

FOUR REVIEWS AND AN OVERVIEW OF CHRISTOPHER ALEXANDER'S *THE NATURE OF ORDER*

THE NATURE OF ORDER: AN ESSAY ON THE ART OF BUILDING AND THE NATURE OF THE UNIVERSE
BOOK ONE: *THE PHENOMENON OF LIFE*

Christopher Alexander

Berkeley CA: The Center for Environmental Structure, 2002; 476 pp.

Review by HOWARD DAVIS

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This book is the first in a series that will likely be remembered as one of the seminal works marking the emergence of a new paradigm of architecture in its relationship to human life. One book or book series cannot by itself cause such a new paradigm to emerge if the world is not ready for it. But the world needs it badly, and may be ready. *The Nature of Order*, the product of thirty years of practice and reflection, will come to be seen as a milestone in architectural thought.

The built environment of a city or town is extraordinarily complex, comprising thousands of buildings and thousands of participants who make those buildings; zoning codes and construction techniques and standards for daylight and hundreds of other factors that ultimately influence what's built. All of those are important, and not to be discounted. But sorting out those innumerable factors has proven to be difficult, and most contemporary writing about architecture seems to miss the mark by dealing with things that might be interesting but ultimately turn out to be not essential. And architectural and building practice

have not fared any better. The ordinary built environment of today is banal at best, ugly at worst, driven by money, and lacking in beauty and simple human feeling.

Why is this the case? Modern architecture is characterized by an almost schizophrenic split between fact and value. On one hand there are "facts" that can be codified. These include elements such as a building's minimum distance from a property line, or the minimum floor area of a bedroom, or the maximum number of steps a floor nurse in a hospital should be required to walk each hour, and other often quantifiable standards. Standards of this kind are promulgated and then largely unquestioned—they are seen as objective truths, to be adhered to in the course of design, and they exert huge influence on the built world. On the other hand are values that cannot be codified. These include the beauty of a building, its affective and emotional nature, its symbolic content, the way it meets the most simple of our needs. These are seen to be subjective, matters of personal opinion, without the certitude that characterizes the so-called objective issues.

Along with this split has come a set of attitudes that has determined the course of professional practice and education. Architects are expected to follow the rules of building codes, budgets, zoning

regulations, area distributions in building programs. But they also have license to be “creative,” to find unique and new solutions to architectural problems. What they do in this regard is a matter between them and their clients—their creative work is not, in general, answerable to objective or public criteria.

This has led to devastation of the built environment. Our cities and towns do indeed meet objective criteria of all kinds, ranging from the turning radii of freeway off-ramps to accommodate certain vehicle speeds to the coordination of house ceiling heights with materials available in standard dimensions. But cities are more often than not visually chaotic, functionally and socially disjointed, ecologically irresponsible, and without a sense of place or the emotional content that might come with a sense of place. There is no obligation to make buildings and places with life or with beauty, and even if the individual architect applies his or her own standard to that goal, there is no reason to believe that anyone else will agree.

What Christopher Alexander has done is ask a series of simple questions that have the capability of leading to useful agreement. Can we say anything objective about buildings that are beautiful? What is the nature of shared agreement about these buildings? What is it in buildings that touch us deeply? What is it in buildings that don't inhibit our ability to live life in them simply and fully? What does it mean for a building to contribute to the wholeness of the world? These questions, Alexander maintains, should be at the center of our explorations. They are questions fundamentally important to human life. And in *The Nature of Order*, Alexander has painstakingly developed a body of thought and practice that goes a long way toward answering them. In this book the patient and intellectually open reader is rewarded with the logic of a teacher who takes his pupil through a carefully constructed set of arguments and examples, testing different possibilities and connecting ideas together in an elaborate yet ultimately simple web.

Central to the book are Alexander's ideas of “life” and “degrees of life.” The success of a building or place is to be determined by how much life it contains, and how much life it engenders in the people who use it. This is a deceptively simple idea, and obvious, perhaps, to people who see the role of architecture to be the enhancement of human experience. But applying the idea of “life”

to an inanimate object is clearly difficult, and like the concept of beauty (which is rarely discussed even in architecture schools where one might think that beauty should be a principal goal of design) turns out to be a large problem in our postmodern, relativist age.

Alexander recognizes the centrality of this problem, and attacks it head-on. He conjectures that all matter, animate and inanimate, has some degree of life. A room, a carpet, and a city street all have life. And this life, which seems at first blush to be an enormously elusive concept, is an objective matter. This is not metaphorical; it is measurable, and it can be the subject of common agreement.

After four hundred years or so in which fact and value have gradually grown apart, this is a startling conjecture indeed. It is for this reason that Alexander devotes the care that he does to making his case. His argument is ultimately an empirical one, in which he demonstrates that when asked to compare buildings or objects in terms of whether they have more or less life, people tend to agree, indicating the objectivity of the phenomenon. Life is there or not, independent of our perceptions. This is a remarkable result in a world in which we have been taught that matters of beauty and life are matters of personal opinion and choice. And it means, helpfully, that design can be a matter of common agreement.

The comparisons are carefully made, and eliminate common misperceptions—that old things have more life because they are old, or that the vernacular has more life than buildings designed by architects, or that buildings made with “natural” materials have more life than buildings made with industrial materials. In all cases there are counter-examples, leading the reader to understand that the life of an object is independent of its age or stylistic labels. The life of a building is also not dependent only on “what happens there”—because the success of human life in a place is itself dependent on the physical life of that place.

It turns out that the degree of life in a building or town depends on the wholeness and intensity of its geometric structure—the order by which its parts are organized. One can understand the nature of order that gives rise to life—and such understanding is the first step toward the design and building of places that have life in them.

The geometric structure of wholeness depends first of all on the idea of the center—a focused entity, a place or object with strong identity that is present in the world and clear to the person looking at it. This may be a building, a public square, a street, a column capital, a column, or the clearly defined space between two columns. It does not necessarily have a clear boundary—a street may be defined to be the space in between buildings, or the space in between plus the buildings, or even a district (“Wall Street”)—and in explaining this, Alexander uses the analogy of a pond, where the exact definition of the boundary is irrelevant: “Obviously the water is part of the fishpond. What about the concrete it is made of, or the clay under the ground?... Do I include the air which is just above the pond?... What about the pipes bringing in the water?” The point is that there is a focused entity that we understand to be the pond—“But I do not need to make a definite commitment about the edge, and what is in and what is out, *because that is not the point* (p. 84). The center is clearly there, part of a larger structure and exerting its influence on that larger structure.

This geometric structure of wholeness is characterized by a series of attributes that together help explain how centers interact and form a strong field. These attributes are:

Levels of Scale (Strong centers at different scales)

Strong Centers (Objects and spaces with identity and character, connected within a field with other strong centers)

Boundaries (Boundaries that are themselves centers: not lines separating things, but things in themselves)

Alternating Repetition (Repeating centers that gain their identities by having other repeating centers between them)

Positive Space (Every bit of space is positive, made so by adjacent space that is also positive)

Good Shape (Clear, simple, understandable shapes)

Local Symmetries (Many symmetries at different levels of scale, of large and small centers)

Deep Interlock and Ambiguity (The interpenetration of one space with another)

Contrast (Between dark and light, between rough and smooth, between any two opposite physical attributes, helping to give each a strong identity)

Gradients (Gradual change of one attribute to another across an area or field)

Roughness (Apparent imperfection that is actually the result of careful fit at different levels of scale)

Echoes (The repeating of visual motifs in different ways and in different places within an object or building)

The Void (An emptiness that may be present in certain strong configurations)

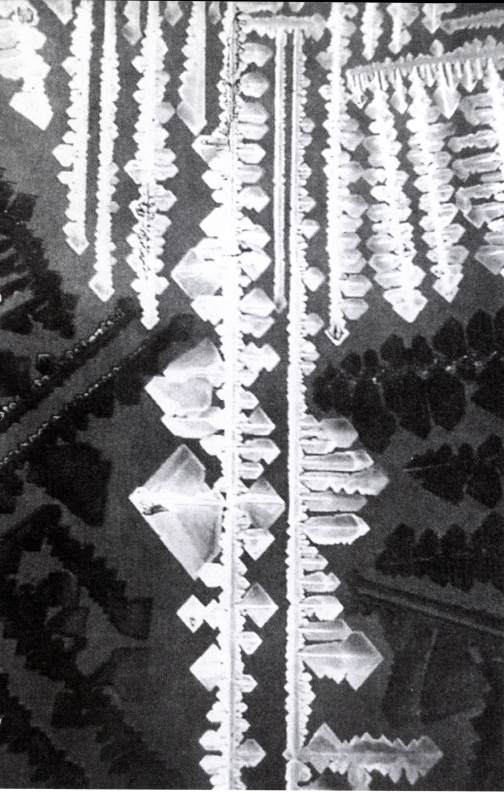
Simplicity and Inner Calm

Not-Separateness (The blending of a strong center with the world around it)

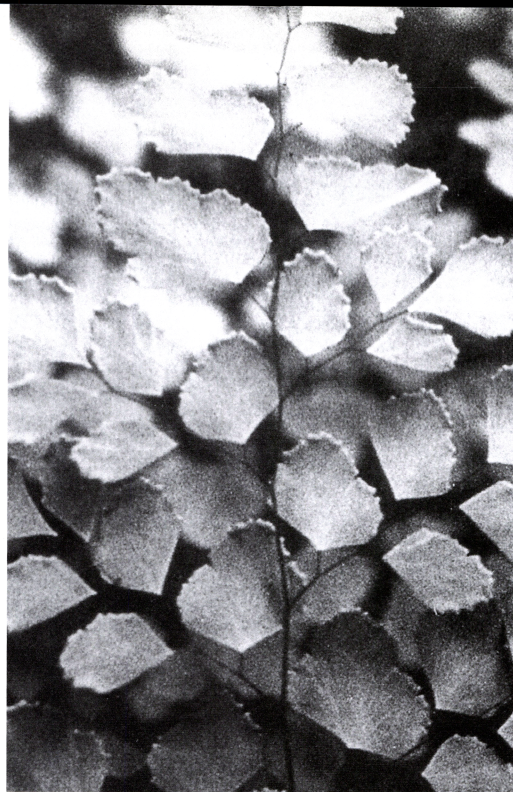
These properties are not like the patterns of Alexander’s earlier work, and the list is not a checklist. Instead, they are all properties of unified, connected space, and represent different ways of looking at the same phenomenon. Although forms differ from culture to culture, these properties all exist in strong examples of traditional architecture. So one might look at the geometry of a wall of Iznik tiles and see geometric phenomena that are equivalent to, say, that of the detailed ground plan of a medieval German town or the spatial arrangement of a Japanese temple garden.

The structure Alexander is describing also exists in the natural world, and a chapter of the book is devoted to explaining these parallels. Alexander has always seen coherent architectural space as a part of Nature and not distinct from it. A well-ordered built environment has the efficiency, contextual fit, and simple beauty of Nature, and needs to satisfy requirements that are analogous to those of natural structures.

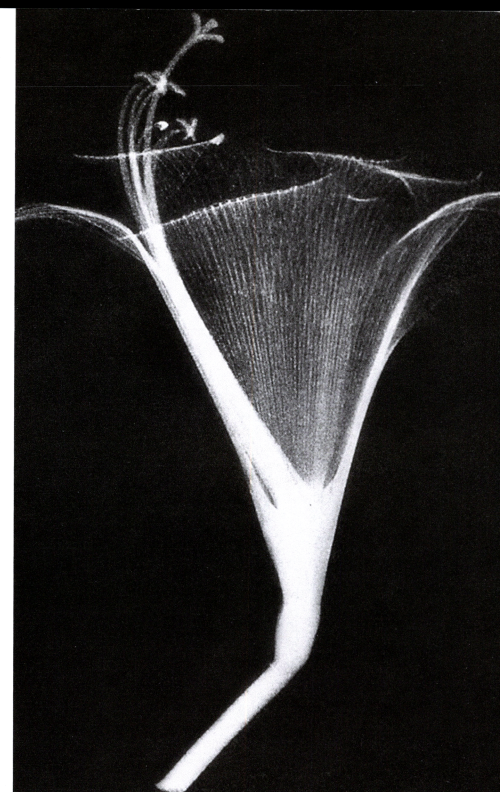
The Nature of Order gains its richness partly from the strong effort that Alexander made to connect his work with the work of others, the latter described in extensive endnotes to each chapter. Some of his earlier books, most notably *The Timeless Way of Building*, have been criticized because of their lack of such notes. But with its notes, *The Nature of Order* is similar to Alexander’s first book, *Notes on the Synthesis of Form*, which fascinated me when I was a beginning architecture student partly because of the wide variety of connections that was being made with other fields—anthropology, systems theory, folklore, and many others. In *The Nature of Order*, the reader finds strong connections to work in other fields and to other work in architectural theory.



CRYSTAL GROWTH.



BEAUTIFUL LEAVES AND THE POSITIVE SPACES BETWEEN THEM.
All photographs from *The Nature Of Order*, Book One.



X-RAY OF A LILY SHOWING ECHOES
OF A SINGLE FAMILY OF FORMS.

The 1960s and 1970s were characterized not only by criticism of the social problems with much modern architecture, but also by a specific search for meaningful architectural form. So-called postmodern styles of architects such as Michael Graves and Charles Moore were beginning attempts to develop a new language that had historical roots. Theorist-practitioners such as Rob and Leon Krier and Aldo Rossi attempted to be specific about such a language.

Consider certain physical manifestations of the idea of a center—those configurations that, generally speaking, relate the idea of convex space to focused human groups of one kind or another. Such patterns as *Positive Outdoor Space*, *Common Areas at the Heart*, and *Small Public Squares* all do this, and each represents a particular kind of center. The idea of a strongly defined convex space is also important to the work of the Kriers, of Colin Rowe, and of some of their followers who practice traditional town planning and urban design. It is also important to Bill Hillier (whose work Alexander mentions), who has been successful with a method of architectural analysis called “space syntax” and who sees the importance of convex spaces in giving identity to architectural configurations.

The idea of the focused architectural entity is not limited to Alexander’s work, and has emerged in various forms as a reaction to a tendency for Modernist architectural space to be neutral and

non-hierarchical. Alexander’s formulation is strongly connected to these others.

But at the same time, his formulation is different with regard to the structure of centers and in their influence. Alexander sees the center as an entity that is field-like in its nature. It is not a “thing” but rather a concentration of energy, a particular distortion of space that makes architectural space itself into something that is not at all Euclidean. The connection to modern physics is strong (and this is dealt with in detail in Book Four) but this characteristic of a center also has immediate, practical applications in design. The center’s field-like nature means that the center extends its influence out from itself, as part of a structure that includes other centers. So a public square becomes a strong center not only because it is shaped like a public square but also because neighboring urban spaces feed into it, and because building density may increase as buildings get close to it, and because building fronts facing it may be more architecturally elaborated than building fronts on neighboring streets. There is a mutual relationship between the center and the space around it, a relationship so strong that one cannot really understand the center unless one understands the entire field of which it is a part. And all these other centers—the neighboring streets, the building fronts, the buildings that the fronts are a part of—are themselves embedded in fields of their own,

making the entire environment a complex, living web of centers, each exerting its influence on all the others.

The center is also different from some other formulations in its palpable reality. It is both experienced and felt—and it is the depth of feeling about its reality that is the ultimate test during design. A building or space may have, on paper, all the “right” elements. But the proof is in the pudding, and Alexander is unambiguous about the importance of perceptive human judgment in making decisions about design and building.

So this is another way in which the distinction between fact and value is blurred in *The Nature of Order*. On one hand there are spatial structures that can be well defined geometrically. On the other there is human judgment. Both are necessary, and both need to be understood and engaged in by people shaping the built world.

The need for this judgment is one way in which this work represents the maturation of Alexander’s earlier work. Before the publication of *The Nature of Order*, Alexander’s theoretical work had been put forward in a series of books that began with the coupled, two-volume work *The Timeless Way of Building* and *A Pattern Language* (written with several co-authors). These books, conceived during the 1960s when criticism of the human failures of architectural Modernism was beginning, were based on the idea that the elimination of specific conflicts between form and function could lead to the creation of places that were humane and functionally resolved.

In one sense, Alexander’s pattern language was a Modernist idea—at least if one looks toward those aspects of architectural Modernism that were intended to be socially useful and those aspects of Modernism that, following Sullivan, argued for a strong relationship between form and function. What Alexander insisted on was that the Modernists did not always insist on was treating function in an experiential way, as something real and not abstracted. The emphasis on function that was explicit in the definition of patterns as perceivable relationships in the built environment came out of Alexander’s early work, in particular his Ph.D. dissertation, in which he carried out a detailed analysis of a village in Gujarat state, India, and used this analysis to understand what he saw as

the first step toward design: relationships that represented either “fits” or “misfits” among the parts of the village. This was verified through an elaborate mathematical analysis, and there was as yet no rejection of the Functionalist approach—or even Functionalist aesthetic—that Modernism implied. Indeed, various built and unbuilt projects by Alexander during the 1960s and 1970s were interpretations of the Modernist idea of function in buildings, made more detailed through the use of explicitly defined pattern languages.

Although *The Nature of Order* incorporates the idea of pattern languages into a more fundamental view, it also represents a fundamental break with the earlier theory. In *The Timeless Way of Building* (TWB) and *A Pattern Language* (APL), resolution of the conflict as to whether knowledge and practice are ultimately objective or subjective is attempted through different kinds of arguments and ambiguity of language. On one hand there are the patterns, structured as testable scientific hypotheses. On the other there is the “poetry of the pattern language” (APL xli–xliv), the idea that in any work of art, an otherwise neutral element gains its beauty and meaning from its context, from the other elements around it. There is also the “quality without a name” (TWB 19–40), which is rhetorically brilliant in the way it defines a phenomenon—but the methodology does not really follow through in using that phenomenon itself as a criterion for evaluation. The language of *The Timeless Way of Building* moves back and forth between the precise language of science and the evocative language of literary prose. Although these works represent a critical step forward in defining and resolving the shortcomings of architectural Modernism in the creation of humane cities and had a great impact on the thinking of architects and planners, in the end they rather beg the question of what kind of phenomena, at their roots, architecture and the making of architecture actually are.

This work makes it clear that human perception and feeling are central. One of the most significant things about Alexander’s work in general, and this book in particular, is the importance he pays to the tiny perceptions we have every day that are usually suppressed and that we don’t normally pay attention to. In his view, it is the mechanical and bureaucratic world that is suppressing our awareness of these perceptions—and that one of

the first steps toward changing that world, and the world of contemporary architecture, is recognizing those perceptions, paying attention to them, and taking them seriously.

At one point in the book, writing about the importance of simple humanity in the world, Alexander describes two encounters while on an outing to buy some music CDs. Before he went into the store, he met a homeless man on the street and sat down to chat with him. Alexander writes,

Then, all of a sudden he put his hand on mine, pressed three fingers into the back of my hand. He left them there for a few seconds, without speaking. Then, slowly, he took his hand away. During these moments, I felt in me a great expanding of my humanity. My existence as a person, my humanity, was larger at that moment when his three fingers dug into my hand. For a few moments of silent communication, I was more than I usually am: more of a person. (pp. 355–6)

But then he loses that feeling. He goes into the store, has an ordinary transaction with a clerk: “Chit chat. Nice guy. Nothing out of the ordinary. But it was a mechanical transaction. The credit card. It was OK. But, very slightly, my own humanity was diminishing, just a little bit, while I went through the motions of paying with that card” (p. 356).

Toward the end of this book, Alexander writes about an experience long ago at a Zen temple in Kyoto, an intensely beautiful and moving place. He describes walking up a stair cut into the hillside, sitting down on the top step, and watching a dragonfly land on the step next to him:

It stayed. And as it stayed I was filled with the most extraordinary sensation. I was suddenly certain that the people who had built that place had done all this deliberately. I felt certain—no matter how peculiar or unlikely it sounds today, as I am telling it again—that they had made that place, knowing that the blue dragonfly would come and sit by me ... there was a level of skill in the people who had made this place that I had never experienced before. I remember shivering as I became aware of my own ignorance. I felt the existence of a level of skill and knowledge beyond anything I had ever come across before. (p. 437)

These are two of hundreds of passages and observations in which Alexander pays attention to small things that affect his own feelings, and asks the reader to take those kinds of moments seriously in thinking about how to make the built

world. This is not to discount “big ideas”—but instead to recognize the importance to architecture of the inner voice, which is so important and yet so often neglected. And when that inner voice is telling us something about the moments when we feel most human, then it seems not only important but almost life-saving not to ignore it.

The dragonfly passage also points up the sheer difficulty of design—and the emotional power it may evoke when done right. The place Alexander visited—the temple with its steps cut into the hill—was very carefully designed by people who understood the power of place in shaping human experience. Students of architecture—and not a few architects—mistakenly believe that an ordinary building, one in which ordinary human needs will be well accommodated, is an easy thing to design. It is not. It is enormously difficult, as hard as anything in architecture. But it *is* something that can be learned. Perhaps the most startling message of this book is that such a simple experience—the encounter with the homeless man, or the incident with the dragonfly—is so important, and in the modern world is so difficult to achieve.

The importance of the immediacy of perception in shaping the environment raises the question of the roles of history and precedent. Alexander has enormous respect for historical and traditional buildings but is not interested in a literal interpretation of them. What he has found, however, is that by paying close attention to the underlying factors that shape architectural situations, configurations that are shared across cultures and historical periods will emerge. Thus, for example, according to Alexander the column capital (a common architectural element that appears in many cultures and over history) emerged because of the need to visually connect the column to the beam or entablature above and to help gather the forces from the beam down to the column. This explanation has more to do with the immediacy of the situation at hand than it does with the need for historical continuity. And of course, once a need is recognized in situation after situation, it may lead to historical continuity as a result.

What this explanation does not deal with is the particular form of the capital. A Byzantine capital, a Greek Doric capital, and a Baroque Corinthian

capital all visually connect the capital with the entablature, and they all help gather the forces down to the column. But they are of course stylistically different, and each is laden with symbolism that says something about architectural intention within its particular culture. *The Nature of Order* does not deal as much with those issues, and focuses instead on the extent to which the particular object has life.

Of particular note is Alexander's treatment of modern buildings. He is not sympathetic to much of modern architecture, seeing it (as many critics have seen it) at best as incapable of sustaining life in an ordinary everyday way, and at worst as leading to profound alienation and social fragmentation. But he also is no Luddite, and looks at particular situations for what they are. Some of the most striking images in the book are of distinctly twentieth-century objects—an engine lathe, high-tension power cables snaking across San Francisco Bay, a street under the elevated train in New York—that he offers, along with images of intensely beautiful works of art from many different cultures and of ordinary traditional places, as evidence that the existence of life in buildings and places is not a matter of history or style, but instead lies in their basic geometries.

As an explanation of architectural phenomena, the book therefore fills a gaping hole in the literature. Over the past several decades, scholarship in architectural history has moved from an almost exclusively style- and chronology-based approach to one in which buildings are understood to be cultural products. This approach has begun to incorporate the vernacular into the canon of appropriate subject matter; it recognizes the interactions between Western and non-Western art, and it recognizes the social dynamics of artistic production. But most of this scholarship is still curiously missing what might be called the “artist's eye”—an understanding of the particular artifact itself in terms of its aesthetic or even functional success, the kind of understanding that has to be part of the minute-to-minute work of the good architect or artist.

The Nature of Order has the capability to make our understanding of architecture more complete in this regard. A good book on Brunelleschi or Amiens Cathedral or Baroque city planning, while full of

information about style, technique, typology, and the social forces that affected them, may not deal much with the aesthetics of the object or with aesthetic comparisons between objects. De-emphasizing the cultural and stylistic aspects of buildings allows Alexander to emphasize the perceptual and experiential, and to approach answers to questions about the nature of beauty itself.

The book's depth should also be measured by its visual beauty: the sheer lushness of the examples, the clarity of its layout, the color, and the variety of marvelous paintings and ceramics and textiles and buildings from many different cultures and historical periods. This world of traditional art has been largely rejected by contemporary architecture. Some would argue that this is a lost world; indeed beautiful, but one that cannot be regained. It is difficult, however, to subscribe to that sentiment when holding this book in one's hands. One has the feeling that this is what basic artistic expression is about; objects that touch the human heart and the human condition very deeply indeed—and that the world displayed here is one that *must* be regained. It might be argued that this is seduction, and not logic—but if so, it may be a necessary seduction.

The book appeals to both intellect and feeling, and the two ways of putting forward the message complement each other. But Alexander the empiricist understands the importance of logical argument, and that argument can stand by itself in the book. And likewise, Alexander the artist knows the power of the visual image—and the images alone make their own argument.

The implications of this book, and of the series of four books as a whole, are enormous. But it may be that at least initially, the book will exert its influence not directly on architects but instead on philosophers and scientists who themselves have been searching for ways to expand their own mechanistic paradigms of thought, or that (as with *A Pattern Language*) lay people who have been searching for alternatives to the present ways of building will find their own feelings given legitimacy by this book. At that point, architects as well may see the need to support human life and the human spirit in simple and genuine ways, through the work they do and the buildings and cities they shape. □



REGENERATING ART AND ARCHITECTURE IN NATURE'S LANDSCAPE