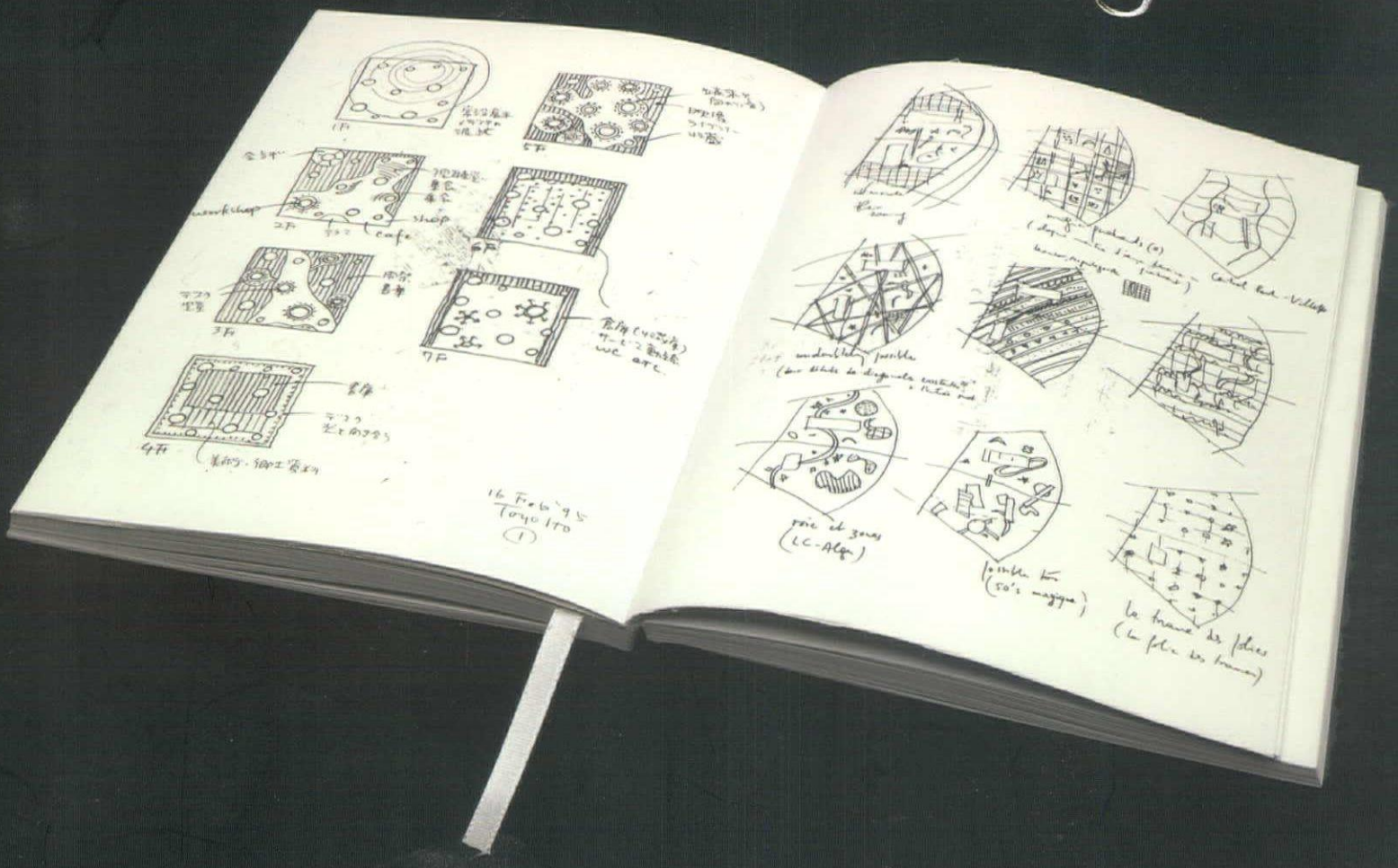
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The Diagram



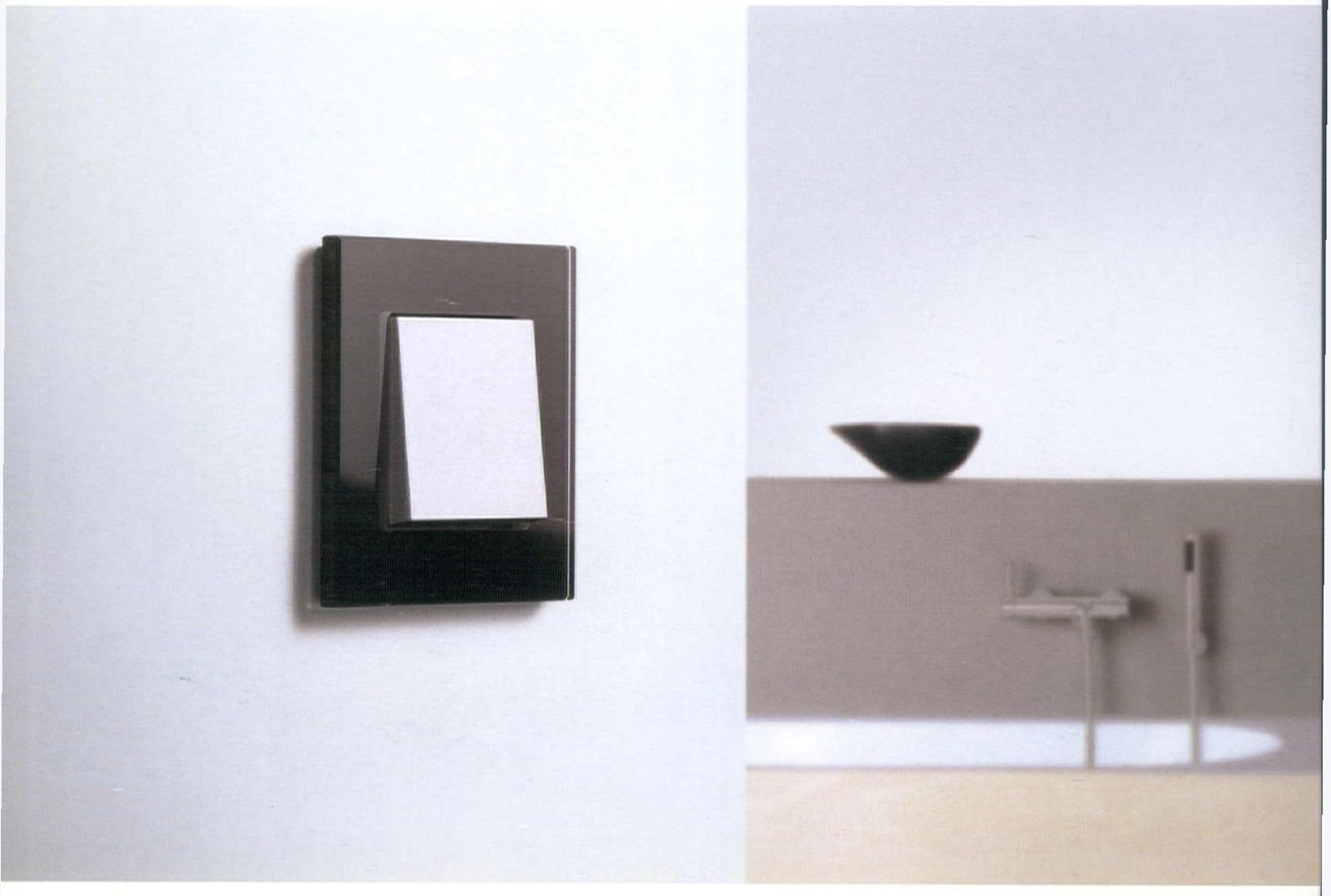
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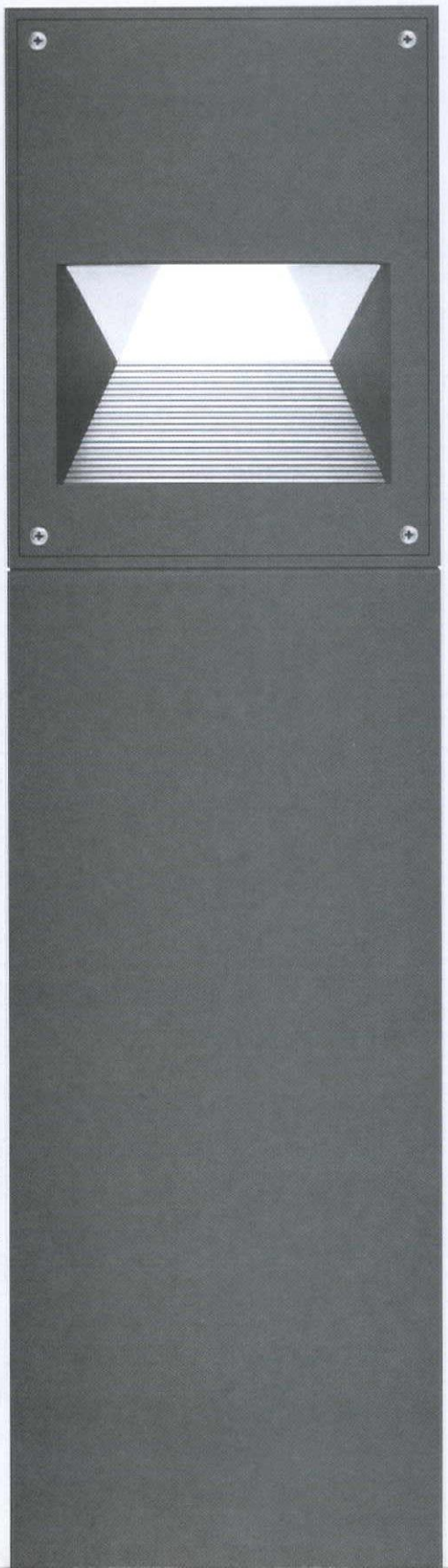
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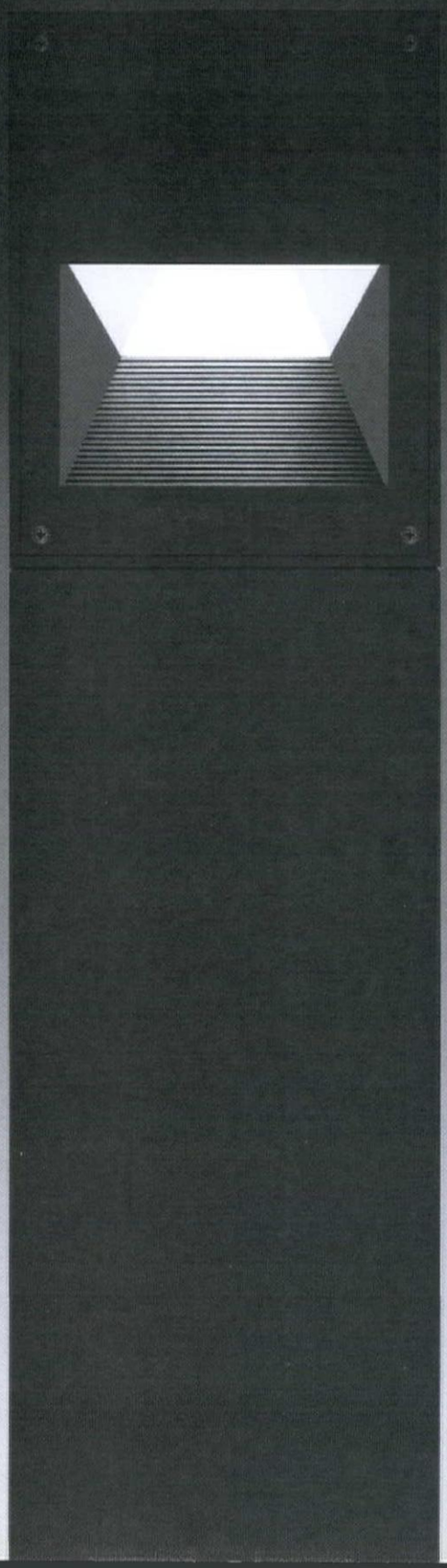
Bernard Tschumi, Parc de La Villette, Paris (p74)

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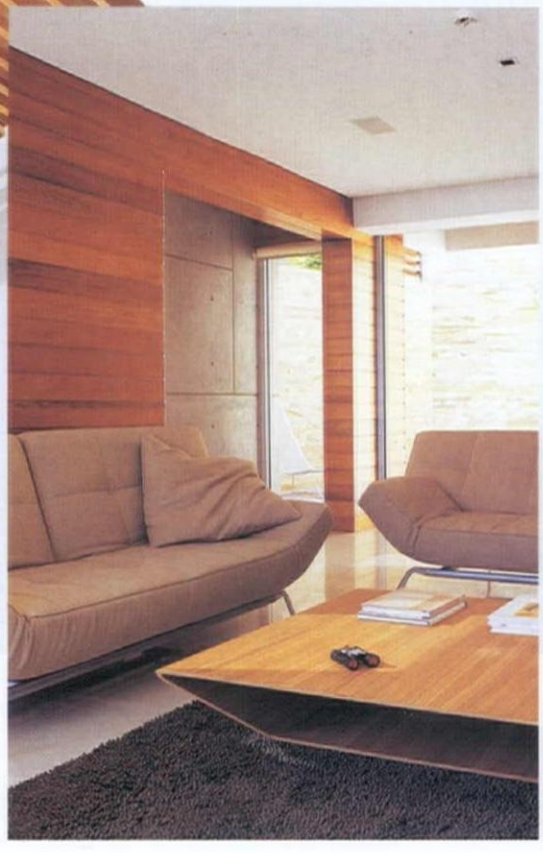
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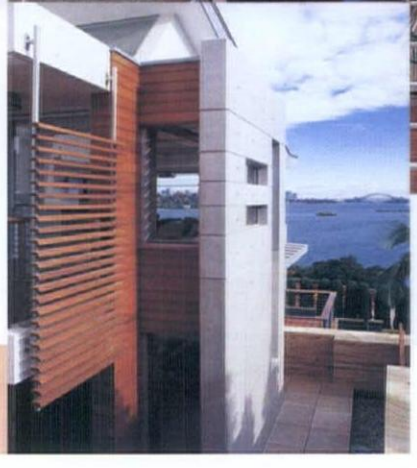
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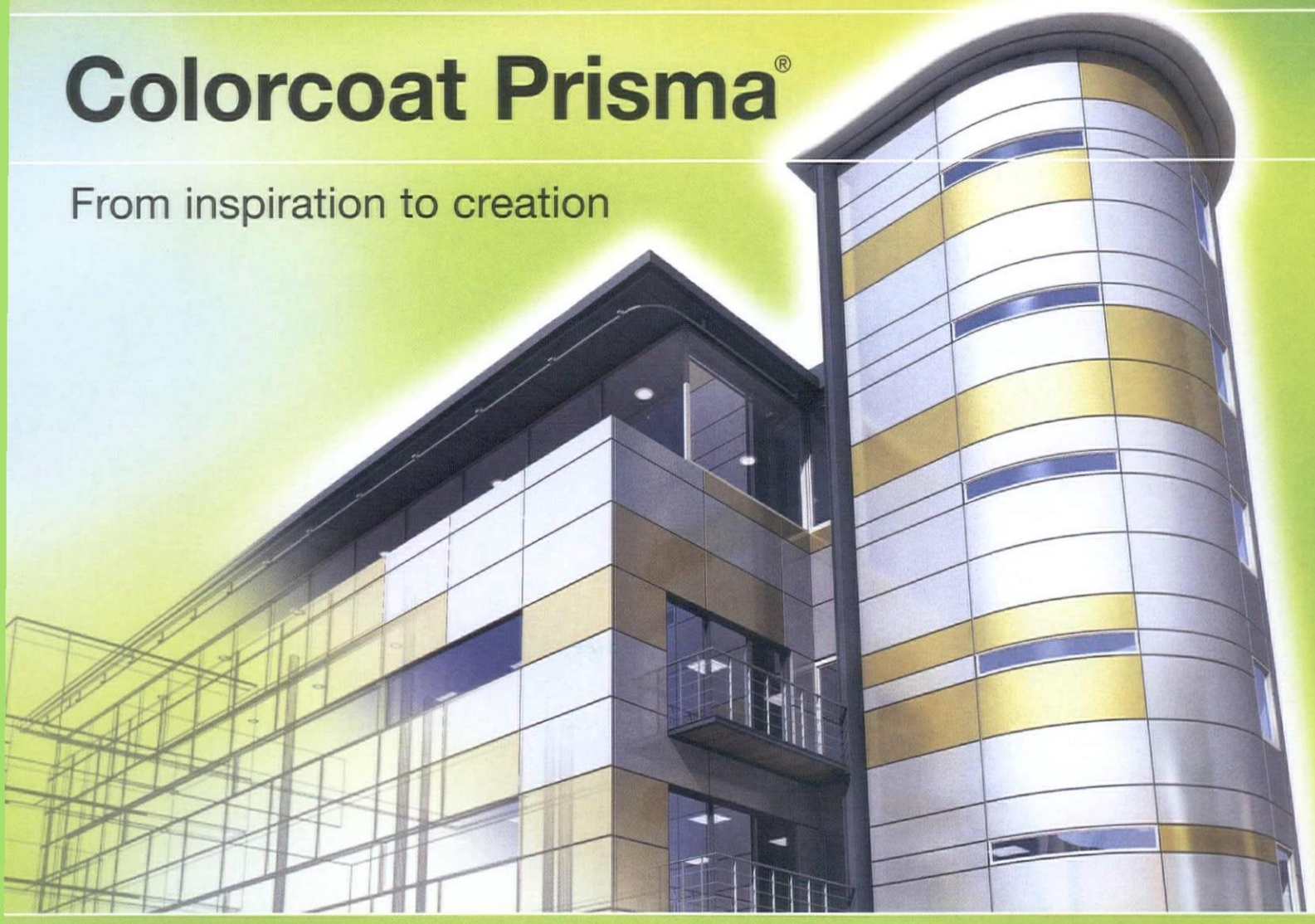
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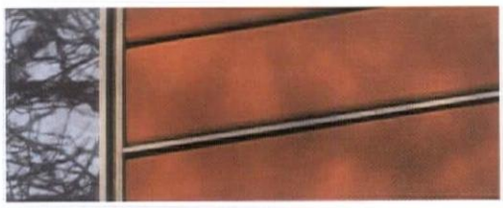
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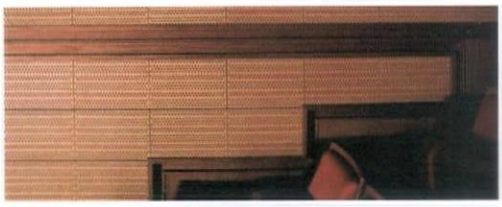
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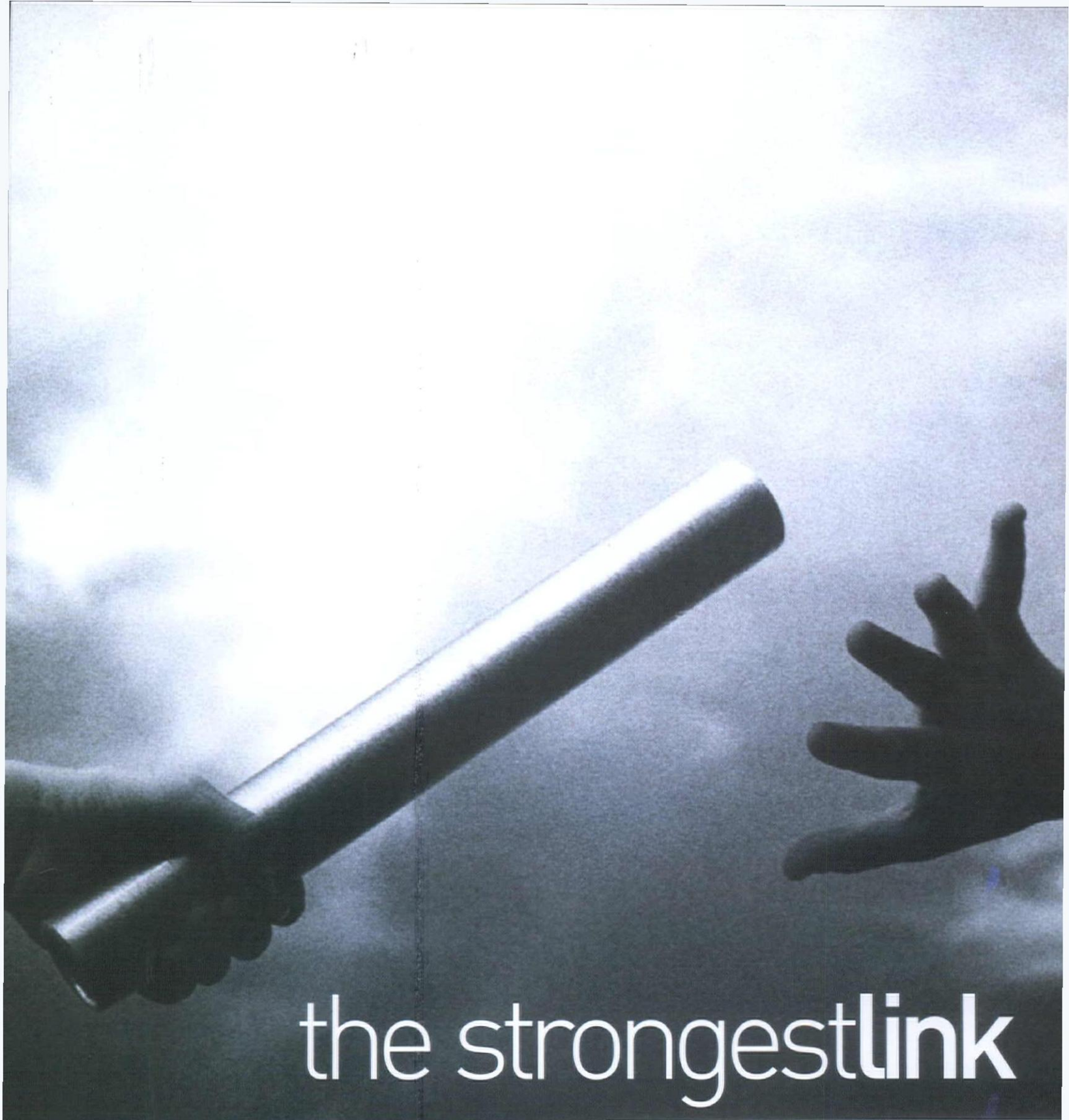


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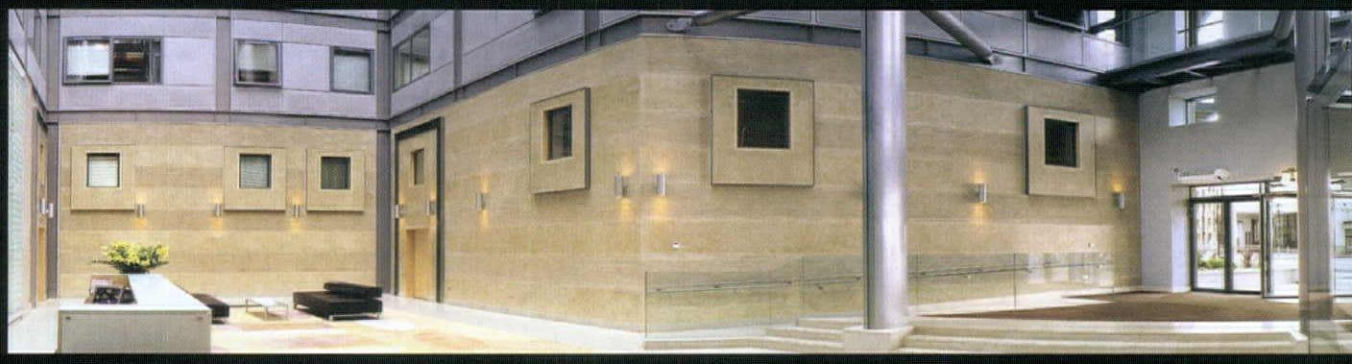
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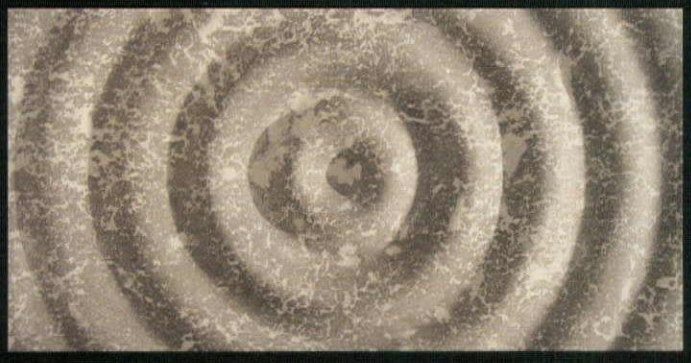
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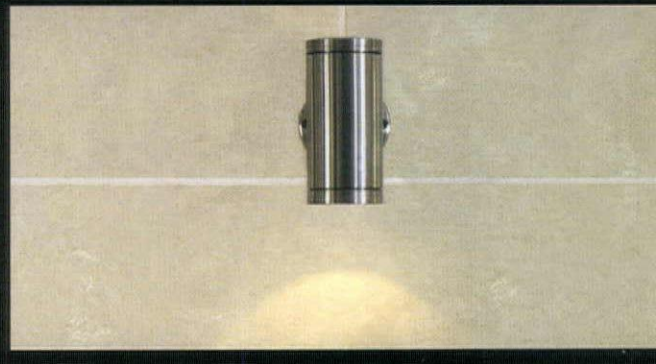






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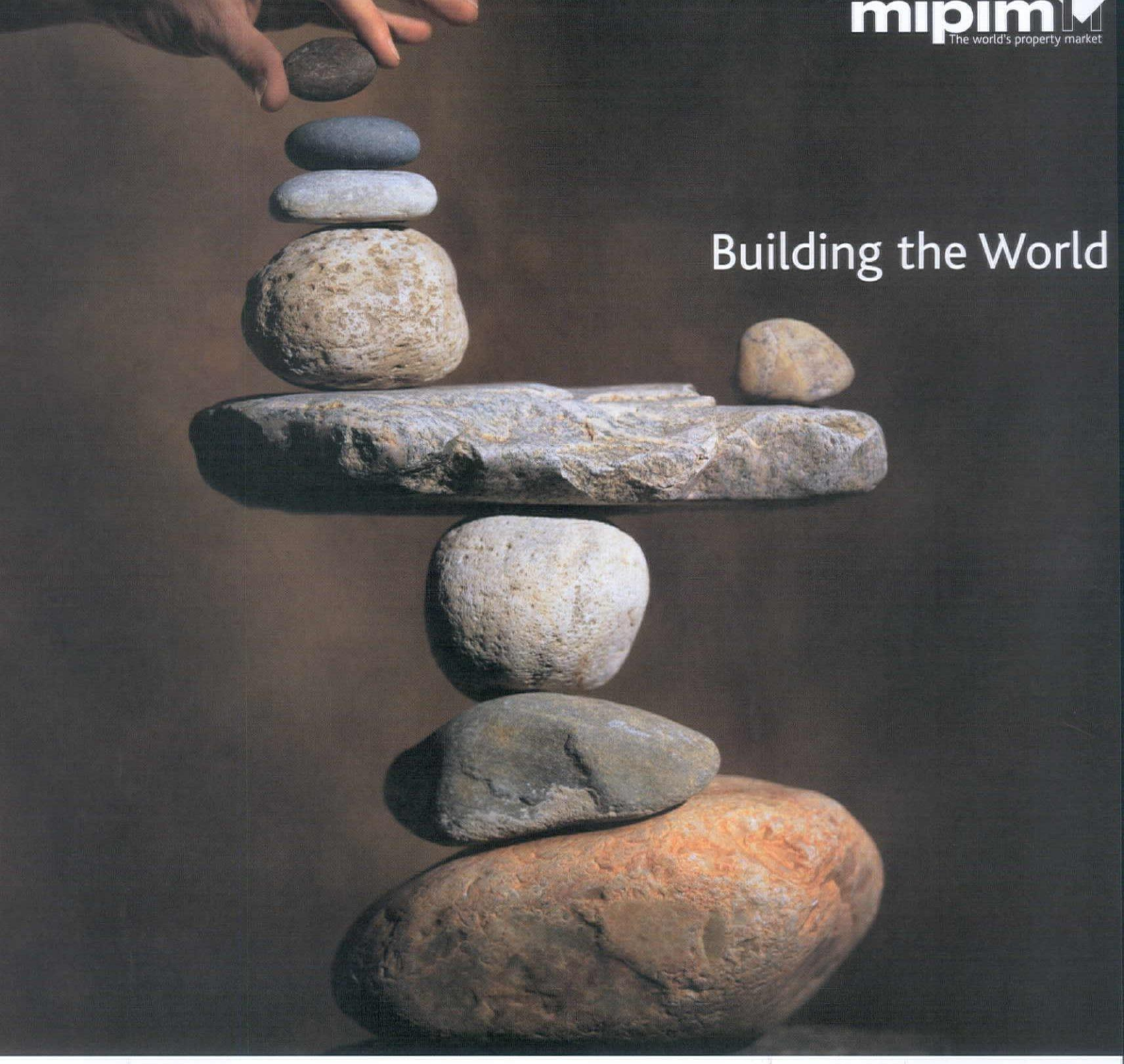
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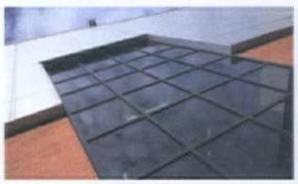
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The accompanying free exhibition of winning and highly commended entrants will be in the Florence Hall until 28 February.

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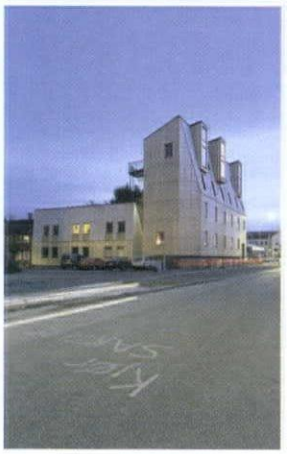
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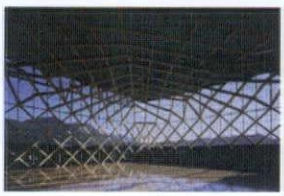
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07 February

Trahan Architects
Brendeland & Kristoffersen Architects
6.30pm

Trey Trahan will speak about his award winning design for the Holy Rosary Catholic Church Complex in Louisiana. Through the use of natural materials and light, this poetic composition responds to the community's desire to have an elevated sense of place and spiritual purpose within a powerful natural setting.

Geir Brendeland and Olav Kristoffersen, the partners of a newly established practice in Norway, have in their first projects demonstrated a fresh take on wooden architecture in an urban context. Their project for new apartment buildings in Trondheim merges vernacular architecture, new timber building technology and punk spirit.

Chaired by Paul Finch

14 February

Edward Ng
Taira Nishizawa Architects
6.30pm

ëA Bridge too Far, a Dream Come Trueí was the motto of a project to build a simple footbridge in a remote village in North West China in 6 days. On behalf of the team of over 100 students, professionals and villagers who contributed, Professor Edward Ng will talk about the project and the synergies created by technical, financial, logistic and human challenges.

Since establishing his practice in 1993 Taira Nishizawa has completed a number of building projects, many of which show his concern with the connection between architecture and the surrounding landscape. He will present his forestry hall, a timber and steel space frame building, in the Kumamoto Prefecture, Japan.

Chaired by Rob Gregory

21 February

fnp-architekten
Rural Studio
6.30pm

Martin Naumann of fnp-architekten will speak about the house-in-a-house project in the Pfalz Forest in Germany. The prefabricated timber structure inserted into stone ruins is a playful solution for a flexible showroom that touches on the history and memory of the space.

Rural Studio, a programme within the School of Architecture at Auburn University, has designed and built more than 150 community projects and charity homes in west Alabama involving more than 400 architecture students in a service-learning model, that has garnered an international recognition. Andrew Freear will talk about the place, the philosophy and the practice of Rural Studio, four years after the death of its founder Samuel Mockbee.

Chaired by Catherine Slessor

28 February

Ex-Studio
Satoshi Matsuoka/Yuki Tamura
6.30pm

Ex-studio was founded in Barcelona by Mexican architects Iv·n Ju·rez and Patricia Meneses. Theiryt projects explore the relationship between art and function; integrating the disciplines of architecture, design, sculpture and installation. Patricia Meneses will talk about the Tambabox in Senegal, an object-space created from varied Senegalese textiles and Dream House, a space for self-reflection, focussed around an urban tree.

Tokyo Architects Satoshi Matsuoka and Yuki Tamura of Matsuokasatoshitamurayuki will present a witty and uncanny urban installation composed of nine enormous translucent balloons wedged into a tight Vancouver alleyway and illuminated from within.

Chaired by Catherine Slessor

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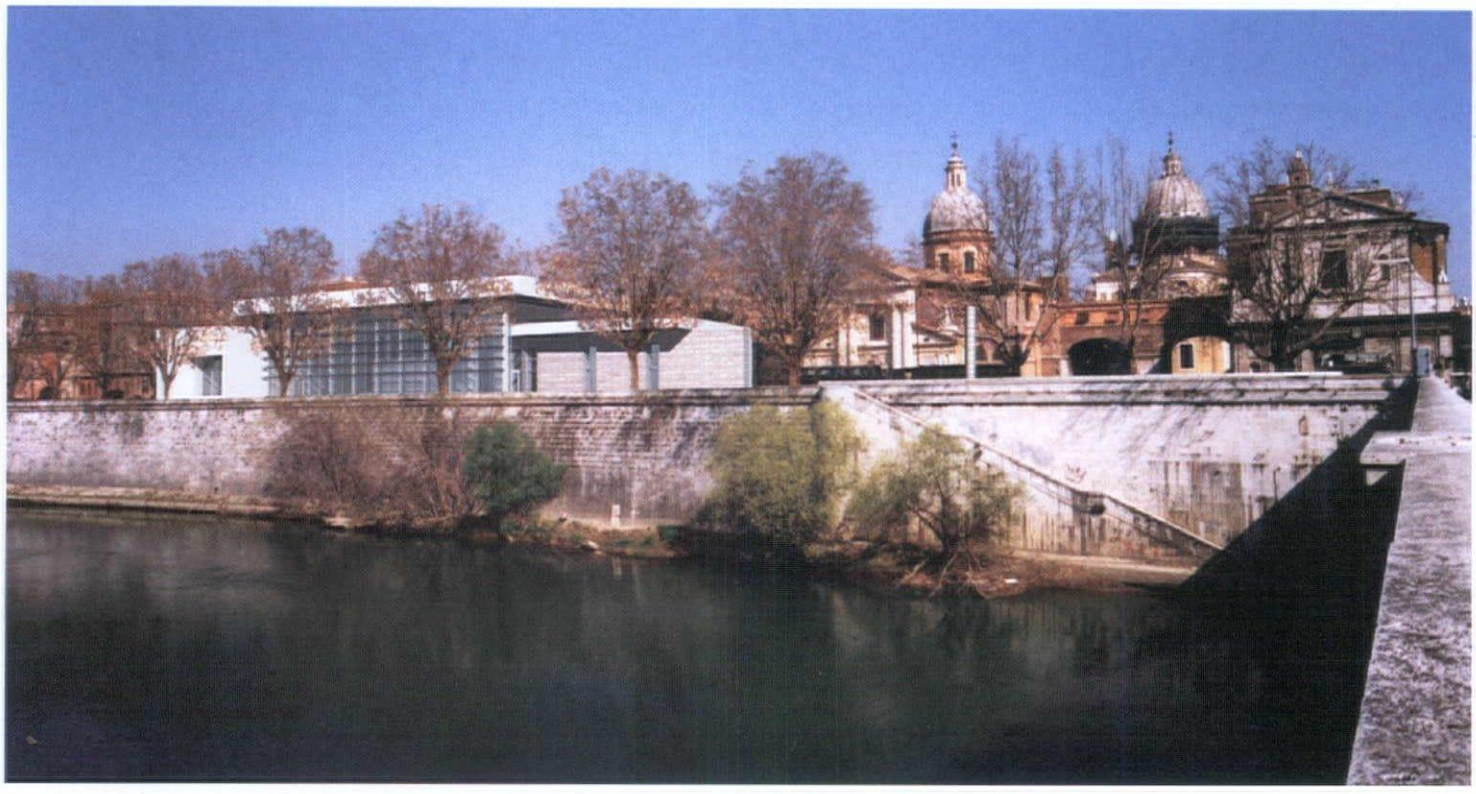
MEIER'S ARA PACIS MUSEUM IN ROME; HOLL WINS COMPETITION FOR ARTS CENTRE IN HERNING, JUTLAND; VIEW FROM KRAKOW; ARCHITECTURE FOR HUMANITY SEEKS PAKISTAN EARTHQUAKE HOUSING SCHEMES; OUTRAGE: THE DEATH OF THE ROUTEMASTER; FOUNDING MYTHS OF ARCHITECTURE CONFERENCE IN MALTA.

THE LANGUAGE OF ARCHITECTURE

We devote much of this issue to the architectural diagram, that sometimes mysterious representation of the designer's inner thoughts, which rarely attracts much attention unless it is the delightful back-of-the-envelope sketch so beloved of a certain type of client – that is to say one who doesn't worry too much about how carefully the sketch may have been rehearsed (or re-used). The examples published come from architects of different countries and ages, and relate to very different projects. Some also describe diagrams they admire by other architects, whether or not they resemble their own; inspiration does not imply replication. Whatever form they take, however, these diagrams have one thing in common: an attempt to find the essence or even soul of the building which is to be created, and not merely the building as structure and envelope, but the building in its many contexts, located and rooted in site, culture, climate, history and politics. What can one say about the building which apparently is devoid of a diagram? Not much, other than that it is unlikely to be worth discussing as architecture.

What makes the diagram so intriguing is that it often conveys something which cannot easily be put into words – that is the point; it is the coded language of creative design intelligence which does not automatically operate successfully in the world of bureaucratic tick boxes or cultures in which verbal or literary skills are too dominant. Denys Lasdun used to tell a story about Schubert, who was asked by a host to play something after dinner for the assembled company. He did so, and was applauded. On returning to the table, the host enquired: 'But Herr Schubert, what does it *mean*?' Schubert returned to the piano, and played the piece all over again. In much the same spirit, James Stirling would often frustrate lecture audiences by describing his buildings in the most straightforward terms ('This is a lintel ...') when they wanted him to philosophise verbally. He didn't need to, since the drawings spoke for themselves. You just had to look.

On the other hand, there are architects who are happy to discuss almost every aspect of their designs. At the University of Westminster, recently Bernard Tschumi gave a brilliant talk about the gestation of his Parc de La Villette competition entry and subsequent design. He had come to London in the '60s, not least because he wanted to work for Cedric Price, a brilliant producer of diagrams himself (for example the Fun Palace project, or his drawn analysis of the medieval, industrial and contemporary city: poached egg, fried egg and scrambled egg). For La Villette, Tschumi used 'ideograms' to represent various aspects of a highly complex project; the hand-drawn sketches are both revealing of the way the designs-as-ideas evolved, and powerful examples of the magical relationship between hand, brain and eye. His description of the diagram, or rather the creation of the diagram, could scarcely be bettered: 'It is the moment when, instead of you driving the project, the project starts to drive you'. The exhilaration, both intellectual and physical, which grips the architect at such a moment is one consolation for the inevitable merry-go-round of prosaic matters which accompany the creation of a building itself. If only the diagram were enough. PAUL FINCH



Computer-generated image of the almost complete Ara Pacis Museum by Richard Meier on the edge of the River Tiber in Rome's Historic Centre.

ROMAN REMAINS

Rome's long-awaited and vigorously debated new Ara Pacis Museum by Richard Meier is nearing completion.

After 11 years in the making, Richard Meier's Ara Pacis Museum is finally set to open in the spring of this year. The first major work of contemporary architecture in Rome's designated Historic Centre, it is a significant building that has aroused not always favourable interest in many quarters, from learned specialists such as architects, archaeologists, historians and planners, to the more general, vociferous *populus*



A pool and external staircase animate a new public piazza around the museum.



Main entrance, with retained wall of original enclosure.



Part of the 700sqm exhibition space.

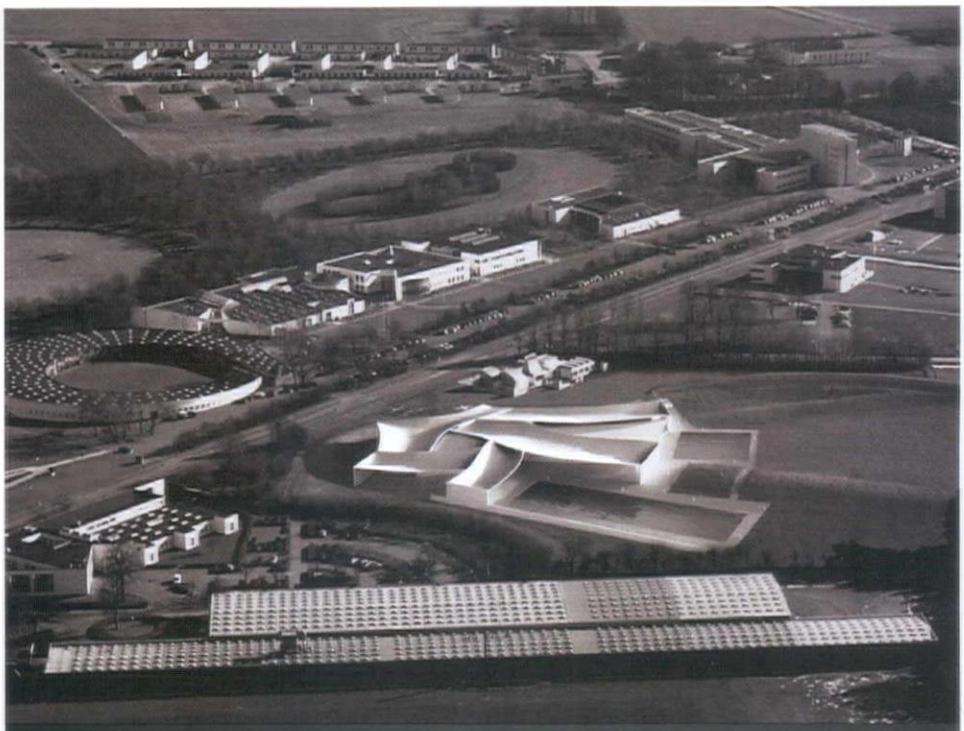
Romanus. When Meier originally revealed his proposals, they were denounced by some in the local architecture community as the 'Los Angelization of Rome'. Due for completion in 2000, the project was seriously delayed after Italy's flamboyant former deputy of culture, Vittorio Sgarbi, attacked it as an affront to the city's heritage.

Ironically, the object of all this public consternation was originally conceived to mark a longed for era of peace and stability in an empire exhausted by war. Consecrated in 9BC by Augustus Caesar to mark his victories in Gaul and Spain, the Ara Pacis (altar of peace) is an unparalleled surviving masterpiece of Classical sculpture, with finely worked bas reliefs depicting a picturesque array of allegorical, historical and mythological scenes in idealised, Grecian manner.

Meier's new building replaces an existing structure dating from the late 1930s by Italian architect Vittorio Morpurgo, a favourite of the Fascist regime. As well as providing a more efficient and dignified protective enclosure for the ancient altar on its original site on the western edge of Piazza Augusto Imperatore, it also incorporates a new 700sqm space that will house temporary exhibitions on archaeological and historic themes. An external roof terrace offers views across to the adjacent Mausoleum of Augustus in its piazza, and the River Tiber. Plans are afoot by the Comune di Roma to partly pedestrianise the Piazza Augusto, so unifying museum and mausoleum more intimately

Contemplating Meier's typically elegant but not exactly challenging essay in glass, concrete and travertine, it seems hard to understand what all the fuss has been about, but this is clearly a site and monument unfairly burdened with historical baggage from several eras. Yet despite its squeamishness towards the contemporary, the Eternal City does seem to be loosening up a bit, witnessed by the recent completion of Renzo Piano's concert hall complex (AR May 2003) and Meier's Jubilee Church (AR April 2004), with Zaha Hadid's new Contemporary Arts Centre still to come.

During the long construction period, the altar had to be protected and hidden from public view, but was ceremonially unveiled for the first time in six years last September on the occasion of Augustus' birthday. Now it is re-veiled with a transparent protective cover which will finally be removed for the building's formal opening on 21 April, traditionally regarded as the date of Rome's founding in 753 BC. CATHERINE SLESSOR



Steven Holl has won an international competition to design a new Centre of the Arts in the Danish town of Herning, central Jutland. His winning proposal unites the town's three main cultural institutions; the Kunstmuseum (mainstream art), the MidtVest Ensemble (music and ballet) and the Socle du Monde (concept art and installations) in a new forum for cultural engagement, performance and experimentation. As well as temporary and permanent exhibition galleries, the new building will house a 300 seat auditorium, media library, restaurant, offices and music rehearsal rooms. Seen from above, Holl's assemblage of curved, low-rise volumes resembles a collection of shirt sleeves strewn around a field. Building and landscape fuse, through sod-clad roofs and a new bermed landscape of grass mounds and pools which conceals the parking and service areas. Galleries are simple, orthogonal spaces with curved roof sections that filter natural light into the interiors. Moveable, lightweight internal partitions provide optimum curatorial flexibility. Completion of the new arts centre is scheduled for late 2007. Holl's Danish foray is the latest in a series of new European projects, which include the recently completed Loisium Winery and Spa Hotel in Austria's Kamptal Valley and an earlier competition win for an Oceanographic Study Centre in Biarritz in south-west France.



The Ara Pacis, a triumph of Classical sculpture, now re-housed and soon to be publicly revealed.



Cloth Hall, the world's oldest shopping mall and, in the foreground, Krakow's main square.

VIEW FROM KRAKOW

Every hour, a trumpet call resounds around central Krakow. Just as it is about to reach its climax the music dies, commemorating a trumpeter who, in the middle of the thirteenth century, blew enough of his warning to alert the citizens of the approaching Mongol hordes, but could not complete it before an enemy archer shot him through the throat. The grateful townspeople endowed a trumpeter in perpetual and grateful memory.

All visitors hear this story almost as soon as they set foot in the city, but its accuracy as a metaphor for its architectural condition is less well publicised. Like the melody, Krakow's urban development evolved with beauty, consistency and practical purpose until it was rudely truncated by the Second World War and the subsequent Communist regime. Its architectural character comes essentially from its historic core and an outer ring, laid out in the 1930s and lined with institutions which no longer fitted into the old centre. Communism's only strategy for the core was neglect; its architectural endeavours were largely devoted to industrial developments on the outskirts. But as Poland assumes its rightful place at the heart of Europe, Krakow's architectural future seems to appear in fleeting glimpses, just as the trumpet call echoes ethereally around the city centre. The first glimpse is unexpected, Arata Isozaki's Manggha Centre of Japanese Art and Technology. This sensuously curving building occupies a prominent site on one bank of the Vistula River, looking across to the Wawel Hill and castle. It owes its existence to the film and theatre director Andrzej Wajda, who donated his Kyoto Prize to establish it as a home for the Japanese art collection built up at the turn of the nineteenth and twentieth centuries by Feliks Jasienski. Isozaki's flowing design makes literal reference to the bends and currents of the river, and more elusive ones to the sort of shapes and forms that are found in Japanese art. Since its completion in 1994, it has combined display of the collection with temporary exhibitions of contemporary technology, encapsulating the vital challenge of overcoming the hiatus that Communism imposed, by creating a connection between existing cultural resources and newly emerging opportunities.

Alongside Manggha is a smaller Japanese language school. At a glance its minimal detail and limited palette of materials might suggest it originates from Tokyo, but it is actually the work of local architects Ingarden and Ewy. Rather



St Mary's Church with main square in foreground.



Ingarden and Ewy's Japanese language school.



Isozaki's Manggha Centre of Japanese Art and Technology.



Jagiellonian University. Photo: Katarzyna Winiarska.



Skeletal form of Krakow's incomplete tallest building.

than imitate or compete with Isozaki, they seem to have taken Manggha's brief to examine art and technology from Japan and re-apply it in Polish context, and the result is a satisfying, elegant and modest building.

Galeria Kazimierz, a vast and recently opened shopping centre, shows a very different international influence. Designed by HOK with local firm Asymetria, it too combines history with contemporary life, though here history takes the form of slaughterhouse buildings refurbished as restaurants and specialty shops with Krakow's first H&M store and American-style coffee bars in the main mall. It is easy to decry 'mallisation' wherever it rears its head but anonymity is of course the point. Poles do not have to be old to remember queuing for scarce and poor quality goods in the Communist era, and here is a building that gives them access to the consumer goods of California or London – and better designed than most malls in either: the fact that its detailing does not have quite the same appeal for architects as some of the old state-run stores is irrelevant. HOK know their job, and their market.

Other glimpses of Krakow's architectural future are more obviously connected to its rich cultural traditions. There are new buildings for the Jagiellonian University, founded in the fourteenth century but one of the institutions that left the centre for the 1930s ring: one is a teaching block of engineering brick and crisp detail; another is Romuald Loegler's extension to the library. A controversial and successful local architect, Loegler excites praise and enmity in equal measure, but with the economics academy completed and an opera house under construction, he is an important part of what Krakow will become.

But the most potent potential symbol of a new future is presently a ruin. The Communist authorities decided to build Krakow's tallest building, but left it incomplete. Its skeletal form has figured large on the skyline ever since, a tacit reminder of the past even as EU funds start to free up the surrounding road system. Local rumour has it that this wreck has been bought by a pair of architects – but for purposes unknown. Like the trumpet call, it recalls the past, but unlike the music, it could also project a future. JEREMY MELVIN

MALTESE MYTHS

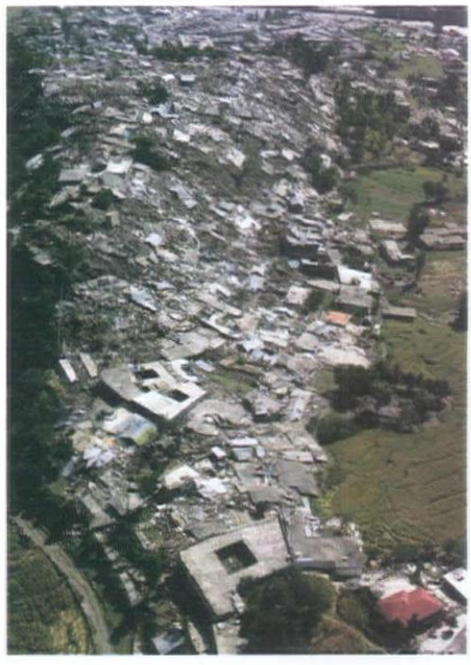
A conference on architectural history entitled 'The Founding Myths of Architecture' was recently held in the splendid late sixteenth-century Auberge de Provence in Valletta, capital of Malta. The programme gave considerable scope for personal views and reflection, and so speakers included international architectural historians Caspar Pearson, Claude Massu, Pascal Julien, and Fabio Barry, theoreticians including Kari Jormakka from Vienna, and practising architects such as Eric Parry, former RIBA president George Ferguson, and also Swiss architect Walter Hunziker who last year won an international competition for the design of new protective structures and tourist facilities at the famous megalithic temple sites on the island. The event coincided with Malta's Time for Architecture festival, which is supported by the local chamber of architects, and with the opening of an exhibition on the nineteenth-century Maltese Atlantis fantasist Georges Grognet at the National Museum of Fine Arts.

The conference itself was a remarkable one because it was organised not by an academic body but by a private practice, Architecture Project of Valletta (AP). This firm, which has now been established for some 15 years, is making a name for itself as one of the leading practices in Malta not only because of its sensitive and imaginative approach to the interface between conservation and new technology (AR July 2001), but also because of the tireless efforts of its young partners and their many international assistants to raise the level of architectural debate and education on the island. The scale and success of an international conference such as this therefore marks a significant stage in the cultural development of the country in the aftermath of its EU membership. The fact that the Maltese government had recently appointed one of the conference speakers, Baroque theatre historian Vicki Ann Cremona, as the country's ambassador to Paris is certainly a cause for optimism. TIMOTHY BRITTAIN-CATLIN

PAKISTAN EARTHQUAKE

Last October, a 7.6 magnitude earthquake rocked the region surrounding Kashmir, in northern Pakistan. Three major cities were completely destroyed: Muzaffarabad, Mansehra, Balakot and hundreds of villages are still unreachable by rescue teams. At the time of writing, the death toll stands at 86 000, with over 70 000 injured. An estimated 3.3 million have lost their homes and 500 000 are still without shelter.

Aid agencies have expressed concerns that the lack of treatment for those injured, combined with a shortage of water and sanitation facilities, will lead to increased fatalities. The affected area is mountainous, difficult to reach, and currently enduring a harsh, freezing winter. There is a need not only for immediate relief and recovery, but also for the transitional and long term shelter of those displaced. The danger is that while some dwellings may be able to provide



Typical earthquake damage in northern Pakistan.

shelter in the short-term, they are actually structurally unsound, putting people at risk if another earthquake should hit the region. By distributing knowledge of earthquake resistant construction, houses can be rebuilt more safely, potentially saving lives in future.

The US-based organisation Architecture For Humanity is seeking ideas for earthquake resistant housing schemes that will also help empower communities in the long-term reconstruction effort. Teams have until 20 January to devise appropriate proposals that utilise local materials and technology. Selected schemes will be developed in pictorial form and assembled into free manuals. These will be given to international, local and government agencies for distribution in affected communities. Working with Arup engineers, AFH also aims to compile sets of guidelines for rebuilding in earthquake zones. These can be used in the retrofitting of partially damaged buildings, especially schools. For more information on the project go to: *www.architectureforhumanity.org*

AR LAUNCHES FIRST US CONFERENCE

The first US conference organised by The Architectural Review will take place in Manhattan on 30 and 31 March. It is sponsored by Buro Happold and supported by EDAW. The subject will be the experience of European architects working in the US, and of US architects working in Europe, today and in the past. Speakers will include Richard Meier, Mohsen Mostafavi and Stefan Behnisch. More details will be available on our website, www.arplus.com



Matthew Wharmby

outrage

The Routemaster is dead, and so, by definition, is the London bus. On 9 December, the very last of the red double-deckers to be designed and built in London, by and for Londoners, plied its final journey over Westminster Bridge and into history. Yes, there are thousands of new double-deckers working London's bus routes, but these are, without exception, oversized, ugly and designed, if the word is applicable, and built, a long way from the city of Routemasters.

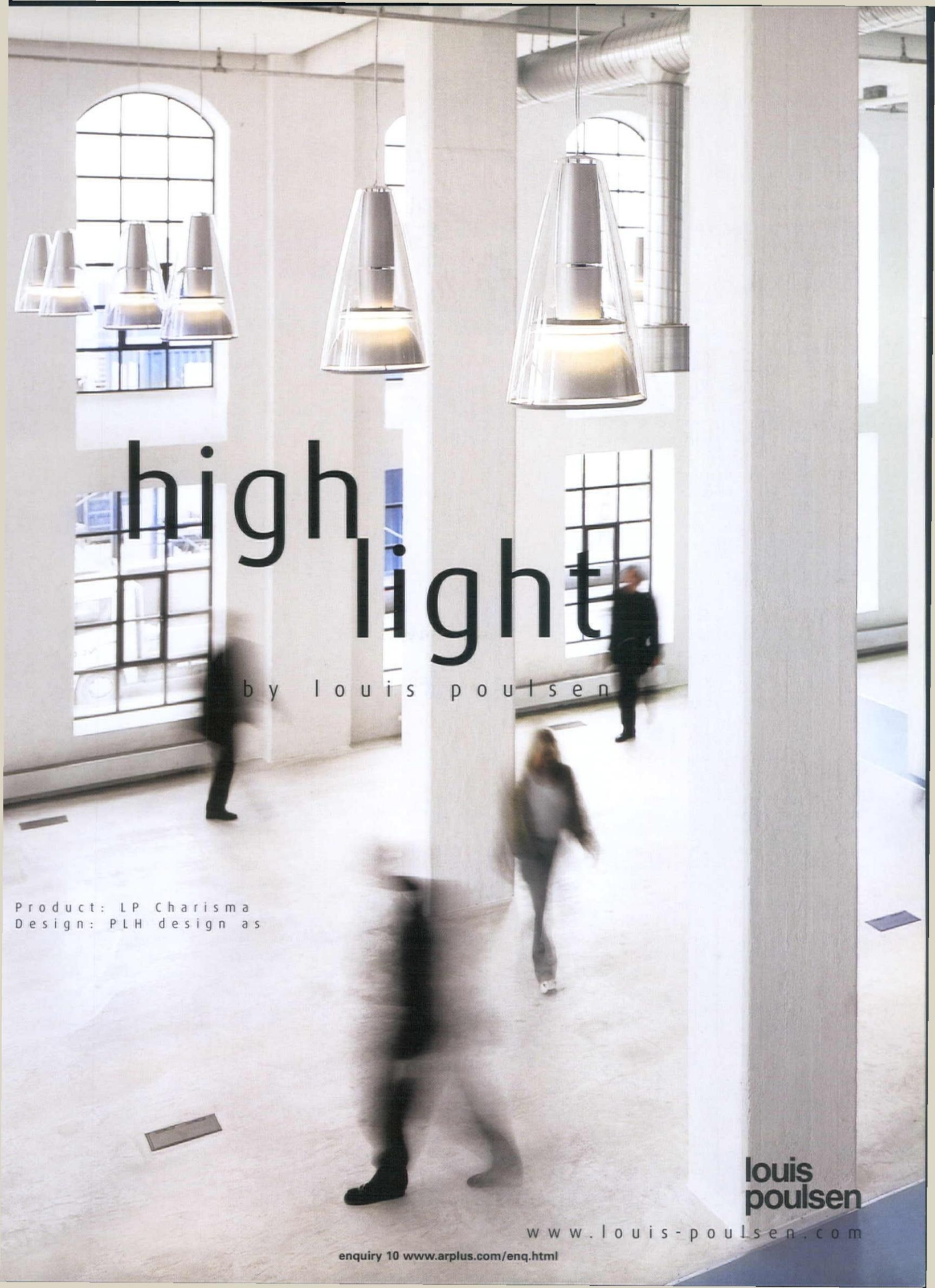
Noisy, jerky, greedy for diesel, and with interiors styled by what appear to have been a cage of drug-crazed monkeys let loose with tiny tots' paint boxes, the new buses sneer at the quiet refinement of their purpose-built predecessors.

Unlike these out-of-place provincial monsters, the Routemaster was a bus designed to enhance the streets it served. A handsome and rigorously thought-through tool, it was also a work of mobile architecture, scaled to fit the streets it ran through nimbly and economically. This was clearly a London bus, from its discreet, functional good looks, to its coat of scarlet and gold and updated Roman lettering.

The specification for the Routemaster was originally drawn up from 1947 under the direction of London Transport's chief bus engineer, A. A. Durrant. The result was a lightweight, chassisless vehicle, designed so that it could be assembled, overhauled and reassembled with ease every few years.

RM1 took to the streets in 1954. The bus was tested and developed over the next five years before mass-production began. Over the ensuing 45 years, the production open-platformed Routemaster has served London well. Although the superb original interiors of the buses were gutted and replaced by unkind tat from 1992, and the fleet badly run down ever since, what survived of the Routemasters was much appreciated by most Londoners. Proper replacements had been considered, but in the event, the new regime in charge of a now privatised public service went for buses with no connection to London, neither to its streets, nor to a proud twentieth-century public service design tradition for which, today, there is evidently no room either 'inside' or, indeed, 'on-top'. JONATHAN GLANCEY

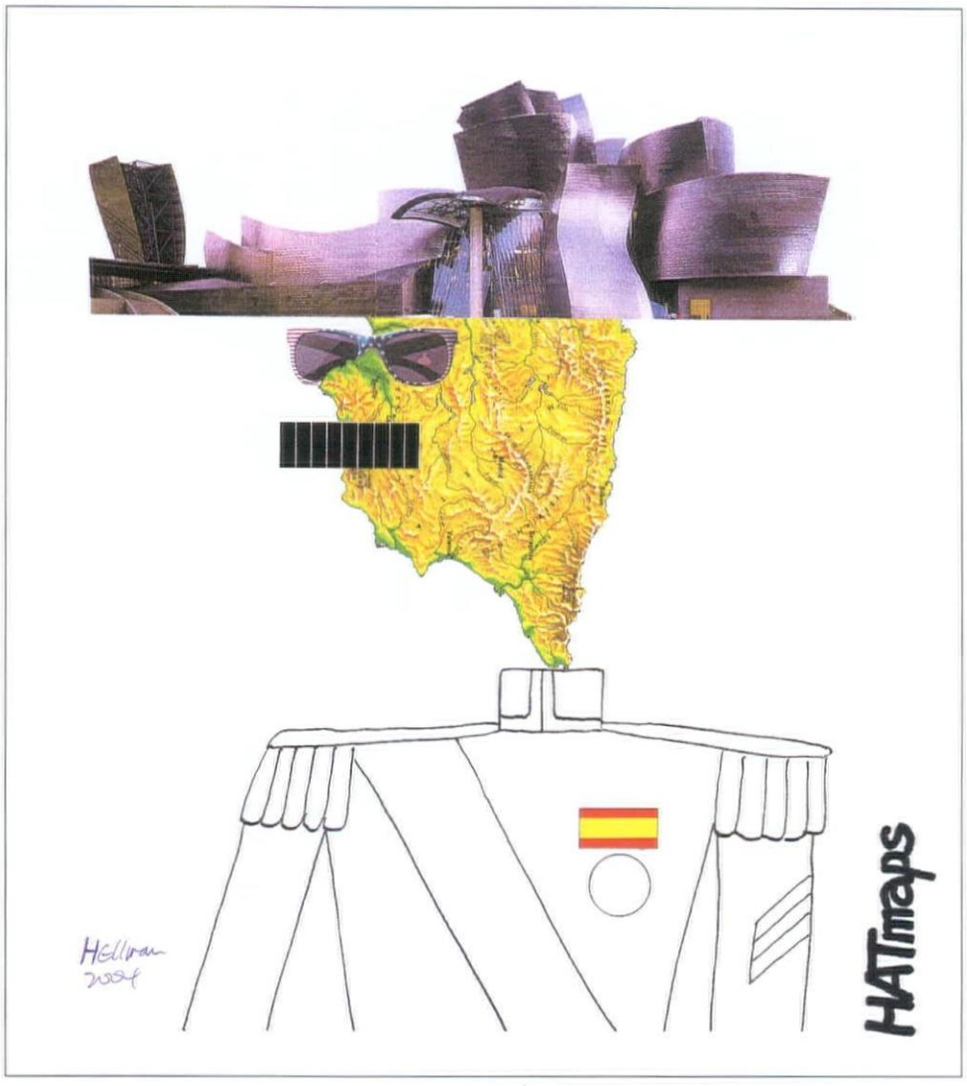




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Peter Cook

Which architects are top of the pops on the lecture circuit? And what makes for a good speaker?



For a long time I have wondered why we all assume that a man or woman who has visual or formal talents can talk about this in front of an audience, somehow transmitting the connections between ideas and gambits, curious leaps of inspiration or the making of deft moves.

It's a task that haunts many good architects who get crotchety, unsociable and downright boring in the run up to a lecture date. Though it is just those who can become the most intriguing communicators over time.

I can remember the afternoon when Peter Smithson (our teacher at the AA), summoned us to hear an afternoon lecture on the subject of his Sugden house and, halfway through, dried up. Perhaps the silence was less than a minute – but the train of thinking had frozen – and Smithson was too serious or too honest to fall back on an emergency package of chatter lines to bridge over to the next headline. We came to realise the privilege of his afternoon series as chunks of these conversations started to emerge in *Uppercase* – a tiny magazine, then in *AD* – a 'proper' magazine, then as parts of books such as *Without Rhetoric*.

We had heard it in the raw. Later versions were cleaned-up and became more coherent, but lost in the process some of the energy and some of the creative perversity. I ponder on this since I give many lectures myself: as you become more adept, you become more ambitious, you become increasingly aware of the mixture of content, energy, picture power and the buzz of the audience, but do you ever get it right?

The first exposure has the angst, the thrust, the eagerness; the second is smoother (and probably the best version). The third flows effortlessly but if you run to a fourth you know which lines get a laugh and you've stopped thinking. So you 'tweak' on the laptop in the plane (or in the days of slides, carry a spare 40 to drop into the argument).

I was reminded of all this as the dark evenings took over in New York, London and Paris: where the densest traffic in architectural chatter can wreck reputations.

In recent years, the most consistently large audiences could be guaranteed for theorists and commentators; clarifying ideas should, after all, be their business. Certainly Mark Wigley in New York and Mark Cousins in London are worth crossing a large town to hear. Wigley is the only person outside cinema or television who has made me laugh so much that it hurt. He's the smartest project critic around with sufficient memory of his days in architecture to know the true reasons why the ethical, political, symbolic or quotational are not the only motives for design. While Cousins, as a lapsed shrink, can talk magic around the process of cause-and-effect.

Frank Gehry, Zaha Hadid and Jean Nouvel are a good listen as they have the realisation that their work will survive fashion and so they can let themselves go on stage. Frank can be matter-of-fact and disarmingly honest – as befits one who has been featured in *The Simpsons* and has built malls and condominiums as well as icons. Zaha gets naughtier and chattier as time goes by and is not embarrassed by the quickness of her mind. And Jean just grins and rolls with it.

But watch Thom Mayne, who just oozes architecture. Early lectures were tortured, middle lectures discursive but still teacher-y. Now he feels his power, challenges you and offers hope. The Pritzker has given him a roller blade. Lebbeus Woods is, I think, the most satisfying: his Midwestern morality emerging as a foundation for the thrust and challenge of his drawings.

And of the younger guys? There are few who can intrigue us as much as could Libeskind, before he went 'promotional'. Mark Goulthorpe has weird stuff, umpteen Gaston Bachelard quotes, but gradually gets less edgy. Most of the Dutch come across as arrogant (let's hope it is just the problem of English language forcing them to jump between fluency and pragmatism). Elizabeth Diller has made a theatre out of word structure that is rehearsed and refined to an extraordinary degree: so catch her if you possibly can.

But before I forget, two really great old guys stay in my memory as yardsticks conveying humour, knowingness and craft: Sverre Fehn in Oslo and Clorindo Testa in Buenos Aires. Even if you don't understand their language you instinctively respond to timing, to mystery and, by the way, to stunning architecture.



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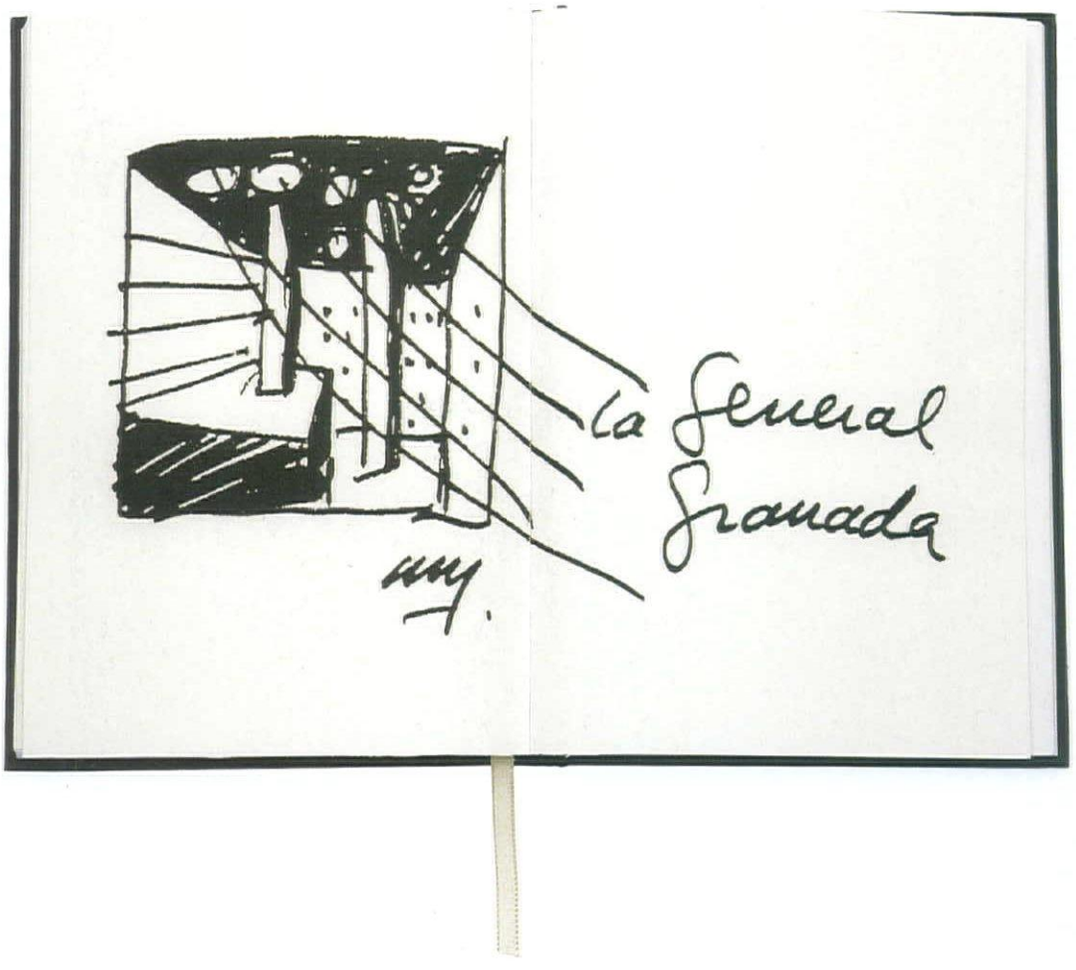
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The Diagram



What do we mean by a diagram? Two quotations – any building should be described by three or four lines says Stefan Behnisch; a century ago Daniel Burnham is alleged to have said that only a noble diagram can capture men's minds.[1] Such a diagram lay behind his and Edward Bennett's Plan of Chicago produced in 1909 – radial lines cutting through concentric rings over a rude grid. Though not the first use of the term diagram,[2] these citations suggest a further idea: that the diagram, as part of the process of design, is inherent to the project of Modernism in architecture. (And further that the strong questioning of Modernism over the past twenty years might have made the diagram redundant as computer-aided design dominates.) For an architect to find a satisfactory diagram has been taken as proof that an idea was born.

So rather than begin at a precise definition I prefer to ask what purposes diagrams satisfy inside the processes of architects' designing? Can one drill down into the geological history of the uses of diagrams and ask: what does the diagram cover? What can and cannot be represented within its linear, two-dimensional nature? And finally, is the day of the diagram over as the Modern Project decays into who knows what?

In the period of neo-functionalist Brutalism (the 1950s and '60s), the fundamentals of routes, how progress was to be made into and through a building, was the content of many diagrams. A logic of choice and topological possibility structured the development of a scheme until it had reached diagrammatic clarity. Choices were to be avoided or signalled only by volumetric or compositional means. Tom Ellis, senior partner in the office of Lyons Israel Ellis which employed, among others, James Gowan, James Stirling, Alan Colquhoun and John Miller, described how the route as an organising principle was to be found in many of the Modern Movement's most significant buildings, especially for him in the works of Le Corbusier and Alvar Aalto, in the only two articles he ever wrote.[3] While the route had been critical to the axial control exercised in Beaux-Arts planning, Ellis argued that people could now navigate asymmetrical plan organisations by architectural means alone – volume, material, and perception. Most of his office's work at that time was built for growing educational requirements; schools and universities had precisely the newer kinds of needs for which Modernism, in its more functionalist mode, could offer most. The corridors of older educational buildings became the street and the hall became an almost urban space.

Of greater functional complexity was the modern hospital. Nonetheless the diagram was circulation, NOT form. Diagrams from the Heroic period of Modernism (I use the Smithsons' romantic term) were, however, more formal, more concerned with exterior apprehension. The diagram embodying circulation patterns, as befitted a neo-functionalist approach, left the outside of the building to become the result, the outcome, of a play of forces which in the hands of a hard-line rationalist like John Weeks was reportedly indifferent to composition or character, the evil twins of historicist thinking. In Northwick Park near Harrow, north-west London, and in the women's hospital at the Queen Elizabeth, Birmingham, this indifference presented Weeks with a conundrum. Form could not be denied, either as mnemonic, symbol or semiotic, yet composition smacked of an anti-scientific approach which Weeks' partner Richard Llewellyn Davies, coming from an engineering, research and pragmatic background, foreswore. Weeks, more fascinated by the fine arts, drew not only upon abstract art through his friends Harold and Mary Martin (with whom he had collaborated on the influential *This is Tomorrow* exhibition), but closely followed the musical avant-garde in their embrace of chance, and of structure. Aleatorics, most extreme in the work of the American John Cage, and partly introduced into the Western tradition by Pierre Boulez and Karlheinz Stockhausen among others, offered Weeks support for his own design work. So the structure of the wings at Northwick Park was designed to be spaced according to the weight they carried. However, this would have required that each floor of the hospital be uniquely structured too, and therefore a standard floor system could not be used. Consequently the mullions, which are indeed irregularly spaced, now act as sun louvres and behind them sits a rather too standard curtain wall.

The corridors at the Dominican Monastery of La Tourette, connecting the various monkish functions to the Chapel, were based upon the Fibonacci series, and laid out by Yannis Xenakis, the composer, then an architect working in Le Corbusier's office. Weeks was aware of that detail.[4] But unlike La Tourette, Northwick had no formal diagram, no avowedly poetic or therapeutic aim. He wrote: 'Whether or not this was the intention at La Tourette (the control of glare by the spacing of the louvres), this control is achieved here (at Northwick Park).' But Weeks' diagram is in many ways the simplest form of organisational diagram – a spine, or street, off which discrete entities crowd and expand as and when need arises. For all the references, however, the most delicious statement in his lecture still seems to be 'We did not know, until the engineer had calculated the stress patterns, what each building would look like'. Towards

DESIGN ESSENCE

David Dunster, who co-edited this issue of the AR, introduces its theme, the Diagram. In the pages that follow, architects describe the role of diagrams in their own work, and examples they admire by others.

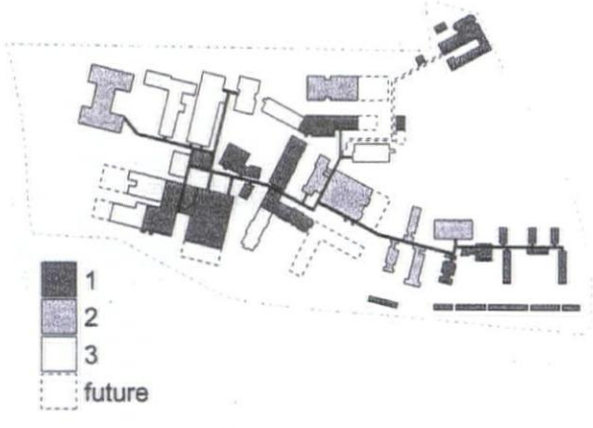
the conclusion he drew an interesting and informative parallel: 'Stravinsky has said of his music, now usually serial in form, that he is interested not in harmony but in related densities of intervals. There seems to be a parallel here: varying densities of intervals are the visual characteristics of the elevations at Northwick Park, rather than a proportional harmony'. Music helping Architecture again.

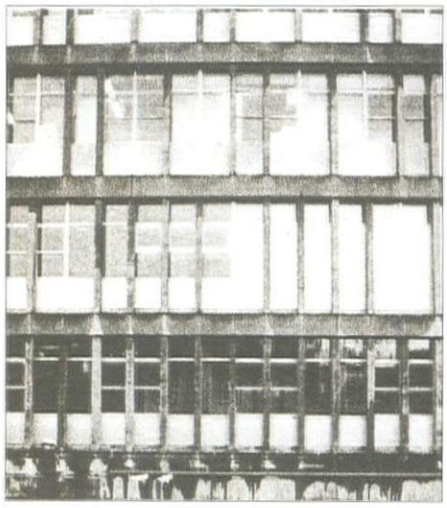
Is this not the curse of the diagram – always seeking an authority outside architectural traditions? The example of Weeks's hospital diagrams polarises the use of diagram. *In extremis*, this version looks to the rational diagram to generate an architecture that is automatically generated, or rather generated out of pure materialistic reason with no recourse to aesthetics or notions of harmony, totality and poise. As Stravinsky commented that he was merely the vehicle through which his music passed, from God to His people presumably, so Weeks sought to make what would be recognised as architecture, but architecture generated from a deep understanding and approaching in form the perfect and utterly transparent language which Umberto Eco has recently shown to have been a preoccupation since the Tower of Babel.[5] In such a language, a building communicates and demonstrates its uses and pertinence entirely through mechanisms that can be read by a civilised and educated mind. No metaphysics, no aristocratic preoccupation with elitist codes, this would truly be, as Banham called it in *The New Brutalism*, an *architecture autre*. As such, Weeks would indeed build a diagram, a built diagram he believed so close to the most coherent array of uses that it would be universally understood. The diagram describes the essence of the building. Essence in this sense: that this set of lines stands for the least, the most economical and restrained delineation of the architectural idea; in this case a diagram which will be heavily dependent upon simple structure and the extensive use of glass.

Why is the diagram so important for Modernism? Is it a guarantee of authenticity because there is no 'other' any more? If there is a diagram, which can be repeated to friends and colleagues, even used in a future monograph, then there is a mnemonic, something to remember, an easily repeatable set of lines. Do diagrams, their inevitable lines, relative dispositions and perhaps even their intersections, offer some strangely comforting support in the empty wilderness of invention? One of the greater mysteries of designing, after functionalism had been enunciated as a creed, is that creativity is always associated with one or more moments after all functional considerations appear to have been absorbed within the analytical process. Thus they are no longer the defining parameters of the process but the *sine qua non* of it. At this point, and only really at this point, is there enough personal sense of security and assuredness that a possibility might arise, through all the mists of critical analysis, of an object whose logic will be sufficient to allow it to surface in public, *ex vitro*, out of the confines of the designer's laboratory. The search that the diagram says is nearly over is a search therefore which seeks the inevitability of immanence,[6] which seeks the '*Es muss sein*'.[7] This was immanence in practice – Beethoven, rather like Martin Luther, could do no other. Precisely the point any real architect would wish to reach, a point not only where every decision made, but every line drawn, is doubly determined (doubly in the sense that if one reason is removed then there still remains one other compelling reason for the action). In psychoanalytic terms this is almost overdetermination, a condition easily pointing towards neurosis. In architecture this is also the point or moment from which the actual construction appears to design itself, to take over the pen, pencil or computer of the architect to make every move compelled, inexorable, inevitable, immanent to the process. In this way, Modernism was able to offer a complex sense of security, a process instead of a father-figure of language or history.

Somewhere between aphorisms and icons, the early architects – Loos, Le Corbusier, Mies and Gropius – parlayed between the demands of emerging post-First World War social democracy (replace slums via an industry-led housing boom) and the urge to bring to the fore a new formal language which could stand architecture within the revolutionary changes which were happening in music, literature and above all painting. If the diagram appeared to be one design tool that was internal to the practice of architecture, wordless, meaningless even, then the repeated diagram failed to excite anyone. Mechanical repetition of a diagram lost the complex psychological investment that the individual diagram needed. The individuality which functionalism sought to celebrate, to each according to his need, could not obtain within the political context of housing need, slum replacement, and post-war rebuilding. Did the use of diagram, then, assist within that larger scale, the scale of city planning?

If diagrams in architectural thinking relate process to ideation, then their role within city planning is even more contentious. Certainly in the twentieth century, too many architects thought that designing a city was merely part of a design continuum extending at all scales from the design of a building to cities at the largest scale and doorknobs at the smallest. *Alles ist Architektur* declared Hans Hollein. This view, *multum in parvo* (the world in the detail), is not only





Northwick Park Hospital. (*Above*) phased construction by John Weeks of Llewellyn Davies Weeks; (*right*) indeterminate elevation.



Corridor in the courtyard of La Tourette by Le Corbusier.



Interior corridor at La Tourette by Le Corbusier.

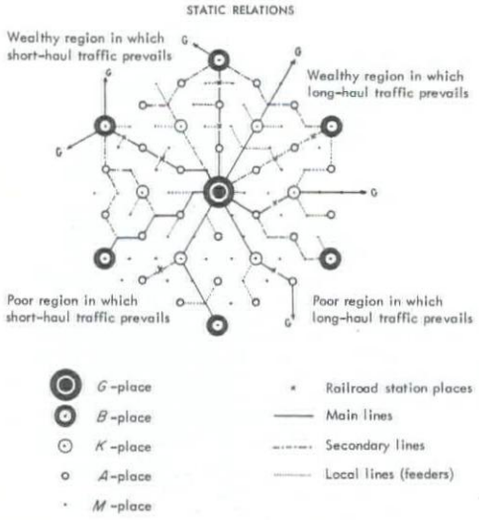
a delusion, but also confuses a final object, which can only be some warped utopia, with the process of designing cities as well as the historical forces which change them. It is almost a battle between one icon produced by theistic religion, and a conflicted partial solution continuously changed by a democratic and atheist process.

It is curious, therefore, to find this conflict already present in Renaissance writings about city building. The drawn musings on parchment of Francesco di Giorgio and narratives by Filarete discuss the process of how to build a city, in both cases under the umbrella of reflected religious dogma. An ideal city would by definition be a city of God, one formed as if to imitate Heaven, however its structure might be construed. While di Giorgio was the more graphic, Filarete spoke more of the process than the outcome and thereby is the first architect to discuss the process of design. It is, to say the least, a sexually charged view, even in the 1965 translation by John R. Spencer. Having established that a building is like a man and so needs to be conceived and then born, Filarete describes how 'the building cannot be conceived by one man alone. As it cannot be done alone without a woman, so he who wishes to build needs an architect. He conceives it with him and then the architect carries it. When the architect has given birth, he becomes the mother of the building'. Later Filarete describes how Alexander met Zenocrates, ('he was a handsome person, well built [and] had a handsome face') which I mention to show that Filarete surely understood something about role play in the architect/client relationship. Filarete's city, which he describes in considerable detail, is not then a devotional practice but an earthly, potentially erotic (even homoerotic) process. If indeed they can be traced back this far, may we not adduce this to a condition of all city planning, though some may well emerge that differentiate the possibilities of city planning from architecture.

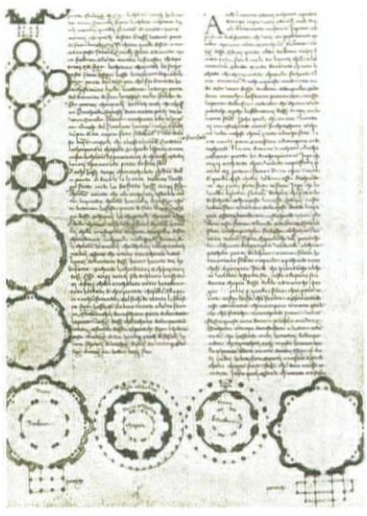
Throughout the history of urban planning, the idea expressed later by Daniel Burnham, that only noble diagram can capture men's minds, plays upon the diagrammatic as seminal. Only in the twentieth century was the nature of the diagrammatic approach to be questioned, by Christopher Alexander in his paper 'A city is not a tree' (instead a semi-lattice). A tree structure is indeed a god-like source, branching into districts, into villages, into streets, possibly zones even, in a hierarchic and hieratic way. Alexander argues that Modernist views of cities, from Abercrombie through Goodman and Costa to Le Corbusier, all fail utterly to achieve anything more than a tree-like separation of activities, whereas the cities we admire all bear the characteristic of enjoying overlapping functions, not their separation. In this he follows Jane Jacobs who had argued, in *The Life and Death of the Great American City* that mixed uses were infinitely superior for sustaining (sustainable was thankfully not part of her vocabulary) city life than zoning.

In advocating the semi-lattice, Alexander followed two great theoreticians of urban planning who arrived at their results simultaneously but unknown to each other – Lösch[8] and Christaller.[9] The theory of central places, Christaller's contribution, was based upon an analysis of telephone traffic between cities and towns in southern Germany – a predominantly more agricultural area than the industrial north. Christaller produced a diagram that showed two overlapping hexagonal grids. He read this as showing a hierarchy between settlements with more important nodal points (bigger towns) surrounded by smaller nodes (villages) but then each larger town node is related to other towns. In the 1960s, Melvin Webber read the same diagram as a model that could be applied to Los Angeles, and in enunciating the 'non-place urban realm' appeared to legitimate car-domination over pedestrian and public transport. Coming to the problems of city planning from transport studies himself, Webber's argument, and all his subsequent published work, used no illustrations at all, unlike Christaller, or Lösch or Alexander. His influence was said to be powerful in the White House so is held partly responsible for the under-funding of all public transport in the US. His constructive influence in the UK came from his consultancy to Llewellyn Davies Weeks as planners for the new town of Milton Keynes. Here a diagram so simple that it can be almost adequately described in words suggested that the new city did not need a centre, but indeed read diagrams like Christaller's as a mesh, with little or no hierarchy and no centre. Los Angeles, then considered by many to be the single most powerful example of the future city, had many centres and lacked that homogeneous and contiguous mix of business and shopping which the West came to regard as the urban centre.

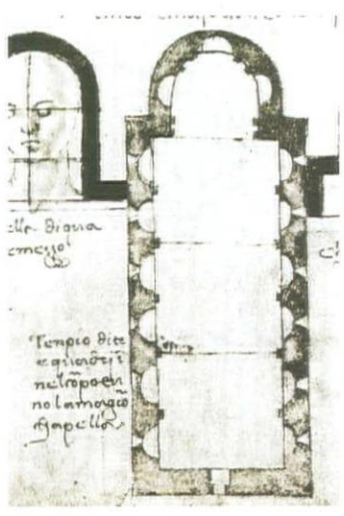
Two of the most amazing diagrams of cities are not design projections at all, but are in everyday use as means of navigating a city that already exists. These are Harry Beck's map of the London Underground and Phyllis Pearsall's *A-Z* of the same city. While the story of the Underground map is fairly well-known – a kind of topological resolution employing the conventions of electric circuit



The traffic routes in a system of Central Place (*left*) as propounded by Walter Christaller.



Francesco di Giorgio (*right*) plans for ideal churches, Turin, Biblioteca Reale, ms Saluzzianus 148, fol 13v, c1475-1476.



diagrams – the *A-Z* is not so well known. Without going into the tortuous process by which Mrs Pearsall traipsed all over London in order to be able to locate house numbers in streets and roads, the most extraordinary feature of the *A-Z* is how it distorts London. While all maps distort, as J. B. Harley[10] and Mark Monmonier argue,[11] what the *A-Z* does to central London is to shrink *block sizes* as given by the Ordnance Survey in order to be able to incorporate a hierarchy of *type sizes* which expresses the relative importance of streets. So the Euston/Marylebone Road is a street of the highest importance and is spelled out in the largest type, while a nearby street like Luxborough Street (where I used to live) is very much a minor street and therefore has the smallest type. However, even that type size means that graphically, and to maintain the relative position of streets through their centre lines, the block between Luxborough Street and the mews behind it is little more than a line on the page. In fact the block is at least 20 metres from front to back but shows as if it were a sliver.

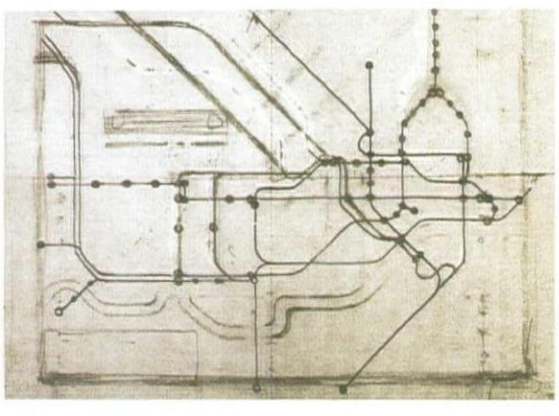
This kind of distortion does not hinder our use of the *A-Z*, because, as someone looking for a particular address, what we need are the coordinates, street names, junctions and finally house numbers, knowing that usually in the UK odd numbers are on one side, even on the opposite. From this simple information the *A-Z*, originally only printed in a run of 250, has now sold millions and is a model used throughout the UK. This map is a diagram of the city, like Beck's underground map. It reduces the city, as all maps must, to a two-dimensional representation of a three-dimensional construct; not only do maps leave out the third dimension, they also leave out information any walker would receive on perambulation. They are in this way diagrams, abstracts of reality for a particular purpose or agenda. A diagram of a city is merely a further abstraction or simplification, which leaves out information so that a proposition can be more clearly understood. Moreover that information, presented in graphic form, is more understandable as an image/diagram than as a written description, which is always ambiguous. Written directions (turn left at the pub, take the third on the right) lack the immediacy of a map.

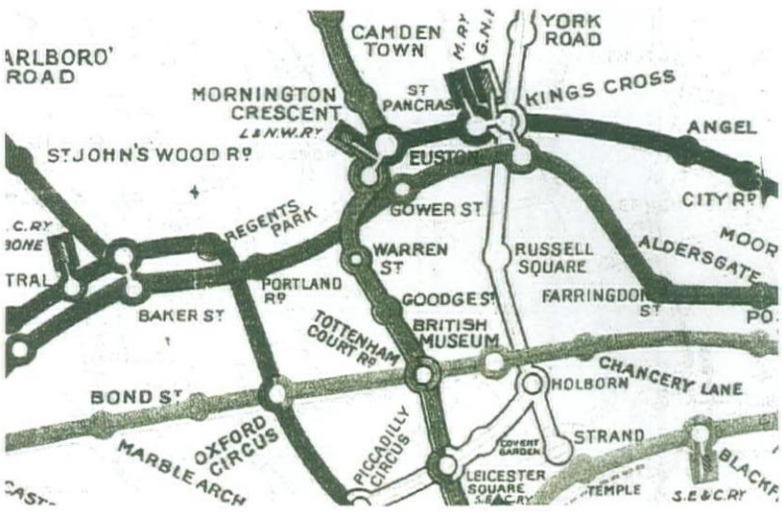
Beck's legendary drawing for the London Underground followed radical changes already introduced to the system by Frank Pick, who not only commissioned Charles Holden to design a series of new Underground stations, but also brought the distinctive roundel into public sight lettered in the sans serif face specifically drawn up by Edward Johnston for all publicity. Beck reduced the geographic chaos that the tube lines produced when mapped between the stations on a normal map, to an electrical switch system which equalised distances between stations, made interchanges clear and through graphic means alone made clearer which names referred to which stations. (This related to a system that included at least five per cent more stations in the centre than we know today – where are Down Street and Dover Street, Praed Street and British Museum?)

This may now be the only way in which diagrams function within cities. No town plans are being produced whose ambition resembles in any way that of Webber, Burnham or others. Instead, where the market does not entirely dominate, then two cosmetic applications are suggested – BIG, or GRID. As car navigation becomes automated, no longer paper-map based, even the diagram of the city, its map in whatever form, ceases to be material and becomes virtual. In this state it is beyond any creative process, a mere factoid engineered without inspiration. And architecture? The diagram may persist where movement dominates the architectural process and its resolution; elsewhere, and hopefully only for a brief period, the social goals with which this tool of process were associated need to be revived to recover that sense of adventure that attracted people to Modernism. DAVID DUNSTER

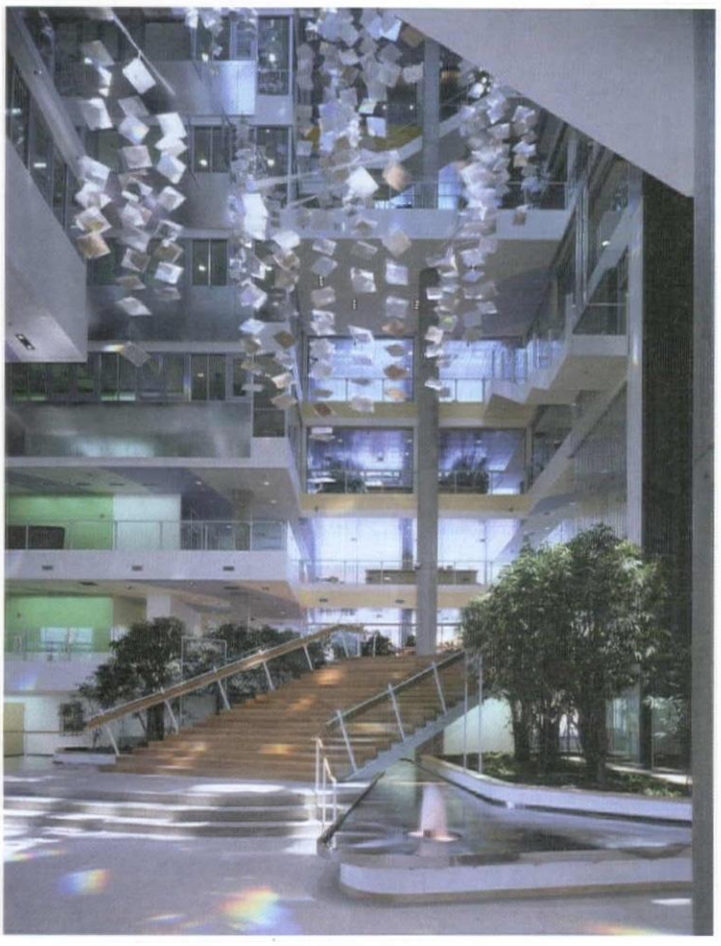
David Dunster is Roscoe Professor of Architecture at Liverpool University.

1 Thomas Hines in his biography of Burnham clearly states that he could find no evidence that Burnham actually wrote down that thought and traces it to a memorial postcard from Willis Polk after Burnham's death in 1912. It certainly sounds Swedenborgian.
2 The *OED* quotes no architectural writer in defining six senses of the term.
3 In *Architectural Design*, 1960, Nov, Vol 30, pp481-482 and Oct, Vol 36, pp511-517.
4 See his lecture 'Indeterminate Architecture', *Transactions of the Bartlett Society*, Vol 2, 1963-64, p83-106.
5 See Umberto Eco, *The Search for a Perfect Language*, Blackwell Publishing, Oxford, 1995.
6 Again a Banham reference with respect to Charles Eames – that Eames discovered the lore of the operation.
7 Muss es sein? Es muss sein! Es muss sein! (Must it be? It must be! It must be!): Ludwig van Beethoven, comment written on the finale of his String Quartet in F Major, Op 135, copying perhaps Handel's Jephtha 'it must be so' (in German 'So muss es sein'), Gerald Silverman, *The Musical Times*, Autumn 2003. It would be a lengthy footnote that followed through the role of immanence in design methods as much as in art history, see Otto Pasch, *The Practice of Art History*, Harvey Miller, London, 1999 or philosophy, Gilles Deleuze in particular has much to say on the topic. See *Pure Immanence*, Zone Books, New York, 2001, pp25-32.
8 Lösch, August (1906-1945), 'The Nature of Economic Regions', *Southern Economic Journal*, Vol 5, No 1, July 1938, pp71-78. *The Economics of Location* (English translation, Yale University Press, New Haven, 1954, first edition *Die raumliche Ordnung der Wirtschaft*, Gustav Fischer, Jena, 1939).
9 Walter Christaller, 1893-1969, the author of Central Place theory as published in *Central Places in Southern Germany* in 1933 (in English 1966), see diagram p30, bottom left.
10 J. B. Harley, *The New Nature of Maps*, Baltimore, Johns Hopkins University Press, 2001.
11 Mark Monmonier, *How to Lie with Maps*, Chicago, University of Chicago Press, 1991.



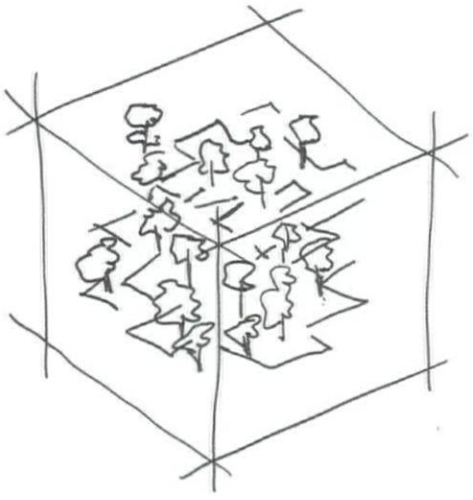


Harry Beck's original sketch (*above*) for the London Underground diagram of 1931. Detail from 'London Electric Railways' map of 1909 (*right*) showing the first use of the 'white-line connector' device for denoting interchange stations.



Roland Halbe

fig a



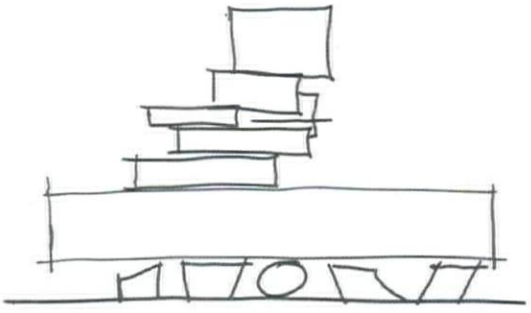


fig b



STEFAN BEHNISCH

In general, diagrams and sketches explain and highlight a design idea quite well; if done properly, they get well to the point. Like caricatures, they will focus on the general idea. There is a verbal equivalent to this that will, if done properly, describe a design concept in just very few words. This is comparable to advertising; the best ones having the fewest words. A great one-liner in our office, a verbal one-liner, was 'glittering by day, illuminated at night' for the Bristol Project. These words we had borrowed and bent from one of my father's projects, the Olympic facilities in Munich.

The four diagrams illustrated, were drawn spontaneously in lectures to explain designed or realised projects. (I have one of those nifty laptops where you can scribble or draw or write on the screen; I use it extensively.) *Fig a*, the Genzyme Center in Cambridge, MA, USA; *fig b*, Norddeutsche Landesbank in Hanover; *fig c*, the Universe Paradise, a theme park originally for Las Vegas.

In the diagrams for the IBN institute competition, *fig d*, our all-time favourites, we tried to explain concepts and atmospheres

rather than the design. We won this competition and realised the project.

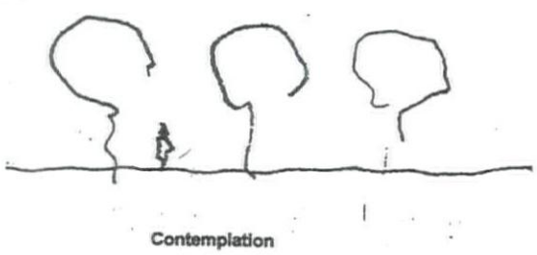
Finally the collages seek to clarify a thought. Almost naïve, they might cause people to rethink the obvious. They work best if they show the obvious and use examples from daily life.

In general, I believe that the better the diagram, the clearer the concept, the stronger the design, and the better it survives the battles of implementation and realisation. STEFAN BEHNISCH of BEHNISCH, BEHNISCH & PARTNER

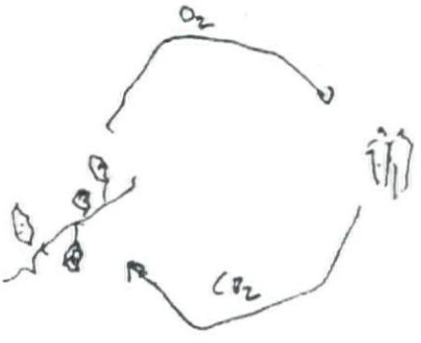


fig c

fig d



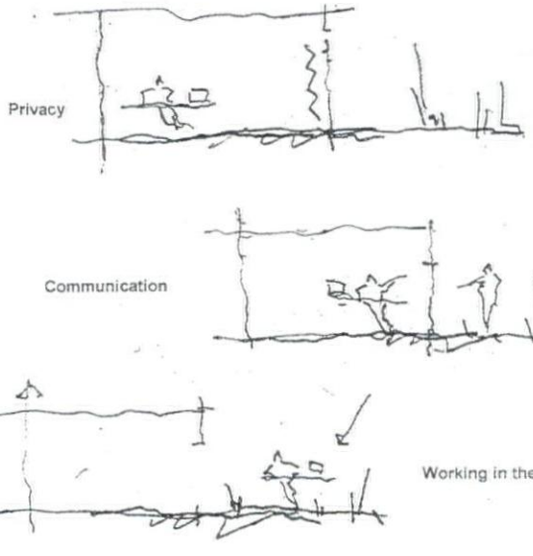
Contemplation

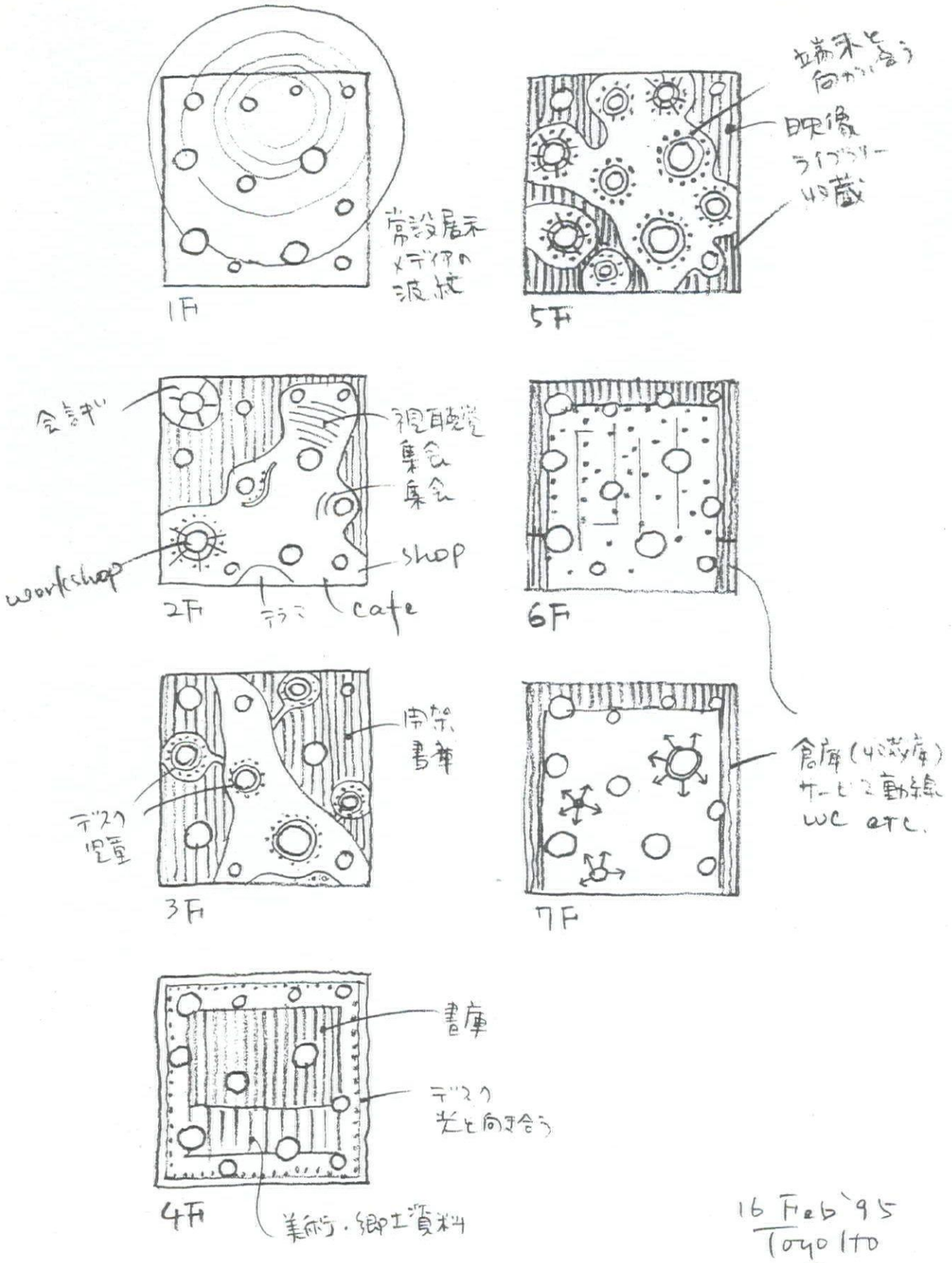




Encourage self-expression





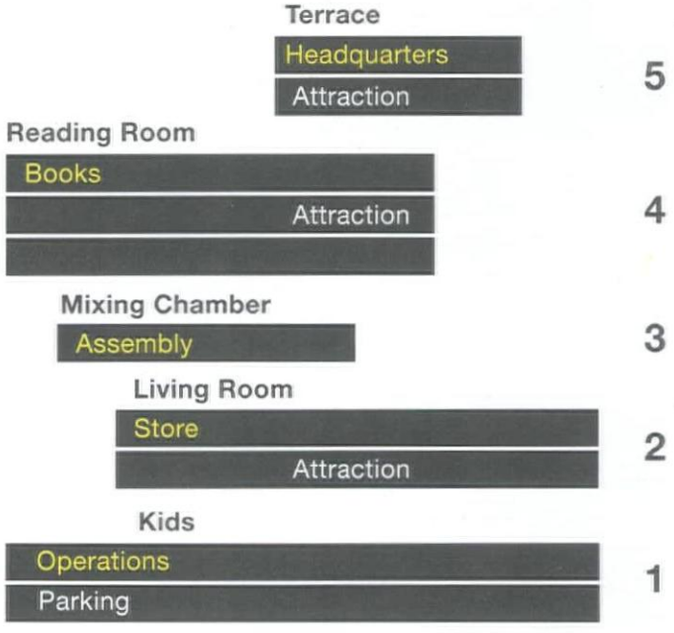


TOYO ITO

A diagram (in this case the Sendai mediatheque) is located somewhere between a concept and a plan. Or, in other words, it is a visualisation of a concept, still remaining abstract. TOYO ITO, TOYO ITO & ASSOCIATES



Admired: Seattle Public Library by Rem Koolhaas. Rem is an architect who is always trying to break down conventions. He showed the concept of this project as a diagram, and he realised it as an actual three-dimensional figure (architecture). I am struck by directness!





PETER AHRENDS

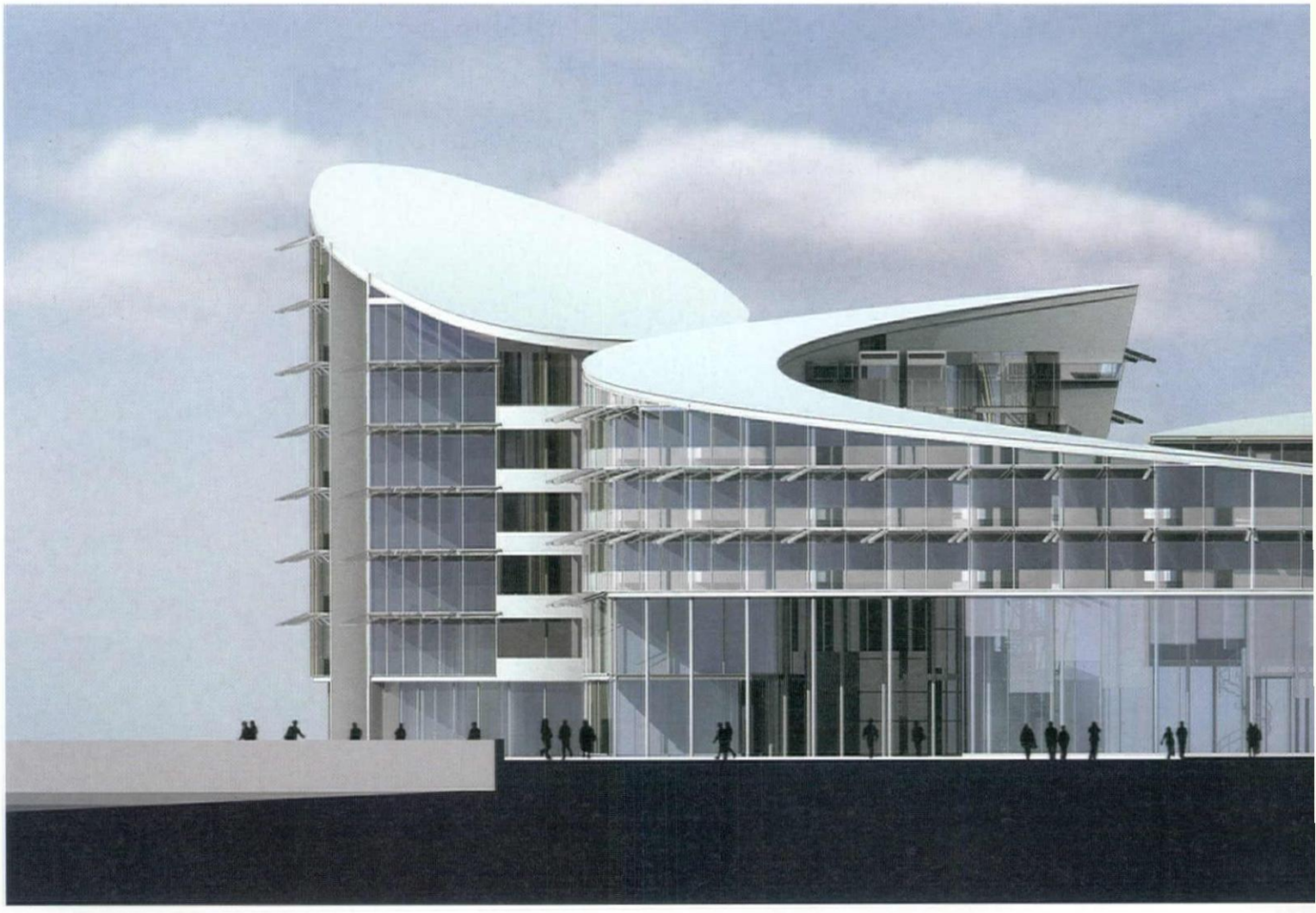
Diagrams are an essential part of our work, focusing on the enquiry, exploration and search for meanings that underlie each concept. These concepts and, eventually, the built forms are a reflection of this mode of expression: a searching endeavour applying equally to all types, sizes and locations of projects (shown here in our Bexhill competition-winning scheme).

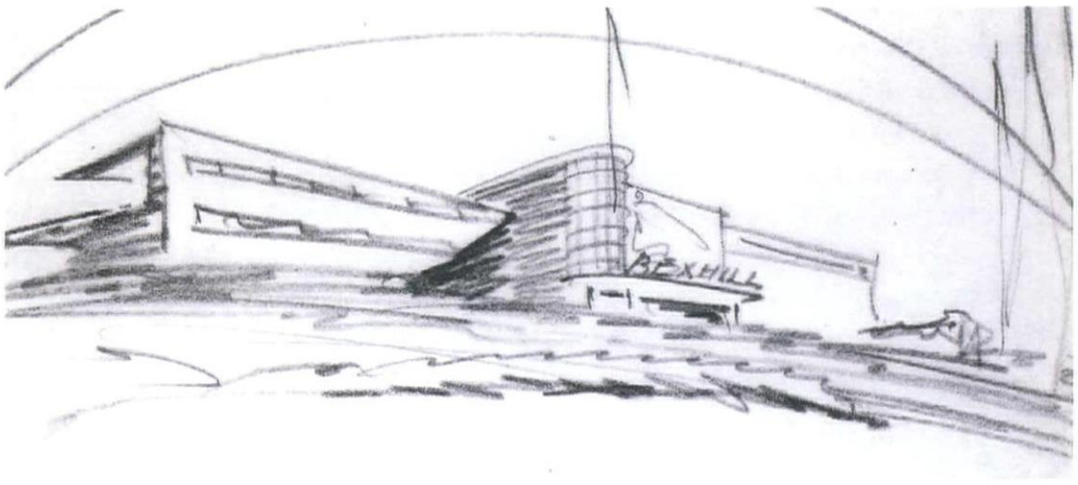
Ideas for house and city share many characteristics; not least the nature of their anatomy and organic structure. Neither the search for meaning nor the composition of elements concerns physical worlds alone. For we are digging for culture, history and the elusive, powerful non-substances of social structures: 'All our art is water drawn from the well of the people. Let us give it back to them in a cup of gold so that in drinking they may recognise themselves' (Garcia Lorca).

Poets write. We architects draw, to build. Arts touch and mingle, ideas interweave. In various ways and by different modes of expression we're discussing humanity; life in here, out there: togetherness, separation. In searching for things to 'say', ways of seeing/doing, we draw. Initially, diagrams are a means of understanding, bringing together thoughts, feelings and intuition. But they are seldom conclusive. Pens are guided on paper to find the essence of what might be done. Almost magically, the action of drawing brings into being ideas that have been latent, internally. Sometimes, almost buried, ideas rise, find a place, help to articulate and give form to symbolic meaning, embody values and offer glimpses of the building to be. Above all, diagrams condense a complex variety of factors, offering moments of apparent clarity and simplicity. Strokes on the page take on meaning as signs, without words, touch our sensibilities.

Often made as though in dialogue, ideas (ideograms) establish a 'fit' in relation to need; a response that speaks of a movement towards the future shared by the project group, working together. With latent energy, the graphic languages of diagrams offer understanding, and cross cultural boundaries.

PETER AHRENDS, ABK ARCHITECTS





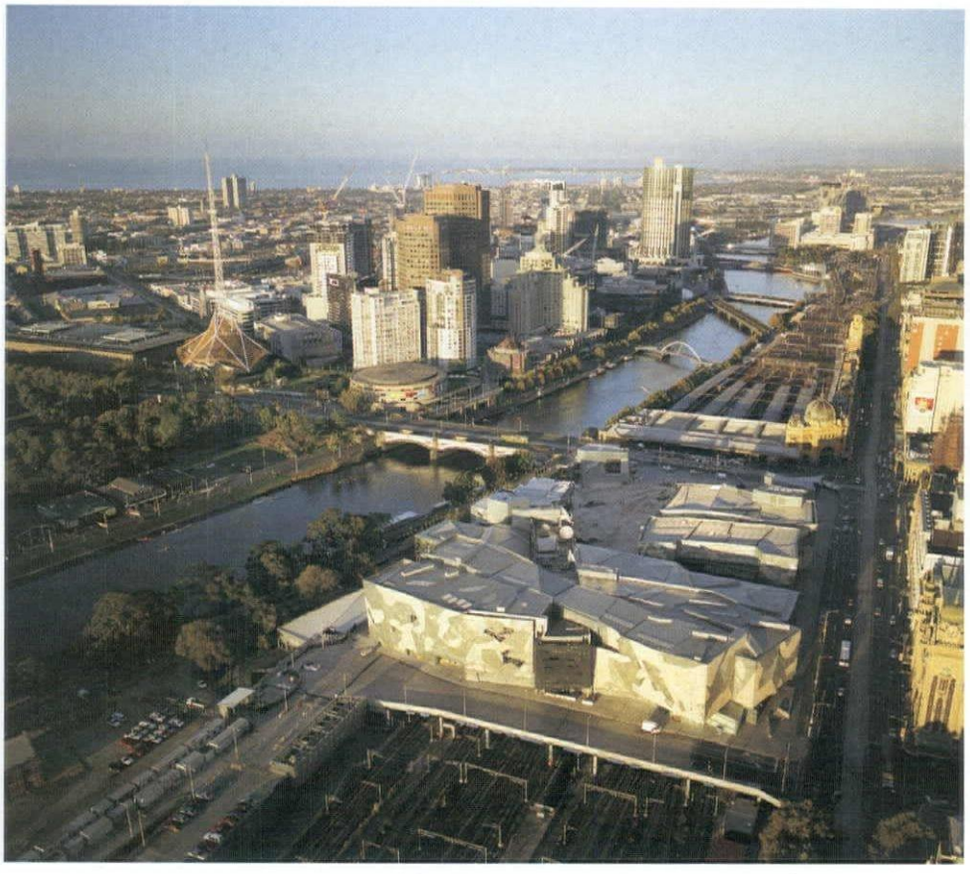
Admired: Erich Mendelsohn, Bexhill Pavilion, 1935

Not really a diagram of Mendelsohn's Bexhill Pavilion but this conceptual sketch brings together the wholeness of his intention by the use of a single set of fluent penstrokes carrying clear dynamic messages of the early Modern Movement. A bold seaside gesture for a small English south coast town.



By John A. Glover-Kind





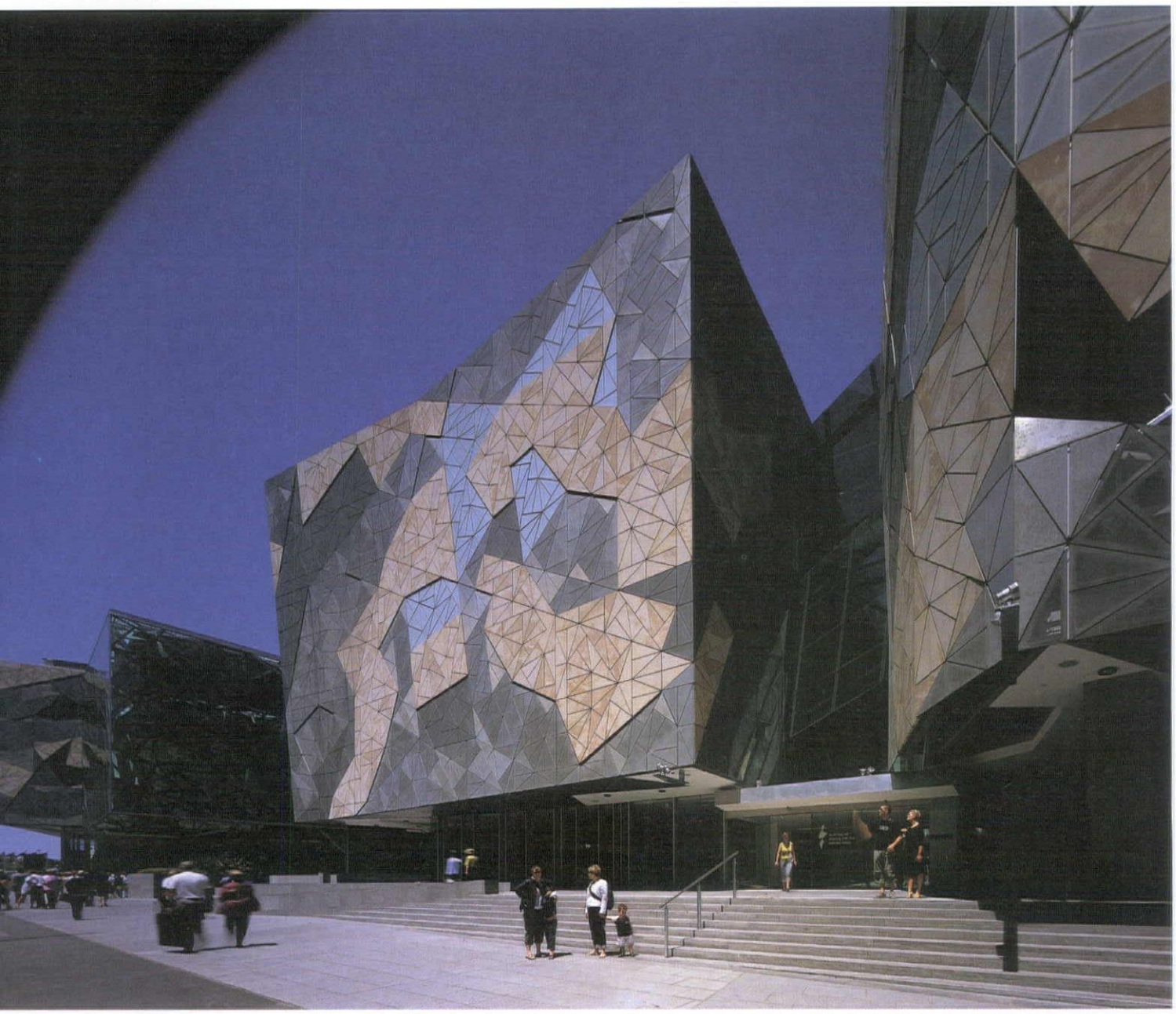
DONALD BATES

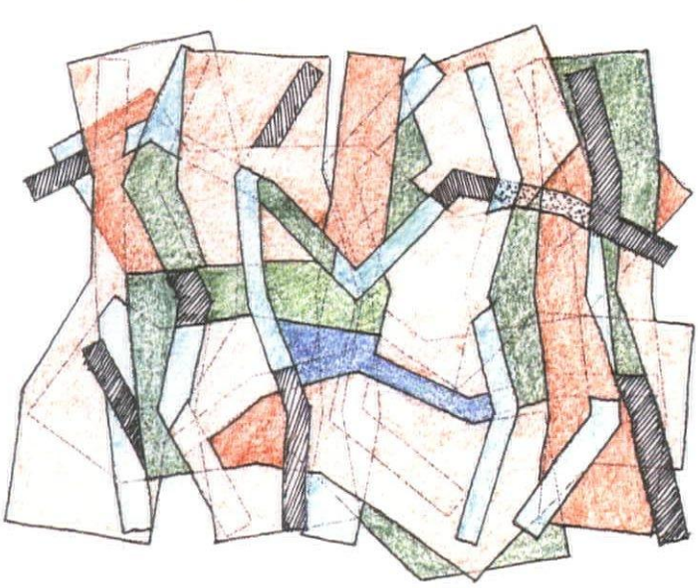
This diagram grew out of a search for the notation of new types of spatial ordering – in opposition to systems based on the grid, the axis, or geometric symmetries. It was produced by a purely graphic process, but with the task of implying a sense of organisation, in which relationships and an overlap of these arrangements could offer multiple formations.

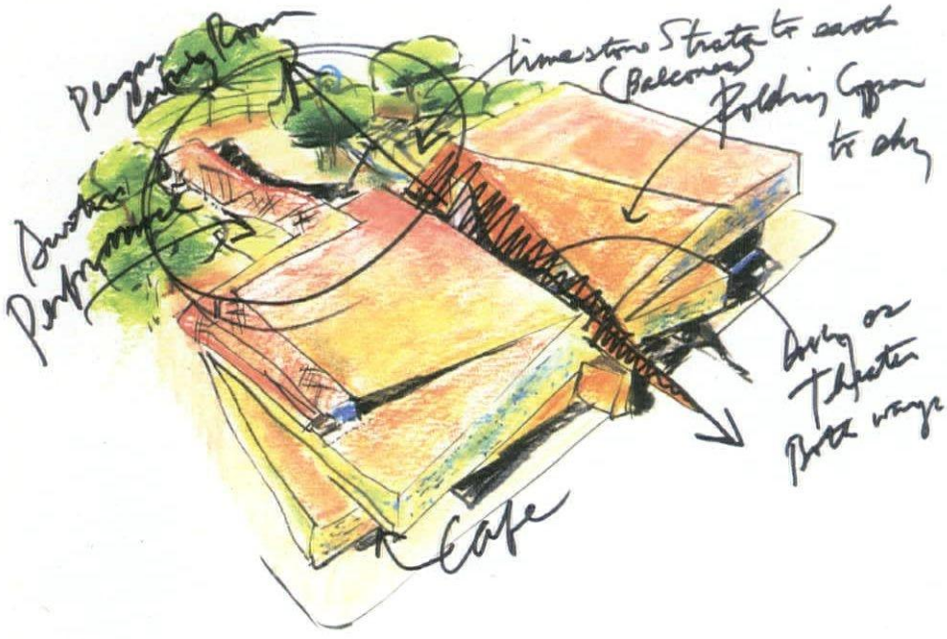
The generated lines, acting as a suggestive matrix, were drawn and re-drawn numerous times, creating different affiliated conditions, which were then analysed and extended. This iterative process offered a collection of spatial orderings, without direct recourse to assigned functions or programmatic determinations. Rather, the focus of the work was in creating a visual vocabulary of planometric conditions and the resultant spatial and organisational implications. The colours in the diagram form an aspect of coding for the various sectors, but are not fixed or absolute in this coding.

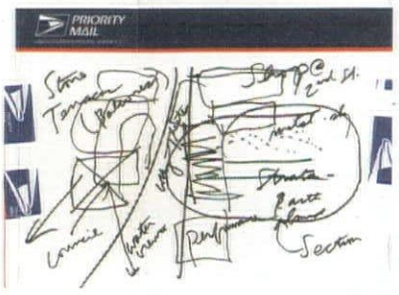
The production of this diagram was not for an abstract purpose but was part of the initiating design process for the international competition for Federation Square in Melbourne (with Lab Architecture Studio/Peter Davidson). Therefore, there were already certain ambitions and design intents present in the work. Given a brief of multiple and diverse uses and functions for a large cultural, civic and commercial precinct, the diagram(s) also needed to offer an array of spatial readings, with links, intersections, shifted trajectories and uncertain edges or boundaries.

This diagram (and its many variants) was used as a generator of most of the planometric and elevation strategies that emerged in the design for Federation Square. How much of the initial diagram remains as a readable remnant in the constructed building complex is not a measure of its value. Its value lies in the suggestive, implied and interpretive uses to which it was placed in the course of the design and documentation of the project. DONALD BATES, BATES SMART





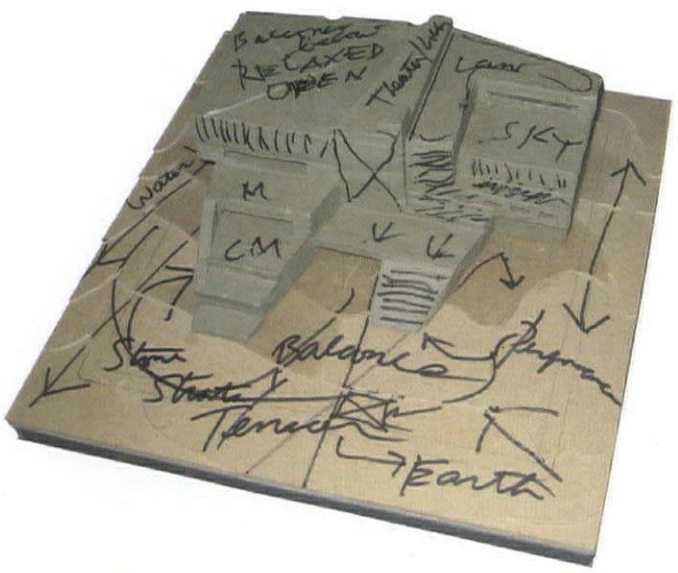




ANTOINE PREDOCK

Drawings

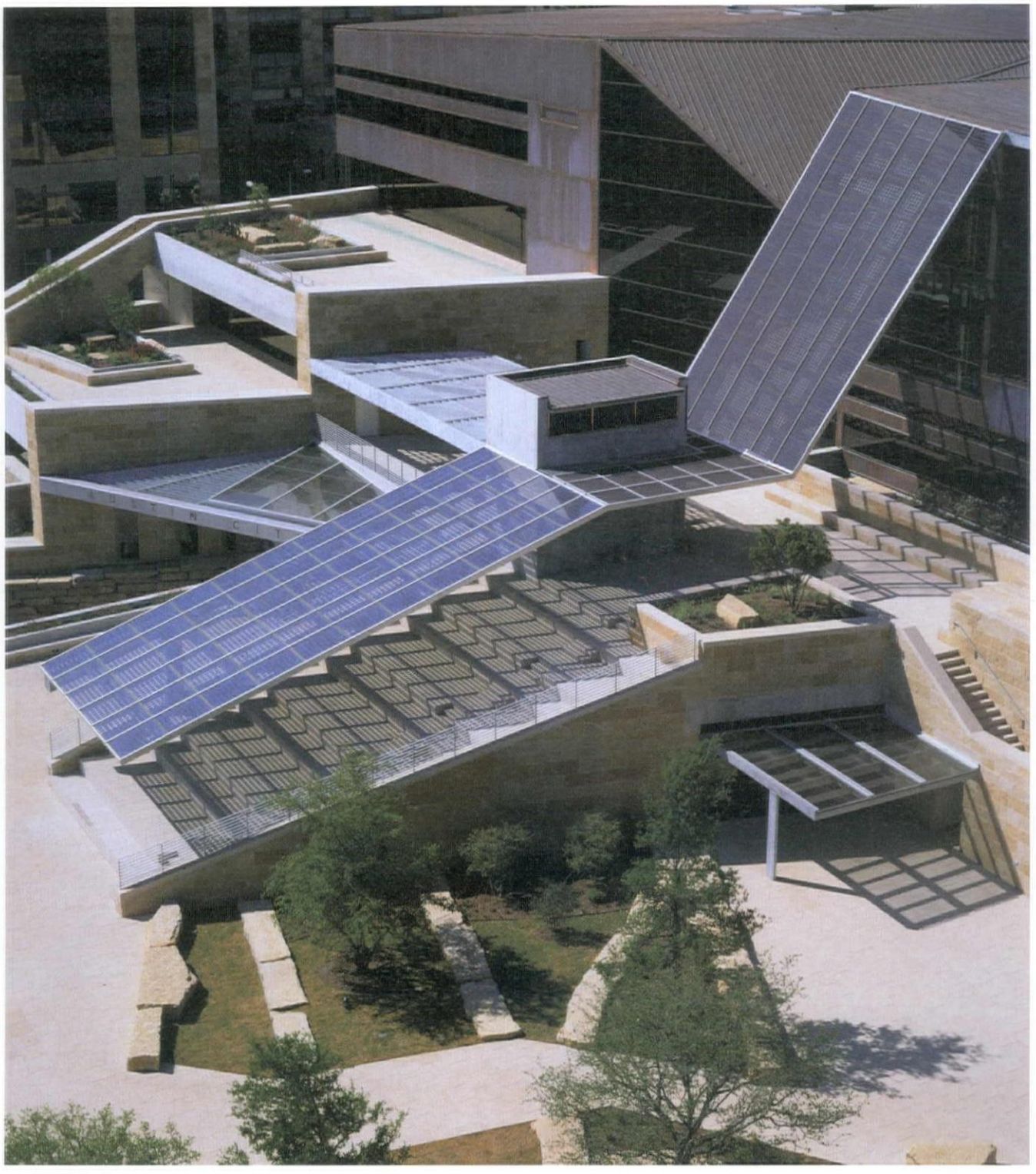
Drawing is both a vehicle for understanding and a gestural act itself (in this case for Austin City Hall). Recording an experience via drawing embodies much more than an analytical intention. In fact, my drawings aren't very analytical. When I draw historic buildings, they are inaccurate in many ways. My drawings are close, but they are not about detail or proportion. They are about the spirit of a building or a place, and the spirit embedded in the encounter and its transition. Drawing is a way of taking on a place, absorbing it, immersing myself in it. The drawings are essential to introduce a project to my team and having them live it with me; they constitute a critical starting point in the collective process.

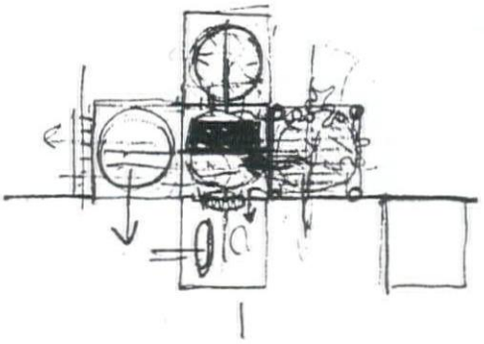


Clay models

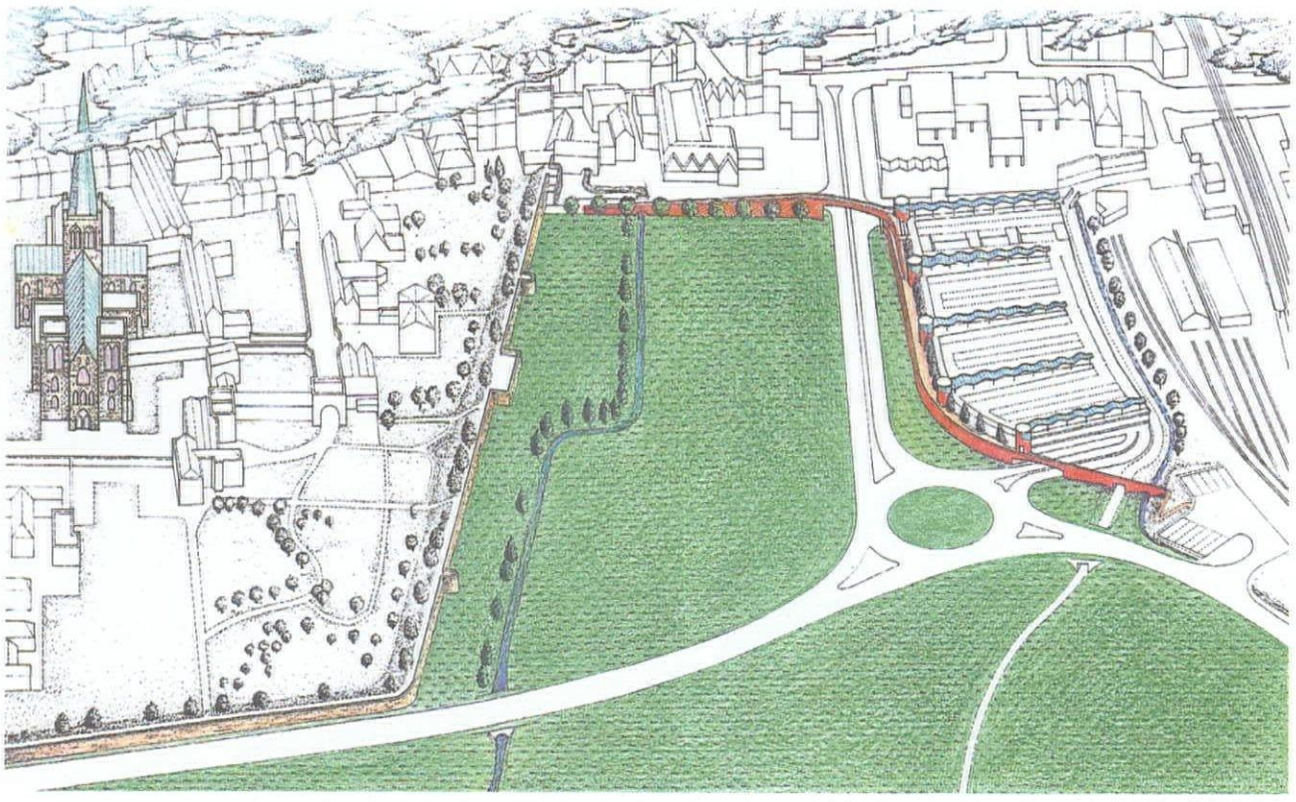
In the case of clay models (*below left*), my team literally cuts out functional programmes in cardboard, to scale, in terms of footprints and volume. They're abstract squares or rectangles and I test them against the clay forms as I'm assembling and shaping the clay. So I don't do an architectural concept sketch and see if the programme has anything to do with it. It's embedded in the work from the very beginning and discussions with clients, with respect to the programmatic life of the building, are very exciting and lead off into interesting directions of the programmatic intensities in the work.

The clay model melds the functional needs with an architectural solution addressing the multi-dimensional nature of the specific place. The clay medium not only ties the design to the earth, making the design part of the landscape rather than an object standing in it, but also provides a degree of malleability at this early point in the process, accommodating the comments and observations of the client. In this sense, the clay model is highly emblematic of our approach to the design process as a whole. ANTOINE PREDOCK, ANTOINE PREDOCK ARCHITECT





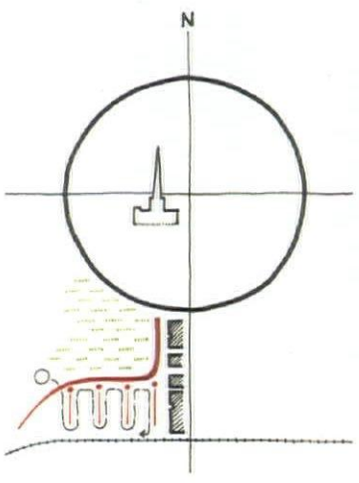
Admired: Louis I. Kahn sketch of Adler House, Philadelphia, PA c1955
Latent in Kahn's sketch is the power of the executed work, not a rehearsal, but the actual event. There is an obvious spontaneity and process of development with the sketch – implicit in the act itself. Kahn's sketches are not aspiring to be anything other than what they are, an innocent moment in time.



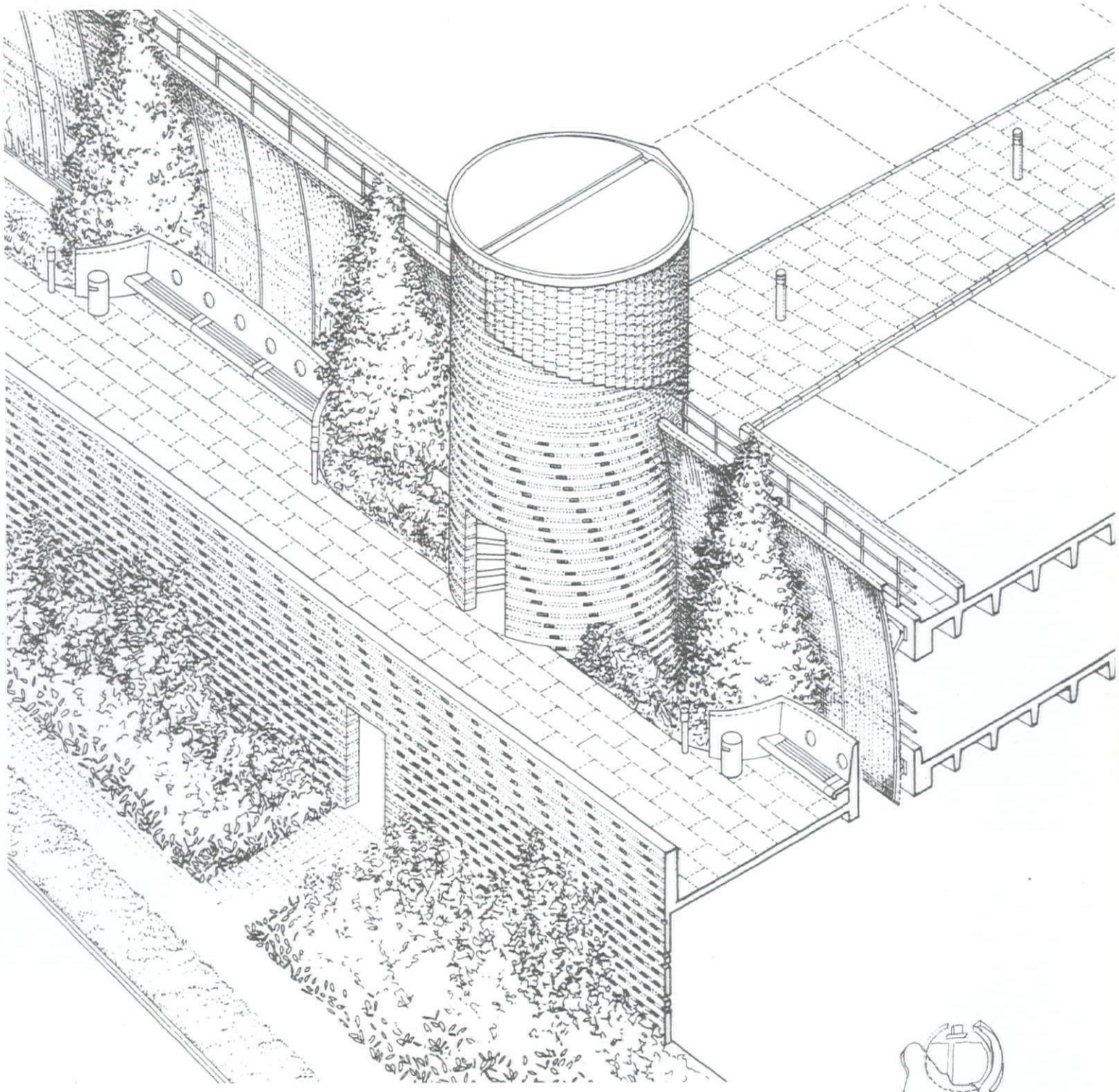
The role of the diagram is key to the development of designs within our office. Our work is developed through key design stages by hand drawing – which we can comfortably prepare quickly to cuttingly reveal the nub of the issue. We commence a design by preparing a range of sketch solutions and appraise these to pursue single options, or as is more probable hybrid solutions that embrace a number of the positive ideas. Generally a concept sketch/ diagram emerges as the distillation of our objectives for the design. If the concept sketch is robust it becomes a touchstone for the design development. At a detail level we develop supporting drawings that explore and inform the design development and detail enrichment of the project.

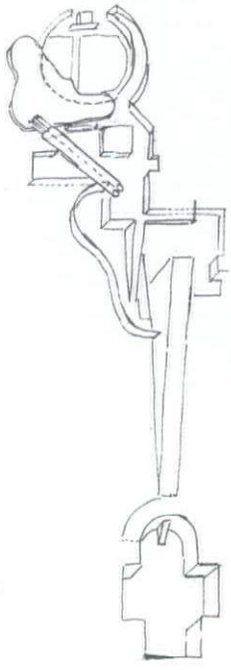
This is evident in our diagram for the car park at Chichester (*right*). Two further drawings accompany the concept sketch showing the development against the 'touchstone' diagram. The diagram works at different levels. At an urban level, by representing the historic layout of Chichester and the arrival of rail infrastructure. It also sets out our 'humane' aspiration, segregating pedestrians from the car circulation pattern. The diagram and hence the building weaves these aspects together into a holistic proposition. The diagram sets out the existing condition: Chichester's Roman town plan – a fortified city with North, South, East and West Gates linked by axial streets; the Cathedral; the 'leakage' and erosion caused by the arrival of the railway through the South Gate; and the new dual carriageway.

The red overlay (*above*) then reveals the intention of the project: a new city wall extending from the rail infrastructure to screen the car park, straddling the dual carriageway and meeting the original city wall; the re-establishment of the clarity of Chichester as a city contained by walls; a new west city entrance; and the pedestrian route reinforcing the purpose of the new city wall. MIKE RUSSUM, BIRDS PORTCHMOUTH RUSSUM



MIKE RUSSUM





Admired: Of the many brilliant diagrams sketched by Jim Stirling, the diagram we would cite is his concept sketch during the competition project for the Wallraf-Richartz Museum in Cologne in 1975 (*right*). The sketch is volumetric but not of a 'building' but instead circulation space. The diagram illustrates a series of intriguing interlocked foyer spaces that shift off axis in a progressive dynamic arrangement. The composition is asymmetric yet beautifully balanced, the programmatically driven dynamic foyers contrasting with the stillness of the 'cathedral void'. The diagram's potency is heightened by the presence of the ghostly 'cathedral void'.



Christian Richters

PETER WILSON

A few millennia ago the Egyptian hieroglyph for house was a horizontal box, the middle third of the lower side missing and below this a vertical line – a room, a door, a planometric diagram. In 1929 Le Corbusier proposed a museum (Le Musée Mondiale) in the form of an extendable spiral; a built graph of cultural aggregation, good for evolutionists, problematic for thematic curators. In 1971 Leonard Cohen sings '... you can find your love with diagrams on a plain brown envelope ...'. In the early 1980s, Elia Zenghelis and Rem Koolhaas explain their La Villette Park design as diagrammatic parallel programmed stripes, an abstraction of Dutch tulip fields. Around the end of the millennium in Japan, SANAA propagate buildings stripped to their diagrammatic essence. The prescriptive diagram is a stringently reductive design tool. Successful buildings from the 'diagram school' are judged by their felicity to the generating hieroglyph. Subplot or other multivalence evolved from process, the tectonic evolution of the object or the contingencies of its location would only blur the clarity of the diagram/building closed circuit of reciprocal authentication.

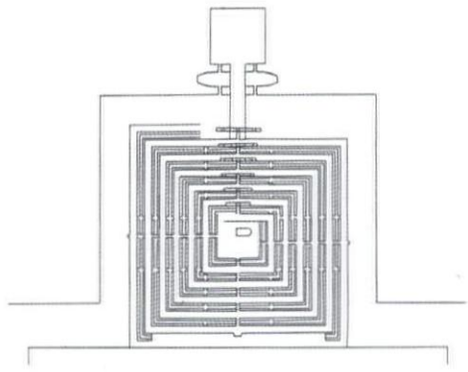
For media-circulated new-millennia projects the role of the diagram is twofold. First, it is prescriptive, proffering a sort of DNA/ hieroglyph, which purports to have already solved all contingent issues. In its second role, the same diagram is offered to the observer/ critic as a yardstick against which to measure the finished building, a 'fast-track-packaging' of architecture, a reduction to the 'one-liner' to the 'headline'.

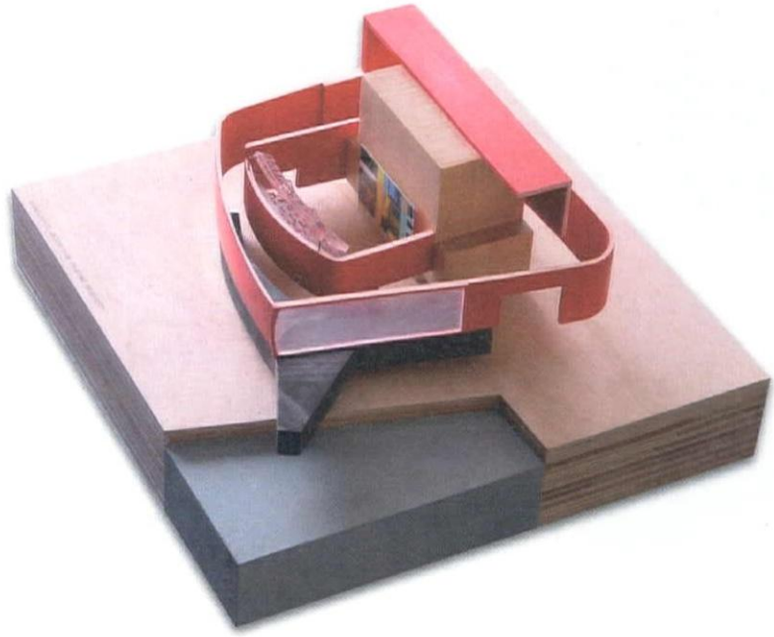
At this point I must confess, I am not very good at it. Diagrams do appear from time-to-time, but my logical facilities are for better or for worse not focused enough to decide the rules of the game in advance. Designing for me is a process of trial and error. I am not ruthless enough to throw overboard all those compromising loose ends with which one toys while coaxing recalcitrant form from the soup of experience and circumstance. Teaching is a good antidote; an explanatory diagram is worth a thousand words in keeping a confused student on the straight and narrow.

Luckily Italo Calvino has mapped out a resolution to the diagram dilemma. Two of his 'Milennia' essays are titled Exactitude and Multiplicity. Diagrammatic thinking, and designing certainly, belong to the Exactitude methodology, a continual reduction and paring down to essences. But at a certain point such refinements reach their limit, become self-reflective; a no longer useful closed circuit. At this point Calvino, describing his own writing process, switches to Multiplicity, an ever-expanding game of connections, associations and parallel lines of thought. The product (text or building) charts a complex course, engaging with what has gone before and juggling with a multiplicity of ideas, spaces and scales. At a certain point this process topples into the encyclopaedic, and it's time to jump tracks again, back to the reductive, to exactitude, to the diagrammatic. Calvino's star sign, like Le Corbusier (and both partners of Bolles+Wilson) was Libra.

The Bolles+Wilson design for the New Luxor Theatre in Rotterdam has a spiral plan, a continuous wall that first encloses and then spirals once more within the volume to divide the auditorium from the foyer. The spiral plan form is the generative diagram, re-enacted nightly by the passage through the foyer of the 1500 strong audience. The diagrammatic spiral is the subsumed vertebrae which give the animal its characteristic form, but the story does not end with this unifying gesture. The spiral is also the carrier and the organiser of a multiple of subplots, relationships from within to the surrounding panorama, localised spatial sequences and incidents on the scale of the individual user. Such buildings do not reveal their spatial, material or phenomenological qualities through the diagram or even through the eye of the camera. They are better measured at a scale 1:1, by being there, than against the reductive discipline of the diagram.

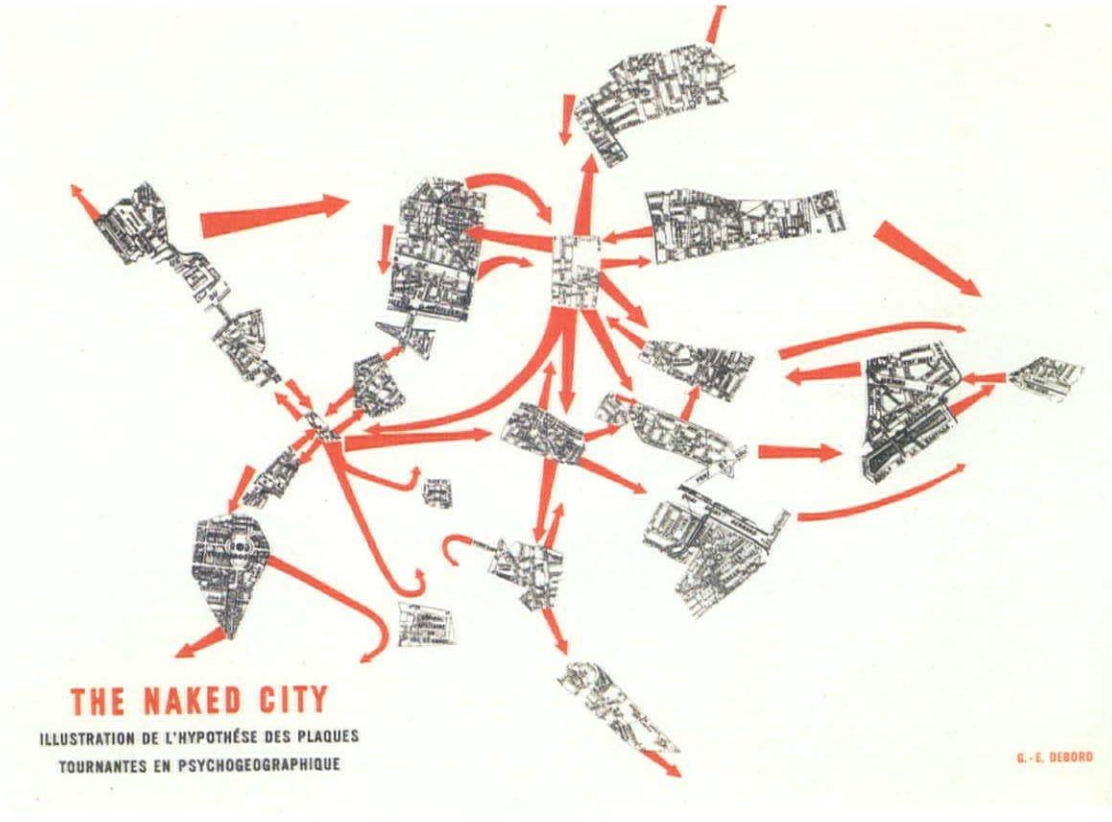
PETER WILSON, BOLLES+WILSON







MATTHIAS SAUERBRUCH

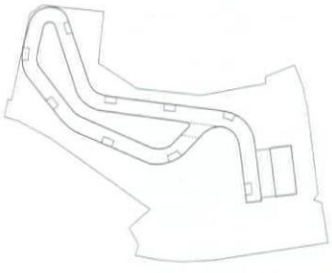


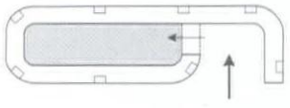


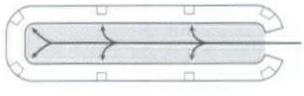
Diagrams serve as communication tools; we make them in order to explain our design intentions to others (and ourselves). The design process is a journey that travels through territories of intuition and rationality. Quite often the diagram serves as means to rationalise our instincts. The best diagrams are explicit of the structure of both an idea and a physical condition like a building.

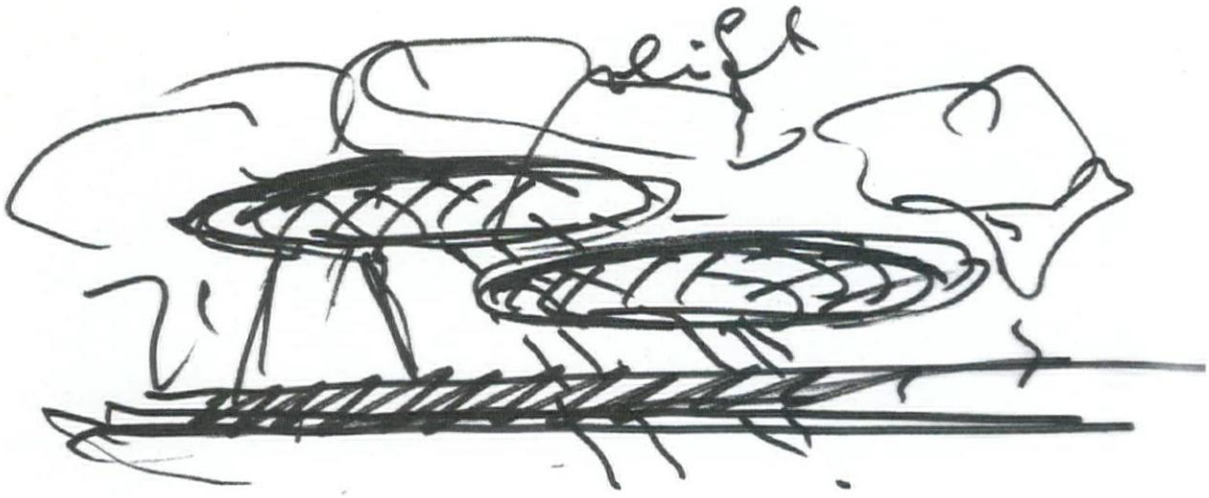
I chose this set of diagrams as they explain the metamorphosis a standard office building for the German Civil Service underwent in our design process. Almost like a transformation in nature, a building object made of a consistent number of elements changes identity through considerations of spatial perception, internal structure and urban integration. MATTHIAS SAUERBRUCH, SAUERBRUCH HUTTON ARCHITECTS

Admired: The Naked City (opposite) by Guy Debord. I like this diagram, as it accurately describes the experience of the city. The mixture of a loose, sketchy composition and elements of 'scientific' cartography of actual physical circumstances is a good mnemomic representation of the individual reading of an environment. Reversely, the diagram suggests an urban constitution defined by perception and memory.









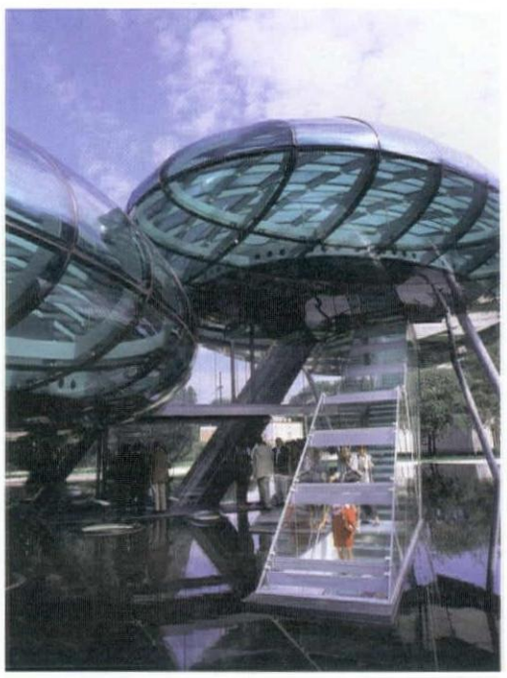
My real obsession is landscapes, like Ayers Rock, the red mountain in Australia, the atolls in Polynesia, enormous dunes that form and dissolve in the deserts, icebergs. I have always been fascinated by the beauty of the absence of form, the imperfection of beauty. I have always asked myself how it is possible to create a form of architecture with no shape and with no geometrical or complex dimensions. I believe that artists, even the worst ones, are better than architects, because artists always start from a vision; architects never speak about it, they always speak about a project. I became an architect because my mother was afraid I would become an artist and, to her way of thinking, artists were people who never had any money. My dream is that everyone can have ideas, passions and feelings. What is the point in struggling to earn more and more, to gain more power?

Trade fair as landscape

The design of the New Milan Trade Fair chooses to make the longitudinal connection axis its main generator; a spine which gives structure to the entire complex. This space, the 'central axis', is the place of activities, the centre of information, and the place of crossing. These concepts are developed through the positioning of a series of buildings alongside the main axis, with connections at ground level, and at footbridge level, 6.5m above. The buildings host various functions: restaurants, meeting rooms, office spaces, and reception areas that connect with the exhibition halls. The pathway stretches between two areas, between the east and west entrances that provide the main accesses to the Trade Fair. The buildings along the central axis are suspended above diversely treated landscaped areas: water, green areas and concrete, with the flanking stainless-steel and glass facades of the exhibition halls, become the scenography. Above the whole of this space extends the vast roof – an undulating lightweight structure like a veil; a veil, with a surface area exceeding 46 000sqm, and over 1300m in length.
MASSIMILIANO FUKSAS, MASSIMILIANO FUKSAS ARCHITETTO

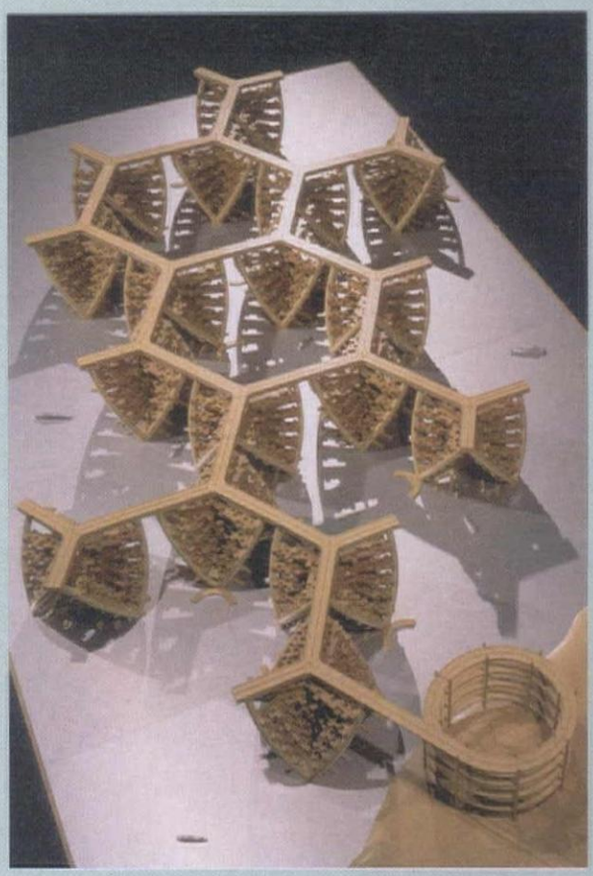
MASSIMILIANO FUKSAS

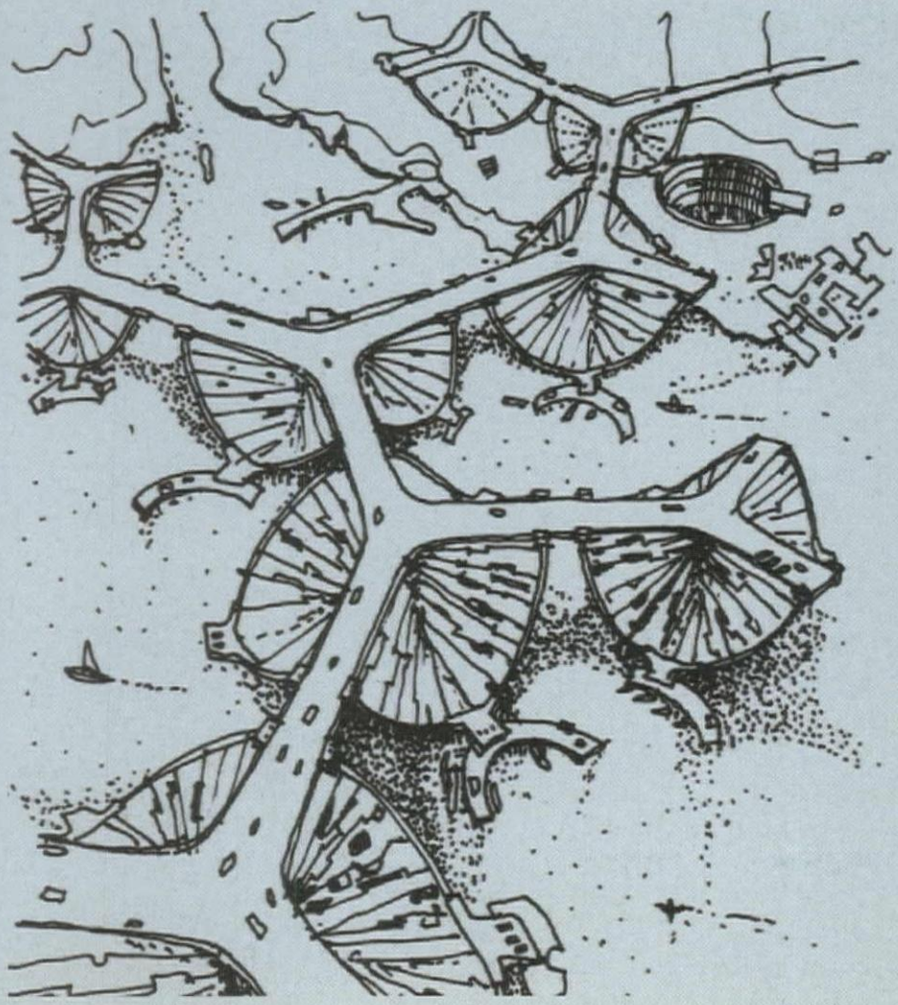




KISHO KUROKAWA

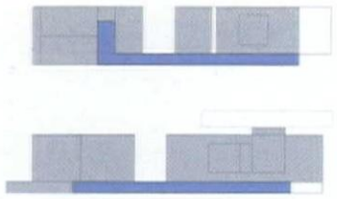






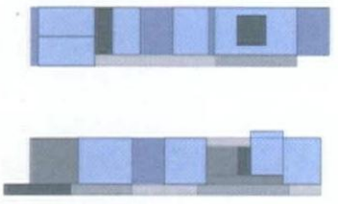
To witness Kurokawa at work is to behold a minor ritual. Every new project receives his personal attention, with design sessions typically lasting a couple of hours. A secretary prepares paper, pencils and pens for the architect, who sits at an expansive boardroom table, the project team standing in a circle, looking on. At the end of the allotted period, the architect hands over his sketches to assistants, who have a day or two to develop and test – through more accurate models and scale drawings – the practicality of the proposal. Usually, Kurokawa develops several options: 'I ask clients for their opinions, but I insist that the final choice should be my own'.

Text by Peter Wislocki, taken from Kisho Kurokawa: From the Age of the Machine to the Age of Life, *edited by Dennis Sharp, London: BookArt, 1998.*



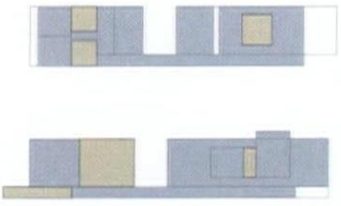
MOVEMENT

Movement patterns are organized to experience the views as one moves through the house.



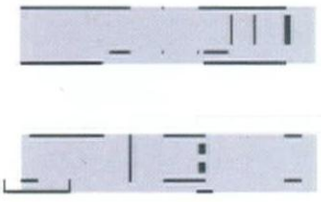
INSIDE-OUTSIDE

Program and privacy were key factors in fine tuning the connection of indoor spaces with outdoor views. The result is an environment made up of various levels of transparency and view framing throughout the house.



SERVICE

Service spaces were designed to be kept away from the 'edges' and away from view corridors.



STRUCTURE

Structure is designed to minimize the amount of friction piles and geological impact.

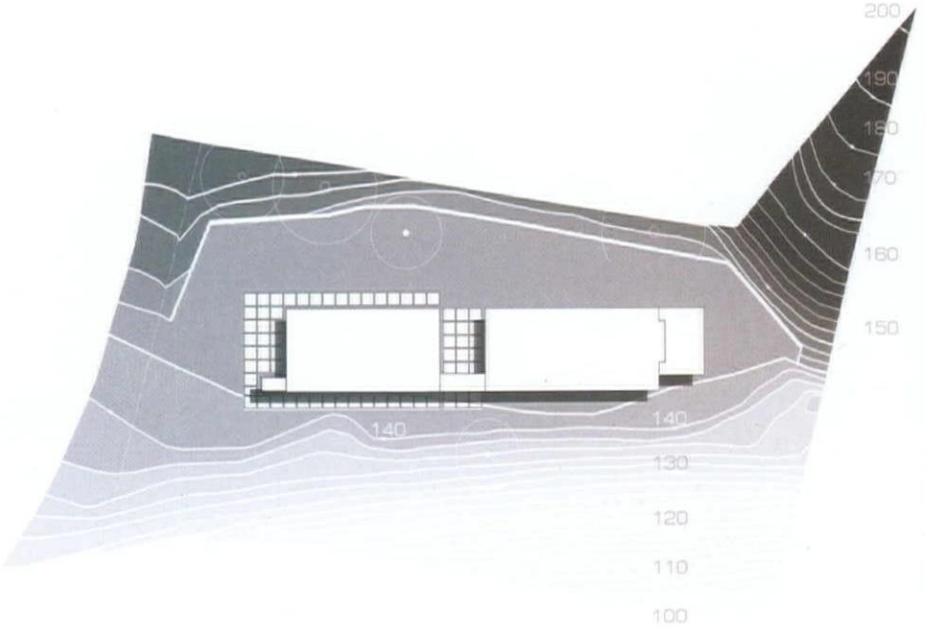
Everything is a diagram

There are several diagrams in every building: a programmatic one, a structural one, a mechanical one, a solar one; there are sectional diagrams, elevation diagrams, circulation diagrams and so on. Any one can be the driving force for our projects (seen here is the Oshry residence), or often a combination of several of these diagrams will influence a project's outcome. One can relegate the diagram to just the plan, however we don't think in terms of only plan. Diagrams bring different aspects that float around in the brain, and are more than just two-dimensional.

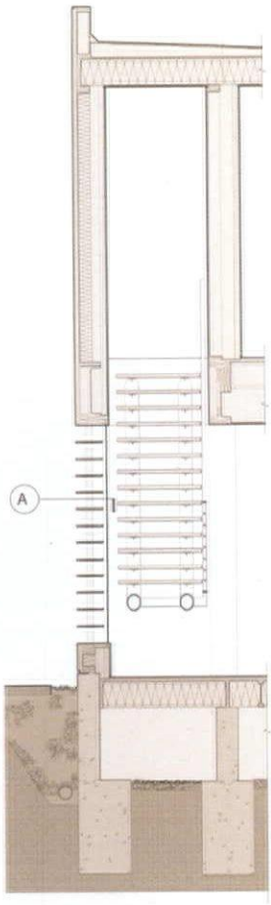
For me the diagram must exist in the mind well before pen hits paper. It comes to me in half-sleeps, during the painful process of staring at a blank sheet of paper. None of it is glorious, rather it is just my job – that is, the job of solving a problem in the most elegant and simple way. This is what they hire me to do as an architect, and it is in my opinion only resolved through the diagram process. To ask, therefore, 'to what extent is the diagram important to your work?', is almost like asking, 'to what extent is your brain important to your work?' The diagram represents how things begin, and as such is an indispensable part of the process.

Of course, ultimately the design of the project cannot become a slave to the diagrams in your head. Buildings as they evolve through the design and then construction phases are much more complex. But without starting with a clear and simple diagram, the design of a project will be a disaster, as things get more and more complicated. Without a framework to hold it all together (namely the diagram), the design of a project will fall apart. While some architects may start with a series of complexities and try to simplify as the process unfolds, I for one need to start with a simple idea and let it become more complex around the core idea as the process unfolds. The process does not stop until the last screw is set in, and if all is done well, even that last screw and how it is screwed in will be part of that early simple idea, the diagram. ZOLTAN PALI, STUDIO PALI FEKETE ARCHITECTS

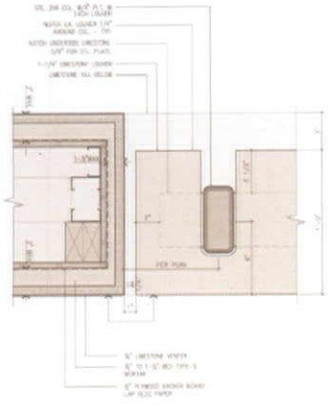
Admired: I enjoy the diagrams of California Case Study maestros, Ellwood, Koenig, Ain and Lomax to name a few. There were no tricks, no cerebral masturbations, no overwrought intellectual academic thought processes, but rather a clean geometric problem-solving approach to create a better built environment. All things were considered: where light was coming in, where views were, how the structure was going to be handled, how the sun was to be blocked, where the mechanical stuff was to run, what was on the site and last but not least, what things cost – not only in material and its waste but what things cost in human effort. There really is no way to get there without the process of good diagramming.



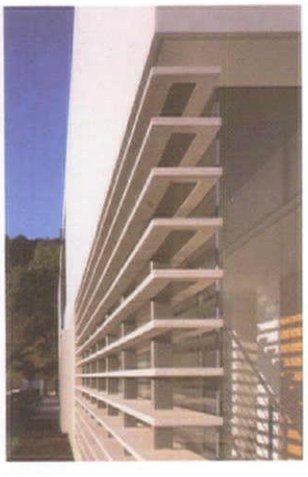
ZOLTAN PALI



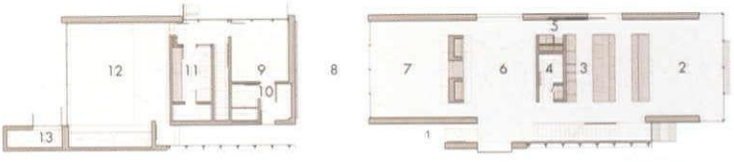
SECTION @ STAIR & LOUVER



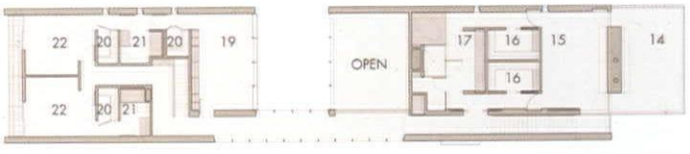
A - PLAN DETAIL @ STONE LOUVER





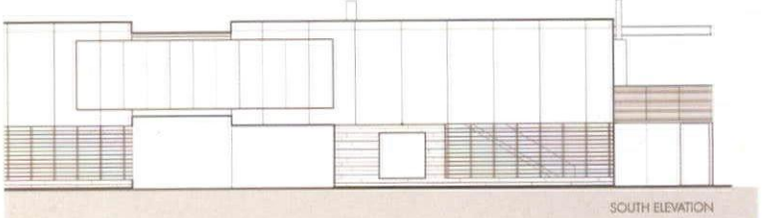


GROUND FLOOR



SECOND FLOOR

1. ENTRY
2. FAMILY
3. KITCHEN
4. POWDER
5. PANTRY
6. DINING
7. LIVING
8. COURTYARD
9. MAID
10. BATHROOM
11. UTILITY
12. GARAGE
13. STORAGE
14. DECK
15. MASTER BEDROOM
16. CLOSET
17. MASTER BATHRROOM
18. BRIDGE
19. STUDY
20. CLOSET
21. BATHROOM
22. BEDROOM



SOUTH ELEVATION

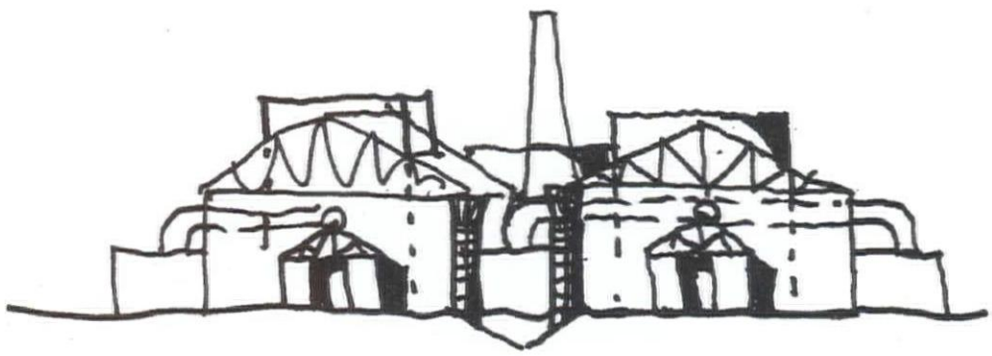
STANLEY TIGERMAN

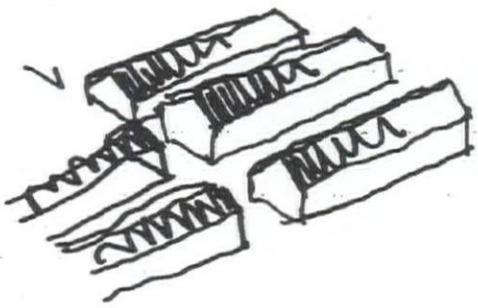
The (architectural) diagram is the first graphic representation of an architect's conceptual thoughts. If the diagram doesn't become fulfilled through development, it is difficult to begin again; demonstrating the power of the diagram. The diagram can take different forms, ranging from the expression of functional juxtapositions (the so-called 'bubble diagram') to pre-design cogitations. Whatever form it takes, it has the authority of initiation, and as such, an undeniable potency. It can be abstract, or detailed, but its power comes from it being the first graphic representation of an idea that is somehow magnetically drawn towards its own fulfilment. For me, however, the most fascinating part of the diagram is the part least talked about – the pre-diagrammatic moment just before thought is made graphically palpable, ie, causality.

History and environment are preconceptions that weigh heavily in determining what that first diagram is. There is, however, an inexplicable moment before that. That is the moment that both fascinates – and escapes – me, the moment that represents the fluid core that I believe to be architecture just as it is being conceived – what a moment!

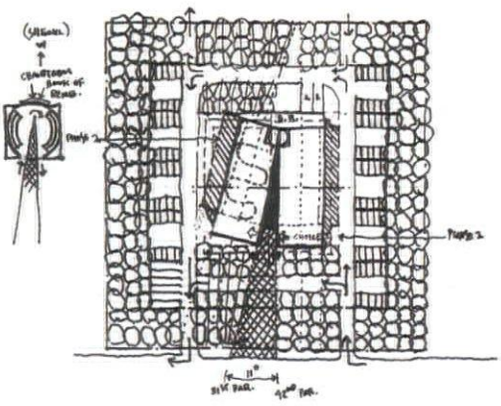
The diagram(s) included represent my initial thoughts about a major work that will begin construction in spring of this year – the Illinois Holocaust Museum, Memorial and Education Center. They were sketched while on an aeroplane in response to a request for an interview with the museum's architectural selection committee. While mulling over whether I would submit to an interview, I jotted down thoughts I had about Judaism's ancient history and how I believed that the intention of the Third Reich was to not only kill Jews, but to obliterate the history of the Jews. The 'hinge' at the centre was thought of as the 'Book of Remembrance', while the dark (left) side I perceived as a 'descent into darkness' (the museum) and the light (right) side as an ascent into the light.

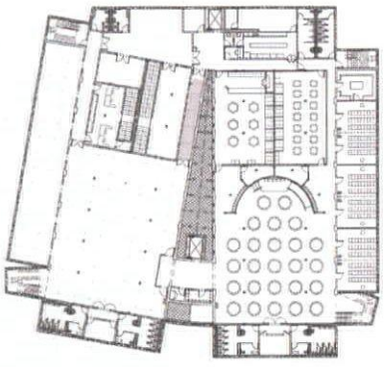
That sketch was the initiation of a series of thoughts that have been fulfilled through the development of the project.
STANLEY TIGERMAN, TIGERMAN MCCURRY ARCHITECTS



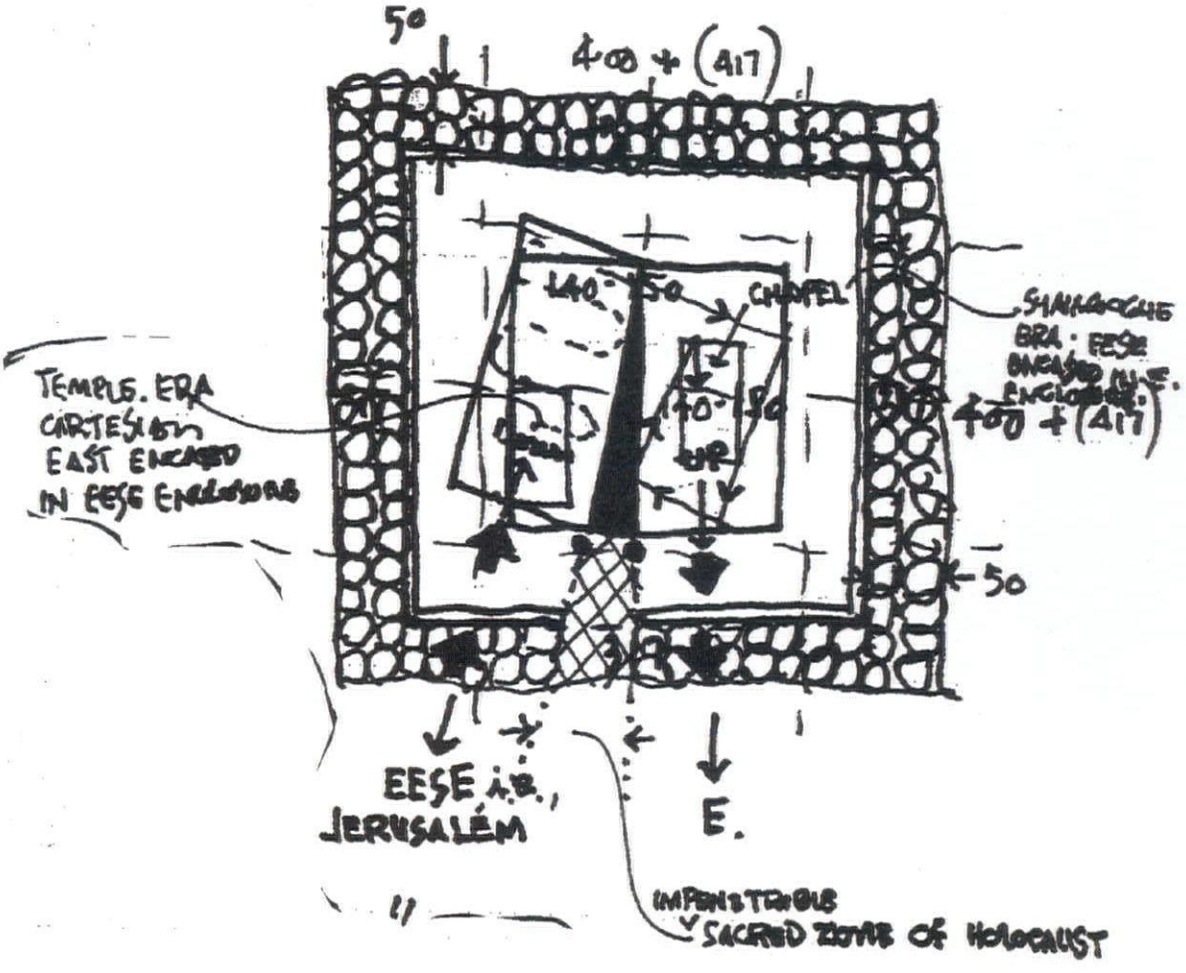






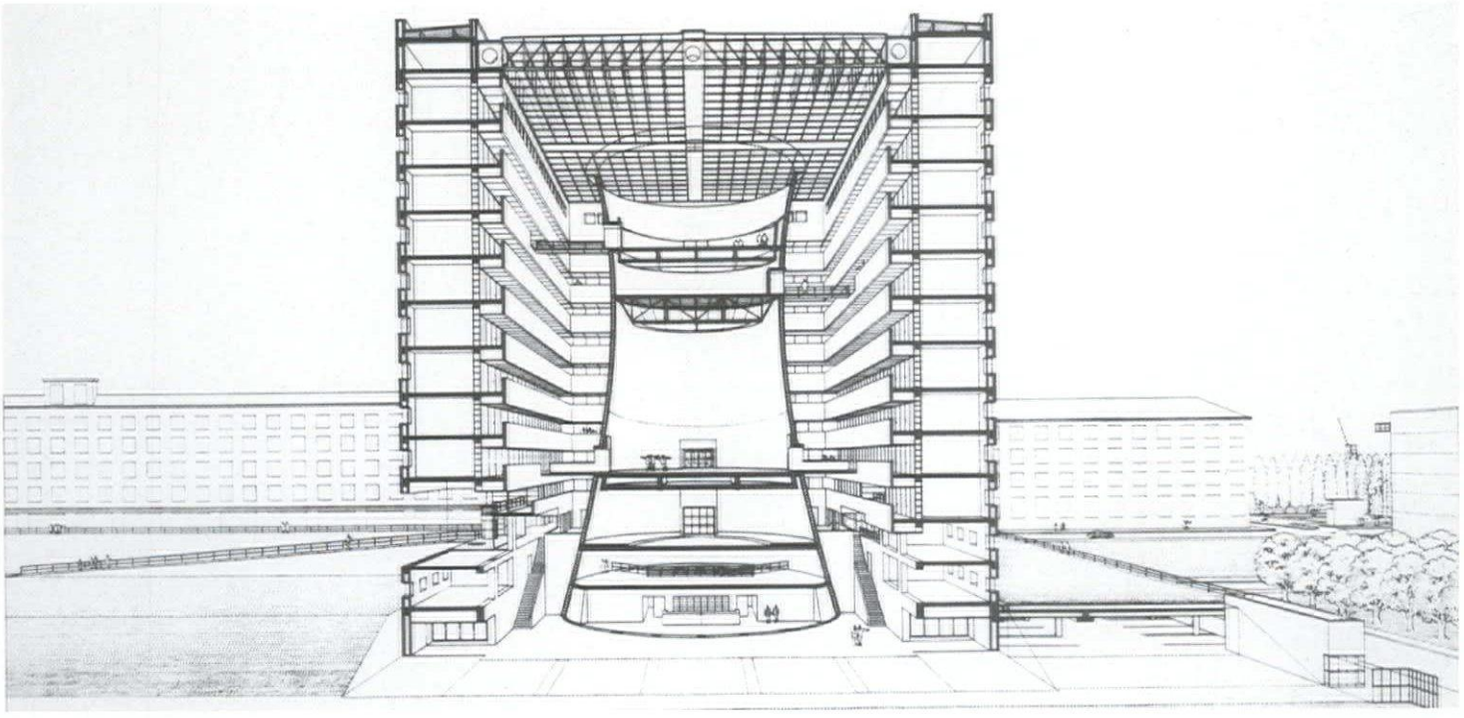


Admired: The most potent diagram I can think of was simply a line _____ conceived by my friend, the late John Q. Hejduk as an initial representation of his famous wall house project (now built in the Netherlands) where one side of the wall represented the past (opaque elements – stairs, kitchen, bath, and so on), and the other side the future (transparent elements – bedrooms, living, dining, and so on). The potency of the project at its earliest 'ideation' stage will remain with me forever. Its surrealist progenitor artist, René Magritte, combined with the finitude we all contend with – the thin line which is our brief present on this planet – all combine to have immense weight. That an architect – albeit a highly poetic one – could capture all that in one slash of a mark, is remarkable.



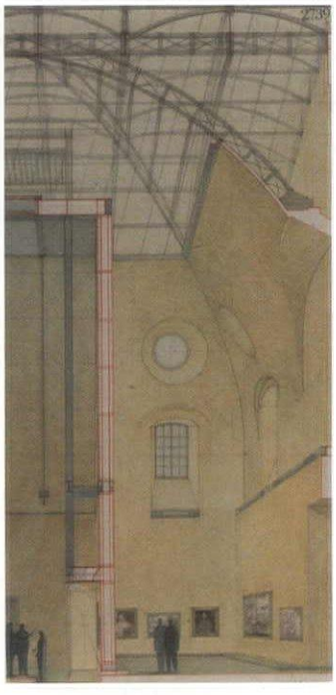


VITTORIO GREGOTTI



When I consider a project, I almost always start to design with a pencil, because I believe that thought passes through the hand onto the sheet through successive approximations. I generally start with sections, horizontal and vertical, until the point when I find some fragment of certainty. I believe that sections – of a building and an urban system – are my most significant instrument for the construction of an architecture project. The section compels an urban or architectural structure not only to form an organicity between the parts – between outside and inside – but also to control the spaces between the things built, and their siting on the terrain, to relate geography to history. The section is also the evidence of the habitability of an architectural organism or an urban system, measured directly with actions, gestures, paths and movements; also in terms of height. Working with models in section also has advantages in terms of clarity and precision (see opposite, our Banca Lombarda HQ).

Sections avoid the fascination of the image (architecture has an image but it is not image alone), and move away from consideration of the design as an autonomous figurative product (and this also applies to the false visual autonomy of the products of computers), with its meaning remaining instrumental to the construction of the architecture project. The section is our way of investigating the problem that lies before us, of establishing a dialogue with its complexities, of relocating them in an order according to a form (see above, our Pirelli HQ in Bicocca). The plan is a horizontal section; it is part of the dialogue that identifies the organism. It is indispensable to control the height at which we imagine sectioning the organism horizontally. It is from the section that the best perspective views are developed (see left, our rearrangement of Salle des Etats at the Louvre); in this way they remain faithful to the real measurements and guide their development: inside and outside, from the bottom up. Then the section has to do directly with the rules of the construction of things; it highlights their concealed yet constituent connections, the character of the construction.
VITTORIO GREGOTTI, GREGOTTI ASSOCIATI



Admired:
Probably nobody as much as Piranesi has been able to show in such depth the relationship between expressive form and construction endowed with meaning and duration, also using the section as archaeological investigation, to show that great architecture leaves behind ruins, rather than wrecks or rubble, which there is no alternative but to eliminate.

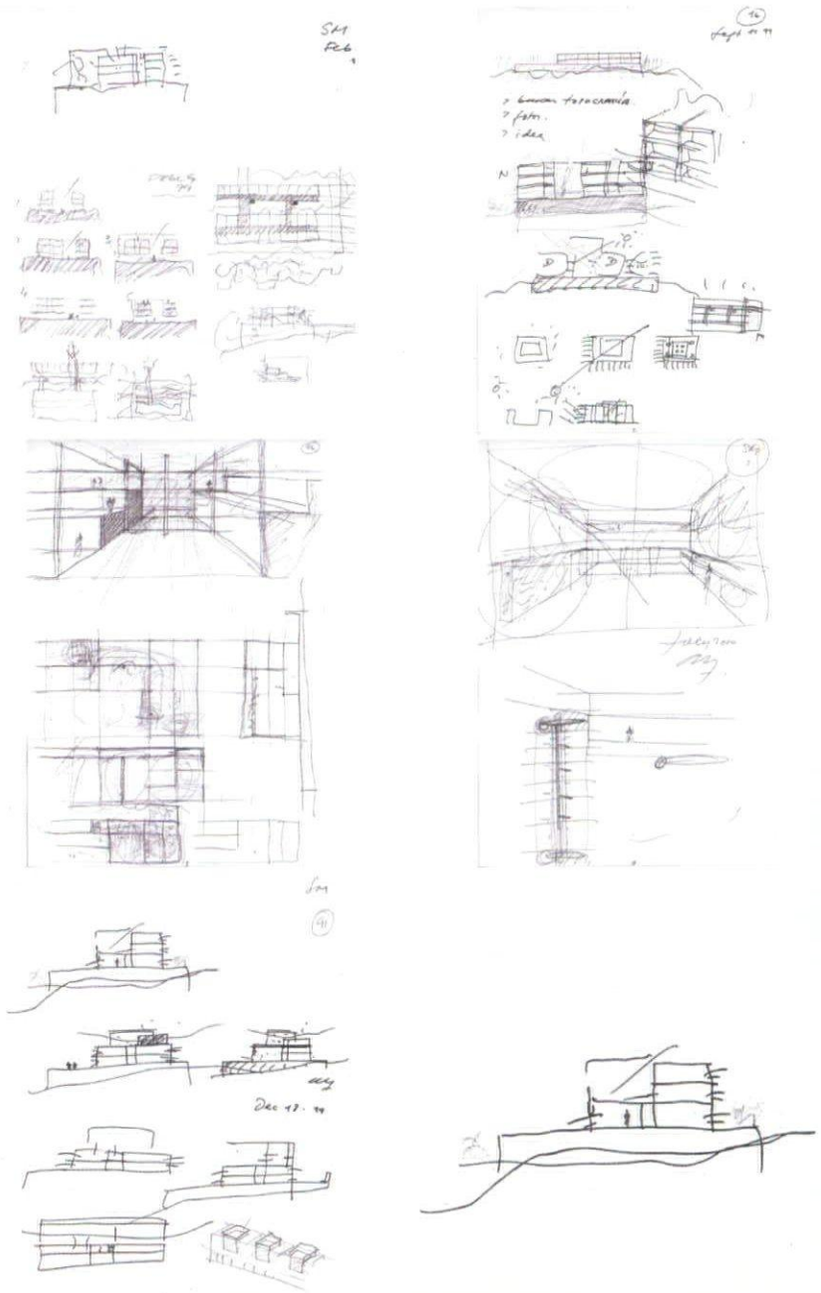
To see a World in a grain of sand,
And a Heaven in a wild flower,
Hold Infinity in the palm of your hand,
And Eternity in an hour.

How many times have I repeated this beautiful poem by William Blake to my students, trying to inculcate them with how much of the ineffable the best architecture has. 'To see a World in a grain of sand' has quite a bit to do with what a diagram is in relation to the project that it explains to us. While the dictionary says that diagram is a 'graphic figure that explains a specific phenomenon', knowing how complex constructed architecture is, we are surprised by the diagram's capacity, as a small and simple drawing, to express so much. Like the grain of sand does in regard to the world.

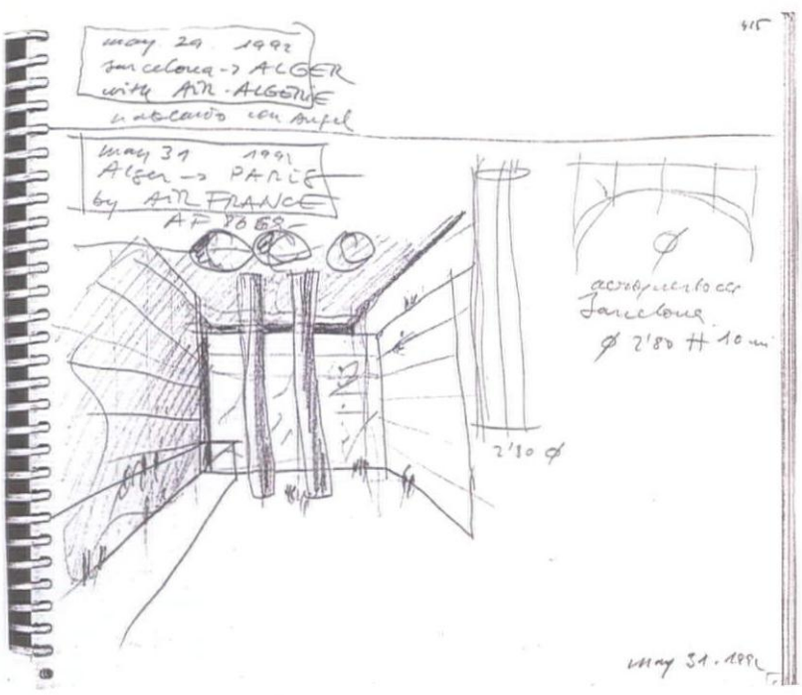
I have written time and time again that architecture is 'built idea'. And to build these ideas, one needs design plans that can express what and how this reality is. These drawings are like anatomical cross-sections of the new architectural body. They are the development of other, simpler drawings that defined the project in a more general manner before. And if we keep pulling the thread, we reach a key moment: the beginning. There, the very schematic drawings appear as the diagrams. The diagram is the key drawing that contains within it the seed for the entire project. It would be like the foetus in which the heart already beats, in which the being that is going to be born, further developed, already appears wholly complete. That is the diagram in a work of architecture. In my architecture, diagrams have played an important role. And whenever I am asked for documentation to publish a project, I include some diagram to explain my intentions clearly. The diagram expresses the idea precisely. It is the first concretion from thought to reality. When I draw a diagram, it seems as though I wink my eyes in the attitude that Shakespeare describes so well at the beginning of his beautiful Sonnet 43:

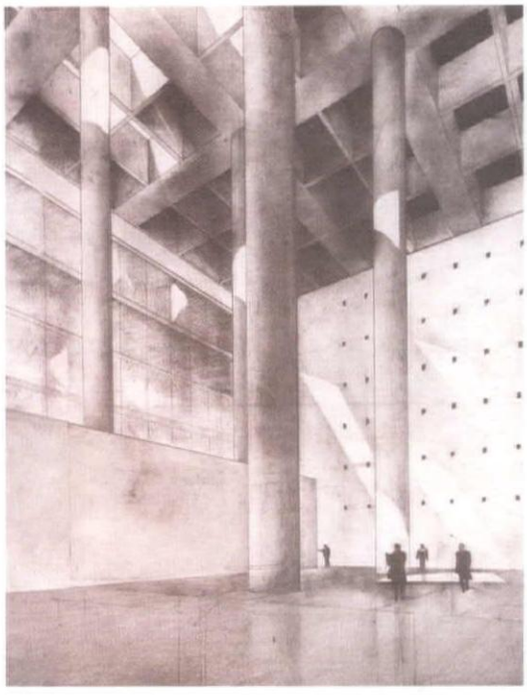
'When most I wink, then do my eyes best see,
For all the day they view things unrespected.'

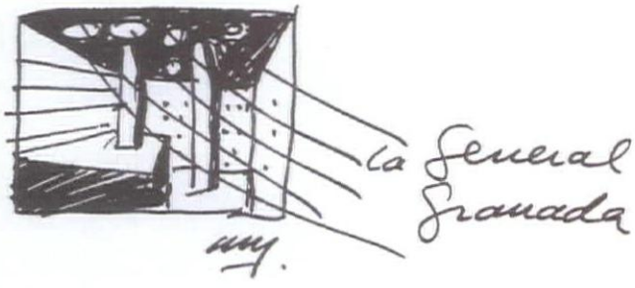
ALBERTO CAMPO BAEZA



ALBERTO CAMPO BAEZA

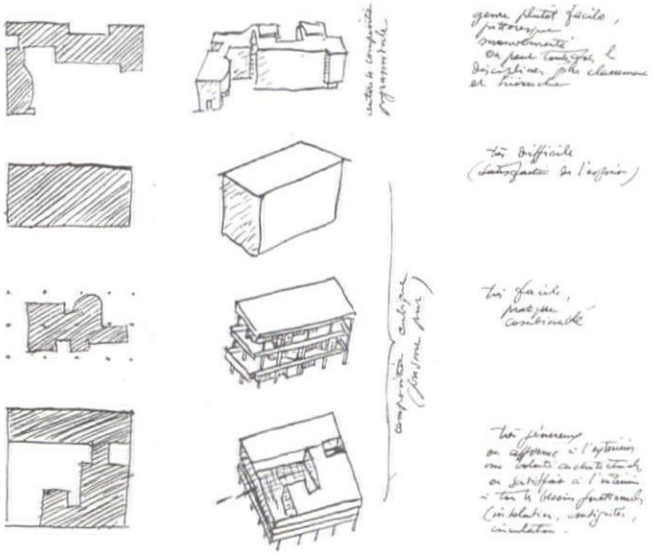








CAJA GENERAL de GRANADA
HEADQUARTERS
BANK
IN
GRANADA - SPAIN
1992
Competition august 92
winner
1st PRIZE



Admired: Boutade

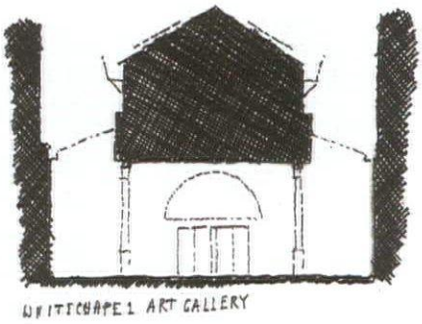
The diagrams made by the masters express clear ideas with simple pencil strokes. Mies's diagrams, tense, elegant and serene, are the prelude to his impeccable architecture. Le Corbusier's diagrams, categorical, strong and forceful, speak of the universality of his works.

And Alvar Aalto's diagrams, lyrical, organic and fluid, put forward the emotion of his spaces. But if I had to choose one diagram, I would choose the drawing Le Corbusier made of Villa Stein in Garches as a bare box at the side of which he wrote 'très difficile (satisfaction de l'esprit)'. Satisfaction of the spirit, what is that if not architecture?

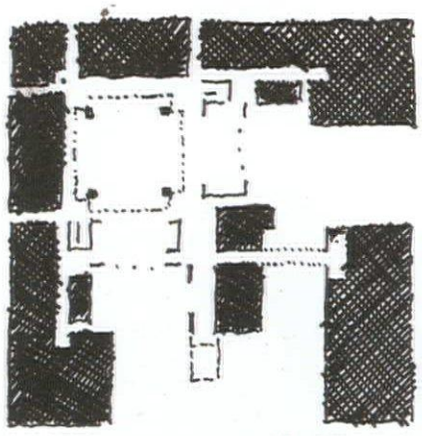
The interpretation of what is meant by 'diagram' has varied ever since the Modern Movement got on its feet. The Diagram, the title for this issue of The Architectural Review, brings to mind a series of linked functions intended to remove the possibility and danger of preconception. However, a response to a brief always brings to bear pre-existing architectural luggage, including previous experiences, intuition, and a preference for particular formal arrangements. In my practice, this wardrobe is matched against the programme, and its needs, and is then modified accordingly. This process creates an ever-increasing system of reference.

A particular concern has been the differentiation of those parts of a building subordinate to those that have a primary purpose. The latter are often the communal or public spaces, see Forest Gate High School (opposite below) and The Queen's Building, University of East Anglia (opposite above). Such differentiation can be considered as positive or negative, the substance of figure ground theory. Through practice we have discovered that the figure ground study can be used to differentiate elements in the section as well as in the plan. See the cross section through the Harrison Townsend Whitechapel Art Gallery where the upper gallery (negative) nests above the lower main gallery (positive). The precedent that has underpinned this approach is that of the 'servant and served' as advocated by Louis Kahn and exemplified in his labs and bathhouses. Although buildings can be analysed diagramatically, I believe their genesis was one of concept rather than through the exercise of diagram. The diagram can be used to explain a building *a posteriori* but is not necessarily a tool in its development. JOHN MILLER, JOHN MILLER + PARTNERS

Admired: It is hard to imagine Alvar Aalto's work being a product of a diagram and as far as I know there is no example to illustrate this in his published works. As in all Aalto's buildings, the structure of the land and the temperament of its people have helped shape the house. In his writings, Aalto acknowledged that his designs started in an irrational way and that he was stirred by mythic and atavistic impulses. He implied, by tapping them and erasing from his mind the often contradictory requirements of a design brief, that he could then give free rein to instinct. Thus 'a basic design is born'. His sketches gradually respond to the demands of use, technical and economic necessities. The Villa Mairea is not dependent upon any apparent ordering system. It is not schematic.



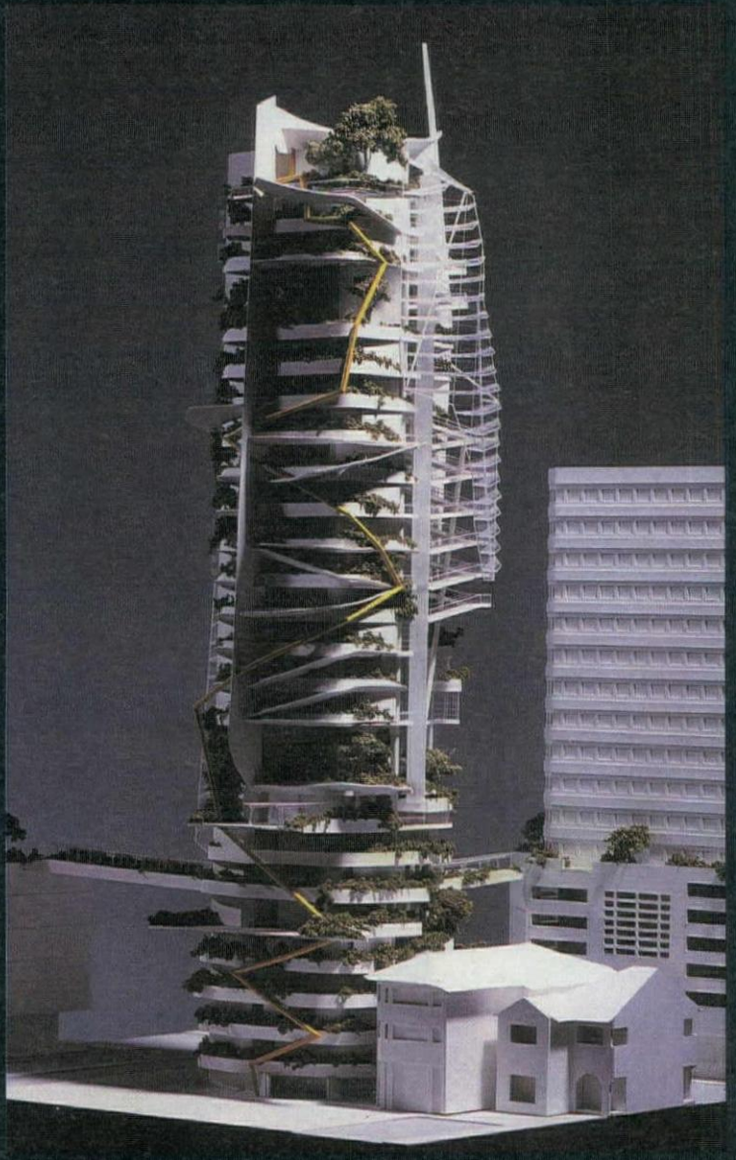
WHITECHAPEL ART GALLERY

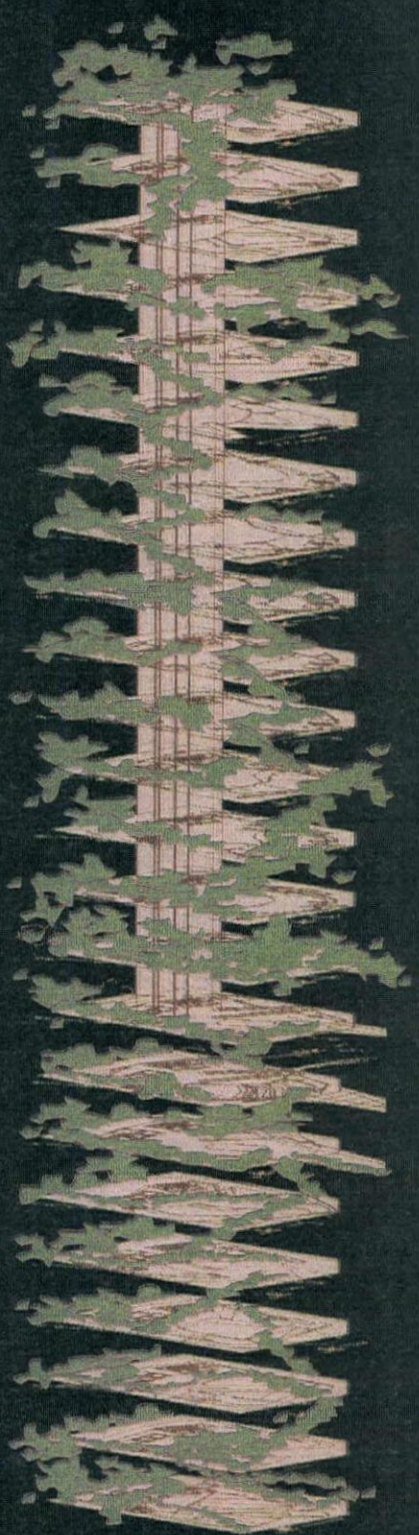


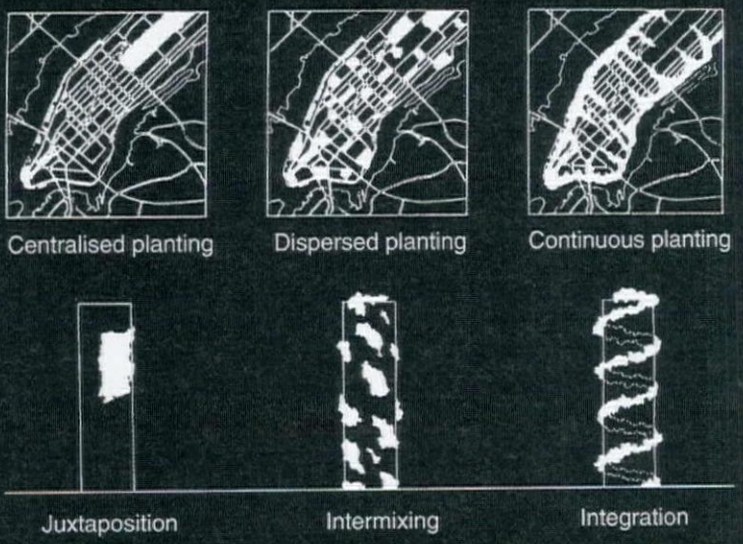
FOREST GATE HIGH SCHOOL
1963 - '66

JOHN MILLER

A fundamental aspect of green design is to balance the inorganic human-made built environment with the organic to derive an integrated and balanced eco-system that enhances biodiversity of the locality in a seamless integration of the human-made with the natural environment. (for example, in the Exhibition Tower, Singapore, left and below).
KEN YEANG, T. R. HAMZAH & YEANG

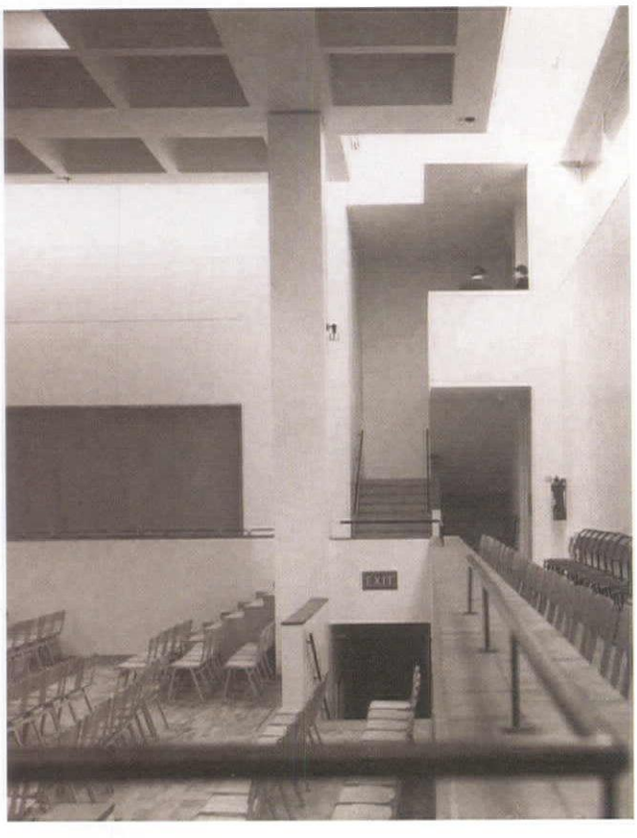






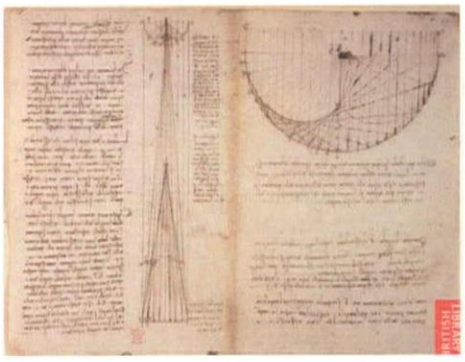
KEN YEANG




EXIT

A diagram is a material organisation that prescribes performance. It does not necessarily contain metric or geometric information. A diagram is able to absorb and embody increasing levels of complexity and information, without necessarily altering the nature of its performance. However, it is crucial that the performance is clearly determined: diagrammatic operation should not be confused; on the contrary, the diagram is about very precisely knowing at every moment what is the level of determination that we can exert. In a diagrammatic process, the project develops a constant capacity to trigger new virtualities, new possibilities, to keep developing potentially ad infinitum. Hence, the moment of closure is determined by factors external to the project. It is in the middle of this process that strategies and aims need to be deployed, not at the beginning or the end.

We use the diagram very literally as an instrument to determine and explore architectural performance. It does not contain the final formal determinations of the project: there need to be several forms of mediation between the form of the diagram and the final form of the building. Yokohama is a pier where you never retrace your steps. The project is generated from a functional diagram that tries to avoid the characteristic linear organisation of a pier. In whatever direction you cross the pier, you will always have the experience that you are not returning. The project's value is placed neither on its formal qualities nor as a cultural statement, but on its spatial performance, and that is why the diagrammatic development is so crucial to the project. In Yokohama, the material 'ground' is deployed to turn the no-return diagram into a three-dimensional diagram. Ergonomic and functional information are then incorporated in the diagram to determine the scale and geometry of the surface's deformations. Technical information about the scale of the load-bearing structures is also incorporated. Only after the diagram has absorbed all this information, it becomes a drawing, acquiring metrical and geometrical determinations.
FARSHID MOUSSAVI and ALEJANDRO ZAERA POLO, FOREIGN OFFICE ARCHITECTS

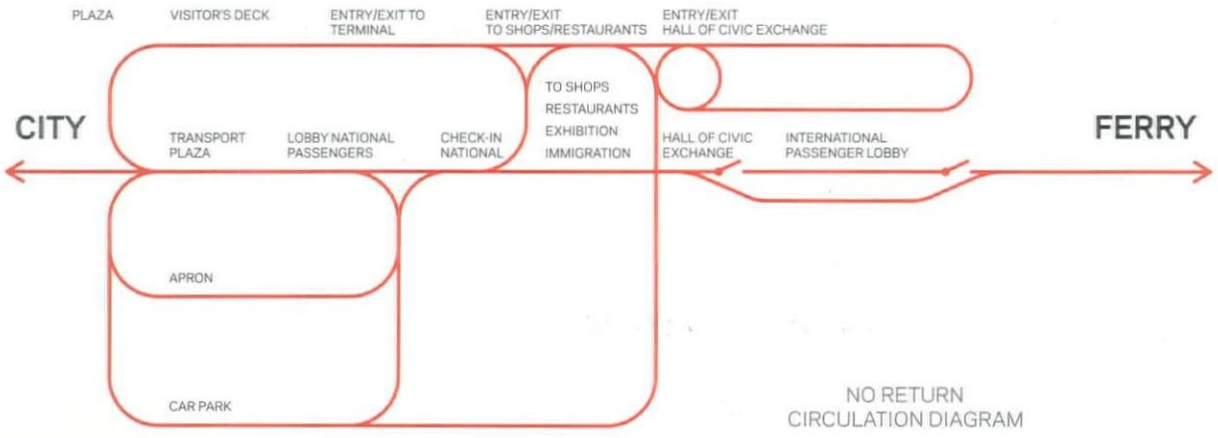


'Studies of Reflections from Concave Mirrors', Leonardo da Vinci, Italy, 1508. British Library Arundel MS 263, f.86v-87.
Copyright©The British Library Board.

FOREIGN OFFICE ARCHITECTS

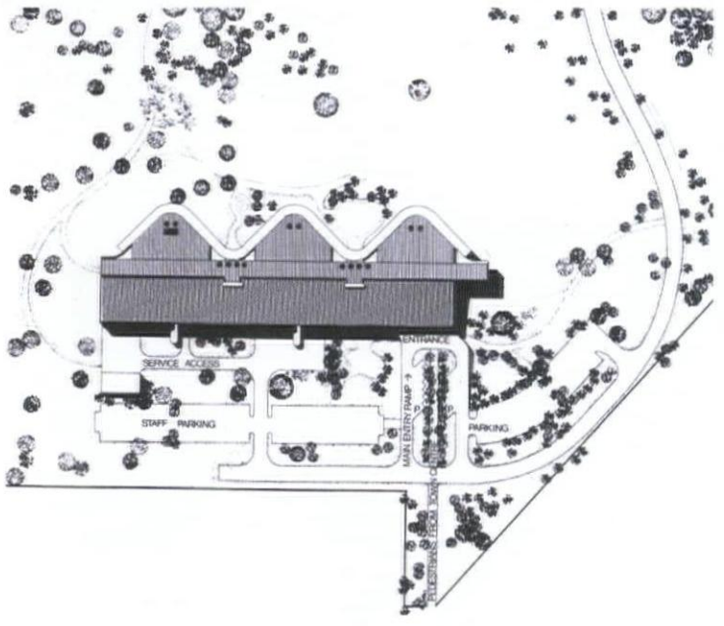
Satoru Mishima





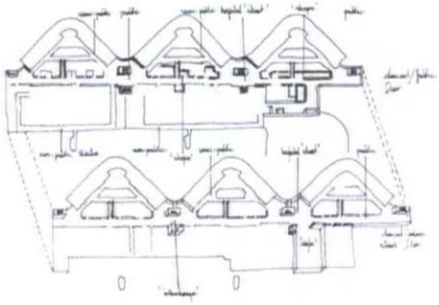
NO RETURN
CIRCULATION DIAGRAM

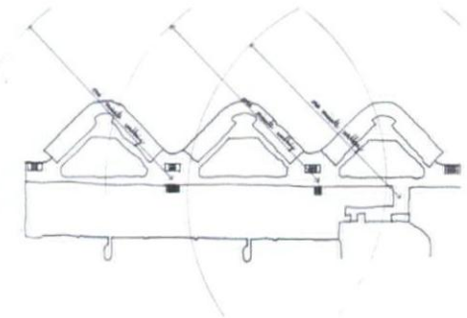


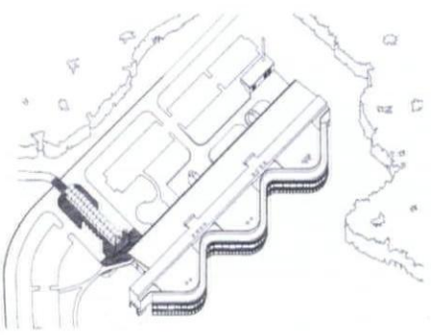


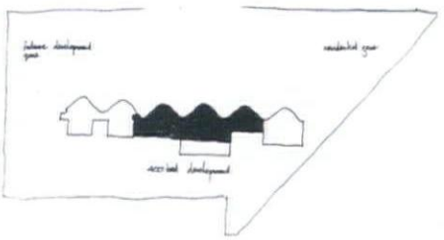
In my design process, the diagram comes between the concept and the development of the architectural parti. The diagram is critical, setting out the operational order of the building. It defines the spatial arrangement of activities and is therefore, after the brief, the most important agent for interaction with client and users. The diagram, however, mainly deals with the spatial arrangement of activities and not with the further orchestration of space, structure, light and materiality that completes the architectural parti. It does not engage the sensuous part of architecture. Nevertheless, if the diagram is not robust, the building will not work. It is essential that diagrams are understood as the provocation for the architectural parti. Too many buildings stay as diagrams, particularly large complex buildings like hospitals. A building is not merely a diagram of use. I have used two projects to argue the importance of the diagram: the new stadium at Venice (right) and the hospital at Mount Druitt, Sydney (left).

The new stadium is organised around a four part diagram of use – to the west are the best and VIP seats in one enclosed area; to the east are good seats; to the south are the seats for the local fans (the *tifosi*) and to the north (with maximum separation) the visiting *tifosi*. Italian laws regulate that all stadiums must be divided into these four







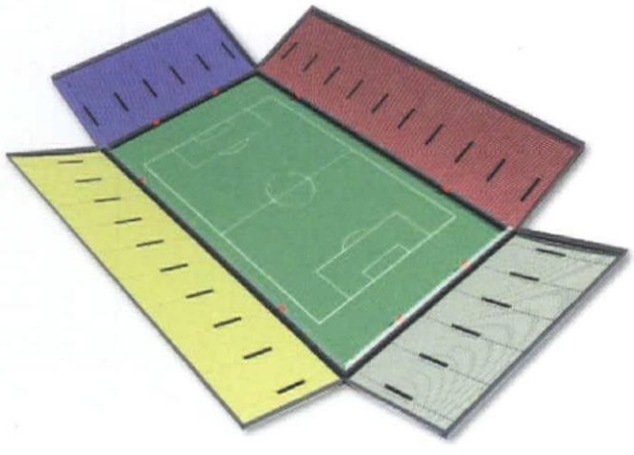


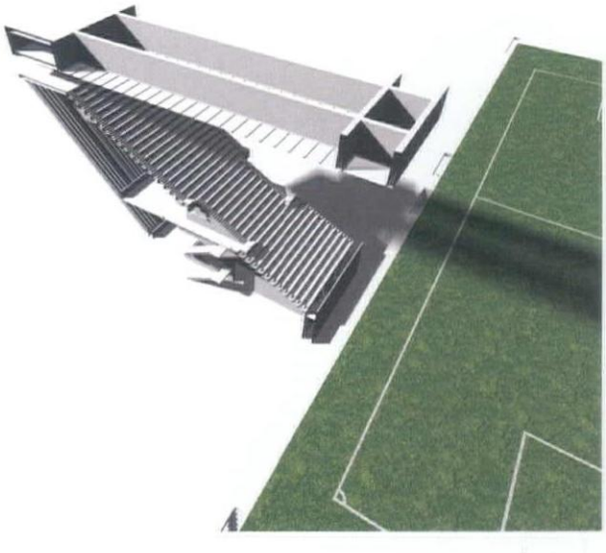
LAWRENCE NIELD

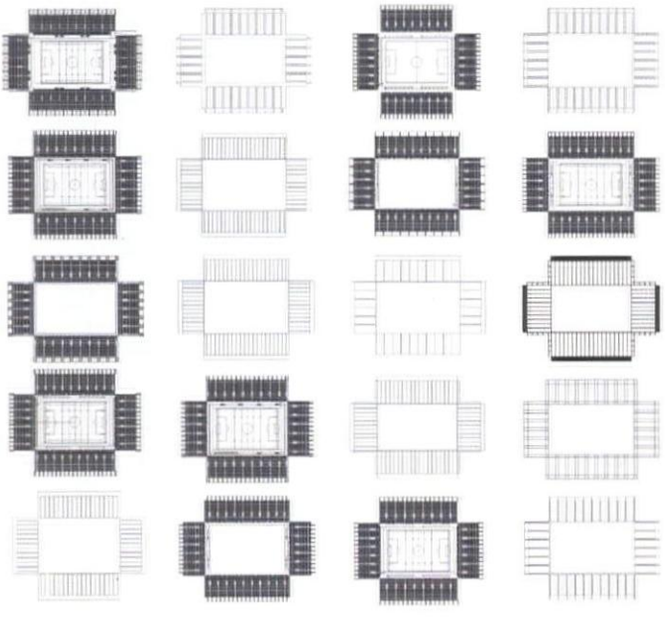
parts. Deliberately and happily the openings at each end to the south allow views and engagement with the *citta storica* and the lagoon. The openings to the north allow views across the Veneto to the Dolomites.

Hospitals illustrate the problems of diagrams. They require diagrams of operational order but also suffer from often being too diagrammatic, without an overall architectural parti and wholistic order. Completed in 1981 at Mount Druitt in the western suburbs of Sydney, this hospital is developed from a very clear diagram resulting in a coherent building, in service for 24 years, bringing together both diagram and architecture. LAWRENCE NIELD, BLIGH VOLLER NIELD









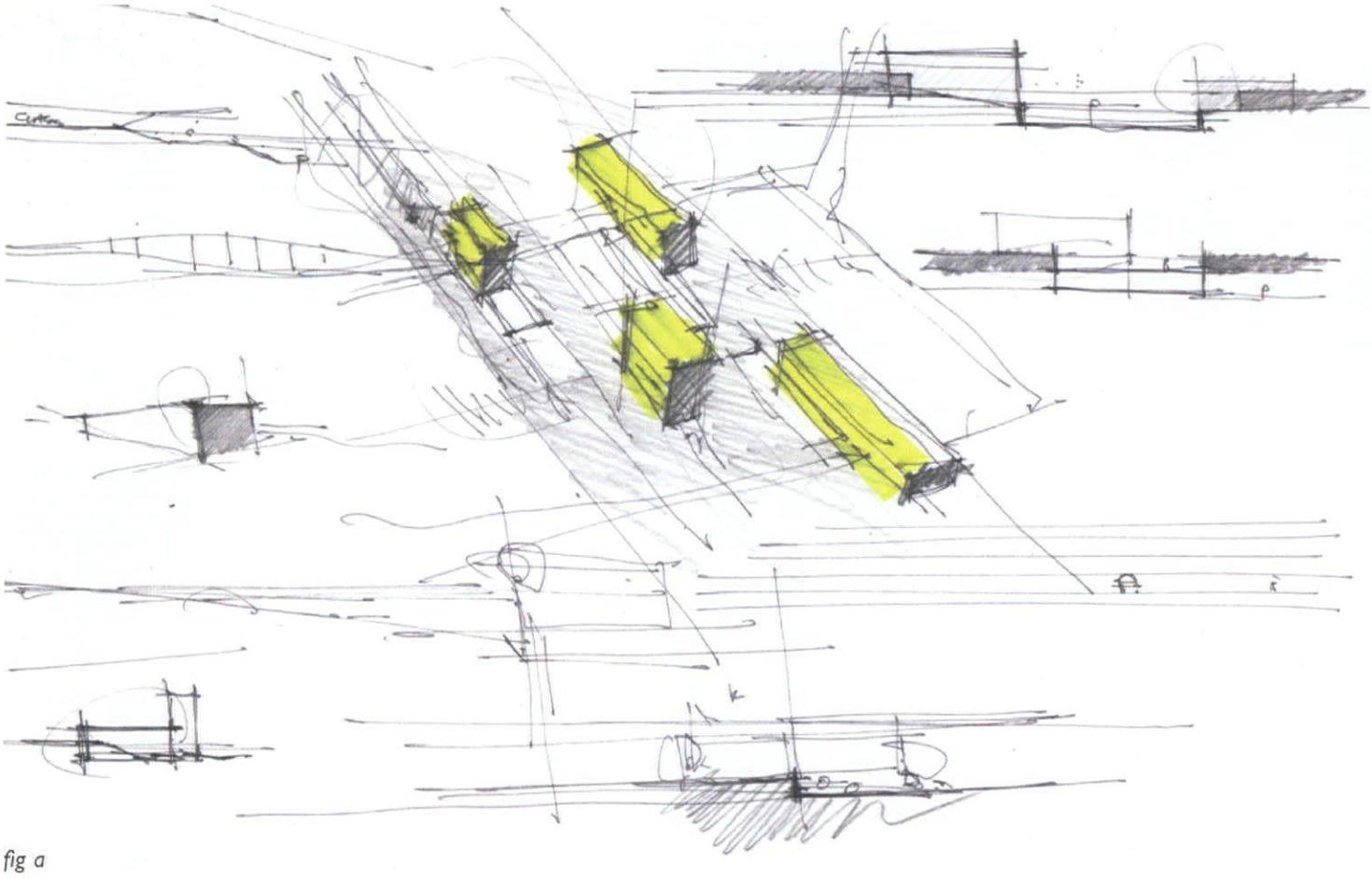


fig a

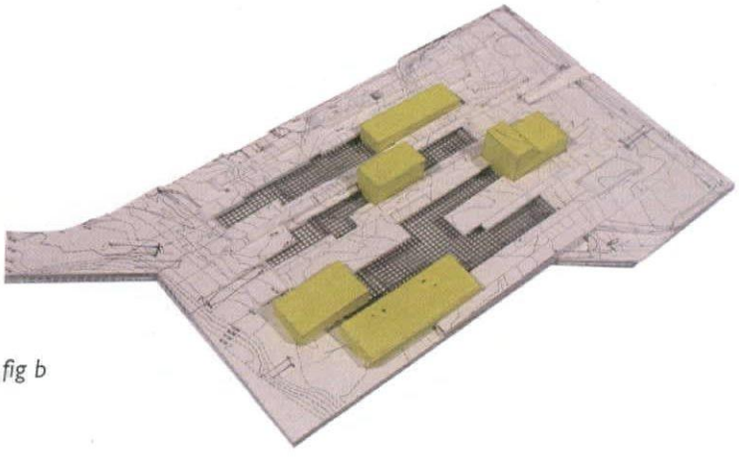


fig b

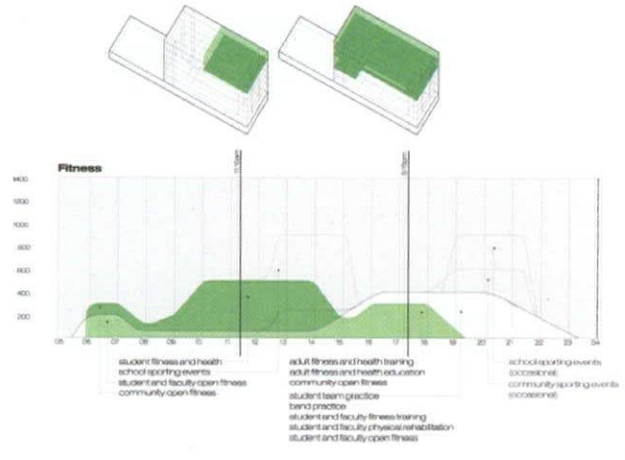
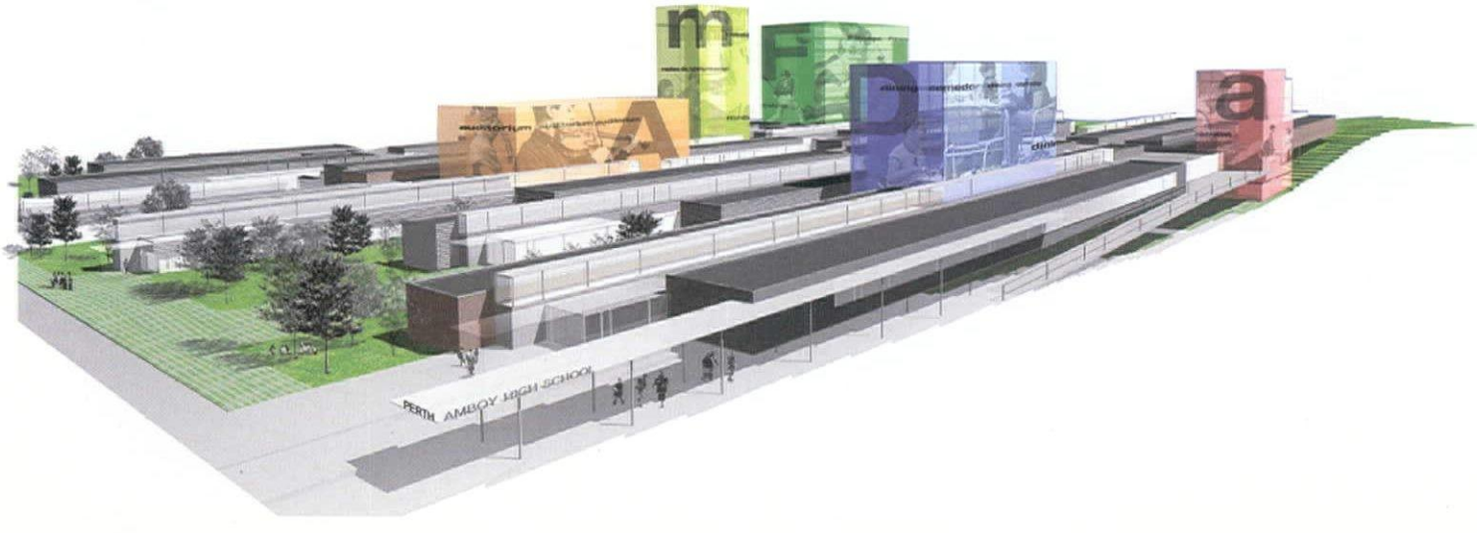


fig c



JOHN RONAN

I make a distinction between *generated* and *interpreted* diagrams. Generated diagrams clarify project intentions, and are reductive, isolating essential project issues for the purpose of clarifying and communicating critical ideas in short hand. Interpreted diagrams, on the other hand, suggest a new way of thinking about a project, their role being more transformative, causing the design process to shift in a new direction.

Generated diagrams

These are initial diagrams *(model and sketch, figs a and b)* generated to study the organisation of the Perth Amboy High School project. The project, which explores the interface between the community and its high school, has a large and complex programme: a 50 000sqm secondary school for 3000 students broken down into six academies, with programmes and support facilities resembling a small city. The sketches represent the three discrete systems that would become the essential organisational model for the project, as illustrated in the more formalised diagram later in the process *(fig c)*: the natural and constructed surface of the site (Mat), the interconnected volumes housing the programmatic requirements of the academies (Barscape), and the volumes housing the communal programmes shared by the school and the greater community (Towers).

Interpreted diagrams

The diagram *(fig d)* describes the daily schedule of a twelfth-century Cistercian monk, and explains the duration of activities in the course of a day contingent upon time of year. I find the diagram intriguing in the comprehensive way it maps human activity – in this case, The Rule of St Benedict – according to time, and the implications it holds for the spaces supporting these activities. The diagram was influential in the consideration of the programmatic occupation of the Activity Towers in the Perth Amboy project and the subsequent diagrams that resulted from this consideration.

One of the goals of the Perth Amboy High School project was to encourage city residents to participate in the life of the school; to this effect, the design proposed that the communal functions of the school be shared with the larger community. These diagrams *(fig e)* speculate on the programmatic occupation of the project's Activity Towers, indicating the human activity taking place (in different towers) over the course of the day by disparate user groups (students, faculty, private citizens), and suggesting periods of interface between town residents and school members.

JOHN RONAN, JOHN RONAN ARCHITECT

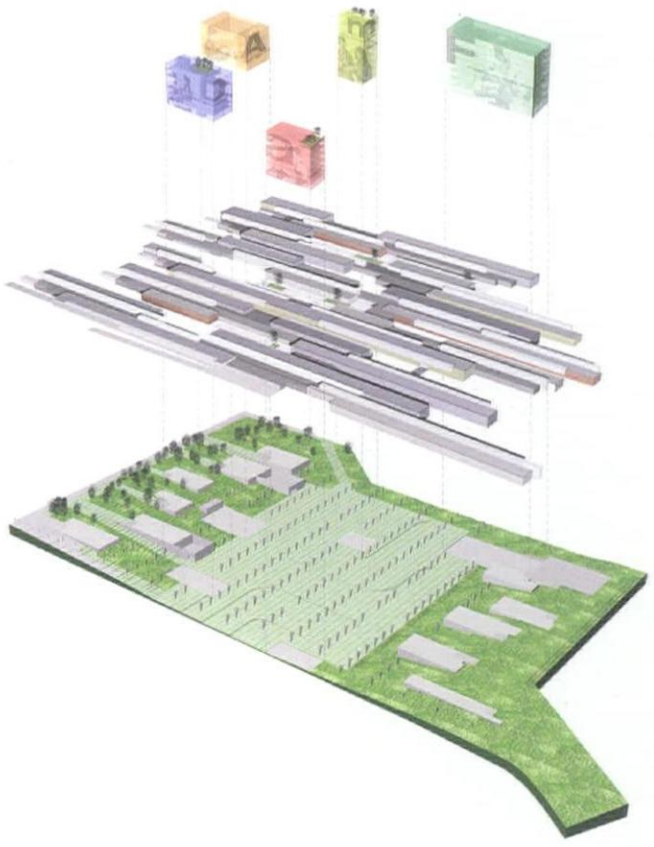


fig e

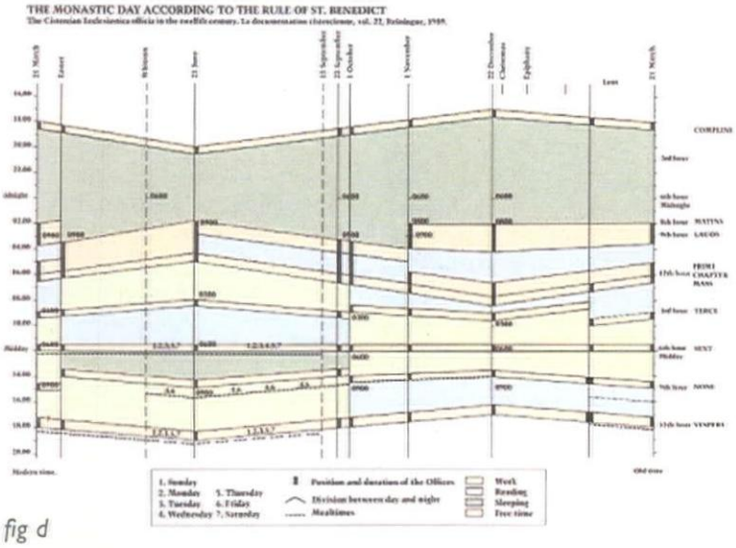


fig d

FUMIHIKO MAKI

Following a two-year journey in South-East Asia and the Middle East regions in 1958-1960, I published a book entitled *Investigations in Collective Form* describing and illustrating three approaches to collective form – compositional form, group form, and megaform. They define three basic relationships that always exist between individual elements and the whole. Although I stated that these were models of thinking about ways to conceive large complex forms, it is likely that these three concepts will appear either combined or mixed. They are not intended to be mutually exclusive but can coexist in one configuration.

Some forty years later in 2002, I drafted a diagram in a study for a competition entry for a new campus for the Republic Polytechnic in Singapore. This 240 000sqm project was planned on primarily undeveloped land. The diagram communicates the critical spatial functional requirement suggested by the competition brief founded on a new educational system in Singapore known as 'PBL' – *Problem Based Learning*. This programme calls for multiple units of spaces replacing the traditional classroom in what has been called the Study Cluster. This is where the 'Facilitator', the instructor, at the beginning of each day presents the problem. The students are then required to seek the solution in the library, media centre, workshops, dry labs/wet labs/clean rooms, and so on. These shared functions have been placed in a cascading ovoid base 240m long x 180m wide x 9m high, that we have called the *Agora*, whose roof has been designed as a floating roof garden – a *Lawn*. At the end of each day, the students return to reconvene at the study cluster to present their own solution to the problem that was given. The diagram has been manifested into a more architectonic reality planned for completion in 2006. The two diagrams, one generic and the other specific, served as the guiding principal force of the project. I always evaluate and consider that the best diagram is one that is simple because the power lies in its suggestiveness for broader interpretation. FUMIHIKO MAKI, MAKI & ASSOCIATES



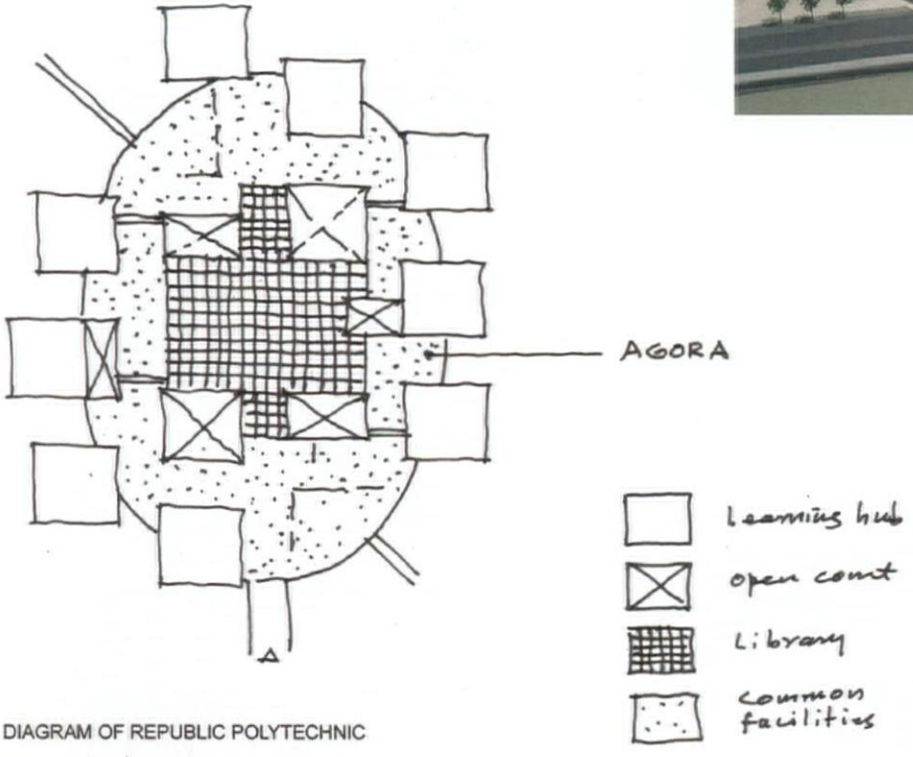


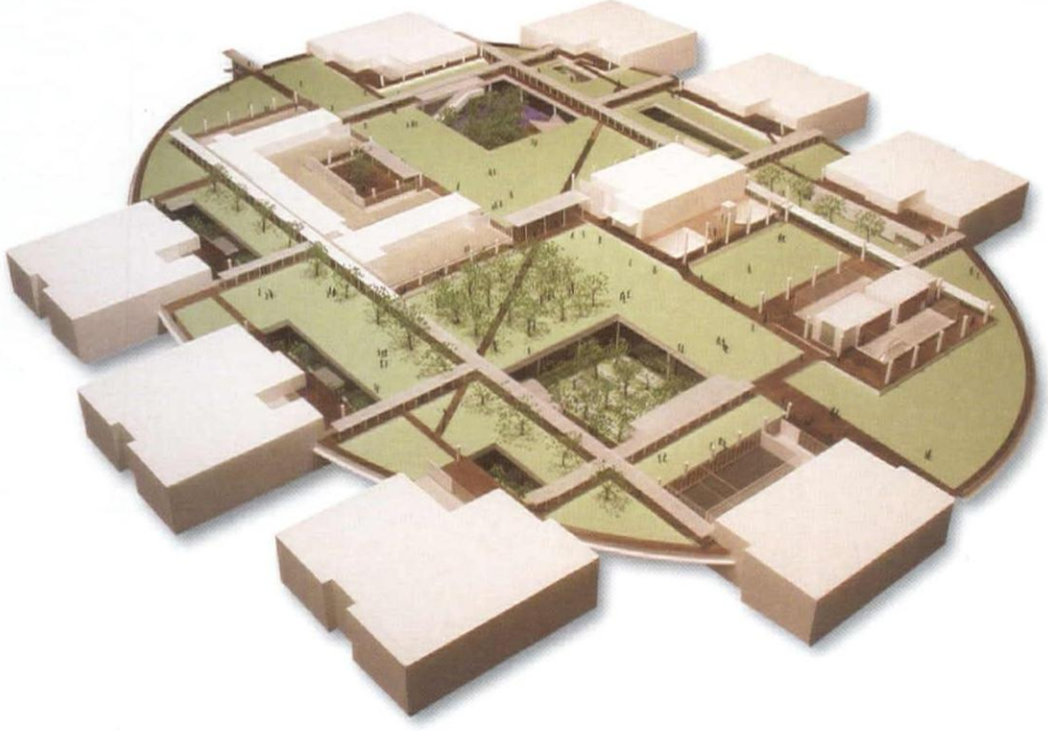
DIAGRAM OF REPUBLIC POLYTECHNIC











Admired: Perhaps the single influential diagrammatic sketch which captures the spirit of modernity and evokes a new architecture is the one by Le Corbusier. In a single stroke, the guiding principles which have shaped and liberalised the concept of space have been implied. The roof as garden, the pilotis to free the ground plane, the separation of structure and space – the free plan, and the concept of screens and brise soleil as enclosure. The diagram embodies principles of space that have been embraced by countless architects who have followed pursuit.



'First I think, then I draw my think.'
Amanda K. Coomaraswamy (1877-1947)

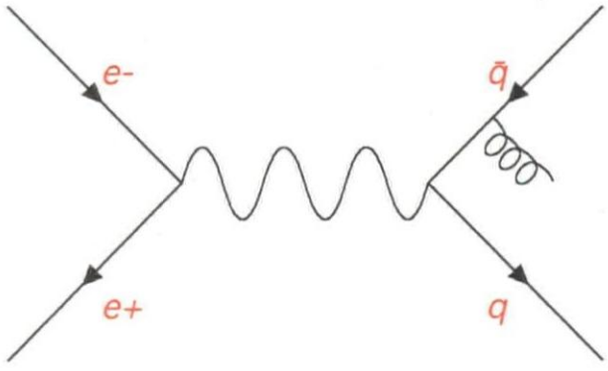
It is very difficult to think of complex things being expressed in simple terms without the use of diagrams. As an example we could take the nineteenth-century mathematician and philosopher John Venn, who introduced the Venn Diagram in 1881. Although starting its life as a means of organising mathematical sets and logical relationships (and similar to the diagrams of Johnston and Euler which were applied to truth values and propositional logic), the Venn Diagram remains famous in using two or more overlapping circles to examine the similarities and differences in language arts instruction; as an enabling system to help students organise thoughts particularly in pre-writing activities, where common conditions can be understood visually.

The American physicist Richard Feynman gave his name to a series of seminal diagrams – also known as Stukelberg or Penguin diagrams – which have been described as types of book-keeping devices for performing calculations in quantum field theory. The diagrams illustrate the often tortuous calculations required to unstitch and then reconfigure the various phenomenologies that comprise the abstract world of theoretical physics. They are simple as graphic symbols and often represent a narrative that has a more complex mathematical formula.

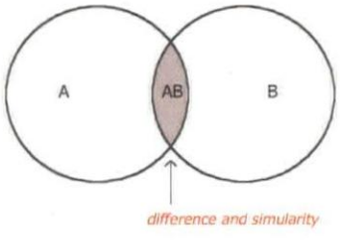
Equally economic is the Hertzsprung-Russell diagram, used in astronomy to describe the way stars live out their lives as reflected in changes that occur in their temperature, size and luminosity. Like Venn in education and Feynman in physics, the diagram alone allows the mysterious and magical world of space to be understood and read by a much wider audience, through the use of graphic symbols which provide universally understood representations or visual shorthand. The diagram establishes itself as a democratising device and a conduit through which complex worlds can be described to the lay observer.

LINES OF INQUIRY

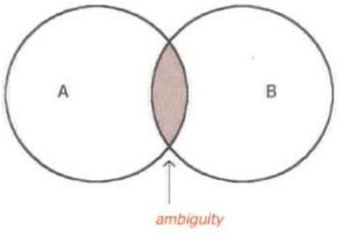
Diagrams, in whatever visual form they take, represent a threshold moment in the creation of successful architecture, argues Alan Phillips.



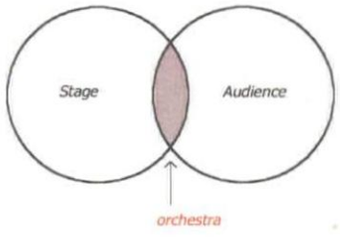
In this Feynman diagram, electrons annihilate and become a quark-anti quark pair. Then one radiates a Gluon. (Time goes left to right.)



The basic Venn-fundamental in contemporary education to help children visualise the organisation of differences and similarities.



Reima Pietilä translated the Venn diagram to define an 'ambitious boundary zone' or 'sacred area subject to taboo'.



The diagram is used by theatre designers to illustrate the territory that links audience to stage – the orchestra.

This is also true for complex definitions. For example, DNA (deoxyribonucleic acid) is a chemically-linked chain of nucleotides – a long polymer that encodes sequences of the amino acid residue in proteins. The DNA is borrowed from both parents and is responsible for the genetic propagation of most inherited traits. To understand the definition, and in turn the DNA, still requires a foundation knowledge of molecular biology and a great deal of imagination that, if misdirected, can transfer understanding into confusion.

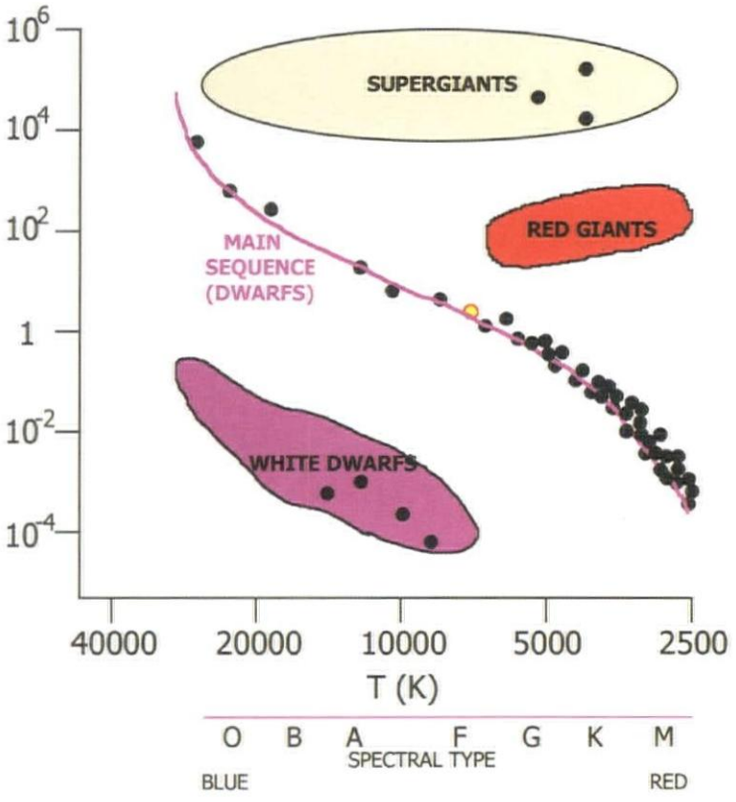
So two things came to pass. First the book *What is Life* (1944) by Erwin Schrödinger, in which he described chromosomes as containing 'hereditary code-script', explaining that 'the term code-script is, of course, too narrow. The chromosome structures are at the same time instrumental in bringing about the development they foreshadow. They are law-code and executive power – or, to use another simile, they are architect's plan and builder's craft – in one'.

When Crick and Watson in Cambridge, Linus Pauling in America, and the Wilkins Franklin group at King's College London were racing to find the form and structure of DNA, the diagram to emerge – the great diagram of life, a double helix connected by a series of horizontal bridges or rungs – must have proved itself by being (among so many other things) so close to the tectonic structure in Schrödinger's simile of an 'architect's plan and building craft'. In fact, the first sketch of the deoxyribonucleic acid double-helix diagram, made by Francis Crick, is very much an architectural sketch, with soft lines swimming in space, an authoritative representation of geometry, and a confidence in delineation that could easily have come from the hand of Louis Kahn or Eero Saarinen.

The diagram is, therefore, a maeutic and hermeneutic device – a form of intellectual midwifery that brings complex ideas into clear consciousness, through interpretation.

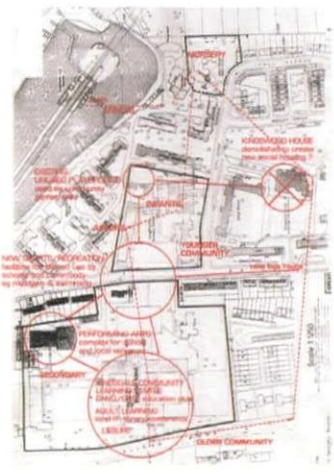
In science there is a primary type of representational diagram, engineered to clarify, symbolise and signify function. In architecture, there are many types of thinking shorthand including the representational and the abstract diagram. The representational

The H-R diagram is an extremely useful way to follow the changes that take place as a star evolves. Most stars are on the main sequence because that is where stars spend most of their lives, burning hydrogen to helium through nuclear reactions. As stars live out their lives, changes in the structure of the star are reflected in changes in stars' temperatures, sizes and luminosities, which cause them to move in tracks on the H-R diagram.





A facsimile of Francis Crick's first sketch of the deoxyribonucleic acid double helix pattern.

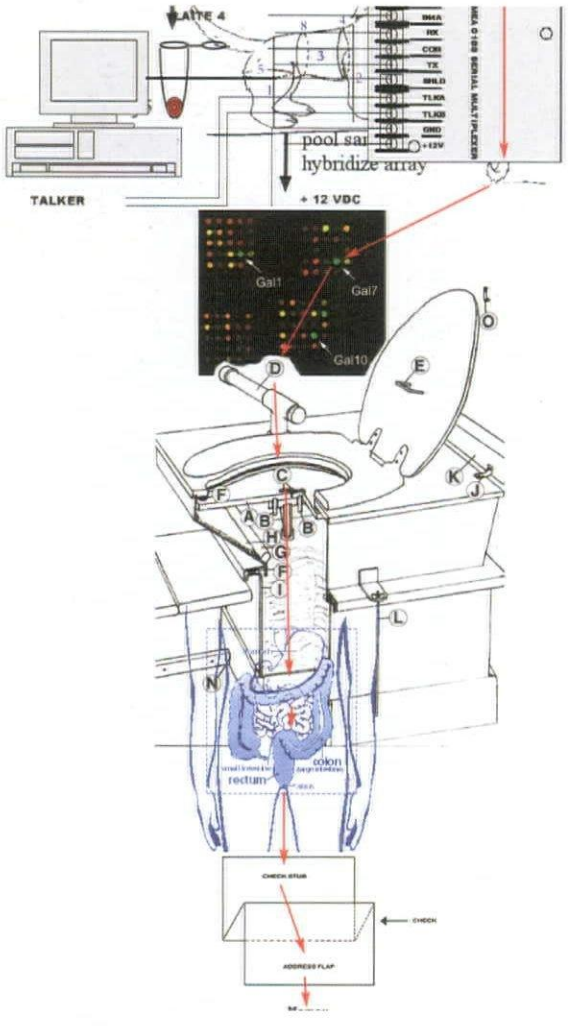


DrMM's bubble diagram of arrangements and connection for a masterplan employs figures, texts and collage to make clear a series of potentially complex relationships.

diagram is designed to be interpreted relationally, visually, geometrically and topologically. The bubble diagram is an example where the architect is released from the strictures of the plan but may still freely manipulate a series of functional relations that are beginning to represent a strategy for planning arrangements. The bubble diagram can be made quickly, changed constantly, interlaced with text and collaged over images. For the rational architect it is an essential representation for thinking that can also be used as a substitute for sketching.

Composite diagrams are the stuff of computers and have been sitting in the wings waiting for the digital third machine age to tantalise the observer with a cut-and-paste world of architecturally graphic revelry. These composite diagrams are also available as tools to explain an architectural intention that can cross information fields from tectonic detailing, context, scale, proportion and composition. In these circumstances the computer becomes a wizard, delivering a magical world of layers and application. Although there remains a soft-line world of bubble diagrams, used at the start of the design process to unlock a complex brief into an organisation of primary, secondary and tertiary relationships, the computer is a quicker diagram management tool, replacing hundreds of detail paper overlays with a click-on-click-off layer process intrinsic to computerised draughting applications. In masterplanning, where the bubble diagram needs to present a multivalent collection of information, including organisational elements, physical elements, demographics, climate, transport and so on, the bubble diagram is at its most complex and therefore best achieved by digital means in order that the message is at its clearest and cleanest. It can be argued that the same digital method is employed in flow and system diagrams; architectural drawings representing explanation and communication of problems that need to be solved in order to make the building concept function.

Flow and system diagrams present architectonic issues that are temporarily removed from theoretical and conceptual considerations,



The arrival of the Third Machine Age marks a Zeitgeist of diagram-making that depends on the computer to create collages and layers of information. The temptation to use various applications, one on top of the other, often results in the message being corrupted by the media.



Housing project, Brighton, England.

The parti, context, softline and first pencil hardline drawing have been laid over each other as part of a client presentation that presents the emerging architectural language as an evolutionary process that takes account of and brings together a complex series of interdependent considerations.
The same diagram was used in pre-application consultations.
This composite diagram employs the following applications.

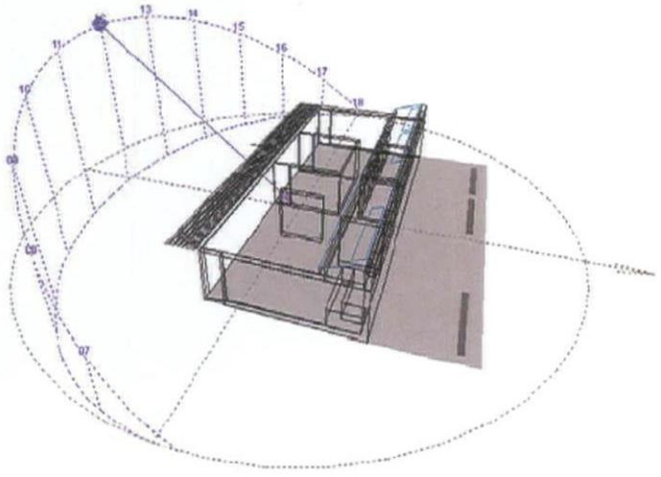
Vectorworks 11
Sketchup
Cinema 4D
Photoshop
Grab
Mac OS
Acrobat Professional
Firefox 1.5
Word

and are focused on the effects and forces of sun, wind, rain and consequentially ventilation, heating, cooling and sustainability. Whereas the bubble and composite diagram – after initialisation – are tools for communications, the flow and system diagram helps the designer observe and understand the critical components that make up the problem-solving condition.

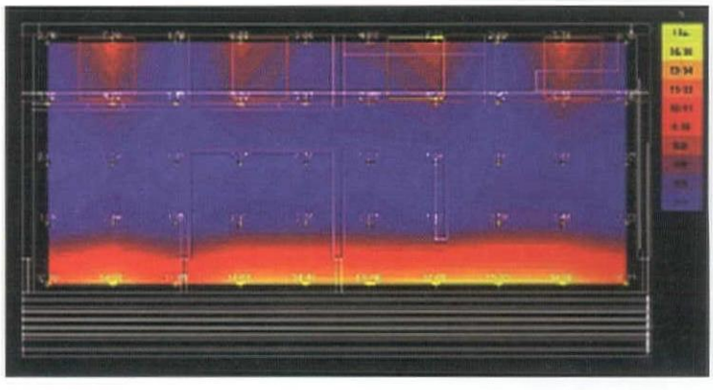
The *flow and system* drawing comprises the full set of graphic symbols, including arrows, lines, dots, hatching and dashes, making up a language for the diagraming of architecture. Because architects think through the end of a pencil, the freehand sketch is still widely used for its quality of immediacy and can transform representational diagraming, be it bubble, composite, flow, system (or any other) into a hybrid type which is both symbolic, sequential and operational. It brings together, examines and then illustrates the complex levels of thinking implicit in the architectural design process, then presents them back to the architect for consideration. During this 'thinking' time, the freehand sketch diagram can perform other functions.

The *referential sketch* encourages the designer to diagram past influences, historical precedents and previous experience. It can serve either as a communication tool, illustrating how the architectural idea has been fixed back to an authoritative typology, idiomatic device, or an informational tool for the author of the drawing, where intellectual comfort can be obtained by introducing a successful historical model. It is not sufficient simply to photocopy or scan-and-paste the reference. It needs to be drawn again so that the 'thinking' is dualistic, running backwards and forwards between 'what has been and what may be'. The referential sketch provides a moment for reflection. By drawing the reference again – reinterpreting the original image to a lesser or greater extent, architects are reminded that their subject is both an intellectual and a scholarly activity.

Other forms of retrospection can also result in diagrams such as the *doodle* that normally results from engaging with one thing and thinking about another. Also the *polemical sketch* – sometimes presented as an irritable grouping of marks born of frustration, disbelief, or

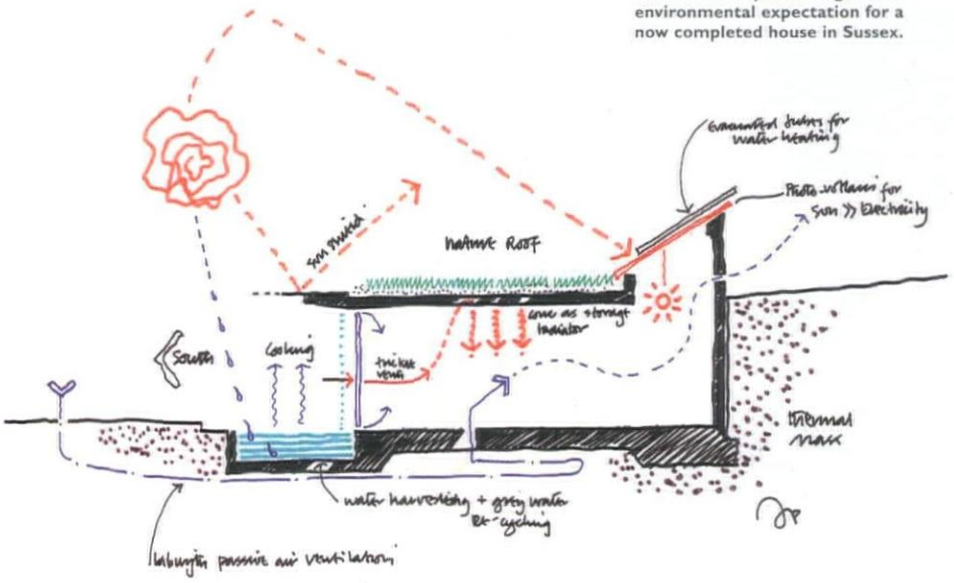


daylight model with sun path

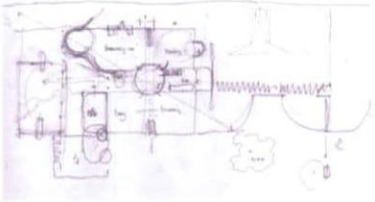


WSP's analytical diagrams showing sun paths and roof glazing thermal modelling options for the same house.

The author's system diagram of environmental expectation for a now completed house in Sussex.



The softline pencil drawing is still in common practice. A hybrid between the bubble diagram and the representational freehand sketch is a good tool for early design problem-solving.



awakening, or a point of view previously held but not previously examined through drawing.

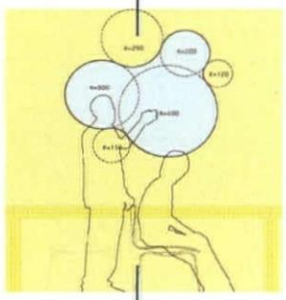
Drawing, like teaching, is a replenishing activity. If an architect does neither regularly, there is a tendency to descend into aesthetic prejudice. At the very beginning of a project, the idea is born in the imagination. (Architects prefer to keep it there for as long as possible because it is at its purest.) Once the idea is drawn it is limited by the skill of the draughtsman. If the drawing fails, it can lead to long periods of melancholy.

The first diagram is made in the mind of the author, and because architects are obliged to think three-dimensionally, the diagram is appropriately complex – not only comprising form and function, but also filled with light and sound. The beauty of the diagram 'as imagination' depends on the way architects conduct themselves. Because the mind-diagram contains a moral and ethical fingerprint, as to how the eventual building will provide the greatest good for the greatest number, the first drawing will not be good if it is thought of badly. Therefore, the first drawing is as much an expression of the author as it is of the author's idea. During the early stage of sketching, the diagram is required to fold the 'self' into the drawing, so that the link between the physical work, the imagination that draws it and the ethical responsibility that regulates it, are one and the same thing.

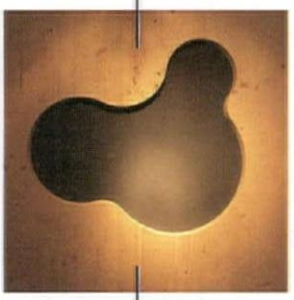
The first meaning of the French verb *partir* – *'se separer de quelqu'un ou d'un lieu'* (to part from someone or from some place) – promulgated *le parti* as a noun representing a second meaning viz *'Conception d'ensemble une oeuvre architecturale ou picturale':* an overall architectural or pictorial concept. During the process of diagramming architecture, especially at the conceptual stages of drawing, there is a necessary separation or parting. This is when the concept becomes clear enough to develop its own identity, or when the first drawings have choreographed the idea to produce a sufficiently confident *parti.*



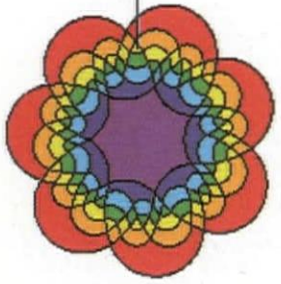
DrMM's freehand drawing describing a set of conceptual relationships between ceiling, wall, furniture and performance.



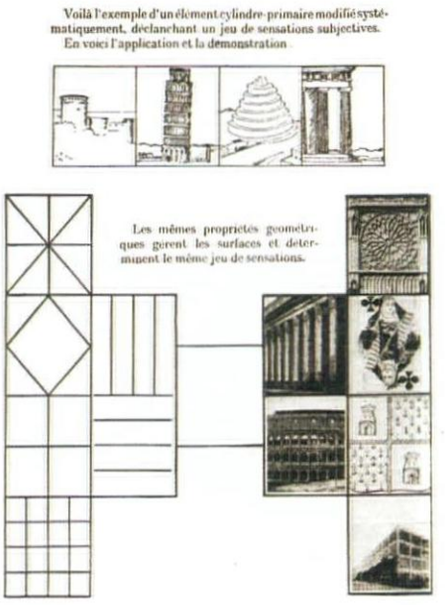
Venn-type diagram searching for a geometry to secure and provide a rational basis for the window cut-outs.



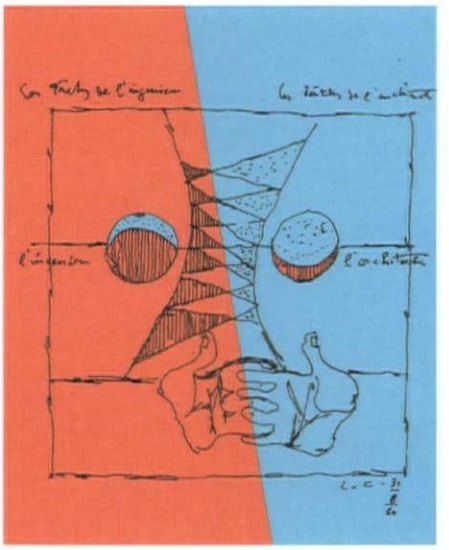
Prototype window cut-out based on Venn analysis. Venn was himself commemorated by a stained-glass window in Gonville and Caius College, Cambridge – designed by Anthony W. F. Edwards.



Anthony W. F. Edwards' stained-glass window.



Le Corbusier constantly referenced his work to historical antecedents and made that sought connection between the past and the present. The essence of the historical precedent was abstracted out of the original figure and reconfigured for contemporary use. Le Corbusier's work is remarkable for having the memories of referential drawing running through and giving firm ground to avant-garde material.



These are the engineer's responsibilities: the respect of physical laws, the strength of materials (supply, economic considerations and so on in relation to safety, relatively speaking). And these the architect's: humanism, creative imagination, love of beauty, freedom of choice. In my drawing, the engineer's sphere casts a reflection on that of the architect – the reflection of the knowledge of physical laws. Similarly, the architect's understanding of human problems is reflected in the sphere of the engineer.
The shaded areas of the sketch indicate the world of the engineer, the dotted areas that of the architect. Under this symbolic composition I have placed two clasped hands, the fingers enlaced horizontally, demonstrating the friendly solidarity of both architect and engineer engaged, on the same level, in building the civilisation of the machine age. This is the emblem of the 'Constructors'.
Le Corbusier
(Extract from *Science et Vie*, August 1960.)

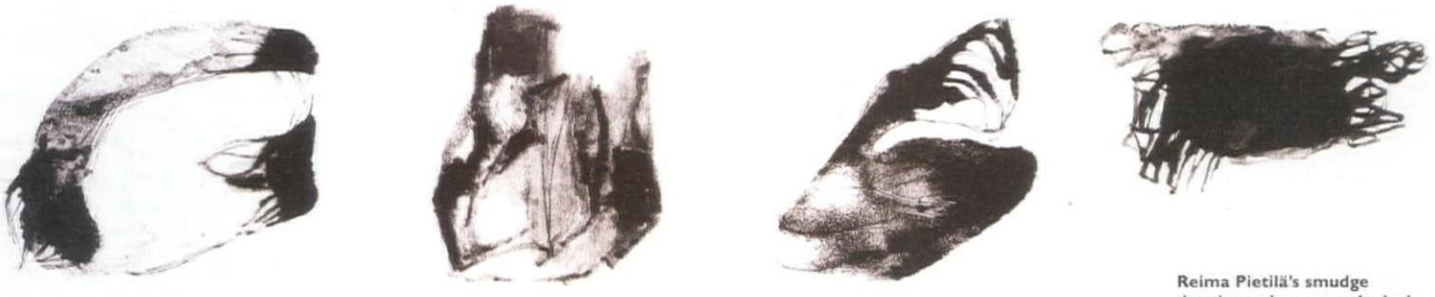
Author's drawing over Le Corbusier polemical diagram.

The word *parti* passed into architecture (via l'Ecole des Beaux Arts) to represent that freehand sketch diagram that was at the tangent between idea and imagination. The *parti* is the *threshold sketch*. If the *parti* – the first critical diagram – is not made well, it will be difficult for architecture to follow. If there is no *parti*, there will be no architecture, only (at best) little more than the utility of construction. Buried within their early sketches is the germ of a narrative or language. The early diagrams are reflective conversations with the language of architecture.

They are also cultural moments. An English architect will think in English, speak in English and therefore draw in English. The sketches will say in lines and marks what the author would also express in language. The drawing becomes a philosophical and dialectical illustration of what the author would also say in writing. *Writing architecture* with drawings at the stage of *le parti* is the ultimate manifestation of imaginative consciousness heading for realisation. Qualitative judgements are commensurate to the clarity of the language. The better the *parti*, the more quickly architects are able to consider folding into the sketch the notation of materials, structure and mechanics. The architectural language will evolve simultaneously with the language of the drawing. If the drawing is in English, English architecture will be made. If the drawing is in Finnish, there will be a Finnish building.

Admittedly this may not be true for the Rationalists. Architects who depend on pre-set/pre-cast ideas, which are based on catalogue systems and predefined pre-tested methodologies put together on production lines, do not need *le parti*. But despite all the phenomenologists and poetical architects in a century where complexity triumphed over comprehension, the drawing or diagram is a quintessential moment which comes with a caution. If at first you don't succeed, you don't succeed. ALAN PHILLIPS

Alan Phillips is an architect and teacher based in Brighton, UK



Reima Pietilä's smudge drawings, phenomenological doodles used to tease an idea into a concept that can make a parti.

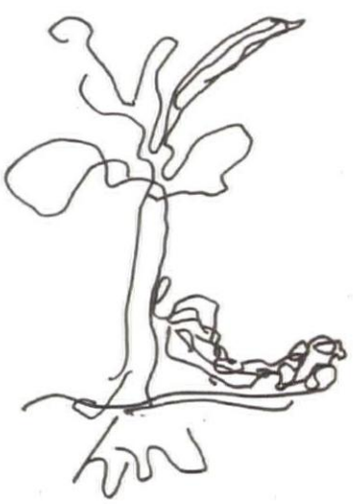


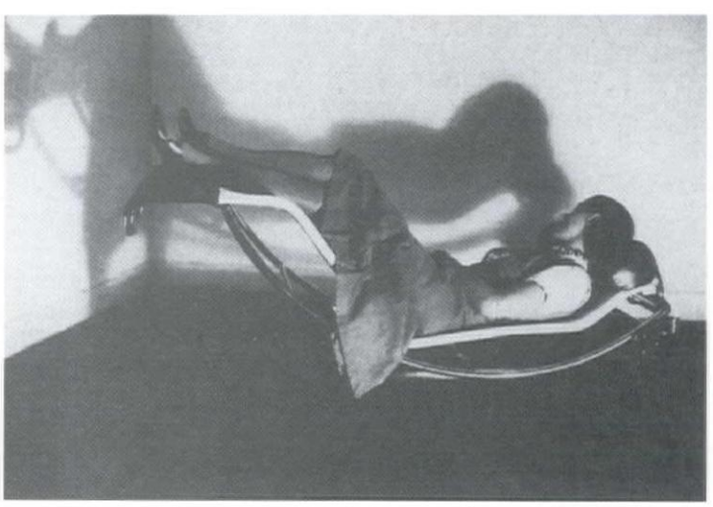
Martin Heidegger's phenomenological findings provide a suitable background for my non-verbal formgiving. Embryonic forms are like tentative baby talk through which a child nevertheless very quickly achieves clear speech. Does tentative sketching contain a shortcut to holistic form?

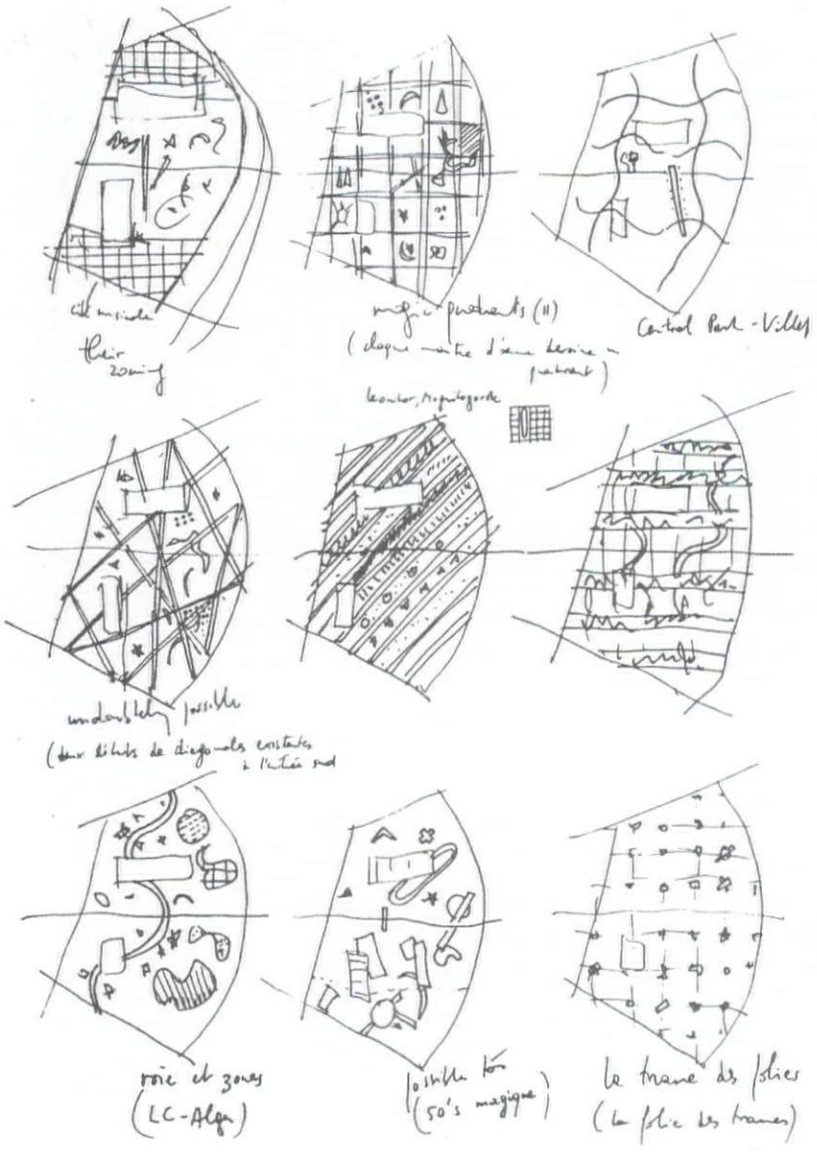
Reima Pietilä 1985

We had prepared sketches showing the different ways of sitting usual in the West. Then we started looking for structures. Giedion says that when you sit down it is as if you are losing the power of your muscles. That is why it is necessary for the skeleton to find 'support'. For the lumbar regions, your back, arms etc, and that's how we came up with the idea of the supporting structure. We then added canvas and fastening attachment to the frame, completing them with the help of horsehair, springs and other materials. What came out of all this was a fairly simple system: the Chaise Longue, proceeding from the basic idea of the simple soldier, who, when he is tired, lies down on his back, puts his feet up against a tree, with his knapsack under his head. This medically recommended position, with legs raised, is a very comfortable one. And that's how we came up with the idea of the Chaise Longue.

Charlotte Perriand, 1987.

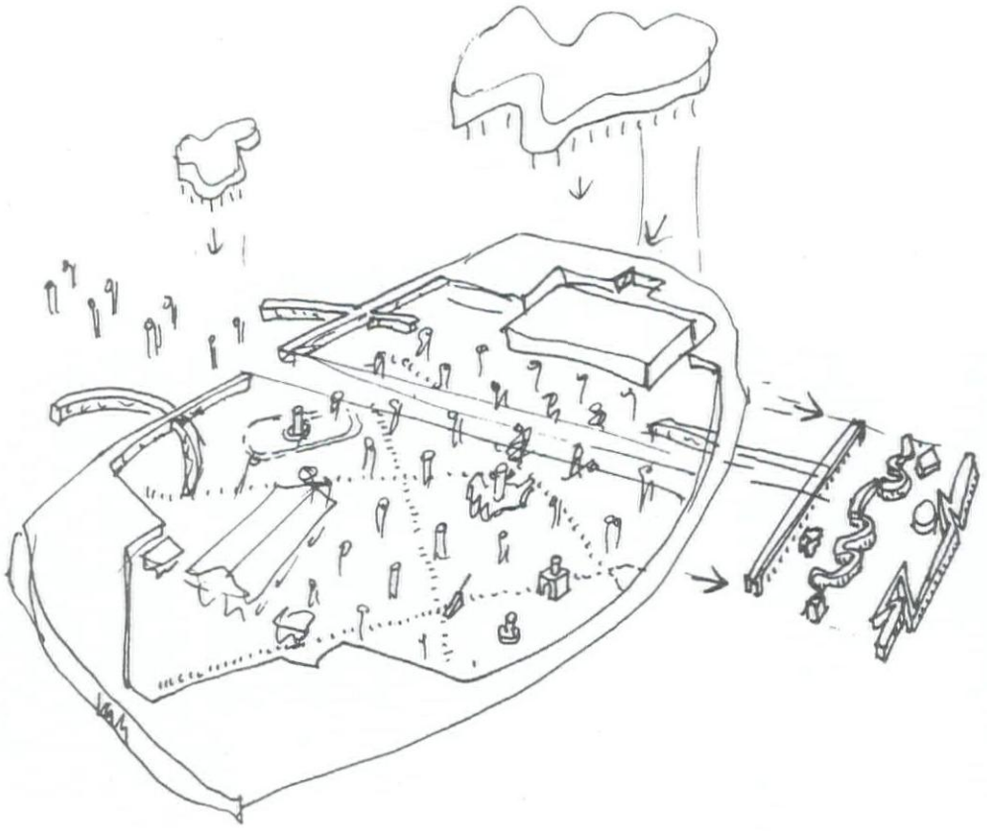






When confronted with an urbanistic program, an architect may either (a) design a masterly construction, an inspired architectural gesture (a composition); (b) take what exists, fill in the gaps, complete the text, scribble in the margins (a complement); (c) deconstruct what exists by critically analysing the historical layers that preceded it, even adding other layers derived from elsewhere – from other cities, other parks (a palimpsest); or (d) search for an intermediary – an abstract system to intermediate between the site, as well as all given constraints, and some other concept, beyond city or program (a mediation) ... It was clear that the elements of the program were interchangeable, and that budget priorities could be altered, or even reversed, at least over the course of one generation. Hence the concern, reinforced by recent developments in philosophy, art and literature, that the park propose a strong conceptual framework while simultaneously suggesting multiple combinations and substitutions. BERNARD TSCHUMI, BERNARD TSCHUMI ARCHITECTS

Taken from *Cinégramme Folie, Le Parc de la Villette*, Princeton Architectural Press, 1987

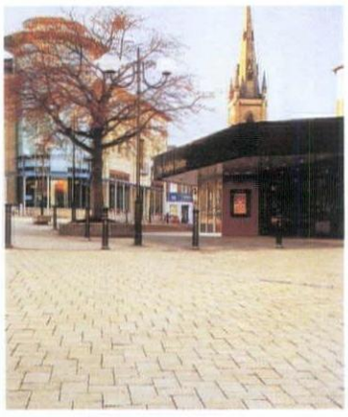


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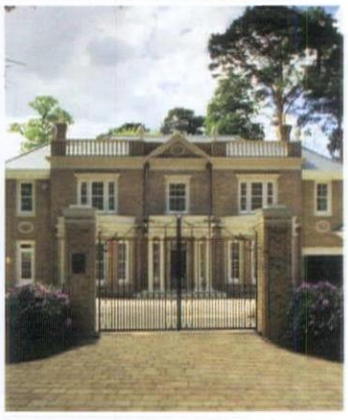
900 www.arplus.com/enq.html



Taps International

Italian manufacturer Merati has launched Torana, a modular bathroom furniture system by Design Studio B. Torana offers flexibility, with units in a choice of 320mm or 400mm deep and lengths from 250mm to 1200mm, in both wall and floor mounted designs. Tall storage units come in 1920mm freestanding or 1760mm high wall-mounted versions and 200mm deep wall cupboards range from 360mm up to 800mm in height. Options include inset, apron and over top, single and double wash basins, in ceramic or Merati's exclusive Mineralmarble or Cristalplant finishes.

901 www.arplus.com/enq.html



Mumford & Wood

Conservation timber box sash windows and French doorsets have been supplied by Mumford & Wood for an exclusive luxury property in Weybridge, Surrey. This sensitive new build project was designed to include a combination of Georgian style sash windows and margin pattern doors. Gracious and elegant proportions appear throughout the two-storey home which has a stunning hexagonal, galleried entrance hall, six bedroom suites, five grand reception rooms and an impressive indoor swimming pool hall.

902 www.arplus.com/enq.html



Chesney's

A Chesney's fireplace is a mark of distinction. Chesney's can produce a fireplace in any material and any size, working from photographs, magazine cuttings, sketches or drawings, with gentle guidance to the client, using their years of experience, as to what might work best. The bespoke fireplace will be hand-sculpted from the finest marble or stone by master carvers, and can be given a distressed finish that bears comparison with any antique piece.

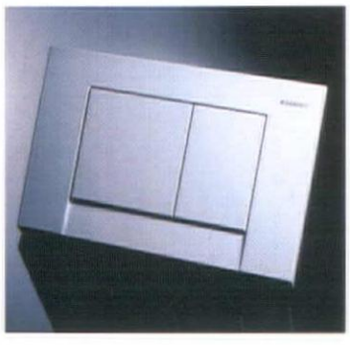
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Corus Group

Over 40 years Corus has developed a range of technically leading Colorcoat® pre-finished steel products which have been fully tested and are made to the highest quality standards, supported by a range of services, full guarantees, colour consultancy and technical support. To ensure long-term performance, it is important that pre-finished steel is specified alongside the cladding system. To secure the piece of mind that comes from a rigorously manufactured and tested product from Corus, ensure Colorcoat as well as the individual product name is specified.

904 www.arplus.com/enq.html



Geberit

Geberit is launching a new dual flush plate called Bolero to add to its extensive range. There are seven plates in the range, in a variety of colours and finishes. The Bolero is a square shape to complement current styles and comes in 15 of the latest finishes, including gloss, matt chrome, satinox, and structured chrome. Dual flush plates are an excellent water-saving device. There are around fifty specialist retailers committed to selling the Geberit Duofix Frame System.

905 www.arplus.com/enq.html



Junckers

St George South London has specified Junckers oak floors as part of its prestigious Putney Wharf housing development. Six luxurious flats, including four penthouses, have Junckers Wideboard European Oak laid in conjunction with underfloor heating. Europe's leading producer of solid hardwood floors, Junckers offers a well proven partnership with underfloor heating being naturally stable, with a low moisture content, and having been widely tested by leading underfloor heating manufacturers.

906 www.arplus.com/enq.html



Romanys

The Bettehome Oval Comfort Freestanding bath from Romanys has a clean, simple design for contemporary living spaces. The generous width of 1m and lying length of 1.4m ensure a relaxing soak, while the natural Betteglaze surface repels dirt.

907 www.arplus.com/enq.html

product review



501 HAVER & BOECKER
This so-called ballgown facade in The Hague features 12 square metres of wire cloth from Haver Architectural Wire Cloth. Woven and tailored from stainless-steel wire cloth, the ballgown is part of the integrated revitalisation of this neighbourhood. The architect's plan includes eight historical plots. The woven stainless-steel alloy uses a weave type DOKA-MONO 1771, cut-to-size into elements up to 2.0 x 1.5 metres. The dress was stabilised using a sub-construction developed by Haver & Boecker, made from galvanised steel and painted in aluminium colour.

Enquiry 501 www.arplus.com/enq.html



501

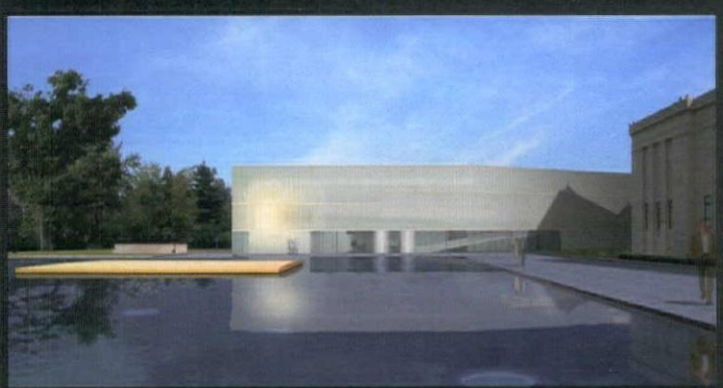
502



502 OKALUX
David Chipperfield's new public library of Des Moines, Iowa, USA (right above), features a 3500m2 metallic sheen glass facade. Purpose-designed for this project, OKALUX, based in Marktheidenfeld, Germany developed an insulating glass panel with an expanded copper inter-layer. The semi-transparent layer acts as a directionally selective daylight system performing a sunshade function and creating a softly diffused light inside the library. Currently on site, OKALUX have also been involved with Steven Holl on the design of the new Nelson Atkins Museum of Art, in Kansas City, Missouri (right below), which features OKAPANE, a light-emitting insulation panel that sits within a glazed plank system.

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Rob Gregory dons his clad rags and hits the town.

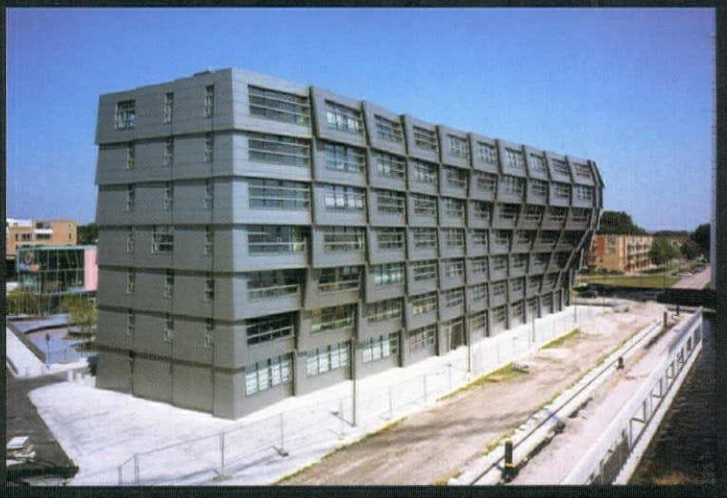


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503 NOVELIS GOTTINGEN

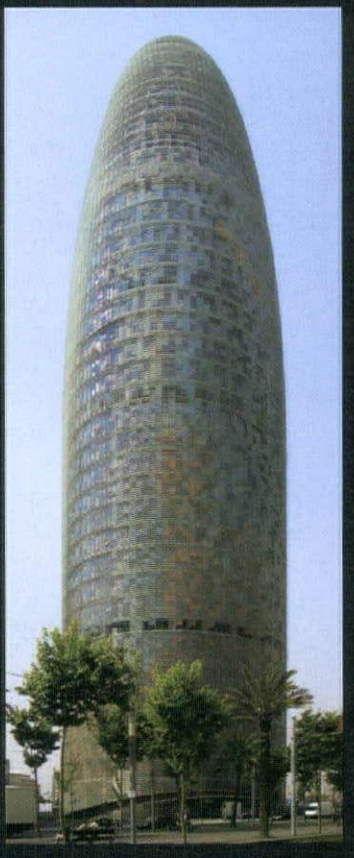
René van Zuuk's Wave comprises 49 lakeside apartments. The building's fish-scale facade features Novelis FF2® sheeting. The 2mm thick aluminium sheeting is fixed with stainless-steel bolts and PVDF washers on a substructure that was little more than a series of 20 x 60mm timber slats. The sheeting was simply overlapped horizontally with 0.7mm thick Novelis Falzonal® material in the same colour. The sheets were also edged at the bottom to prevent water running from one sheeting element to the next.

Enquiry 503 www.arplus.com/enq.html





504



504 PERMASTEELISA

Permasteelisa were responsible for the 16 000m2 envelope on Jean Nouvel's recently completed Torre Agbar, built by Layetana. The shape of the 142m high tower recalls the Monserrat mountains and its seemingly random perforations and colour create an illusion of moving water. The concrete shell is covered in aluminium and sheathed in thousands of panes of glass (1200x300m), some transparent, some translucent.

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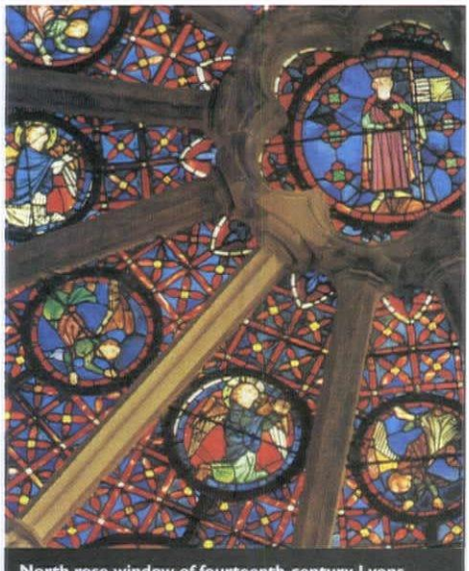
ENDURING STATUS

ALVAR AALTO

By Nicholas Ray. London: Yale University Press. 2005. £19.95

Over 50 years or so, Alvar Aalto realised around 200 buildings, some now recognised to be among the greatest of the twentieth century. Combined with urban, furniture and product design, these ensure Aalto's enduring status as one of the most important and prolific designers of the last century. This new book by Nicholas Ray is an introduction to the life and work of the Finnish architect, condensing decades of study and first hand experience into a compact volume. The book is split into three sections: a biography; a study of six of Aalto's most important buildings (the Paimio Sanatorium, Villa Mairea, Baker House, Saynatsalo, the National Pensions Institute and Finlandia Hall); and an analysis of recurrent themes and theories.

In a market already well-represented by a few very good Aalto monographs, the unique selling point of Ray's book lies in neither the biography, although this is a concise and engaging read, nor the case studies, even though well judged and illustrated, with previously unpublished photos by the author showing the buildings in use (although one occasionally has to look beyond fuzzy focusing to appreciate the quality of the spaces).



North rose window of fourteenth-century Lyons Cathedral, its exquisite stained glass glorifying the Church Triumphant, from *The Rose Window – Splendour and Symbol* by Painton Cowen, London, Thames & Hudson, 2005, £39.95. Both scholarly and visually luscious, this is a survey on a grand scale, tracking the rose window's origins and its apogee in the Middle Ages through to contemporary examples.

The originality is in the last section, which reappraises Aalto's ingenuity and influence in relation to five themes: nature, function, means, style and positive scepticism. Although Aalto's intense relationship with the landscape of Finland, and his overtly humanist and individual vocabulary have been discussed before, Ray's skill here is in grounding Aalto's complex and disparate theory (and theories of Aalto) within his built product, culminating in a summary of his legacy. The latter outlines his impact on architects like Venturi, Siza, Moneo and Miralles, and the way in which themes that were important to Aalto are being explored today. In fact, it would be welcome if this last chapter were longer; perhaps this is something to expand in future editions, allowing an ongoing critical reassessment of what can be seen as a particular strand of the modernist project.

What comes through in force throughout the book is the author's passion for his subject, finely balanced with solid research and theory, resulting in an important text on this most enigmatic of architects. BOBBY OPEN

DISAPPEARING ACT

DISAPPEARING ARCHITECTURE: FROM REAL TO VIRTUAL TO QUANTUM

Edited by Georg Flachbart, Peter Weibel. Basel: Birkhäuser. 2005. €39.90

After the heady days of the 1990s, it is now well established that the most fertile field for architects interested in virtuality is in research focusing on Mixed and Augmented Reality – where cyberspace is somehow stitched into the real. This can take many forms: smart materials, remote sensing, computer-aided manufacture, and robotics to name but a few such ways of exploring this area. *Disappearing Architecture* is a good title for a book such as this. It is divided into parts: Intro, The Infrastructure, The Architecture, Special Reports of Mixed Reality Environments, Summing Up and Compact Extro. The book starts off well introducing various concepts and notions of computing and networking that the authors think will be important to architects in creating the cyberised architecture of the near future. The authors are numerous and include names that are familiar such as Bill Mitchell (MIT media Lab), Hani Rashid (Asymptote Architects, New York), Diller and Scofidio and names that are not known within the architectural context. I was particularly taken with Andrew Daley, Ignacio Cirac and Peter Zoller's essay on 'The Development of Quantum Hardware for Quantum Computing'. However, when we proceed to the architecture it all gets a little pedestrian. Much of the architectural work in the book is well known, some actually now quite old. For me these schemes for buildings and interiors which are obviously meant to astound, titillate and refresh my tired old reactionary understanding of architectural space, all look a bit old-fashioned and above all mutely clumsy. This seems like a swiftly composed book, starting well, but the architects often fail to deliver a substantial denouement. The technologies described here could be used to create whole new areas of architectural protocols, spatial tactics and epistemologies, but architects seem content on continually going over the same tired blobby blinkered ground. This book has its heart in the right place and like many books of its genre will fly off the shelf, denouement or not. NEIL SPILLER

BAUHAUS ORIGINS

BEFORE THE BAUHAUS

By John V. Maciuika. Cambridge: Cambridge University Press. 2005. £55

The very title of this book is an act of protest, underlining its claim that the Bauhaus did not spring independently into existence as reported by Gropius, but grew rather out of a developing tradition of art schools that took place across Germany. Many Bauhaus 'innovations' had already occurred elsewhere, in one or other of the cities where culture developed in parallel in that recently united country: Berlin, Munich, Stuttgart, Darmstadt, Breslau. That the Bauhaus was influenced by the English Arts and Crafts as Pevsner claimed in *Pioneers* is certainly true, but his shortcut story left out the intermediate stages, the awkward stuff less suited to a Modernist polemic. This book sets out clearly and systematically to fill the gap.

Maciuika is well-informed and writes in a clear and scholarly way, filling in the political background in some detail to reveal the bureaucratic structures of Wilhelmine Germany and the crucial connections between the arts, government and manufacturing. In the process, some shadowy figures on the edge of Modernism are illuminated: architect-teachers like August Endell, Theodor Fischer, Henri van de Velde, Heinrich Tessenow, Richard Riemerschmid and Hans Poelzig. The central hero, if there is one, is Hermann Muthesius, whose reporting back from Britain around 1900 embraced a surprisingly broad range of concerns, and whose subsequent domestic work was as significant for the type of political and industrial client it represented as

for its style. One is constantly reminded of a socially more stratified age, when aristocrats enjoyed enormous power as patrons, architects could consider themselves pure artists and rise to prominence without training, and craftsmen were struggling into the middle class. It was also a time when now-familiar institutions were just being formed, and they appear in a fascinating foetal state. This era of history has been too long neglected, partly because of the great political changes of 1918, partly because the style shift of the 1920s wholly undermined the innovations of the previous generation, leaving them, like John the Baptist, as mere preparers for the real revolution to come. Now that we know the International Style was no style to end styles, we cannot dismiss their contribution so lightly.

PETER BLUNDELL JONES



The changing face of Shanghai, from *China*, Edward Burtynsky, Göttingen, Steidl, 2005, £45. Burtynsky's tableaux of industrialisation in factories, shipyards and cities, have an Andreas Gursky-like quality, except this is the real thing. The large format shots capture the awesome march of capitalist progress that is now ruthlessly shaping Chinese (and Western) history. One sports shoe manufacturer alone employs 90 000 people.

MATERIAL WORLD

MATERIAL CONNEXION. THE GLOBAL RESOURCE OF NEW AND INNOVATIVE MATERIALS FOR ARCHITECTS, ARTISTS AND DESIGNERS

By George M. Beylerian and Andrew Dent. London: Thames & Hudson. 2005. £36

Do you know that sweetcorn is available in transparent bottles made from the oil of the selfsame corn? Or that you can buy mosaic tiles of hand-cut, discarded seashells indigenous to the Philippines? Or a decorative fibreboard made from the hulls of sunflower-seeds? Or wall-coverings made of glass beads bonded to a backing paper with an elastometric adhesive or from the skin of 'a particular kind of stingray'? If you didn't, and you are already feeling deprived, this may be the book for you.

Most of the 288 pages are occupied by a glossy catalogue of hundreds of innovative materials ranging from the seriously weird to the manifestly useful. They are organised into seven sections – carbon-based, cement, ceramics, glass, metals, naturals and polymers – and each section begins with a brief but informative survey. The graphic style is noisy, as in many recent Thames & Hudson books, and the descriptions of the individual materials short. For the most part the authors avoid giving 'typical applications', their aim being to encourage thinking out of the box.

This makes for a book that is both fascinating and frustrating, all the more so because the real 'global resource' lurking behind it – referenced via a code number at the end of each product description – is the *materialconnexion.com* website, an online library of materials 'voted in by a panel of senior creative professionals'. And to access that, you have to pay a $200 annual subscription. It is there, one assumes, that you will find the real information needed to assess the relevance and potential of any product.

Because this is a book rather than a website, the contents are topped and tailed with some writing. The introductory essay is a rapid breeze through the work of innovative designers and artists, while at the end are responses to a 'What the gurus say' questionnaire. Most of the chosen luminaries come from the design world, but architects get a look-in. The master of computer-animated forms, Greg Lynn, professes an almost truth-to-materials ethic, while Zaha Hadid, less surprisingly, confirms that 'the choice of a certain materiality of an architectural object follows the initial architectural concept'. So elegantly put.

Despite its frustrations, I am glad to have this book and am considering forking out the money to join the website.

RICHARD WESTON

THE LURE OF EGYPT

THE EGYPTIAN REVIVAL: ANCIENT EGYPT AS THE INSPIRATION FOR DESIGN MOTIFS IN THE WEST

By James Stevens Curl. Abingdon: Routledge. 2005. £80 (paperback £27.50)

This is the second time that Curl's book on the history and influence of Egyptian and Egyptianesque design has been republished in a fully revised version, and this latest edition is as fascinating and provocative as its predecessors. Curl's argument is that Egyptian motifs were absorbed into Greek and then Graeco-Roman culture at least from the era of Alexander the Great, and can be traced almost continuously ever since; his vigorous and scholarly narrative is particularly valuable in uncovering unexpected fusions of ideas and images throughout history, and in challenging the conventional impression that the Egyptian revival somehow belongs to the 1800s and the 1920s alone.

Many additions have been made to the earlier versions of this book: in particular, there are lengthy new sections on the fate of antique obelisks in Rome and on Hadrian's Villa at Tivoli, as well as several interesting insertions on funerary architecture, one of the author's specialities. There are more than a hundred new illustrations, including two colour sections, and the glossary has been greatly enhanced. Curl is especially enjoyable on the subject of the various revivals of early nineteenth-century England, and among the various details now added is a reference to a favourite local curiosity of my own, the bizarre former synagogue in Canterbury – a miniature Egyptian temple in concrete not far from the cathedral precincts. It went up at the same time as Butterfield's St Augustine's College on the other side of the city, and I would love to know how contemporary architects debated this clash of revived civilisations. Curl, who has made the anti-Pugin rant into something of a hallmark, would not, I am sure, have been on the side of the angels; and *The Egyptian Revival* will make us Goths all realise how much we have lost by supporting the winning team.

TIMOTHY BRITTAIN-CATLIN

Book reviews from The Architectural Review can now be seen on our website at www.arplus.com and the books can be ordered online, many at special discount.

和平會園：追求公園、尊重生命、維護和平

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國家紀念公園
228 National Memorial Park
國際競圖
International Competition



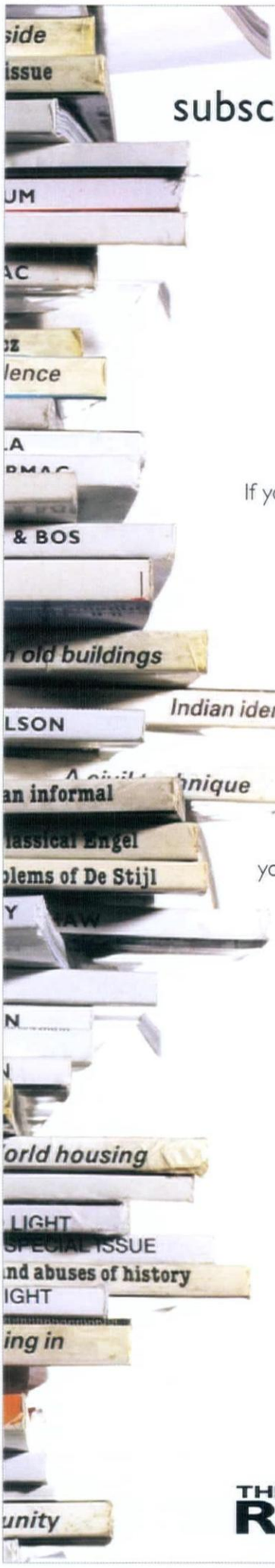
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THE ARCHITECTURAL REVIEW

delight



The first 'bubble diagram' of London appeared, astonishingly enough, in 1943 in the middle of the Second World War. Produced and drawn by Arthur Ling and D. K. Johnson, it was one of a comprehensive set of maps, diagrams and graphs which formed part of the *County of London Plan*. This was the responsibility of the pioneering figure Patrick Abercrombie, who spent the war thinking about the peace which would ensue, and how London should plan for it.

The Plan, published in book form (priced at 12 shillings and sixpence), was a triumph of synthetic thinking, allied to clear statements of aspiration, and an admirable use of English, admittedly that of the administrative class, but devoid of jargon and cliché. The diagram shown here is itself a brilliant synthesis, a social and functional analysis of a world city which manages to pay attention to detail (the location of each borough town hall), as well as providing snapshot information on waterways and reservoirs, industrial wharves, railways, shopping centres, open spaces, and (shades of things to come) 'central communities with a high proportion of obsolescent property'.

London's image as a city of villages partly stems from this diagram, which was used to face the start of the chapter in the Plan dealing with 'Social groupings and major use zones'.

The faintly psychedelic image, with its overlapping boundaries, is a reminder of what the Plan noted: London had 'a highly organised and interrelated system of communities as one of its main characteristics ... perhaps more peculiar to London than any other capital city in the world, for the generally low density of its two- or three-storey development, combined with its extensive area, has created a need for numerous subsidiary civic and commercial centres ... Recognition of the existing community structure of London must be implicit in any main reconstruction proposals; to ignore London as it exists and treat it as one vast area for experiment would lead to incalculable and unnecessary disturbance to people's lives and, moreover, would be the least economical method of procedure.' Politicians ignored this advice for the next half century. PAUL FINCH

reviews

browser

Sutherland Lyall strides forward resolutely into the cyber New Year.

Majestic Jestico

Despite a barrage of gruesomely self-congratulatory PR (from the designers), I took a look at the new site of London architects Jestico + Whiles at *www.jesticowhiles.co.uk*. I have to declare an interest in that a year or so ago I did a misguided amicus curiae evaluation of the existing site. Not well received. After a long silence, here's the new one, accompanied by that heavy pressure from the designers' PR machine. This had the effect of creating instant reservations about the site, particularly about the noise and its Flash-based tricksiness. But I rather like it. You click to enter the site from a white text on dark blue (and therefore uncommonly readable) opening page, which has the basic address, email address and phone number. Sign of the times, there's no fax number. The main page assembles itself as a set of overlapping images that shimmy around when you run the cursor across them. There is a noise to go with the shimmy. It starts off like Darth Vader doing a bronchial intake and ends like somebody shaking a tin of coins at you in the street. You rest your cursor on an image and, to the accompaniment of Darth Vader and the collection box, out slides the basic information. Click on the image and up it comes big with the sound effects and more information. After you have done this a couple of times you notice the slider running across the bottom, which produces more images of the same. You can also explore on a number of other criteria which the press release seems to suggest uses fuzzy logic but which, I think, has merely to do with adjacency. The really big plus is the absence of any embarrassing practice 'philosophy'. For once, the architecture speaks for itself.

Hedgehog and DeLorean

Blog by blog I'm getting drawn into the phenomenon. There is B******s to Architecture at *http://b2architecture.blogspot.com/* which, unlike Death by Architecture (*www.deathbyarch.com*) is not a commercial site but a lone, anonymous, probably London architect running a rather nice gossip and links blog. The latest of such blogs is Norman Blogster's *http://partiv.blogspot.com*, which you might more readily recognise if you read 'iv' as the number four – as in architecture school. Norman Blogster is, of course, a *nom de plume* which, given the hair-trigger touchiness of some big-beast architects, seems like a sensible though not totally admirable idea. A colleague pooh-poohed the site, but I pointed out that you have to take blogs as they come, not look at them when you are preparing for a meeting, you should try out some of the links, take it easy, be prepared for the occasional infantilism, and expect nothing particularly. From PARTIV I personally got links to an architectural blogvideo about model making, an animated diagram of bike couriers through London, an 11 minute time-lapse video of boats in the Miraflores locks in the Panama Canal, a link to the US Midwest daily blog, Archidose at *http://archidose.blogspot.com* and of course the often hilarious Dr Garry's Australian site at *www.archsoc.com*. But most of all I have to be grateful to this site for that internationally renowned practice, the sublime Hedgehog and DeLorean.

All of a dither

Union North's website at *www.unionnorth.co.uk* is exactly the kind of site likely to put off prospective clients. Not being a client I think I loved it. It starts off with a black screen, the practice name and an invitation to enter. You click and up comes the name again. But when you grumpily try to click again, the individual letters fly around avoiding your arrowhead. Call me childish but I did this grinning maniacally for about five minutes before nailing the little flashing square dot, which had been there all the time. It was the end of a hard day. Clicking on it produced a dither of pixel-sized dots that resolved into a six-by-six grid with tiny names under each. This is a Flash site, so if you click anywhere neutral with the right button and click again on Show All (not Zoom In) the text becomes readable. Hover over the right-hand three columns and some of the right-hand dots develop shimmering outline boxes. Go to the left and it's circles on the right-hand side. I think this is a way of indexing any one project under a number of headings. But you have to have a steady and fast hand and a good memory because once you have clicked on, say, 'Regeneration' over on the left, a dozen named dots are circled on the right. But when you move your cursor over in the direction of one of these, the circles disappear and the half you have left has suddenly developed squares relating to the nearest dot to your cursor. Confusing. Probably useless. But hey, fun. One thing though, because it doesn't seem to have an exit button, you have to click on the x at the top right of the Windows desktop. You leave – but into a frozen browser and you have to make a report to Microsoft Central about it.

Sutherland Lyall is at sutherland.lyall@btinternet.com

diary

AR'S CHOICE OF INTERNATIONAL EXHIBITIONS AND EVENTS

AUSTRIA
ALEXANDR RODCHENKO: SPATIAL CONSTRUCTIONS
MAK, Vienna
Until 26 February
Alexandr Rodchenko's geometrical works are well known, yet the originals no longer exist since he destroyed them after documenting them in photographs. Connoisseurs of Constructivism can only enjoy replicas, so the MAK presents a compelling array of Rodchenko's replica pieces.
www.mak.at

CANADA
EMPIRE
Canadian Centre for Architecture
Montréal, Québec
Until 12 March
The relationship between architecture and power. Photographs of Washington DC by contemporary artist John Gossage are juxtaposed with images of the Egyptian empire taken by Hermann Vogel in the mid nineteenth century.
www.cca.qc.ca

ITALY
DAVID CHIPPERFIELD – IDEA AND REALITY
Palazzo della Ragione, Padua
Until 19 February
Major show covering 20 years of the Chipperfield oeuvre, staged in the frescoed splendour of Padua's Palazzo della Ragione.
www.padovacultura.padovanet.it

UK
EMERGING ARCHITECTURE
RIBA, London
Until 28 February
Lively showcase of winning entries from the annual AR Awards (AR December 2005).
www.architecture.com

I SHOT NORMAN FOSTER
Architecture Foundation Gallery, London
Until 20 January
Six snappers from the rarefied worlds of art, fashion and journalism present their sideways takes on the maestro's buildings.
www.architecturefoundation.org.uk

USA
DAZZLE
Virginia Museum of Fine Arts
Richmond, Virginia
Until 29 January
A dazzling exhibition of finely crafted objects in gold, silver, gemstones and other precious materials from VMFA's collections. www.vmfa.state.va.us

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