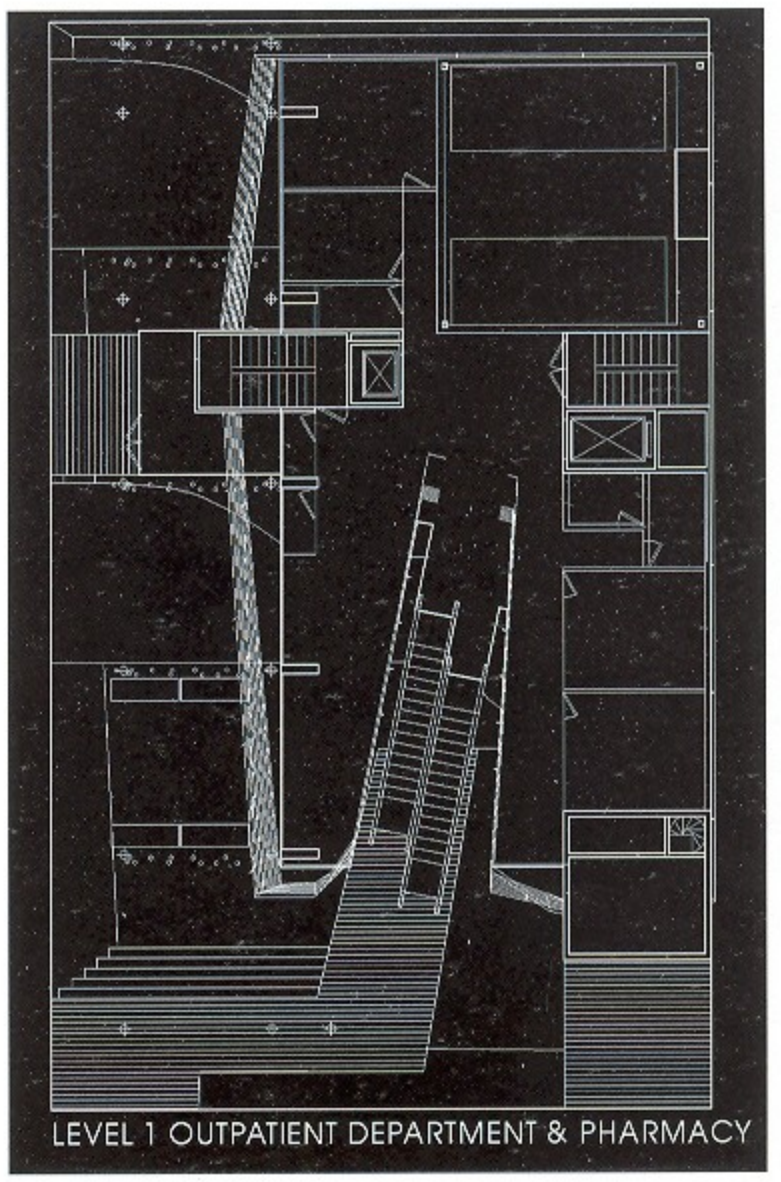
ABOVE: Computer-generated morning view; OPPOSITE, LEFT FROM ABOVE: Louvres – urban void; internal walls and void; mechanical parking, void, pharmacy; OPPOSITE, RIGHT FROM ABOVE: Side elevation; level 1 plan










LEVEL 1 OUTPATIENT DEPARTMENT & PHARMACY

BUCURESTI 2000 MASTER PLAN

Bucharest, Romania

Any pertinent proposal for Bucuresti 2000 must enable the city to venture out of its current social crisis. The situation demands caution, however. Ideological solutions are problematic. To finish the Ceausescu plan might well solidify the ethics of the imposed architecture. To apply a reparatory European perimeter-block urban structure would cause an indirect intensification of the 'Ceausescu-space'. To dismantle the Ceausescu-space would disregard the actuality and potential of Bucharest. This proposal, therefore, rests on the potential value of the intersectional open space of the residual Ceausescu-space and the river-space.

The proposal aims to present an adaptive policy document for several possible futures for Bucharest. Modulated intensities and instigated spatial drifts deny the linearity of sequential phasing strategies to implement an urban proposal. The document should project a multiplicitous future, not simply be an illustration of the urban configuration in one final completed state.

A primary north–south connectivity points towards a densified edge of the aqueous spatial core along the intersection of the Ceausescu-space and the river-space. This edge enables the openness of the public spatial core to be differentiated as public spaces.

Instrumentalising two spatial conditions specific to Bucharest – the directionality of the north–south fabric and the spatial type of the relocated activity generator in the courtyard, a new set of attractor-spaces, with programmed cultural, commercial and green gravitators, is inherent in the projected multi-linear spatial organisation. Interconnected gravity fields mesh these attractor-spaces into a sequential web.

The current lack of north–south linkage routes is overcome by the provision of pedestrian, bicycle, public transportation and vehicular traffic systems. Carparks mesh along the edges of the public spatial core, strategically located to facilitate the control of traffic patterns and intensities, instilling a graduated vehicle/pedestrian relationship.

Sectoral Principles

Four sectoral principles guide the projection to a multitude of interdependent and independent programmes.

Sector A – Olympic plateau and media nodes

Dealul Arsenalului is projected to receive an atomised Olympic sports park, combined with an education and media influx in proximity to the Casa Stiintei.

Sector B – 'Politiconomic' park

A concoction of governmental, diplomatic, financial and shopping compounds currently existing as programmes between Sectors A and B.

Sector C – AidTrade

Piata Unirii procures the hybrid programme of non-governmental and world trade (AidTrade) organisations and world trade. A new east–west flow establishes an intersectional relationship with a north–south directionality, innovating the AidTrade-space in the position of the historic crossroads of Bucharest.

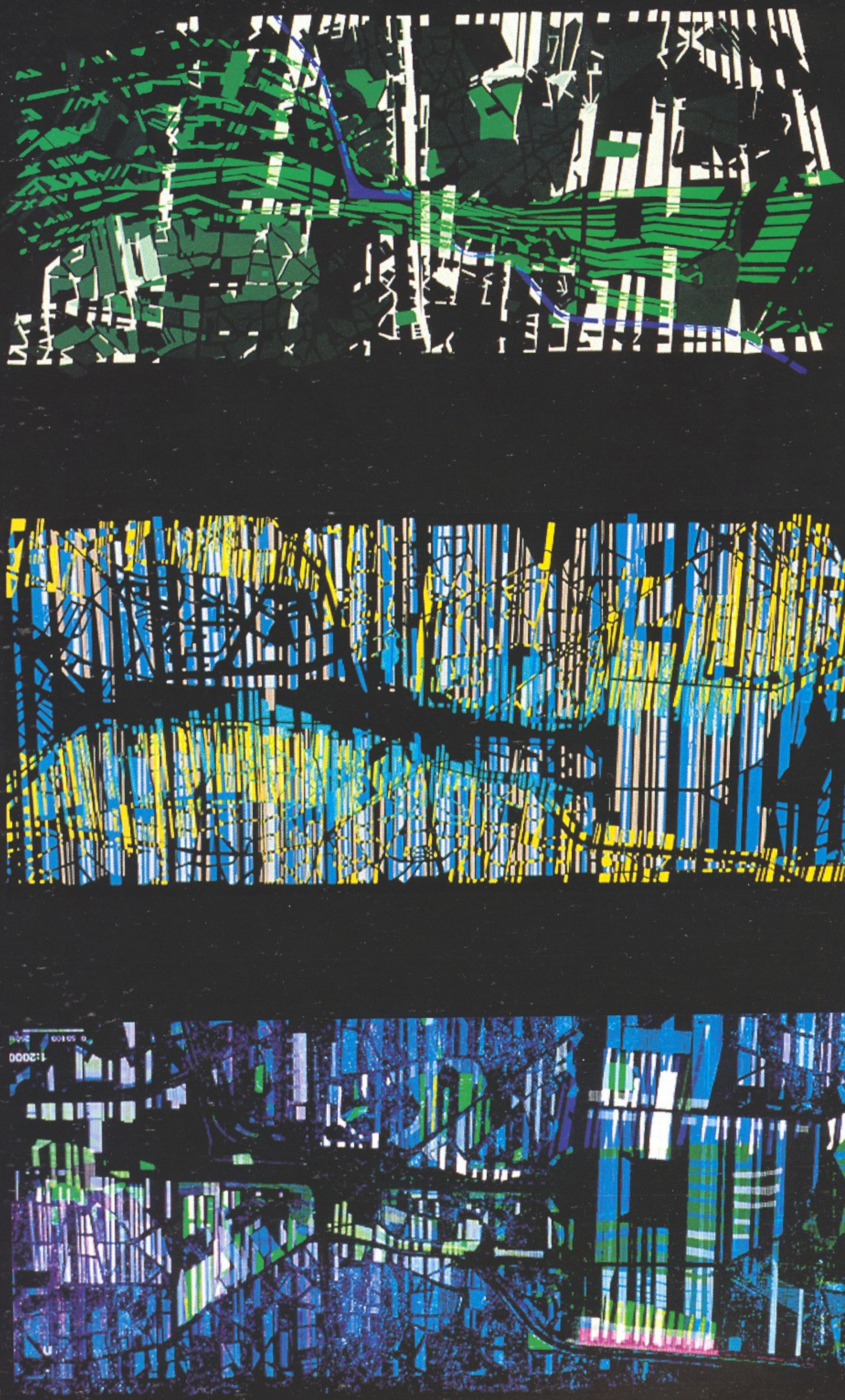
Sector D – Intersectional banding

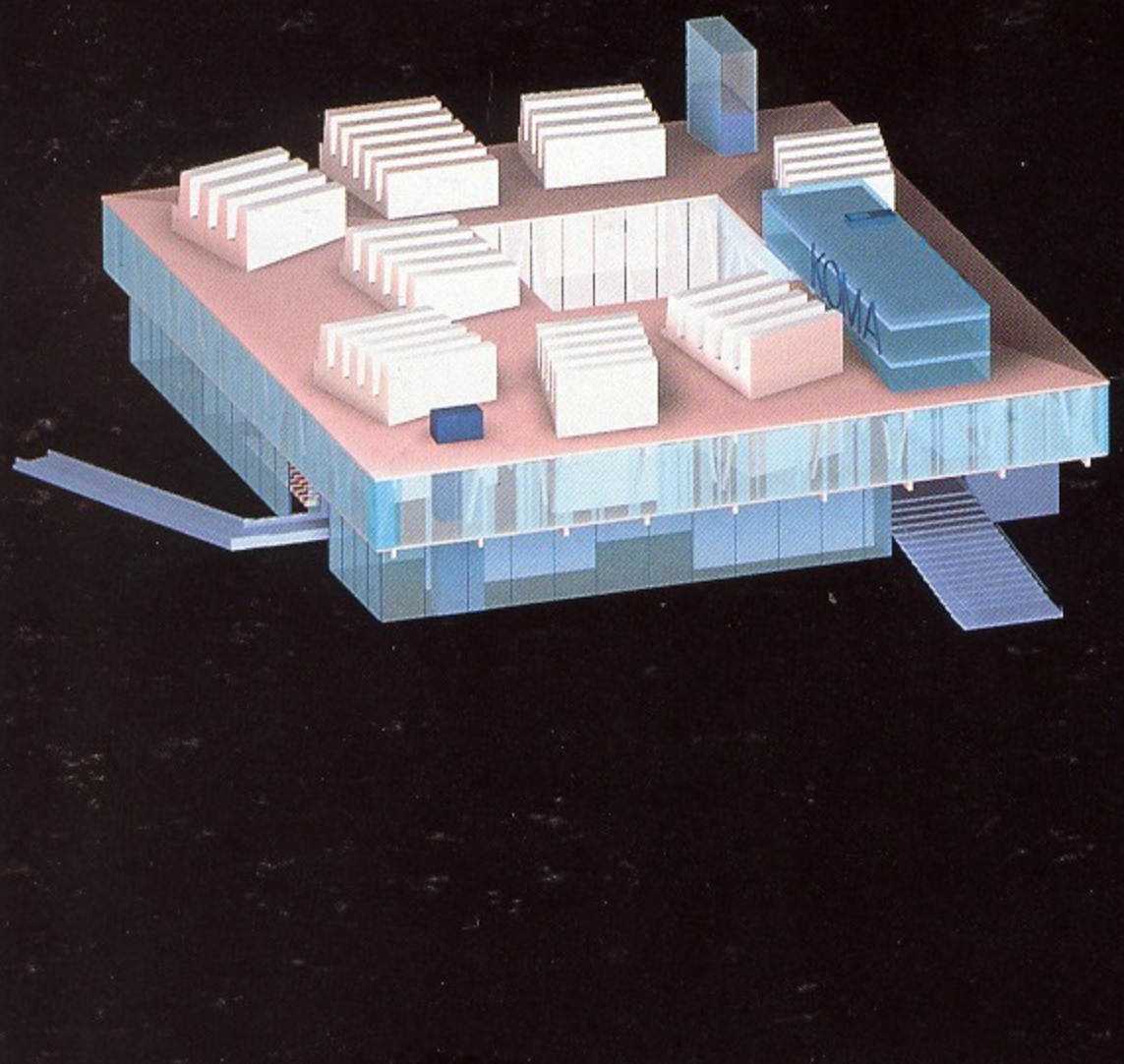
The eastern sector is assigned several mixed-use zones, accumulating in banded intersectional strata to achieve a higher density and connectivity in the south-east of the site.

Infrastructural Catalyst

A high-speed and regional railway station, heliport and a short-term accommodation provision inseminates the base of the Izvor underground station plateau with activity, connecting above or below ground to the existing North Railway Terminus and to the underground system.

FROM ABOVE: Bucuresti 2000; zoning diagram; east–west surface diagram

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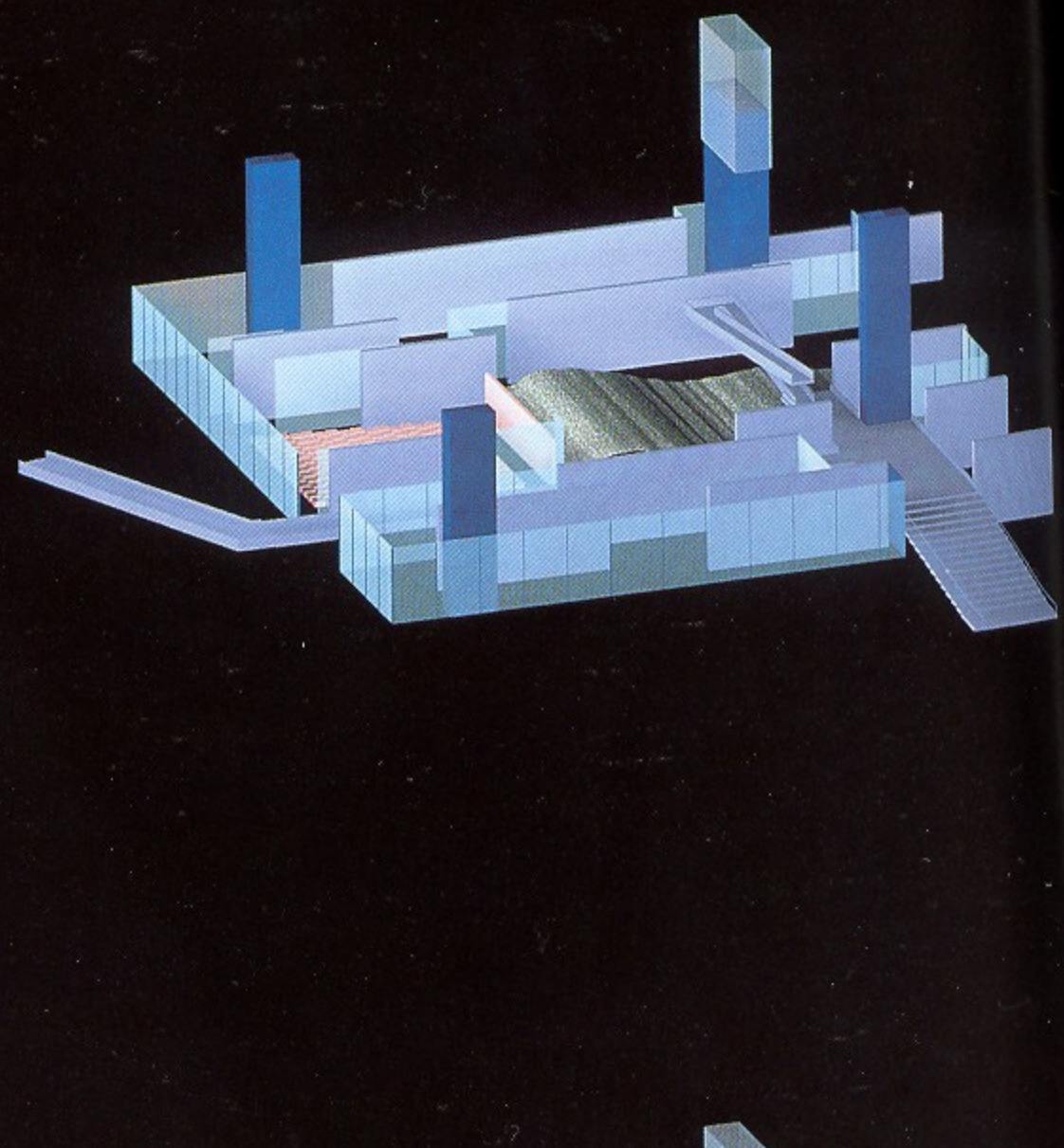
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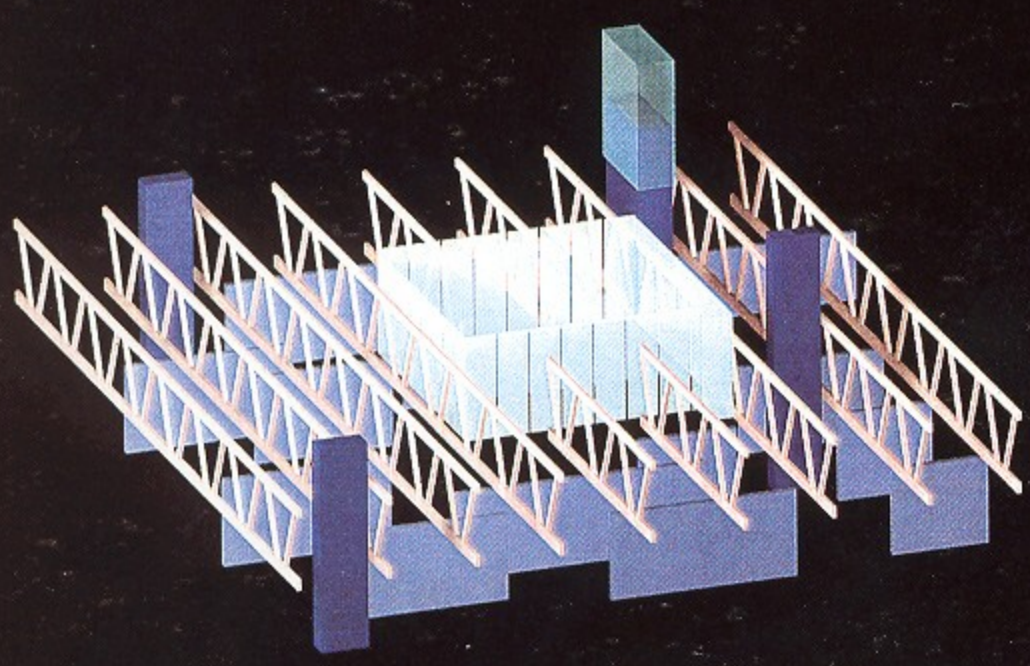
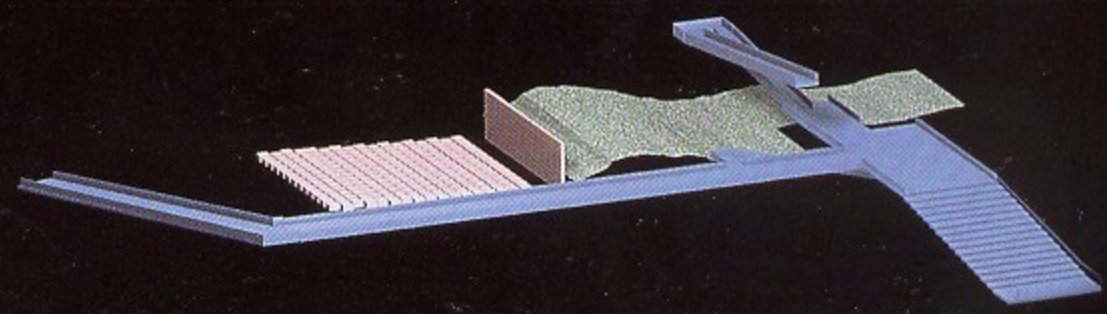




STAN ALLEN

KOREAN-AMERICAN MUSEUM OF ART

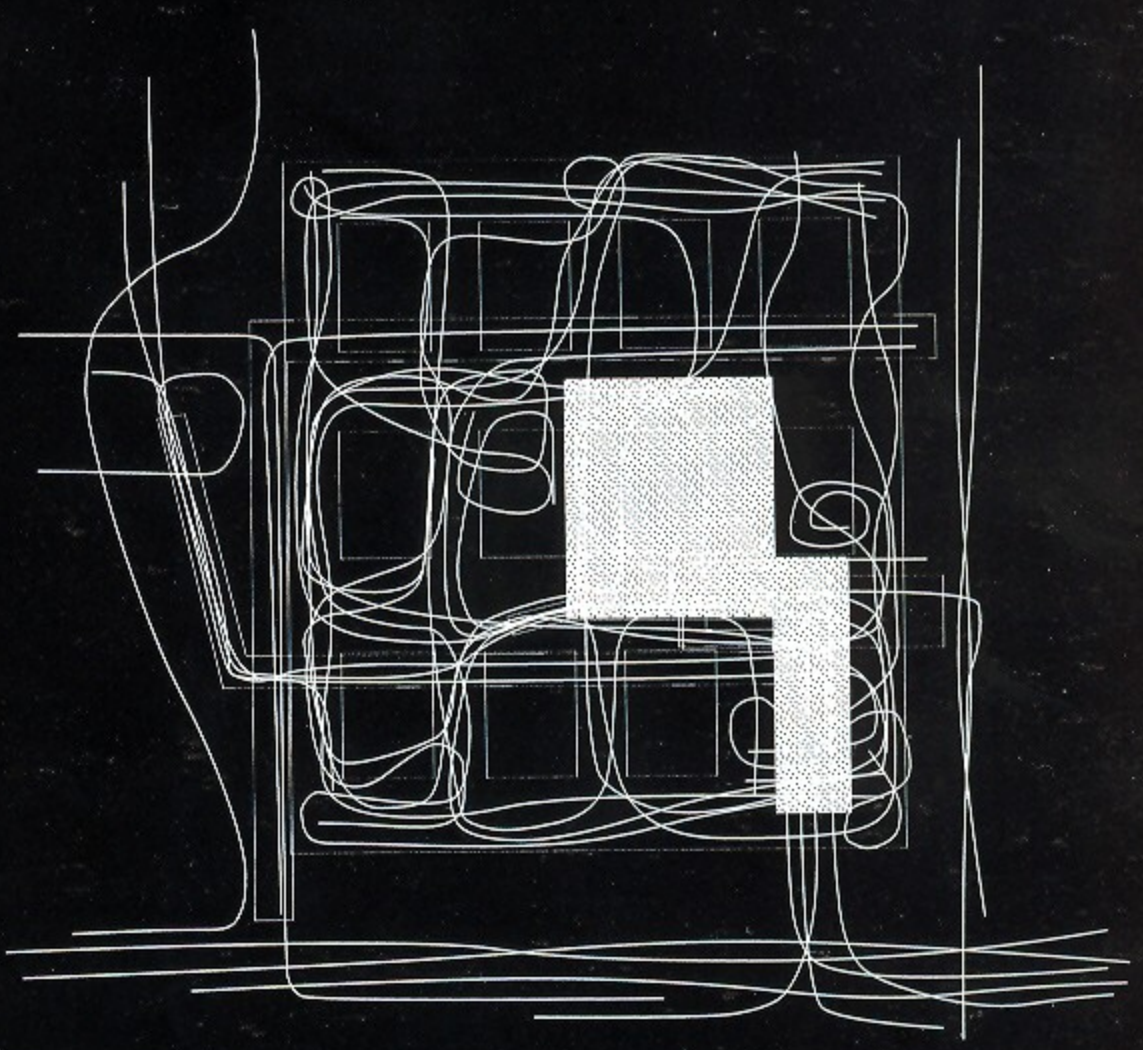
Los Angeles, USA

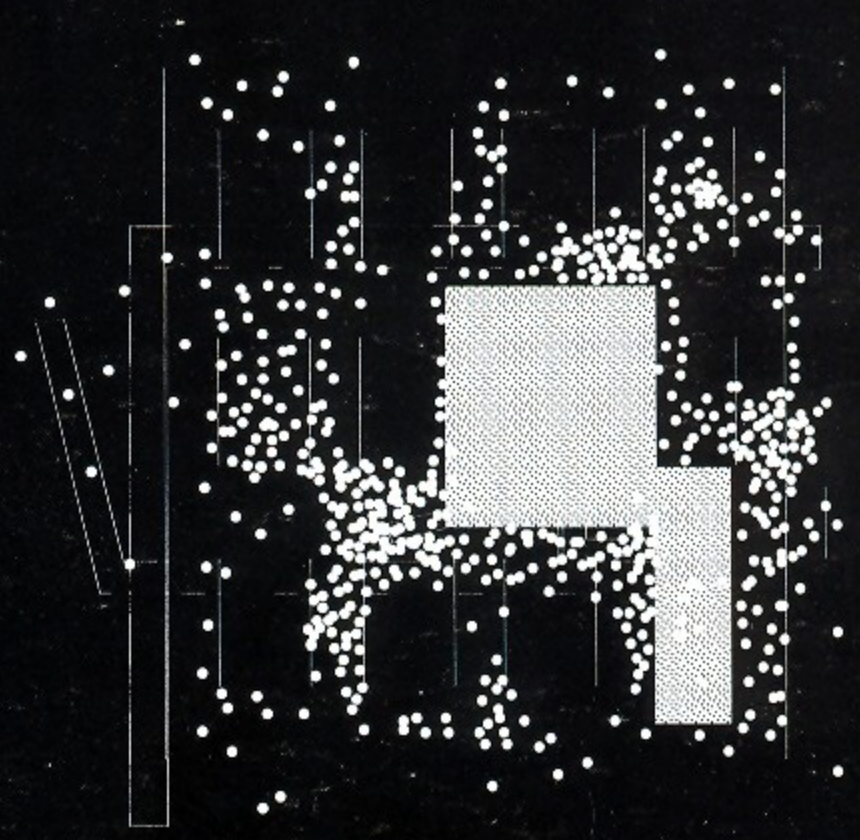
This competition project for the Korean-American Museum of Art proposes an urbanism characteristic of Los Angeles: long and low, horizontally layered, filled in but not densely packed. Recognising the limits of a sculptural manipulation of exterior form in the slackened field of West Coast urbanism, the organisational effort is directed inside, to relations of the programme and the play of solid and void within a generic volume.

The property line of the site is taken as the limit of the building, forming a loosely protected precinct. Within this oversize envelope, the elements of the programme rattle around, opening up to indeterminate interstitial spaces. The typical figure-ground condition of the museum is reversed. Galleries form punctual figures within a generic field, while collective functions (lobby, café, lecture hall, bookshop) occupy the space between. The building mixes the large and the small, resolving the conflicts of the site through multiple scales.

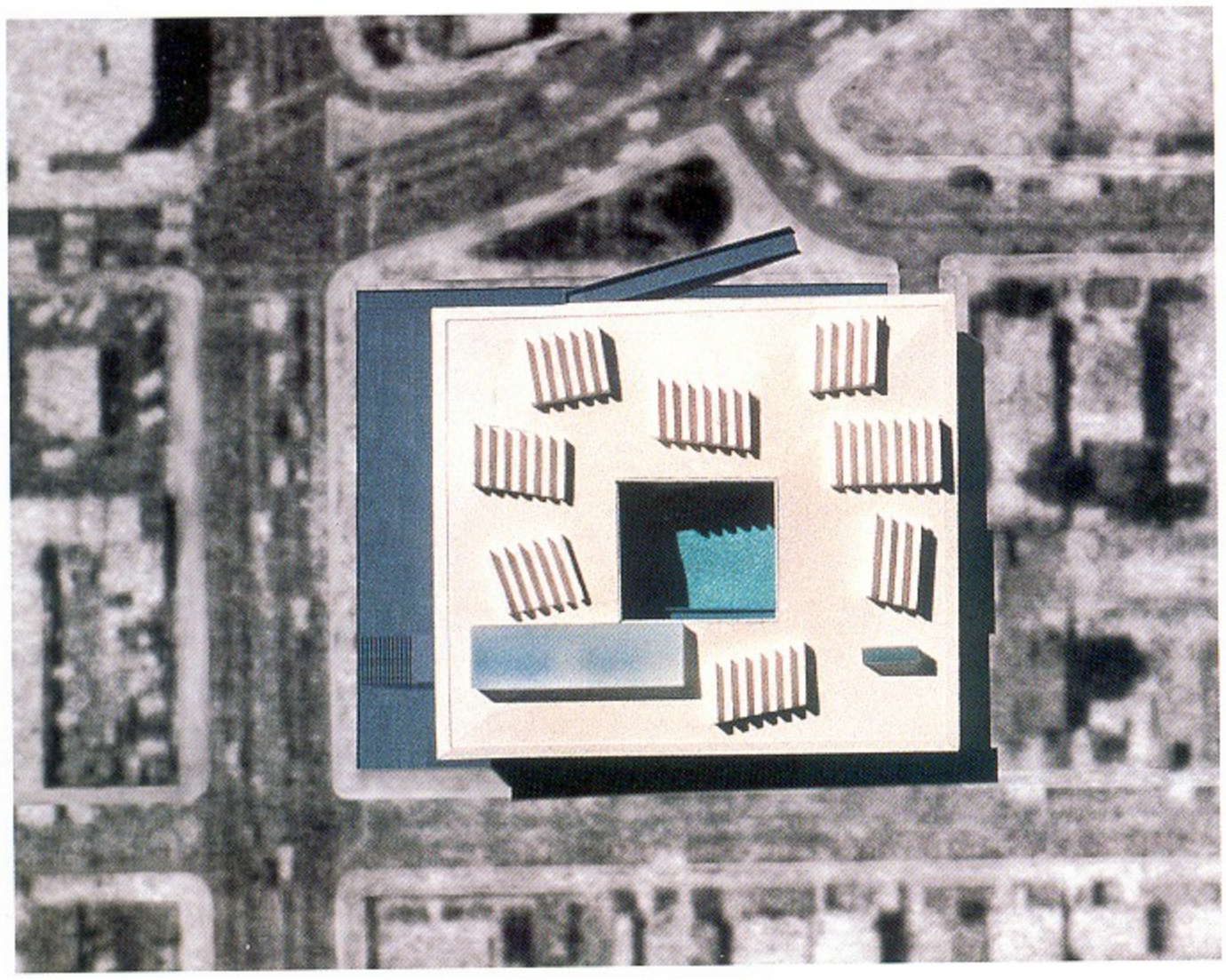
The lower level of the museum is treated like a fragment of civil engineering – an exposed foundation, capable of rising up the main body of the museum. Working within the logic of this structure, a complex series of paths establishes multiple links between the museum and the neighbourhood, while ensuring the autonomy of the exhibition level, which is entered from below. Additional functions (auditorium, garden, storage and temporary exhibition) occupy the site at this level according to the rigorous logic of the parallel walls that divide the site.

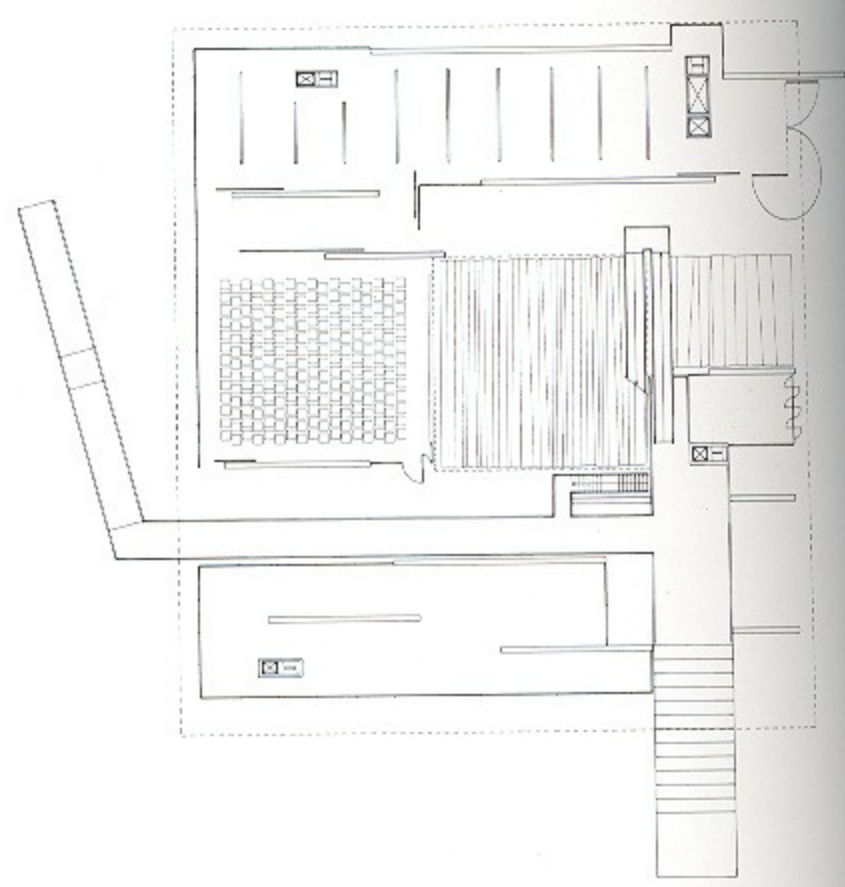
The art collection is housed in a number of discrete gallery volumes distributed throughout the main floor. These blank boxes maintain an appropriate degree of separation, control and autonomy for the works of art displayed, without dictating a rigid processional

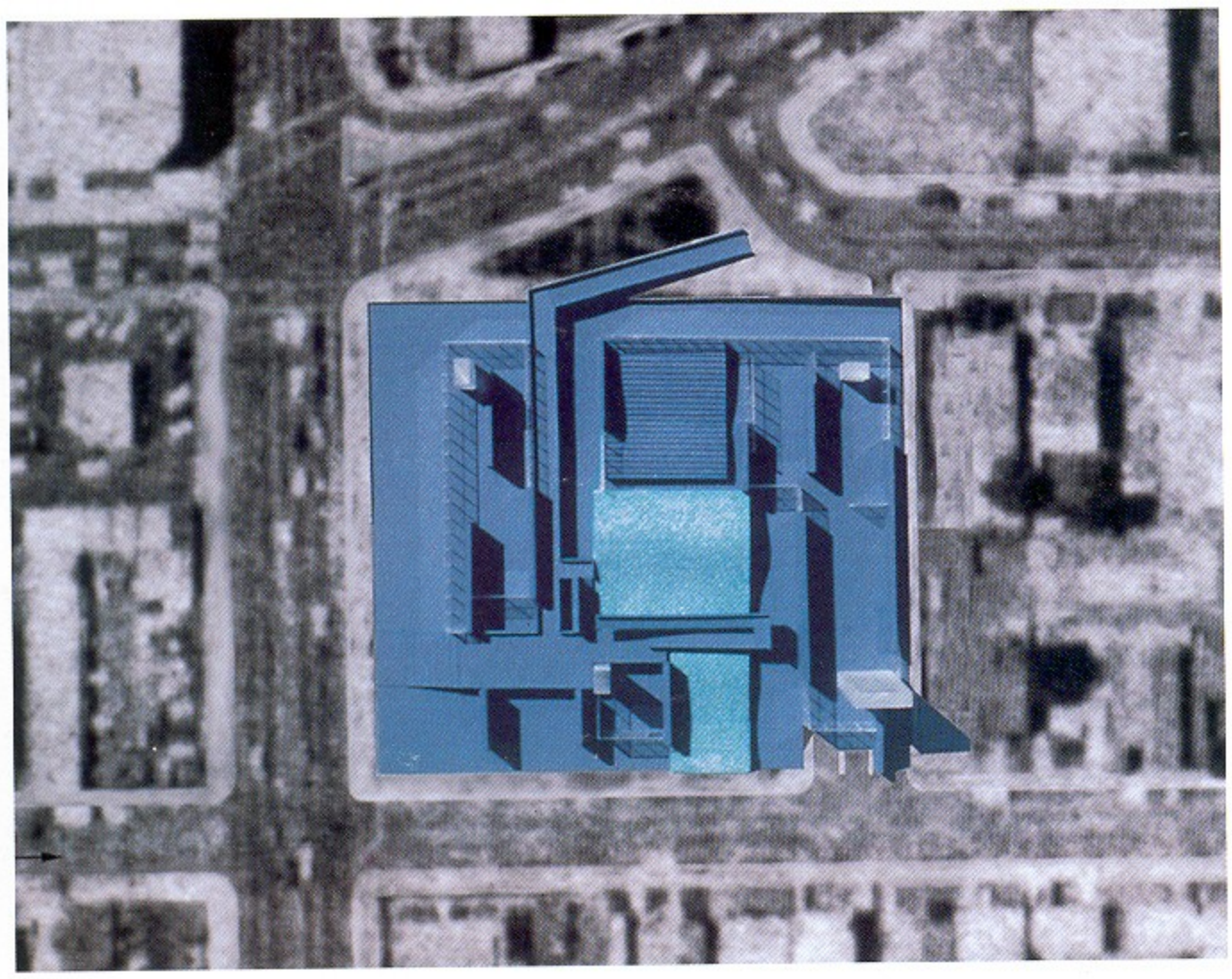


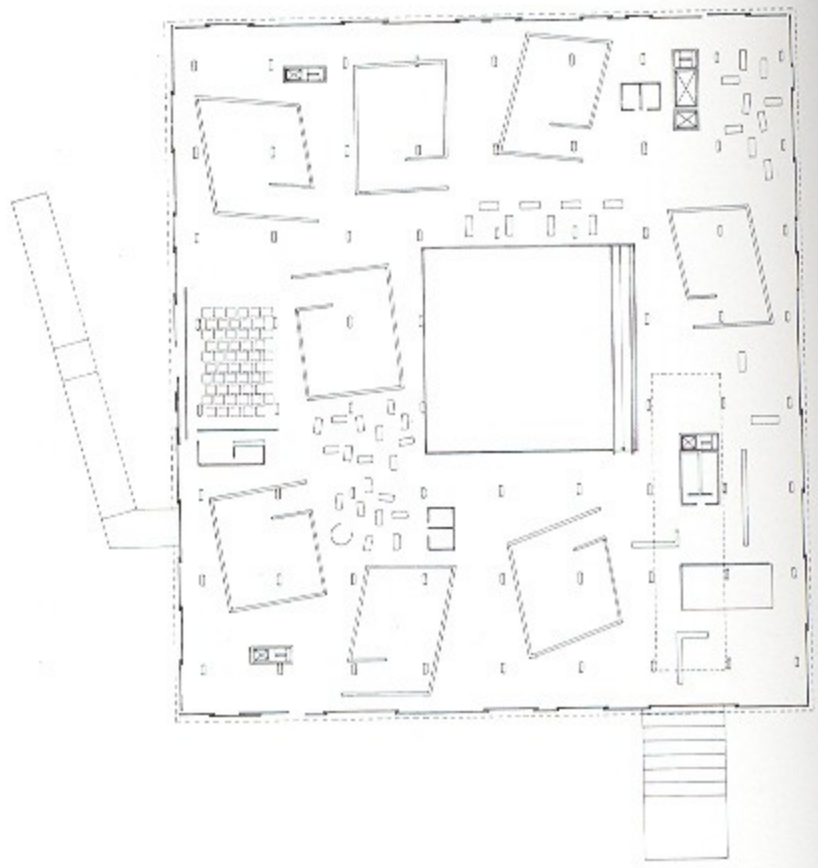


OPPOSITE, FROM ABOVE L TO R: Axonometric; site work; precinct; roof; splayed columns and transfer beam; site connections; FROM ABOVE: Circulation pattern diagram; density pattern diagram





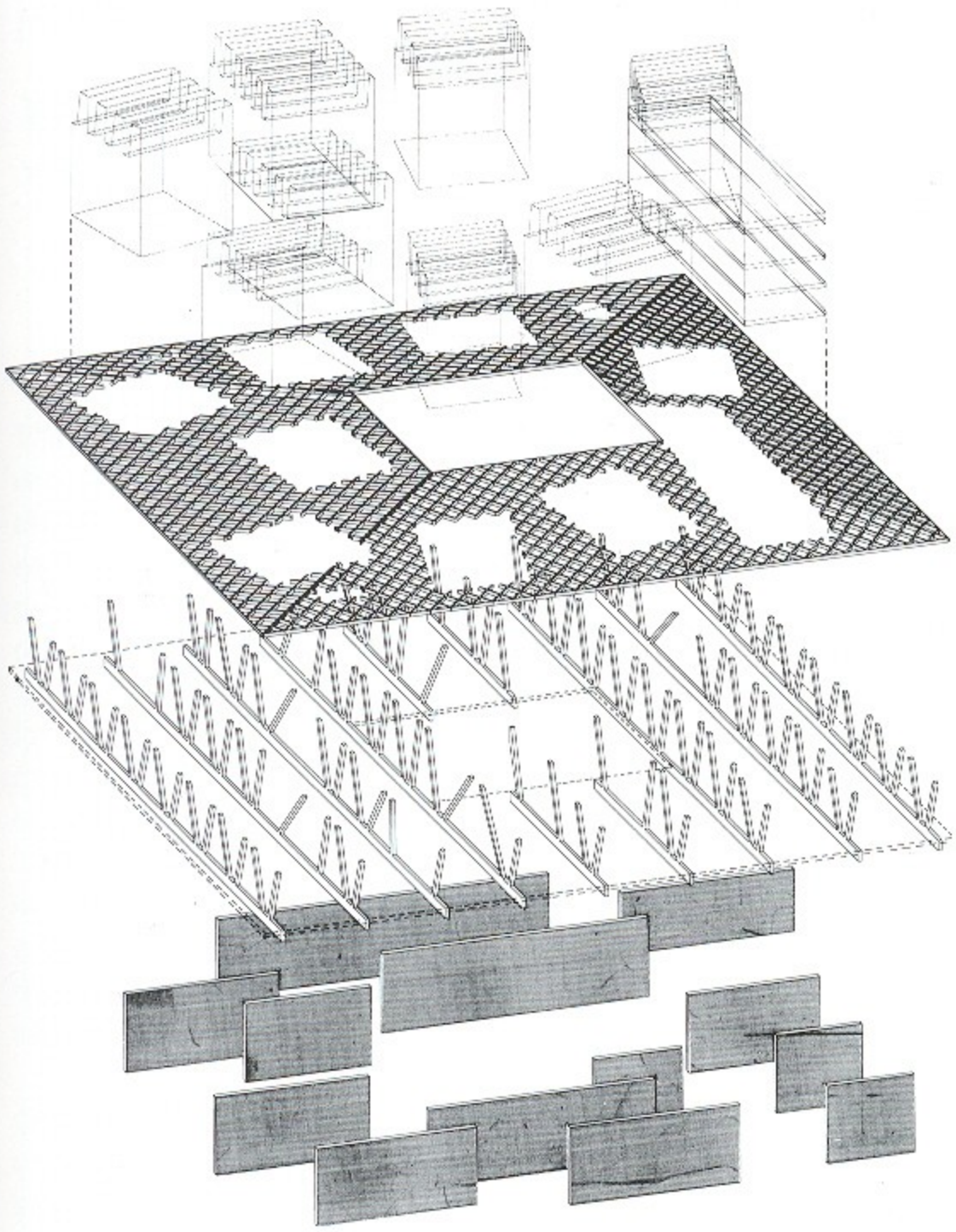


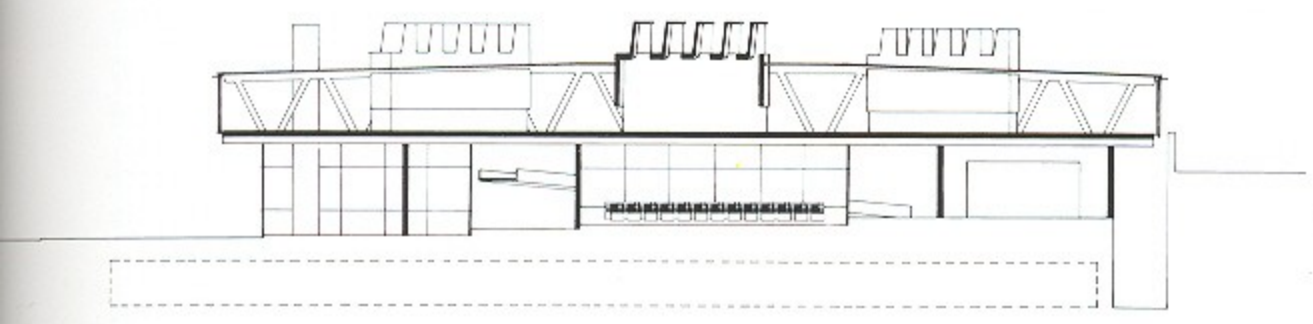


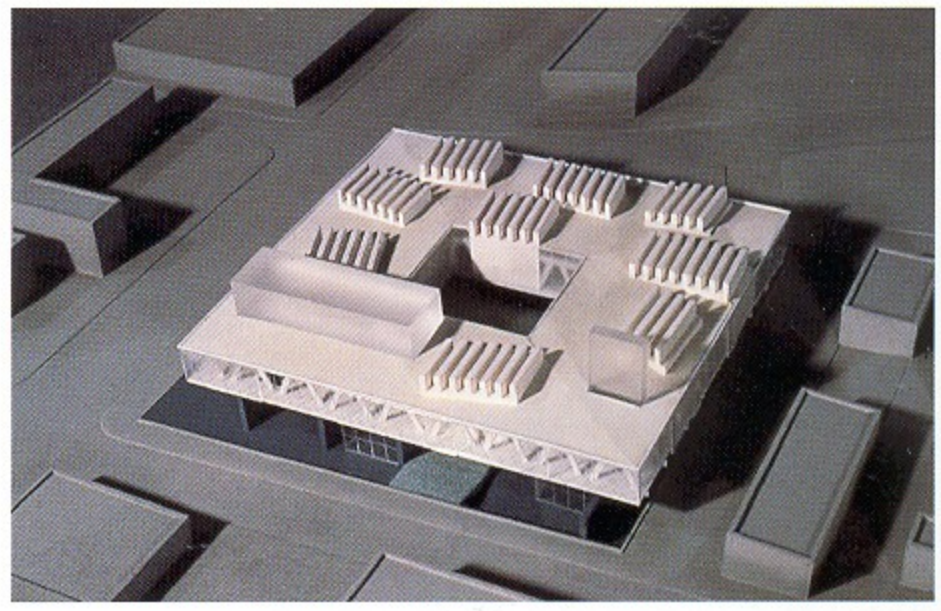
LEFT, FROM ABOVE: Collage of site plan with roof; without roof; RIGHT, FROM ABOVE: Entry level plan, main gallery level plan

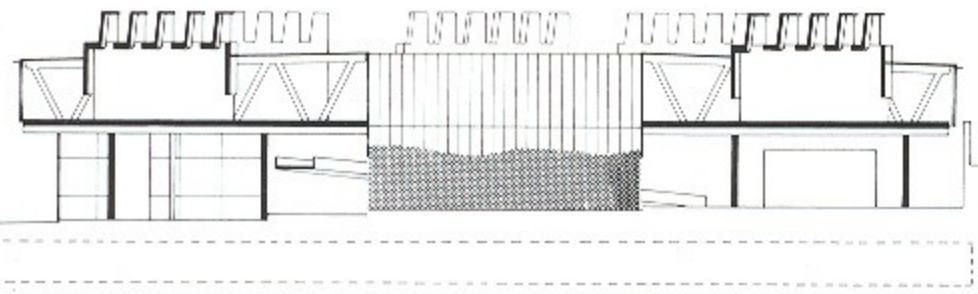
sequence. Curatorial intervention is necessarily concentrated and punctual. Ceiling heights are generous, walls are clean and neutral, and the scale moderate and roomlike. Tall skylights distribute diffused light into the galleries from above, giving a distinct character to the public spaces, where transparent glazing opens horizontally to the city around. As the visitor moves through the collection, there is a constant interplay between the controlled environment of display within the galleries and the open field of public events between the galleries.

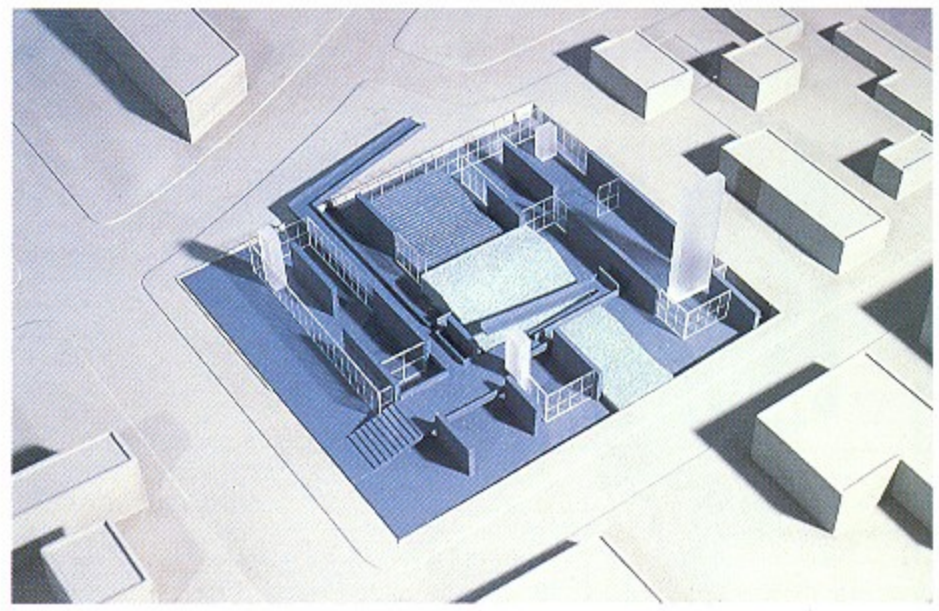
The intention here was to create an indeterminate space at the intersection of two known sets: the given perimeter of the site, and the precise accommodation of the gallery programme. Instead of introducing complex geometries from outside, the project achieves complexity by articulating simple differences of scale and number. The project works by exploiting the incompatibility of container and contained. The building programme is treated not as a single organism, but as a collection of smaller elements. It is an architecture that operates urbanistically, giving the effect of moving through a village or along a city street.

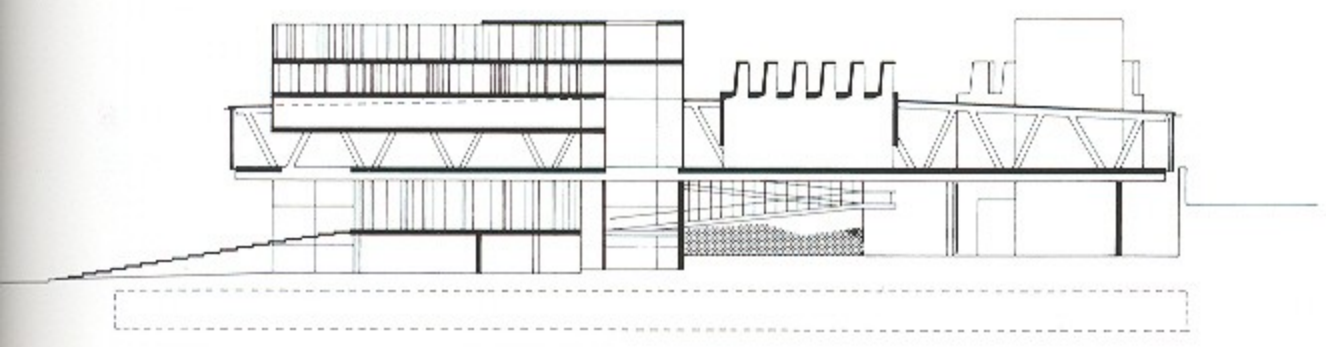












LEFT, FROM ABOVE: Exploded axonometric with structural systems displaced; sections; RIGHT: Views of model

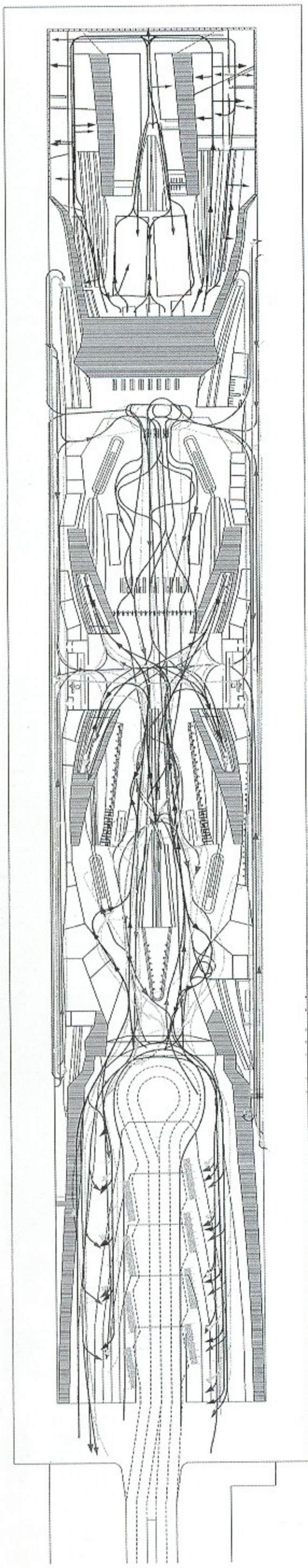
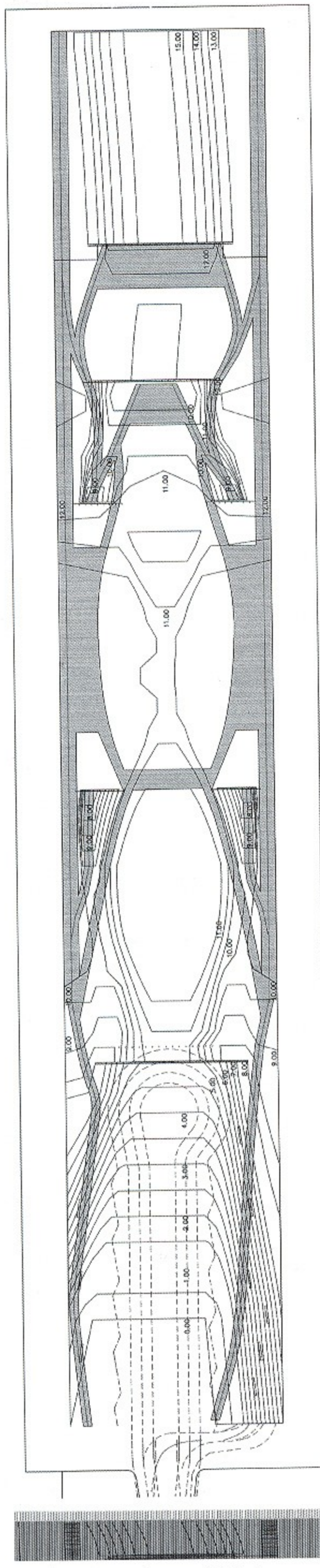
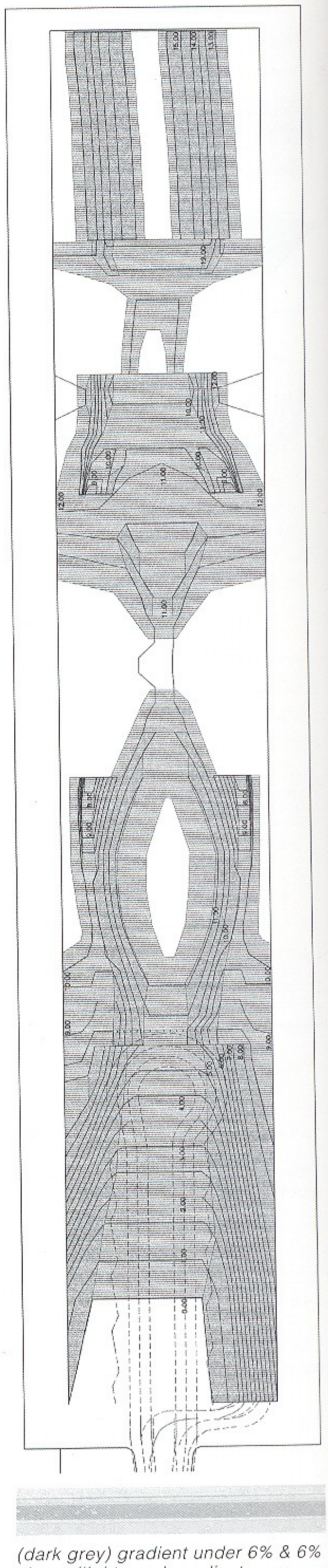


Diagram of circulation density



Zone with gradients of 6% slope



(dark grey) gradient under 6% & 6% slope; (light grey) gradient more than 6% slope; (white) zero gradient

FOREIGN OFFICE ARCHITECTS

YOKOHAMA INTERNATIONAL PORT TERMINAL

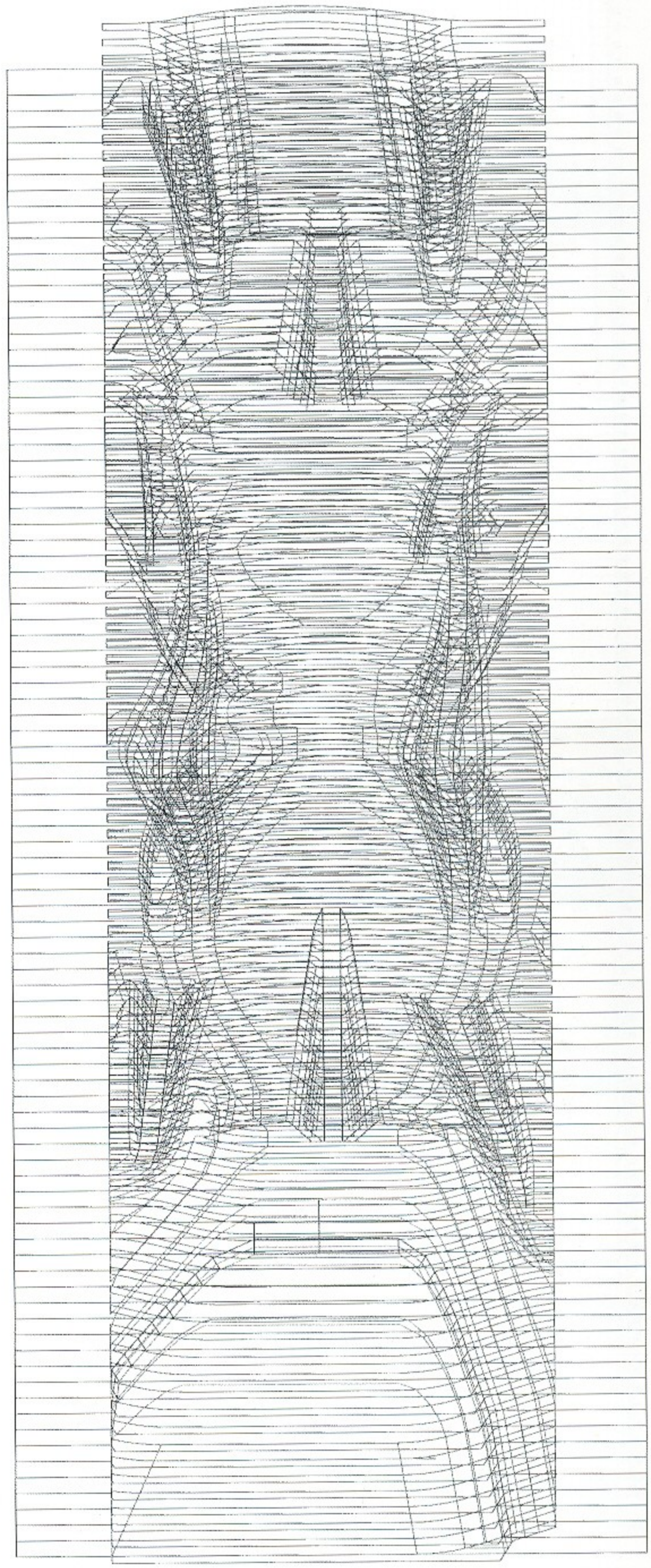
Yokohama, Japan

The competition, for which this was the winning design, asked for the design of an international port terminal, to act both as cruise terminal for visitors and as a public space offering amenities to the citizens of Yokohama. The concept of *niwa-minato*, proposed as the starting-point for the project, suggests not only a mediation between garden and harbour, but also between the citizens of Yokohama and those from the outside world. The proposal for the new terminal aims for an artifactual rather than a representational mediation between the two elements of the concept.

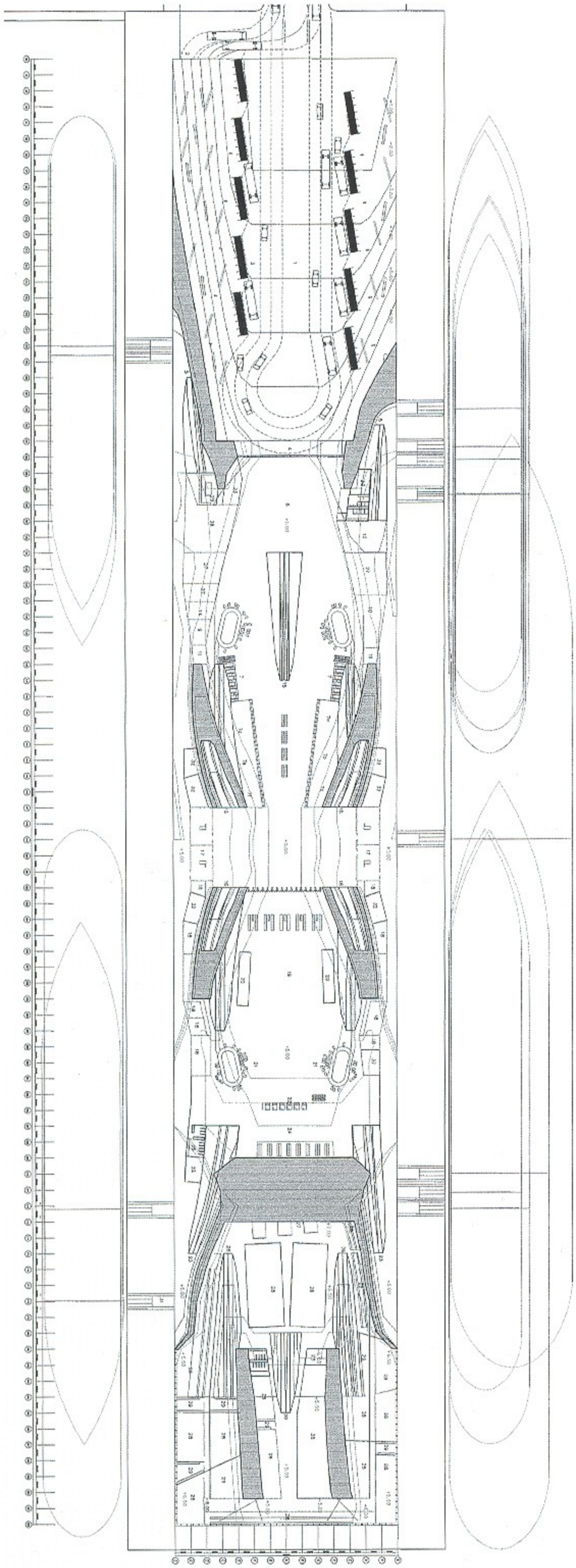
The artifact will operate as a mediating device between the two large social machines that make up the terminal: the system of public spaces of Yokohama and the management of passenger flow. The components are used as a device for reciprocal de-territorialisation: a public space that wraps around the terminal, neglecting its symbolic presence as a gate, decodifying the rituals of travel; and a functional structure that becomes the mould of an atypological public space, a landscape without instructions for occupation.

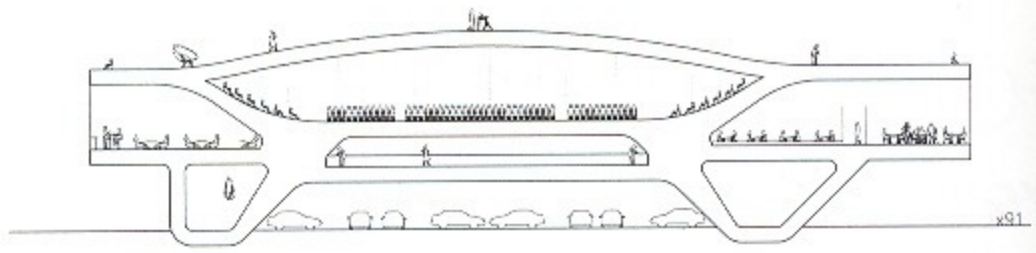
The aim is to achieve a mediation of a differential nature: a machine of integration that allows us to move imperceptibly through different states, turning states into degrees of intensity, countering those effects of rigid segmentation usually produced by social mechanisms – especially those dedicated to maintaining borders. The proposed artifact will reduce the energy required to pass between states, articulating in a differential mode the various segments of the programme through continuously varied form.

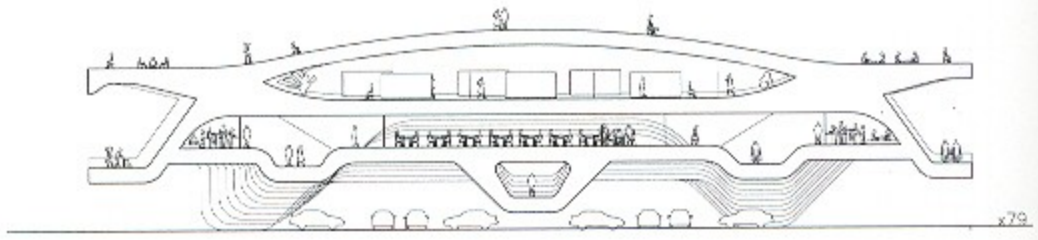
Using the ground surface to create a complementary public space to Yamashita Park, the proposal will result in the first perpendicular penetration of the urban space within Yokohama Bay. The ground of the city will be seamlessly connected to the boarding level, and from there it will bifurcate to produce a multiplicity of urban events – the building will become an extension of the city.

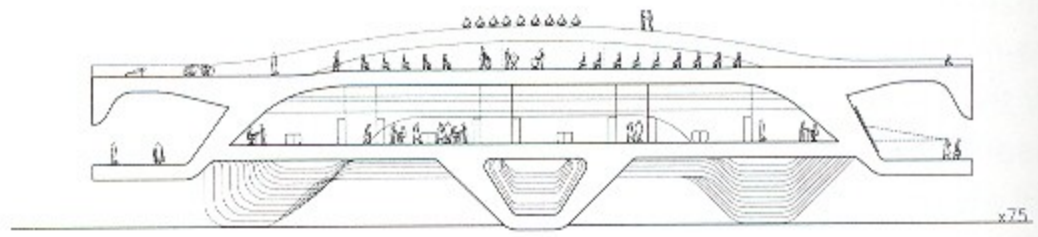


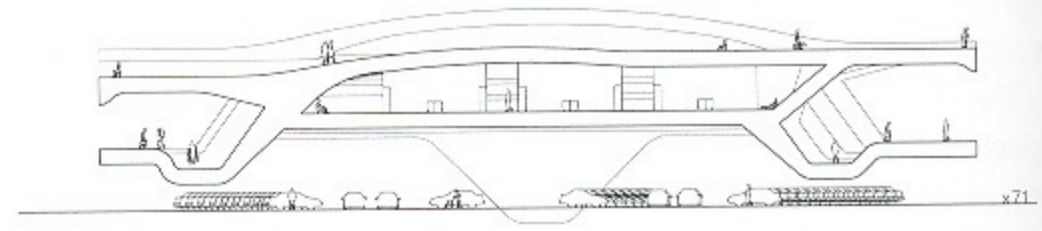
Extensive sectional analysis diagram

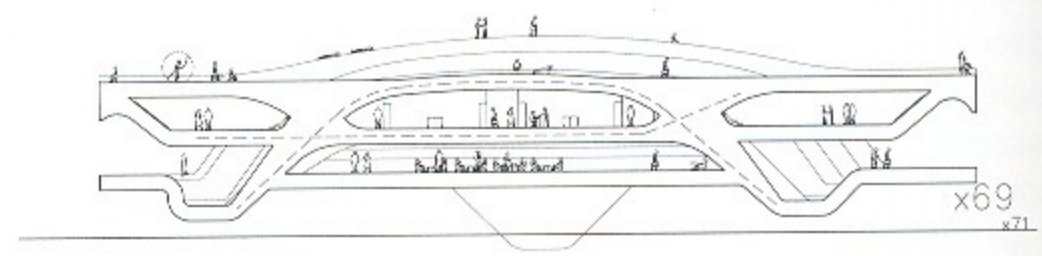


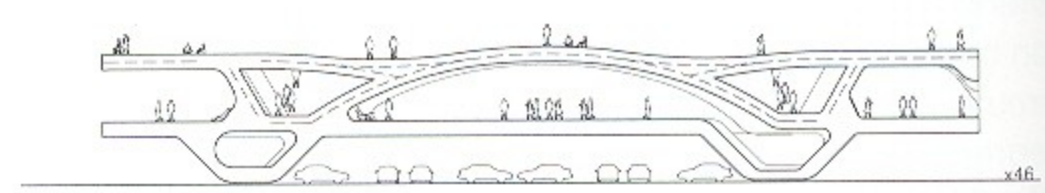


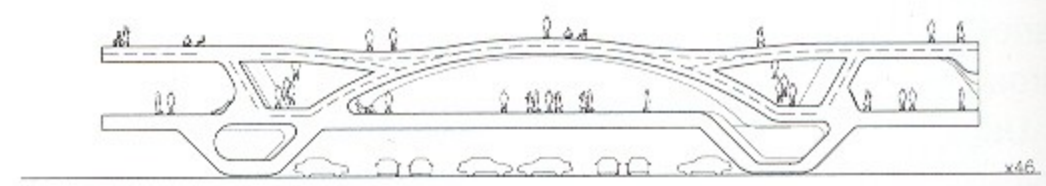


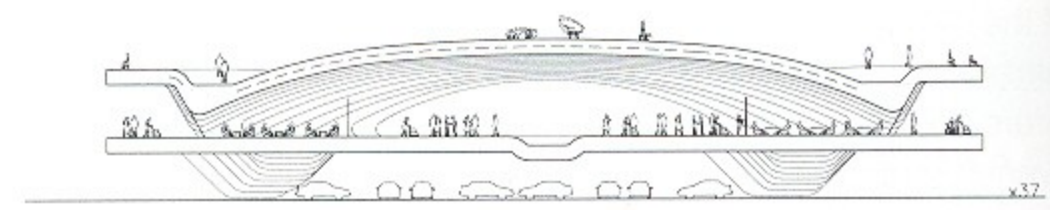






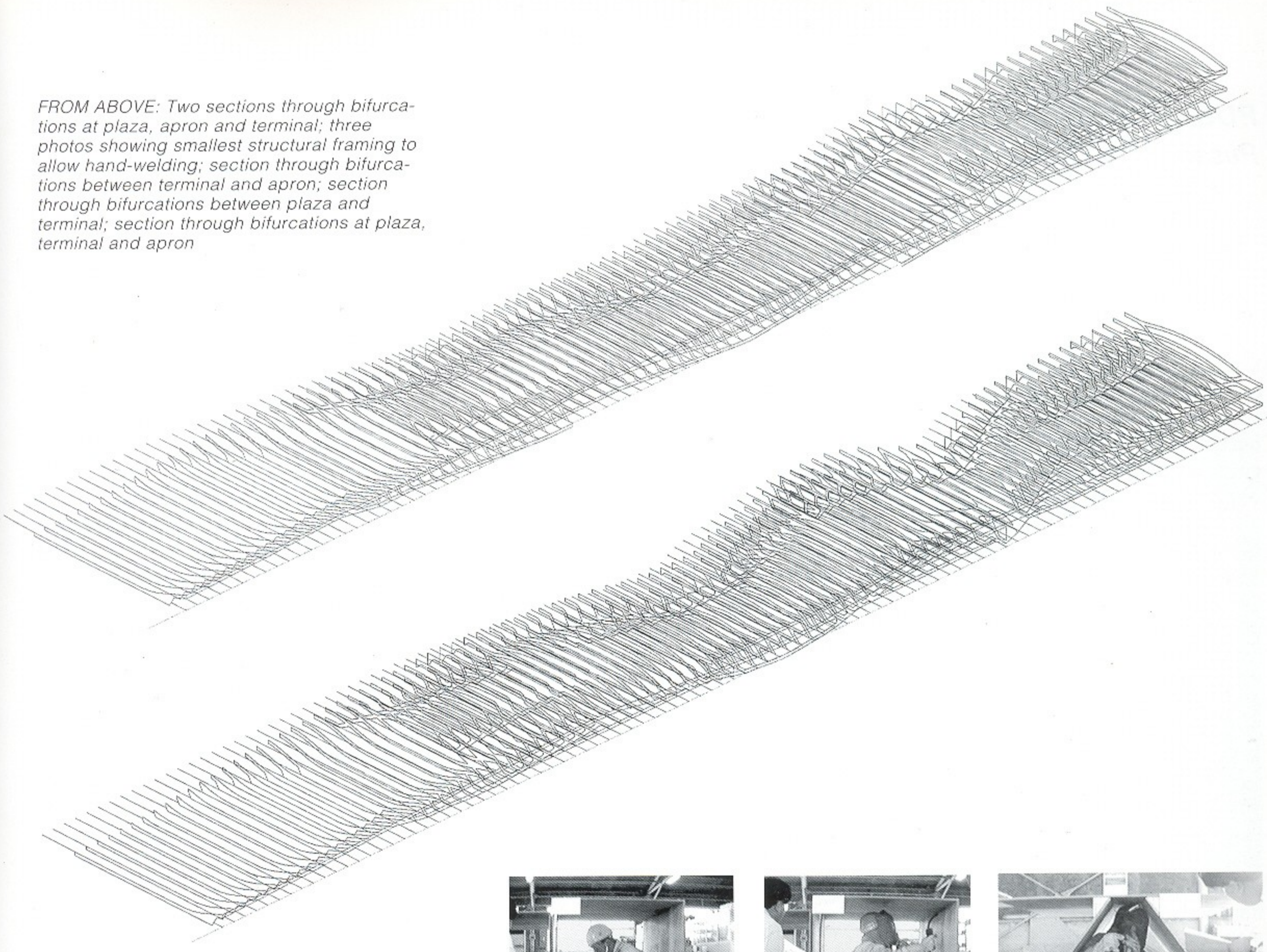


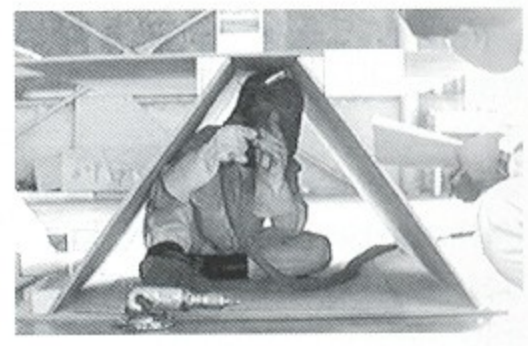


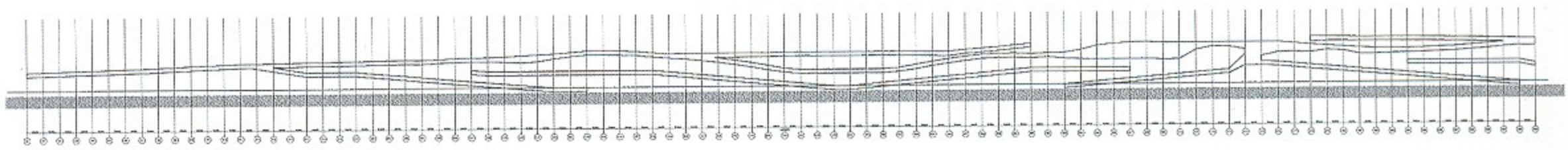


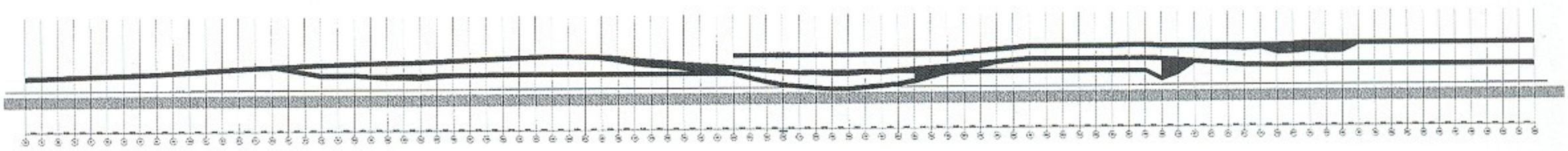
LEFT: Arrivals level +5.00; RIGHT: Cross sections

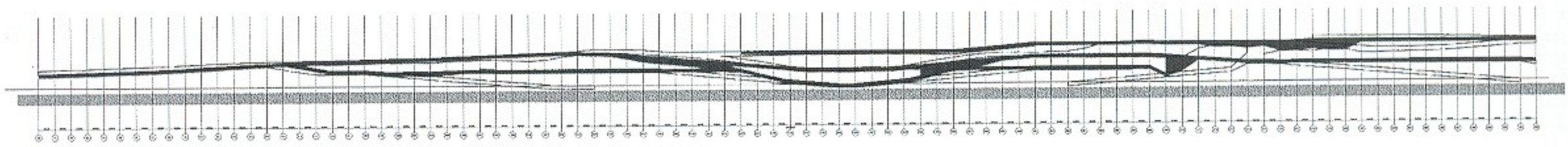
FROM ABOVE: Two sections through bifurcations at plaza, apron and terminal; three photos showing smallest structural framing to allow hand-welding; section through bifurcations between terminal and apron; section through bifurcations between plaza and terminal; section through bifurcations at plaza, terminal and apron











PUSAN HIGH-SPEED RAILWAY COMPLEX

Pusan, South Korea

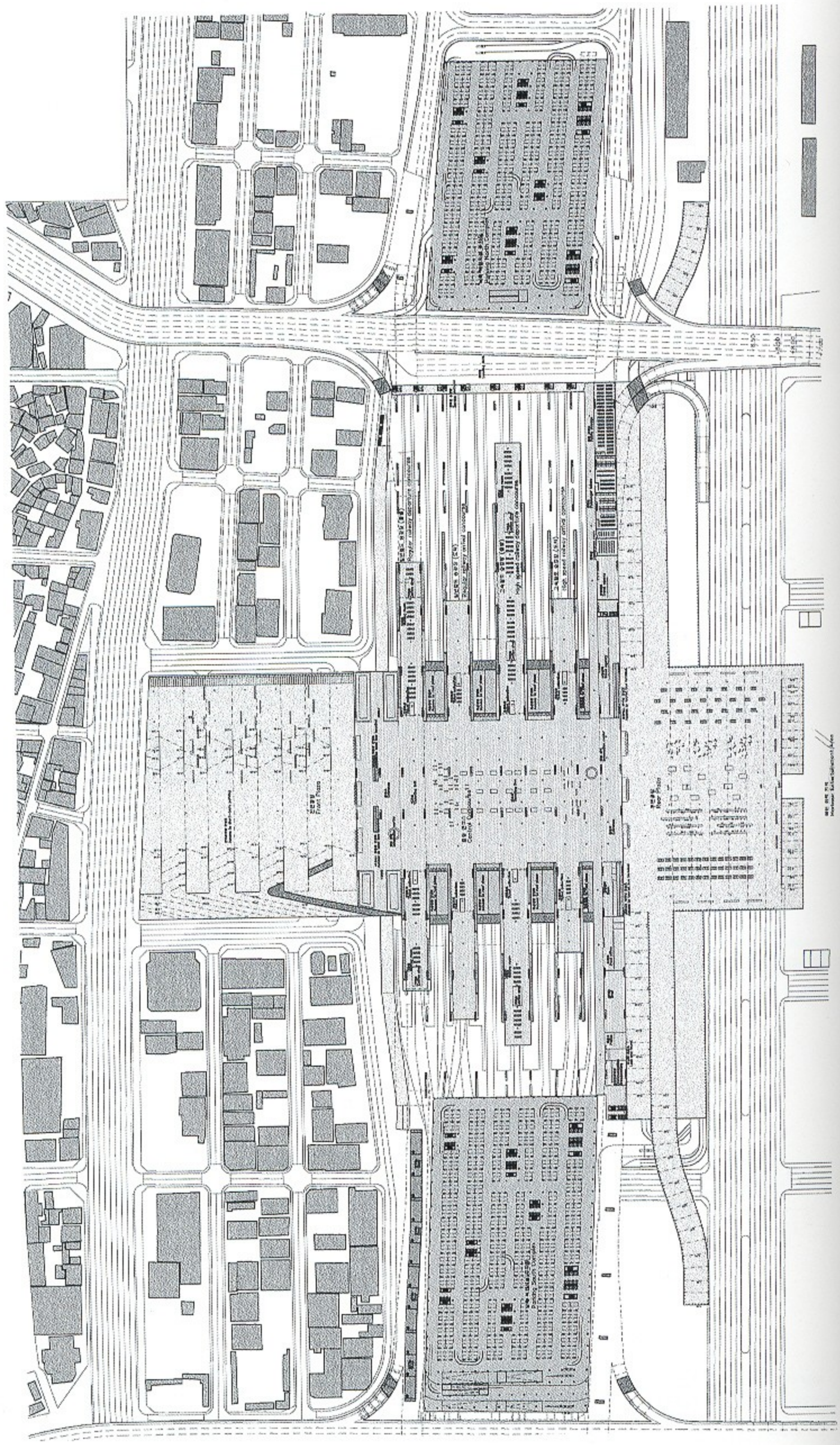
Mobility is now one of the most important objectives of a modern, competitive society. Travel and transportation have become, at least in the most advanced countries, a basic component of every-day life, and in terms of the contemporary metropolis, an important part of the urban structure. Travel is no longer an event, it is routine. Stations and airports, once secluded on the periphery of cities, are increasingly situated closer to the city centre, more deeply embedded in urban infrastructure and daily life.

It is this idea which lies behind the proposal for a new high-speed link for Pusan, the largest port and second largest city in South Korea, thereby articulating the transportation infrastructure within the urban structure, and avoiding a monumentalisation of travel – a sign of nostalgia in an era of mass-transportation. The proposal attempts to make the railway station part of a continuum of urban rhythms and flows, part of the experience of the public urban space. It seeks to 'dissolve' the station into the city of Pusan, providing its citizens with a well-integrated infrastructure rather than a symbolic object.

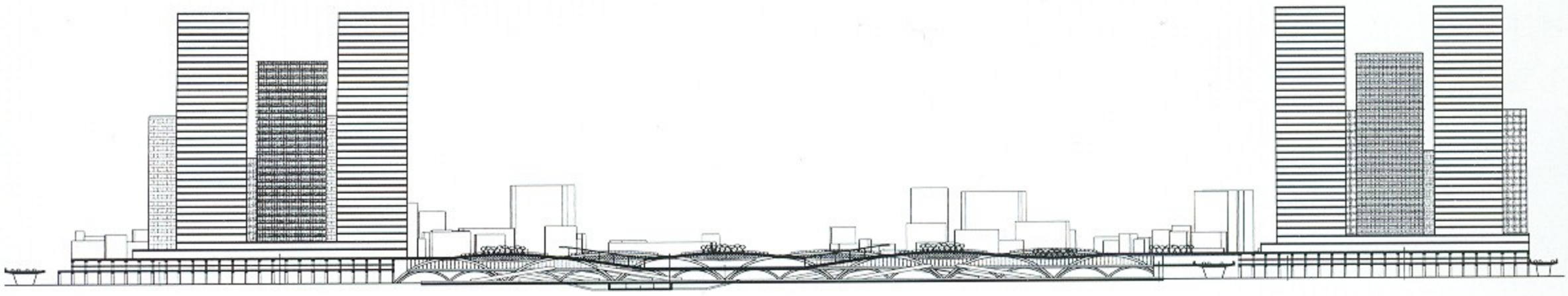
A New Typology

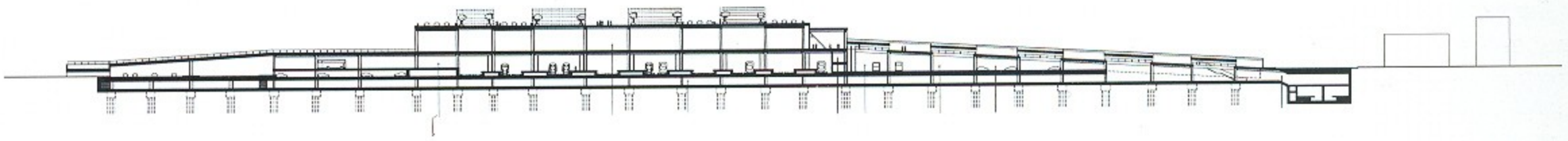
The traditional type of station consists of a large shed enclosing both trains and passenger space. This typology is derived from an obsolete technical problem: how to provide a space able to handle the smoke derived from the old combustion engines. In the late twentieth century, the large shed has become a source of environmental discomfort and expense. The achievement of a smooth link with connected urban infrastructures, such as the underground systems, local buses or private vehicles, or shopping and entertainment facilities, is a more important parameter than the repetition of the obsolete typology of the Victorian railway station.

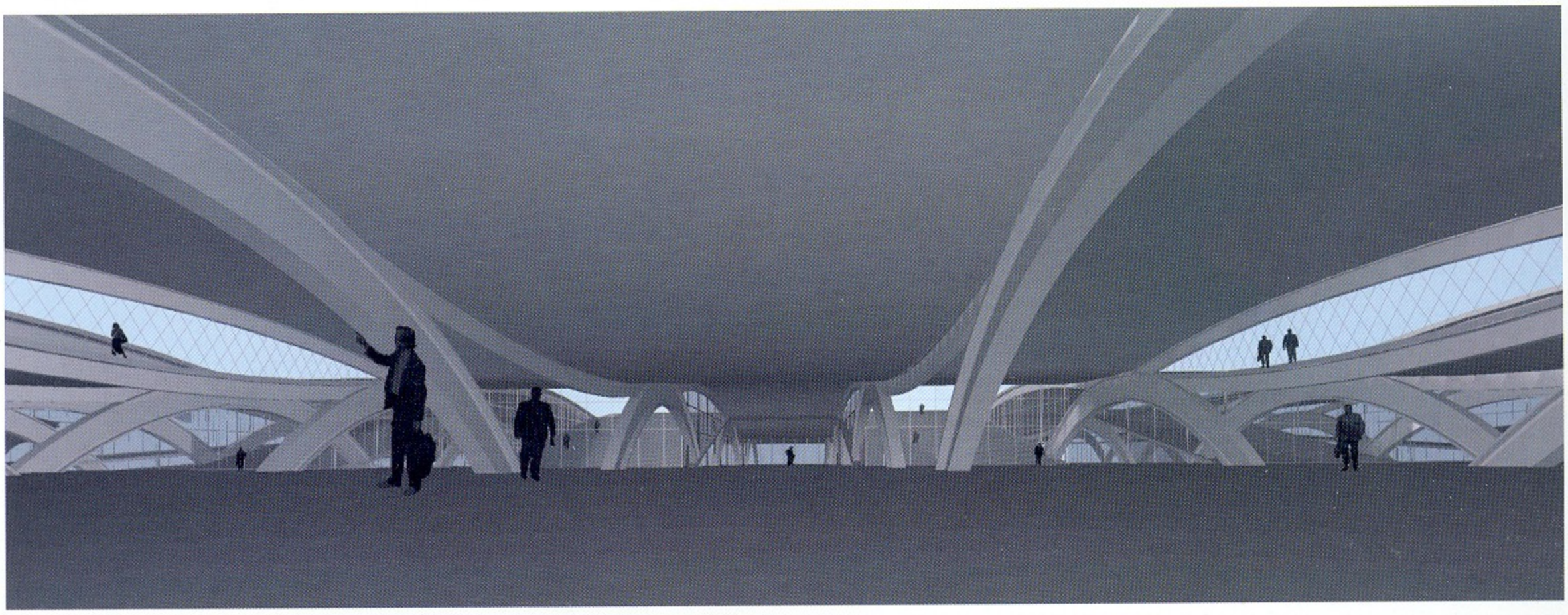
The other main consideration in respect to the typology of the railway station is its evolution towards a



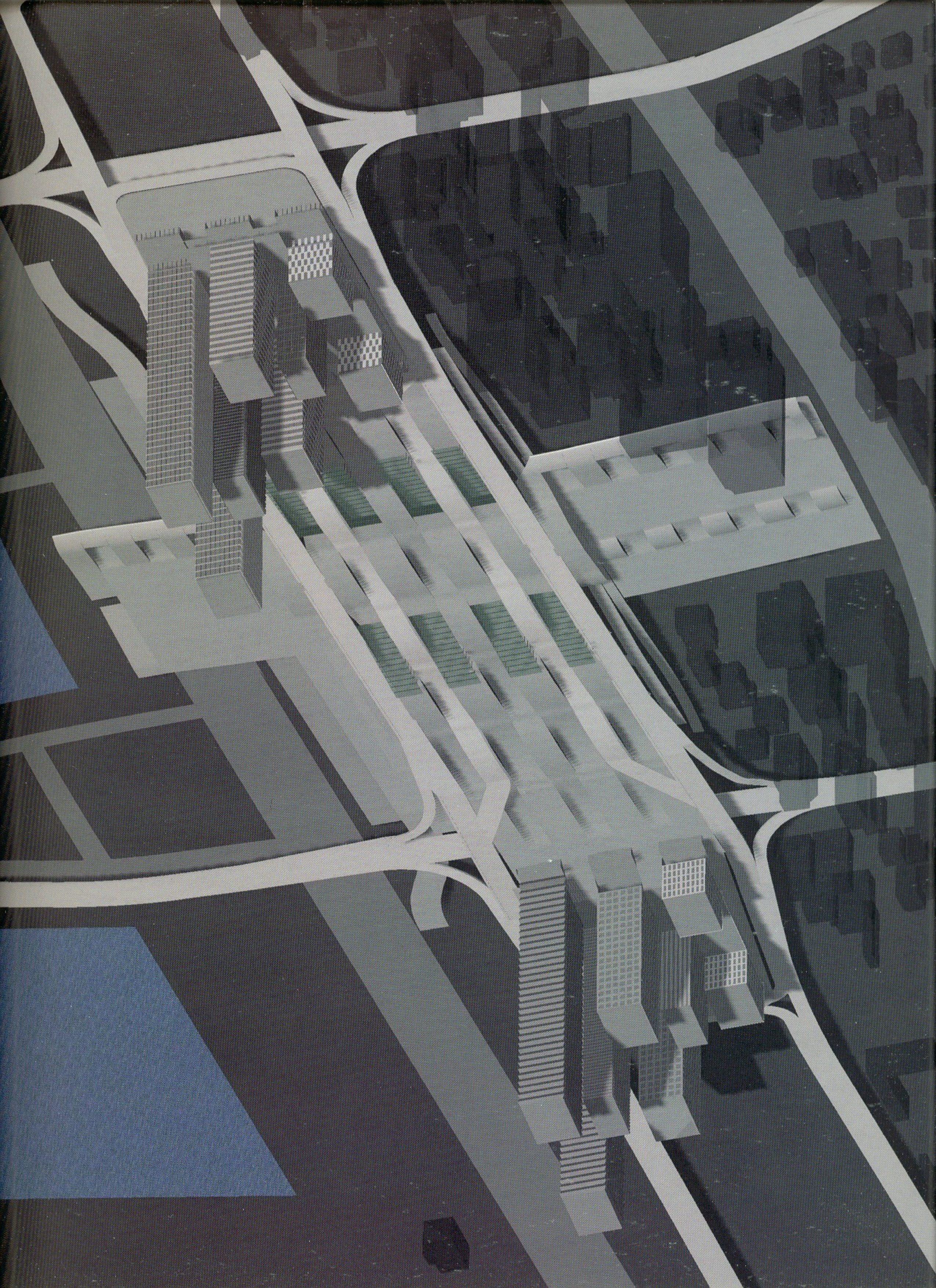
Plan at concourse level







FROM ABOVE: Longitudinal section; perspective view across station roof and plaza; cross section; perspective view at concourse level



mass-transportation infrastructure. The volume of passenger flow that a structure like this now requires, compared to the volume required, say, 50 years ago, is enormous. In this specific case, it is expected that the station will host one high-speed train every four minutes – a volume which suggests that something approaching the airport traffic system, with its differentiated arrivals and departures and its efficient interfaces with other transportation systems and leisure facilities, is what is here required. The proposal is thus an attempt to redefine the typology of the contemporary station as a hybrid organisation, between an airport and an underground system.

Structure and Construction

The structural concept for the proposal has three basic aims:

- to build a large structure from a repetitive and modular system that will increase speed of construction and reduce costs;
- to reinforce the project's conceptual basis of a space that flows continuously between different sectional levels and functions, introducing diagonal spatial orders and connections;
- to promote the infrastructural quality of the building, rather than adopting a building-like type of structure.

These objectives lead to a structural system ordered by the platform lines as the geometric basis for the building's elements, and further imply a structural transfer of loads diagonally, rather than orthogonally, superimposed on to the spatial topography.

A system of arches running in parallel to the platforms support decks in the form of undulating bands, giving the effect of a shredded surface, striated in the direction of the tracks. The large-span arches reduce the interference of the structural system while maximising the visual presence of the building's structure.

The arched porticoes running longitudinally along the platforms are formed by two arch systems of differing scales and springing from the same foundations: one supporting the deck bands at the level of the station concourse and the other, the roof and plaza structures. An articulated joint with the foundations both increases the speed of construction and decreases the stresses in the sections.

In order to provide an undulating topography for the plaza, as well as cuts in the surface which allow ventilation and natural light to enter the station spaces, the roof deck is supported on eye-shaped trusses with a 4-metre structural depth spanning between the crowns of consecutive arches. The deck alternates between being supported by the lower member of the truss and the upper one, behaving sometimes more like a low arch, and at other times as a catenary.

In the longitudinal direction, stability is provided by the form of the arches themselves which have inherent resistance to lateral loading. In the transverse direction, the resistance to lateral loading is more complex. The concrete deck structures act as rigid horizontal diaphragms that distribute localised loadings back to points of resistance. Horizontal stiffness is provided by a portal frame action at arch springing points, with additional buttressing at various locations formed by external ramps and other horizontal elements.

Urban Development Strategy

The project also proposes developments at several points along the railway tracks, as a way of 'sewing' the urban fabric to the east and the west of the tracks. There are four concentrated developments, or 'staples', two of which will be located immediately to the north and the south of the Ocean Plaza. It is proposed that 60 per cent of the total amount of space estimated for the development should be placed around the station facility. This strategy seeks to produce a double effect:

- *visual* – the concentration of built mass around the terminal will emphasise the 'absence', or 'void', of the station between the two building complexes placed on both ends of the Ocean Plaza. Whether seen from the harbour or from the city, both masses will appear on the horizon as a primitive 'gate';
- programmatic – the concentration of a large amount of commercial activity at its periphery will increase the level of use of the public space.

The project aims to turn the area around the station into a dense high-profile office and commercial complex that will, owing to the ease and speed of the available communications, attract companies seeking high-quality workspace, commercial space or showrooms in Pusan. The volume of the construction has been divided into towers of approximately 1,000m2 of floor area per level, facilitating development that is independent of economic climate. The complexes are organised in bands of buildings placed in parallel to the railway tracks. The height of the towers is regulated by the Korean sunlight regulation, respecting a diagonal line 1.5/1, which also has the effect of making the entire building visible from the city centre. The built volume of each complex is treated as if it were a 'microcity', not an autonomous building, thereby incorporating it into everyday urban life. The towers in these peripheral complexes will be supported by two levels of car parking, acting as a transfer structure between the buildings and the columns needed to span the tracks.

The rest of the proposed development forms two lower-density clusters, linking the eastern urban development with the existing urban fabric to the west. These clusters will be connected mainly to the neighbouring areas, and will have a similar emphasis on urban texture rather than built form, but with their programme addressed to commercial rather than office space. The proposal is therefore structured, not as a fixed urban form, but in such a way as to react to changing financial or political conditions.

Recovering the Bay: Ocean Park

The railway lines and the main traffic artery of ChungJang Road have severed the links between the city and its western waterfront, the location of the city's industrial harbour and its associated amenities. The proposal provides an opportunity to lift the urban ground over both road and railway lines by turning the terminal roof into an artificial waterfront park. This reinstates the visual connection to the space of the bay, producing a maritime promenade and Ocean Plaza or park, and reconnecting the urban centre's civic life to the seafront.

The station project might be described as a cross formed by two surfaces at different levels: an east–west member formed by the station plaza, becoming the station concourse and bridging over the tracks and ChungJang Road into the future leisure developments on the waterfront; and a north–south member formed by the Ocean Plaza – a roof over the station planted with trees and canopies which will produce a new urban level connecting the station with the adjacent development complexes to the north and south.

OPPOSITE: Axonometric view of complex

TERRAGNI OFFICE

THE BEIRUT SOUK

Lebanon

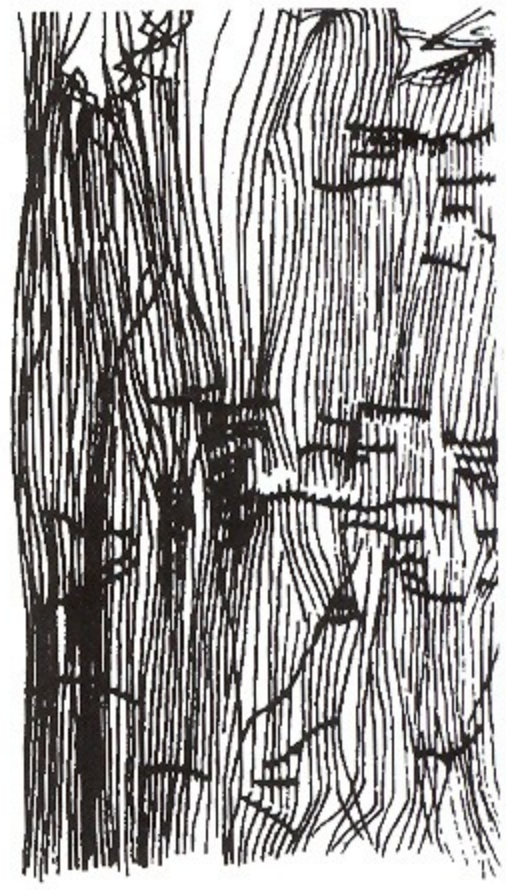
In both this and the 1996 Como project the architects sought to move away from an artificial world of abstraction by reintroducing ideas of indetermination, improvisation and animateness. Since the final form was not predetermined, the composition of each had to be able to supply a structure in which the different social, climatic and political situations could complete the architectonic form independently of an architect-creator.

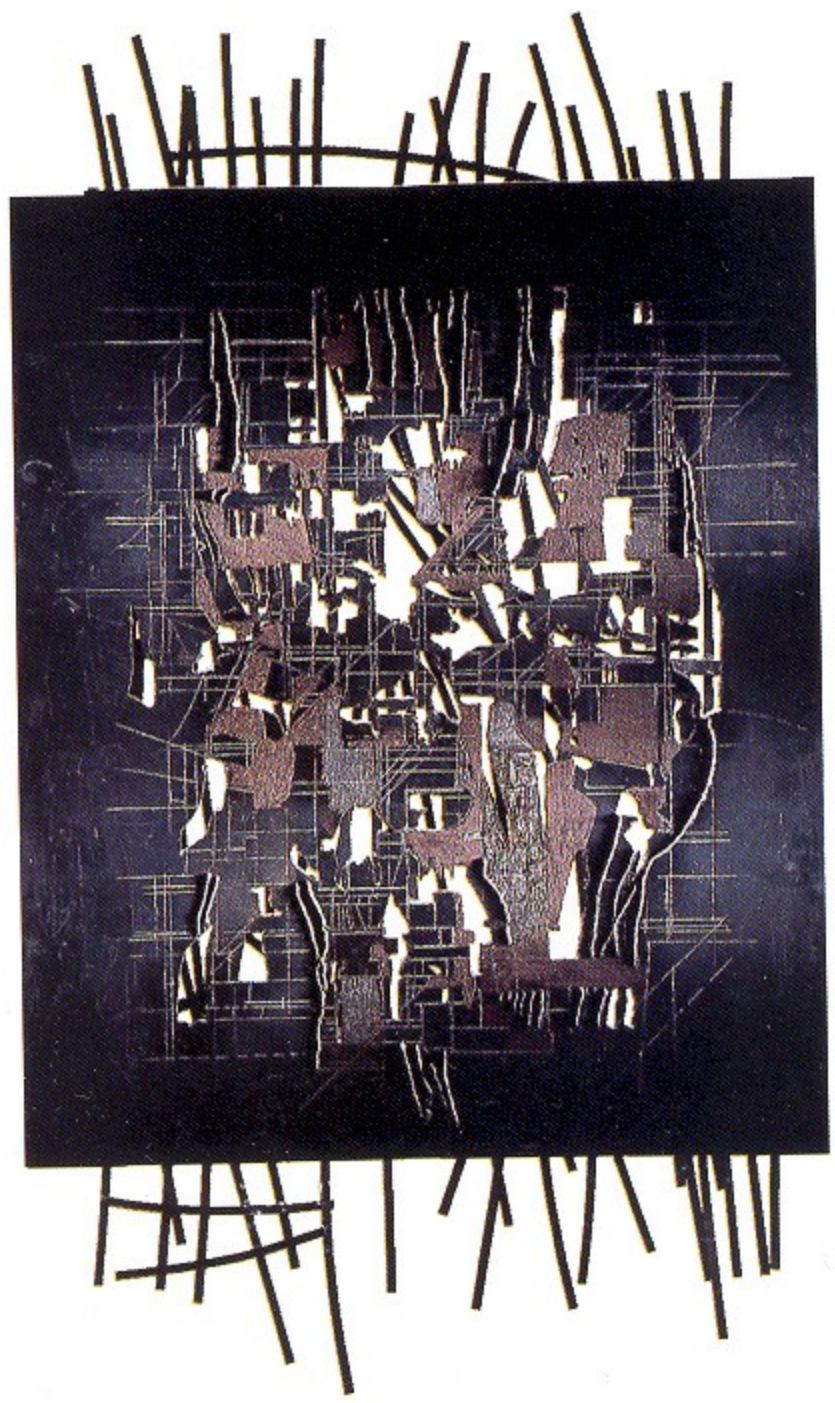
In the case of the Beirut Souk, the published project material highlighted the comparison between the images of the Souk after the war – set in a desolate, devastated terrain – and pre-war images in which the Souk could be recognised as the true emblem of the city, a place of multiple spiritual destinies and a broad confluence of religions, memories, smells, sounds and objects, of human actions and reactions.

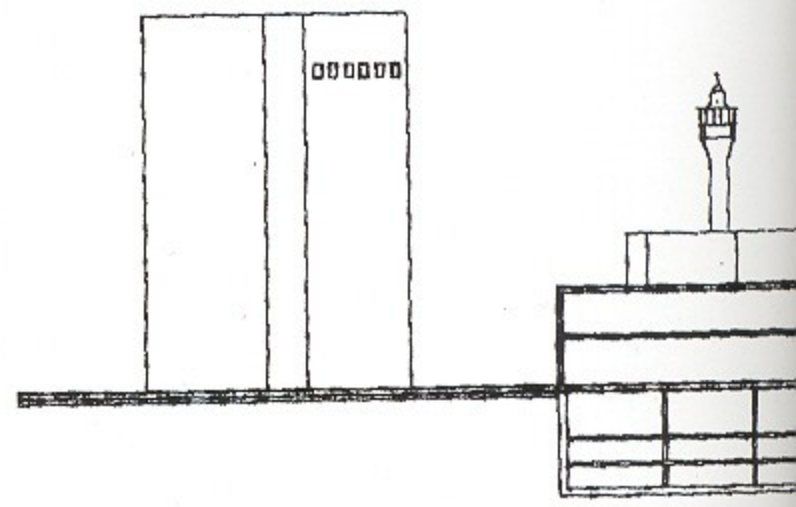
The architects were anxious not to simplify or Westernise this complex terrain. Because the new Souk could be positioned at sea-level, below the original elevation, it was possible to conserve the ancient terrain. The latter could then be at once a trace of the past and a source of life for the new underground Souk.

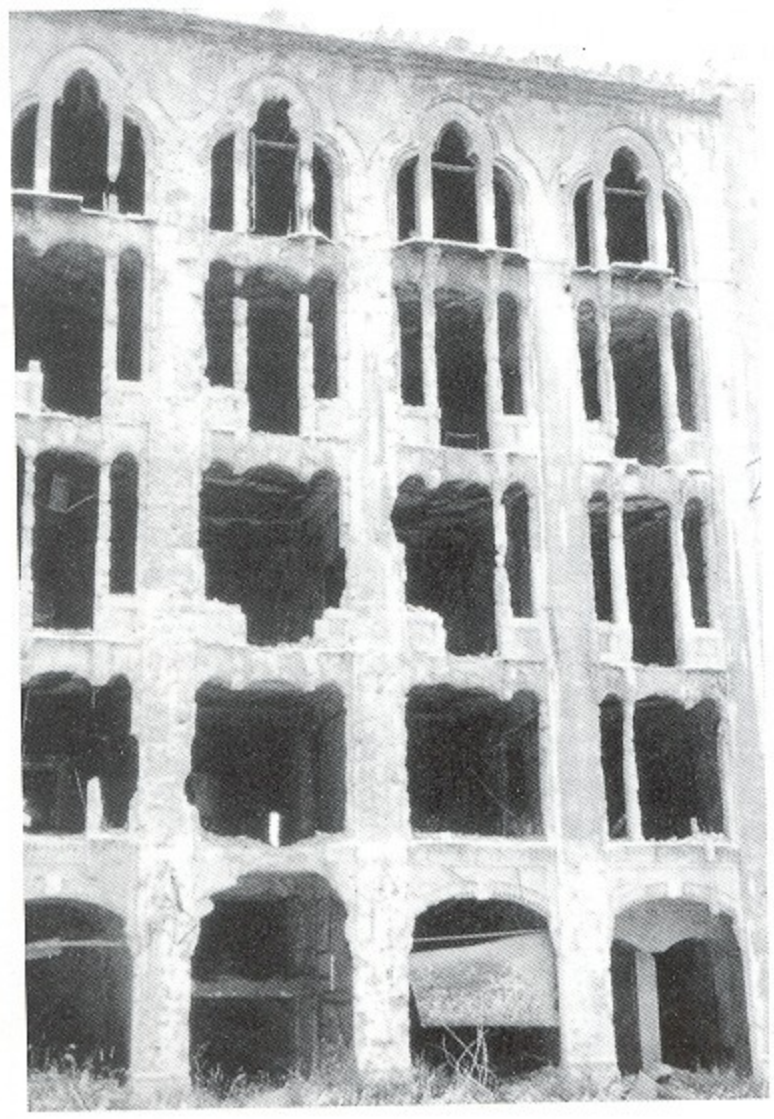
Through a computerised process it was possible to achieve a design that was an elaboration of both pre- and post-war maps of the old Souk – including its ancient streets, squares and courtyards – and to intersect this with the flow of a sound diagram, in which memories of the sounds, voices and thoughts of the old Souk were realised as graphic signs. A texture was achieved in which each element of the design was derived from the hidden measures of the memory of places – a sort of genetic code of the history of the old Souk.

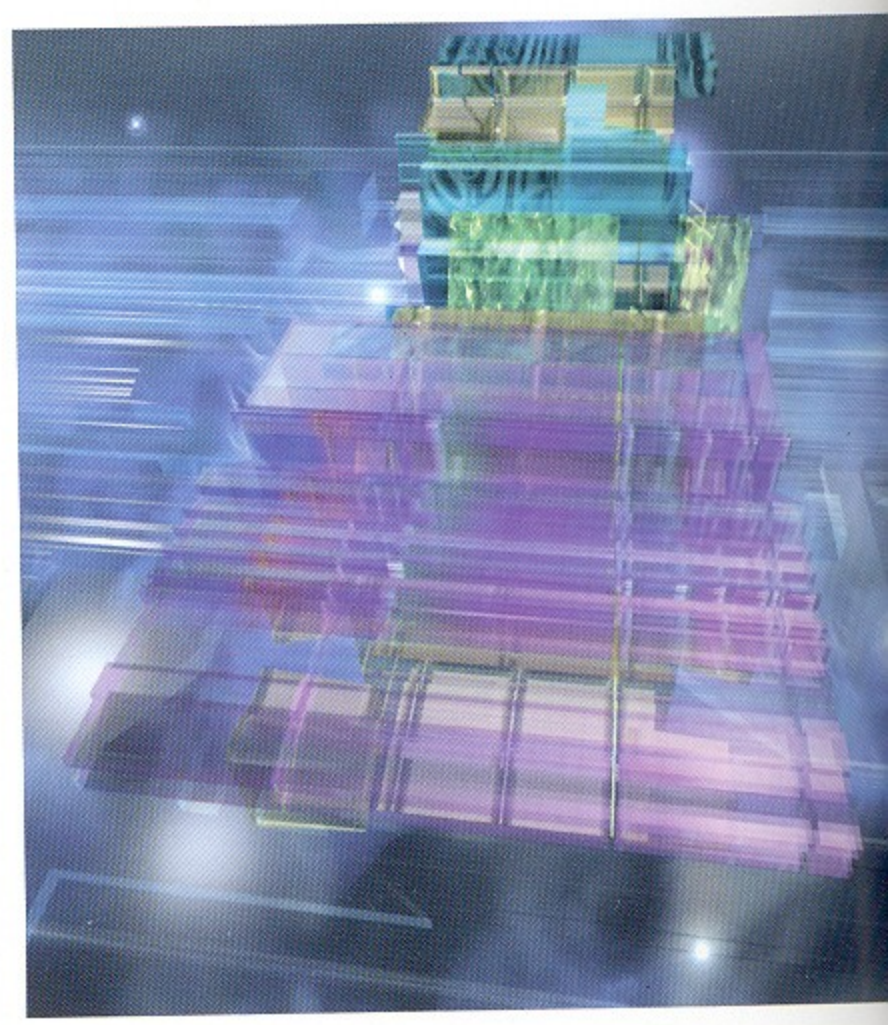
ABOVE, FROM L TO R: Filament topology; organisational grid; composite ordering plan; plan of three market stands; CENTRE, FROM L TO R: Silhouette model of composite ordering; section through market and souk; BELOW, FROM L TO R: War-battered building; view to market zone; view at market level; three market concourse stands

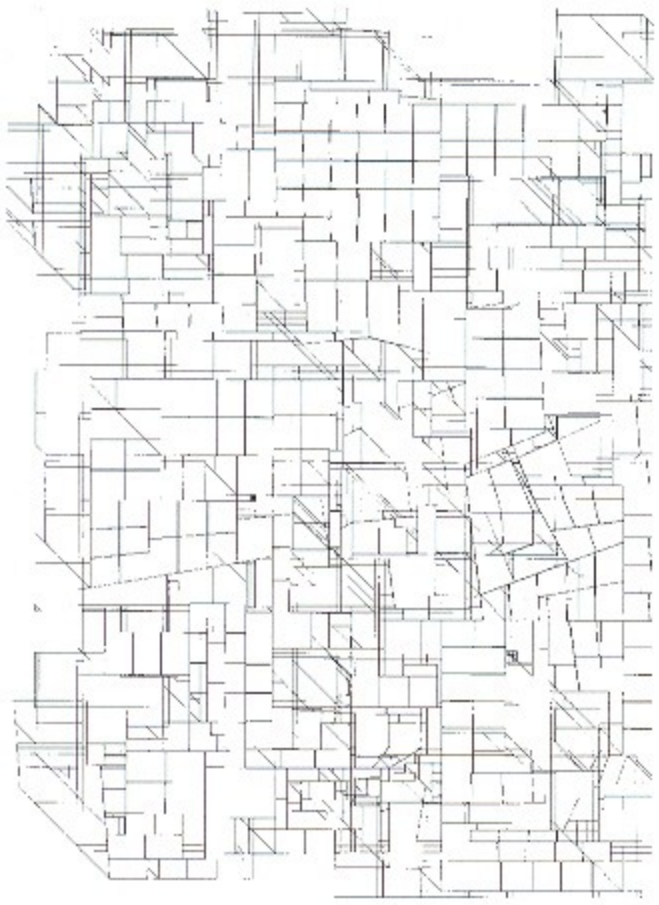


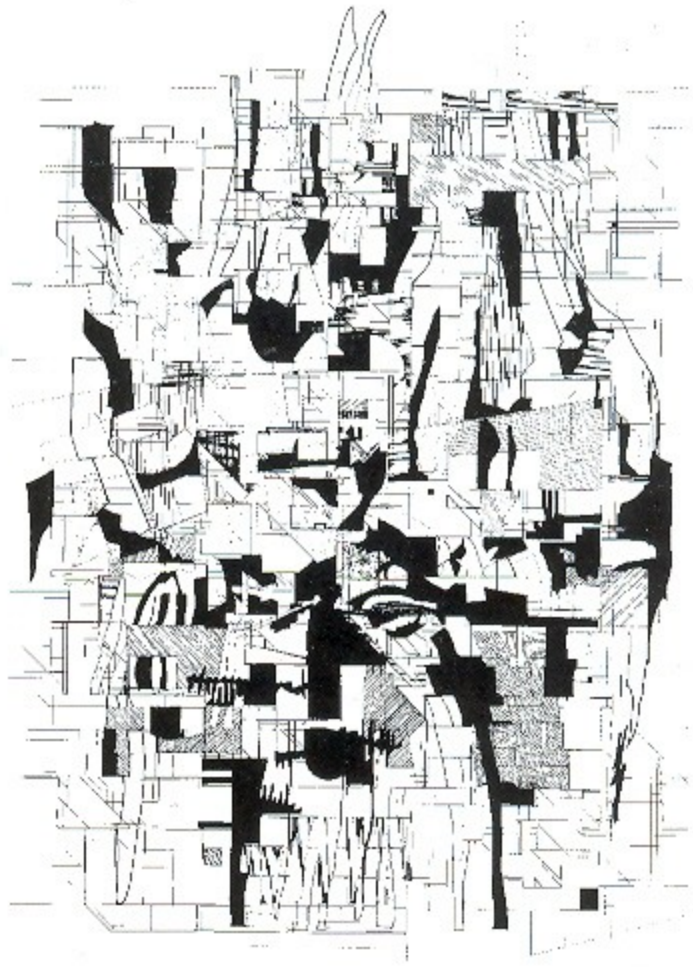


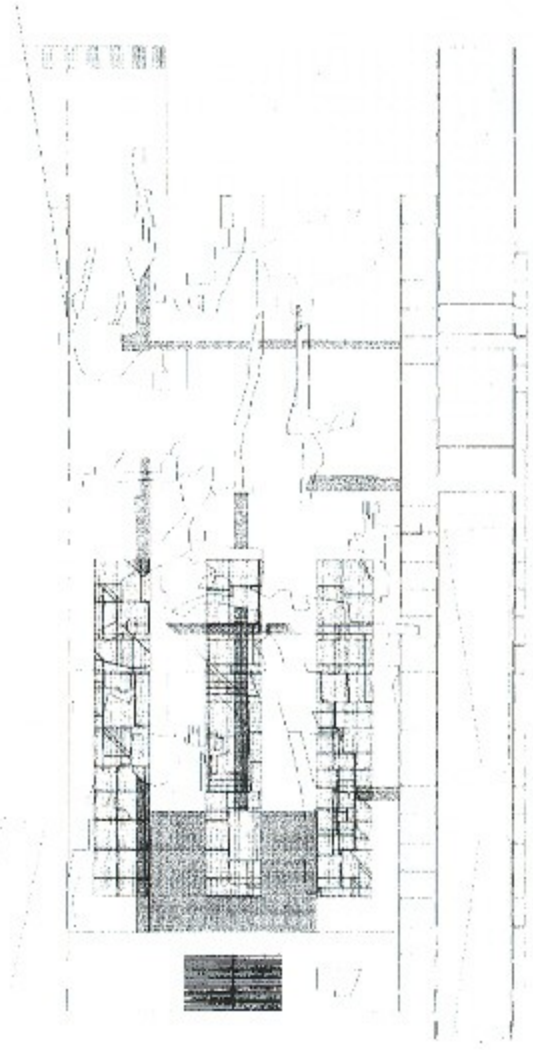


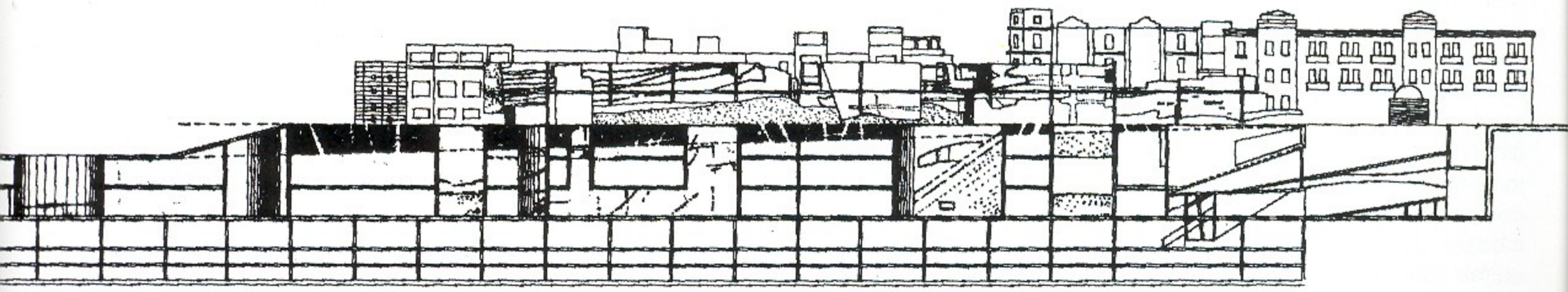


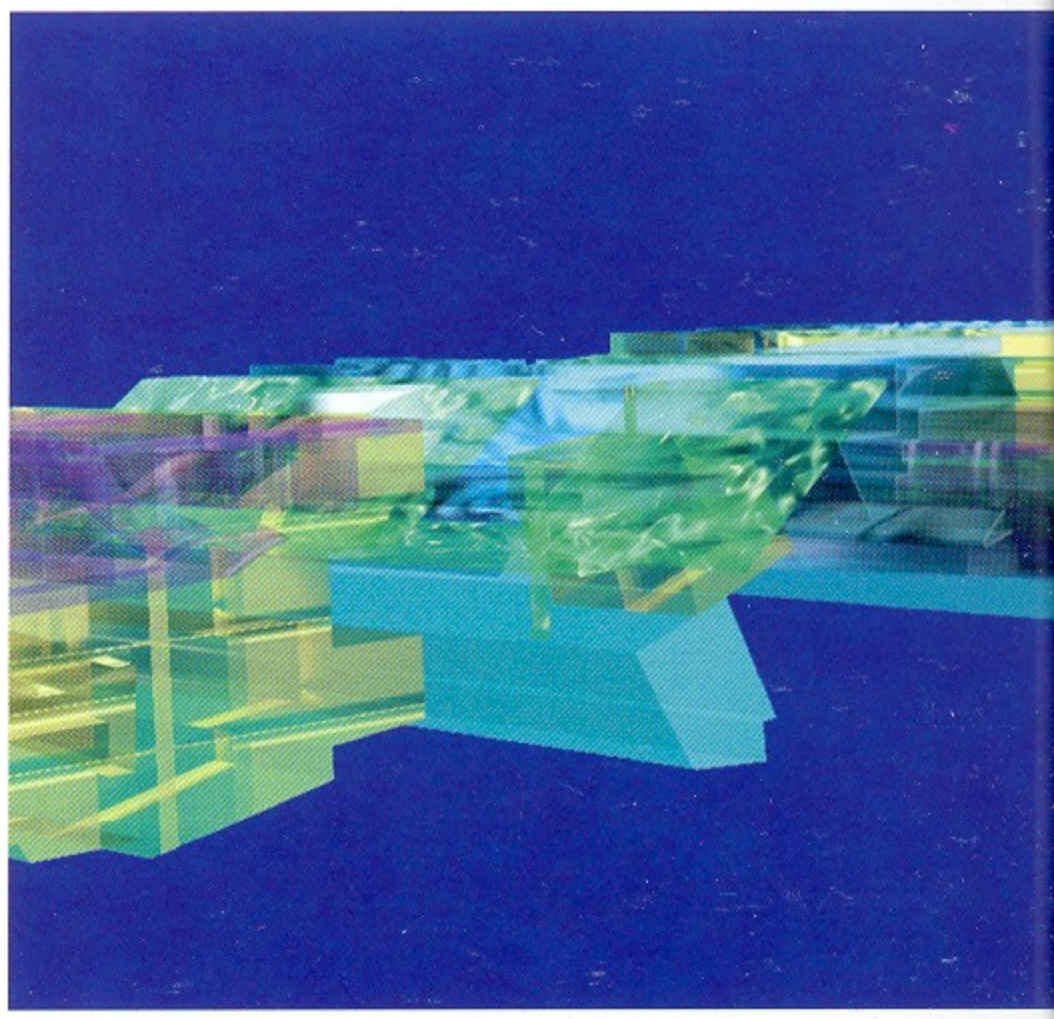


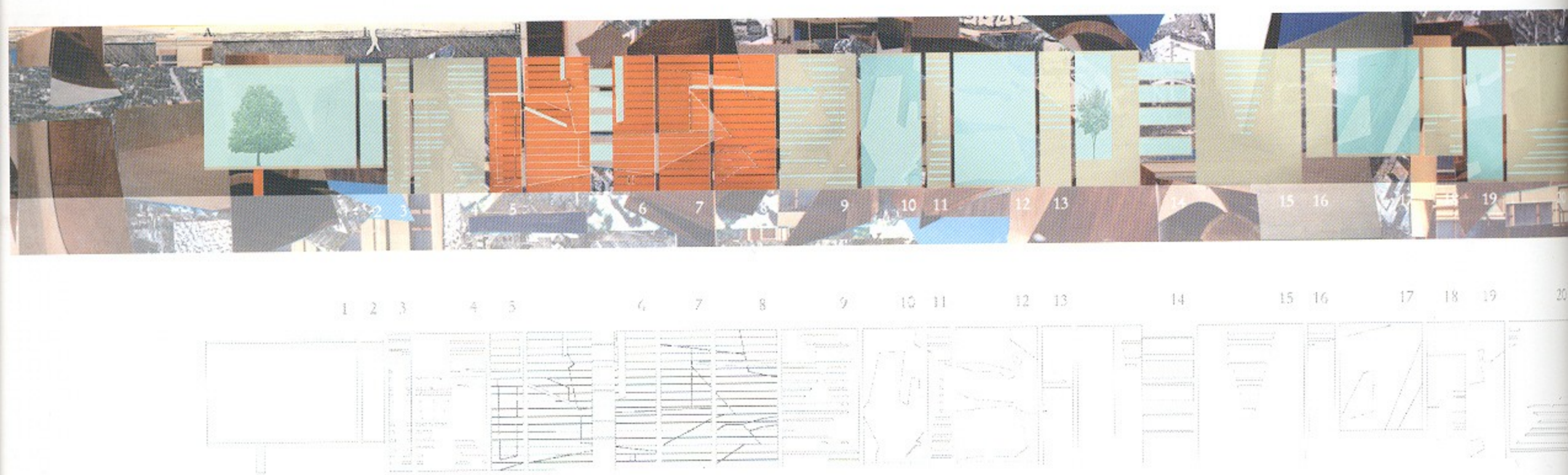










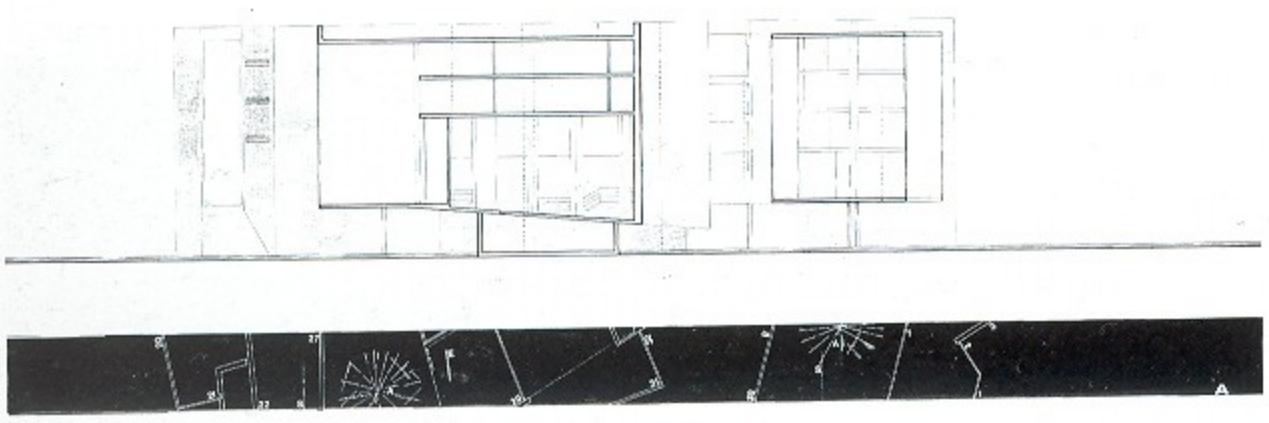


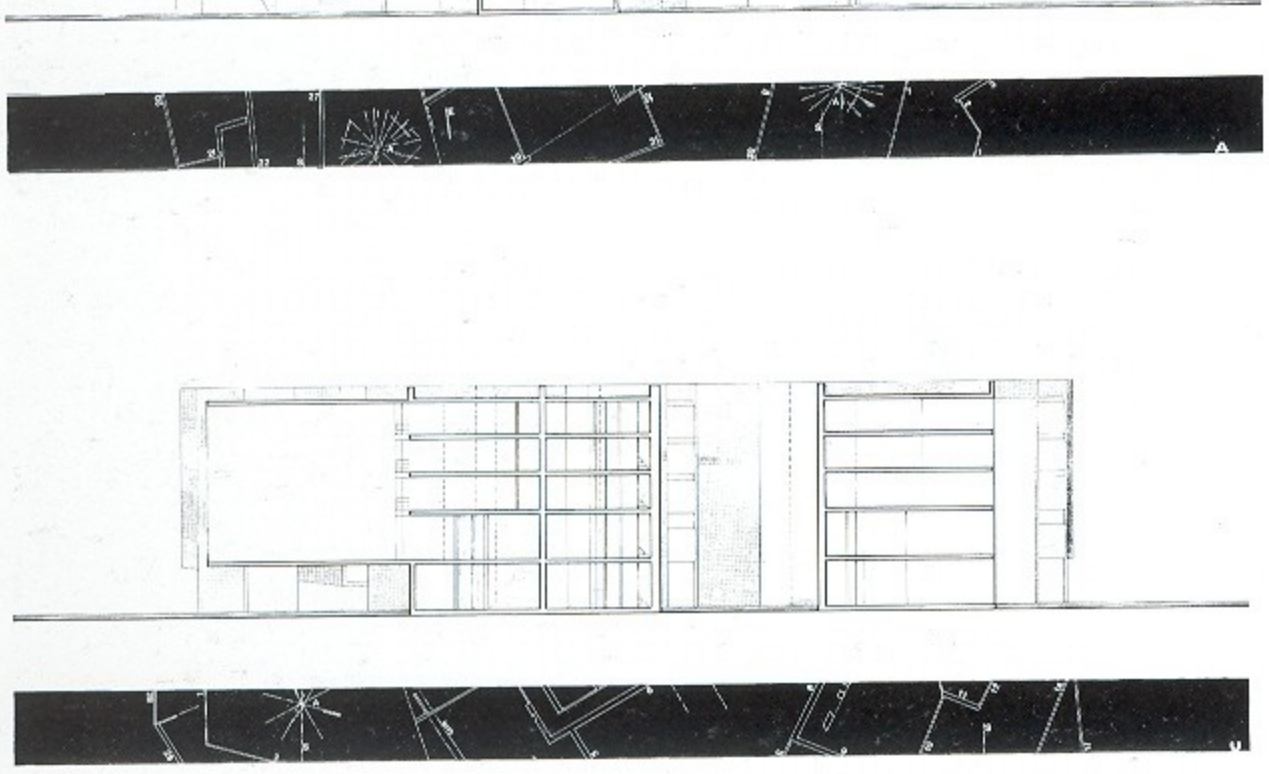
A BUILDING IN COMO

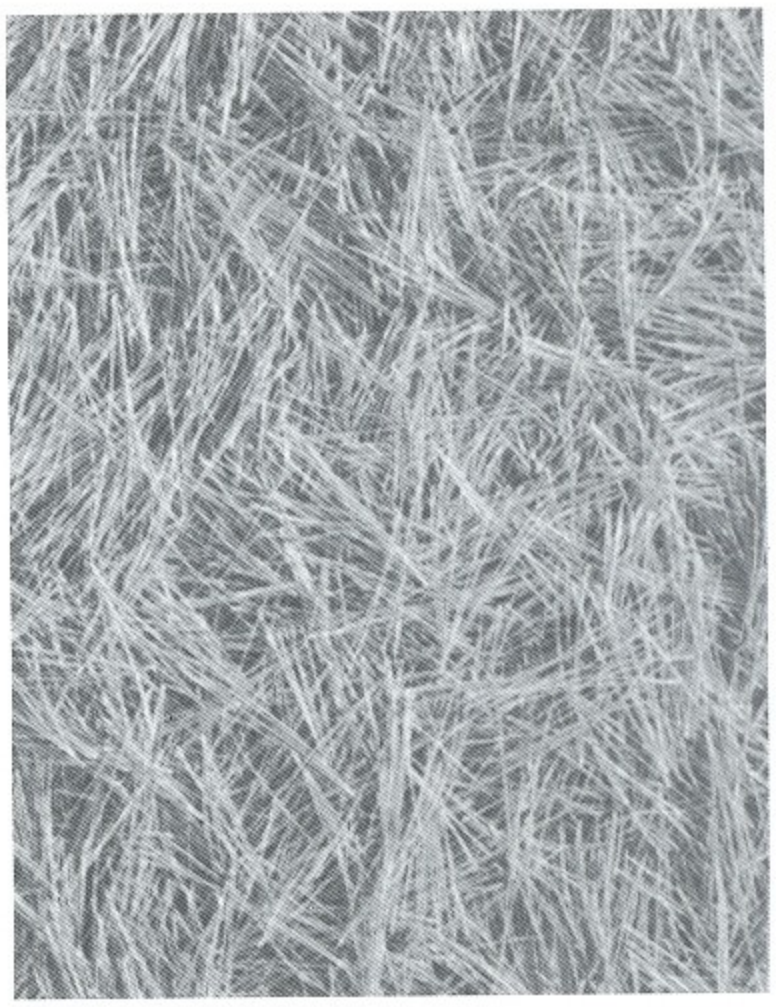
Italy

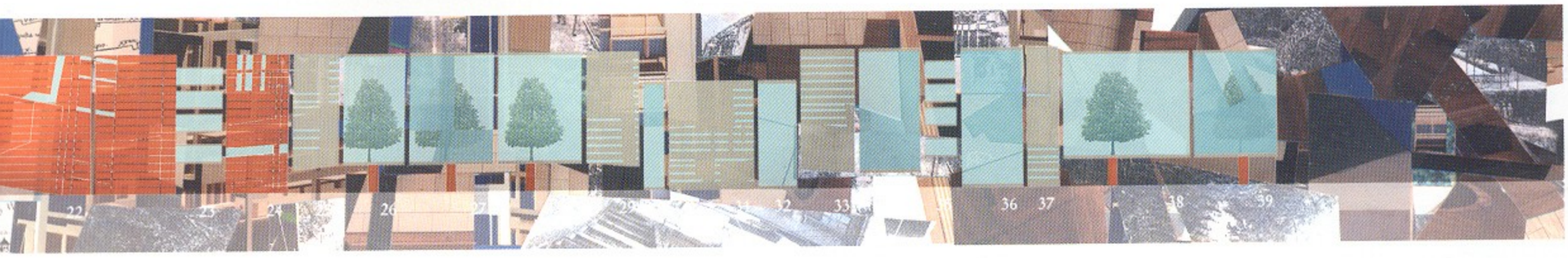
The Terragni office has continued to experiment with the use of this new graphic structuration in the last few years. The building competition for Como – more limited in its scope than that for Beirut, as well as being a more limited experiment – is a concrete desire for emancipation from the dismal architectonic situation of present-day Italy. The competition was for a building to accommodate shops and commercial premises on the ground floor, with housing and commercial offices above and with open landscaping. It was to be located in an area just outside the old limits of the town, which was nevertheless degraded by the usual existing buildings: not a single contiguous reference, not a panoramic possibility, only a railway network running tangential to the site, some nearby houses of very modest worth, a river, just beyond the most heavily trafficked road on this edge of the town. There was thus a desire to regress to a prior time, to one in which the local construction was extremely lively and random, as evidenced by historic plans and the fabric of some restoration work.

A block of the old town which corresponded planimetrically to the competition site area was selected; this was used to supplement the graphic and statistical analysis in determining the design, fixing it with these conjoined observations to determine the project's narrative structure.





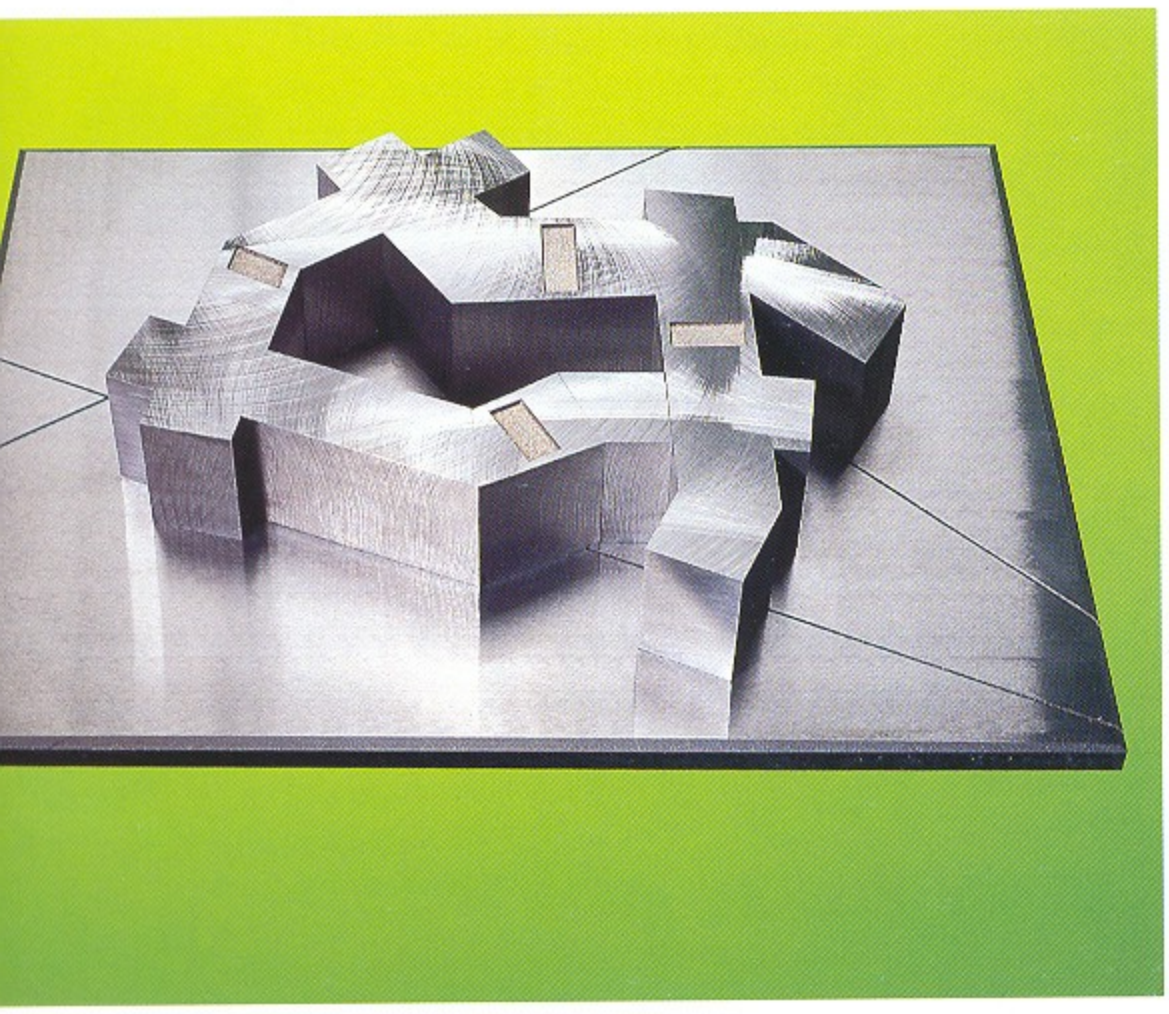


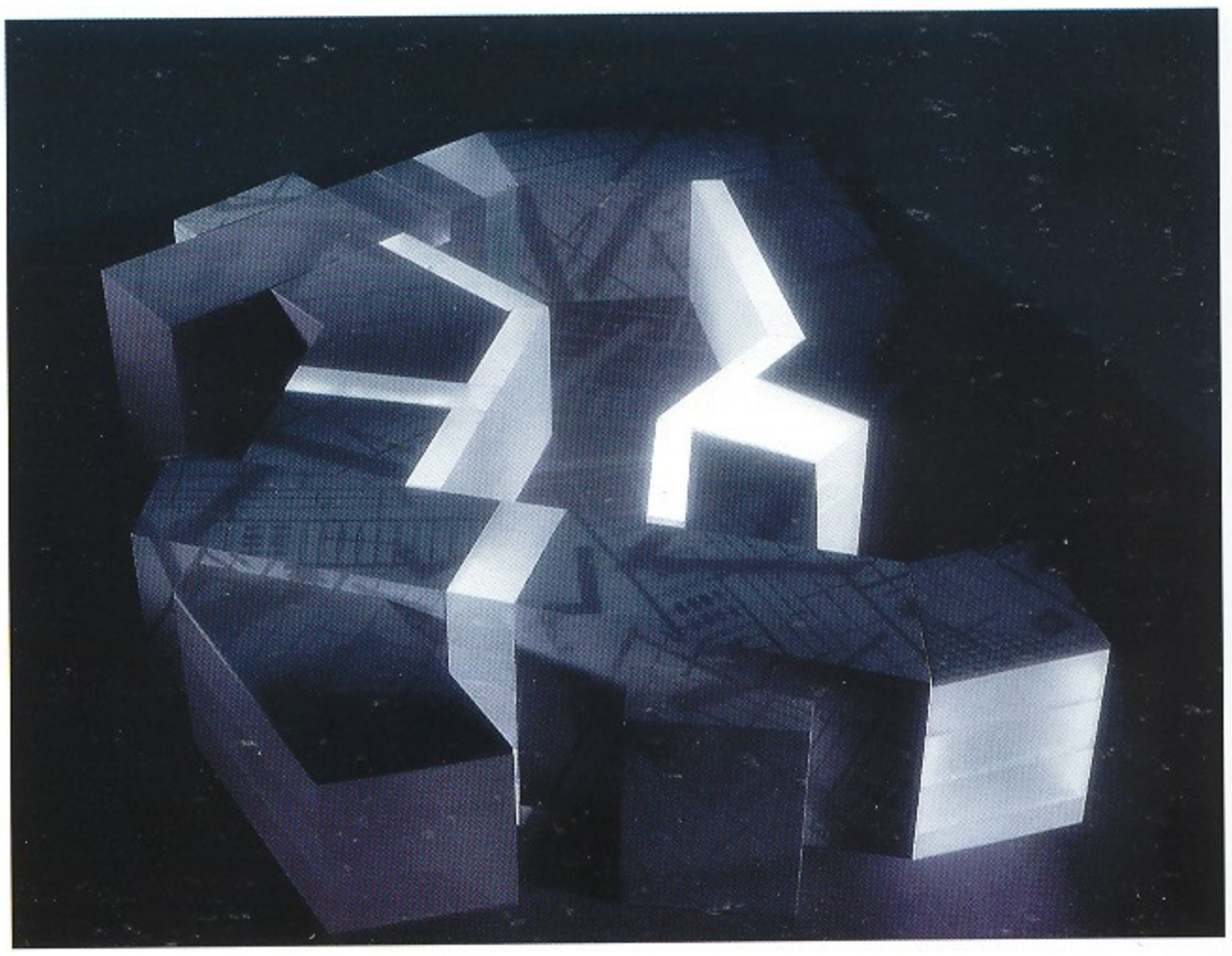


The old town of Como, without any particularly high buildings, presents the possibility for each building to have a constant but simple reference to the intuitive terrain from which it originated. In particular, there are no evident logical or rational connections; each square, each street, each edifice makes a process of idealisation impossible, but one still has a strong sense of homogeneity.

Far more than any graphic analogy or reimposition of historic imagery, it is the *concept* of building and of interpreting building that belonged to those past times which seemed most relevant and referential. The texture of the project was thus conceived as a representation of certain generative forces (deflections, measurements, angles, etc) of the block in question and of the necessity for an animateness of the building itself, which was introduced through a representation of a narrative-ecological strategy. All the dimensions and projections of the project reproduce a transfigured memory: its animateness describes the intuitive space and determines its beginning, no longer through the laying of a first stone but by a primary reclamation of the terrain.

ABOVE: Comprehensive surface elevation study; BELOW, FROM L TO R: Sections; detail; models





CHORA

'BLACK SEA': BUCHAREST STEPPING STONES

Bucharest, Romania

Bucharest lies within the geomorphological basin of the Black Sea. Chora's proposition addresses the situation of Bucharest as a whole, placing it in the larger context of this geomorphological system in relation to the political, social, physical and many other unpredictable changes that have affected the city.[1] Within this approach, the project uses the fluvial system of the Black Sea as metaphor, dynamic model and cultural icon, and considers the processes of change and how these might be harnessed as instruments that create operations of controlled urban change.

Epic Geography

The Black Sea basin is a large-scale geomorphological structure that has sufficiently diverse conditions to create a complex model.[2] As a geographic entity, the Black Sea basin is divided into four fields that give a thematic division of geopolitical regions. These are fields that thematically gather actors, palimpsests of different populations stridently moving into the region, acting on the region and influencing urban change. The four fields differ in size but also in historical perspective. They are: Russia; Central Asia and the Turkic regions; Western Europe and the European Union; the Middle East and North Africa.

Model

Dynamic modelling works in three ways. First, it allows a simulation of 'possible realities' or scenarios without causing unnecessary disturbance in the fields; second, it creates 'handles' for complex situations using relatively simple means; and, third, it creates demonstrations affecting actors in the field. In considering the Black Sea basin as a dynamic model, the dynamics of fluvial systems and flow are borrowed to identify and name model conditions of Bucharest. These are related because land-forms and other geomorphic structures have played and continue to play an important part in the identification of problems and possible solutions in complex planning issues. The underlying geomorphology of the land is assumed to have a relationship to the organisational structures of cultural inhabitations on the surface of the land. In this way the Black Sea is a large-scale object that relates to cultural identification. But, importantly, it is also virtually a 'dead' sea, a cause for international concern that engenders a kind of operational power and creates the possibility of linking global economy to urban planning propositions within the context of cultural and ecological planning.

Bucharest bears the recent legacy arising from the planning measures initiated, and partly executed, during the 1980s by the then leader of Romania, Nicolae Ceausescu. This involved the removal of much of the city fabric in a central area of Bucharest. However, for Chora the issue of Bucharest is not only related to the above changes but also necessarily includes the more radical political, economic and social transformations that are currently occurring.

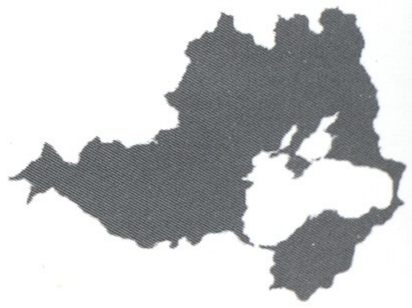
Notes

1 Chora's Bucharest proposal stems from a development of a competition entry for the Bucuresti 2000 competition in 1996. The competition aimed to address the future of the city transformed by Ceausescu and the legacies of this. The work here extends and develops the competition entry, and places it in a wider context than the limited competition brief. The proposition is based on speculative fieldwork developed out of the competition brief coupled with consultations with other experts in relevant areas. On-site, fieldwork is an essential next step for developing an understanding of the processes of change in Bucharest. The project is therefore currently only a simulation of what could be proposed, depending on fieldwork. Chora is currently developing a proposition and is looking for partners to collaborate on a long-term EU funded project. This summer CHORA aims to set up a fieldwork session in Bucharest with the help of volunteers.

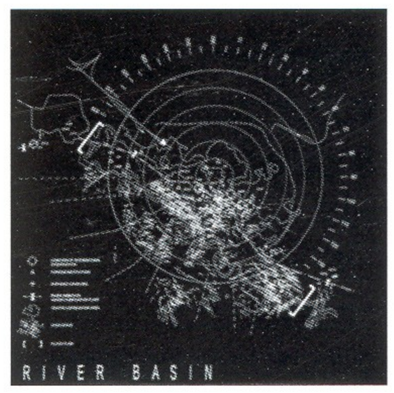
2 Michael Seidel, *Epic Geography: James Joyce's Ulysses,* Princeton University Press (Princeton, NJ), pxi. Seidel, commenting on a note Joyce wrote for *Ulysses*, writes how Joyce defined geology as 'embedded storia' and that geography therefore is an extended storia, an unfolding or a narration.

BLACK SEA BASIN

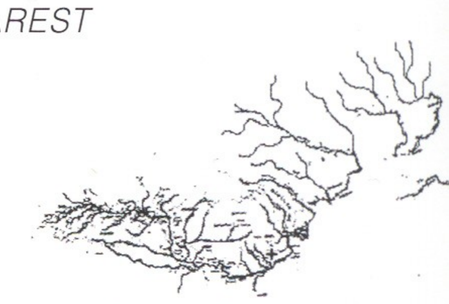
BLACK SEA:
the nominal representation of an aggregate that facilitates its formation as well as its recognition of entities, ignoring certain details among their constituents.



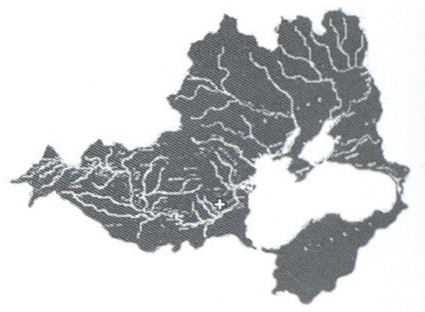
BASIN:
geological feature that collects various agents together increasing the chance of their collision to produce new entities (compounds) which become agents of new interaction and increase complexity.



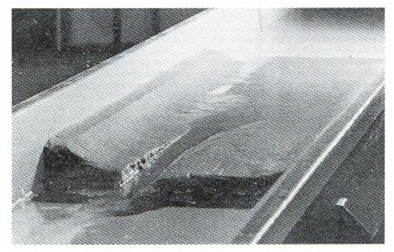
MICRO-MODEL OF BUCHAREST



FLOW:
the movement through a network of nodes (processors) and connectors (designator of possible interactions); patterns that reflect change in time and their accumulations.



INCORPORATION:
layer of diverse agents that interact together to maintain the system as a whole which itself is a building component of interaction for a larger whole, the skin of the earth.



DYNAMIC MODELLING

Stratification

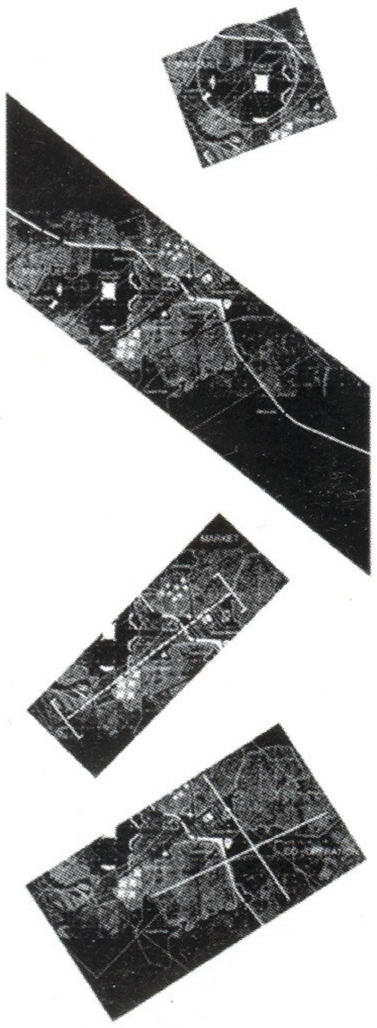
The following material gives a schematic overview of the possible ways in which a proposition for revitalisation could be structured. This consists of different layers – Toponymy, Basin, Flow and Incorporation – each layer anchored in a part of the city under consideration and framing a different thematic content. The layers are given the possibility for autonomous development, allowing for intermittent correspondences between different layers to emerge, but when considered together may lead to a rich but unpredictable urban fabric that can accommodate difference and a variety of urban cultures. This has the intention of fostering a long-term urban dynamic.

Stepping Stones

The intermittent correspondences between layers are here termed 'liminal bodies'; metaphorically these are stepping stones allowing for partial implementations to occur that lead to changes across various scales and in other layers. In other words, the taking of one step by the city and the necessary actors allows for effects to emerge in another layer. This provokes situations that combine developments in different connecting layers, allowing the overall development to take focus. In a proposition involving developments outside the control of the propositioning body, these stepping stones can be understood as the open-ended structuring of the various levels of implementations, and as such provide specific and directed 'aims' and a variety of possible paths or unfoldings.

The overall aim of the project is to provide a cultural planning concept which acts as a model for interested parties in Bucharest. It is a rule-based plan for possible scenarios that can be initiated in the site, a type of game structure. The game suggests a planning based on temporal structures that evolve independently and yet may intertwine. This requires players, acting both in the city or at a distance. Both model and game are based on an understanding of as many 'proto-urban conditions' as possible.[3]

3 See Raoul Bunschoten, 'Proto-urban Conditions and Urban Change', *Beyond the Revolution: Architectural Design Profile* 119.

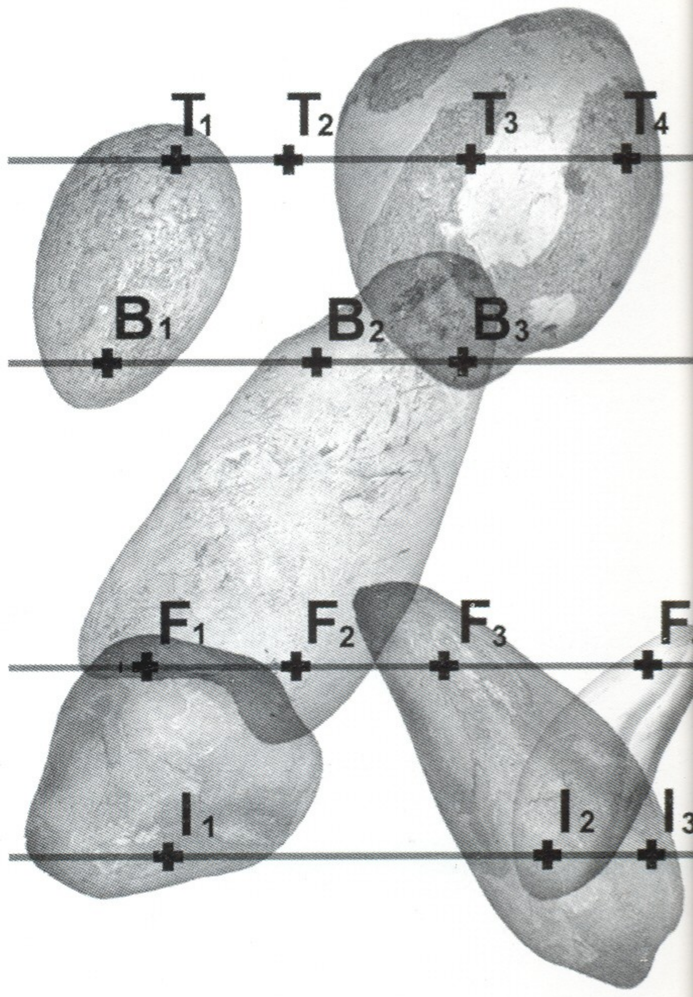


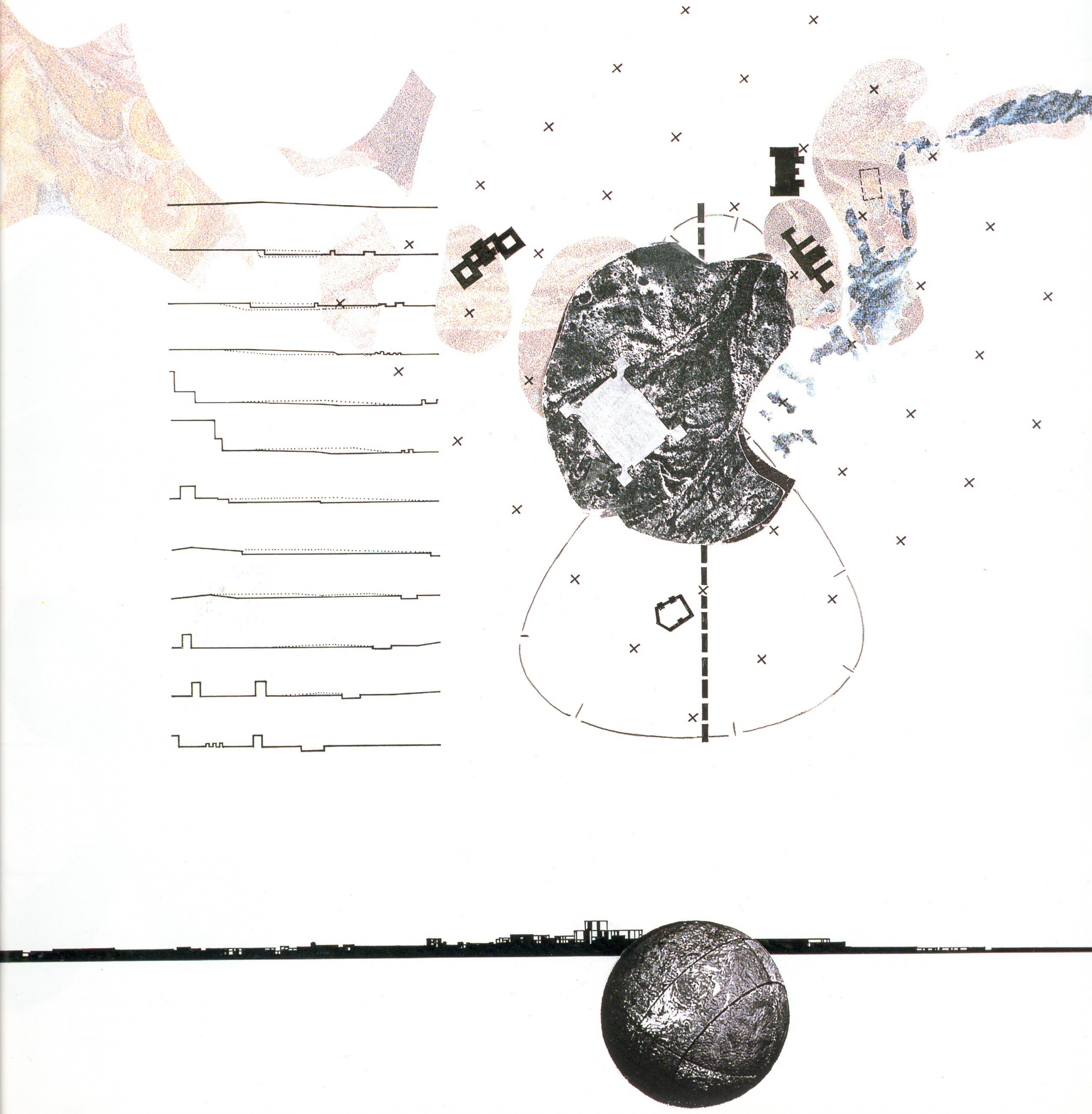
I *TOPONYMY (masque): cultural planning of multi-ethnic society (masque) of Bucharest and symbolic production of identity.*

II *BASIN (urban flotsam): regeneration of sustainable environment along the river basin connecting fragmented and historical depositories (urban flotsam).*

III *FLOW (market): re-augmentation of stagnant dynamism of the city, introducing new influx and regulatory mechanisms.*

IV *INCORPORATION (liminal bodies): design of institutions for conflict and negotiation (non-settlement) which manage emerging conditions.*





I TOPONYMY: MASQUE

'Discussions about the Latin origin of the Romanians, or about the Daco-Geto-Latino-Romanian continuity, brought up time and time again by historians and by the nationalistic ideology of Romania, are scarcely more important than the quarrel between Furtwagen and Donaueschingen over the sources of the Danube.'[4]

'The composite ethnic substratum is the multiple, changing face of this ancient amalgam: the dark olive-coloured eyes and the imperious noses of the beautiful Phanariot women, and the black, soiled hair of the great-grandsons of Armuns of Kuitzovlaks from Macedonia meander through the crowds like bubbles in a cauldron.'[5]

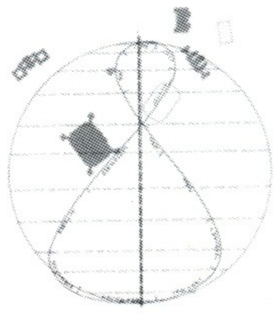
'When enough time has gone by, the various re-emergings and swallowings-up caused by the works undertaken at the command of Ceausescu will perhaps become a source of poetry and myth, like the destructions wrought of old.'[6]

'This natural island affiliation was solidified by the establishment of island associations that continued to play an important role in maintaining ties among the respective members, recreating parts of their particular cultures and maintaining strong links with people and groups back "at home" as well as upholding a "myth of return".'[7]

The cultural and symbolic production of the colourful and diverse population both of Bucharest and Romania – an 'ethnic melting-pot' – acts as an instrument for urban regeneration and provides the structural stability during subsequent changes. The city needs physical, iconic urban space where the voices of diverse actors can reverberate and express themselves, where a new urban masque can be formulated. The desire to free the Arsenal Hill and the People's Palace from their imprisonment by nationalistic ideology is incorporated within a 'calendar of festivals', allowing various sections of Bucharest's social structure to occupy the land, temporarily participating in a cultural production that nevertheless also integrates Ceausescu's legacy. This event structure 're-forms' the ground-surface and can orchestrate, and act as a counterbalance to, the pressure exerted by forces keen to develop the site.

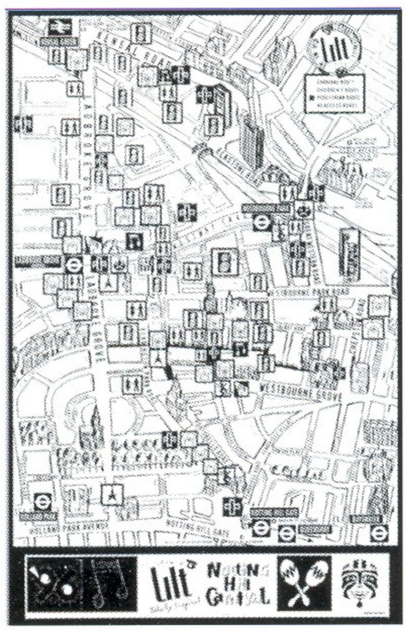
THE PEOPLE'S PALACE:
a symbol of the extreme ideology of Ceausescu and now a tourist destination – one among other large objects on the game board.

FESTIVAL INSTALLATIONS:
a catalyst of urban change around the People's Palace.

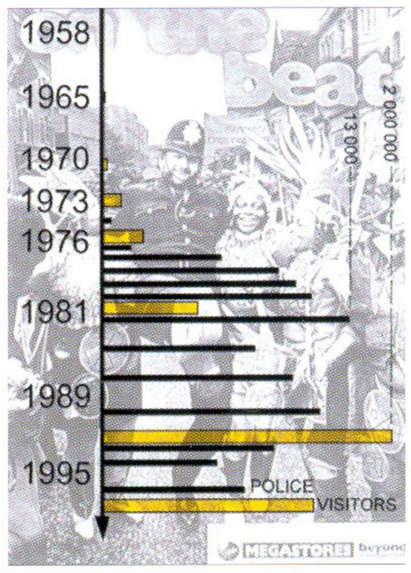


CALENDAR:
the years' events are laid out over the topography of the hill as a spatial organisation of the area, providing the necessary supports for the events.

AN ERASED MONASTERY:
an object of mourning and memory plays a shadow game of dynamics.



NOTTING HILL CARNIVAL IN LONDON:
an annual event involving two million spectators and 13,000 police officers; it has evolved from a small community project in the wake of racial riots to a national institution supported by diverse members, actors and agents.[8] It presents a case study of the temporal transformation of urban space and the evolution of organisational form over the 40 years of its history.[9]



4 Claudio Magris, *Danube*, Harper Collins (London), 1990, p365.
5 Ibid, p367.
6 Ibid, p379.
7 Abner Cohen, *Masquerade Politics: Explorations in the Structure of Urban Movements*, Berg (Oxford), 1993, p81.
8 See Jane Warring, 'Carnival: From Trinidad to Notting Hill', 1982; and Matt Lake, 'Lesley Palmer: Creator of a Turning-Point in the History of Notting Hill Gate Carnival', *Touch Magazine*, extra issue with *Time Out*, 1996.
9 This information comes from an intensive study on the Notting Hill Carnival conducted by Chora in collaboration with the Catholic University, Leuven, Belgium (August–September 1996)

B

E

A

C

D

BACKWATER

II BASIN: URBAN FLOTSAM

'Bucharest is not only a city of crowds and bazaars, but also of great airy, elegant spaces, green parks and boulevards leading to secluded lakes.'[10]

'More than most European capitals, Bucharest is an insider's city. The greatest pleasures come from strolling in the secretive back streets and from the random encounters this leads to.'[11]

'Without a car you may find yourself walking a lot – no great hardship in this city of green, picturesque backwaters.'[12]

'Behind the row of new buildings are hidden various tiny Orthodox churches: elsewhere in Bucharest you'll frequently find churches in the courtyards of apartment building, but here they seem more disregarded and incongruous.'[13]

'Additionally, the use of fertilizers, pesticides and insecticides has caused problems, damaging 900,000 hectares of agricultural land and entering the drinking water supply. The Ialomita and Somes rivers are entirely dead, as are the Dimbovita below Bucharest.'[14]

'It is perfectly possible that funding for such a cleanup programme could come from the EU or from the World Bank Environmental Fund – similar funding is currently being used in the effort to clean up the Black Sea, which is severely polluted.'[15]

Chora's scenario ties such issues as ecology, transport, the basic needs of the community, neighbourhood cooperation and tourism together by setting up small prototype projects in various situations in order to maintain and re-evaluate the urban environment within the frame of the Dimbovita basin. These projects are self-organised neighbourhood developments (with a commercial base) in the backwaters around 'survived' churches; the connection or concatenation of picturesque parks and open spaces along the river basin by cyclist and pedestrian paths; the remodelling of the surface transport network by connecting private mini-transport systems; and the improvement of the river water.

10 Claudio Magris, *Danube*, p366.
11 Dan Richardson and Tim Burford, *Romania: The Rough Guide* (London), *p50.*
12 Ibid, p52.
13 Ibid, p68.
14 Ibid, p330.
15 Battle McCarthy (consulting engineers), 'Report on Feasibility Study for a Dimbovita Water Purification Plant in Bucharest'.

'survived' churches

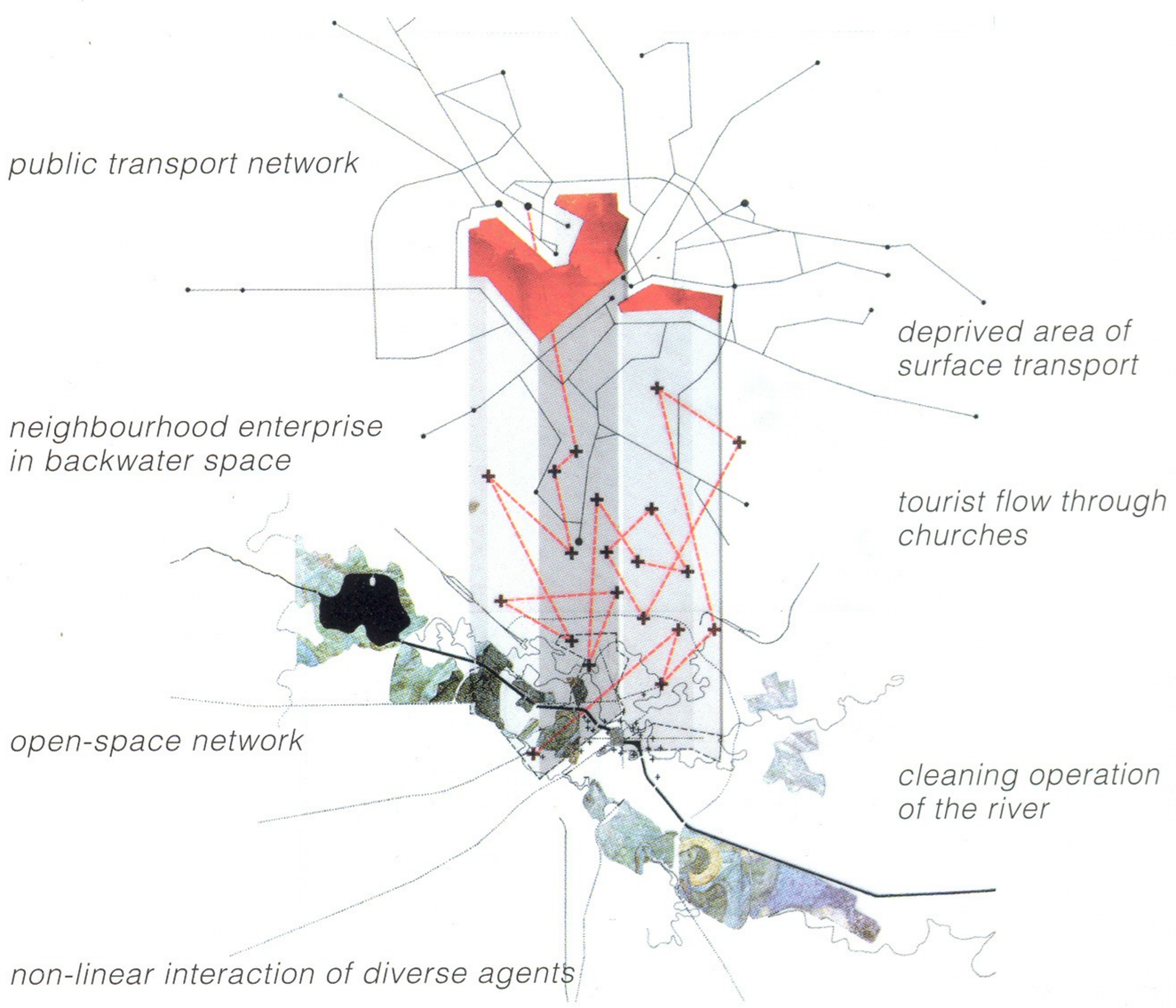
tourists and pedestrian flow

neighbourhood enterprises

public transport system

open spaces

River Dimbovita

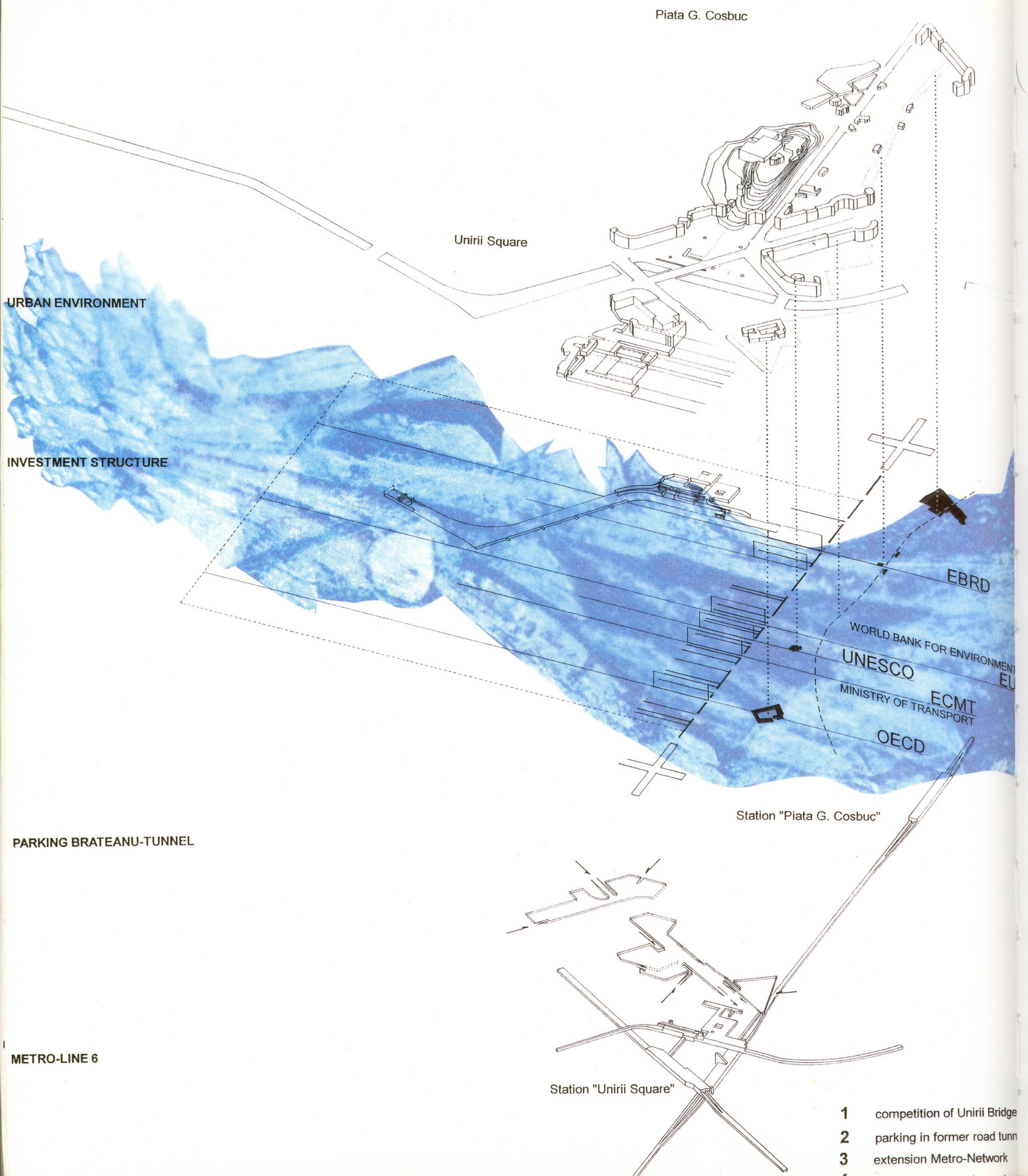


URBAN ENVIRONMENT

INVESTMENT STRUCTURE

PARKING BRATEANU-TUNNEL

METRO-LINE 6



1 competition of Unirii Bridge

2 parking in former road tunn

3 extension Metro-Network

4 water-treatment-plan : plan

III FLOW: MARKETS

An old saying has it that whoever drinks the 'sweet waters' of the Dimbovita will never wish to be parted from Bucharest, to which one nineteenth-century traveller retorted that anyone who did 'would be incapable of leaving the city for ever afterwards'.[16] Today, these waters, whether monumentally redirected alongside the Boulevard concourse or buried underground so as not to interfere with the geometry of the 'new civic centre', are literally dead. The river is polluted and hidden from sight.

The re-evaluation of the role of the Dimbovita is tied to an improvement of its water quality and to an engineering of the whole river landscape. CHORA proposes a comprehensive water-management plan, with a series of water-treatment plants along the length of the river-trace through the city, contributing both to the quality of the living environment and the role of the river for recreation, leisure and pedestrian/bicycle traffic. Each inner-city plant can become a sign of the cleansing process taking place and can contribute to the micro-climate of the city. The integration of the plants into the urban context can lead essential parts of the plants to be considered as public spaces, tying ecological, commercial and recreational issues together.

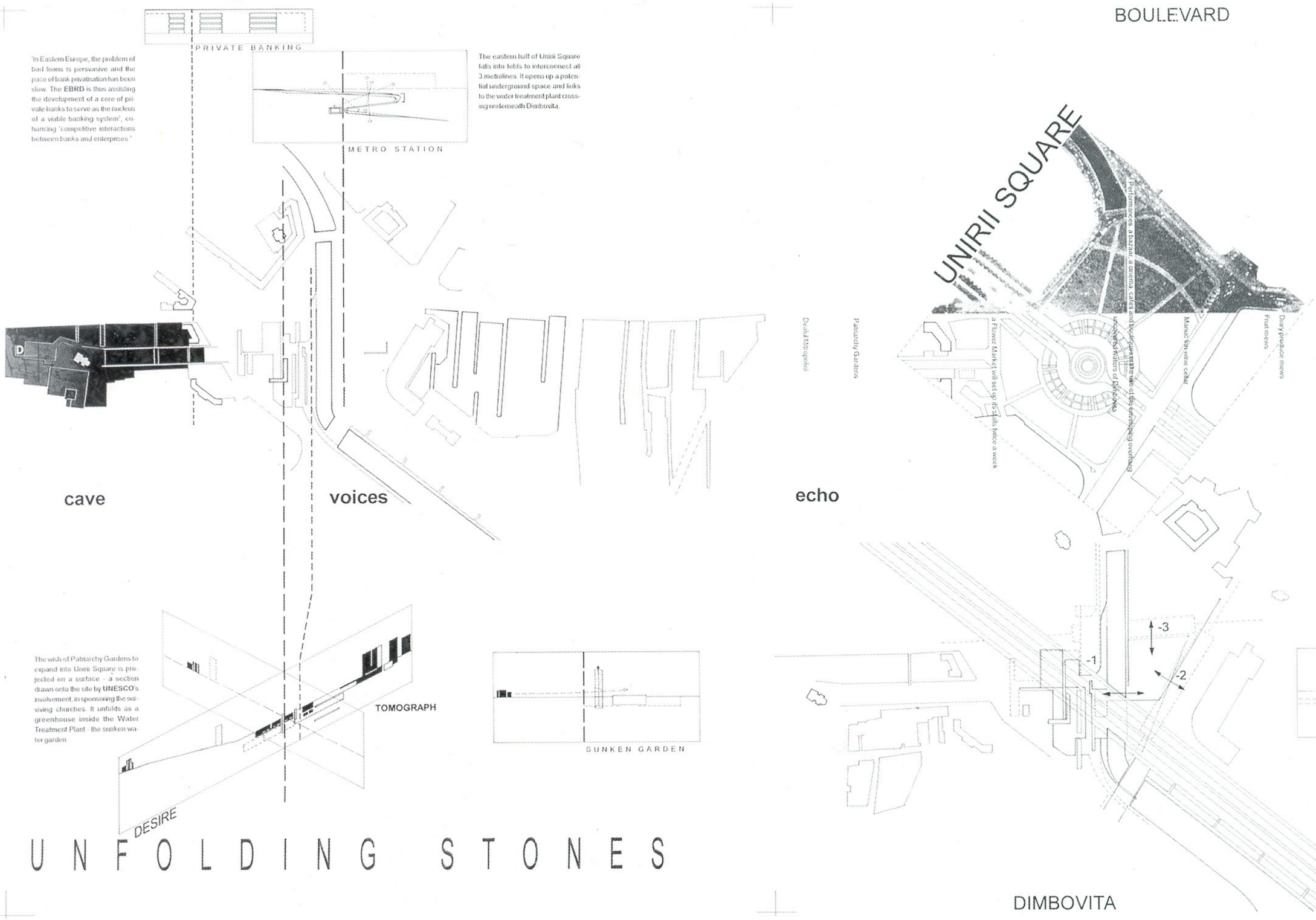
Romania, as a member of the emerging Black Sea family of nations, represented the Danube region at an international conference on the Black Sea in Odessa in 1993. Bucharest is being drawn into a regional and international context that is both a motor for the establishment of a water-management plan and essential to the success of such a programme. The programme can act as a catalyst for urban regeneration, offering education and access to qualified jobs.

The necessity of stimulating and regulating free trading structures, market supply and private small-scale production within the fabric of Bucharest is embodied in the notion of a complementary pair of markets, acting as hinges to the northern and the southern halves of the city. They are of public concern following the 'barbaric living conditions' of the late 80s and Romania's acute dependence on international aid.

The two public markets act as powerful engines of change. As local trading spaces with a strong momentum they are ahead of national economic developments and can stimulate cooperative interaction between small- and medium-scale enterprises (SMEs) and the private banking sector, under appropriate observation of the governmental and non-governmental organisations (NGOs). A successfully regulated free market economy is imperative to ensure possible support of the EBRD, OECD, EU and the USA for privatisation projects.

Running parallel to an old trading route that linked the city to its agricultural hinterland, this bridge condition increases flows between the two halves of the city and sets up new strongholds of urban development on both banks of the former flood plain. An innovative strategy promoting public transport is essential to allow for traffic-intensive social and economic activities to unfold within the city centre, unhindered by infrastructural as well as regulative constraints.

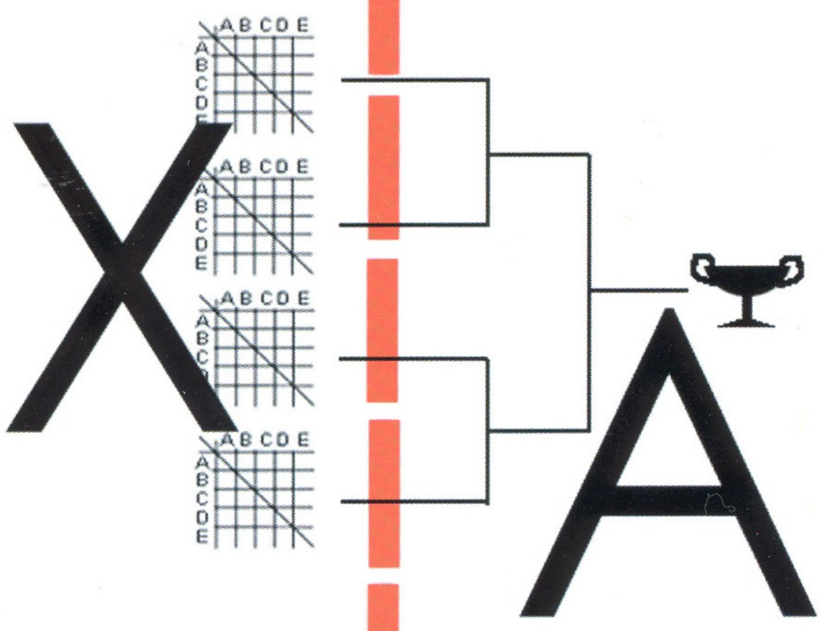
16 Richardson and Burford, *Romania, p67.*



UNFOLDING STONES

network

sign/icon



football league
(neighbourhood)

football club
world cup
(legal body)

Xp

Ap

self-organization
of communities

development trust
(political body)

Xe

Ae

small private
enterprises
(soft-economy)

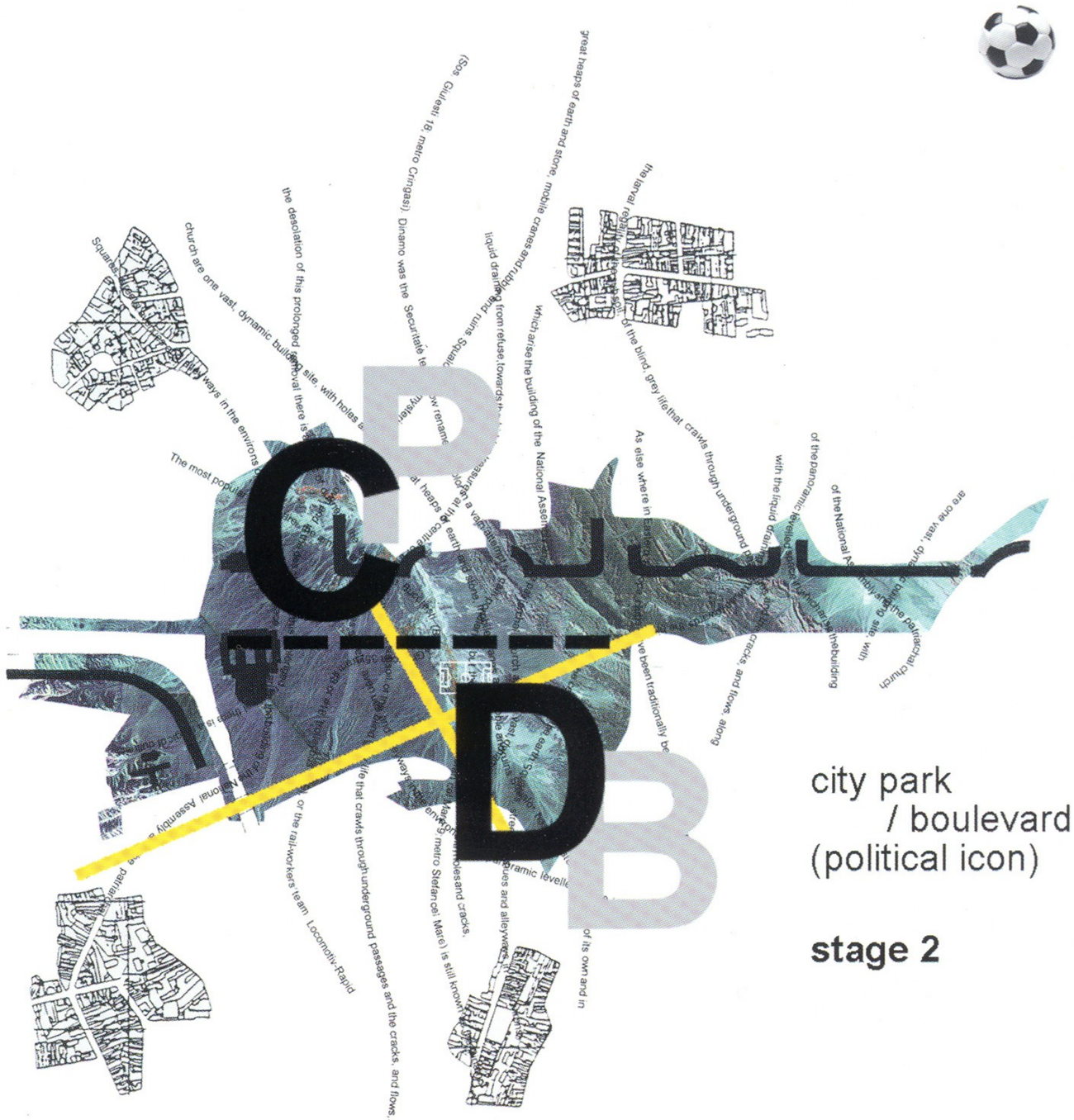
neighbourhood
development
corporation
(incorporation)

liminal bodies

football field
(proto-type model)

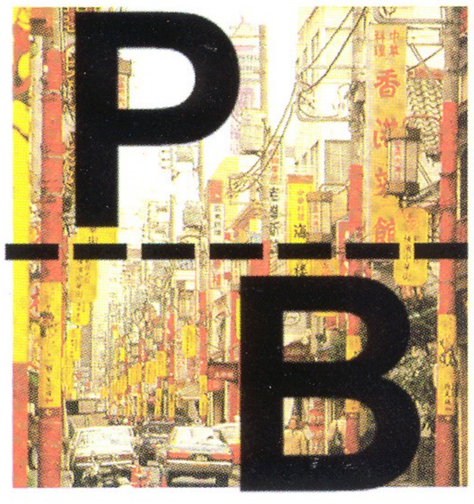
negotiation
and
settlement

stage 1



city park
/ boulevard
(political icon)

stage 2



community
/ investment
(incorporation)

stage 3

IV INCORPORATION: LIMINAL BODIES

'The indistinct biological substratum of the Rumanian melting-pot continually overwhelms the kaleidoscope of figures. It is no coincidence that in Rumanian culture there has been so much discussion of the contrast between basis and form. In backward, semi-capitalist societies, observes the Marxist Gherea, the social forms – as opposed to what happens in economically and politically developed countries – precede the social basis, and therefore remain weak, precarious superstructures.'[17]

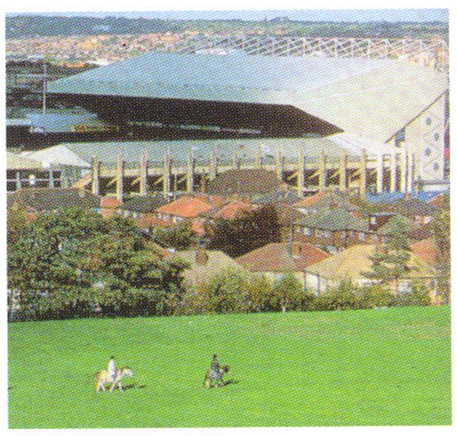
'Politically, the timing and nature of the Romanian Revolution meant the new government had a domestic mandate to initiate transition to market economy only if this did not involve social cost. The population was fundamentally conservative in its desire to restore and protect living standards, and correspondingly unprepared to take a leap into the future.'[18]

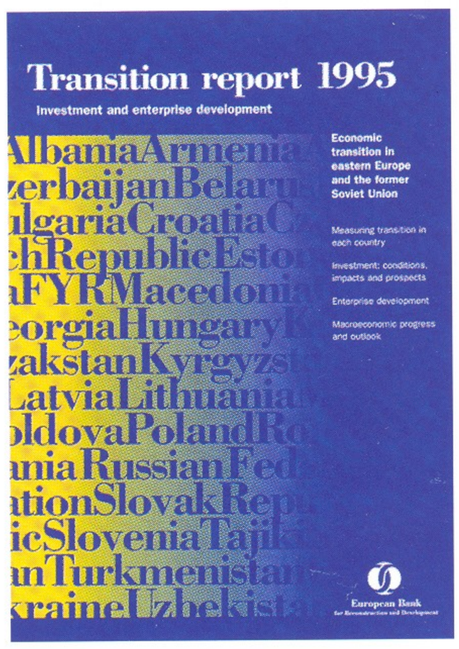
'A minority government was finally formed in November 1992 . . . [which] relies on the parliamentary support of several ultra-nationalist and neo-communist parties . . . However, Romania's acute dependence on international financial aid – as well as the leadership's fear of international isolation – have kept the government on a broadly reformist course . . . A series of foreign policy successes, the preliminary positive results of the 1994 stabilization programme, and the funding and backing from multilateral donors have helped it [the government] to consolidate its position.'[19]

'Football's 1994 World Cup brought the Romanian team to international attention but many have been aware of their strengths ever since Steaua Bucharest won the European Champions' Cup in 1986, and reached the semi-finals in 1988.'[20]

In the areas where Ceausescu's interventions have caused a disconnection of existing neighbourhood networks, support for and the stimulation of small-scale self-organisational forms becomes vital. In order to give voice to the neighbourhoods of Bucharest within the process of political transition, the proposition allows them to articulate their interests during urban renewal.

17 Claudio Magris, *The Danube*.
18 OECD, *Romania: An Economic Assessment*, 1993.
19 *EIU Country Profile, 1994–1995.*
20 Richardson and Burford, *Romania*.
21 Richard Sennett, *The Uses of Disorder*, Faber and Faber (London), 1996.

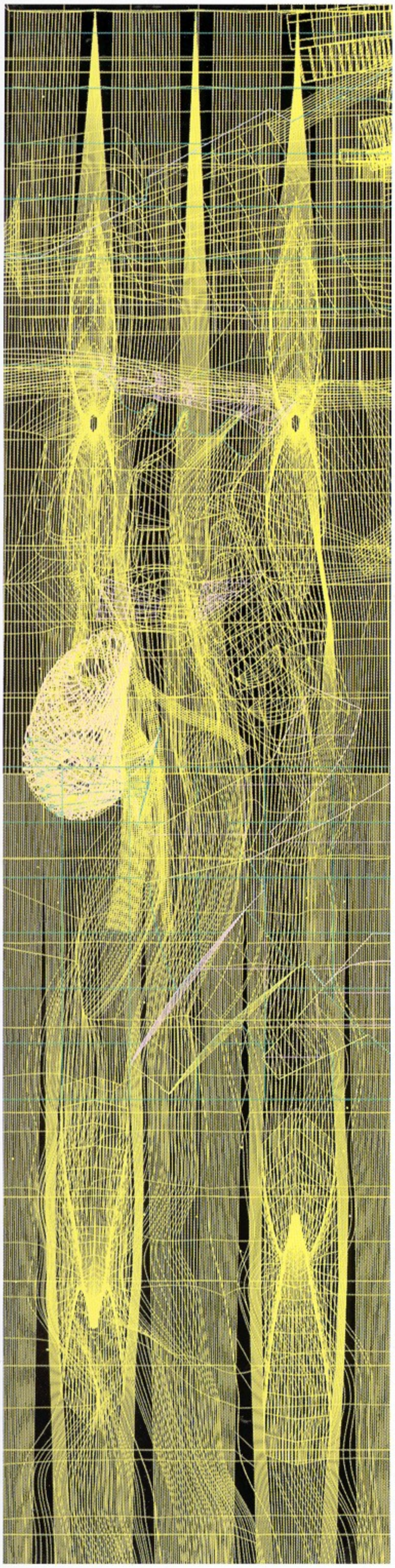


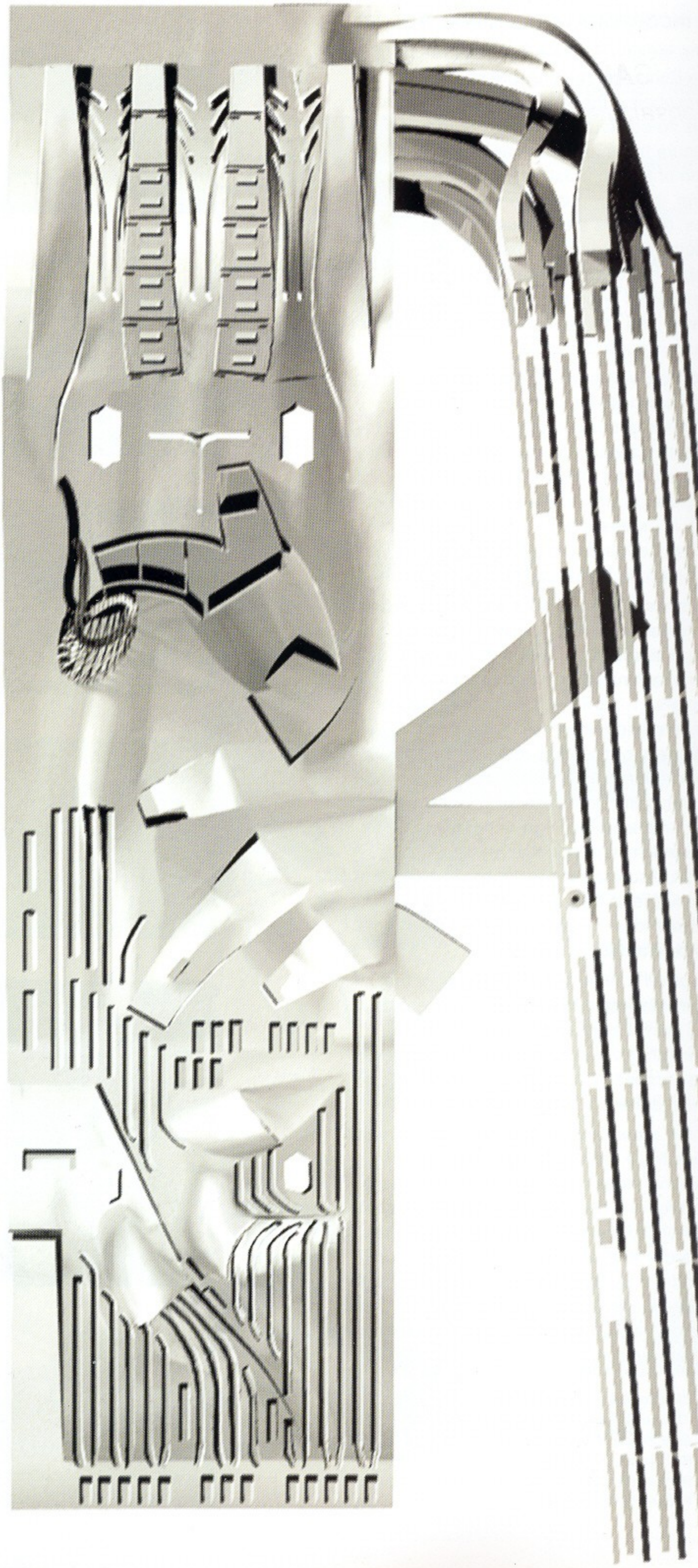


Liminal Bodies (the art of non-settlement)

Liminal bodies are urban entities that emerge out of environments undergoing radical change and/or conflict. The term 'liminal' describes the threshold between a submerged condition and an emerging or institutionalised condition of an urban entity, but also the threshold between different parties and their beliefs locked together in a confined urban space. 'The need is for them to recognize conflicts, not to try to purify them away in a solidarity myth, in order to survive.'[21] They are models of communities and their identities and yet are also devices with which to generate and manage conflict and diversity.

A game structure as a strategic planning, with actors/players, allows for complex urban issues to be dealt with as open-ended generative structures. The game uses difference, conflict and heterogeneity as the necessary prerequisites for catalysing an urban dynamic that ensures its actors must negotiate. It allows complex situations to be modelled using a limited set of rules and a defined game board, and diverse forms of negotiation to develop as the survival strategies of each player unfolds and are interwoven, as they react to changing interests and situations. The production of liminal bodies is crucial for the consideration of such complex imperatives, as it is within them that various forces, desires and scenarios are played out. Through the use of such game structures, the site can be thought of as localising the concerns of the wider context by weaving larger transformative issues into the local fabric and economies. In this way, the site reveals a latent potential that exceeds the scope of the current city plan, and could become a powerful adjunct to the existing centre while acting as a gateway to global factors, regulating flows and paradoxically generating the necessary preconditions for a complex urbanity.





REISER + UMEMOTO

KANSAI-KAN OF THE NATIONAL DIET LIBRARY

Kansai, Japan

The proposal for the Kansai-kan of the National Diet Library seeks to address an apparent paradox surrounding the universal proliferation of data: the presumed placelessness of information and the persistent necessity, nonetheless, of finding a definition for this condition in architecture.

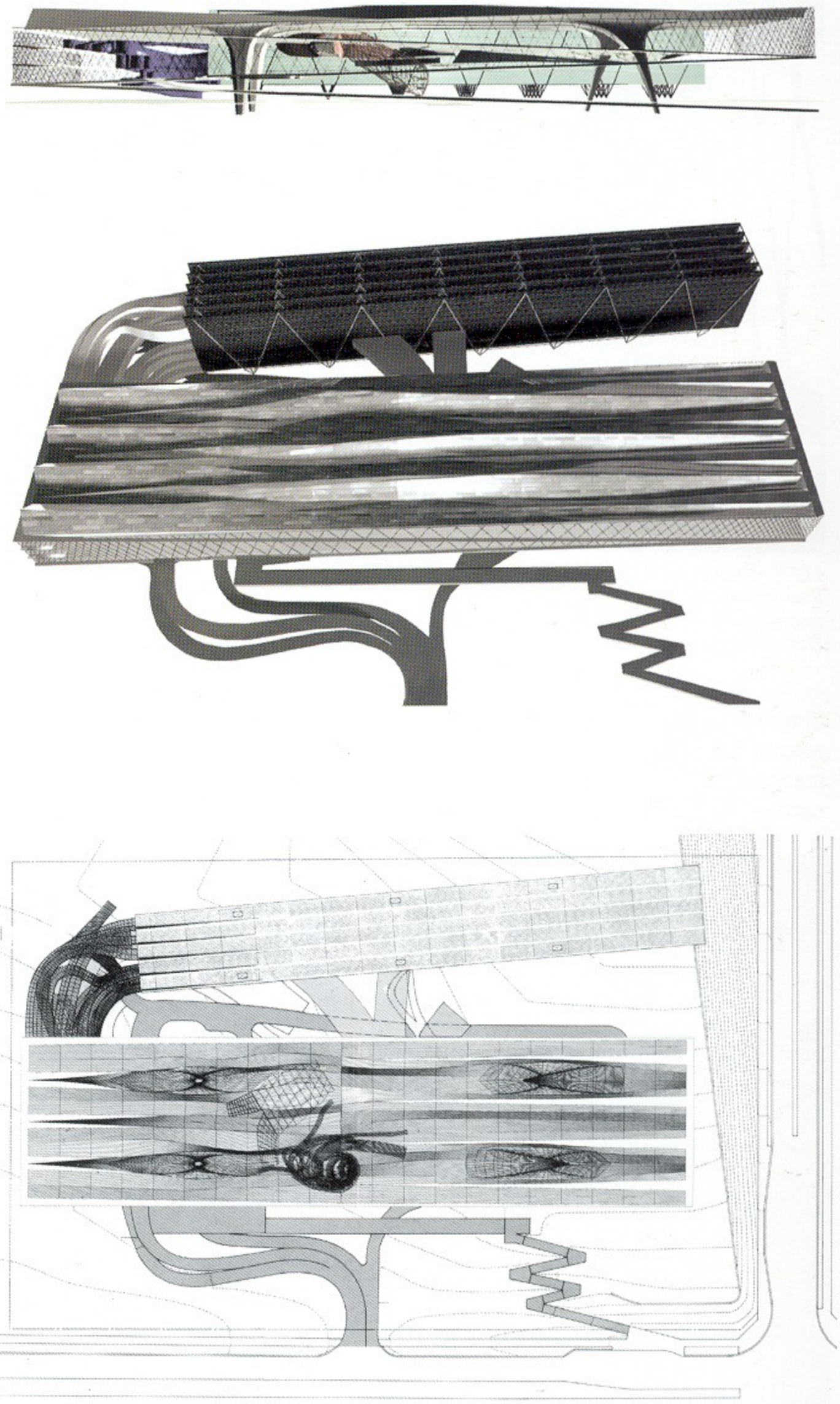
Beyond the admittedly important legal and archival necessity for preserving hard copies of documents, the persistence of the library may be ascribed to less recognised processes attendant to globalisation. The general phenomena of decentralisation and dispersion of institutions made possible by new technologies overshadow a correspondingly specific trend towards centrality and agglomeration both within and appended to major urban centres in global economies.

A new form of public space arises out of the interaction of two logics: first, the close proximity of major institutions and corporations, and second, a consequent influx of smaller institutions and services that are sustained by the presence of their larger neighbours. The success of such co-dependent organisations is predicated not simply on the major institutions that initiate the information zone, but on their capacity to act as catalysts for the advent of new programmes and uses.

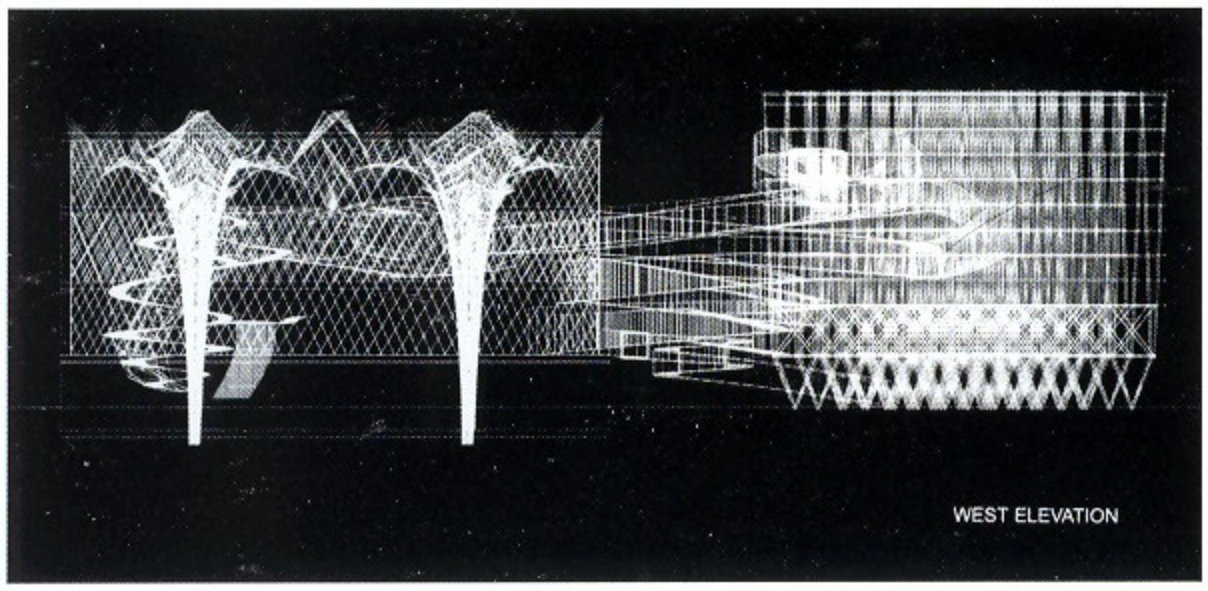
The proposal for the Kansai library thus embodies two distinct yet related imperatives: to fulfil the explicit programmatic criteria of the library while developing implicit spatialities that would foster the new and unforeseen irruptions of programme brought about by the information zone.

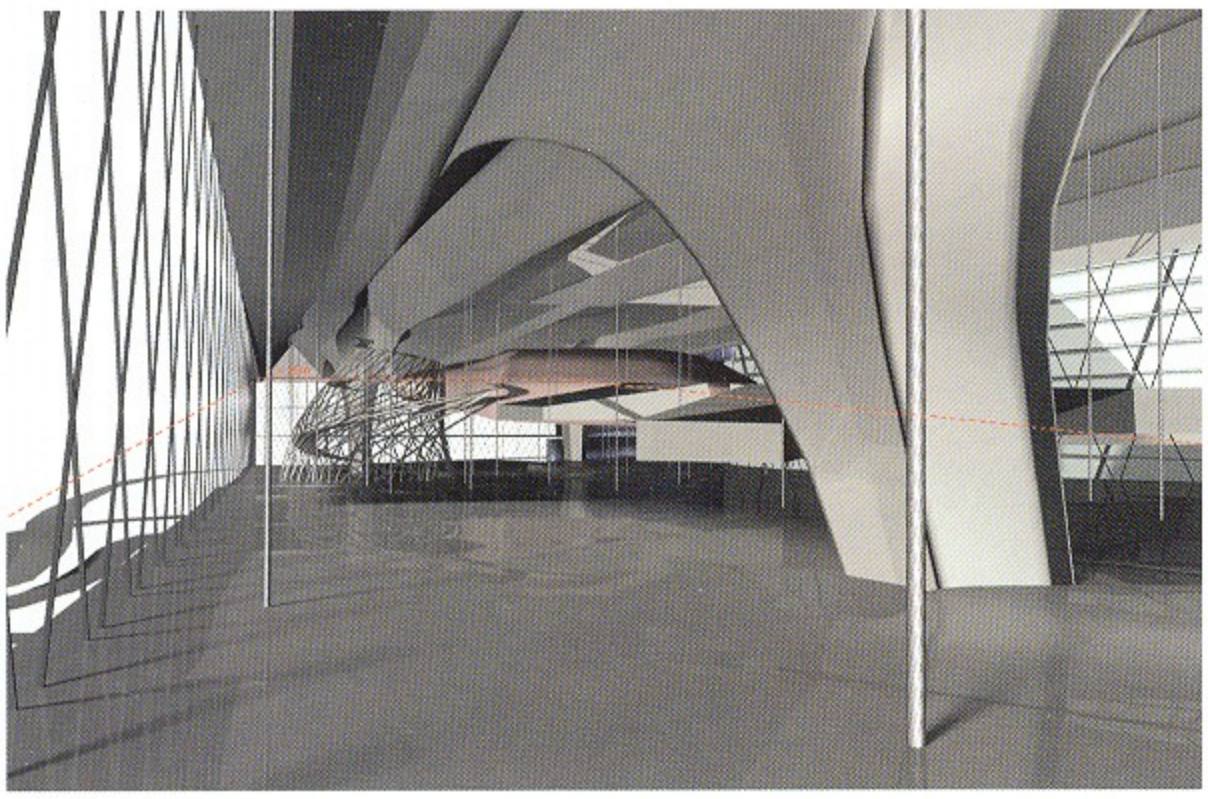
Stack Building

As a bar measuring 182 metres in length, 25 metres in width and 25 metres in height the stack building is comprised of vertically oriented steel truss walls acting as gigantic storage units for automated, compact and fixed stacks. Books and documents are accessed via catwalks and the automated conveyor system.



OPPOSITE, FROM L TO R: Topological geometry of floorplate; floorplate showing main reading room and Asian Studies; FROM ABOVE: North elevation; aerial perspective of library and stack building; site plan





LEFT, FROM ABOVE: Transverse section through library and stack building; interior perspective of main reading room; RIGHT: Geodetic store

Since the stack building is organised around the concept of the storage wall, stacks (automated, compact, fixed) are categorised sectionally in layers.

There are no horizontal slabs or floors as such in the stack building. Horizontal movement is accomplished along catwalks and the automated conveyor system. The space between the storage walls consists of narrow open wells from ground to roof, allowing filtered natural illumination to enter the entire section of the building through skylights.

The Public Spaces

The library building measuring 220 metres by 55 metres is comprised of three ramped slabs suspended by cables from a prestressed steel roof carried on four steel piers. The slabs are so formed as to maximise continuity and multiple interconnection among the public spaces and levels. Topological deformations (cuts, mounds, ramps, ripples and stairs) render the library a programmed landscape that has the capacity not only to fulfil the smooth functioning of the major programmes, but also to foster the emergence of new and unanticipated configurations of social space.

The visitors enter the library from two locations. Pedestrians and visitors arriving by bus gain access via the pedestrian road located at the front of the building at Seika Main street. A ramp leads up to the second level and joins the automobile drop-off in front of the main entrance. Entry into the lobby is also possible from the parking level via ramps. The lobby space provides direct entry into the restaurant, store, lockers and auditorium above.

Controlled access to the main reading-room is along five ramps which lead to the surface of the reading room above. Programming in the library is based on the notion of precincts rather than dividing walls. Consequently the main reading-room programmes bleed both into the floor below and Asian Document and Information Centre farther up the ramp.

Structure and Resistance to Lateral Forces

The library's three ramped, two-way, prestressed concrete slabs of 20 metres thickness are suspended from a pre-stressed steel roof of 6 metres maximum depth by a 9-metre grid of suspension cables 5 centimetres in diameter which pass through the slabs. The roof is carried on four integral steel piers. The large-plan dimension of the slabs and roof necessitate distinct responses to lateral forces: thermal, seismic and wind. Each concrete slab is divided into two across the long dimension by a thermal expansion joint with mechanical dampers to absorb any lateral dynamic movement. The prestressed steel roof requires no expansion joint; it transmits its relatively large lateral thermal expansion to its four piers, two of which are fixed to footings; the opposing pairs allowed to slide freely on Teflon pads. The perimeter of the entire library building is enclosed by a lattice truss of 20 centimetres welded steel tubes. The ramp/roof assembly thus forms a rigid box enabling resistance to any anticipated lateral earthquake forces. Further, vertical seismic movement is effectively dampened by the relative flexibility of roof and slab assemblies.

YOKOHAMA INTERNATIONAL PORT TERMINAL

Yokohama, Japan

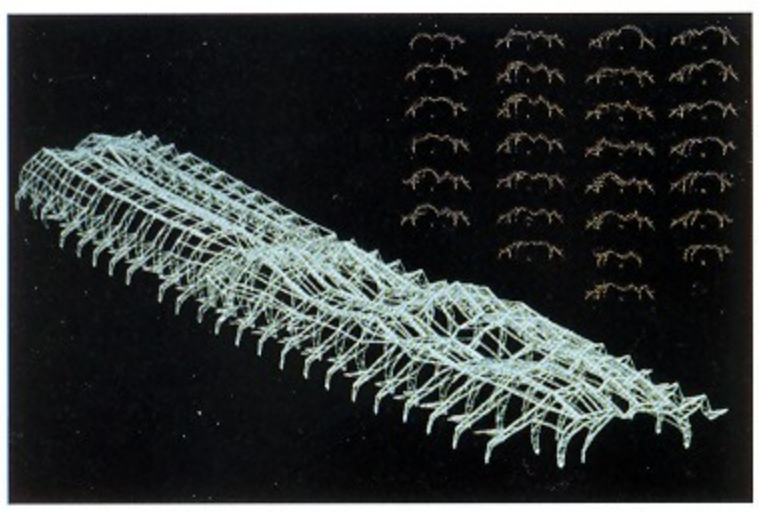
The proposal was formulated in response to what was perceived to be the inherent duality between global systems of transport and exchange and the condition of the specific sites upon which such systems cross. Such conditions are exemplified by the port of Yokohama and specifically encoded within the programme of the port terminal proper. The recognition of this liminal condition prompted a recognition that a proposal should seek to encompass the general functional imperatives of the cruise terminal (as a smoothly functioning link between land and water transport) and the specific civic possibilities suggested by the pier configuration itself.

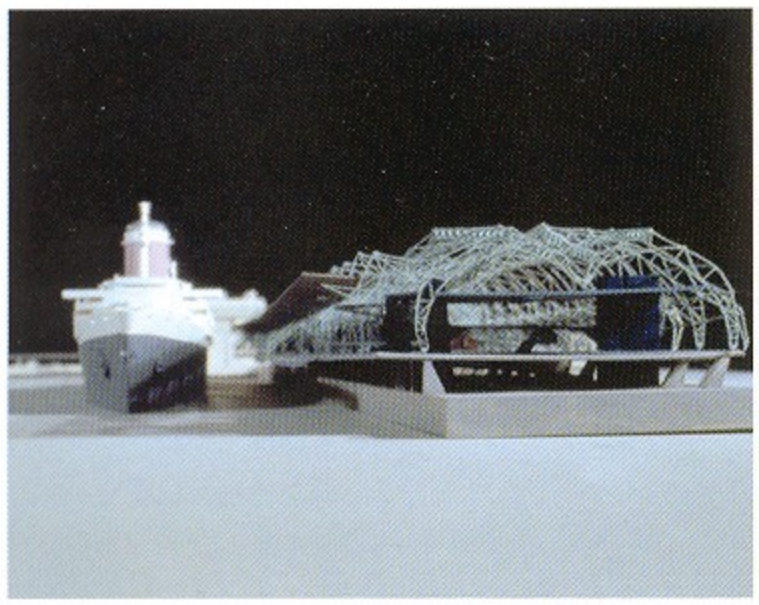
The proposal was consequently conceived as an incomplete or partial building – partial both conceptually and formally in recognition of the fact that such programmes frame thresholds in two distinct yet overlapping continuums: in the cycle of embarkation and disembarkation at the terminal, and at the civic level as a place of rest and recreation in the course of an excursion. Consequently, completion, both physically and virtually, is effected only periodically, in the linkage of terminal to cruise ship or in the closure of the completed urban event.

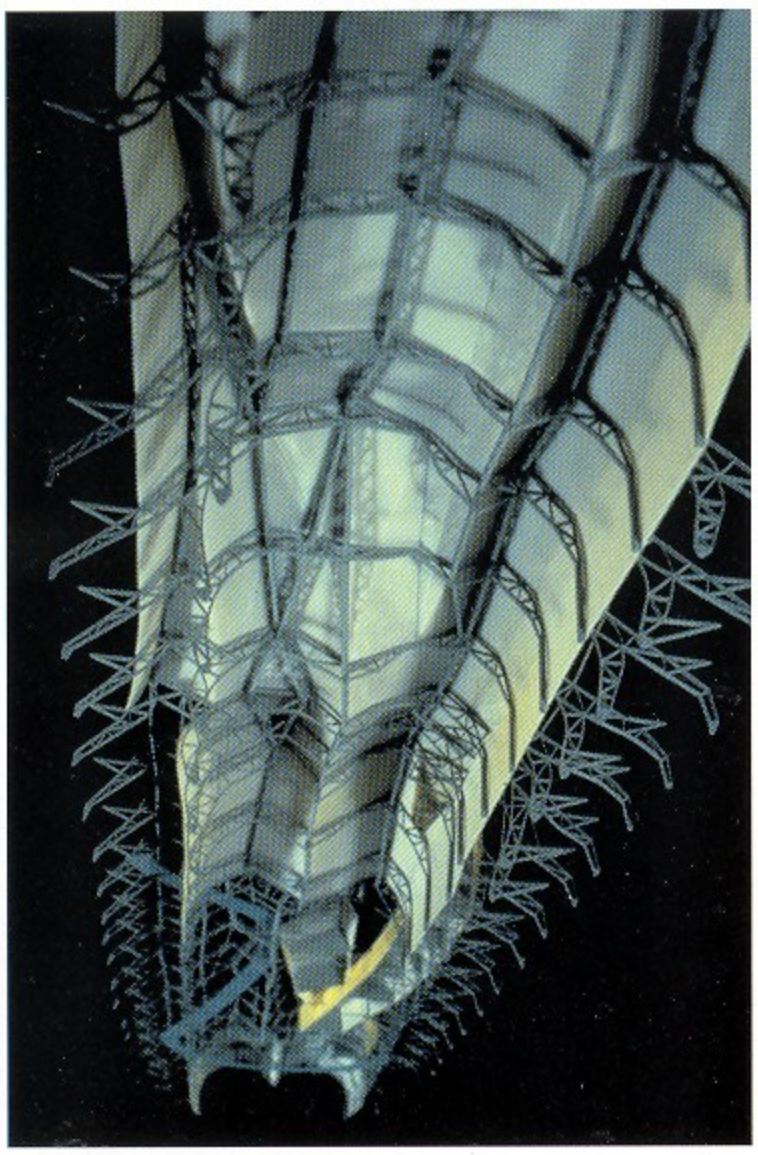
Structure

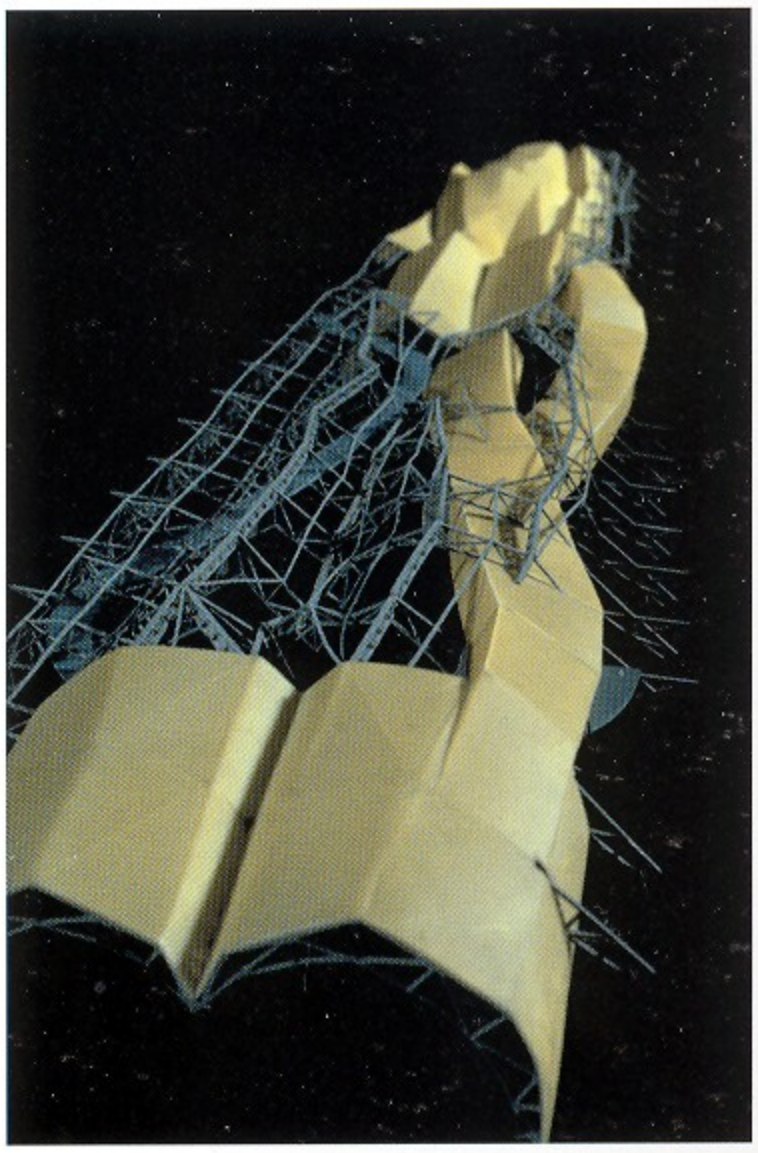
The proposed terminal is a shed building measuring 412 metres in length, comprising 27 three-hinged steel trussed arches with an average span of 42.5 metres placed at 16-metre intervals. These arches are joined longitudinally by trussed members of conventional configuration and purlin carrying either metal cladding or the extensive glazing envisioned for the project. The steel shed structure springs from hinges placed at the surface of the main level. These are carried on concrete piers extending from the basement parking level through the apron to the surface of the main level. Horizontal thrust from the arches is counteracted by tension rods connecting opposing arch hinges. These tension rods also serve as partial support for the main floor slab. This large shed, though affiliated with its nineteenth-century antecedents, differs in the sense that while the latter were characterised by a totalising conception employing uniform and repetitive structural units enclosing a single homogeneous space, this proposal engenders heterogeneity through selective perturbations and extensions of the structural frames. This transformation yields a complex of spaces smoothly incorporating the multiple terminal, civic, and garden programmes within and below its span.

LEFT, FROM ABOVE: Structural model showing 28 arch frames; model view; CENTRE: Model view showing underside of roof; RIGHT: Model view of terminal roof from pier tip, showing incorporation of public programme









PROJECT CREDITS

Future Generations University (pp32–39)
NSW, Australia
Architects: Lab
Principals: Peter Davidson and Donald L Bates
Theorist: Jeff Kipnis
Assistants: Jason Kerwin, Nick Plinston, Toni Kapulla
Pedagogy Consultants: Mark Cousins, Paul Hirst
Environmental Engineers: atelier ten – Patrick Bellew, Keith Fernandez
Information Technology Consultants: Ian Martin Associates – Ian Martin
Quantity Surveyors: Mooney Kelley – Noel Kelley
Photographs: Marq Bailey

Bucuresti 2000 Master Plan (pp40–41)
Bucharest, Romania
Architects: Lab
Principals: Peter Davidson and Donald L Bates
Assistants: Jason Kerwin, Nick Plinston,Toni Kapulla, Shibboleth Schechter

Kansai-kan of the National Diet Library (pp44–46)
Kansai, Japan
Designer: Jeff Kipnis
With: Lab – Peter Davidson and Donald L Bates, Aaron Decker, Victoria Dolsen, Aurelia Lima, Nadine Nackasha, Mathew Potter
Structural Engineers: atelier one – Charles Walker
Environmental Engineers: atelier ten – Patrick Bellew
Quantity Surveyor: Mooney Kelly – Noel Kelly
Photographs: Marq Bailey

Multifunctional Display System (pp44-45)
Designer: Jeff Kipnis
With: Ben Payne, Ken Ratieri

Bucuresti 2000 Master Plan (pp46–47)
Bucharest, Romania
Designer: Jeff Kipnis
With: Victoria Dolsen, Aurelia Lima

Ohio State University Lecture Programme Posters (p42)
Design: Jeff Kipnis and Aaron Decker

Landsberger Allee (pp50–53)
Berlin, Germany
Architect: Daniel Libeskind

First Stage Competition
Project Coordinator: Robert Slinger
Assistants: Sylvia Billisics, Damon Caldwell, Thomas Fiel, Elizabeth Govan, Peter Kutek, Sang Lee, Paula Palombo, David Walker
Landscape Planners: Müller, Knippschild, Wehberg und Louafi

Development Stage
Project Coordinator: Robert Slinger
Assistants: Boris Bähre, Damon Caldwell, Robert Claiborne, James Goodspeed, Elizabeth Govan, Lars Gräbner, Matthias Hintze, Peter Kutek, Michelle Lavigne, Sang Lee, Deitmar Leyk, Colleen McGrath, Dietmar Leyk, Michelle O'Dea, Paula Palombo, Moritz Schneider, Lucas Steiner, Delia Teschendorff, Jeremy Wales, David Walker
Landscape Planners: Müller, Knippschild, Wehberg und Louafi
M & E Engineers: Flack & Kurtz (London) – David Stillman
Photographs: Hisao Suzuki

Hydrogen House (pp56–57)
Vienna, Austria
Architects: m.form, USA – Greg Lynn, Phillip Anzalone, Stephanie Bayart, Jefferson Ellinger, Andreas Froech, Matt Jogan, Ulrika Karlsson, Michael McInturf, Heather Roberge, Cindy Wilson
With: Martin Treberspurg and Partners, Austria – Martin Treberspurg, Andrew Whiteside
Structural Engineers: Richard Fritze
Mechanical Engineers: Peter Schuetz
H2/Solar Components: Siemens AG – Franz Daberger, Michael Friess
Landscape Architect: Maria Auboeck

Arabiananta Urban Design (pp58–61)
Helsinki, Finland
Architects: .O.C.E.A.N .U.K. – Michael Hensel, Tom Verebes, Klvi Sotamaa, Tony Jones, Tony Kaupilla, Andrew Yau, Vike Koskelo, Juha Loukola, Ville Rantanen, Tomas Palmgren, Lucas Borer
With: YELLOW 6 – Rachid Molinary, Bill Szustak, Chris Meyers
Consultants: Ove Arup and Partners Consulting Engineers – Malcolm Simpson, Juan Alayo, Ron Kenley

Jeil's Hospital for Women (pp62–63)
Seoul, South Korea
Architects: .O.C.E.A.N .U.K. – Michael Hensel, Tom Verebes, Eva Castro, Tony Jones, Andrew Yau
With: Pod Productions – Tony Jones
Structural Engineers: Ove Arup and Partners – Bob Lang

Bucuresti 2000 Master Plan (pp 64–65)
Bucharest, Romania
Architects: .O.C.E.A.N .U.K. – Michael Hensel, Tom Verebes, Tony Jones, Anna Klingman
With: Jun Itoh, Andrew Yau
Specialist Consultant: Ron Kenley
Transportation Engineers: Ove Arup and Partners Consulting Engineers – Juan Alayo, Malcolm Simpson

Korean-American Museum of Art (pp66–69)
Los Angeles, USA
Architect: Stan Allen
Assistants: Lyn Rice, Katherine Kim
Site Model: Michael Silver

Yokohama International Port Terminal (pp70-73)
Yokohama, Japan
Architects: Foreign Office Architects
Principals: Farshid Moussavi and Alejandro Zaera-Polo
With: Kenichi Matsuzawa, Santiago Triginer, Jordi Mansilla, Felix Bendito

Pusan High-Speed Railway Complex (pp74-77)
Pusan, South Korea
Architects: Foreign Office Architects
Principals: Farshid Moussavi and Alejandro Zaera-Polo
With: Kenichi Matsuzawa, J Lundberg, S Triginer, Tae-Hong Park, D Balent, F Bendito, Young-Yoon Kim
Co-Architects: Nam-San Architects and Engineers, Seoul – In-Shik-Shin, Kwang Jae Sin, Jae Woo Soon
Structural Engineers: Dewhurst and MacFarlane, London – T MacFarlane, D Byrne
M & E Engineers: Flack and Kurtz, London – David Stillman
Traffic Consultants: Logan Associates, Hereford – Ninian Logan

The Beirut Souk (pp78–79)
Lebanon
Architects: Terragni Office
Principal: Attilio Terragni
Project Team: Ruggero Mossotti, Davide Turati, Riccardo Cassina, Marco Boga, Angelo Cappelletti, Hesham Jawabreh, George Tanios Samaha
Model: Enzo Santambrogio
Computer Image: Carlo Gatti, Lorenzo Butti
Photographs: Tom Vack

A Building in Como (pp80–81)
Italy
Architect: Terragni Office
Principal: Attilio Terragni
Project Team: Luca Ambrosini, Marco Longatti, Hajime Miyajima
Model: Giuseppe Tatarletti, Mario Zerboni Studio
Computer Image: Marco Longatti
Photographs: Tom Vack

'Black Sea': Bucharest Stepping Stones (pp82–91)
Bucharest, Romania
Project Leader: Raoul Bunschoten
Project Team: Chora Institute of Architecture and Urbanism – Takuro Hoshino, Mathis Güller, Peter Hasdell, Jean-Claude Meissen
Engineering Consultants: Battle McCarthy Consulting Engineers
Transport and Infrastructure Consultants: NEA Transport Research and Training, Rotterdam
City Policy and Management Consultants: Synergo, Zurich, and Johnathan Liebenau
Economic Development Consultant: Gül Berna Özcan

Kansai-kan of the National Diet Library (pp92-93)
Kansai, Japan
Architects: Jesse Reiser and Nanako Umemoto
Assistants: Yama Karim, Jose Sanchez, Mago Studen, Shigeru Kuwahara, Robert Ayona Hagen
Computer Work: Alias Wavefront, David Ruy
Engineering Consultant: Ysrael Seinuk

Yokohama International Port Terminal (p95)
Yokohama, Japan
Architects: Jesse Reiser and Nanako Umemoto
Assistants: Yama Karim, Jason Payne, Rhett Russo, Fadi Hakim, Don Keppler, Lawrence Blau
Computer Work: Sean Daly
Wind Tunnel Laser Modelling: Raw Beam