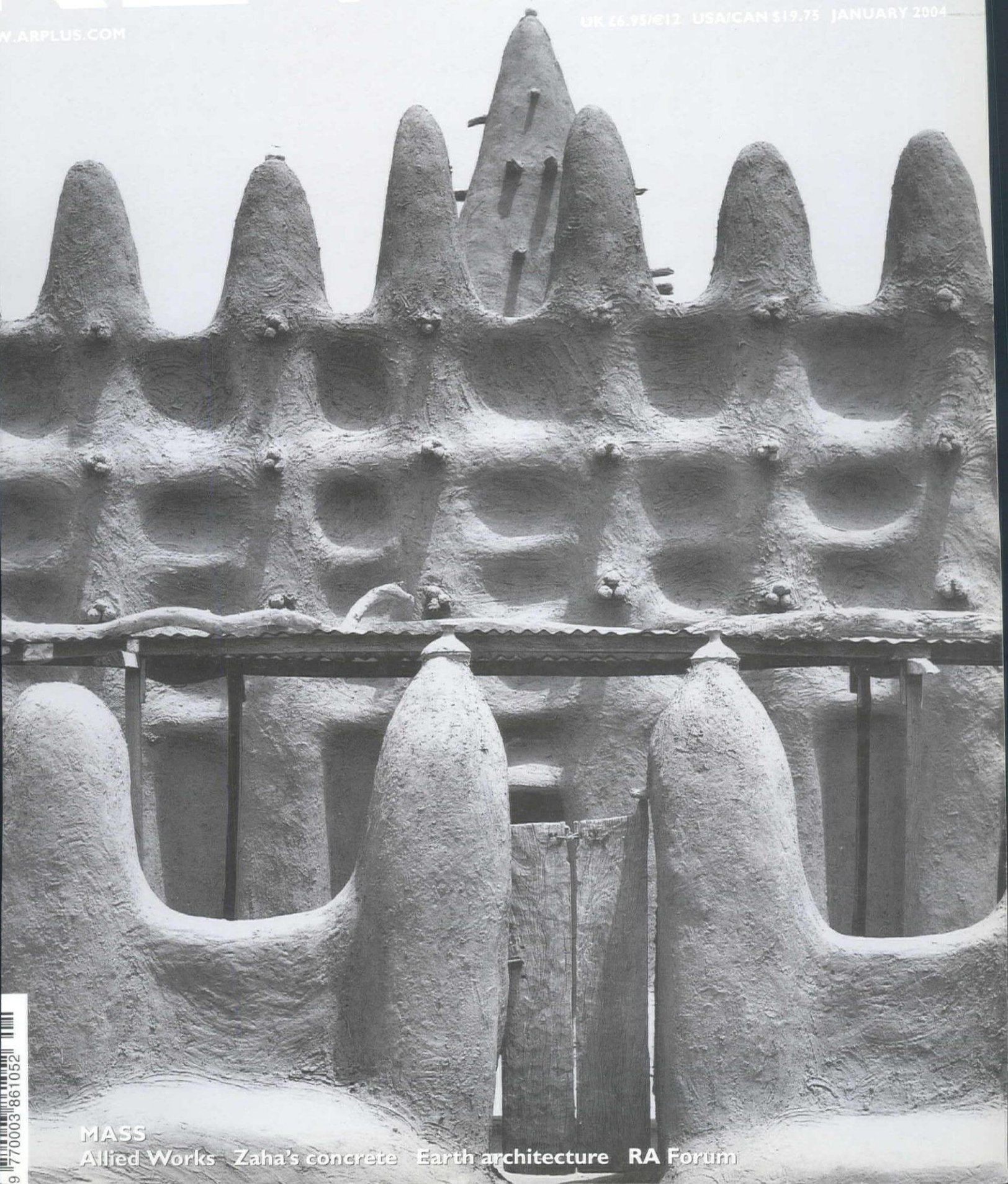
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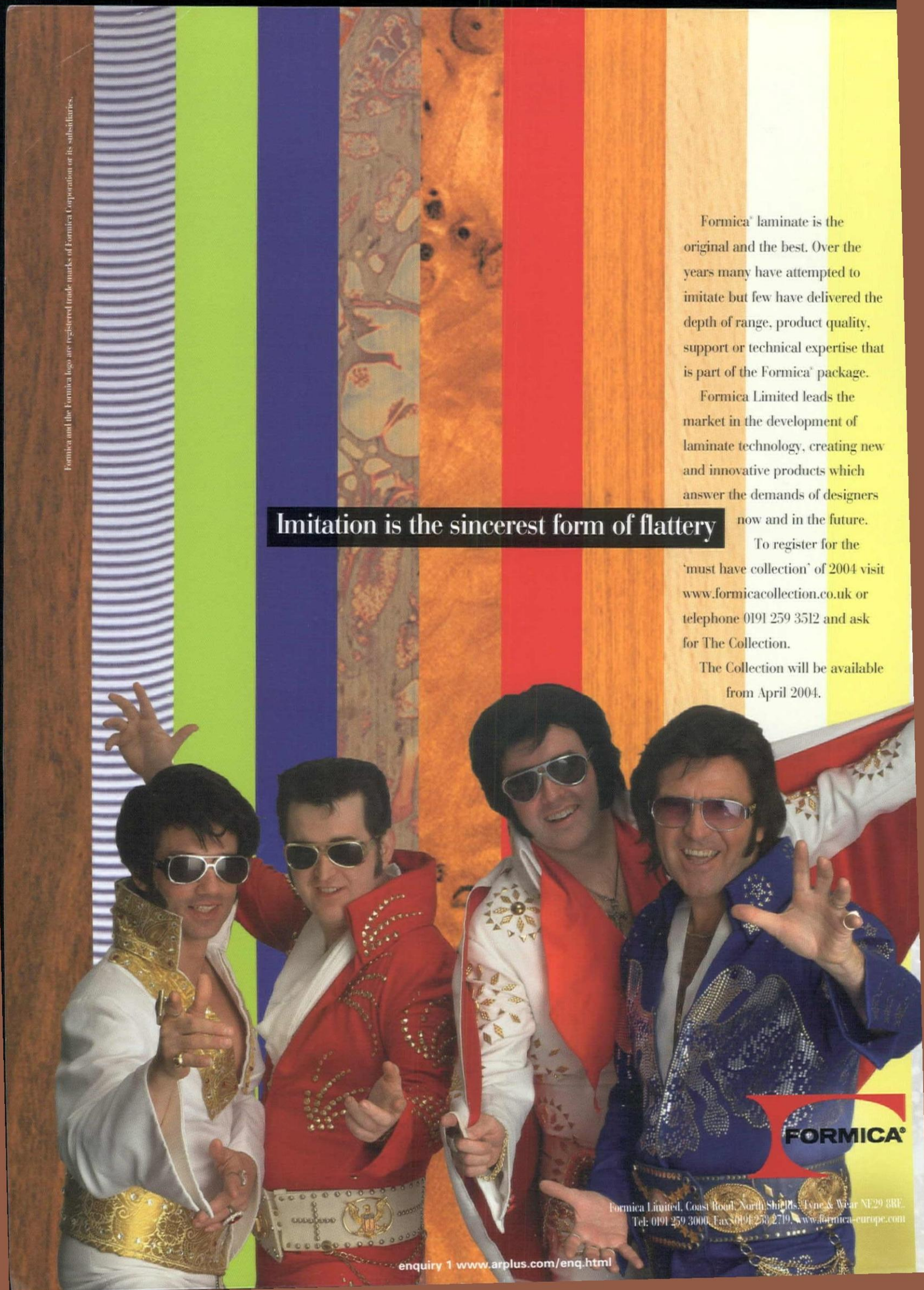
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Managing Editor
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Zoe Phillips 020 7505 6615
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Jonathan Stock
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Paul Finch
Managing Director
Graham Harman
List rental: Jonathan Burston
at Uni-Marketing
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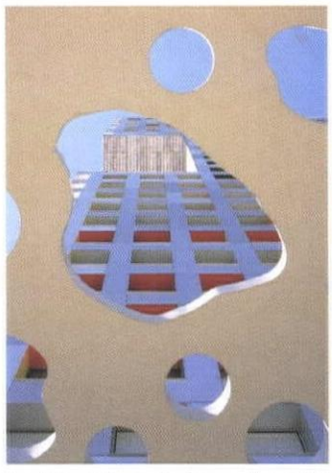
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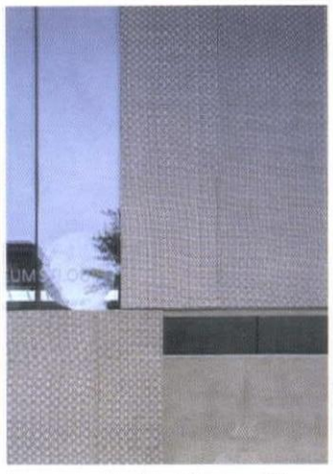
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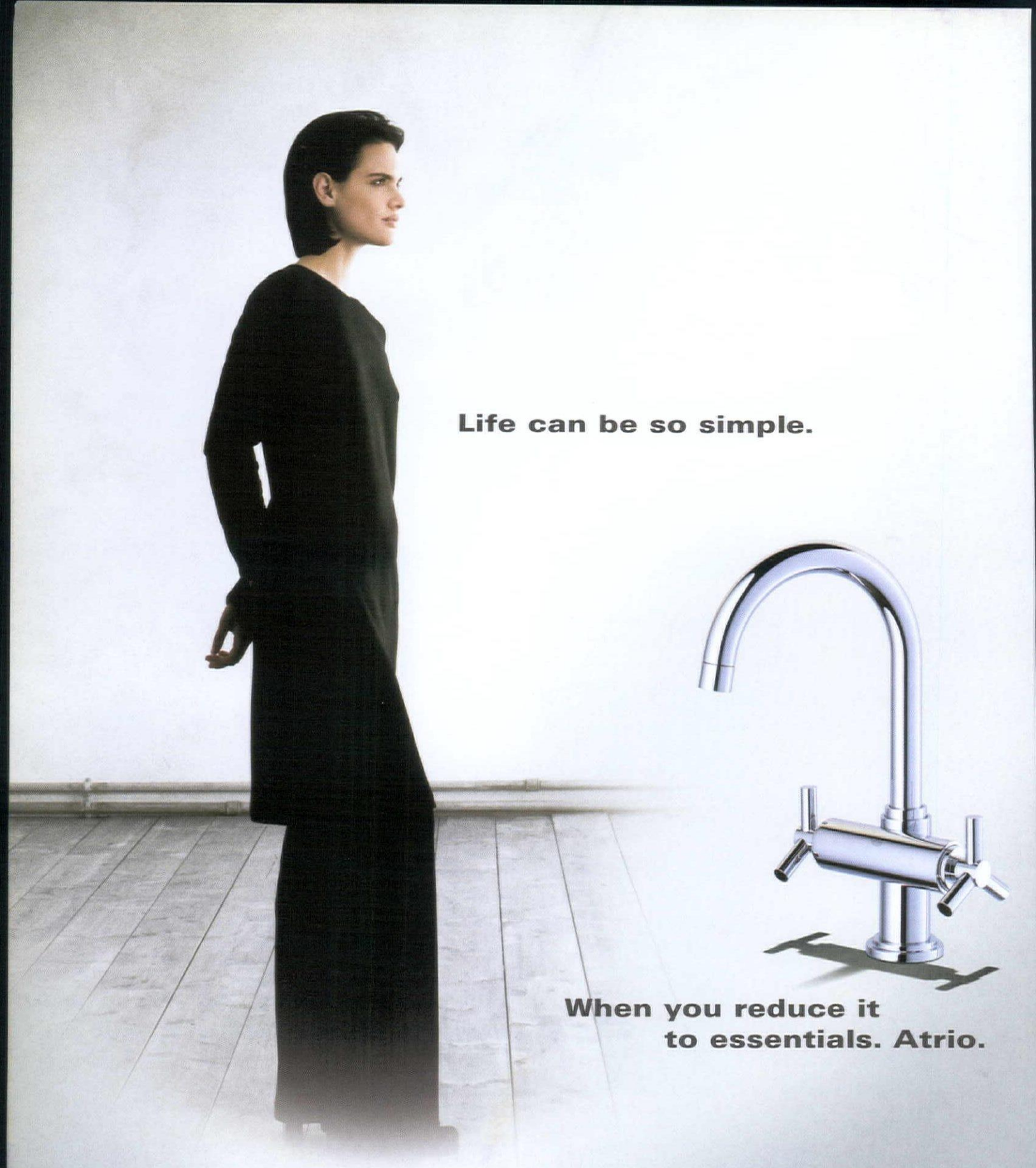
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KOOLHAAS CELEBRATIONS IN BERLIN AND LONDON; SCHLAICH + BERGERMANN SHOW POWERS OF GERMAN PROFESSIONAL ENGINEERING AT DEUTSCHES ARCHITEKTUR MUSEUM IN FRANKFURT; PRIZES AWARDED FOR AR+D; AR'S EUROPEAN INTERVENTION CONFERENCE; BLOBBERY IN BIRMINGHAM AND GRAZ; VIEW FROM KIZHI ISLAND.

KOOLHAAS CURATED

Rem Koolhaas' ever expanding oeuvre has been celebrated with a grand exhibition in Mies' Neue National Galerie in Berlin.

The completion of Rem Koolhaas' New Dutch Embassy in Berlin (officially due to open this spring) forms the catalyst for the biggest and most energetic celebration of OMA/AMO work to date. It is a deliriously furious return to a Berlin that so deeply frustrated and upset Koolhaas at the beginning of the '90s when, in horror, he turned his back on the city's petit-bourgeois plans to rebuild Potsdamer Platz. Now he is back with a vengeance and the stately Museums of the Prussian Cultural Collections have gamely surrendered the entire New National Gallery's upper deck to Rem's *furor architectonicus*.

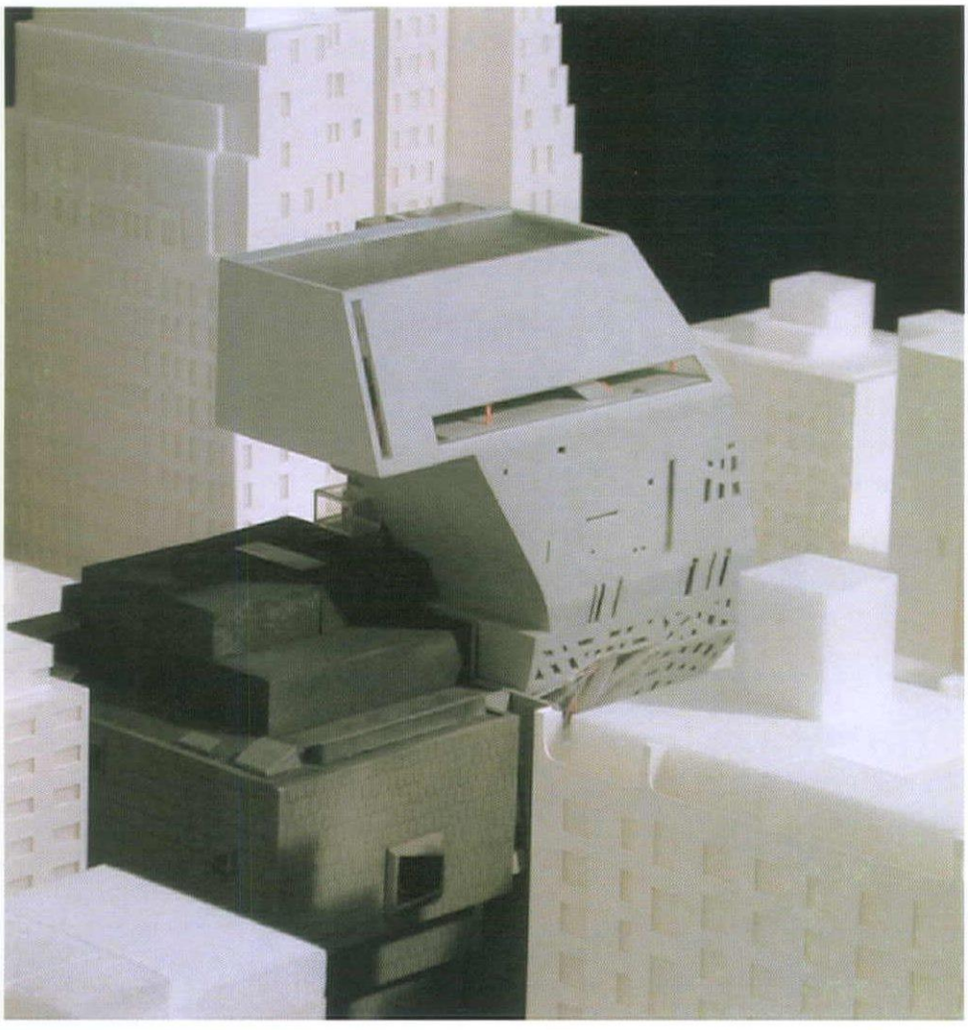
With the help of his curator Kayoko Ota and Andres Lepik with Cristina Steingräber from the National Gallery, Koolhaas has turned Mies' venerable masterpiece into a junkyard of architecture. At best, the exhibition could be described as a chaotic assemblage of Rem's architectural projects and theoretical leitmotifs. OMA nowadays is synonymous with Fluxus, the Situationists, Pop and Dada all at once. Yet it is a cultivated, carefully staged anarchy with only the best and truest intentions of building big, bigger and biggest architecture. Just as Koolhaas superimposed fashionable sizes on architectural design in his book *SMLXL* (1995), here he presents a myriad of models in different scales.

The conventional display hierarchy of architecture (sketch, plan and model) has been completely overturned. The open plan National Gallery is criss-crossed with chest-high walls off which visitors bounce and weave like pinballs. In fact, when observed from the scaffolding viewing platform, the whole show resembles a giant pinball machine. Zones are created and dedicated to influences rather than just architectural projects: the Forbidden City, the YES Regime, Pavilion in Pyjama, the EU etc. Hence the exhibition is as much about current beliefs, fashion, fears and phobias as the big projects which Rem is now famous for winning: the twisted CCTV towers in Shanghai, California's Universal Studios, the H-Project in South Korea or Porto's Casa da Música.

It has taken Rem eight years since the publication of *SMLXL* to reassemble and refocus energies for this show. In Koolhaas' world of architecture on fast forward, this is astonishingly slow. Nonetheless during this time he and OMA have achieved international breakthrough, restructured the office from a studio into what is now a big business, and churned out theoretical wisdom by the yard. The simple inversion of the acronym OMA has created the Harvard think-tank AMO, Rem's theoretical masterclass for his own visions.

But all this would not have been achieved without the many prominent and not so prominent collaborators to whom Rem has allocated ample individual space in the show. Given Koolhaas' fame and standing, he is still amazingly frank, open and generous in sharing OMA's reputation. Space and walls are handed over to Candida Höfer, the Dutch Embassy's photographer, artists Tony Oursler and Jeff Preiss, as well as Koolhaas' engineering partners Arup and in particular Cecil Balmond.

All this and more is on display in Berlin; the exhibition will then travel to the NAi in Rotterdam and on to yet undisclosed international venues. No catalogue, but at the end of last year, Taschen published Koolhaas' latest book entitled *Contents*. CHRISTIAN BRENSING



The new Whitney Museum in New York, now celebrated in the *Content* exhibition in Berlin.

Content – Rem Koolhaas OMA/AMO Buildings, Projects and Concepts, *Neue National Galerie, Berlin, Germany, until 18 January. Koolhaas was awarded the RIBA's Royal Gold Medal at the end of last year.*

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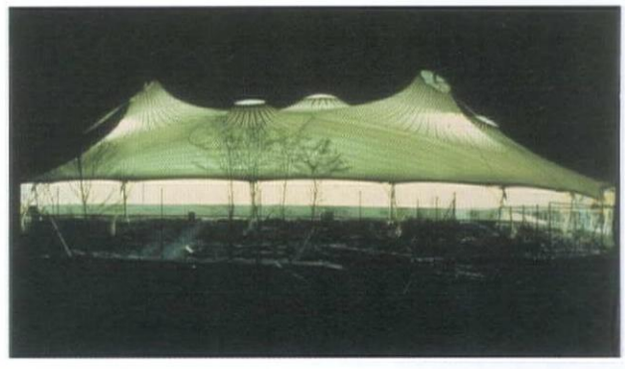
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Schlaich + Bergermann show their range of roofs from the German Historical Museum, left, to Berlin's main station, above right, at the Deutsches Architektur Museum, Frankfurt.

ENGINEERING EXCELLENCE

Contrary to popular architectural opinion, structural engineers are not all stuck in mud calculating how many I-beams it takes to cross a motorway. Ove Arup showed how creative and modest engineers could be, designing lightweight structures, appropriate to function and place, with an economy of materials which attained the highest aesthetic and ecological standards. German engineers Schlaich + Bergermann belong to this tradition. Born in 1934 and 1941 respectively, the two partners founded their office in 1980 and now have a fifty strong team based in Stuttgart. Along the way, Jörg Schlaich has collected honorary titles and academy memberships from New Delhi to Washington. He was a Stuttgart University professor and is now an honorary professor at Shanghai's Tongji University. Both partners have received prizes for their collective life's work and individual projects.

This exhibition is unique: the first dedicated to engineers at the Deutsches Architektur Museum, and the first international show to feature German engineers. Frank Gehry has called Jörg Schlaich, 'One of the greatest structural engineers of our time'. In one of his own anecdotes Schlaich tells how, as third prize winner for the 1972 Munich Olympic Stadium, he was called in to help the winners, Günter Behnisch, Heinz Isler, and Jürgen Joedicke, realize a 35 000 sq m tent roof based on Frei Otto's Montreal pavilion at Expo '67. The technology did not yet exist for what was to become the world's first permanent cable net structure. 'Without Behnisch there wouldn't have been the idea, without Otto there wouldn't have been the inspiration and without Schlaich + Bergermann it wouldn't have stood up.'

Projects such as I. M. Pei's German History Museum (2002), Frank Gehry's Jerusalem Museum of Tolerance (2007), Massimiliano Fuksas' Milan Trade Fair hall (2004) and GMP's Berlin Central Railway Station (2002) all bear the imprint of their architects, but when displayed together, the Schlaich + Bergermann family likeness is clear. Continual research backs up the firm's work on cable net roofs and facades, shells, masts and towers, pneumatic and textile structures, and in collaboration with Pfeifer, the cable and lift manufacturers, they have rediscovered cast steel for tension connections.

But economy in design is not an end in itself. Structures also have social importance. For Calcutta's Hooghly Bridge, which took over twenty years to complete, Schlaich + Bergermann designed an open steel grid with riveted connections, since imported weldable steel and equipment was unaffordable. Their design made use of local (but not primitive) skills and thousands of people found employment. Schlaich + Bergermann see the future of design in both appropriate local and sustainable universal solutions. Partner Wolfgang Schiel heads a team developing technologies for solar-power generators. Their solar dishes are in use in Europe, Saudi Arabia and India and last year they completed a 4350 sq m parabolic trough collector for a pilot solar power plant in Kramer Junction, California. These 'green' structures have their own strange, functional beauty.

In the 1960s, when computers were as big as buildings, structural engineers were denigrated as failed aeronautical engineers. Times have changed, but bridges are still regarded as the purest forms of structure. The firm has produced many elegant examples from Stuttgart's Nesenbach Valley (1999), to Ting Kau in Hong Kong (1998). Schlaich + Bergermann are currently collaborating with architects on six Chinese mainland projects but Jörg Schlaich still has an unfulfilled wish, 'We would really like to design a bridge. China has such wonderful rivers.' LAYLA DAWSON

At the Deutsches Architektur Museum, Frankfurt am Main, Germany, until 15 February 2004. It then travels to Hamburg, New Haven, Shanghai, Vienna, Venice, Beijing, and Chicago. A catalogue with English / German text is published by Prestel Verlag, Munich / New York.
There will be an accompanying international conference:
Form and Construction, *9 February 2004 at DAM, Frankfurt am Main, Germany. Register at: inka.plechaty@stadt-frankfurt.de*

ALL CHANGE?

To mark their 40th anniversary, the London based architectural practice Arup Associates recently co-hosted a series of lectures in collaboration with the Royal Society for the Encouragement of the Arts. Entitled Future Context, the series presented three distinct views on the globalization and regeneration of the built environment, in both developed and developing countries. By identifying the three Es of change – Economics, Effect and Ethos – Saskia Sassen



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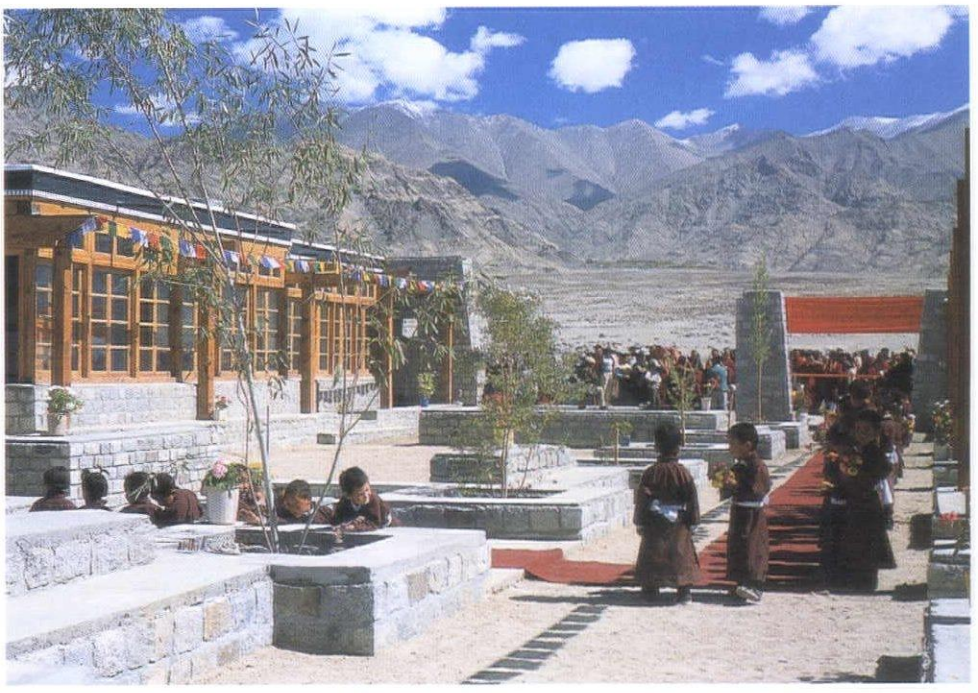
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discussed how emergent global economies are generating change, Alex Garvin discussed how in New York following 9/11 the Manhattan Developing Corporation is delivering change, and his Holiness the 12th Gyalwang Drukpa concluded with his thoughts on how to inspire change, by drawing on his role as innovator and client on projects such as the Druk White Lotus School in northern India (AR May 2002).

In a pacy and fluent presentation, Saskia Sassen began proceedings by literally taking on the world. As a renowned Professor of Sociology, her theories sought to consider all aspects of the global city. By identifying Frankfurt, London, New York, Paris and Tokyo as the five leading global hubs, what, she asked, was the relationship between the virtual connections, generated by the electronic systems of a city, and civic spaces generated by the physical space of a city? 'Is human interaction necessary?' she speculated, and 'are places merely becoming sites on an electronic global loop?' More interestingly however were her observations regarding notions of rule and regulation, and of order and chaos in our societies. By considering unclassified economies that emerge from private, invisible or perhaps even illegal minority sub-cultures, it is unregulated changes that, she argued, truly break new ground. Chaos prevails over regulation, and the economy, be that informal or formal, is always ahead of government rule. Therefore, while Sassen appeared reluctant to present us with a neat digestible package of conclusions (as is often the case when big thinkers generate more complex questions than they ever attempt to answer), the single most identifiable proposition was that the world will always be an evolving organism where it is impossible for regulation to ever fully stifle the natural process of global change.

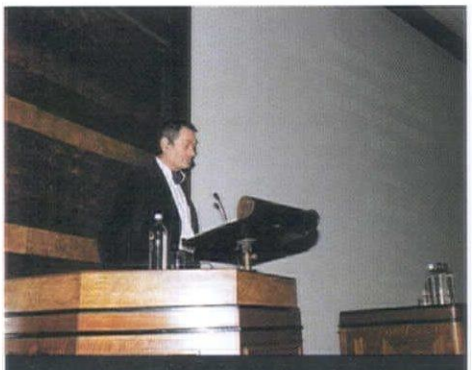
By contrast, Alex Garvin presented a far more orderly notion of change, defined by consultation, collaboration and consensus. In describing the process of delivering change in Lower Manhattan, Garvin was not short of statistics. Having involved nine councils, 200 people, and over 50 meetings before Libeskind was appointed, it was a complex task that included the organization of a single public consultation meeting for more than 4300 in one room. However, for a largely architectural audience many questions were left unanswered, including Garvin's own question; how do you grow a city around a memorial? It was also unclear as to exactly what architectural decisions had actually been made, or whether despite Libeskind's involvement, we were still looking at a masterplan of blocks. Beyond the peripheral, but nevertheless important issue of inspiring public support, exactly what Libeskind's role would be remained unclear. And while Garvin repeatedly stated that Libeskind would not be the designer of all of the buildings, he failed to address the concern that without Libeskind there is a real danger that the proposals may naturally revert to the city's original block masterplan – with the odd geometric twist here and there. It is difficult to see for example how the architecture of Libeskind – an architecture of the specific and of the unique – can ever be applied to the process of masterplanning; a process which by definition sets out rules and regulation. Without Libeskind, is their any credence in the concern that the bulk of the buildings will in reality be executed and diluted by less inspired associate design teams?



Arup Associates' school in the Himalayan territory of Ladakh: an inspired example of First-World working in the Third.

As many would have expected, the final lecture by His Holiness the 12th Gyalwang Drukpa, focused on higher order priorities, discussing issues of human fulfilment, of happiness, and of peace. However, as presented these issues were seamlessly brought back down to earth, and were no less practical than those discussed by the previous contributors. Calling for environments that inspire as well as function, His Holiness made it clear that there was a genuine urgency for designers to respond. In the case of his own school for example, he described an urgency to build in order to save what he had identified as 'the declining happiness and beauty in the lives of the people'. Despite a clear recognition of the need to preserve tradition culture, in a world that he saw as being 'distracted' by the pull of the Western world, his Holiness never implied that change was bad. In fact, on the contrary, if you have vision, he concluded, you are free to wander through possible futures, while if you are blind, you have little option but to sit still.

As a series of individual lectures, it is difficult to parcel our Future Context into one neat summary. Perhaps a single symposium would have been more dynamic? For example, how would His Holiness have responded to Sassen's subtext which addressed leadership and anarchy, and how could he have helped Garvin answer the question of how to build a city around a memorial? Despite this however, this inspiring trilogy of evening lectures, gave capacity audiences a series of diverse and stimulating presentations, and were as such a fitting reflection of both Arup Associates' aspirations and the RSA's ongoing Art for Architecture initiative. For more information visit *www.arupassociates.com* and *www.rsa-afa.org.uk*. ROB GREGORY



AR Editor Peter Davey at the ar+d award ceremony at the Royal Institute of British Architects (RIBA) in London early last month. Attended by most of the award winners and the architects of the highly commended and commended projects, the international gathering also marked the opening of the ar+d exhibition at the RIBA, which will be on show until March. A series of lectures by architects premiated in the awards starts on 10 February with Ville Hara and Jean-Pierre Crousse; three further lectures will follow at weekly intervals. *www arplus.com* and *www.architecture.com*

view

INTERVENING IN THE EUROPEAN CITY

The AR will hold a conference on Intervening in the European City on 16 March.

Almost all European architects work in or among old buildings and our conference Intervening in the European City will examine some of the most creative contemporary interventions.

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The challenge is to generate cities that respond to the past and future as well as the needs of the immediate present. Creative possibilities are immense and the range of approaches is very diverse. Speakers will include Günther Domenig (Austria), Massimiliano Fuksas (Italy), Peter Cook (UK), Ole Wiig (Norway), Chris Wilkinson (UK) and Francine Houben (The Netherlands).

Bookings can be made through the RIBA at *www.architecture.com*.

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Sutherland Lyall fearlessly hacks his way through the cyber thicket.

Sites of the south

Art4D is South East Asia's answer to *Blueprint*. It's interesting in throwing up one of the problems faced by print magazines in this era of compulsory websites and web-only webzines. Actually *Art4D* is published in Bangkok and, as is mostly the case with magazines, its website at *www.art4d.com* is not all that revelatory about the current issue's content beyond a list of the main stories plus brief elaborations. You imagine the site might at least be a bit more forthcoming about earlier months' contents on the grounds that the stories are by now a bit stale. But no, here too the site is tight-lipped. I checked to make a comparison with our own website at *www.arplus.com* (with which, honest, I'm quite unconnected) and there were terrific images of the ar+d winners and runners-up to be seen in last month's issue and ditto for all the years back to 1999. Our website also carries at least three complete articles per back number in pdf format. I mention this not to emphasize how cool the AR site is, but to hint that since it doesn't seem to affect our subscription figures *Art4D* might follow suit. And turn a slightly anal-retentive site into an interesting one.

New building typology emerges

The AR is not a travel magazine, but since the ice hotel represents a new typology and an extreme form of construction, I can't refrain from reporting on the phenomenon. The latest is outside the main railway station in Bruges, Belgium. Actually it's in a big insulated tent outside the main railway station, Bruges not being the coldest place on earth. Movie-goers will remember that Bond movie ice hotel, based on the original in Jukkasjärvi in Swedish Lapland. There is also one, the Hotel de Glace, at Duchesnay on the outskirts of Quebec, Canada *www.glasssteelandstone.com/CA/PQ/ QuebecCityIceHotel.html*, and one at Kangerlussuarq, Greenland (*www.greenland.com/Adventures/Ice_ and_Snow/Ice_Hotel/*. The latter is in the form of five igloos radiating out from a central dome, four of them rooms, one an entrance and bar. The Canadian version is not exactly cutting edge architecture and the Bruges version is quite modest in scale: there are only two suites. For your 500 Euros a night you get, in addition to an extremely cold and uncomfortable bed (albeit with furs), a room in a nearby proper hotel for ablutions. No word about facilities relating to getting up in the icy night. For quite a lot less your alternative accommodation could be a converted canal barge. Another down-side is that it is part of an ice sculpture festival. So lots of ice swans, fairies and gnomes then. But these isolated examples pale into insignificance when you look at the central Manchurian rustbelt town of Harbin. In winter Harbin becomes an ice city of pagodas, spaceships, statues, with an ice reproduction of bits of St Petersburg, an orthodox onion-domed church, rows of Doric columns, the Great Wall and a lot more. For a taste try *http://community.webshots.com/album/59936963DbcfUr/*.

Talking of rust

First there was that workaday stuff used as the skin for thousands of Outback shearing sheds. Then Glenn Murcutt turned this low net worth material into something soaring and poetic. And now we have delicious photographs of corrugated iron in England by designer Bob Humm at *www.bobhumm.com*. It opens with a home page close-up of the eaves of a building at Birds Kitchen Farm, Romney Marsh which looks as edible as crumbling chocolate shards. Charmingly Bob announces, 'This website is about corrugated iron simply because I like it'. Examples include Shuhei Endo's ar+d 2000 winner, the lavatories and apartment for Hyogo Prefecture, and Rural Studio, some shacks on the shingle ridge at Dungeness, the corrugated iron St Michael's Church, Hythe and more. A little history section by AA conservation course student Paul Dadson explains why corrugated iron fell out of fashion in Britain – although it seems to have been invented and developed here. The answer was that in the British climate it rusted too readily.

Out in public

Architecture has to be the most public of arts, so one is naturally drawn to a site with a name like *www.publicartonline.org.uk*. It turns out to be the site of a British organization Public Art South West which is run from Exeter which is towards the bottom left-hand side of England. It is a site about which you feel quite comfortable from the beginning. This is a working site full of information for people, artists, administrators and architects working in the field of public art. So there are case studies, policy statements, collaborations, practical advice under such headings as garden festivals, temporary works, storage, strategies and the like. It is nice to see that the RIBA is an enthusiastic no-punches-pulled supporter: 'The Artist is our ally in championing aesthetic values over those of time and cost in our constant battle against the philistines who make up the majority of the construction industry.' So, despite the prejudicial deployment of capital letters, there.

Public service

LINE at *www.linemag.org* is the website of the San Francisco chapter of the AIA which has been running an interesting campaign in favour of a Californian non-profit organization called Public Architecture. It is currently promoting 'The 1% Solution'. At first I thought this might be a variant on the Percentage for Art theme which argues that a small percentage of the cost of all commercial buildings should be devoted to art works. But no. This is about architects providing hours in the service of the public, more accurately an 'initiative to have 1% of all architects' working hours devoted to the public service.' Here in the UK we used to call that local authority and government architecture. No sorry, that was really unfair. The rest of the website has a nice long list of articles, many of them to do with architecture and social responsibility, an area of discussion of which we hear rather too little in these comfortable times.

The archive has themes ranging from Structure, Public Dialogue to Sustainable Design. Unlike too many archives, you can click your way through to the actual text and read it there. There are illustrated design awards, book reviews, interviews and a portfolio of Bay Area architecture which illustrates the month's broad theme. And there is a direct link into the AIA Chapter's events programme. The images have a curiously furry quality and the overall feeling is a tad homely. But who cares when otherwise this is pretty much an exemplary site?

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Diary

AR'S CHOICE OF CURRENT INTERNATIONAL EXHIBITIONS

For an expanded and constantly updated list, go to our website: www.arplus.com/exhibitions

FRANCE

NON-STANDARD ARCHITECTURES
Until 1 March
Centre Pompidou, Paris
The implications of digital and computational tools in architectural design and practice.
www.centrepompidou.fr

GERMANY

LIGHT STRUCTURES
Until 15 February
Deutsches Architektur Museum, Frankfurt
Projects by the Stuttgart based engineers Jörg Schlaich and Rudolf Bergermann, who gave the world cable net structures and much more (see exhibition review on p9).
www.dam-online.de

SWITZERLAND

GOTTFRIED SEMPER (1803-1879)
Until 25 January
Swiss Federal Institute of Technology, Zurich
200th anniversary exhibition on Semper — archtect, scholar and political revolutionary.
www.ethz.ch

UNITED KINGDOM

EMERGING ARCHITECTURE
Until 2 March
RIBA, London
Winning projects from this year's ar+d awards on show in the Florence Hall.
www.riba-london.com

THOMAS HEATHERWICK
17 January until 21 March
Design Museum, London
Maverick Heatherwick curates the latest Conran Foundation collection, assembling an assortment of ingenious inventions.
www.designmuseum.org

UNITED STATES OF AMERICA

DIANE ARBUS
Until 8 February
San Francisco Museum of Modern Art.
San Francisco
The most complete survey of her work ever assembled, Arbus had an eye for the grotesqueries of the everyday.
www.sfmoma.org

AR Next Month

EDUCATION

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view

The Miller/Hull Partnership is an AIA Architecture Firm Award-winning Seattle practice which has this amusing home page. There are two columns, the left on text detailing their current awards and starting with the memorably enthusiastic words 'We're thrilled to announce ...' OK it's only about the office moving but you feel you could work with a practice which can get thrilled about anything in public. Down the right-hand column are two rows of photographs one of which you at first mistake for a movie. Cheeky chappies, the only moving thing is the lines and scratch marks you get on old movie stock. Interestingly there is a page about ftp (file transfer protocol) but because you need a password to get in, exactly what the practice does with it must remain veiled to the rest of us. There are several pages of current and completed works most of which you would probably be happy to have on your own practice cv.

Sutherland Lyall is at sutherland.lyall@btinternet.com

letters

IGNORANCE IS STRENGTH

SIR: This ominous, grave statement in *1984* by George Orwell – whose 100th anniversary of his birth we celebrated last year – can also be applied to us involved in planning and building in our terrestrial space. We are living in times, when really 'WAR IS PEACE' and 'FREEDOM IS SLAVERY' in many places on this globe.

So it is urgent we subscribe ourselves to that ethical oath of sustainability you propose (AR Nov, p37), with all its physical ramifications, well known already, but mostly ignored. The ecology, the process of living creatures and material structures: geological and man made, are exposed, as we perceive it, to changing play of functions, where our intentions are not less disastrous as those of nature.

More than thirty years have passed since we became conscious together with Buckminster Fuller, that we are on this planet of ours as on a spaceship of limited dimensions and of restricted resources. Are we aware that the atmosphere to breathe is not very thick above our terrestrial ground? Will we have it for ever, with trees burning, floods even in the desert?

Architects and engineers alike must take, as you write, 'inventive efforts' to design and to build better, that is in harmony with nature to be saved, where we live now and tomorrow.

I do appreciate the selection for your article on 'Decency and Forethought' of two contrasting, but environmentally responsible architects, visionary in difficult circumstances. Look at the late development of Frank Lloyd Wright's Broadacre, one year before his death at the age of 90 – at his cross-road solution. What a contrast to that other abysmal 'spaghetti' traffic planners design.

As for Pessac (1925) – Corbusier conceived it to be built of standardized basic reinforced-concrete elements, which were not intended to inhibit variety or change. The total plan shows also the presence of trees lined along the streets and of cultivated flowers and vegetable gardens within the spaces between the houses, a desire shared by many today in urban planning.

It seems unbelievable that entering 2004, 55 years since the publication of *1984*, with all the technological advances made, we are unable to conceive a harmonious wholeness of our environment, understood as ecological imperative, supported through the social and psychological necessity of all human beings.

Yours etc
ADAM MILCZYNSKI KAAS
Pamplona, Spain

BLOB COMPARISON

SIR: Why the revulsion and snide remarks against the Future Systems' Selfridges store in Outrage (AR October) but praise for the Kunsthaus in Graz by Peter Cook and Colin Fournier (AR December)? You say Birmingham has 'latched onto Blobismus, the most self-indulgent and un-urban fad of the last half century', but the Graz Kunsthaus is 'a genuine extension of the region's tradition of architectural boldness and invention ... the new building reflects an expressive empathy with the city and its evolution'. Inconsistent or what?

Yours etc
RANDOLPH CORDUROY
Birmingham, England

REVIEWING THE PAST

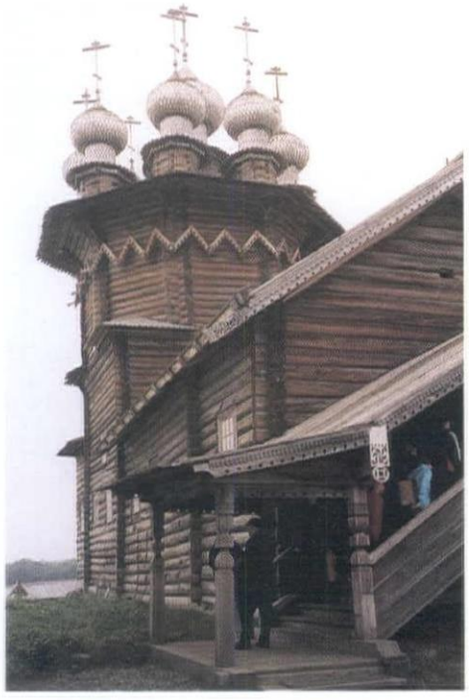
SIR: I have a collection of issues of *The Architectural Review* running from 1954 to 1982 – not entirely complete. *Architecture d'Aujourd'hui* 1974 to 1979. Lastly, *AD* 1964 to 1979 (missing '75 and '76). Offers please.

Yours etc
ANDRÉE SUQUET
Email: lynch-suquet@wanadoo.fr

ERRATA

In the View from Quito (AR November, p30), the reference to Alejandro Nuñez should have read Andres Nuñez Nikitin.

In the article on Valencia Market (AR September, p67) the following credit was omitted: Phase 1 refubishment and civil works were directed by Enrique Martínez-Díaz of AUMSA (city development agency).



The Intercession Church dates from 1764.



The tiny fourteenth-century Church of the Resurrection of St Lazarus is thought to be Russia's oldest timber structure.

View from Kizhi Island

Kizhi Island in the wilds of northern Russia houses a remarkable open-air assemblage of historic vernacular timber buildings.

Majestically they rise up on the small island of Kizhi; an architectural ensemble of timber churches gracefully crowned by an array of cupolas, adorned with aspen shingles. For centuries, if not millennia, the small, outstretched Kizhi Island in Lake Onega has attracted attention. Located in the now Republic of Karelia in the Russian north, this once pagan ritual playground today houses a state-run museum of the region's monumental timber architecture. This includes a group of wooden churches built here in the eighteenth century and a later bell tower, as well as Orthodox-sanctified structures of crossroads and chapels that were relocated here. Together with impressively ornamented peasant houses from the nineteenth century (also relocated), the Kizhi outdoor museum allows visitors to experience the ancient cultures and crafts of the Russian north; externally expressed in wood, internally, in elaborate woven and embroidered textiles.

And the visitors are numerous. During the summer season of 2003, 50 guides were working at the Kizhi museum, shepherding around equal numbers of Russian and foreign visitors arriving on some 700 ships. Most are cruise liners using the old waterways to explore Russia's architectural heritage. From the landing station, you first see the buildings from afar, and as you trek through the green, treeless island, you quickly become convinced it was worth the effort to reach them. 'The French groups want to pick flowers', says tourist guide Galina Gorchakova, 'until we warn them about the snakes', she adds. 'And the Italians often ask about where the lavatories were inside the peasant houses.' Until relatively recently, a typical Karelian lavatory was situated in a small, separate structure, similar to the '*banya*' or bath house. The structure had a hole in the floor and the waste was used as ecological fertilizer.

Kizhi was a natural parish for Russian colonizers with churches built here from the twelfth



Church of Transfiguration (1714) and its cluster of cupolas.



Churches and an adjoining flower-filled graveyard are enclosed by a protective timber wall.

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THE ARCHITECTURAL REVIEW

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Your Vision is Our Challenge

INNOVATIVE AND CREATIVE
FAÇADE CONSTRUCTIONS MADE
OF TIMBER, METAL AND GLASS



Object: Headquarter Altana, Bad Homburg v. d. H.
Architect: Jourdan & Müller • PAS, Frankfurt a. M.

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century of which nothing remains today. The five-storey Church of Transfiguration dating from 1714, its lower neighbour the Intercession Church (1764) and the belltower chapel erected in 1874, were built on much older sancitified ground. You wonder why those anonymous handicraft carpenters of the eighteenth century chose to build these extraordinary wooden churches out in Kizhi. The answer lies in the founding of Petrozavodsk by Peter the Great. Plentiful iron ore, vast coniferous forests, a ready supply of labour and a network of waterways through the lakes to the Neva river and the Baltic encouraged Peter to establish an arms workshop on the Lake Onega shore to supply cannons and balls for his wars against the Swedes. Petrozavodsk, 'Peter's workshop', was founded in 1703 and ten years later the Church of Transfiguration was raised, providing a spiritual beacon in the Karelian wilderness. Last year, Peter's secular stone cities of St Petersburg (AR December 2000) and Petrozavodsk both celebrated their 300 year jubilee.



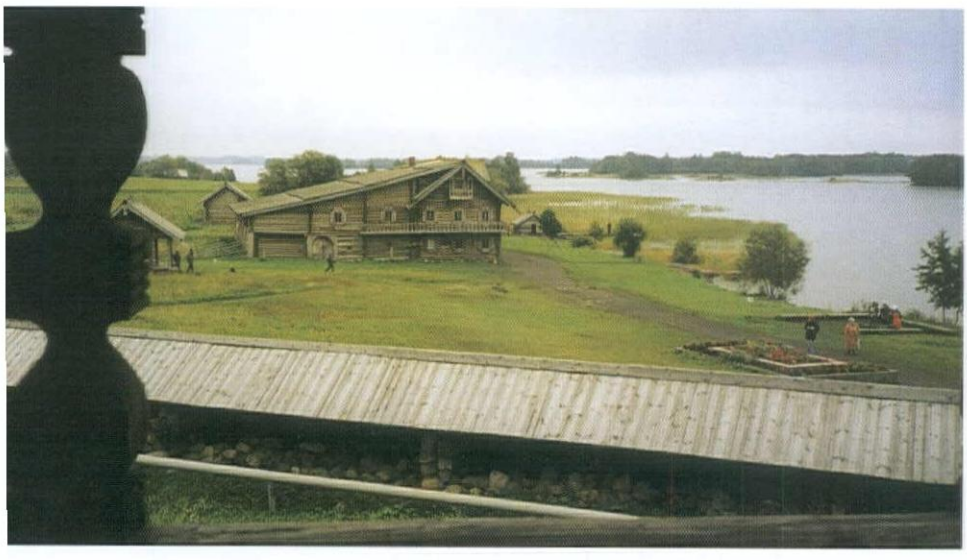
Typical peasant house, decorated by surprisingly ornate timber carvings. The gangway leads to the stables.

The 37m high Church of Transfiguration adopts an octahedral plan on stone foundations which forms the basis of the five-storey composition. Adjoining rectangular extensions symbolizing the four corners of the world provide additional stability and two smaller further extensions rise above the main octahedron. The carinate ceilings are crowned by 23 different sized cupolas sheathed in carved aspen shingles. The Church of Transfiguration is a 'cold' temple, with services conducted only in warm weather. The structure is made from pine cut in winter and dried for three to four years and the church was originally built using the dry method, without moss infilling gaps in the timber and without double doors. Since 1980 the church has been closed and at the start of the '90s the pine structure was reinforced with a metal frame. The 30 000 aspen shingles are replaced on both churches every 35-45 years. Aspen is known to absorb moisture and dry up quickly in the sun, first turning golden then finally silver.

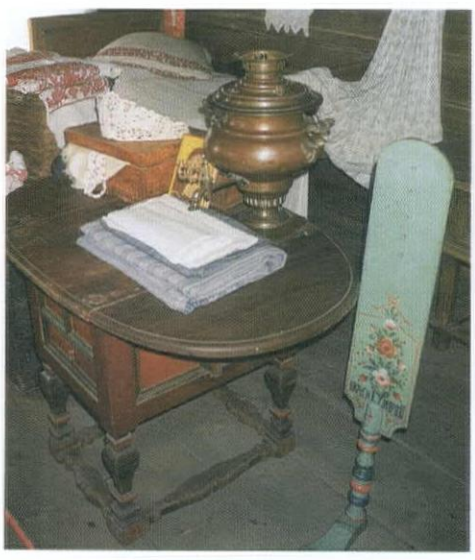
The carved crown of the Intercession Church hovers in the air beside its taller neighbour, creating harmony between the two with its single-storey, multi-cupola form. It was built 50 years later, in 1764, and is a 'warm' temple, recently opened again for religious services. Built as an elongated rectangle with a central axis, it differs from the Church of Transfiguration. The rounded corners of the refectory were intended to withstand the harsh Karelian frosts. The icons of the Church of Transfiguration have been moved to the Petrozavodsk Museum of Fine Arts, but Intercession Church has retained its iconostasis, renovating it on site. The churches and adjacent graveyard are enclosed by a timber wall concealing water tubes for round the clock fire protection.

Walking along the paths at the Kizhi outdoor museum, you also come across the tiny church of the Resurrection of St Lazarus, moved to the island from the Murom monastery. It is believed to have been erected in the late fourteenth century and thought to be the oldest wooden building in Russia. Protected by Unesco since 1991, Kizhi's collection of precious historic monuments awaits gradual restoration while attracting an ever increasing number of visitors.

CHRISTINA FAGERSTROM



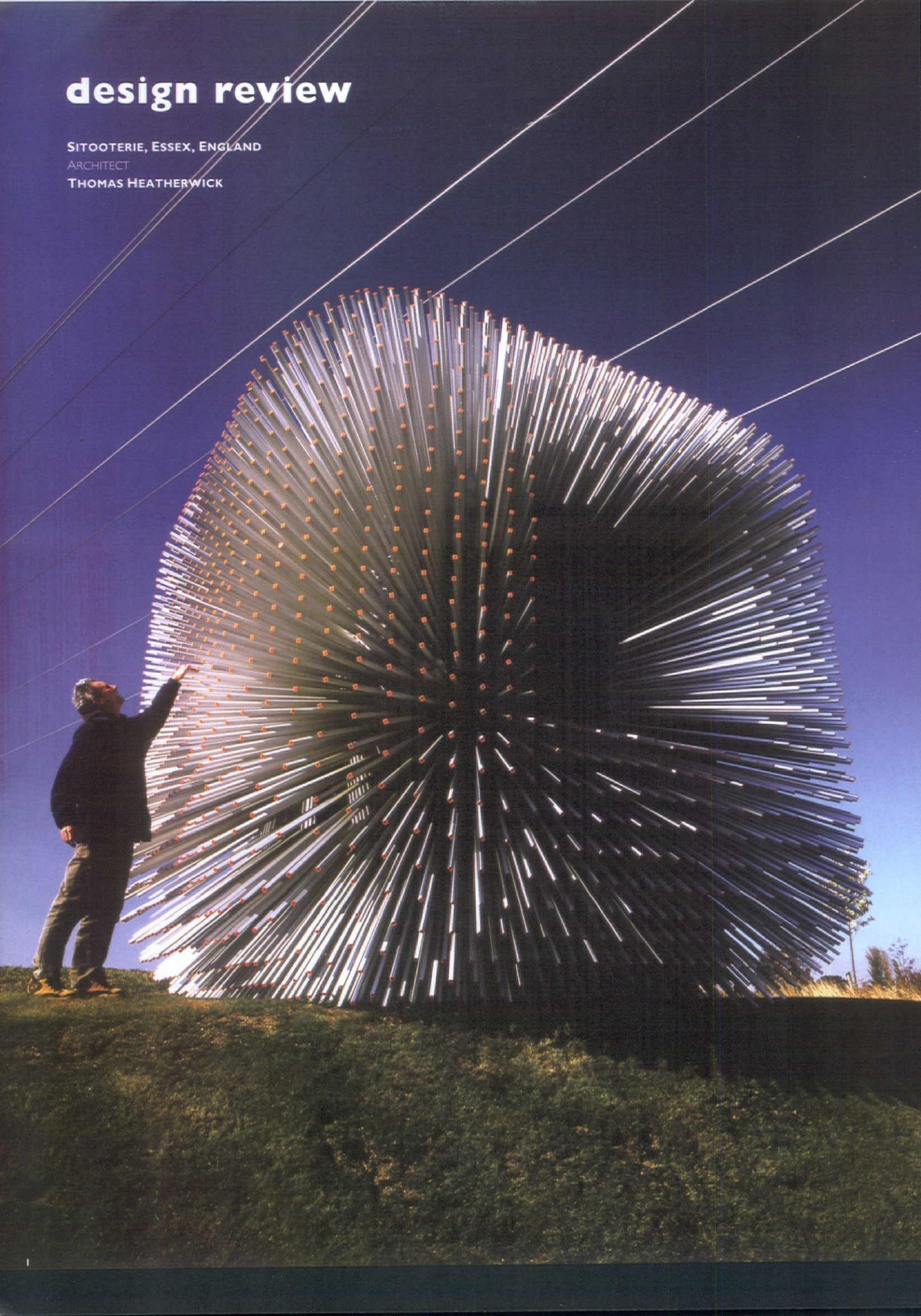
he island site contains a series of impressively ornamented timber peasant houses, now relocated to the outdoor museum.



Typical Karelian domestic interior.

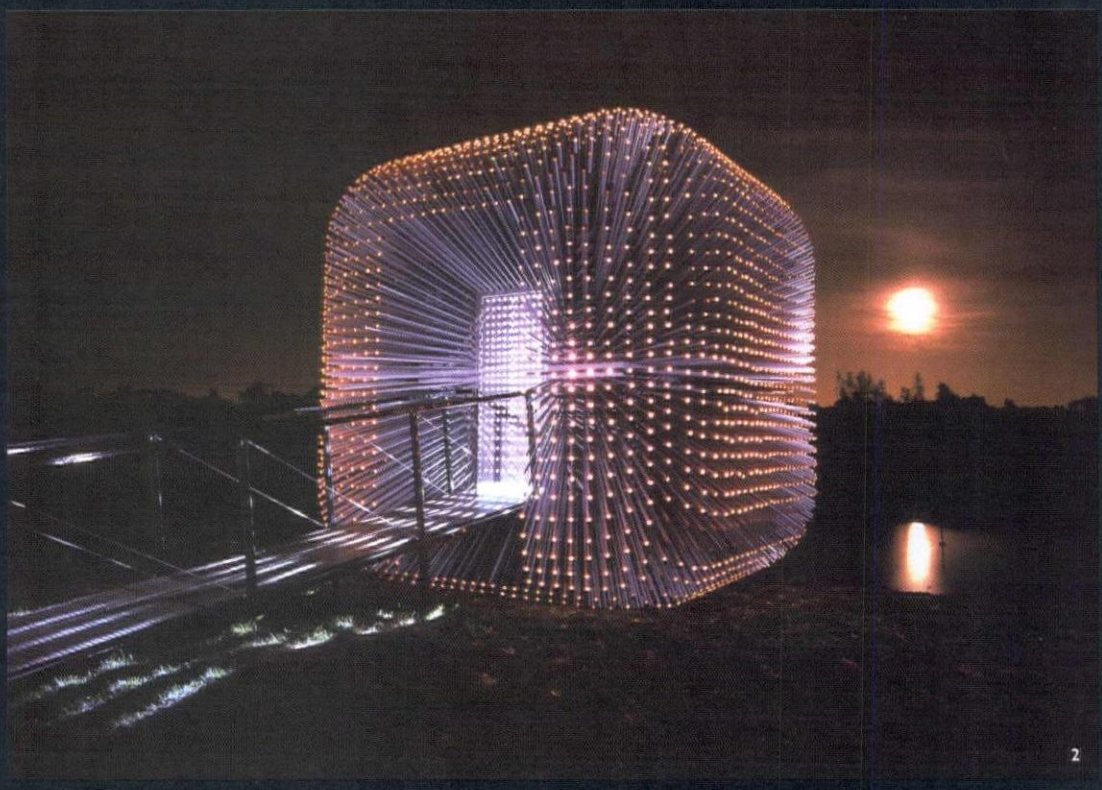
design review

Sitooterie, Essex, England
ARCHITECT
Thomas Heatherwick



Sitting pretty

This spiky pavilion in the landscape is a highly ingenious exploration of form and materials.



2

Something rather peculiar has landed in an Essex field. Designed by Thomas Heatherwick, this space-age pin cushion is a modern interpretation of a 'sitooterie' (derived from the Scots meaning a 'small summer house' – literally a place in which to 'sit oot'). Fabricated entirely from aluminium, it follows on from an earlier temporary timber structure designed for the grounds of Belsay House in Northumberland. The client for this latest venture saw it and commissioned Heatherwick to create a more permanent version.

The site lies on Barnards Farm, a bucolic retreat in rural Essex owned by Bernard and Sylvia Holmes. The farm's 17-hectare garden is landscaped with a range of eccentric attractions including bog gardens, kinetic sculptures, mazes, a copse shaped into the euro symbol and an operational air strip to welcome 'aviators and their flying machines'. It is also the site of the National Malus (crabapple) Collection.

In structural terms, the Sitooterie works like a fakir's bed of nails or hairs in a scrubbing brush – individual strands or nails might not be that strong, but together they constitute an effective structural entity. Heatherwick is intrigued by the notion of collective strength and of one material doing different things. Aluminium was selected because it is light, strong and and immensely durable.

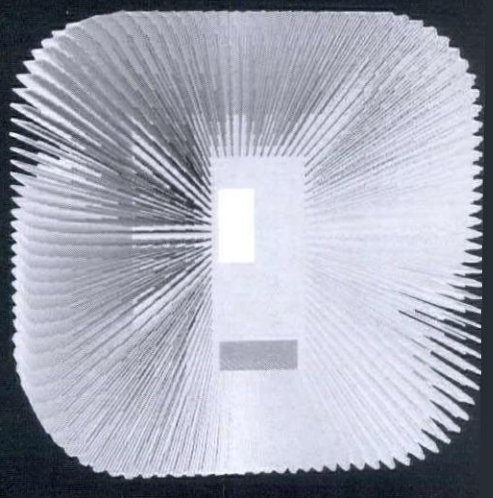
The basic structure is a perfect cube, 2.4m square, made from 15mm thick anodized aluminium panels finger jointed and glued together. The cube is perforated with nearly 5000 pre-drilled holes, each precisely angled to receive an identical aluminium 'hair'. The hairs are both functional and textural – they project to raise the structure off the ground and combine to create the Sitooterie's extraordinary spiky texture. Internally, the ends protrude slightly to give the walls a tactile, stippled pattern and also provide support for benches.

Each hair is made from a 19mm square section aluminium tube sealed with a translucent orange acrylic cap for protection against rain, dirt and insects. Sunlight percolating down the lengths of the tubes gives the ends a seductive orange glow. At night, light from the interior radiates out in thousands of shimmering pinpricks, like a spectacularly illuminated porcupine.

The aluminium structure was designed to extremely fine tolerances (+ or – 0.2mm) so had to be fabricated by a specialist aeronautical engineering company using computer controlled milling machines. The components were then hand assembled on site, a task which took around two and a half months. As with previous projects, Heatherwick's invention is grounded in process and practicality. Currently he is curating the Conran Foundation Collection at London's Design Museum, where he has assembled a thousand examples of offbeat ingenuity, from Japanese eyelid glue and technicolour ketchup to a biodegradable cardboard coffin.

CATHERINE SLESSOR

Architect
Thomas Heatherwick Studio, London
Structural engineer
Packman Lucas
Fabricator
ASPL
Photographs
Steve Speller



computer-generated perspective

1
At night the Sitooterie becomes a scintillating porcupine.
2
Aluminium 'hairs' protrude from and support an aluminium core.



Detail of mud wall in Djenné in Mali. Earth architecture is one of the oldest forms of building and still has lessons for contemporary practice.

EARTHLY POWERS

Building with earth-based materials was one of the very first human pursuits, but like all materials, the architectural evolution of stone, brick and concrete continues to be shaped by changing technological, economic and social factors, which now include pressing issues of sustainability.

Iberian architecture is, historically, distinguished by its employment of masonry to create heavy, thick-walled, largely imperforate volumes, reflecting the effects of climate and the availability of materials and building skills. An emerging generation of Spanish architects, such as Mansilla and Tuñon and Churtichaga + Quadra-Salcedo, whose new library is shown here, have become adept at reinterpreting traditional forms, archetypes and materials to produce buildings that though they appear formally sober, are spatially rich and nuanced.

The commission to design a new public library adds to an evolving cultural and civic complex in the Madrid suburb of Villanueva de la Cañada, its facilities complementing an existing building by Juan Navarro Baldeweg. Surrounded by low-rise housing, the site is typically placeless and nondescript, so Churtichaga + Quadra-Salcedo's new building immediately stands out as a civic landmark.

As a type, the library has undergone enormous changes, shrugging off its origins as a sternly patrolled repository of knowledge into a more flexible and inclusive organism. Internet usage, database consultation and new communications technologies are transforming libraries from hermetic places of study into realms of encounter, communication and research. Churtichaga + Quadra-Salcedo's building must contend with all these evolving aspects, as well as a more orthodox collection of books and printed matter.

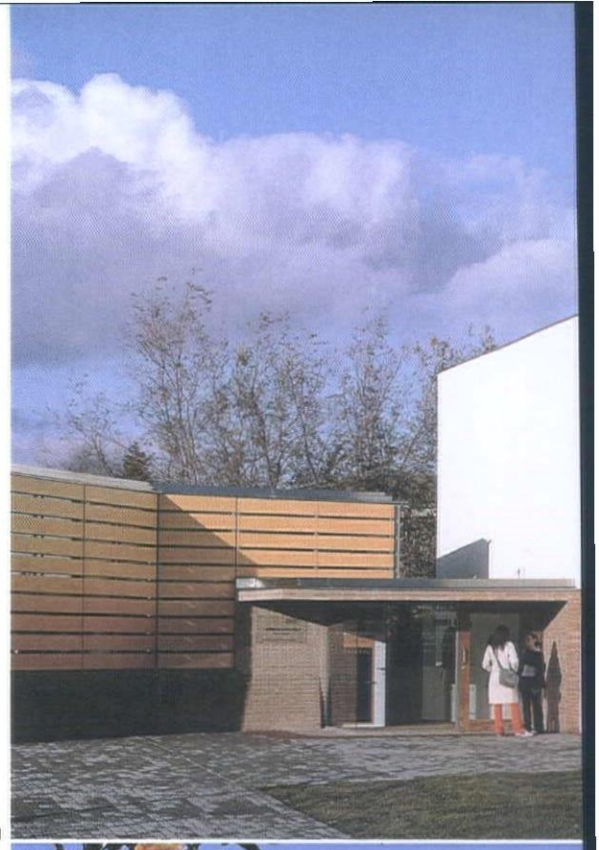
The various functions are organized and divided into three volumes. A central block contains the book stacks, arranged in a rectangular spiral around a shallow ramp which meanders up through the building. Attached to this bulky and relatively impermeable volume are two smaller entities: the main reading room, a single-storey glazed box which seems to flow out from one corner, and the distinctive star shaped pavilion of the children's library which gently nuzzles up to the building's main entrance.

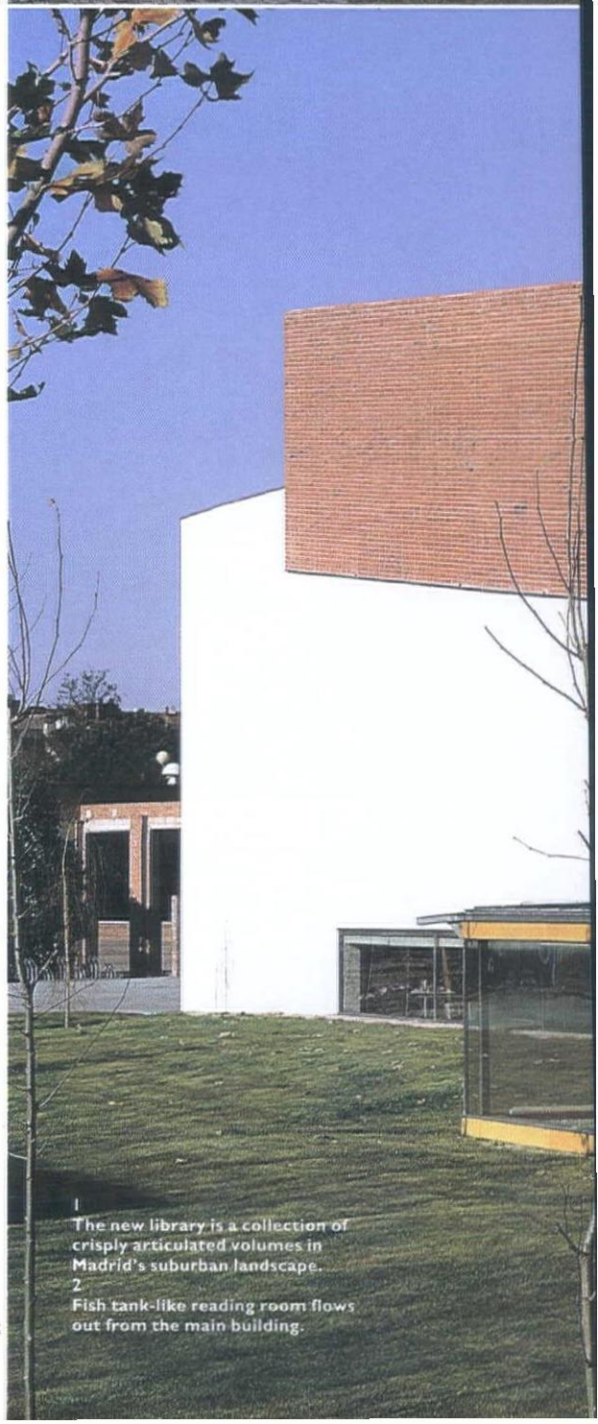
Both of these are conceived as lightweight foils to the solid white mass of the main volume and reveal something of the building's functions. With its clear glass walls the main reading room resembles a fish tank, brimming with lazy activity as readers come and go. Based on a five-pointed star, the children's library is like a compact bastion, with a base of red brick surmounted by a louvred clerestorey. Inside, a faceted roof structure radiates out from a central column imparting an air of circus tent jollity and escapism as light dapples in through the broad horizontal slats. One 'point' of the star is fully glazed and opens out into an enclosed sunken garden, so that young users can cavort around outside on fine days.

PUBLIC LIBRARY, VILLANUEVA DE LA CAÑADA, MADRID, SPAIN
ARCHITECT
CHURTICHAGA + QUADRA-SALCEDO

CAVE OF KNOWLEDGE

Reinterpreting Iberian archetypes, this new library in a Madrid suburb employs reinforced brick to great effect.





1
The new library is a collection of crisply articulated volumes in Madrid's suburban landscape.
2
Fish tank-like reading room flows out from the main building.

Building with earth-based materials such as stone, brick and concrete dates back to the beginning of human civilization. Prehistoric tribes experimented with the first sun-dried bricks or adobe, mixing mud with straw into manageable building blocks. Kiln-fired bricks were invented by the Mesopotamians to create the complex towering ziggurats of the Sumerian and Babylonian empires. Drawing on huge geological riches (limestone, sandstone, alabaster, granite and porphyry), the Ancient Egyptians were the first to use stone, building temples and pyramids on a scale that still astounds. But such epic feats could not be achieved without a cast of thousands of slave labourers. (As Richard Weston notes in his perceptive study of the relationship between materials and form, working in the quarries or being 'sent to the granite' was considered an especially severe punishment for criminals.)[1] The pyramids' limestone and granite casings were subsequently stripped to build Muslim Cairo.

The Romans invented concrete, mixed from pozzolana, a volcanic ash mined on the slopes of Mount Vesuvius, which forms a natural cement when combined with lime. Lightweight aggregates such as pumice stone were also added to the mix, giving concrete its name derived from the Latin *concretus*, meaning grown together or compounded. The soaring coffered dome of the Pantheon and concrete vaults of the Baths of Caracalla were early examples of the material's potential, though early experiments with bronze reinforcing bars were not a success.

Despite Roman ingenuity, concrete was to remain largely unexploited until Joseph Aspdin took out a patent for Portland Cement in 1824. Brick and stone, by contrast, were extensively used up to the modern era. The craft of brickmaking spread throughout Europe on the coat tails of Rome's legions, flourishing wherever there were suitable deposits of clay. The 'modern' short, thick brick arrived in northern Europe in the mid twelfth century, replacing the long thin Roman original, and was widely used in northern Europe, particularly in Germany and the Netherlands. Dutch enthusiasm for the new material was particularly keen and by the seventeenth century, one kiln could produce over half a million bricks in a single firing. Dutch brick went round the world as ballast in trading ships, confounding its origins as a local, geologically dependent material.

In terms of manageability, brick has always had the advantage over stone, but lacked the ennobling attributes that only stone could confer on a building. Even today, a veneer of clip-on stone is (misguidedly) thought to redeem the most unprepossessing speculator's shell and core (a practice with which the Romans would have been familiar, as they used a thin revetment of stone to dignify notable structures). The relationship between architecture and stone was more crucially dependent on geology, the availability of a particular stone literally making manifest the spirit of place. The triumph of the Florentine Renaissance depended on easy access to large quantities of *pietra serena* in the surrounding hills, a magical, malleable stone that gave shape to new forms and ideals. Georgian cities such as Bath and Edinburgh derived their harmonious, homogeneous character from the employment of local stone.

Anything goes

Before the present era of global industrialization, limitations of transport, labour and most especially technology ensured the continuity of a vernacular architecture based on local materials used within a limited technological framework. Now both the knowledge and the will exist to transcend or simply ignore the innate properties of a particular material. Metal is deformed in increasingly convoluted ways, glass is used in compression, stone exploited in tension. In some ways, the historical arguments about the nature of materials that have animated architectural debate from Semper to the Modernists have become irrelevant as technology makes anything possible; but in most cases, this has only served to have a generally impoverishing effect on the built result. As David Dernie observes in a new book about the relationship between architecture and stone: 'Design, in its full sense, was traditionally a process that moved between ideas and their embodiment in the fabric of the building. The richness of this creative discipline has been eroded to become a process now characterized by incoherence: material effects, fashionable surfaces are all too often used in place of deeper and more imaginative explorations of material'.[2]

Though earth-based materials still tend to be overshadowed by their racier, lighter counterparts, certain architects are capable of engaging with them in imaginative ways. Rejecting the insubstantial world of digital figmentation, Tadao Ando's poetic explorations of concrete as mass tempered by light and Peter Zumthor's handling of stone in his Thermal Baths at Vals (AR August 1997) manifest a deep understanding of the nature and language of materials. The established generation of Iberian architects such as Moneo and Siza has always made highly creative use of masonry, but they are now being joined by younger designers such as Mansilla and Tuñon, Eduardo Souto de Moura and Churtichaga and Quadra-Salcedo, whose new library is featured in this issue (p22). We also look at the way in which Zaha Hadid (always more interesting when actually building something) uses concrete to physically realize the gravity defying forms of her architectural imagination (p54).

Encouraging sustainability

Any discussions of the nature of materials must now also encompass the often challenging issue of sustainability. The earth's geology is not infinite; unlike timber, stone and brick are not derived from sustainable sources. Quarrying is an inherently destructive and wasteful activity (for instance in the case of slate, less than one per cent of quarried material ends up on a building site)[3] and transportation and processing all add to the burden of pollution. Stone is, however, extremely durable and can often be recycled – the current vogue for gabion cages is one way of inventively re-using material. More pertinently, there is also renewed interest in exploiting the thermal properties of heavy masonry construction. The high thermal capacity of materials such as concrete, brick and stone enables them to store and re-radiate heat, reducing energy consumption, air conditioning and carbon dioxide emissions.

The principle of thermal mass is not new – it can be seen in the thick-walled, vernacular buildings of hot, dry, countries. Such architecture can also have extraordinary presence, as demonstrated by James Morris' images of mud buildings in West Africa (p60). Building with earth is probably one of the most environmentally sustainable forms of construction imaginable, the material being abundantly available, thermally efficient and completely recyclable, but as Morris observes, as cultures and communities evolve, the skill (and will) to build are gradually being lost. Yet though clearly impracticable to advocate a return to some primordial mud hut Eden, the accumulated wisdom of tradition still has a contemporary resonance in renewing humankind's historic relationship with materials and the built environment. CATHERINE SLESSOR

1 *Materials, Form and Architecture*, Richard Weston, London, 2003, Laurence King, p22.
2 *New Stone Architecture*, David Dernie, London, 2003, Laurence King, p8.
3 Weston, *ibid*, p 34.

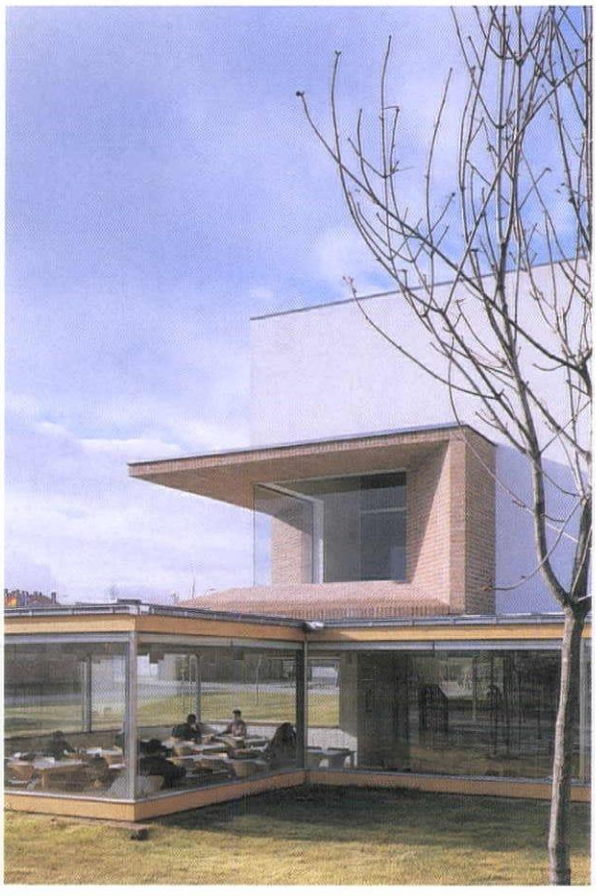


3

PUBLIC LIBRARY, VILLANUEVA DE LA CAÑADA, MADRID, SPAIN

ARCHITECT

CHURTICHAGA + QUADRA-SALCEDO



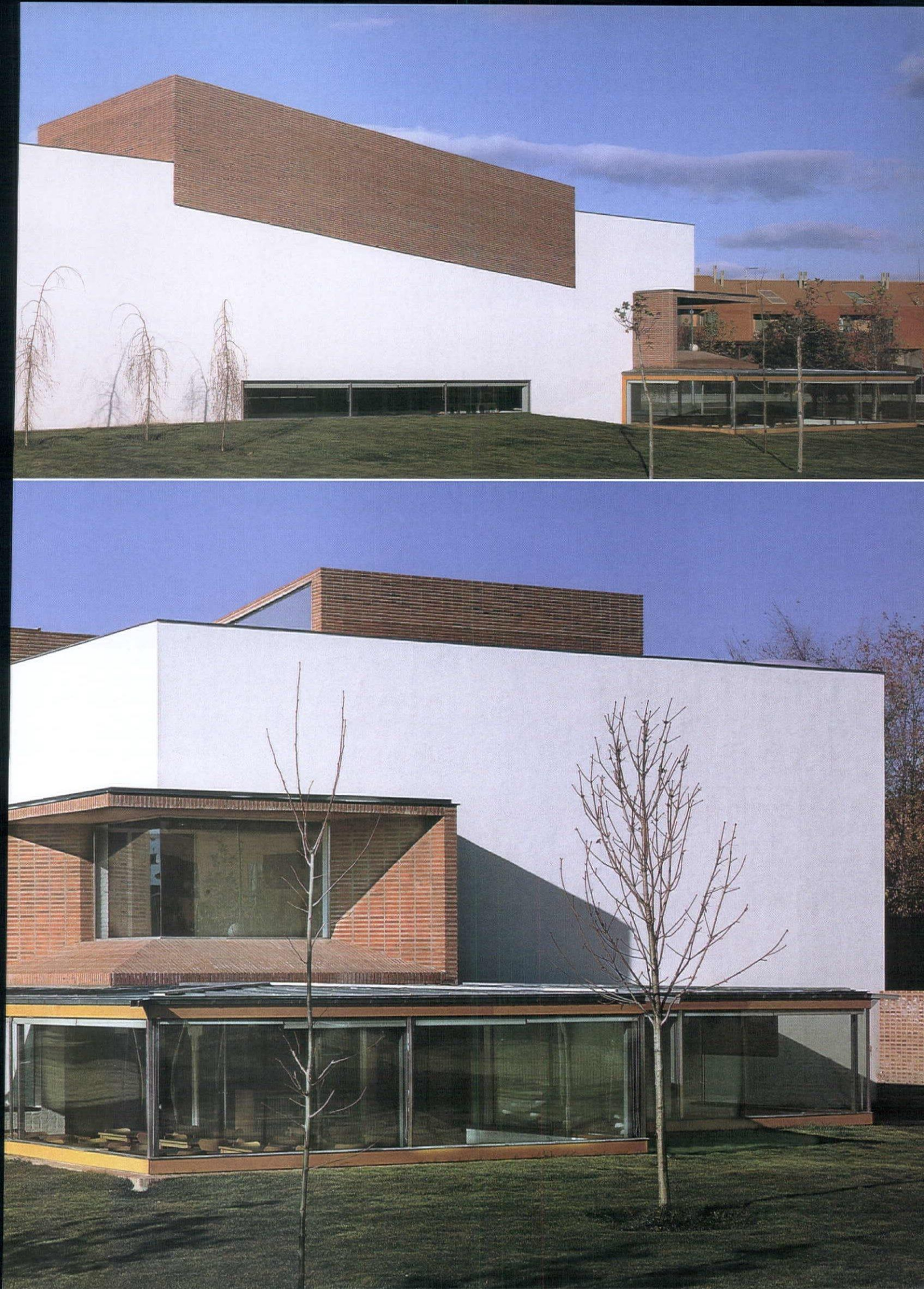
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Despite its hermetic external aspect, the main volume is no less spatially complex or dramatic. The winding ramp acts as circulation route and organizing principle, rising with great ceremony through the tall, book-lined space. This languid *promenade architecturale* links and gives access to the different functions and spaces on various levels. As it ascends, these become more educationally challenging, so it literally expresses a learning curve (or ramp) from childhood in the children's library at the lowest level to the more sophisticated needs of adult study and research, finally culminating in a long toplit space for communion with the Internet and a row of carrels like modern monks' cells for concentrated private study.

En route there are places and spaces to discover, such as the little performance and story-telling space, like a giant staircase, or niches and nooks in which to simply curl up with a book. The ramp choreographs changing perspectives through the interior, and the arrangement of book stacks on the perimeter contrives to open up the space vertically, so that the building becomes, in effect, an inhabited ramp. Light percolates in through long cuts incised in the roof plane, bouncing and reflecting down into the tall space.

The seamlessness and continuity of the ramp finds a clear echo in the choice and use of materials. Churtichaga + Quadra-Salcedo employ reinforced brick, which is left bare, so the book stack hall assumes a mysterious cave-like quality of mass fleetingly illuminated by light. Homogenous planes of stack bonded red brick soar through the space subtly layered and fractured to admit daylight. The use of

3
Main entrance with children's library housed in a star shaped bastion, left.
4
The fish-tank reading room.
5
The soaring book-lined volume of the main hall. A shallow ramp winds up around the edges. Planes of reinforced brick unite the space.





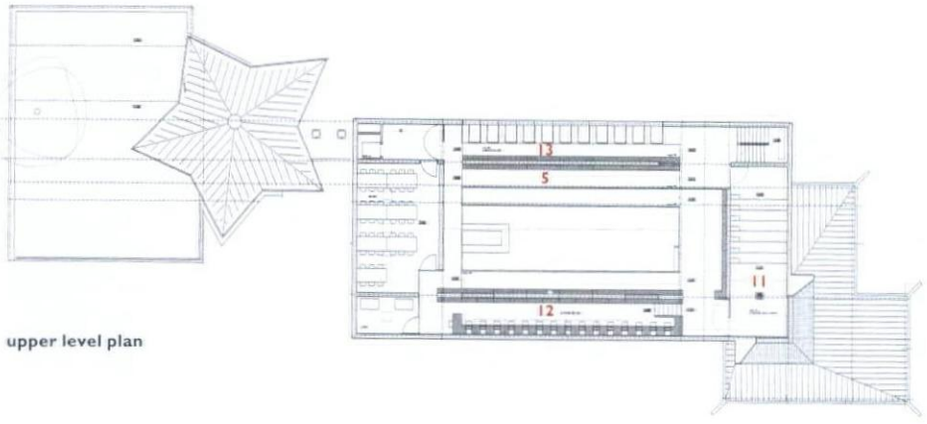
PUBLIC LIBRARY, VILLANUEVA DE LA CAÑADA, MADRID, SPAIN

ARCHITECT

CHURTICHAGA + QUADRA-SALCEDO

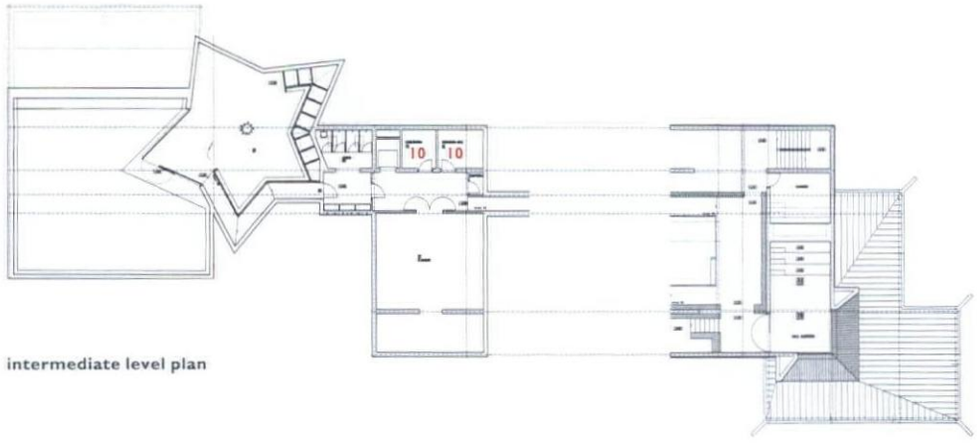


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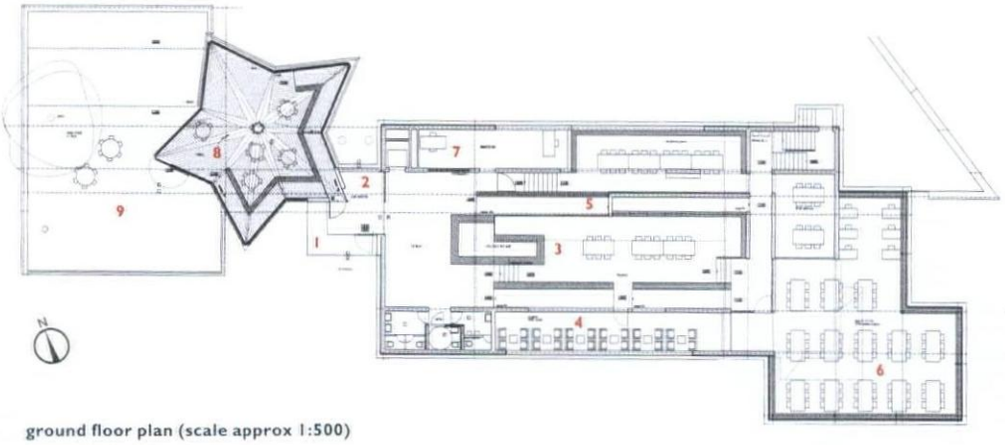


upper level plan

1 entrance
2 lobby
3 book stack hall
4 magazines
5 ramp
6 reading room
7 library services
8 children's library
9 external courtyard
10 offices
11 performance space
12 Internet studio
13 study carrels



intermediate level plan



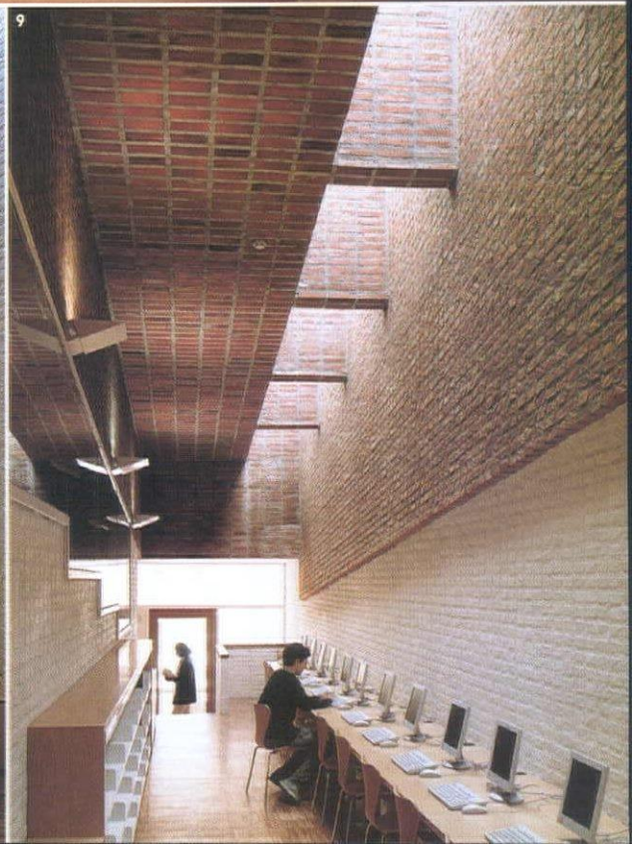
ground floor plan (scale approx 1:500)

6
Reading room interior.
7
The bright, light circus tent of the children's library.
8
Performance and story-telling space. Here the brick is painted white, but loses none of its essential character.
9
Internet access studio. The library incorporates electronic technology as well as printed material.

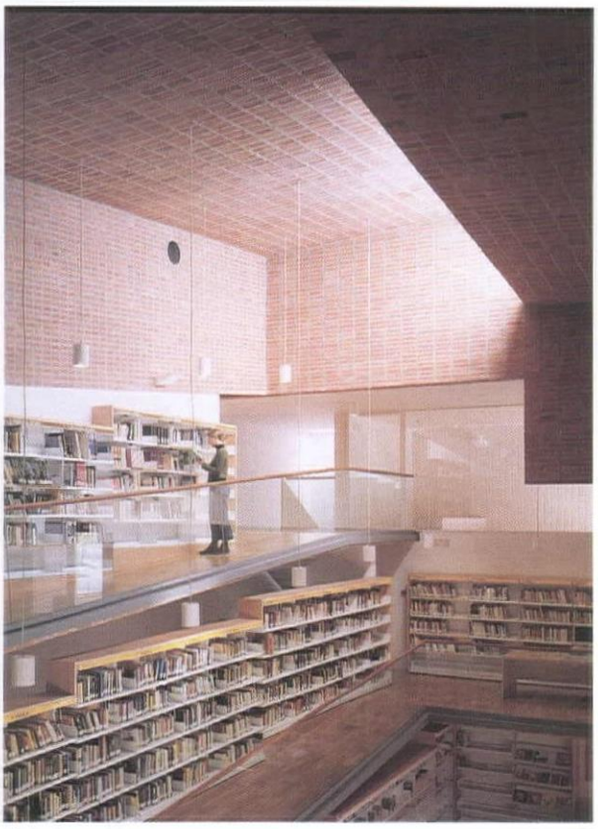


7





9



10

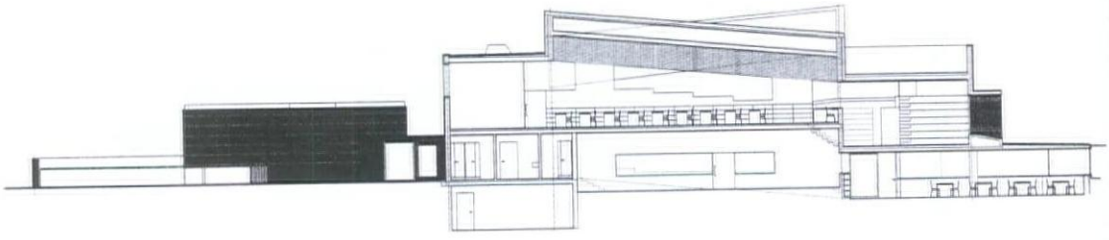
reinforced ceramics recalls the pioneering work of Uruguayan engineer and architect Eladio Dieste, whose folded and rippling planes of brick integrated structure and surface in an architecture of elegantly engineered economy and dynamism. The paradoxical phrase 'light as a brick' was coined to describe the remarkable thinness of his vaulted structures, but such technical innovation was also matched by a poetic response to light and materials.

Churtichaga + Quadra-Salcedo acknowledge a clear debt to Dieste and embrace reinforced brick with great enthusiasm, citing advantages of economy, simplicity and sustainability over other methods of construction. Clay is sourced locally, cutting down on transport costs, and, compared with reinforced concrete with its accompanying paraphernalia of formwork, brick is generally easier to work and makes use of traditional building skills. Structure, enclosure and finishes are achieved in a single operation, with reinforcement bars simply threaded through the brick joints. Brickwork also has a more tactile and responsive surface texture than concrete, as manifest by the warm sensuousness of the book stack hall. Some parts are painted white to assist with light diffusion, but the essential texture and character of the material is still legible. Floors are lined with strips of oak and simple Scandinavian furniture adds to the general air of earnest endeavour.

Though modest in scale, this is a highly thoughtful building that does not rely on technical gee-whizzery or formal gimmicks. Instead it intelligently synthesizes the immemorial elements of architecture – space, light and materials – to quietly lyrical effect.

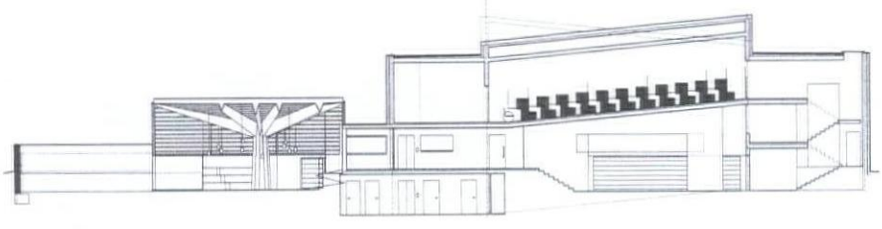
CARLA BERTOLUCCI

PUBLIC LIBRARY, VILLANUEVA DE LA CAÑADA, MADRID, SPAIN
ARCHITECT
CHURTICHAGA + QUADRA-SALCEDO

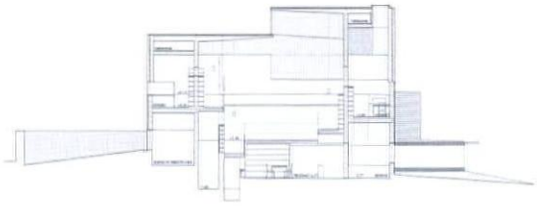


long section through main hall and reading room

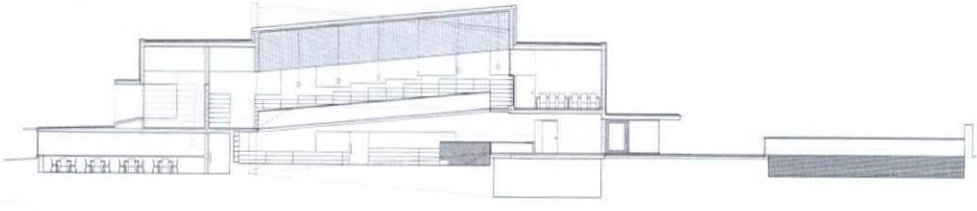
10
The shallow ramp acts as the building's organizing principle.



long section through children's library and main hall

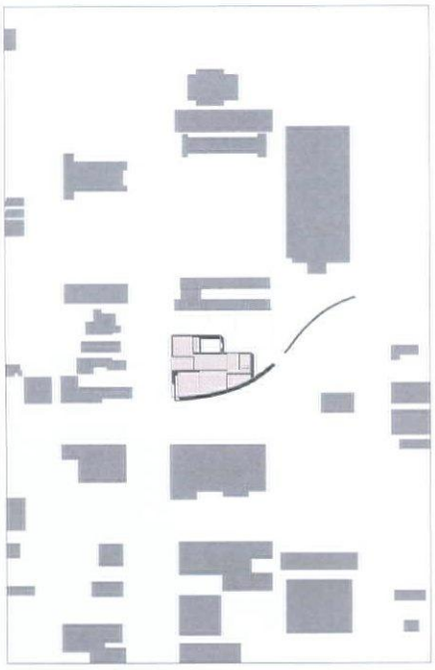


cross section through main hall



long section through reading room and main hall

Architect
Churtichaga + Quadra-Salcedo, Madrid
Photographs
Duccio Malagamba



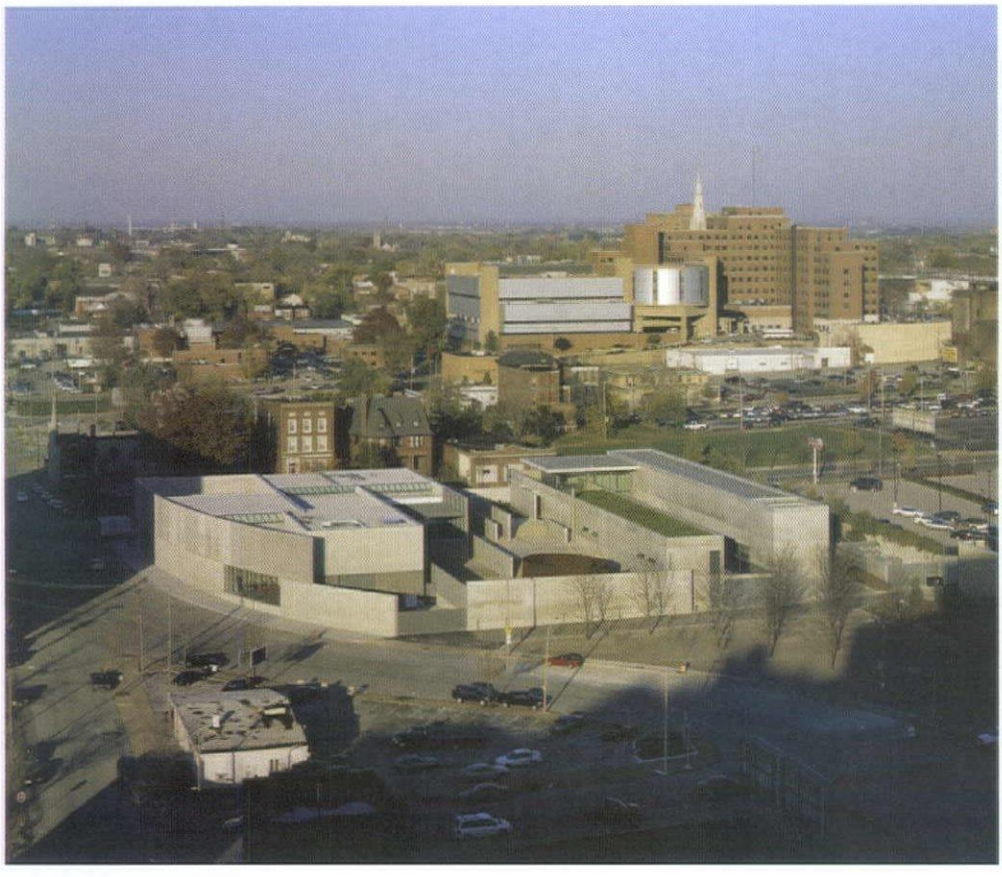
location plan

CONTEMPORARY ART MUSEUM,
ST LOUIS, MISSOURI, USA
ARCHITECT
ALLIED WORKS

Meet me in St Louis, Louis, meet me at the Fair', sang Judy Garland, and the city is celebrating the centenary of that high point in its fortunes, even as it struggles – like so many others in the Midwest – to regenerate its battered core. Progress has been made since Eero Saarinen's Gateway Arch was built on the banks of the Mississippi in 1968, and the Grand Center Arts District at the edge of downtown has recently acquired two small but potent gems: Tadao Ando's Pulitzer Foundation for the Arts and the Contemporary Art Museum by Allied Works Architecture. They occupy neighbouring sites and conduct a lively dialogue across a shared courtyard dominated by a Richard Serra torqued steel sculpture.

What's remarkable is how well these two radically different buildings complement each other visually as well as in purpose. The Pulitzer, which opened two years ago, is a signature work by Ando in the finest in-situ concrete. It has the air of a spiritual retreat: refined, serene, and inward-looking; a place for solitary contemplation of twentieth-century masterworks from the Pulitzer collection, which is open by appointment two days a week. In contrast, Allied Works principal Brad Cloepfil designed the new museum as a flexible shell for experimentation in the visual arts, and programmes that reach out to the depressed neighbourhood and the general public. Concrete walls are clad in tightly woven stainless-steel mesh, and expansive windows open up views from street to courtyard. Galleries for changing exhibitions occupy a quarter of its 2500 sq m; the rest are given over to a large performance space, an education centre and café, plus upstairs offices and classrooms. The building cost only $6.5 million, substantially less than its neighbour.

Thanks to the generosity of Emily Pulitzer and other patrons, the CAM has moved far beyond its modest beginnings in a downtown storefront, and it selected Allied Works from a shortlist that included Herzog & de Meuron, Rem Koolhaas, and Peter Zumthor. It was a prescient choice, for Cloepfil has since won acclaim for prestigious



2

2
The museum complex in St Louis' depressed cityscape. Allied Works' new building (left) joins Ando's museum on the right.
3
Concrete walls wrapped in stainless-steel mesh are beautifully smooth, impassive surfaces.
4
Expansive windows open up views.



CONTEMPORARY ART MUSEUM, ST LOUIS, MISSOURI, USA
ARCHITECT
ALLIED WORKS

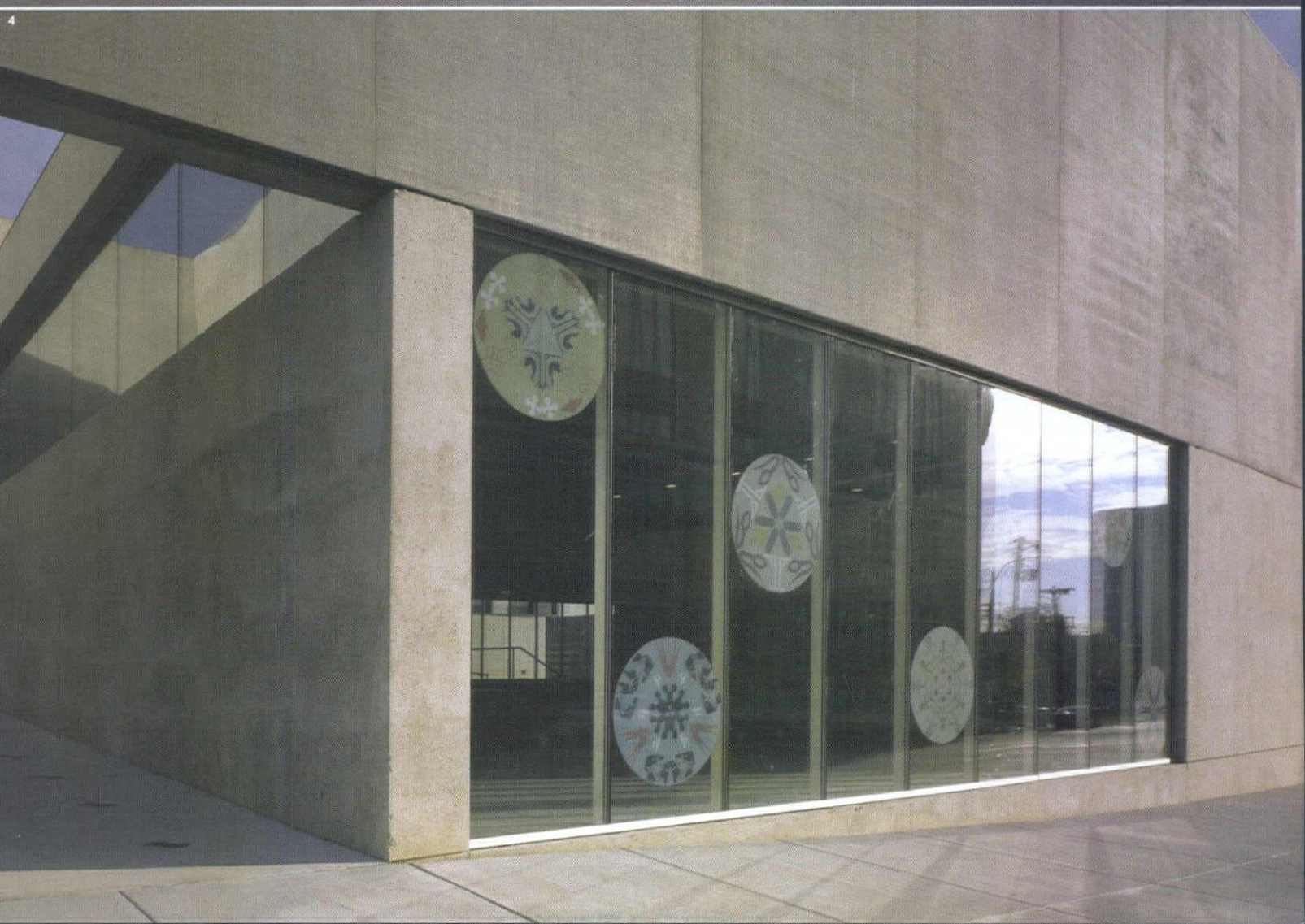
PUSHING THE ENVELOPE

This new art museum in St Louis is conceived as a flexible shell for experiment that reaches out to its surroundings.

1
The new museum at night – mass touched by light.



3



4

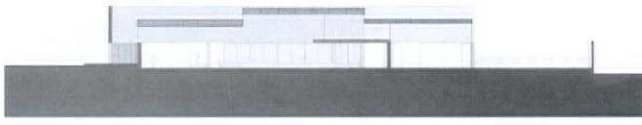


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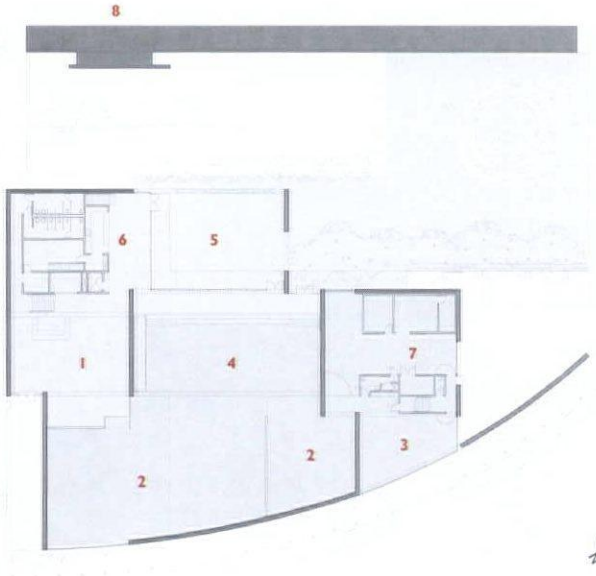
1 entrance lobby
2 gallery spaces
3 education studio
4 performance space
5 courtyard
6 café
7 loading
8 line of Ando building
9 administrative offices
10 resource centre
11 classroom

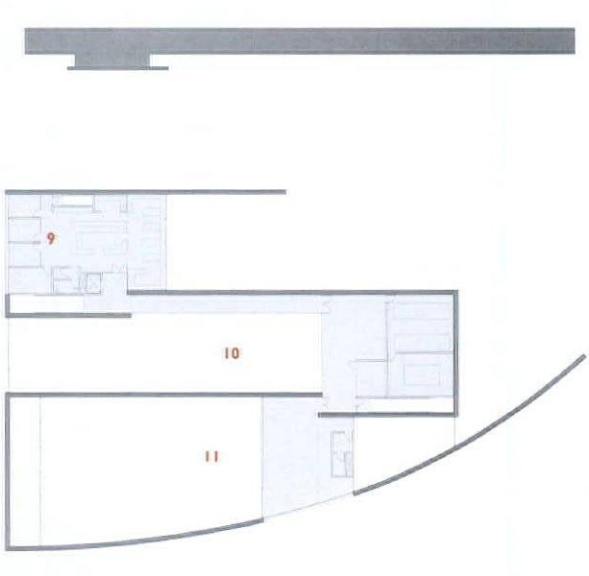


cross section



cross section





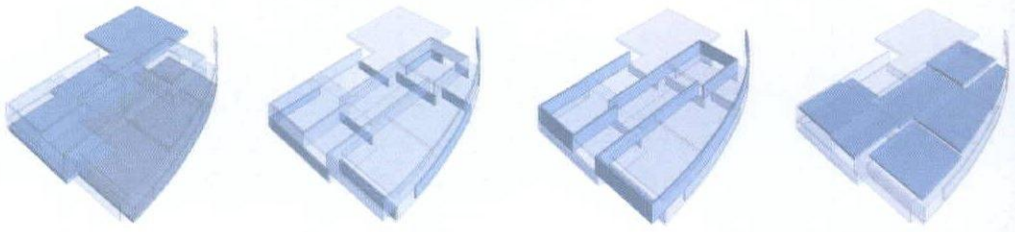
 ground floor plan (scale approx 1:1250)

first floor plan

Contemporary art museum,
St Louis, Missouri, USA
Architect
Allied Works

5
The internal courtyard.
6
Detail of mesh-wrapped walls.

CONTEMPORARY ART MUSEUM,
ST LOUIS, MISSOURI, USA
ARCHITECT
ALLIED WORKS



axonometric of building elements

arts projects in New York, Dallas, and Seattle, all of which are characterized by a cool minimalism and sensitivity to aesthetic needs. As he explains: 'In making space for contemporary art, the architecture must first serve the artist; not by attempting to render a background for the art, but by providing the artist with a specific spatial presence, an intentional vacancy that achieves meaning through the art itself.' He also spoke of creating 'a fusion of the city and the arts.'

Cloepfil has pushed the building out to a curved corner that gives it a distinctive prow, and has restored the original street line – in contrast to the Pulitzer, which is pulled back. The contents of the building are revealed though window walls, so that its role as an art centre is immediately apparent. Concrete walls are sandblasted to dematerialize the surface and distinguish it from Ando's small modules. The mesh is set 100-150mm from the walls, unifying the facade and shading the office and classroom windows. It's a concept that the architect has developed and taken further in the translucent membrane he proposes to wrap around the former Huntington Hartford Gallery in New York, a marble-clad Venetian pastiche by Edward Durrell Stone, to provide a new home for the Museum of Contemporary Arts and Design.

Double glass doors open onto the lobby from a setback in the north facade, and steps lead down from this introductory space to the galleries. Cloepfil has played with space and light as though they were liquids, containing and releasing them, allowing visitors to feel they are swimming through galleries that open up to each other and to outdoor areas that are tightly enclosed by the two buildings. There are two levels of wall: 4m high sections at ground level, and a 6m high band that wraps around the upper level in serpentine fashion, tying the spaces together. The steel mesh is carried inside in places to add another layer and a contrasting texture to the white painted sheetrock on the display walls. Ceiling planes float at different levels, admitting light from clerestories and blocking direct sun. The effect is one of interlocking boxes cut away to leave only a few defining edges.

Paul Ha, the new director of St Louis CAM, made his reputation at White Columns, New York's most adventurous alternative art space. 'It changes one's perception of art to see it in a different setting,' he observes, 'and artists welcome the challenge of responding to the energy of place.' For Cloepfil, the task was 'to make spaces that serve the arts and artists, while allowing for a subtle emotional response from the individual. It was imperative to create a physical environment that visitors would feel comfortable returning to again and again.' MICHAEL WEBB



Architect
Allied Works, Portland, USA
Photographs
Hélène Binet

7
Looking through the courtyard.
8
After the compression of the outdoor areas, galleries are tall, airy, luminous spaces.
9, 10
The building is conceived as a flexible shell for experimentation.



8



9



10



Student residences,
Boston, USA
Architect
Steven Holl



An interplay of opposites has been characteristic of Steven Holl's architecture since his emergence on the New York design scene now a quarter of a century ago. Balancing or intermingling solid and void, opaque and transparent, the rational and the intuitive, Holl has aimed to build buildings with memorable plastic sensibility. For Simmons Hall, the new undergraduate dormitory at the Massachusetts Institute of Technology (MIT), Holl infects a perforated, monolithic box with contained spaces that curve and unfold towards natural light.

MIT's campus overlooks the broad Charles River and eclectic skyline of Downtown Boston. Alvar Aalto's Baker Hall (1949) takes advantage of its riverside location by gently zigzagging such that student rooms have optimal views up- and downriver. Today MIT is busy adding new buildings by Kevin Roche & John Dinkeloo (recently completed), Frank Gehry (inaugurated in May), Charles Correa (under construction) and a large, promising extension to its famed Media Lab by Fumihiko Maki (awaiting final approval).

Holl's student residence has a programme similar to Aalto's but is situated back from the river and west of the central campus; it stands tall and thin to stake an unmistakable presence in this less dense and so far less designed tract of MIT. The facades of Simmons Hall appear as flush blades of aluminium eaten into by several large cuts – in silhouette, it interacts with the sky behind, not unlike a yin-yang figure ground character or sculptures by Eduardo Chillida. At a radically different scale, it is punctured by small, square and deep apertures that illuminate the interior without revealing – at least in daylight – each room's exact position or size. Where gable portions are eroded, upper sections of the building project forward dramatically.

As Holl has long been interested in cognition and architectural legibility, Simmons Hall might be understood as both a three-dimensional mask and a giant inhabited truss. Its entrance, to the north-east on Vassar Avenue, is a re-entrant corner. Into this cubic void, subsidiary planes of glass are placed so that the immediate lobby reads as a transparent box inside a larger, virtual box implied by two sidewalls and the overhanging soffit. These sidewalls are lined in perforated aluminium sheets through which a coloured inner skin is perceptible. The perforated sheets reappear both outside in the jambs of terraces cut into the building and inside as stylish balustrades. As at Kiasma, in Helsinki (AR August 1998), Holl is concerned with the tactile and figural qualities of building components and with fittings such as the scroll-like metal door handles and translucent light sconces, their delicacy suggestive of ice shards.

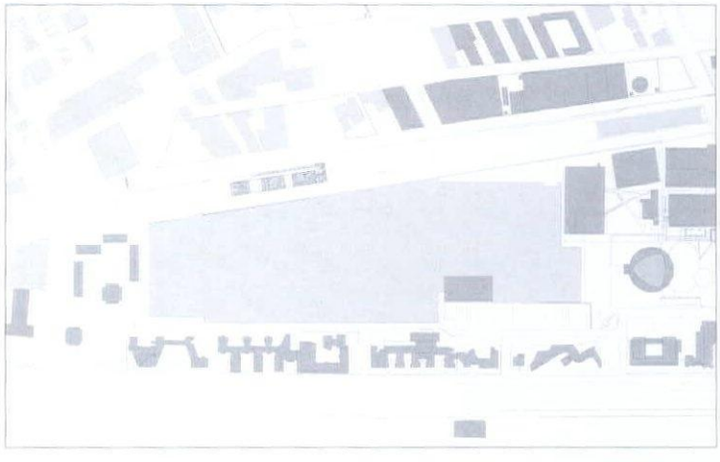
The foyer reveals the dormitory's ostensibly contradictory – or converse – ambitions. A long corridor acts as a horizontal spine connecting many small alcoves and hallways while an exposed concrete volume punctures this rectilinear framework as an enigmatic vertical intervention. Inside this volume, the interior descends (a fabricated cave?) to accommodate a performance and screening room for most of Simmons Hall's 350 residents. In the foyer, a freeform concrete stair floats upward leading to the first floor. There, daylight acts as a natural attractor to a double-height canteen at the far end of the corridor. Holl's play of amorphous and orthogonal, descending and ascending, triggers a reading of the entire structure as a set of caged volumes tethered to the spinal corridor and accessed alternatively from lower and upper internal levels.

The diagram of Simmons Hall, and its physical exploration, is as if Le Corbusier's economic section of stacked maisonettes for his Unités d'Habitation has mutated with surprisingly spatial, almost surreal incidental volumes. The student rooms, typically paired about small threshold spaces and shared bathrooms, are aligned between floor slabs to either side of the central corridor – a new sort of internal street – whereas the multi-height communal rooms punch through this straitjacket, morphing vertically – in the case of upper rooms – towards

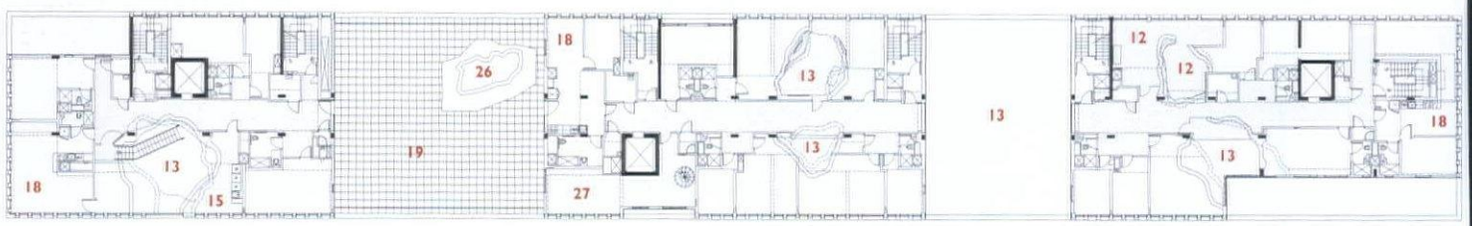
KINETIC MONOLITH

Steven Holl's student residences at MIT are contained in a giant monolithic block that is dramatically perforated and disrupted.

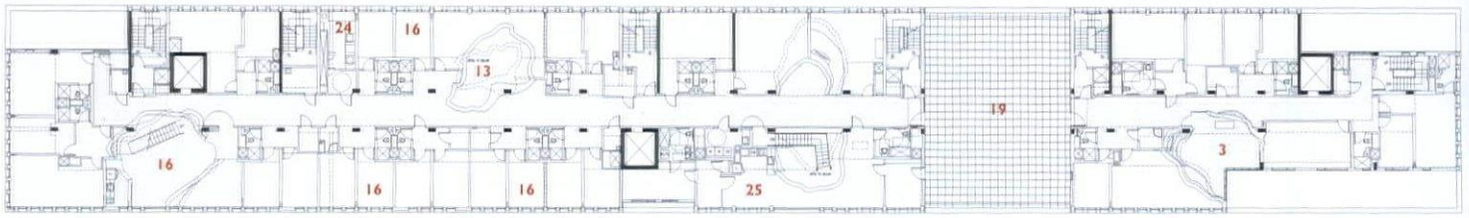
1
The riotous, Op-Art inspired facade breaks down the building's mass. The concrete exoskeleton is clad in a thin skin of aluminium.
2
Cuts and colour disrupt the regularity of the grid.



location plan



seventh floor



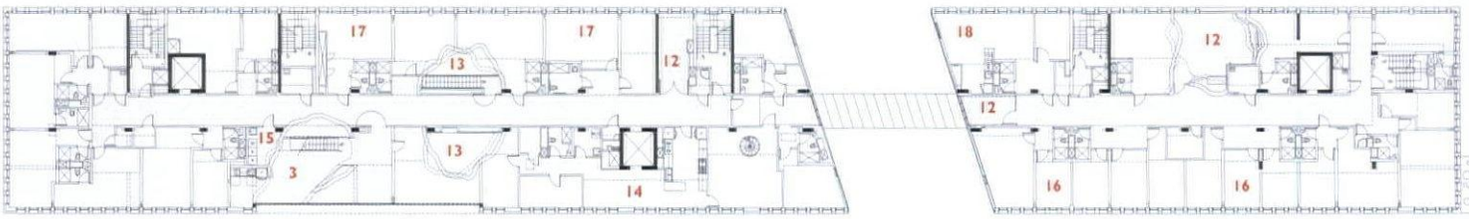
sixth floor

STUDENT RESIDENCES, BOSTON, USA

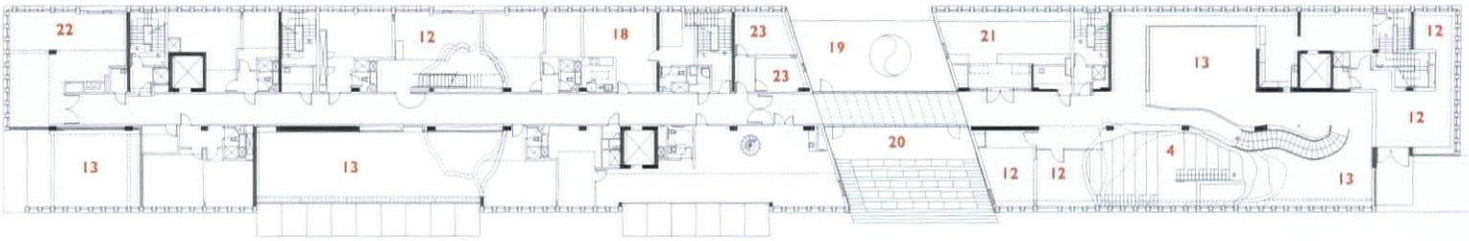
ARCHITECT

STEVEN HOLL

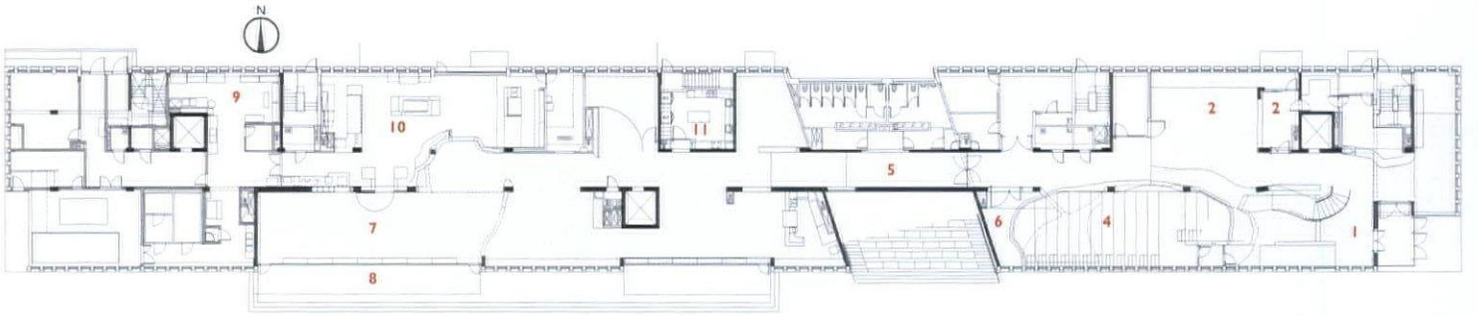
1 entrance lobby
2 mail room
3 group lounge
4 performance space
5 glazed passage
6 meditation space
7 dining hall
8 outdoor dining
9 kitchen
10 servery
11 student kitchen
12 study space
13 open to below
14 housemaster
15 laundry
16 typical single room
17 typical double room
18 graduate resident
19 terrace
20 bleachers
21 computer lab
22 games room
23 music room
24 photo lab
25 associate housemaster
26 skylight
27 exercise space
28 visiting scholar



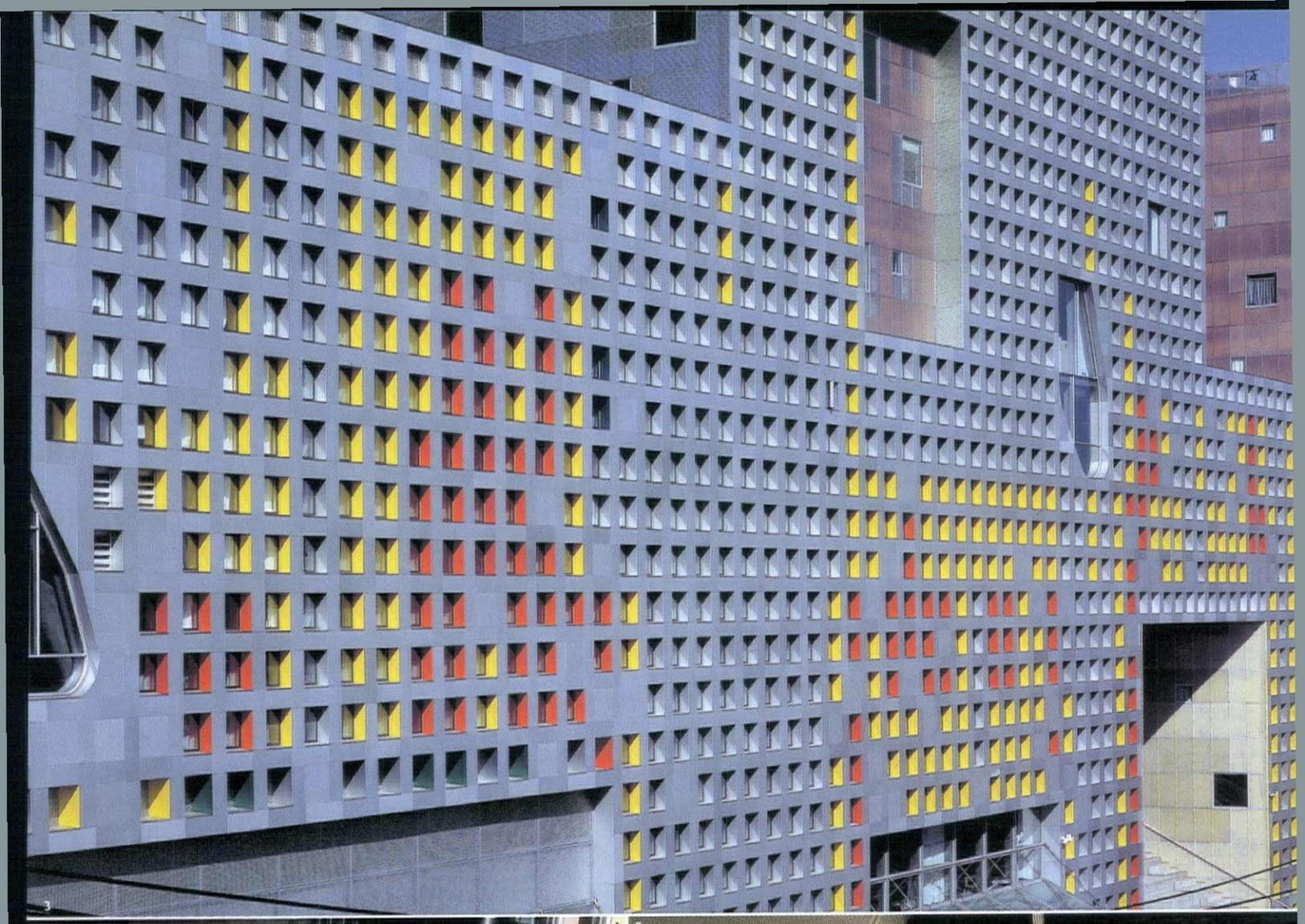
second floor

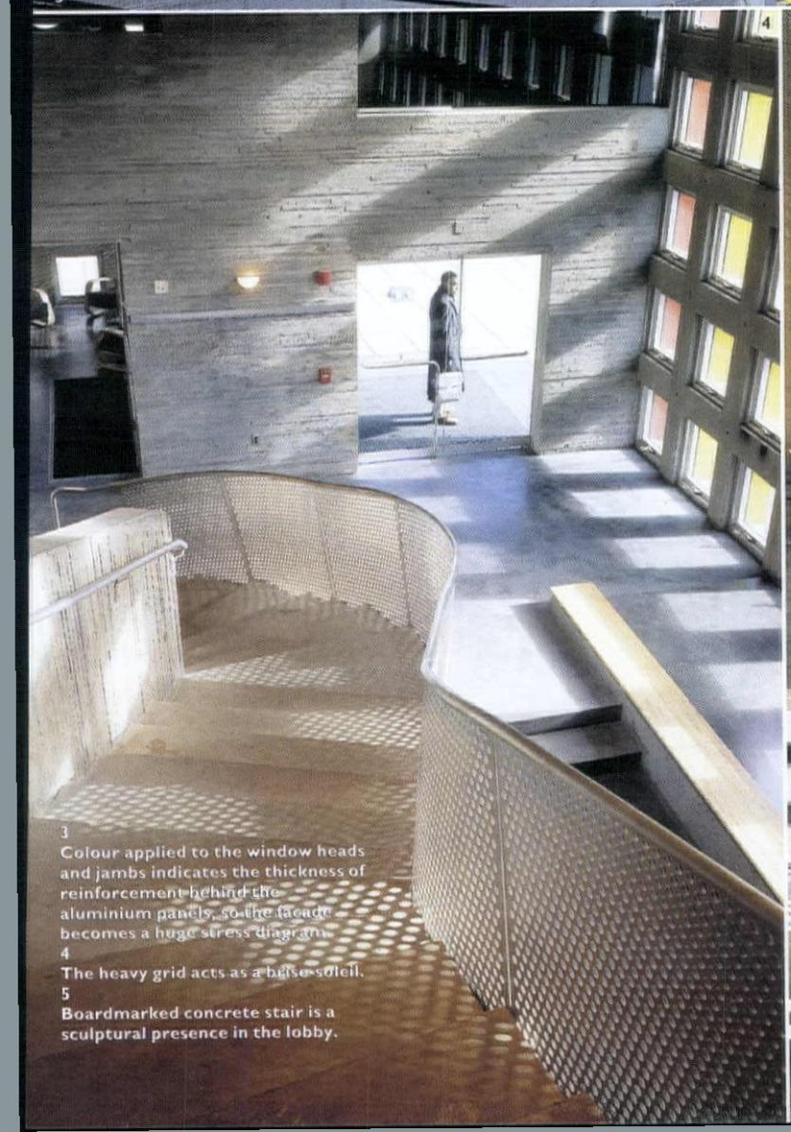


first floor



 ground floor plan (scale approx 1:750)







3
Colour applied to the window heads and jambs indicates the thickness of reinforcement behind the aluminium panels, so the façade becomes a huge stress diagram.
4
The heavy grid acts as a brise-soleil.
5
Boardmarked concrete stair is a sculptural presence in the lobby.

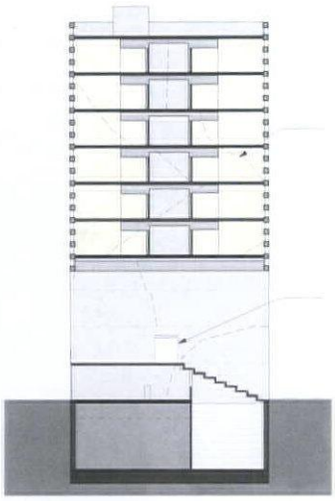
fantastical roof lights clear to the sky. These vertical volumes and the several prismatic cuts into the building's outer envelope suggest a reading of the dormitory less as a single parallelepiped and more as an array of conjoined towers. Holl seems to thrive on such conundra.

The basic bedroom unit is found behind an external wall containing nine windows (three across, three down) ruled or separated by two vertical and two horizontal concrete beams. The facade of Simmons Hall is formed in fact from prefabricated, structural modules, typically one per room, lifted into place by crane and working to achieve stability in consort with the floor slabs. The aluminium panels visible to the outside world are a protective and modular layer placed sufficiently forward, the architects claim, of openable windows to screen out the glare of the summer sun. Normally one side panel or jamb, and perhaps the soffit, is coded in strong solid colours – blue, green, yellow, orange, and red – to create a kinetic, Op-Art effect perpendicular to the static, outermost plane.

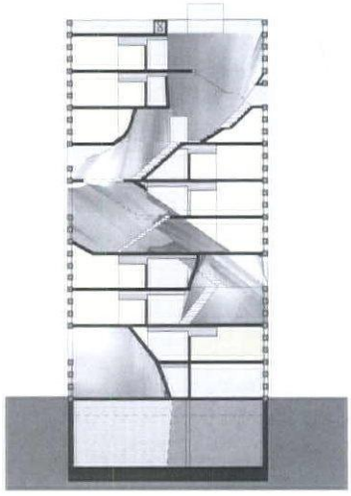
In one of those conflations popular with educational institutions and certain architects alike, this spectrum approximately represents the thickness of reinforcement concealed behind the aluminium panels (blue indicating the less reinforced or stress-prone sections). Again a kind of contemporary but flexible *architecture parlante*. On a bright winter's day, these colours also reflect off opposite jambs to add pastels into the overall mix of the architecture's palette.

At Simmons Hall, Holl's interest in opposites and in programmatic unorthodoxy has found an echo in his clients' desire to experiment with the representation of a students' residence (it is a kind of 'anchor tenant' in this developing zone of the campus) and with internal communal spaces. Rather than some deadly hermetic, double-loaded corridor plan, MIT seems to understand the intent of Holl's section to allow for multiple meeting and study spaces – some with media stations, others with kitchenettes. Setting the special or particular or quirky against the normative, behind its mask Simmons Hall is a ludic habitat not only for the adventurous, but also for those willing to engage with and participate in this not easy architecture. RAYMUND RYAN

Architect
Steven Holl Architects, New York
Project team
Steven Holl, Timothy Bade, Ziad Jameleddine, Anderson Lee, Peter Burns, Gabriela Barman-Kramer, Makram elKadi, Annette Goderbauer, Mimi Hoang, Matt Johnson, Erik Langdalen, Anderson Lee, Ron-Hui Lin, Stephen O'Dell, Christian Wassmann
Associate architect
Perry Dean Rogers Partners, Boston
Structural engineer
Yolles Partnership
Mechanical engineer
Keen Engineering
Photographs
Paul Warchol



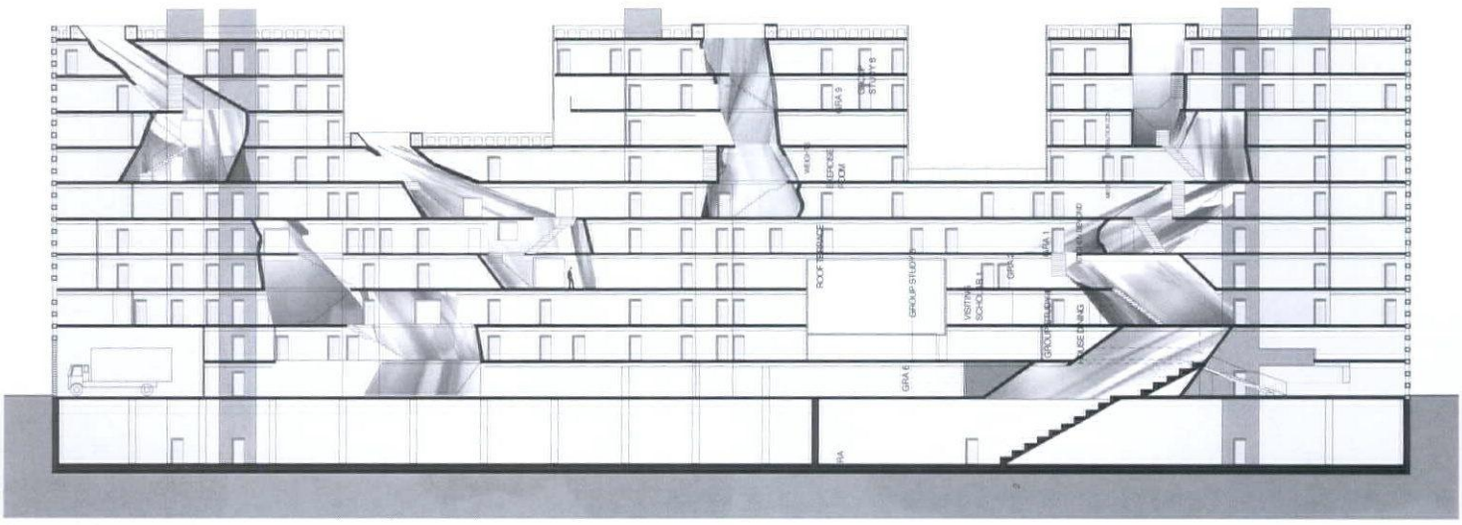
cross section looking east



cross section looking west

6
Entrance lobby stair wraps around an amorphous volume enclosing a performance space.
7
Study space.
8
Sculpturally fluid light wells intrude into and subvert the basic orthogonal geometry.
9
Dining hall on the ground floor.

STUDENT RESIDENCES, BOSTON, USA
ARCHITECT
STEVEN HOLL



long section looking north



6



7

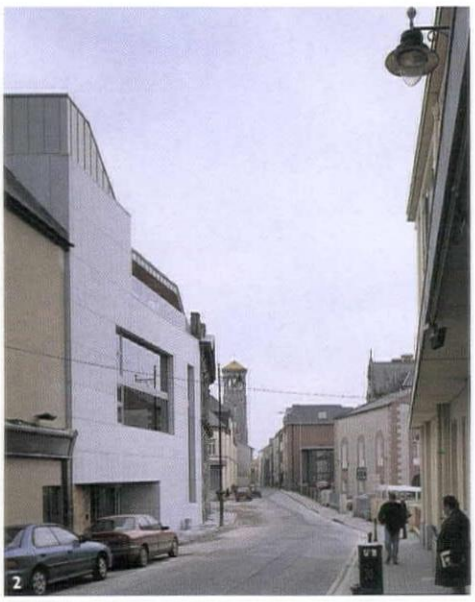


8



9





Historically, the architecture of Ireland reflects its cultural evolution with successive, discontinuous layers laid over each other, giving rise to stylistic tensions and unusual patterns of development. The dominant building material is stone – as the Irish architectural historian Maurice Craig noted, 'Nothing of any antiquity in Ireland is made of anything but stone, and nearly all the stone is grey'.* Ireland's recurring architectural leitmotif might be characterized as mass in the landscape, from megalithic tombs, to Celtic forts and churches and the Big Houses of the nineteenth century. Yet the modern era has witnessed great change. Over the past decade, Ireland's dynamic economy has not only served to reverse the nation's historic diaspora, but has also been the motive power behind an ambitious programme of public building energetically pursued by the current generation of Irish architects.

Among those working to rediscover and promulgate a sense of regional identity are John McCullough and Valerie Mulvin, whose writings and buildings have long displayed what critic Shane O'Toole calls the 'palimpsestic potential' for architecture in Ireland. Their seminal 1987 publication *The Lost Tradition* documented an exhaustive knowledge of Irish building types and their built work includes Temple Bar Galleries (AR January 1993) and, more recently, the new Ussher Library at University College Dublin, projects distinguished by a concern for the nuances of urban context, tempered by a powerful abstraction of plane and volume.

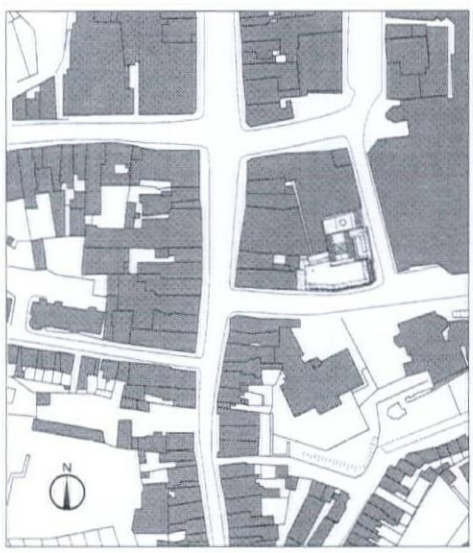
The partnership's latest work is the remodelling and extension of Waterford City's public library, a typical upgrading of a local landmark that inventively yet sensitively adds another new layer to the city's urban archaeology. Built in 1905, the existing library is a squat two-storey structure occupying a corner site. The trim Neo-Classical facade is surmounted by a pediment on the main Lady Lane street side, imparting an appropriate air of municipal dignity to the pursuit of knowledge. Walls are made of smooth sawn Kilkenny limestone, but the varied tones of the stone, ranging from pearl grey to charcoal, give the building a curiously piebald appearance. On Bakehouse Lane, where the building turns the corner, a single-storey block faced in rusticated limestone was terminated by a small caretaker's house. Internally, the spaces were arranged around a double-height toplit reading room, but the plan was substantially altered during remedial works carried out in the 1970s.

The redevelopment incorporates a former undertaker's yard on an adjoining site to the west, extending the overall site into an L-shape. As a building type, the modest municipal library has been obliged to adapt or die, relentlessly swept along with the technologically changing

LAYERS OF MEANING

This addition to a local public library in Waterford adds a distinguishably new layer to the town's urban archaeology.

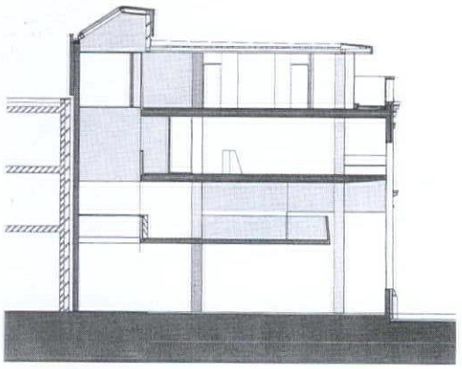
PUBLIC LIBRARY, WATERFORD, IRELAND
ARCHITECT
MCCULLOUGH MULVIN ARCHITECTS



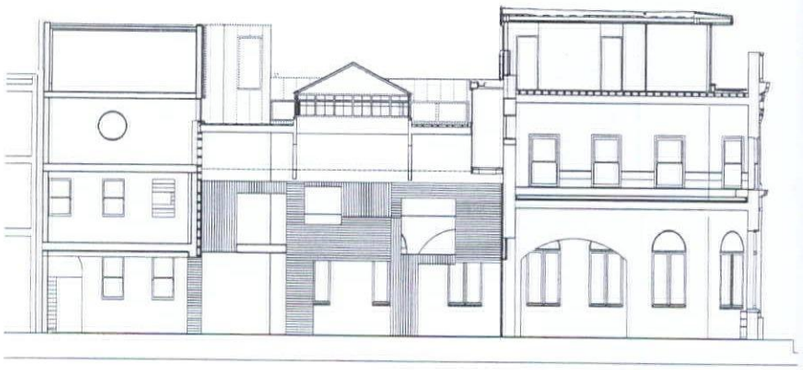
location plan



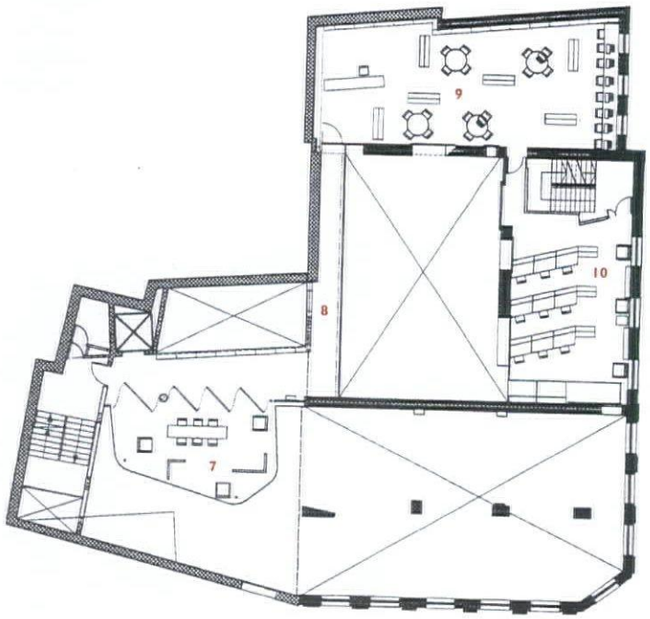
1
The new parts wrap around and anchor the existing building. The variegated quality of the grey Kilkenny stone is the result of a 1970s refurbishment.
2
The new block in its urban context.
3
The new part incorporates the same grey limestone, but is a legibly contemporary addition.



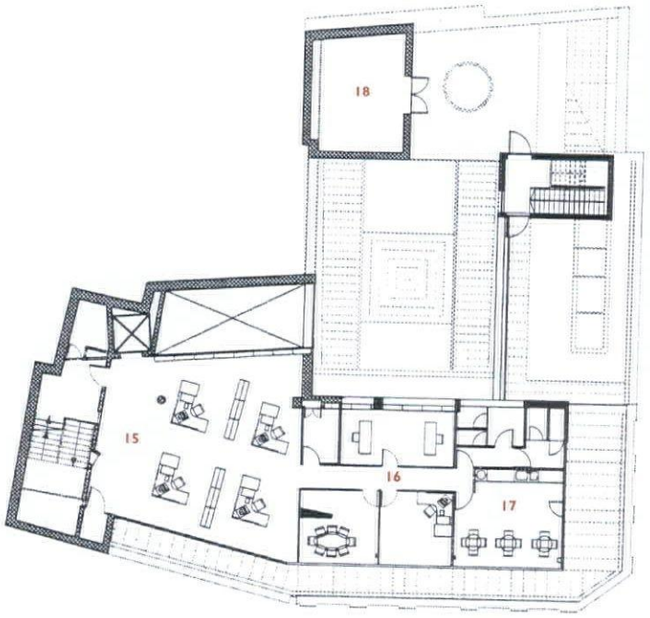
north-south section through new block



east-west section through new and existing blocks



first floor plan



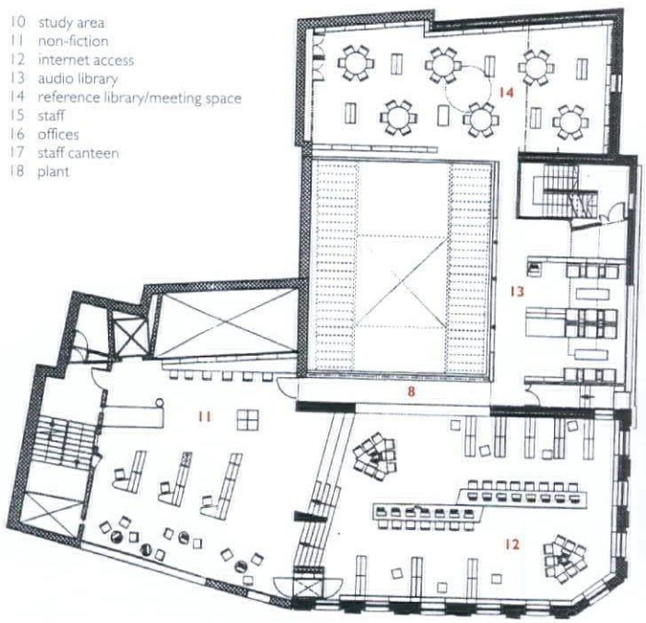
third floor plan

1 entrance
2 foyer
3 information
4 adult library
5 young adult library
6 children's library
7 newspapers
8 bridge link
9 Waterford Room



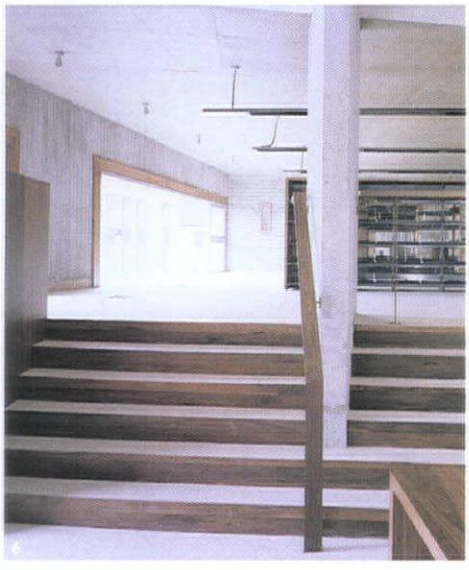
ground floor plan (scale approx 1:500)

10 study area
11 non-fiction
12 internet access
13 audio library
14 reference library/meeting space
15 staff
16 offices
17 staff canteen
18 plant



second floor plan





times, and the brief called for the by now standard range of electronic facilities to complement the more conventional printed word. With the addition of the new site, the project offered great potential not just for physical expansion, but also for orchestrating an expressive juxtaposition between old and new. This is achieved through carefully layered interventions into the fabric and the skilful manipulation of section and light to create a new diagonal circulation route.

The main initial move was to close up the existing entrance and transfer it to the new building, a generous three-storey block which completely fills the former undertaker's yard. The new part is wrapped in a smooth skin of limestone, establishing material continuity with the old building, but the size of blocks and the pattern of joints signify a new presence, as does the abstract quality of the facade, with large glazed openings incised into the mass of the stone. The new block contains a new entrance at ground level and a mezzanine that projects over the entrance hall like a protruding tongue. Above this is a new reading room with staff quarters on the topmost set back floor, which emerges out of the new section to anchor the existing building. The floors in the new block stop short of the rear wall on the north side to create a full-height void. Like the central toplit hall in the original building, this brings light flooding down into the interior. The hall, which houses the main reading room, is still the library's spatial focus, but has been opened up to become more permeable, with views over and through it from the floors above.

A new storey was also added on the Bakehouse Lane side, echoing the language of the new extension, so that it becomes a three-dimensional piece within the city, rather than simply a flat addition on Lady Lane alone. Internally, the mass of the exterior is dematerialized in the flowing sequence of airy, luminous spaces, though some sense of physical solidity is preserved in the raw boardmarked concrete walls and stone floors of the new extension. The central double-height reading room is lined in strips of black American walnut, a dark, sensuous timber which unifies and ennobles the space. Detailing is highly assured, with the different layers and materials playing off each other in a Scarpaesque manner, so that both new and old are clearly legible.

Through this astute remodelling and upgrading of a public institution for the new century, McCullough Mulvin add another very particular dimension to the rich, accretional nature of urban architecture in Ireland. C. S.

* Quoted in an essay by Shane O'Toole, 'On Marked and Abandoned Ground – An Introduction to the Work of Eight Irish Architects', A+U, no 397, 10/03, p112.

Architect
McCullough Mulvin Architects, Dublin
Structural engineer
O'Connor Sutton Cronin
Services engineer
Homan O'Brien Associates
Cost consultant
Brendan Merry & Partners
Photographs
Christian Richters

5
The new entrance hall, with the projecting tongue of the mezzanine above.
6
New spaces on the first floor are linked by a staircase to the existing building to overcome the differences in levels.
7
Entrance hall is enclosed by walls of boardmarked concrete.
8
The walnut-lined central hall, with reading rooms along its edges. New and old elements engage in a civilized dialogue.
9
New staircase.
10
Toplit spaces on the upper floor of the new Bakehouse Lane wing.

PUBLIC LIBRARY, WATERFORD, IRELAND
ARCHITECT
MCCULLOUGH MULVIN ARCHITECTS



PUBLIC LIBRARY, WATERFORD, IRELAND
ARCHITECT
MCCULLOUGH MULVIN ARCHITECTS

4
A void cut into the rear of the new block brings light into the library spaces.

MUSEUM, SARREBOURG, FRANCE
ARCHITECT
BERNARD DESMOULIN

ARCHAEOLOGICAL FIND

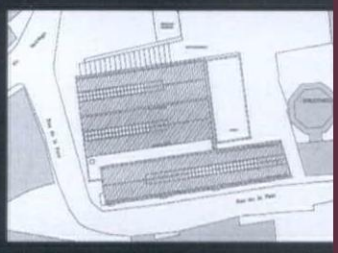
This museum in Sarrebourg is a series of neutral, hermetic containers for a diverse range of artefacts, from Gallo-Roman relics to Chagall drawings.

Despite the richness and diversity of its historical and archaeological collections, the town of Sarrebourg, in north-east France, never had a proper means of showing them off. The surrounding region of the Sarre valley, near the German border, is particularly rich in Gallo-Roman remains, but the town's archives also include a collection of eighteenth-century porcelain and works by Marc Chagall.

Paris-based architect Bernard Desmoulin was asked to design a new building to house this disparate assemblage on a site next to the town's library. The museum forms part of an urban improvement programme and defines a new raised square, animated by a long reflecting pool. Three long, low volumes are placed parallel to each other, like warehouses or industrial sheds. The southernmost one extends out to enclose the square and demarcate a new pedestrian through route. On the two street frontages the new museum is inscrutably hermetic, concealed behind solid planes of concrete and vertical strips of grungy green prepatinated copper, but on the square, it opens up with clear glass walls reflecting and dissolving in the shimmering pool.

Hugging the long north flank of the building, a shallow flight of steps leads from the street to the square, channelling visitors up to the museum entrance.

Overlooking the reflecting pool, the double-height entrance hall is a luminous *salon*, dominated by a concrete staircase curved like a giant woodshaving linking the two exhibition floors. Alternating intimate rooms with more imposing double-height spaces, the exhibition circuit commences with a small orientation room which leads to the prehistoric collection, before opening up into the focus of the museum, the double-height Gallo-Roman exhibition hall. The ground floor also contains displays on Roman battle campaigns and the Merovingian period, along with a caretaker's flat, which is isolated from the displays and housed in the projecting stub of the longer

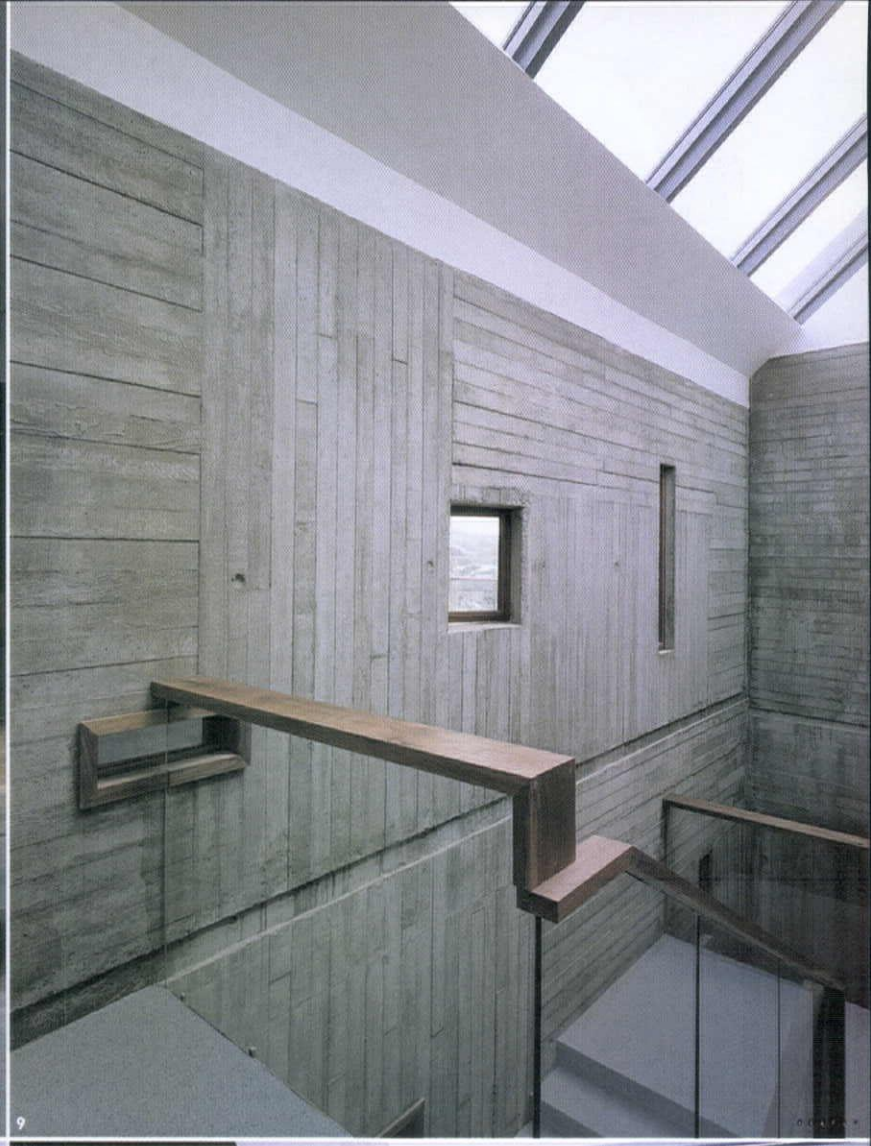


site pla

1
The hermetic face of the new museum forms an edge along the Rue de la Paix
2
The long volumes are suggestive of industrial sheds.
3, 4
The new square and reflecting pool.
5
The entrance overlooks the pool.
6
Entrance hall and curved staircase.



7



9



8



10

wing. Upper floors are dedicated to the porcelain and faience collections and Chagall's drawings. En route, the spiral stair acts as a viewing platform for a particularly precious antique tapestry hung on the rear wall of the entrance hall.

Playing off the proto-industrial exterior, a similarly functional spirit pervades the interior. In the main Gallo-Roman exhibition hall, walls of raw concrete form a neutral yet appropriately rugged backdrop for the various objects. Floors are also concrete, painted black and lacquered to a dull sheen. Natural light floods in from a slot cut into the apex of the pitched roof and tactful spotlighting emphasizes particular pieces. The concrete responds to the weathered yet essentially robust character of the archaelogical relics, most of which were exhumed from the surrounding countryside.

Within an essentially compact plan, the *promenade architecturale* is assuredly handled, deftly orchestrating changes of scene, scale, light and views. Desmoulin also shows an intelligent affinity for materials that elevates and transforms this provincial museum into a modest civic showpiece.

PAUL JOUBERT

Architect
Bernard Desmoulin, Paris
Photographs
Courtesy of the architect



7

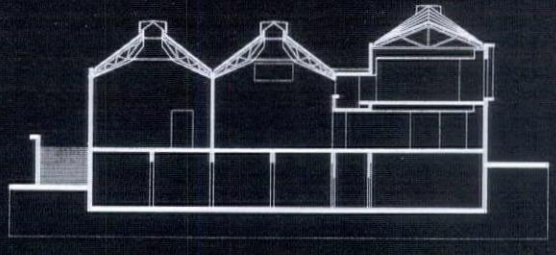
MUSEUM, SARREBOURG, FRANCE
ARCHITECT
BERNARD DESMOULIN

7
The toplit volume of the Gallo-Roman exhibition space.
8
Raw concrete walls and floors form a neutral backdrop for objects.

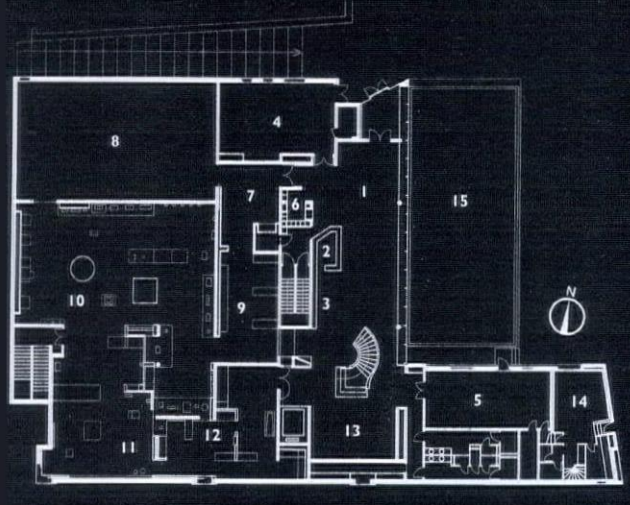


8

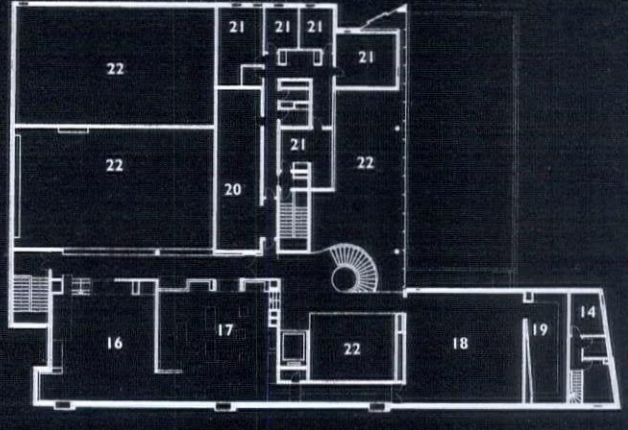
1 entrance hall
2 reception
3 bookshop
4 conference room
5 audio-visual room
6 cloakroom
7 orientation
8 temporary exhibition hall
9 prehistory
10 Gallo-Roman artefacts
11 battle campaigns
12 Merovingian period
13 tapestry
14 caretaker's flat
15 pool
16 Sarrebourg room
17 Niderviller room
18 Chagall room
19 drawings
20 research
21 staff offices
22 void



cross section



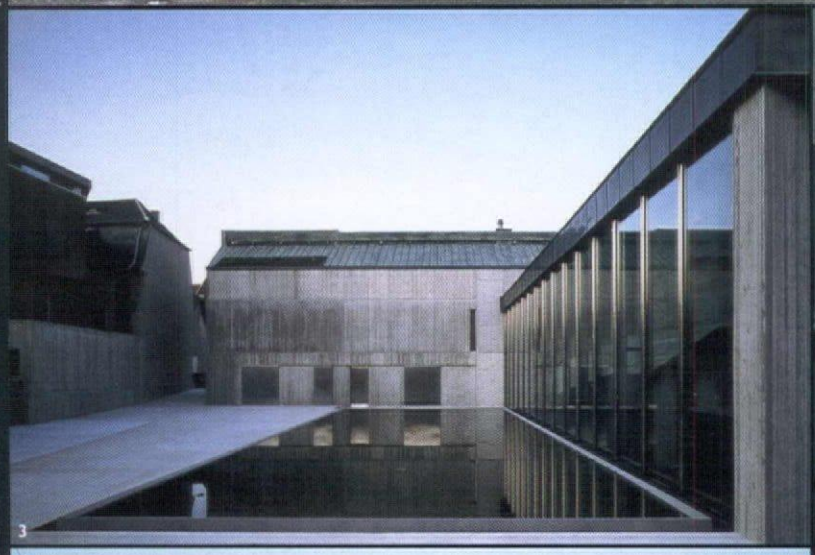
ground floor plan (scale approx 1:1000)



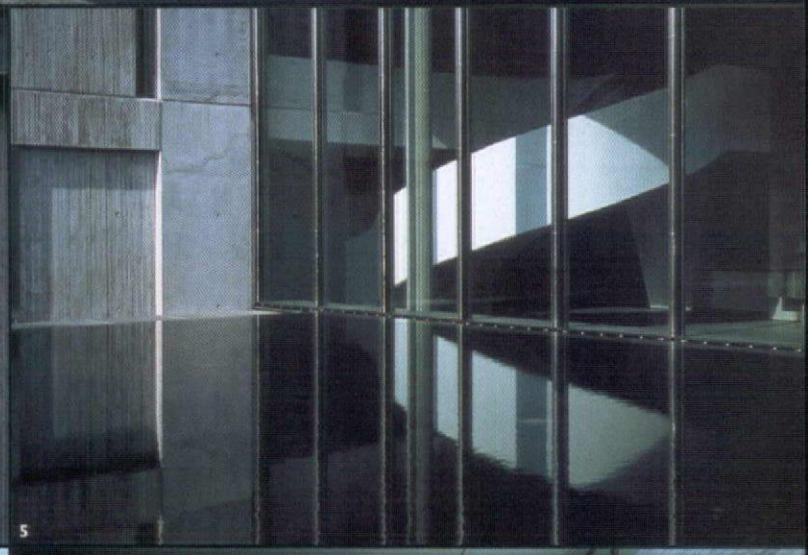
first floor plan



2



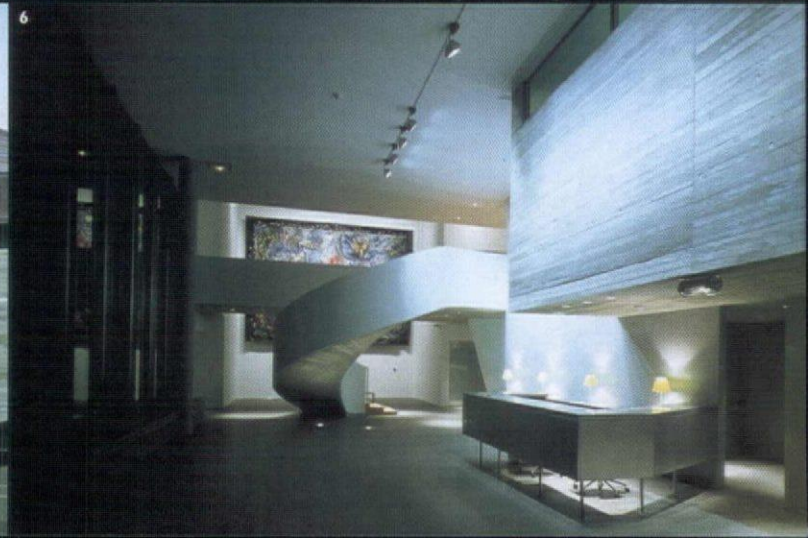
3



5



4



6

Santo Ovidio Estate lies in the rolling countryside near Douro in northern Portugal. The estate's lands were originally quite expansive, but now only a working vineyard remains, together with assorted agricultural buildings, including the original farmstead. Álvaro Siza was asked to renovate the existing structures and unify the three hectare site. His brief encompassed refurbishing the farmstead, adding a swimming pool wing and restoring the garden's stone pergola and baroque fountain. More intriguingly, it also included the construction of a new estate chapel to replace an older structure demolished by a previous owner in the nineteenth century. (Santo Ovidio is a well-loved Portuguese saint with reputed powers to cure the deaf and the chapel had become a popular site for devotees. The owner was subsequently excommunicated.)

Here, Siza is working at the smallest of scales, but nonetheless manages to create a building of surprising intensity that powerfully expresses a sense of the spiritual in the everyday. Many of Siza's early projects were small and conceived to suit the dearth of technological and economic means in Portugal, so in both form and construction this modest project represents a momentary return to a more unaffected way of doing things.



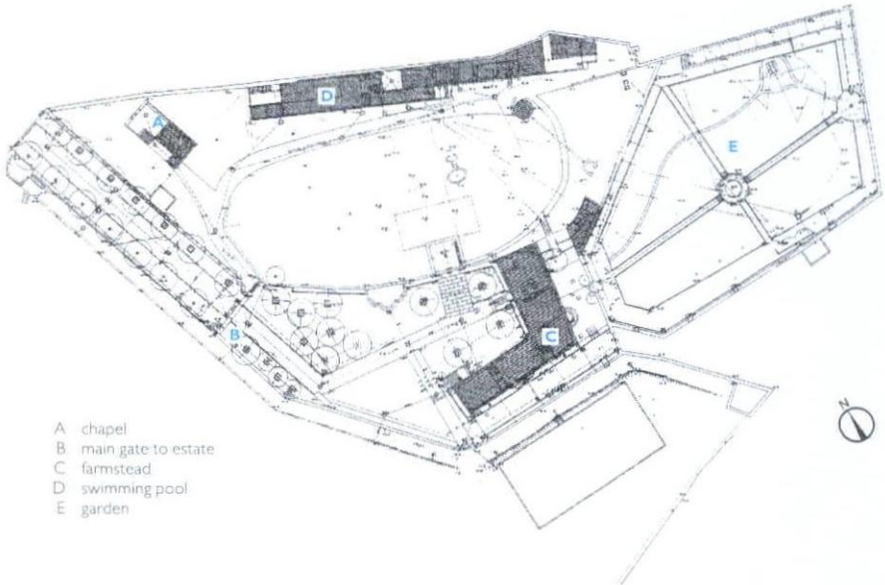
1

CHAPEL, DOURO, PORTUGAL
ARCHITECT
ÁLVARO SIZA

1
The approach to the compact, white rendered cube of the chapel.

CHAPEL OF EASE

This private chapel on a Portuguese country estate is an elementally powerful synthesis of stone and light.



A chapel
B main gate to estate
C farmstead
D swimming pool
E garden

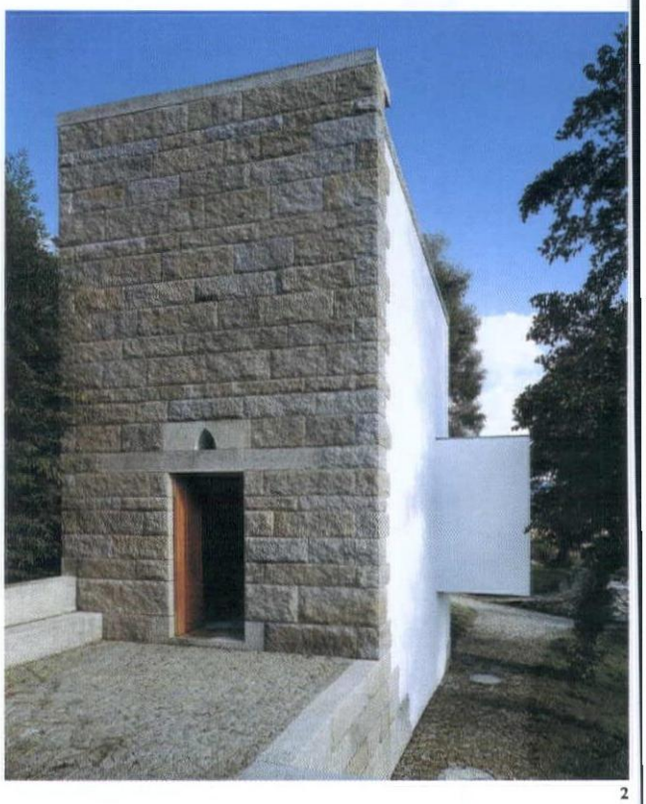
site plan

Set among trees near the estate's main gate, the new chapel is a compact cubic volume, the starkness and plainness of its geometry broken only by the projecting box of the sacristy, which forms a small porch on the south-west side. In response to the sloping site, the chapel is elevated on a podium, reinforcing the impression of a hermetic casket poised on a tray. Reached by a flight of rough hewn stone steps, the podium acts as a physical and metaphorical gathering place, a transition between the realms of the quotidian and the divine.

The chapel's thick concrete walls are articulated by the barest handful of incidents. A semi-circular aperture admits light over the altar and an elongated cross is cut into the south-east facade. Externally, the concrete is rendered white on three sides, in traditional Iberian fashion, with the entrance wall demarcated and dignified by slabs of undressed Portuguese granite. The pearly grey colour and rough texture forms an expressive contrast with the smooth white render. Inside, all is equally spare and sober. Concrete walls are left unadorned, with any blemishes visible (this is Portugal, after all, not Japan) and daylight is limited, so the effect is very much like being in a cave, with worshippers sequestered from the world. Floors are covered with rush matting, apart from a central section of bush-hammered concrete, and the altar is a crisply hewn block of granite. Furniture takes the form of either long, low timber benches, or blond wood chairs, equipped with kneelers.

With its simple geometry and absence of applied decoration, the chapel appears the antithesis of Portugal's viscerally Baroque churches. Instead of images and ornamentation, Siza orchestrates form, materiality and light to evoke a compelling sense of the numinous. There are clear echoes of his much larger church at Marco de Canaveses (AR August 1998), but here he has created a memorable place for individual contemplation, rather than community worship. C. S.

Architect
Álvaro Siza Vieira, Porto, Portugal
Photographs
Duccio Malagamba

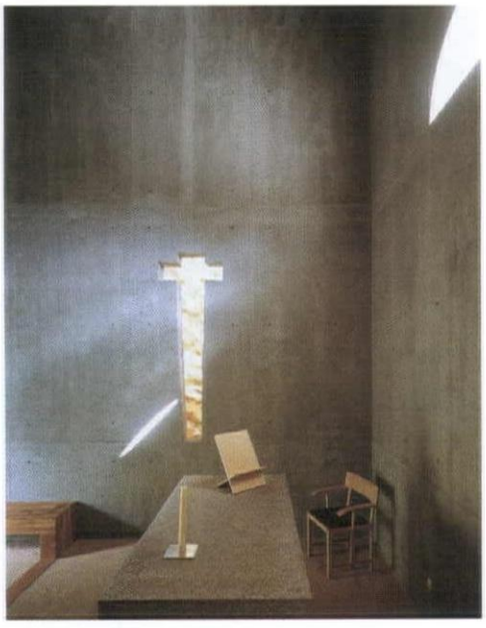


2

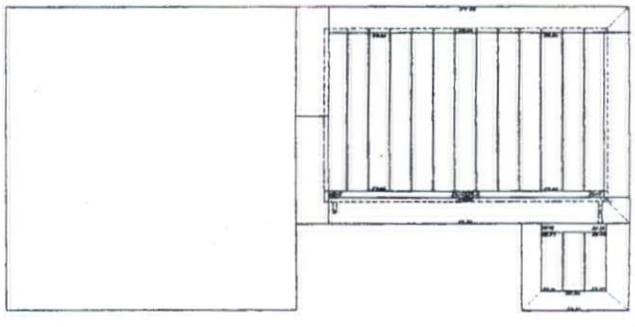
2
The entrance wall is dignified with slabs of Portuguese granite.
3
Cross shaped aperture is infilled with thin sheets of alabaster to diffuse light.
4
The spare, simple interior is a mysterious concrete cave.

CHAPEL, DOURO, PORTUGAL

ARCHITECT
ÁLVARO SIZA

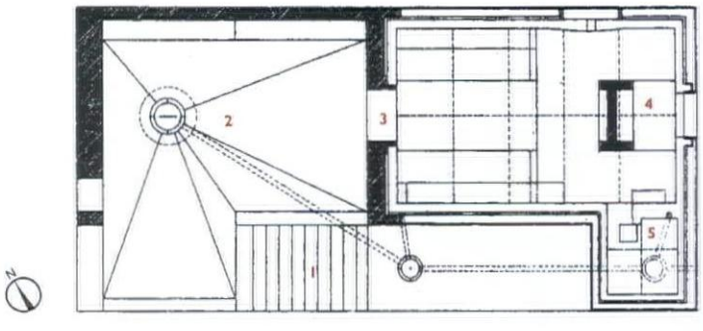


3



roof plan

1 steps
2 podium
3 entrance
4 altar
5 sacristy



ground floor plan (scale approx 1:125)

ANCIENT AND MODERN

While the physical and spatial fluidity of concrete is no new thing, computer modelling techniques and advances in chemical science are allowing the humble concrete mould to produce exciting new forms of expression.

While the work of Zaha Hadid may rarely be associated with classical antiquity, believe it or not there is a link between Hadrian's Pantheon in Rome and Hadid's latest project currently on site in central Germany. Despite being separated by almost 2000 years, both buildings present significant shifts in the formal and spatial expression of their time, and both have achieved this through the progressive and innovative use of in-situ cast concrete.

In much the same way that the work of Hadid is described today, the Pantheon was presented by Banister Fletcher as a polemic building. Despite its Classical gravitas, the Pantheon was, he observed, a building 'which has dissolved the distinction between wall and roof'. In comparison with the more conventional Parthenon, the vast dome which is widely accepted as the oldest and finest example of in-situ relief concrete, had produced 'an interior of a new kind, no longer bounded by four walls and a roof'. Similarly today, when considering Hadid's latest work, Fletcher's words can easily be reapplied. The Phaeno Science Centre in Wolfsburg – which will be open to the public in 2005 – will soon have its own 'interior of a new kind'. An interior where the boundaries between the wall, floor and ceiling are increasingly blurred, and where the fluidity of concrete is once more exploited in complex geometric relief.

By creating a series of spaces that optimize not only the material efficiency of cast concrete, but also its spatial efficiency, Hadid's studio continues to develop an architectural expression that seeks to minimize the distinction between the spatial organism and the structural organism. As described by project architect Christos Passas, the building was conceived as a series of horizontal and vertical surfaces that have been deformed and shaped by the influences of spatial and programmatic requirements. By notionally inflating a concrete skin to produce a monumental form, the monolith will have a powerful internal and external presence and will comprise three principal spaces: a 15 000sq m subterranean car park, a new contoured public space (maintaining views between the historic centre and the city's famous VW factory), and a 12 000 sq m exhibition space held 8m above the ground by 10 conical inhabited pilotis that taper and rise through the space from the basement below.

In collaboration with engineers Adams Kara Taylor, these three spaces have been shaped as one element, conceived as a single mass that simultaneously creates space, void, and structure. In a manner reminiscent of Gaudí, the team has followed the pursuit of authenticity and structural efficiency, whereby concrete as a plastic material has been moulded to reach its optimum form and thinness.

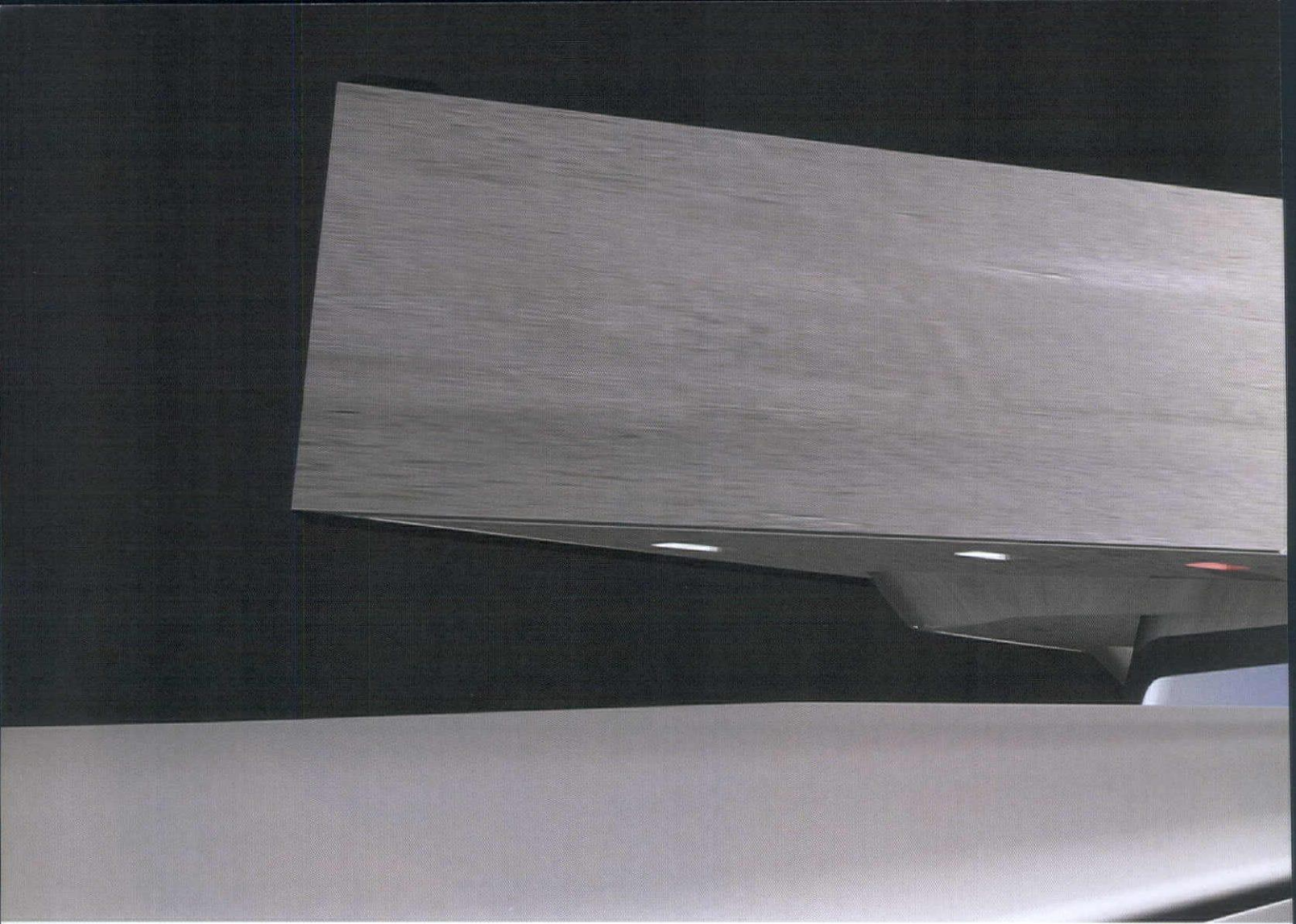
With spans of up to 50m between the 10 irregularly distributed cones and with significant cantilevers reaching out to the building's trapezoidal perimeter, the project represented a unique structural challenge; not only with the raised exhibition space twisting in plan within a distorted 150m x 90m grid, but also with the tapering and leaning cones adding eccentric loads into an already complex equation.

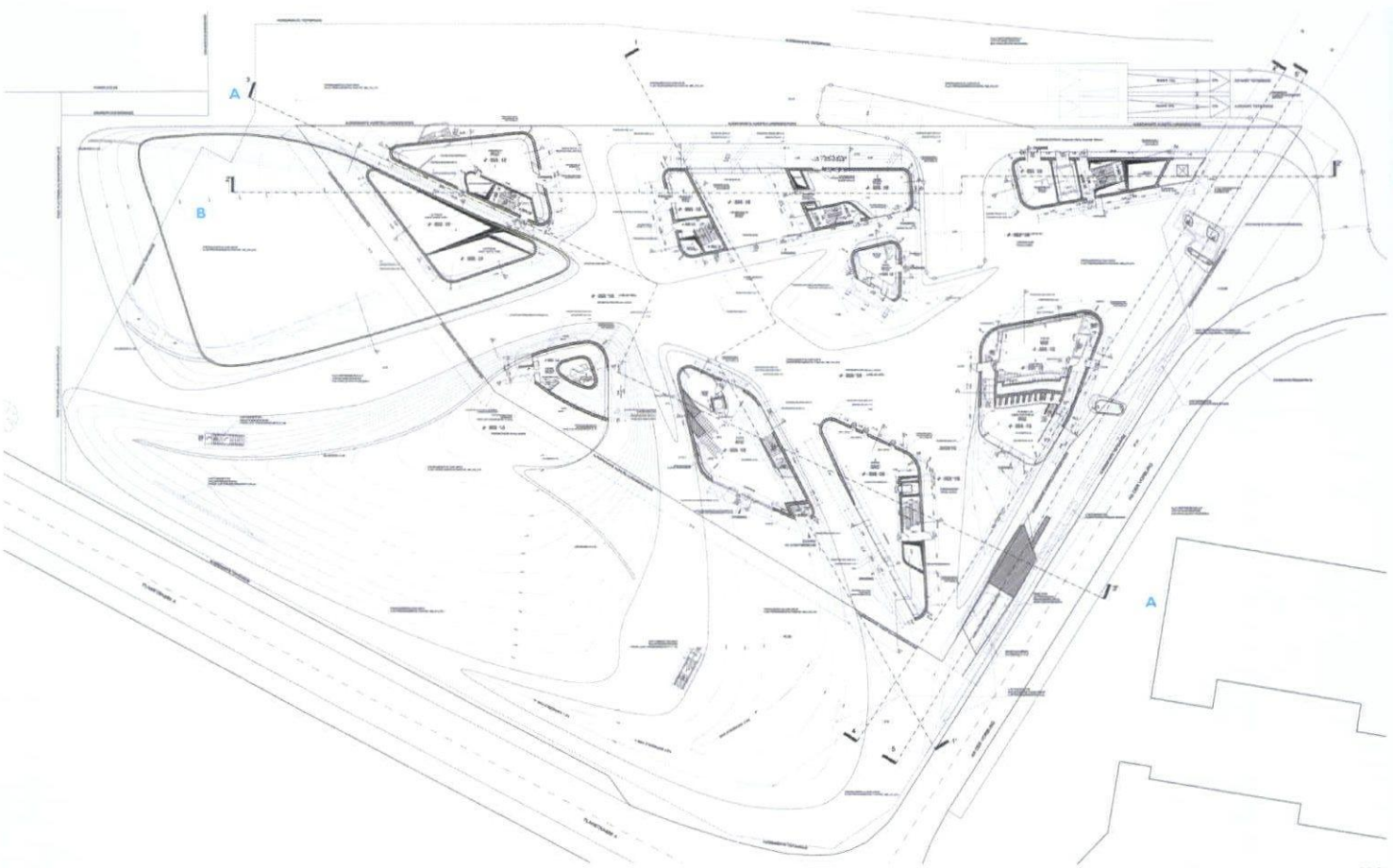
As described by project engineer Paul Scott, a collection of complex elements would traditionally have been broken down and engineered as separate structural systems, which when combined would produce a significantly over-designed entity. However here, to satisfy the design team's rigorous pursuit of efficiency, the use of computer-aided complex element analysis was essential. So, with AKT's finite element analysis software, a modelling process was developed that enabled the complex forces within a single element to be resolved, thereby reducing the volume of concrete to its absolute minimum. Five years ago this would have been virtually impossible, and as Scott admits, without advances in computer modelling, this

Right: continuing the tradition of cast concrete that dates back to the second century AD, Zaha Hadid gives béton brut new dynamic expression with a series of complex cut-away inhabited pilotis, distorted ground planes and sharp corners.



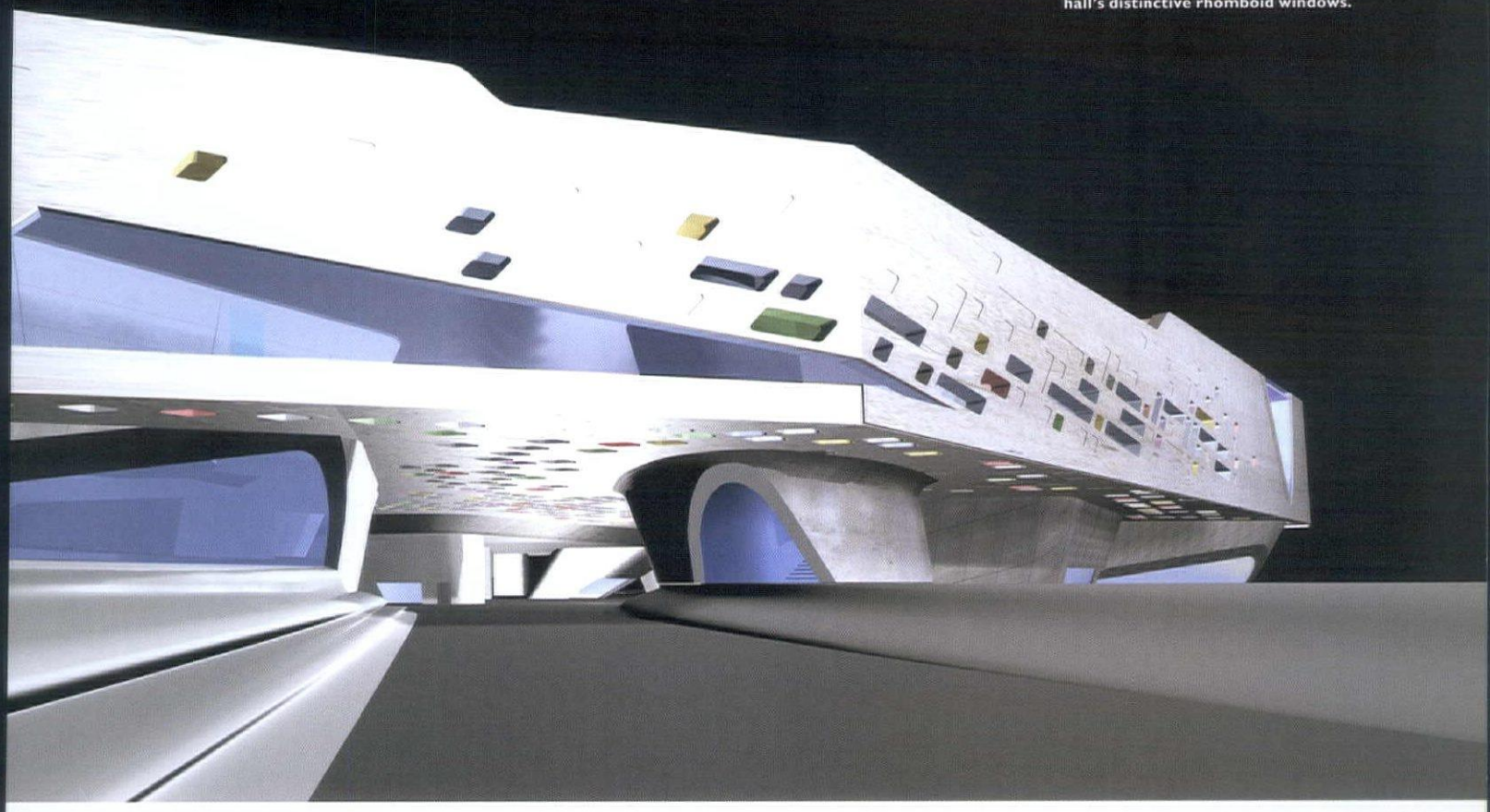


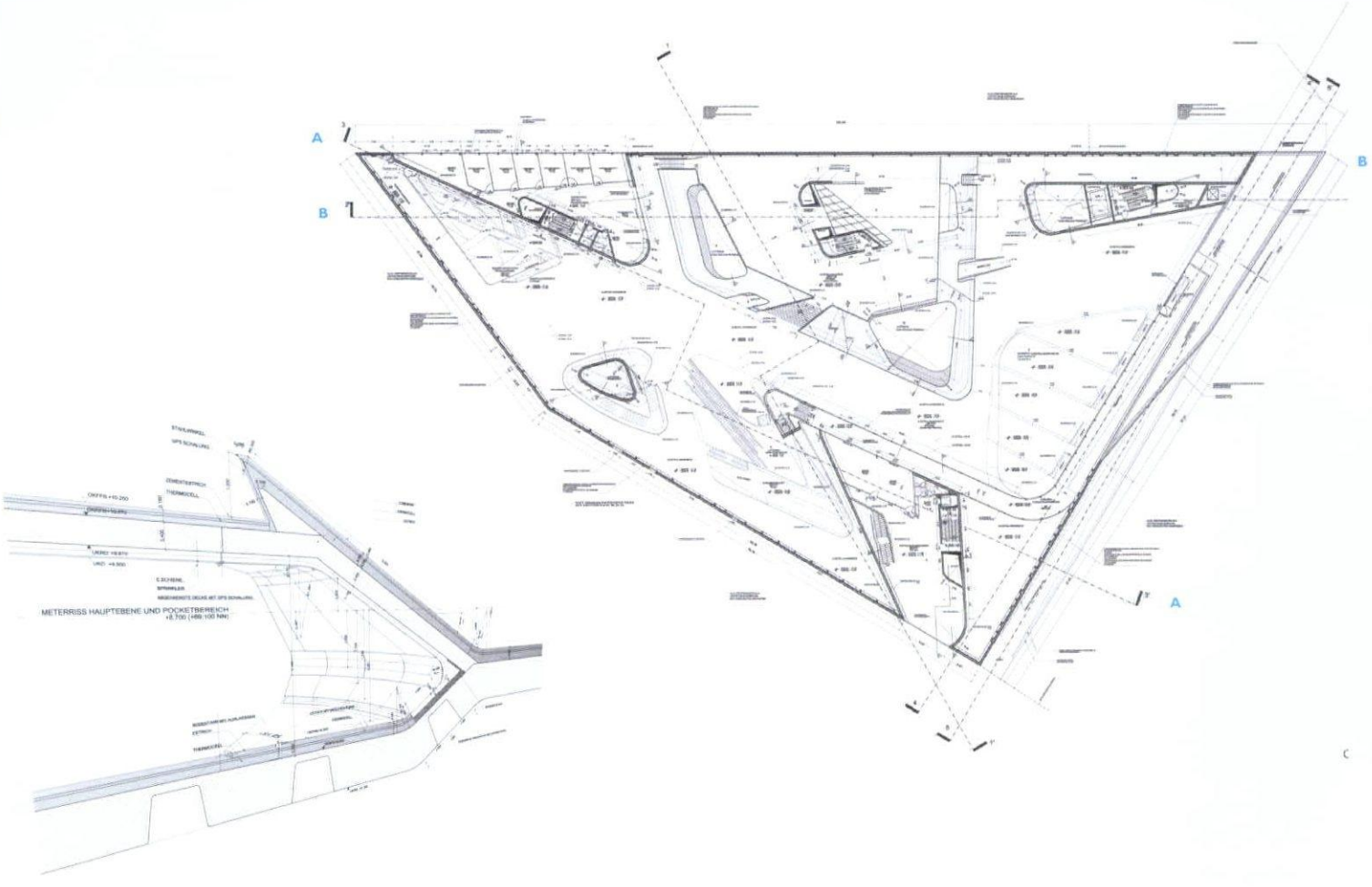




 ground level plan, showing the deformed cone-like pilotis which contain service and retail spaces, entrances and exits (scale approx 1:1075)

Raised 8m above a new sculpted terrain, Wolfsburg's new science centre mixes the latest precast and in-situ concrete technologies. While massive fluid forms are created with a self-compacting concrete, precast colour-matched units are used to integrate the exhibition hall's distinctive rhomboid windows.





in fluid form, spaces are cast within the depth of the floor slab

exhibition level plan (scale approx 1:1075)

building would have been engineered with walls that were twice as thick. Furthermore, by considering the elements as one, Hadid was afforded the freedom to cut, puncture, and distort the supporting cones beyond the limits of their individual stability due to their calculable continuity with the adjacent folded floor plates.

When resolving these forms, specific attention was given to the points of articulation, such as the radii of the junctions and folds in the slab, where high stresses were imposed; a process of refinement that demanded close collaboration between architect and engineer. By working across an all digital platform, which continually fed Hadid's spatial refinements into AKT's model, information was exchanged by e-mail, translated into the model and analyzed. This proved to be an effective, innovative and collaborative design process that worked well, which enabled the two disciplines to converge to instantaneously see what the space looked like and test its structure.

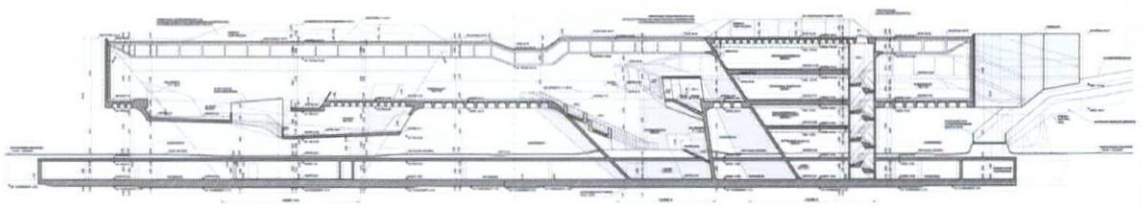
In parallel with the design process, thoughts naturally turned to the proposed method of how physically to cast the highly sculptural forms that had been created. Not only were the walls incredibly thin, and geometrically complex, but in many instances also needed to be fair-faced on both sides. So, to achieve visual continuity in the most extreme areas, 8m deep sections would need to be cast in one hit, in moulds that were only 200mm wide. With no room for mechanical vibration, the potential for grout loss and the honeycombing in the contorted corners of the formwork was a genuine concern, and the only practical solution was to redesign the concrete itself.

The final solution was proposed by German concrete contractor Heitkamp, and lay in a new concrete additive that significantly increases the workability of the concrete without any resultant loss in strength. By comparing slump test results, where an inverted bucket of concrete is used to demonstrate the viscosity of the mix, the fluidity of the self-compacting mix is immediately apparent. While standard concrete will deflect by approximately 50 per cent maintaining its sandcastle form, the self-compacting mix disperses coarse and fine aggregate evenly across the test plate, clearly demonstrating its capacity to reach the most awkward corners of the formwork.

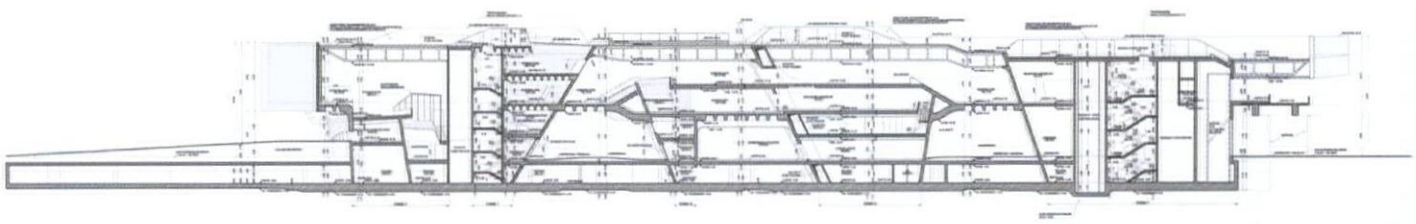
Today on site, as the formwork is slowly being struck, the white concrete revealed demonstrates that the technology has been extremely successful. While the finished surfaces have an appropriate muscular rawness, results have been virtually faultless, with complex arrays of timber shuttering skilfully cast. Hadid and her team have therefore mixed ancient and modern to full effect, exploiting the dynamic fluidity of cast concrete with masterful virtuosity.

ROB GREGORY

Client
Stadt Wolfsburg (City of Wolfsburg)
Competition design
Zaha M. Hadid
Architects
Zaha M. Hadid with Mayer Bährle
Structural engineer
Adams Kara Taylor with
Ingenieurgruppe Tokarz Freirichs
Leipold
Services consultant
Buro Happold and NEK
Photographs
David Grandorge and Ingenieurgruppe
Tokarz Freirichs Leipold

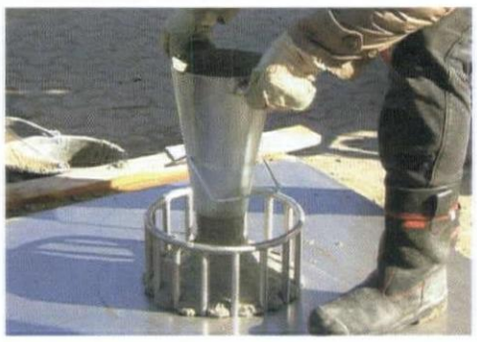


section a-a



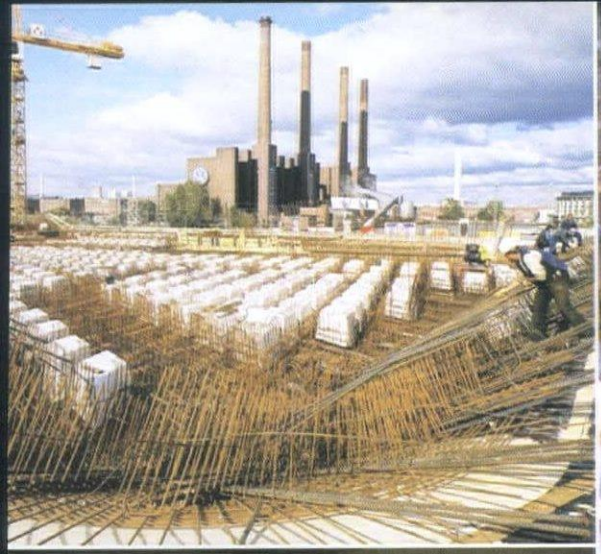
section b-b





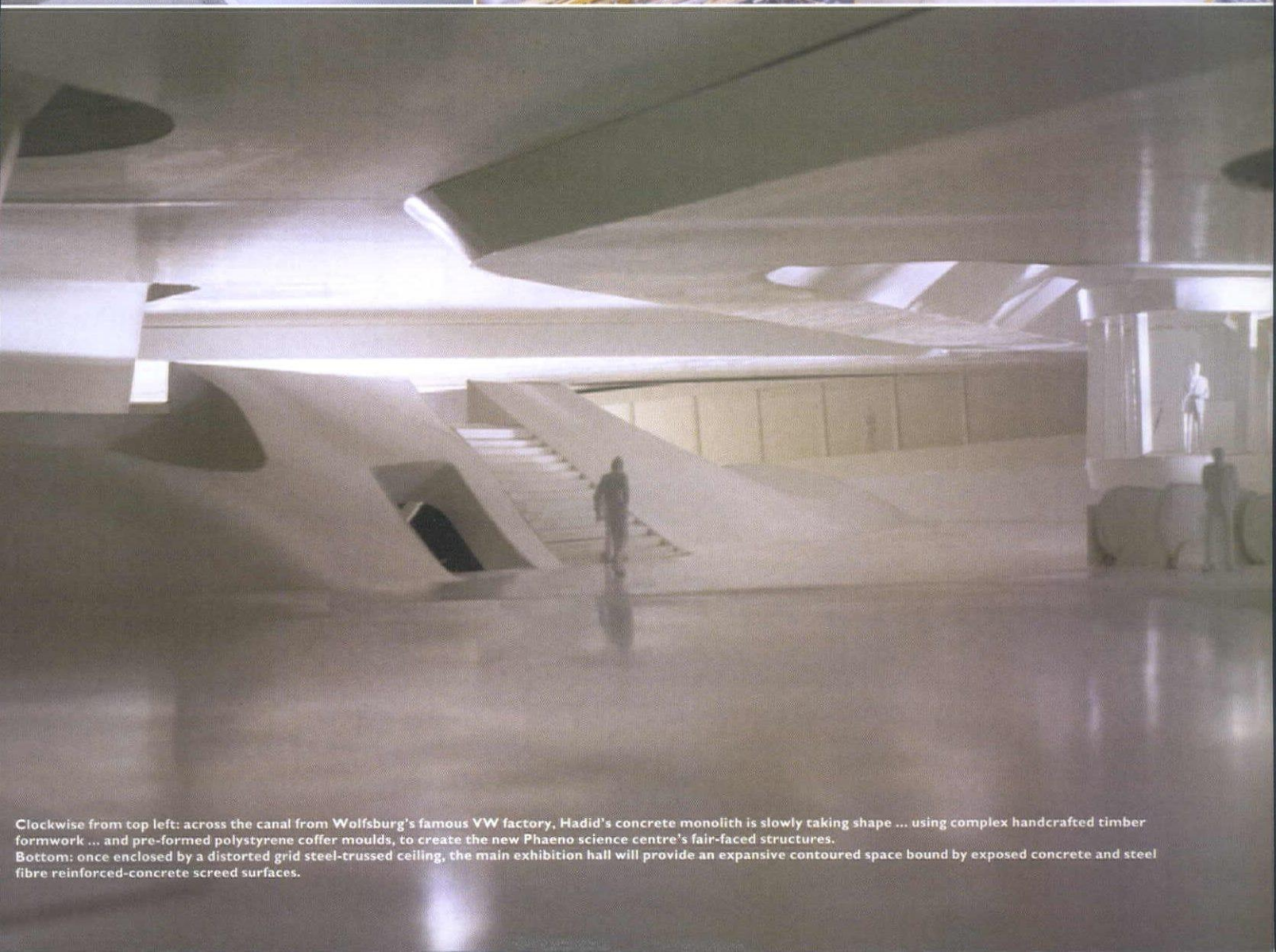


on-site slump tests demonstrate the enhanced fluidity of self-compacting concrete; essential to ensure that the hard-to-reach corners of Hadid's formwork are filled







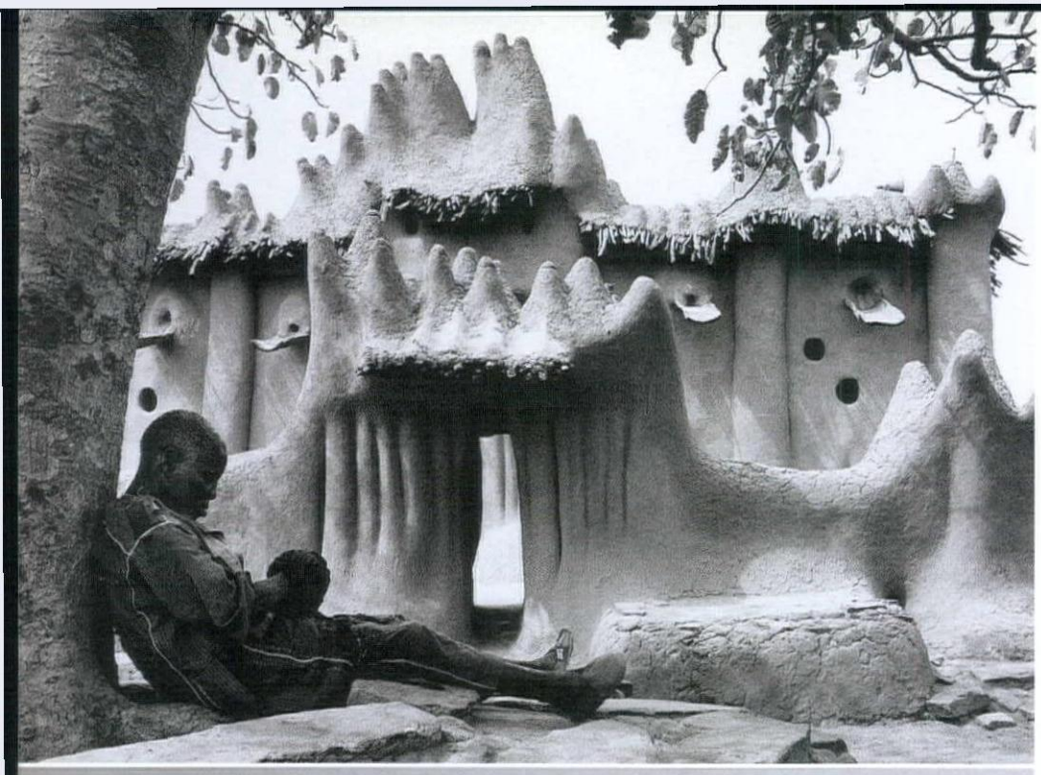


Clockwise from top left: across the canal from Wolfsburg's famous VW factory, Hadid's concrete monolith is slowly taking shape ... using complex handcrafted timber formwork ... and pre-formed polystyrene coffer moulds, to create the new Phaeno science centre's fair-faced structures.
Bottom: once enclosed by a distorted grid steel-trussed ceiling, the main exhibition hall will provide an expansive contoured space bound by exposed concrete and steel fibre reinforced-concrete screed surfaces.

GLORIOUS MUD

Building with mud is one of the oldest architectural traditions and is still practised with remarkable results in parts of West Africa, though there are fears that such skills will eventually be lost for ever. Here, James Morris presents a photographic survey of some astonishing examples of religious and domestic buildings.

Above: Friday Mosque, Djenné, Mali – biggest mud building in the world and defining image of West African architecture. Foundations are more than 500 years old, though building has often been rebuilt. Right: mosque, Yebe, Mali. Stick-studded mosques of Niger delta region define the unique aesthetic of Western Sudan. Though wooden posts have practical functions – as scaffold for re-rendering, structural support, and assisting in expelling moisture from heart of the wall – the most striking impact is visual.





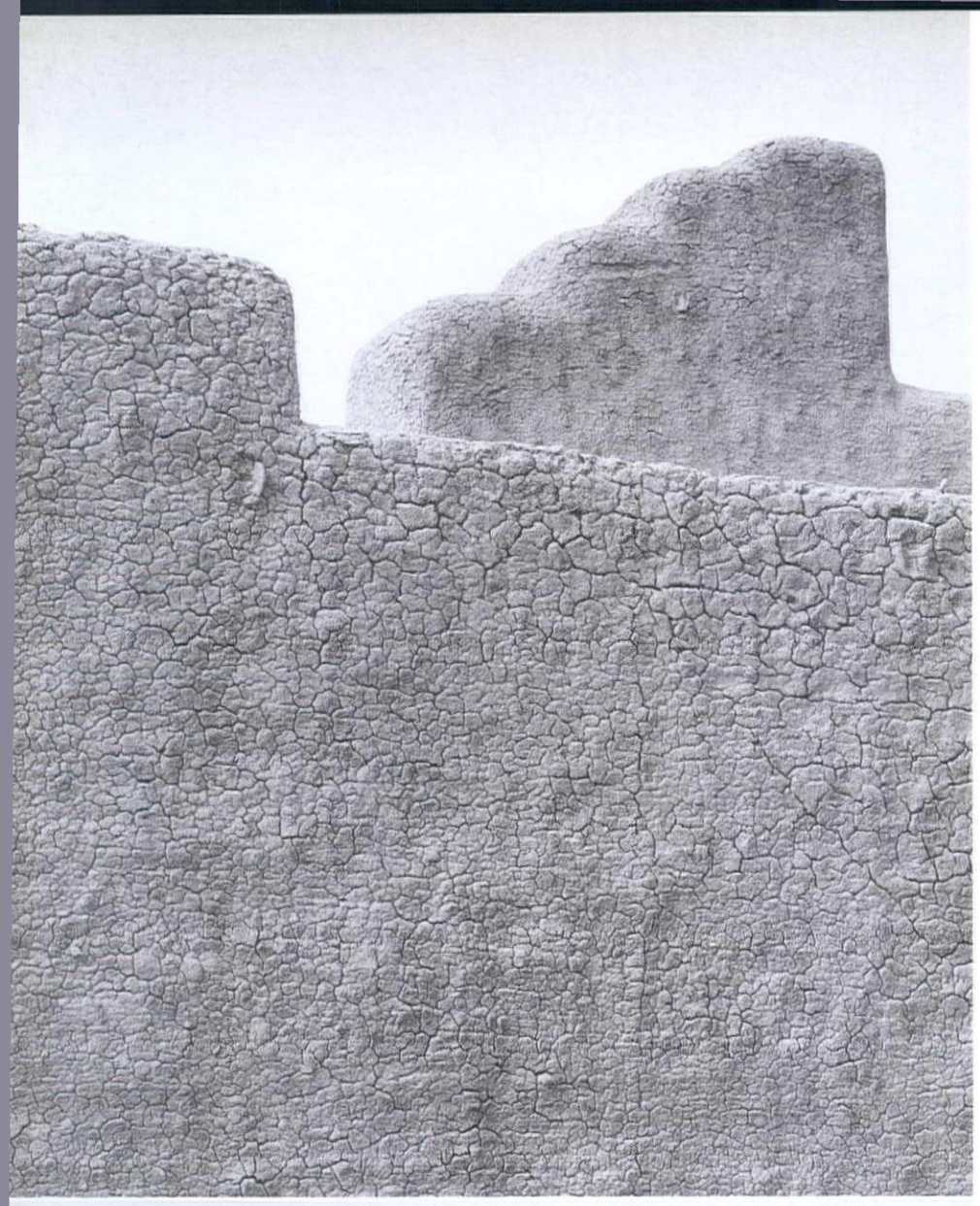


Too often, when people in the West think of traditional African architecture, they perceive nothing more than a mud hut; a primitive vernacular half remembered from a Tarzan film. But why this ignorance of half a continent's heritage? Possibly because the great dynastic civilizations of the region were already in decline when European colonizers first exposed these cultures to a wider audience. Being made of perishable mud, many older buildings have been lost, unlike the stone or brick structures of other ancient cultures. Or possibly this lack of awareness is because the buildings are just too strange, too foreign to have been easily appreciated by outsiders. Often they are more like huge monolithic sculptures or ceramic pots than architecture as we might conventionally think of it. But the surviving buildings are neither historic monuments in the classic sense, nor are they as culturally remote as they may initially appear. They share many of the qualities now valued in Western architectural thinking such as sustainability, sculptural form and community participation in their conception and making.

Though part of long held traditions and ancient cultures, they are also contemporary structures, serving a current purpose. If they lost their relevance and were neglected, they would collapse. In the West, mud is effectively regarded as dirt, yet in rural Africa (as in so much of the world) it is the most common of building materials with which everybody has direct contact. Maintaining and resurfacing of buildings is part of the rhythm of life, and there is an ongoing and active participation in their continuing existence. This is not a museum culture.

Superbly formed and highly expressive, these extraordinary buildings emerge from the most basic of materials, earth and water, and in the harshest of conditions. They are vibrant works of art with their own distinct and striking aesthetic, skilfully responding to the qualities of African light and the inherent properties of mud to emphasize shadow, texture, silhouette, profile and form. During the course of a year the mud render dries, the surface is covered in a web of cracks and then it slowly starts to peel off before being re-rendered. With each re-rendering, the shape of a building is subtly altered, so

Top: Nando Mosque, Mali. Supposedly built by a giant in one night, this highly sculptural mosque is a unique structure that borders the magical and fantastical.
Middle: women's quarters, Tangasoko, Burkina Faso. Among the Kassena people, each married woman has her own quarters in the family compound. Built by men and decorated by women, they contain living room and adjoining kitchen. On her death they are allowed to disintegrate, the land and crumbled earth to be reused by a future generation.
Bottom: house of the chief of Djenné, Mali. Moroccan influenced wooden windows are a recent development.
Right: Hogon House, Sanga, Mali. The most distinct architectural form of the Dogon people, the Hogon House is the home of the traditional spiritual leader.





change and movement are ever present. The material is tactile, warm and vulnerable, demanding and receiving an engaged relationship with its users. Often people attempt to cement render the buildings, but not only does this destroy them physically, as they rot from within, but it also destroys their character. Their uniqueness is their muddiness.

The future of these buildings is hard to predict. Mud is such a vulnerable material and there is an enthusiasm for building in concrete. Given the means, many would tear down their mud houses and build cement block and tin roofed replacements, common practice in those countries that can afford to do so. So what will happen when rural Africans are lifted out of their desperate poverty? Will there be an understandable rush to rid themselves of the physical manifestations of that harrowing past? It can already be seen in wealthier countries such as Ghana and Nigeria where there is virtually nothing left for future generations to repair and preserve. Not only the buildings have gone but also the skills to build them.

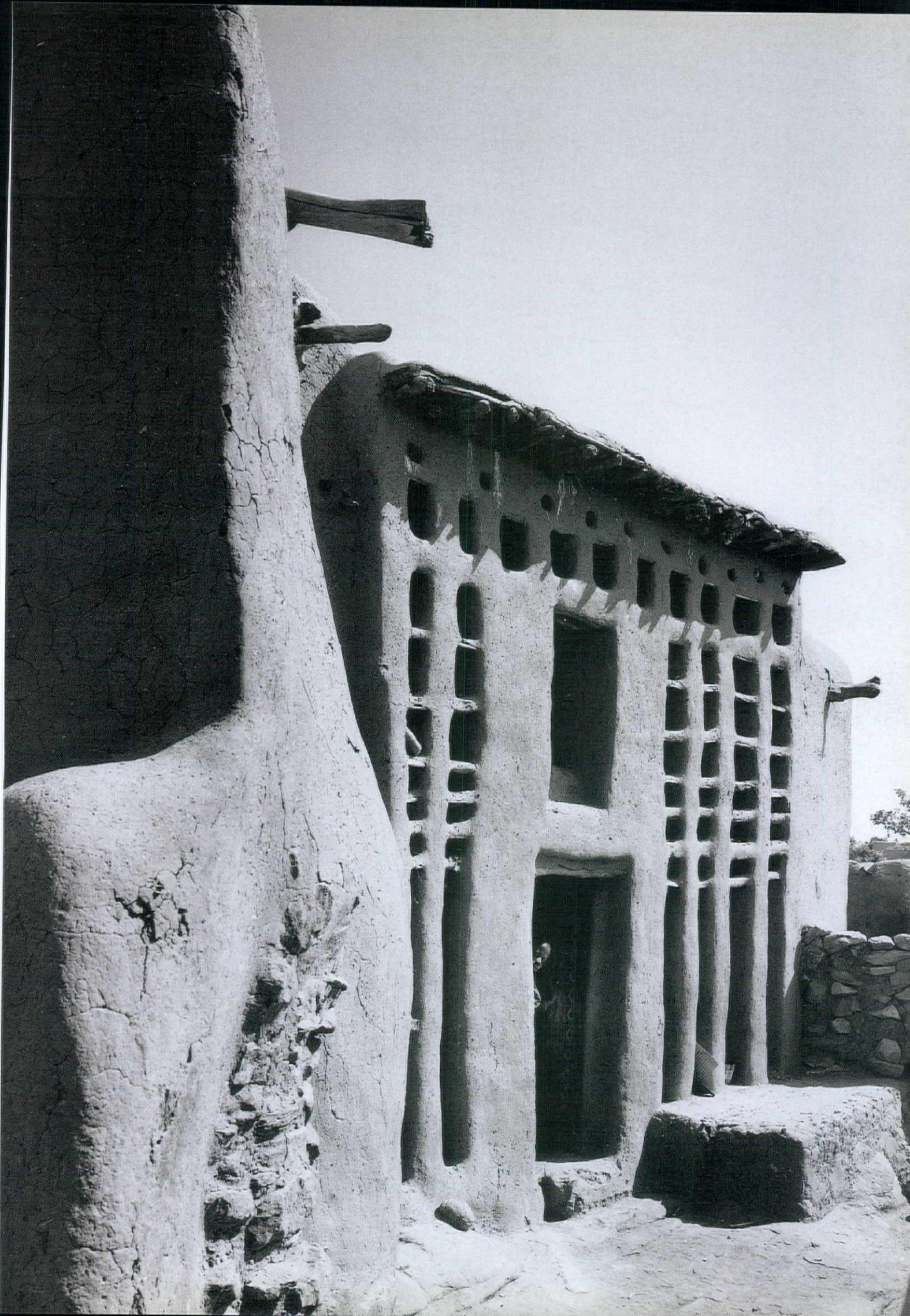
It is a gradual process of extinction. Already the extraordinary upturned jelly mould houses of the Mousgoum people of Cameroon are gone, soon those of the Kassena and Gurensi in Ghana will disappear. The Sakho houses of the Boso in Mali are all abandoned and in ruins. It is quite possible that when west Africa emerges from below the poverty line there will be little of its built heritage remaining to be appreciated. The saving grace is probably Islam, ever expanding and building more mosques, but even then only in rural parts. In cities, the mosques funded by Wahabi Saudi funds are atrocious concrete imitations of a bastardized Middle Eastern style.

In the sparsely populated Sahal plains of the Western Sudan, traditional built forms in mud are the most striking representations of human creativity and a unique part of our world culture – they should not be forgotten.

JAMES MORRIS

These photographs are taken from *Butabu – adobe architecture of West Africa*, James Morris and Suzanne Preston Blier, New York, Princeton Architectural Press, 2003.

Top: house, Djenné, Mali. Mud rendered walls have to be resurfaced regularly. As the mud dries it cracks, forming a delicate textured surface. The gently moulded structure behind the wall is a covered staircase opening onto the flat roof. The shape will subtly alter each time it is re-rendered.
Bottom: house, Djenné, Mali. The blank facade with tiny openings for windows is a traditional style for the Djenné house. Domestic activity is concentrated in the open courtyard to the rear.
Right: Sanam Mosque, Niger, designed in 1998 by Abou Moussa who travelled hundreds of miles from Yaamaa to this inaccessible region in the north of the country. It was built in 45 days by the whole village and appears to be the largest and most striking recent mud building in Niger.

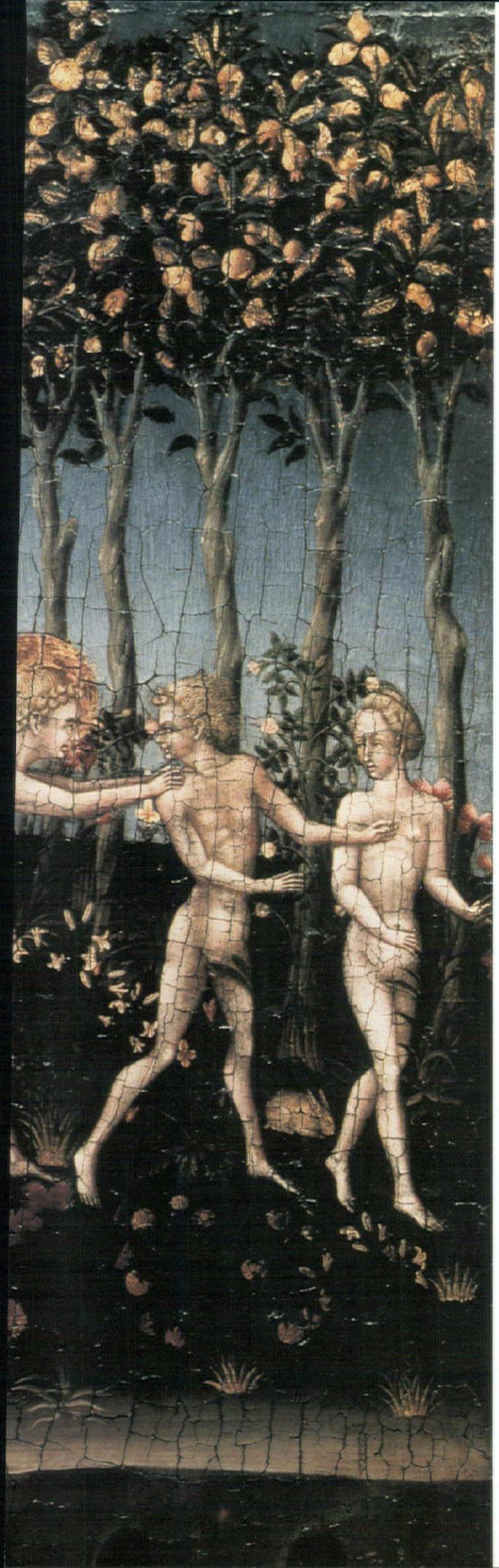




theory



1
Giovanni di Paolo: *The Creation of the World*, 1445. Left, the abstract laws that underly nature; right, the projection of ourselves into cosmic history – the battle between science and religion that dominated the modern world. (Metropolitan Museum of Art, New York. The Bridgeman Art Library.)



It is usual, when believing oneself original, to reinvent the wheel. In garden art and thinking about nature this danger is particularly acute, especially in an ecologically-sensitive age. John Dixon Hunt, professor of landscape architecture at the University of Pennsylvania, has written a useful analysis, *Greater Perfections – The Practice of Garden Theory*, that reveals how one designer after another reinvents a logical truism: that there are three fundamental natures. This tripartition is a trap lying in wait for unsuspecting garden designers who, like God, intervene in the world of natural laws and unfolding evolution trying to make nature or the world into a better place. Yet it is also a very suggestive way of thinking about design that can be added to and perhaps altered. What are 'natures 1,2,3'?

The first is wilderness, the undomesticated wild that was common in the age of hunter-gatherers; the second is made up of productive fields, orchards and farmyards, among many Neolithic inventions; and the third consists in what is historically-speaking relatively recent: gardens, pleasurable places where art and thought are brought to bear on nature. 'Nature thinking about nature' the last type might be called, in so far as we consider ourselves a part of it. Christians might consider themselves separate from this realm for obvious reasons: Darwinian nature can be cruel and wasteful; sunsets, flowers and crystals can be vulgar and kitsch. But, on the whole, *Homo sapiens* since the first cave paintings has tried to relate itself to the cosmos, and understand it. Nature worship, 'biophilia' as E. O. Wilson calls it, and curiosity about the universe, are hard-wired into our species even as we know that natural selection is 'red in tooth and claw'.

Hunt's title is gently polemical. Gardens are a *Greater Perfection* than architecture because, in the words he quotes of Francis Bacon from 1625, they are the culmination of a civilizing process: 'When Ages grow to Civility and Elegancie, Men come to *Build Stately*, sooner than *Garden Finely*: as if *Gardening* were the Greater Perfection'. Today a cynical age would misunderstand his message as 'you pay for the building first and then if there's any money left it might go towards a garden or landscape', a vile idea.

Hunt shows how 'the idea of three natures' has underlain landscape design since the sixteenth century and been reinvented, consciously or not, ever since. Cicero, apparently, first described second

NATURE TALKING WITH NATURE

Charles Jencks has always believed in the importance of symbolism in garden art. Here, he explains how he has used gardens to interpret humanity's place in nature and the cosmos. Many of the illustrations are from the Scottish garden created at Portrack House in Scotland by Charles Jencks and his late wife Maggie Keswick.

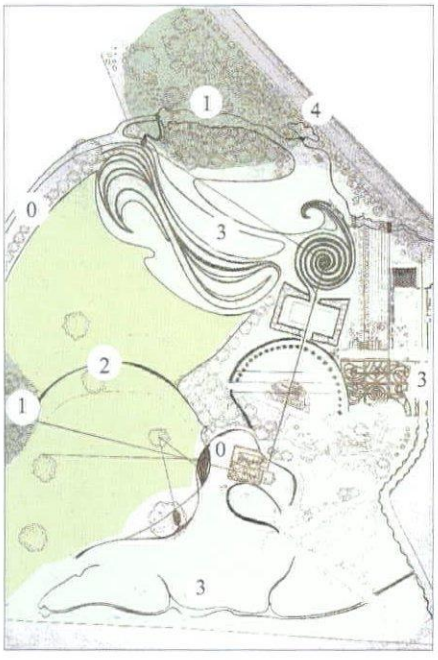
nature as sowing corn, irrigating soil, farming generally and damming rivers. But it was not until the golden age of Italian gardens that 'third nature' was explicitly added to the corpus making it a kind of evolutionary progression from primitive wilderness to functional agriculture to aesthetic communication with God's work. It was a schematic evolution that we still follow today, from the age of hunter-gatherers to the Neolithic revolution to the age of great civilizations. For instance, one can follow such a progressive route at the Villa Lante near Viterbo starting at the wild park and then moving down the cascade to culminate in the sixteenth-century present, the ornamental fountains and the iconography of the Cardinal who commissioned the layout. That was an Italian version of progress. In 1541, Jacopo Bonfadio among others, coined *una terza natura*, as nature improved by art, and subsequently many designers so conceived it. The aerial perspectives of the Medici villas, the grand vistas of Louis XIV, the planning of English country houses show this sequencing of nature as seen from the architecture (2). Usually, unfolding from the house, it procedes from 'nature 3' to '2' to '1' (ornamental garden to domesticated fields to far wilderness), but any combination is possible and even when the English convention for 'naturalness' or 'informality' appears to dominate, a mix of types is usually smuggled in. The point is this tripartition is logical as well as epistemological and evolutionary: nature divides naturally into the untended, the functional and the intended.

The trap

So it is no surprise that, when lecturing and designing, I fell unwittingly into the trap. For a soon to be abandoned railroad track in Scotland that Network Rail can no longer use, and the bridges along it (2nd nature), I envisioned a set of small mounds (3rd nature) surmounted by shrubs left to go wild (that is, 3rd nature becoming 1st) (4). Old railroad cars will be filled with soil, put on the disused track, and have holes punched in the roof so trees can grow through the ceiling. A Surrealist dream of ageing industrial artefacts juxtaposed to living nature, and each treated as evolving, interacting beings has been around for generations. The project is under way and not very original except in the polemical oppositions of machinery and growth (as I shall explain).

But, in one way, the tradition of three natures has been extended and inverted. For all of these types rest, conceptually, on what I have called 'zero nature', the planet, that level of nature that interests me particularly – the cosmos, its laws, the underlying physics. We say that a hurricane, earthquake or volcano is 'an act of nature' (and so from a legal and insurance point of view it is). Gravity, electromagnetism and light show 'the laws of nature' and all living nature – that is numbers 1, 2 and 3 – derive from, and are dependent on, these more basic laws, their constants and materiality. Thus it follows that in landscape and garden design one is using nature to present different Natures in an artful form or, since we also grow, live and die, a garden creates 'nature talking with nature' (as my title puts it). Part of the point is acknowledging the juxtapositions and conflicts between the types. The Nobel Laureate, the chemist Ilya Prigogine, often spoke about the new sciences of complexity as being 'in a dialogue with nature' because they revealed the dynamic processes of feedback and change over time. This transformation is the essence of a garden, and those I am constructing are chiefly engaged with presenting zero nature in conversation with the others. Often this discourse is carried out, literally, with letters, phrases, a rebus, and unfolding DNA codes – in short, an iconography referring to zero nature built with non-living matter, or sculpture (7). Zero nature, on one level, simply is dead, but self-organizing, matter.

One set of gardens concerns landforms made from sand, gravel, topsoil and turf sculpted into sharply edged curves. The curves derive from the context and various functional objectives, but the underlying iconography derives from the way nature often self-organizes into flowing fractals. Plato, Cezanne and Le Corbusier were only a little right. They thought that underlying nature were cubes, cones and spheres – the primary solids – whereas Benoist Mandelbrot has shown that *most* of nature is actually based on fractals. These self-similar forms are often pulled together by 'strange' or chaotic attractors. For instance, the weather has two attractor basins that, visually, produce oval swirls with a butterfly shape. And that form led to what is called the famous runaway process known as the Butterfly Effect. The heart and brain also produce attractor basins. Galaxies, like hurricanes, usually self-organize in highly vis-

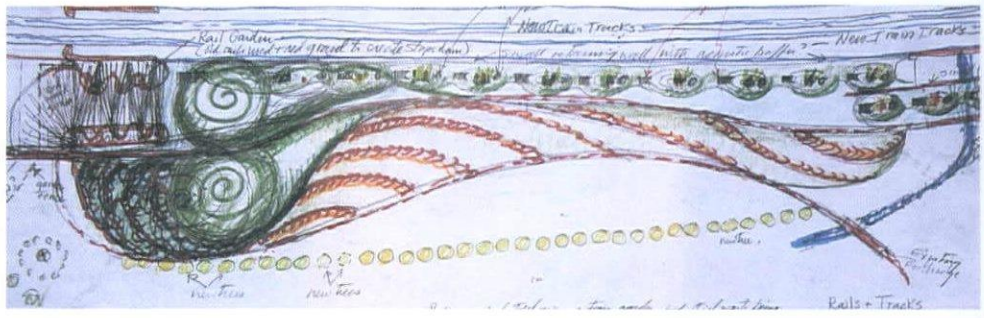


2



3

2
Plan of Portrack House and garden, showing different natures: 1, wild nature; 2, pasture (utilitarian nature); 3, garden nature (nature improved by art); 4, railroad industrial landscape (inadvertent nature).
3
Maggie Centre, Glasgow, 2003: mound symbolizing DNA, the molecule that when unbalanced can cause cancer.
4
Portrack: plan of railroad garden with acoustic shield of small mounds, artificial trains and superposition of natures 0,1,2,3,4.
5
Portrack: Snake Mound with Henon Attractor.



4

ible spiral-attractors, and the biggest thing in the universe seen so far is the wall of galaxies given the Texan designation 'The Great Attractor' (because it pulls in everything around). It seems to me obvious that garden art should present these recently discovered truths about zero nature, and do so with drama and delight because they are the very ground of our being. What do landscape attractors look like?

Attractors in the garden

When sand and gravel are pushed around by ploughs, and eroded by rain, they naturally form into curved basins. I explored various such shapes and found that they also related to the Henon and Ueda Attractors (named after their discoverers) (5, 6). Functionally, landforms are superimposed pathways, but they are also something so obvious that it had escaped me: living contour maps. In effect, those layered models of cardboard, that every student labours to construct as a base for architecture, have an extraordinary aesthetic already built into them. It only waits to be articulated. But it took me awhile, and the construction of four such landforms, before I fully realized the potential for following and crossing these lines, and understood how important it is to get the curves continuous and sharp. The art of landforms, although primitive, consists in laying the topsoil with a sharpened edge so that when the turf is put on, it can continue the strong line. In morning or evening sunlight the curved paths then cast clear shadows, the shapes pop into focus, and the landform has a physical or haptic presence. Without such sharp lines they lack life. A comparable case for water can be made. Every landform needs its counter or opposite to bring out its quality, either a body of water, or a hard material like metal, concrete, plastic or stone (7). In effect, the underlying zero nature is being dramatized by third nature, a strange attractor presented by a highly artificial garden.

In a Scottish garden that I started with my late wife, Maggie Keswick, we worked on these landforms together; she designed the lakes, I the mounds, and they all followed self-similar curves. Later, after she died, I worked on many areas of the garden that needed completion and began to focus more clearly on the idea that one should use nature to interrogate nature's fundamental secrets and her main elements, or events, of self-organization. The atom and Gaia (the earth as a self-sustaining system) were obviously salient units, and after working with scientists on various models of these, I went on to explore the black hole, the DNA molecule, the universal notion of symmetry breaking and the universe as a whole (8). At this point, in 1996, I started to conceive of the project as 'the garden of cosmic speculation', and see it partly as a critique of reductive science and its dumb metaphors ('selfish genes', 'big bangs') and partly as a traditional instrument to celebrate the cosmos. In these two ways it was just a continuation of the post-modern project, a resistance to the reigning notions that architecture and art must be abstract and that we live in a mechanistic universe.

Of course, the universe on one reading *is* highly abstract and some of its laws are mechanistic and deterministic. The argument for abstract art was partly motivated by this recognition and attempted to embody the fact that so much contemporary science could only be represented by equations (and they *are* a form of ultimate abstraction). Indeed, there is the argument put by Alfred North Whitehead, the philosopher, that modern science was invented once and only once, in the West (and not in China where technology was much more advanced) because of the propensity of Western thinkers to believe that God, although laying down very complex laws, was a reasonable, mathematically-inclined geometer. His work was, as Einstein said, 'subtle but not malicious' – after inventive labour it could be understood. Hinduism, Taoism, Islam, Confucianism and all the other faiths did not have the faith that the world was ultimately decodable into rational equations.

Western science, religion, art and architecture of the Late Middle Ages and Early Renaissance were motivated by the attempt to find, and then represent, the underlying truths of zero nature – or the abstract laws. There are many wonderful paintings of this metaphysics and one in particular, *The Creation of the World* produced by Giovanni di Paolo in 1445, makes this and another key point (1). It shows a male God coming down from on high, generating, to the left, the abstract laws and constants: perfect inscribed circles, planetary orbits, and the elements of earth, air, water, fire. However, to the right, is the other side of Christianity that is so important to the



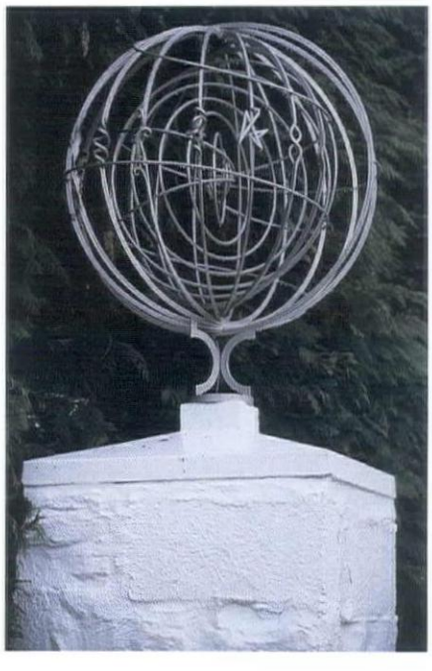
5



6



7



8

6
Edinburgh Gallery of Modern Art garden: Mound with Ueda Attractor.
7
Maggie Centre, Inverness, mounds connected by shifted figure, in stone and astroturf, signifying how health is achieved through constant communication between cells.
8
Eight jumps of the Universe: in centre inflationary period, then ripple period, galactic clouds, emergence of stars, Great Wall of galaxies, solar system, life and DNA, plants and animals; outer shell, language and culture.

unfolding of modern science: the narrative history of our place in the universe, the projection of ourselves into cosmic history, from the Genesis myth to the final judgement. On one reading, this duality presages the battle between science and religion that has dominated the modern world since the seventeenth century. And literally the picture shows the expulsion from the garden of Paradise.

Christian hubris?

But on a broader plane the whole painting, and similar ones of the time, depict humans built in God's image and undergoing a cosmic process, from initial creation of the universe through ancient times to the present. Put in psychological terms, they reveal an extraordinary confidence, even hubris. Compared to other religions that conceived mankind as insignificant, or subject to the will of Allah, or simply the victim of nature, they launch the species right onto the cosmic stage, its unfolding. Here is the most Faustian leap of imagination: we are actors in nature and time, essential parts of the universe story, main protagonists not doomed sinners or abject sufferers. It was this narrative that gave Christians the self-assurance to think they had an essential cosmic role to play, they could decode God's subtle laws, and believed that the universe was ultimately a benign, meaningful and just place. Hence the untiring motivation to discover the counter-intuitive laws of zero nature. The other idea that flows from this painting (or can be extracted from Judeo-Christian thinking) is the corresponding dual nature of understanding. The cosmos is both an abstract set of laws – the four elements, the perfect circular orbits, Platonic solids etc – and a particular history, a one-off event, a singular evolutionary chain. Therefore it must be grasped in two ways, perceived through opposite codes, the abstract and representational. Today in the Post-Christian West we still keep such a dual world view: the universe is conceived as having universal laws but unfolding in a contingent and unique narrative. It is this mixture of abstraction and singular history, necessity and chance, order and chaos that is so potent and engaging. It led me to present the history of the universe in three parts of the garden, that 13.7 billion year story that has sublated the Genesis narrative (and much else besides).

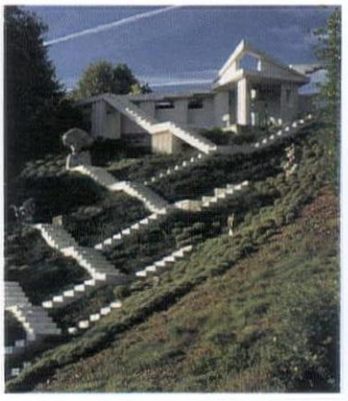
Using a garden to narrate this singular event is particularly appropriate because one can use zero nature (non-living rocks, water, equations, structural forces, diagrams etc) and third nature (garden art) to tell the many-layered story of Nature (natures 0, 1, 2, 3). The place where this narrative is most developed is the cascade at the centre of the garden (9, 10). One approaches this heart through a zig-zag of resisted motion to find water flowing down the hill, while time flows up – from the beginning of cosmic evolution. Each major stage, or jump, in the universe story is given a platform and set of rocks to present both its abstract law and concrete moment, the duality of law and frozen accident.

The new universe story reveals a continuously unfolding, creative event – one still growing since the original expansion – and it includes us in its plot, even if we are not the pinnacle of evolution, or the centre of all things. Moreover, the evolutionary mythos that has begun to dominate thinking in most areas gives a new twist to the old metaphor, 'nature red in tooth and claw'. Not only does it show a Gaian nature, 'green and wrapped in an embrace', but a cosmic process, a cosmogenesis, 'unfolding in jumps towards greater complexity'. That is, it shows different levels and meanings of Nature. Darwinian nature, that view which dominates the Britain of Richard Dawkins and the America of Bill Gates, is only one of several and not, in spite of their efforts, the most powerful. Garden art should examine the tired, reigning metaphors and show their limits; a garden, as Ian Hamilton Finlay has said, is not just a retreat but an attack. How does this critique fit into our schema? In effect, cultural criticism, mostly nature 2 and 3 (that is, second nature as habit and third as art) is challenging the established habits of gardening, and dominant view of nature.

This conflict is presented several times in the Universe Cascade. In terms of the 13.7 billion year event, the story of human evolution from the primates gives meaning and intelligence to this extremely long but not infinite narrative. It gives an eye and heart to nature, not the first but the most sensitive and developed we know (the eye is a recurrent icon in the garden). Furthermore, the human story reveals the truth that culture, a form of second and third nature, uses its understanding



9



10

9, 10
Heart and culmination of Portrack garden: Universe Cascade – platforms depict different eras; time flows upwards, water down.
11
Portrack: Modernity Platform on Universe Cascade – the conflict of ecology and economy; the battle between natures 1 and 4.

of zero nature to change the world. Hence genetic engineering, hence the countless ways the laws of nature have been momentarily suspended (for instance, gravity has been overcome by assisted flight).

A type of new nature?

Lastly, and some would think most importantly, we are living at a time when culture and the economy are becoming so big with respect to the ecology of earth, or the self-organizing system of Gaia, that our by-products are themselves becoming a type of new nature. At the risk of coining a fourth type (writers are only allowed one neologism per article) we could say that the global economy (and its attendant pollution) is itself 4th nature. Why add to an already Byzantine set of distinctions? Because, ever since Adam Smith showed that the economy self-organizes as a by-product of primary intentions (self-interest plus regulated competition), it has been conceived as having its own semi-autonomy. Presidents and prime ministers may be able to tinker with the exchange rate, but no country has controlled the economy for long: it grows like a tulip and shrinks in anorexia, it explodes in booms and bursts as bubbles. Fourth nature, cultural by-products, are today the site of architectural investigation as designers study the implications of city growth and decline through their diagrams and datascapes. This area has particularly motivated the Dutch groups MVRDV and UN Studio, and the recently named science of emergence claims part of the territory.

The conflict between the global economy and the planetary ecology (4th versus 1st nature) culminates the period of modernity. This is why the modern rust belt and the contradictions of capitalism occupy a key platform near the top of the Universe Cascade, and they become a focus for iconography (11). Sculpture, flowing water, mirrors, growing moss, rocks, beautiful shells, money, rusting kitchen equipment, pizza knives and words vie with each other in this fundamentalist battle of the two ecos – the economy and ecology.

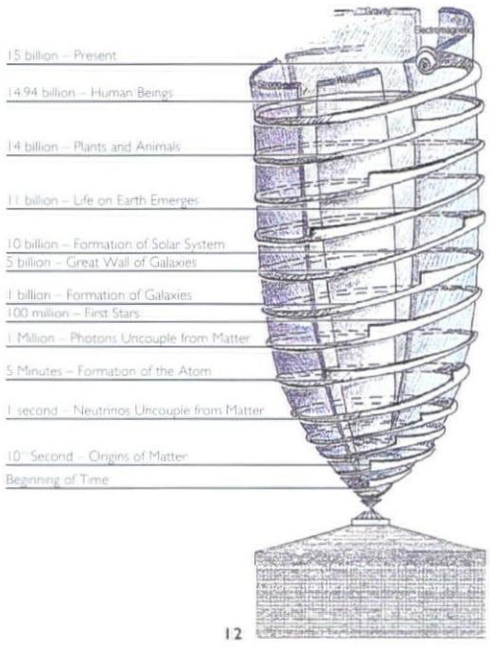
Is this the hybrid of Installation Art or just the old mixture of landscape and other things? My intention here and elsewhere is to produce a kind of cross-coding between levels of nature, to juxtapose and merge the laws of nature as diagram and performance with the other types of nature. Working with scientists and cosmologists I have come up with a diagram that shows the universe developing as a spiral-cone (12). It is held together, indeed balanced exquisitely, by the four fundamental forces: gravity, electromagnetism and the strong and weak nuclear force. Not only does it evolve gradually, but in relatively sudden jumps of organization. These can be diagrammed as platforms on a continuous spiral stair. So far, so easy, but then this diagram has to be translated into a planar cascade that leans against a hillside, and this requires all sorts of organizational decisions that manifest the underlying structure. The resultant new diagram thus becomes one of continual expansion in fits and starts, of progress with regressive moments, and the temporal order becomes a sequence of jumps – two platforms forward, one backwards, and so on up the hill (13). (It would be nigh impossible to build a spiral leaning against the hill that one could climb up while water flows down.)

Do people have to understand all this – for instance, be familiar with the evolution of the universe to respond to those parts of the garden where this story is told? It seems to me better in the first instance if they come on these installations in the right frame of mind, interpreting and feeling the garden according to their mood and the few cues provided, *not* as if they had to pass an examination in astrophysics. Since in garden art, as others, there is always more significance than intended, and since perception is best as an active, projective affair, the intended meanings can be secondary or left to be uncovered later. On the other hand, the kind of cosmogenic art that interests me engages the mind and makes claim on deep truths that are revealed at a certain time and place. It manifests such things as diagrams of nature – forces, laws, mental constructs, truths of the universe – that appeal only to those who take the trouble to decode them. Symbolic art is most effective when it stimulates the search for meaning and turns it into a basic part of the experience. Of all the arts, gardening is well positioned to engage in that dialogue of natures – cosmic, physical, organic and human – that captivates the mind and senses. CHARLES JENCKS

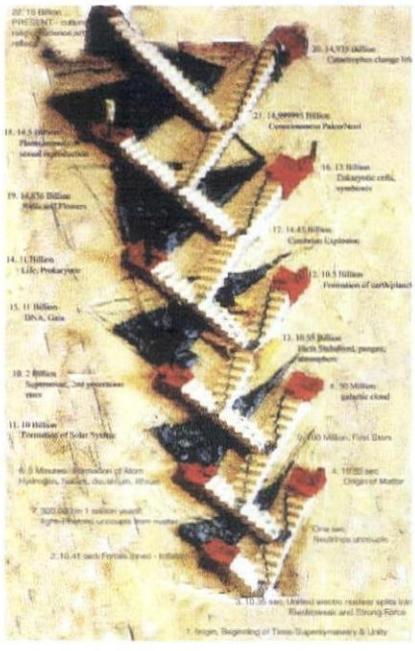
Charles Jencks' *The Garden of Cosmic Speculation* was published by Frances Lincoln Ltd, October 2003. John Dixon Hunt's *Greater Perfections, the Practice of Garden Theory*, was published by University of Pennsylvania Press, 2000.



11

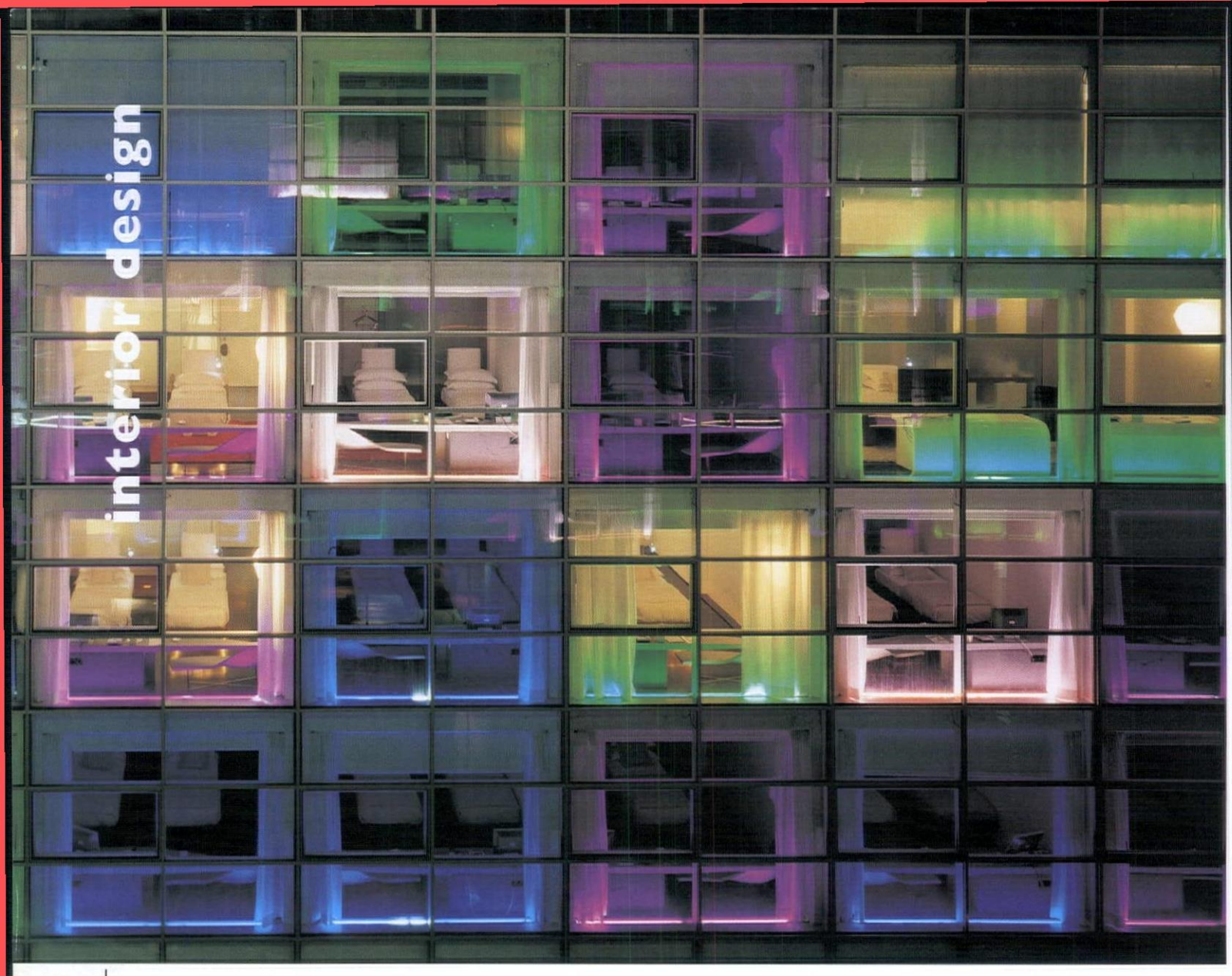


12



13

12
Jumping universe as spiral diagram held together by gravity, electromagnetism, and strong and weak nuclear forces.
13
Universe Cascade as spiral translated into zig-zag or flat spiral on hillside. Jumps depicted in rock, metal, concrete, ceramics and fused glass.



1

HOTEL, ROME, ITALY
ARCHITECT
KING ROSELLI ARCHITETTI

The Es Hotel in Rome is up on the Esquiline Hill across the street from the southern flank of the magnificent Termini station – a quarter from which tourists normally wish to flee as soon as possible, even when they arrive by train. Yet with the new hotel, and a plan for restoring the whole area to late nineteenth-century glory, the Esquiline has begun to look up.

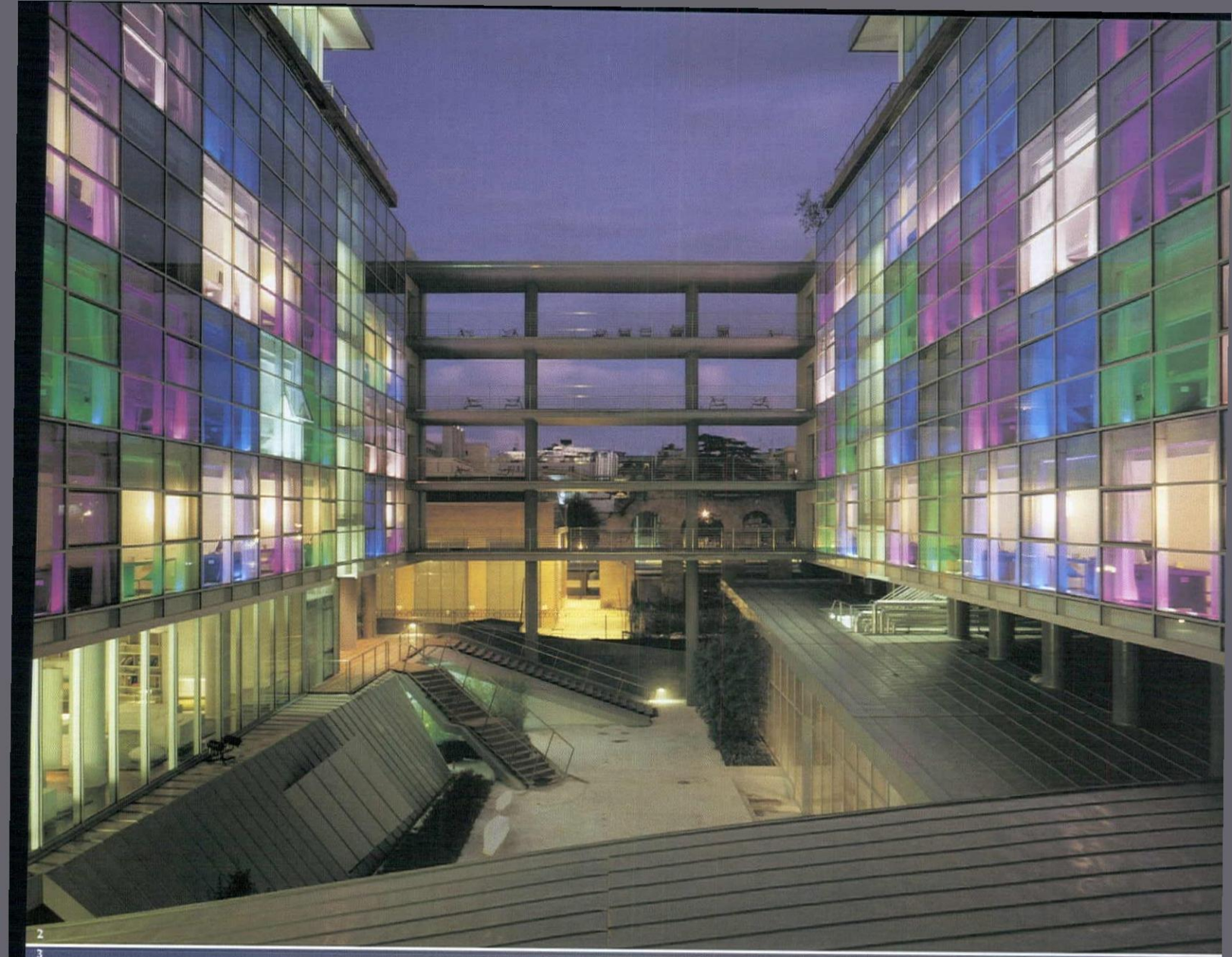
The project has two halves: the hotel and a massive car park. Originally (under another architect) the plan was to put the hotel on top of underground parking. But the discovery of Classical remains under a large part of the site put a stop to that. So the building was divided vertically instead of horizontally, with a multi-storey car park to the west end of the block and the hotel to the east. The ancient ruins are under the car park, which itself is formed as a bridge above ground to allow public access, and to prevent destruction of the Classical layer by modern foundations.

One of the planning rules for the block was that, despite its radically different functions, it should be unified visually. Hence perhaps the fact that the public areas of the hotel are in curved planes that emerge from the ancient level to enclose the conference hall and lobby; the device allows you to look down on the ruins from entrance level. Similar curves are used in the roof, enclosing restaurants, bar and fitness centre (all surrounded by terraces). So all the public spaces of the building are defined by curving ceilings and glass walls. At terrace level, these give magnificent views over the city and some of the surrounding countryside, for the Esquiline is

1
The great variety of bedroom types is emphasized by idiosyncratic lighting.
2
Central court opens to east.
3
Reception desk glows at night like a gigantic sea-anemone.

Es on the Esquiline

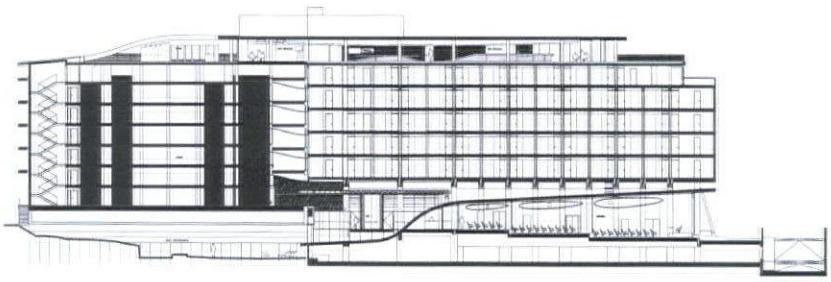
A new hotel is intended to help revitalize one of the seedier areas of central Rome.



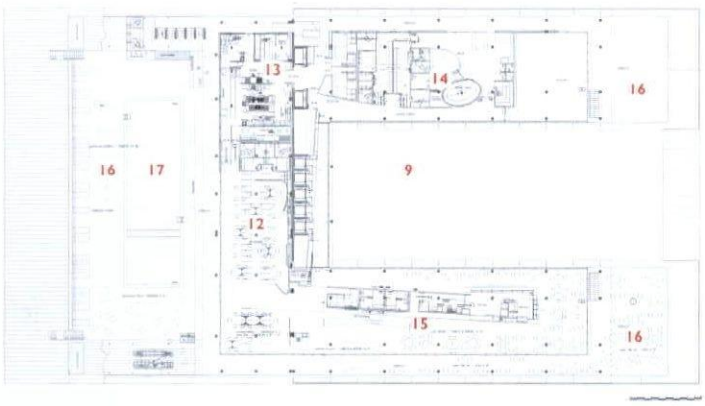
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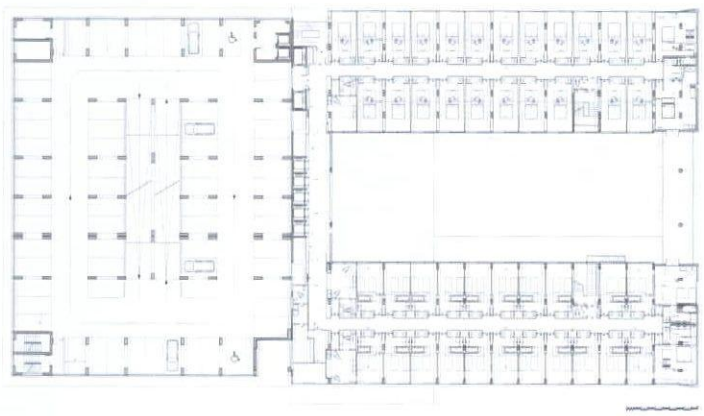
3



west-east section

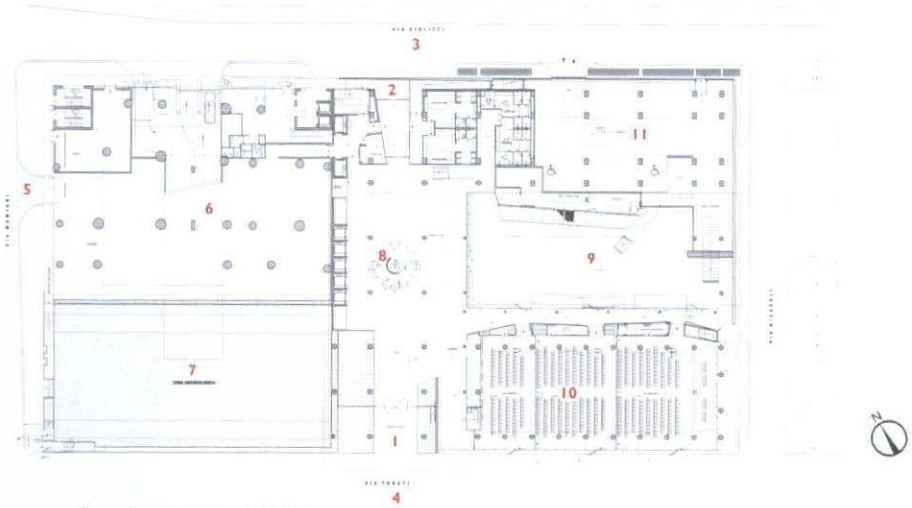


top floor



typical (parking and bedroom) floor

1 main entrance
2 secondary entrance
3 via Giolitti
4 via Turati
5 entrance from via Mamiani
6 garage
7 Classical remains
8 reception desk
9 court
10 conference suite
11 hotel parking
12 restaurant
13 kitchen
14 fitness centre
15 bar
16 terrace
17 pool



entrance floor (scale approx 1:1000)

one of the highest hills in the city. Individual hotel rooms, of which there is a great variety, are arranged along double-banked corridors round a tall, rather narrow central court which is virtually open at its east end to prevent claustrophobia, and to open views to a small local park and a long disused theatre, now in the course of restoration. So all bedrooms either look outwards over the railway or the city, or inwards to the court. Some ten types of room have been made, varying from standard ones with the bathroom in a glass cubicle dividing the overall space, to double rooms with the bath in the main space to allow guests to receive visitors informally. Each of the 235 rooms has a coloured light under its window to animate the elevation and to provide a sense of individuality. Materials range from mahogany to wool and linen rugs, with foam-backed pvc somewhere in-between. Furniture is specially made in grp with slightly rubbery metallic paint. The architects were allowed to make a true *Gesamtkunstwerk*, so they designed everything down to light switches and lavatory brushes.

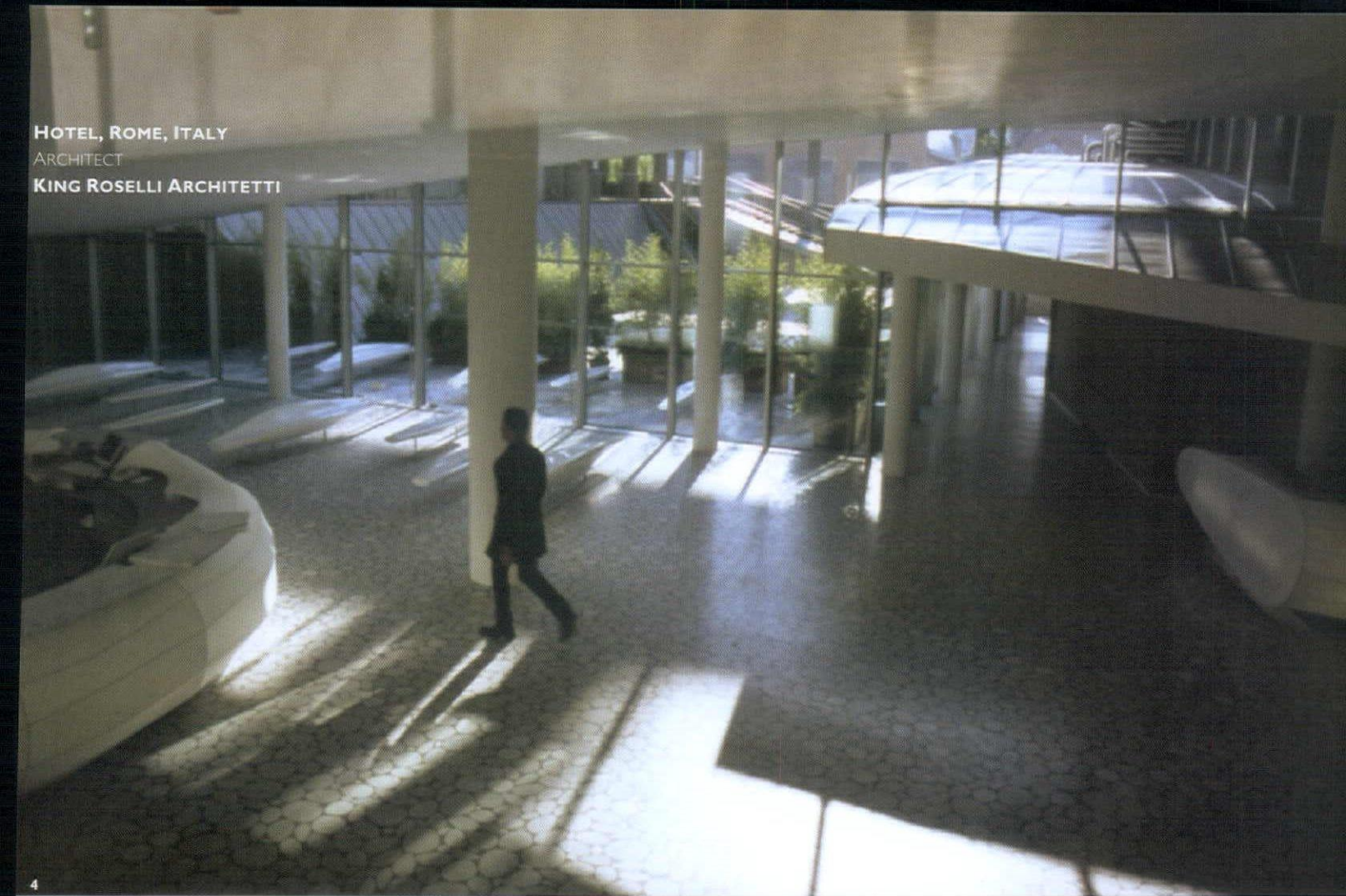
Similar thoughtfully based playfulness informs the public spaces. A chief aim was to make each space distinctive. What at first may appear wilful (for instance the curved ceiling of the conference hall) often has practical purpose (in the hall, what the architects call the 'clouds' contain all the acoustic, ventilation and projection kit). On the top floor, the floor peels upwards to form counters, and restaurant storage walls peel away to become flexible partitions. The architects certainly had a lot of fun.

MARY GODWIN

Architect
King Roselli Architetti, Rome
Project team
Riccardo Roselli, Jeremy King, Andrea Ricci, Claudio Dattilo, Marina Kavalirek, Riccardo Crespi, Annalisa Bellettati
Photographs
José King, Santi Caleca and Luigi Filetici

4
Entrance hall: like most public spaces has curious curves and glass walls (here overlooking court).
5
Conference hall: curved clouds in ceiling contain technical kit.
6, 7
Curves emerge again on top floor in bar and restaurant.

Hotel, Rome, Italy
Architect
King Roselli Architetti


4


5


6


7

HOUSE, LOS ANGELES, CALIFORNIA, USA
ARCHITECT
LORCAN O'HERLIHY ARCHITECTS

Skin job

Wrapped in a lightweight, chequerboard skin, this LA house maximizes a tight site.

When architects house themselves, the opportunity to cut loose is constrained by the need to live in what they've created and the desire to put their talents on show. Lorcan O'Herlihy has mastered many precipitous lots in LA (AR October 1996), but he set himself the challenge of building a 230 sq m house for himself and his wife on a vestigial plot of flat land beside a busy street in the oceanfront neighbourhood of Venice. The product of his inventiveness is rigorous, roomy, frugal, and eye-catching: a major step forward for a burgeoning practice.

In essence, it's a steel-framed box that makes maximum use of a 12m x 6m footprint. The ground floor is cut away to provide a double car port with a studio at the back; the first floor contains the master and guest bedrooms; the second, a living room to the rear and kitchen-dining in front. These spaces form a racetrack around a central stair that rises to a glass-walled pavilion on the roof terrace, which serves as an outdoor room with an ocean view for entertaining or a spot for quiet retreat.

The house is defined by its skin: a chequerboard of painted cement board and varied glass. O'Herlihy is a painter as well as an architect, and his geometric collage is infused with jazz rhythms in the manner of Mondrian's 1943 painting *Broadway Boogie Woogie*. Working within a 600mm module that emphasizes the verticality of the facades, he has positioned windows of clear, coloured, and translucent glass to cut across the floor plate and blur the division between the two levels. A fence of the same coloured board protects and conceals the base of the house from the street, creating a seamless, and apparently impenetrable container.

The flush skin defines the inner volumes, in which walls and ceilings are cut away to accommodate the glass and recessed lighting. The small openings frame pieces of neighbouring buildings, trees, and the street below, creating living artworks to complement paintings hung in the spaces between. By day they admit shafts of differently toned light from the pale blue, green, yellow, and clear glass, which animate the rooms; at night, there are fugitive gleams from street lamps and neighbours'

1
Clad in a jazzy geometric skin, the house makes inventive use of a constricted urban site.



perspective from street



perspective from rear

ar house



windows. There's a sense of being inside a magical box that has fragmented and reordered the outside world.

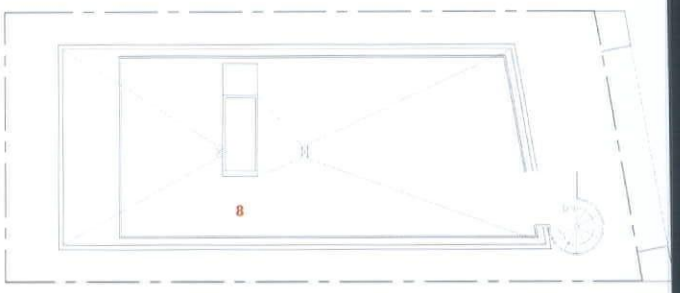
The narrowness of the openings assures privacy, there are lightweight clip-on shutters for the bedrooms, and windows are double-glazed at the front to exclude traffic noise. A wall-mounted cabinet is raised above a window in the living room, so that it appears to float in the light. To maximize useful space on each floor, the bathroom is tucked under the central staircase, and built-in cupboards have sliding doors suspended from ceiling tracks. To achieve precision of detail and finish, O'Herlihy employed a steel frame and metal studs, in contrast to the conventional wood-frame construction of houses in LA. The cement board, chosen because it doesn't expand and requires little maintenance, is backed by a waterproof membrane. Sharp-edged yet accommodating, this is truly a machine for living in.

MICHAEL WEBB

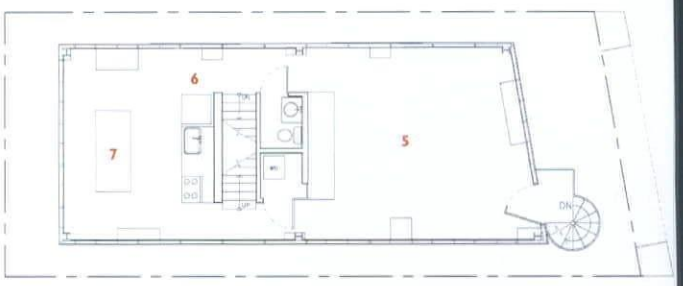
Architect
Lorcan O'Herlihy Architects, Culver City, USA
Photographs
Michael Weschler

HOUSE, LOS ANGELES, CALIFORNIA, USA

ARCHITECT
LORCAN O'HERLIHY ARCHITECTS



roof plan

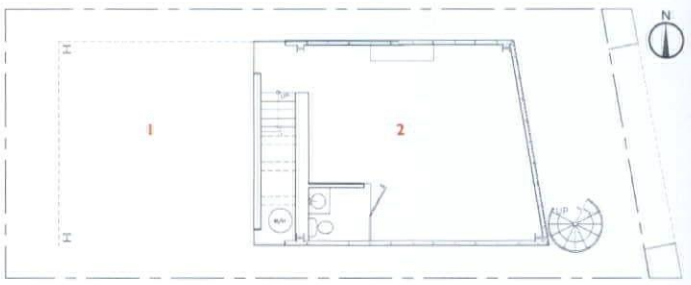


second floor plan

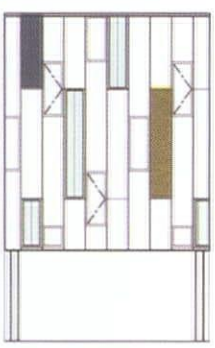
1 car port
2 studio
3 master bedroom
4 guest bedroom
5 living room
6 kitchen
7 dining room
8 glass pavilion



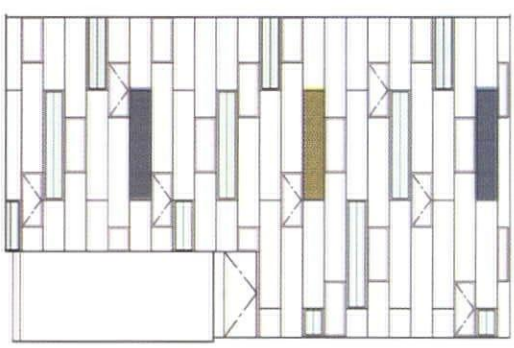
first floor plan



ground floor plan (scale approx 1:250)



west elevation



south elevation

2
Living room is animated by different coloured light and changing views.
3
Kitchen and dining room (with contented feline occupant).
4
Main bedroom. The effect is like being inside a magic box.









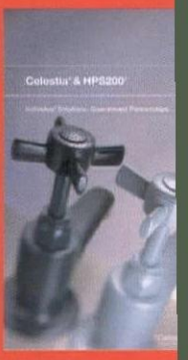
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Royal Academy Forum

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Royal Academy of Arts

MEANING, MAPPING AND MAKING OF LANDSCAPE

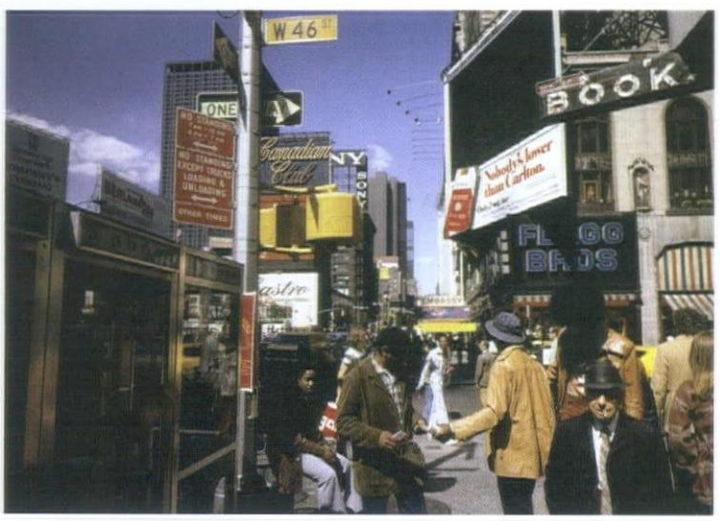
Landscape has long been a source of inspiration. RA Forum invited art historian Malcolm Andrews, author of *Measuring America* Andro Linklater, artists Simon Callery and Hamish Fulton, film-maker Patrick Keiller and architect Farshid Moussavi to discuss the Meaning, Mapping and Making of Landscape. Edited by Jeremy Melvin.

MALCOLM ANDREWS

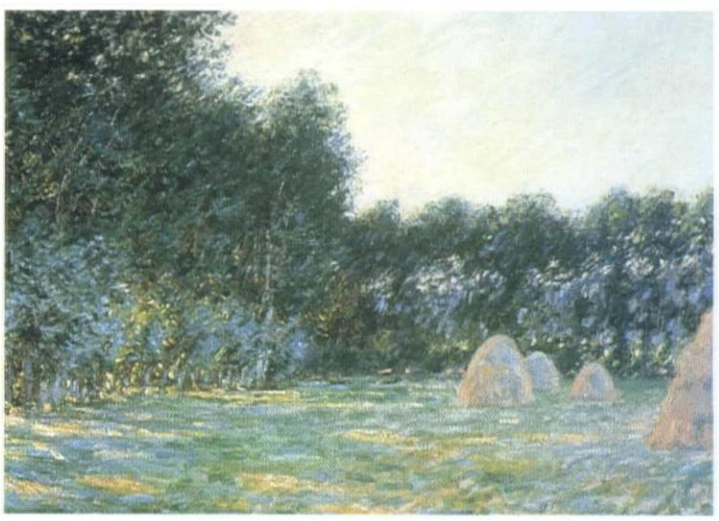
Origins of the term 'landscape' seem to lie in northern Europe: the Dutch, Belgian, German terms, Lantschap, Lantskip, Landschaft respectively. Sometimes it was used to designate land in the immediate environs of a town or city, not just natural scenery. When eventually used in terms of art, it designates the area of a religious painting that forms the setting for the central drama and its protagonists. Thomas Blount's *Glossographia* (1670) gives a definition that might have applied to the term through much of the early modern period:

'*Landtskip* (Belg) Parergon, Paisage, or By-work, which is an expressing the Land, by Hills, Woods, Castles, valleys, Rivers, Cities &c as far as may be shewed in our Horizon. All that which in a Picture is not of the body or argument thereof is *Landskip*, *Parergon*, or *by-work*. As in the Table of our Saviors passion, the picture of Christ upon the *Rood* (which is the proper English word for *Cross*) the two theeves, the blessed Virgin *Mary*, and St *John*, are the argument: But the City, *Jerusalem*, the Country about, the clouds, and the like, are *Landskip*.' It is the outdoor setting for the principal dramatic action, and includes towns and settlements as well as countryside scenes. However, it was during the Enlightenment that Landscape became more emphatically associated with natural, non-urban scenery. Romanticism's worship of Nature and of the Sublime in Nature, and its recoil from early industrialization and rapid urbanization pushed Landscape into remoter retreat from signs of developed civilization. We have inherited the Romantic version of landscape. However, modern understanding of landscape often emphasizes its conceptual, cultural significance rather than the topographical or material meaning. Landscape is explored as a mental construct. 'Landscape is Nature mediated by Culture' is an attractively succinct definition, until one begins to ask what exactly is 'Nature'? and question the extent to which 'Nature' itself is a cultural construct? Can we oppose Nature and Culture so easily as this definition suggests? Where do we draw the line between Nature and Culture to preserve the integrity of 'Nature'? These questions suggest that 'tastes' in landscape act as a cultural barometer of civilization's sense of its relationship with Nature.

Images of landscape often evoke sheer pleasure, a pleasure which arises from several possible sources. It might be associations, such as memories of holidays, pastoral idylls, the peacefulness, the slower pace, or a whole imagined way of life. Equally it could be from the space, light, freedom, colour found in landscape. It might also be seen as an antidote, either to an over-controlled domestic environment, or the complexity and pressure of city living. Contrasting Joel Meyerowitz's *Broadway and West 46th Street* with Claude Monet's *Meadow with Haystacks* shows the latter. Meyerowitz gives an archetypal view of the contemporary city. All is oppressive foreground with lots of people but no human interaction against a bewildering array of signs, where Monet offers depth, readability at a glance and softened forms, feathery texture and gentle gradation and soft colour against



Joel Meyerowitz, *Broadway and West 46th Street*, 1976.



Claude Monet, *Meadow with Haystacks near Giverny*, 1885.

Meyerowitz's hard, sharp edges and austere geometry. The metropolis is the new wilderness, but constituted by almost the opposite components to those of the old natural wilderness: instead of a place almost wholly empty of humans and devoid of any artefacts, the city is a place overused by humans and consisting wholly of artefacts.

As we become more urbanized and mechanized, the greater our appetite for landscapes without human presence, or signs of human presence – unless, that is, the human presence is organically sympathetic to landscape, such as shepherds, cottages, or cornfields. The relish for the Sublime – for mountain scenery, horror, mystery and the irrational – arose just at the time when the Enlightenment was celebrating triumphant discoveries of Nature's Laws. In Romanticism the perception of our fragile mutability heightened a sense of Nature's stable, unchanging constitution. That mindset is less and less sustainable now: Nature we know to be a dynamic, changing process, its renewability limited. So the experience of landscape is attuned to our desires and expectations, and to our cultural conditioning.

Since the early modern period, landscape has become an increasingly precious aesthetic amenity. We like to consume it. We put a value on it. On 4 October 1769, while at Keswick, Thomas Gray encapsulated this point, '[I] saw in my glass a picture, that if I could transmitt to you, & fix it in all the softness of its living colours, would fairly sell for a thousand pounds'. Modern day tourists follow Gray's line of thought. They see a grand stretch of lakes and mountains, use the camera to frame a section of the spectacle, and take the picture, supposedly 'fixing it in all the softness of its living colours'. Then they get it developed and printed and offer it for sale, and these terms, 'take', 'capture' and 'fix' all belong to the language of appropriation. Landscape is a commodity. It is commodified as an aesthetic amenity as well as a piece of real estate. In *View from Mount Holyoke*, Thomas Cole schematically dramatizes landscape values in a diagonally divided composition. In the sunlit river valley the new farms, wrested from the wilderness, and the grid of their fields, flourish in a benign, fertile, mappable landscape. Old savage America survives in the unmappable high-country wilderness on the left, as a Romantically precious landscape of the Sublime.

Both the camera's and the real-estate surveyor's appropriation of landscape is in contrast to some modern artistic sensibilities, for whom the appropriation of territory – metaphorical or otherwise – is morally and politically incorrect. Richard Long, for instance, has said, 'I like the idea of using the land without possessing it', and he makes this explicit when referring to his works, they 'are made of the place, they are re-arrangements of it and in time will be re-absorbed by it'.

The artist in the landscape

The history of the artist's relationship to landscape has been one of increasing intimacy with and intervention in the motif. This is partly because we have had too much landscape art. 'Today our sight is a little weary, burdened by the memory of a thousand images ... We no longer see Nature; we see pictures over and over again', said Cézanne in 1902. But Turner expressed the trend towards this intimate connection when he asked, 'What would they have? I wonder what they think the sea's like? I wish they'd been in it'. If the goal is not just to be out in the landscape but to be swept up into the forces of nature, the corollary is, as caught in Giuseppe Penone's, *First Breath* (1977), that the presence of the artist becomes fugitive and ephemeral. In 1999 he said, 'This work is a reminder that every breath we exhale is an introduction of one body of air into another, and that, in a sense, our innermost being is identical to and cannot be separated from the world around us'. We eat, drink, and breathe landscape.

The old dichotomies begin to collapse as artists emphasize their sense of symbiosis with, rather than detachment from, Nature. Sensing an interdependence with Nature, they sharpen ecological and political sensitivities. This profoundly affects the art of landscape in our day. Michael Snow said of his landscape film *La Région Centrale*, (1969): 'I recorded the visit of some of our minds and bodies and machinery to a wild place, but I didn't colonize it. I hardly even borrowed it'.

Acknowledgements

Joel Meyerowitz, *Broadway and West 46th Street, New York (1976)*. © Joel Meyerowitz, 2003/Courtesy of Ariel Meyerowitz Gallery, New York.

Thomas Cole, *View from Mount Holyoke*. The Metropolitan Museum of Art, Gift of Mrs Russell Sage, 1908 (08228). Photograph © 1995 The Metropolitan Museum of Art.

Giuseppe Penone, *'Primo Soffio'*, 1977. Photograph 60x45cm.

Claude Monet, French 1840-1926, *Meadow with Haystacks near Giverny*, 1885. Oil on canvas, 74 x 93.5cm. Museum of Fine Arts, Boston. Bequest of Arthur Tracy Cabot, 42.541.



Thomas Cole, *View from Mount Holyoke*, 1836.



Giuseppe Penone, *Primo Soffio*, 1977.



Trench 10 (2000) from *The Segsbury Project*: Callery's plasterwork, which captures the whole length of a Bronze Age ditch at Alfred's Castle.

SIMON CALLERY

Working alongside archaeologists gave Simon Callery an opportunity 'to see how a painter of the urban landscape from London's East End would respond to a paradigm of the English landscape'. In July 1996 in association with the photographer Andrew Watson, Callery documented a 20m x 40m trench at the chalk excavation at the Iron Age Segsbury Camp in Oxfordshire with 378 black and white images taken from a height of 2.5m. Invited back for the excavation of Alfred's Castle in 2000, he was 'eager to make a work that utilized the actual surface material of the excavation'. This resulted in a plasterwork, poured in 1m x 2m sections, across a 20m x 2m Bronze Age trench, that 'captured the entire chalk surface' rather than just taking its negative form. He discusses his work with Jeremy Melvin.

JM
One aspect of your engagement with landscape seems to be a reverse of the traditional reasons for painting nature. Traditionally landscape painting was a way of suggesting depth and distance beyond the individual, of externalizing feelings, and of setting up hierarchies according to distance from the viewer/painter. Your work seems to draw everything to the surface as if it were mirroring these sensations back to the individual, of focusing inwards rather than outwards.

SC
I think the point where I begin a painting is the point where traditional landscape painting leaves off. I am interested in working with ideas about how and why we respond to landscape (this includes the urban landscape) on a sensual level and not in depicting its visual appearance. With the trappings of representation obliterated, the paintings offer a lean and stripped down physicality defined by specific proportion, luminosity and surface quality. They are intended to provide a slowed down, drawn out and extended perceptual experience. This experience is dependent solely on a response to the material nature of the work. This way of looking, or better, this way of sensing, leads to an experience in which the viewer is no longer the passive recipient of the visual information contained in an artist's production. The dynamic is altered and the viewer is active in an equation that is a reversal of the traditional flow between artwork and audience. The expressive end of this encounter is that the viewer, rather than the artwork or artist, becomes the subject of their perceptual process.

JM
Another difference lies in the treatment of architecture. In Poussin or Claude, architecture has quite specific and defined roles (though often highly complex and allegorical), it is about objects set in a larger picture. In your work, architecture helps to define a way of looking: an example would be the way you use entasis on the frames of your paintings to help structure the way of looking.

SC
I do not want to depict architecture or expect it to play a role in an unfolding narrative. I want the paintings to be architectural in

character. For example, in recent large-scale tall paintings I have used the classical Greek architectural principle of entasis – most clearly seen in the tapering in the columns of the Parthenon in Athens.

The dimensions of these paintings are slightly narrower at the top than at the bottom. This is achieved by the introduction of a subtle curve that begins at 5/8ths up on the vertical height of the stretcher. The need to distort from the accurate rectangle satisfies a perceptive sense of rightness that a tall rectangular form appears smaller at the top. This encourages us to relate to the painting as a physical form and creates the possibility that an experience of the work is not exclusive to the eye but also involves the body.

The intention behind applying architectural principle to contemporary painting is to tap into the highly developed way we use our senses as we navigate and negotiate the built environment on a daily basis. I identify one of the defining qualities about the way we understand architecture through a process of measuring ourselves in relation to it. This could almost be considered common sense and should be as active in the art gallery as it is on the street.

JM
In that sense, perhaps, it bears some comparison with archaeology, as a technique for drawing out perceptions, or for helping to define a surface.

SC
I want to use architectural references to elicit a response that involves all our senses and doesn't prioritize the eye. My approach to making work from direct experience of excavation has been to concentrate on the surface material of the site. For example the 20m x 2m sculpture called 'Trench 10' was made by pouring plaster onto the chalk surface of an excavated Bronze Age ditch. The surface of the work is not simply the negative form of this ditch as the plaster acted to capture the chalk loose. Above all this is a work that is animated by our interaction with surface – in this case a historical surface.

JM
Did working with archaeologists in the landscape offer a different sense of time to working in the contemporary city?



Trench 10 surface detail: plaster acquires loose chalk – interaction with historical surface.

SC
One of the most striking aspects of working on an excavation was a heightened awareness of time quite unlike the urban experience. Time as an element and a constituent of place was tangible on site. This sensation was not immediate but was generated by a developing understanding of the particular characteristics of the landscape.

There is also the principle of stratigraphy in excavation that defines the relationship of objects to one another in time. Objects that are found on the same horizontal plane can be considered contemporary to one another, while objects that are found at a greater vertical depth can be considered older. I began to feel that this axis of two lines was an expressive way of understanding time and could be fed into the way I use line in painting.

It follows that we could grade the landscape and the city in terms of their horizontality and verticality and draw conclusions on the extent to which an emphasis on the axis influences how we respond.

JM
Does this sense of time seem to demand such an intimate and precise record (thinking of photography) of what you found there, in a way that the more familiar urban environment would not?

SC
The desire that a sense of time defines the experience of the finished work is only really possible if a perceptual route to this end is established. In the case of a work called *The Segsbury Project* (378 large-scale black and white prints that record the surface of a 20m x 40m site at 2:1 housed in seven plan chests), the detail of the photographic prints sets up a visual encounter with an archaeological surface. In this work, detail and intimacy of the prints was necessary to bring about a questioning of the surface.

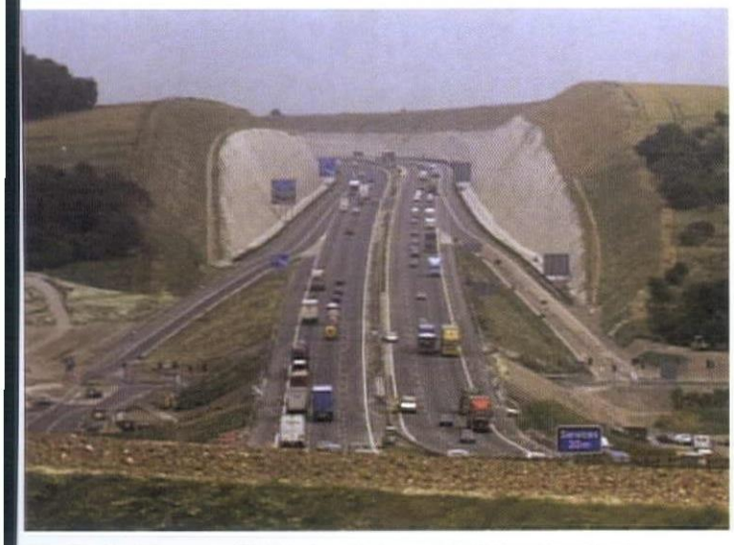
Intimacy depends on sensory knowledge and the work must communicate this, whether it is the familiar urban environment or an excavation in the rural landscape.

JM
Given that there are differences between cities and landscapes, does architecture in cities have a compatible role with archaeology in the landscape?

SC
It is not unreasonable to suggest that the reasons why archaeologists are drawn to certain sites tells us as much about our current interests as it does about our distant past. We seem to visit and revisit places for the reasons the original inhabitants settled there. This reflects the extent to which the quality of place defines what kind of architecture is built and the role architecture plays in defining the quality of a place.

The first excavation I was involved in was an Iron Age hill fort settlement and the second an Iron Age hill fort with the remains of a Romano-British villa at its centre. The work I made was a record of the traces of early forms of architecture and a testing ground for examining the validity of landscape as a subject for contemporary art.

Photographs of the installation at the Officers' Mess, Dover Castle: John Riddy. *The Segsbury Project* is a collaboration between the Henry Moore Foundation Contemporary Projects, English Heritage and the Laboratory at the Ruskin School of Drawing and Fine Art.



M3 at Twyford Down, near Winchester. Photograph: © British Film Institute.



Charborough Park, Dorset. Photograph: © British Film Institute.

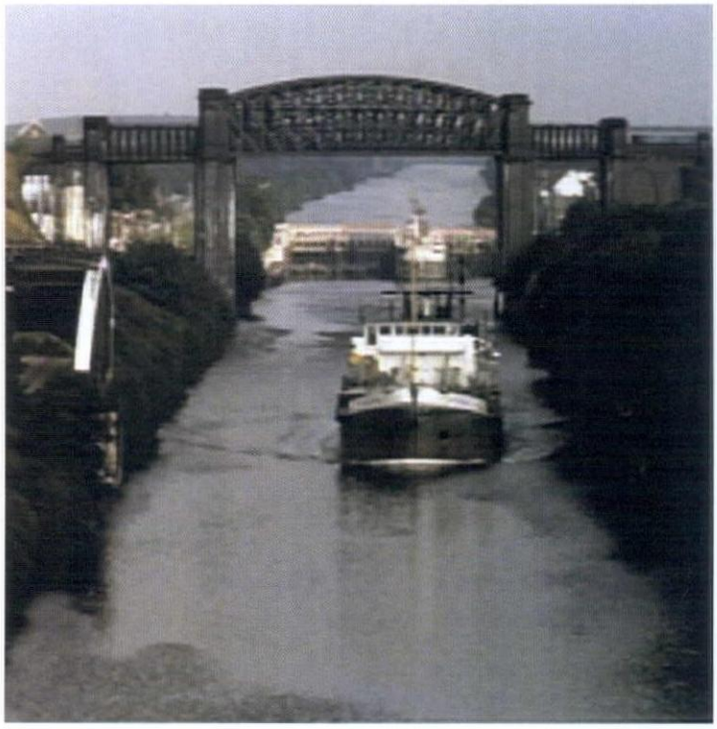
PATRICK KEILLER

Towards the end of 1996 I had written an essay (published as 'Port Statistics' in *The Unknown City*, Kerr and Borden eds, MIT, 2001), which began:

'*Robinson in Space*, a film (35mm colour 82mins UK 1997), was photographed between March and November 1995. It documents the explorations of an unseen fictional character called Robinson, who was the protagonist of the earlier *London*, which was a re-imagination of its subject suggested by the Surrealist literature of Paris. *Robinson in Space* is a similar study of the *look* of present-day England in 1995, and was suggested to some extent by Defoe's *Tour through the Whole Island of Great Britain*. Among its subjects are many new spaces, particularly the sites where manufactured products are produced, imported and distributed. Robinson has been commissioned by 'a well-known international advertising agency' to undertake a study of the 'problem' of England. It is not stated in the film what this problem is, but there are images of Eton, Oxford and Cambridge, a Rover car plant, the inward investment sites of Toyota and Samsung, a lot of ports, supermarkets, a shopping mall and other subjects which evoke the by now familiar critique of 'gentlemanly capitalism', which sees the UK's economic weakness as a result of the City of London's long term [English] neglect of the [UK's] industrial economy, particularly its manufacturing base.

'Early in the film, its narrator quotes from Oscar Wilde's *The Picture of Dorian Gray*: "It is only shallow people who do not judge by appearances. The true mystery of the world is the visible, not the invisible ... " The appearances by which the viewer is invited to judge are initially the dilapidation of public space, the extent of visible poverty, the absence of UK branded products in the shops and on the roads, and England's cultural conservatism. Robinson's image of the UK's industry is based on his memories of the collapse of the early Thatcher years. He has assumed that poverty and dilapidation are the result of economic failure, and that economic failure is a result of the inability of UK industry to produce desirable consumer products. He believes, moreover, that this has something to do with the feel of "Middle England" which he sees as a landscape increasingly characterized by sexual repression, homophobia and the frequent advocacy of child beating.

'At the same time, he is dimly aware that the UK is still the fifth largest trading economy in the world and that British, even English people, particularly women and the young, are probably neither as sexually unemancipated, as sadistic or as miserable as he thinks the *look* of the UK suggests. The film's narrative is based on a series of journeys in which his prejudices are examined, and some of them are disposed of.'



Manchester Ship Canal at Latchford, Warrington. Photograph: © British Film Institute.

Royal Academy Forum

FOREIGN OFFICE ARCHITECTS: FARSHID MOUSSAVI

At the Yokohama Ferry Terminal, Foreign Office Architects proposed a new synthesis between landscape and architectural form. Instead of the old distinction between figure and ground, which often translated into artifice – architecture – and nature, or the landscape, Farshid Moussavi explained, they see the relationship as a series of networks combining social, political and geological influences. Consequently, 'the vocabulary of landscape is replaced by a network of systems, connections and interferences', and architecture becomes a strategy for 'trying to negotiate a way across them'.

What has driven this interaction between landscape and architecture, between nature and artifice, is Information Technology. With this new computing power, geometry, once the unyielding arbiter, can now assume far more complex and sophisticated forms which increasingly mimic nature. 'Geometry', explained Moussavi, 'is now more comparable to real nature, and the distinctions between the organic and the rational are blurred.' Yokohama introduced a 'geometry that almost looks organic' and brought several other consequences. Creating 'different conditions of space, coherence and diversity within the same conception', the free-flowing forms replace prescribed circulation routes with an urban ground, increasing density of circulation and appearing to reconfigure themselves continually along the terminal's length. These complex geometries are 'close to nature', but nature manipulated to provide for human need.

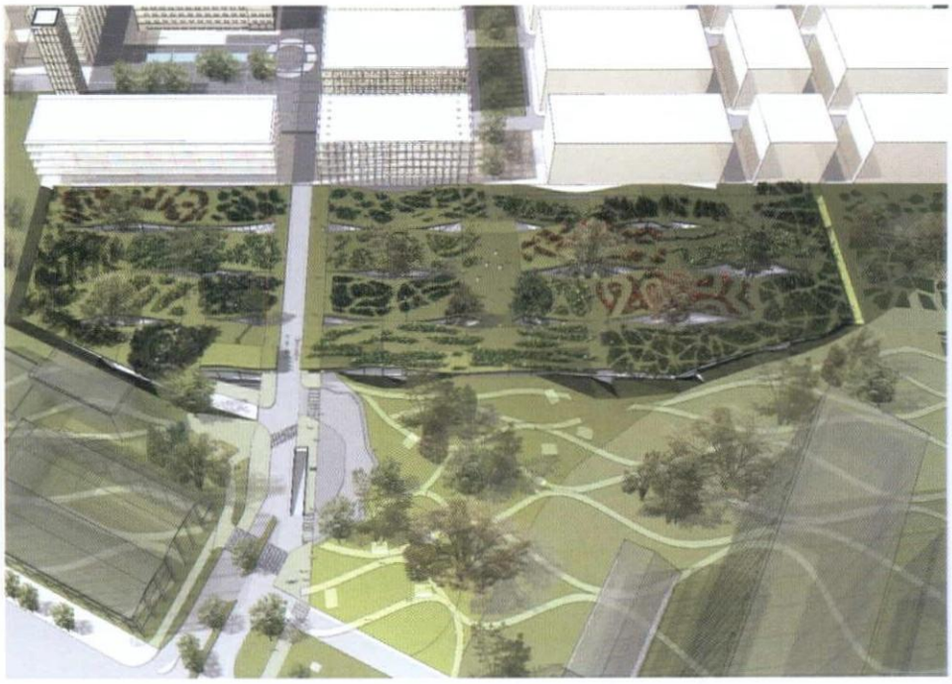
A waterfront park in Barcelona conveys 'a total concept of urban landscape'. With a fall of 11m across the shorter dimension of the site, from the esplanade to the bathing area at the sea's edge, it is too steep to negotiate in a straight line, so diagonal ramps became generators of a new topography, based on the forms of sand dunes. 'We worked with the dune sizes', explained Moussavi 'to define the ramps and to enclose two auditoria': (outdoor arenas with flat areas and banked seating for activities like rock concerts). Other parts are less prescriptive, where the forms open up to create possibilities for varied types of habitation and activity. On the lee side, sheltered from the sea breezes, plants take root, just as in a natural dune landscape.

Sand dunes, though, are extremely fragile, and this park is designed for intensive use, so the surface has to be hard. The basic element, a concrete tile, is rather larger than a grain of sand, but the shape itself has geometric properties which, when multiplied, help to generate the overall forms. As Moussavi said, 'it meets most boundaries, but where it does not, it is not cut', emphasizing the integrity of its geometry. A dyed concrete resin fills residual spaces. The resulting colour stripes help to orientate visitors and to define routes and zones within the park, using communication as link between topography and function.

An unbuilt proposal for a 'hortus medicus' [medical garden] for the Swiss pharmaceutical giant Novartis in Basel also consciously blurs boundaries between natural and artificial. On an undulating surface, areas are seeded in different patterns with different parts, but the undulations are actually openings to a subterranean car park, or 'lungs for the body of car parking', as Moussavi puts it. Here 'the figure of the human body' becomes a way of combining the ancient motif of physic gardens, perhaps the earliest places for the work that Novartis now does in laboratories and factories, with the eminently modern function of car parking. Neither traditional landscape nor conventional urban form, the landscape uses complex geometry to form a new synthesis which is both historically aware and sensitive to contemporary needs.

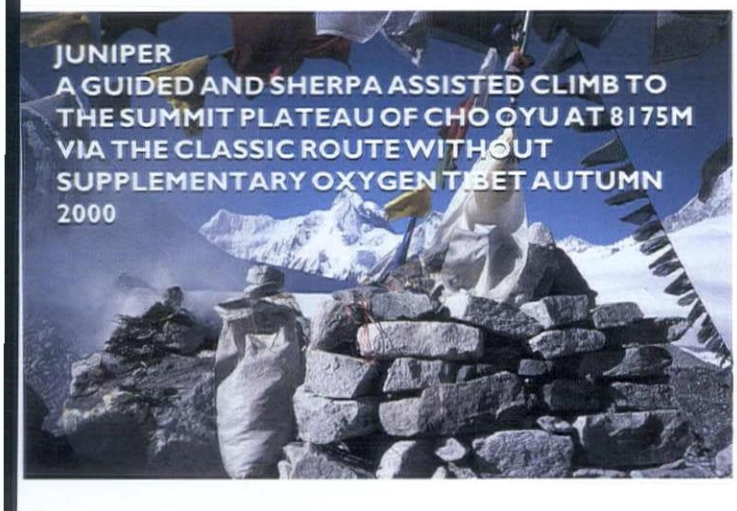


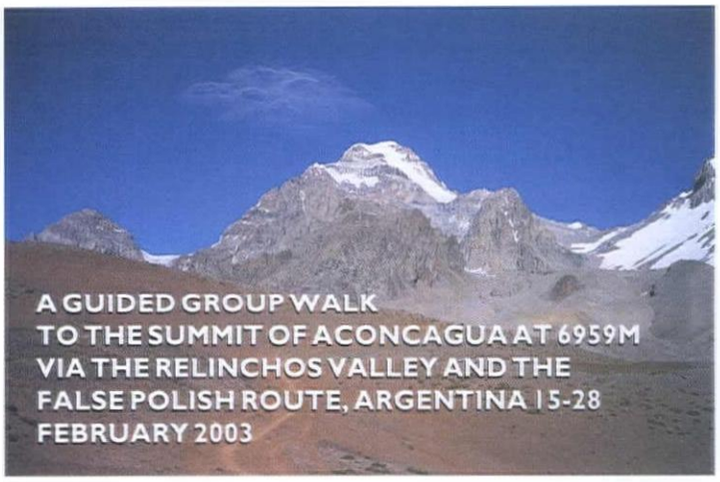
Foreign Office Architects: Yokohama Terminal.



Unbuilt project for Novartis in Basel – physic gardens related to 'lungs for the body of car parking'.

Royal Academy of Arts





HAMISH FULTON: BIODIVERSITY, WALKING IN RELATION TO EVERYTHING ...

It would seem there are two possibilities for so-called 'Landscape' art: painting, from the past, and outdoor sculpture in the present. However, the starting place of my own art is the experience of walking ... and walking is not an art material. In terms of self-imposed rules this means every piece of art I make is the result of a specific walk. (From 1970 to the present I have made 238 identifiable walks, walking from one full day to 64 consecutive days. The longest distance I have walked is 2838km and the highest altitude I have climbed to is 8175m.) To outline my ideas I would like to present the following statements. Each small concentration of words implies larger issues.

IRRESPECTIVE OF ITS APPEARANCE – ' CONTEMPORARY ART' IS A NECESSARY 'POLITICAL' FORCE IN SOCIETY.
WALKING CAN CHANGE THE WORLD. (CONVERT ROADS FOR CARS – INTO PATHS FOR WALKERS AND CYCLISTS?)

TO BE COMMITTED TO WALKING MEANS – TO SLOW DOWN TO THE PACE OF WALKING ...
A WALK CAN EXIST LIKE AN INVISIBLE OBJECT IN A COMPLEX WORLD. (WALKING – CUTS A LINE THOUGH TWENTY-FIRST CENTURY LIFE.)

Q. WHAT KIND OF ART COULD RESULT FROM A WALK?
A. ART INSTALLED ONTO THE FLATNESS OF EXISTING ARCHITECTURE. (A FILM ... A WALK TEXT AS AN URBAN BILLBOARD. WALK TEXTS ETCHED INTO GLASS FOR WINDOWS. WALK TEXTS CAST IN IRON AND SUNK INTO PAVEMENTS.
WALKING IS AN 'EXPERIENCE'. CONSEQUENTLY, THE RESULTING ART COULD BE PRODUCED IN ANY MEDIUM OR SITUATION.

REPEATABLE ART REQUIRING NO TRANSPORT (MUSICAL NOTATION ON THE NET) OR, NON-REPEATABLE ART REQUIRING TRANSPORTATION (CARGO JET POLLUTION) OR, REPEATED UNTRANSPORTABLE ART? (AUSTRALIAN FIRST NATION CAVE PAINTINGS.) WALKABOUT...
THE STRENGTH AND WEAKNESS OF ART IS THAT IT'S ALL ABOUT OPINIONS.

THE PRICE I PAY FOR NOT MIMICKING 'NATURE' IS THAT I RECORD ALL MY WALKS IN WORDS.
THERE ARE NO WORDS IN 'NATURE'.

AN ARTWORK CANNOT RE-PRESENT THE EXPERIENCE OF A WALK.
EVERY THING IS (MADE OF) SOMETHING – AND ALL 'CONTEMPORARY ART' IS URBAN.

ABSENT. THE LOCATION OF THE WALK IS NOT IN THE GALLERY AND THE WALK ITSELF IS A PAST EVENT.
AN OBJECT CANNOT COMPETE WITH AN EXPERIENCE.

WALKING IS PRACTICAL NOT THEORETICAL.
A WALK HAS A LIFE OF ITS OWN – A BEGINNING AND AN END.

WALKING INTO THE DISTANCE – BEYOND IMAGINATION.
ONCE A WALK HAS BEEN COMPLETED, IT CANNOT BE DESTROYED.

A WALK, IS AN INVISIBLE MONUMENT TO 'TIME' ('LANDSCAPE' ART SHOULD ENCOMPASS MORE THAN JUST THE HISTORY OF ART.)
WHEN WALKING AND CAMPING ALONE, I ATTEMPT TO PRACTISE THE 'WILDERNESS' ETHIC OF LEAVE-NO-TRACE.

IN THE COURSE OF PRODUCING MY ARTWORKS I USE ONLY COMMERCIALLY AVAILABLE MATERIALS.
IN 2003: CREATE EMPLOYMENT, BUT DESTROY A 'WILDERNESS'? THE HUMAN ENERGY SOURCE FOR SOLVING THIS DILEMMA IS – OUR SPIRITUAL RELATIONSHIP WITH 'NATURE'.

THE RIGHTS OF NATURE? ON MY WALKS I DO NOT REARRANGE THE 'LANDSCAPE' OR ORGANIZE THE REMOVAL, SALE AND NON-RETURN OF 'FOUND-NATURAL-OBJECTS' THEREBY TERMINATING THEIR NEIGHBOURHOOD LIFE INFLUENCED BY SUNLIGHT, WIND AND RAIN.
MY ART IS A SYMBOLIC GESTURE OF RESPECT FOR NATURE.

IT'S HARDER TO LEAVE THINGS ALONE THAN TO CHANGE THEM.
CHANGE PERCEPTIONS – NOT THE 'LANDSCAPE'. THE 'LANDSCAPE' AS LOCATION – NOT RAW MATERIALS.

LIVING AND NON LIVING BEINGS. WHY SELL SEA SHELLS? BIG TRUCKS MEANS BIG BUCKS.
BATTLE OF LITTLE BIGHORN 25 JUNE 1876. (TWO PEOPLE, THEREFORE TWO POINTS OF VIEW?)

NAVAJOLAND EUROLAND CLUBLAND HOMELAND DISNEYLAND TIMBERLAND VOLVOLAND OBERLAND BORDERLAND SWITZERLAND WONDERLAND – LANDSCAPE SEASCAPE CLOUDSCAPE DREAMSCAPE E-SCAPE CITYSCAPE CULTURESCAPE MEDIASCAPE FINANCESCAPE WALKSCAPE
MAKE A WALK – WRITE A TEXT – READ IT TO AN AUDIENCE. BODY AND VOICE.

THE CHANGING SHAPES OF CLOUDS. THOUGHTS SILENCED BY BIRDSONG.
EACH WALK MARKS THE FLOW OF TIME BETWEEN BIRTH AND DEATH.

Royal Academy Forum

Royal Academy of Arts

ANDRO LINKLATER

Measuring America argues that America came to be what it is through the way it defined its landscape. Anyone who has flown across the US sees the world's largest human-made construct, though its significance is almost invisible unless you know what to look for – straight lines. In California's Great Central Valley they show up in the chequerboard arrangement of orchards; flying over the Sierras they appear in the rectangular farms deep in valley bottoms; crossing any big city, Phoenix, Arizona or Salt Lake City, or Chicago itself, they're revealed in the graph-paper grid of streets; all across the Midwest they can be found in the great squared-off pattern of corn and soya fields. Around this framework, a particular kind of democracy and a particular kind of capitalism and a particular kind of spirit developed.

These lines all derive from the US Public Land Survey which began on 30 September 1785 when Thomas Hutchins, first Geographer of the United States, unrolled a 22 yard Gunter's chain on the west bank of the Ohio river. The US needed to raise money, and the only asset that it possessed was land beyond the Appalachians. A few explorers had penetrated beyond the mountains and brought back wonderful reports of this mouth-watering land. Hutchins' job was to measure it out and map it on a surveyor's plat. It was a kind of magic – unmeasured it was wilderness, measured it became real estate.

But he did it in a very particular way. Congress required him to lay out lines running due east-west and six miles apart, and these were to be cut at right angles by other lines running due north-south, and also six miles apart. This created a grid of squares, known as townships, each measuring 36 square miles. The townships divided into 36 one-mile-square sections, which would be sold at auction. This pattern of squares was Thomas Jefferson's idea. Squares could be easily measured, easily subdivided, easily bought and sold. Squares would put land into the hands of the people. From the start, therefore, the survey was expected not simply to raise money, but to shape a society.

The surveyors' equipment was basic: a compass through which the surveyor took a sighting on a distant mark to find due west on his compass, and a 22 yard chain to measure the distance. Once the surveyor had the direction, a team of axemen would be sent to hack out a path or vista through the trees. Finally, the foreman took the front end of the chain and marched towards the mark; when the chain was fully stretched he cried 'Tally!', stuck in a tally pin, and waited for the hindman to join him, gathering up the chain. So they moved across the country like caterpillars, hunching up and stretching out, through forests, over swamps, up mountains, and down ravines, but always travelling in straight lines.

By the end of the nineteenth century, most of the continent had been squared off into townships, and sections. Each township section is a square mile or 640 acres, a number easily subdivided into smaller squares. It can be halved, quartered, eighthed, and sixteenthed, and still leave a whole number. And each is easily measured by a chain – a mile is 80 chains, a half-mile is 40, a quarter is 20, and to a surveyor nothing could be easier to measure – a 40-acre square was merely 20 chains by 20. Its numerical neatness ensured that 40 acres became the basic unit on which Jefferson's great landed democracy was built. Owning a 40 was the bottom rung on the property ladder.



The great United States grid: not just a means of turning wilderness into real estate, but an armature for capitalist society.

The 10 acre square is integral to the planning of US cities – 10 chains by 10 – such as the central square of Salt Lake City, or of Philadelphia, Chicago, and others. It was an extraordinary transformation. Within a century, the land that had no shape had become property. Anyone could own it. The government sold it for $2 an acre, offering credit for those with no cash, and even after the 1862 Homesteading Act you could get 160 acres by squatting.

Winners and losers

It was the survey that underpinned the legends of the frontier. It guaranteed the pioneers legal possession of their land. But it was not just an administrative exercise. In the process a society was being created around the mass distribution of property. To European visitors, accustomed to thinking of land-ownership as the key indicator of social class, this was revolutionary, and the outlook of these property-owners seemed to them astonishing. As early as 1813, the traveller John Melish remarked approvingly: 'Every industrious citizen of the United States has the power to become a freeholder … and the land being purely his own, there is no setting limits to his prosperity. No proud tyrant can lord it over him.'

In her book *The Domestic Manners of the Americans* written 20 years later, Fanny Trollope took a less admiring view of the egalitarianism that came from allowing absolutely anyone to acquire land. 'Any man's son may become the equal of any other man's son, and the consciousness of this is certainly a spur to exertion', she observed. 'On the other hand, it is also a spur to that coarse familiarity, untempered by any shadow of respect, which is assumed by the grossest and lowest in their intercourse with the highest and most refined.' For the first time an entire society was being created, peacefully and legally, around a horizontal model of land distribution. However different their viewpoints, both John Melish and Fanny Trollope were testifying to the effectiveness of Jefferson's social engineering.

The losers in all this distribution of property were the native Americans. Almost every Indian war fought by the US government from the Battle of Fallen Timbers in 1794 to the massacre at Wounded Knee in 1890 had its origins in the urge to prise ownership of land from the original occupants, and almost every Indian defeat was followed by a treaty in which they ceded territory to the US government. Immediately afterwards, the surveyors would arrive with their chains and compasses, and in their wake came the settlers.

It required a paradigm shift to accept that land might be a commodity, have a monetary value, be used as a guarantee against which cash could be borrowed. Without it, what we recognize to be a modern way of thinking could not come into being. Nowhere did land as commodity take hold more strongly than in the US – the squares made it easy – the result was a fiercely competitive society.

As the first visitors to the US recognized, the experience of owning property forged a new society that no one had seen before. Around this structure American democracy and capitalism grew.

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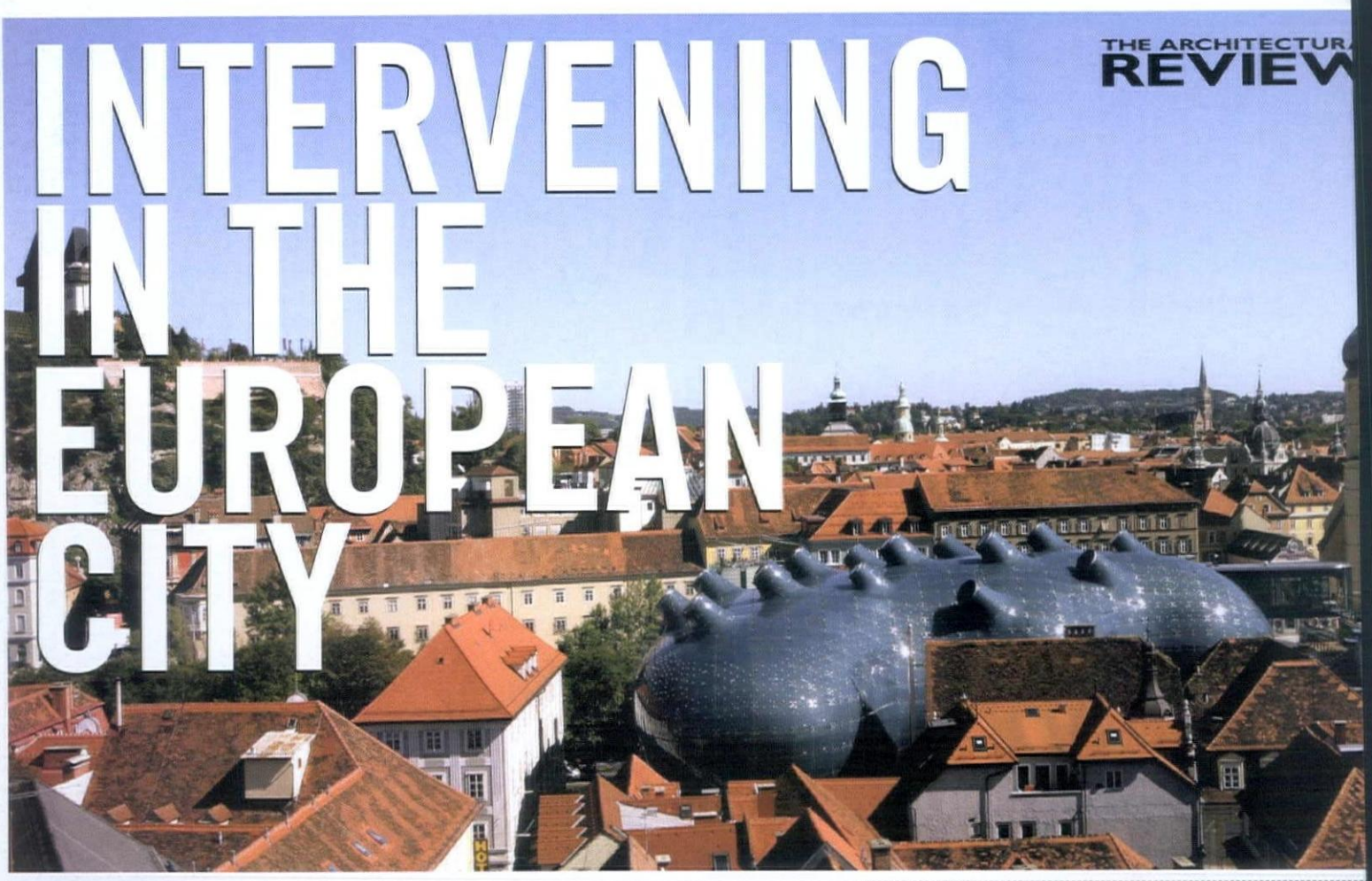
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502 ARIOSTEA

Ebano and Pietra del Reno are just two of the recent products presented by Ariostea at the international ceramics exhibition Cersaie held in Bologna last year. From their extensive range of marble and stone, these two high-tech stone products respond well to the current popularity which has seen natural textures and neutral tones predominate the interiors market. While the darker Ebano series reproduces natural brown to grey tones, Pietra del Reno recalls lighter sandy shades. Available in 600x300mm, 300x300mm, 300x150mm and 150x150mm, all tiles are squared and rectified to extremely tight tolerances to ensure perfect results.

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503, 504 IMPRONTA ITALGRANITI SPA

Two distinctive new ranges of tiles have been released by Impronta Italgraniti Spa: Urbana (**503**) and Stone Gallery (**504**). In response to the growing demand for projects using sustainable materials to create minimalist, natural results, Stone Gallery aims to reproduce the world's most beautiful natural stones, emulating their colours and structural variations. Enhanced with quartz for added luminosity and prestige, the modular sizes allow for a wide range of installation combinations. Urbana is a high-tech ceramic product that combines practicality with refined elegance, characterized by subtle colour variations on a matt surface that is silky to touch. Available in seven shades, the Urbana collection is available in edge-ground 45x45mm and 60x60mm formats with natural or lapped finishes

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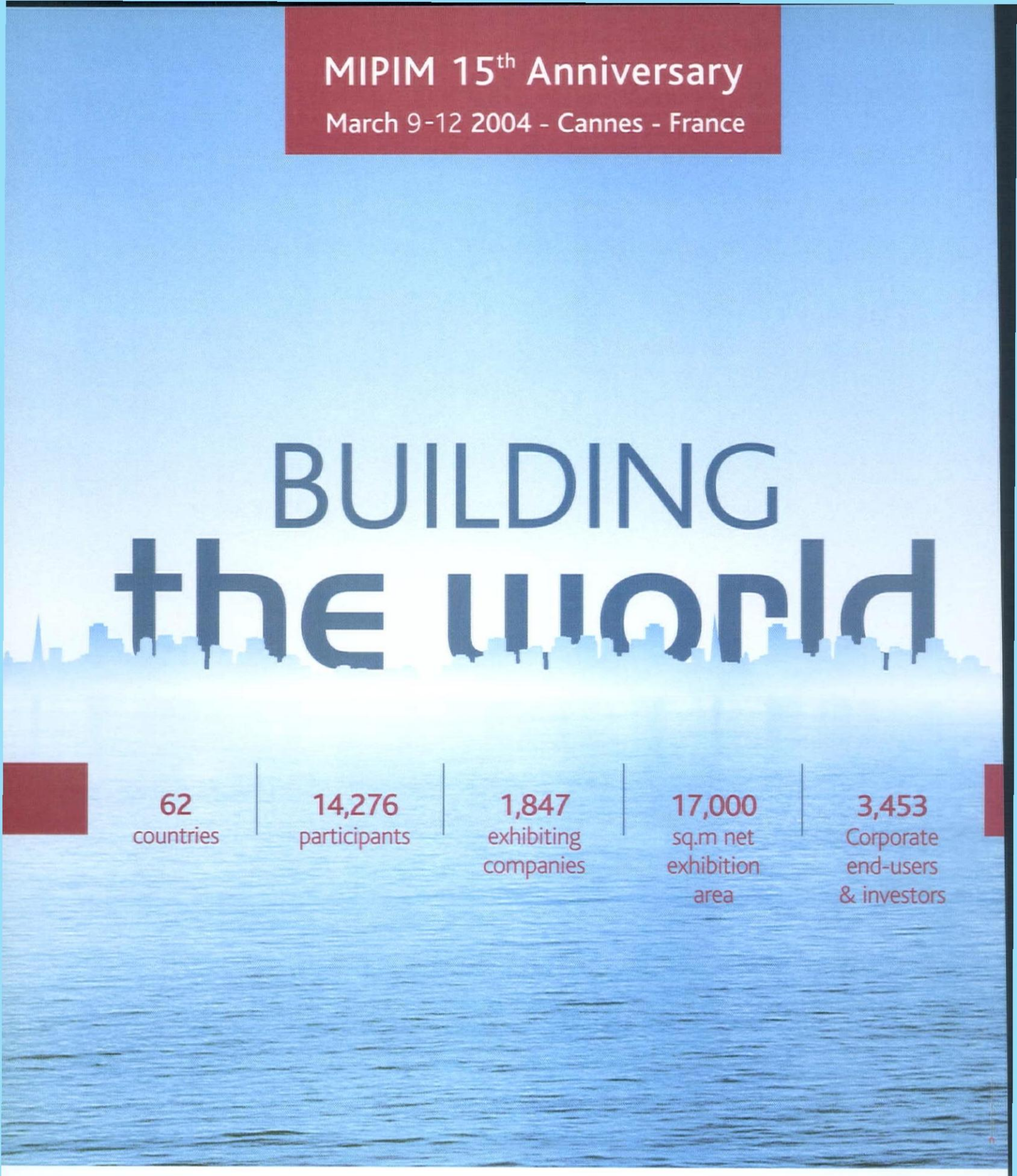
505 BIGELLI

Bigelli have launched a distinctive range of bathroom fittings, designed by Franco Poli. By playing with the shape of the water vortex, the hollow funnel-like forms combine to produce a family of pieces that include a slender wash-basin, a shower tray and a bath that collectively combine playfulness with minimalism.

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John Sydney

Following the launch of their new JS2 design, John Sydney has announced a record 12 months for sales with over 26 per cent growth year on year. The company has underpinned its increasing sales in 2003 with significant investment in the John Sydney brand, and the launch of its revamped website www.johnsydney.com. John Sydney specializes in high quality and contemporary designed brassware for the bathroom, which is sold nationally for contract and domestic use.

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DuPont

In the newly renovated Kindergarten St Hildegard in Dachau, Germany, a laminated glass balustrade has recently been installed incorporating 'Seeds of the Future', a composition in DuPont™ Sentry Glas® Expressions™ decorative laminated glass. Quicker, easier and more cost effective than the established screen printing techniques, the installation was ordered, manufactured and installed in less than six weeks, with simple desktop scanned images being transferred digitally directly to DuPont on compact disk.

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Avanti Systems

Avanti Systems, the UK's largest independent producer of office partitioning systems, has recently put into place a fresh worldwide sales strategy. A new division has been set up for the purpose of managing overseas projects headed by Ken Cordaroy as International Sales Director, based at Avanti's head office in Sussex. From here Cordaroy will focus on building export business in newly emerging markets including Albania, Cyprus, Nigeria, Hong Kong and France.

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Potter & Soar

Three contrasting woven wire mesh patterns from Potter & Soar will be used to create interesting and unusual suspended ceilings within the public areas of a new development in New York. Potter & Soar was able to offer the wide choice of mesh patterns and customized manufacturing techniques required to make this concept a reality. Three different mesh patterns with varying degrees of transparency, from the 58 per cent open area of Windermere to the closely woven lightweight Isis design, have helped to create added depth and surprising visual effects.

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Macemain + Amstad

Macemain + Amstad have recently completed a walkway and waiting room as part of the new £32million Fastway project. The new interchange at Gatwick Airport's South Terminal includes a 55m walkway modified from Macemain + Amstad's standard paragon range. The shelter includes a 3m wide, 6mm blue Baylon polycarbonate roof, toughened and laminated anti-vandal glazing to the rear, and an integrated drainage and electrical management system. With the new waiting area now complete, the Fastway project is providing a real transport alternative to the private car.

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SPC

SPC has introduced an improved version of its Thermatile radiant ceiling panel. The Thermatile Plus is an efficient radiant heating system that can be used invisibly or as an architectural feature. Simple to install, the panels liberate valuable wall and floor space. Available in an extensive range of sizes and finishes, they feature a patented, corrugated aluminium construction that is highly conductive, providing improved, even heat transfer. The strength and versatility of the Thermatile Plus means that retrofitting and change of use, as well as new installations, is simple.

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DEVI

The pioneering system of electrical underfloor heating from DEVI has been installed in a 106-flat development in Birmingham, central England. deviflex DTIP-10 cables were fitted beneath the cherry veneer floor of the flats, with devimat heating mats used in bathroom areas. The system ensures exceptionally high levels of energy efficiency complying with the recently amended Approved Documents L of the British Building Regulations. By being underfloor, the heating makes it possible to lower the average room temperature by two degrees C, producing significant savings.

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Philips Lighting

Philips Lighting's LightMaster 100 control system has been installed in British Telecommunications offices near Watford. With 44 individual lighting areas, the system offers a variety of functions, including a monitoring option which allows BT to control maintenance and running costs, providing exact information about how long lamps have been burning. In this way not only have the appropriate lighting levels and control systems been taken into account, but also the client has the benefit of low running costs and ease of maintenance.

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INSPIRING MATERIALITY

MATERIALS, FORM AND ARCHITECTURE

By Richard Weston. London: Laurence King. 2003. £35

I remember a NASA scientist telling me of his surprise that architects' starting point is that of materials as they are. In his world you write a performance specification for a material and ask the chemist to produce it. We are moving in that direction, but, as architects we still think of stone or timber and try to understand their nature. Richard Weston's book moves away from the traditional notion of looking at materials and describing their characteristics. Instead he explores the philosophical and intellectual loading that different architects have placed on different materials at different times.

The book is a delight. The fact that the author has taken most of the photographs himself gives an immediacy that makes the arguments easily understood. The illustrations themselves are excellent. How splendid to have the buildings we know well illustrated by pictures that we have not seen before.

Weston starts with a history of attitudes to materials, goes on to describe the Modern Movement's supposed interest in space rather than materials, then looks at materials under the headings time, use, junctions, surface, meaning and materiality. This is original stuff, and makes the book a useful counterpoise to my favourite architectural history book, Nervi's *Aesthetics and Technology in Building*.

The latter part of the book deals sympathetically with the buildings of the last few years. This leads to the inclusion of some buildings that I find far from sympathetic; but Weston has a generously broad approach, and although his preferences are clear, they never exclude alternative viewpoints. Architects, like myself, who find much recent work baffling, will learn to understand a great deal from this book. *Materials, Form and Architecture*, after all, cover most aspects of our discipline.

JOHN WINTER

UNSUSTAINABLE URBANISM

THE URBAN DESIGN HANDBOOK

By Urban Design Associates. London: W. W. Norton & Company. 2003. £29.95

The US urban design practice, Urban Design Associates, was founded in 1964, when a group of young architects was funded by a branch of the Ford Foundation to study the problem of segregated schools in Pittsburgh. Now, almost forty years later, UDA is a major consultancy practice undertaking projects all over the US. This book is based on their in-house design handbook and illustrates the ways in which they approach projects from the regional to the architectural scale.

A flavour of the firm's ethos can be gained from the book's introduction. 'Design is the creative focus of our process – a participatory process in which we bring together citizens, economists, engineers, architects, developers, policy makers, government officials, and builders to construct humane and appropriate visions for the future.' The application of this process is illustrated by a number of case studies. This is all fine, but further on we discover that a highly specific and deeply conservative agenda lies behind this front of sweet reason.

The key instrument of this is 'Traditional Architecture'. They assert that, 'In the course of our 35-year history, UDA has progressed forward from "modernist" to "traditional" architecture.' The design process is based on 'Pattern Books'. These draw upon the following 'styles', Colonial Revival, Classical, Victorian, Coastal, Italianate, Arts & Crafts and Mediterranean. The resulting projects are, almost invariably, low-density neighbourhoods with tree-lined streets of revivalist style houses. Participation produces 'anything you like as long as it's traditional'.

This may go down well with Middle America, it does nothing to question the values of profligate consumption, and there is no reference to any kind of sustainability. It is business as usual. Everyone apparently travels by car. The large detached houses of the pattern books, with their multiple bathrooms and living rooms called 'Great Rooms', don't seem to make any concessions to energy consciousness. There is no attempt to characterize the society that inhabits these places. It is sad that amid all this professional expertise there is no evidence of critical engagement with any dimension of the condition of contemporary America. The book has no bibliography; it is a totally hermetic, self-satisfied vision that, in my view, offers little hope.

DEAN HAWKES

HEROIC AND SUBLIME

BRITAIN'S HISTORIC RAILWAY BUILDINGS: AN OXFORD GAZETTEER OF STRUCTURES AND SITES

By Gordon Biddle. Oxford: Oxford University Press. 2003. £60

Given the depressing, defeatist history of Britain's railways over the last half-century and more, it is a most cheering sight to see the new Channel Tunnel rail link leap across the Medway, but the structure that carries it is scarcely distinguishable from, and no more inspiring than, the adjacent bridge that carries the M2. Our modern railway engineers have lost that sense of the heroic and the sublime that characterized the work of those pioneers – Stephenson, Locke, Brunel – who created the first trunk lines that crossed the landscape of Britain in the 1830s and '40s. Arched masonry viaducts straddled valleys in emulation of the Romans; tunnel portals were given an awesome architectural treatment worthy of Piranesi at his wildest, while the architects who worked with the engineers designed stations of a Renaissance sophistication or of a Picturesque appropriateness to their settings.

As Britain first developed that great boon to civilization – the railway – perhaps it is not surprising that we have now over two thousand government listed railway structures, all described and illustrated in this magnificent compendium, though some may lament that such statutory protection must impede necessary progress. This is not so: not only are early railway structures of great beauty still carrying trains of a speed and weight never envisaged by their designers, but, as Neil Cossons points out in his introduction, 'in recent years there has been growing recognition that many of the structures of the first railway age are not only adaptable to the second but are of such historical and engineering interest and architectural eminence that they offer an immense and unrepeatable opportunity to animate the experience of rail travel with a quality impossible to achieve – or afford – through total renewal.'

What is sad is that our railway structures ever needed to be listed by government to protect them, but British Rail failed to do so – no, we have not forgotten the Euston Arch – although Railtrack's record is, strange to say, better than the totally nationalized system we had before. And the wealth of listed railway structures is extraordinary: bridges, tunnel portals, retaining walls, signal boxes, viaducts, stations. Some are merely curious, but many are still firm and commodious as well as delightful. This most useful book is the result of a lifetime of railway scholarship; accurate dates and the names of engineers and architects, when known, are given. This is far from being a work of mere trainspotting; in fact, in a strange way, it catalogues the architectural, social and economic history of modern Britain.

GAVIN STAMP

HOW BEAUTEOUS

BRAVE NEW HOUSES

By Michael Webb. New York: Rizzoli. 2003. $39.95 (paperback), $55 (hardback)

There was once a time in Southern California when 'Brave New Houses' would have meant

residential design that was both socially and technologically pioneering: the explorations in inside-outside living in materials like concrete or aluminium by early émigrés to the West Coast, R. M. Schindler, Richard Neutra and Albert Frey. Then the Case Study Housing Program and architects like Charles and Ray Eames, Pierre Koenig, Raphael Soriano and Gregory Ain who shared a radical vision for housing made of industrial materials developed during the war, but integrated with the Southern California landscape. Although these houses were mostly single residences for private, daring clients, the vision was expansive: to transform the housing market and make mass-produced, open-plan dwellings available to the new middle class.

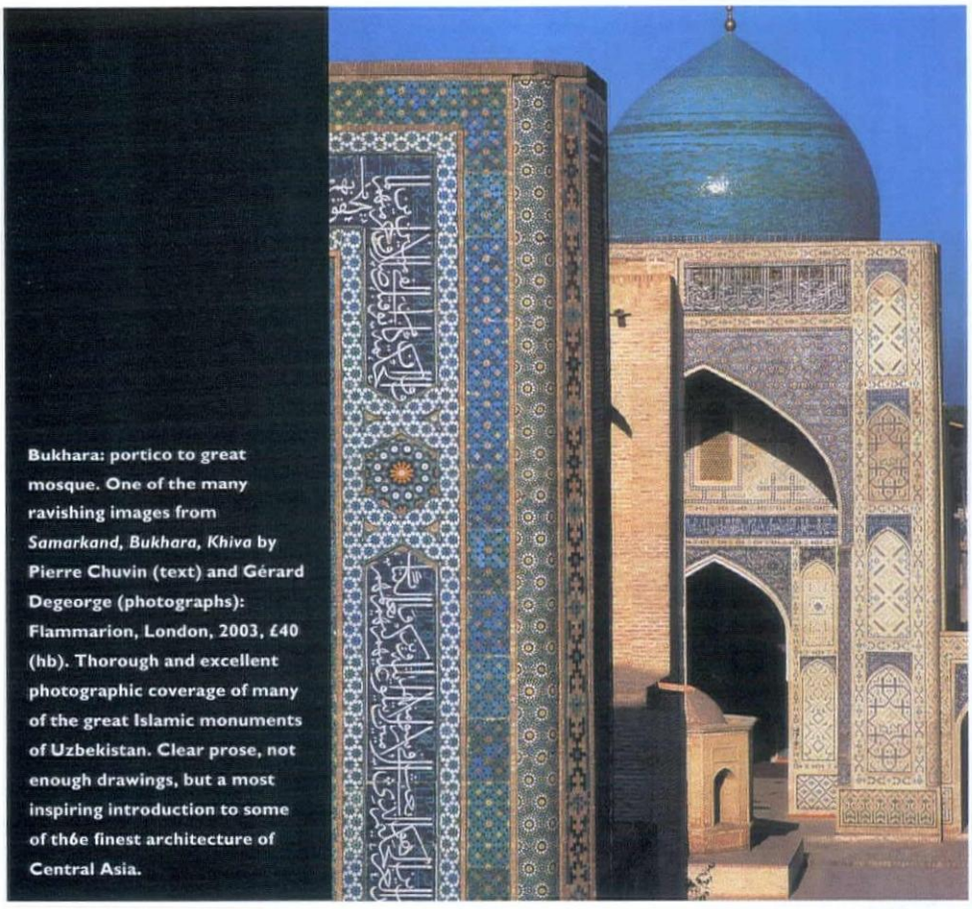
Today's *Brave New Houses*, as selected by Michael Webb, are more modest in their social and technological aspirations if more formally experimental. Webb has taken the view that bravery in architecture involves a client and architect who stand up to unadventurous mothers-in-law, bank managers and historicist design review boards and are 'willing to take a chance and please themselves'. He has chosen 34 homes spanning Southern California from Santa Barbara to San Diego; houses that are located in open hills, ocean side or in tight urban sites; remodels and new build; by architects as established as Thom Mayne and Charles Gwathmey and as new to the field as Patrick Tighe and David Chun. He has also spoken to designer, clients and sometimes builders about the process of realizing a personal vision of home.

While Spanish or neo-classical is still the style of choice for much custom and mass housing here, the houses chosen by Webb represent a good sampling of contemporary design in the Modernist spirit in LA today. While free of the uniformity of Case Study houses, the dwellings tend to be similarly minimalist and free-flowing, with large expanses of glass, hardwood floors and exposed structure. But the influence of Frank Gehry is felt in the inclination towards more sculptural forms, skewed volumes and at times idiosyncratic disposition of elements.

There is currently a flowering of a new kind of brave new house in LA, and that is the environmentally sustainable one, in which architects are integrating solar power and the latest energy-saving materials and technologies into clean, modern designs.

One of the exemplars, David Hertz, is included in *Brave New Houses*, but for the most part, that trend is not the focus of the book. Webb's spotlight is on freedom of life-style and artistic expression, and his book offers a tasty survey of works in that spirit.

FRANCES ANDERTON



Bukhara: portico to great mosque. One of the many ravishing images from *Samarkand, Bukhara, Khiva* by Pierre Chuvin (text) and Gérard Degeorge (photographs): Flammarion, London, 2003, £40 (hb). Thorough and excellent photographic coverage of many of the great Islamic monuments of Uzbekistan. Clear prose, not enough drawings, but a most inspiring introduction to some of th6e finest architecture of Central Asia.

MYTHICAL MURCUTT

GLENN MURCUTT: BUILDINGS + PROJECTS 1962-2003

By Françoise Fromonot. London: Thames & Hudson. 2003. £39.95

Françoise Fromonot begins her book with the staggering fact that during his 30 years of practice Glenn Murcutt has built more than 500 houses in Australia. That, alone, encapsulates much about the architect – the extraordinarily energetic work-ethic of a man who has insisted, during all of that time, on operating almost always as a sole-practitioner, taking full responsibility for every job and every detail – a man at his drawing-board in the corner of an untidy suburban Sydney semi-detached house (Fromonot writes, 'It comes as a surprise to discover that his limpid architecture is designed in such a shambles'); and it draws attention to the fact that despite his international reputation and innumerable overtures from prospective overseas clients, Murcutt refuses to work outside his homeland, where his architecture originates in, and exists in resonance with, the physical, climatic, and cultural context.

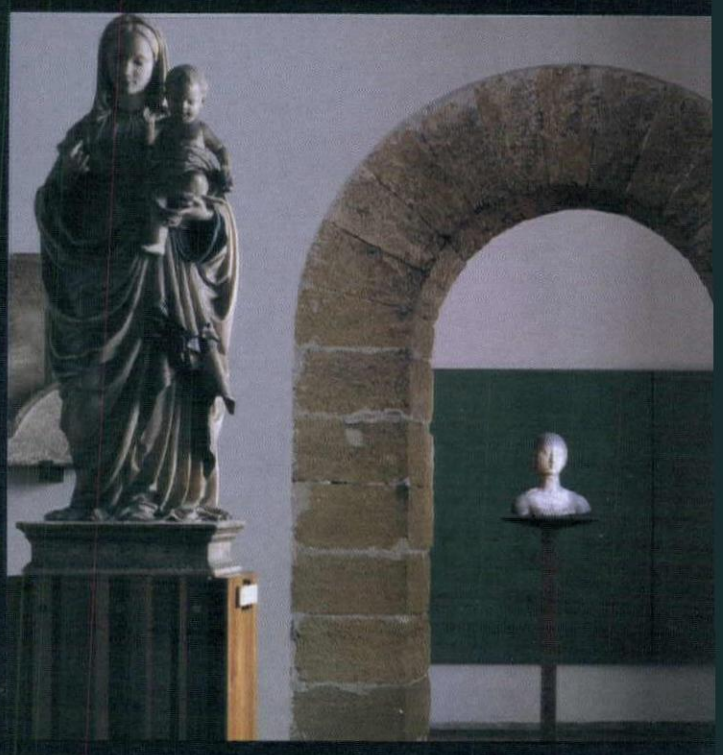
This book is described by Fromonot as a 'new edition' of her earlier work on Murcutt, published in 1995, although it is more accurately considered as a new book. Ten new buildings and projects (some previously unpublished anywhere) are added to the 23 in the original book, her introductory text is recast as a more detailed investigation of Murcutt's working methods, and the larger format permits the re-presenting of the older projects with more and better illustrations and expanded texts. Fromonot's earlier, smaller, more monochrome version opened the world's eyes to Murcutt, and it is entirely appropriate that she, and Thames and Hudson who committed to publishing her earlier book when Murcutt was far less bankable in publishing terms, should have the right to produce this definitive work.

Fromonot writes with fluid ease, wit, intelligence and insight, the illustrations are superb, and the design of the pages is exquisite (although the miniature typeface touches the page rather too lightly for easy legibility). It is a lovely thing, which sets the standard for excellence in architectural publishing. The work and ideas explained within its covers remind us that architecture can have integrity and purpose, not only form. Like Murcutt's lectures, the book leaves us slightly chastened for our laxity, but inspired, optimistic about the possibilities of architecture, and with a smile on our face. Priceless lessons. Essential reading. TOM HENEGHAN

Book reviews from this and recent issues of 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.

delight









CARLO SCARPA CHANGED A WAR-RUINED FIFTEENTH-CENTURY PALAZZO IN PALERMO INTO A MAGICAL AND SURPRISING TREASURE HOUSE, IN WHICH, SADLY, NOT ALL OF HIS INVENTIONS CAN BE ENJOYED TODAY.

A short walk from Mura delle Cattive (literally, the wall of nasty women), which is the last remnant of the old coastal Kalsa wall in the Sicilian city of Palermo, stands the Palazzo Abatellis. During the 1940s, Allied bombing of Palermo's port damaged what had remained of this not especially remarkable fifteenth-century palace. After the war came an undertaking to restore the palace to its original form. In 1953, with work nearing completion, the authorities invited Carlo Scarpa to adapt the palace to display the medieval and modern collections then housed in the National Museum of Sicily.

As expected, Scarpa created a series of small, modern interventions that showed deference to the past while embracing the future. As usual, he worked with local craftsmen, respecting their expertise while making recognizably contemporary forms. Another notable feature of Scarpa's approach was the way in which he deliberately exploited the accidents of light to accent particular exhibits. Sadly, here, as in most museums and art galleries, modern conservators are all powerful and windows are now screened. But if you are lucky enough to find a staff member who shares your appreciation of Scarpa, blinds and windows can be surreptitiously opened, and if no one is around you might even be able to climb the hexagonal stepped concrete stairway – now deemed unsafe for the public because it has no hand rail – and examine the door details at the top.

Perhaps I am irresponsible even suggesting these things, as I would never want anyone to put themselves in danger, but who hasn't wanted to touch an object to appreciate its form or venture behind a closed door? They may wear out a little quicker, but then nothing is meant to last for ever. RICHARD BRYANT

Photographs by Richard Bryant