Let us penetrate again into times that await neither an explanation nor a transformation of the world from the philosopher, but the construction of shelters against the inclemency of time. *Nicolás Gómez Dávila*

EDITED BY STEFANO SILVESTRI

IN MEMORIAM
CHRISTOPHER ALEXANDER
USING THE WRITINGS OF NIKOS SALINGAROS

CHRISTOPHER Alexander left us on March 17 of this year at the age of 86. A mathematician and architect of Austrian origin, he lived and taught for many years in the United States, where his theories and built works have influenced various fields of knowledge, from architecture, to sociology, to computer science.

Il Covile № 637 June 2022 presented various excerpts from essays and interviews of Nikos Salingaros translated into Italian, including an interview of Alexander himself conducted by Salingaros. That special number attempted to fill in the gap of Alexander's work for an Italian audience. The worldwide popularity of this issue brought requests for the original essays in English, which are scattered among various publications. And so now *Il Covile* is performing this public service by offering those collected essays here.

STEFANO SILVESTRI

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Christopher Alexander. Photo by Michael Mehaffy

ᕙ The Nature of Order. Christopher Alexander and the New Architecture.

NIKOS A. SALINGAROS

## ᕘ Part 1. Review of Christopher Alexander's *The Nature of Order*.

EVERY few centuries, humankind undergoes a paradigm shift. New ideas revolutionize the way people think and how they confront their world. A set of ideals is taken up and spreads into society. Such movements require that the population be ready to accept them; a large number of people who share the same frustrations are already thinking along similar lines, so that the message resonates with the multitude and is not simply a cry in the wilderness. The shift represents the "tipping point", catalyzing a reaction that has been unable to take off because it was lacking a few essential pieces. Usually, one person conceives the vision as a whole for the first time, and this completed vision moves people to adopt it.

The architect and scientist Christopher Alexander is offering us a potential paradigm shift with his new four-volume work *The Nature of Order*. It outlines a way of understanding and connecting to the universe, and a way of generating the built environment. Cutting past much of twentieth century aesthetic and ideological dogmas, Alexander suggests that we have lost touch with our most basic human feelings, and proposes methods to reconnect us to ourselves, and to our world. While this work is ostensibly a manual on a "New Architecture", it is really a roadmap of how to appreciate again (for the first time for many readers) both natural and artificially created beauty. It is also a manual on how to be alive to the maximum extent possible by manipulating our surroundings; hence the connection to architecture.

Volume 1, *The Phenomenon of Life*, offers straightforward empirical tests that tell us whether any artifact, building, or built environment makes us feel more alive or less. It is a simple matter, therefore, to choose our surroundings so that we always feel alive. These tests are based on both perception and geometry; properties common to all structures that make us feel alive. Amazingly, these geometrical properties are also found in structures that ARE alive, as with biological organisms, and also in the extended sense of inanimate structures formed by nature.

Alexander then shows that these properties were understood intuitively by all the greatest artists, artisans, and architects of the past, who used them subconsciously to create humankind's historic works of art. That is, until the 20th century, when those pursuing innovation started to violate them.
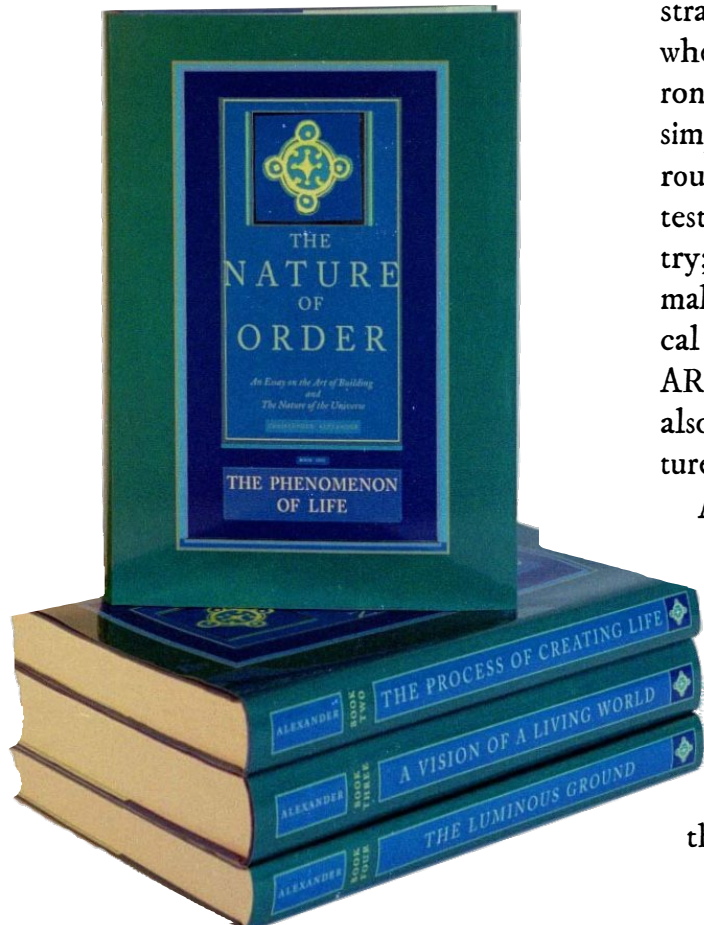
Alexander convinces even the most skeptical reader by giving lengthy discussions in the second volume, *The Process of Creating Life*, based on scientific arguments. Anyone with an amateur's interest in popular science can easily follow his explanations, and they serve to overwhelmingly validate the claimed results.

This is the wonderful aspect of this work: Alexander alternates between sensory tests that convince us in our heart and viscera that what he says is true; and detailed intellectual arguments that do the same for our rational, thinking mind.

The third book, *A Vision of a Living World*, is devoted to the art and science of building and design: everything from the scale of an entire city, to a neighborhood, to a single building, to an individual room, to a tile that will ornament a room and make it "alive". By itself, the existence of living structure on every level of scale will undoubtedly provoke a revolution. For Alexander convincingly argues that we connect to structure on every scale, and that the ideology of "pure form", which eliminated built ornament and coherent substructure on the human scales from the height of a person down to the width of a hair, was fundamentally destructive. Even in the field of architecture, where hagiography is standard practice, and where buildings by star architects are declared to be "miracles", Alexander creates deep anxiety. The worship of star architects is a game played by architectural critics and an entrenched power establishment. Architectural propaganda is meant for the masses, and is not taken seriously by those who are part of the machine. Yet anyone who reads Alexander's new book will be struck by the fact that this is a genuine paradigm shift, and not just another architectural deception intended to promote new faces and a new style. People are used to pretend prophets and cannot face the genuine thing: they tend to become hostile and lose all rationality.

Alexander ultimately and inevitably approaches the religious dimension. He has not shirked his duty, and faces this difficult confrontation head on in the final volume, *The Luminous Ground*. He is fully aware of the philosophical and religious implications of his work and devotes considerable thought to analyzing their consequences. When people begin to study this book, and the inevitable war with established architecture breaks out, thoughtful persons will find the truths in the connection to religion a comforting solace until the dust has settled. Then, the world can begin to rebuild itself on human and timeless principles free of a destructive dogma that took it over during the 20th century.
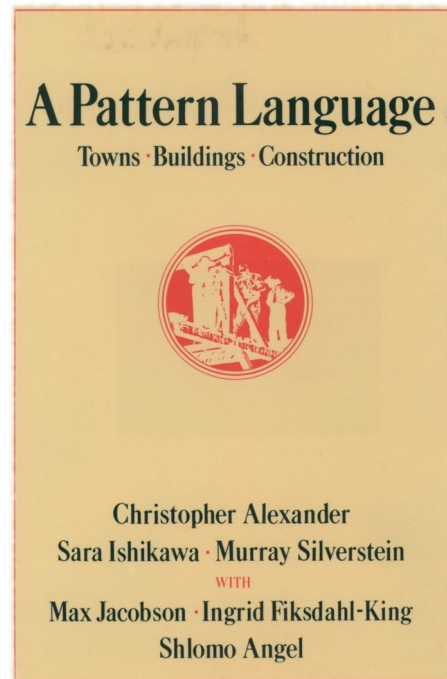
🐝 Part 2. Interview With Christopher Alexander.

NIKOS A. SALINGAROS: *You offer a revolutionary four-volume book to the world. I am worried that people are unprepared for it, simply because it represents such a radical break with what everyone is used to. For example, this book is supposed to be about "The New Architecture", yet many of your architectural examples are not architectural at all. You hit your readers in the stomach*

about architecture. Specifically, they expect to see photos of buildings without people, because that's the current conception of architecture — built structure that is validated by formal or ideological arguments. Nothing to do with human beings, since a building's raison d'être is supposed to be purely formal or ideological. Yet your examples of architecture just show people having a good time or coping with life in environments of negligible "architectural" qualities.

Your point is that architecture is not about building style, but is really a state of mind, and that good architecture is any structure, however modest, that generates an identifiable positive state of mind that allows you to be alive to the fullest extent possible. This idea is profound as well as revolutionary, since it stands architecture on its head. You validate our most basic feelings as human beings and insist that the built environment must nurture our inner joy, sadness, vulnerability, unselfconsciousness, and so on. All the formal architectural concerns — and names like Le Corbusier, Ludwig Mies van der Rohe, Frank Gehry, and Daniel Libeskind — are thus thrown out of the window.

CHRISTOPHER ALEXANDER: Of course, I have never had a rule in my mind telling me that I must participate in the psychotic process that we call architecture today. My allegiance is not to the profession as it is constituted today, but to the Earth, to buildings, and to people. Seeing the fact that most of our contemporary ways of dealing with architecture have been insane, I turned my back on them, and started from scratch. I began that work about forty years ago, and have been gradually approaching an architecture of a true humanity, year by year, ever since then. It has grown, and now may be called a coherent view of what architecture ought to mean.

Many of the people who pay attention to what I say are not architects. They are ordinary family people, engineers, biologists, computer scientists, politicians and political scientists. All these people know that something is wrong, and they know deeply what is wrong, but they have not had a leader who shows them that it is OK to say these things.

NAS: *Why are you not afraid of being ignored, or even killed, or of having hatred pushed in your face by other contemporary architects who see that you are undoing what they stand for?*

CA: The truth is a powerful thing. It gives people courage. And as the person who is saying these things, I need courage, too. But the fact that what I have to say is true gives me great courage, and the will to go forward, because I know, and other people know it is the truth. And, surprisingly, it gives many young architects courage, because they recognize it as the truth. Many architects today are walking about, knowing deep down, that they are doing something bad, or artificial, or meaningless, but not knowing exactly how to cut this mental cancer out of their systems. When they hear and see what I have done and built, and written, they begin to relax. Why do they relax? Because they hear someone speaking the truth, and many of them decide to follow that truth, because it makes them feel whole within themselves, even just to admit to these problems.

When it turns out that I have real practical solutions as well, and that what I have to say is not only true, but also morally right, and also practical, then they get excited and there is no reason for them to give up. They feel refreshed and renewed.

NAS: *After having dismantled architecture, you come back with overwhelming scientific arguments and show how to put it back together again in a coherent manner. You demonstrate to anyone who has even an amateur's knowledge of popular science that most 20th-century buildings are lifeless and incoherent, and that their place in books of great buildings is simply a mistake. The problem is that many people do not have this minimal scientific background to appreciate your claims, and will be offended by it without being able to verify it for themselves. You are contradicting something that was accepted by our civilization, regardless of*

whether ordinary people ever felt comfortable with it or not; a credo that became part of our culture and educational system.

Most people are terrified by revolutions and changes of paradigm, and this is certainly one. People might agree with you on a deep level in their heart and gut, but be too scared to let go of what they have been taught. They will support the established view out of fear. Truth doesn't matter in such occasions — the instinct for survival fights against drastic change because, who knows, maybe your ideas will not stop at architecture, but will turn society itself upside down. Should we fear the collapse of social and economic order as we know it — how can you convince the world that your ideas are not dangerous?

CA: My ideas ARE dangerous. They are dangerous to the established order, which has, unintentionally, created an inhuman world during the last fifty years. The pressure of living in this inhuman world, together with the horrible consequences — drugs, war, mindless jobs, mindless television, broken homes, teenage violence and so on — have brought people to a breaking point. At this time, more and more people are determined to change their world. One reliable estimate is that 60 million people, in America alone, are ready to stop playing along with the artificial and deadening world we have created, and are determined to find new ways of doing things, new ways of thinking, new ways of acting, new ways of building — so that we become reconnected to ourselves.

This is an enormous thing. To all these people all over the Earth — and there are perhaps as many as one billion such people worldwide — to these one billion people these ideas are not dangerous at all. Instead they have a life-saving, healing quality, which can help to place all of us in a new relationship with our planet, with one another, and with our lives and values.

NAS: Finally, there is the "architect problem": what to do with existing architects. Ac-cording to your own estimates, there are about half a million architects around the world. The vast majority was taught in schools that turned modernist after the Second World War, and is therefore trained in sterile and formalist methods totally disconnected from life. Younger architects are even worse, because they are trained to decon-struct forms — what's left has no coherence whatsoever. One could say that many of those architects are trained to destroy and prevent rather than to generate living structure, although it never occurs to them that that's what they are doing. What's to become of them? Fine. The star architects have had their moment of glory, and can retire wealthy, but what about the unknown practitioners who worshipped the star architects? It would be easier to re-train them into another profession rather than to make them change their working habits, since their methods have been part of their beliefs and worldview for much of their lives.

And then, who is going to build the world from now on? If our architects have been trained to be anti-architects, then you obviously need to train fresh people to do the job right. But where are they now? And since universities have the tenure system, how do you get rid of die-hard modernist and deconstructivist professors who run those programs now? Where are young architects going to learn an architecture that pro-motes life since they cannot do it in a university?

CA: Even half a million architects can eas-ily become obsolete, if they keep on doing things which are superseded by other, better methods and by the efforts and work of others. When the automobile was invented, the horse and buggy lasted a few years, and finally dropped to one side as a minor entertainment, but was simply no longer the main way in which people moved around. The new form of architecture that I am speaking about is be-ginning to be understood by engineers, by ecol-ogists, by computer scientists, by builders, by artists, by biologists, by economists. Many of these people recognize that architects are sim-ply not dealing with the problem of the en-

vironment in a realistic or useful fashion, and that the task of building now falls on their own shoulders. Under the impact of that kind of thinking, people are now developing new ways of banking, new ways of development, new forms of social reconstruction, and new forms of housing, new forms of sustainable settlements.

In many countries, the primary way of conceiving and making buildings and settlements is already people-oriented. It is not recognizable within the existing paradigm as architecture, and architects despise it because it looks low budget, low tech, and is oriented to people's desperate needs — yet all this is, within the perspective of our new architecture, a major contribution to the new, life-based paradigm. All this is only its beginning. These new kinds of professionals, and new social forms, are beginning to develop and propagate new ways of doing things.

And what architects now claim is simply being laid aside as the nonsense it really is. Some young architects will join this new process with enthusiasm, as is already happening. Will the others choose to come along? I believe the remainder of the architects who continue trying to teach nonsensical deconstructivist ideas will, within a few years, simply be forgotten. The new architecture I propose will ultimately supersede the present views, because it is true, because it is based on common sense and makes sense for ordinary people everywhere, and because it is based on good science. You can fool some of the people some of the time, but you cannot fool all the people all the time.

ᔕᕒ Anti-Architecture and Deconstruction: Ray Sawhill interviews Nikos Salingaros.

RAY SAWHILL: *Years ago, when I was wrestling with what I was encountering in the arts, and first running into ideas like Christopher Alexander's and yours, I'd tell people what I'd found out. I'd be relieved, happy and excited. And they'd look at me like I was crazy.*

NIKOS A. SALINGAROS: The problem is far deeper than I suspected. Even Christopher has said that. He said that he naively thought when they read *A Pattern Language* people would say, "Aha, this is it. It's obvious. And let's start doing a human architecture." But it is only lay people who read *A Pattern Language* and say, "Aha, this is obvious". Architects? Well, with them the conditioning is far stronger than Christopher imagined. He was extremely disappointed. He did not understand the resistance that *A Pattern Language* met, and that it still meets these days.

RS: *When I was in grad school in the late '70s, I got a glimpse of literary theory and recent French philosophy — I could see it coming. You've wrestled with it longer and more thoroughly than I have, plus you're a man of science. How does what's written about architecture these days strike you?*

NAS: I was spared all this stuff. For most of my life I read science, physics, mathematics, biology. I did not read any of these French philosophers, or theory of architecture. It's only in the last two years that I have been forced to address the so-called roots of deconstructivist architecture by delving into the French deconstructivist philosophies. And I just found it to be gobbledygook — gobbledygook combined with a very clear attempt to undo something. It's like a computer virus that erases a hard disk. Both Derrida and Foucault want to erase something from Western civilization. For what reasons I better not guess.

They want to erase a particular structured way of thinking. And so they go round and round in a carefully organized word-space in order to erase the meaning of words ... And to erase the meaning of logical associations. Now that's extraordinarily dangerous, because it undermines the basis of logic and the basis of science. But this is deliberate.

RS: *There's an agenda there.*

NAS: There's an agenda, yes. When you open this stuff and read it, it's gobbledygook. But when you read behind the words, you realize that the gobbledygook is a method of erasing structured information. The virus is introduced, and the more you read, the more it erases from your mind the associations that form coherent thoughts. And if you're, say, a young student studying this stuff, it winds up erasing your ability to form logical thoughts. It's a method to sabotage reasoning.

RS: *I know a lot of people who looked into the arts and found it too nutty a place to spend a lifetime there.*

NAS: As far as getting into architecture, I met Christopher Alexander about 20 years ago. He asked me to help him on *The Nature of Order*, which he was writing and re-writing. So I let him bounce ideas off me, and I helped with editing. This thing then sort of took me over. After 15 years, it had completely taken over my life. What I had been doing was working to develop a thermonuclear fusion reactor to give cheap electricity for humankind. And now I had the thought, "Well, what Christopher is doing is more important than this".

RS: *How did you and Christopher Alexander happen to meet?*

NAS: I was in Berkeley to meet a mathematician friend, and I had read Christopher's books *Notes on the Synthesis of Form* and *A Pattern Language*. I had even given a talk on *A Pattern Language* when I was visiting Greece. So I called the great man. His wife answered and said, "He cannot possibly meet you." And I said, "But I'm a physicist and a mathematician." And she said, "Well, hold on ... Can you come tomorrow and have coffee with him?" I went to meet him, and he said, "I'm glad you came. I have many things I want to discuss with you. With my fellow architects, it's like talking to a blank wall. I cannot get anything across, and can't get anything useful out of them. So I want to talk to someone like you." That's how our friendship got started.

RS: *What kind of attention had you paid to architecture before becoming friends with Christopher Alexander?*

NAS: When I was a graduate student I went through much of the architectural literature just to try to get a broader perspective on architecture. I was puzzled by everything, and only Christopher's writing made any sense to me. So I made a note: "Here is one individual who understands what architecture is". His name stuck in my mind.

RS: *When you started paying attention to architecture again and you ran into modernist orthodoxy, what was your first, non-intellectual, response to it?*

NAS: Well, on first exposure, my first response was, "This stuff is unpleasant." It was either that or neutral. But especially unpleasant. Even before looking at the theory, just looking at the buildings in pictures and being in them in person, I thought, "This stuff is not nourishing." Now, I grew up in Greece, and I know that certain pieces of man-made matter can be tremendously nourishing. There are bits and pieces in Greece that are not totally destroyed, that are Classical, Hellenistic, Byzantine, 18th century, 19th century. And I remember as a child that whenever I was near these pieces, there was a tremendous emotional nourishment. I remember that nourishment like having tasted a particular fruit or a cake. It was so strong I never forgot the taste. And that nourishment recurred very rarely, but it did recur in isolated cases in buildings. But in

most of what's being built today, no. It's not there. So it was a function of the geometry of the materials, the configuration ... It was something. And from all the stuff I read it seemed that Christopher was the only one who had any idea about what this was. [The Quality Without a Name].

RS: *What prompted you to start doing your own writing on the subject of architecture?*

NAS: It came involuntarily. After 15 years of being involved with Christopher it sort of gushed out. I had no desire to abandon what I was doing. I was becoming rather successful and well known, and the last thing I wanted to do was go into architecture. I'm not a trained architect. I have no idea how to lay down piping and beams. But I reached this threshold where the dam overflowed. And I said, "This is probably the most important thing I can devote my time to. It is among the most important things to communicate this to the world at large". And the realization that Christopher alone with his students was not enough to do that, that he needed someone else — I could offer a very different perspective, and a very different approach and interpretation and approach to what Christopher was doing.

RS: *Is there a way to convey to readers what this new way of seeing things put forward in Alexander's four-volume* The Nature of Order *is?*

NAS: It's a new way of looking at nature, and a new way of looking at what humankind constructs and builds on all scales — from the scale of a toy or a drawing to the scale of a city. And to be able to relate these scales. We have an infinite potential for creating structures. However, we have to juggle with infinities. Of all the vast possibilities of structures that can be created, only a dot in the sea, say, will have some degree of life, where we define life to have a mathematical affinity with natural structures, living, biological or inanimate.

Most of the things we can construct do not have this degree of coherence and organiza-

tion. What Alexander does is to pinpoint the dot in the ocean that contains the class of structures that have a degree of life that we can construct, whether it is a drawing or a building or a city.

Now when architects first listen to this, because they are not mathematicians, they become horrified. They say, "You are restricting the choices!" But that is a total misunderstanding, because the dimension of that dot is infinite. There are an infinite number of structures that fit into that dot. It is just that the number of possible structures that don't have life is an uncountable number of infinities larger than that. To an ordinary person this just blows their mind. For mathematicians it's like eating breakfast cereal. Following a set of constraints that create living structures does not restrict the number of possible structures, which is always infinite. And how many more choices do you want?

RS: *When I talk to arty friends about this kind of thing, I notice that they tense up especially about two things. One is the idea that there's some objective way of measuring the "life" in a structure. The other is that it's possible to be scientific about beauty.*

NAS: The answer to both those questions is yes. And I think Christopher is correct in his estimation of the importance of this for civilization. He is not exaggerating. The problem is that people who have not seen the book, they hear snippets, they hear him talking about it—

RS: *How can we convince them in a couple of terse sentences?*

NAS: You can't convince them. They have to get the *The Nature of Order*, to read all 2,150 pages of it, and then to brew on its contents for several years. It's a new world-view that, amazingly enough, goes back to old views that have been erased in modern culture. It links back with religious traditions, philosophical traditions, Eastern traditions, vernacular traditions of architecture, folk art traditions — folk art before it became trendy,

that is. It is the whole creative spirit of the human being. The problem is that words have been thrown around for the last several decades, and they've become cheap and superficial. So we just have to wait for five years for this to be digested.

RS: *There's some conjunction around right now: computer science, evolutionary biology, cracking open the genome ... Some threshold our culture has been reaching. And it's resulting in some amazing and fresh thinking about the arts.*

NAS: That is absolutely fair to say. This is cutting edge science.

RS: *Right, I read the book about that, Richard Gabriel's "Patterns of Software".*

NAS: So here we have Christopher, struggling with *The Nature of Order* and coming up with results that are found innovative and visionary by the computer-science community — so much so that they invited him to give the keynote speech at a computer-science conference [The 1996 ACM Conference on Object-Oriented Programs, Systems, Languages and Applications].

RS: *I saw a tape of that. He seemed startled to be there.*

NAS: He called me, and he said, "This was the shock of my life!" He didn't really believe they understood what he was trying to say. And he gave his talk, and there was a standing ovation that wouldn't stop. It was like the old days of Toscanini and the New York Philharmonic. And then all these extremely intelligent people talked to him, and he thought, "My God, these people understand what I have been doing better than any architect over my entire career!" These people get it and understand it, and are applying it to software.

RS: *I often feel ashamed of the arts community. Why don't they catch onto these things more quickly, and more eagerly?*

NAS: There is a lock-out, and intentional ignorance. People on top keep the practitioners ignorant because they're more easily controlled.

RS: *I take it that as a scientist you've been helping Christopher Alexander make sure that his science is good. What's your own proudest contribution to this kind of approach?*

NAS: Wait a minute. Alexander doesn't need my checking. Alexander is a scientist. My role is not to check his science. My role is to be a friend, and to edit the text and to bounce ideas off of. I will describe the role for posterity. For the last 20 years, I've been working with Christopher Alexander on *The Nature of Order*. I realized early on that his book is going to be as important as Darwin's *The Origin of Species* and Newton's *Principia*. I didn't want to mix myself up in it — this is Christopher's baby. But I will help him with editing. So I would visit with him in Berkeley or England, or he would send me the manuscript. And I would go through it and edit it, and cut out redundancies, or suggest rewriting to get the thought across. Strictly editing. The next time I would get it back and it would be double the size! However, I would compare and I would feel that he had in fact followed my suggestions for deletions, but had also written brilliant new material. I kept pruning it in order to encourage him to develop his ideas, and we would have conversations about how to present his point of view in the best possible way.

RS: *That must have been great fun.*

NAS: Great fun. So Alexander did not need my checking in the science, he's every bit as good a scientist as I am. Now, for these 20 years I have been having my own ideas and jotting them down on yellow notepads. And when the dam overflowed I thought, "Well, it's time to publish all this stuff" — ideas that I have gotten from my collaboration with Alexander that are different, because I'm a different person and think in a different way. I think it will be very complementary to Alexander and will certainly help. I'm saying different things in a

different way but supporting exactly the same goal.

RS: *What makes you sure you're right and the orthodox architectural establishment is wrong?*

NAS: I'm trained as a scientist. Incidentally, so is Christopher Alexander. And scientists are trained to discover facts about the universe. When we think we have discovered something and it is tested by scientific methods, as opposed to political methods, then we are absolutely secure in our convictions. We are aware of entire fields of civilization based on myths and superstition. So we are ready to defend a scientifically-derived idea against millions of people, and certainly against other so-called established disciplines, because we know that ideas are selected, like in a Darwinian process. The scientific arena is a fierce and highly competitive arena in which ideas are selected by means of verification and reproducibility of results. All the scientists attack the ideas, but those that survive, this means that they are verified by the scientific method.

The method of selection of ideas in the architectural world is chiefly authority. Architects and architectural students believe something because it is given by a figure of authority. Scientists, on the other hand, believe something because it has been attacked by other scientists and it has survived. It has survived because you can do an experiment and test it, or because 60 other people have done the calculations and said, "Yes, this is correct". That's totally different. After it has passed this process it goes into the textbooks and it becomes authority.

RS: *There's a mystical or religious side to a lot of this. Doesn't that make you and Alexander vulnerable?*

NAS: It doesn't make me vulnerable. It makes Christopher vulnerable.

RS: *In what way?*

NAS: Volume four of *The Nature of Order* is a profound philosophical/religious work. Alexander started 30 years ago — as a hard-

nosed scientist who was not particularly religious — to write this thing. And he kept coming up against the same brick wall. And to get across the brick wall, he found he had to swallow something, like bitter medicine.

RS: *Which was what?*

NAS: It was to accept that some parts of philosophy and religion have something to offer. And of course his curiosity took him across the barrier. So he wrote Volume Four.

RS: *When I got a look at* The Nature of Order *what I was reminded of was Augustine's* City of God. *And Christopher Alexander's own buildings have a meditative gravity about them.*

NAS: Exactly. And this is profound, because it was unexpected to Christopher, and he had a Herculean struggle with it — with himself and with it, and with the concepts. Finally he gave in and then it just flowed. And he himself accepted it. I predict that based upon Volume Four Christopher will be awarded the Templeton Prize for connecting religion with humanity. And he will probably be completely shocked by it! But I cannot think of anyone who deserves the prize more, other than the previous winner, the physicist Freeman Dyson, who wrote a beautiful book, *Infinite in All Directions.*

RS: *You aren't shy in your own writing about religious matters.*

NAS: I'm a moderately religious person, initially more than Christopher. But I never made the connection. Being with Christopher, it struck me that this is really profound, and that the time has come after several centuries to accept what historical religion has to offer, being extremely careful with all the detritus and negativity that has gone on through the centuries. Some religions at some point have attacked science. But we have to go beyond that because some truths that religion has to offer are inevitable. And they have come from Christopher's understanding of science. If you get something coming out of science and it

points toward religion, I'm buying that one hundred percent.

The
Timeless Way of
Building

Christopher Alexander
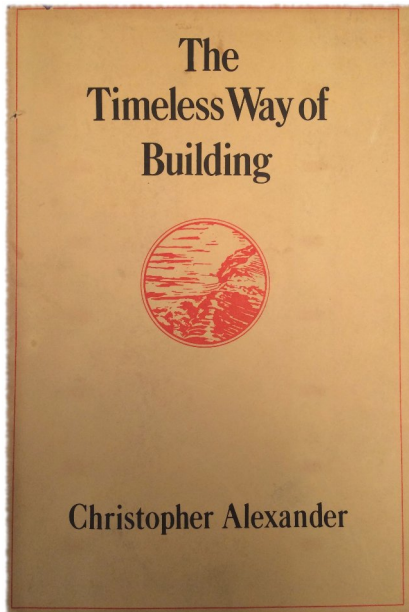
꙳ Enjoying Life's Freedom by Belonging to the World.

I N *The Nature of Order*, Alexander advances the thesis that the geometry of the environment influences our life either negatively or positively. Whenever spaces and surfaces possess the correct affordances, then we perform all of life's activities fluently without noticing the environment at all. Nevertheless, those actions are enabled because—and only when—we connect to surrounding details and dimensions, which boost our physiology and thought. This process is unconscious. If, by contrast, we find ourselves in a psychologically hostile environment, that impacts our actions and we have to force ourselves to accomplish even the most basic everyday functions under stressful conditions.
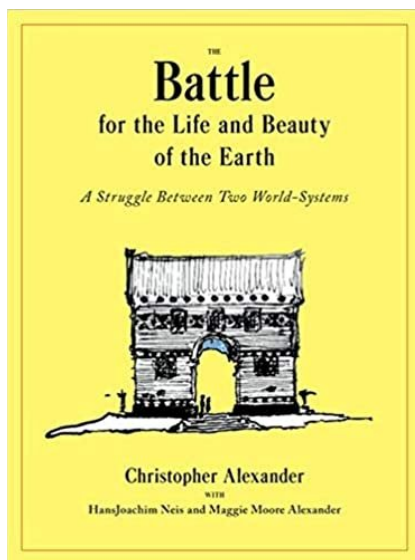
The active connecting method introduced above as a deliberate design tool underlies the passive mechanism by which we unconsciously experience our immediate environment. Biological connection therefore extends to encompass all aspects of human life. Our surroundings determine whether we sense if we belong in—feel connected to—a particular setting, and are thus able to carry on life's functions without distress. One of those functions could be something as simple as sitting and thinking: yet how many contemporary places do we know that truly enable this? Our life and unconscious thinking processes are significantly affected by where we happen to be. We feel more alive in settings that elicit a sense of belonging and comfort.

The Nature of Order details how to attain a relaxed coexistence with our environment. Alexander defined this process in his earlier book *The Timeless Way of Building* as responding to the "Quality Without A Name—QWAN." Neuroscience and environmental psychology provide cumulative evidence of how the immediate environment influences our state of health and mind. The connection process responsible for these effects starts with a basic need for the physical presence of graspable handles for our attention—objects of prehension—or merely their suggestion, in our close surroundings. Connection extends to include the list of attractive biophilic criteria that help us feel empathy unconsciously. Finally, eye tracking experiments and simulations reveal where our visual attention is drawn, versus what portions of our environment are disengaging. Together, these factors catalyze life's activities, or if absent, inhibit them.

Environments in which we feel anxiety or insecurity due to their geometry will prevent psychological coexistence. Those places limit our life by hindering our freedom to live to our fullest extent. Factors that prevent interaction define anti-affordances—both physiological

and psychological—perceived unconsciously. Geoffrey Miller points out that we perceive the world not as objects, but as opportunities for action. Those affordances in the environment play a determining role in human life, yet are not perceived directly.

Unnatural physical details and spaces can make us feel less "alive"—although the effect may be subtle and only accumulate long term. Anti-affordances require an evolutionary time scale—multiple human generations—to become adaptations. The present discussion opens up profound concerns about our emotional serenity: could architectural style inhibit a person's existence and liberty of the senses? Alexander suggests that accepting minimalist architecture confines much of the world's population within an inadequate experiential state.

THE
Battle
for the Life and Beauty
of the Earth

A Struggle Between Two World-Systems

Christopher Alexander
WITH
HansJoachim Neis and Maggie Moore Alexander

🐦 Fighting a Culture of Disconnection.

ɪɴ the remainder of this article, I try to explain why connecting in Alexander's sense no longer forms part of architecture and design. In his last book *The Battle for the Life and Beauty of the Earth: A Struggle between Two World-Systems*, Alexander and his coauthors expose the fierce opposition they encountered while building a campus in Tokyo, Japan. That story served Alexander as the occasion for analyzing what he sees as the wrong turn that architectural education and practice have taken, together with the building and construction industries. His criticisms inform the polemic that follows.

Detailed, erudite, and thoughtful studies of design philosophy try to be inclusive, bringing Bauhaus Modernism together with complexity theory and pragmatic product design. I find little value in such attempts, despite their upright professional intentions, because they mix opposites in a way that confuses the practical designer. According to my own research, Alexander's work links to and is supported by complexity theory, whereas modernist ideology undoes all of it. Quoting from the Bauhaus Masters and their uncritical supporters legitimizes their abstract, disconnected approach to design while it subverts all other efforts.

Human-centered design at its best achieves a profound connectedness—through visceral beauty—between the physical surroundings and one's self, which exists in an interior realm. A person who seeks this state of unity has to first learn and then practice linking the outer world emotionally to one's inner world. To help the reader's understanding, Alexander describes situations and settings where he feels most connected. Many of us can identify with the truth of those examples, having experienced visceral connection with animals, buildings, dance, human artifacts, music, people, ornamental details, spaces, complex but highly ordered information, and so on.

For someone conditioned by dominant culture, however, Alexander's examples may seem romantic or even fantastic. It is unfortunately very difficult to teach something like this effect using verbal or visual descriptions: the only way to do it successfully is through a powerful visceral experience. And there exists an institutionalized obstacle to achieving such

an emotional union. Connectedness is hampered by external ideas that architects, experts, and society impose on our natural instincts, leading to disconnection. An abstract simulation of reality as the mandatory ritual of modernity has replaced direct physical experience in architecture.

Eye tracking experiments reveal that it is nearly impossible to connect in a visceral manner to the color, details, geometry, and surfaces of a building created using a modernist or contemporary high style. Many human artifacts and utensils give the impression of detaching us from the material world. They may satisfy a primary affordance (their specific, intended use) but present several more secondary anti-affordances that make the product awkward to use. A sensitive individual has to go to a lot of trouble to find everyday objects and environments that are not crude, ill-fitting, or jarring—not from their designer's carelessness, but because of style.

Most people may not realize how dominant culture condemns objects, places, and structures we relate to deeply as morally forbidden, old fashioned kitsch, and even as dangerous for economic progress. Why? Apologists of modernism offer the excuse that intense emotional nourishment coming from things is somehow unmodern, and discourage people from connecting viscerally to the manufactured world. A form of psychological conditioning as part of design practice makes us feel self-conscious about experiencing the joy of a relationship to visceral beauty that is artificially created.

Yet we hardly question the sensory isolation that has replaced traditional human-centered design everywhere. Potent economic and societal forces promote a modern unemotional existence based on abstractions. Schools resort to obsolete ideology from the 1920s to justify this polarization between our sensory system and the built environment. Architectural education compartmentalizes the action of visceral con-

nection in our minds, permitting us to connect emotionally to another human being or pet animal, perhaps, but not allowing the same for an artifact, a building, or a piece of ornament. Many people are stuck inside this isolating cognitive box.

It helps to leave aside global consumerist culture and pay attention to life occurring at its edges. Where people have to rely on their own resources, they create comfortable things for themselves. Institutionalized power may suppress the innate human habit of connecting, yet many people around the world produce objects and environments that make their lives more pleasant. Opposing top-down economic and political pressures, local groups apply more humane systems of construction and production. It is here, in informal settlements or away from the hegemony of the design establishment, that we find visceral connecting to be practiced continuously.

Nikos A. Salingaros, "Connecting to the World: Christopher Alexander's Tool for Human-Centered Design", She Ji: *The Journal of Design, Economics, and Innovation*, Volume 6, Issue 4, 2020, 455-481. https://doi.org/10.1016/j.sheji.2020.08.005

NOTES ON THE SYNTHESIS OF FORM

CHRISTOPHER ALEXANDER
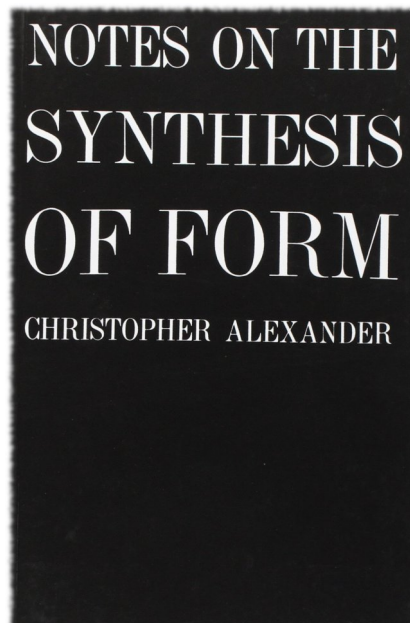
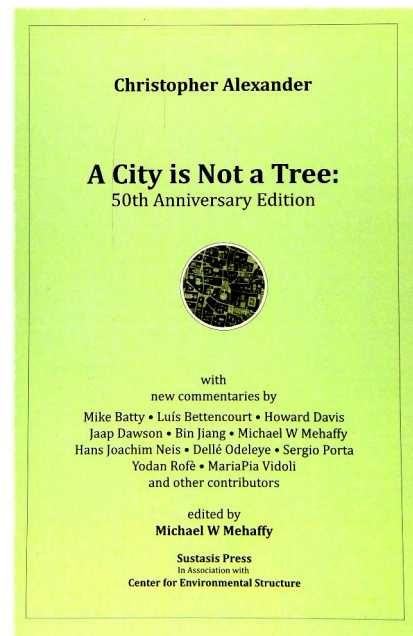## ৲ Christopher Alexander's "Field of Centers".

A REVOLUTION is occurring in how we understand and do architecture. Four decades ago architect Christopher Alexander developed the "field of centers" to explain how physical space attains coherence through structure in overlapping regions. He called geometrical components or elements "centers" instead of "objects" because he wished to emphasize their connectedness and interrelatedness to every other region. He especially wanted to break out of the mechanistic thinking in terms of isolated entities, despite a long tradition in our visual culture, because that is not an accurate description of the real world. Each "center" focuses attention into itself, but never detaches from its surrounding centers. Strong centers result from many overlapping centers—again, emphasizing the phenomenon of interaction and not isolation.

Alexander's theory, dating from the 1980s and published in *The Nature of Order* never caught on because of its abstractness—and also because architecture was isolated in its own stylistic pursuits. The profession has for decades been largely unconcerned with the immediate and evidence-based physiological response of users to a building's geometry. The formulations of complexity proposed in Alexander's The *Nature of Order* instead found fertile ground in computer science. This neglect now changes, as eye-tracking has re-entered the field of design through portable apparatus and simulation software. We claim that eye-tracking reveals a representation of the "field of centers".

These concepts can be used for architectural education and practice because Alexander's work outlines a method for generating the "field of centers" in a design or structure. This well-developed design toolkit is independent of pre-attentive processing, and both physical eye-tracking and eye-tracking simulation software can serve to check a successful result. The mechanism for achieving geometrical coherence is an algorithm for quickly selecting an adaptive design from among an infinite number of possibilities. Visual attention scans complement this search of solution space by providing feedback on each step in the process—whether it is approaching a solution. Even though the Visual Attention Simulation results using the VAS Software from 3M Company are only partial, and do not convey the whole process, the availability of easily performed heatmaps is a significant advance in the design field.

Christopher Alexander

A City is Not a Tree:
50th Anniversary Edition

with
new commentaries by
Mike Batty • Luís Bettencourt • Howard Davis
Jaap Dawson • Bin Jiang • Michael W Mehaffy
Hans Joachim Neis • Dellé Odeleye • Sergio Porta
Yodan Rofè • MariaPia Vidoli
and other contributors

edited by
Michael W Mehaffy

Sustasis Press
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Alexander did not anticipate 35 years ago the remarkable development that is the availability of this type of software. He did not have the tools we have today, but he intuited the results nevertheless. This is arguably the first major revolution of design theory since Alexander first formulated his ideas on how geometrical coherence engages our attention without conscious analysis. The eye is attracted unconsciously to evaluate a design, during the first three to five seconds of pre-attentive gaze that processes visual details, configurations, and symmetries.

Those visual qualities contributing to a uniformly distributed heatmap correspond precisely to elements of Alexander's "centers". Superimposed onto the overlapping centers are additional preferences for specific bilateral symmetries about a vertical axis (the "face" attraction). This vertical axis bias is due to our evolution and adaptation to gravity for our locomotion and balance. Moreover, as a result of our evolution, as reading facial expression confers a survival advantage, we have groups of specific face-recognition cells, and those respond more intensely to faces than to other non-face-like or non-symmetric patterns.

While Alexander does not explicitly mention face-like symmetry privileging the vertical axis, all of his exposition of the field of centers includes bilaterally symmetric components with a vertical axis of symmetry. Therefore, Alexander was definitely aware of those extra selection mechanisms, even if he did not document them. We can now show through science and technological tools that what Alexander predicted was entirely accurate.
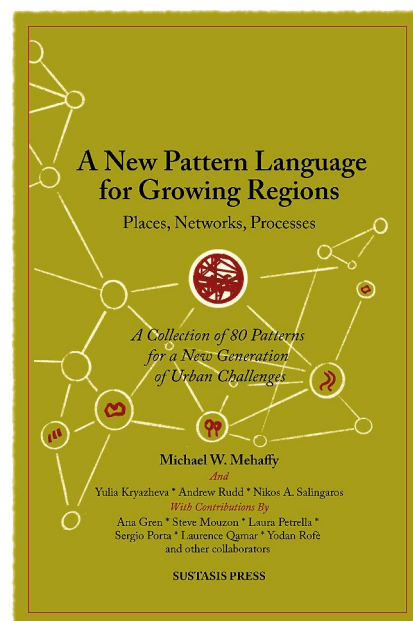
The field of centers is essential in determining how the environment is perceived and actually used. We are attracted to experience "centers" that are complex combinations of structures, and not just the isolated structures themselves. This occurs in two stages simultaneously, but is separated here for the purpose of discussion. First, the design and structural details merge and overlap to produce a "field" property of organized complexity, which is how the eye–brain system perceives a visual. It is only afterwards that an observer begins to analyze specific details of a complex composition.

Second, the design itself overlaps with the observer to establish a strong yet unconscious connection between user and environment. The human brain is a potent "social engagement system" with more of our neural hardware devoted to face perception than the perception of any other visual object. Effectively,

this means that perception is relational; people are hardwired for one-to-one interaction. The world's most nourishing places make one feel connected to them, with the same intensity we connect to other human beings and pet animals. We believe that this is what Alexander was getting at; and to which we are now able to lead with the Neuroscience.

For example, we are drawn instinctively to a room corner with light and color on the wall, and not to an individual chair just because it is made for sitting. The way we actually react to environmental geometry is very different from what is commonly assumed. A strictly mechanical interpretation of the world, and of humans as machines using what they are supposed to use—other objects designed for them—denies the complexity of the perception that is the essential quality of human nature. Eye-tracking experiments or software simulations reveal subliminal reality and explain our unconscious interactions with the environment.

Visual Attention Software: A New Tool for Understanding the "Subliminal" Experience of the Built Environment, by Alexandros A. Lavdas, Nikos A. Salingaros, and Ann Sussman. *Applied Science* 2021, 11(13), 6197; https://doi.org/10.3390/app11136197

A New Pattern Language for Growing Regions
Places, Networks, Processes

A Collection of 80 Patterns for a New Generation of Urban Challenges

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And
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SUSTASIS PRESS

# ❧ Why Christopher Alexander Failed to Humanize Architecture.

❧ Introduction.

HRISTOPHER Alexander introduced an astonishingly novel way of thinking about architecture. At the same time, his model validated millennia of traditional building activity, making it newly relevant for construction today. Among the many mutually-supporting elements he introduced to create a healing environment, design patterns contain re-usable socio-geometric components of successful design solutions. These common elements of configurations, paths, and spaces work well to provide an emotionally-comfortable environment as found in built structure the world over. Whenever such a pattern-rich environment succeeds in connecting to the user, people sense the QWAN—"The Quality Without A Name." Perceiving the QWAN allows one to judge the design's level of adaptation to human feelings.

But there remain serious unsolved problems.

The wonderfully adaptive mechanism Alexander describes in all his books had become extinct by the time he published his results. Breaking with convention by not discussing design formalism and ideology, he always focuses on how to achieve a space or structure that gives a positive and profound feeling to the user. And it was not a natural extinction, but an aggression: dominant architectural culture wiped out the genetic material of adaptive architecture contained in traditional design patterns. The architecture-industrial complex also conditioned the general public to reject the QWAN as irrelevant, nostalgic, and silly. Practitioners who try to implement Alexander's toolkit for adaptive design find themselves marginalized in the architecture profession and shunned by academia.
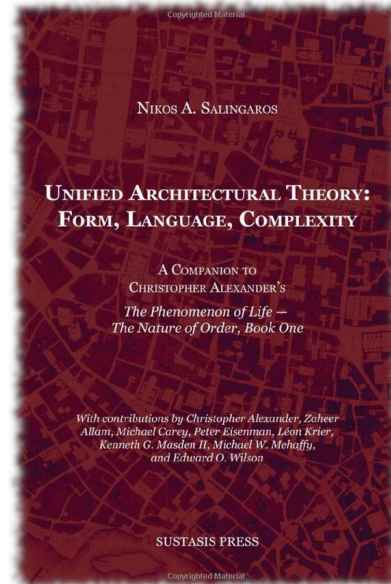
This is not a question of resurrecting an older method that somehow became lost because of neglect through changing currents in fashion. Design patterns and the QWAN are new concepts, now supported by the latest research in neuroscience. An opinionated profession judged the healing buildings and environments from which they arose not to be worth investigating. (A Google search for Quality Without A Name or QWAN gives many thousands of software pages but no architecture pages.) Those prejudices shaped the educational system so that patterns cannot be implemented within the current design paradigm. There is no space in the curriculum, because faculty and the accreditation system have other priorities. The pattern movement flourished in the self-building counterculture, but could not spread beyond that restricted niche. In computer science, however, programmers recognized the value of his patterns and the pattern method as a general framework for organizing complexity.

❧ Design patterns that determine human wellbeing.

ALEXANDER and his colleagues introduced "design patterns" as a tool for adaptive design in the 1977 book *A Pattern Language*. Each design project employs a group of pat-

terns selected for their relevance to the particular situation. The "pattern language" defines how the individual patterns can combine in a coherent manner to derive novel structures that promote human health and wellbeing. Design patterns interlink to express design solutions in much the same way that a language links words together to express emotions and thoughts.

An infinite number of possible design patterns are embedded in traditional and contemporary architectures. The patterns have to be discovered and then extracted from a built configuration so they could be used again in a different context and location. After documenting several such patterns, a selection process decides which ones contribute to wellbeing. The opposite occurs when standard design typologies are instead convenient for some bureaucratic process, for efficiency in construction, or for a purely extractive profit motive. The computer science community calls those "anti-patterns."

Out of all possible candidate patterns, Alexander chose only the ones that would enhance the eventual user's feeling of humanity. Subjective wellbeing denotes a mental and physical state with no obvious stressors. This selection criterion guaranteed that any new project satisfying design patterns would automatically adapt to human sensibilities and promote user wellbeing. But it also split off the pattern method of design from industrial modernism, which serves mass production as an arm of extractive global consumerism.

This separation hints at underlying psychological causes. I argue elsewhere that industrial-modernist forms and surfaces encourage disconnection (from other people), disembodiment (from oneself), and favor the abstract over the contextual, producing feelings of alienation that distance us from life and the human love for the environment. And this is precisely the attitude's irresistible appeal to architecture students! They are drawn to a pro-

fession that promises them power: of becoming members of a system that gives license to force other individuals to inhabit alienating and uncomfortable environments. Few occupations, at least in democratic societies, allow young professionals to exert unchecked power over the population without repercussions in this way. Architecture is one of them.

In contrast to this attitude, the Alexandrian approach offers an appreciation of living structure; love of nature and other organisms; sensitivity to emotions and natural cues; the beauty and color of flowers, folk art, paintings, and so on. Those terms evoke seemingly anachronistic and romantic feelings. Ruthlessly ambitious architecture students aren't attracted by such soft enticements. No, what really inspires today's young architects is the expression of raw power exemplified in the "Big Underpants" building (CCTV Headquarters) cruelly stomping on the residents of Beijing. They dream of someday designing a giant iconic building: the more impossible and unnerving its geometry, the more omnipotent the designer feels.

⚡ Science and the spiritual dimension of design.

A CURRENT research goal in support of Alexander's work (for example, in the Building Beauty program) is to validate traditional techniques of design and construction: not out of nostalgia, but because they are somehow so much more adaptive than what came later. Some of us have been working in this direction, applying science to understand and update what we know works well in humanistic traditional architectures. We are hopeful that this strategy will promote the renewed adoption of adaptive architecture around the world.

Some readers may be suspicious of applying science to contemporary design precisely because it is science that has been instrumentalized in global consumer culture in the direction of often-monstrous design. Scientific re-

search does bring in the maximum intellectual weight that can settle issues and answer open questions. Anyone who has followed the recurring debates pitting humanistic architecture versus fashion coupled with greed and power knows that the latter combination wins out every time.

To be sure, architectural reform cannot occur without scientific backing, but Alexander's pioneering work also has a spiritual dimension. At the heart of Alexander's conception of the universe is the intimate metaphysical connection between humanity and the built environment. The humanistic side of his work privileges an almost religious intertwining between the most uplifting traditional architecture and the spiritual human being. This point is very easy to lose in the scientific results.

In Volume Four of his magisterial *The Nature of Order*, Alexander delves into how emotion links matter with spirituality, and how this connection lies at the basis of healing design. Two essays of mine might interest readers and explain these important concepts further. "Connecting to the World: Christopher Alexander's Tool for Human-Centered Design" describes the visual connective process and the experimental method of the "Mirror of the Self," now verified by visual attention software. "Beauty and the Nature of Matter: The Legacy of Christopher Alexander" analyzes Alexander's struggles against the mechanistic thinking that misled humankind to relinquish its own humanity.

❦ QWAN: The "Quality Without A Name".

ALEXANDER's book *The Timeless Way of Building* gives a beautiful and poetic description of seven qualities that combine to define the QWAN. He later reformulated the same concept as "degree of life," and separately as "the field of centers" that characterizes healing environments packed with design patterns. Admittedly, having distinct names

for the same phenomenon is not helpful for readers and students. Yet this redundancy reveals the difficulties of using conventional language to express a deeply connective state. Computer scientists picked up this term, and applied the QWAN to describe elegance in computer design and the complex structure of software.

I explain the "Quality Without A Name" by appealing to its opposite, which is a state of *inhumanity*. The 20th and 21st centuries have seen the built environment increasingly shaped to produce anthropogenic environmental stress, and we know that environmental stress triggers, among other things, autoimmune responses and a general feeling of malaise throughout the population. And yet the vast majority of people fail to realize what's going on, despite sensing unease, while at the same time experiencing cognitive dissonance because the media praise those buildings that are making them sick.

Nathan Robinson asks: "When is the revolution in architecture coming?", why is contemporary architecture so inhuman? And how long will we have to wait for it to be replaced by its opposite—a healing type of architecture?" Robinson provides useful descriptors for this inhuman architecture, and I list ten out of his fifteen terms below. He and many other observers, including myself, identify recent award-winning architecture as showing these qualities:

> *lifeless, asymmetric, grating, monolithic, arbitrary, brutal, drab, disharmonious, stark, unfriendly*

which we contrast with Alexander's descriptors for adaptive architecture that is "alive." Here are the seven qualities that together make up the "Quality Without A Name":

> *alive, whole, comfortable, free, exact, egoless, eternal*

This is an alarming though not exact correspondence of opposites. And it provides a lesson. We have to ineluctably conclude that contemporary architecture—not only its highest-profile iconic exemplars, but also ordinary buildings—has the unstated intention of eliminating Alexander's "Quality Without A Name" (or "degree of life" or the "field of centers"). Disagreeable and sometimes repellent qualities embedded in the favored architecture of the past few decades are therefore not accidental, but deliberate.

I offered this observation—of sets of opposite, mutually exclusive design rules—in the first chapter of *A Theory of Architecture*. This book has become popular with the architectural establishment, yet, unsurprisingly, it has not led to any change in design practice. Nathan Robinson reached the same conclusion:

> If a place feels cold and off-putting and you don't want to visit it, well, it's badly-designed, unless the purpose is to repel people, in which case it is well-designed but just strangely sociopathic.

❧ Irrational belief in the redemptive power of the industrial look.

WHY is the pattern approach to design not taught in standard courses in our schools? And why is all the mounting scientific evidence—implying that industrial-modernist design and tectonic typologies could be affecting people's health negatively—ignored? How can environmental devastation continue worldwide while the media praise inhuman construction? The architecture-industrial complex deems design patterns to be uninteresting, and dismisses the QWAN out of hand. Since applying design patterns inevitably leads to more comfortable configurations and spaces reminiscent of traditional buildings, this resemblance is abused to discredit them.

For example, the visceral attraction of built surfaces is one of the key elements of adaptive design that is violated by industrial modernism. It is documented in the first major collection of design patterns since the original book by Alexander.

> New Pattern 12.3: FRIENDLY SURFACES. Shape wall surfaces to engage us on a visceral level so that we feel at home in our environment. Liberate architecture to once again include attractive colors, and shape surfaces that we can experience up close so they are inviting to touch. Beware of an overwhelming reliance on the psychologically neutral glass curtain wall.

Dominant architectural culture promotes unfriendly industrial-modernist surfaces, linking them to economic prosperity, moral superiority, and progress. When questioned, belief in these design choices can trigger a deeply emotional reaction from professionals, perhaps due, again, to cognitive dissonance. Nevertheless, the image-based design paradigm has been tested repeatedly all over the world, and it fails to satisfy biological human needs. Our body evolved to prefer fields of organized complexity over non-fractal forms, shiny surfaces, and unnatural materials.

Architectural academics tend to keep these scientific findings away from students.

Glass façades or white cubes, horizontal strip windows, and cantilevered overhangs often either do not register in our visual field or they generate anxiety. Those typologies continue to overwhelm spaces emotionally and replace much-loved traditional buildings. What is frightening is that the building industry continues its "business as usual," ignoring all the lessons learned in recent decades about the long-term economic value of human-scale architecture and urbanism.

Destructive trends of standardization continue unabated, backed by politicians and supported by vast financial interests (sometimes of questionable ethical origin). Exquisitely adapted indigenous and vernacular ar-

chitectures are fervently and methodically replaced, as historical districts are destroyed to extract short-term profit through new building development. The result is frequently dead open space, with a loss of magnificent century-old trees and other long-lasting features of the area.

Industrial modernism establishes its control over humanity and nature through imposing its own typologies, at whatever scale. When contemporary art invades urban space, abstract sculptures and visually disturbing "installations" inevitably repel instead of attract people. Individuals fascinated by the avant-garde might enjoy a disturbing type of visual innovation as their personal aesthetic preference. But installations by a famous artist inserted into urban space could damage the existing circulation network. If the pedestrian flux is strong enough, users may ignore the negative emotions triggered by the installation; if the flow is weak, users might avoid the plaza altogether.

🐝 Purely visual patterns versus design patterns.

It is important to distinguish two types of patterns: (*i*) *visual patterns*, and (*ii*) *design patterns*. These two unrelated concepts happen to share the same descriptor, which is confusing. Curves, details, and symmetry create compositions—visual patterns belonging as much to art as to architecture. Design patterns, on the other hand, combine geometry with adaptive human use. They refer to geometrical situations that tie movement or human reactions to the physical design, more accurately described as socio-geometric patterns.

A healing design experienced in person as a built structure, or from a full-scale mock-up, triggers positive bodily reactions due to its combination of design patterns. Design patterns are not visually obvious and have to be inferred from evolved design solutions. Successful patterns were selected by builders and users over many generations on the basis of human health and wellbeing. A certain typology, configuration, or construction arrangement that was felt viscerally to be pleasant and life-affirming was copied by other builders. The opposite, a configuration that felt hostile and induced anxiety, was abandoned. That is, until the natural evolution of design patterns was halted in the modernist period of architecture.

Once a design pattern is discovered in a built configuration perceived as emotionally nourishing then it can be reused elsewhere and at a different time. A design pattern could be specific to climate, culture, or historical period; but such specialized patterns are actually limited in number. There is no limit to the applicability of a general design pattern, and it can be used in combination with other patterns in a variety of new settings. The combination of patterns endows them with the properties of a "language."

We now possess two major collections of documented design patterns for architecture and urban planning: Alexander et al.'s, *A Pattern Language* and Mehaffy et al.'s *A New Pattern Language For Growing Regions*. Today's practitioner has access to all those design patterns belonging to a general "Pattern Language." A little practice with choosing and combining patterns in a project saves literally centuries of work in not having to re-discover adaptable design solutions that were found—and tested—by others in the past.

The relationship between design patterns and visual patterns is straightforward. Forces of life and movement adapt complex forms to create a comfortable and healthy built environment. The built structure is perceived as a *visual pattern*. This design solution contains, and is the result of, a complex interaction of many different *design patterns* acting together. What we see is the integration of design patterns, and, unless those are previously known, it is almost impossible to discern each individ-

ual design pattern that is contributing separately to the whole.

§ When architecture and urban design lost their causality.

THE advent of industrial modernism reversed the causality of design patterns and visual patterns. The morphogenetic emergence of visual patterns due to multiple adaptive forces is not well understood. For this reason, some people erroneously believed they could invent a visual pattern arbitrarily, and then impose it on architectural and urban scales. That is, implement some interesting artistic image as a building or city. That logic is flawed—yet it became standard practice. This epistemological error is a case of "reverse-causation fallacy," where the cause of a process is confused with its effect. The modernist movement suffers from this basic misunderstanding at its core.

The resulting way of top-down thinking is favored and promoted by industrial production for its efficiency. That is achieved through eliminating adaptation that requires the sequence of selection steps it takes to validate a design pattern or group of patterns. 20th century architecture and planning consist mostly of such imposed visual patterns. Starting from before World War II, it became acceptable to implement diagrams drawn in the office or studio without first testing their effects on human beings.

Validation was based strictly on technical efficiency.

A designer was given license to invent forms that others were compelled to inhabit. This is not the same as designs evolving randomly in digital space, yet the intent is no different. We can get some strange, weird designs that arise randomly, which are then forced onto hapless users. Nothing in this "invented" model has to adapt to human life and sensibilities: the image is everything. At the same time, the historically-evolved, inherited, and tested stockpile

of design patterns was forgotten, representing the extinction of adaptive design tools.

Abstract, formal design completely took over the profession, displacing design patterns that were embedded in traditional and vernacular architectures. This acute reversal occurred at the time when industrial modernism wiped out the building and design typologies of the past. There is not very much to learn from the decades of modernist examples of visual patterns, because of their limited vocabulary, while newer developments such as parametric design merely continue the top-down non-adaptive mindset.

§ Alexander's mechanism for the evolution of design patterns.

THE title of this paper posed the question: why was the introduction of the design pattern framework ineffective in re-awakening an adaptive, humane architecture? I believe the reason has to do with Alexander's understanding of the selection mechanism for design patterns. From *The Timeless Way of Building*:

> As people exchange ideas about the environment, and exchange patterns, the overall inventory of patterns in the pattern pool keeps changing ... Since there are criteria for deciding which patterns are good, and which ones are bad, people will copy good patterns when they see them, and won't copy bad ones. This means the good patterns will multiply and become more common, while bad patterns will become rare, and will gradually drop out altogether.

Alexander describes an evolutionary process that uses criteria of human health and wellbeing. Design patterns evolved in this way during millennia of human existence. Nevertheless, the selection criteria changed drastically with the introduction of industrial modernism, replaced by an entirely different me-

thod of evaluation. Henceforth, adaptivity and human emotions no longer mattered, as building activity all over the world served a scheme of social engineering that forcibly applied top-down methods.

The end of adaptability opens up the dream of a universal style that can be applied anywhere in the world, for any local residents, in any climate, and in any culture. This, in fact, was the modernists' widely broadcaſt promise. The world's population eagerly accepted this announcement as some sort of utopian liberation, rather than realizing that it represented a design straightjacket. The International Style of architecture spelled the end of adaptivity to human needs and sensibilities. A drastic change of homogenization and simplification was forced onto the built environment.

Design patterns had already been displaced from mainſtream architecture by the time Alexander was publishing his own seminal work. Yet he assumed that the model for biological evolution, which triggers spontaneous differentiation as healthy adaptation, still applied to design patterns. Here is another quote from *The Timeless Way of Building*:

> The good patterns will persist; the bad ones will drop out. ... In each area, a common language will evolve. ... Each town, each region, each culture, adopts a different set of patterns—so that the great stock of pattern languages across the earth will gradually get differentiated.

Industrial modernism worked hard to impose the opposite situation onto the world. Patterns were eliminated in order to favor the anti-patterns preferred by the global building induſtry. I emphasize that the International Style is based upon very few anti-patterns (hence its bland and generic "look"); and those have certainly not arisen out of human adaptation.

Alexander was convinced that it would be enough to offer the world a useful set of tools that everyone would naturally implement to create a living environment. I contend that we need much more than this. The present system is fighting hard to preclude logical and practical arguments on how to achieve a healthier and more sustaining environment through design, while the general population remains blissfully unaware of being manipulated. Let me quote Robinson once more to support my own disappointing experiences.

> The most vitriol I get is actually ... from architecture snobs who think it is wrong and bad to have a negative reaction to things they have deemed correct. It's truly vicious. If you're going to join those who publicly admit they don't like contemporary architecture, you're going to be called ſtupid and reactionary and completely missing the point. The consensus is so strong that new buildings around the world all moſtly adhere to the Big Shapes school of design.

❧ A simulated world created by mental conditioning.

ALEXANDER, who was trained as a mathematician-scientist, conceived of educated society as being composed of logical, rational, thinking individuals. This generous interpretation turns out to be dangerously optimistic. His assumption doesn't explain the actions of architects, nor the reckless, unthinking support they have received from almoſt everyone else. Answers to this puzzle are to be found only in the darker attributes of human behavior, which are not usually subject to the light of reason.

The architects of modernity live inside a simulation of reality. This artificial world is created and maintained by psychological conditioning. There is no reality considered outside the simulated one, so that most trained architects simply cannot relate to the physical world as experienced through neuro-physiology. Lacking all other dimensions of sensory

experience, the images of an alien architecture provide the only epistemological reference. The simulation is defined by architectural slogans and a limited vocabulary of simplistic images, since visual complexity would risk the efficacy of the conditioning method.

Human interaction is strictly conceived here through other abstract renditions that are themselves part of the simulation. Extreme simplicity and self-referentiality make the topic trivially easy to master, thus empowering its followers. It permits them to feel good by claiming to know their discipline, but it also truncates their attention and keeps them from exploring alternatives. Cut off from the critical thinking that allows analysis and comparison, architectural disciples have been conditioned to perceive the simulation as the "real" world. And those who inhabit this simulated reality learn to perceive physical reality to be unreal. Back-and-forth switching is absent. Achieving this permanent substitution in the early 20th century was the modernist pioneers' propaganda masterstroke.

At the heart of the simulated world lies the experience of pain, which drives inhuman architecture while blocking adaptive design. As is now clear from scientific experiments, the design vocabulary of industrial modernism causes pain—or at least some degree of physiological discomfort—as a regular experience from built forms and surfaces. Architects are therefore conditioned to interact only on a detached, superficial level. Sensitive people can never go deeper in their pursuit of design freedom because they have become pain-averse. They falsely assume that a more emotional connection to physical structure will only lead to more pain.

Architectural conditioning practiced today achieves emotional disconnection, cutting off a person's intimate sensory interaction with information embedded in the physical environment. The simulated, sterile world thrives on detachment and isolation. Those who live inside this alternative reality are conditioned to reject the healing process obtained through emotional connectivity, where pain due to physiological causes is *reduced* by the appropriate physical environment. Mindlessly defying medical findings, architects suppress adaptive design's positive effects. Intimate connection to the real world, made possible by design patterns and the "Quality Without A Name," threatens them.

❧ Non-adaptive design spreads through memetic transmission.

How does industrial modernism successfully spread throughout the world? I earlier proposed a model based on memetic transmission. "Memes" are simple clusters of information, usually visual or auditory, that human minds pick up subconsciously and transfer to other minds. Richard Dawkins coined this term to both contrast and parallel the genetic transmission of organismic DNA. A catchy tune or visual symbol instantly attracts human attention, and is subsequently easily recognized. Complexity works against ease of transmission, which is why successful memes tend to be simple.

The trillion-dollar advertising industry runs on creating memes that convince people to buy and consume a selected product. Top academic psychologists are enrolled to help devise techniques for memetic transmission, ensuring that one commercial product captures the market from other competing products. Everything depends upon successful branding and public relations. Above all, the industry works on triggering a person's subconscious feelings to create a false association between the product and what's best for the consumer.

Industrial modernism developed on the model of memetic transmission. Modernist pioneers were coincidentally also pioneers in the new field of advertising in the 1920s. They invented techniques for presenting architectural typologies as the realization of class and politi-

cal liberation, economic prosperity, improved health, and wellbeing. These promises were just as honest as the analogous promises of a toothpaste brand improving your social life and guaranteeing career success. Yet industrial modernism spread like a viral pandemic, and is still dominant today. The only question is why academia continues to support it.

Unlike organisms, therefore, non-adaptive architecture and urban design spread memetically. Furthermore, the process is directed by special interests. Feeding on profits from its rapid spread, the architecture-industrial complex grew larger and more powerful worldwide. As with any established system, dominant architectural culture wedded to global construction and extractive real-estate speculation is invested in maintaining its hegemony over shaping the earth's surface. The system has infinite resources to engage in public relations, which drown out any opposition.

℘ Conclusion.

THERE is hope for a newly-adaptive architecture, because extinct design patterns can be newly rediscovered in existing buildings. Nevertheless, unless we preserve this architectural DNA embodied in historic architectures, we may not be able to read it to rederive lost design patterns. Dominant architectural culture disdains traditional and vernacular architectures. The building industry wipes out older built fabric with an iconoclastic, intolerant fanaticism, replacing it by its own industrial-modernist typologies.

We do have, at this point, two collections of published design patterns that any architect—including amateur builders—can use to generate adaptive design. Of course, the trick is to first convince society to employ patterns in shaping the built environment; something that at the moment is not receiving any support from architectural academia. The hope here is that what failed to catch on during the decades since 1977 may be boosted by scientific support provided only in the last few years. Experimental evidence not originally available is finally coming to rescue adaptive design.

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"Why Christopher Alexander failed to humanize architecture", *The Side View Journal*, Vol. 3, No. 1 (2021). https://thesideview.co/journal/why-christopher-alexander-failed-to-humanize-architecture/

Alexander during the building of the Medlock-Graham House (Courtesy Ann Medlock)
www.annmedlock.com/building-with-christopher-alexander.