A change of heart, a new vision for architecture? If there really is a new paradigm in architecture then it will reflect changes in science, religion and politics and it does not take a clairvoyant to see that George Bush & Junta (as Gore Vidal calls them) are very much locked into a medieval world view (if that isn’t an insult to the Gothic). No, the reigning disciplines are struggling with primitive orientations and will continue to be so until one catastrophe or another (global, ecological?) forces them to shift gears; there is no widespread cultural movement underway. Nevertheless, one can discern the beginnings of a shift in architecture that relates to a deep transformation going on in the sciences and in time I believe this will permeate all other areas of life. The new sciences of complexity – fractals, non-linear dynamics, the new cosmology, self-organising systems – have brought about a change in perspective. We have moved from a mechanistic view of the universe to one that is self-organising at all levels, from the atom to the galaxy. Illuminated by the computer, this new world view is paralleled by changes now occurring in architecture.

Several key buildings show its promise – those by Americans Frank Gehry, Peter Eisenman, and Daniel Libeskind. There is also a vast amount of other work on the edge of the new paradigm by the Dutch architects Ren Koolhaas, Bervan Belsel and MVRDV, or the Europeans Santiago Calatrava and Coop Himmelblau, or those who have moved on from high-tech in England, such as Norman Foster. The architects, as well as those that flirted with Deconstruction – Hadid, Mos, and Morphosis – look set to take on the philosophy. In Australia, ARM (Ashton Raggatt McDougall) has been mining the territory for many years and another group, LAB, has completed a seminal work of the new movement, Melbourne’s Federation Square. Soon there will be enough buildings to see if all this is more than a fashion, or change of style, but it certainly is the latter.

The emergent grammar is constantly evolving. It varies from ungainly blobs to elegant waveforms, from jagged fractals to impersonal data scenes. It challenges the old languages of classicism and modernism with the idea that an urban order is possible, one closer to the ever-varying patterns of nature. One may not like it at first, and be critical of its shortcomings, but on second glance it may turn out to be more interesting, more in tune with perception than the incessant repetition of colonnades and curtain walls.
The plurality of styles is a keynote. This reflects the underlying concern for the increasing pluralism of global cities. Growing out of the post-Modern complexity of the 1960s and 1970s, Jane Jacobs and Robert Venturi, is the complexity theory of the 1980s, which forms the unifying idea. Pluralism leads to conflict, the inclusion of appetites and compositional, a building and a building, Modernist purity and reduction could not handle this reality very well. But the goals of the new paradigm are wider than these and political interests that support it, or the computer that allows it to be conceived and built economically. This is the shift in world view that sees nature and culture as growing out of the narrative of the universe, a story that has only recently been sketched by the new cosmology in the last thirty years. In a global culture of conflict, this narrative provides a possible basis for action and iconography that transcends national and sectarian interests.

To see what is at stake, one might start with the least obvious: how they differ from those closer to the centre. I would call them Organi-Tech architects because they reflect both their Modernist parents, the high-tech architects who used to dominate Britain, and their grandparents, organic architects such as Frank Lloyd Wright and Hugo Haring who tried to parallel natural forms. Organi-Tech, like its twin 'Eco-Tech', straddles both sides of this duality: that is, it continues an obsession with technology and structural expression, while at the same time, becoming more ecological. The contradictions and hypocrisy of this leads to, are openly admitted by Ken Yeang, who acknowledges that while the skyscraper is a very un-ecological by nature it is hardly going to disappear as the corporation-type of choice. So, like Foster, Piano and other Modernists committed to this reality, he aims to make them less environmentally costly. Richard Rogers is committed to this policy at the regional scale and currently making heroic attempts to change the tropic urban trends of Britain. Other Organi-Tech designers produce surprising structural metaphors that celebrate the organic nature of structure, bones, muscles and rippling skin of an athlete at full stretch. Both Nicholas Grimshaw and Santiago Calatrava have designed expressive skeletons meant to dazzle the eye, especially when the sun is out. They are filled with light traps, or pulsating exoskeletons that show our bodily relation to other organisms. One cannot help being moved by these spectacular constructions even if their message is all too obvious.

Yet, while relating to nature and exploiting the computer in design, these architects have not accepted the intellectual theory. This is evident in several ways, particularly in their handling of structure. This is most striking in the manner of Mies van der Rohe, excessively repetitive. They are geometrically patterned pieces that are identical, or in mathematical jargon “self-similar” and boringly replicated rather than fractal. Most of nature – galaxies, developing embryos, heartbeat and brain waves – grows and changes with minor variations. This insight was first given a scientific basis by the late 1970s, after the computer scientist Benoît Mandelbrot wrote his paper titled “The Fractal Geometry of Nature” in 1977. It took more than a decade before the idea was assimilated by architects, and translated into computer production for building. But by the 1990s it led to the proliferation of a new urban order that, like a rainforest, is always self-similar and always evolving slowly, an order more sensuous and surprising than the duplication of self-same elements. Perception delights in fractals, in a slightly varying stimulus, which is why at dinner, it is better to compare wines than stick with the same one. Endless repetition dulls the palate, as Organi-Tech designers show when they multiply a good idea to exhaustion. Think of Renzo Piano’s beautiful Kansai airport; the most interesting airship staircase studied for a whole minute until it is bored and inadequate. Architects, by contrast, who use fractals – like Iskandar, R. Moriyama, Foster – literally gives a break from their standard forms, and the young group ZA and Bates Smart have already pushed beyond these first experiments and refined the grammar.

A rather identifiable group, producing a wave of fractals, were recently christened “Blobmeisters” in New York. The label implies several truths, not all of them flattering. First, that these ‘meisters’ were made to capture the field, and do so with ‘blob grammars’ and abstract aesthetics based on computer analogies – cyber-space, hybrid space, digital hypersurface, are some of the other terms. Often the “Blobmeisters” are young university professors and their students engaged in the usual turf wars. Greg Lynn, easily the most creative and intelligent of this group, has argued in a series of books that the blob is really a developed form of the cube. One cannot help being more impressed by the complexity and therefore sensitivity of parameter greater. But this is not the case if the blob is not a developed form, and the skill that is put into it. So many blob designers simply take the result of stacked geodesics, like Grimshaw’s Eden project, or series of bubble forms that remind me of what geologists call “globular clusters” – enticing, eddy, splendid in appearance. But these creations are sometimes too weak, for instance around the foundation or where they meet the ground or another structure. Norman Foster’s two giant blobs, on one hand, plus the Mayor of London and the other for a new music centre in Newcastle have these problems. The internal space and structure are very convincing and the way they relate to the city. By contrast, his Swiss Re Headquarters building is nothing, stretched blob conceived as a satisfying landmark. It started off life as a giant gherkin and then, after wind and structural studies, re-emerged as another natural metaphor – not only the fish-tailed gherkin of the blob, but a more pleasant and welcoming pinecone and pineapple. The spiral sky courts and aesthetic refinements give further rationale to these metaphors, making them more relevant and aesthetic than in a flashtilestone, as Foster and Richard Rogers have already. The heritage of the skyscraper, like that of a Doric column, leads to a new kind of propositional beauty, one worked out digitally (pl. 115).

Foster’s partial shift from a Cartesian to blob grammar marks a turning point in mainstream practice towards the new paradigm. It follows many sculptural experiments, for instance those of Will Alsop in Marseille and Frank Gehry in Europe, Japan and America. Ever since Gehry’s New York.
Guggenheim opened in Bilbao, in 1997, architects realised a new kind of building type had emerged, and that there was a standard to surpass. This landmark building (tellingly, a monument to what used to be a famous monument) pulls this former industrial city together – the river, the train, the bridges and mountains – and the building, thus, marks the shift of modernist nature, the light change in sunlight or rain. Most importantly, it forms a suggestive and emergent method to relate both to the natural context and to the central role of the museum in global culture. Indeed, because of what is called the Bilbao Effect, the emergent signifier has become an emerging method of designing large civic buildings, especially museums. This emergent strategy, which started in a small way during the 1980s with Ronchamp and the Sydney Opera House, has now become the local convention of the new paradigm. Peter Eisenman, Rem Koolhaas, Daniel Libeskind, Coop Himmelblau, Zaha Hadid, Morphosis, Eric Mas – and now mainstream architects such as Renzo Piano – produce suggestive and unusual shapes as a matter of course, as if architecture had become a branch of surrealist sculpture. It has, and the results may often be overblown, pseudo art, but it is worth examining the multiple causes of this shift.

The first negative reason is cultural. With the continual decline of the Christian and Modern belief systems, with the rise of consumer society and a celebrity system, architects are caught in a vicious trap. They have little if any credible public conventions and ideologies to build for, they lack any iconography beyond a celebrated modernist aesthetic (or High Tech) and an ecological imperative that has yet to produce accepted symbols, so they are thrown and pulled in opposite ways. The absence of all beliefs leads them to a deconstruction, a minimalism, an agnostic expression of neutrality, but of course, that is totally absorbed into the emergent system. By contrast, a competitive culture demands difference, significance, and fantastic expression in excess of the building task. The emergent signifier responds to this conundrum. The conjunction is you must design an extraordinary landmark, but it must not look like anything seen before or refer to known religions, ideologies or art of conventions. In this respect the artist Giorgio de Chirico, faced with similar perplexities, was asked what he had painted and replied, “the enigma.”

The emergent signifier in the hands of Gehry can work well because he labours over the sculptural aspects of the form and light and adopts multiple metaphors that relate almost loosely to the building’s role. Thus, in his Disney Concert Hall, the overtones of music and cultural riot were integrated with dazzling petal forms, ship metaphors and symphonic images. At the Bilbao many critics found similar allusions to fishes, ducks, trains, clouds and the pointy hills (pls. 112, 113, 114). One excited writer acclaimed the structure “as Constructivist articulated – an enigma – another mermaid in metallic sequins.” Several of these organic overtones might be appropriate to the central place of art in the city today, the museum as cathedral; some might be subjective or accidental. But, with the best work in the new paradigm, these metaphors are more than random projections, the outcome of a random test or automatic, unconscious creation. They are emergent, multifaceted signifiers in search of an open interpretation, one related to the building task, the land, and the language of the particular architecture. The ideal of the ‘open work’ of art has been in the air since Umberto Eco proposed it as a typical response of artists and writers in the 1960s. Now, for social reasons, it has emerged more fully into the architectural view. A stennurism has mutated into the landmark building, architects have lost most conventional iconography; they now have to find through a process of search and invention, some emergent metaphors, those that are clear and delight but are not specific to any ideology.

A gain the search is aided by computer – all Gehry’s coded buildings are produced this way, and at only little more expense than if they had been constructed from repetitive boxes. While he candidly admits he does not know how to switch on a computer, and uses the machine to perfect and manufacture forms worked out sculpturally, younger architects exploit the generative aspects of the digital revolution. Dutch architects, in particular the group MVRDV, construct datacapes based on different assumptions and then allow the computer to model various results around each one. These are then turned into designs and presented potently to the press, the public and politicians. Alternative societies are contrasted in their “Metacity/Datatown” of 1998 (pl. 132), for instance. Holland as a high consumption Los Angeles is opposed to a country of thrifty vegetarians. The built implications of these choices are then exaggerated and turned into an ironic, democratic poetry. It is democratic because the data are a result of collective building codes, straw poles and debated choice; it is ironic because the various forces conflict and often contradict each other, producing bizarre results, and it is poetic because the consequences are represented in deep, colourful juxtaposition. One case in point is their sheltered housing for the elderly, another their Dutch Pavilion for Expo 2000 (pl. 116).

This last humorous construction alternates floors of open greenery and enclosed workspace, then surrounds them with wind turbines and a roof garden. At the top a pond collects rainwater and it is circulated throughout, forming an efficient cycle along with the heat recovery systems and also the air circulation from the auditorium below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below, The other is a field of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below. Ecological motivations alternate with economic efficiencies, nature cycles interacting with human activities. One floor is a grid of trees in pots whose bases penetrate the floor below.
The neutral, the acceptance of urban and commercial forces as given, the pragmatism and opportunism are hardly a step forward. To reiterate, the new paradigm is at the beginning, not the middle, of its development and not many architects such as Coop Himmelblau, Zaha Hadid, and Steve Chilton really deal with it. But, at the same time, these and other Dutch architects, and so many of the young exploiting the problematic, in the post-technology era, use the data as creative tools. Their data-scapes are often truly emergent structures, as well as data-scapes, new forms of bottom-up organisation not possible to realise before the advent of fast computation.

The same structure of another identifiable trend of the new paradigm, the emergence of the landform, is a building type and its concomitant the landform. The landform is a new grammar of strange attractors. Peter Eisenman has had the way with his new Centre in Cincinnati, an architectural form that oscillates around a strange attractor of chevrons and zigzags. It looks in part like the jiggling of tectonic plates, an earthquake; the basic metaphor of the earth as a constantly shifting ground rather than the terrains we can read on a map. Matter conserves even in this architecture on a gigantic scale. His City of Santiago de Compostela, now under construction, is another undulating landform that picks up the surrounding landscape as well as the generating metaphors, the local emblem of the Coquille St Jacques and the adjacent mediaeval city.

Coop Himmelblau, like Morphosis and Zaha Hadid, have won several recent competitions with a wave-like landform—the schemes for a museum in Lyons, and an office in a former office building. They analyse the site and its history to emerge as a new building type for a new cultural shift. Peter Zumthor has the way with his new Centre in London. The thread that runs through the architectural map was “the wedge of light” in P. E. Coop Himmelblau’s project. The architect has the way with the landform, the landform as a building type and its correlate, the waveform organised around a new grammar of strange attractors. Libeskind has the way with the landform, the schemes for a museum in Lyons, and a large office building in a former office building. His Imperial War Museum North, outside Manchester, explicitly symbolises the various kinds of war (on land, sea and in the air), as well as a globe that is fragmented by strife (pl. 110). He constantly invokes the cultural and emotional plane of expression as that of the architect; he is not afraid of facing up to the fundamental issues of nihilism that concern his designs.

Libeskind won the competition for Ground Zero in New York because he faced the symbolic and spiritual issues of the problem both specifically and with the most direct, unequivocal signifier. Rather than being an inadvertent metaphor of death (the “skeletons and hanging bodies” of Vindis’s solution) or an aseptic technocratic abstraction (as were some of the other entries), he is specific about certain memorial signs for instance the “wedge of light” and the “Tower” (both an ascending spiral and sign of the Statue of Liberty). At the same time, the mass of crystals and abstract stony walls were suggestive of related meanings of memorialisation. Balancing specific signs with enigmatic signifiers kept his project from being read in an entirely aberrant way.

Perhaps, like Gehry, some of his expressive grammar is often repeated across projects, and his patriotism a little heavy handed, but one has to applaud his courage in confronting a major problem of the new paradigm: the spiritual crisis and the loss of shared metaphysics. Many people, and some philosophers, would say this deprivation is the result of the new paradigm in science, but whether architects come up with a public iconography based on Gaia remains to be seen. My belief is that the universality will become shared metaphysics and for this reason my own design work is centred around it: various sculptures of DNA, Black Hole Telescopes, boundary-breaking structures, a universe as a cascade, and so forth (pl. 110). Cosmogenesis, the narrative of the underlying process of creation, is not yet a public religion, and may never become one, but it is still more than a diaphanic theory. The metaphor of a dynamic planet tunnelling itself through feedback is, of course, one of the new paradigms in science, but whether architects come up with a public iconography based on Gaia remains to be seen. My belief is that the universality will become shared metaphysics, and for this reason my own design work is centred around it: various sculptures of DNA, Black Hole Telescopes, boundary-breaking structures, a universe as a cascade, and so forth (pl. 110).
emerge. The answer is mixed. As Nikolaus Pevsner wrote concerning the paradigm of Modernism in nineteenth-century Britain, seven swallows do not necessarily a summer make. True, this may be a false start, the old paradigm of Modernism can easily reassert its hegemony, as it is lurking behind every Bush and Blair. But a wind is stirring architecture; at least it is the beginning of a shift in theory and practice.

For illustrations of this article, the reader is referred to pls. 110–117 and 132.

1 Santiago Calatrava, City of Arts and Sciences, Valencia, 1991–2002 (pl. 111). Positive organic metaphors but not a fractal grammar. This spectacular urban landscape has many qualities of the new paradigm, and several virtues such as the sculptural recognition of the structural forces in an exciting and innovative way, but the repetitive nature of the new paradigm is the way of thinking. Much Eco Tech shows this repetitive aspect; all still dependent on the new paradigm.

2 Norman Foster, Swiss Re Headquarters, London, 1996–2002 (pl. 115). Originally conceived as an egg, this building was described as many other organic things in addition to the famous egg. As an organic pineapple, a cuber and phallic – as well as a missile, bullet and bomb. Not only does this building make an energetic signifier, but the computer-perfected entasis and superacidic profusion of proportional beauty – the central planned skyscraper with elegant doublescaturing – is a strong signifier of the whole.

3 Frank Gehry, Guggenheim Bilbao, Bilbao, 1993–1997 (pls. 112, 113). Positive organic metaphors but not a fractal grammar. The popular and critical success of this building confirmed the enigmatic signifier as the convention for the contemporary monument. Although critics captured part of the suggested overtones of this building – Constructivist architecture – the central planned skyscraper with elegant doublescaturing – is a strong signifier of the whole.

4 MvRdV, Dutch Pavilion, Expo 2000, Hanover (pl. 116). An exhibition on the Dutch landscape determined as a statistical representation of the future Dutch landscape. From the top down can be found (1) windmills, and water on the top floor taking the form of a series of water in an exhibition space to (2) an agricultural section of small plants growing artificially, (3) agriculture and agroforestry, (4) houses and houses, (5) nature and nature, (6) trees and trees, (7) water and water, (8) wind and wind, (9) space and space.

5 FOA, (Moussavi and Zaero Polo), Yokohama International Port Terminal, 1995–2002 (pl. 114). A symbolic, spiritual and cosmic architecture is still relatively rare but a few architects are trying. Here the globe shattered through conflict is a huge exhibition area with flying instruments of war in its open structure. The Earth Shard is a huge exhibition area with a huge structure; the Water Shard is a huge exhibition area with a huge structure; and the Water Shard is a huge exhibition area with a huge structure.

