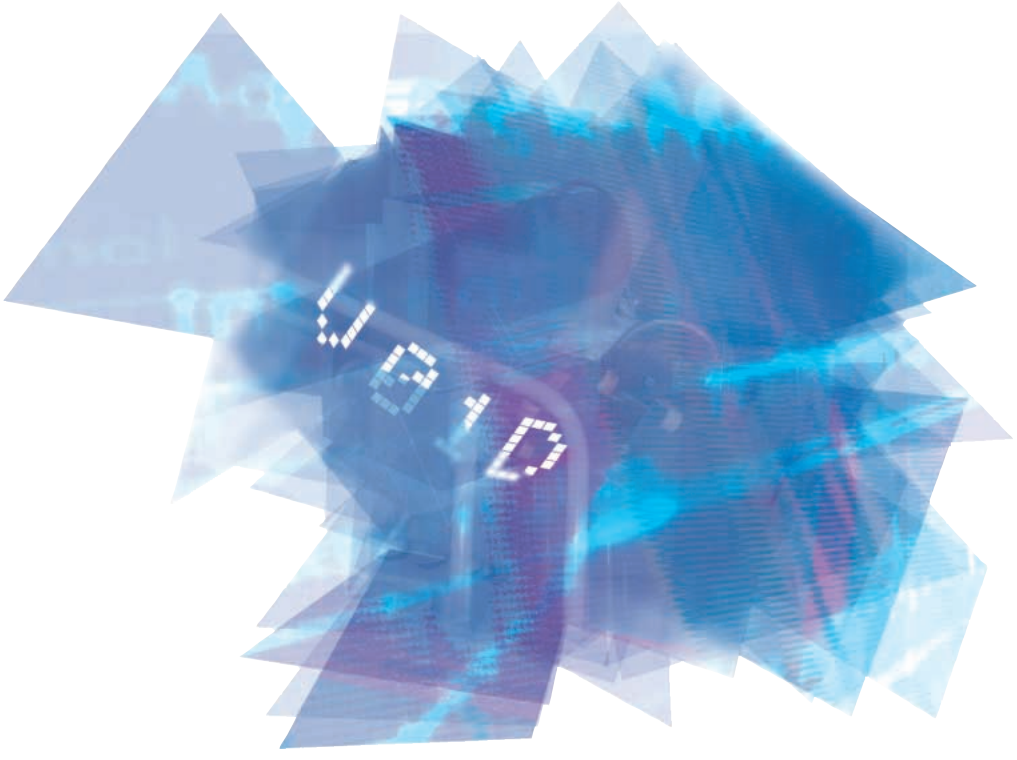
VOID

V0ID

edited by chris speed and george grinsted

V01D
22nd June - 22nd July 2001

Edited by Chris Speed and George Grinsted

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Preface

Chris Speed and George Grinsted

The opportunity to show a range of works, all of which are able to ask questions and offer answers about new forms of architecture, is exciting and rare. Exciting because the various forms in which they come for the V01D show are so different, and rare because the chance for the public to see and interact with the technologies involved is so exceptional.

Opened during Architecture Week 2001, the V01D show represents a chance to expose ten projects that take space, not as a Cartesian given, but as a negotiable and explorative concept. Each adopting a different perspective from which to produce their space, the works illustrate the complexity that arises from using one word to identify a common aspect of experience.

As space is produced in so many different forms, so V01D's selected works take the visitor on a journey from apparently familiar architectural devices that reveal themselves to embody the most fantastic of interpretations of space, to finding familiarity of navigation and spatial convention in the most virtual of interfaces. Nothing is traditional about the works in the show, although many pieces adopt and extend fundamental mediums that define space, such as communication and interaction; and whilst the show fulfils its promise of revealing outstanding new media practices, balsa wood and architectural plans still play a part in supporting these ideas.

Often, exhibitions that present digital technology are determined to use computers throughout to illustrate key concepts. V01D manages to place its theories, that have emerged from an involvement with digital technology, within a continuum between the very analogue and the very digital. This gives the show a playful but reflexive feel that recognises architecture is at an interesting point of change. A transformation that many articles in this book will reference as architecture struggles to move between established practices and extraordinary new processes. And as General Lighting and Power suggest, it is a discipline and profession who's mass is so great that its inertia may force it to break apart, in order for it to fulfil its function of providing shelter and for it to change reality.

Extending the show, the V01D book has provided the exhibitors with an opportunity to expand upon their work, practice and theories, and to contrast them with a range of other texts and projects that aren't in the show but that operate within the context of a book. Consequently the two mediums offer reflection upon contemporary and future architectural practice, in a way that is sympathetic to each audience.

Of the featured writers who did not contribute to the V01D show, Iain Borden, Stephen Perrella and Peter Anders are used to extend the depth of the debate surrounding architecture and new practices. Each text is dealt with differently in terms of layout. Perrella's interview acts as an introduction to Hypersurface and offers an alternative way to re-read architectures role with its audience. The text from Borden's book 'Skateboarding, Space and the City:

Architecture and the Body' supports a local photographer's images of skateboarders negotiating Plymouth's streets, providing a valuable insight into the transformation of an architecture's speed and function. In addition, Ander's paper outlines a thesis for design in a digital age, and helps us understand the sort of vocabulary we will need as we visit buildings on and off screen.

The book has become the history and the future of the V01D project, acting as documentation and extension. Its content represents the currency that will support further discussions about architecture and space, and its variety should enable us to recognise the complexity of the problems involved. In any event, the book is a small handbook of projects and propositions that will entertain anyone interested in new forms of architecture.

In reflecting upon the content of the show in this book, it is valuable to highlight the works that are not written about, to give the reader an understanding of them and how they support the gallery manifestation of V01D. These five pieces demonstrate the dynamic expression of concepts across different mediums; each brings with it an understanding of the production of space that supports the V01D interest in difference.

Socially Produced Space
George Grinsted's 'the waiting room' is a work that quietly reminds us of the parallel on-line space that accompanies the gallery show, by transporting visitors to www.v01d.com into the actual gallery with us. As we listen to the ticking of a familiar railway station clock, the sound of footsteps of fellow travellers accompany our own, only these are the footsteps of visitors to the website, reading texts and downloading images. An audio work that sensitively highlights the fact that the prevalent form of website is a far from shared experience, despite the potential for it to become an environment defined by Social Navigation.

Temporal Production of Space
The consensual medium of cyberspace as we understand it today has a history of extraordinary experiments behind it. In 'Where a Space Once Was' Mike Phillips records the re-materialisation of a cube that was lost in a transmission across the JANet [Joint Academic Network] and EARN [European Academic Research Network] international computer networks in 1987. Emerging from a wall, the tumbling cube arrives lost from a digital space and found in an actual space, still searching for its point of origin.

Re-Production of Space
Dan Harris' work presents a boom microphone suspended in space from the gallery ceiling. Randomly repeating what it records, 'BOOM' takes a time from the environment and throws it back at passers by, thus re-producing a space and creating a layering that is manufactured by activities of the present and memories of the past. The clean gallery becomes marked and scarred, like a photograph that creates more memories each time you look at it.

Production of Journey as Space
How we navigate between places is central to our understanding of a meta-space. It might be a house view that allows us to understand how each room relates to the next or a world view that lets us model our journeys around


go home

the globe. In 'traceyou(where_is_the_web/?)' Adam Child provides us with a model for a journey that we barely know exists: the route that information takes as we visit a website. Projected into 3D, we are dragged helplessly along lines of connection between routers and servers, bouncing past lines and IP numbers, until we eventually arrive at our .com destination.

Interactively Produced Space

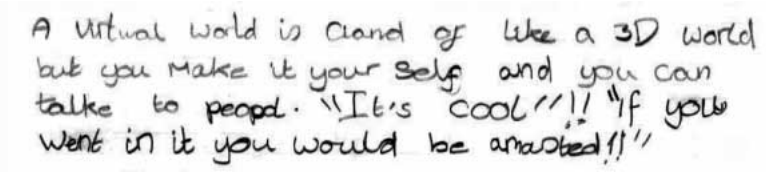
Immersive virtual reality environments are far and few between, and all too often prove to be a disappointing reminder of our adherence to Cartesian architectures. In 'The Parallel Dimensions of Organic and Synthetic' Will Harvey provides us with the sort of visual experience that is usually restricted to linear movie sequences, but in his work we can move in all directions. Drifting up, along and through we are exposed to shimmering colours, exotic textures and collapsing forms. A rare feast that leaves the audience to return to the show, reflecting upon the explosion or collapse of architectural language that began with models and plans, and ended with aural and visual forms that are beyond the actual.

V01D operates as a celebration of insight into space, and as a critical reminder to professionals and practitioners that visiting buildings may not be the best way to explore the wonderful crisis that architecture is experiencing. The combined project of show and book have provided all involved with an exciting opportunity of tying together radically different yet intrinsically similar types of work.

Organised from an original proposition by Dominic Howe of Digital Skin, together with the creative and technical insight of everyone at limbomedia, Plymouth Arts Centre has played host to the first project for The Institute of Digital Art and Technology. Recontextualised in this book it synthesizes a project that has embraced the RIBA Architecture Week project and delivered a fascinating body of activity for further research.

Walking with Avatars: Children making and populating 3D virtual worlds through the Vertex project

Fiona Bailey, Middlesex University



Shared 3D Virtual Worlds are internet based multimedia environments, which enable participants from many different physical locations to simultaneously explore simulated three-dimensional landscapes and architectures, and to interact and communicate with each other within these spaces represented by a 3D animated character or 'avatar'.

Vertex is a classroom based research project involving young children and their teachers in the creation of their own imaginary 3D virtual world on the Internet.

Virtual worlds technologies appear to hold great promise in relation to educational practice, offering the potential for new and dynamic ways of teaching and learning. As interactive communication spaces there are possibilities for collaboration and exchange, and as immersive, media rich environments they can provide opportunities for the exploration of landscapes that would otherwise never be encountered.

Clearly there are numerous possibilities for creating virtual learning environments which support specific subject areas within the curriculum - exploring the labyrinths of an ancient Egyptian tomb, or travelling to the outer reaches of the galaxy, for example. In relation to this research however, the key area of our investigation is less subject specific, focusing more on the interdisciplinary possibilities of these technologies, and what they can offer in relation to developing creative approaches to teaching and learning. More specifically, how can these tools extend opportunities for children's creative expression, and in what ways can they contribute towards the development of communication skills and active learning across the school curriculum.

In order to investigate the possibilities therefore, rather than introducing a pre-determined learning environment into the classroom, the Vertex project is taking a more constructionist approach – one which aims to facilitate young children towards the creation of *their own* virtual world and that evaluates the learning that arises from their involvement in this creative process.

Based in three primary schools - Soho Parish Primary and Oakthorpe Primary in London, and Firth Primary in the Orkney Islands – children aged between 8 and 10 from three very different cultural and geographic locations are working in partnership on the project. The children have been introduced to each other on-line using a commercially available virtual environment package called ActiveWorlds[1], and through playing extensively together in the environment they have familiarised themselves with the interface, text chat facilities, avatar options, and the built-in on-line construction tools, in preparation for the task of creating their own virtual communities.

Initially, for the majority of children, the most exciting aspect of using ActiveWorlds was the ability to talk to other people, and the primary vehicle for initiating this contact and interaction was the avatar. For the children, avatars were great fun to play with and to 'be', but were also used to actively seek out and communicate with others. Once contact is established, they are used for dancing, fighting, turning cartwheels and running races, or for standing around in little groups chatting, exchanging building tips, or asking questions to satisfy their mutual curiosity about each other.

The 'off the peg' avatars already available with the software, however, presented children with a very limited choice of characters, and there is no facility (as there is with certain software) to custom-build a character, therefore leaving little scope for creativity. This however provided the first concrete opportunity for the children to make a creative input to the environment - i.e. make their own avatars. Making their own avatars would provide a very concrete way for the children to impress their identities on the environment, and for them to decide how to represent themselves to others in virtual space.

Avatar making is still, however, a technically complex procedure, so in order to involve the children as fully as possible in the process they created designs for their avatars in the form of physical, jointed puppets. Using only simple geometric shapes would ensure easier transfer into a 3D digital medium, while still allowing children the creative freedom to design their characters.

In creating their avatars, the children decided they wanted to look like themselves. They wanted to show the other children what they looked like, and conversely, they wanted to know what the other children looked like too. Their puppets were therefore devised as movable self-portraits, incorporating digital photographs of their faces and using fabrics and collage materials to create elaborate costumes, and equipping themselves with wings, skateboards, jetpacks and rocket powered roller blades.

When completed, the puppets were scanned into Photoshop, transferring the shape surface textures of each design to the computer to act as a blueprint for the creation of the avatar in the 3D modelling programme 3D StudioMax - a process which was demonstrated to all the children in class.

The children had been very excited and enthused by their experiences using ActiveWorlds from the beginning, but the introduction of their own avatars into the landscape motivated them still further, and resulted in a true sense of ownership. Once the avatars were complete, the next stage was to begin affecting the environment itself, and to develop the children's own design ideas and apply them to the currently empty landscape.

Integrated into classroom activities, and touching upon a range of subject areas such as Information and Communication Technology, Art, Literacy, Science and Citizenship, each school has embarked on the design process, working with traditional as well as new media tools. The basic premise for each world began with animated discussions involving the whole class. Ideas generated through these discussions were refined through role-playing exercises, reinforced through descriptive writing assignments and the actual appearance of the worlds ultimately began to emerge through elaborate drawings and decorated maps.

The task of designing a world of their own proved highly motivating to the children, and ideas of every description quickly emerged - from adventure playgrounds to tropical islands, from chocolate cities to ice palaces. With consideration towards developing a sense of community in their environment, and to enable all their ideas to feed into one design, children have worked closely together as a whole class in order to negotiate and streamline all their ideas into one coherent whole.

Activities such as storytelling, creative writing and drawing have enabled children to explore and develop ideas, and the resulting descriptions and vivid illustrations now form the foundations for the creation of the children's worlds. Digital photography, 3D modelling and on-line building exercises are now providing the means through which to make their ideas a (virtual) reality. Children have now begun to construct their worlds, each world representing a different school, each with its own highly individual set of physical and social characteristics, virtual life forms, myths and legends and very distinct character.

The demonstration of avatar making in 3D StudioMax introduced children for the first time to the process through which they would ultimately create the building blocks and objects for their worlds. Now using 3D StudioMax for themselves, children have begun to make their objects by creating and combining simple shapes or 'standard primitives' (for example, cuboids, spheres, pyramids and cylinders), to make everything from walls, floors and doors to mountains, trees and flowers. Once the object has been created, children add images and patterns collected using a digital camera to create the surface textures of their object. On completion, the model is exported and placed on the server ready to be downloaded into the virtual space.

Building in the ActiveWorlds environment entails the duplication of existing objects in the environment, and the editing of that object's file name in order to download the new object from a server. Once successfully completed,

these objects can then be manoeuvred and positioned using on screen arrow keys, beginning the process of creating new structures and landscapes.

Children have now begun placing their first objects in virtual space, forming the starting point for each world. Strangely beautiful trees line the avenue leading from the International Welcome Port of Oakthorpe's 'United Island', leading to the (soon to be built) capital city of Zipton. Towering doorways form a magical circle of portals ready to transport visitors from the Landing Dome to the different zones of Soho's world, 'Virtastic' – to the 24-hour Astronomic Space Disco, to Timania for an exploration of the future or the past, or to Sunnical Island to visit the endangered Nippers which inhabit the endless golden sands.

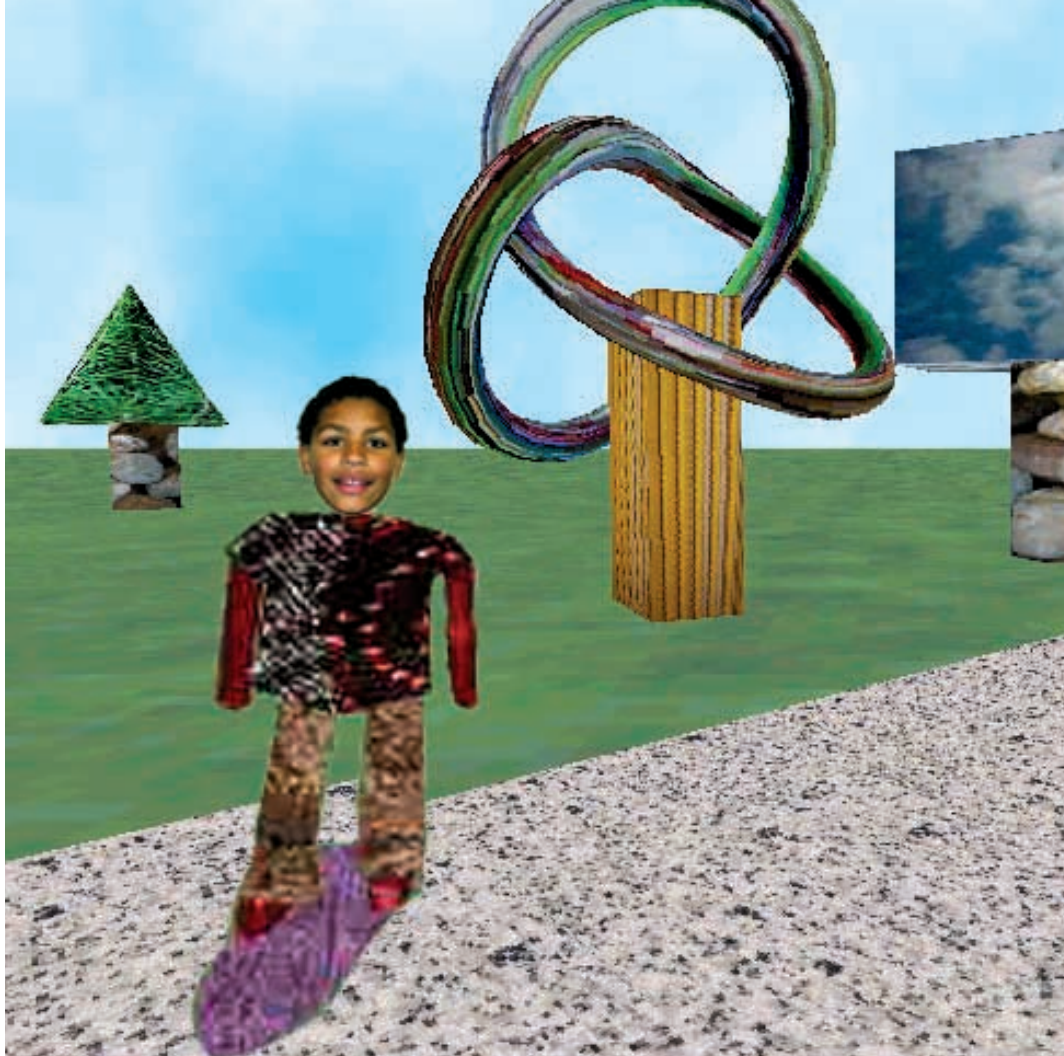
At the time of writing[2], this is the point at which the project has arrived. Still in its early stages, the research has already seen exciting developments, and can report a very positive response to using the technology from both children and teachers alike. Children are highly motivated and engaged by the technology, and the mixed-technology approach has raised very real and workable ways of integrating the technology into the curriculum. Not only has the technology presented itself as a creative, expressive medium in its own right, but has also begun to demonstrate its value as a catalyst for a range of creative approaches to other curriculum areas, such as Literacy and Science.

The project will continue to run over the next two years, during which time children will develop their worlds. As their worlds grow, the opportunities for exploration, interaction and exchange between the school partners will extend. All these activities and processes will be monitored and evaluated in order to determine how, what, and to what extent learning may be enhanced through an active engagement with these technologies. At the same time, together with teachers, we will be aiming to identify and disseminate the possible, practical ways forward for teachers to utilise virtual technologies creatively in the future in relation to Art, ICT and the wider school curriculum.

The Vertex project can be found on-line at: http://www.lle.mdx.ac.uk/research/projects/vw/

Notes

1. For further information about ActiveWorlds see http://www.activeworlds.com
2. June 2001



NEW IMPROVED REALITY: Architecture as Design Science

Digital Skin

In the construction world of the present day, the architect is a slave, bound by the constraints of cost and building codes and forced to erect unquestioning mundanities; where planners order facades of nostalgia, and clients demand cheap extensions to the Earth's crust.

"The pound is the yardstick by which all success and failure is measured."
Richard Buckminster Fuller

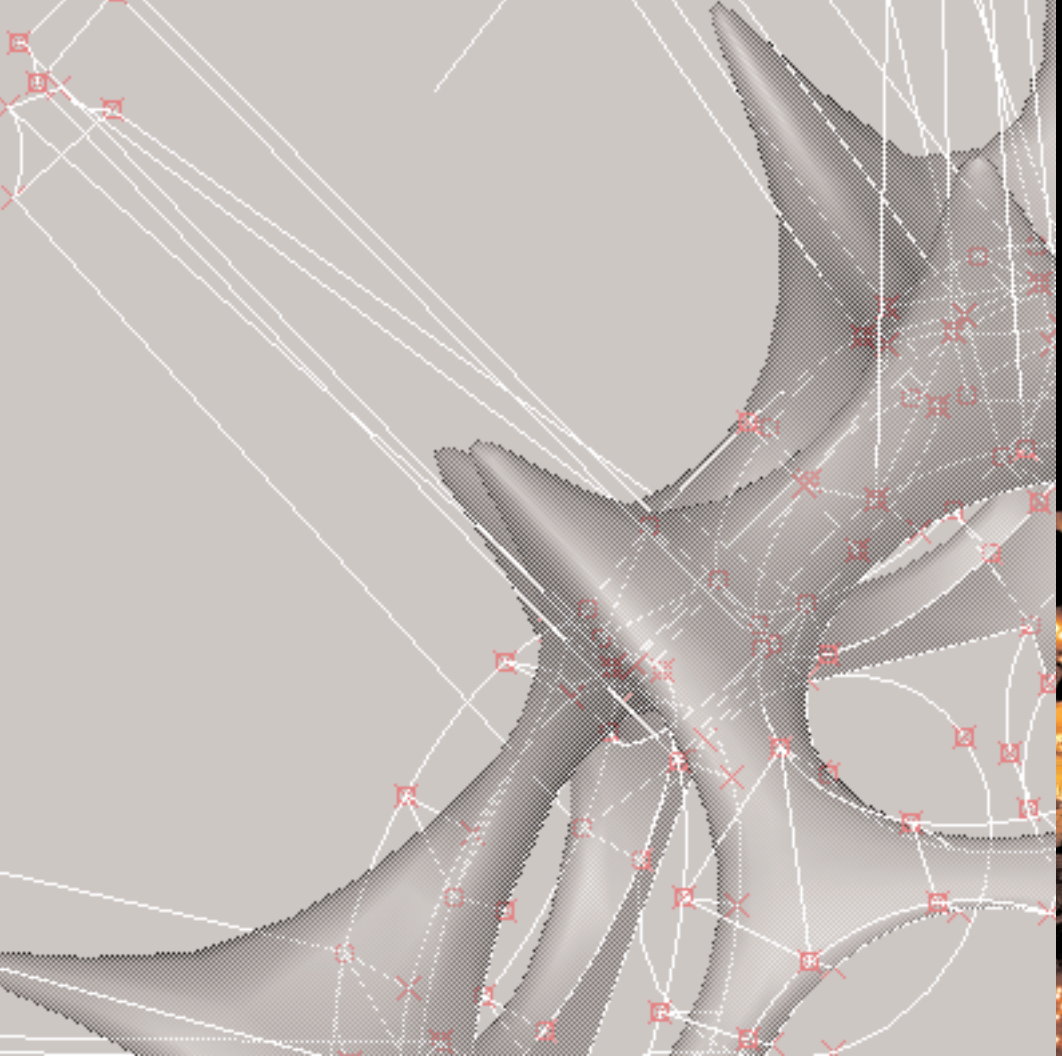
In a world of depleting natural resources and an ever-increasing population we need to look for ways to do more with less. To do this we must study the super-efficient structures and biological systems that occur throughout nature. These are, after all, the product of billions of years of evolution and natural selection. These studies, combined with the use of groundbreaking technologies, theoretical science and computer simulation are a must if we are to survive on the planet. The purpose of our investigations is to acquire a palette of new ecologically sustainable materials and efficient structural systems. From this we can create different recipes and propose an alternate reality, in which humanity has the option to succeed.

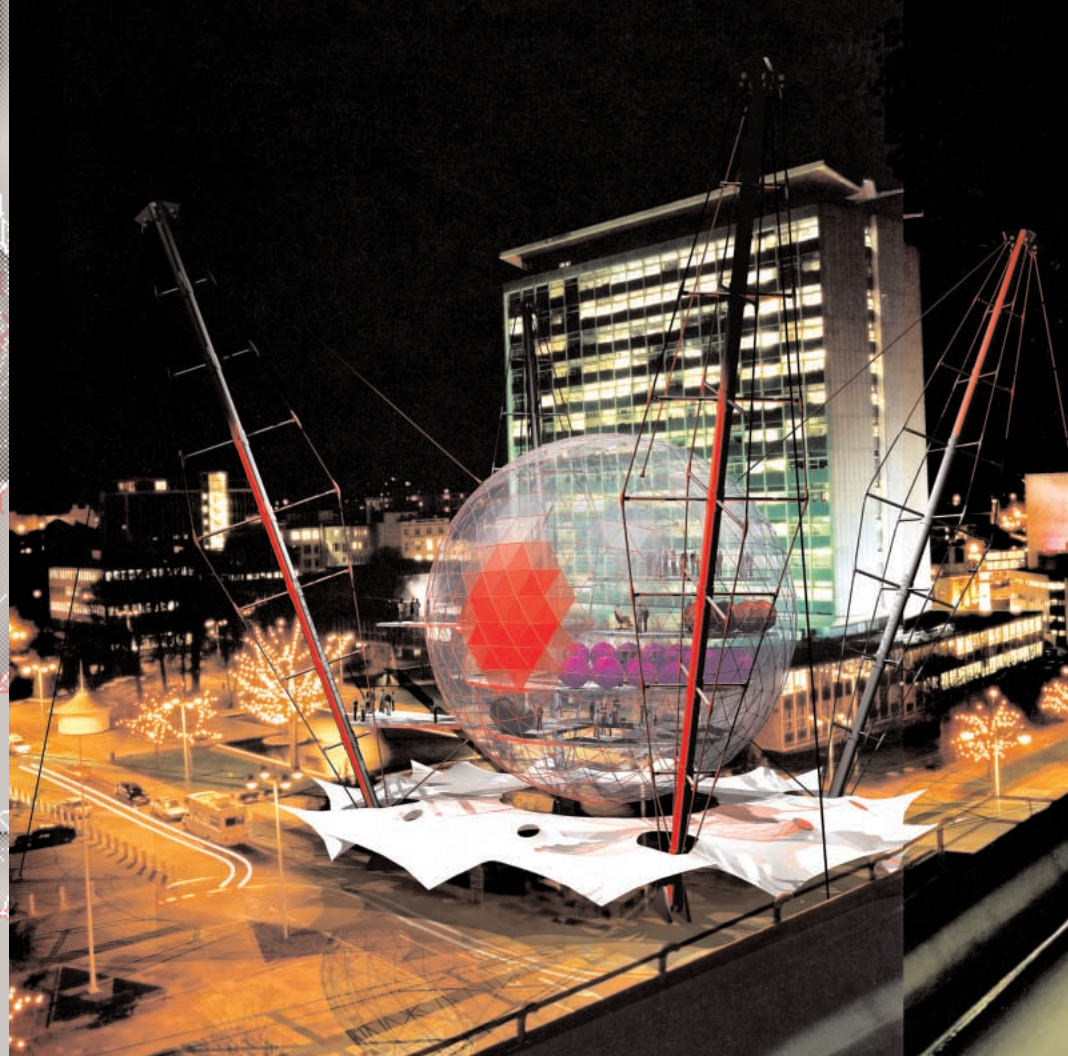
We the architectural scientists are conducting experiments to naturalise the built environment. We conduct our experiments in the "void" of virtual reality, by applying combinations of naturalistic forces to dynamic systems. The recorded results (forms/elements) are analysed and program applications proposed.

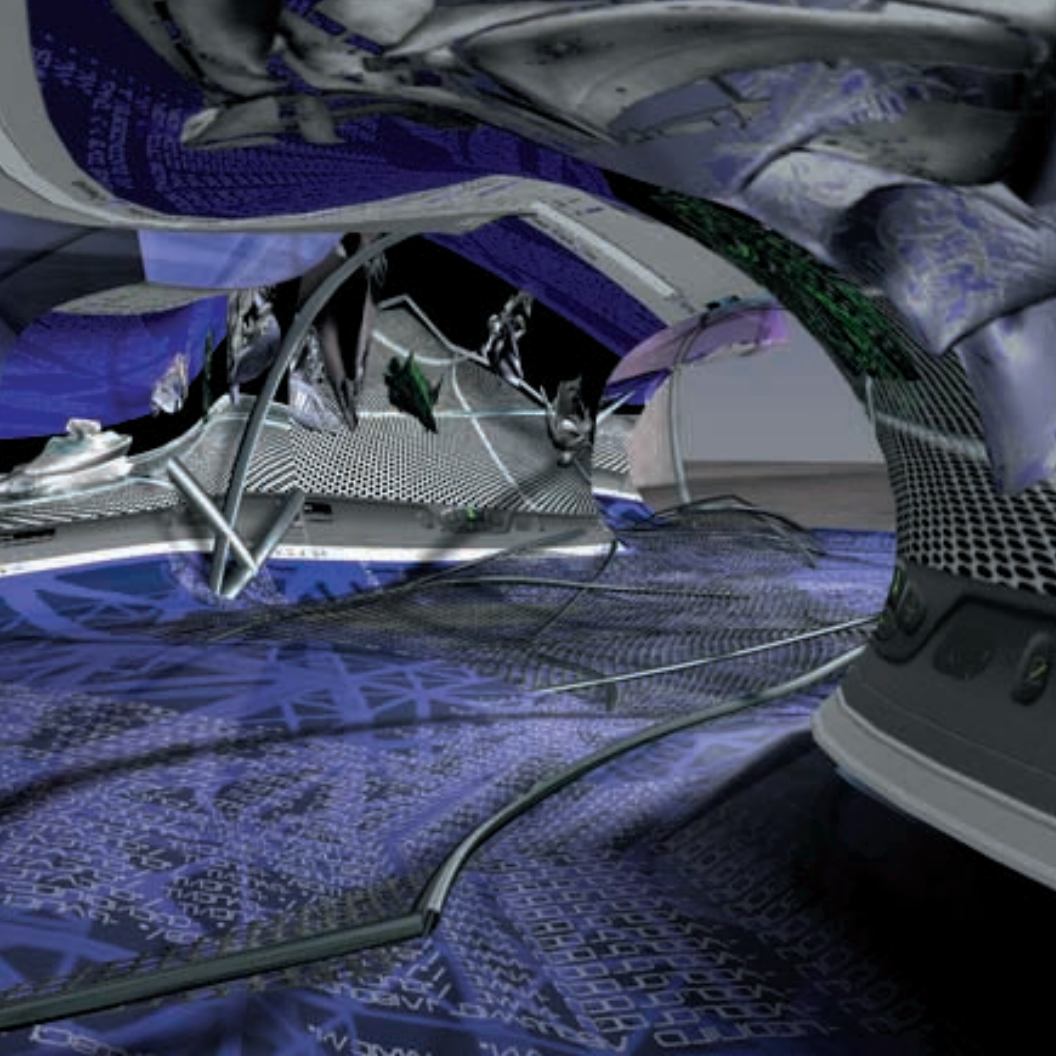
The experiment begins with the dissection of a number of specimens that best reflect the geometric poetry in nature, such as:

Spider abdomen and silk	The fly's eye	Jellyfish
Fur	Radiolarian cells	Human skin
Spinal tissue	Mammal bone structure	Viruses
Plagues	Parasitic species	

From dissection and detail analysis, information is passed to a database where computer models are created. These models are then exposed to various computer simulations, where their efficiency and dynamic forces are examined; the resultant data becomes our new building palette. Selected architectural sites, conditions and programs are then applied.







An Interview with Stephen Perrella

Questions by Oliver Lowenstein
Encoding by the limbohuffer

Stephen Perrella is amongst those who have redefined many an architect-theorist's conception about the future of our built environment over the last decade. Along with others, principally white American males, such as Greg Lynn, Marcos Novak, and Bernard Tschumi, Perrella participated in extending the classic period of post-modern architecture of the eighties, into the celebratory reach of the technological sublime of the nineties. Perrella's elaboration of 'Hypersurface', an approach which applies topographical mathematics to accommodating the collapsing distinctions between the physical surfaces of things and the more permeable mediaspace of video and other new media 'screen' surfaces, presciently anticipated the decade's emergent concerns of many an architecture department with the modelling and simulation possibilities that digitalisation, indeed virtualisation, provided. The resulting proliferation of experimental form is today common-place, be it architecture journals or post-graduate degree shows. If these wow the public's thirst for the shock of the new, they also draw upon a manifest lattice of complementary theorising around these ceaseless generations of form. For example Gilles Deleuze, whose book 'The Fold', is readily referenced in this theory laden firmament, along with warps, and below, in Perrella's words, seams. As such, Hypersurface contends with a range of other theories and practices, which weld late twentieth century post-industrial architecture to the discovery of cyberspace and the rolling bandwagon of theoryland, not least Novak's TransArchitecture and Lynn's Adaptive or Embryological architectures. It also relates to any number of arts-technology projects from which stories of technological significance have been spun. If it is inevitable that the man-made surfaces of the world are going to become increasingly porous and blurred with mediated, contestable surface interfaces, Hypersurface becomes a suggestive way of beginning to sense these new contexts.

As a writer working in completely different territories of concern, but with a fair knowledge of technological related issues, I was intrigued by Hypersurface. In response to the editor's request, I prepared a series of questions which I felt could open up the discussion to broader constituencies, including those who remain outside the gates of the architectural digerati. Implicit in a strand of the questioning, is whether Hypersurface could be applicable for different contexts, including the 'sustainable' agenda. This is very different to celebrating the dynamics of the micro-detail, across the cityscape's dysfunctional topoi, which appears to be Perrella's line. Indeed, his response to this remains abstracted, and limited by mediated emailed responses the issue is left hanging in the air. That said, it feels as if there isn't anything necessarily at odds in such a speculative convergence for either party to contemplate picking up on. Perhaps such a dynamic relation is in itself a microfold in the fabric of Hypersurface which the future can attend to. It will be interesting to see if this, and other such microfolds in the weft and warp of the questions and answers emerge over time.

OL: Could you describe hypersurface theory and practice for the uninitiated, in terms of its cultural origin, history, the current state of its development?

SP: Hypersurface is a term that I have appropriated from mathematics—and then existentialized. The term as I have used it, is entirely invented in an attempt to rethink its cultural import. That was not an innocent tactic, as it is a response to our excessively technologized and commodified world. The original definition of a hypersurface is: a surface in hyperspace, or four-dimensional space. When the term is considered in a cultural rather than a mathematical sphere, the way in which a hypersurface is a connective tissue between dimensions takes on a particularly significant relevance.

Knowing that hypersurface has to do with a description of space, time and perhaps some other dimensions helps situate the way its usage has been recontextualized. A decade ago, I became interested in the problematic of the bankruptcy of Western Cartesianism. This is what one takes on when participating in the architectural arrier-garde. In general it may be suggested that the systems that are in place, with which we practice and comprehend space and time, was not functioning as we might expect. Ten years ago when it became a bit more clear that the digital realm was going to explode into what we have today, I perceived the advent and proliferation of digital culture and cyberspace as a mirror or extension of Cartesian 3-space.

OL: Where do you situate hypersurface - both as theory and realisation - in the emergence and continuing evolution of 'cyberspatial' architectural practice? And what significance do you impute to it?

SP: I situate hypersurface—in the middle. Its dynamic is middle—out. Cyberspace may be seen as an aberration of Western metaphysics. It is a bodiless abstract world, where one cannot resist characterizing it as an extension of Descartes' theories of interiority.

OL: Could you say where physical and working manifestations of hypersurface have come into being? (eg. Groeninger Museum Video Gallery) and do the existing examples fully represent the realisation of hypersurface architecture?

SP: One of the most interesting things that I have discovered in my investigations around the thematic of hypersurface is that it is a sensibility about things. Always and for the most part, we are dualists, we are always breaking things into this and that, and its opposite. What hypersurface tries to bring about is a sense for the dynamic between things and not about things. To do this suggests an entirely different understanding about how things work in the world. So it is dualist to suggest that there are examples of this "thing" called hypersurface as in your suggestion about the Groeninger Video Gallery by Bernard Tschumi. However, and of course, there are some very important features about Tschumi's project in regard to hypersurface. More importantly, we can approach just about anything with a sense for what I mean by hypersurface, in that one simply avoids looking at the division between information and matter and see them more so as informing each other.

OL: What is the relationship between the pixellated media surface and the physical materials of the rest of the building? Has this been discussed and taken further, ie. the exploration of a common design aesthetic between the screen and the building materials?

Or are the two approached as discrete units, with no physical relationship(s)?
exploration [20,105] [10,10] common design aesthetic [70,106] [30,110] screen [30,63] [30,110] building materials? [20,165]

[30,80] [30,110] two approached [20,100] discrete units, [40,150] no physical relationship(s)?

SP: As I have suggested above, to accept the division between media and material is already to participate in a dualistic and
SP: [20,100] I [40,90] suggested above, [20,175] accept [30,110] division [70,106] [50,64] [30,63] material [20,140] already
dichotomizing activity. One can be assured that such an approach will always uphold such divisions. That is because dichotomies
[20,175] participate [20,115] [10,10] dualistic [30,63] dichotomizing activity. One can be assured that such an approach will
begin with our assumptions about things in the world. When I do architecture, I try not to make such distinctions although it is
always uphold such divisions. That [20,140] because dichotomies begin [40,150] our assumptions about things [20,115] [30,110]
very hard not to, because the deep history of dividing things almost always assures that when you engage with the world it is
world. When I [20,95] [120,109], I try not [20,175] make such distinctions although [20,145] [20,140] very hard not [20,175],
already locked into tightly controlled categories.
because [30,110] deep [70,163] [20,105] dividing things almost always assures that when [30,203] engage [40,150] [30,110]

world [20,145] [20,140] already locked [40,145] tightly controlled categories.

Finding a way to unlock that systemic but at the same time remaining productive in the world of everyday design of architecture
Finding [10,10] way [20,175] unlock that systemic but at [30,110] same time remaining productive [20,115] [30,110] world
commands all of my time at the moment.
[20,105] everyday [60,97] [20,105] [120,109] commands all [20,105] my time at [30,110] moment.

OL: What is the social appeal of future hypersurfaces?
OL: [40,130] [20,140] [30,110] social appeal [20,105] future hypersurfaces?

SP: The social appeal is not something objective. Hypersurface is working all the time and it is the forces of capitalism and the
SP: [30,110] [60,98] [60,85] [20,140] not something objective. [120,121] [20,140] [70,139] all [30,110] time [30,63] [20,145]
bankruptcy of Cartesianism that work together to implode space and time into a more complex figuration where more of what I call
[20,140] [30,110] forces [20,105] capitalism [30,63] [30,110] bankruptcy [20,105] Cartesianism that work together [20,175]
"hypersurface" is possible. When the world becomes spatially and temporally more complex because the real and the virtual worlds
implode space [30,63] time [40,145] [10,10] more complex figuration [50,118] more [20,105] [40,130] I call "[120,121]" [20,140]
are folding into one another, then we need a theory like hypersurface to understand or rather, negotiate, this new complexity.
possible. When [30,110] world becomes spatially [30,63] temporally more complex because [30,110] real [30,63] [30,110] virtual
Hypersurface rethinks or reconfigures the social. Hyper is we, and Surface is the material dimension. Working together as an
worlds [30,80] folding [40,145] one another, then we need [10,10] [60,152] like [120,121] [20,175] understand [20,165] rather,
interdynamic the reconfiguration of who we are as a fluxing intersocius is what hypersurface establishes. In other words, when the
negotiate, [40,140] new complexity. [120,121] rethinks [20,165] reconfigures [30,110] [60,98]. Hyper [20,140] we, [30,63]

connections between us and the material world start to enfold and envelope, then we need far more pliable and complex terms to
[70,104] [20,140] [30,110] material dimension. [70,139] together [20,100] an interdynamic [30,110] reconfiguration [20,105] who
discuss what is taking place. My bet is that hypersurface will come in handy along these lines, or rather, seams.
we [30,80] [20,100] [10,10] fluxing intersocius [20,140] [40,130] [120,121] establishes. [20,115] other words, when [30,110]

connections [70,106] us [30,63] [30,110] material world start [20,175] enfold [30,63] envelope, then we need far more pliable

[30,63] complex [50,150] [20,175] discuss [40,130] [20,140] taking place. My bet [20,140] that [120,121] will [40,90] [20,115]

handy along these lines, [20,165] rather, seams.

OL: Could you comment on how hypersurface architecture can/could contribute to repairing many cities' dysfunctional urban
OL: Could [30,203] comment [20,145] [30,153] [120,121] [120,109] can/could contribute [20,175] repairing many cities'
environments?
dysfunctional urban environments?

SP: The state of disrepair will never come to a moment where we can start from scratch. Nor will we ever be able to build the
SP: [30,110] [50,130] [20,105] disrepair will never [40,90] [20,175] [10,10] moment [50,118] we can start from scratch. Nor will
ultimate city or urbanscape. The ameliorative measures that hypersurface theory suggests is that we pay attention to the new seams
we ever be able [20,175] build [30,110] ultimate city [20,165] urbanscape. [30,110] ameliorative measures that [120,121] [60,152]
and folds of our dysfunctional environs and celebrate them. We should do so because these new hypersurfaces are a new emerging
suggests [20,140] that we pay attention [20,175] [30,110] new seams [30,63] folds [20,105] our [130,125] environs [30,63]
fabric between things; a network that may make things and relations between things more meaningful. We have to stop looking for
celebrate them. We should [20,95] so because these new [130,126] [30,80] [10,10] new emerging fabric [70,106] things; [10,10]
solutions and begin to sense the middle—out.
network that may make things [30,63] relations [70,106] things more meaningful. We [40,90] [20,175] stop looking [30,130]

solutions [30,63] begin [20,175] sense [30,110] middle—out.

Through the processes of deconstruction and reconstruction, facilitated by the interchangeability of digital data, it is possible to induce a machine produced translation of human produced artefacts. This process allows us to investigate not only the initial input in a new light, but also the processes used by digital technology across the world. The use of processing as a means to a creative end allows the artist to create a framework in which the audience or any other input can be used to produce an output. This process itself increases the plurality of the subjectivity of the work and embraces the perspectives of people other than the artist. This is clearly an important process in the field of architecture due to its output - spaces that will ultimately be used by many people not just the designers.

As an example of these principles the above interview was used as an input to create a three-dimensional, fully navigable world (pictured right). Constructed from the progressive vocabularic crossover of both participants. As the interview progresses any words used by both interviewer and interviewee are encoded as coordinates on a two-dimensional plane. This data is then used to plot the applicable words in three-dimensional space. The position of the words being dependent on their constituent letters and total letter count.

The output of the process is a VRML (Virtual Reality Mark-up Language) 'diction-plot' constructed not by either party's input but by the combination of interviewer, interviewee, programmer, designer and finally, navigator. To act as your own navigator visit: http://v01d.limbomedia.co.uk/diction-plot/

We Like Technology, Technology Likes Us

Text by Nic Clear with images by Bastian Glaessner

Abstract

This essay is an attempt to outline links between architecture and technology, or more specifically the architectural representations of technology and current technologies of representation. It suggests that whereas architecture was once at the forefront of technological advance and similarly its representations most powerfully expressed this, the relationship between the two has since irrevocably changed. While architectural production in terms of building plays an increasingly marginal role in the development and representation of advanced technology, computer generated environments offer possibilities of pushing architectural discourse into a new realm of spatial imagination that will re-instate architecture as central to the discourse of technological innovation and representation.

The Questions Concerning Technology

The etymological origin of technology, techné, emphasises that technology is essentially about making. It is a form of craft and throughout much of human history buildings have often been among the most technologically advanced products that their respective cultures have constructed. While technology refers to any technology, a stone axe is as much an example of technology as an electron microscope, the terminology of technology has become synonymous with science and specifically with scientific advance. Technology is essentially understood as progress, or rather progressive. As technology has become increasingly pervasive and we have developed technologies of bewildering complexity with the potential of both massive destructive and constructive capabilities, discussions around technology often deal with moral and ethical issues. In such conversations about technology and morality, the notion of good and bad technology is a question about the uses of technology, and how one chooses to represent technology can reflect one's own position within this debate.

If technology is a complex thing to accurately define, it is equally a hard thing to represent. Since the introduction of electronic components, and more latterly digital equipment, it has become impossible to represent technology in any other way than in some rather abstract symbolic fashion. The technology of atomic power can be represented by a mushroom cloud (bad), the sun (good) or by a diagram of the nucleus (indifferent). How we use these representations is more indicative of our own ideological position than it is a means to communicate anything about nuclear energy itself.

The Look of Technology

Technological innovation in architecture is perhaps the great visual symbol of C19th and C20th social and cultural modernism. From the iron and steel monuments of Victorian industrialisation, to the great skyscrapers of Chicago and New York, to the techno hypersurface of the geodesic dome, architectural images represent a very potent image

of recent cultural life. The obsession with depicting the city itself as a vast complex technological organism has been endemic throughout art, literature and cinema. At the beginning of the last century the Constructivists and the Futurists made art that expressed this desire for a total technological revolution. This despite the fact that Russia and Italy were still essentially agrarian economies, the desire to be modern - or more importantly to look modern - was most forcefully expressed through the construction of architectural fantasies that depicted speed, dynamism and power. This desire to appropriate a look from something beyond the reach of what was actually available is actually characteristic of technological representations generally. We never represent technology that is, but that which we desire.

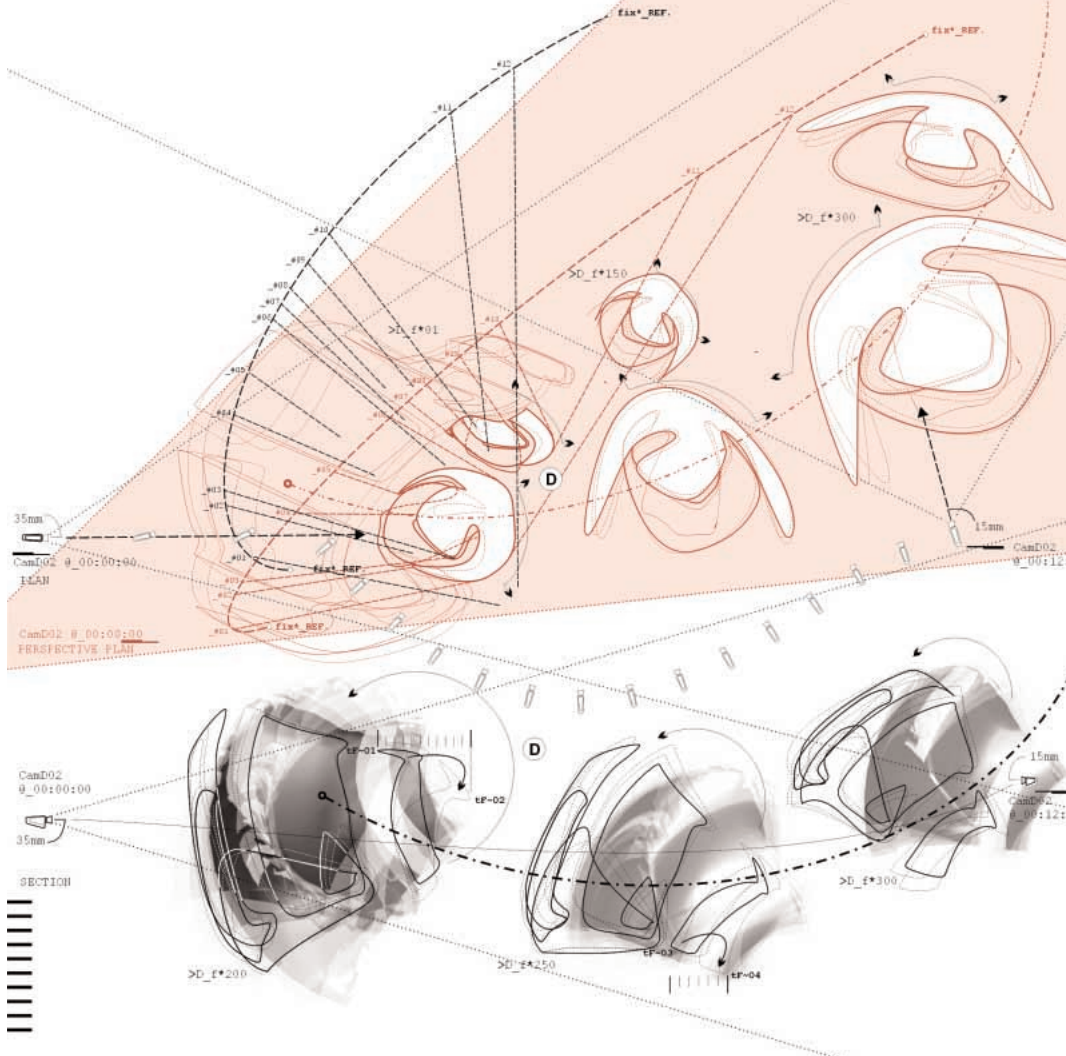
The shift from technology as an extension of nature, the 'structural rationalism' of the C19th, to a representation of the technical that is essentially diametrically opposed to nature reflected a significant change in the type of industrialised and scientific advances that technology itself went through, as mass production became more standardised and more widespread. The paradigmatic shifts that emerged at this time were also evident in visual culture, as representations underwent a similar revolution. But apart from the newly introduced discipline of cinema, these were revolutions in style and content as opposed to form. If certain early C20th avant gardes questioned the anthropomorphic and organic elements of late C19th technological representation and looked beyond the available vocabulary of natural forms, this machine aesthetic developed in opposition to other equally modern expressionistic forms of aesthetic development. This dualism is significant as it demonstrates that the discourse around technology was about the look of technology rather than technology itself. It sought to differentiate in terms of style and surface rather than distinguish between some form of ontological difference.

While rather empty debates still continue between a 'machine aesthetic' and an 'organic aesthetic', it has become increasingly obvious that developments within science and industry have moved far ahead of the cultural industries in terms of technical sophistication. A difference that is compounded by the cultural industries' inability to understand and represent much of science's innovations. While it may be a difficult idea to accept within the culture of art and architecture, it is possible to consider that innovation has run its course and that what may pass as cutting edge is mere styling. It is plausible to assume then, that today's avant garde is no longer made up of artists and designers but of computer programmers and genetic engineers.

Technology and nostalgia

Throughout a large part of its history architecture has perceived itself at the vanguard of technological advance, or at least in parallel with it. Why else would Norman Foster choose a Boeing 747 as his favourite building, other than the fact he believes that somehow the designers at Boeing and his own practice are involved in a similar task.

For much of the time up to and including the early C20th the most progressive aspects of building and structural engineering were as technically advanced as anything produced by civilised societies. And while contemporary architecture uses advanced technology from the actual design process through to information networks, and complex environmental and materials applications, architecture in this sense is as jacked in to global system as any other discipline. But only a small section of the contemporary building process utilises any techniques that

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could be seriously considered as advanced technology. Whether we like it or not, architecture itself is a relatively crude discipline that does not need the sort of advances one might see in genetic engineering.

Within architecture the fascination with technology has always been with the technology of visibility, and while current trends attempt to go beyond this, one could argue that this interest in visibility also applies as much to the developments with intelligent buildings and skin technologies as with more traditional forms of structural engineering. If architecture is to be technical it has to look technical and for it to look technical more often than not means it has to look like a machine. Because of the significance of architecture and architectural imagery to the development of C20th culture, architects have enjoyed the luxury of feeling that architectural discourse has a significant role to play in any future developments. Architecture may have to resign itself to the idea that if it is simply concerned with a traditional role within the building industry then its impact will become increasingly marginal. If it is to embrace the development of digital environments then that will require a radical rethinking of what we understand architecture to be and how it is to be taught.

Technology beyond representation: Terminator 2, Frankenstein becomes liquid

The film Terminator 2 presents us with an extraordinary vision of technological advance. In the first Terminator movie, the Terminator machine is a traditional cyborg robot, endo-skeleton covered by flesh. While it possesses a multitude of advanced features it is still basically nuts and bolts, pulleys and levers, as is revealed toward the end of the film when its flesh is burnt away. In the second film, the Terminator is a completely different and much more lethal vision of technological advance, since the second Terminator has no form, it is liquid and it can become any form at will. This Terminator can be frozen and shattered into millions of particles, but as bits start to thaw they can recombine themselves back into the whole. The change from a machine that is understandable within our existing paradigm to one that is beyond the mechanical, a formless entity that has no moving parts, no wires and no differentiation between inside and outside owes its existence to two different shifts. Firstly there is the ability to depict such an entity, as changes in special effects and particularly digital animation made it possible to produce this morphing creature. Secondly, and more significantly, this shift from an essentially anthropomorphic entity to a liquid thing signals a change in perceptions of what technology is and the point to which technological advance has gone beyond our ability to recognise and represent it. Technology is something that can literally be anything or anywhere.

A defining factor that picks up this remarkable transformation is in the first film, as we are constantly given the Terminator's point of view via its own internal head up display. Since it is understandable as an extension of traditional CPU based technology, we see information about its quest through an internal screen. It even allows us some kind of empathy with its motivations: we understand its single-mindedness, its inability to understand reason; it's not the Terminator's fault - it's simply programmed to carry out its task. In the second film we are not treated to such an interior view. The machine made of liquid has no internal representations, or rather none that would be accessible to us; we are denied access to its motivations and whether it can be reasoned with or not. The second Terminator is more threatening because it presents us with something totally alien, totally impenetrable, echoing many of our fears about technology that we don't understand.

Part of the problem with representing technology is of course that the idea of technology has come to encompass such a diverse set of practices and methodologies, from digital information networks and micro-biological implants to particle accelerators and spaceships. Frederic Jameson in 'Postmodernism: The Cultural Logic of Late Capitalism' has argued that technology offers us some form of shorthand for the representation of global capital itself. Jameson has pointed out that transformations within technology have not only had profound effects on the nature of capital but subsequently have produced dramatic shifts in the types of representations that are produced within those systems. Our contemporary 'third phase of capital', the postmodern, has initiated a logic of cultural production that simply defies a singular image or a singular mode of representation. Where it is perceptible is through the complex global network of capital and information. Jameson defines this global network as postmodern hyperspace and concludes his discussion by calling for the creation of maps for this new hyperspace.

If previous shifts in phases had initiated the techniques of the counterfeit (the renaissance) and serial production (modernity) then our current age is perhaps defined by the meme, the self-replicating, self-mutating automaton. It is not so much whether our environment will become increasingly digitally organised, it is that this incursion will grow and grow. How we interact with this, what it looks like and how we form new communicative structures is perhaps one of the most engaging challenges that we face and the crude outlines of this advance is perhaps already being developed with the way we communicate through the internet.

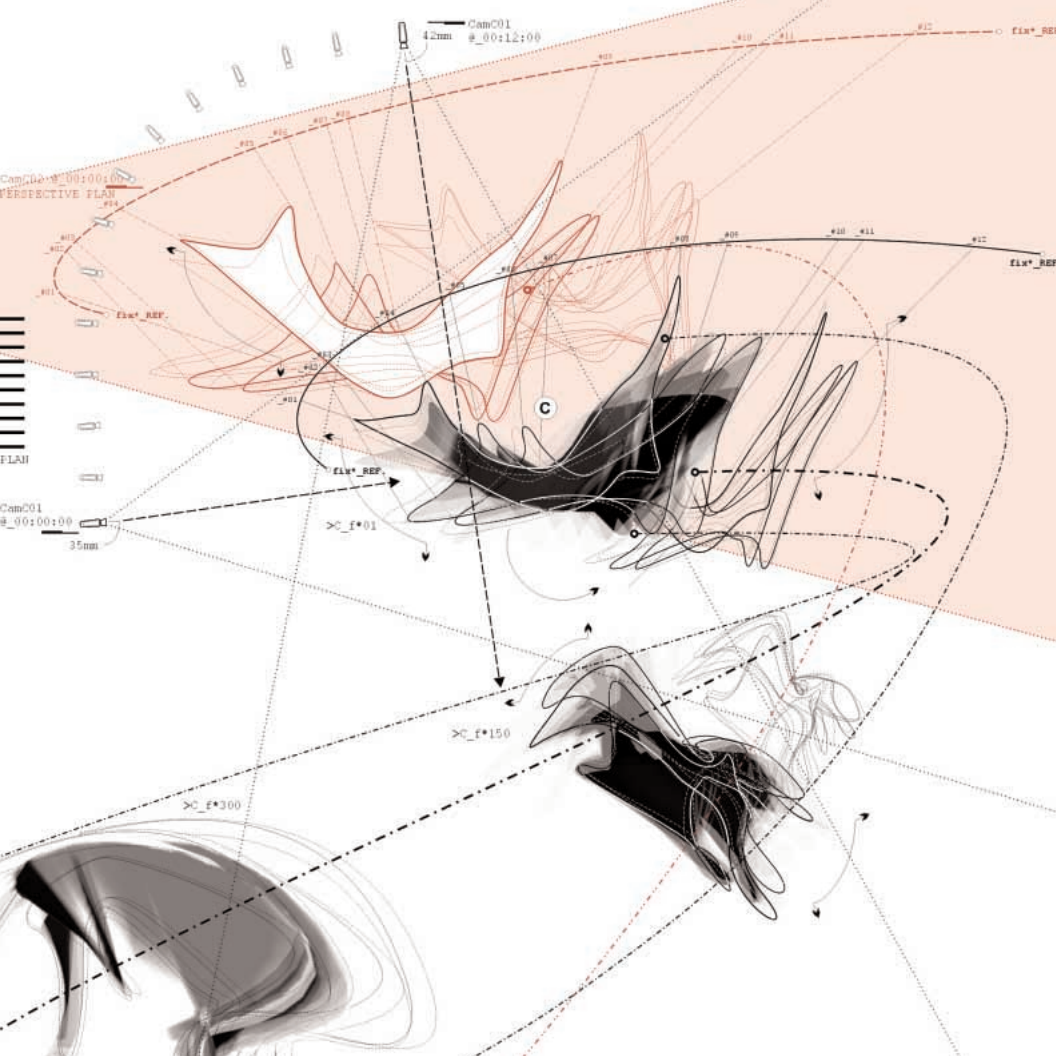
Maps and Legends

Part of the development of these new means of communication may be through the development of computer generated environments as a portal into the navigation of such domains. Computer generated environments produce a number of possibilities as to how we might construct intelligible and coherent opportunities that formulate new spatial practices.

Three main uses of computer generated environments can be readily identified:
1. To produce models for real world applications.
2. To produce purely digital environments with no real world corollary.
3. To produce interactive environments that have both a real world and digital aspect.

The development of digital environments to produce models for real world applications is already a well researched arena. From training simulators to architectural models and animations, the ability to accurately construct and simulate modes of occupation has become an essential tool for many designers, engineers and scientists from all disciplines. Within architecture these advances have had rather limited applications, from the modelling of environmental and structural parameters to the generation of photo-realistic simulations of built proposals. As a consequence of this second application it is startling to see how many new buildings that look as though they are designed on computers, end up looking like computer models. Whereas with the traditional pen and ink drawings no matter how you drew it, the building never looked like its former representation.

In contrast to the idea that computer generated environments inevitably have a real world outcome, there is the idea



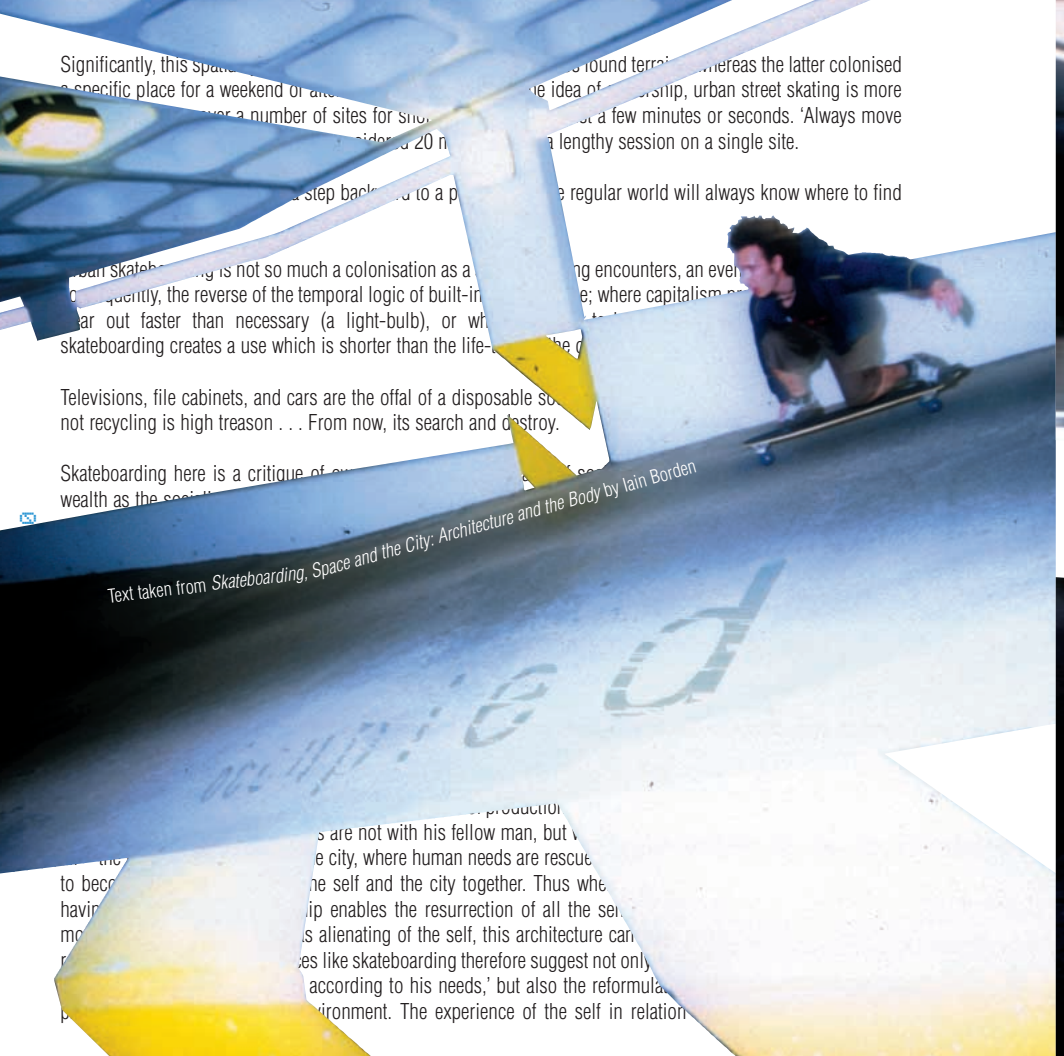
of completely computer generated environments that owe no formal correspondence to external physical space. The development of purely digital spaces has the positive aspect of proposing environments where we can escape the limitations of physical laws and our own bodies. But it is also this aspect of escape that is the cause of some concern. While digital realities provide a temporary escape and extension to the physical realm, it is surely an admission of defeat as we have become unable to control our position within society. This disposition leads to the idea of creating escapes that become so attractive they are irresistible.

Certain on-line gaming environments, such as Ultima Online, already present a model where complex social formations are being constructed. And while Ultima only exists at the moment as a text based variation on Dungeons and Dragons, such gaming environments will ultimately become fully interactive and as significant and extensive in their social aspect as more traditional leisure activities. These technologies will develop and they will become a competitor to traditional forms of interaction. They will form new spatial possibilities, new forms of representation and construct new forms of social assemblages. We must ask ourselves whether architecture will have any role to play in this future.

One of the most powerful uses of computer generated environments is to utilise digital generated spatial models to make explicit links with existing physical environments and physical needs. This again already happens: anyone with a Global Positioning System in their car or who uses the Internet on their mobile phone is already traversing this divide. But it is the possibility of making even greater connections between the virtual and the physical that are perhaps the most exciting. Instead of creating digital environments that are an alternative to reality the desire to produce digital spaces that interact, enhance and augment the way we use our physical environments is a tremendous challenge. The cartography of such information spaces - visual, structural and functional - not only points the way to one of the most important challenges in design but holds out the possibility of a whole new application of architectonic ideas.

While many may question whether architecture is suitable for such a task or whether it will require an entirely new discipline, in the interim the ability to design and construct three dimensional digital environments offers architects the opportunity to participate in the development of a new genre of complex spatial design.

I have always believed that architecture was intimately linked to ideas of spatial practice, and if those spaces of practice are going to take place within computer generated environments then it is my belief that as architects we should be engaged with the development and design of those environments. Whether or not architects rise to the challenge and choose to look beyond the traditional parameters of the building industry to define future possibilities, we will have to wait and see. It all comes down to what architects think architecture is for and what its future possibilities might be. Is it simply to implement the built aspirations of C21st capital, and to act as the agent for a culture that seeks novelty instead of innovation in its built environment, or is it to grasp the challenge offered by these new technologies?



Significantly, this spati… found terrai… whereas the latter colonised
a specific place for a weekend of ate… e idea of …ership, urban street skating is more
…er a number of sites for sho… st a few minutes or seconds. 'Always move
…ider a 20 n… a lengthy session on a single site.

…a step back… to a p… e regular world will always know where to find

…oan skateb…g is not so much a colonisation as a … g encounters, an even…
…quently, the reverse of the temporal logic of built-in… e; where capitalism p…
…ar out faster than necessary (a light-bulb), or wh… skateboarding creates a use which is shorter than the life-…be d…

Televisions, file cabinets, and cars are the offal of a disposable so…
not recycling is high treason . . . From now, its search and destroy.

Skateboarding here is a critique of … …
wealth as the soci…

Text taken from *Skateboarding, Space and the City: Architecture and the Body* by Iain Borden

…production
…s are not with his fellow man, but …
…e city, where human needs are rescue…
to beco… …he self and the city together. Thus whe…
havin… …ip enables the resurrection of all the sel…
mo… …s alienating of the self, this architecture can…
…es like skateboarding therefore suggest not only…
… according to his needs,' but also the reformula…
…ironment. The experience of the self in relation…

Th… rate type… powerful and strong. I see them as something I can enjoy, …
ca… pulate to r… e.

How… is this ad… …and appropriation achieved? It is sometimes argued that the most
effec… propriated … re thos… pied by symbols, where social relations can be inverted to create
… …d oth… unter-cultural urbanists like graffiti artists do occasionally work
… …favoured skate locations around Europe include town halls
… …Columbus monument, Colón,

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As Lefebvre notes, spatial practices and representations of space are 'in thrall to both knowledge and power,' so leaving 'only the narrowest leeway' to spaces of representation. But, as he also notes, it is through revolt against normative spaces of representation that there is the 'prospect of recovering the world of differences – the natural, the sensory/sensual, sexuality and pleasure.' A fortiori, it is not solely the various constructed architectures of skateboarding which, despite their unique contribution to the specialist typologies of the differentiated built environment, form the principal contribution of skateboarding to architectural space. This lies instead in the performative, representational aspects of skateboarding – its spaces of representation – wherein skateboarders image architectural space and thereby recreate both it and themselves into super-architectural spaces. The poetic attempts by skateboarders to talk about their activity provides glimpses of this process.

Your body gets weightless as you drift your airs high.
The blur of the crowd as you grind on by.
Grasping the rail for the next coming air.
Your eyes seek reality, the mind is aware.
Thrust up the wall and click off the tile
Extend your back leg, throw in some style
Pulling back in, the coping loo[illegible]
Dodging th[illegible]

Photography by Nick Jones

[illegible]atch it and then hang on for the glide. With

[illegible] the physicality of architecture which are important in [illegible]e tourist gaze, user and architecture come together to create a [illegible]itecture is at once erased and reborn in the phenomenal act of the

[illegible]tically both outward from the body, and in relation to skateboard and skateboard [illegible] erase[illegible] w[illegible]n the process. But of course this is not a simple additive procedure, [illegible] in its o[illegible]gina[illegible]e – it too is reformulated. To give a very obvious example of this, [illegible]s sent[illegible]ce on[illegible]ple Mac, involving only the smallest movements of hands, [illegible] differe[illegible]as[illegible]d in the layback move shown here, some

[illegible]mmented upon. As Beatriz Colomina

[illegible]e viewing subject. It is a viewing mechanism that

[illegible]s involves more than just vision, for here the space[illegible] [illegible]calls a 'spatial body,' subject to the various symm[illegible] [illegible]determinants of [illegible]e. He also asserts that human [illegible] [illegible]priation of space[illegible]lso 'take control of their own natu[illegible] [illegible]text of space, the rhythms of t[illegible]e and, in particular, the spatial [illegible] [illegible]along these lines

processes ... instead insert use values where there are ...
Skateboar..., 'represent more than just secon...sers; they essentially ...
governme...' This kind of attitude is also evident ...s' frequent refusal in the 1990s to pay ...
charges, p... skate elsewhere in the city.

...everywher...

As a critique of the signal, skateboarders do something ...
the handrail – ollie-ing onto the rail, and, balanced per...
line of the metal bar – targets something to do with safety ...
of the handrail is turned on its head.

Most people think handrails are for those with mobility ...
grinds.

In particular, such streetstyle skateboarding takes its vita...
re-translate the objects of the city.

A curb is an obstacle until you grind across it. A wall ...
slab of concrete until you shred it.

Where signals have no expressivity beyond direct ...
parole to the univalent langue of the city as technical ...
...ing in zero degree architecture.

... then, do... boarding ...ate th... crit...
...in the rea... ... mor...n th...

...le cities a... ...om so... elati...

...e urban is ..., a spi... hild... ...ntity

...e is but a ...y stree... ...a re...ty.

...city, th... ...mmed... ...ality. The ...
...this ...ct' ...

...which the urban cannot dispense. And of
...ng certain constraints but also openings.
...through its opportunities and specifically

Habitaculus

Chris Speed

Economic, social and cultural dispositions mean that people move through their home environments in very different ways. Residents have very different maps for the same city, that depend upon their 'Habitus'*.

The *Habitaculus* artwork is an architect's model of four rooms with differently scaled furniture, allowing us to see how the same environment may be understood differently according to individual use. By modelling the same room four different ways we are better able to understand that space is not universal but the product of individual negotiation.

*Pierre Bourdieu's model for social dispositions.

Spatial Dispositions

One street in one town may be recognisable by a whole community of different people, but each person in that group will recognise it for different reasons. Indeed, because they use it in different ways they may use completely different landmarks to identify it. Students for example have a very different image or map of a town to more permanent residents, and depending upon their 'Habitus'[1] different residents have different maps for their own environment. Digital environments such as the internet have made this easy to monitor and observe as many of our 'bookmarks' indicate our use of the internet and represent our interpretation of it. Indeed as websites become more and more aware of our identities, the web that we see will increasingly be constructed for us on an individual basis.

Habitaculus represents an attempt to model this idea in actual environments and explore the concept that a common space for a family or community is personally interpreted and that the social dispositions of its members change the way it is seen.

Representation of Difference

Habitaculus illustrates difference by compressing and enhancing aspects of an architect's model of one room in a family house. The different scale models for each family member reveal how each member interprets and prioritises components of their reality. Whilst one member's room has an enlarged television, video and sofa, another member has photographs and objects of sentiment enlarged. The third member uses the room to work in and consequently the desk and chair outsize all other components to the room. The outcomes are reminiscent of science's Homunculus man that describes how a human would look if our physical form mirrored how the brain sees our bodies. The 'little man' is a representation of the somatosensory and motor cortices region of the brain that is mapped on to a human body. It appears distorted because the areas of the cortex dedicated to a part of the body

is proportional not to that part's actual size but to the precision with which it must be controlled. Thus eyes, ears, lips, nose, hands and feet are huge, whilst arms and legs are thin.

The work assumes that communities are defined by a relationship between people and place, and usually it is activities that 'produce' the space; a school becomes a place because of pupil activity. But as capitalism and consumerism manufacturer space through economic power, communities have become increasingly complex and varied in the 'type' of people who comprise them. In this way we can look at different people's production of spaces to help us understand the complexity of a community that inhabits a common or shared space.

Habitaculus reveals the complexities of being within a so-called community, that may well be undergoing change. It is fair to assume that a perception of a community is the sum of its different participants' ideas of what it is and what it does, however much they may conflict. Consequently, for all involved, how a place threatens, enthuses, enables or defends, is central to the identity of that place and its functioning and dysfunctioning for its associated communities.

(Tele)Social Navigation

Understanding that a place and the interest of social groups are connected is nothing new and forms an important aspect for the field of Human Geography. More specifically, Social Navigation[2], which can be described as the study of social groups and their influence upon their own environments, provides us with examples of the transformation of environments due to social movements. The research has revealed how the choices of small and large groups of people have affected physical environments over the course of time.

In actual physical places the transformation of their form is slow, as social groups visit places over great lengths of time, paths are worn and services change through popular development. However, in digitial environments such as the internet, the rate at which an environment can change is much quicker. Websites have the potential to be animated and responsive to the movement of their inhabitants. Constructed upon data and affected by data, the architecture of their space can adapt and change as each individual's relationship with a place changes.

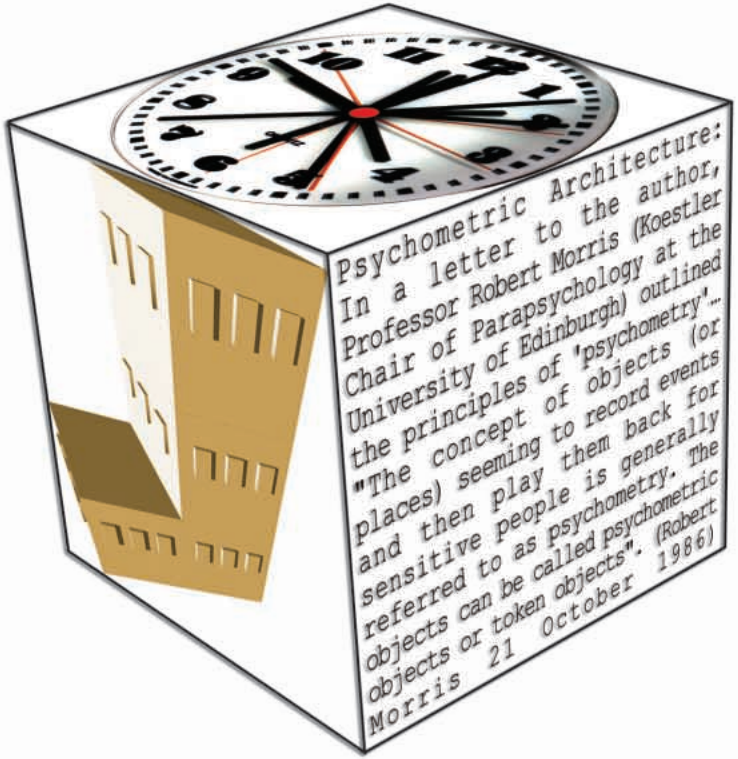
Habitaculus then becomes an analogue representation of the collapsing and expanding information architectures that are beginning to define our on-line worlds – responsive to our tastes and ever prepared to modify themselves as we change. The piece anticipates a 'Telesocial'[3] form of architecture that is defined by its liquid ability to transform according to its social needs, across the time and space frames of actuality.

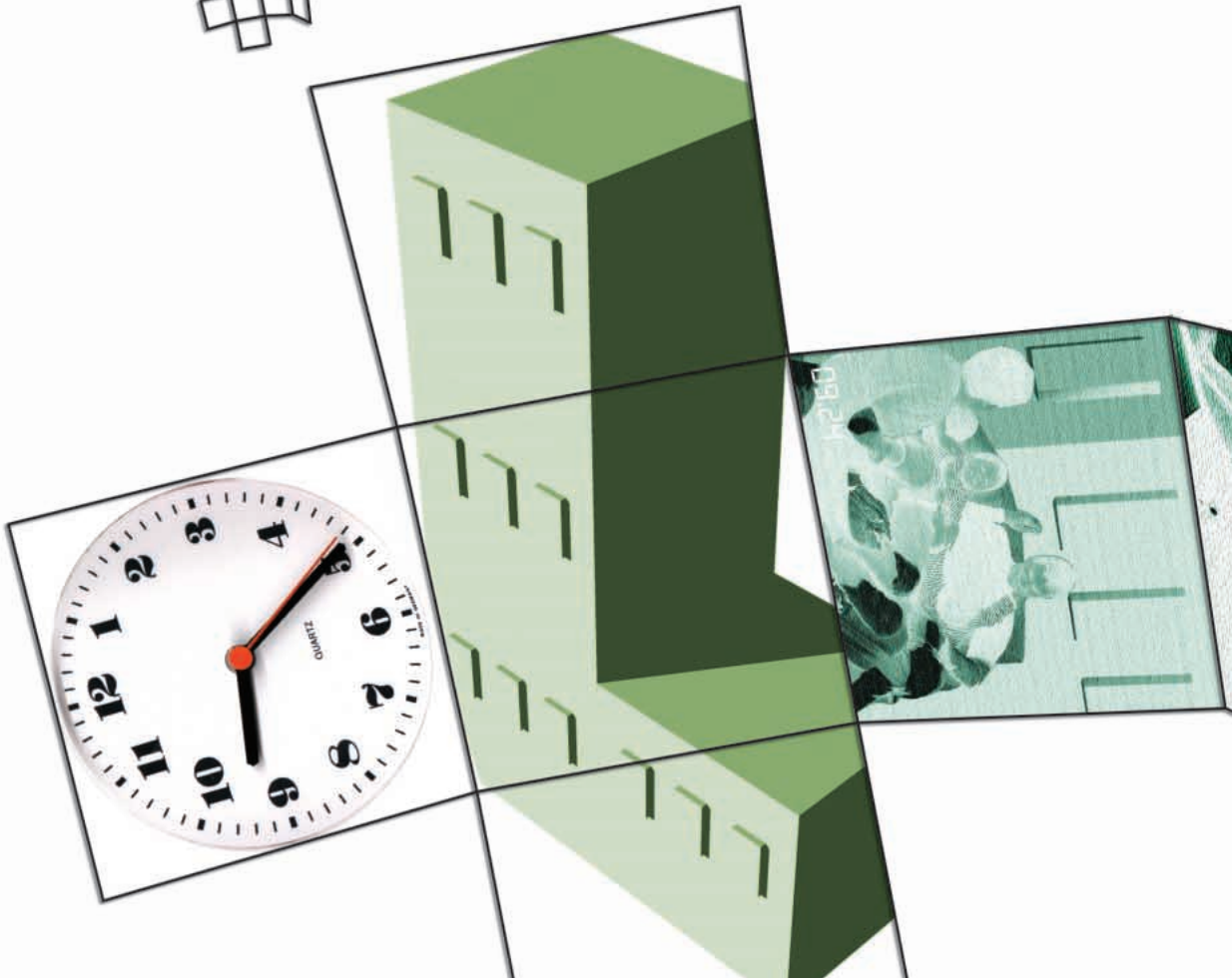
Notes

1. 'Habitus' is Pierre Bourdieu's model for social dispositions, and can be described as a system that uses different class patterns and activities to represent a vocabulary for our actions in time and space. The vocabulary of habitus consists of aspects of routine, and as Bourdieu would have us believe, habits are the characteristics by which we identify many jobs and tasks.
2. Social Navigation is a field that grew from a concern expressed by Dourish and Chalmers (1994) who suggested that models for navigation within networked information spaces are confusing social and spatial languages, inhibiting the technology, communication and design of new spaces. Höök (1999) adopts the term to describe collaborative and collectively organised systems such as on-line voting, scoring and public review guides used by internet retailers such as Amazon.
3. Telesocial Navigation was introduced by Grinsted and Speed (2001) and looks at the collision of fields of technology, as social spaces become affected by digital technology and digital space becomes affected by Social Navigation. It suggests that new spaces are emerging that are a result of Social Navigation informed by Digital Navigation. Social groups will have more information to allow them to move through spaces with greater knowledge and places will know more about the social groups and be able to transform the experience of their environment.

References

Dourish, P. and Chalmers M. (1994) Running out of Space: Models of Information Navigation. In HCI'94. Glasgow, Scotland.
Grinsted, G and Speed, C. (2001) Telesocial Navigation. Performance Research. Volume 7, 2001. London: Routledge.
Munro, A.J., Höök, K. & Benyon, D.R. (1999) Footprints in the Snow. In Social Navigation of Information Space, London: Springer.
Edited book. (2000) The Brain. A Scientific American Book. New York: The Lyons Press.


Psychometric Architecture:
In a letter to the author,
Professor Robert Morris (Koestler
Chair of Parapsychology at the
University of Edinburgh) outlined
the principles of 'psychometry'...
"The concept of objects (or
places) seeming to record events
and then play them back for
sensitive people is generally
referred to as psychometry. The
objects can be called psychometric
objects or token objects". (Robert
Morris 21 October 1986)


QUARTZ


11:38
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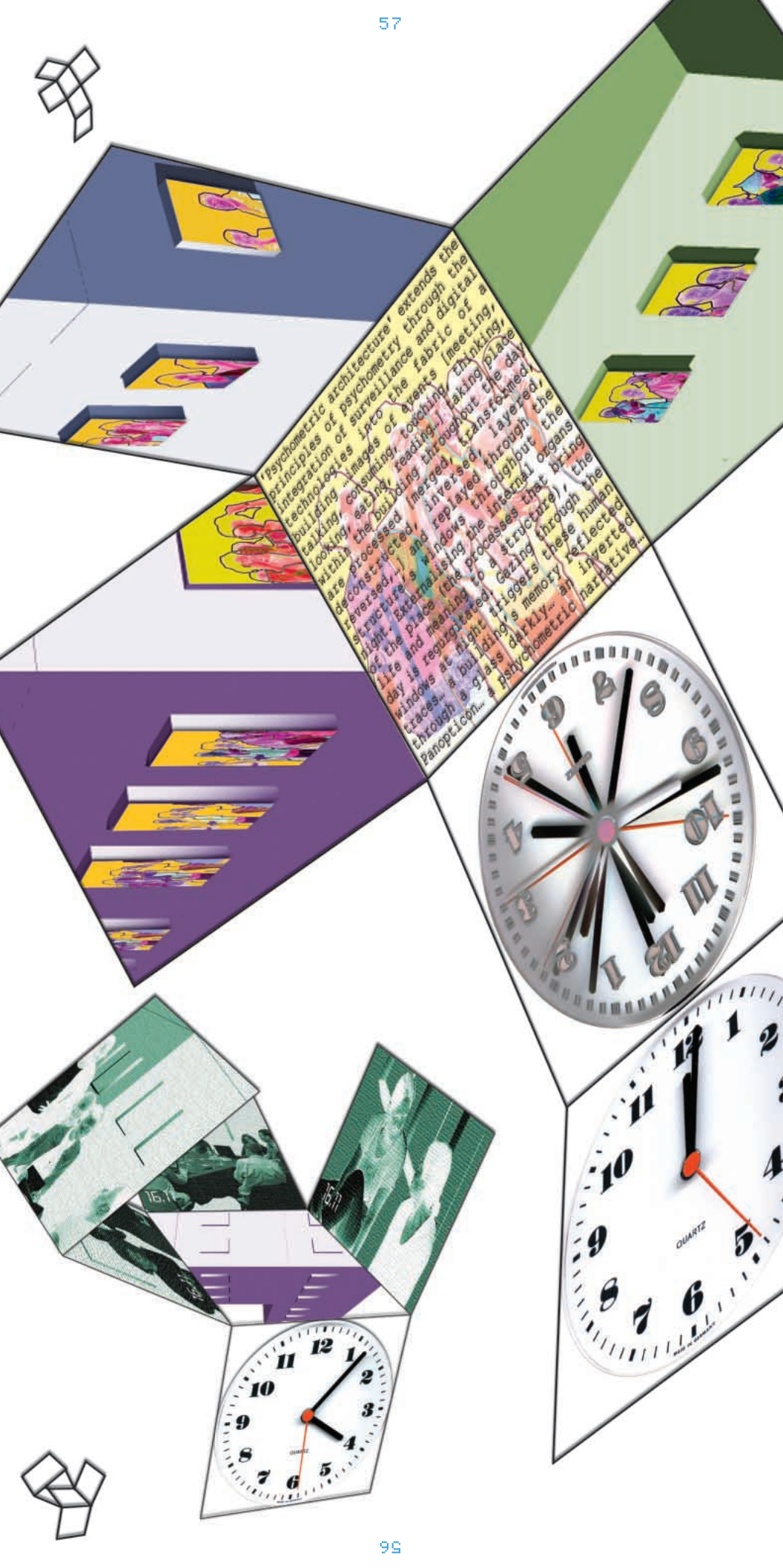
OMEGA


'Psychometric architecture' extends the principles of psychometry through the integration of surveillance and digital technologies into the fabric of a building ... Images of events [meeting, talking, eating, touching, thinking, looking, eating, reading, faking] take place within the building throughout the day are processed, merged, transformed, deconstructed, inversed, layered, reversed, and replayed through the structure's windows throughout the night. Externalising the internal organs of the place (the processes that bring life and meaning to a structure), the day is regurgitated. Gazing through the windows at night triggers these human traces... a building's memory reflected through a glass darkly... an inverted Panopticon... a psychometric narrative...
QUARTZ
MADE IN GERMANY

Extending Architecture through Electronic Media

Peter Anders

Abstract
This paper proposes a philosophy of design in the light of media technology. It will proceed from our perceived and cognitive understanding of space, to the nature of digital / physical spaces, and, finally, their consequences for the design's role in the world. These issues, epistemology, ontology and ethics, are taken from classical divisions of philosophy. The terms design and architecture are used interchangeably to encourage readers to apply this philosophy to their own creative and cultural activities.

Defining Architecture
Most architects contend that architecture means the design and specification of buildings. But the term has a variety of interpretations – even among architects themselves [Blau, 1984]. The popular press – and by extension the public – assigns the term to everything from fashion to politics. In the computer industry alone "architecture" has variously referred to hardware engineering, software design, corporate networks, and standards of computer interoperability. Quite apart from the building trade, architecture in such cases refers to coordination of processes, the coherent structuring of activities and resources.

For the sake of argument, let us adopt this more popular/general definition of architecture to contrast it with its professional meaning. We note immediately that the objective has changed. While the professional definition aims at material construction, the general usage may aim variously at material (digital instruments, 3-piece suits) or abstract results (software, government policy). Or combinations of both (computers and their networks). The difference also lies in the degree to which the term is aimed at a goal, teleologically. In its popular use architecture stresses people (as in "the architect of this policy") or processes (projecting, coordinating, "architecting") more than physical products. While in general usage, an architect is a director and coordinator, in the profession he is the designer of spaces – if not actual buildings.

Louis Kahn, one of the twentieth century's premier architects, wrote that there is no architecture – buildings are an act of architecture[1]. Buildings may be understood to be an architectural medium. It follows that there may be more than one "act" that architecture can perform. Even if we limit our discussion to the design of useful space, the architecture Kahn describes can be performed through various means and media.

Epistemology: Space and Embodied Information
But if architectural space is more than buildings, what is it exactly? Before answering this we had better define space – or more precisely – our experience of space. Space itself has long been a subject of philosophical debate and we won't summarize it here. However, a critical landmark in its history was the determination by Kant (and subsequent others) that we are complicit in creating our reality – our view of the world [Kant,1996]. Our "view of the world" includes the totality of sounds, mental images, and the products of perception and cognition.

We take in the world through sight, sound, touch, taste and smell. Our other senses include balance, proprioception, kinesics and a range of subtle sensitivities. External stimuli are converted to electro-chemical signals at the body's perimeter. From there the signals travel through the body "long before" we are actually conscious of them. There is actually a well-determined gap of 1/2 second between a stimulus and our awareness of it [Norretranders, 1991]. Much of the mind's effort during this time is put to editing and sorting these signals, interpreting and relating them for our use. We create space – our holistic "view of the world" – to manage awareness, relate and contrast our embodied information [Kosslyn, 1996].

Extended Senses
We have technologically extended our senses to observe objects too small or distant to see directly. The list of such devices is large – ranging from radio and television to digital technologies and computer networks. We are increasingly dependent on such technologies to sustain our social and cultural reality. They are part of being human in our time. Through our technology, radio signals and digital information can be translated into palpable textures, light, or sounds.

But it's misleading to think that our world is derived from discrete sources, mediated and direct. Nearly all perceivable objects have attributes that must be mediated to be seen: the microscopic cell structure of your hand, the magnetic fields of the stars that we see at night. For we only perceive a small portion of the world around us. However, its entities exist both within and beyond our perception – their invisible aspects intrinsic to the whole.

Architects design space and orchestrate spatial experience. Yet we see that space is a product of consciousness, and that our perceived space is derived from a mix of direct and mediated stimulation. An expanded definition of architecture – closer to its common use – would include processes that create mediated spaces as well as those that result in buildings. In the following pages we will consider the resources and processes that support this re-definition of architecture.

Coexistence of Material and Mediated Artifacts
Any complex entity comprises multiple parts. This pertains to machines and buildings as well as to literature and artworks. In similar fashion comparatively simple commands add up to elaborate software structures. Software architects create programs from bits of code just as professional architects create buildings of steel and glass.

We perceive complex entities directly or mediate them through our extended senses. In addition, they can co-exist as both material and mediated artifacts. As we have seen, the distinction between the sensed and mediated worlds is moot. We may choose to view a building directly, or – with an electron microscope – see its intrinsic molecular make-up. The experience differs though the source is the same. An artifact's existence is independent of our sensory capacity. *We simply determine how we want to experience it.*

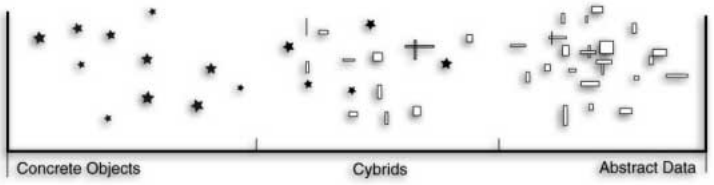


Figure 1. Cybrids – a link on the continuum between concrete objects and abstract data. The line that separates data from objects represents a continuum rather than a division. Today there are situations where data and concrete objects work together to create new spatial entities, herein called "cybrids." A cybrid is a hybrid of physical and electronic spaces.

Digital technology blurs the distinction between the sensory and mediated world further. The computer is a symbiosis of hardware and software. We can touch the mouse and keyboard, but we can't see the software. Hardware is palpable, software is not. Yet one is inoperable without the other. The computer, then, is a hybrid of complex entities. Each has its own level of existence, ontologically, with respect to the user, although they are mutually dependent on each other. Such dependencies between material and electronic entities have great implications for the arts, industrial design and architecture. I have written elsewhere on this relationship – particularly between physical and cyberspaces in design – and use the term cybrid to denote it [Anders, 1998].

Ontology: The Nature of Space

Examples of cybrids already exist in many forms. Buildings with sophisticated security and fire protection systems effectively have a digital model of the building as their detection interface. In others, whose building systems are controlled by electronic signals, a digital model is sometimes used as the building control. The tight coupling between physical building and its digital double is clearest in such examples. The spatial relationship to the source may be more than representational. A building element may be overlaid with a model that reveals associated information [Feiner et al, 1993]. Such a mediated reality would be extrinsic to the physical artifact, and would be apparent only to a suitably-equipped building operator.

There is a strong case to be made for spatial representation of spatial systems. Cognitive scientist Donald Norman has argued that such emulation helps in operating software as well as conventional tools [Norman, 1993]. As building operation systems become increasingly sophisticated, it's likely that they will come to more closely resemble their source or target for control. But it's important here to distinguish between conventional, automated controls for buildings and the cybrid concept. Cybrids promote human/environment interaction, spatially coupling the operating model (simulation) with the source (building). Whereas closed, cybernetic systems operate semi-autonomously with no need for symbolic representation, cybrids are extensions of their users and exist through symbolic/spatial mediation. They are an entrée for users into the cybernetic loop, augmenting their awareness through the automated environment.

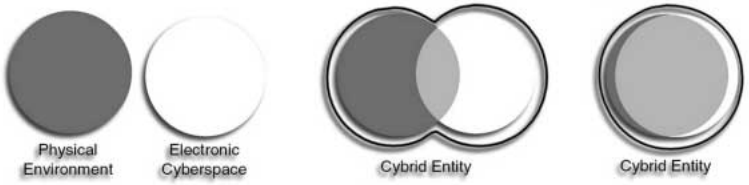


Figure 2. Cybrids are the interactive union of physical and electronic spaces and objects. Incorporating the concept into our definitions of space results in three different types of spatial entities; only the second two are examples of cybrids. The first, not a cybrid, shows a complete separation between the physical and electronic environments – a typical example would be an office with a computer network. The second is a partial cybrid entity – an example being an office with a teleconferencing facility. The last would be a complete overlap, i.e. the entity would exist almost entirely in both physical and cyberspaces. A typical example would be a building security or operating system that could be accessed both physically and electronically.

Other forms of cybrid operate without direct coupling, or at most a partial overlay of simulation. Teleconferencing rooms within an office suite exemplify mediated space (that of the remote participants) grafted onto a present, physical space. This is a visual version of a more conventional illusion. We feel near to the voice on the telephone despite the fact that our conversation partner is far away. The illusion in concert with the actual comprises a cybrid, even if it is limited to a phone booth.

Other increasingly attenuated couplings include desktops on a Cathode Ray Tube with the actual desk supporting the computer, computer networks and the offices they serve, corporate Websites and their host institutions. In many of these cases the physical environments and their spatial emulations have little to do with one another beyond serving the same users. Cybrids are unions of physical environments (or objects) with electronic emulations of space (Fig. 3). Their coupling may vary between direct correspondence (building security/operational model), situational correspondence (conference room) and mere coexistence (computer networks within a suite of offices).

While it is tempting to understand cybrids simply as intersections of symbolic and physical spaces, the observer is the key element. As noted, mediated and direct experience of space are both constructs of the mind. By extension any union of external spaces must first be assimilated into the observer's spatial construct. This mental space overlaps – even comprises! – both physical and symbolic spaces. Although this appears obvious, it points to a merging of mental, perceived, symbolic and physical artifacts in a matrix of consciousness. This has great implications for how we use space to think and communicate with others.

Ethics: Updating Architectural Processes and Priorities

To this point we have considered aspects of spatial perception and its relationship to technology. We have also

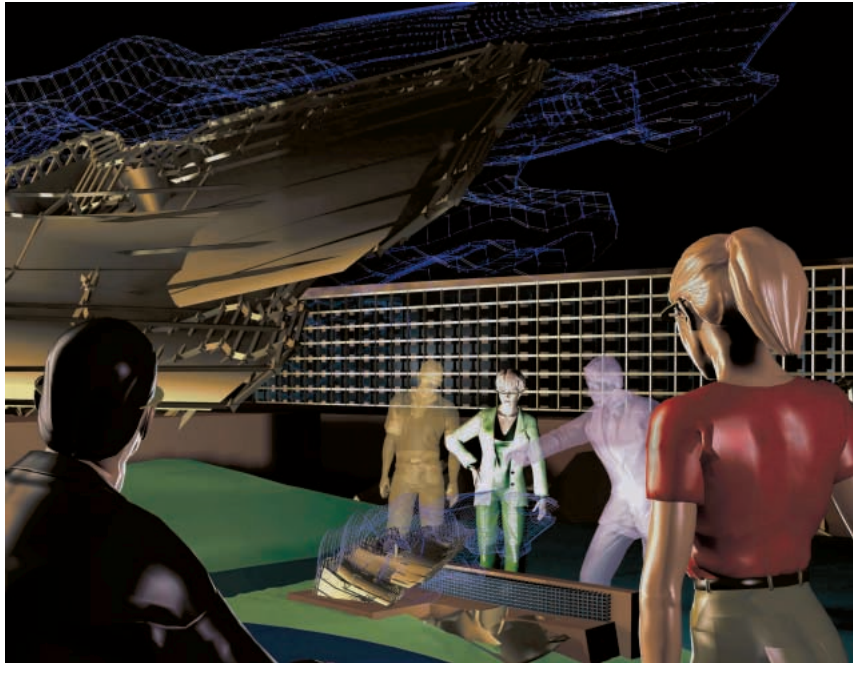


Figure 3. This is a rendition of an advanced cybrid. In this image, the people in front of this hypothetical architect's office are observing the architect in discussion with avatars of the remote consultants (background) over a model of a cybrid building. Beyond them, in the distance, is an accessible, full-scale virtual reality model of the project.

seen how spaces implicit in the use of technology intersect and blend with our everyday perception of space, and buildings in particular.

How might these perspectives influence the practice of architecture and design? To answer this question it is helpful to review the course of a building's design as an oscillation between physical and symbolic states. To begin with we will stress the process over any particular instantiation of that process – drawing, building or otherwise. These manifestations are here considered to be waystations in the life of a project.

Design is an iterative process that swings alternately between concept and manifestation. This is part of the social interaction necessary for a project to develop. A designer generates numerous drawings and models for consulting with clients, as well as to assess his progress. In dialog with others the designer gains new insights that, in turn, inform the next set of drawings and models. This feedback loop resembles many design processes in technologies and the fine arts as well – it is characteristic of the social and cognitive act of creating something new.

Oscillation in the Design Process

The following example shows this oscillation throughout the course of a typical architectural project, an office building. For clarity's sake we will begin with the selection of the site for a project. Client and architect determine the site, conduct a survey and collect relevant materials for proceeding. The architect and engineers prepare record documents, drawings and text. Our architect discusses options with her consultants and client – memos and phone calls ensue. Then she prepares sketches outlining the design options for review. Information from the review then informs another, more refined round of design. Products of this work are notes, sketches, renderings – perhaps even a model of the building on its site.

Prior to computers all these models, drawings and records were physically fixed: ink drawings, wood models, pencil sketches on paper. There was a clear distinction between the information underlying a project (program, intentions, data) and the artifacts used to support decisions (drawings and models). Any attempt to revise or update a scheme simply meant making more artifacts.

Once the design is approved, a record of the design is prepared and issued as drawings and text for bidding by contractors. Conversations and exchange of more materials leads to the construction of the building. While many architects see the construction of a building as the end of their involvement, the project lives on for the building's occupant. Beginning with move-in schedules and furnishing layouts, the production of post-construction artifacts includes drawings for building changes, additions and leasing. And, ultimately, demolition. The project spans from the drawing table to the archive. A range of incarnations mark its life over time.

The life of the project is measured by a pendulum swing between concepts and the physical artifacts that manifest them. We may even consider the building itself to be an ephemeral "printout" of the project at a specific point in time. A re-assessment of the project in the light of current technologies could result in improved economies for all parties and the project overall. These economies may result from improved communication over computer networks on one hand, and on alternative means for presenting – or manifesting – the design for review. These benefits are well-documented and need not concern us here.

Instead, let's look at the project itself as an information environment, one that is manifested discretely on a range of dimensions and scales. This changes the project from being aimed teleologically at building, to one encompassing all participants, information and artifacts throughout its duration.

A computer-aided design, or CAD, file is a record of design decisions. The database can be represented in a variety

of ways: as lines on a screen, a rendered video-projection, an animation, or as printouts in two or three dimensions. A line – or more properly the data from a line – drawn at the earliest stage of a project may persist throughout the project's duration. The line is part of the conceptual computer model, part of the project's cyberspace, that may be manifested before, during, and after the project is materialized as a building.

In the light of the foregoing discussion the role of the line can be emulated by the project space itself. By "project space" I mean the project's comprehensive environment: the totality of its physical site, the media spaces used in its development, the environments used for meeting, planning and production and spatial resolution of the client's needs. All printouts from this comprehensive information space are derived, lower-dimensional renditions of the project space: paper, models, videos, virtual reality walk-throughs, or buildings.

This would matter little if the project were the design of a bicycle shed. But with complex projects – like an office building – the information space of the of the project team can live on to be reused in the space occupied by the project's tenant. A 3D multi-user environment used to host design-team meetings can be re-utilized as a conferencing facility by the cybrid owners. The reuse, remodeling and retrofitting of such spaces is nearly cost-free compared with the physical alternative. The media and digital spaces created early in the project (like the CAD line) may persist throughout and outline any of the project's future manifestations.

Architects and designers – specialists in spatial design – can extend their services once they grasp the power of the symbols they use. Symbols embodied in the computer take on a validity of their own, independent of their referential role. Hovering at the boundary separating information from the physical world, their increasing role in projects dampens the swing between abstraction and materiality.

This dampening results in faster execution of the project, savings to the client and the designer, more versatility in communications and flexibility [Anders, 1999]. Such a change in process can radically affect its products. For example, the physical model of a building could be augmented with alternatives that, while apparently part of the model, are not physical. The project space is discretely manifested in the material world – at any scale.

Another example. Conventionally an architect creates a master plan, say a ten-year plan for the development of a campus. The unbuilt structures exist, but only in the minds of the planners. In a cybrid project, however, the master plan has an autonomy, its buildings may be used long before they are materialized.

In some cases they may never be built – yet still be useful as on-line meeting places, work areas and archives. In this sense the construction of a cyberspace may preclude the need for actual construction. It remains coupled, conceptually, with any manifestation of the project, yet remains symbolic – accessed and manipulated only through our extensions and the Internet. This can have a profound effect on the ethical practice of architecture. If we accept the role of an architect as a designer of space, and that the symbols used in the architectural process have their own validity, where does the architect best spent his time? Designing material buildings that serve a limited, local population? Or designing spaces that are equally useful, yet can be used by the world – connected through the Internet? Is his time best put to depleting limited resources, encumbering the environment, crowding our cities? Or harnessing our spatial imaginations through technology?

Conclusion

Cybrids offer an alternative to conventional architectural practice that points to less materialistic solutions to client's needs. We have outlined here a philosophy for this emergent form of design, showing its epistemological, ontological and ethical consequences. Although the discussion has stressed architecture, it affects any discipline whose products are symbolic and spatial and extends to engineering and fine arts as well. Seeing the product of design as an ongoing process rather than a fixed object shows the dual nature of artifacts. Cybrids reconcile these natures, material and symbolic, within electronically augmented artifacts that enhance our awareness, our grasp upon the world around us.

Notes

1. "...there (is) no such thing as Architecture; there (is) the spirit but no presence whatsoever. What does have presence is a work of architecture, which at best must be considered as an offering to Architecture itself..." Louis Kahn lecture at the Aspen Design Conference, 1973. Published in A+U Monographs.

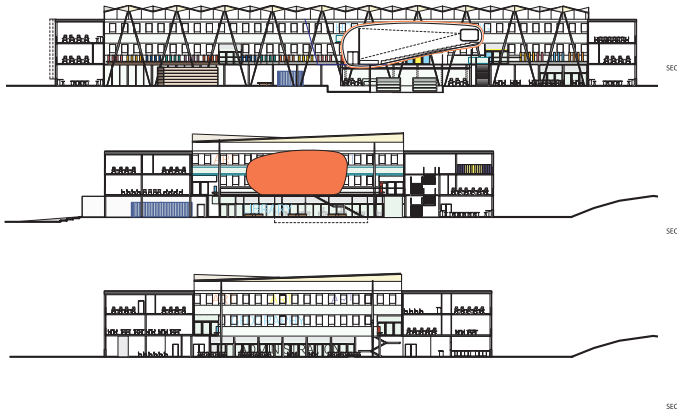
Bibliography

Anders, Peter (1998) Cybrids: Integrating cognitive and physical space in architecture. In Convergence, Vol. 4, No. 1, Spring issue, (1998) pp. 85-105.
Anders, Peter (1999) Integrating cyberspace and buildings: Trends and projections. Presentation at Facilities Forum Conference, Santa Clara, CA, March 31, 1999. Paper published in proceedings.
Anders, Peter (2000) Places of mind: Implications of narrative space for the architecture of information environments. Presented at Consciousness Reframed 3, August 2000. Paper published in proceedings.
Blau, Judith (1984) Architects and firms: A sociological perspective on architectural practice. Cambridge, Mass.: The MIT Press. pp. 10-11.
Feiner, S., MacIntyre, B., Haupt, M., Solomon, E. (1993) Windows on the world: 2D windows for 3D augmented reality. In proceedings of UIST '93 (ACM Symposium on user interface software and technology). Atlanta, Georgia. November 3-5, 1993. pp. 145-155.
Hall, Edward T. (1959) The silent language. Garden City, N.Y.: Doubleday and Company. p. 168.
Kant, Immanuel (1996) Prolegomena. Chicago: Open Court Press. pp. 99-138.
Kosslyn, Stephen M. (1996) Image and brain. Cambridge, Mass.: The MIT Press.
Kosslyn, S. M., Koenig, O. (1995) Wet mind: The new cognitive neuroscience. New York: Free Press. pp. 130-145.
Mitchell, William (1995) City of bits. Cambridge, Mass.: The MIT Press. pp. 43-44.
Norman, Donald A. (1993) Things that make us smart. Reading, Mass.: Addison-Wesley. pp. 51-52.
Norretranders, Tor (1991) The user illusion: Cutting consciousness down to size. New York: Viking. pp. 213-250.

Playground: A transitional space for mixed realities

A proposal for a virtual environment as part of the building programme for Kingsdale School, London

drMM with STAR



KINGSDALE SCHOOL

base 17 APRIL 01

REVISED INTERMEDIATE SECTIONS (rev A) 1:500 @ A4

dRMM de rijke marsh morgan
ARCHITECTS & DESIGNERS

10.04.01

To whom it may concern

This is to confirm our ongoing collaboration with Geoff Cox (STAR, University of Plymouth), as part of the successful proposal to integrate the design of actual and virtual architecture for the competition 'School Works', organised by The Architecture Foundation and Design Council. Confirmation of a budget of £9.25million was announced in March 2001, a phased construction will start towards the end of 2001.

The competition results were announced in February 2000 but progress has been subject to numerous and lengthy delays and with a further handover of project management to Southwark Council after DfEE budget approval in August 2000. As a result, it still has not been confirmed whether the original 'mixes reality' architecture will proceed as planned, and we are currently still in negotiation on this, most recently presenting the virtual proposals in April 2001. If we do proceed, we hope to be making the most of STAR's expertise in this area of designing virtual environments and drawing upon their working links with inIVA and Middlesex University.

Further information can be provided on request.

Yours sincerely

Alex de Rijke

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12th April 2001

To whom it may concern

This is to confirm that Geoff Cox of STAR, University of Plymouth, is collaborating with architects De Rijke Marsh Morgan on their competition-winning proposal for Kingsdale School as the 'provocative project' of The Architecture Foundation's *School Works* initiative.

School Works establishes a direct relationship between the physical environment of a school with its standard of education, thereby shaping the possibility of teaching a 21st century curriculum in an appropriate environment. The project also seeks to understand the less tangible, but equally important, indirect effects of the buildings on the self esteem, morale and pride of the pupils and staff who work within the school. This has been realised through the implementation of a participative process led by a multi-disciplinary team that involves the whole school community.

Geoff Cox's work seeks to integrate the design of actual architecture with the virtual realm by creating a 'virtual playground' as an alternative learning environment. The Architecture Foundation fully supports his involvement in the implementation phase of this project.

Yours faithfully

Haruo Morishima
Acting Director

Biographies

Peter Anders is an architect, educator, and information design theorist. He has published widely on the architecture of cyberspace and is the author of "Envisioning Cyberspace" which presents design principles for on-line spatial environments. The book was published by McGraw Hill in 1998. Anders received his degrees from the University of Michigan (B.S.1976) and Columbia University (M.A.1982). He is currently a Fellow of the University of Plymouth CAiiA-STAR Ph.D. program. He was a principal in an architectural firm in New York City until 1994 when he formed MindSpace.net, an architectural practice specializing in media/information environments. He is also the director of CLEAR, the Center for Learning Environment Applications and Research, at Saginaw Valley State University. He has received numerous design awards for his work and has taught graduate level design studios and computer-aided design at universities including the New Jersey Institute of Technology, University of Detroit-Mercy, and the University of Michigan. His work has been featured in professional journals and he has presented his research on the architecture of cyberspace at several international venues including The New York Architectural League, Xerox PARC, ISEA, CAiiA, Cyberconf, ACADIA, AEC, ACM-Multimedia, InterSymp and the World Future Society.

Fiona Bailey is a Research Fellow based at Middlesex University's School of Lifelong Learning and Education, and the Lansdown Centre for Electronic Arts. She is currently involved in The Vertex Project, an action research project investigating the creative educational potential of shared 3D virtual worlds technologies with young children. Formerly she worked as Education Projects Organiser at The Photographers' Gallery, London, where her main focus was the implementation of a programme of work that sought to develop the innovative use of photography and new technology within primary education, initiating a series of projects including The Rosendale Odyssey (1995/7), a multimedia oral history project, and A Tale of Four Cities (1997/9), an international email and image exchange between children in London, Nairobi, Cape Town and Dhaka.

Iain Borden BA(Hons) MSc MA PhD is Director of Architectural History and Theory at The Bartlett, UCL, where he is Reader in Architecture and Urban Culture. He is co-editor of a number of books, including Architecture and the Sites of History: Interpretations of Buildings and Cities (Butterworth, 1995), Strangely Familiar: Narratives of Architecture in the City (Routledge, 1996), The Unknown City: Contesting Architecture and Social Space (MIT, 2000), InterSections: Architectural Histories and Critical Theories (Routledge, 2000), Gender Space Architecture: an Interdisciplinary Introduction (Routledge, 1999) and The City Cultures Reader (Routledge, 2000). He is author of Skateboarding, Space and the City: Architecture and the Body (Berg, 2001).

Geoff Cox is an artist, and projects organiser, and works in the School of Computing at the University of Plymouth, and is a member of STAR (Science Technology Art Research). Currently working to investigate the playful and experimental nature of virtual spaces, processes and objects Geoff is working in collaboration with drMM architects on the proposal 'Playground', an integral part of the winning entry to the 'Schoolworks' competition, organised by the Architecture Foundation, Southwark Council and Design Council in 2000. After agreed funding from the DfEE, the building programme is set to begin in early 2002, and will make significant changes to the learning environments of Kingsdale School, London.

Alex de Rijke, **Phillip Marsh** and **Sadie Morgan** are architects and designers, who form the partners of drMM, London. They also run a unit at the Architectural Association, and a book on their work, 'Off the Shelf', will be published by AA publications.

Digital Skin are Dominic Howe, Tim Jones and Allister Bristow. Based in Plymouth, their work has received national recognition in the short time they have been in business. The group's award winning Tetragonal Anti-Prism tensegrity mast received first prize in the Millennium Structures Competition judged by the Institute of Structural Engineers and is soon to be installed at the Eden Project. They have won and implemented membrane structure contracts across the country, including the Light Bar in Shoreditch and the Mountbatten Centre in Plymouth. Architectural visualisations have been provided for a wide range of the architectural community, including The Architects Design Group and Stride Treglowan. Keen to pursue personal development, members will be following the Architecture Diploma at the Bartlett School of Architecture and the MA in Computer Animation at Bournemouth.

General Lighting and Power are Patrick Chen, Nic Clear, Jonny Halifax, Ezra Holland, Bastian Glassner, Chris McKenzie and Danny Vaia. General Lighting and Power was formed in 1996. While they are all trained as architects their work includes: advertising graphics (Airbus Industries, Adidas, Sony Playstation, Peugeot, Microsoft), corporate video (Motorola, Sainsbury's, Lego, Habitat), pop videos (Goldfrapp, Groove Armada, Lo Fidelity All Stars, Artful Dodger), television (SF:UK, Fathers Day, The Idler versus Action Man) as well as a wide variety of special effects and digital animation. GLP also run a postgraduate design unit at the Bartlett School of Architecture developing research into computer animated immersive environments.

limbomedia is a digital arts and new media company based in Plymouth. Operating as a collective of six artists they currently hold a fulltime teaching post on the MediaLab Arts BSc (Hons) course at the University of Plymouth. They have quickly developed a history of industrial projects, art work and academic research and have become involved in many of the Science, Technology and Arts Research (STAR) group's research activities. They have been instrumental in the production and manufacture of projects that include the STI Project (Search for Terrestrial Intelligence) funded as part of the Welcome Trust's Sci-Art programme and the Spectator project, a DA2 funded VRML/TV/theatre performance of Chaucer's Canterbury tales. Industrial work has seen them produce a variety of commercial websites, a promotional video for UK Online for Business, several on-line learning environments for The Orange Group and provide workshops for Dartington College of Arts and the Institute of Digital Art and Technology. limbomedia were central to organising both the V01D gallery show and book. Founding members of limbomedia are Adam Child, Scott Fletcher, George Grinsted, Dan Harris, Will Harvey and Drew Melmoth.

Oliver Lowenstein runs the new media, green cultural, and contemporary arts and architecture journal, Fourth Door Review. The newest issue, FDR 5 is being published this summer. He works as a writer and lecturer, and also runs Fourth Door Research, which includes the new media, building, design and sustainability webzine 'Unstructured'.

Stephen Perrella is an architect and editor/designer. For the past decade he has been with the Columbia University Graduate School of Architecture Planning and Preservation (GSAP) with Bernard Tschumi. There he produced both NEWSLINE and COLUMBIA DOCUMENTS OF ARHITECTURE AND THEORY for a decade. He has taught architecture and theory at various universities in the United States and has lectured internationally. He is President of HyperSurface Systems, Inc. a design firm exploring the inteface between real and virtual worlds. Perrella began exploring the relationship between architecture and information in 1991 on Silicon Graphics workstations. In the context of that speculation he focused on the dynamics of incommensurate relations between form and image as a formative method for a critique of representation that he has developed into a discourse called "hypersurface". Among the facets of this theoretical construct include topologies that emerge from interstitial, ambiguous relations between sign and form. Since that time, topological strategies in architecture have become a dominant trend stemming from both a rising, general interest in the discourse of Gilles Deleuze and Felix Guattari, and also through new forms made possible by animation and particle based computer software. Design associates: Dennis Pang, Rebecca Carpenter and Paul Cumming.

Mike Phillips is a Principal Lecturer and Director of the Institute of Digital Art and Technology, University of Plymouth. He has a BA (Hons) in Fine Art - 4D at Exeter College of Art and Design (1984), a scholarship to the University of Massachusetts, USA (84-85), and a Higher Diploma in Fine Art (Experimental Media) at the Slade School of Fine Art, University College London. Digital interactive collaborative work has included: pre-WWW global computer-networking projects using JANet and EARN; telematic performance work with 'UK EAT88' in Europe; audio work with Donald Rodney at the ICA (London) and TSWA 4 Cities project and South London Gallery (Psalms Autonomous Wheelchair (98). In 1992 he moved to Plymouth University to coordinate the BSc MediaLab Arts Programme, and is now overseeing the development of the On-Line MSc Digital Futures course. He is involved in private and public sector grant funded research projects (Macromedia Europe, Apple Computers. ESF, Leonardo, EC, EPSRC, HEFCE, ACE, Henry Moore Foundation) and on the Board of DA2 and the Digital Creativity journal, producing the Mediaspace section. Current projects include Autoicon (inIVA), Spectactor (DA2), STI Project (The Search for Terrestrial Intelligence - SciArt) and a number of interactive satellite projects.

Chris Speed is currently a Lecturer and Researcher in Interactive Media at STAR at the University of Plymouth. Following a BA (Hons) in Fine Art - Alternative Practice at Brighton University he obtained a MA in Design Futures from Goldsmiths. He joined the CAiiA-STAR Research group in September 1996 after working in the New Media Department of Marshall Cavendish in the capacity as Art Editor, and was involved in the direction and production of multimedia titles such as Images of War, Science Lab and Murder in Mind. As well as occupying teaching roles for the BSc(Hons) MediaLab Arts degree, the MSc Digital Futures and supervising students on the CAiiA-STAR doctorate programme, his research manifests itself as conference papers, book contributions, artworks and industrial commissions. Recent conference presentations include ISEA2000, Paris and Habitus: a sense of place, Perth. Book contributions include Temporal Navigation in Emergent Futures, Art, Interactivity and New Media (Institucio Alfons al Magnanim, 2000), Looking at the Looking Clock in Problems of Participation and Connection (University of Amsterdam, 2001). Recent exhibitions include a video commission in Summer 2001 for FACT and co-organising and editing the V01D exhibition and book.

This book is published in parallel with the exhibition
V01D at Plymouth Arts Centre 22nd June - 22nd July 2001

The exhibition is produced by The Institute of Digital Art and Technology,
Plymouth Arts Centre, limbomedia and Digital Skin.

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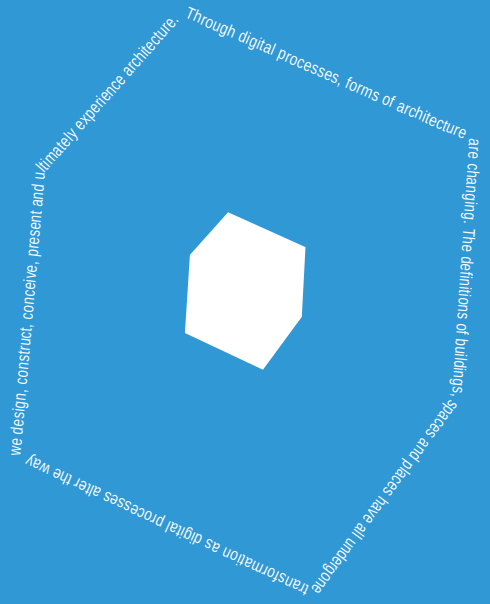
http://www.v01d.com



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