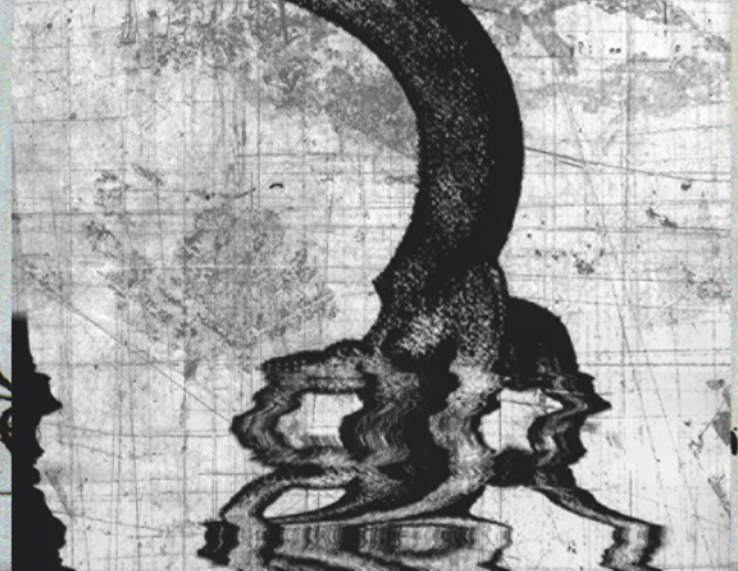




ARCHITECTURAL DESIGN
SEPTEMBER/OCTOBER 2013
PROFILE NO 225
GUEST-EDITED BY NEIL SPILLER



DRAWING + ARCHITECTURE





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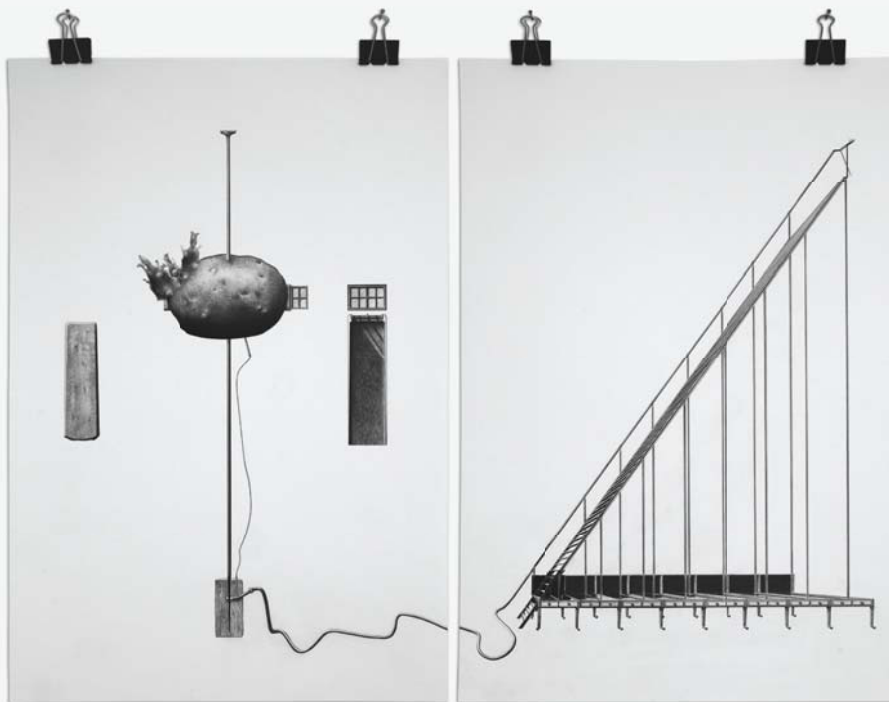
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DRAWING ARCHITECTURE

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*A drawing should be an
investigative device, a
voyage of discovery, a series
of glances into the future.*
— Peter Cook



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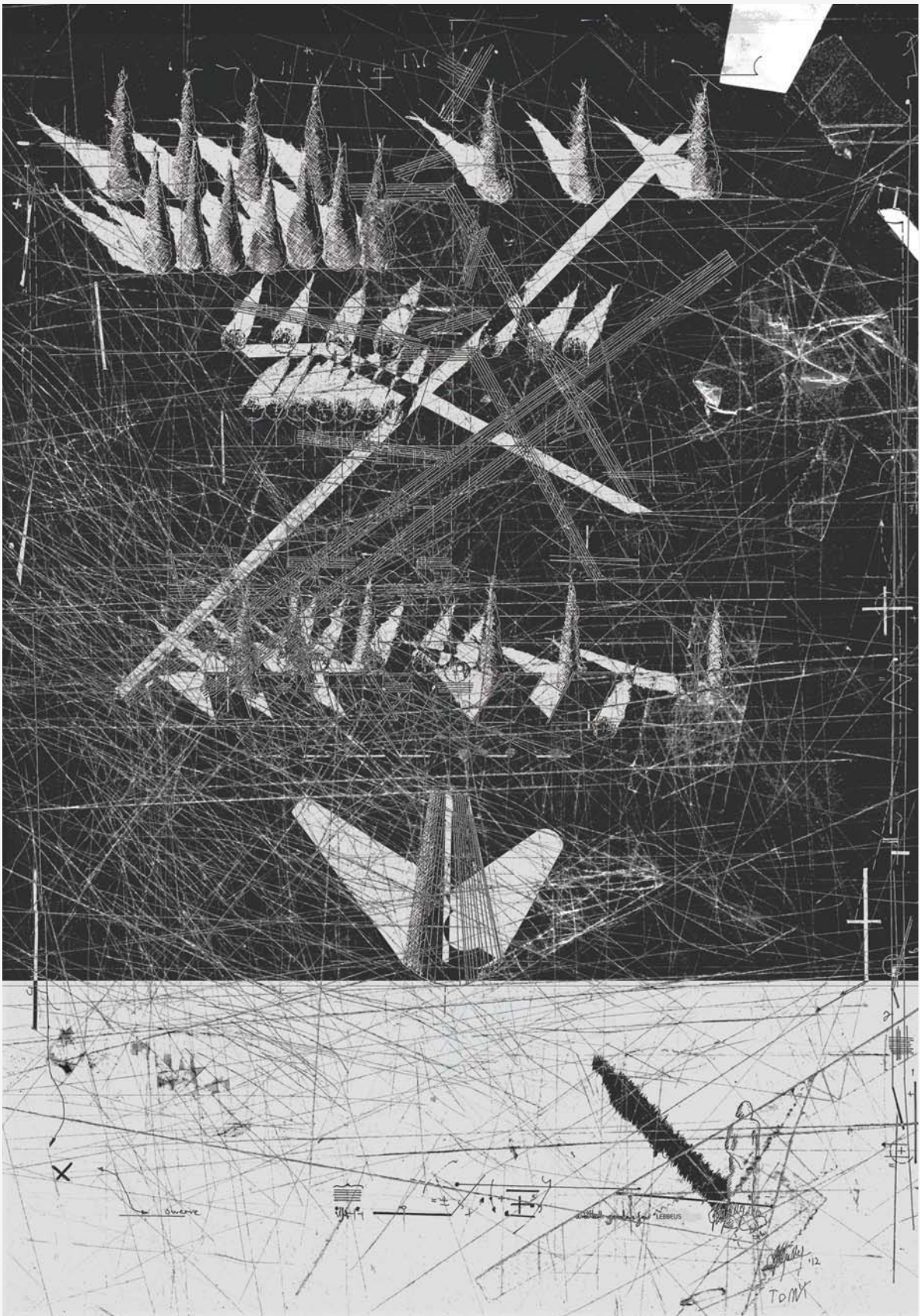
Front cover: Neil Spiller and Vaughan Oliver, *The Widow's Dummy Surmounted by Pigeon's Ear*, 2012. © Neil Spiller and Vaughan Oliver

Inside front cover: Smout Allen, *Wet Lands: Architectural Waterscapes and Soft Infrastructures for the Thames Gateway*, 2011. © Smout Allen (Mark Smout and Laura Allen)



Architectural drawing is alive, kicking and positively screaming. This is not a straight revival of the hand drawn. Every aspect of the graphic is undergoing transformation and reinvention. Infused by new technologies and techniques, innovative media and materials are being explored at every turn. Simultaneously, there is a renewed enthusiasm for the spontaneous and the sense of the hand behind the image, which the analogue engenders, leading to numerous different combinations of hand-computer hybrids. The digital image, animation, film and the hand drawn are all morphing; shifting in their balance in any one individual's work. Conventional graphic formats, such as the plan, section and elevation, are also potentially melting away as highlighted by Perry Kulper (pp 56–63), as the formation of the image can be tailored to any particular design context or process.

What does this reinvigoration of the graphic mean for architecture? To draw, after all, is to think and speculate visually. Drawing and representation remains the bedrock of any architectural student's education. As Neil Spiller, the guest-editor of this issue, points out in his introduction (see pp 14–19), it is no coincidence that the majority of contributors to this issue teach. It is worth highlighting Neil's sagacious words on the matter: 'The mark of a good tutor is not to get cohorts of students to mimic their idols' tropes and miasmas. It is to help birth their worldview, to help the new infant breathe and start to design with dexterity and an understanding of what might have gone before ... to lead the students to their own Elysian Fields.' At a time when the architect's professional role is perceived to have contracted – polarised in practice between that of image maker or technician – it offers a whole new raft of opportunities for how an architectural education might be applied in an emerging field of digital design activities. This is highlighted by Nic Clear, best known for his advocacy of animation and film in London architecture schools and his award-winning students, many of whom have gone on to find careers in new media (see pp 70–9). For this issue is not only striking for the technical and creative quality of the drawings featured, but also for the visionary power of the themes investigated that broaden rather than narrow the possibilities of future spatial exploration. ▴



ABOUT THE GUEST-EDITOR NEIL SPILLER



Neil Spiller is Dean of the School of Architecture, Design and Construction and Professor of Architecture and Digital Theory at the University of Greenwich, London. Prior to this he was Vice-Dean and Graduate Director of Design at the Bartlett School of Architecture, University College London (UCL).

He has had a long relationship with Δ . His work was shown as part of the 'Theory and Experimentation' exhibition in London (1992), which was organised by Academy, then publisher of Δ , and formed the basis for a publication of the same name. As a relatively recent graduate, he was exhibited alongside the likes of Bernard Tschumi, Morphosis, Lebbeus Woods, Daniel Libeskind and Coop Himmelb(l)au. He guest-edited (with Martin Pearce) his first Δ , *Architects in Cyberspace*, in 1995, followed in 1996 by *Integrating Architecture*, then *Architects in Cyberspace II* (1998), *Young Blood* (2000), *Reflexive Architecture* (2002), and (with Rachel Armstrong) *Protocell Architecture* (2010). He is also on the Δ editorial board. His books include *Cyberreader: Critical Writings of the Digital Era* (Phaidon, 2002), *Digital Dreams: Architecture and the New Alchemic Technologies* (ellipsis, 1998) and *Visionary Architecture: Blueprints of the Modern Imagination* (Thames & Hudson, 2007). His architectural design work has been published and exhibited worldwide.

Neil is also known as the founding director of the AVATAR (Advanced Virtual and Technological Architectural Research) Group, now based at the University of Greenwich. The group has its own PhD and Masters programmes, and conducts research into advanced technologies in architectural representation, but more importantly into the impact of advanced technologies such as virtuality and biotechnology on 21st-century design. Neil and the AVATAR Group are recognised internationally for their paradigm-shifting contribution to architectural discourse, research/experiment and teaching. This edition of Δ is another such endeavour. Neil has had much experience of encouraging students to develop their own architectural lexicon. He believes, wholeheartedly, that design tutors are creative midwives who deliver individual students' work that is influenced by the past but not in thrall to it. Students make their own world by 'building' within it. The first act of this 'building' is the drawing, its many iterations and its perfections. A good scheme and drawing must have enigmas, a certain elbow room to allow further speculative re-reading.

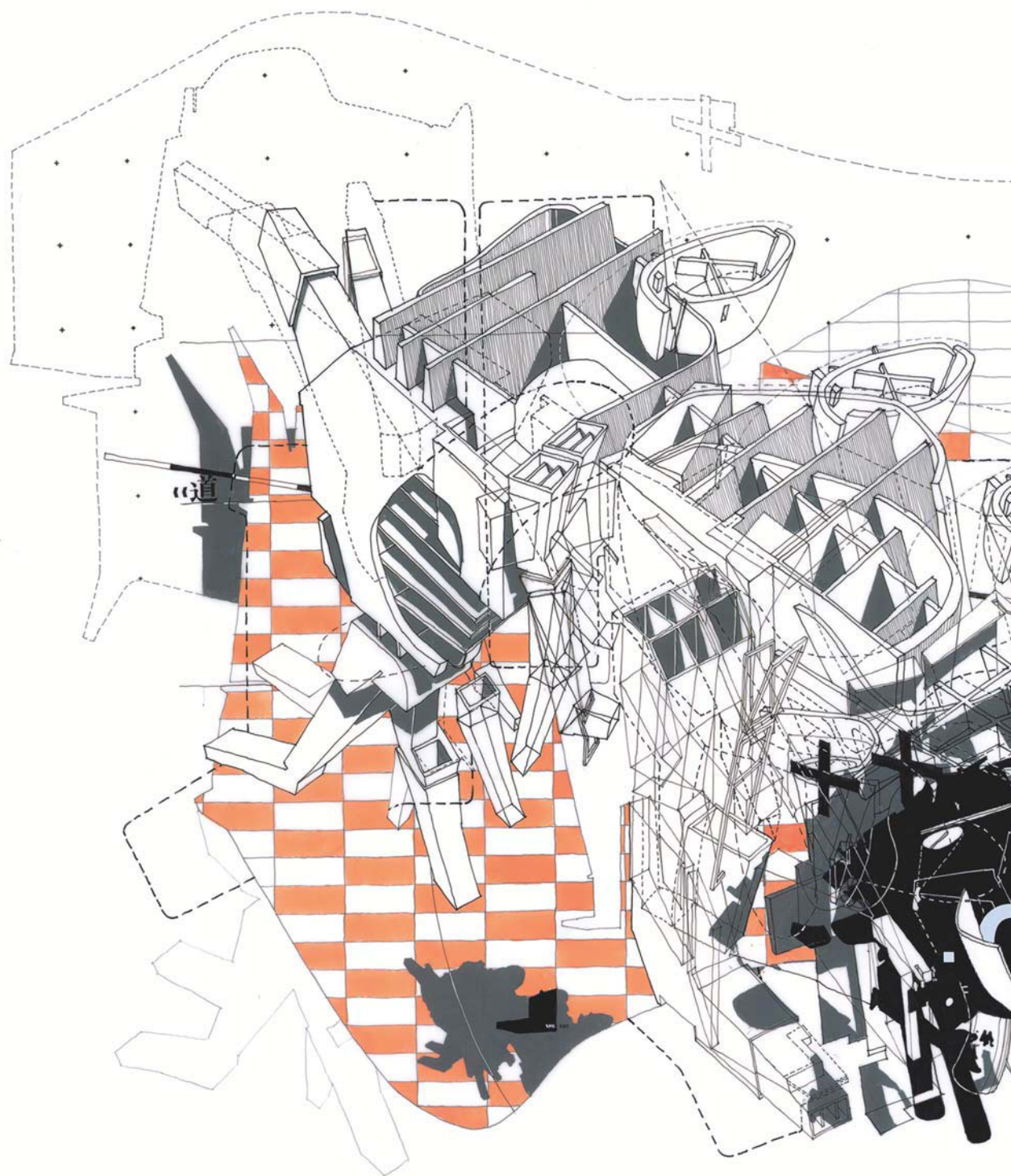
The 21st century is upon us and the status quo cannot survive. New ways of seeing, doing, practising and exercising our ethical concerns in relation to architecture are crucial to the continued longevity of the architectural profession. This starts with how we imagine our architectures and how we communicate to others. That is what this Δ is about. Δ

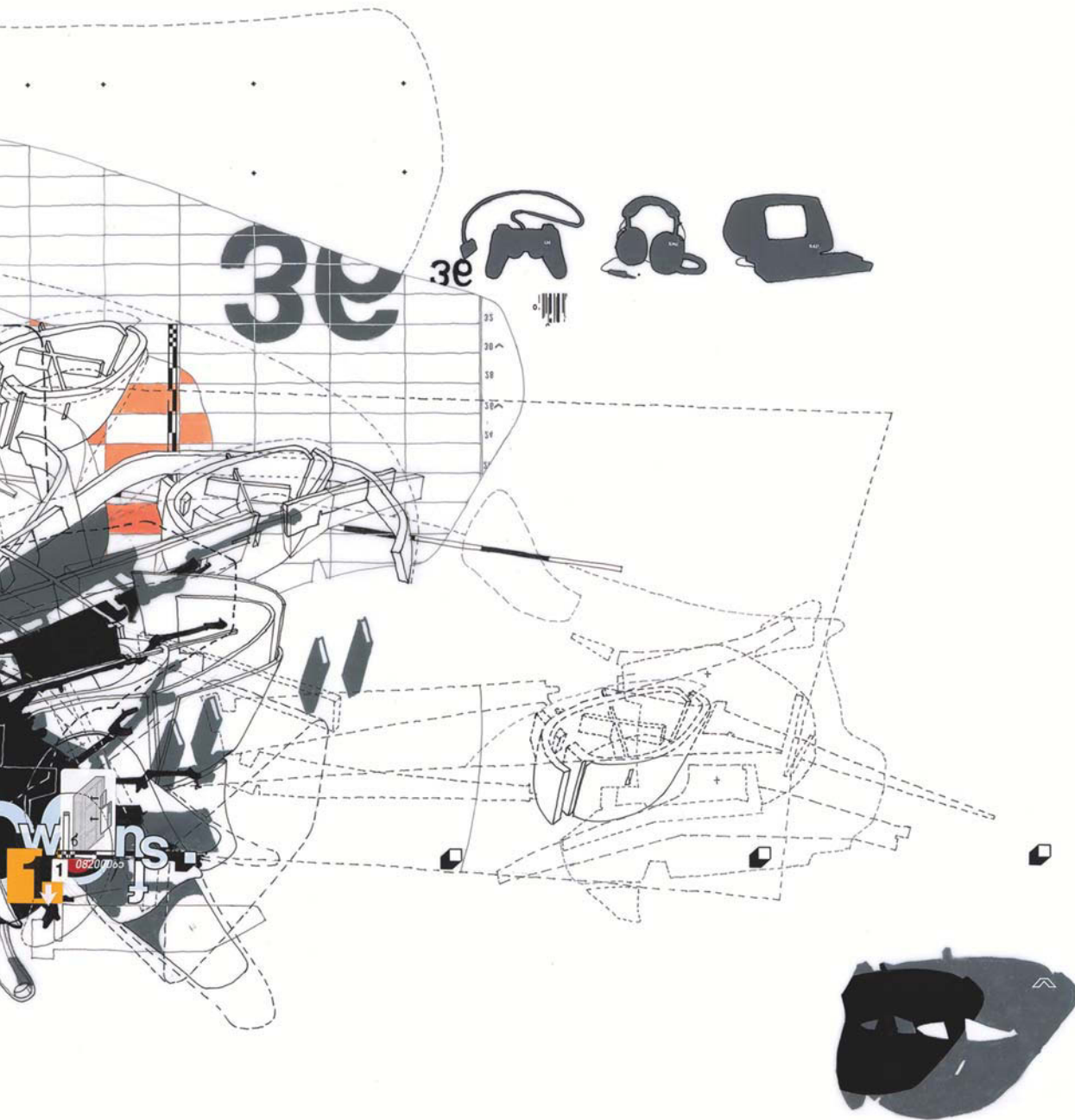
Neil Spiller, *Walled Garden for Lebbeus*, 2012–13

opposite: Whilst a homage to Lebbeus Woods, this drawing is also a graphic laboratory for speculations on augmented reality and its impact on 21st-century architectural design. Indeed, how much of it is 'real' in the traditional sense is moot.

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Images: p 6 © Neil Spiller; p 7 © University of Greenwich

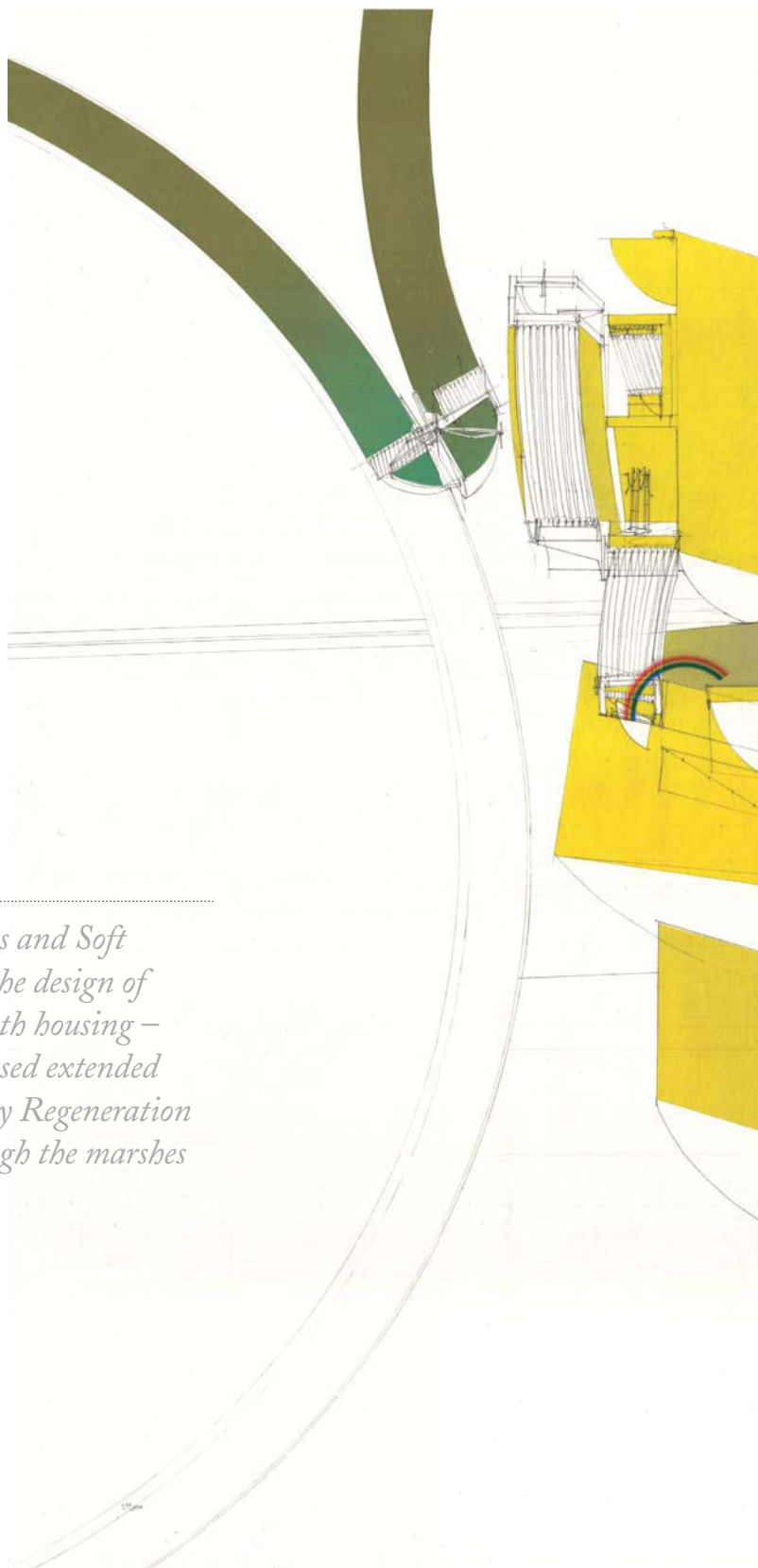
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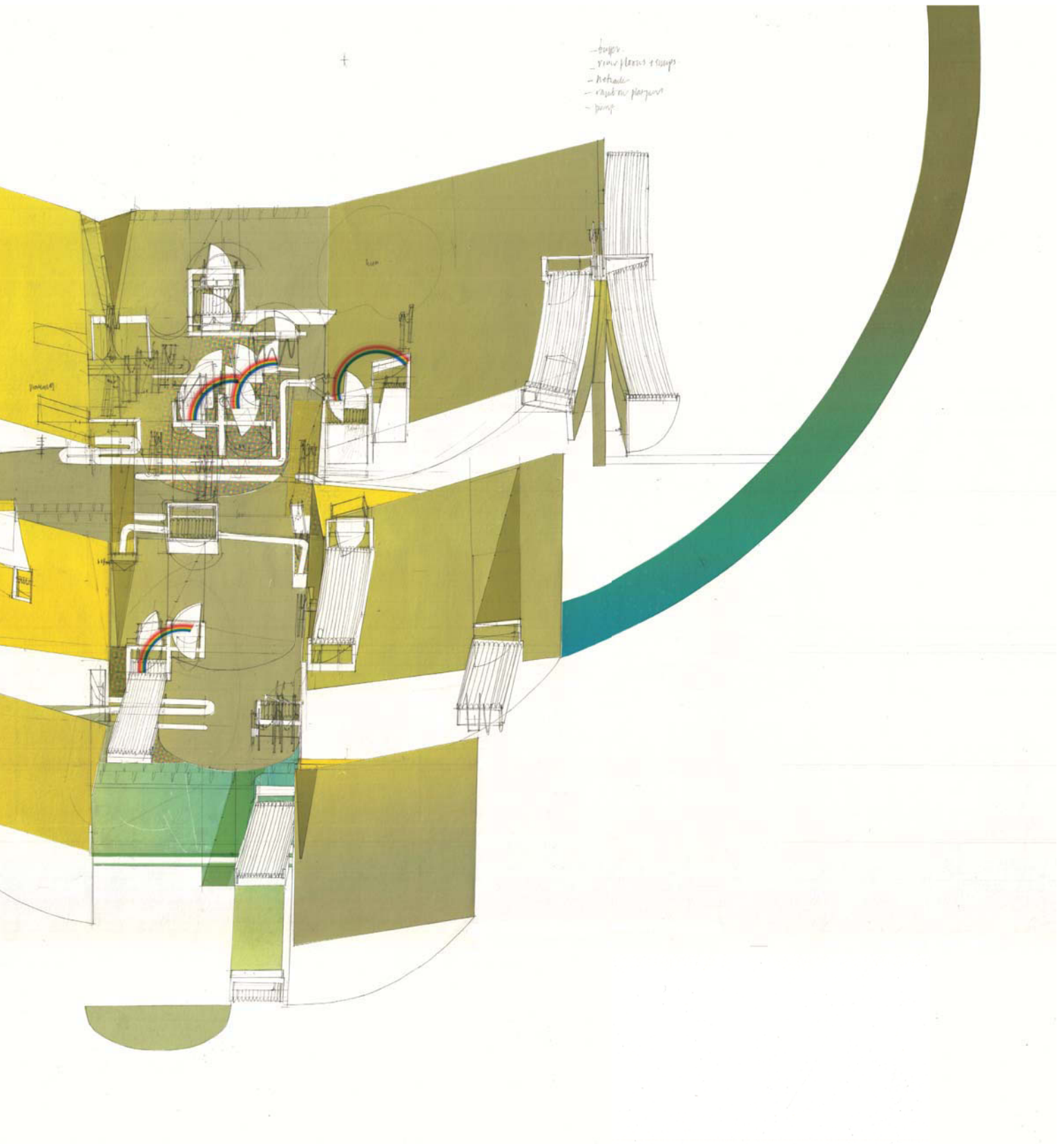


**Wet Lands: Architectural Waterscapes
and Soft Infrastructures for the Thames
Gateway, 2011**

Porous architecture and soft infrastructures.
Rainbows and mirages that bathe the
architecture emerge from the activated and
responsive skin of the building that soaks up
and reactivates water.



The Wet Lands: Architectural Waterscapes and Soft Infrastructures research project considers the design of a soft hydrological infrastructure fused with housing – an ‘architectural oasis’ – sited in the proposed extended metropolitan area of the Thames Gateway Regeneration Zone which runs along the Thames through the marshes to Rainham and beyond to Tilbury.

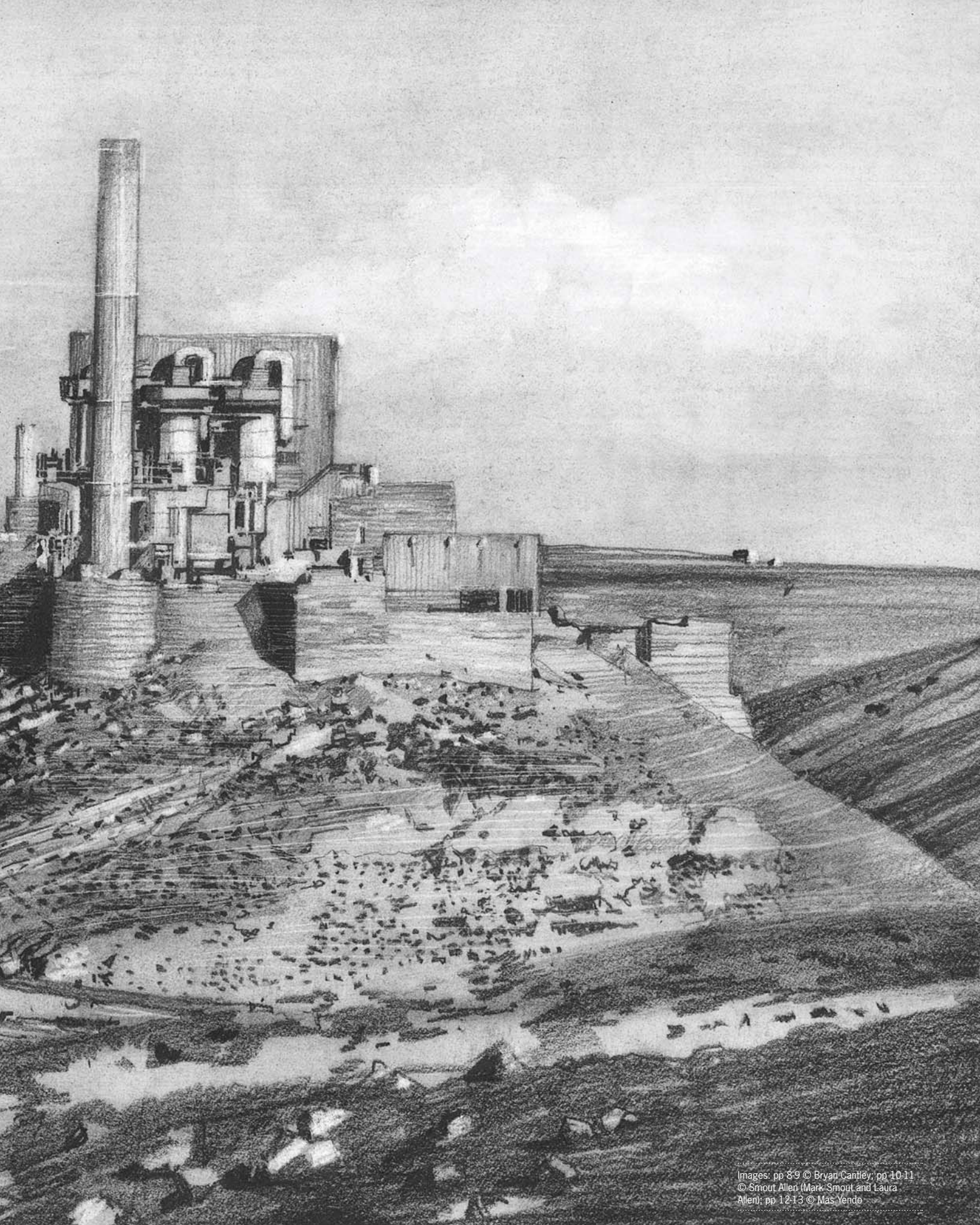


- boiler
- steam floor & traps
- kitchen
- radiator plant
- pump

Mas Yendo

Rocinante, Heroes series, 2008
Towers rose high, and painters filled walls.





Images: pp 8-9 © Bryan Cantley; pp 10-11
© Smout Allen (Mark Smout and Laura
Allen); pp 12-13 © Mas Yendo

ARCHITECTURAL DRAWING GRASPING FOR THE FIFTH DIMENSION



Drawing Architecture is about being true to yourself as an architectural designer. It is about having the bravado and the ego to put your head above the parapet and shout 'this is me – this is what I do, this is what excites me and this is how I go about describing it'. It is about experimental design practices that choose to use the drawing as the primary means to communicate their design aspirations to a wider public (the work of Narinder Sagoo/Foster + Partners, Will Alsop and Morphosis comes to mind), be this fellow professionals or lay people.

Indeed, while one might expect the computer to have fully vanquished what might at first seem an arcane medium – the hand-drawing – in fact paradoxically the reverse is true. We are currently seeing a renaissance of the drawing, albeit in new forms. This issue of *Δ* is an initial charting of these strange seas in an attempt to prime further discussion and understanding of the shifting status of the architectural drawing at the beginning of the 21st century.

Those architects featured in the issue agree that the four dimensions of architecture (three spatial dimensions and time) are not enough for a new century; each is grasping for a new fifth dimension in their work, and developing new protocols of drawing to discover it. This new dimension varies in each architect's work. For some, it might be semiotic bliss, cyborgian geography or urban polemic; for others it might be mechanistic – to augment landscape or to seek joy in the mechanism's fecund tendrils.

Narinder Sagoo/Foster + Partners, Beijing Capital International Airport, Beijing, 2004, and West Kowloon Cultural District, Kowloon, Hong Kong, 2012

Sagoo's success at Foster + Partners is aided by his ability to succinctly and rapidly illustrate and communicate through drawing to clients and lay people alike.

Drawing Architecture is about being true to yourself as an architectural designer. It is about having the bravado and the ego to put your head above the parapet and shout 'this is me – this is what I do, this is what excites me and this is how I go about describing it'.



I would like to introduce here the concept of 'donegality', described and imagined by Michael Ward in his book *Planet Narnia*, in the hope that it will enable us to more easily untangle these dimensions:

By donegality we mean to denote the spiritual essence or quiddity of a work of art as intended by the artist and inhabited unconsciously by the reader. The donegality of a story is its peculiar and deliberated atmosphere or quality ... that the author consciously sought to conjure, but which was designed to remain implicit.¹

So as you work your way through this Δ , I urge you to consider the donegality of each drawing and how it contributes to the atmospheric chemistry of each architect shown. It is this flavour of the whole, and the assumptions, spatial fields, formal constellations and negations that provide the works' donegality, and equally a clue to their dimensional grasp.

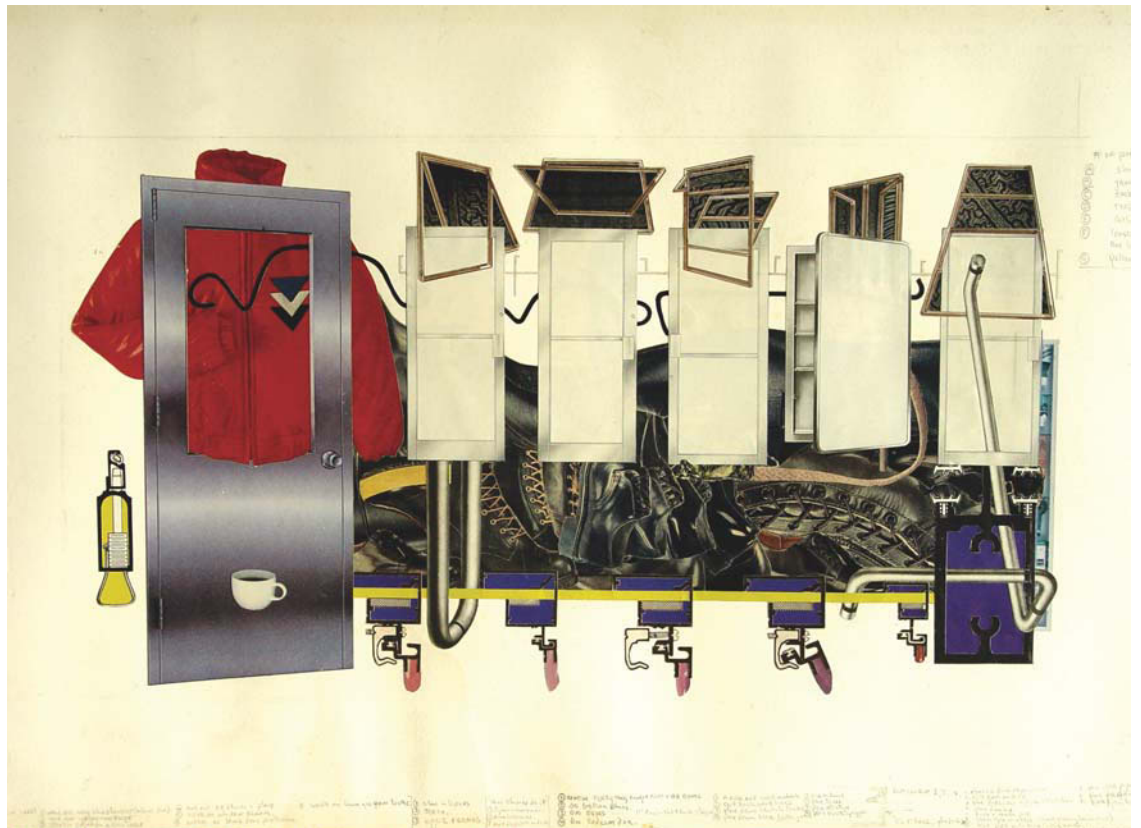
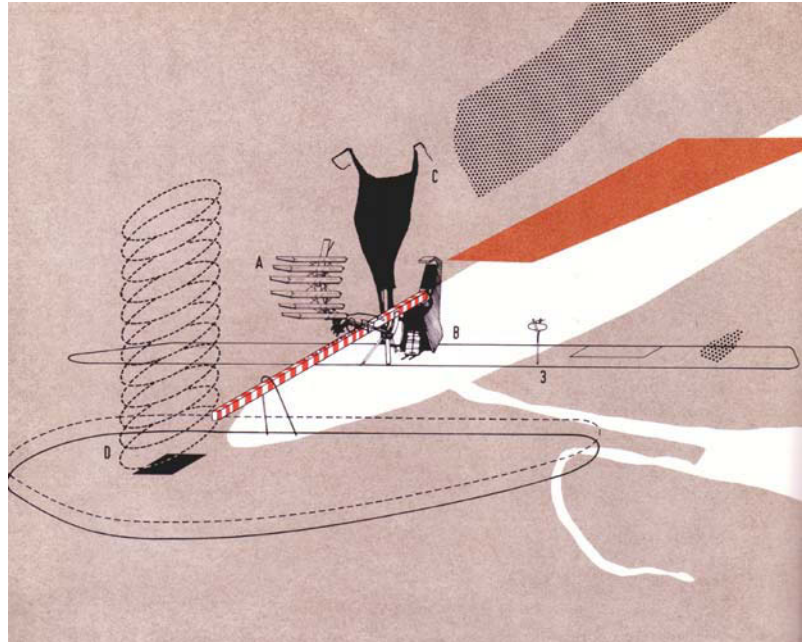
Morphosis Architects, Providao, Combinatorial Form, 2012

Despite having many large schemes in the office, Morphosis exhibits a continual will to experiment with materiality, fabrication (both digital and analogue), form, printers, renderers and routers – are these drawings, models (virtual or actual), a terrain or a building?

Will Alsop, Shadow Wall, 2008, and Painting Study for the interiors of a residential building, Toronto, 2012

above top and bottom: Alsop never accepts convention. His work is always generated from a drawing or painting. These artworks, like the resulting architecture, have a jarring resonance predicated on a maverick formal and graphic audacity.

In this world of ubiquitousness, the contributors to this issue see the architect's role as one that champions the peculiarity of architectural space and form, and celebrates geographical, cultural and creative difference.



Peter Wilson, Ninja House, Yokohama, Japan, 1988

top: This project beautifully graphically illustrates a concern with shelter from the electromagnetic tsunami that at the time was about to be unleashed on an unsuspecting world.

Ben Nicholson, Appliance House, 1990

bottom: A masterclass of drawn and collaged control – a peek inside Nicholson's sketchbooks reveals a world of very accurate dexterity.

Today's architects have a wealth of techniques, processes and approaches with which to make their architecture. It is a consistent disappointment to me that more architects do not explore the wilder and more beautiful terrains of our discipline. Why are so many of us happy to revert to a tired and defunct Modernist doctrine? As Rosalind Krauss has observed concerning the grid:

As the experience of Mondrian amply demonstrates, development is precisely what the grid resists. But no one seems to have been deterred by that example, and modernist practice continues to generate ever more instances of grids.²

In architecture this is also true, with the added impediment that the grid is seen as rational and further bolstered by 20th-century machine production and its inherent simple financial quantification.

In this world of ubiquitousness, the contributors to this issue see the architect's role as one that champions the peculiarity of architectural space and form, and celebrates geographical, cultural and creative difference. Many, thank goodness, are also involved in architectural education. The mark of a good tutor is not to get cohorts of students to mimic their idols' tropes and miasmas. It is to help birth their worldview, to help the new infant breathe and start to design with dexterity and an understanding of what might have gone before, but also with an imperative conditioned from an understanding of what might come after, whether that is technological, philosophically or phenomenologically predicated. In short, not to pollute the young mind with the fetishes and guilty vices from which the tutors themselves suffer, but to lead the students to their own Elysian Fields.

Lebbeus Woods

The task of gathering this group of architects has fallen to me at a time where we have just lost our friend and hero, Lebbeus Woods (1940–2012). It is his example, along with a few others such as Peter Cook, Ben Nicholson, Mike Webb, Peter Wilson and Nigel Coates, which has sustained those represented here. Leb's journey was a lifelong one; his energy and his belief in architecture and its benevolent yet testing presence, represented in his drawings, has left us a codex that serves as an inspirational beacon.

While Leb's drawings evolved over time and display a whole series of preoccupations, differing at certain points in his career, they all contain a coherent Lebbian donegality. This atmosphere first emerged as he posited a parallel world of craggy cities, often sited in imagined inhospitable terrains with equally inhospitable interiors. They were not to be perverse but, in Leb's mind, to test the wonderful vitality of the human condition and its ability to find new ways to dwell and, therefore, lead to emancipated social communities. These cities were populated by frock-coated navigators, half Edwardian gentlemen and half steampunk aviators, embodying the notion that the unknown was reachable, beneficial even, and that with courage and a personal sense of enquiry we can get there –that it was the beginning of another human adventure.

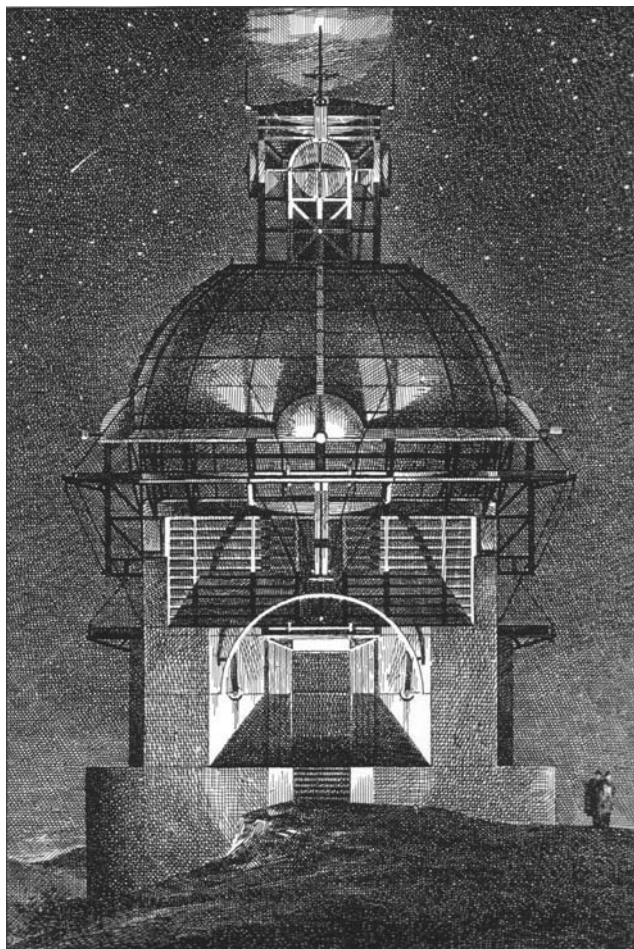


Nigel Coates, Muse Britannia, 1982

In the 1980s, Coates and his Narrative Architecture Today (NATO) colleagues concocted an architectural style that mixed programmes (work and domestic), and the prevailing urban post punks/new romantic aesthetic, to make a techie detritus chic that was to upset the establishment and turn graphic protocols on their head.

This sense of enquiry was one of the things that defined Leb, the architect and the man. He was an emotional man, prone to huge generosity and doggedly supportive of those he felt were on similar trajectories to himself. What most people will remember about Leb is his drawings (unless you were fortunate enough to meet him, or even so fortunate as I and a very few others to have him write about your work). Leb's drawings have a pyrotechnic feel (whether in black-and-white or colour, Leb was a master of both) – one can feel the power in them. Vortices, flows, currents, chasms, pinions and vectors populated his universe. Time never stood still for Leb. So this Δ is dedicated to Leb, who I think would have been very interested in this new generation of work and the emergence of a new vanguard to stand against architecture's disappearance.

Let us finally consider some of this army of talent, young and older, but all fiercely independent. Leb obviously knew the older ones and never had the opportunity to meet the younger ones.



Lebbeus Woods, Epicyclarium, Entrance Elevation (Night), 1984
The Epicyclarium is a contemporary Tempietto fecund with geometric order and mythic presence. Ink on paper. First published in 'Origins', AA Files, 1985.

Introducing the Band

CJ Lim (pp 102–7) often imbues his work with narratives that dig deep into the literary cultural DNA of his audience to create architectures that are both extraordinary and also dripping in the often-lost playful dimensions of childhood. London is a city of rhymes, Alice conducts spatial distortions and Venice greets Marco Polo and Calvino. Smout Allen (pp 88–93) are fliers of kites, both physically and metaphorically; they sit for hours finely honing small pieces (in metal, plastic or paper) in elaborate models of augmented landscapes that dig holes, fall down cliffs. Landscape design to them is about the position of the horizon, the slow or abrupt changes of geomorphology added to a healthy humour. Nancy Wolf (pp 108–11) has for years been drawing about the future and the pitfalls of ubiquitous urbanism, and the ultimately useless delectations of urban designers and architects.

The work of Perry Kulper (pp 56–63), Bryan Cantley (pp 36–43) and Mas Yendo (pp 124–7), though very different as architects, often gets lost in the great fleeting, fashionable limelight of the US, and yet they continue to turn out works of exquisite donegality. Nic Clear (pp 70–79) and Simon Herron (pp 94–100) and their students, whilst again very different, share an interest in time. Clear has developed the discipline of the 'chronogram' to help them notate and explore the films that he and his conspirators make about the future or the present of the city – nothing like them in the world. The work of the Herron/Isa studio again does not have its equal worldwide, and finds architectural potential in all scales, weights and measures, and spaces where human colonisation got it weird – most places to be exact, especially in the hinterlands of the great conurbations. Dan



Lebbeus Woods, Inhabiting the Quake: Seismicity, 1995

Woods's work also speculated on the architectural potential of cataclysmic natural shifts in landscape and how they might be put to the service of architecture. Constructed drawing with the assistance of Yair Millet. First published in Lebbeus Woods, *Radical Reconstruction* (Princeton Architectural Press, 1997).

Slavinsky (pp 120–23), Tom Noonan (pp 64–9), Pascal Bronner (pp 44–9) and the AVATARs (pp 50–55) all are bristling with graphic verve; whether it is wet deco, surreal woodwork or highly spatial interiors in space, all use the drawing to chart potentials of movement, change or gravitational variation.

Peter Cook and Gavin Robotham's CRAB studio (pp 80–87) is combining Cook's signature style with computers to create representations of architectures that are as highly coloured as they are imaginative and life affirming. Cookian preoccupations can be thematised into all manner of categories: towers, kiosks, dampness, growies, and how transparent can a building really get, all abound in the new work.

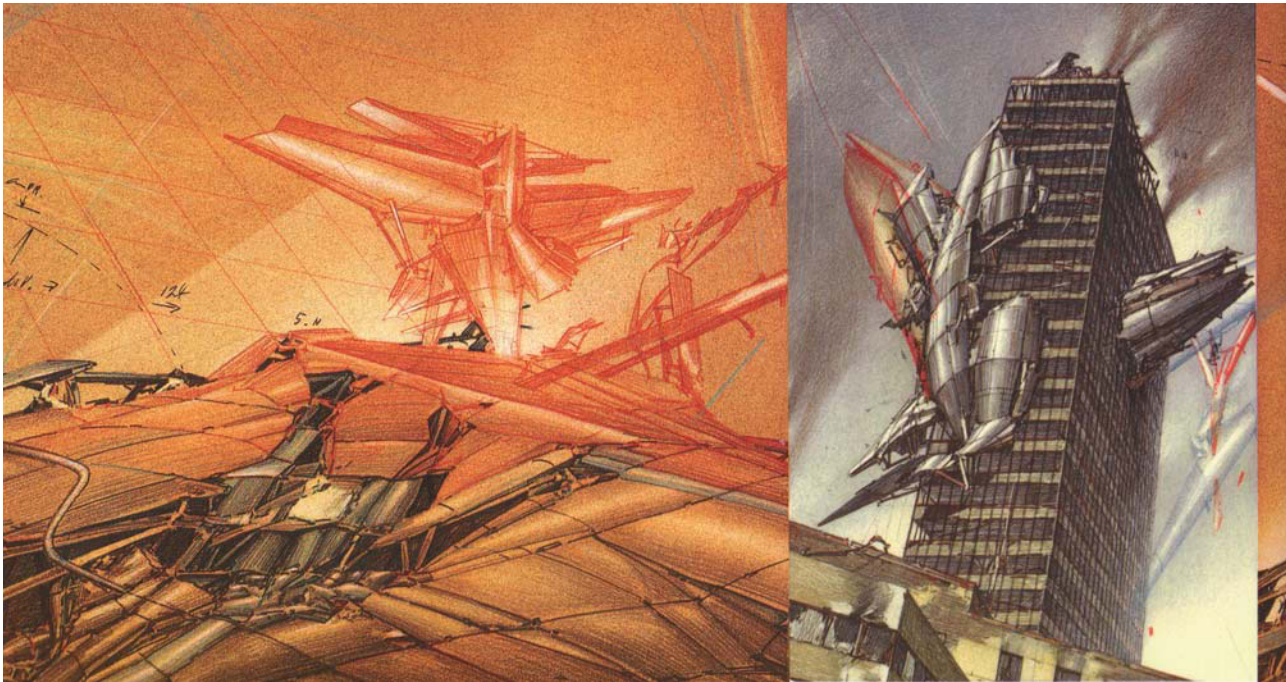
We are also lucky enough to be able to include those most urbane and naughty of critics and theorists, Mark Garcia (pp 28–32) and Mark Morris (pp 20–27), who will astound us with their encyclopedic knowledge of the use of the drawing in architecture and much more – making connections that help us see and wonder as they concoct new epistemologies from the fragments around them and echoes in history.

This issue is an illicit pleasure. Please do not regress into that old reactionary, tired defence of 'well these architects haven't built much so why should I be interested?'. As well as a recipe for your personal extinction, you are very wrong indeed. At the very least you might sniff this issue and be attracted by its strangeness – after all, everyone likes a bit of strange. But I hope you will be inspired to create your own works that bend the drawing out of shape and that truly reflect your donegality. The drawing is dead, long live the drawing! ▢

Notes

1. Michael Ward, *Planet Narnia: The Seven Heavens in the Imagination of CS Lewis*, Oxford University Press (London), 2008, p 75.
2. Rosalind E Krauss, *The Originality of the Avant-Garde and Other Modernist Myths*, MIT Press (Cambridge, MA and London), 1985, p 9.

The drawing is dead,
long live the drawing!



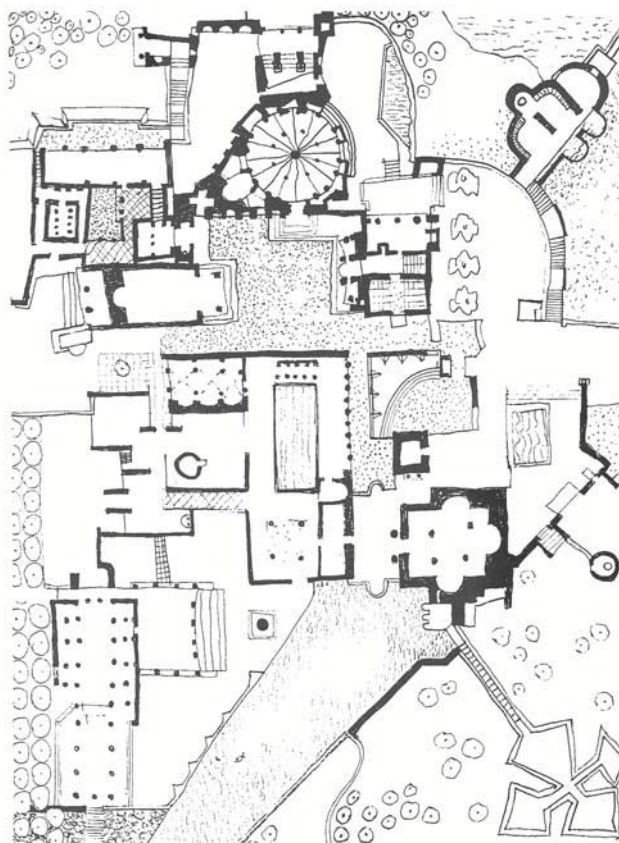
Lebbeus Woods, War and Architecture: Moments, 1993
This drawing depicts the phoenix-like rising of a new architecture from the desolation of war. Graphite and coloured pencil on board. First published in Lebbeus Woods, *Radical Reconstruction* (Princeton Architectural Press, 1997).

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ALL NIGHT LONG

THE ARCHITECTURAL JAZZ OF THE TEXAS RANGERS

In the mid-1950s, a group of young faculty at the University of Texas School of Architecture in Austin – aka the Texas Rangers – entertained themselves with weekly sessions of a sophisticated, collective drawing game, ‘Dot-the-Dot’, in which there was an emphasis on inventive fluency in hand drawing as well as an innate knowledge of historic European city plans. What happened when **Mark Morris**, Visiting Associate Professor at Cornell University, decided in a design studio to ask present-day students to revive the game?



Bernhard Hoesli, Colin Rowe and other members of the Texas Rangers, *Dot-the-Dot* drawing, c 1956

All's well that ends well? Such drawings grew over the course of a late night. For as much as they were an index of each individual's participation and intoxication, the results were fairly cohesive; a graphic representation of *E pluribus unum*.

We would take a large blank sheet of drawing paper and begin to draw plans of buildings, historic and otherwise. Colin [Rowe] would say, I am going to draw the plan of the Villa Madama then Bernhard [Hoesli] would draw the plan of Wright's Cage House, etc. all night long. In the early hours of the morning the paper would be filled with plans from all times, many hybrids too. At the end Colin would be devilishly delighted. In retrospect, who would have thought those plans of Classicism, Neo-Classicism, Modern, Constructivism, Contemporary would have been the genetic coding of the architectural monsters that followed?

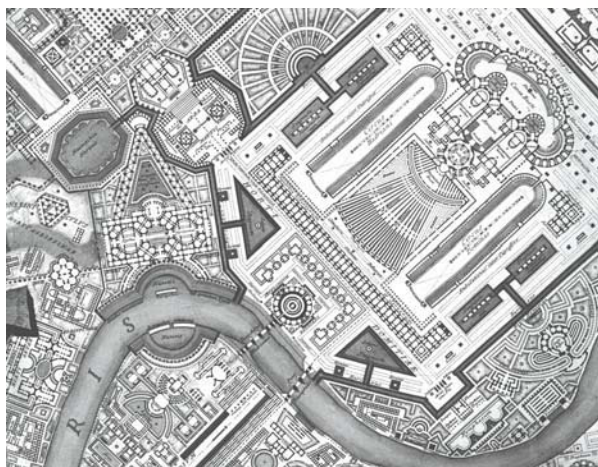
—John Hejduk to Alexander Caragone,
May 1991¹

A charming if improbable scene: bright young architecture faculty huddled together in the middle of the night, probably drunk, drawing together. Doodling on one large sheet of paper pinned to the wall, a quickly growing urban plan takes form where recollections of real buildings merge with unreal fragments forming connective tissue (sympathetic landscapes, ameliorating vestibules, forced-perspective alleys) and collide against other agendas as fresh authors dig in. This is what academics did for pleasure before the Internet.

Colin Rowe, Lee Hodgden, Robert Slutzky, Bernhard Hoesli, Werner Seligmann, Lee Hirsche, John Shaw, Jerry Wells and Hejduk – the bulk of the group that would come to be referred to as the Texas Rangers – invented this drawing-in-the-round game at the University of Texas School of Architecture in Austin in the mid-1950s as part of a Thursday night 'seminar for faculty'. Referring to the game as 'Dot-the-Dot', the group would loosely abide by exquisite corpse rules, taking the drawing in turn and adding to it by extending the logic(s) of the preceding efforts. No erasure, no editing, just thoughtful additions. The joy was had in working through contingencies. There must also have been some pleasurable one-upsmanship in terms of the erudite plan quotations one could muster off the cuff and how much one could interpret, extend and merge precedents. Scale did and did not matter. The whole was certainly meant to appear at a roughly consistent scale, but the scale of individual 'buildings' could vary wildly provided the resizing was in service to synthesis; a Roman basilica could better merge with a plan of a Le Corbusier villa with scalar leniency.

Exactitude was not the point. In fact, it would have destroyed the effort. This is very much a sketch where the vagaries of a pen in different hands were part of the required 'fuzziness' of the project. It did not hurt that Rowe's war injury from his brief career as a paratrooper provided the requisite visual wobbliness naturally. In other words, inexactitude was necessary if synthesis among all the authors and all the precedent fragments was the goal. Straight lines, hard edges and 90-degree corners would have constricted too much. Within such a loose framework, one could enter and exit the drawing, pass the baton, without too much individual graphic residue. Some effort was made to *poché* the walls and columns to distinguish them from other lines marking open porches, terraces and garden walls. The landscape as well as paved piazzas and streets are stippled. Water is hinted at with wavy lines. Trees are mostly small and circular, but occasionally larger and amoeboid. Tile paving patterns are suggested. Dashed lines show cross vaults and the ribs of domes overhead. Black and white, figure and void, are agreed economies and key restrictions permitting the authors and architecture to jostle yet read as whole.

Where did Rowe, Hodgden, Hoesli and company get the idea? Their exquisite corpse plan shares graphic themes with any architect's sketchbook where different ideas and kinds of drawing feature on a given page. Think of the travel sketchbooks of Le Corbusier, for example, and the sheer density of little plans, sections and rough perspectives – sometimes of observed things, sometimes things invented, but spawned by observation – that configure untidily and productively together. The drawing has an affiliation with Giambattista Nolli's Plan of Rome (1748), but Giovanni Battista Piranesi's 1762 Campus Martius (Field of Mars), featured in *Collage City*,² comes closer to the spirit of the Texas Rangers' experiment, where local symmetries and systems are based on taking real fragments to fantastic extremes with similar inventiveness in terms of resolving the interstitial pockets between the bigger urban set pieces. Hadrian's Villa in Tivoli (built AD 120–138) is also a clear inspiration, particularly in the extension of the drawing at the edges into an imaginary landscape.



Giovanni Battista Piranesi, Map of the Campus Martius, Rome, 1762

What architect has not pored over this image and wondered at it? A fantasy combining archaeology, history, urbanism and architecture that Rowe adored and mined for so much writing and pedagogy.

The 1739 Turgot map of Paris, an imagined aerial view in oblique projection, linking urban assemblages and landscapes in unusual ways, has obvious affinity with Dot-the-Dot efforts. Patterns of rooftops and vegetation become textures against which roads, courtyards and gardens visually pop. The configuration of the Louvre, Tuileries Garden and Palais-Royal was another favourite of Rowe and Fred Koetter. More about competing logics within landscapes, the plates from Leonard Knyff and Johannes Kip's 1707 *Britannia Illustrata*³ (Rowe must have been familiar with it) come remarkably close to the aspirations of the Dot-the-Dot drawing despite not being plans themselves. The perspectives of manor houses and estates of Great Britain emphasise relationships between formal gardens, agricultural fields and bodies of water. The manor houses frame the landscape by extending their centres and edges to garden walls, hedgerows, *allées* of trees and paths that zoom to the horizon. But the compositions of the *Illustrata* engravings are never cohesive, never perfect Beaux-Arts exercises, but in dynamic tension with the ragged woods, negotiating topography and irregular borders, and making the most of the happenstance situation of the buildings themselves as they configured over time.⁴

There was the unstated wish, no matter how often Dot-the-Dot was played, to achieve roughly the same sort of thing: a smallish, vaguely European town centre with implied civic programmes that appears as an assemblage of old and new types. This aim was fuelled by a shared passion for particular instances in the history of urbanism where new systems butt into old ones. The 1691 plan of the Friedrichstadt in Berlin is a fine example where organisational principles productively collide, the new town grid nuzzling into the perimeter of the centralised fortified core. Early 19th-century Turin is another case where three parts – castle, plan and governmental seat – interlock like cogs of a machine; the plan of the fortified town itself being an interlacing of grid, oblique paths and squares. Camillo Sitte's studies of 'urban rooms' in his 1889 *City Planning According to Artistic Principles*⁵ are Dot-the-Dot forerunners in terms of scale as well as composition.

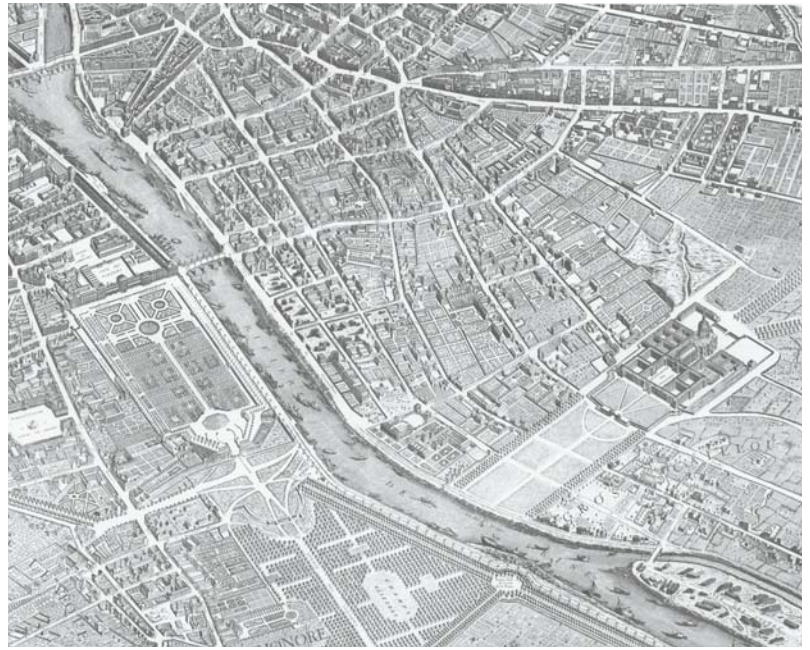
Leonard Knyff and Johannes Kip, *Britannia Illustrata: Or Views of Several of the Queen's Palaces, as Also of the Principal Seats of the Nobility and Gentry of Great Britain, Curiously Engraven on Eighty Copper Plates, 1708*

Knyff and Kip emigrated from Amsterdam to London following the crowning of William and Mary in 1689. Their work is noteworthy for its high level of detail and accuracy in representing architecture and landscapes, as well as for diverse aerial vantage points, done before the advent of hot-air ballooning.



Turgot map of Paris, 1739

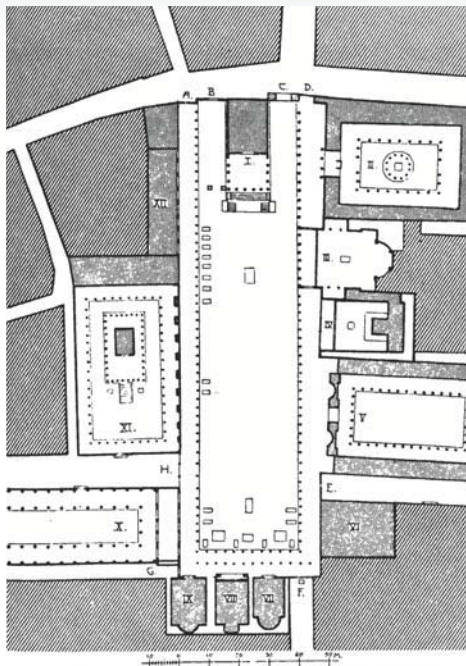
Louis Bretez (cartographer and architect) and Claude Lucas (engraver); commissioned and supervised by Michel-Etienne Turgot (1690–1751). The map had just the right combination of clarity and texture in expressing urban form at a visually digestible scale. The inclusion of landscape elements, boats and garden walls lends it a sense of site and atmosphere often lost in a conventional flat map image.



A Dot-the-Dot drawing has its own implied history. As it was handed off to the next person, the accumulated buildings and landscapes were treated as given site conditions. Adding something each time was like formulating an architectural response to an increasingly complex set of constraints. In this way it was a sped-up studio project, an opportunity for faculty to be students again. There was a marked difference to being the second versus the seventh contributor. Participation was voluntary, but there was peer pressure to take part at least once in an evening. Contributions varied depending on individual interest, level of focus and how tight the page's negative space was getting. Non-architects, various hangers-on, were sometimes invited to 'screw it up so the architects could get to fix it'.⁶ The parties included some drinking, as a rule, and this played no small role in loosening things up. Drawing under the influence was appropriate to the task of free association. Rowe started the collective drawing – akin to setting the first letters down on a Scrabble board – and ended the process, 'devilishly delighted', by receiving the completed work and playfully critiquing the results. It was a party game and serious architectural investigation at the same time. The drawings were conceptually valuable enough to remain pinned up until the next party as a trophy that could be interrogated for new ideas, but materially not precious enough to conserve beyond that. There are almost no surviving examples; they live in memory rather than archives. Dot-the-Dot represented the fusion of a group of people whose common purpose and approach to architectural education could best be expressed in a drawing.

Camillo Sitte, *The Forum of Pompeii, from City Planning According to Artistic Principles*, 1889

This study must have been in the minds of several contributing to the featured example from the Texas Rangers's Dot-the-Dot drawings. In so many ways – from the jagged alignments, slight skews and aggregate order to the interplay of solids and voids, ink and paper – it served as a model for Rowe and company.



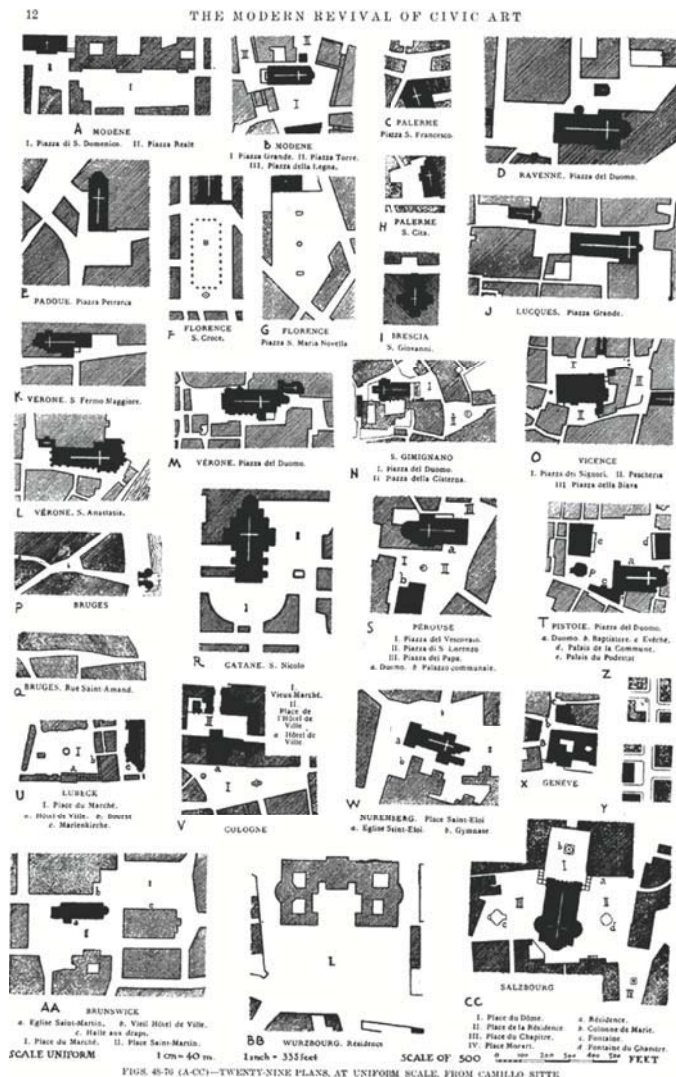
Beyond questions of provenance, there is the procedure of the shared drawing itself. Invented by the Surrealists around 1920, the exquisite corpse is a collage technique adapted from a standard parlour game, Consequences. Typically, Consequences is text-based and played in the round with folded paper, with each player only able to see the last line of the previous player before adding their own writing. A variation, Picture Consequences, also involved folded paper and the drawing of a person in stages. The lines revealed at the fold helped the next contributor continue the profile of the figure. The Surrealists harnessed both types of Consequences games to generate poetry and artwork. André Breton was initially using this method as a diversion, for fun, but soon realised its artistic potential:

From then on no unfavourable prejudice (in fact, quite the contrary) was shown against childhood games, for which we were rediscovering the old enthusiasm, although considerably amplified. Thus, when later we came to give an account of what had sometimes seemed upsetting to us about our encounters in this domain, we had no difficulty in agreeing that the Exquisite Corpse method did not visibly differ from that of Consequences. Surely nothing was easier than to transpose this method to drawing, by using the same system of folding and concealing?⁷

Shared authorship had as much to do with the fun associated with the method, as did childhood recollections of playing games. Despite the fact that architecture as a profession relies on teamwork and cooperation, drawing – sketching – remains mostly solitary. Dot-the-Dot was special in part because it was a uniquely social vehicle for architectural creativity, remaining true to its parlour-game and Surrealist roots: 'In fact, what excited us about these productions was the assurance that, for better or worse, they bore the mark of something which could not be created by one brain alone, and that they were endowed with a much greater leeway, which cannot be too highly valued by poetry.'⁸ According to Jerry Wells, Dot-the-Dot was played frequently, both in Texas and upstate New York in Ithaca, usually at a party that could vary from a half dozen people to upwards of 40. It appealed to historians and designers as it invited quotation and invention. Initial 'moves' were in reference to historical examples or types. This reliance on precedent was a welcome relief from a studio culture predicated on novelty, and condensed the broader intellectual platform of the group.

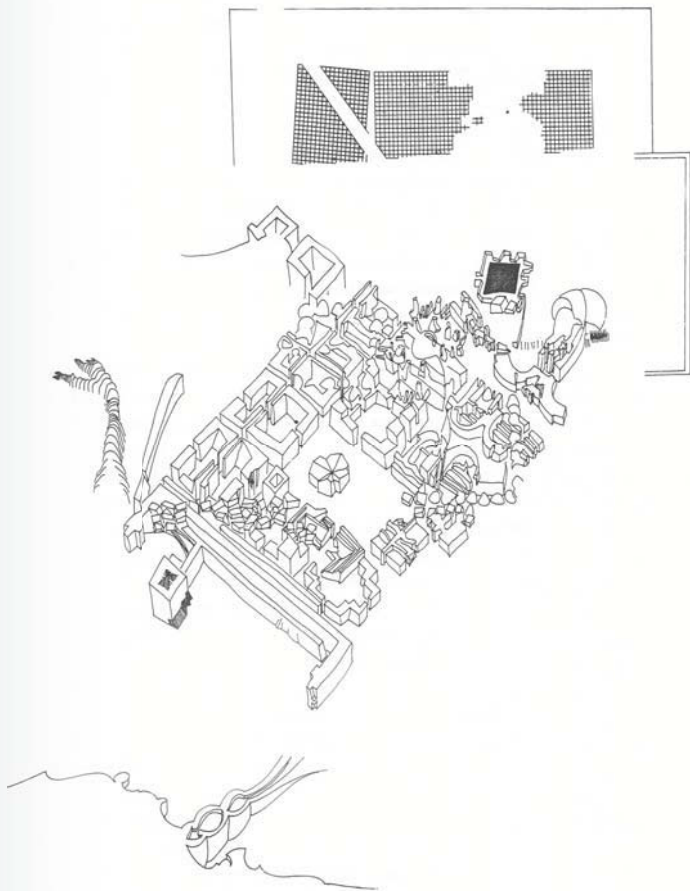
Camillo Sitte, *A Study of Plazas, from his City Planning According to Artistic Principles*, 1889

Sitte advocated that city squares be enclosed and aesthetically defined voids edged with public buildings within a dense urban fabric rather than regular or oversized sites for centred object buildings.



FIGS. 46-74 (A-Z) – TWENTY-NINE PLANS, AT UNIFORM SCALE, FROM CAMILLO SITTE

In his 1981 'Program versus Paradigm' essay, Rowe supplemented his own diagrams with a series of drawings by Rainer Jägals, a student of OM Ungers, 'who, about to die, felt obliged to draw'.⁹ These little axonometric fragments titled 'City Dream-Fantasy or Vision' merge characteristics of Campus Martius, Plan Turgot and Dot-the-Dot. Rowe put them towards the end of his essay as a finale, illustrating his argument against trends in urban planning: 'a visual idea, properly recorded, will always transcend, if not polemic, at least practice. Because, in the end, I am compelled to suppose that it is drawings such as these – desperate, translucent, eclectic, elegant, and ironical – and not the programmatic compilations of the data collectors that are going to affect our vision of the city.'¹⁰ This estimation of Jägals's work reinforces the true value accorded to the Dot-the-Dot drawings. Jägals's drawings appealed because they were one-man-shows that could have been extruded from the exquisite corpse game. Rowe adds this poignant touch: 'He was only twenty-seven and he was dying; but almost following Michelangelo's instructions to Tommaso dei Cavalieri – *Disegno, disegno e non perd'il tempo* [Drawing, drawing and I never miss the time] – he drew and drew and he used whatever time was available.'¹¹ Through the figure of this young man, he states how important drawing is to architects – it is what you would do to the end of your days – and, by this, we understand how important this party game really was. It was everything.



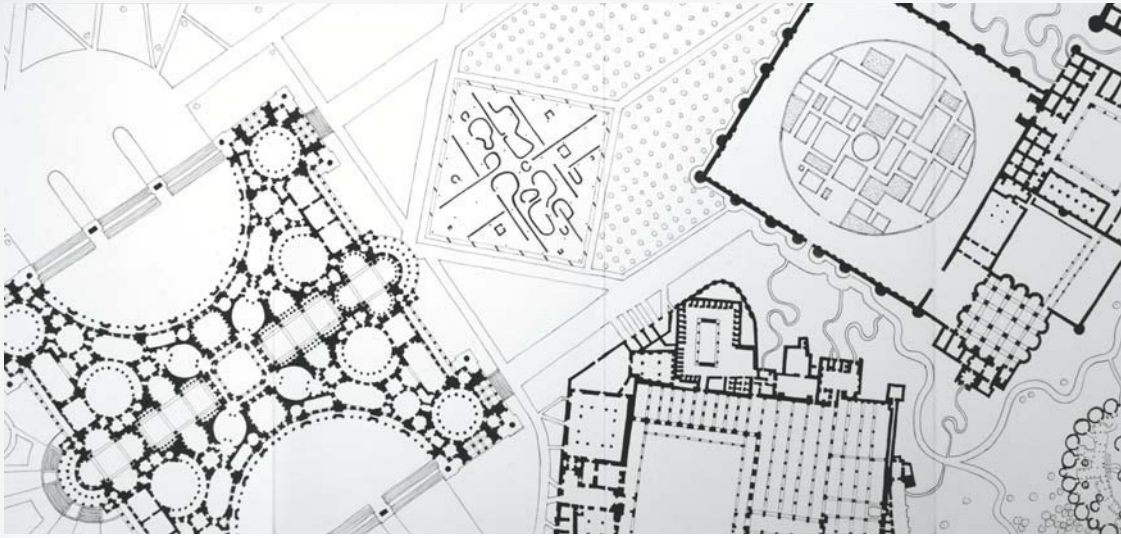
Indeed, it was the thing that came to ground so much of Rowe's later teaching at Cornell. While never admitting it openly, the focus of his urban design studio – invariably plans of urban centres with all the trademark collisions and resolutions – was an intellectually tuned-up and extended version of Dot-the-Dot, the results of which were published in the *Cornell Journal of Architecture*.¹² Thirty years on in the same lecture room Rowe used, I gave an architectural analysis assignment that was really Dot-the-Dot played out over the length of a semester. Students were asked to incorporate pieces of buildings and gardens we looked at in class alongside their own. A sketchbook with a single folded sheet of paper about 3 metres (11 feet) long was required, as was black ink and the emphasis on plan. Despite these confines or, perhaps, because of them, the results were surprisingly varied and occasionally as intense as those of their forebears. Few students were open to trading off their sketches with each other as with the exquisite corpse; most preferred going it alone, the Rainer Jägals route. Some could not sketch by hand with any degree of happiness. A scandal developed when it was revealed that a few were composing their drawings first on a light table and tracing to the sketchbook. Another controversy erupted when some admitted to formulating their compositions on the computer, printing these and then tracing.

Irritated at first, I became interested in the antipathy some students felt about just sketching. The feedback I got ran from 'I'm just not comfortable putting *raw* pen to *raw* paper' to 'It is stressing me out to not have more control over the image. I am more comfortable on the computer, it's where I feel more creative.' Then there was 'I hate making mistakes, there's no way to erase with ink.' Saying that rawness, losing control and cultivating mistakes was the point of the exercise did not help. But, eventually, they found ways to choreograph some chance – in terms of handling the plans of precedents on the computer – and factor in some whimsy of their own. This was the saving grace. The interstitial had to be invented and, even on the computer, there was some joy in designing plausible connections between given fragments, making stuff up within a set of serial confines, contingencies that were the real delight of Dot-the-Dot, its architectural jazz.

Rainer Jägals, *City Dream-Fantasy or Vision*, 1967

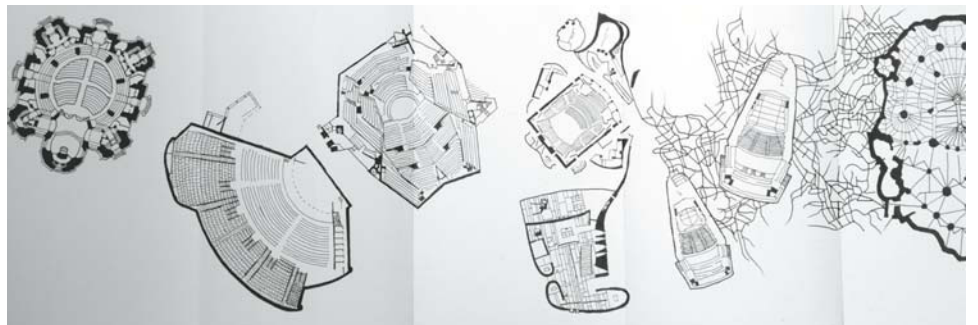
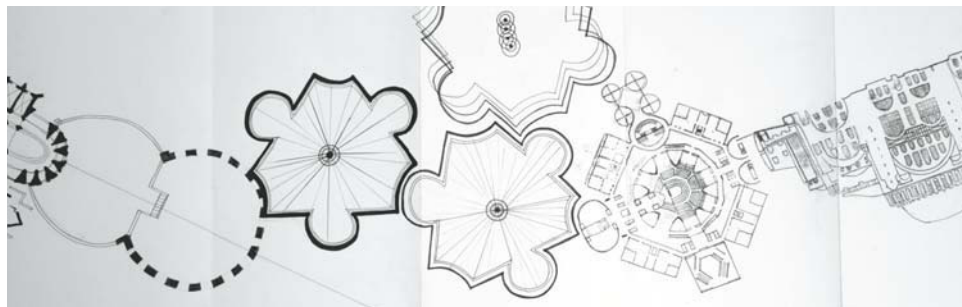
left: One of several of Jägals's sketches featured in the *Cornell Journal of Architecture* as well as Rowe's *As I Was Saying: Cornelliana*.





Exquisite Conurbation sketchbooks, Architectural Analysis II, Department of Architecture, Cornell University, Ithaca, New York, 2012

this page, opposite and p 25: Accordion sketchbooks kept over the course of a semester for the Exquisite Conurbation assignment. The analytical drawing and collage exercise recorded case studies. The students had control of their placement and juxtaposition in imagined landscapes and cityscapes. They determined their links, alignments and speculated on the new forms and organisations that this process of drawing might sponsor. Axes, edges, centres, arcs, bifurcations and slippages were sought and examined as the students evolved their continuous drawing on a single piece of folded paper.



Thirty years might have been too long an interval to revisit drawing this way given the impact of the computer in education. Regardless of media or techniques used to achieve the image, the fact that few got together to socially construct these things was another indication that times had changed. Older forms of social networking, as represented by Dot-the-Dot, were not of interest. What was social in the end was the mid-term sketchbook review where 50 outstretched sketchbooks were laid one after the other across the floor creating a striped carpet of plans where, here and there, some drawings happened to visually bleed into the ones laid above or below. Once this effect was noticed, we, as a group, took extra time looking for alignments and reading the long drawings together vertically rather than across individually. By adhering to some rules, but going it more or less alone in terms of formulating the compositions, we had inadvertently generated a larger than intended exquisite corpse. There were enough aligned edge conditions – acting as the folded page of Consequences – to generate one enormous latter-day Dot-the-Dot. After the anxiety associated with the assignment itself, there was a genuine sense of discovery and collective relief at the review. From that point forward, completing the sketchbooks became less onerous – some even admitted to having fun with it or getting into the process. Even so, the day they were due several admitted to pulling an all-nighter, but no one complained about this final sprint to the finish line. The results showed some daring since the review, particularly from those who had complained about the unusual premise – asking architecture students to draw. ▮

The interstitial had to be invented and, even on the computer, there was some joy in designing plausible connections between given fragments, making stuff up within a set of serial confines, contingencies that were the real delight of Dot-the-Dot, its architectural jazz.



Notes

1. John Hejduk to Alexander Caragone, May 1991; as quoted in Alexander Caragone, *The Texas Rangers: Notes from an Architectural Underground*, MIT Press (Cambridge, MA), 1995, p 324.
2. See Colin Rowe and Fred Koetter, *Collage City*, MIT Press (Cambridge, MA), 1984.
3. Leonard Knyff and Jan Kip, *Britannia Illustrata: or Views of Several of the Queen's Palaces, as also of the Principal Seats of the Nobility and Gentry of Great Britain*, David Mortier (London), 1707; reprinted privately for the members of the National Trust as John Harris and Gervase Jackson-Stops (eds), *Britannia Illustrata*, Knyff & Kip, Paradigm Press (Bungay, Suffolk), 1984.
4. I am indebted to Doug Graf's generous advice regarding possible precedents for the Dot-the-Dot drawings and his feedback on this essay as a whole.
5. See Camillo Sitte, *Der Städte Bau (City Planning According to Artistic Principles 1889)*, trans George R Collins and Christiane Crasemann Collins, Phaidon Press (London), 1965.
6. Personal interview with Jerry Wells, 1 June 2012. It is Wells's recollection that the game was called Dot-the-Dot, but the nomenclature of the drawing type is difficult to verify. Most simply encountered it as 'the drawing' done at the Texas Rangers faculty meetings/parties. Dot-to-Dot (another name for Connect the Dots) would also make sense given the nature of that game; the whole picture not becoming clear until all connections are made. Hoesli incorporated a Bauhaus/Froebelian drawing technique, dot drawing, into foundation assignments. Dot drawing – stygmographie – is a method of transposing a drawing from one surface to another using a gridded field of dots as guides.
7. André Breton, 'Le Cadavre Exquis: Son Exaltation' (essay for the catalogue of the 'La Dragonne' Surrealist exhibition), Galerie Nina Dausset (Paris), 1948, pp 5–7.
8. Ibid.
9. Colin Rowe, *As I Was Saying, Recollections and Miscellaneous Essays, Volume Two: Cornelliana*, ed. Alexander Caragone, MIT Press (Cambridge, MA and London), 1996, pp 35–9.
10. Ibid, pp 35 and 39.
11. Ibid, p 35.
12. See *Cornell Journal of Architecture: Urban Design*, Vol 3, Rizzoli (New York), 1982.

EMERGING TECHNOLOGIES AND DRAWINGS THE FUTURES OF IMAGES IN ARCHITECTURAL DESIGN

Mark Garcia

Mark Garcia, Senior Lecturer in History and Theory in the Department of Architecture, University of Greenwich, explores the technologically mediated future of drawings in architecture ‘without hands’. He highlights how multiple technological innovations are putting us on the brink of an exploding spectrum of possibilities for the image, and looks at three distinct areas of potential: new media and materials; emerging and future technologies; and theory embodied in fiction and art.

Philippe de Champaigne, *The Veil of Veronica*, c 1640

This painting of an *acheiropoieta* (an image 'not made by human hands') showing the bleeding and crying image of a man (not the man himself) is literally living.



The key to the future of the architectural drawing lies paradoxically in a historical category of image thought to be over 2,000 years old and considered by many to be impossible, absurd and dangerous. 'Acheiropoieta' (a word of Byzantine etymology meaning 'made without hands') are images made miraculously by divine (non-human) forces. As a result, acheiropoieta often possess supernatural and lifelike properties. The famous Veil of Veronica, the Mandylion, Keramidion, Turin Shroud and Uronica are all examples of acheiropoieta. However, while those particular acheiropoieta are certainly fakes, the idea of a non-human life and intelligence operating as, or in the production of, an architectural image has a contemporary relevance. Theories of emerging and future technologies (including in science fiction) such as those related to the 'post-human' and the 'cyborgian' point to the logical possibilities not just of intelligent, living and evolving images, but also to those which might (even partly) be automatic, autonomous, autogenic and self-evolving. It is timely, then, to reconsider the possibilities for these new, more radical and literal kinds of technologically mediated and true acheiropoieta in the futures of architecture.

Animate, intelligent, interactive and (more or less) living drawings and images are of ancient provenance. Though originally magical and mythical (like Snow White's magic mirror), philosophical (as an ideal, in the aesthetic theories of Plato, Aristotle, Alberti and Vasari) or religious (icons, idols and totems), they have survived (as concepts) into the present through fairy tales, fiction and art. Among the most recent

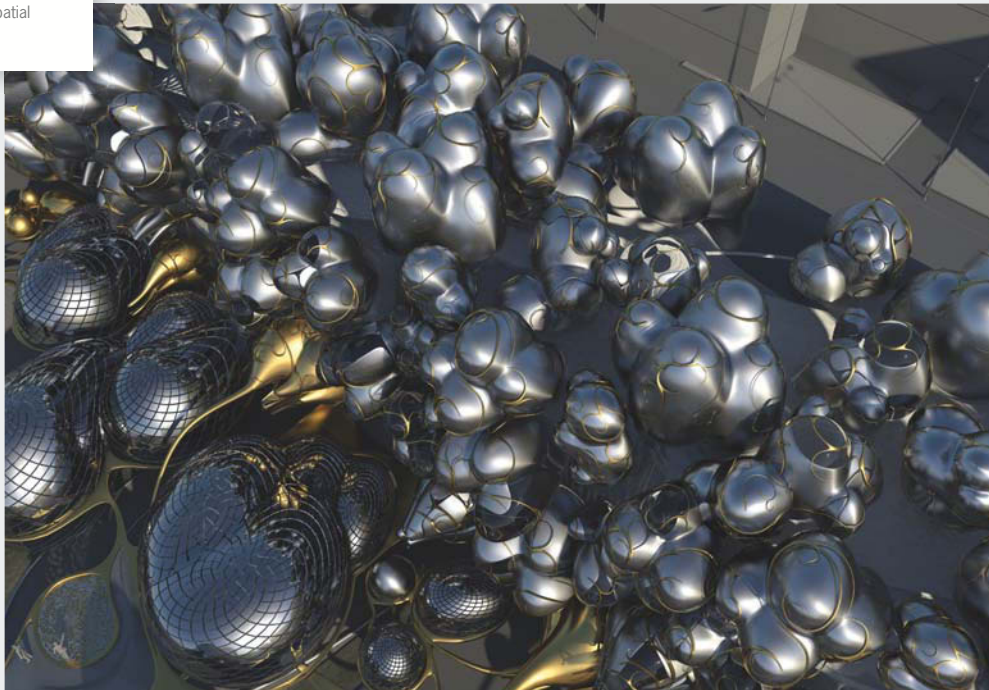
and popular incarnations of this category of images are the living paintings in the *Harry Potter* films (2001–11), and the simulations and simulacra of evolution in Will Wright's game series *Spore* (2008–). A more chilling case of extant living drawings are those made using real people for the North Korean Arirang Mass Games.¹

The architectural drawing and image in the age of cyber-bio-info-nano reproduction can be most clearly evidenced within the unfolding of emerging technologies that are contributing to the experience, if not the reality, of these new acheiropoieta. Such impending technological shifts problematise, blur and expand definitions of, and ideas about, drawings, images and even media, requiring us to redefine our architectural language in response. While words like 'picture' and 'drawing' suggest a handmade image (though a mouse, and digital hand-gestural drawing systems, also use the hand), these terms now seem anachronistic and inaccurate if applied to most contemporary architectural images. Today's architectural images complicate such distinctions, often being either more specific and distinct types of images including diagrams, texts, photographs, films, digital models and paintings (with possible interactive and kinetic elements) or different combinations of these, or those made with specific media and techniques. This expanding field of possibilities for the role of the hand, computer and/or other technologies presents an exploding spectrum of possibilities for significant innovations in architectural design.

So while the pure, traditional and historical hand-drawing is no longer necessary for the design of a significant, innovative or intelligent architecture, it is still sufficient, though many other non-architectural drawings and images (handmade or otherwise) can and will be more significant and innovative for architectural design than many purely architectural drawings and images.

Hernan Diaz Alonso/Xefirotarch,
Helsinki Public Library, Helsinki,
2012

This drawing's seething, febrile and visceral qualities suggest the complex multi-system morphologies of an artificial ecology of evolving forms fecund with a living digital spatial intelligence.



A research synergy of the sciences and the arts is leading this extension of the field of architectural drawings and images into a multimedia, multidisciplinary, multi-technique and multi-technology consilience that is giving rise to increasingly living, intelligent and evolving architectural images and drawings. These are the result of three main kinds of integrated innovations: in new materials and media and their multiple combinations; in emerging and future technologies; and in theory embodied in fiction and art.

However, the handmade drawing or image (regardless of materials) is now no longer always necessarily the most appropriate method either for drawing or imaging or for architectural design.

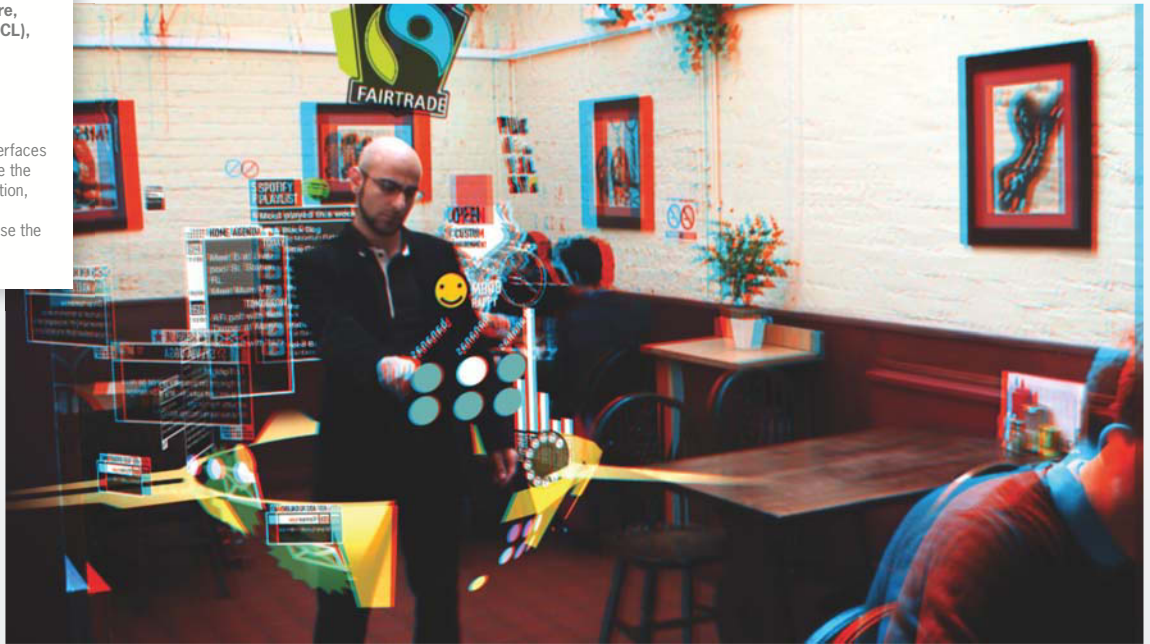


Patricia Piccinini, *Thorn*, 2012

Biogenetic and information technologies are allowing design details and components as well as drawings and images to be grown from biological materials, and to literally live and evolve as signifier, signified and the medium itself.

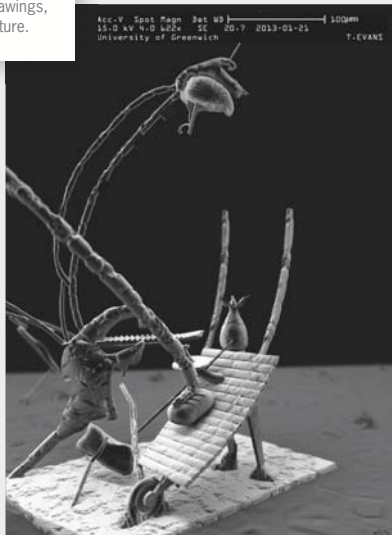
Keiichi Matsuda, Augmented (hyper) Reality film still, Unit 15, Bartlett School of Architecture, University College London (UCL), 2010

Spatialised layers of interactive, intelligent, real-time information systems will immerse us in augmented-reality diagrams and intelligent architectural-scale interfaces through which we will experience the world as living, evolving information, able to literally and continuously 're-draw', re-animate and re-vitalise the everyday world.



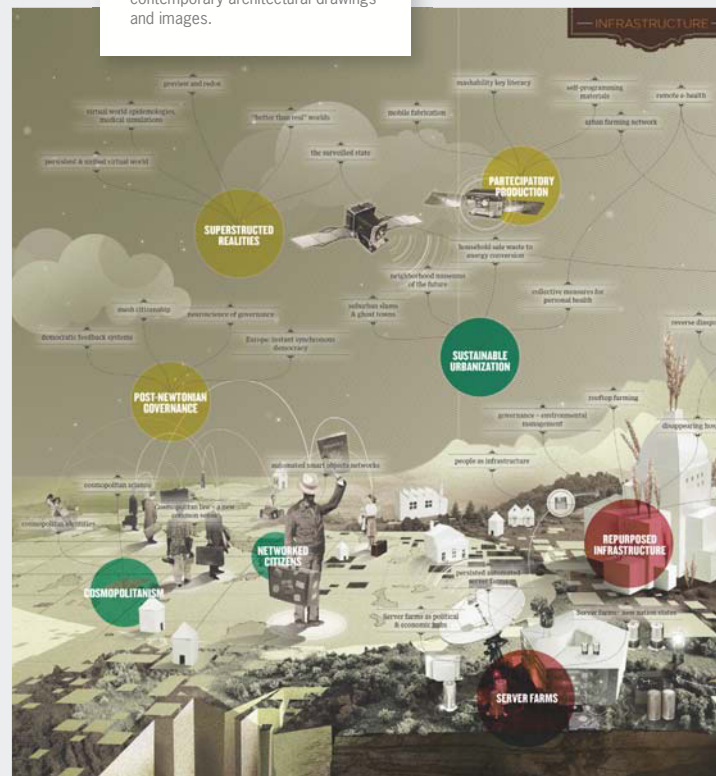
Tim Evans, Spillerian Nano-Surrealist Architectural Model, BA Architecture, School of Architecture, Design and Construction, University of Greenwich, London, 2013

A transmission electron-scanning microscope simulation of a nano-model of a drawing by Neil Spiller. The nano-model clone of the drawing is smaller than the thickness of the thinnest line of the original drawing. Architectural drawings and images of the future will be designed and operate at nano-, pico- and femto levels of detail. Nano-drawings will continuously 'redraw' and simultaneously reconstruct the architecture itself directly through these hyper-detailed intelligent, living and evolving/self-evolving drawings, in the finest architectures of the future.



Luca Masud, The Diagram of the Future, Density Design Research Lab, Politecnico di Milano, Milan, 2009

This diagram of the Technium (the global, integrated system of technology) in the future probably contains more ideas about the future of architectural media (and the future of architecture) than most contemporary architectural drawings and images.



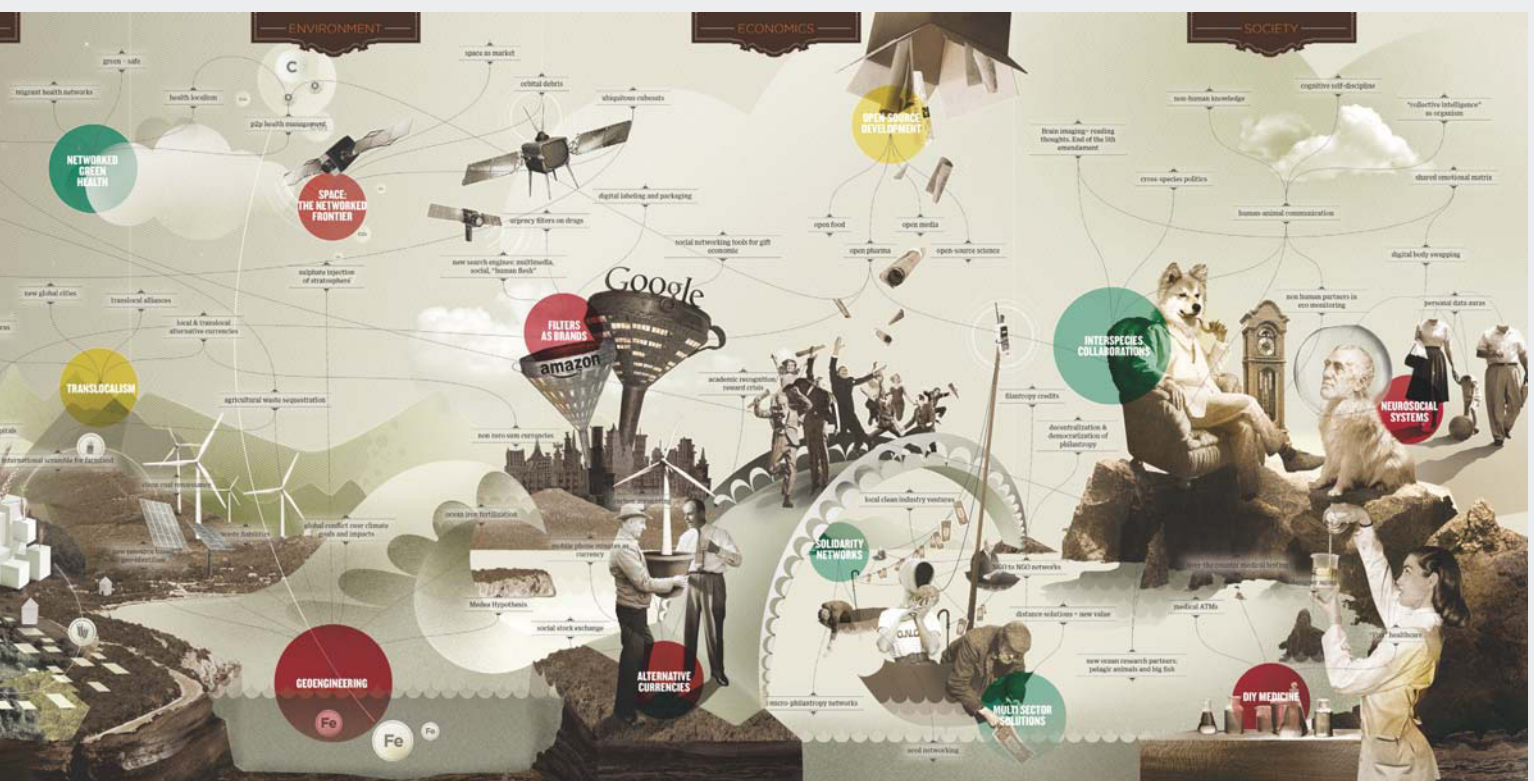
New materials are changing the traditional, historical manual drawing. While still using their hands, fine artists are also now using other new material and medium combinations to produce drawings and images. Vic Muniz draws with chocolate, Roman Signer with explosions, Matthew Barney with diagrammatic narratives and body devices, Cai Guo-Qiang with ignited gunpower, and Anna Barriball and Roland Flexner use bubbles made of graphite. Tim Swager and his team at the Massachusetts Institute of Technology (MIT) have developed a nano-tubule pencil that can create drawings able to sense and react to different gasses. These examples of non-standard drawing and imaging materials suggest that any theory of architectural drawing which demands the traditional, historical hand-drawing is a fetishistic reification and privileging of one method of design drawing and imaging (for example, traditional and historical, manual/hand) over another. There is nothing wrong with this traditional, historical method of architectural drawing or imaging for, as the MIT example suggests, new technologies can enhance and add intelligence, animate and revitalise even senescent drawing and imaging methods. However, the handmade drawing or image (regardless of materials) is now no longer always necessarily the most appropriate method either for drawing or imaging or for architectural design.

Contrary to certain architectural theorists, such as Juhani Pallasmaa,² it is an assumption, not a law, that traditional, historical hand-drawing is the most intelligent, interesting or even effective and efficient way of translating and communicating the images and contents of our imaginations to the external world. The invention of new drawing and imaging technologies, materials and media which are more intelligent, efficient and effective in drawing and imaging our minds might

well render the old-fashioned hand-drawing a ruined prison rather than a modern palace for the architectural imaginations of the future.

New technologies are continuously increasing the intelligence and life of drawings and images. Those made by drawing robots such as AARON (designed by Harold Cohen beginning in 1973), Paul designed by Patrick Tresset (2011) or Nova Jiang's Ideogenetic Machine (2012), are generating ever-more sophisticated, human handmade-like drawings. Software is also being used to create aesthetically innovative images from the intelligent processing of pre-existing 20th-century media like photographs, such as in the 'Nude' (2013) series by Shinichi Maruyama, or the photospheres of Edward Hill. Software that now includes parametric, generative and genetic algorithms, such as Bentley Systems' GenerativeComponents™, or Ben Fry and Casey Reas' Processing, collaborates proactively with the designer in creating parts of drawings and images using a kind of computational, synthetic and artificial intelligence (AI). AI architectural drawings and images (and ultimately an architectural project as a whole), then, might one day successfully pass an architectural design version of a drawn or image-based Turing Test.³

Moving beyond computer games, film-making and animation can now use CGI and real-time re-animation (the CGI re-drawing/re-imaging of a filmed and data-captured source) driven by some of the most powerful supercomputers in the world. Simulations of material as well as other sensory, phenomenological and invisible or intangible contextual features at micro- and macro levels (for example, particle dynamics or kinetic structural systems) as well as the richness of social, psychological, ecological, ambient, affective and other subjective, shifty but meaningful patterns and systems of



space are also in research. These kinds of massive linked-data drawings and images as well as those which are assisting in the creation of large-scale or crowd-sourced, dynamic, swarming, collective and collaborative drawings are only just beginning to scratch the surface of the application of the globally networked 'Internet-of-things' to the 'knowbotic', interactive, augmented realities of cybernetic and cyborgian architectural drawings and images in the future. While this informational simulation sublime has yet to find its architectural Michelangelo, Tiepolo or Dal Pozzo (though some like Doug Aitken and other architectural-scale digital-projection artists are moving in this direction), there is architectural genius waiting here.

Emerging drawing and imaging technologies like 8K pixel hyper-real screens (which is as real close up as human/optical reality can get), holograms (such as those currently being produced by Musion) and nanotechnologies are also currently in research and development for the mass market as 4-D drawing and imaging media. Perceptive-media interactive images already automatically recognise viewers and adjust themselves accordingly, redesigning themselves for each different person or group detected. Perceptive-media

technologies are currently used by Xbox, Adidas, Japan Railways, Samsung, Lenovo and Japanese government broadcaster NHK. Drawing and imaging technologies such as retinal, gestural and other forms of body-sensing, scanning and parsing systems that use similar technologies already exist, as do biological and genetic technologies that are currently being used to grow and evolve/self-evolve living drawings and images. The art of Oron Catts and Ionat Zurr, Peta Clancy and Helen Pynor, Adam Brown, Marta de Menezes, Patricia Piccinini and Eduardo Kac, all of whom either use or represent biogenetic technologies in drawings and images, suggest the possibilities of imaginative and creative 'wet computing' and 'proteomic technology' drawings and images as intelligent, living and evolving/self-evolving architectural wet-dreams.

More advanced versions of these kinds of body-detection technologies, and even new types of drawing and imaging media, currently exist in a type of design and architectural theory classed as 'science-fiction'. In the future, according to Ray Kurzweil in *The Singularity is Near* (2005),⁴ drawing and images in our imaginations will be translated directly by neurological nanobotic scanning systems that will then materialise these in



Phil Watson (with Jon Morris), Newton's Towers non-gravity housing in Newton's Lake, Persephone 100 Year Starship project, 2013
Micro-gravity controlled architectures and drawings or images of entirely new cities and worlds in space will require new types of yet-to-be-invented diagrammatic apparatus and architectural design media (architectural 'gravitograms') that include and interrelate gravity control (across space and time) between context, form, material, structure, programme, meaning, function, use and aesthetics.

the real world (through, for example, nano-mechanical and/or chemo-biological technologies such as protocells and other synthetic proteomic technologies). The dream of designing in 4-D CAD interactive augmented reality is already found in spectacular scenes in films like *Avatar* (2009), *Iron Man 2* (2010) and *Prometheus* (2012), but the existing ‘brain painting’ systems of Adi Hoesle (2012), or Marcos Novak’s neurological drawing experiments (2009), are already exploring new forms of intelligent and interactive imaging and drawing systems that bypass the hands and design with just the brain. In the films *The Matrix* (1999) and *eXistenZ* (1999), and the novel *Rant* (2007) by Chuck Palahniuk,⁵ the imagination is accessed directly via ‘bio-port’ spinal-cord interfaces and biological control ports, bypassing both hands and eyes. In Greg Egan’s novel *Permutation City* (1994),⁶ the near-real-world simulation called the ‘Autoverse’ is used as an artificially intelligent design environment.

Moving into the real world, such as with Mike Webb’s ‘Dreams Come True’ machine (1970),⁷ one has only to think of a design for it to materialise, fully realised, before you. This ‘anti-Medusa effect’ (where an image brings to life its reflected and exposed objects and subjects rather than turns them to stone) is also the idea behind two films: the ‘Zone’ in the film *Stalker* (1979) and, more recently, in *The Imaginarium of Dr Parnassus* (2009). It is no coincidence that this same concept is elaborated in detail in John Meaney’s *Ragnarok* novel trilogy⁸ where an intelligent and living material called ‘Quickglass’ is used to build entire cities and can instantly materialise anything that can be thought or spoken. A more dystopian version of this kind of instant architectural and urban scale of thought-redesign appears in the film *Dark City* (1998), where the alien ‘Strangers’ use their thoughts to ‘tune’ and completely reorder the architecture, people, memories and objects in the city. A final, very different but related image, difficult to categorise though clearly architectural, is the Aleph in Jorge Luis Borges’ eponymously titled short story (1945),⁹ though the Aleph is a logically impossible utopian and architectural *imago dei*.

Many specific contemporary examples of drawings and images that might come close to a living, intelligent and evolving/self-evolving architectural acheiropoieta are just the drawn/imaged equivalents of one-liners, gimmicks, gadgets and lamentable design dead-ends. Dystopic neo-luddites and techniconoclasts will rightly raise the spectres of the synthetic and pathological zombie, drone, golem, grey/green/pink goo, Frankenstein, Matrix, or Terminator aspects of these kinds of architectural drawings and images. While we would do well to heed these cautionary tales and their critical warnings about the misuse and possible aberrations of the idea, they also largely ignore the political and moral reversals of this scenario;¹⁰ for example, is it not just cruel to the AI or the programmed matter to make a disposable and banal doodle or a dull and temporary advertisement more intelligent than we are? Why would we want to? Leaving aside the ethics and justice of embodied AI and programmable matter in drawings and images, these lachrymose narratives usefully reinforce the central significance of the intelligent, living and evolving/self-evolving architectural acheiropoieta as an attractor or singularity for the future evolutions of the architectural drawing and image.

As intelligent and living architectural acheiropoieta evolve/self-evolve, gaining powers as actants and agents in the design process and redefining and redesigning media, the architectural drawing and image ultimately evolves and self-evolves architecture itself. This raises the theoretical possibility that the resulting architectures would be drawing and re-drawing themselves as much as we are currently (through these same emerging and future technologies) also drawing and re-drawing ourselves. Extending the logic of this conclusion means that in the future our acheiropoietic ‘drawings’ and their ‘architectures’ might in a very real sense be drawing and re-drawing us. Which is why, improbably, as far as architectural drawings, images and media are concerned, the concept of the living, intelligent and evolving/self-evolving architectural acheiropoieta is now more relevant and proleptic than we ever imagined. ▢

Notes

1. See www.youtube.com/watch?v=iIMyRhx6f7o for a 2012 film of this.
2. See Juhani Pallasmaa, *The Thinking Hand*, John Wiley & Sons (Chichester), 2009, pp 59–60.
3. See www.google.com/patents/US20080066014 for a patented example of this test. The original Turing Test was used to try to detect whether or not responses were from a human or from a computer in a blind exam-condition test.
4. In chapters 5 and 6 of Ray Kurzweil, *The Singularity is Near*, Gerald Duckworth and Co (London), 2005.
5. Chuck Palahniuk, *Rant*, Jonathan Cape (London), 2007.
6. Greg Egan, *Permutation City*, Gollancz (London), 1994.
7. See the Archigram Archive at <http://archigram.westminster.ac.uk/>.
8. John Meaney, *Absorption* (2011), *Transmission* (2012) and *Resonance* (2013), all published by Gollancz (London).
9. Jorge Luis Borges, *El Aleph*, Sur (Buenos Aires), 1945.
10. These kinds of arguments are most recently elaborated in Jane Bennett, *Vibrant Matter: A Political Ecology of Things*, Duke University Press (Durham and London), 2010; WJT Mitchell, *What do Pictures Want?: The Lives and Loves of Images*, MIT Press (Cambridge, MA), 2006; and Kevin Kelly, *What Technology Wants*, Viking (New York), 2012, pp 11–17.

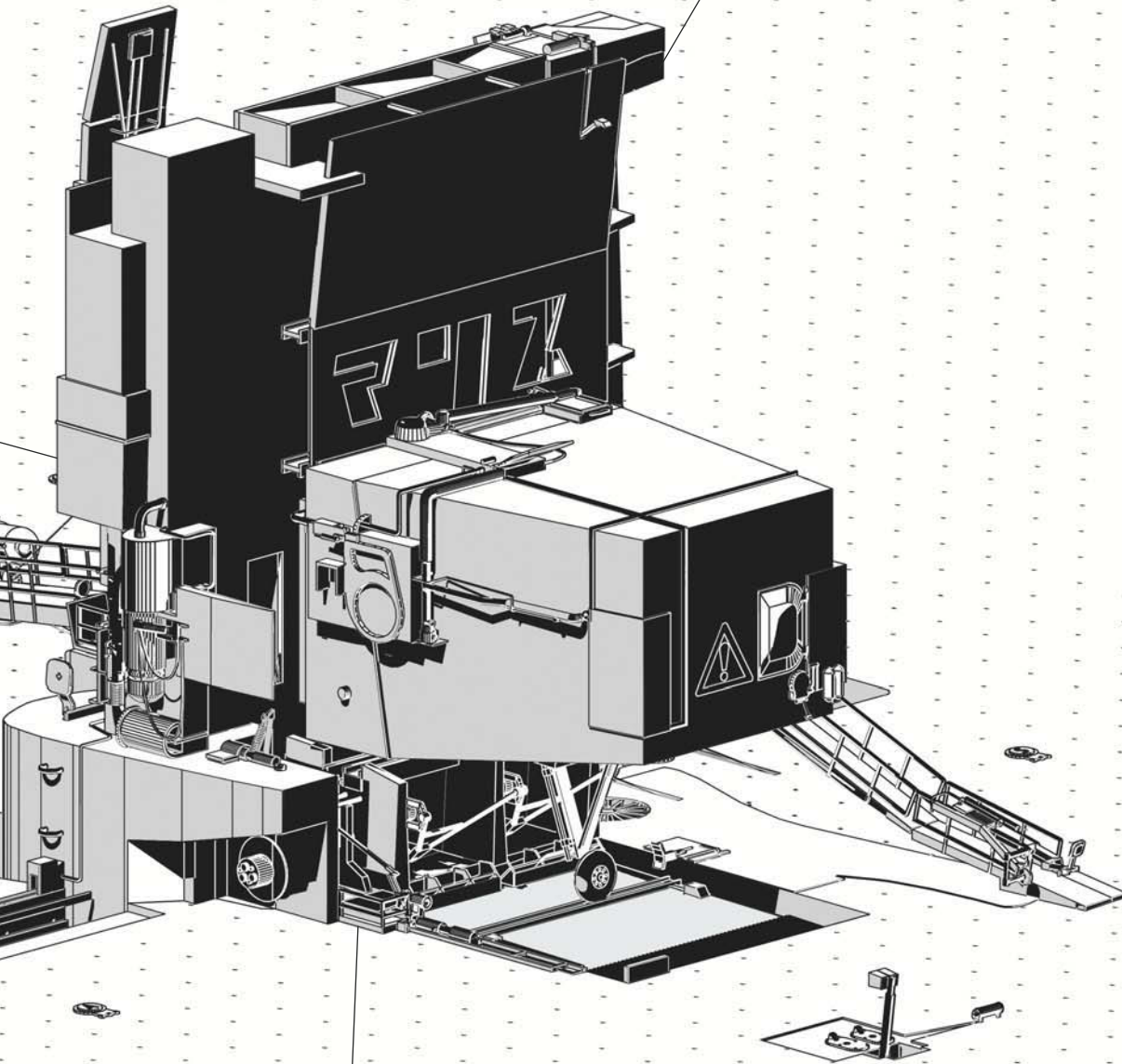
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TWO SIDES OF THE PAGE

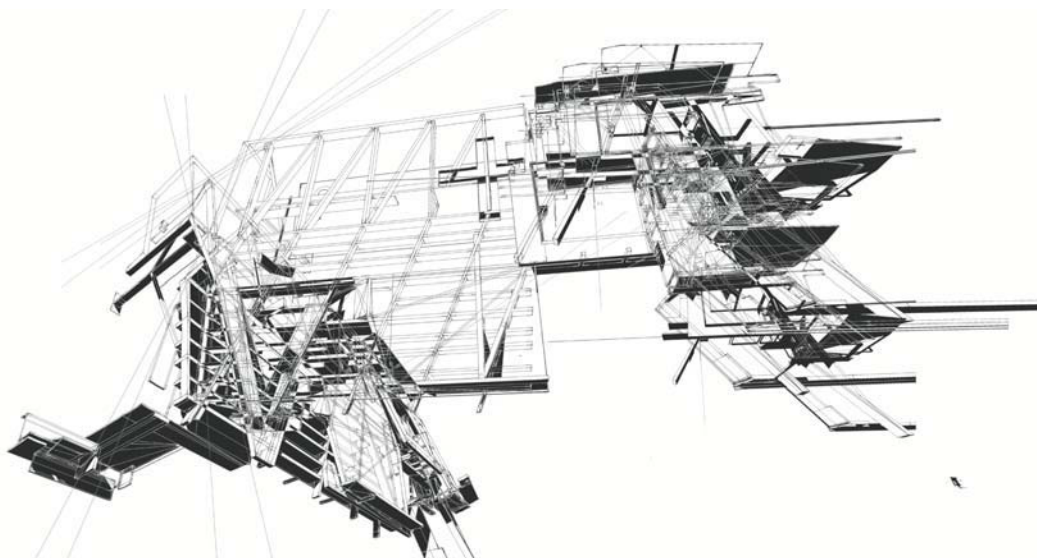
Bryan Cantley/Form:uLA with Joey
Dhindsa, [A]ll[ice] 2.0, 2012

The device here questions the nature of the
physical data that makes up 'drawing'. Input:
pencil, stylus, mouse, pointer, pencil icon,
printer head. Output: Sketchup model with
Form-Z rendering.

Bryan Cantley



THE ANTIFACT AND THE ARTEFACT



**Bryan Cantley/Form:uLA, CSUF
Sentinel, 2012**
Entry gate/sign sentinel for the Visual Arts Department, California State University, Fullerton (CSUF). The observer and the observed existing on the same (view)plane.

01

For **Bryan Cantley** technology has introduced new possibilities for drawing with 'the ability to render conditions of transformation, phase shifting, entropy and revolution'. It has also prompted a rethink of the phenomenological relationship of architectural drawing with the world; between the page and objects; between the antifact and the artefact. He makes an analogy between the legal status of the unborn child and nascent, unbuilt drawn architecture.

The 'artefact', defined as a handmade object (drawing, noun), reveals one stratum. The 'antifact', defined as the possible documentation of an impossible object (drawing, verb), another. Conceptual surgery might allow an artificial hybridisation of these two layers.

If 'page' is thought of to be 'one side of a sheet of paper' (noun), and also expanded to mean 'to summon remotely via an electronic signal' (verb), then we may find these dualistic conditions worthy of investigation in a plural arena.

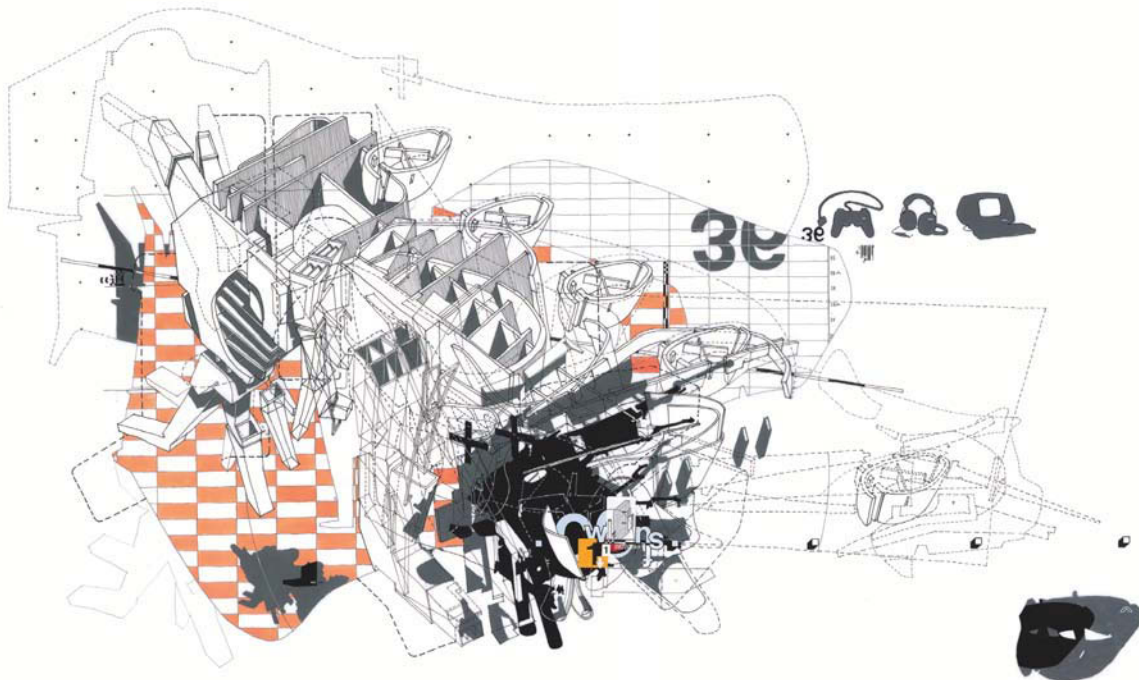
THE ANTIFACT: THE NOUMENONOLGY OF THE HYPOKEIMENON - THE IMPOSSIBILITY OF THINGS

Drawing Epistemology: Drawing Episiotomy
'Epistemo(tomy)' – the cutting of the layers of knowledge to understand the nature of things that cannot be understood.

He had never indulged in the search for the True Substance, the One, the Absolute ... He had always felt the faint ridicule of a finite mind peering at the iridescence of the invisible through the prison bars of integers. And even if the Thing could be caught, why should he, or anybody else for that matter, wish the phenomenon to lose its curls, its mask, its mirror, and become the bald noumenon?

— Vladimir Nabokov, *Bend Sinister*, 1947¹

Another layer might create new typologies that give birth to untested cartographical decoders. These new readings, based on the emergence of a new communication, might become a discourse of technological impregnation, opposed to proliferation. Invention, not so much a challenge of the orthodox(y), but a recognition of the Boolean operator '+' as well as '()'. We have spent so much time trying to document 'the thing'. Transmutation ... cyborgian drawings ... the evolution of architectural taxonomy.

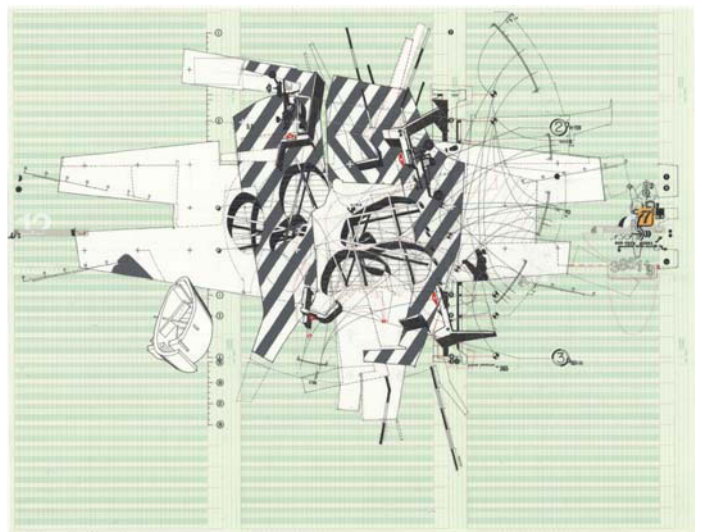


In this case, the chronological understanding of the substructures of Mylar, grids, mirages, even ink. These are all Impregnation membranes. The connotation of agenda, performance and interaction – they denote alteration. The content, the intent, the malcontent. A transformation of immeasurable things into measurable entities – and back again, into the impossible ... the thing (underneath).

To search for the *hypokeimenon* is to search for that substance which persists in a thing going through change – to search for the underlying thing.

The Thing Going Through Change

Perhaps the biggest impact of technology in my drawing is the ability to render conditions of transformation, phase shifting, entropy and revolution. Somewhere long ago, when Photoshop first introduced Layers as a manipulation tool, I realised that the act of recording could become live and not as dependent on chronology, in the sense that changes and states of event/time/object/interaction could be stated simultaneously – with the ability to view different states of time in an autonomous, yet geographically similar grafting. The thing changing ... into other thing(s) ... at the same time. Or not.



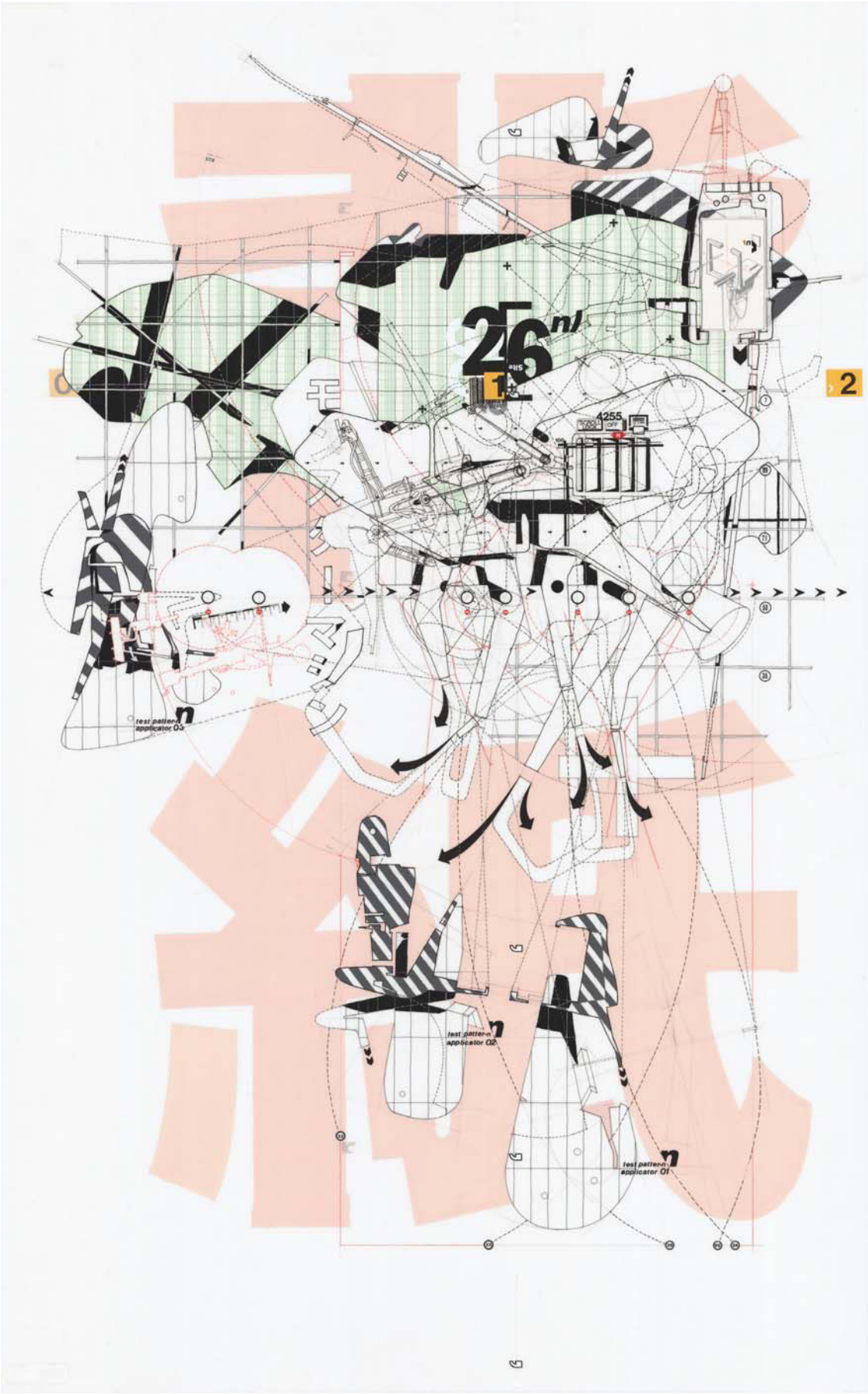
Bryan Cantley/Form:uLA, TypoGraph No 2, 2011

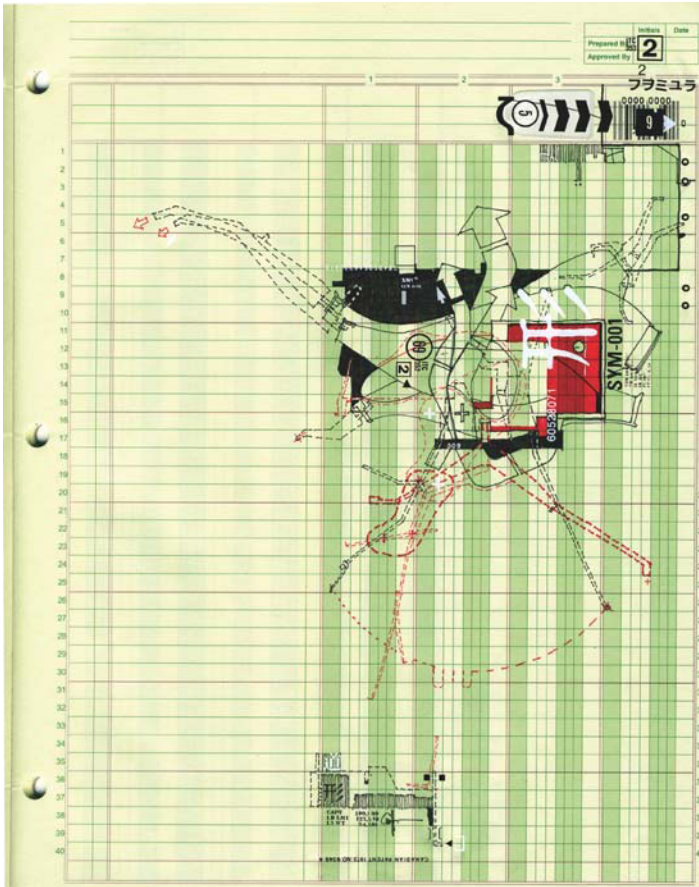
top: Formal explosions and the peeling of page integument. Structural epidermis unfolded.

Bryan Cantley/Form:uLA, Sur-Face Bores, 2012

bottom: The CAPTCHA of architectural documentation.

Bryan Cantley/Form:uLA, Fleas
and Sur-Face Applicants, 2012
A drawing of a drawing, a recording
of a recording.





Bryan Cantley/Form:uLA, Greensheet 001, 2010

What are the options for the infection of a non-native typology into an existing surface typography?

I have used the drawing as a research laboratory itself to straddle briefly the Kantian theory of the noumenon. The 'event that is known without the use of senses' may exist, but it is completely unknowable to humans. How, then, do we begin to document those things that are unknowable?

My work may deal (in)directly with the idea of the unknowable noumenon, the unknowable thing per se, but through its own invention and unfolding an idea of the pursuit of the knowing of these thing(s) – or at least knowing about them. Not a drawing of an object, but a drawing of a drawing. Historically, the architectural drawing was used to describe an object, a known set of conditions and a quantifiable system. This had very little to do with the fluctuation of architectural space. These new works become the semi-documentation of the act of architectural thought and experience, simultaneously voyeur and occupant, the no-longer-passive stare of the intent of the drawing. I attempt to carefully slice the layers of understanding and observation, of both the cyber and physical spaces, fabricating the extended connection and illogical union of the two, the pataphor.

Impossible to know objects as things in themselves, they must be thought of as such. Otherwise, the absurd conclusion is that there can be appearance without a thing that appears.

The Dormouse went on, 'That begins with an M, such as mouse-traps, and the moon, and memory, and muchness – you know you say things are "much of a muchness" – did you ever see such a thing as a drawing of a muchness?'

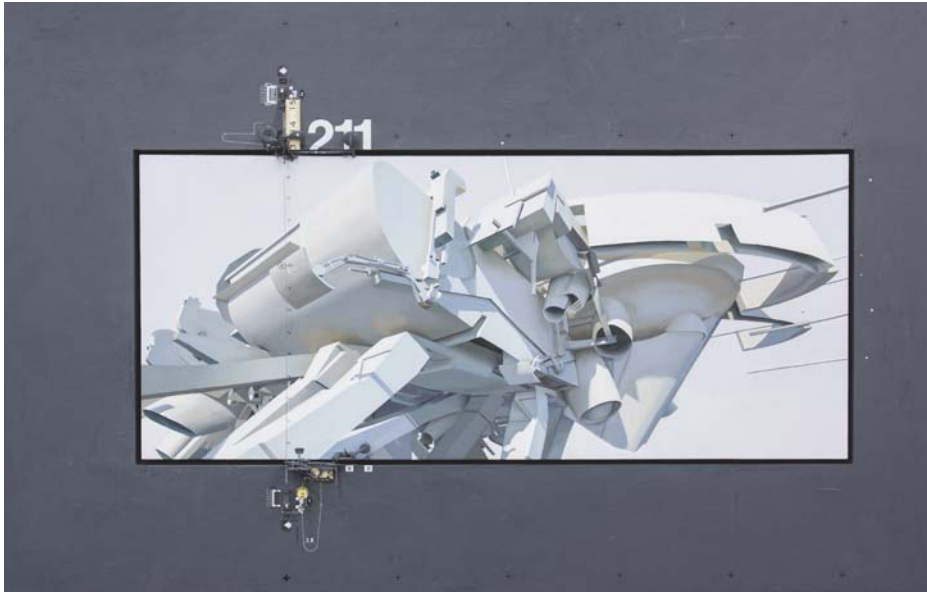
'Really, now you ask me,' said Alice, very much confused, 'I don't think —'

"Then you shouldn't talk," said the Hatter. ²

3-D printers, smartphones and Wi-Fi transmitters – this thing called technology is not a new object that must be viewed; it is an alternative portal through which we may see things not seen or seeable before.

Where does the act of drawing take place? Is it on the page, or in the subconscious? Phenomenology suggests that the drawing describes event space. Experiential arenas. The Cartesian method of analysis sees the world as objects, sets of objects, and objects reacting upon one another. Drawing epistemo(tomy), then, may be seen as the convergence of the oppositional entities attempting to leave their residue on the page as an artefact of being, of place, of pursuit and of sequence.

Traditionally, the position of the architectural drawing was that of the Kantian 'dual-object' view – the thing-in-itself is a distinct entity from the phenomena it gives rise to. However, in the (dare we say) post-digital, we see the rise of the architectural drawing in the dual-aspect view – the thing-in-itself and the thing-as-it-appears to us are two sides of the same thing. This is an occupant of pre-Hilbert space.



Bryan Cantley/Form:uLA and Kim Cantley, COSMOlogy Panel, 2012
A visible exploration of the scanning mechanism and process.

02

THE ARTEFACT: ABORTIVE POSTULATES - POSTNATAL HUMANS, PRECONSTRUCTIBLE ARCHITECTURE AND THE (SOLID) STATE OF DRAWING

As a relational strategy, we ask the question: 'At what point is the human foetus considered to be a legal person?'

There are two main views, the doctrinal and the scientific. There is also a third, the judicial, which is where this discussion will have to (temporarily) travel.

The religious perspective proposes that life begins at conception, the moment of fertilisation of the egg. It may be debated in relation to that particular argument, that life then may be already defined by the foetus' critical components – the egg and the sperm. Both are living organisms, and both carry the absolute physical codes to generate new life. (The discussion in this context has always been, and will always be, about the codification of the carriers that transmit architecture.)

The technical assessment is that a foetus becomes legal life when it has the ability to survive outside the womb (foetal viability). This is generally accepted to be around 24 weeks post-conception. That, too, may be argued in that it requires the artificial removal of the foetus from its encapsulation to be defined as a legal life. One must also take into account the transition (a legal definition based on a



scientific observation) from embryo to foetus, typically at about nine weeks after fertilisation (drawing?).

Both parties influence the legal definition. Regardless of one's ethical position, it is hard to argue that the meeting of the egg and sperm (pencil meets paper), and the development (read presence) of the foetus are required to produce a 'new human' or 'Constitutional personhood'. Might this be a thin parallel to statutory architecture or legislative re/presentation?

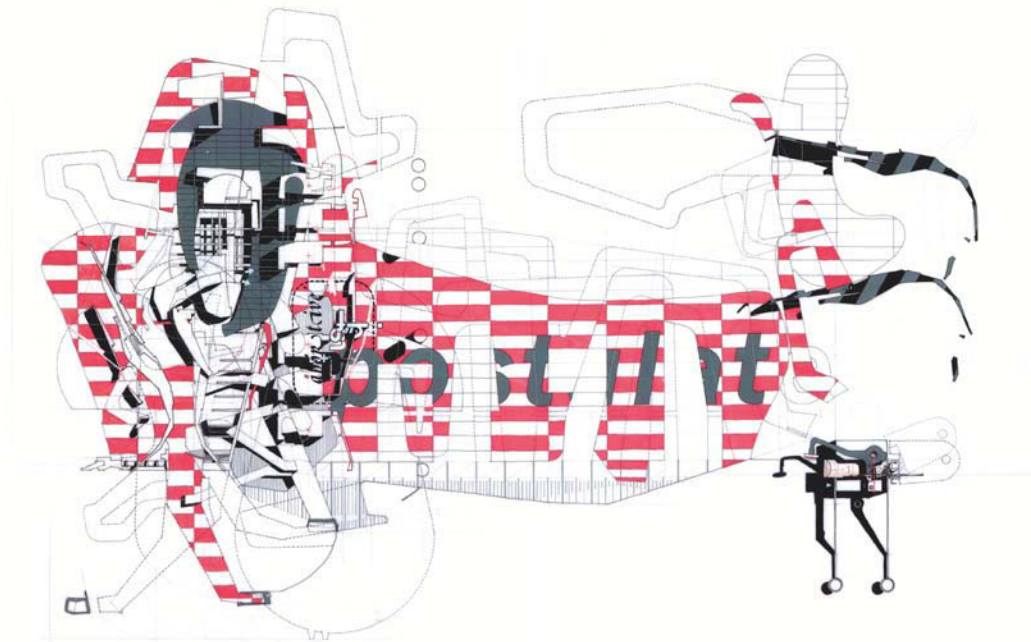
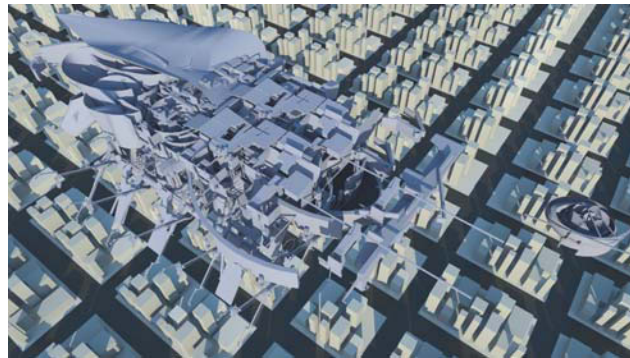
Constitutional personhood ... may pertain to future self-aware machines; centering on the possibility that these 'conscious' machines may very well be deserving of identical or sufficiently similar inalienable, Constitutional rights inherent to humankind.³

Bryan Cantley/Form:uLA, Abortive Postulates, 2013

below: This drawing explores the condition, timing and location at which architecture may be actually created.

Bryan Cantley/Form:uLA with Joey Dhindsa, Drawing Upon the City-COSMology, 2012

right: Experiment using the city residue as a viral strategy. The virus is superimposed back into the host to create its own healing.



Unborn Persons, Unbuilt Architecture, [Un]drawn Lines

If 'born' is only a state of person, then 'building' is only a state of architecture.

'Transbemanistic drawings' – the development of the BNA (Berne Neural Architecture) versus the DNA.

Is there the possibility of a machine-consciousness equivalent of the drawing? Obviously history shows us that the drawing is aware of the building – perhaps there is the potential of drawing-conscious building?

At what point is architecture actually created? What is it, as architects, that we actually produce? Intention ... contention ... invention ... pretention ...

One path is the making of things known (via the act of drawing). Another path is the making of unknown things at least identifiable as a residue. The shifting from an artefact to the antifact: the synaesthesia of architecture.

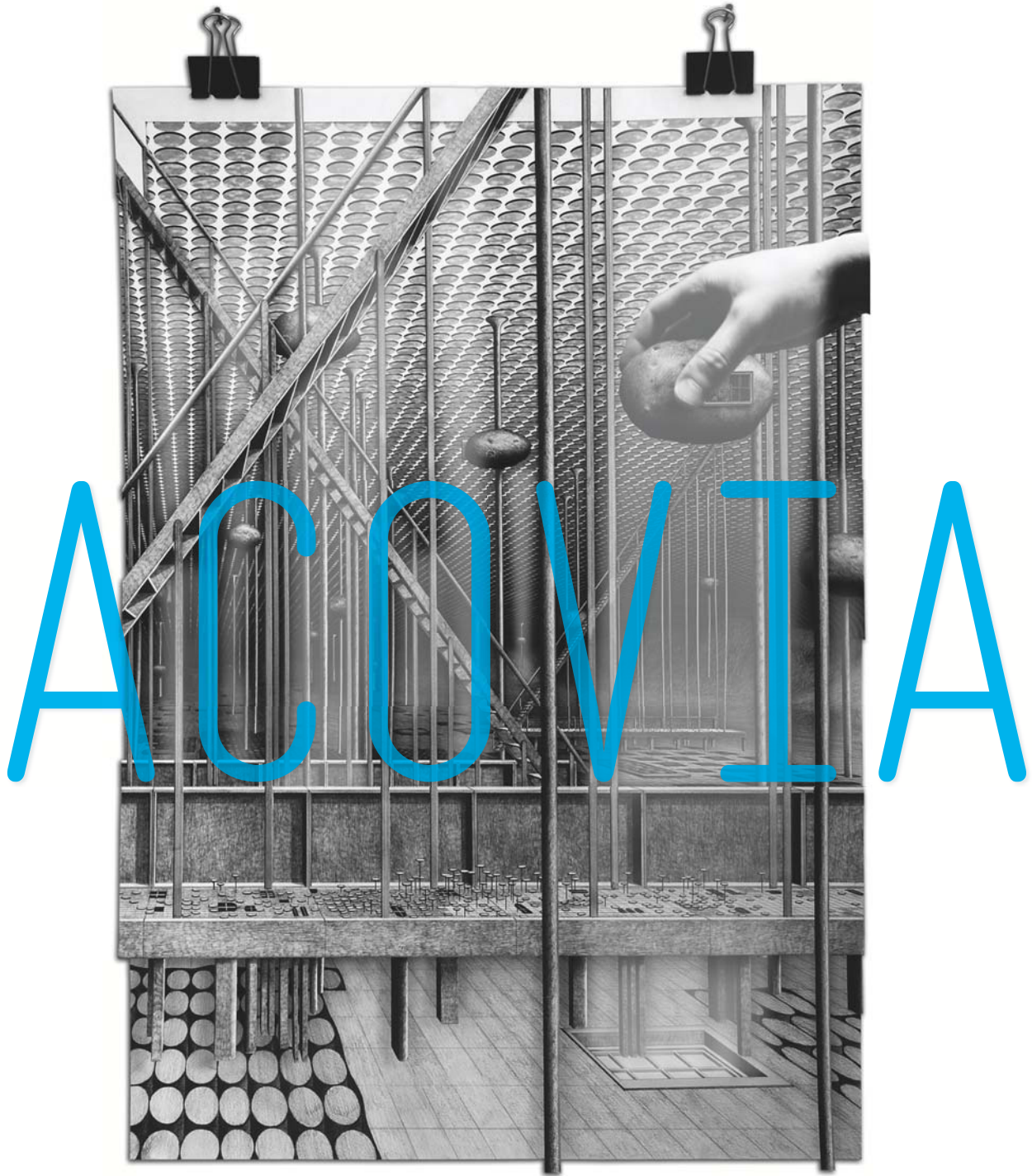
'There is no use trying,' said Alice. 'One can't believe impossible things.'

'I dare say you haven't had much practice,' said the Queen. 'When I was your age, I always did it for half an hour a day. Why, sometimes I've believed as many as six impossible things before breakfast.'⁴ ▮

Notes

1. Vladimir Nabokov, *Bend Sinister*, Henry Holt Publishers (New York), 1947, p 152.
2. Lewis Carroll, *Alice in Wonderland*, WW Norton & Company (New York), A Norton Critical Edition, 1971, pp 59–60.
3. Michael Rivard, Esq, 'Constitutional Personhood', *Journal of Personal Cyberconsciousness*, Vol 2, No 4, 2007: www.terasemjournals.org/PCJournal/PC0204/mr1.html.
4. Lewis Carroll, *Through the Looking Glass*, WW Norton & Company (New York), A Norton Critical Edition, 1971, p 152.





Pascal Bronner, *New Malacovia, Unit 10*,
Bartlett School of Architecture, University
College London (UCL), London, 2009
above: New Malacovia bathing in light. In the
foreground is a Malacovian desk, a
piano-like intervention that allows its
citizens to control their city by playing it.

opposite: Section through the Malacovian
hub. The central hub and laboratory feeds
on light to grow upwards through the pixel
blanket, and is the sole connection point
with the outside world. The hub is densely
packed with fibre-optic cables that carry
light to the infinite windows.

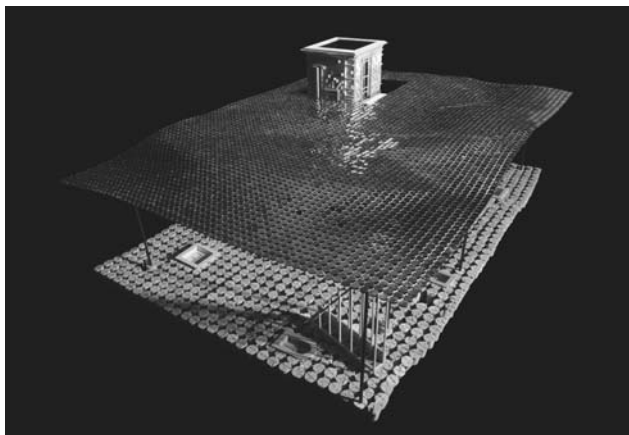
In his 2009 award-winning design thesis project for the Bartlett School of Architecture (UCL), **Pascal Bronner** evokes the imaginary land of New Malacovia. Using an existing text as a catalyst, and graphite as the sole medium, Bronner transforms the inventions and urban ideas of an original fictionalised city afresh into a speculative environmental programme: a potato-fuelled miniature city is laid out on foundations of bottle corks.

New Malacovia is an infinite miniature landscape and portable city. It translates into tectonic form Alberto Manguel and Gianni Guadalupi's narrative description of Malacovia in *The Dictionary of Imaginary Places*.¹ Manguel and Guadalupi's book is a 'guidebook' to 1,200 lands and cities invented by storytellers; Malacovia was first imagined in the late 19th century by Italian novelist Amedeo Tosetti.² The story tells of the migration during the Crimean War of the city's leader, a Nogai prince and inventor, with his compatriots to a new settlement in the Danube River delta. The prince was born in the Crimea, an island of rich pastures, and spent his youth in metropolitan St Petersburg. As a result, New Malacovia exists as a hybrid of rural and urban landscapes, acquiring parallel yet distinct characteristics. It is a vast prairie of windows, a flattened interpretation of Nevsky Avenue, St Petersburg's main boulevard, which stretches into the vastness of the river valley.

(Old) Malacovia still exists in brief on page 397 of *The Dictionary of Imaginary Places*.³ Here lie the roots of the new, portable city, bound by the confines of imagination, constructed of the light shafts cast by the reader flicking through the book. New Malacovia extrapolates the inventions and urban ideas of the old city into programmatic, tectonic and environmental concerns. An intelligent recycling process selects appropriate urban and spatial ideas while

environmental technologies and construction methodologies collectively evolve into the tectonic character of the city over time. Familiar everyday materials perform unfamiliar architectural and urban tasks. The windows are the custodians of the city's power, the humble potato is used to harvest renewable energy, and a pixel blanket of iron foil, suspended on fine vertical pins, camouflages the New Malacovia. The city bed, a matrix of bottle corks, buoyantly synchronises with the Danube River, taking the weight of the entire city. The Malacovian community occupies the void created between the fake pixel-river and the real.

Presently, New Malacovia is sited in a black box, once called the 'Endless Laboratory' in testimony to the construction process of endlessly labouring and drawing, converting an old fictional city into a brand-new portable one. Its width is a human stride, its depth infinite, its length an A2 ISO standard. The structure of the new city is designed to house and archive the sacred ideas of the Malacovians and their prince. A physical manifestation of an old text made almost entirely of graphite on paper. As a fictional city, Malacovia would have always remained in the imagination of its readers until, in 2009, construction of the new city began. With its current scale, New Malacovia, a microcosm of light and sprouting potatoes, will comfortably fit into a corner of a living room, a bathtub or the boot of a car.



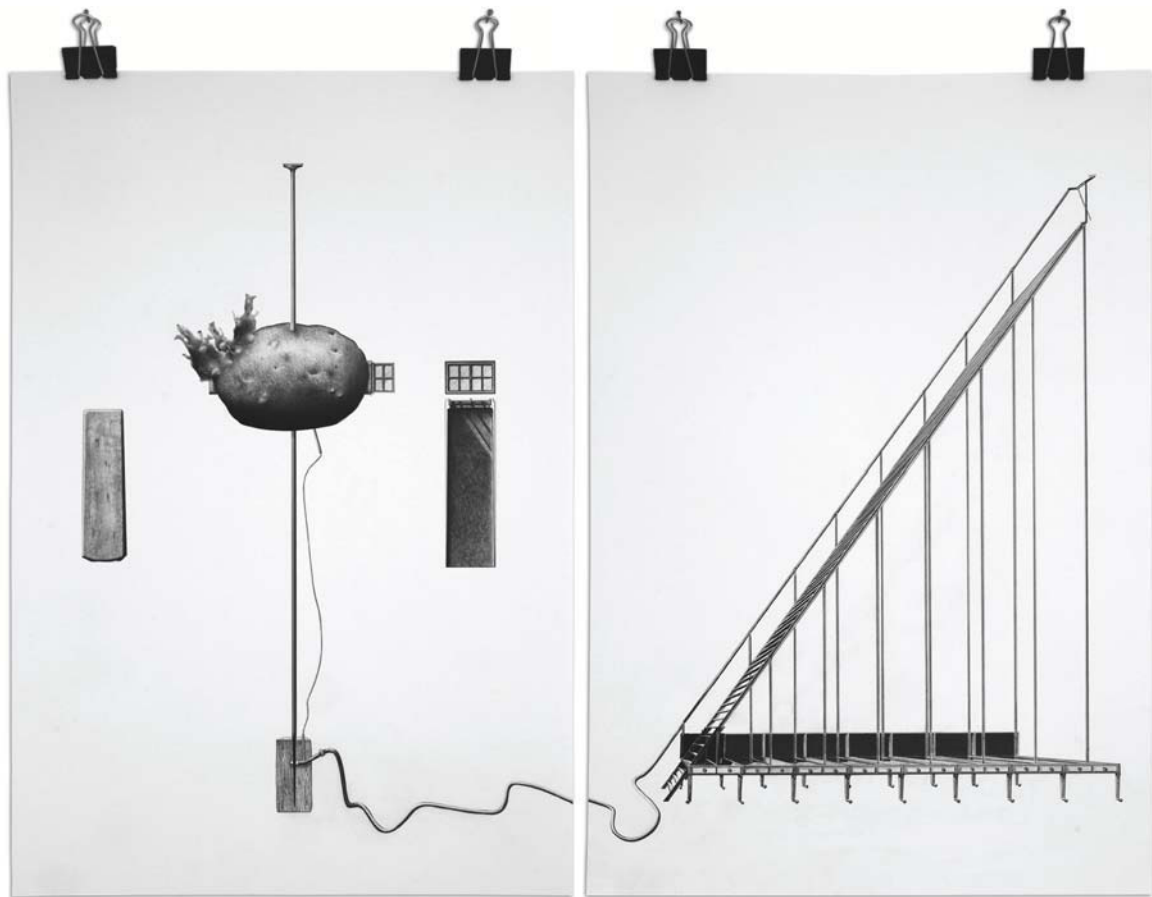
New Malacovia is made of familiar everyday materials such as bottle corks, iron pins, Post-it notes and potatoes.



What lies beneath the pixels is the window landscape of a flattened Nevsky Avenue, the main boulevard of St Petersburg.

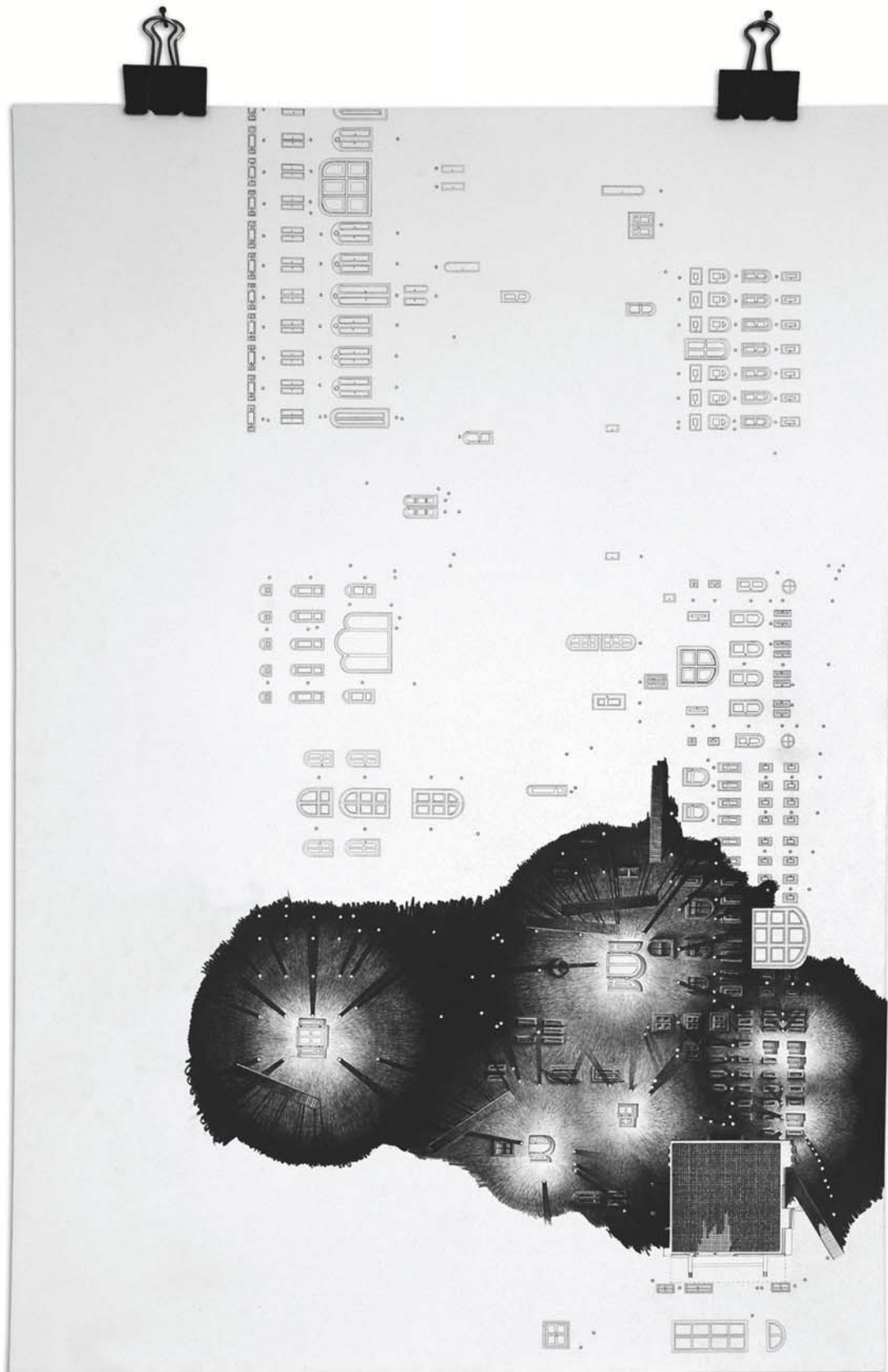
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The city of New Malacovia hides underneath a pixel blanket. This camouflage layer becomes the sky for the portable city, and as a perfect mimic of the Danube below, it is an illusion of a river to the outside world.



.....

The humble potato. Malacovians would experiment with potatoes using pins, wire and foil to draw embedded energy from the spuds, which have become eco-batteries that power the city.



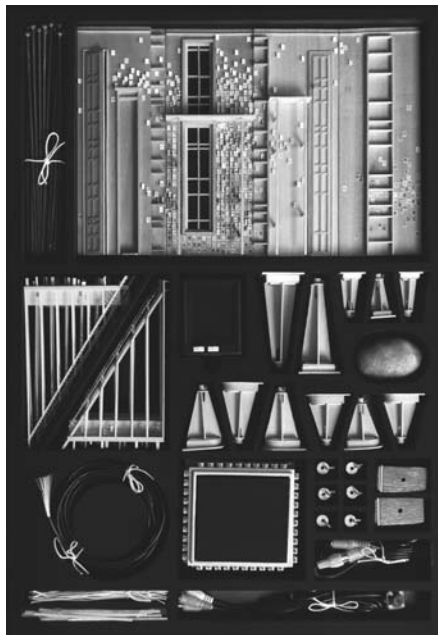
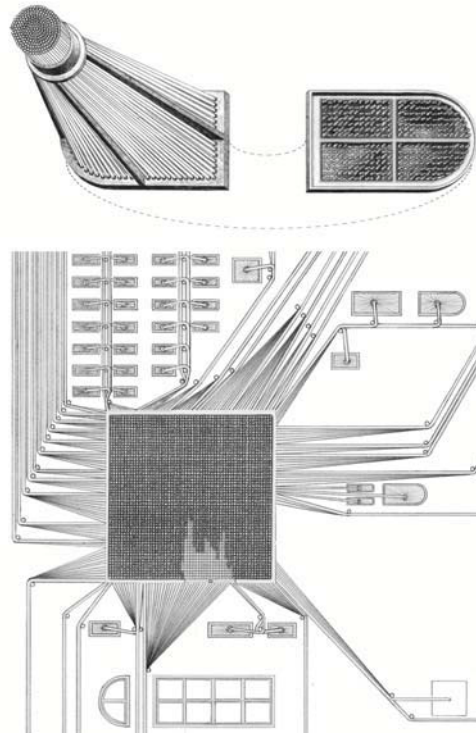
Internal plan of the flattened Nevsky Avenue.
The stolen light emanates from the windows
to be projected upwards to the underside
of the pixel river surface creating the
Malacovian sky.

In the wake of the recent recession, New Malacovia proposes the building of miniature architecture as a surrogate for inventive design in the architectural realm, propagating the idea of devising a new language to bring the architectural microcosm to a wider audience. To construct a real city at the micro scale, the project was inspired by the seductiveness of spatial compression as demonstrated by bonsai landscapes and dolls' houses, questioning what makes these micro-worlds so powerful in captivating the imagination of their observers in contrast to the traditional architectural model and drawing. How can the approach to the way we experience models be challenged to create a similar receptacle for the imagination? How can one build an infinite city by hand? Before we are consumed by the technological age, we must ask if the boundaries of traditional model making and drawing in architecture have been pushed to their limits? I think not. ▢

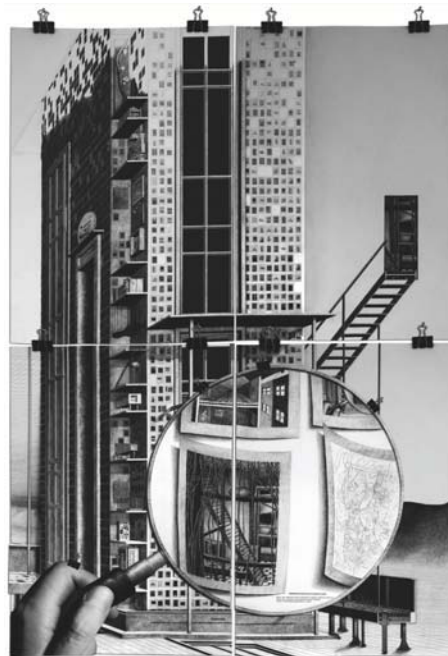
Notes

1. Alberto Manguel and Gianni Guadalupi, *The Dictionary of Imaginary Places*, Harcourt (New York), 1999, p 397.
2. Amedeo Tosetti, *Pedali sul Mar Nero*, Milan, 1984.
3. Manguel and Guadalupi, op cit.

Light-rigging plan. From the base of the Malacovian hub, light roots sprout and carry heat and energy to the infinite windows of the underworld.



The Malacovian kit-of-parts construction pack. The physical components required for the manufacture of New Malacovia: iron pins, hub, ladders, windows, seed potato, fibre-optics and light rig.



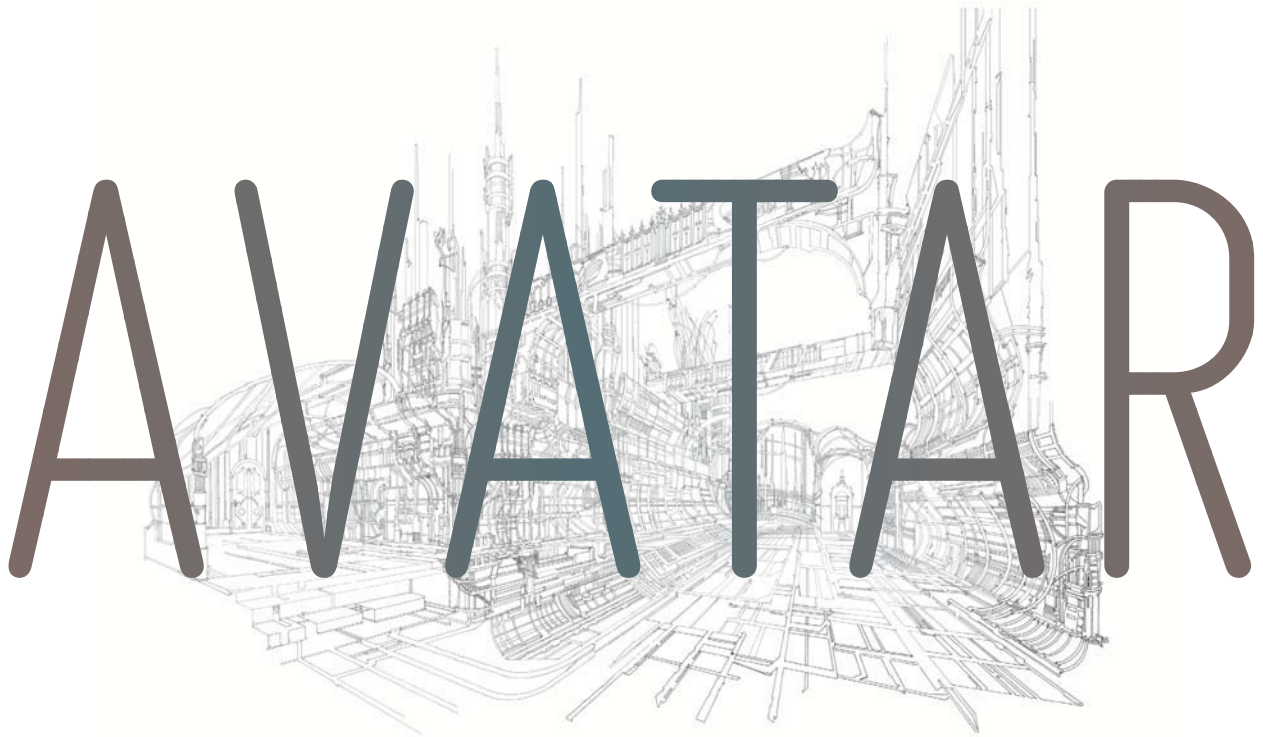
The Malacovian hub is clad in a dense foliage of ideas, which appear as hundreds of Post-it notes clinging to their trunks. Zooming in reveals the microscopic detail of New Malacovia.

Text © 2013 John Wiley & Sons Ltd. Images © Pascal Bronner 2009

Neil Spiller

Neal Tanna, A New North, Unit 19/
AVATAR, School of Architecture,
Design and Construction, University of
Greenwich, London, 2012

To this day, Tanna is tight-lipped over how
the drawings are constructed. Are they
drawn just by a talented hand, or are they
somehow computer manipulated?



NOTHING IS IMPOSSIBLE

The AVATAR (Advanced Virtual and Technological Architectural Research) Group, now based at the University of Greenwich, conducts research into advanced technologies such as virtuality and biotechnology. Here, Guest-Editor **Neil Spiller**, the group's founding director, explains why AVATAR has come to regard the reworking of 'the notion and content of the architectural drawing' as integral to the group's explorations.

The AVATAR (Advanced Virtual and Technological Architectural Research) Group has been instrumental, for the last 10 years, in exploring the ramifications for architecture and design due to the exponential growth of computing capability and emerging biotechnologies. It has been an internationally significant agent for change in how architects and students see the expanding arena of architectural design. To do this, AVATAR has by necessity had to rework the notion and content of the architectural drawing.

One could say AVATAR is based at the centre of the world, as near as damn it to the zero degrees longitude, in a soon to be finished bespoke architecture school on the University of Greenwich's world heritage campus in London. Some of its recent work has relished this unique geographical position, cheek by jowl with Nicholas Hawksmoor, Christopher Wren, John Vanbrugh and the Royal Observatory – an area steeped in the history of scientific and artistic endeavour. This excellent backdrop to AVATAR's activities makes it the perfect launch pad for its preoccupations, which include synthetic

biology, surreal digital theory, film and animation, interaction design, mixed and augmented reality – all called into service to inform advanced architectural, landscape and urban design.

It is important to describe AVATAR's philosophical agenda. Lars Lerup's concept of the 'bull machine', as observed by him at the Feria de Nîmes, is useful in this respect.¹ Lerup describes the whole ceremony of the bull: technologies of restraint and release; the undulating hybrid wall of flesh and stone of the streets lined with people; the quick reflexive readjustment of and bull in response to the animal's charges and rage; the scales of flesh and technology; the visceral power; the ritualistic history of the event and its barely controllable outcomes. Lerup describes such complex events as designed 'proximity groupings' that constitute a 'new' way to think about design.

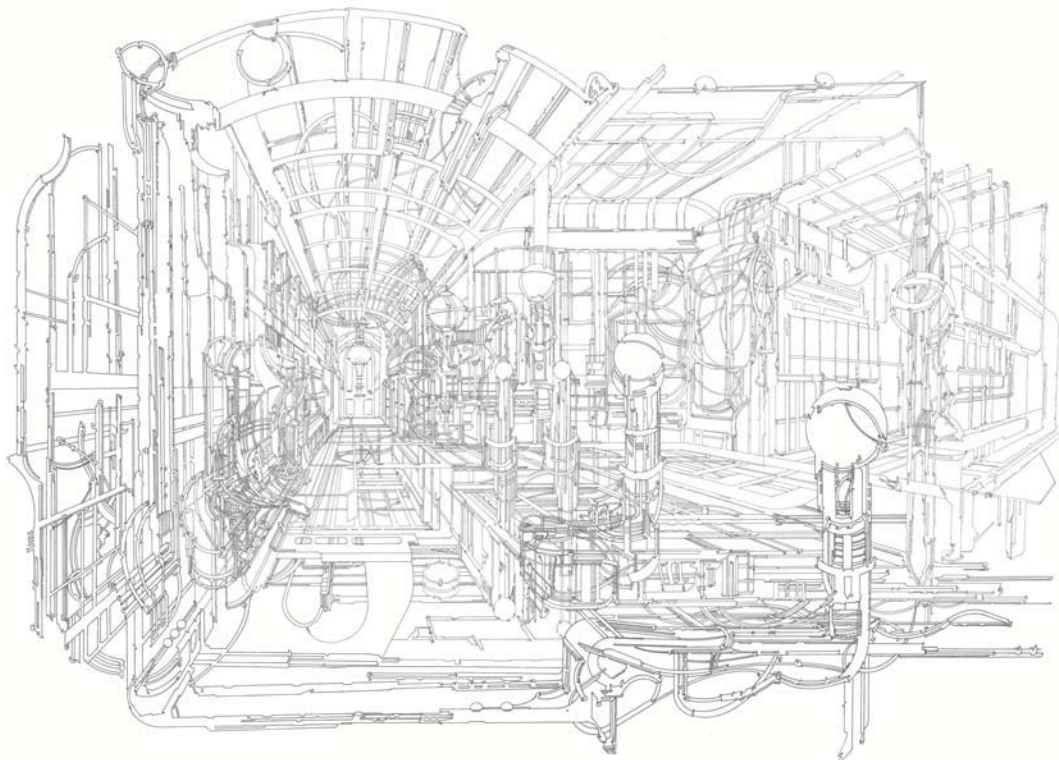
[I]t is not a neo-functionalist [machine] but rather a type of *vitalism* that comes to mind. Vitalism – in the sense of trying to capture the inherent characteristics and movements of both material and dweller ... The way to such machinery is long and tortuous because we know so little about ourselves and our materials.²

It is with similar aspirations and a similar way of seeing the world, that AVATAR has developed its various approaches over the last decade. AVATAR also understands the world in terms of seven continua: space; technology; narrative; semiotics and performance; cyborgian geography; scopic regimes; sensitivity and time. Therefore architecture is about mixing these continua. The group is always playing one off against the other, dulling down one to zero and pushing another up to 11.³

The drawings that describe this fleeting coalition of objects, symbolisms, cosmic eclipses, human imperatives, time, duration velocities, vectors, emissions (chemical and digital) and site metamorphologies (both natural and machinic) are often taxing to construct, as so much beyond the old protocols of drawing is demanded. This may include hybrid digital and analogue techniques, filmic processes, developing extreme oblique projections, anamorphosis and strange spatial cartographies.

AVATAR is researching and teaching on many fronts. It is currently continuing its protocell, algae biofuel, bacterial, wet fabrication, sublunary and surreal research with a series of international partners that include software manufacturers, chemists, architectural practices, engineers and large corporations.⁴ It is supervising PhD research into ethics, undecidability and

AVATAR [...] understands the world in terms of seven continua: space, technology, narrative, semiotics and performance, cyborgian geography, scopic regimes, sensitivity and time.



cybernetics, soft machines and new ways to create evolvable wet photography techniques. The four ongoing projects here illustrate the diversity of the group's experimentation and its graphic range.

Neal Tanna's project for a New Observatory, located within the grounds of Greenwich Park, creates a complex cosmic mechanism that is not just observing stellar conjunctions, but mixes those observations with the geometries and vectors of its site to create the workings of an observatory dense in meaning and function. It then inscribes these new maps on itself, creating a giant evolving tattoo, in a heroic effort to understand its constantly shifting place in the universe. Tanna's drawings of the observatory are also constructed in this manner, palimpsest on palimpsest, scribing and iterations, ghosts in the machine.

Phil Watson, Dr Rachel Armstrong and Elizabeth Anne Williams are working on initial drawings and concepts for Persephone, with space vehicle research organisation Icarus Interstellar. The brief for AVATAR's involvement is to design inhabitable environments for large long-distance spaceships. Persephone will adopt a multidisciplinary approach to achieve its aim of building a synthetic biological interior for the spaceship, working with diverse teams from the fields of science, technology, architecture, design, art, humanities and the social sciences. A roadmap will be established that will set out the fundamental design principles of this challenging project, and will generate the visualisations, descriptive narratives, models and infrastructures for new technologies that will underpin the living interior environment.

Elizabeth Anne Williams/AVATAR, *Persephone: Patinad Soils for Satellites of Jupiter*, School of Architecture, Design and Construction, University of Greenwich, London, 2013

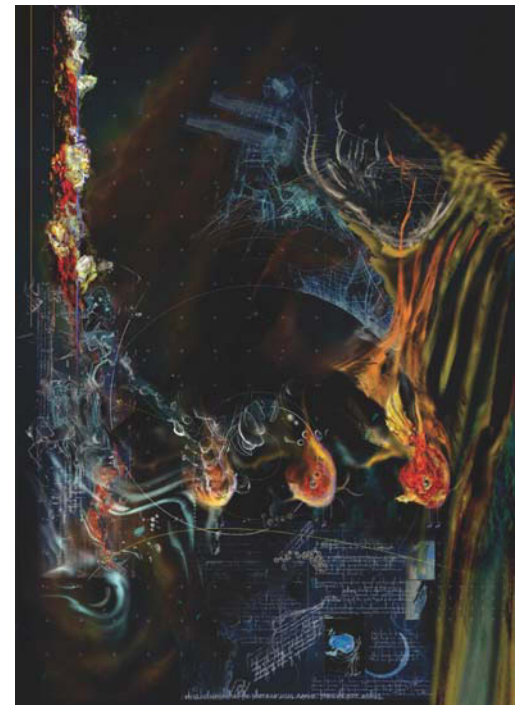
top left: Matter adjusts to the shifting of unrevealed compulsions, solidifying in layers of precipitated time; sculpted geometries reconstruct themselves relative to transforming influences within a continually expanding play of energy.

Elizabeth Anne Williams/AVATAR, *Persephone: Progenic Exuberance of Venus*, School of Architecture, Design and Construction, University of Greenwich, London, 2013

bottom left: Effervescent matter is siphoned through the fractures of inflicted form, congealing as invigorated structures and extending outwards among the fabric of gravitational tangents.

Elizabeth Anne Williams/AVATAR, *Persephone: Expansion of Neptune's Schism*, School of Architecture, Design and Construction, University of Greenwich, London, 2013

right: Williams' work is predicated on the flux, flow and rapid perturbation of a system – it is an extraterrestrial architecture of minute things moving.

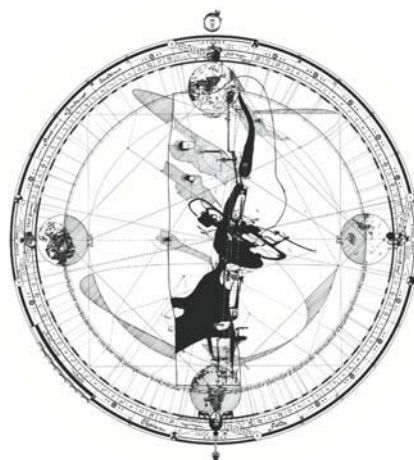


Will Lamburn, *A Piece for Assorted Lunatics, Unit 19/AVATAR*, School of Architecture, Design and Construction, University of Greenwich, London, 2012–13
Lamburn takes the picturesque epistemology of the gardens at Stowe and reveals new architectures seen only in the moonlight – new graphic protocols of drawing are required for such an illusive terrain.

Persephone is a real project. It is unusual not just because it is a spaceship interior, but in that it might be built after the architectural team are dead, in 100 years' time. There are many unknowns to the project, there will be regular deliverables such as design documents, drawings, models and the production of product prototypes, and these will have relevance to contemporary architecture and society. AVATAR is here one member of an internationally renowned research team. The drawings that are being generated describe non-gravitational architectures rich in potential to evolve and utilise synthetic biology that act as agents of construction. They are choreography of spin, float, docking and yaw.

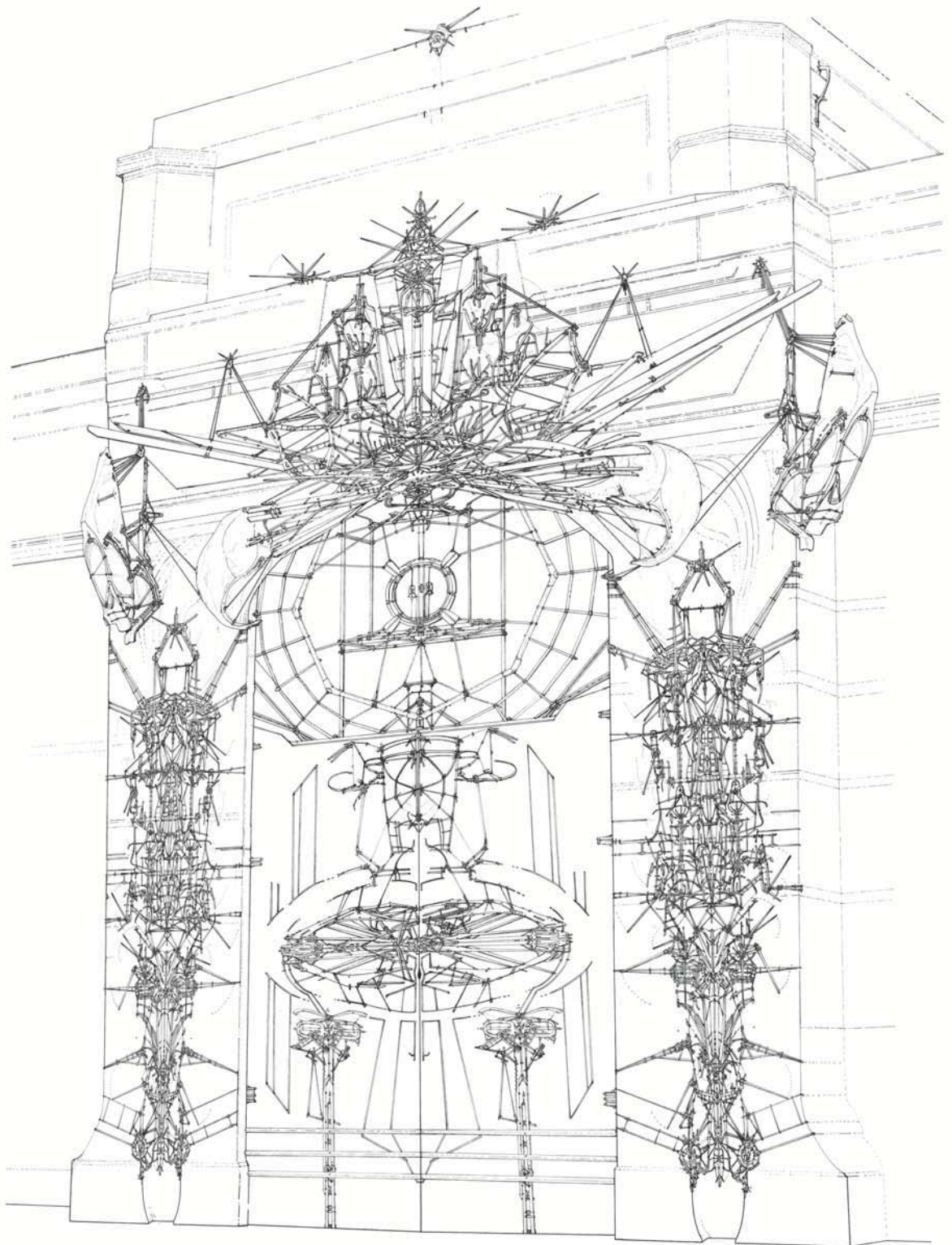
William Lamburn's work, engagingly entitled *A Piece for Assorted Lunatics*, is about constructing a sublunary architecture, an architecture of the night, of wax and wane, death and rebirth on a near-monthly cycle. The project revels in the light and darkness of the phases of the moon. The resultant architectural compositions are the sum of the interplay of these dark and light realities, which indicate the passage of time. The moon tells one fundamental story of birth, growth, fullness, decay, death and rebirth, and the symbolic references of mortality are linked to its different phases: new moon, waxing crescent, waning crescent and the rebirth of the new moon.

The brief for AVATAR's involvement is to design inhabitable environments for large long-distance spaceships.



Chris McCurtin, Mount Analogue, Unit
19/AVATAR, School of Architecture,
Design and Construction, University of
Greenwich, London, 2012-13

*below and opposite: McCurtin's drawings
are ever changing, gorged with meaning,
laboured, insistent and obsessive.*



These realms are the basis for a theory of sublunary architecture and its drawn representations. The architecture only makes sense under these conditions; at other times it is mute, or simply abstractly sculptural. The drawings illustrate the architecture's extraordinary materiality, its quality as optical machinery (when the time is right) with its attendant semiotics and deep connection to the changing quality of the light and angles of the moon over time.

Chris McCurtin's work is based on the philosophical insights provided by René Daumal's great, unfinished surrealist novel *Mount Analogue: A Novel of Symbolically Authentic Non-Euclidean Adventures in Mountain Climbing*.⁵ McCurtin's site is Regents Park, London. The novel, architecture and drawings are an allegorical tale of an uphill journey to find oneself. The project, also called Mount Analogue, is conceived as a series of architectural encrustations of myths, psychologies and semiotics. Its architectural materials are asphalt, bronze, leather, wind, water and entropy.

Despite all of the ongoing work, there is still much to do. By limiting our thoughts, we limit architecture and its ability to respond to the trials and tribulations of an ill-defined and dangerous future. The drawing is a magic wand with which to conjure this future. Nothing is impossible. ▢

Notes

1. Lars Lerup, *After the City*, MIT Press (Cambridge, MA and London), 2000.
2. *Ibid.*, p 142.
3. For a wider description of these seven continua and older AVATAR work, see: Neil Spiller, *Digital Architecture Now: A Global Survey of Emerging Talent*, Thames & Hudson (London and New York), 2008, p 368.
4. Neil Spiller and Rachel Armstrong, *Δ Protocell Architecture*, March/April (no 2), 2011.
5. René Daumal, *Mount Analogue: A Novel of Symbolically Authentic Non-Euclidean Adventures in Mountain Climbing*, Stuart (London), 1959.



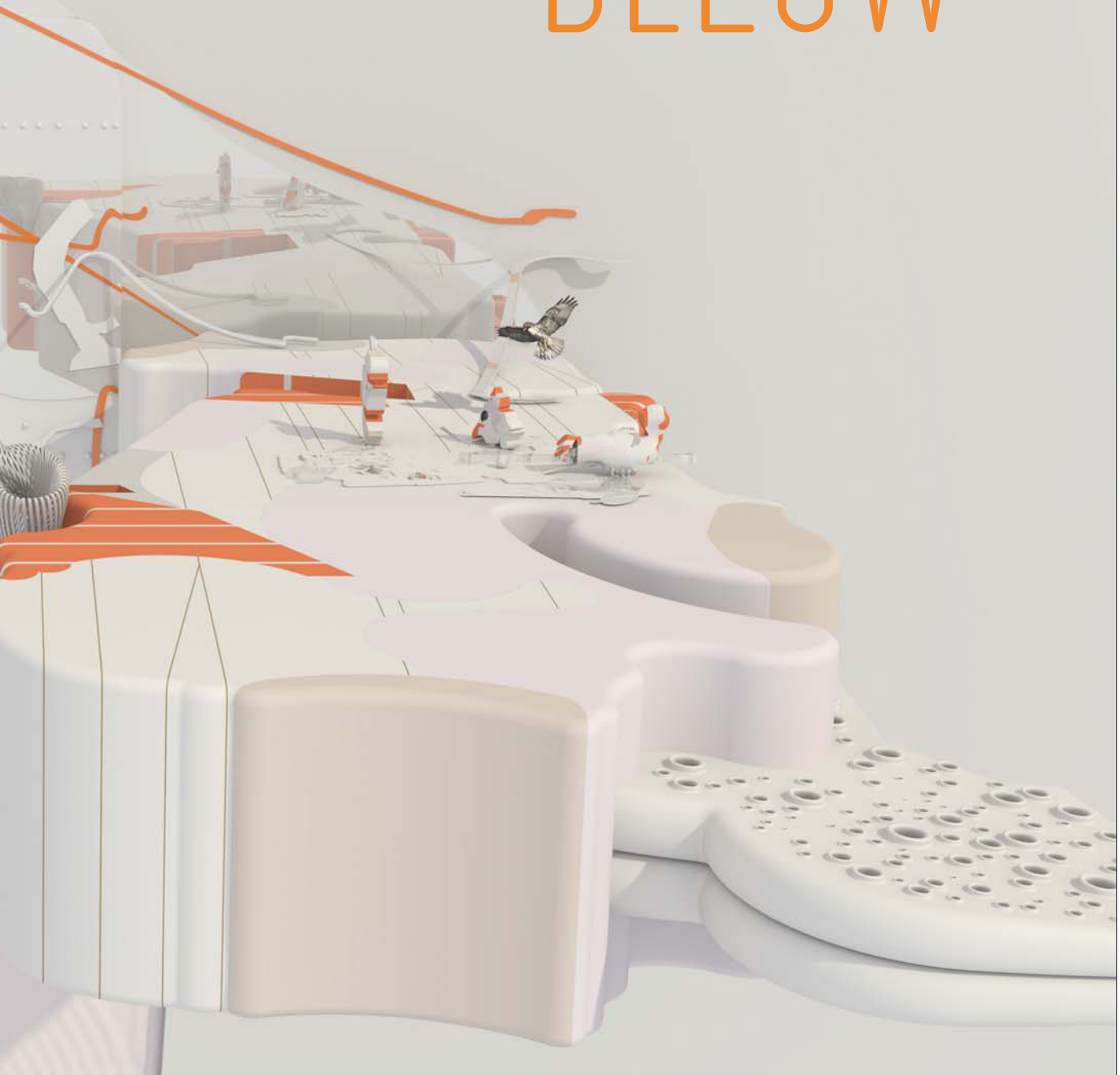
The drawing is a magic wand with which to conjure this future. Nothing is impossible



Perry Kulper, *Miniature + Hawks, Fast Twitch: Speculative Desert Dwelling*, 2012

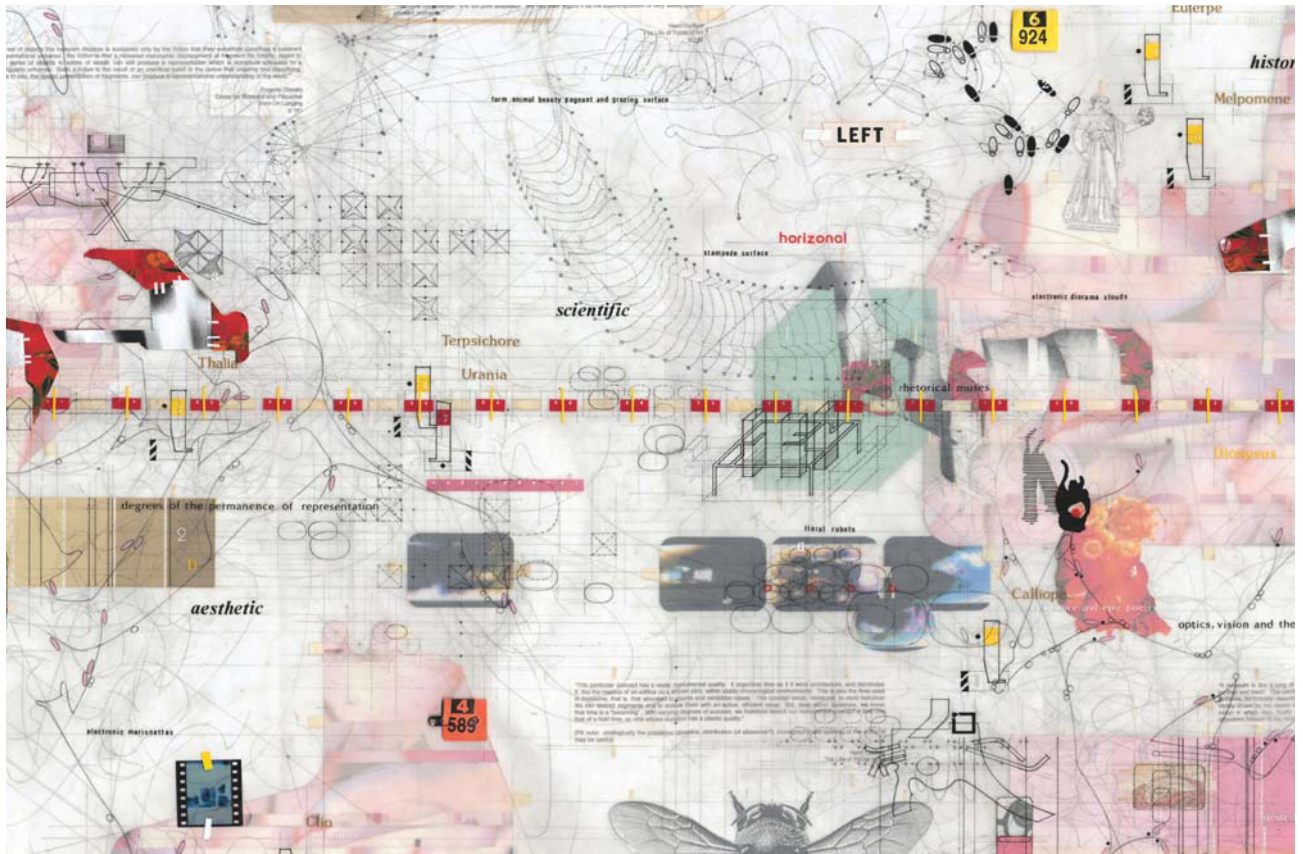
Aerial view of milled garden surfaces, log-filled living space with a miniature prosthetic Fast Twitch proposal, a chromed shadow, a 'double hawk', a labyrinth of exile, and a cast-bronze biplane. Digital rendering by Sen Liu.

A WORLD BELOW



Perry Kulper, Thematic Drawing, Central California History Museum speculative project, 2001

below: A kind of visual puzzle, or relational matrix, this drawing choreographs non-scalar and multiple languages of communication including words, found imagery, notation and proto-architectural marks, mediating between ideas and a spatial proposal by establishing the primary issues or content for the project.



The shift from hand drawing to the digital has often centred on the subject of media. Here, however, **Perry Kulper** discusses how leaving behind conventional graphic formats, such as those of the plan, section and elevation, opens up the possibilities of fusing visualisation and thinking. Kulper is fluid in his uses of techniques and design methods, tailoring them to explore a fit between what is being worked on, when it is being worked on and how it is being worked on – in the quest for a ‘relational synthesis’.

Design opportunities can be discovered, exposed and realised through the medium of the drawing, a key disciplinary ally for architecture. Interests can be derived through graphic exploration, and breeding latent and unpredictable opportunities, then visualised and capitalised upon towards design speculations. While there are many appropriate roles for drawing, especially conventional graphic formats such as the plan, section and perspective, and their descriptive relevance, my approach to modes of visualisation affords alternative options: different capacities for design practice. Here, rather than framing the possibilities of drawing as related to problem solving, or limiting the role of the drawing to a metrical description of a project, ideas are augmented through an emerging visual field of study that is discovered in the act of constructing a drawing. Design in this sense is fluid, weaving heterogeneous ideas, discussing one disciplinary set of questions in relation to another, and through the rehearsing of design skills in the drawings themselves, fusing visualisation and thinking as a relational and synthetic practice.

When working on a project, I raise specific questions about the sequence of design decisions – some questions matter now, some matter later; perhaps some matter now and later or never. In this constantly shifting terrain, I tailor visualisation techniques and design methods to explore a fit between what is being worked on, when it is being worked on, and how it is being worked on. In addition to making conventional drawings, I explore other kinds of drawings that are task specific and related to the particular intentions and phases of a project. Some of these visual constructions, or parts of them, are abstract (such as Alchemic Urbanism), some are figurative (Miniature + Hawks), and still others use multiple languages of representation simultaneously (Thematic Drawing, Central California History Museum speculative project). The diverse forms of visualising thought play multiple roles and do different kinds of work, varying significantly in both intent and outcome. This approach to modes of visualisation creates the possibility that ideas and visual registers can coexist, moving between what is known and what might be known. This effectively enlarges the pool of potential contributions and audiences in a spatial proposition.

Examples of these visual formulations are abundant. For example, thematic drawings that visually establish the primary subjects for a project or a collection of ideas are frequently visualised without immediate concern for relations of scale, hierarchy or figuration. Strategic plots (such as that for David's Island) represent conceptual frameworks, territories, actions and relations that are delineated, or plotted over and through time. These choreographed marks comprise notations, indexes and proto-spatial marks, enabling the consideration of durational, ephemeral and stable conditions for spatial speculations. Aspectival drawings (such as that for the California History Museum) establish the figurative attributes or aspects of architecture without regard for the synthetic resolution of perspective drawing. Here, 'gaps' might be apparent in the visualisations and in the architectural features to which the marks point. Finally, cryptic drawings (Muse Archival Surface) visualise the genetic, or chromosomal if you will, characteristics of a spatial proposition. The cryptic marks are not figural or even recognisable architecturally. But they are full of formal, organisational and material implications. I develop each of these drawing types in order to consider and work on particular ideas in the different phases of a project.

The diverse forms of visualising thought play multiple roles and do different kinds of work, varying significantly in both intent and outcome.



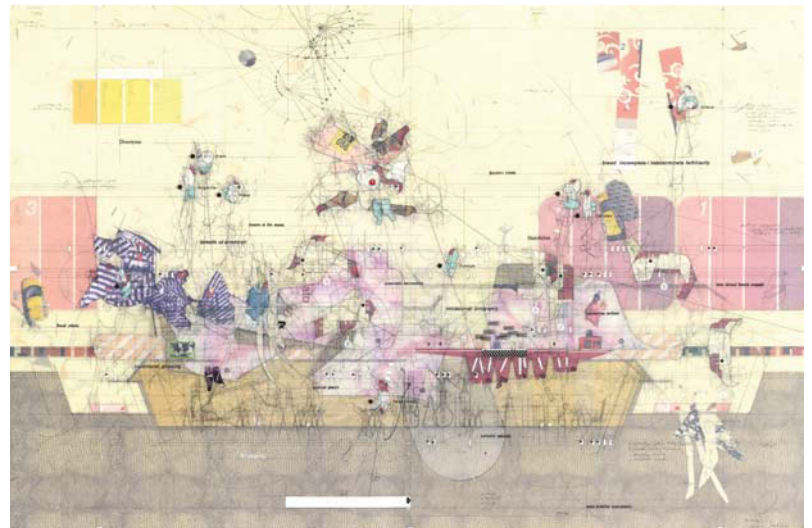
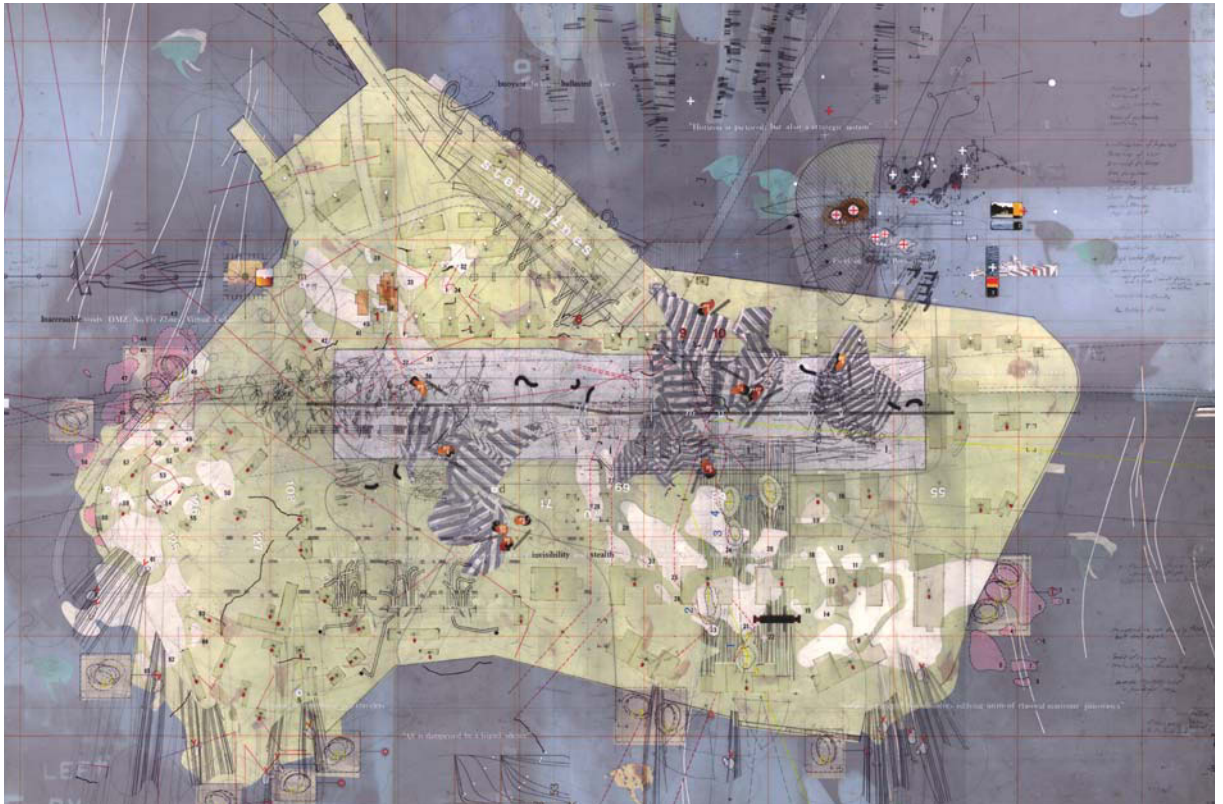
Perry Kulper, Alchemic Urbanism, Passport: Documenting Urbanism, 2011
Using provocative phrases, this drawing visualises immaterial but present urban energies that might be embroidered alchemically, imagining alternative metropolitan organisations. It is part of a book project in which 24 internationally based architects and artists were each allocated two pages and two weeks to produce a construction document for urbanism.

Perry Kulper, Strategic Plot, David's Island competition, New Rochelle, New York, 1997

top: Framed to establish temporally active conditions, both immanent and real, this drawing moves between the use of notation and figurative marks, plotting relationships of movement, position, duration and figuration over and through time.

Perry Kulper, Aspectival Drawing, Central California History Museum speculative project, 2010

bottom: This section-like drawing foregrounds the key aspects, or characteristics, of the main galleries, a primary archive and a theatre of the muses for the museum proposal. Using proto-formal spatial elements, language and representational fragments, it augments the synthetic resolution of perspective construction, using key attributes of the architecture in anticipation of the larger whole.



These referents speak in inspiring tongues, continuously enriching the pool of resources from which design relations might emanate.

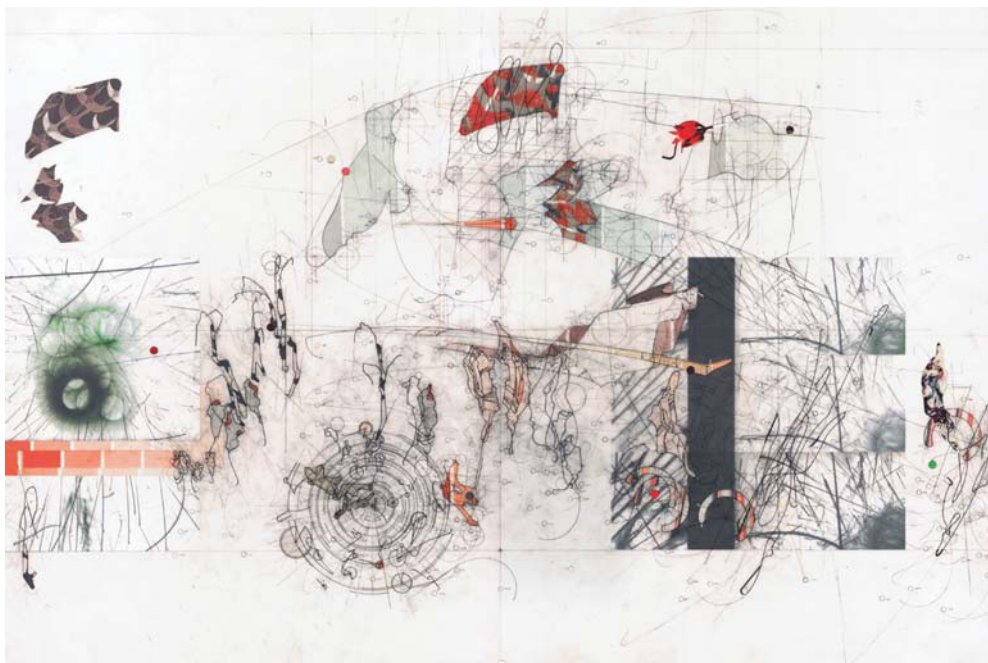
A World

A 48-inch (122-centimetre) long parallel rule tracks up and down the drawing construction site distributing information, bits of found graphic material, and drawn marks to selected territories of the evolving translucent surface. Copenhagen ship curves, architectural scales of various kinds, a compass, fluorescent yellow tape and patterned cut paper are shuttled in and out of the speculative field of play. Figures, fields and fragments are assembled variably as thoughts are registered as marks embroidered inside and under micro-assemblies. The occasional location of registers and calibrations float unevenly in the space of the visual puzzle while provocative terms and phrases populate notepads nearby; some of these words make it to the thickened surface.

In my peripheral vision are framed drawings. Artists' catalogues and books about art and architectural history, art criticism, fashion design, crime scenes, peculiar objects and unusual devices, literary terms and the Baroque period populate the bookshelves in this subterranean workspace. These referents speak in inspiring tongues, continuously enriching the pool of resources from which design relations might emanate. This constructed 'ground' facilitates a rich embroidery of heterogeneous thoughts – propelling relations, enhancing the work of the hand, eye, and intellect, and interpreted through visual thinking – to create the architectural drawing.

A recent Anish Kapoor catalogue and *Curiosity and Method: Ten Years of Cabinet Magazine* (2012) form the backdrop for a series of yellow trace sketches, piles of paint-chip samples and two circuit boards, all parts of a hoarder's archive. Next to the pilfered electronic circuitry is a stack of yellow legal pads, filled with notes, sketches, research and references; all accomplices to the emergent drawn constructions presided over by the parallel rule. A box of blank jewellery tags, opened acrylic containers and an array of drawing templates – an ellipse, lettering, and all manner of circles – lurk nearby. A pair of downloaded and printed images of 18th-century orreries hangs precariously on a north-facing concrete block wall, the substantial enclosure for this workspace located just below the horizon. Three small windows occupy the upper reaches of this design studio, yielding fragmented visual connections to the realities of the world beyond – sightings of a cardinal perched on the hedge, a UPS delivery person with an expedited package, a car headed to the university.

Digital prints of the Fast Twitch: Speculative Desert Dwelling, of the Spatial Blooms test-tube berms, and of prototype book pages complement the downloaded cosmological images. Cutting-boards scarred and heavily bandaged with varieties of tape migrate in and out of the space as a drawing is constructed. Architecture that might be derived by 'using literary terms generatively', or by 'building the plan here and the section there', or by 'materialising the space of construction rather than the building' occupy the space of my imagination as I construct a mini-cosmology of marks, indexes and figurative characters for a current visualisation.



Perry Kulper, *Cryptic Drawing*, Muse Archival Surface, Central California History Museum speculative project, 2011

opposite: Utilising line work, paint samples, found imagery and cut paper, this drawing visualises the genetic characteristics of an archival element for the museum, establishing relationships to its etymology through references to the nine Greek muses. It is a cryptic visualisation, a proto-architectural drawing for an alabaster surface, etched by nine drawing instruments, ultimately dematerialising the archive and the certainty of the memory of part of the museum proposal.

A Mac monitor, largish and cluttered with folders, icons and opened jpegs forms a diptych relation to my drawing table. Fit-to-screen commands produce an alternating rhythm with open emails and downloaded images of Japanese kosode, of women's hats from the 1930s, and images from Manuel Lima's *Visual Complexity: Mapping Patterns of Information* (2011). Images of animal X-rays flank the monitor, vying for attention. I open jpeg after jpeg of recent student work in preparation for a lecture on the architectural imagination, and on the use of varied design methods to speculate architecturally. Stacks of DVDs, patterned Japanese paper, rolls of yellow trace, and essays on landscape representation and architectural pedagogy thicken the atmosphere. Georges Perec's *Species of Spaces* (first published in 1974) lies just beyond arm's length, yet remains a source of metaphorical inspiration. The title and physical presence of Alan Fletcher's book *The Art of Looking Sideways* (2001), a recent gift, is a real partner in crime.

In the play of stability and vulnerability, my work finds relational synthesis. This prepares the ground to broaden the designer's imagination for the scope and perhaps the cultural agency for architecture.

Surface Knowledge

An in-progress version of a Vertical Surfaces speculation has garnered my focus for these few hours of concerted effort. These marks emanate from an interest in thinking about possibilities for architectural surfaces in urban conditions, invoking researched design through the architectural drawing. My larger ambitions are linked to making a collection of drawn vertical surfaces, all varied and positioned to open a range of formal, material and disciplinary questions. In addition to urban interests, several motivations inspire this work, including analogical references to MC Escher and the morphological shifts that occur between patterning and figuration in some of his work; Chinese landscape paintings with multiple points of view and the strangely equivalent scalar relations they engender; games, oriented vertically to produce forms of spectacle, change and dynamic urban surface projection; and optical devices that facilitate unexpected scalar shifts and create alternative understandings of figuration and the hybridisation of surface and atmosphere.

Another Mylar surface is taped at four corners to the worktable. A photograph of a box of collected yellow birds drifts into the emerging mark-making domain. A pile of dog-eared and tattered Letraset partially occludes the paint-chip samples that might help structure the drawing. A printed image of a bubble chamber photograph, inspired by a Peter Galison article with photographs by Stanley Greenberg, titled 'Chamber Pieces' (2009) sets the tone for the upper portion of this vertical surface visualisation. A rubber midsection, Baroque-inspired, stimulates indeterminate relations to the bubble chamber image, prompting a discussion of one form of representation to another, albeit separated by nearly 400 years. Thoughts about active urban drawing instruments, and constructed and artificial air densities migrating along the surface of the bubble chamber image, stimulate my imagination. The architectural possibilities of this surface oscillate between a material object, a phased set of marks in action, and a set of instructions that patiently await activation.



Perry Kulper, Zipper Blooms and Test Tube Berm, Spatial Blooms, 2010

opposite: This design research work emanated from an interest in crossbreeding landscape organisations, landscape elements and landscape 'biologies' in search of active temporalities in architecture. This image initiates visual thoughts about spatial blooms, fallow surfaces, knotted thresholds and germinal objects, envisioned through a preliminary formalisation of zipper blooms and a test-tube berm. Digital rendering by Justin Fogle. Research Through Making Grant, Taubman College of Architecture + Urban Planning, University of Michigan.

Perry Kulper, Vertical Surface 01, Vertical Surfaces speculative project, 2012

This drawing emanates from an interest in developing architectural surfaces, or spatial envelopes, relative to urban situations. It is the first of six vertical surfaces that are inspired by MC Escher and his development of shifts from patterning to figuration, Chinese landscape paintings and various points of view in the same 'view', optical devices that structure scalar shifts and complexity surface and object relationships, and by things in constant states of change or flux at variable speeds and densities.



As a Result

These composited marks are made in the manner of architectural drawing. Their errant trajectories, illicit behaviours, and exceptions, however, are fundamental to the conversations they make possible. Nuanced misalignments, approximate thoughts and imperfect moments are made to resist fixing normative figuration, rather offering alternative relational and spatial possibilities. The intricacy of the irregular interruptions in the drawings acts not as errant vectors, but as grist for the spatial mill. These mark-making efforts are conceived as visualised species, cloned, artificially propagated and sometimes just invented. They are composited and may appear to develop along unintentional lines of reason. Perhaps. They also reconcile – or not – ideas both known and discovered, fleshed out in the space of the drawing, cultivating the speculative to confirm or deny intent. All the while they capitalise on the drawn surface as an object in the world, ripe with varied potential.

In the play of stability and vulnerability, my work finds relational synthesis. This prepares the ground to broaden the designer's imagination for the scope and perhaps the cultural agency for architecture. Rather than materialising architecture, I produce spatial speculations by constructing various drawings. Doing this through lines and composited layers rather than through the logics of construction allows my work to incorporate both necessary and unexpected cultural and natural considerations. In the visualisations, I reflect on issues and relationships otherwise held at arm's length. By developing them over time, each negotiates accumulated experiences and new combinations of authorial knowledge and architectural susceptibility. They motivate increased authority and cumulative understanding that reveal new thresholds of ideational, representational and spatial risk. This lineage is evidenced through the tensional play of a drawing's conceptual risk and practised restraint. Ultimately, this play opens new relations of spatial possibility for a designer on the lookout for risky stabilities through the agencies of the architectural drawing. ▢

Tom Noonan



A TWO-SPEED
LANDSCAPE

THE
REFORESTATION
OF THE
THAMES ESTUARY

Tom Noonan, The Reforestation of the Thames Estuary, Unit 12, Bartlett School of Architecture, University College London (UCL), London, 2010

View of the Institute of Arboreal Science and Technology from the Thames, following cultivation of the Estuary plantations.



Tom Noonan describes how, for this award-winning project, he took up the pen and developed a hybrid drawing technique that exploited the benefits of both the analogue and the digital – characterised by the tactility of the hand and the precision of the computer. He explains that a preoccupation with representation was further ‘reflected and supported by the programme, narrative and language of the architecture’.

The digital dexterity required to harness the potential of contemporary digital modelling and fabrication invites a reconsideration of the relationship between the hand and computer; between tools, craft and medium. The Reforestation of the Thames Estuary marked my first foray into a drawing technique informed and supported by a fruitful collaboration between the pen and mouse.

Reliant largely on digital techniques and outputs, my earlier work had been typified and, arguably, constrained by basic 3-D modelling and rendering skills. Uncovering the processes of hand drawing and painting with ink, the imperfections, irregularities and tactility informed a new way of working. However, despite a newfound loyalty to the pen, it proved difficult to abandon the reliability, precision and control of the computer. A hybrid drawing approach emerged; exploiting the benefits of both analogue and digital techniques. The project became as much an ongoing process of discovery as an architectural proposition, where the means and material of representation were reflected and supported by the programme, narrative and language of the architecture.

The project imagines the transformation of a city and its environment, in a future where timber is to become the city's main building resource. Forests and plantations established around the Thames Estuary provide the source for the city's primary building material and energy supply. The Thames once again becomes a working river, transporting material throughout the city and to the proposed Institute of Arboreal Science and Technology. The Institute provides a dock, receiving and distributing wood throughout the city. Alongside its function as a central processing site and prototype for the new timber industries, the Institute is established to promote and advertise the use of timber in the future of London's architecture. New public infrastructures and environments emerge throughout London and the banks of the Thames, forming the framework for a new city model.



.....
The Institute's undercroft workshops lie abandoned, awaiting the timber harvest.

The architecture of the Institute, and the establishment of plantations throughout the Estuary and London, are modelled on the concept of a 'two-speed landscape'. Historic and current cultural perceptions of the ideal landscape have broadly shifted between 'primitive' and 'productive' – exemplified in debates surrounding nature conservation and its relationship to modern economic and demographic developments. The paradigm for London's future reforestation seeks to mediate between the conflicting paces of the economy and ecology. Thoughtful management of harvesting cycles, planting and cultivation provides the city with a variety of natural spaces, intertwining production, health and recreation. The supporting architectures respond to the seasonal timeframes of their surroundings, industrious and dormant in equal measures.

Platforms for woodworking are hoisted to the timber landscape above for demonstrations and exhibitions.



View of the plantation on the banks of Holehaven Creek, Canvey Island.

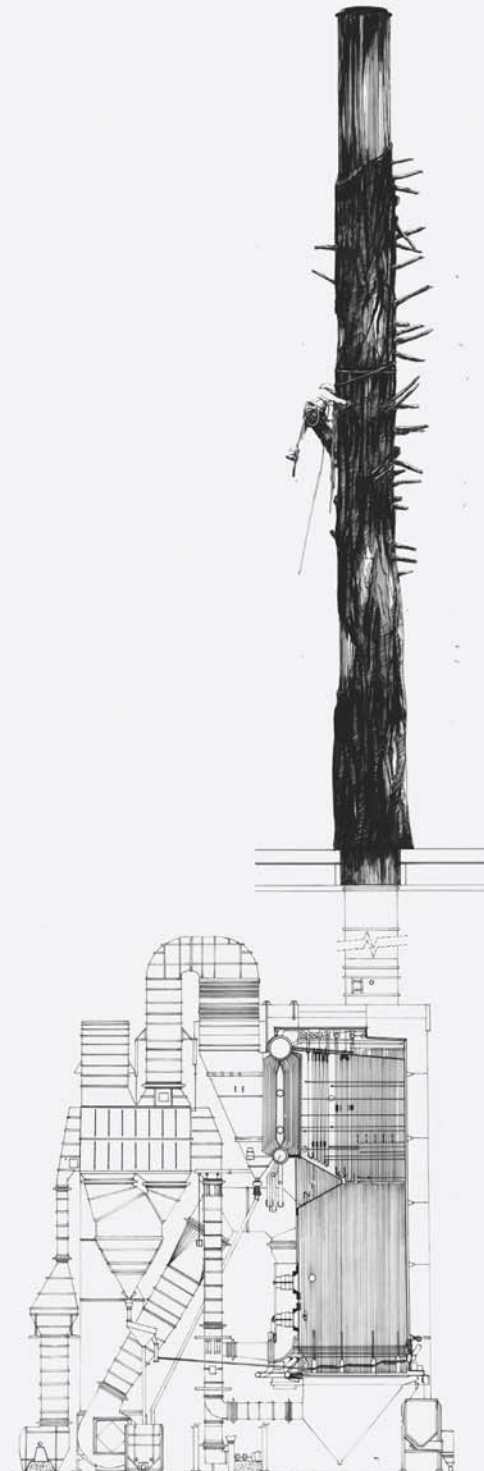


Detail of the rope facade mechanism that lifts the teaching platforms to the landscape above.



View through the Institute's own
plantation in Deptford, South London.

*Drawing and painting
encouraged the
understanding and
exploration of materials,
tracing the grains of
wood, the ripple of water
and shadow.*



The chimney of the Institute's biomass plant,
cast in the form of a tree trunk, provides
a climbing pole for budding tree surgeons.

The dialogue between the 'primitive' and 'productive' can be applied analogously to the production of the architectural drawing. We can draw parallels between the primitive landscapes of the project, and the analogue hand-drawing method used. Both offer an ad-hoc and irregular environment in which to discover and freely explore worlds, unbounded by the constraints and influence of technology. Contrarily, computer drawing could be compared to the productive landscape, the outputs of which are formed by known operations and components. As the proposed project seeks to establish a two-speed landscape, the drawings begin to explore the landscape between the analogue and digital.

The language and materiality of the architecture was explored through ink and paper. Drawing and painting encouraged the understanding and exploration of materials,

tracing the grains of wood, the ripple of water and shadow. Through the freedom of the process, the project developed intuitively; the programme, narrative and language of the architecture became consequences of the drawing. The computer was used to test forms and non-Euclidean geometries. Hand drawings were scanned and composited, the digital montage enabling the construction of a new meaning or entity.

As the digital world expands, hand drawing can be viewed with a level of cynicism. It is commonly expected that architectural drawing and representation respond to technological advances. But while the dexterity and efficiency of the computer should be exploited, the freedom of drawing by hand should equally be harnessed, celebrating the hybrid drawing and the two-speed landscape. ▢





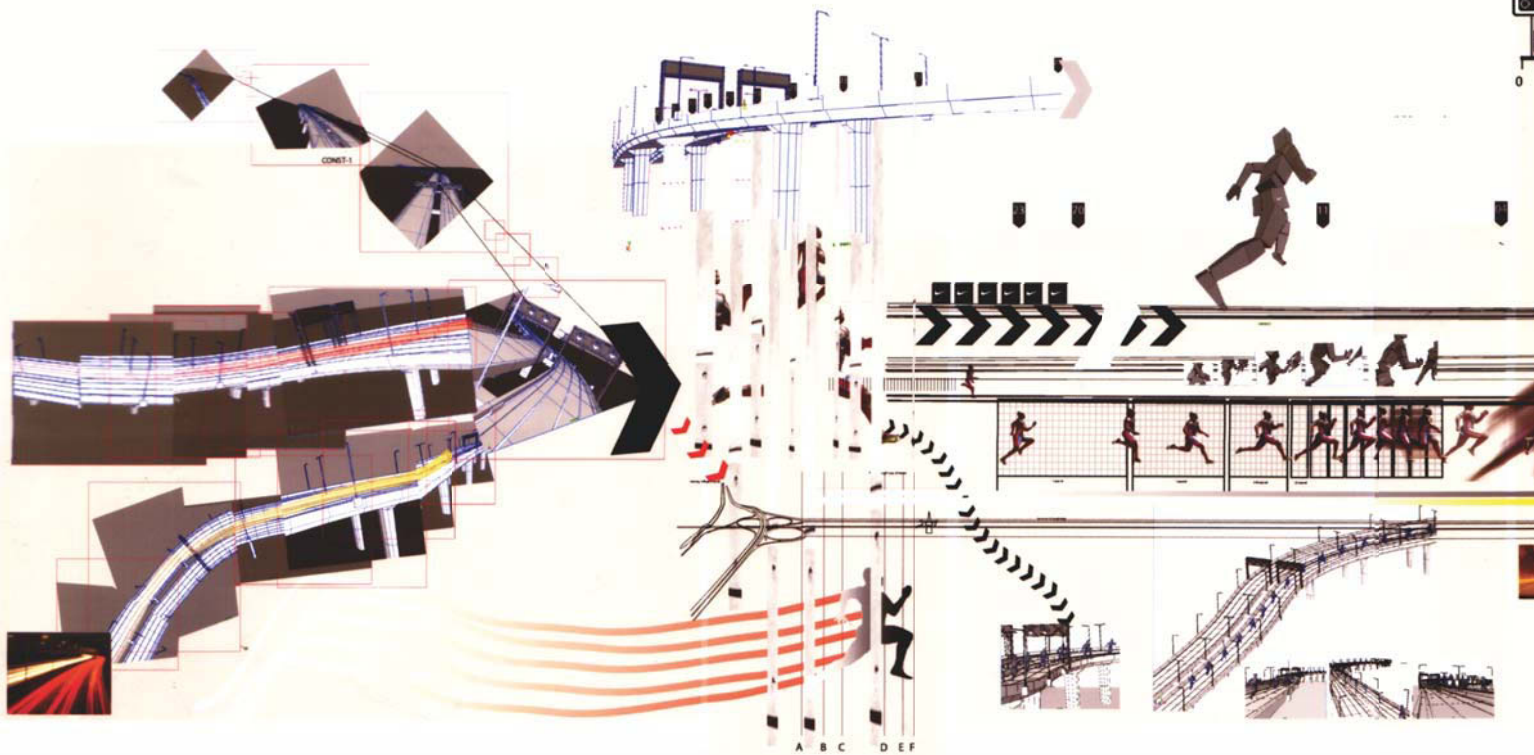
Nic Clear

Rich Bevan, *Syn Emergence* meso-scale map post-production chronogram, Unit 15, Bartlett School of Architecture, University College London (UCL), London, 2009

Bevan is an accomplished DJ and music producer, part of the electronica group Posthuman, and founder of Seed Records. As part of his final-year thesis project, he wanted to combine his musical and architectural interests and visualise the 'soundscapes' that he had been producing. He developed a complex notational system to translate 'micro' sounds into 3-D forms and then animate them. This drawing was made as part of a final presentation to describe the environments that he had created and explain the overlay of the notational system. The image was also used as part of the artwork for a limited-edition double picture disc, also called *Syn Emergence*, by Posthuman.



Head of the Department of Architecture and Landscape Architecture at the University of Greenwich, **Nic Clear** is renowned for his role in championing film and animation techniques in architectural education. Here he challenges architects to put aside their assigned roles as mere imagers or practice technicians and embrace ‘the spatial possibilities offered by a whole range of emerging design activities – actual, augmented and virtual’.



The brutal concrete landscape of a motorway section at night is the site for an extreme, dynamic running experience.

The camera follows the continuous lines of pure flowing symmetry of a motorway section. Fly-overs, intersections, sliproads and underpasses form a staggered repetition of concrete columns and road markings along the route. The road is empty.

Fleeting glimpses of an over-scaled sprint athlete's muscular form appear charging along obscured behind elements of the concrete construction, disintegrating into streaming blurs of colour, like road traffic at night shot on long exposure.

An open stretch of road is suddenly interrupted by the frozen form of the gigantic athlete locked in a dynamic pose. In the blink of an eye it is gone. A repetition of the figure appears and with each occurrence the pose is dynamically shifted from the last. The regularity increases until the frozen figures merge together into 25 frames per second of dynamic sprinting motion.

At a time when the traditional role of the architect is undergoing profound changes due to transformations within the building industry brought about by the pressures of standardisation and cost control, for many the architect is becoming, at best, an image consultant and, at worst, a CAD technician.

For 'architecture' to flourish, the architect should no longer be solely defined in relation to the architectural profession and the traditional practices dictated by it; the architect needs to embrace the spatial possibilities offered by a whole range of design activities – actual, augmented and virtual. The tools required for this transformation are a powerful extension to the architect's existing repertoire and offer the opportunity to radically redefine what an architect is and what an architect can be.

This essay will consist of three sections: the first will briefly attempt to describe the challenges and opportunities offered to architecture by new forms of spatial practice; the second will examine a particular film sequence that offers a fascinating model for how architecture might adopt time-based digital imaging; and the third section will map out the development

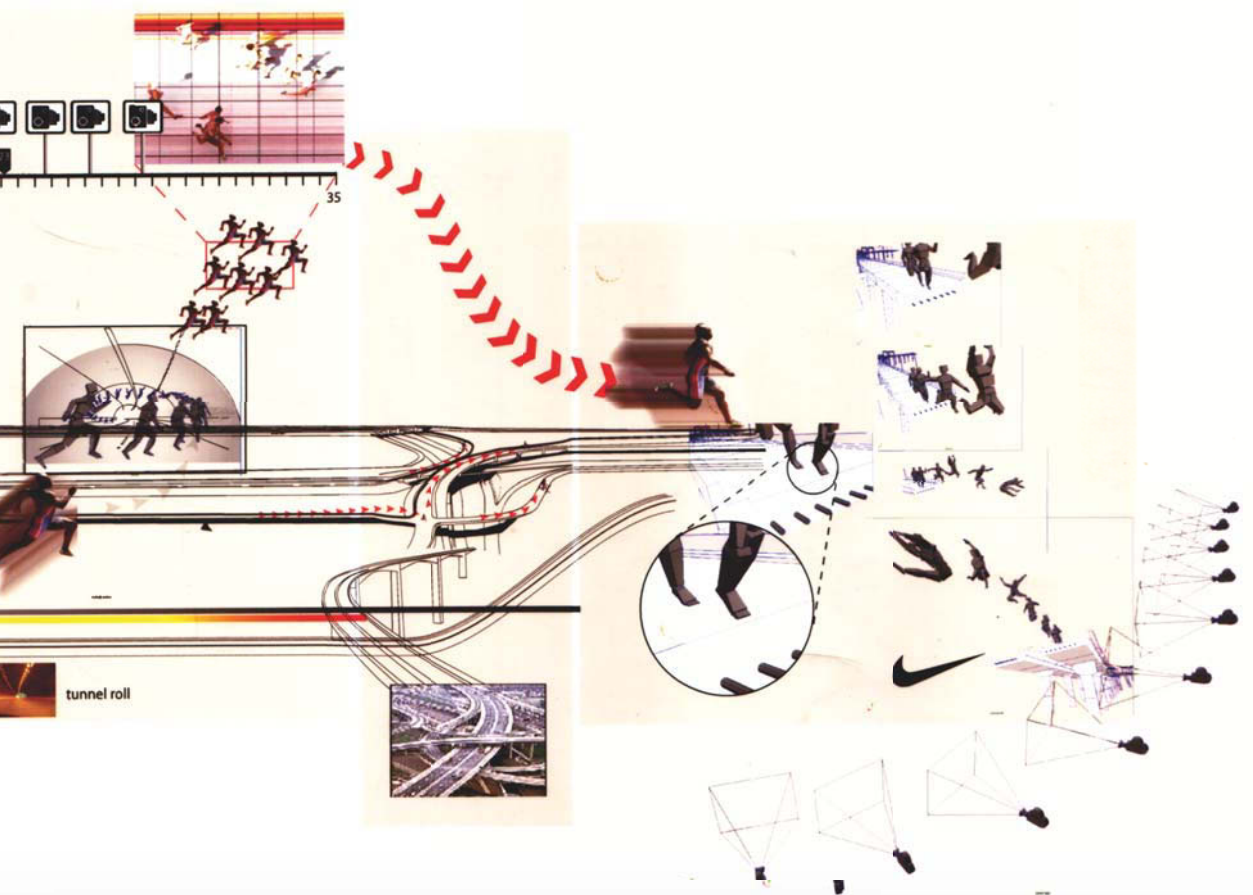
of a particular drawing practice related to the use of time-based techniques.

CAD: Constant Architectural Dementia¹

If the architect's role in the building industry is being diminished, the need for the type of advanced spatial design skills implicit in architectural training and practice has never been greater, both in terms of understanding, describing and designing an ever-expanding urban environment and through the creation of the spaces of information and virtuality.

Robin Evans wrote that 'architects do not make buildings; they make drawings of buildings';² over 20 years later one might wish to amend that statement by saying that 'architects do not make buildings; they make a range of different types of representations that may be used in the construction of buildings or they may be used in a number of other ways to create a wide array of spatial possibilities'.

Much of Evans's writing focuses on the disjuncture between what architects claim to do – that is, make buildings – with what they actually do, which is produce a complex array of



The camera tracks the runner as he charges down the lanes at an ever increasing pace. Speed cameras erupt as he passes them creating an explosion of overexposed images as in the photo finish at the end of a track race. The athlete charges on. The camera leaves road level steadily rising above a flyover losing the athlete for an instant. As he emerges he has multiplied by ten, charging down the road like a team of stallions.

The camera still rising reveals the beautifully complex layout of the roads ahead. The runners each chart separate routes of entangled road networks. We stay with the original athlete who maintains his course straight ahead. The camera once again is gaining on the subject.

His speed has now become so extreme that he has become a streaming blur of dynamism. The elevated section of road abruptly ends and in slow motion the camera pulls away from his foot as he plants his last step, he leaps into the air as a series of frozen figures capturing the flight of a long jumper.

graphic, technical, written and, in many instances, statistical information. The central focus for this disparity is the role of the architectural drawing itself, which is both site of the actual mode of production and an 'intervening medium' between the architect and proposed 'real' work.³ When Evans was writing, the forms of orthographic drawing had varied little from the end of the 18th century. Clearly there had been transformations in the style of architecture these representations depicted, and major changes in the methods of reproduction made necessary by the industrialisation of the building process.

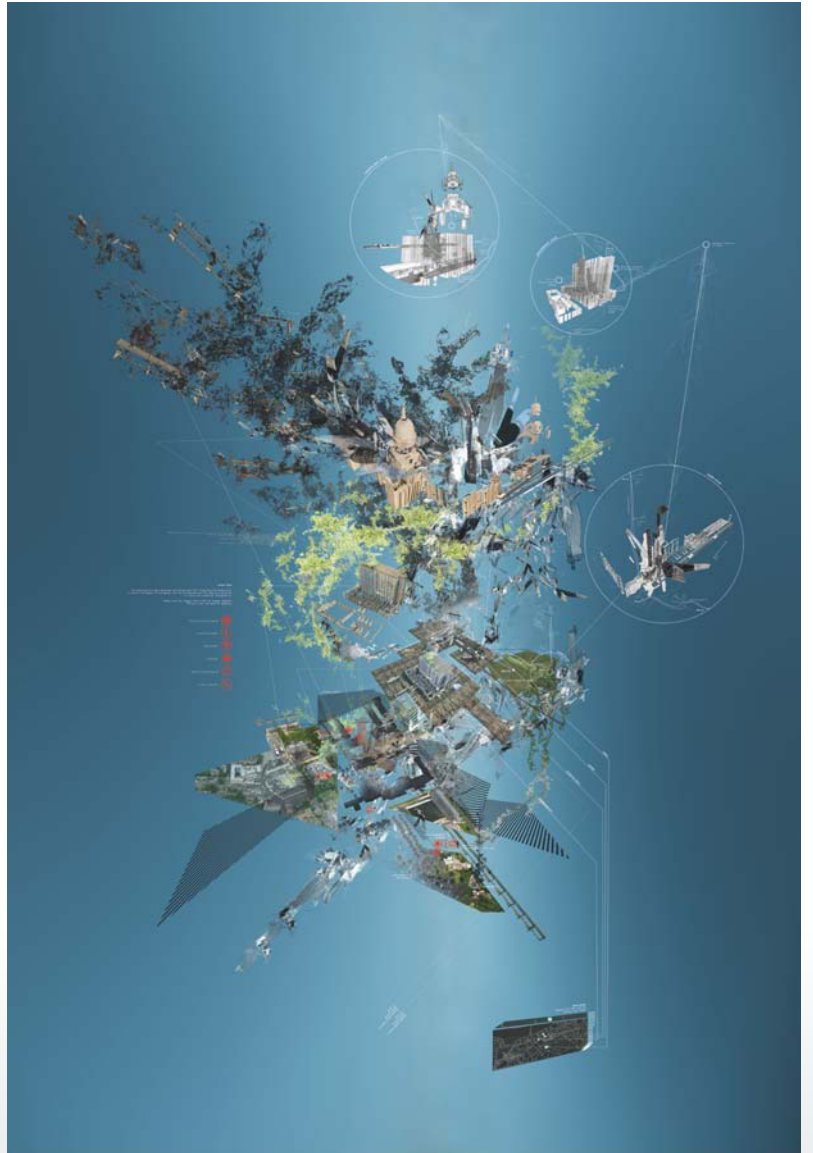
However, the last 20 years have witnessed unprecedented changes in the possible ways architectural and spatial ideas can be developed and communicated and the forms of the 'drawings' that can be created; either through 2-D computer-aided design (CAD) and building information modelling (BIM), 3-D computer modelling and rendering, computational and processing techniques, image manipulation and collage, and immersive time-based techniques including animation. But despite the almost universal adoption of CAD and digital imaging by the architectural profession, the wider possibilities

General Lighting and Power (GLP), Nike Free Concept Chronogram, 2001

This drawing was one of many that GLP developed as part of its multidisciplinary practice combining architecture with video and graphic design projects. The chronogram was the main element in a winning pitch for a short film that was part of a worldwide advertising campaign. The image shows the construction of the film depicting a runner moving through a fragmented cityscape, while his actions and motions are monitored and displayed. The drawing allowed GLP to explain the narrative and how the film was to be made, and gave a clear indication of the graphic style of the final product.



In the 2002 film *Panic Room*, director David Fincher sets up a single tracking shot that in both filmic and spatial terms sets out the extraordinary potential for a film-based architecture.



Vipin Dhunoo, *Games Space* pre-production chronogram, Unit 15, School of Architecture, Design and Construction, University of Greenwich, London, 2013

Vipin Dhunoo uses a games engine to create a series of architectural projects located within the Royal Naval College at Greenwich. The game allows users to construct their own architectures within the historic space of the maritime campus and, hypothetically, achieve their Diploma in Architecture. The drawing maps out both the construction of the game and the 'film' of the game that will be both part of the final project.

offered by digital representation and communication remain largely unexplored. The goal of architectural practice is still highly predictable, especially in the way that representations remain focused on the production of buildings, and in the way that they remain static and lack the immersive qualities of phenomenal space. Across the profession, the adherence to plan, section and elevation, mitigated by the addition of an occasional perspectival render, operates in a paradigm that would be familiar to practitioners at the beginning of the last century.

Obviously the resistance to the wider spatial possibilities of digital tools is not universal; the use of parametric techniques to generate complex doubly curved geometries, which can be translated in rapid prototyped models, has been widely described.⁴ However, the brio with which these data-driven models of architectural production have been adopted is perhaps motivated by a move to create forms of architecture that while looking 'new' are still tied to the economic imperatives of late capitalism, and the traditional conception of the architect, defined through a particular set of narrowly delineated practices, remains uncontested.



Charlie Barnard, *Floating Utopia* pre-production chronogram, Unit 15, School of Architecture, Design and Construction, University of Greenwich, London, 2013

The project is for a floating utopian community that is created by extracting raw materials from the sea through the use of fine hair filaments, and using them to construct the physical spaces of the island and also to sustain and maintain its community. This drawing uses the sectional cut of the project to organise the film, which starts deep within the ocean and moves through the filaments vertically towards the light and inhabited sections of the island.

Soki So, *Space-Time Drift* concept chronogram, Unit 15, Bartlett School of Architecture, University College London (UCL), London, 2008

Space-Time Drift is an award-winning architectural film project that deals with what it is to be effectively living in two places at once. In the film, Soki So merged the London where he was studying with his native Hong Kong, where he was in constant touch with his friends and family, to create a single homogeneous hybrid city. The drawing maps out the main spaces of the film, identifies the points of overlap between the two cities, and develops the distinctive colour grading of the final piece.



If we remove the creation of architectural spaces from the limited arena of commercial building production and begin to see architecture in the 21st century as part of a wider discourse of spaces of information, speculation and immersion, then the possibilities of what architecture can be and what architects can do becomes greatly expanded. To achieve this, the need for forms of representation that are themselves speculative, immersive and time based becomes essential.

For architectural and spatial practices to fully engage with the 'expanded'⁵ fields of information design, virtual and augmented reality, games design as well as existing forms of film and video, the outmoded conventions of traditional architectural representation with their arcane characteristics need to be replaced. Here the use of time-based techniques such as animation, which is currently confined to visualisations at the end of the process, and interactive environments, which hardly feature outside academic discourse, becomes vital to make the development of ideas within a concept of 'expanded architecture' possible and more tangible, especially to a non-specialist audience.⁶

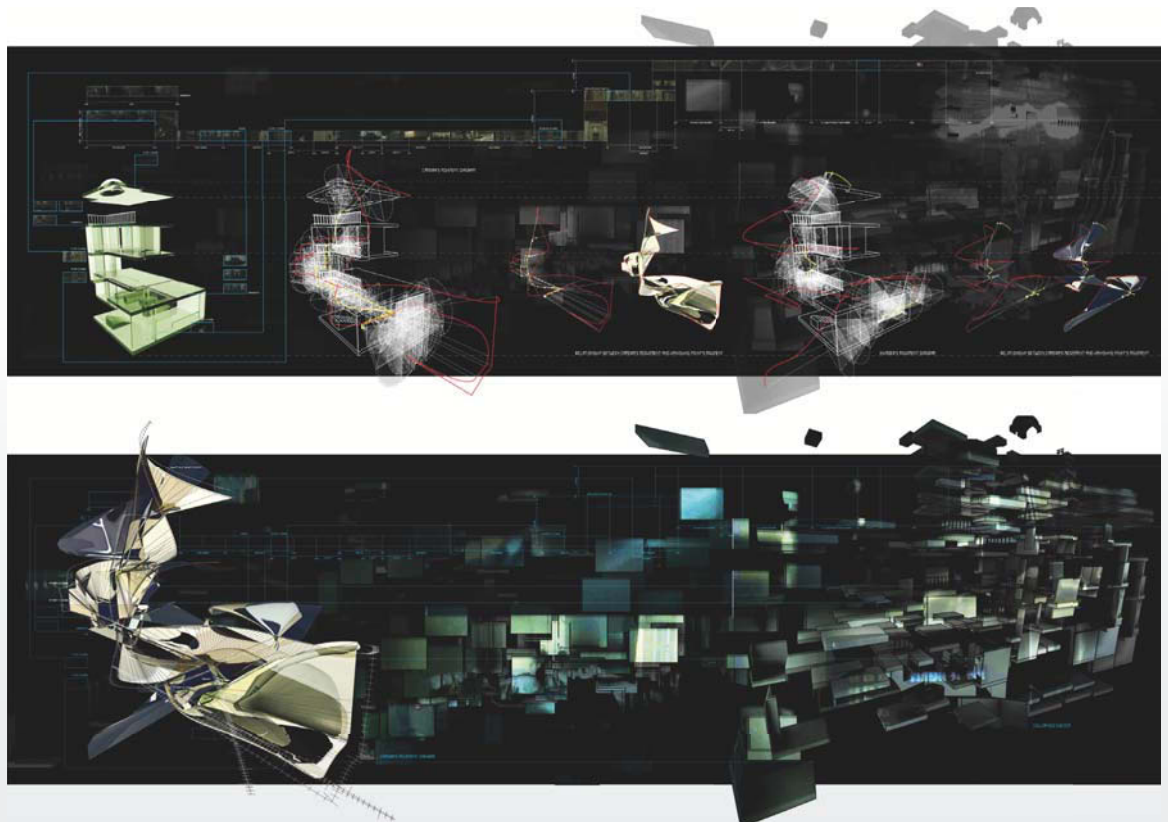
Some may argue that, given the pressures on the architectural profession, the solution is to focus on 'core skills' and activities and to retreat into an even more 'traditional' conception of the architect rather than embracing new opportunities and deploying the architect's skill set into areas beyond the building industry. This type of critique is particularly focused on architectural education and the claim that schools are not equipping students adequately for the needs of the profession, without realising that the profession has changed irrevocably.⁷

Synthetic Spaces

Perhaps one of the most important aspects of the current use of digital media is the way digitally created content and more conventional photographic and moving images can be seamlessly integrated. The synthesis of the digital and the analogue in this way has been described by Lev Manovich in his essay 'What is Digital Cinema?'⁸

In the 2002 film *Panic Room*,⁹ director David Fincher sets up a single tracking shot that in both filmic and spatial terms sets out the extraordinary potential for a film-based architecture.

Time-based digital media clearly offer potential in the way we represent architectural and spatial ideas, and the basic tools are already part of the architect's repertoire.



In the sequence, which lasts for 2 minutes and 40 seconds, the camera moves through the house, changes scales, passing through impossible gaps, moving through the structure and defying gravity. Cinematically, Fincher uses this shot to establish the context of the vulnerability of the main character, played by Jodie Foster, whose space is being invaded by burglars unaware that she is there. By making this scene a single shot, Fincher enables us to map the threat very directly and perceive the proximal relationship of potential victim and intruder.

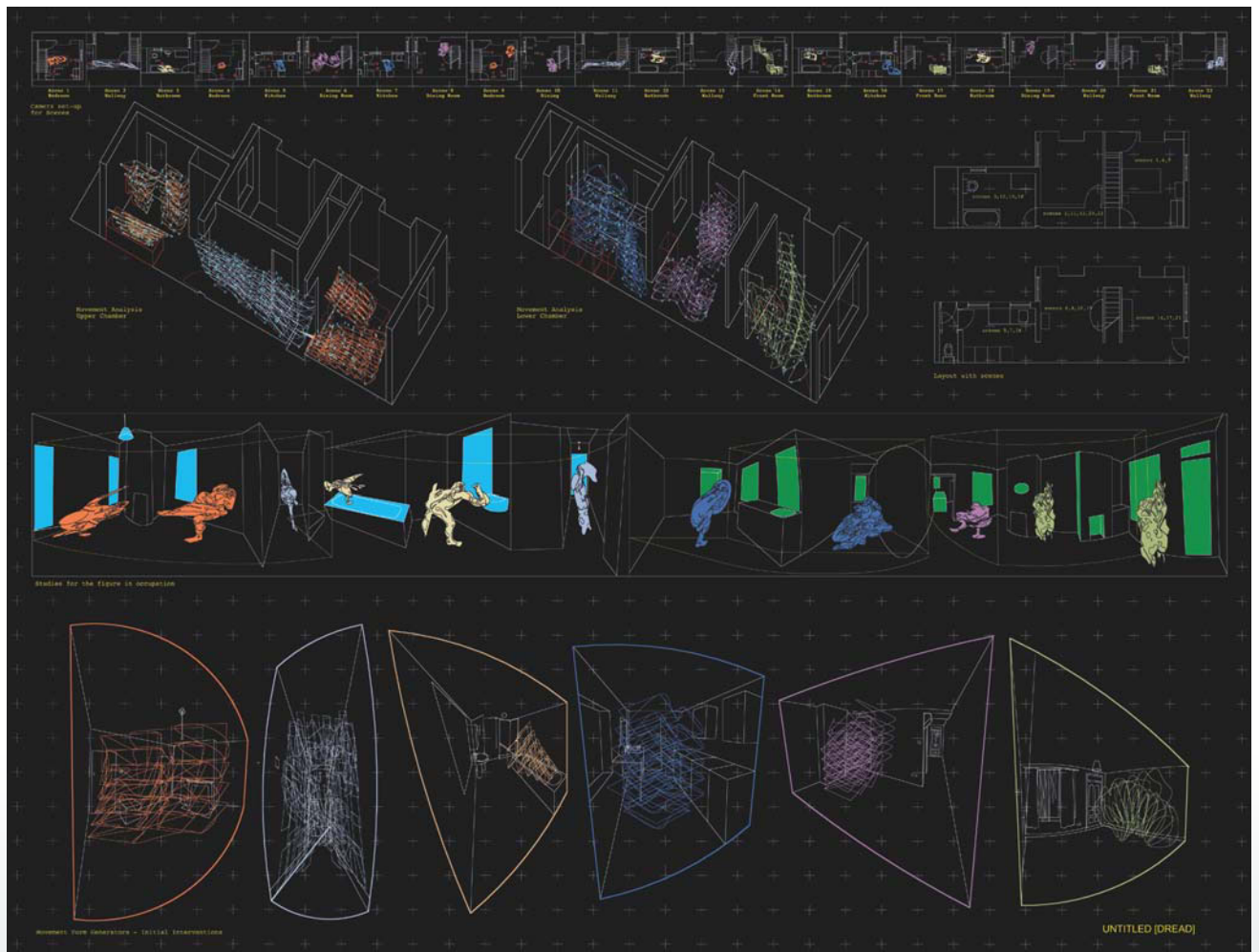
Spatially, the sequence is clearly not simply an animated fly-through in the way many architectural animations use a single point of view (POV) camera to create the illusion of an individual first-person subject. Nor is it the traditional film shot with an invisible camera occupying the 'fourth wall' of the space. The camera moves through the space as if it were an independent entity. It allows the viewer to experience the space in a way that no drawing or set of drawings could. Produced through the seamless integration of computer-generated imagery and actual space through a process of photogrammetry, which allows information from the physical environment of

the set to be incorporated within the virtual camera of a 3-D environment, the two cameras are 'matched' so that the virtual and actual become a single homogeneous space. What this shot also demonstrates is the extraordinary potential for film and animation to communicate complex spatial ideas, both possible and impossible, at a variety of scales. However, it is a pity that the architecture of *Panic Room* is itself so spatially ordinary.

Developments in the accessibility of moving image technology, including real-time applications, open up possibilities for architecture to redefine itself and engage in a form of practice that combines actual and virtual spaces, digital and analogue technologies as part of a speculative agenda that need not be constrained by cost and patronage. But the adoption of such techniques brings with it a number of difficulties, principally how do architects design with these practices?

The Chronogram

Time-based digital media clearly offer potential in the way we represent architectural and spatial ideas, and the basic tools are already part of the architect's repertoire. However, as more



architects develop the skills to work with these time-based techniques they will become part of the process of generating and developing forms of architectural production, both new and traditional, rather than simply representing the end product. As the use of these techniques becomes more central to architectural production, in all its various iterations, architects will need to develop a new attitude to existing forms of drawing.

When using time-based techniques as part of the design process, the design ideas and the production process have to be considered together. The role of the drawing becomes as much a mapping of the process of production as it does of defining the outcome of the project itself; in many instances it may be that the mapping in effect becomes the project.

Designing with the moving image is a 'hybrid' activity as it inevitably mixes together different skill sets and different processes. In my work as an architectural tutor specialising in the use of the moving image, and as an architect who uses film and animation, I have developed a type of composite drawing that combines architectural, graphic and film conventions and attempts to synthesise the various constituent elements

Danai Surasa, *Panic Room* space-time analysis chronogram, MArch Architectural Design, Bartlett School of Architecture, University College London (UCL), London, 2009

opposite: The chronogram was produced as part of an exercise to try and 'map' the space of the film *Panic Room* (2002). In the drawing, Surasa reconstructs the trajectories of the camera and characters with the spaces of the *Panic Room* set from the footage, and then maps into that the space of the volumetric footprint of the virtual camera. In making the drawing, the characteristic look and feel of director David Fincher's cinematography is clearly translated into the graphic style of the piece.

Nic Clear, *Dread* pre-edit chronogram, 2007

above: *Dread* is a short film project depicting urban anomie and existential crisis in a man who refuses to leave his house. As his anxieties grow the architecture itself begins to transform around him, intensifying the uncanny nature of the domestic environment. The film was shot in a house designed and largely built by Nic Clear. The drawing was made after the majority of the footage had been shot as a way of organising the spatial ideas within the edit, and to identify specific post-production effects requirements.



by mapping out the formal, narrative, experiential and spatial possibilities of the project alongside the processes of production. This type of drawing has been named the 'chronogram'.¹⁰

The chronogram has four basic functions: (1) to set out the narrative and tell the story of the project; (2) to describe processes involved in the production of the project; (3) to communicate style by using the graphic language of the project; and (4) to develop and communicate the spatial ideas of the project. Perhaps the most important function is that the chronogram stands in for the time-based work when it cannot be shown, a problem that is perfectly illustrated when trying to describe time-based ideas in a static form, such as this essay.

The chronogram differs from traditional ways of mapping out time-based sequences, such as storyboards, in a number of crucial ways. The storyboard assumes certain conventions and roles within film production. Storyboards are essentially a tool that allows the director and cinematographer to determine where to place the camera for the most appropriate cinematic effect for each shot. The chronogram is not shot based; it is a spatial drawing. Its role is to determine the spaces of the project. In

filmmaking there is a clear division of labour: the role of writer, director, cinematographer, editor and animator are all normally separate. However, in the development of the chronogram it is assumed that all of these roles are performed by a single person, or a small team of people. Most importantly, the chronogram is not intended to be as prescriptive as the storyboard; it is a much more fluid drawing type, and should be considered a strategic conceptual aid. Its role is to facilitate the creation of spatial ideas in conjunction with the development of the time-based work, and ultimately enable the designer to communicate his or her design, design intentions, and the means by which he or she seeks to achieve them.

This conception of the chronogram is not the only way that projects using the moving image can be developed – far from it. However, within the context of an architectural use of the moving image, the explicit desire to fuse narrative, spatial concepts, production processes and stylistic concerns, this type of approach to drawing has proved a highly productive and effective aide. And while the chronogram is a useful tool when it comes to mapping out time-based projects, it can also be used to develop



Notes

1. Nic Clear, 'I Love CAD', in Samantha Hardingham, *Δ The 1970s is Here and Now*, March/April (no 2), 2005, pp 60–66.
2. Robin Evans, 'Architectural Projection', in Eve Blau and Edward Kaufman (eds), *Architecture and Its Image: Four Centuries of Architectural Representation*, Canadian Centre for Architecture (Montreal), distributed by MIT Press, 1989, p 21.
3. Robin Evans, 'Translations From Drawing To Building', in Robin Evans, Pamela Johnston and Mohsen Mostafavi (eds), *Translations From Drawing To Building and Other Essays*, Architectural Association (London), 1997, p 156.
4. See Neil Spiller, *Digital Architecture Now: A Global Survey of Emerging Talent*, Thames & Hudson (London), 2008.
5. The use of the term 'expanded' is in reference to Gene Youngblood's conception of 'expanded cinema'; see Gene Youngblood, *Expanded Cinema*, EP Dutton & Co, Inc (New York), 1970.
6. In 2010 a postgraduate student in Unit 15 at the Bartlett, Keiichi Matsuda, produced a short film for his Masters course at Christmas looking at the potential architectural applications of augmented reality. By the end of his course the film had received over a million hits and Matsuda was presenting his work to an augmented reality conference in San Francisco. His experience shows that the potential to develop and disseminate ideas to a wide non-architectural audience is enormous at all levels of architectural production.
7. When Unit 15 Bartlett student Kibwe Tavares won the 2011 RIBA Silver Medal there was a great deal of criticism in the architectural press regarding the appropriateness of his work and some speculation on his future employment possibilities. However, Tavares has gone on to complete a follow-up film commissioned by Channel 4 and is now represented by Ridley Scott's production company, RSA films, as a director.

8. Manovich defines digital cinema as 'live action material + painting + image processing + compositing + 2-D computer animation + 3-D computer animation'. See Lev Manovich, 'What is Digital Cinema?', 1995: <http://manovich.net/TEXT/digital-cinema.html>.
9. *Panic Room*, Director David Fincher, Columbia Pictures (US), 2002.
10. The term 'chronogram', which means 'time writing', is traditionally a name given to an inscription where letters stand in for numerals. It was particularly used on tombstones. However, it is also an alternative term for the Gantt chart, a type of bar chart that is often used to illustrate a project schedule. Its use in this context was also seen as being inspired by the 'chronophotography' of Etienne Jules Marey (in the 1880s) and Man Ray's 'rayographs' (of the 1920s), and is influenced by Bernard Tschumi's *Screenplays* (1976) and *Manhattan Transcripts* (1976–81) where Tschumi also adapts filmic conventions as well as more traditional forms of architectural drawing to create hybrid drawings that use narrative ideas.

a whole array of other projects from traditional spatial design to installation and even performance projects.

The chronogram drawings used to illustrate this essay are taken from a number of different types of projects including games design, film projects and virtual environments, and produced at different stages of the design process: concept design, pre-production and post-production. However, all are conceived by the authors as architectural spaces and produced by them within explicitly architectural contexts. The only factor that tends to suggest that they are not architectural projects is the fact that they tend not to be designs for buildings.

As the role of the architect in the building industry diminishes, and the need for designers with an advanced architectural understanding within other areas increases, what is clear is that this generation of 'new' architects will need to be able to generate, develop and communicate their ideas in new ways and to different audiences. Δ

Chris Kelly, *Impossible Spaces on the DLR* pre-production chronogram, Unit 15, School of Architecture, Design and Construction, University of Greenwich, London, 2013

Chris Kelly's work deals with our perception of space by creating immersive environments that take actual spaces and expand them virtually. The drawing here visualises one of the possible configurations of an expanded space on London's Docklands Light Railway (DLR). The user is able to navigate around a station creating a labyrinthine environment where the illusion of a much greater space is contained within the mundane reality.

LOOKING AND DRAWING

How can people draw things in the abstract? Even plotting a line on a scrap bit of paper – ‘here’s the nearest place to buy potatoes’ – followed by a scribbled arrow, a wobbly line to the supermarket door, is the product of memory and episode.

In the invention business, this involves a considerable scrambling of all sorts of memories and episodes allied to many, many, wish-dreams. Of course, the hand, pen, indulgent mind, reverie, computer mouse, delight in a watercolour wash, with a bit of sediment here, a bit more green there, with the deft choice of a superimposed bit of Photoshop here, a fade-out there (and for the Mayer Merchants that particular dreamy rollover of surface) – these are the support troops who sometimes seem to take over the strategy of the battle.

In recent times I have had the luxury – and challenge – of being alongside Gavin Robotham, my partner in Cook Robotham Architecture Bureau (CRAB studio), who is an amazing draw-er. Once again, as with David Greene, Michael Webb and Ron Herron in Archigram, I tried to jog along, unable to draw as instinctively as them, and therefore shamed into finding tricks and devices (French curves, straight edges, clever pens) and developing a form of exaggerated collage-cum-bright graphic. Plus a good deal of doggedness. Then, alongside Christine Hawley – and sometimes Ron Herron as well – I plodded on (but now, with the experience of the long-distance walker who has, at least, stamina). I knew how to keep going: attacking the awkward parts of a drawing in the morning and coasting along with the easy, repetitive parts in the evening.

Yes, the business of drawing became not only a case of interpreting one’s dreams, but of assembling the likely episodes in some kind of predictable echelon. For me, the best drawings have always been those in which more than 60 per cent was, at the outset, merely a ‘sniff’ of what was to come. To have the whole thing plotted out beforehand and entirely predictable and therefore just a graphic exercise – this is infinitely boring. A drawing should be an investigative device, a voyage of discovery, a series of glances into the future. ‘Oh my God, was *that* what it was about?’ seems to be a reasonable conclusion.

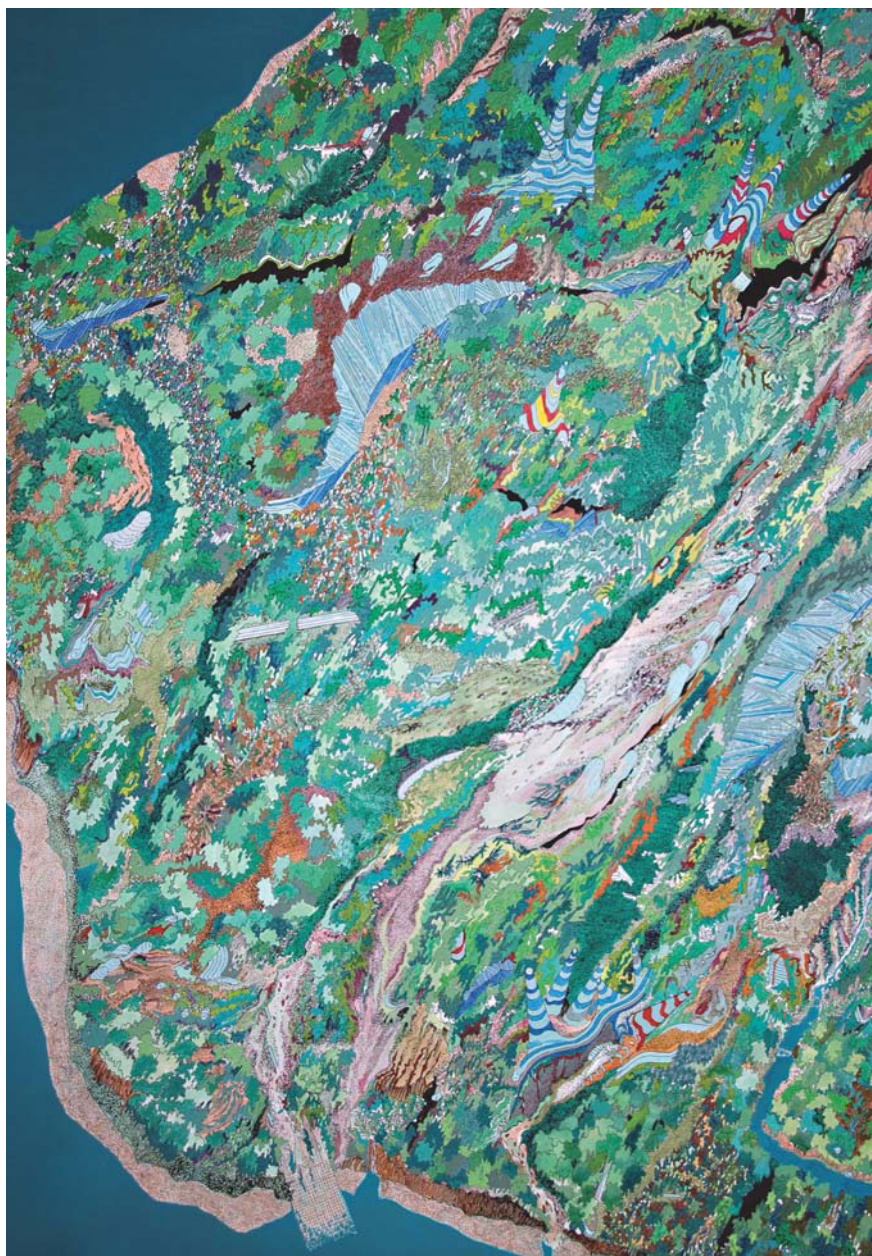
When the drawing becomes part of an interchange of ideas between colleagues, there are often layers of ‘graphic shorthand’ that pass from hand to hand – or screen to screen. ‘Tweaking’ a computer-drawn printout is one way in which the non-computer-artiste can keep track: it formalises the editing process that was always there anyway, but was rarely admitted to.

Some projects actually benefit from being created through a series of techniques: fountain pen for the slithery plan forms (which I rather like), crotchety ruled ink for defining a corner, pencil for retaining roughness and markers – well for me they are associated with lazy minds and lack of aesthetic! Within the tiny CRAB team we have very definite predilections and a composite product has, hopefully, the best aspects of them all.

Peter Cook is the doyen of the architectural drawing world. He enthuses and champions the graphic in architectural schools across the globe, while producing extraordinary images within his own London-based practice. Here he offers us the rare chance to look over his shoulder at CRAB studio, proffering some rare tips and insights; he shares his graphic predilections and recounts the evolution of some of his most recent drawings.

**Peter Cook, Big Green Landscape:
Hidden City, 2009**

A hypothetical landscape in which 'architectural' elements are discernible, but more tantalisingly, certain of the 'natural' phenomena that may or may not have organic or sequential similarities to architecture: maybe they are architecture?



**Peter Cook, Swiss Cottage Tower,
London, 2010**

Mainly exploring the possibilities of a multi-functional tower (housing, schools, offices, recreation) to organically shift over a wide range of surfaces and installations, the Swiss Cottage Tower, as with the Big Green Landscape, deliberately juxtaposes the unlike with the unlike.



The big, predominantly green drawing was made during the Christmas 2008 and New Year 2009 vacation in Oslo. Staying with the Blackstadt-Pran household and sitting at a large window on the top of a small hill, with bits of fjord and wooden houses among trees as a backdrop that I had already known for 30 years. A stack of carefully cut sheets of quality cartridge and a fountain pen filled with black ink. I knew the theme; the idea of a created landscape that would reveal, from time to time, some pieces of architecture. Deliberately, some of these would be 'silly' – even possibly provocative to certain architect colleagues. Some of these would be familiar from earlier propositions such as the 'mound', 'lump' and prepared landscapes of the 1970s, 80s and 90s. But the added intention (the hardest to draw) would be the ambiguity with which much of the 'vegetation' (or was it quasi-vegetation?) seemed, sometimes, to drift in a semi-structured way. Deliberately suggesting that, quite possibly, the vegetation itself was an architecture.

Now, one can come to this conclusion via another route: you don't have to be an aficionado of D'Arcy Thompson's *On Growth and Form* (which is after all, a series of observations made nearly 100 years ago – and none the worse for that), for you can observe the structural and sustainable logic of any tree form. Yet, all the time, in this drawing I am relishing the 'nearly but not quite' positing of features.

The only thing that I pre-drew in pencil was the geometry of the 'drift'. A series of 70-degrees lines running top right down to bottom left. So that, after a while, this drift implies continuity and 'locks' the otherwise ramshackle nature of the landscape. The long blue 'snakes' of *architectural* stuff are ordered, merely because they have consistency, at least in one dimension: locked in the drift, like a Canadian log jam.

Operationally, I completed most of the line work in Oslo and brought it back to London. I connected the sheets and had it enlarged by another 50 per cent. The mounted print seemed to have a slightly shiny surface and I abandoned my original intention to watercolour. Instead, by putting Chinese white into the watercolour it became, effectively, a gouache painting. This took much longer, but gave it a strong, more emblematic feel.



By contrast, the Swiss Cottage Tower drawing was made on four separate sheets, to be butted together. Very definitely intended to be watercoloured. It aimed to set up a contrast of various treatments of the tower surface, and I have often used such a tower project to demonstrate vocabulary rather than organisation.

This is an aim that contrasts totally with the three towers designed for Taichung in Taiwan. A series of competitions were held and Taiwan Tower No 1 was directed towards the need to develop alternative fuels and resources in a highly populated and fast-consuming country. The inspiration of growing and processing algae gave us a very definite motivation. So in this first tower, the CRAB team set up a rhetorical mixture of tubes and sacks with the circulation of raw liquid and its exposure that would refine and coalesce into useable biofuel.

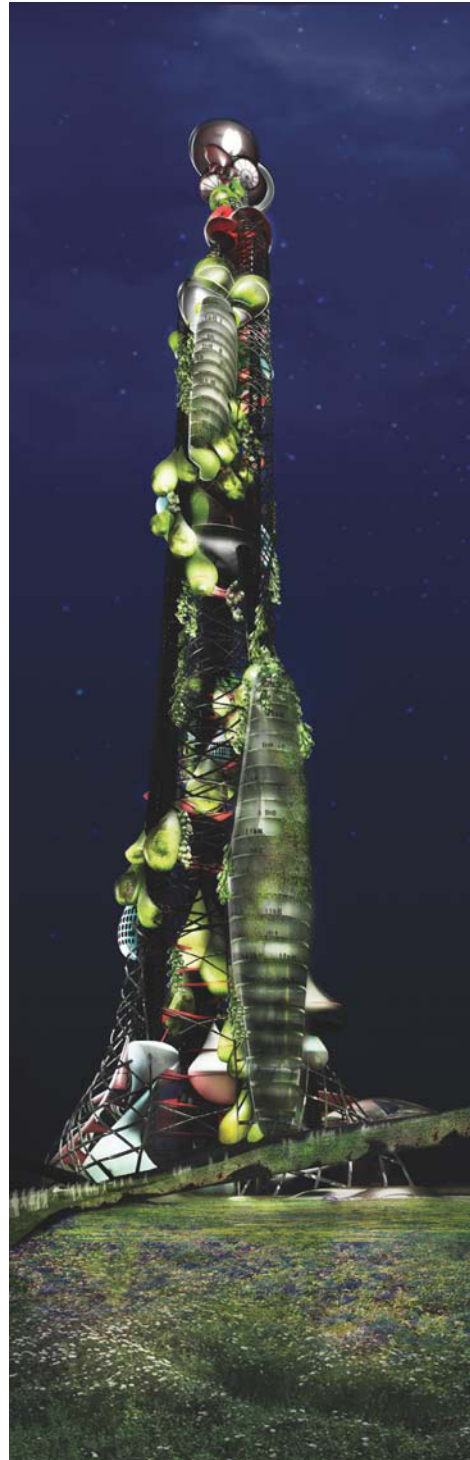
Taiwan Tower No 2 investigated some of the refinement process a little more thoroughly, and the new tower, in addition to acquiring a museum at its base, established a series of platforms that could carry the refinement apparatus. The relative success of this project allowed us to go further.

**CRAB studio, Taiwan Tower No 1,
Taichung, Taiwan, 2011**

below: Night-time view of a public observation tower that is interpreted by CRAB as a vehicle for the breeding of algae to create biofuels and demonstrate their efficacy for the battle for energy. The drooping 'sacks' contain the liquid.

**CRAB studio, Taiwan Tower No 2,
Taichung, Taiwan, 2011**

top: A development of Taiwan Tower 1 in which the algae-breeding components are more accurately developed and a large museum is added at the base of the tower.







**CRAB studio, Taiwan Tower No 3,
Taichung, Taiwan, 2012**

A shift of emphasis towards the incorporation of several energy-producing sources: wind power, solar collection, water husbandry as well as algae breeding. The tower also houses laboratories and public recreation facilities. It descends to become a loose network of park coverings.

CRAB studio, Soak City, East London, 2009

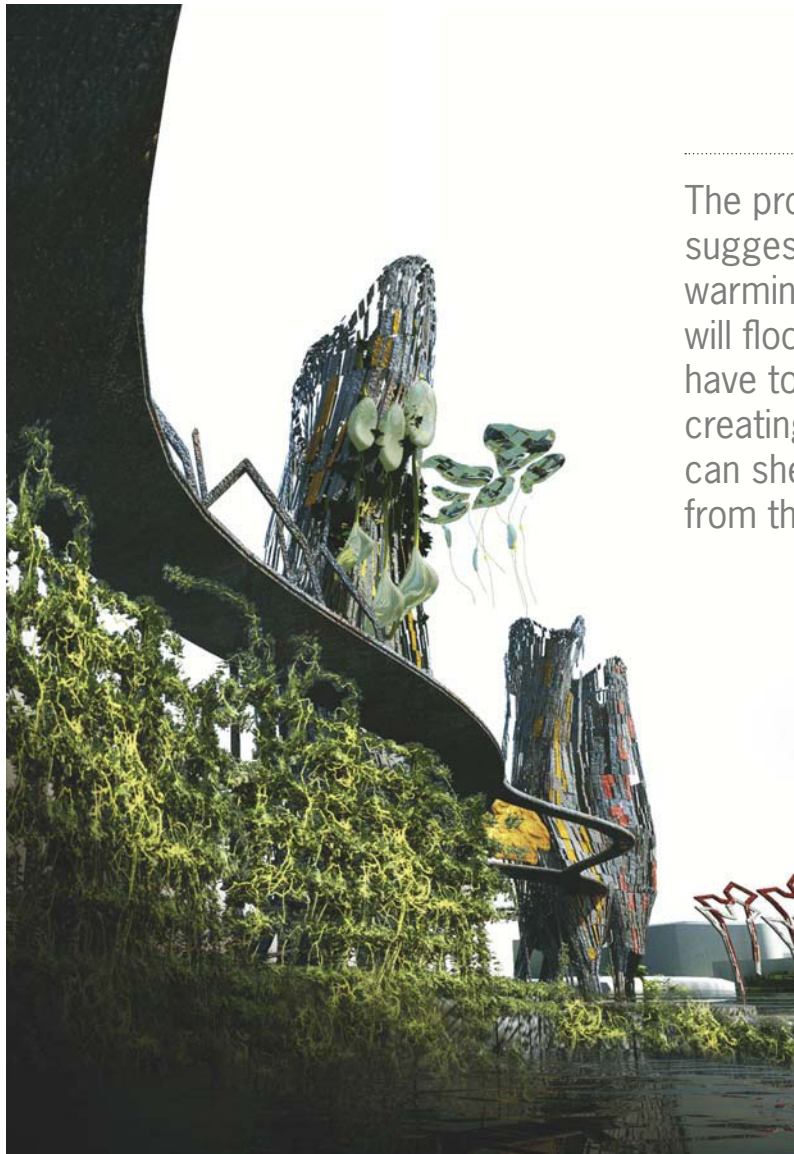
below and opposite bottom: If the combination of technical decline and global warming lead to a retreat from urban life as we know it, this collection of virtually do-it-yourself carcasses – made from any old ‘scrounged’ material – act as a simple, hairy megastructure. The starting point is a Peter Cook/Gavin Robotham project for East London shown at the Venice Biennale of 2004, now extended into the air.

CRAB studio, Soheil Abedian School of Architecture, Bond University, Queensland, Australia, 2011

opposite top: The Soheil Abedian School of Architecture building was won in competition by CRAB and is now nearing completion. This drawing shows the view of the ‘street’ that runs the length of the building. The three-dimensional structures on the left-hand side are the ‘scoops’: irregular cove-shaped forms that invite use for informal activities and at the same time act as primary structure and light catcher.

With Taiwan Tower No 3, we strategically opted for an energy-creating assembly that still included the refinement of water for the creation of biofuel, but also looked at wind energy collection and solar power, as well as water husbandry. The result was a system of conservation ‘panels’, or ‘drapes’, that incorporated much of this apparatus. In comparison with the two other towers, this attempt created a far more considered and refined assemblage of parts – draping itself out over the public park. Thus the series of three towers becomes a continuous process of aesthetic refinement and linguistic clarity as much as it is a series of essays in loading functions onto the ‘stalk’ or armature of the tower.

The project for Soak City takes an initially less optimistic scenario than the towers, and suggests that with global warming, the city of London will flood and that survivors will have to be very resourceful in creating structures where they can shelter and retreat upwards from the swirling waters. The depiction of the massive, but probably hand-built, carcasses with the equally hand-built dwellings clinging onto them for shelter and support is essentially a story of departure from the slick world of fine materials and high technology. Yet the project has another origin and reference: namely, the East London project that Gavin Robotham and I made for the Venice Biennale of 2004. In this, we suggested many versions of vegetated dwellings, studios in the garden, vertical hydroponic farming and structures that were, in effect, prototypes for the Soak City. The newer project was developed and interpreted by Lorene Faure, but with Gavin and I constantly editing and suggesting. This process of speculation-by-drawing is consistent with earlier work, but here carried out by a team rather than a single conceptualiser.



The project for Soak City [...] suggests that with global warming, the city of London will flood and that survivors will have to be very resourceful in creating structures where they can shelter and retreat upwards from the swirling waters.

The first interior perspective for the Bond University architecture school carries a powerful message. It suggests that the building can have serious atmosphere and 'presence' – designed though it may be from a background of many years' observation of architecture schools in general and school life in particular – with all its hilarity and anecdotal information. The drawn interpretation by Tim Culverhouse establishes the strength and presence of the street of 'scoops' and the light quality within it.

There are now many subsequent drawings of this building as well as the actual structure itself, now nearly completed. Yet this particular drawing remains for us as a constant reference of the clarity of intention, and a statement of mood. In this it has some of the qualities of, say, Peter Behrens's perspective of the interior of the Hoechst offices in Frankfurt, or of some of Hans Poelzig's theatre interiors (as drawn), or even the primacy of figure that was achieved by Hugh Ferriss in his drawings of potential New York skyscrapers.

In all of these drawings there are the constant questions of imagination versus hard information, the familiar versus the rhetorical, plus the underlying issue of clarity and accuracy. For it can be that to prosaically represent *only what can be there* is to miss the point. If we *observe* on the one hand and *create* on the other, there is surely the potential for alchemy. Or in other words, you don't have to push out only what you feed in, for a drawing can suggest so much more. ▢



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83-7 © Cook Robotham Architectural
Bureau Ltd

Mark Smout and Laura Allen of Smout Allen describe how for them drawing is instrumental, enabling them to pursue preliminary investigations that establish 'a speculative method with which to examine the dynamic force of environmental and architectural processes'. This is illustrated by their *Wet Lands: Architectural Waterscapes and Soft Infrastructures* research project for London's Thames Estuary.

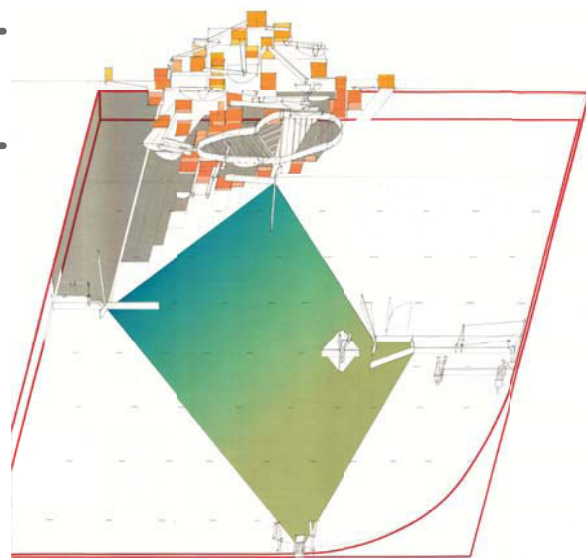
The *Wet Lands: Architectural Waterscapes and Soft Infrastructures* research project considers the design of a soft hydrological infrastructure fused with housing – an 'architectural oasis' – sited in the proposed extended metropolitan area of the Thames Gateway Regeneration Zone which runs along the Thames through the marshes to Rainham and beyond to Tilbury.

The proposal is designed via sketching with pencil and toned hand-drawn techniques. The degree of explicit and scaled information varies in detail and in 'polish' so that the drawings are removed from the level of resolution and realism associated with conventional architectural production and digital visualisations. Instead, these drawings are imagined as a kind of proving ground, one step removed from the sketchbook, but still incorporating numerous simultaneous iterations and unfinished lines. They are preliminary investigations that establish drawing design as a speculative method with which to examine the dynamic force of environmental and architectural processes.

The threat of rising sea levels and increased probability of flooding holds a potential threat to the proposed Thames Gateway developments which will extend east, downstream from the Thames Barrier, beyond Greater London to the extent of the Thames Estuary. This substantial housing and commercial development of at least 120,000 new homes will sprawl through East London's predominantly low-lying brownfield land and extensive Thames flood plain.

The recent concept and logistical model of 'peak water' underlines water's significance as a future capital resource. In the context of global population increases, the 'water grab' for energy and food production, alongside altered agricultural uses that rely on non-sustainable methods of irrigation, puts an inconceivable strain on the megacities and rural communities of the developing world. The increased entanglement of the natural and the technological will inevitably lead to an infrastructural landscape of mass production and distribution networks, resource territory conflicts, and further disparity between the haves and the have-nots. This is apparent even in the seemingly well-tempered environment of London where the city is preparing for a future of water scarcity and stress.

AUGMENTED LANDSCAPES AND DELICATE MACHINERY



London's Water Stress

London is a recognised area of serious water stress due to its limited water resources and its vulnerability to drought. Surprisingly, it is one of the driest capital cities in Europe, with available water resources per head of population similar to Israel. Generally speaking, the quantity of water in the Thames, its tributary the River Lea and the London Basin chalk aquifer is enough to meet London's current demands, but after sustained periods of low rainfall, water has to be drawn from reservoirs to meet the demands. The present balance of supply and demand in London is in deficit by approximately 180 million litres (39.6 million gallons) per day.

Water threatens the city in paradoxical ways. Much of London is built in the flood plain, including 49 railway stations, 75 underground stations and 10 hospitals. London's flood risk also comes from tidal, surface, sewer and groundwater as well as fluvial flooding from the Thames and its tributaries. Consequently, flooding is controlled by a complex system of flood defences, including locks, weirs, embankments, flood relief channels and the Thames Barrier.

Buffering Scarcity and Abundance

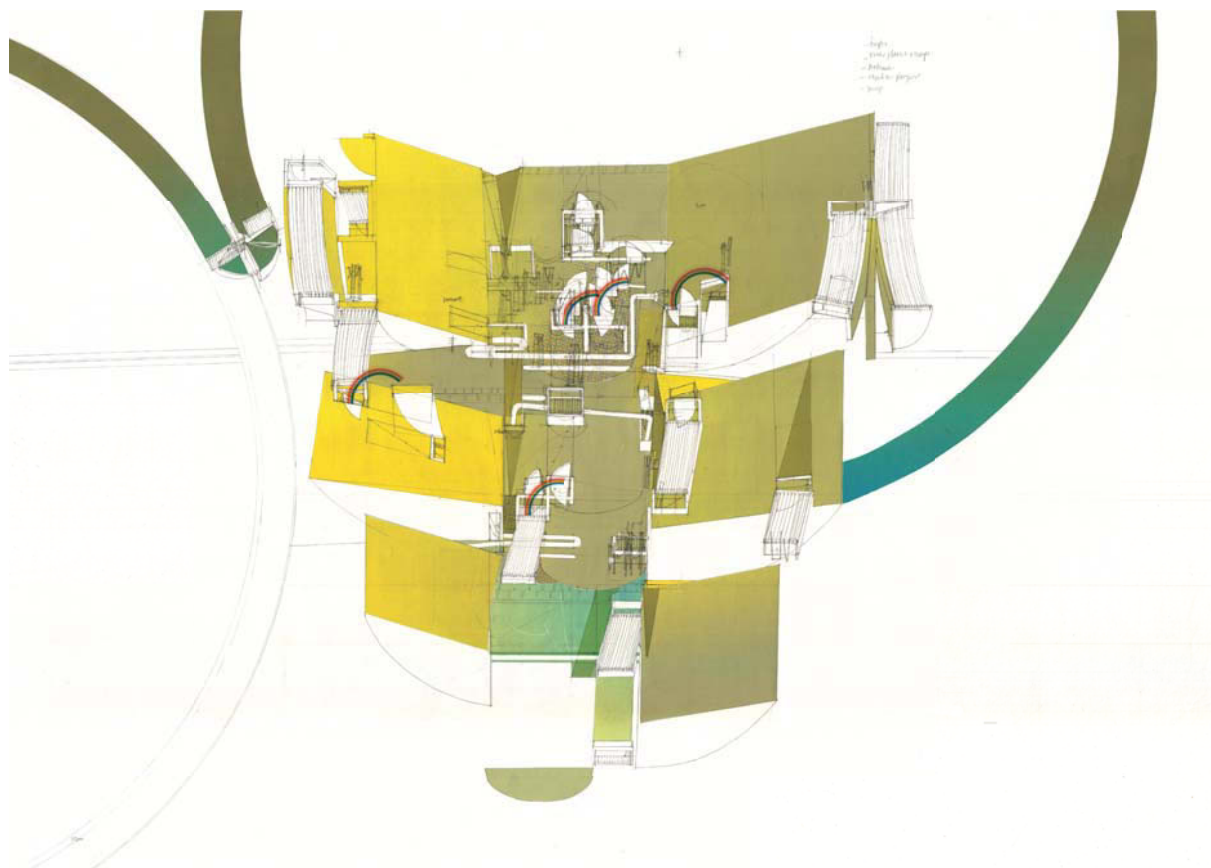
Wet Lands proposes an architectural, infrastructural and technological landscape that manages, distributes and displays water – river flood, sea surges, drought and rainfall. It deals with the commodity, excess and scarcity of water by concentrating and localising civil and domestic water infrastructures into the body of the surrounding landscape and into the architecture itself, as an alternative to the extensive and embedded water management systems on which global cities rely. A selection of flood-control technologies and riparian processes are integrated into the architectural infrastructure. This terrain forms an active and inhabitable architectural landscape that yields to the unpredictable variations in saturation and diverts water into a network of canals, subterranean cisterns, and header tanks.

Mark Smout and
Laura Allen

Smout Allen, *Wet Lands: Architectural Waterscapes and Soft Infrastructures for the Thames Gateway, 2011*

opposite: An 'architectural oasis'. The natural catchment of the flood plain is embedded with cisterns that permeate the building.

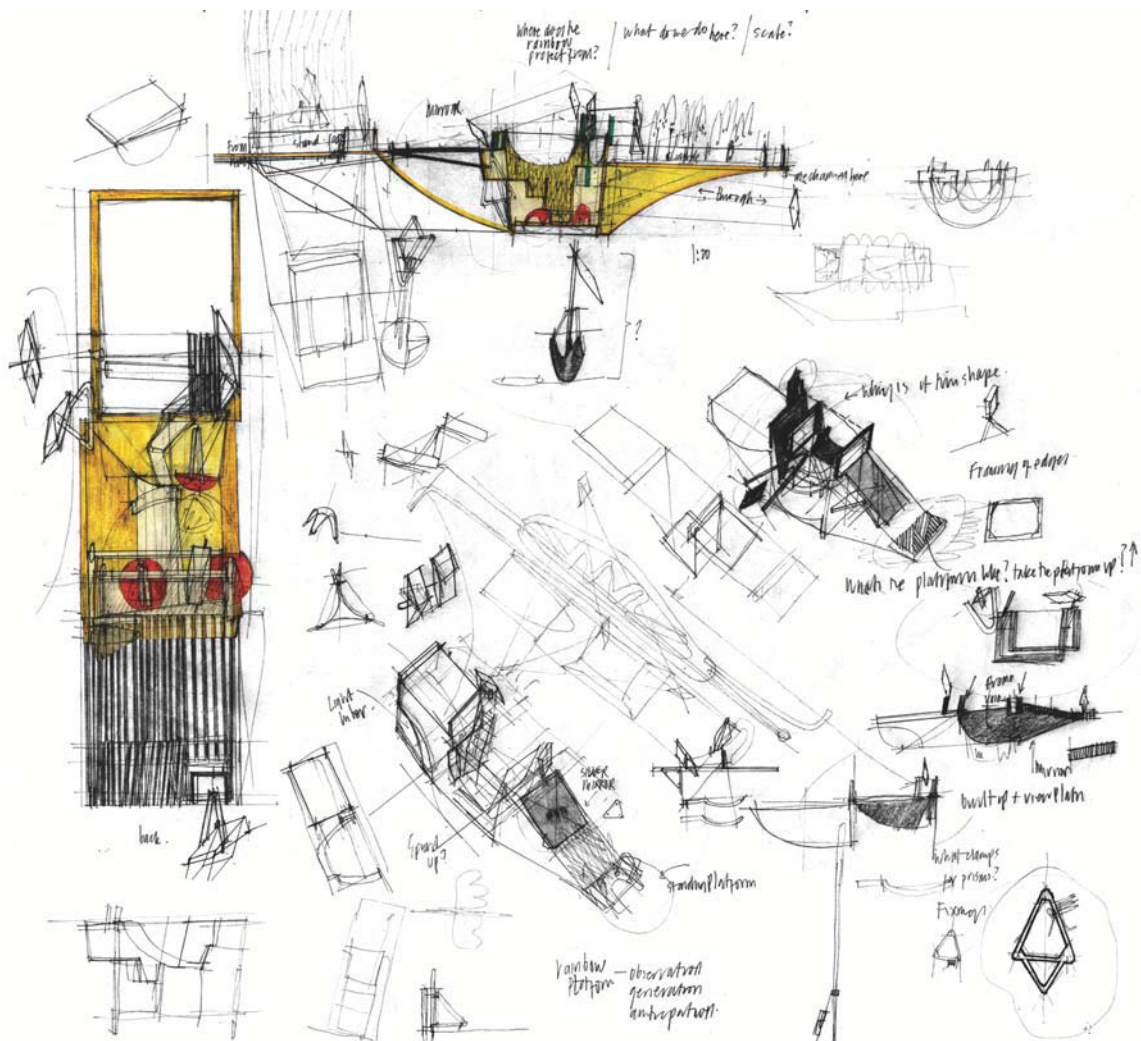
below: Porous architecture and soft infrastructures. Rainbows and mirages that bathe the architecture emerge from the activated and responsive skin of the building that soaks up and reactivates water.



The 'porous architecture and soft infrastructures' drawing here shows a large and spreading architectural landscape that contains dense housing that is sunk into the ground. It is encircled by a canal-like system of waterways and reservoirs to manage excess water and structure the natural catchment of the flood plain. This is coupled with architecture that is essentially porous and responsive to its fluvial surroundings. The housing acts as an absorbent and permeable terrain to cope with and buffer the contrasting threats of water scarcity and abundance. The landscape is an embedded system that demonstrates an alternative response to the engineering of water and the impermeability of architecture. At the same time the scheme celebrates water's physical and meteorological properties, and even its immaterial qualities.

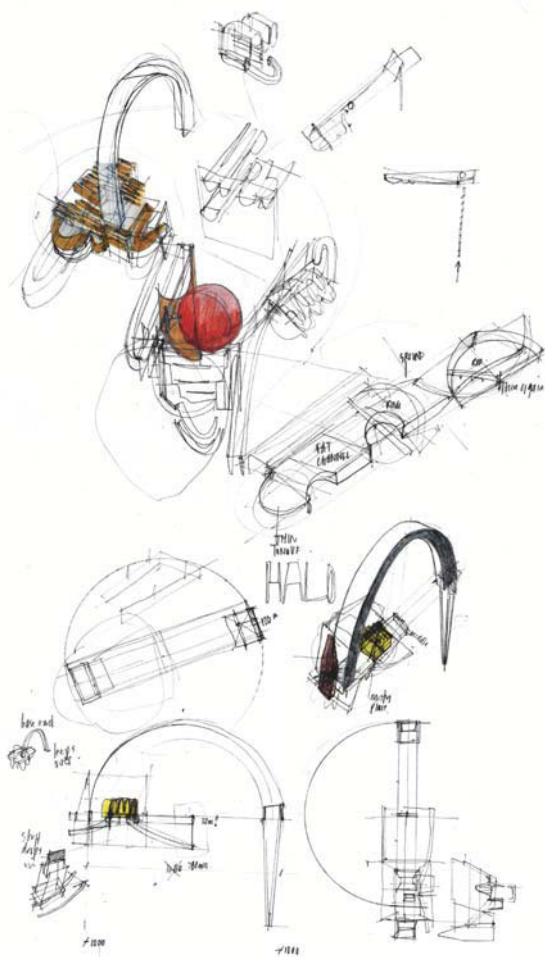
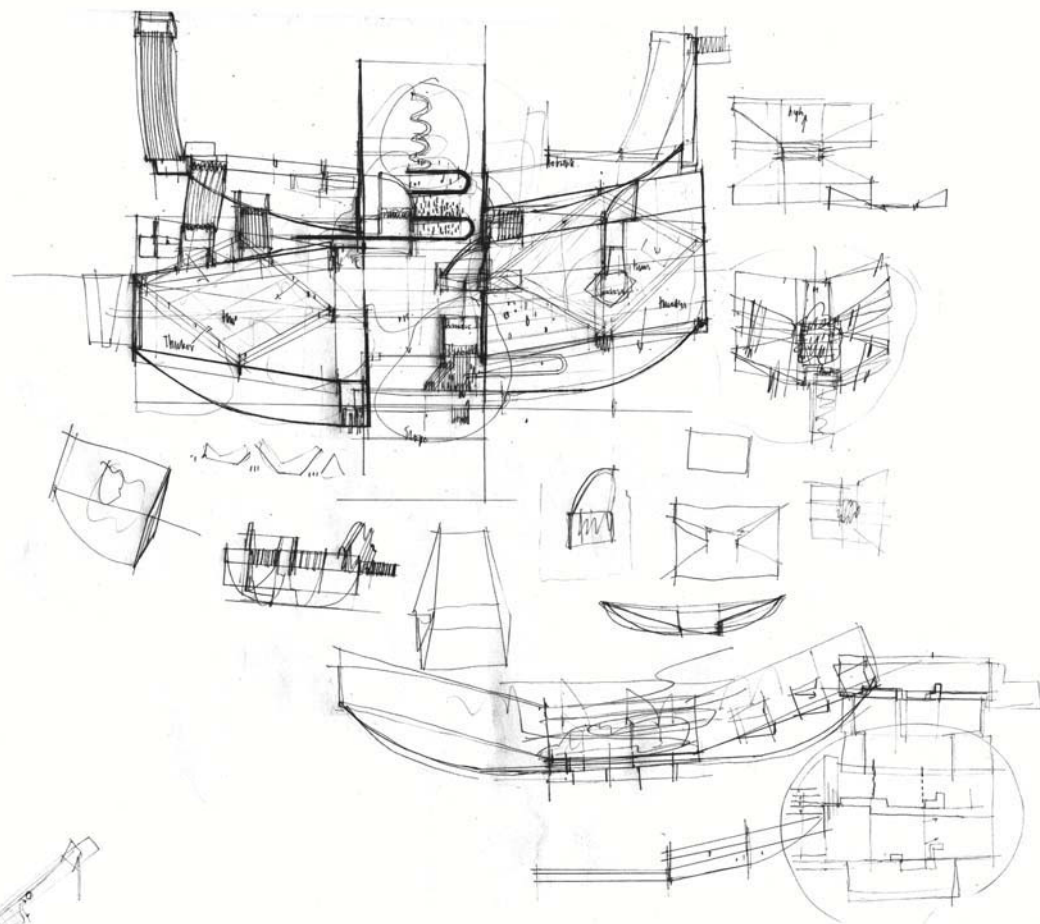
Water's ephemeral and mythical nature is revealed in the form of rainbows, glories and halos.

The architecture merges into an agricultural landscape in the form of a mechanised topography that envelops fields into systematic cultivation zones in which crops are protected from fluctuating sea and river levels as well as the vagaries of the weather. Here, the hydraulic power of water is deployed to lift up whole fields away from flood zones and unworkable landscapes, enabling the architecture to act as a register of its surroundings. Exhaust water is sprayed in drifts of mist, encouraging the manifestation of intangible optical phenomena.

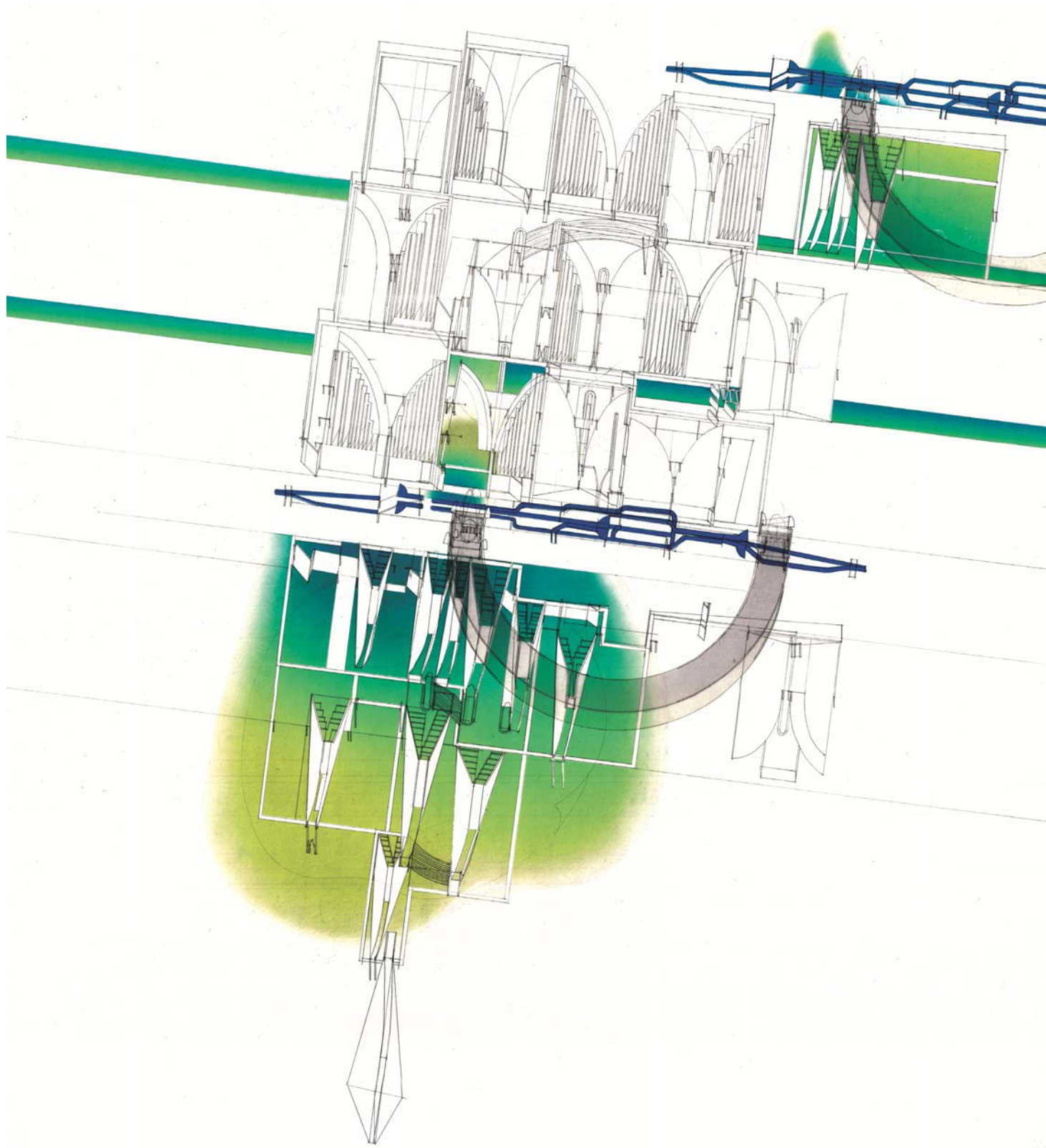


right: Early sketch study of landforms and watercourses.

below: Sketch arrangement showing studies for the manifestation of atmospheric effects, such as glories and halos, within the mechanised topography.



The housing acts as an absorbent and permeable terrain to cope with and buffer the contrasting threats of water scarcity and abundance.



Waterscapes and mechanised topographies.
Automated cultivation fields elevate and fold up
in response to the rising water level and protect
valuable agricultural land for inundation.

Drawings and Models

Drawing is a reflective activity that at once generates and informs speculative design. The drawings here have the dual function of examining as well as narrating the spectacular qualities of the site for which they act as a proxy. The design takes lyrical as well as pragmatic directions and begins to pursue ideas evoked solely by the drawing itself. Architecture is manifested in multiple states as ideas are overwritten by the palimpsestic nature of the design process. Although work at this stage is essentially more scenic than orthographic, the drawings contain information about scale and materiality and suggest ideas of topographical detail and structure. In this project the drawings are directly transformed into models and the spectacular nature of the site is fused into architectural space via technological devices.

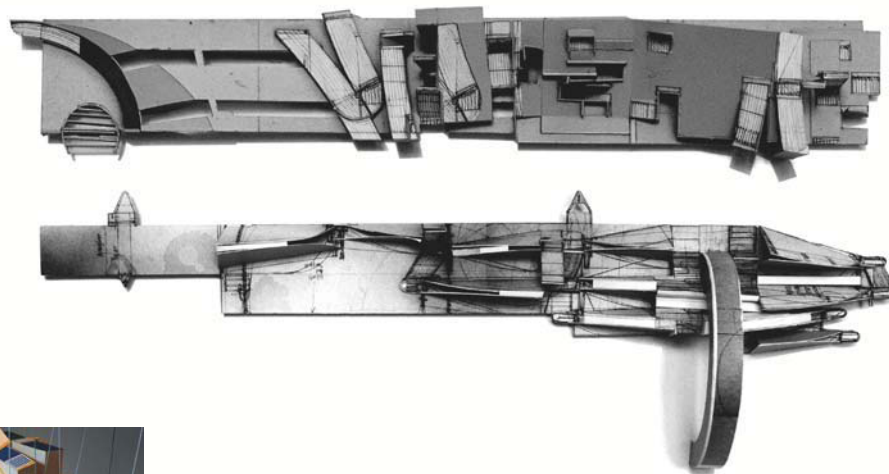
Three-dimensional form is created by elevating and layering duplicate copies of the drawings printed onto card, to create the space implicit in, or inspired by, the drawings. This process aims to stretch out and further define ideas already imagined for each of the proposed landscapes.

The models, notionally at the scale of 1:1,000, are maquettes for modelling at a much grander scale where, yet again, a process of iteration and redesign takes place. The scheme was reinterpreted for a large installation entitled *Surface Tension* for the 'Landscape Futures: Instruments, Devices and Architectural Inventions' exhibition at the Nevada Museum of Art, Reno, from 13 August 2011 to 19 February 2012. Here, the maquettes were translated once more into room-sized plywood models (at a scale of 1:100). The architectural landscape is integrated into a vertically organised kinetic assemblage that is suspended amid an array of mechanical components: cranked mechanisms, computational devices, gold space blankets and counterbalanced kinetic switches that occupy the main gallery space, rising 8 metres (26 feet) from the ground to the ceiling. The installation is designed to produce a visual representation of the surges and equilibriums of the hydrological cycle. It is envisaged as an animation and annotation of this complex system and our connectivity with it. ▴

top: Modelling the Wet Lands. The paper-and-card models are constructed directly from duplicate copies of drawings and sketches, reimagining them in three dimensions.

Smout Allen, *Surface Tension*, Nevada Museum of Art, Reno, Nevada, 2011–12

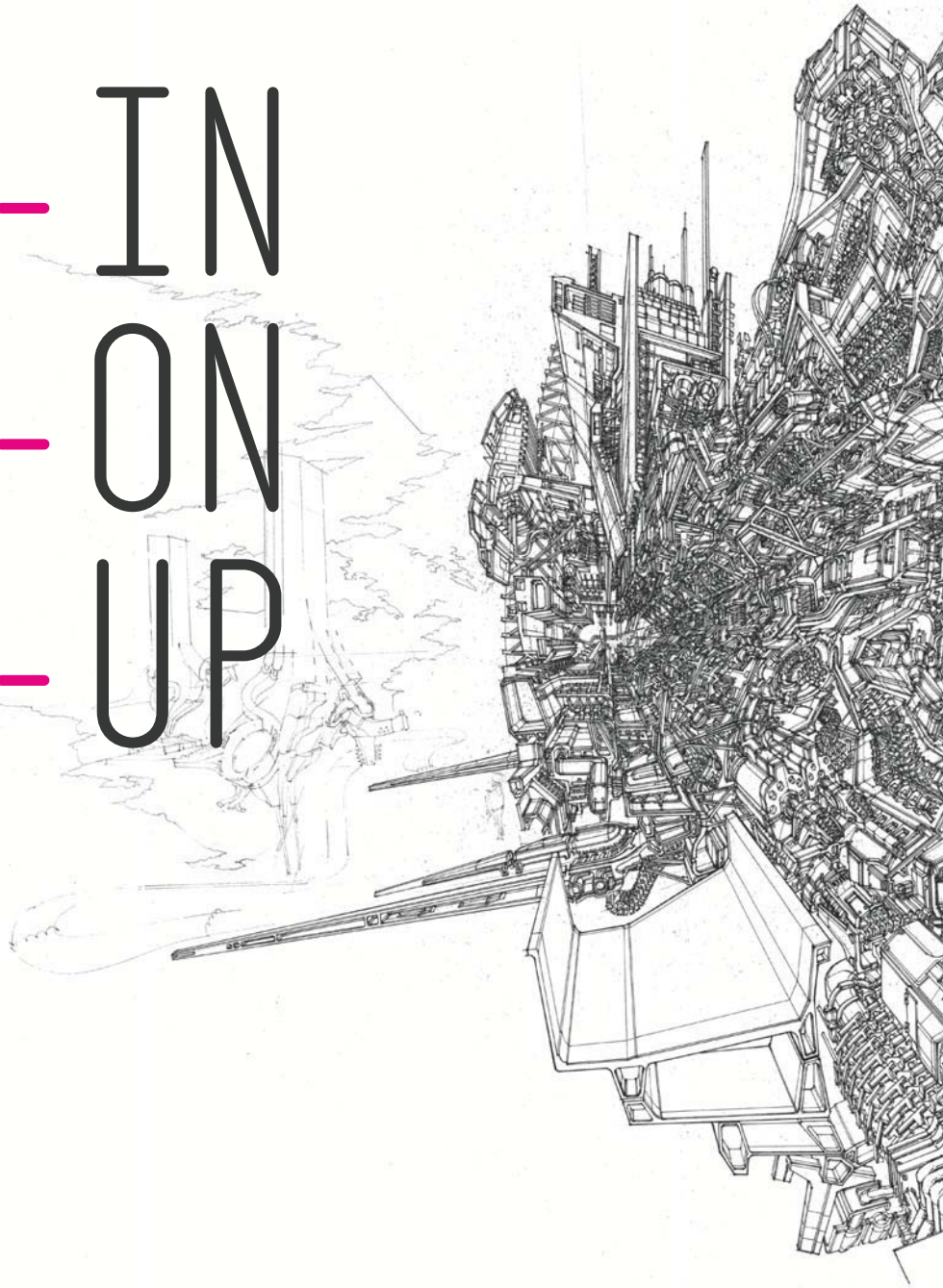
bottom: Large-scale models are suspended as an integral part of the *Surface Tension* installation at the Nevada Museum of Art. The installation formed the centrepiece of the 'Landscape Futures' exhibition curated by Geoff Manaugh, which ran from August 2011 to February 2012.



Meor Haris Kamarul Bahrin, Common-Waste
Market, Kensington, London, Unit 16, Bartlett
School of Architecture, University College
London (UCL), London, 2010

Cutaway section exposing the intricate inner
workings of the methane generator and market
waste processing plant for the Royal Borough, funded
by the Duchy of Cornwall, on the site of the former
Commonwealth Institute.

PLUG - IN
CLIP - ON
TUNE - UP





A THROWAWAY ARCHITECTURE WITH OPTIONAL EXTRAS

For **Simon Herron** drawing is an innate, even addictive, compulsion. Here he lets us into his own personal world of drawing: 'a private haptic language of invention', which simultaneously has the power to shock and resonate with its time. He traces his graphic lineage back to the work of his father, Ron Herron of Archigram, and projects it forwards through the output of his students.

Ron Herron/Archigram, Urban Action Tune Up, Instant City, Los Angeles, California, 1969
top: Plug-in, clip-on, tune-up – a throwaway architecture with optional extras.

Ron Herron/Archigram, Cities: Moving, East River, New York, 1964
bottom: A roving United Nations, free of geographical determinacy, a reaction in part to Peter Cook's Plug-In City. Why fix the city, when the city can come to you?

Thoughts of an Architect

1. The architectural tracings are apparitions, outlines, figments. They are not diagrams but Ghosts.

— John Hejduk, *Victims: Text 1*, 1986.¹

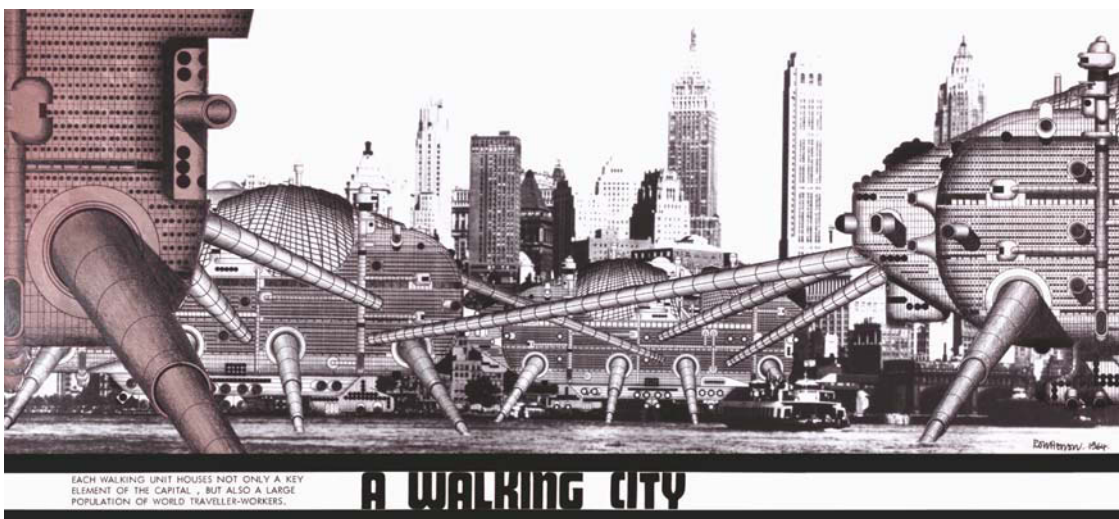
Drawing is breathing, second nature. In certain contexts, a combination of such an extreme and innate need to produce in conjunction with an absolute obsession about the nature and intensity of its production could be perceived as a disorder.

Drawing is a sophisticated skill traditionally acquired by all architects to communicate with client, engineer and builder. There is a long history to the making of these kinds of marks on paper for conveying this type of information. The drawings presented here have in mind a different reader, their origins traced from the works of Archigram. Less understood, they are essentially private. The first group of works originate from the 1960s and were produced by Archigram. The second group are by students from design studios at the University of Westminster and the Bartlett School of Architecture, University College London (UCL). Raw and incredibly personal, these works are not pictured or imagined illustrations of fully formed ideas or projects. Instead, they are the first speculative glimpses, a private haptic language of invention, fundamental data streams laying bare the prima material of their authors. Their intension is to uncover a language and practice that both shocks and resonates with their time. Like all generations, there is a need to reject the immediate past, and to look for less rehearsed, or forgotten, strands of thought.

The Archigram group's drawings broke from the tradition of architectural representation, borrowing as they did from the world of Pop Art, cartoon illustration, advertising imagery and science-fiction graphics. A critical point in the evolution of their imagery and thinking was the publication of the *Amazing Archigram 4, Zoom* issue of 1964, driven by the clear graphic prose style of Warren Chalk. Set within a found sci-fi comic structure, the new words 'The Medium is the Message'² were cut and inserted in a rough Typewriter typeface, constructing new thoughts and new meanings, all deliriously destabilised by both context and content. It questions who is following whom: science fiction or science fact? In the same year, my father produced *Cities: Moving, New York*, with the original Master Vehicle drawn for reproduction with a similar bold, crisp assured line and a distinct flattened-graphic pop character.

An evolved graphic style of collage and drawn line can be seen in two later works: *Urban Action Tune Up* and *Self Destruct Environ Pole*, both of 1969.

A plug-in, clip-on, tune-up – a throwaway architecture, all with optional extras! These projects epitomised a fascination with indeterminacy of place and indeterminacy of space, ideas of control and choice, short-life, expendable, highly adaptive mobile architectures.



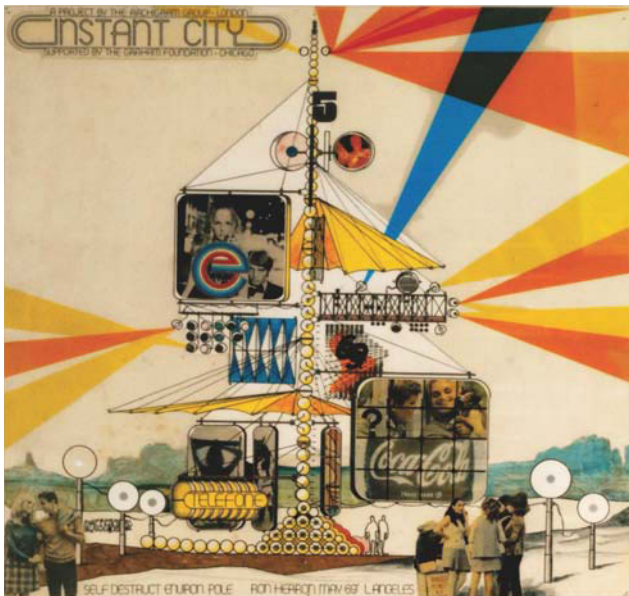
Ground Zero

At 5:29 am Mountain War Time, on 16 July 1945, 120 kilometres (75 miles) northwest of Alamogordo, New Mexico, in the remote proving grounds of the Jornada del Muerto Valley, shortly before sunrise, light-to-calm winds NW to NE, broken clouds, a break in a weather front, the first thermonuclear device was detonated – Trinity, an airburst at 30 metres (100 feet), casting a hemispherical bowl in the valley floor. An instantaneous pulse of such intensity, light and heat that the surrounding desert vaporised with the rapid updraft of super-heated gasses. Droplets of molten-liquid silica glass, an absinthe-like rain, poured a crystalline sugar-candy coating over the disfigured valley floor. Entombed Trinitite is just visible through a heavy shielded vision panel, while a super-fine residue of green dust is whipped up by unpredictable high desert winds. A ghostly aerosol, infiltrating clothes, settling on exposed skin and hair. Weeping from tear ducts, expelled through coughed-up phlegm, a desiccant with indistinguishable taste. Geologists can clearly identify trace material with a distinctive radioactive signature present in the sediment deposited worldwide in 1945, and linking directly back to those first atmospheric nuclear events in New Mexico.

The Anthropocene, an expression first posited by atmospheric chemist Professor Paul Crutzen in 2000,³ clearly and succinctly articulated the fundamental shift in planetary systems being expressed by so many. This shift of mankind from passive third-person observer of planetary systems and events, to that of central protagonist and principal driver of planetary change, underpins the argument that we have unwittingly precipitated and crossed an epoch boundary into a new geological period. While this has been an accumulative and gradual process, 1945 is identifiable as a point of rapid acceleration, with a clearly identifiable geological marker.

Against this backdrop of unprecedented uncertainty, four young authors – Nicholas Szczepaniak, Kevin Yu Bai, Mike Dean and Meor Haris Kamarul Bahrin – collectively peer through the hazy fog of the near future. All are graduates from two distinct design studios: Diploma Studio 14 (DS14) at the University of Westminster led by Susanne Isa; and Unit 16, formerly at the Bartlett, UCL, and now at the University of Greenwich, jointly run by Susanne and myself.

Raw and incredibly personal, these works are not pictured or imagined illustrations of fully formed ideas or projects.



Ron Herron/Archigram, Self Destruct Environ Pole, Instant City, Los Angeles, California, 1969

Short-term structures forming temporarily serviced environments for short-term changeable needs, leaving no trace.



Warren Chalk/Archigram, Cover of Amazing Archigram 4, Zoom issue, 1964

Handmade and assembled collectively by the group, including a central cutout pop city of alternative Montreal Towers.

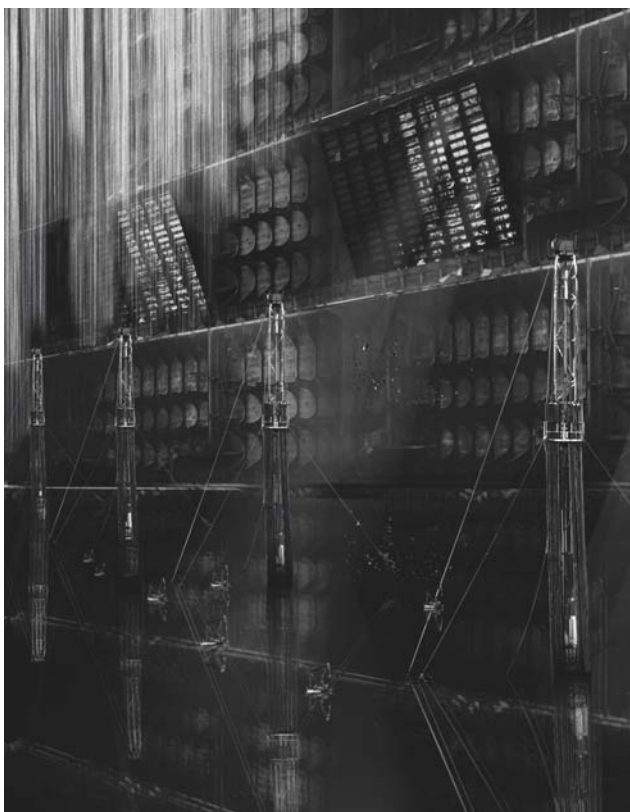
Collage Making

Set within the broader context of climate change, in his Defensive Architecture Nicholas Szczepaniak proposed an array of militarised coastal defence structures, housing ark-like repositories of knowledge, protecting books from cumulative and catastrophic deterioration. Sited in the salt marshes of the Blackwater Estuary, it is a last line of defence protecting London and the agricultural lowlands of Essex. Towers appear hyperactive. Over-stimulated thyroids, stimulating breathing, sweating, groaning, crying with emotive release. Airbags that brace the towers' facades expand and contract, while hundreds of tensile trunks sporadically activate, casting water on heated surfaces, involuntarily releasing steam.

In making these compositions, Szczepaniak made a conscious decision at the outset to reject readily available imagery generated through the curatorial gaze of others. Instead, and unusual for a collagist, all imagery was self-generated, and gathered over a period of 10 years. The raw material of the image library falls into two distinct categories: the first, neglected post-industrial landscapes and military installations; the second, a parallel interest with simple domestic objects – toothpicks, dental floss, egg cutters, lice, afro and fishtail combs.

Combined regardless of category or size, Szczepaniak's images were gathered with a particular focus on orthogonal and oblique views, which allowed greater scope for ambiguity when rereading, aiding multiple reassembly. Fragments were intricately cut, spliced and joined with surgical precision. Physically, the tactile touch offered by a Swann-Morton No 3 handle equipped with a crisp 10A surgical blade, which provides 'unparalleled flexibility, dexterity and depth of field to the skilled user',⁴ against the digitally enhanced mediated environment of Adobe Photoshop, where there is an equally dexterous interplay of code activated with keyhole precision, fly-by-wire, a real-time feel, slicing pixel structures, and simultaneously arranging and reworking components over an imaginary white-canvas ground.

Removing original context and function destabilises compositional components, which further de-saturated homogenise the compiled image, which gains further distance from the raw components of its production. Assembled, re-cut, realigned, rescaled – collages exist in balanced incompleteness, delicately poised, presented for the viewer to question, to imagine and to speculate over the completed scene.



Nicholas Szczepaniak, A Defensive Architecture, Black Water Estuary, Essex, Diploma Studio 14 (DS14), University of Westminster, London, 2009

left: Front elevation composite assembly: post-industrial abandoned steelworks combined with personal hygiene products such as toothpicks – all rescaled into new objects.

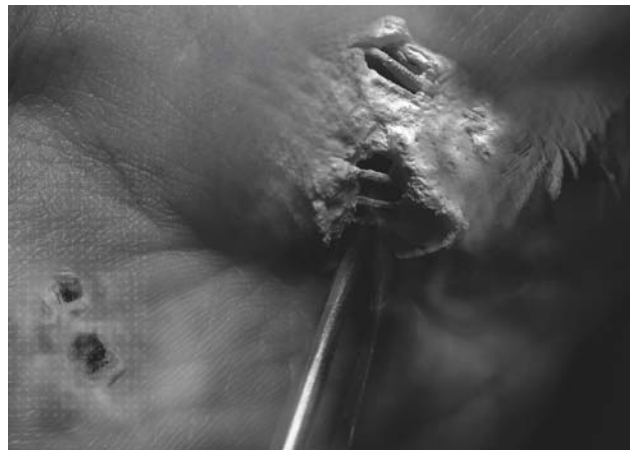
above: Within the immense protective structures looking across the Plaza Pool – a dark, calm, lagoon-like space –towards the Big Door.

By contrast, in Cathedral, Kevin Yu Bai consciously appropriates and works with the extensive pre-existing back catalogue of Norman Foster's office. The project is framed as a cabinet of curiosity, or a memory theatre. As a young assistant in the Foster + Partners office, Bai delivered projects without direct knowledge of their author, operating remotely – everything known about Foster himself was either delivered second hand along a well-structured chain of command, or from rumours or gossip. Gradually, losing a sense of self, he was consumed within the office production machine, a complex subcomponent, seamlessly integrated, hotwired into the primary cortex. A glimpsed reflection startles Bai; within the deep, radiant sheen of his computer display is an unsettling apparition – himself as Fosters' avatar staring back.

Bai explores the boundary of authorship, the nature of genius, the innate desire to create, positing the extended touch of the master through the haptic touch of others. Through the extended epidermal boundary of the avatar, Foster continually experiences, physically engages and communicates with the world around him.

In Cathedral, architectural secretions are seen escaping through ducts of the secretory glands, odourless, generated through uncontrollable sweating, seeping through the outer epithelial surface, an auto-generative response, cooling and regulating overheated desire. Inflamed swollen legions rupture, releasing juvenile assemblies containing the primary genetic code of the author. The act of invention occurs deep within the dermis, or true skin. A complex series of interwoven three-dimensional structures, criss-crossing elastic networks of collagen-like fibres. This reticular connective tissue provides a scaffolding and infrastructural support around which other architectures metabolise and develop. At its centre, an intricate set of codes, structures and protocols of precise governance are contained within the sacred cabinet of tolerance.

Bai explores the boundary of authorship, the nature of genius, the innate desire to create, positing the extended touch of the master through the haptic touch of others.



Kevin Yu Bai, The Hand of The Architect, The Cathedral, Mount Olympus, Unit 16, Bartlett School of Architecture, University College London (UCL), London, 2009

top: A legion ruptures in the palm of the architect, releasing juvenile assemblies that are extracted with clinical precision, breaking free from their sterile sack.

Kevin Yu Bai, The Cathedral, Mount Olympus, Unit 16, Bartlett School of Architecture, University College London (UCL), London, 2009

bottom: Aerial view of the great structure, assembled from highly crafted bespoke components, and governed by the sacred geometries and cabinet of tolerance. Formally reminiscent of the gathered wings of the Giant Phoenix, the complex geometry of the folded wings shrouds and protects the helipad, masking the entrance for the deity to the vast archive and catacombs beneath.

Line And Tone

The Watcher's House, located in a remote and precarious setting, was imagined by Mike Dean as an affected camera. The project negotiates the delicate relationship between the occupational behaviours of the watcher from within an animated architectural system, and the complex dynamism of an unburdened wilderness.

The architectural vessel observes, records and nurtures, then augments the host terrain in which it exists. Within these drawings, technology is only implied. Surfaces absorb or reflect light, registering incredibly small adjustments of aperture. Re-radiated light falls on the matt surface of the picture plane, gradually worked over and absorbed into the micro cosmos of intricate, fine crisp lines of lead, surrounded by their companion non-lines. Controlling particles of resistant material held in extraordinary states of tension. Matter appears temporarily arrested or delayed. The paper, a cathodic surface, swept with an adhesive wash of light. Working in the extreme depths of shadow, light is almost absent, and barely perceivable intricate trajectories remain just visible against the prevailing mass of darkness.

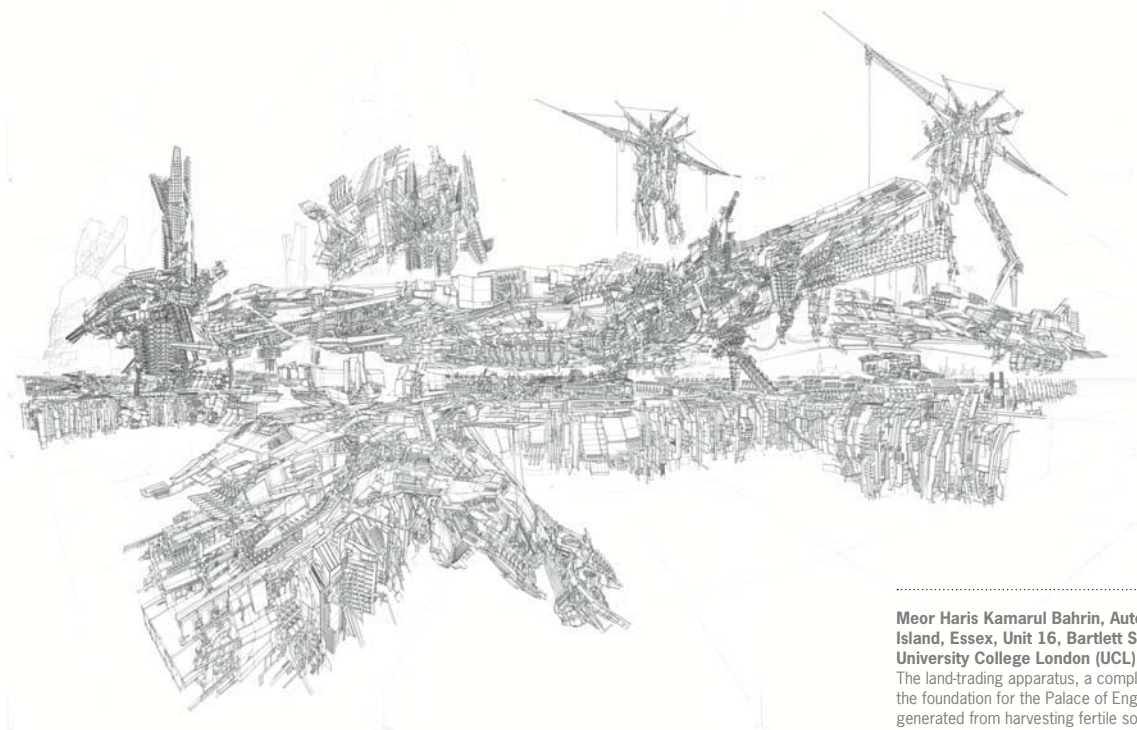
A minimal underlying skeletal structure is first established within which the architecture, through the use of line and tone, evolves. The majority of the drawings are 'unfinished' works on paper with traces of how they were constructed still evidenced: drawing while standing, face poised exceptionally close to the surface, working in a 360-degree space. The white lines, or non-lines, areas of blank unworked paper, negative space left void. The edge of the drawing plane merged with the background scene of domesticity leaving a forensic style trail throughout.

The first of the projects by Meor Haris Kamarul Bahrin is a Common-Waste Market and bio-digester on the site of the former Commonwealth Institute in Kensington, London. The second is a new city emerging out of the flooded remains of Canvey Island, Essex. Like Venice built on trade, the principal commodity is soil harvested from the tidal reaches of the Thames, generating unprecedented wealth.

Within the first single-panel drawing for the Common-Waste Market, early traces of complex components and interwoven spatial geometries can be seen emerging. Explored first on a micro scale, the faint pencil line establishes the underlying perspectival geometries. Later, detail is worked into the composition, defined by dark and sharper hard pencil, with completed elements added with a graduated ink line.

The machine aesthetic of the digester is the exposed gastro-digestive tract and externalised cardiovascular system, detailed with apparently randomly arranged industrial components, an accretion of subsystems breaking through the surface. Thumbnail-size subcomponents, recombined, then accumulate and adjust step by step within the perspective frame, generating deep accumulative arrays with exceptional depth and contrast.

The extraordinary immersive space of the Autonomous Island land-trading apparatus is presented over a series of nine separate A1 panels, each with its own perspectival tissue linking a complex interwoven matrix of perspectival synapses with local adjustments embedded to enliven the overall scene. Each panel was worked on individually, with the overall collective vista held in suspension within the author's mind. Contained within this drawing is a sense of the epic landscape it produced. The drawing demands work from the viewer, who cannot remain static, panning over its surface; the closer in you peer, the more you are consumed within this spatial cortex of unparalleled complexity.



Meor Haris Kamarul Bahrin, Autonomous Island, Canvey Island, Essex, Unit 16, Bartlett School of Architecture, University College London (UCL), London, 2011

The land-trading apparatus, a complex array of structures providing the foundation for the Palace of Engineers, built on the wealth generated from harvesting fertile soil from the flooded Thames Valley, a reworking of the Doge's Palace, Venice, pictured during construction.

Zoom

As Archigram rejected the stale, stagnated dogmas of the International Style of the late 1950s, Nicholas Szczepaniak, Kevin Yu Bai, Mike Dean and Meor Haris Kamarul Bahrin collectively reject the poverty of ideas prevalent in late 20th-century consumer-driven capitalism, and the nauseating, ambivalent disengagement of Generation X. Archigram looked outside of architecture in the search of new forms, new technologies and new attitudes. The students here share with Archigram a certain sense of romantic optimism straddled with a curiously paradoxical fear of looking through the rear-view mirror and discovering it is the same as it ever was. ▮

Notes

1. John Hejduk, *Victims: Text 1*, Architectural Association (London), 1986.
2. Marshall McLuhan's *Understanding Media: The Extensions of Man*, Routledge & Kegan Paul (London), 1964, was a central part of Archigram's everyday conversation.
3. See Professor Paul Crutzen and Eugene Stoermer, 'The Anthropocene', *International Geosphere-Biosphere (IGBP): A Study of Global Change of the International Council for Science (ICSU)*, Newsletter No 41, May 2000, p 17. The idea came to Crutzen during a conference when he was struck by the thought that the data being discussed no longer fitted the definition of the Holocene period.
4. Swann-Morton surgical blades product literature, introducing the product range from the Sheffield-based company. See www.swann-morton.com/surgical.php.
5. The first issue of *Archigram* magazine was just two hand-stapled sheets. Page 1: a composite cut-up typed prose and handwritten text by David Greene produced on an office duplicating machine. Page 2: black-and-white model photographs and drawings of recent projects by the likes of Greene, Peter Cook, Michael Webb et al.

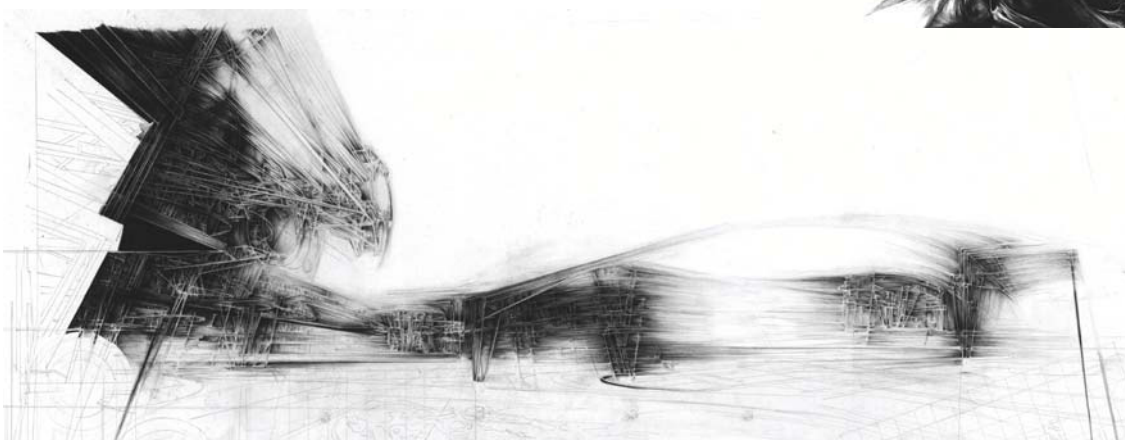
Mike Dean, The Watcher's House: a Seasonal Residence for the National Trust Warden, Blakeney Point, Norfolk, Unit 16, Bartlett School of Architecture, University College London (UCL), London, 2011

top: Main entrance plan. Exposed to the North Sea, Blakeney Point is unequivocally mobile – a fluid landscape characterised by shifting geographies and innumerable environmental fluctuations. This seasonal residence, an assembly of responsive architectural subsystems, exploits the unpredictable dynamic behaviours generated from the natural environment in which it is set.

bottom: Entrance sequence of the Watcher's House. In a state of dynamic flux, the myriad cyclical and linear component systems interwoven with a complex network of cognitive sub-tissues define the material, ecological, biological and phenomenological characteristics of the whole.

'A new generation of architecture must arise with forms and spaces which seems to reject the precepts of "Modern", yet in fact retains those precepts. We have chosen to bypass the decaying Bauhaus image which is an insult to functionalism.'

— David Green, *Archigram No 1*, May 1961⁵



LONDON SHORT STORIES DRAWING NARRATIVES

Professor at the Bartlett School of Architecture (UCL) and a successful practitioner, **CJ Lim** has won international awards for his exquisite drawings, including the esteemed Royal Academy of Arts Grand Architecture Prize. Here CJ extols the virtue of narrative and signified meaning in buildings and describes his project London Short Stories that employs 'real and imaginary sites as springboards for the imagination'. Often 'immoral, licentious, anarchical and unscientific', the short stories, which are three-dimensional creations constructed out of paper, are from 'an aesthetic point of view, glorious, ravishing and a pleasure to behold'.

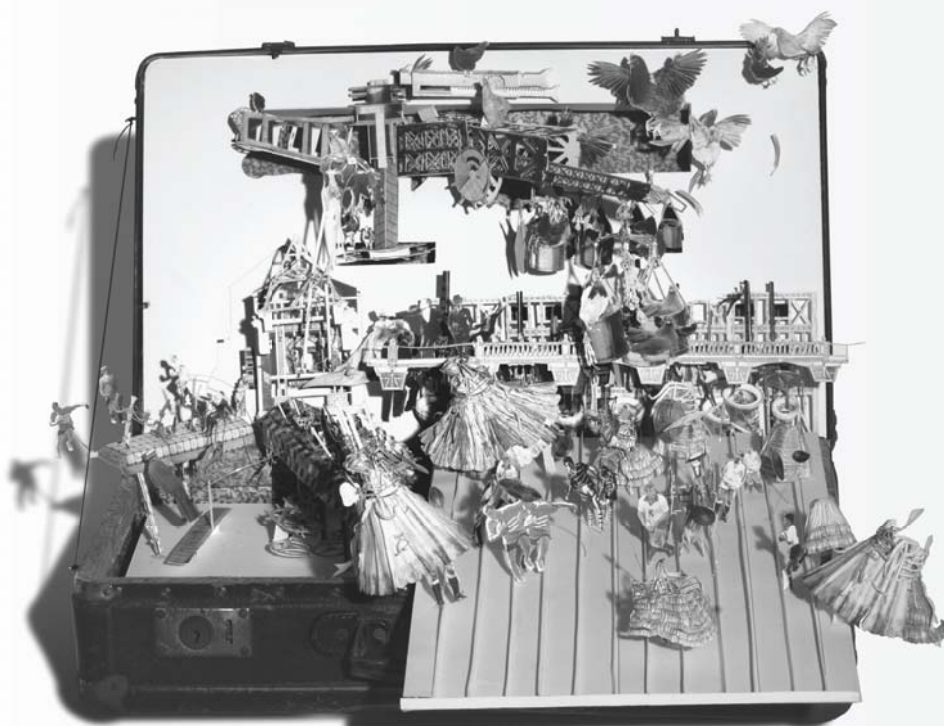
Whereas in this secular age construction and design tends to be driven globally by commerce, buildings were often previously designed as expressions of faith communicating through narrative. The proportions, alignment, size and decoration of the great Egyptian temples and tombs during the New Kingdom (c 1550–1070 BC), for instance, were determined by metaphor, not utility; while the Doge's Palace in Venice, with its Porta della Carta 'Document Gate' (1438), Scala dei Giganti 'Giants' Staircase (1550), Bridge of Sighs (1602) and winged lions, is as much an assemblage of anecdotal vignettes as a building. Circular and cruciform plan forms, once steeped in mystical and religious significance, are now merely unfashionable shapes. Today's built environment presents such a poor receptacle for storytelling that Arata Isozaki felt compelled to publish drawings of his Tsukuba Centre in Tokyo as ruins, immediately after its completion in 1983, in order to imbue it with a fictional life beyond the building's conventional existence.

In the last 20 years, literary theory and literature have had a significant influence on architectural education. From Roland Barthes's 'The Death of the Author' (1968)¹ to Italo Calvino's *Invisible Cities* (1972),² writers and their work have inspired a generation of architects and studio tutors to engage with real and imaginary sites as springboards for the imagination. London Short Stories takes this approach to its logical conclusion by attempting to create architecture through the building blocks of fiction.

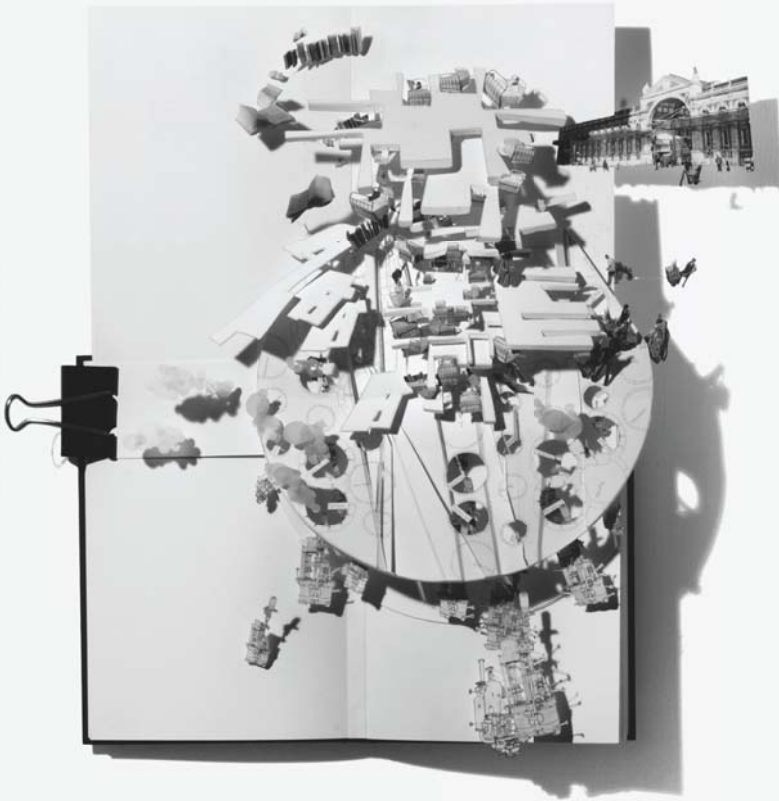
Culturally, we, as a generation, are losing the patience and facility to critically analyse a piece of work with any intended ambiguity or invested subtext. This drift is particularly pronounced in the field of architecture where perception of a building rarely extends beyond its superficial appearance. With the disappearance of signified meaning in contemporary buildings, and the obsolescence of an understanding of symbolism in buildings of antiquity, our ability to read architecture has completely atrophied, if we are in fact aware that architecture can be read at all. Despite the rich imaginative conjecture that thrives in schools of architecture, the intention to implant buildings with meaning is increasingly uncommon.

CJ Lim/Studio 8 Architects, *Madam Delia's Urban Roost*, London SW1, 2007
top: The institution designed to cosset the male ego is in fact responsible for its emasculation.

bottom: The habitable spaces within extend and unfold each morning to provide a stage set for grooming, relaxation and dining.



C.J Lim/Studio 8 Architects, The
Nocturnal Tower, London EC1, 2007
A retelling of the *Three Little Pigs* at
Smithfield, the structure is of straw, sticks
and bricks.



The projects that comprise London Short Stories explore whether narrative retains any relevance to modern architecture and, if so, how meaning and symbolism can be incorporated into the built environment. Concurrently, the work takes a critical look at alternative forms of architectural representation and what they signify. Beatriz Colomina, in *Privacy and Publicity: Modern Architecture as Mass Media* (1996),³ has argued that the site of architectural production has moved from the built environment to other media such as film, photography and journalism, and the new sense of space is defined by images rather than walls. Can we therefore infer that drawings, specifications, photographs, models and texts all are manifestations of a single platonic archetype, and that any one of these manifestations is as representative of the architecture as a physical building? If architectural elements and processes are indented into an unfamiliar medium, in this case story, can that medium be considered architecture?

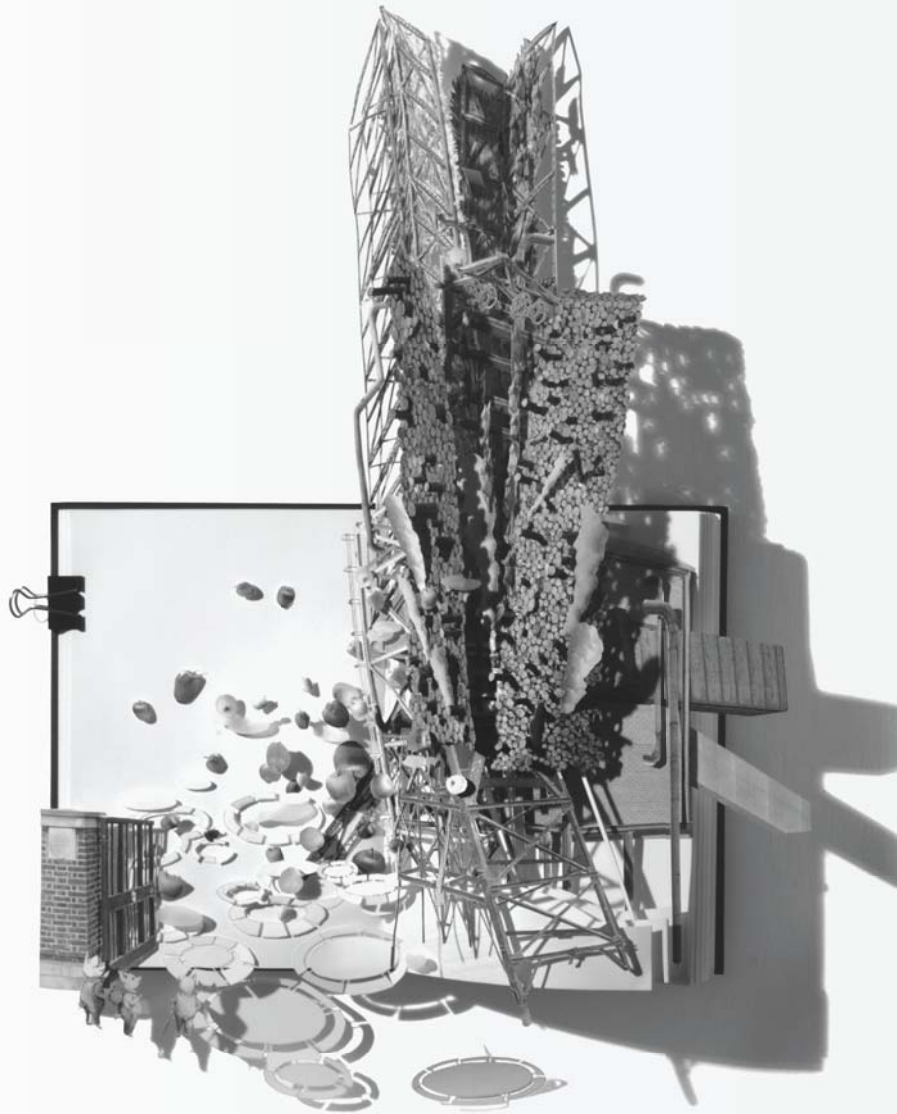
Current forms of architectural representation reveal a dichotomy of purpose. The primary form of architectural drawing, produced by the majority of professionals in practice, still follows the triadic system of plan, section and elevation. The codification of construction drawings is designed to prevent ambiguity or multiple interpretations by using a strict and abstract system of notation. In contrast, the works in London Short Stories attempt to reintroduce conjecture to architectural representation.

Unfortunately, the most common vehicle of conjecture in the profession is the computer render; produced for mass consumption, the photorealistic image is capable of reaching and convincing a wide audience of a proposition's validity. Its strength, however, is also its weakness – so plausible is the image at simulating reality that no 'reading' or interpretation of the architecture is required or demanded. The ultimate purpose of London Short Stories is to demonstrate that architectural representation need not be a neutral tool or mere picture of a future building, that drawings and models have a direct influence on the conceptual development of a project, and that there are alternatives to the reductive working methods of contemporary architectural practice.

The research of London Short Stories is design- and text based, using the medium of narrative as message. Original material informed by symbolic systems found in literature is employed in the design and articulation of the city, resulting in an unusual combination of theory and practice. Using the techniques of collage, London Short Stories investigates the reinvestment of narrative form in architecture, depicting a city that is peopled with both real and fictional elements from a variety of sources. In the acquisitive nature of collage, the thematic intent of the work appropriates ideas, tropes and characters from pre-existing critical thinking in the fields of architectural representation and narrative structure.

Text is an often-overlooked tool in the description of architectural propositions, and when used tends towards the explicative rather than the expressive. The written word is usually limited to specification and the justification of design decisions rather than contributing to creative or conceptual design. In this particular work, text is unconventionally used as a design tool.

Apple-scented air flows through the straw-bale walls, caressing pig carcasses and sleeping meat porters.



In his eponymous novella, Edwin A Abbott created the two-dimensional world of *Flatland* (1884),⁴ whose inhabitants consist of lines, points and polygons. Subtitled 'a romance of many dimensions', Abbott's story is both a mathematical treatise on dimensional perception and a satire examining Victorian sexuality and the class system. Taking a cue from this work, each of the stories in this research project begins life as a two-dimensional sheet of paper. The paper is then cut, inscribed, folded and fused into a narrative, occupying a territory that is both real and surreal; cardboard cut-outs are spliced and woven into yarns with shadowy nuance to partially occupy the third dimension. Using paper, carbon and glue as ingredients, the stories construct a sequence

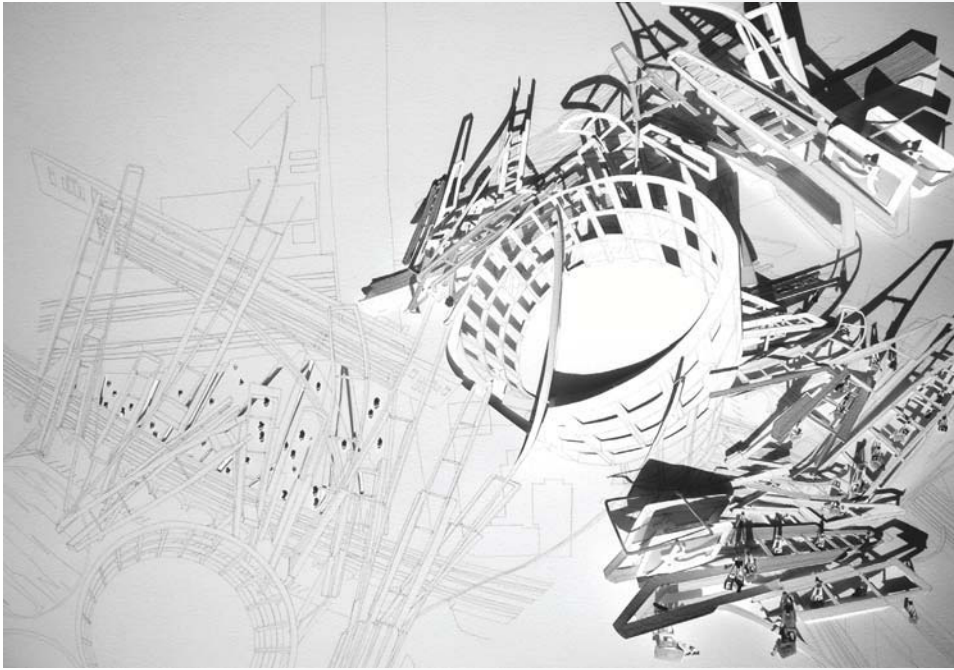
of improbable marriages between reality and fantasy, laced with a healthy dose of myth and locational specificity: a leather-bound suitcase masquerades as Madam Delia's living breathing house with cooing hens perched on window sills; a dating agency at Battersea brings prospective owners together with their ideal pet; three towers in Smithfield Market built from straw, sticks and bricks form a porcine dormitory for meat packers. Like the artwork described in Abbott's Victorian satire, the short stories are immoral, licentious, anarchical and unscientific, yet from an aesthetic point of view, glorious, ravishing and a pleasure to behold.

London Short Stories are set in different time periods, intentionally locating themselves in the liminal territory between fiction and

CJ Lim/Studio 8 Architects, Battersea
Dating Agency, London SW11, 2006
top: The dogs are positioned vertically one
above the other in an inhabitable billboard.

bottom: The dog-dating scheme brings
prospective owners together with their
ideal pet.





Transformation of an under-utilised structure from our cultural heritage into a piece of spatial theatre.

Collage has been chosen for this work to take advantage of the medium's inherent plurality – pieces of a collage or assemblage are only ever half-assumed into their new context, bringing with them a wealth of connoted meaning from their original time and place.

architecture to provoke an engagement between the reader and his or her two-dimensional counterparts occupying the depicted city. The written elements of each piece begin to cast a rigid carapace around the amorphous field of potential stories generated by the collages, but should be regarded as merely one reading of them. Text and collage or, more precisely, text and photographs of collage, are two aspects of a story existing in a troubled relationship, sometimes working in parallel with one another, sometimes reinforcing one another, and other times contradicting one another.

Collage has been chosen for this work to take advantage of the medium's inherent plurality – pieces of a collage or assemblage are only ever half-assumed into their new context, bringing with them a wealth of connoted meaning from their original time and place. We usually expect objects to exist in a singular location, but the elements in a collage or assemblage oscillate between existences like Schrödinger's cat, presenting a flexible vessel in which the reader is encouraged to deposit his or her

own historical and cultural montage. In an urban milieu where context and the genius loci of a place have become subsidiary to economic and political considerations, reducing architecture to predetermined programmes and their formal manifestation, the act of binding architecture into the story of its inhabitants can bring a new relevancy to the built environment, projecting, but not predicating, the rules of its occupation.

The key point established is the conjectural nature of architectural drawing – an alternative future patterning of space and its occupation is advanced that, due to the real potential for its reification and the contextual surroundings, cannot be considered wholly fictive. In the case of more fantastical propositions where there is no intention of realisation, divergence from the status quo is magnified with a concomitant inflation of the proposition's fictive quotient. On the one hand, this might lead us to question the legitimacy and place of 'paper architecture'; on the other, a case could be made that the breadth of the disjunction frees us to consider changes in spatial practice that could be truly transformative. ▢

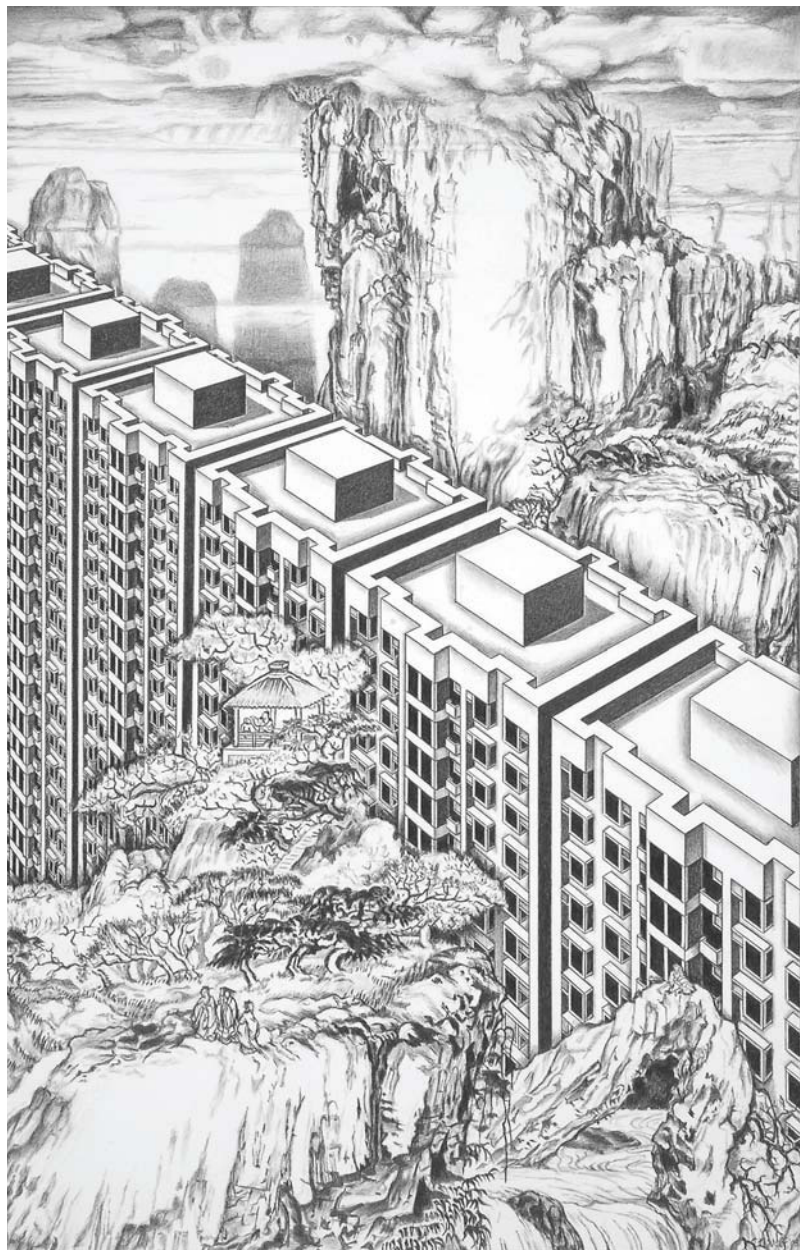
Notes

1. Roland Barthes, 'Death of the Author', *Image Music Text*, trans S Heath, Fontana Press (London), 1977.
2. Italo Calvino, *Invisible Cities*, trans W Weaver, Harcourt Brace & Company (New York), 1974.
3. Beatriz Colomina, *Privacy and Publicity: Modern Architecture as Mass Media*, MIT Press (Cambridge, MA), 1996.
4. Edwin A Abbott, *Flatland: A Romance of Many Dimensions*, Harcourt Dover Publications (New York), 1992.

DRAGONS THE NEW ADrift CHINESE LANDSCAPE

Nancy Wolf

The work of New York-based artist **Nancy Wolf** is preoccupied with the relationship between people and the contemporary city. Here she explains how a meeting with scholar and poet Lap Lam in Hong Kong provided much of the inspiration for her work in China, which she describes as ‘a commentary on the enormous changes in today’s Chinese landscape created by Modernist architecture and urban planning’.



Nancy Wolf, *Gazing from a Mountain Pavilion after Li Shida*, 2003
opposite: Modern housing estates divide and separate the traditional Chinese landscape.

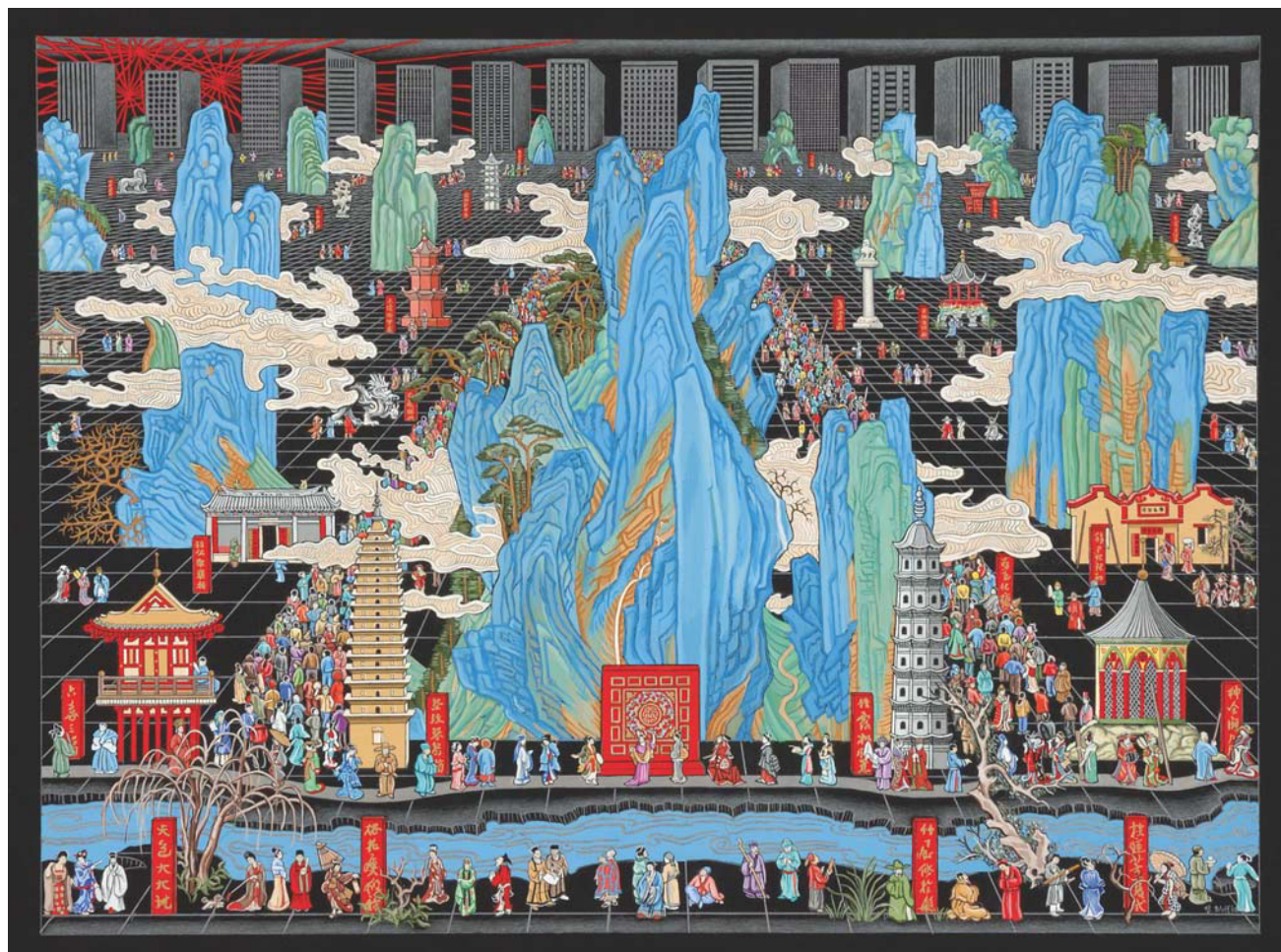
Nancy Wolf, *Board Game*, 2008
below: Based on a Japanese board game portraying Hiroshige's famous views of Edo, marked with red signposts giving directions.

Over the past 40 years my drawings, prints and paintings have commented on the relationship of people to architecture in our modern urban environment. I have reflected on how people often feel dehumanised when their intimate, small-scale architecture is displaced by today's concrete, steel and glass high-rises. I have also criticised the privileging of design for design's sake over concern for people's comfort, connection and community. I have spent considerable time in non-Western countries, including Nigeria, India and Nepal. My work based on these experiences illustrated how the introduction of Western building types and materials into historical cities often displaces and destroys traditional buildings and urban spaces, as well as traditional ways of living and thinking.

In 2004, I spent a semester as Artist in Residence in the Department of Architecture at the Chinese University of Hong Kong, under the auspices of the Asian Cultural Council. In travels to Beijing, Shanghai and newly industrialised Shenzhen, I realised that the rapid changes taking place in these cities were reminiscent of what I had experienced and expressed in my earlier work based on Western architecture and urban design. The tragic loss of China's historic architecture and rich cultural traditions was evident in their rush to modernise. While living in Hong Kong, I met scholar and poet Lap Lam, who shared my concerns about the loss of China's traditional culture. His traditional and modern poetry provided an important new level of insight and interpretation for the concerns expressed in my drawings. In his poem 'The Wall', which accompanies the first of my four drawings, *Gazing from a Mountain Pavilion after Li Shida*, Lam expresses his concerns through classical Chinese poetic form:

The Wall

At the East Pavilion he is bemused to see
Straight high towers barricading his eyes
From West Peak he wants to summon the crane of old.
Waters and clouds are apart; it doesn't arrive.





Nancy Wolf, *Worlds Within Worlds*, 2004

A Ming Dynasty dragon is revealed behind the Modernist high-rise facade.

Nancy Wolf, *Traffic Circle Mandala*, 2008

High-rises and traffic circle isolate remnants of the old city.

In *Worlds Within Worlds* I portray the Modernist outer skin of the high-rise peeling away to reveal a Ming Dynasty dragon. *Traffic Circle Mandala* is based on a Buddhist mandala, used to represent the partially demolished and fast-disappearing *hutongs* (traditional compounds) in Beijing. This is a bird's-eye view looking down on a traffic circle which surrounds the old city and further isolates it, and the people still living there, from the new city. In Chinese cities, construction-site billboards depict glowing images for planned developments. Behind the billboards, the remains of the past lie in ruins. In *Board Game*, billboards of magnificent Chinese mountains and architecture rest on a grid that disappears into distant modern high-rises.

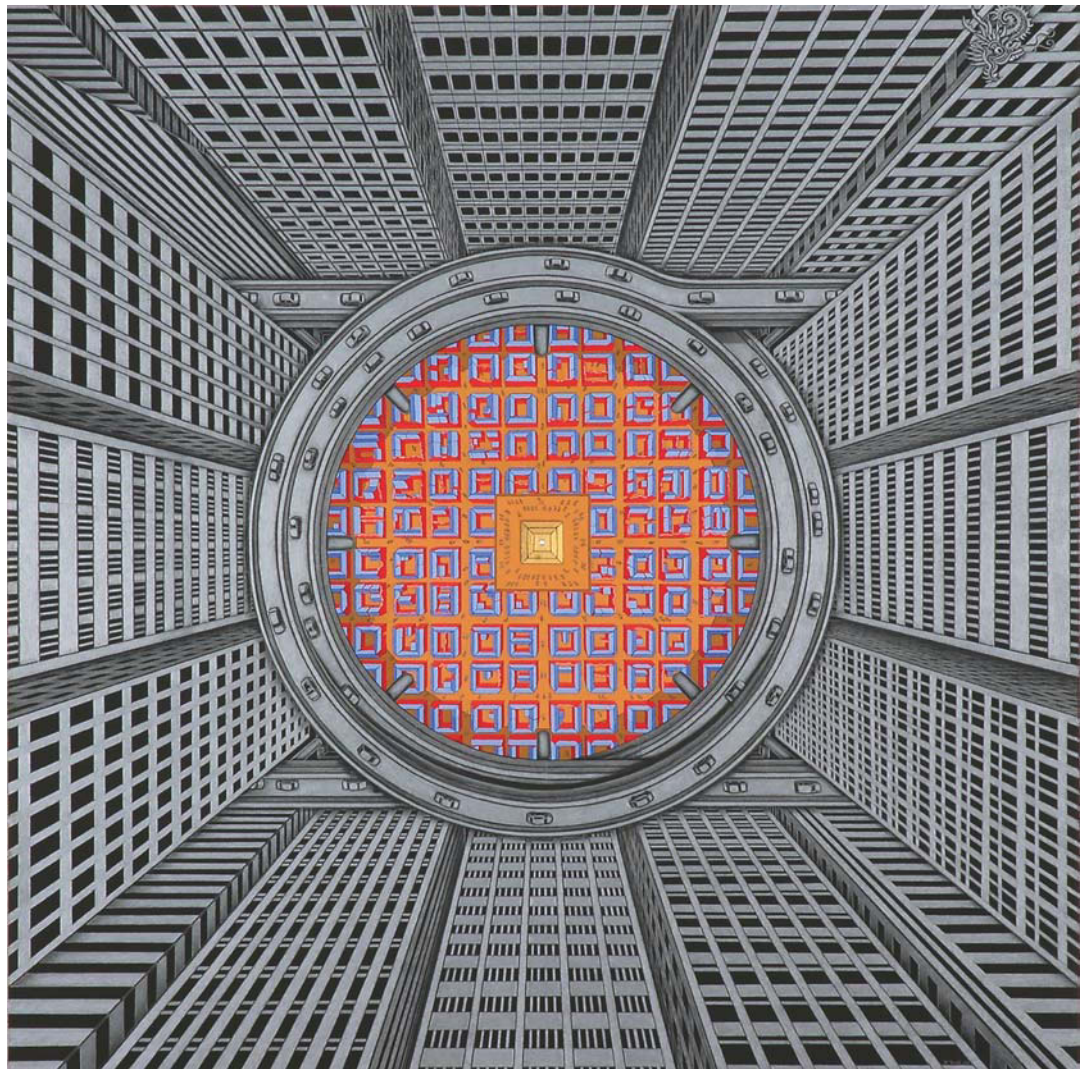
Unlike the other contributors to this volume, who present the potency of architecture through drawing, my work is a commentary on the enormous changes in today's Chinese landscape created by Modernist architecture and urban planning. These changes echo the impact of the social upheaval experienced by scholar-artists during the Yuan Dynasty (1279–1368), who took refuge in what they called 'the landscape of the mind'. Their poetry, calligraphy and painting reflected their emotional response to the reordering of the world around them in that tumultuous time. According to *New York Times* art critic Holland Cotter, after the Song capital fell to the Mongols in 1276, one of these artists, Qian Xian, 'never regained his moorings ... Mourning the old regime ... he burned his books, drank, and peddled his paintings on the street ... He seems not to have sought out a garden. Instead he painted one, flower by flower.'¹

Qian created a 'garden without walls, the retreat into art ... to a cherished world gone ... a breadth of sorrow no wall could contain or keep out'.² The sorrow of our own cherished world is the intrusion of dehumanising technology, casting our own dragons adrift. ▴

Note

1. Holland Cotter, 'Ancient Havens of Reflection and Renewal', *New York Times*, 17 August 2012, p C31.

2. Ibid.



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Neil Spiller

Neil Spiller, Site Plan,
Fordwich, Kent, England, 2008
The Island of Vessels, half there,
half not there.

THE POETICS OF THE ISLAND OF VESSELS

Since 2000, **Neil Spiller** has been engaged on a 'long project': a series of hundreds of drawings that through a potent mix of cyborgian fantasy and Surrealism, imbued with poetry and biotechnology, evoke a psycho-geographical island inhabited by an irascible alter ego, 'The Professor'. Spiller seeks out in this work 'an unusual and startling architecture' that reveals a 'loving, enigmatic and ragged beauty'.

Art multiplies the number of possible worlds; it designs microcosms that are often situated offshore, at the outer edge of possibility ... Prospero's magical domain or the laboratory where Moreau conducts his sacrilegious experiments, Crusoe's factory of virtuous work or Peter Pan's carefree kindergarten. There must, after all, be an island. If there were no other worlds, how could we bear to live in this one?
— Peter Conrad, *Islands: A Trip through Time and Space*, 2009¹

The Island of Vessels (Communicating Vessels) is a huge chunking engine, a communicating field, full of witchery and sexuality. Its neurotic things are 'pataphysically' enabled and surrealistically primed.² The island's geography is cyborgian and always teetering on the edge of chaos. Its groves and glades are haunted by ghosts, some impish like Alfred Jarry (poetic inventor of pataphysics), some nude on staircases, some with Dalinian moustaches, and some muttering about defecating toads.

On the island lives a Professor – a mad man, an idiot savant or a genius, perhaps all three. The Professor is attempting to work out the shock of the new, its architectures and its desiring poetics. The Professor likes his things, they tell him where he's been and where he is. He dwells in this world and builds in it every day without fail. He works at the intersection of art, architecture and science. He uses desire as a welding torch and the pen as a scalpel. Like Marcel Duchamp's 'handler of gravity' – a missing piece intended for inclusion in *The Bride Stripped Bare by Her Bachelors, Even/Large Glass* (1915–23) – he likes to surf on precarious and fleeting equilibriums. He is a spiral architect, swerving from idea to idea on a silver machine. He does nothing if not break the house rules.

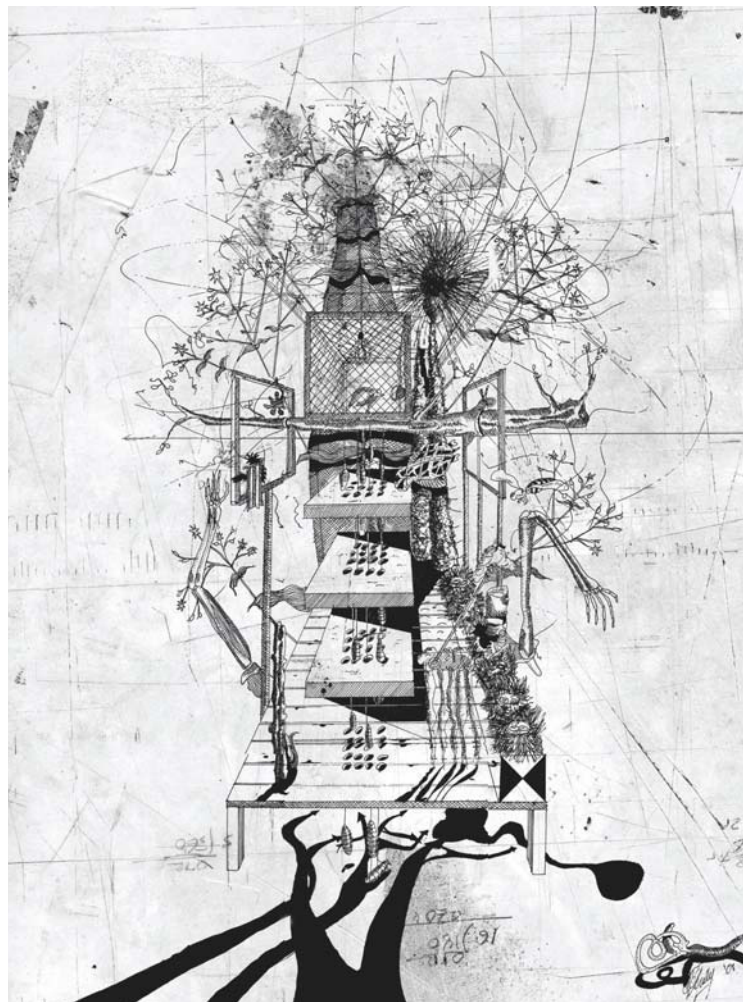
Catharsis and Epiphany

During 2000, my monograph *Maverick Deviations* was published.³ It was a 'greatest hits' album lovingly graphically designed by Vaughan Oliver and V23. It was a cathartic moment. I knew from then on I wanted to create a long project that took years to develop and pushed the envelope of what might constitute architecture and architectural drawing in the 21st century. Not for me, any more, blunting form and prose in the hope of getting a commission. It was time to admit, once and for all, what I am – an experimental architect adept at creating strange, meaningful worlds.

At first the ideas for this new, great project were ill defined. I knew, like much of my previous work, the project must explore the impact of advanced technology on architectural design. A universe of things and spaces that changed their sensitivity in sympathy with many disparate inputs, that danced to a song of love and talked to each other in simultaneously diverse languages, swiftly emerged. The project blossomed into a vast undertaking of hundreds of drawings and it resided, mostly, on a psycho-geographical island, half existing and half in my imagination. It was to be under the stewardship of the Professor – a heavy-metal shaman who is well versed in many things and has a wayward sense of humour. The Professor, of course, bears no resemblance to me.

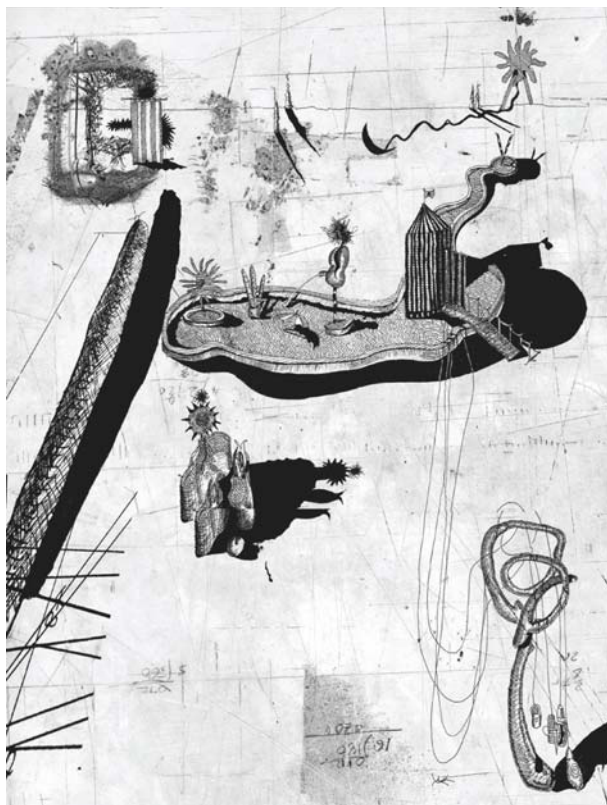
Neil Spiller, *Flames of Desire and Hot Eggs – Inside the Chicken Computer*, 2009
This is an analogue computer. Its computing is determined by chickens pecking, either themselves, passing things or each other.

It was time to admit, once and for all, what I am – an experimental architect adept at creating strange, meaningful worlds.



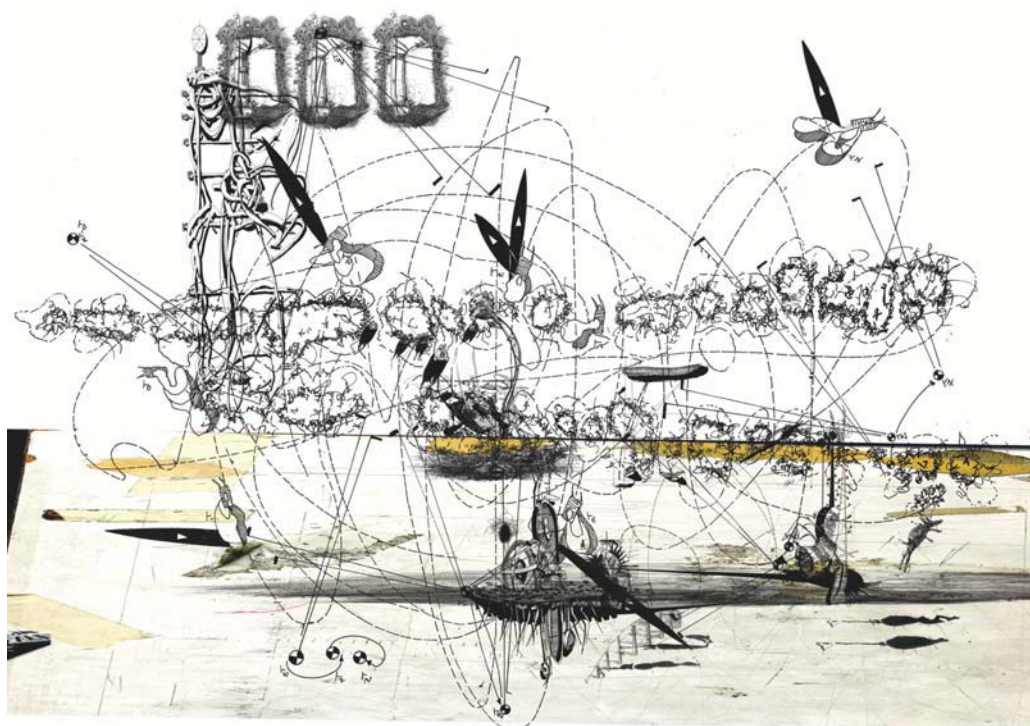
Neil Spiller, *The Glade of the Chicken Computer*, 2009

top: One of the input machines on the island – a 'chicken computer' contained in a small red-and-white pavilion.



Neil Spiller, *The Great Scheme of Things*, 2010

bottom: One of the interaction diagrams for much of the Island of Vessels scheme.



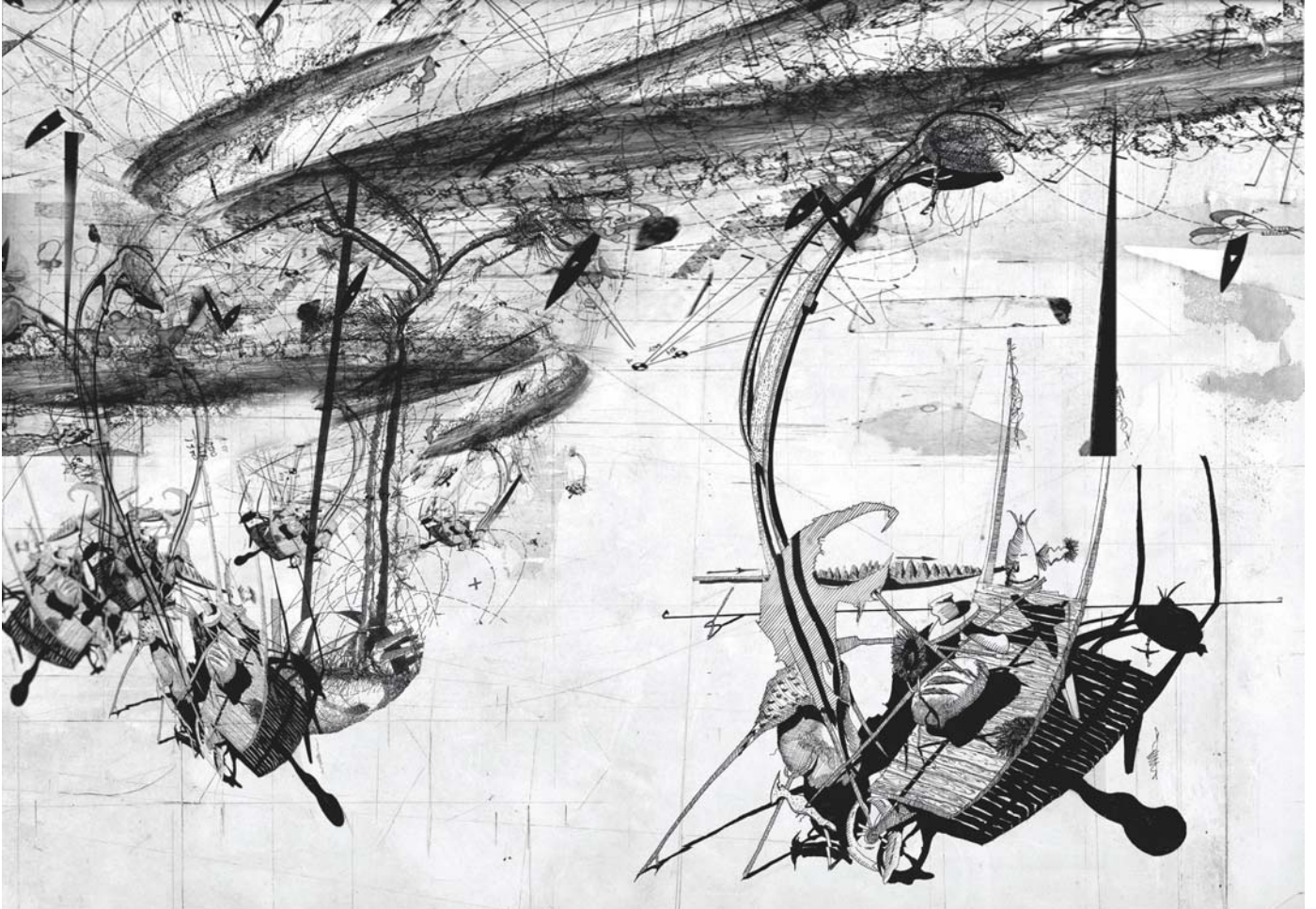
Cartographic Flux

I was brought up, I just realised, on 'Island Road', so perhaps I was always on this odyssey before I knew it. The island in question was the Isle of Thanet, but this is not the Professor's island that is elsewhere, just around the corner in fact. The Island of Vessels reaches out across often-dirty waters with ideological bridges that span generations and creative epistemologies. It allows us to see coincidences, obsessions and genealogies of thought and endeavour. It is a searchlight constantly on the lookout for members of its tribe. The tribe includes many Dada and Surrealist artists, rock stars, avant-garde poets and novelists, second-order cyberneticists and a few other architects. It rejoices in high-code/low-code semiotic and emotional tangents and creates quirk, strangeness and charm. The island is a bastion against the darkness closing in, and its geography is always in flux. Its cartography does not conform to orthogonal mapping; its full extent luxuriates in the oblique dimensions of cyberspace, biotechnology and poetry.

The island is a bastion against the darkness closing in, and its geography is always in flux.

Neil Spiller, Baroness's Filaments in Full Frenzy, 2009

The filaments keep the Baroness in touch with all around her.



Nothing works on the island without desire. The project is powered by the mysterious grease or holy gasoline (a type of biotechnical flammable juice) produced by the excitation of desiring glands artfully placed across the site.

Neil Spiller, *A Queen*, 2010
top: A key figure in the Professor's chess set.

Neil Spiller, *Baroness's Filaments. The Filaments caress the Wheelbarrow's Bulb under the disapproving composite eye of a wasp*, 2008

bottom: The Baroness is the matriarch of the island. A desiring sculpture, she senses all her flock with virtual tendrils called 'filaments'.



Islands have a long and rich history in science and literature. They have been seen as bounded domains where evolution takes a different course to the mainland (Darwin), or where love and death call. One should also name-check some, but by no means all, of the Professor's island's eminent predecessors – three will suffice here. In classical myth there is Cytherea, the island home of Aphrodite (Venus to the Romans) who floats ashore on a massive clamshell and whose birth, as a mature woman, was conceived as a conjunction of the ocean's fecund froth. In the *Exploits and Opinions of Doctor Faustroll, Pataphysician*, Alfred Jarry writes of Faustroll's nonsensical journey, by sieve skiff to curious islands that are composed of the symbols of some of Jarry's pantheon of influences.⁴ Finally, in Raymond Roussel's *Locus Solus*, a great inventor invites a group of visitors on a guided tour around his estate (which can be interpreted as an island). Bit by bit they are asked to consider a series of ever-weirder tableaux. Each tableau consists of a melancholic mise en scène, many of enlivened corpses (enlivened by the host's injected resurrectine – an imaginary embalming fluid) acting out the most memorable events of their lives.⁵ The Professor's island is not an attempt to tame nature to create a little Albion, as was Robinson Crusoe's, but to create an unusual and startling architecture and reveal its loving, enigmatic and ragged beauty.

A Poetic Operating System

Many things with complex spatial interactions dwell on the Professor's island. It is possible to interrogate these architectural conditions not by 20th-century rules of form, function, crime and/or a detailed gridded God, but by enigma, desire and its algorithms of becoming. Above all, the Island of Vessels project is set within the vicissitudes of visual poetry. Enigma blooms in the chasms between words, between hidden meanings and contradictory characters. As with life's long journey, enigmatic objects provide elbow room for interpretation, slippery flashes of connection, of association and of sudden synchronistic meaning. Each of the vessels is drenched in enigma and deeply imbued with the lexicon of Surrealism – the blinded eye, the uncanniness of the statue and the mannequin, plus a steely devotion to the forest of signs at the delta of Venus. Nothing is totally describable in words, and the project rallies against the totally quantifiable. Enigma hangs in the air.

Nothing works on the island without desire. The project is powered by the mysterious grease or holy gasoline (a type of biotechnical flammable juice) produced by the excitation of desiring glands artfully placed across the site. Things seek to be seen, to display themselves to their best advantage; they rub up against each other as they yearn to be noticed and to be part of the combinations defined by the Professor's aberrant scripting. The alchemy of the reconciliation of opposites and the pataphysics of clash, combination and juxtaposition in a frenzy of equivalence make the vessels conduct a strange tango. This is a horny little island, continually remixing itself.

The contemporary writer Jeff Noon describes how lessons from dub music inform his way of working:

[Dub] Music no longer has a final outcome; rather, it exists in a constant state of flux [Writers are still] using storytelling techniques invented in the nineteenth century ... We need to explore new ways of telling stories; new ways of allowing narrative to partake of the liquid experience.⁶

Noon has developed a series of 'filters' through which he strains his words; these narrative algorithms have enabled him to create a body of extraordinary work. Some of his methods are laid bare in his book *Cobralingus*, which was one of the many inspirations for my project.⁷

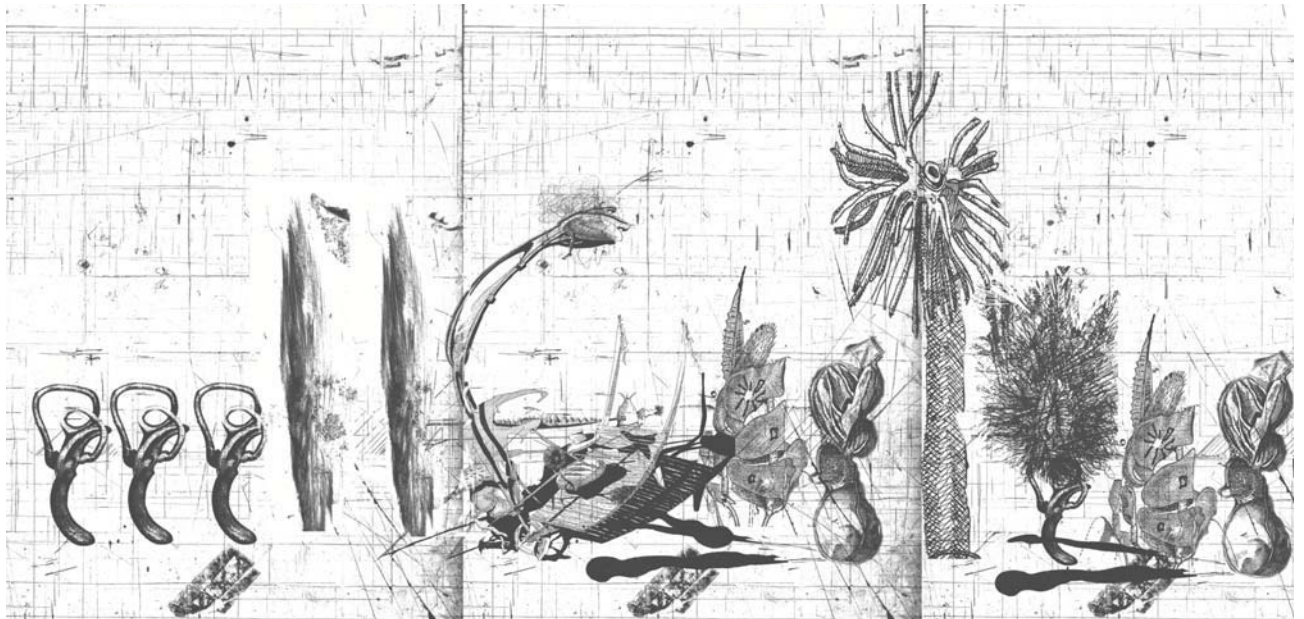
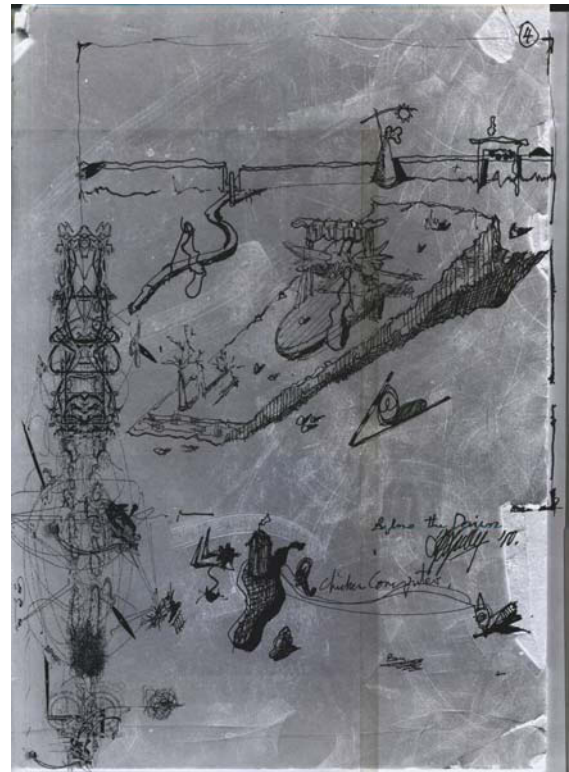
Turning back to the Island of Vessels, the same accusation is true for architecture, and the island is an attempt, also, to partake in the liquid experience of the new millennium. The project actively searches for new ways to create and manipulate space, and consequently new ways of drawing things and space. It rejects the 20th-century attempts to legislate space with guilt, health and safety, cheapness, lack of semiotic narrative, and delivers delight. It seeks to defy the logics that normally dictate form. It relishes in the poetry of reflexive spatial relationships and surreal algorithms. The Professor's algorithms include chess moves, the stripping of the bride, prehistoric DNA code, the peck, peck, peck or the bathing of birds among other happy constraints.

Neil Spiller, Holding Down the Hose – Before the Dawn, 2010

top: Sketch scheme for a roof garden on the Island of Vessels.

Neil Spiller, The Professor's Chess Set, 2010

bottom: Like all good Surrealists, the Professor made his own chess set.



Drawing Things

Why do I write of 'things' and not objects or machines? As Anthony Adam explains, 'things' are much more complex:

Things are not objects – not fixed in place, not docile for the purposes of study, the thing is the object in chaotic blur, or in pieces, with a certain agency of its own that encourages creativity ... We cannot study things directly, we can only catch glimpses, they remain partial, oblique, peripheral. Once we look we render them objects.⁸

The drawings featured here are chosen to illustrate the diversity of both compositional form and graphic technique – obviously this selection is not exhaustive in this respect. All drawings are partially hand drawn (ink on card, in the old-fashioned way) and then virtually mixed in post-production – where ghosts appear and found objects surface.

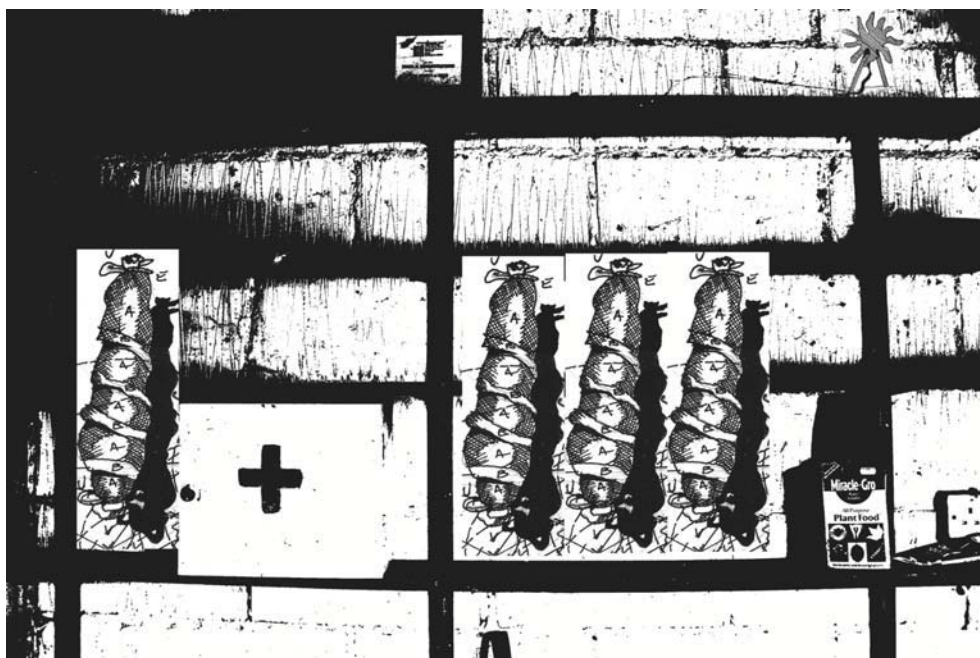
The Island of Vessels and the drawings that illustrate it grapple with this understanding of things. The objects, which are condensed out of this maelstrom of 'thingness' and mounted on boards, are snapshots of a much more beautiful, writhing reality. However, the drawings are a microcosm of the project. They, themselves, come together in the same way as the project. Their composition is always fluid, remixed and determined by enigma, desire and a healthy disregard of traditional architectural logics. They are constituted in deep oblique space that flits between the virtual and the actual, between materiality and the ethereal, and are beyond and between the old protocols of architectural drawing. The drawings are islands in themselves. They are bounded and have their own operating systems evolved away from the mainland. They are maps of terrain, caught for a moment and diverted from their immanent imperatives. ▴

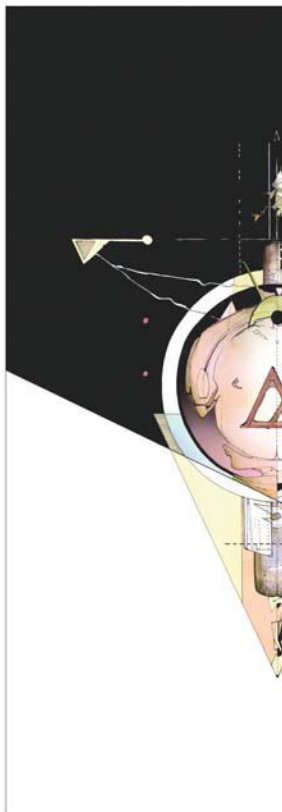
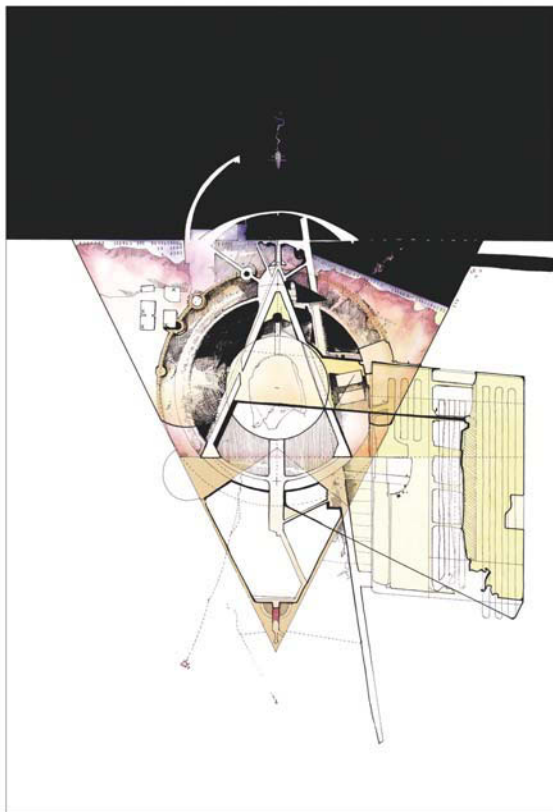
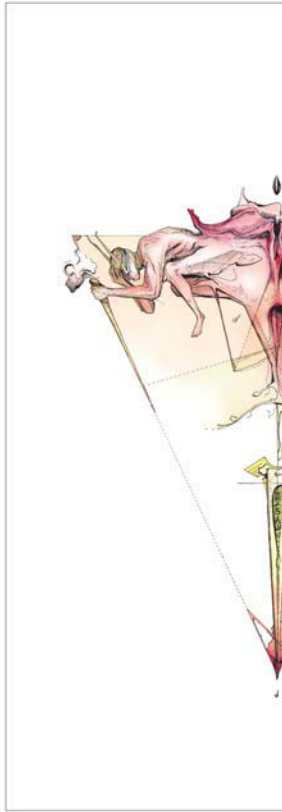
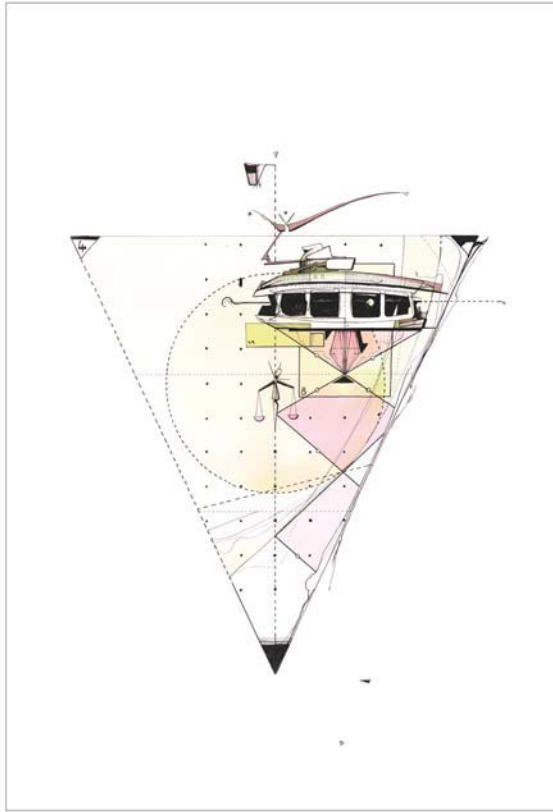
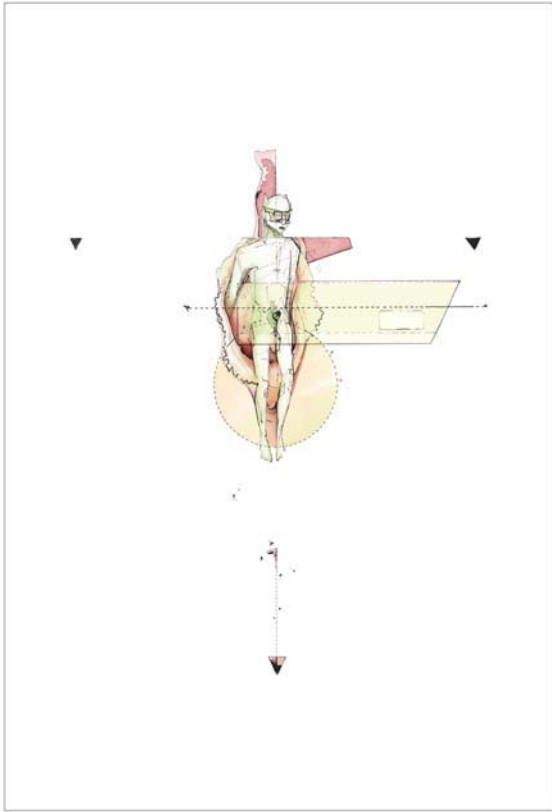
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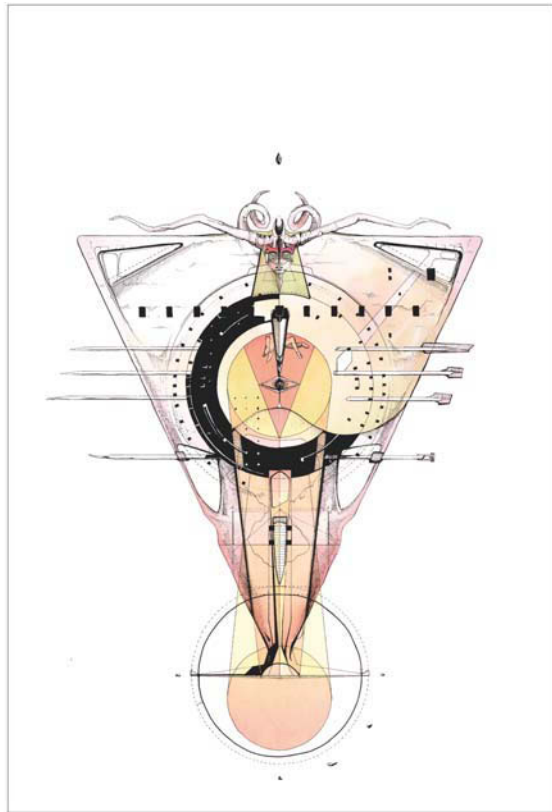
1. Peter Conrad, *Islands: A Trip through Time and Space*, Thames & Hudson (London), 2009, p 189.
2. 'Pataphysics is the science of imaginary solutions, Pataphysics is to metaphysics as metaphysics is to physics, Pataphysics is the science of the particular and the laws governing exceptions, Pataphysics describes a universe supplementary to this one.' Andrew Hugill, *Pataphysics: A Useless Guide*, MIT Press (London and Cambridge, MA), 2012, p 4.
3. Neil Spiller, *Maverick Deviations: Architectural Works (1985–1998)*, Monograph No 53, Wiley-Academy (London), 2000.
4. Alfred Jarry, *Three Early Novels: Days and Nights; Exploits and Opinions of Doctor Faustroll, Pataphysician; Absolute Love*, trans Alexis Lykiard and Simon Watson Taylor, Atlas Press (London) 2007 [1897].
5. Raymond Roussel, *Locus Solus*, trans Rupert Copeland Cunningham, John Calder (London), 1983 [1914].
6. Jeff Noon, *Cobralingus* extra content, see www.metamorphiction.com.
7. Jeff Noon, *Cobralingus*, Codex Editions (Brighton), 2001.
8. Anthony Adam, 'Butter-Spades, Footnotes and Omnium: The Third Policeman as Pataphysical Fiction', in Neil Murphy and Keith Hopper (eds), *The Review of Contemporary Fiction, Flann O'Brien: Centenary Essays*, Vol XXXI, No 3, Autumn 2011, p 113.

Neil Spiller, *Four Little Girls Are We – Inside the Professor's Shed, 2011*

All gardens have a shed, and in it are stored spares, tools and fertilisers.



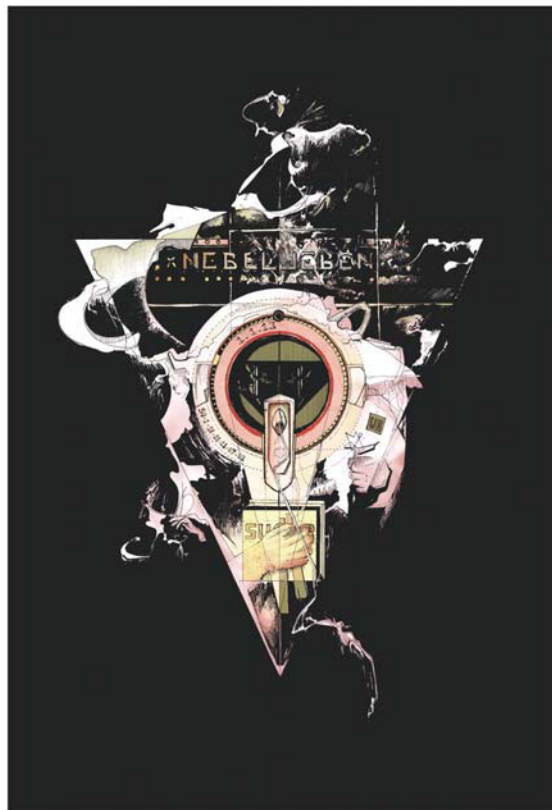




Dan Slavinsky

BILDUNGSROMAN SERIES

ARCHITECTURAL DARING FOR THE 21ST CENTURY

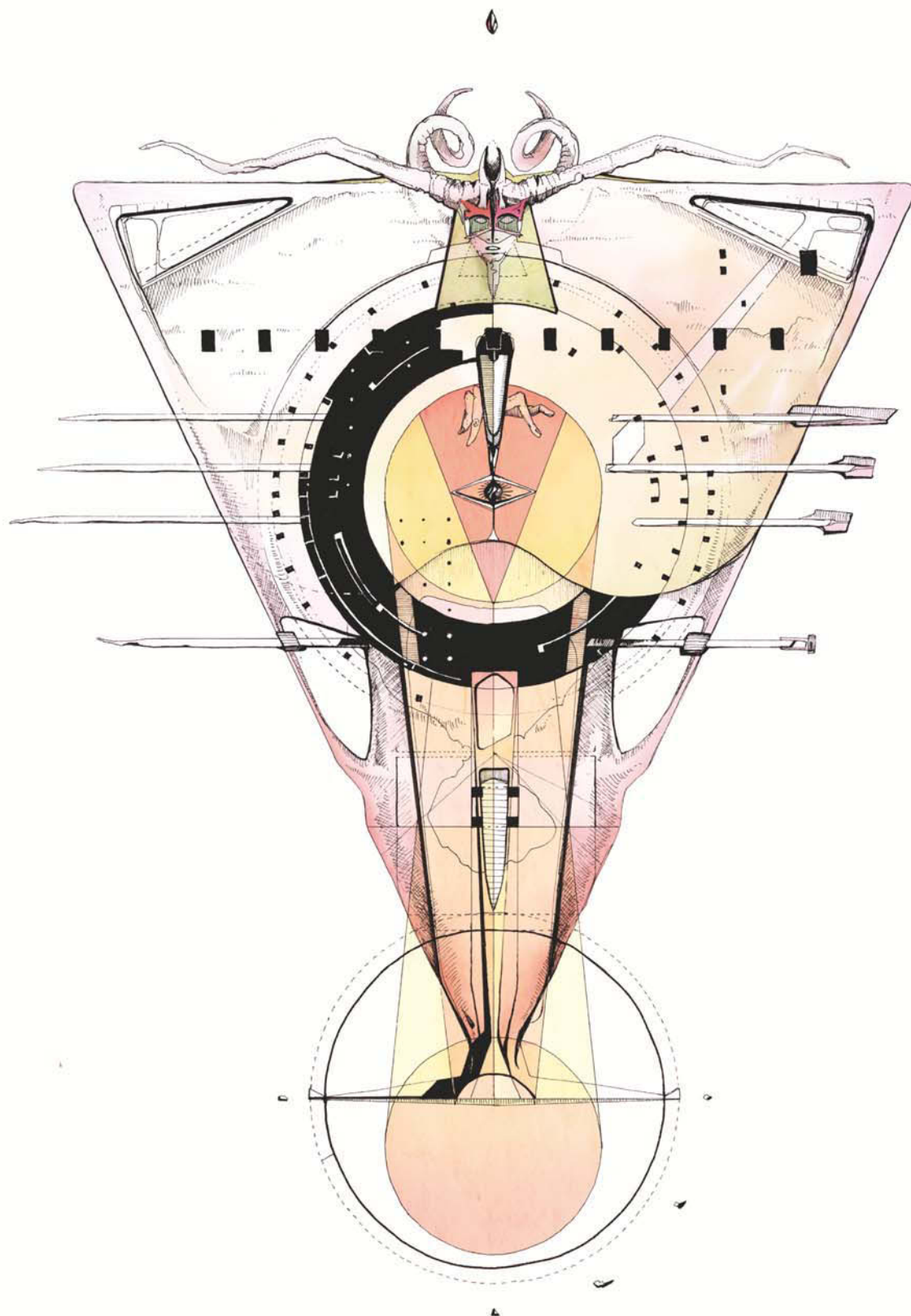


Emerging artist and architect **Dan Slavinsky** created this Bildungsroman series of drawings as a coming-of-age novel in graphic form; with each pair of drawings covering a particular aspect of his own personal journey to become an architect. Here he describes his predicament, as a young architect, to find a means to challenge and innovate at a time when everything seems to have been tried, and artistic flair is all too often compromised.

Dan Slavinsky, Bildungsroman Series, 2013
previous spread: The series of eight drawings is a very personal part-chronological, thematic and symbolic confession. It has been drawn to chart early roots of knowledge, inspirations, a long journey of self-discovery, and a final period of reflection on the maturity gained.

Dan Slavinsky, A Jar, Bildungsroman Series, 2013

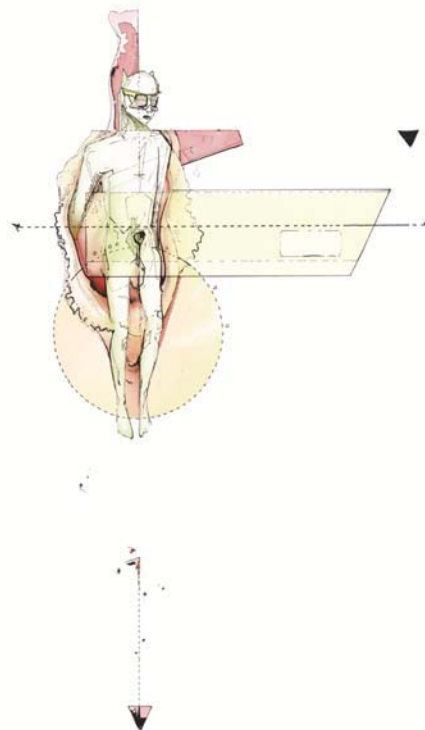
Quoting Giger, Wagner, Mendelsohn, Wei, Sun, Hand and Eye as inspirations.



Dan Slavinsky, *Freak Knife*,
Bildungsroman Series, 2013
left: When he was first called a freak,
he awoke from his mediocrity.



Dan Slavinsky, *Roots, Bildungsroman Series*, 2013
right: An artistic thinker survives a plane crash.



What is there left to be daring about? In what exceptional and innovative direction is the 21st century pushing us, or has all the possible architectural daring already been dared?

Have we not already dared to touch the clouds, meaning that – after the arguably very elegantly resolved monstrosity recently completed in Dubai – any talk of constructing a building exceeding a kilometre in height becomes boring and puerile? Have we also not already experimented enough with colour and form? From the ordered beauty of classicism, to the deconstructed doodles of Postmodernism, to the limitless permutations of a parametric computer model, our eyes have seen an eternity of different forms, and will not be excited by an eternity more. (In any case, the most powerful form still remains the phallus). Conceptually, too, have we not exhausted every subject upon which an architectural composition could be based? In Europe alone there are countless masterpieces that show this variety.

But perhaps there are things to be daring about. The use of technology in architecture is critical – as new ways of doing things are created, this can and should have an influence on the way architecture is constructed. Technology would allow the architect to be daring with improving the function and efficiency of buildings, rather than their appearance; even to break free from the current Cartesian and simplified model of thinking, and to view architecture in a more

complex way as a system that can adapt to suit its environment. Being innovative with new materials and processes, and being open to cross-disciplinary collaboration and inspiration, could lead to a sea change in the way we see construction.

There is also another more intangible side of architecture that deserves to be recognised and valued, and it is the spirit of the architects within their work. Do they dare to express their true ideas as they stare down at a conceptual sketch and chew their pen? It is the fear of every gifted architect that they will not be understood in their own time, that opportunities to flower and the chance to spread their artistic wings – to design buildings that truly reflect their own undoubted greatness and innovativeness – will never be theirs.

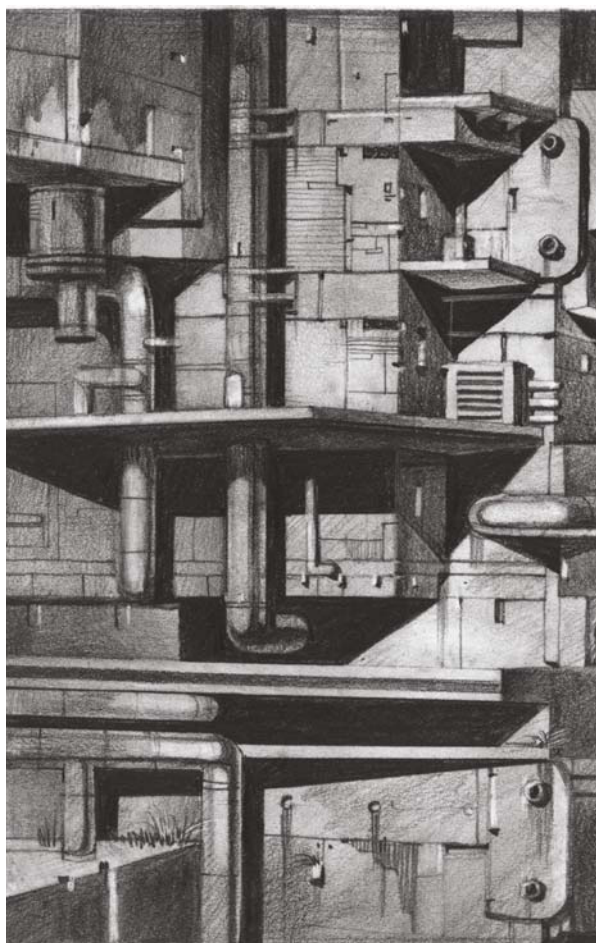
These fears (and perhaps also, the general attitudes towards the role of the profession within the industry) often mean that artistic flair is compromised early in a project.

But artistic flair does not require constructing a squiggle, a scrawl or even a figurative ornament masquerading as a 'building'. An example of note is the approach adopted by Seattle-based architect Tom Kundig. Artistic concept and architectural orthodoxy, united in projects where building materials and space planning are kept as simple and unadorned as possible (although expertly finished), allow him to concentrate on pouring his soul into the design of two or

three very special functional objects within the building. These are daring and beautiful, usually created with the help of a craftsman. Kundig dares to focus his personality on these special objects that lift the composition of the design. He dares to make the functional detail an object of artistic beauty.

I have created a series of eight drawings that discuss my own preoccupations with the role of technology and how it combines with artistic flair. The drawings form a graphic *Bildungsroman* (a literary construct, literally meaning 'formation novel' or a coming-of-age story). Each pair of drawings covers one aspect of a very personal journey to becoming an architect, and to developing the drawing style that I have. The first two drawings talk of my beginnings and initial view of architecture. The next pair deals with my inspiration, and several jarring events that pushed me to explore my chosen subject more deeply. The consequent long struggle with ideas and the arduous journey to form a mature style is followed by two final drawings that reflect and analyse knowledge gained and opinions formed. It is chronological, thematic and symbolic. Above all, I have tried to make something beautiful that is nevertheless architectural. ▢

COULD ARCHITECTURAL DRAWINGS SAVE US



Mas Yendo, *Castle Inverness 2*, Heroes series, 1998
Suddenly form was delineated and defined, voids were filled.

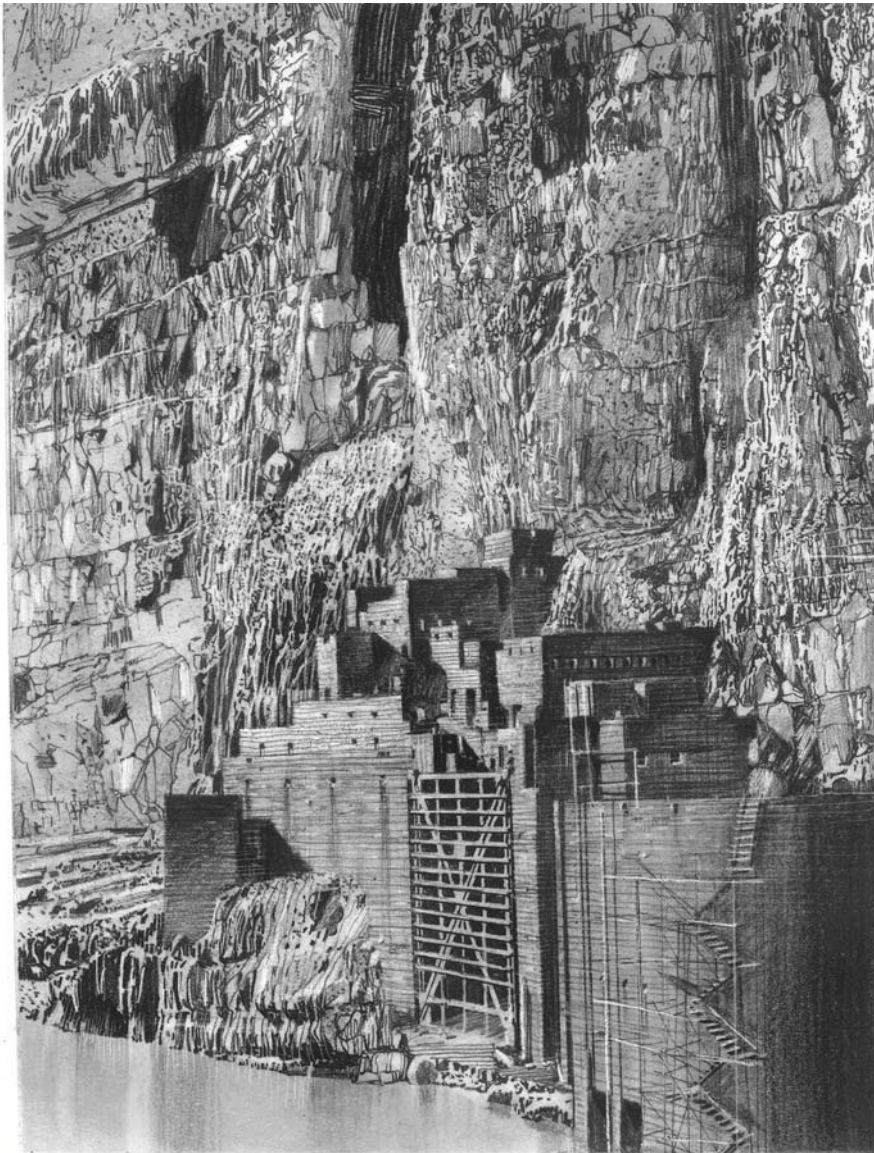
Mas Yendo

FROM PHILOSOPHICAL BANKRUPTCY?

The work of New-York based architect **Mas Yendo** explores the intersection of human experience with architecture and technology. Here he describes how at a time of 'philosophical bankruptcy' and 'psychological wilderness', the creative enterprise of drawing can provide a means of objectifying and exploring personal experiences and overcoming the current economic and political crises.

'Freedom, a state emptied of preconceived value, use, and meaning, an extreme state of loss, within which choice is unavoidable, a condition of maximum potential,' wrote Lebbeus Woods in his monograph *Anarchitecture: Architecture is a Political Act* (1992).¹ Here, he concisely described how our sense of crisis is the point of embarkation for our actions. It is only when we realise that we have lost something important that we begin to make independent choices. However, living authentically with one's choices and independent thoughts is easier said than done, and takes more than just courage. In *Nausea* (1938), Jean-Paul Sartre asserted freedom as 'disturbing, and discomforting'.² Ironical as it seems, our fear of freedom is both real and evident.

Proponents of existential philosophy have corroborated the theory that reality will always prevail over presumptions and expectations, and thus that there is no transcending truth, or meaning, in the state of our existence. In accepting this, we left closely held truths from the past behind, to instead think and act without restrictions. But did we really move on?



Mas Yendo, *Castle Inverness 4, Heroes series*, 2008
Hills and rivers met, and canyons were deepened.

*'Freedom, a state emptied of preconceived value, use, and meaning, an extreme state of loss, within which choice is unavoidable, a condition of maximum potential,' wrote Lebbeus Woods in his monograph *Anarchitecture: Architecture is a Political Act* (1992).¹*

It turns out that most of us did not, in overwhelming fear of being cast out, alone, drowning in a sense of inaptitude and the failures of our actions without anyone to blame but ourselves. This is the irony of existentialism: our privilege of being free, which was supposed to emancipate, not reward or liberate, instead condemns and pacifies us. As soon as we realised how dangerous and frightening it is to make a choice without reference to existing beliefs or ideas to justify our actions, the majority chose not to take any action and withdraw into a state of complacency. We stopped asking 'What does it mean?' Although this reaction was only a vain attempt to avoid anxiety, denial had transgressed into deception, a form of self-sabotage, and we had become deliberately devoid and emptied of content.

As the consumer economy expanded, values based on capitalist efficiency began to fill the void created by our inaction, and turned our lives into mere statistics. Although this value system is tragically inadequate and insufficient compared with what we have left behind us, the virtue of its crystal-clear

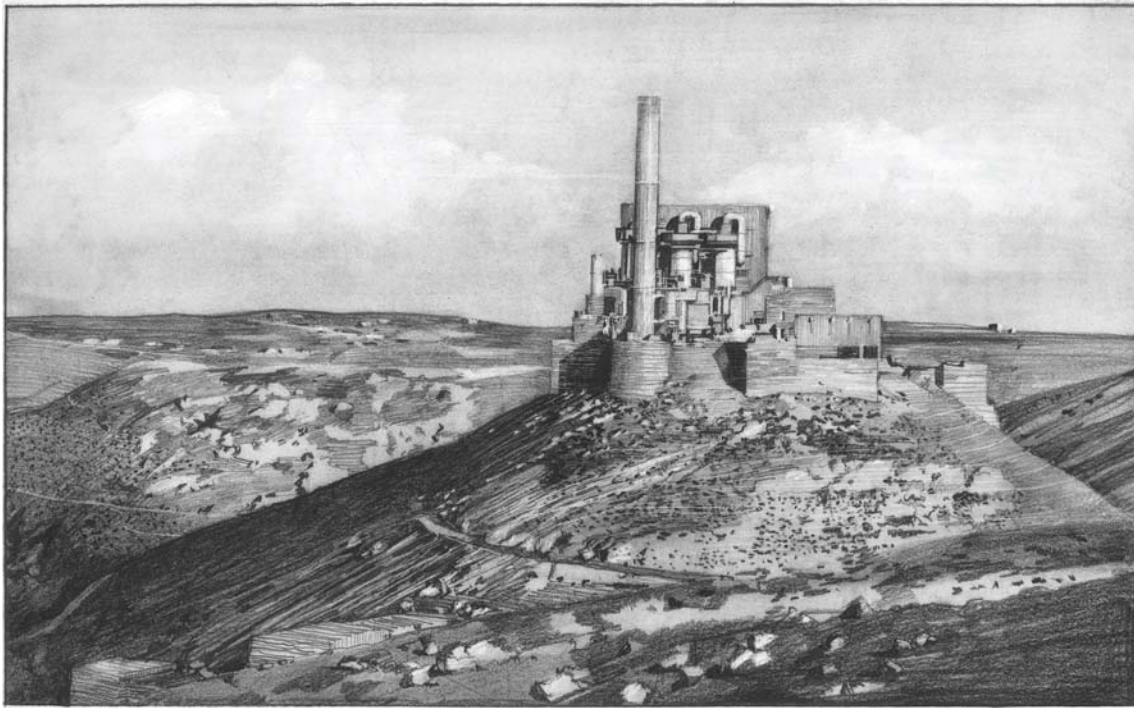
rationalism means this mechanism has become incredibly pervasive in determining what is good, useful, successful or a failure, transcending all of our previous values, emotions and attachments.

One does not need to be a proponent of Marxist ideology not to notice how toxic this condition can be. But perhaps even more important is how it adds another layer of deception over our original denial. Compounded by both the crisis of individual psychology and collective values, our reality has become so convoluted with the conundrum of deception over denial that we forget what our original motives or goals were, and are no longer able to decipher what is genuine, or what is right from wrong, an original from an impostor. The ramifications are catastrophic and dubious, not just for investment bankers, but for all other professionals: medical doctors, lawyers, educators – their practice having become ethically depleted, with some even transgressing into moral impotence.

At this juncture, it is perhaps not an exaggeration to say that we are now in a state of philosophical bankruptcy,

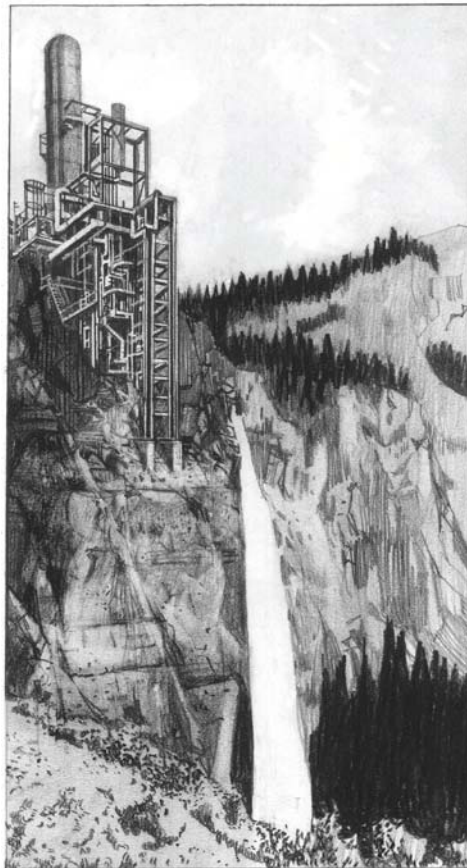
Mas Yendo, Rocinante, Heroes series, 2008

top: Although I believe our union is forever, I am crumbling slowly, abandoned, as memories of us fade.



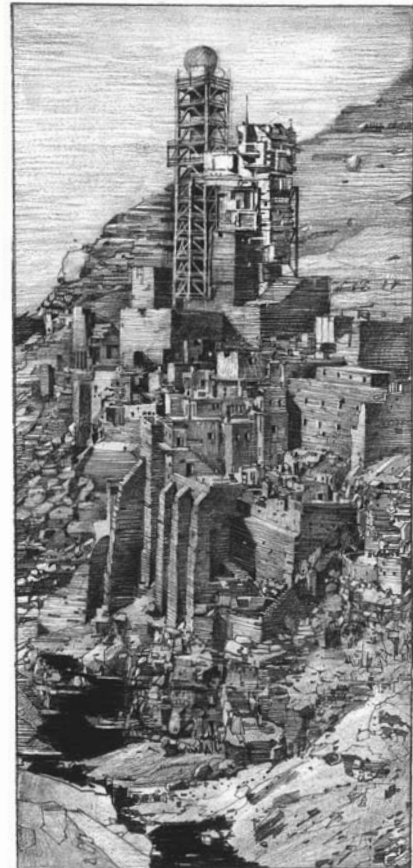
Mas Yendo, Reason Prevailed, Heroes series, 2008

bottom left: Light and dark appeared with a thousand shades of grey in between.



Mas Yendo, Millennium 1, Heroes series, 2008

bottom right: Splendour of a cathedral shimmering in light, a building of 'colossal pretension'.



Creative sublimation, artistic enterprise – whether music, painting, writing or drawing – is the only way to produce a uniquely independent experience from our existence, and to overcome the current crisis against all odds.

Mas Yendo, Daedalus' Cellar, Heroes series, 2008

Off of the walls, I still hear echoes of your steps, laughter and screams.



and that we live in a psychological wilderness. Our dialogue with our inner feelings has been disrupted, and our sense of independence, what makes us unique and individual, has mostly been compromised. Pacified by the ruthless efficiency of a society/economy that thrives on our fear of being condemned alone, the prospect for humanity, and especially for the posterity of individual freedom, seems grave.

How long can we afford to continue down this path? Although many of us may live discontented with the senselessness of the current situation, I do not think I am being presumptuous in assuming that most of us will also continue to ignore the crisis, and join the insolence of collectivism in the comfort of others rather than confront it. Creative sublimation, artistic enterprise – whether music, painting, writing or drawing – is the only way to produce a uniquely independent experience from our existence, and to overcome the current crisis against all odds. Thus drawings are not representations or abstractions of buildings, nor for construction; they are generated entirely from their own purpose and intention, as entities in their own

right, with their own beginning and end. In one sense, the drawing is a stand-in for a personal encounter with an inanimate; in another it is a medium to cultivate and generate experiential phenomena. Indeed, drawings are both an exponential platform and an instrument, the where and what for architects to interact with the inanimate. This endeavour is therefore not for the pursuit of aesthetics, idealism or belief; the motive is much more simple – to create an edifice of one's personal experiences. ▢

Notes

1. Lebbeus Woods, *Anarchitecture: Architecture is a Political Act* (Architectural Monographs No 22), Academy Editions (London), 1992, p 142.
2. Jean-Paul Sartre, *La Nausée* (Nausea), Éditions Gallimard (Paris), 1938.

THE ART OF DRAWING



Today, architecture is inextricably linked with drawing. Drawing and representation are generally regarded as the core skills of the professional architect. Architectural theorist and historian **Mario Carpo** challenges the notion that architecture has to necessarily be an art of drawing. He reminds us that the architect, as a maker of drawings, is in fact a fairly recent cultural and technical phenomenon – only emerging in early 15th-century Italy. Could, then, the digital revolution of the last 20 years be starting to challenge the drawing's hegemony?

Architecture has not always been an art of drawing. For much of history, right up until the Italian Renaissance, architecture was a mechanical craft, and buildings were conceived and made by artisan workers who laboured and toiled on building sites, cutting stones, laying bricks and sawing timber. Then, at the dawn of modernity, a clique of intellectually minded Italians, known today as 'the humanists', had a different idea. They thought that architects should make drawings of buildings, not buildings. Around the mid-15th century, Leon Battista Alberti, the universal man of the early Renaissance, was the first to claim that architecture is first and foremost an idea: conceived in the mind of its author, notated in drawings, then built by manual workers who must comply with the instructions they receive (through drawings and models), and follow them without change. In Alberti's theory of design, the architect's drawing is the original act of creation; the physical building that may follow is only a copy, devoid of any intellectual added value.

The humanists' quest for a new definition of individual authorship would soon cross paths with many cultural

technologies of early modernity, from the rise of print to the invention of copyrights and royalties; and Alberti's idea that physical objects should be entirely designed prior to being built, and that designers should be seen as the intellectual authors of objects they did not actually make, was in time, as we now know full well, amazingly successful. This is how, in the course of the 16th century, architecture became one of the three modern fine arts, or 'arts of drawing' (painting, sculpture and architecture); and drawings, rather than bricks and mortar, became, and remain to this day, the main tool of the architect's trade.

The idea of the architect as a maker of drawings, which we often take for granted, is hence a fairly recent cultural and technical acquisition. All architecture that was built before the Renaissance (or even after the Renaissance, but outside the ambit of the Albertian, 'authorial' paradigm) was built without architectural notations in the modern sense of the term – and often without any drawing at all. Only a generation before Alberti, Brunelleschi's main notational tools for the building of the dome of the cathedral of Florence (c 1418–36) were not

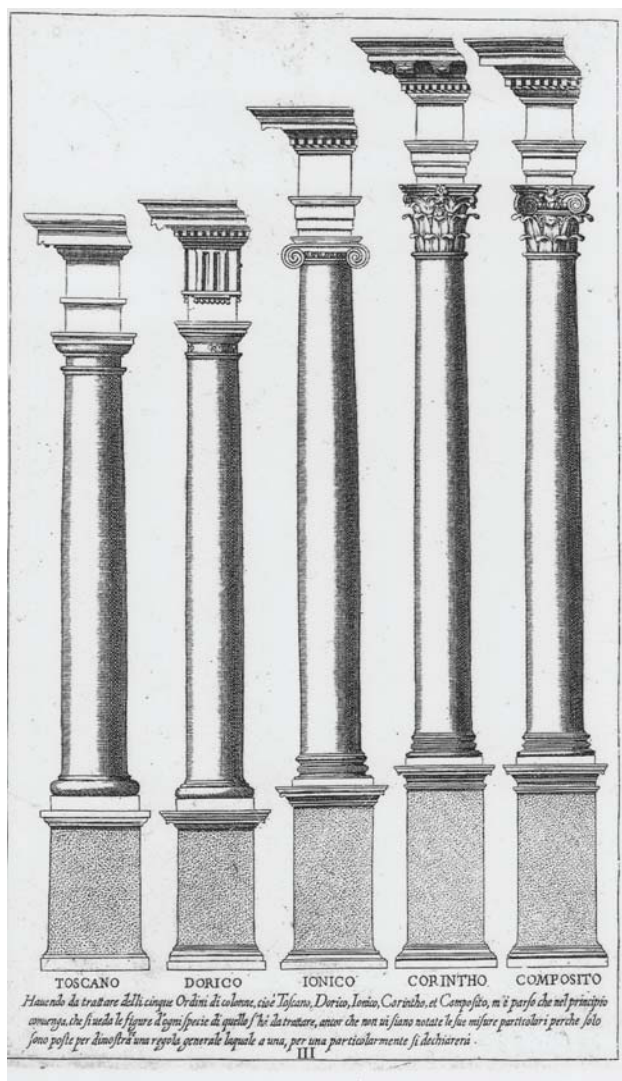
Table of the five orders, engraving, from Vignola, *Regola delli cinque ordini d'architettura* [...]. Libro primo, et originale, Rome, c 1562, plate III

This drawing, one of the most successful and influential in the history of world architecture, and now often blamed for the repetitiveness of modern classicist architecture, was a revolutionary, visionary invention when it first appeared in print in the 16th century.

drawings, but big turnips that he used to carve the models he showed his workers – and then ate, presumably.

Starting with Alberti's treatise on architecture (and a few years later, around 1519, the same arguments were powerfully restated in Raphael's famous letter to Pope Leo X on the ancient monuments of Rome), architectural drawings were divided into two classes: representational, or perspectival drawings, which distort angles and measurements, cheat the eye, and where anything goes so long as the drawing may please its viewers; and notational drawings, ie technical instructions that are sent to the builders and which must convey the author's idea of the building without any gap, uncertainty or ambiguity – the whole building, to its tiniest details, must be inscribed in them, so the builders may build it just as it was originally conceived in the author's mind. Of course, this intellectual ambition, and the related assumption that a building can be entirely and exclusively built from notations, is as troublesome in theory as it is unmanageable in practice – but it is nevertheless the principle underpinning the theory and practice of all modern and contemporary arts of design. In more recent times, architectural drawings of the first type (the 'fancy' ones) were often called renderings, and those of the second (the 'technical' ones) often came in the format of blueprints, used for legal purposes, bidding, cost estimates, and for the establishment of the actual construction drawings.

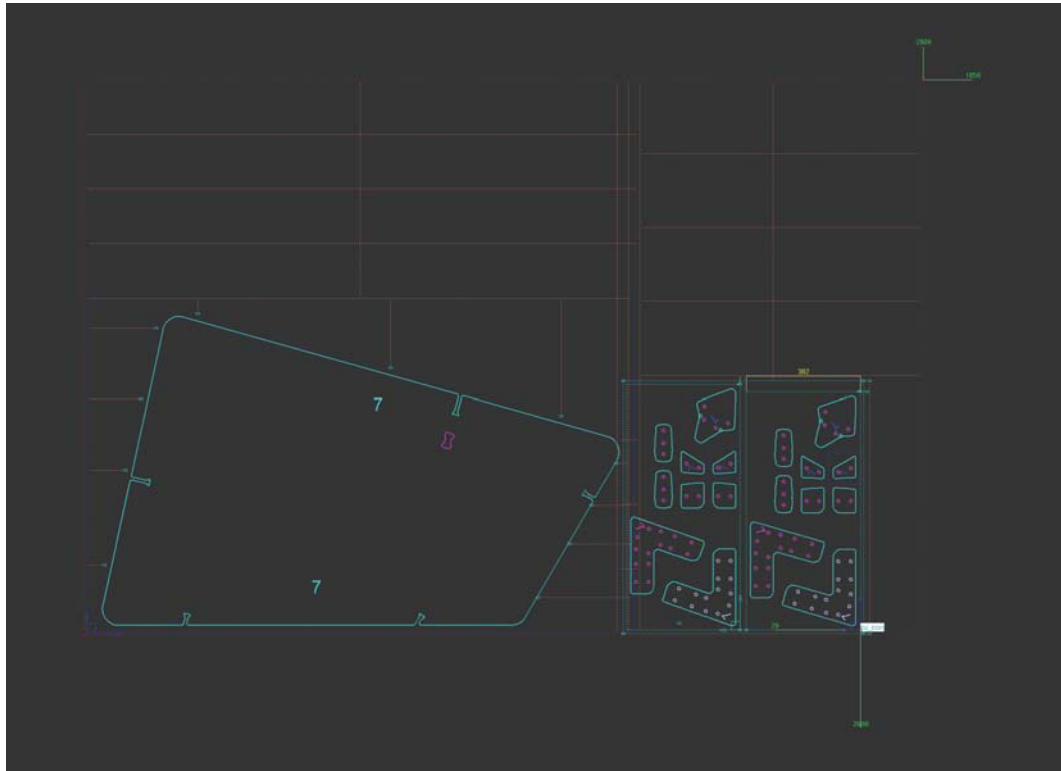
As architects had to be proficient in, and conversant with, perspectival renderings as well as orthographic drawings (later on, axonometric views were added to their panoply), they occasionally also used all these formats, and any combination of them, to pursue loftier and more inspiring purposes. Visionary drawings, those unrelated to any specific or contingent building endeavour, representing or even notating buildings which never existed or may never exist, have played a crucial role in the history of early modern and modern architecture, and some such drawings have been more influential than many actual, 'real' buildings. To take a largely unrecognised example, the Renaissance rule of the five orders, as outlined in Serlio's and Vignola's seminal illustrations, was originally just a drawing, and a most unusual one – the visual synopsis of a system of stand-alone parts of buildings which, as such, never existed in history. Today, the rule of the orders is often seen as the quintessence



of classicist repetitiveness at all scales across time and space, but when Serlio and Vignola (and a few others) created a new architectural language made to measure for identical repetition in print, in drawing and in building, their invention was a pure flight of fancy.

The history of modern and contemporary architecture has been deeply marked and shaped by many such visionary drawings that appeared to have no use or little practical purpose when they were made: from Le Corbusier's dreams of skyscrapers rising from a landscape of *autostrade* (freeways) and leafy greenery in the 1920s, to Archigram's technological fantasies of the early 1960s which, ironically, became a reality only a few years later in the same location where Le Corbusier had imagined the hub of his Plan Voisin for Paris. Piranesi's carceral nightmares have

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Bernard Cache/Objectile, Panel Number 7 – Connecting Parts: Machining Programs for Laser Cutting, 'Fast-Wood' exhibition, Institute for Cultural Policy, Hamburg, 2007
Seamless file-to-factory technologies may seem to bridge the gap between notation (technical drawings) and fabrication: digital machines produce all and only that which was scripted (in this instance, at the small scale of parts of furniture to be laser-cut in two dimensions).



.....
inspired generations of architects, Modernists and classicists alike, and his Campus Martius Plan of Rome in particular is a foundational myth of contemporary Postmodernism (see Mark Morris's essay on pp 20–27).

In more recent times, alongside this long-established vein of visionary drawing, late-Modernist and Postmodernist architects have also developed a more critical one, where drawings become a tool of investigation of some aspects of the very same architectural discipline from which they derive and to which they belong; one of the most elaborate of such ventures being the meta-linguistic use of drawings to probe and test the limits and constraints of architectural representation itself. From John Hejduk to Peter Eisenman, from Massimo Scolari to Preston Scott Cohen, this 'critical' use of drawings remains to this day an essential component of contemporary architectural discourse and of architectural education.

Evidence of the vitality of both of these traditions, for the 2012 Venice Biennale Peter Eisenman and his Yale students translated Piranesi's Campus Martius map into a three-dimensional model, digitally fabricated then gold-painted, like a Byzantine icon. This model in turn served as a platform for sets

.....
of design variations by Eisenman's own office, and others. The idea of 3-D printing a printed map that was originally engraved on a series of metal plates may seem perverse, but no more than our current, ubiquitous obsession for all sorts of digital 3-D making technologies. Indeed, as the next generation of photographic cameras will produce 3-D objects rather than 2-D images – and print out three-dimensional physical replications of the originals they portray, at any scale of our choosing – the primacy of two-dimensional projective images, as we have known them since Alberti and Gaspard Monge, will soon be challenged by new technologies.

For the time being, software for building information modelling (BIM) mostly allows for the manipulation of 3-D models through traditional graphic user interfaces, using good old planar images. But the days when we needed geometrical projections to represent three-dimensional objects using sets of two-dimensional drawings may soon be over; indeed, technologies for the direct three-dimensional manipulation of virtual models in physical space are already being tested.

For all of this, and despite any recent or forthcoming technological development, planar drawings in many cases

Giovanni Battista Piranesi, *Ichnographia Campi Martii*, 1762
Interpreted and transcoded by late-Modernists and Postmodernists,
Piranesi's visions of antiquity have changed the history of world
architecture in the second half of the 20th century.

[...] drawings become a tool of
investigation of some aspects
of the very same architectural
discipline from which they derive
and to which they belong.





Peter Eisenman and Yale University School of Architecture,
The Project of Campo Marzio, New Haven, Connecticut, 2012
right and opposite: General view and detail. Peter Eisenman's 3-D
printed model adds a new dimension (literally) to Piranesi's legacy,
and highlights our current techno-cultural obsession for digital 3-D
printing and 3-D scanning technologies.



still are, and will remain for a while, the best way to record and transmit some visual ideas, and the visionary power of architectural drawings – their unique capacity to suggest an alternative to the present by reconstructing the past or anticipating the future – does not seem today particularly imperilled or at risk, or at least not more than at any other time since architects started to make drawings. However, as is often the case whenever discussing architectural drawings these days, the matter in question in this issue of Δ at times does not seem to bear on drawings per se, but on a specific technology of drawing: the hand-made drawing, or even the freehand drawing, drawn with pen or pencil on paper. Evidently, pens, pencils and paper are technological tools as all others, and as all tools they feed back on the gestures of their users. Yet compared with the digital juggernaut of the last 20 years, handmade drawings are now almost inevitably seen as a human alternative to an increasingly machine-dominated visual and graphic environment. That is an understandable reaction for sure, but as Mark Garcia argues in his essay (see pp 28–35), wrong on many counts.

The digital turn in architecture is almost 20 years old, and the cultures and technologies of computer-based architectural representations, as well as, more in general, of digital design and fabrication, are now ubiquitous. We all know by now that digital renderings are often virtually indistinguishable from digital photographs, and as a consequence visual documentation and visual creation are now, technically, on the same footing, if not one and the same. We also know that digital tools promise to eliminate all ambiguity from the laborious and always aleatoric process of architectural notation: a digital design file is ideally made for a mechanical recipient that does not interpret nor interpolate, but can only fabricate that which was

scripted. This absolute, one-to-one correspondence between the notational script (once planar and now, increasingly, three-dimensional) and its material implementation is already a reality in the case of a fully digital, file-to-factory design and fabrication process. And yet this idea of digital precision, transparency and technical objectivity, which is often attributed to all things digital, and which many resent for a number of reasons, may be misleading and is already, in many ways, a red herring. For that implacable logic, if it ever existed, is already a thing of the past. Today's digital tools do not work that way.

Today's digital tools use mathematics to emulate, manage and master complexity, not to eliminate it. Computation is now so powerful (and cheap) that we no longer need to simplify reality in order to model it; increasingly, we can deal with the unruliness of the world just as it is. Ten years ago, the style of digitally intelligent design aimed at, and stood for, elegant smoothness, machine-made precision and calculus-based, spline-driven continuous lines and surfaces. But even a cursory glance at some recent issues of Δ reveals that today's digital tools can model the tremor of each trait of the hand, the wavering of the lilies in the field, or the passing of clouds in the sky, without converting these feeble and uncertain, fuzzy traces of chance and nature into the scripted rigour of geometrical objects. In this, I fully agree with the editors of this Δ issue: the analogue and the digital are no longer foes, and may soon join forces – on paper or elsewhere, and in the visual imagination that, as this Δ issue testifies, is already giving visible shape to a forthcoming new age of digital untidiness, messiness and slightly disturbing uncertainties. Δ

Pascal Bronner graduated from the Bartlett School of Architecture, University College London (UCL) in 2009, and was awarded the RIBA Bronze Medal Commendation, the Fitzroy Robinson Drawing Prize, the Serjeant Award for Excellence in Drawing, and the Sir Banister Fletcher Medal. He currently teaches at the University of Greenwich and at London Metropolitan University. His work has been exhibited around the world, including at the Southern California Institute of Architecture (SCI-Arc) in Los Angeles, the Beijing Biennale and the Royal Academy of Arts, London.

Bryan Cantley, through his Form:uLA studio, explores the undefined zone of architecture, considering space and its representation to be the true medium of the architect. He received his BA in architecture from the University of North Carolina at Charlotte (UNCC), his Masters in architecture from the University of California Los Angeles (UCLA), and is a Professor of Design Theory at the California State University Fullerton (CSUF). His work is in the Permanent Collection at the San Francisco Museum of Modern Art (SFMOMA), and he is a recipient of a Graham Foundation grant. His monograph, *Mechudzu: New Rhetorics for Architecture*, was published by the Research Institute for Experimental Architecture (RIEA) in 2010.

Mario Carpo teaches architectural history and theory at the School of Architecture of Yale University, and at the École d'Architecture de Paris-La Villette. His research and publications focus on the relationship between architectural theory, cultural history, and the history of media and information technology. His *Architecture in the Age of Printing* (MIT Press, 2001) has been translated into several languages. His most recent books are *The Alphabet and the Algorithm*, a history of digital design theory

(MIT Press, 2011), and the Δ Reader *The Digital Turn in Architecture, 1992–2012* (John Wiley & Sons, 2012).

Nic Clear is a qualified architect, and currently Head of the Department of Architecture and Landscape Architecture at the University of Greenwich, where he also teaches a design unit that specialises in the use of film and animation in the generation, development and representation of architectural spaces. He is particularly interested in the intersection between architecture and science fiction. He was guest-editor of the Δ *Architectures of the Near Future* (Sept/Oct 2009) issue, and has also written the 'Architecture' section of the forthcoming *Oxford Handbook of Science Fiction*.

Professor Sir Peter Cook is a notable English architect, lecturer and writer on architectural subjects. He was a founder of Archigram, and was knighted in 2007 by the Queen for his services to architecture and teaching. He is also a Royal Academician and a Commandeur de l'Ordre des Arts et des Lettres of the French Republic. His achievements with Archigram were recognised by the Royal Institute of British Architects (RIBA) in 2004, when the group was awarded the Royal Gold Medal.

Mark Garcia is Senior Lecturer in History and Theory in the Department of Architecture, University of Greenwich. He has worked in the industry for Branson Coates Architecture and Skidmore, Owings & Merrill. He has held academic research and management posts at St Antony's College, University of Oxford and at the Royal College of Art (RCA) where he was Research Coordinator in the Department of Industrial Design Engineering, and Head of Research in the Department of Architecture. He guest-edited the Δ

Architextiles (Nov/Dec 2006) and *The Patterns of Architecture* (Nov/Dec 2009) issues, and is editor of *The Diagrams of Architecture* (John Wiley & Sons, 2010). He is currently researching and guest-editing the forthcoming Δ *Future Details of Architecture* (July/Aug 2014).

Simon Herron trained at the Architectural Association (AA) in London, and at the Städelschule in Frankfurt. He is currently Academic Leader in Architecture at the School of Architecture, Design and Construction, University of Greenwich, and a design studio tutor (with Susanne Isa) to Diploma Unit 16, formally at the Bartlett, where he established the Design Realisation technical programme. He has lectured and taught extensively at undergraduate and graduate level, including at the University of Westminster, SCI-Arc Los Angeles and the AA. He was formerly a partner of Herron Associates, whose works include the Imagination Building in London, and three projects for the Machi no kao programme in Toyama Prefecture, Japan. He is Principal Registrar, conservation and loan, of the Ron Herron Archive, and a member of the AVATAR research group.

Perry Kulper is an architect and associate professor of architecture at the University of Michigan's Taubman College of Architecture + Urban Planning. Prior to his arrival at the University of Michigan, he was a SCI-Arc faculty member for 17 years. During that period he also held visiting teaching positions at the University of Pennsylvania and Arizona State University. Subsequent to his studies at California Polytechnic State University, San Luis Obispo (BSArch) and Columbia University (MArch) he worked in the offices of Eisenman/Robertson, Robert AM Stern and Venturi, Rauch & Scott

Brown before moving to Los Angeles. His design practices include working on the generative roles of representation, on the capacities of varied design methods in the production of architecture, and in broadening the conceptual range by which architecture contributes to our cultural imagination.

CJ Lim is the founder of Studio 8 Architects (www.cjlim-studio8.com), an international award-winning practice in urban planning, architecture and landscape. He is the Professor of Architecture and Urbanism, and Vice-Dean at the Bartlett, UCL. His designs focus on multidisciplinary innovative interpretations of cultural, social and environmental sustainability programmes. He is the recipient of the Royal Academy of Arts 'Grand Architecture Prize'. He has authored 10 books, including *Smartcities* and *Eco-Warriors* (2010) and *Food City* (2014), both published by Routledge.

Mark Morris teaches architectural theory, history and design at Cornell University, New York, where he has served as Director of Graduate Studies and Coordinator of the MArch II, MA and PhD programmes. He is the author of *Models: Architecture and the Miniature* (John Wiley & Sons, 2006) and *Automatic Architecture: Designs from the Fourth Dimension* (College of Architecture, UNC-Charlotte, 2004). His essays have featured in *Domus*, *Critical Quarterly*, *Cabinet*, the *Cornell Journal of Architecture*, *Log* and Δ . He received an AIA Medal for Excellence in the Study of Architecture and a doctoral studies grant from the RIBA Research Trust. His research focuses on questions of analogue and digital architectural representation, scale, ways of seeing and the history of architectural education.

Tom Noonan is currently based in London where he is pursuing his interests through work in architectural practice alongside individual and collaborative work. He was awarded his Part II Diploma/Masters in Architecture with Distinction from the Bartlett, UCL, in 2010, and has since exhibited throughout the UK, with drawings and prints held in the permanent collection of the V&A.

Dan Slavinsky is an architect and artist currently living and working in Berlin, after having fully qualified in the spring of 2012 from Westminster University. He also studied for a Masters in Architecture at the Bartlett, UCL, where he received a Distinction in Design. His work has been exhibited at the V&A and RIBA, as well as several smaller venues in London and Berlin. His conceptual drawings have been widely published in architectural magazines in the UK and abroad, including Δ , *Blueprint*, the *Architects' Journal* and *Building Design*, as well as numerous blogs. Worthy of note, too, is his role in founding the What Now? Collaborative in 2011, an initiative that encourages discourse to define the role of the architect in the UK. He has also been an active member of the Worshipful Company of Chartered Architects since 2007.

Mark Smout and Laura Allen are Senior Lecturers at the Bartlett, UCL. Their design research practice proposes that architecture can develop a synergy with its surroundings informed by understanding the complex interaction of living and artificial systems, environmental processes and emerging technologies. Smout Allen have produced award-winning designs. They designed the centrepiece installation for the 'Landscape Futures' exhibition at the Nevada Museum of Art, Reno (2011–12), and exhibited

at the British Pavilion in Venice for the 13th Architecture Biennale (2012). Their work is held in the Centre for Art and Environment permanent collection. Their publications include the *Augmented Landscapes* issue 28 (July 2007) of the seminal *Pamphlet Architecture* series.

Nancy Wolf is an artist concerned with the relationship of people to contemporary architecture and urban spaces. She is represented by the Marsha Mateyka Gallery in Washington DC. Her work is in a number of museum collections, including the Smithsonian American Art Museum and the Corcoran Gallery. A 1996 monograph on her work by Karen Franck, *Nancy Wolf: Hidden Cities, Hidden Longings* (John Wiley & Sons, 1996) is available from Amazon.

Masahiko Yendo was born in Tokyo. He has a Bachelors degree in fine arts and architecture from Rhode Island School of Design, and a Masters in architecture from Pratt Institute. He has been affiliated with Research Institute for Experimental Architecture (RIEA) since its inception in Oneonta, New York, in 1987, and his monograph, *Ironic Diversion*, was published by the Institute in 2001. His experimental projects continue to unearth the boundary of how we interface with architecture beyond what science, physical empiricism, can offer. His research projects have generated international interest over the past decade, and been published and exhibited in countries including France, Germany, Japan, Thailand, Austria, the Czech Republic, Croatia, England, India and Uruguay.

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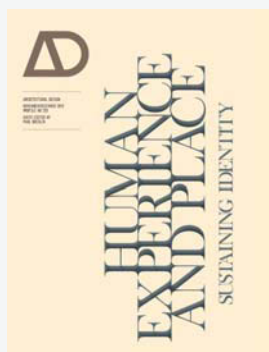
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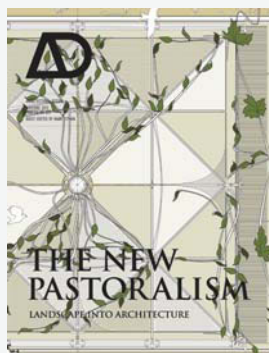
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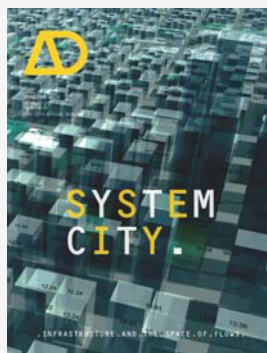
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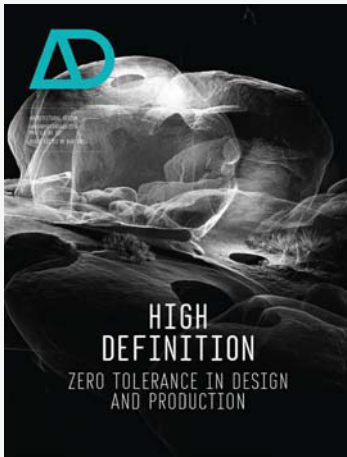


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NOVEMBER/DECEMBER 2013 – PROFILE NO 226
THE ARCHITECTURE OF TRANSGRESSION
GUEST-EDITED BY JONATHAN MOSLEY AND RACHEL SARA

Transgression suggests operating beyond accepted norms and radically reinterpreting practice by pushing at the boundaries of both what architecture is, and what it could or even should be. The current economic crisis and accompanying political/social unrest have exacerbated the difficulty into which architecture has long been sliding: challenged by other professions and a culture of conservatism, architecture is in danger of losing its prized status as one of the preeminent visual arts. Transgression opens up new possibilities for practice. It highlights the positive impact that working on the architectural periphery can make on the mainstream, as transgressive practices have the potential to reinvent and reposition the architectural profession: whether they are engaging with conceptual art; pioneering urban interventions; advocating informal development; breaking barriers of taste; shifting between research and practice or creating critical projects. In this new dispersed and expanded field of operation, the balance of architectural endeavour is shifted from object to process, from service to speculation, and from formal to informal in a way that provides both critical and political impetus to proactively affect change.

Contributors include: Can Altay, Kim Dovey, Chris Jenks, David Littlefield, Alastair Parvin, Doina Petrescu and Robin Wilson.
Featured architects: Atelier d'architecture autogérée, EXYZT, Didier Faustino, Office for Subversive Architecture, Superflex and Bernard Tschumi.

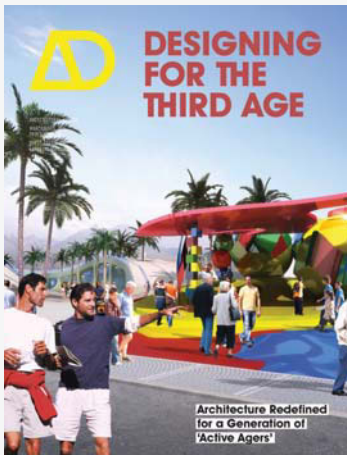


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JANUARY/FEBRUARY 2014 – PROFILE NO 227
HIGH DEFINITION: NEGOTIATING ZERO TOLERANCE
GUEST-EDITED BY BOB SHEIL

A pioneering title, *High Definition* explores the onslaught of new and highly accurate digital metrology tools in large- and small-scale 3-D scanning and 3-D modelling. Capable of measuring space to an accuracy of less than 1 mm, these tools offer unprecedented precision for the development and interrogation of design before, during and post production. Over the last decade or so, the array of designers' digital tools to propose and make their ideas have evolved significantly, but the absence of high-accuracy, zero-tolerance design production has often remained the missing piece between design and fulfilment. Innovative technologies are thus substantially recalibrating the way that designers operate in the world between the drawn and the made, having the power to transform the architect's role from that of visualiser to one that is intensely involved with the realisation of objects and buildings. *High Definition* will examine the capabilities of advanced technologies in design production through their impact on design theory, practice and greater levels of collaboration between design and manufacturing. It will permeate the entangled world between means and meaning and unravel a new understanding between the representation and production of architectural design.

Contributors include: Philip Beesley, Centre for Advanced Spatial Analysis, Gehry Technologies, Ruairi Glynn, Zaha Hadid Architects, ScanLAB Projects, Territorial Agency, Skylar Tibbits, Mike Webb.



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MARCH/APRIL 2014 – PROFILE NO 228
DESIGNING FOR THE THIRD AGE: ARCHITECTURE REDEFINED FOR A GENERATION OF 'ACTIVE AGERS'
GUEST-EDITED BY LORRAINE FARRELLY

A demographic revolution is underway. Across the world, the number of people aged over 65 is increasing: whereas the over 65s in the US make up 13 per cent of the population, this figure will double to 88.5 million by 2050; China's current ratio of 16 elderly people per 100 workers is set to double by 2025, then double again to 61 by 2050. Urban design, housing and other built provision all require rethinking and redeveloping to accommodate this ever-expanding aging population. The design of our urban centres will also need to be transformed to accommodate a more integrated way of living. Suburbia will need to be reshaped – retrofitting, in order to redefine a new type of interstitial space. Accommodating a range of different age groups is about adapting places and spaces to their needs as much as adapting the city for different cultural groups. Can visionary architectural solutions play a key part in the provision by creating sustainable cities for the changing profile of the population, reducing models of dependency for care, transport and creating opportunities for recreation, leisure and work? This issue of *Δ* reflects on the forthcoming challenges that are to be posed globally in Europe, Australia, North America and Asia, while seeking out innovative responses to the problems, both at a practical and speculative level. The issue is to include international built case studies and competition-winning entries by practitioners and students.

Contributors include: David Birkbeck of Design for Homes, Francesca Birks of Arup Foresight + Innovation, Kathryn Firth of the London Legacy Development Corporation, Jerry Maltz of AIANY Design for Aging, Robert Schmidt of the Adaptable Futures research group at Loughborough University, Sally Stewart of Glasgow School of Architecture, Mark Taylor of the University of Newcastle, and Walter Menteth.



ARCHITECTURAL DESIGN

GUEST-EDITED BY
NEIL SPILLER

DRAWING ARCHITECTURE

Contributors:

Nic Clear
Mark Garcia
Simon Herron
Mark Morris

Featured architects:

Pascal Bronner
Bryan Cantley
Peter Cook
Perry Kulper
CJ Lim
Tom Noonan
Dan Slavinsky
Neil Spiller
Peter Wilson
Nancy Wolf
Lebbeus Woods
Mas Yendo

We are in the second decade of the 21st century and, as with most things, the distinction between digital and analogue has become tired and inappropriate. This is also true in the world of architectural drawing, which paradoxically is enjoying a renaissance supported by the graphic dexterity of the computer. This new fecundity has produced a contemporary glut of stunning architectural drawings and representations that could rival the most recent outpouring of architectural vision in the 1960s, 1970s and 1980s. Indeed, there is much to learn by comparing the then and the now. The contemporary drawing is often about its ability to describe the change, fluctuations and mutability of architecture in relation to the virtual/real 21st-century continuum of architectural space. Times have changed, and the status of the architectural drawing must change with them. This reassessment is well overdue, and this edition of Δ will be the catalyst for such re-examination.

DRAWING ARCHITECTURE

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