

NOTES

1. Samir Amin, "In Praise of Socialism," *Monthly Review* (September 1974): 12–3.
2. "Taylorism" was the brainchild of Frederick Taylor, the management theorist who pioneered time and motion studies and the idea of the production line. This was first embraced by Henry Ford.
3. On this, see Frederick Amarine, Francis J. Zucker, and Harvey Wheeler, eds., *Goethe and the Sciences: A Reappraisal* (Dordrecht: Reidel, 1987) and Gerry Webster and Brian Goodwin, *Form and Transformation: Generative and Relational Principles in Biology* (Cambridge: Cambridge University Press, 1996).
4. For a further development of this argument see Christopher Alexander, "New Concepts in Complexity Theory Arising from Studies in the Field of Architecture: An Overview of the Four Books of *The Nature of Order* with Emphasis on the Scientific Problems Which Are Raised," *Katarxis No.3* (September 2004). This edition of *Katarxis* is devoted to Alexander's work.
5. Justus Buchler, ed., *Philosophical Writings of Peirce* (New York: Dover, 1955), 357.
6. *Ibid.*, 294ff.
7. Aldo Leopold, "The Land Ethic" in *A Sand County Almanac* [1949] (Oxford: Oxford University Press, 1968), 224–5.

THE NATURE OF ORDER: AN ESSAY ON THE ART OF BUILDING AND THE NATURE OF THE UNIVERSE BOOK THREE: A VISION OF A LIVING WORLD

Christopher Alexander

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Review by BRIAN HANSON

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Who is responsible for the oft-heard mantra that Christopher Alexander is an interesting theorist, but he ought to build more if he expects his theories to be taken seriously? Until recently, if you had asked Charles Jencks why there was no mention of Alexander in his *New Paradigm*, you would have received that stock response.¹ Peter Eisenman, by contrast—so the argument goes—is clearly building his theories (no matter exactly *what* it is he builds), so deserves to be included in Jencks's book. But the notion is a lot older than Jencks. In 1962, the young Alexander took the opportunity to talk to Team 10 (successor-body to CIAM, the Congrès Internationale d'Architecture Moderne) about his recent time in India and the ideas it had spawned. Both the Smithsons—doyens of English Modernism, and authors of Brutalism—and Aldo van Eyck were present. The brilliant young man received a lofty put-down (or, at least, this is how it was remembered when a partial transcript was published thirteen years later): "Team 10," the account went, "thought Alexander should go on to build, and by so doing accept responsibility for his analysis. Team 10 are all

builders by nature and tend to be nervous—if not suspicious—of those who proceed from one [piece of] research to another."² But by 1962 Alexander had built a village school in India. He had been building in concrete since the age of nine, going on to work for a concrete contractor. He had made furniture. He was as much a "builder by nature" as any in his audience, and more so than many of them. And since then he has (as one can see clearly from this book) built up an impressive roster of buildings that a well-informed critic like Charles Jencks has no excuse for being ignorant of. So what exactly is going on? Are those who are so eager to dismiss him as a "mere" theorist indulging in a little wishful thinking? Are they hoping these challenging theories are *not* provable in practice?

Christopher Alexander has never been content with what became his unrivaled status as über-theorist. After 1962 he continued to cultivate his roots in building, even while a university professor; enjoying his growing stature as a building contractor, his involvement in concrete work, bricklaying, carpentry, tile-work—even his stint as lead man on a "gunite" crew. By doing this he ennobled the act of building in a less ambiguous way than he was able to do through his theories alone, and should have left no one in doubt that he believed the end of architectural theory should be building.

So one should always be careful when attempting to separate Alexander's theory from his practice,

and therefore cautious when attempting to review a book ostensibly about his Works. At the root of the argument that led the author to break with his publisher of forty years—Oxford University Press, New York—and to publish *The Nature of Order* independently, was a difference of opinion over the level of support to be given to each volume. Alexander knew at once that any inclination on his publisher's part to invest more effort in a theoretical work like Book One than in the more practical Book Three or the metaphysical musings of Book Four would betray the spirit of the enterprise, and would lead to a fatally skewed understanding of his intentions by the public. He is convinced that a stand-alone theory is not enough. Indeed, it is probably true to say that Alexander—the so-called arch-theorist himself—has never believed in theory as a stand-alone pursuit.

And as time has gone on, Alexander has become more and more convinced that practical architecture and theory—or at least the kind of theory that he has chosen to pursue—simply cannot be separated. When I think of the relationship between theory and practice in Alexander's oeuvre, I am often reminded of the Principle of Computational Equivalence set out by Stephen Wolfram in *A New Kind of Science*.³ The PCE (or “Wolfram's Law”) asserts that, because of the way our minds work, some kinds of complexity will always resist our capacity to abstract—they are, in effect, and will forever be, impervious to our theories. Paradoxically, despite the many pages of theory he has given us over the years, Alexander believes this to be the case for much of the complexity found in good (and many historical) examples of architecture and urbanism. Fans will remember that it was a principle similar to Wolfram's, an “Alexander's Law” of sorts, that gave rise to Alexander et al.'s undervalued 1986 book *A New Theory of Urban Design*; a theory that eschews conventional, “top-down” planning in favor of incremental sequences of “bottom-up” steps guided by things close to hand rather than by lofty visions of what is necessary. The book described the way “emergence” could manifest itself in the city a decade and a half before Steven Johnson began to popularize the idea.⁴ Urban structures generated by such sequences have much of the fractal structure beloved of the new breed of natural scientist, and functionally they tend to be more adaptive than “designed” (and subsequently imposed) structures.

Alexander is on view in *The Nature of Order* as never before—in the round. By this I mean that the theory is fused with a presentation of the works (which is the main contribution of Book Three) and of the underlying cosmology (which is the main contribution of Book Four) to a much greater extent than hitherto. In the past, readers have separately been offered “pure” works of theory, such as *Notes on the Synthesis of Form*; theory applied to some practical object, such as in *The Oregon Experiment* or *The Production of Houses*; building monographs, such as *The Mary Rose Museum*; and works that touch on the ineffable, such as *The Timeless Way of Building* (with its Pirsig-like references to a “Quality Without a Name”)—but never have they had the opportunity to see the relations between these various strands as plainly as here.⁵ In this issue of *The Structurist* others will be writing about Books One, Two, and Four, but here I will be considering the role within this broader picture of Book Three—the volume that homes in on the physical products of Alexander's work of the past forty years.

Book Three of *The Nature of Order* is the nearest Alexander has yet come to giving us a monograph of his works to set alongside his more familiar theoretical works such as *A Pattern Language*, *The Timeless Way of Building*, etc. A conventional monograph, though, it is not. The book isn't structured strictly project-by-project; it doesn't present the projects chronologically. Interleaved with the buildings we find pictures of Nature, of people's faces, of the members of Alexander's family at various stages in life, his paintings, and works of art and craft that he admires. Despite his career as builder/contractor as well as architect/theorist, this was the book Alexander found most arduous of the four to write. It was begun in the late 1970s, originally called *Sketches of a New Architecture*, but at that time nothing came of it. And he confesses that, in earlier drafts of *The Nature of Order*, there was no book of Works intended. Why was this?

Alexander is so reticent about publishing his buildings, albeit while believing the fact of their existence is so important, because he sees architectural publishing as part of the malaise against which he has battled all his life. For years, his buildings were not widely published. They are not seen at their best dressed up for the glossies: They are best seen as you move through them, as you catch a glimpse of them out of the corner of your

eye, as you settle into them and grow old with them. An architecture that can captivate in one dazzling image is inevitably, to Alexander's mind, the kind of architecture that is destroying the planet. The media that perpetuate these dazzling images are part of that deathly industry that is driving the life out of our environments. This view, which Alexander has held to all his professional life, is gaining ground: The design critic John Thacker, speaking recently at the Royal Society of Arts in London, urged developers to start "creating complexity and diversity rather than monocultures"; in the past year architectural critic Nancy Levinson has proposed that the "ordinary" is superior to the glitzy icon.⁶ Alexander sees the treatment of architecture by conventional media as a great conspiracy, and so the strategy he adopts in Book Three of *The Nature of Order* is intended (every bit as much as the theories contained in the other three books) to free us from its clutches. Not only is this the nearest the author has come to giving us his *Oeuvres Complete*, it is probably the closest he feels any architect can ever get to so doing by means of text and photographs.

The title, *A Vision of a Living World*, implies we are being offered a glimpse of the results of the manifold little healing steps talked about in Book Two. By this reckoning Alexander is offering us these fragmentary views of his own buildings as a way of suggesting what kind of seamless tissue would arise if the principles of the four books were applied more widely. Alexander's strong belief is that changes in architecture and building practice depend upon human beings cooperating in various different ways to produce a living structure. In marshaling the resources offered by Alexander's thirty years of built work in order to offer this tantalizing impression of an entire built world "turned upside down," I believe Book Three to be the most important of all of those that make up *The Nature of Order*.

In saying that Alexander has no faith in theory per se, I am not seeking to echo the mantra of Charles Jencks—that any theory worth its salt is going to have many offspring—which he uses to denigrate Alexander's in favor of his own "New Paradigm" (a variant of Deconstructivism that, unfortunately, seems to be rife at the moment).⁷ No, when Alexander speaks of theory without practice being futile, he means two things: First, as he has said, "If theory doesn't lead to better buildings, it's a waste of time"; and secondly, he wants us to know that any

attempt to deal abstractly with the stuff of building, the stuff of the universe, is by definition not a theory of architecture *at all*. If we are convinced by Alexander's version of "Wolfram's Law," we have to conclude that the origins of most architectural and urban complexity lie in a process of unfolding, much of which could not have been predicted *a priori*. This means, in a literal sense, that the theory *emerges from the doing*; it can have no separate life.

Most theories of architecture assume that true statements can be made about the art from a standpoint *outside* the practice of the art—indeed, throughout history there has been a distinction between those at the higher end of the art who indulge in theory, and those who merely *make* (and a further sub-distinction between making that is guided by theory and that which is not). It may be misleading, then, to describe Book Three of *The Nature of Order* as the book of Works: more accurate, perhaps, to describe it as the element necessary to turn *The Nature of Order* into an improved work of theory. This also helps explain why, viewed as a monograph in its own right, Book Three seems at first glance to fall so far short of one's expectations, and why also the illustrations of the buildings are divided up as they are by disquisitions about other matters. It cannot be separated from the whole set of four books. The theory needs the Works as much as it needs the theology set out in Book Four (which emerges as a form of deism you feel that even Richard Dawkins would be happy with).

What kind of buildings, then, is the reader going to find within the pages of Book Three—the thickest of the four books in the set?

Thorough readers of the Alexander corpus will already be prepared for the Agate student housing at the University of Oregon (which followed on from the master plan that was the subject of *The Oregon Experiment*), the low-cost housing at Mexicali in Mexico (subject of *The Production of Houses*), and the Mary Rose Museum (subject, unusually, of an eponymous monograph). Of these three, only the last—and largest in ambition—remains unbuilt. The other two exist in partially-realized form: The University of Oregon still adheres to a version of Alexander's 1970s master plan, but has carried out no further buildings specifically designed by him; Mexicali didn't achieve its intended size, and the key element of the builder's

yard at the center of the settlement (intended to enable it to self-generate into the future) has been replaced with private gardens. You don't learn a great deal more about the thinking behind these projects here than is contained in the earlier books, but it is possible to see what the completed buildings in Oregon look like. Many of the projects illustrated in Book Three—particularly his only English project, the West Dean Visitor's Centre, and the largest of his works, the Eishin campus in Japan (the subject of a further and long-awaited monograph)—appear in more cursory fashion elsewhere in the four volumes of *The Nature of Order*.

Those who know something of Alexander's work outside of the Oxford University Press publications may think of him as primarily a housebuilder. Having a number of houses together here shows clearly what a diverse group of buildings this is—a fact that strongly supports his assertion that each house grew from the individual requirements of its patrons, rather than in order to illustrate a theory. It is the window grids, the kitchens, and the attached outdoor spaces that stand out—all of them spaces for living in (the windows almost invariably have seats built into them, in accordance with the recommendations of *A Pattern Language*).⁸ The Potash/McCabe kitchen is a riot of Fauvist color; many of the houses include some small crafted element, such as a tile or a stenciled design. But for my money it is the corridor and staircase by which one approaches the Berryessa House in California that is most memorable: memorable, I think, because the design pays homage as much to the distinctive topography within which the house is set, as to the distinctive lifestyle of those living within the house. It presents a subtly skewed axis; a route of discovery, like one that passed through an eighteenth-century landscape garden.

The West Dean Visitor's Centre in West Sussex and the shelter for the homeless in San José are similar in scale, but again strikingly different in their responses to the specifics of place and of those destined to use them. West Dean won an award for the way it sits within the highly prized Downland landscape of that part of southern England (the place, incidentally, where Alexander grew up), employing materials for the most part indigenous to the area. As with all of Alexander's buildings, the specifics of window location and size, as well as the mix of materials, were determined during the

course of construction: The result is a sequence of spaces not only with glorious views out to the surrounding countryside, but also with fascinating relationships one with another. Visitors are first greeted with a view through a generous bay window toward the Downs along the River Lavant; turning right brings them to a large room with a crafted, deep-coffered ceiling, along one side of which is a raised, partly-enclosed gallery with its own distinctively private atmosphere. Old Portuguese tiles are set into the plasterwork at varying intervals.

The shelter for the homeless in San José feels in many respects more truly an Alexander-type project: It serves to ennoble the unfortunate who take shelter there by offering them places to sit and meet other people, a watering place, and somewhere to sleep. And in the main hall is a hidden gem: a fretwork trussed roof in *in situ* concrete, its ribs radiating like sunbeams. Alexander regularly refers to this roof as illustrating a central tenet of his approach—the indivisibility of beauty and functionality. Here is an efficient piece of engineering (albeit a little spoiled by cautious building inspectors' last-minute insistence on the addition of steel diagonal "stays" between the trusses and the walls) with an almost casual beauty: As in Nature, truth and beauty can be seen to be one. Its success inspired a number of other, unbuilt, structures illustrated in this volume: the roof of the Mary Rose Museum and the quatrefoliated structural members of a new Bay bridge, to name just two.

The booming Japanese economy of the 1980s provided an opportunity for Alexander (and his one-time pupil Hans Joachim—known as Hajo—Neis) but also a number of inevitable threats. It was in Japan, at Iruma southwest of Tokyo, that Alexander and Neis were able to build their largest project to date, on the campus of Eishin University. And it was in Tokyo itself that they carried out, in the Emoto apartments, a rare piece of urban architecture that truly enriches the urban scene. Emoto has all the best qualities of a product of the Center for Environmental Structure. I looked at pictures of it many times before its worth impressed itself upon me. It is savagely ordinary, and it is in that ordinariness where lies its strength as a contribution to the city (a city which, during the 1980s, seemed to be seeking bigger and bigger

iconic “highs”). To appreciate its worth, photographs and plans are not enough: You have to have walked along the street to realize what a refuge its scale and profile are, from the pressures of this Tokyo suburb.

Having seen what a great little building the Emoto apartments is, it is saddening indeed to contemplate what Alexander's unbuilt neighborhoods in Nagoya would have looked like: neighborhoods where he uses to the maximum his concept of long thin blocks to effortlessly outline the precious public spaces that tie each neighborhood together. But in Japan, at least, there is one great project that is complete: the Eishin campus. At last one begins to see here the full panoply of qualities achievable through a process of unfolding; qualities that bear such a strong relationship to the large-scale forms arising out of Nature's ways of making things. We can see the “hulls” of public space giving way to a permeable network of streets designed to sustain life, the evidence being that these streets do attract many people. We can observe the hierarchy among different degrees of building; the zones of transition; “gateways” between the outside and interior worlds and between the public and private spaces of the campus. There is a lake, and an undeniably strong relationship between the buildings on campus and the surrounding landscape.

But, as I have indicated, alongside the opportunities were the threats: threats still to be described in Alexander's forthcoming volume *A Battle between World System A and World System B* (the overtones of the title deliberately recalling Galileo's presentation of his own new paradigm). These were threats posed by vested interests within the construction industry, which—for example—wanted to substitute steel for timber in the construction of the great halls on campus. They were threats that compromised the well-being of the director of the university, Alexander's great—perhaps greatest-ever—champion Hisae Hosoi, and ensured that the project was a “battle” right to the wire. Some of these threats were, surely, unique to Japan at that moment in its economic and industrial development; but possibly they also reflect a wider difficulty with the implementation of Alexander's ideas in that resistance is bound to increase as the ambition increases, simply because the projects illustrated here are each in its own way a frontal assault on the

twentieth century's ways of making buildings (and the larger the scheme, the larger the number of vested interests arrayed against it). Anne Medlock, private client for a house by Alexander in Washington State, once advised other prospective clients in Texas about getting a house built Alexander's way. “It was hell,” she told them, “but it was worth it.” For a private client to decide to proceed on this basis is one thing; for a public, corporate, or institutional client—with issues of accountability pressing—it is not such an easy decision, unless you have the fearlessness of an Hosoi.

Alexander is now nearly seventy—still young for an architect, younger than Frank Gehry—and while on the whole *The Nature of Order* feels definitive as far as the development of his theories goes (not to say every question he raises has a satisfactory answer; but he does at least outline a research agenda that should keep successive generations in business for years to come: indeed, an Environmental Structure Research Group is apparently about to be launched), you sense, and certainly hope, that Book Three is only an interim statement. You sense, and hope, that other, larger projects are yet to come, that demonstrate beyond doubt that this is all possible in our day and at large scale. □

NOTES

1. For example, following a lecture at the Royal Institute of British Architects in London in 2002 to mark the publication of Jencks's book *The New Paradigm in Architecture: The Language of Post-modernism* (New Haven: Yale University Press, 2002).
2. The partial minutes of this meeting were published in “Team X at Royaumont,” *Architectural Design* Vol. 45, No.11 (November 1975): 676–7.
3. Stephen Wolfram, *A New Kind of Science* (Champaign IL: Wolfram Media, 2002), 715–846.
4. Steven Johnson, *Emergence: The Connected Lives of Ants, Brains, Cities, and Software* (New York: Scribner, 2001). He also broadcast on the issue on radio station WNYC (New York City) in February 2006.
5. Christopher Alexander, *Notes on the Synthesis of Form* (Cambridge MA: Harvard University Press, 1964); et al., *The Oregon Experiment* (New York: Oxford University Press, 1978); et al., *The Production of Houses* (New York: Oxford University Press, 1985); et al., *The Mary Rose Museum* (New York: Oxford University Press, 1995); *The Timeless Way of Building* (New York: Oxford University Press, 1979).
6. John Thackara, “Solidarity Economics and Design: Life after Consumerism” (lecture presented at the Royal Society of Arts, London, 12 December 2005); Nancy Levinson, “Snooze” (*Pixel Points* weblog, Thursday 16 June 2005).
7. Jencks, *New Paradigm* (note 1).
8. Christopher Alexander et al., *A Pattern Language* (New York: Oxford University Press, 1978).



REGENERATING ART AND ARCHITECTURE IN NATURE'S LANDSCAPE