Unified Architectural Theory

Nikos Salingaros, Christopher Alexander and Ken Foster, Austin, 1998

Unified Architectural Theory: Form, Language, Complexity

A Companion to Christopher Alexander's
"The Phenomenon of Life — The Nature of Order, Book 1"

Nikos A. Salingaros

With contributions by Christopher Alexander, Zaheer Allam, Michael Carey, Peter Eisenman, Léon Krier, Kenneth G. Masden II, Michael W. Mehaffy, and Edward O. Wilson.

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Christopher Alexander and Nikos Salingaros, Los Angeles, 1985

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1. Preface

In the Fall Semester of 2012 I taught a course on architectural theory for the Architecture School at the University of Texas at San Antonio. It was organized so that external students could follow much of it online from wherever they were located. They only needed to find and read our two textbooks, supplemented by my lecture notes and external readings (which are collected here). Even those students who had no access to the textbooks could still learn a great deal about the basic concepts from my notes summarizing the reading material. I'm now offering here my lecture notes from this course, together with the extra reading material, which complement but do not substitute for the two textbooks we used:

- Christopher Alexander, *The Nature of Order: An Essay on the Art of Building and the Nature of the Universe*, Book 1 — *The Phenomenon of Life*, Center for Environmental Structure, Berkeley, 2001.
- Nikos A. Salingaros, *A Theory of Architecture*, Umbau-Verlag, Solingen, 2006. (This book is also available in Chinese and in Persian).

Altogether, this material represents a new and ultimately more intelligent approach to understanding architecture. By the end of the semester, students had covered and hopefully absorbed all of Alexander's book and Chapters 1 to 7 & 11 of my book, which are directly relevant to *The Nature of Order*. My *Weekly Lecture Notes* included here summarize and comment on the principal arguments from the reading assignments, which were revised after the class discussed the content in a roundtable manner. (Since neither Alexander's Volume 1 nor my own textbook were written explicitly for the precise course I had in mind to offer, it was necessary to skip around the order of the book chapters somewhat, and this sequence is important.)

The focus was on a Unified Architectural Theory, which includes and describes *all of architecture*, from traditional buildings to the latest design trends currently in fashion. More importantly, this comprehensive theoretical framework is based upon science and not on personal opinion. The theory is testable and has predictive value. Many architects drawn to study Alexander's work have resisted applying his ideas to their own current work because they have been under the mistaken belief that Alexander deals with only a particular

("Eurocentric" or "nostalgic") type of building. Our course dispelled this false impression. The unified theoretical framework is practical, original, entirely general, and applies directly to cutting-edge design.

Students by the end of the course could judge what makes a "good" building, not only for its adaptation to human use, but also from the point of view of being able to learn something from it. Is it functional and emotionally satisfying, and does it contribute to elevating the quality of life of its users? A separate but related criterion is whether a building is a helpful model that teaches us techniques of design which can be used directly in practice. Our analysis provides a tool that reveals design errors in building on many different conceptual levels, or at least things one would do differently with hindsight. A "good" building can teach us tectonic solutions to admire and repeat in our own projects; other buildings teach us what to avoid.

Both Alexander and I have continued to publish relevant research on how architecture interacts with human nature, after our books (used here as the two textbooks) were finished. New articles I wrote with Kenneth Masden and with Michael Mehaffy are included as readings for this course. From outside writings, I included an interview by the distinguished classical architect Léon Krier. Biologist Edward O. Wilson (one of our age's greatest scientists, and founder of Biophilia) kindly gave me permission to use his essay, which is directly pertinent to this course. Finally, as one of the four editors of the online publication *Katarxis 3* (along with Lucien Steil, Brian Hanson, and Michael Mehaffy), I used the 1982 Alexander-Eisenman debate (which I had originally prepared for the web), an additional essay by Alexander, and a portion of one of my own essays from there.

A major component of this course is contained in the two student projects. Both have to do with documenting and using a particular architectural form language. The first project required each student to choose and document a form language, then design a new building using it (only a very rough conceptual sketch). An estimate of its regional adaptation was correlated to a measure of its complexity. This exercise introduces quantitative methods in architectural theory. The second project went much deeper into relating the adaptability and complexity of the form language, using a much more sophisticated model for geometrical complexity and regional adaptation. More precise measures were used to search for possible correlations. The general outline of these projects is included here in the appendices.

The experience obtained from the readings and projects taught students how to distinguish those parts of a building that work well — the places we connect with the most — from parts that are poorly designed for human connection. Successful form and space are based on

respecting emotions and not at all on intellectual and formal concerns that can lead to cold or chaotic forms. In this way, current design priorities are reversed. A successful user-specific building happens to appeal to the greatest number of people. That's because it has been adapted to human sensibilities. Correcting an old misunderstanding, we don't need to make a building bland or generic to achieve this universal appeal, but rather the opposite. Adaptation to region and user connects true regionalism to meaning triggered by complex form.

Having a theoretical basis available with objective measurements helped to explain why a building's immediate intuitive appeal actually works. At the same time, our theoretical understanding distinguished between an impression of "liking" something at first glance because it is provocative or flashy, and the deeper connection that reveals it to be a good or poor working and living environment. This second state is more like the perceived serenity of a natural environment, and we found the mathematical and biological reasons why this analogy is correct. Also, many students always felt uneasy about particular buildings but could not pinpoint their flaws — now they could find them through analysis based on objective criteria. All in all, the theory changed one's perspective of how to evaluate structures.

The revolutionary nature of this course becomes apparent only after someone compares the readings with the projects. The students were allowed to choose any architectural form language of their liking, and more than half of them chose from among the buildings and styles of contemporary Starchitects. Most of the rest chose a famous Modernist architect from the early 20th century, which means that only a few students chose traditional form languages. Despite this bias in selection, the students learned of the adaptive advantages of traditional form languages, and declared they would revise their own future designs towards that end. We provided objective criteria for judging the suitability of a particular form language for use today. It was possible to do this, and very successfully indeed, using as a basis a theoretical framework that supports human-oriented architecture.

Architecture schools could eventually adopt this course as a regular requirement, although that requires a faculty member who wishes to teach this material. An instructor is essential to lead the in-class discussions, to direct the two projects, and to evaluate the students' work. Even without an instructor, however, interested students can learn a great deal from the framework of the course by working on their own, as was evidenced by the positive feedback received from students who read the *Weekly Lecture Notes* online. The important thing is the synthesis of ideas represented here.

At the end of the present book, some practical details of how the course was organized are documented. The experience from the course might come in useful to a colleague who is considering presenting this or a similar course in the future. Of course, every instructor will have an individual idea of how to handle the syllabus and reading material, and how to structure any projects that might be included.

2. A Biological Understanding of Architecture

Extract from one of my essays in Katarxis No. 3, September 2004. Reprinted by permission.

Architecture is indeed linked to biology. This observation is intuitively true from a structural perspective, since human beings perceive a kinship between the different processes — natural and artificial — that generate form. Nevertheless, the broadness of the claim might appear surprising, considering that it comes from architects holding radically different ideas about what buildings ought to look like. The idea of a biological connection has been used in turn by traditional architects, modernists, postmodernists, deconstructivists, and naturally, the "organic form" architects. One might say that architecture's proposed link to biology is used to support any architectural style whatsoever. When it is applied so generally, then the biological connection loses its value, or at least becomes so confused as to be meaningless. Is there a way to clear up the resulting contradiction and confusion?

Up until now, architects and those scientists interested in architecture have focused on the morphological imitation of nature. Sometimes explicitly, more often implicitly, natural forms, including biological forms, have inspired the constructions of human beings. Nevertheless, I believe that an understanding of the biological roots of architecture and urbanism requires another component that is independent of structural imitation. This more elusive aspect of the problem is concerned with how we connect and perceive form to begin with. As such, it has more to do with our own internal structure as human beings than with more general biological structures. The answers are to be found in cognitive processes, perception, and neurophysiology.

In order to begin a search for how biology influences architecture and urbanism, we must establish some overall map of the problem. Because this is a vast subject, it is useful to divide it into a series of questions like the following. This is not meant to be a complete set of questions, only a starting point for an investigation.

1. Why do some built forms resemble biological forms?

2. What types of built forms correspond more closely to biological prototypes?

3. Are human beings predisposed to like and feel comfortable with certain types of forms?

4. Are human beings also predisposed to *build* certain types of forms?

5. Is it worthwhile mimicking biological forms in what we build?

6. Do we gain more than just aesthetic pleasure — such as physical and psychological benefits, for example — from an environment that captures the essence of biological structure?

7. Can we damage ourselves by living in and around forms that contradict biological forms?

8. Do we really understand biological structure well enough to mimic anything other than its superficial appearance?

These questions can hopefully provide researchers with an impetus to resolve long-standing problems in how humankind relates to its natural and built environments. I would like to focus here on the connection between architecture and urbanism, on the one hand, and inherited structures in the human brain that influence the function of "mind", on the other. A group of innovative architects and thinkers are beginning to formulate the basis for a new architecture that arises out of human needs, and which is supported by an improved understanding of biological structure. Our cognition makes us human; it is certainly responsible for how we perceive structure. Human neurophysiology is therefore essential for answering at least some of the above questions.

PART ONE
THE COURSE LECTURES AND READINGS

"When we try to pick out anything by itself we find that it is bound fast by a thousand invisible cords that cannot be broken, to everything in the Universe." — John Muir.

3. Introduction to the Course

This course is designed to provide students with the theoretical foundation necessary to succeed in architectural practice. The theoretical motivation behind different styles of buildings is explored in depth. We also analyze the scientific background that defines and justifies architectural development in the experience of architecture and the tectonics of structure. Examining ideas and processes that give shape to built form, we then go further to judge those forms in an objective manner. This approach is totally innovative. A course that explores the theoretical foundation of places and buildings occupies an important place in the curriculum, as no other courses deal with the subject. The format of the class consists of lecture, design and analysis projects, and discussion.

Students need to have an idea of what to expect in this course. At present, architectural theory consists of rather disparate writings by architects, critics, architectural historians, and philosophers. The philosophy behind the present course assumes that the present state of affairs is confusing and not really helpful for design, and that a novel unified theory of architecture is possible using recent, predominantly scientific results. A student should note that the discipline itself is barely emerging, with ongoing contradictions and polemics among the experts. The categories of subjects covered are meant to bring clarity and a coherent form of categorization to this issue.

Firstly, the presentation depends upon a significant broadening of what is currently used as the philosophical underpinning of architecture. There exist several, very distinct, philosophical currents in contemporary society, each of which supposes a particular interpretation of the structure of matter and humankind's place in the universe. The most visible and discussed examples of contemporary architecture are consistent with only one of those philosophical currents. They disagree, often violently, with the other philosophical interpretations. Nevertheless, architecture students are not normally exposed to any philosophy other than that which supports what is currently in fashion. This is a totally subjective state of affairs.

Secondly, this question goes to the core of what is architectural theory. I define it, following scientific practice, as an explanatory framework for architecture and for its interaction with both human beings as users, and with the earth's environment. The discipline of architecture consists of two complementary portions: the buildings

themselves, and a theoretical framework for explaining and evaluating those buildings. Theory without explanatory value is useless. Even better is when a theory has predictive value that can be verified by experiment. Contemporary architectural discourse is strangely removed from any tangible connection to buildings, however. Yes, architects offer theoretical explanations for their buildings' form, but often it is difficult to draw the connection. What many people regard as architectural theory today is a very narrow sub-branch of philosophy.

Thirdly, a student might be surprised to hear me dismiss other authors who are now accepted as prominent architectural theorists. Since I happen to write and publish architectural theory, I naturally find myself arguing and disagreeing with other presumed architectural theorists. All of our ideas are competing against each other for legitimacy. If someone's discourse disagrees fundamentally with what I am proposing, then I consider it my right to declare that those writings are at best not useful to understanding architecture, or, at worst, flawed or even meaningless.

This attitude will alarm architectural academics. A teacher in an architecture school is seldom also an architectural theorist. A faculty member might have a practice on the side, but even this is not always true, and it is does not imply that he or she contributes to theory. Furthermore, the academic environment accepts all architectural discourse as valid, especially if it comes from famous names, and so an instructor would normally present writings of well-known authors to students without judgment. The available textbooks for teaching a course in architectural theory consist of collected readings from a variety of authors. The instructor assumes that the editors of those books have validated the content of every essay included, but that assumption is false. The task of an editor is to include authors that are somehow known names, itself no guarantee of the validity of their ideas.

All of this has consequences that might be most disturbing to an architecture student. Setting up of what I believe is a genuine architectural theory leads to predictions and a basis for judgment. If we have been careful enough in laying the groundwork for the theory in an accurate and honest manner, then we have to live with its predictions. If the theory leads me to criticize buildings by famous starchitects, this might shock a student used to accepting those buildings as noteworthy examples of contemporary architecture. The shock is even more severe if other architectural theorists praise the same buildings that we are criticizing. Students are not used to such contradictions. How does one judge who is ultimately right? What are the different criteria

for judgment? Here we enter the subjective realm of opinion that is validated by political and media predominance.

It is the purpose of this course to open up the discipline in such a way that these tensions lead to a better understanding of what architecture is.

4. Lecture Notes, First Week. The Structure of Architectural Theories

Readings for the First Week:

- Alexander, *The Phenomenon of Life*, Prologue & Chapter 1, "The Phenomenon of Life".
- Salingaros, "Architectural Theory", extracts from *Anti-Architecture and Deconstruction* (Umbau-Verlag, Solingen, 2008), also available in Chinese, French, Italian, and Russian.
- Edward O. Wilson, "Integrated Science and the Coming Century of the Environment", *Science*, Volume 279, No. 5359 (March 27, 1998), pages 2048-2049.

Architecture is a human act that invades and displaces the natural ecosystem. Biological order is destroyed every time we clear native plant growth and erect buildings and infrastructure. The goal of architecture is to create structures to house humans and their activities. Humans are parts of the earth's ecosystem, even though we tend to forget that.

Logically, architecture has to have a theoretical basis that begins with the natural ecosystem. The act of building orders materials in very specific ways, and humans generate an artificial ordering out of materials they have extracted from nature and transformed to various degrees. Some of today's most widely-used materials, such as plate glass and steel, require energy-intensive processes, and thus contain high embodied energy costs. Those cannot be the basis for any sustainable solution, despite all the industry hype.

Resource depletion and a looming ecological catastrophe are consequences of detachment from nature, and a blind faith in technology to solve the problems it creates.

Architectural theory, in the sense understood in this course, is a framework that studies architectural phenomena using scientific logic and methods of experimentation. Many experiments have been done by

others, and we are going to apply them to architecture. Theory provides a model that explains investigations and observations about form and structure.

A successful theory will help us interpret what an architect does, even though each architect will likely have his/her own motivation and explanation. Nevertheless, the theory will allow us to compare among different types of buildings, and to evaluate how well those connect to users and with nature. We can understand how a building came about, and how it connects and interacts with its surroundings.

It will also be good if common people, not just architects, can understand architectural theory, and thus it should be formulated with that goal in mind. The advantages are that it is ordinary people who are going to inhabit those buildings, whereas architects can choose to live and work wherever they like. Another crucial point is that the majority of building activity is, and has always been, the erection of self-built informal settlements. People, not architects, build these structures.

Christopher Alexander has pioneered a theory of human-made order. It is based directly upon natural order, so there is neither contradiction nor confusion between the two types.

Alexander made five key assumptions that permitted him to pursue his work.

(1) Natural and artificial order rely upon the same mechanisms for their working.

(2) Natural order is self-organizing and self-correcting. What we observe is there because it works.

(3) Artificial order is not necessarily self-correcting, or maybe it is on a generational timescale so individuals are not going to notice it. As a result, human beings can do things to the natural environment and build buildings and structures that damage the world. It is not easy to diagnose what is good and distinguish it from what is bad.

(4) It is possible to use science to create diagnostic tools for what is good and bad in human creations — in how they affect the natural environment, including us humans.

(5) We can use the human body as a sensing instrument for what is good and bad in architecture. Basic assumption: human feeling is universal, and people share 90% of their responses, even if individuals come from different cultures or backgrounds.

To make good buildings, we need a worldview, a conception of the world that is healthy and that enables us to understand things deeply. A healthy worldview is based upon connectivity to the world: direct

connection to the order of the universe and to natural processes as they are continuously occurring.

The opposite — detachment — leads to a dangerous condition where people analyze a situation as a mechanism isolated from the world. This is the model of a building or a city as a machine. Modern science is guilty of contributing to this disconnection from nature, since scientific models are necessarily self-contained and limited in scope — otherwise they would be useless.

Science gives us an excellent model of how something works as a mechanical system. Nevertheless, this is not a complete description even of the cases we do understand well. And there are a vast number of instances where we ignore any mechanical description at all of an observed phenomenon.

What is completely missing from a strictly mechanistic worldview is human consciousness, our personal and emotional connection to the universe. This might not matter when investigating some technical problems, but it's all-important for things that affect us, like architecture. Another significant consequence is the lack of value in a mechanistic worldview. A human connected to the universe knows the distinction between good and bad, true and false, beautiful and ugly. These qualities are not relative, and are not matters of opinion. A consumer disconnected from natural values, by contrast, can be fed toxic products and be made to believe they are good.

The way out of the present, highly restricted view of the universe is to develop an immensely more connected state between humans and their environment. Attention is given to what affects us reciprocally with the world, when we are tightly connected.

Following this reasoning, people have a shared basis for judgment, and can intuitively judge whether something has order or life, and expect their gut reaction to be 90% shared across cultures and distances. In this new worldview, ornament plays a critical role to connect humans with the order of the world. Ornament is thus intimately related to function in the non-mechanistic sense.

We wish to consider architecture and the production of human artifacts also as essential components of natural ecosystems. Order and life are related. Natural things have an intrinsic order, and life as we usually know it and understand it is simply an extension of that order. For this reason, human constructions should not damage or contradict natural order.

The earth's ecosystems (many of which are connected to each other) contain, and are contained by other components that

neither metabolize, nor replicate. But every layer of the system is interdependent. This property of life in inanimate objects and situations arises out of their degree of natural order, and the human body has evolved mechanisms to sense that order. Thus, it is not surprising to feel that something is "alive", because of its geometrical properties, even though that object is not biological.

Biological organisms have the additional features of metabolism and replication. A very simple consequence of thinking of a building as a "living" entity is that it requires repair and restoration. This analogy with metabolism takes us away from a central tenet of 20th Century industrial architecture: the quest for absolutely permanent and weather-resisting materials. This search has become very expensive. But worse of all, it denies living qualities. Materials that do weather in fact produce buildings that are more in keeping with biological organisms. For example, the Ise Shrine Complex in Japan is re-built every 20 years.

Buildings also engage in replication: if a form language is adopted by other builders, then the original prototype building is replicated in more copies, not exactly the same, but containing the same "genetic" information.

Since the perception of something as being "alive" is due to a very strong connection with our mind and body, there is a reciprocal effect: that object, place, or configuration makes *us* feel more alive. It is possible to find myriads of artifacts, buildings, urban spaces that feel "alive" and that in turn make us feel "alive". They invariably come from vernacular traditions and hardly ever from design.

The perceived living quality comes from specific geometrical configurations, and it is possible to discover the rules that generate a living quality. Even in non-traditional 20th-century examples of objects and places having perceived "life", the life comes from their geometry. It is not based on concepts, or images, or fashions. By connecting to the thing, we feel that we are connecting directly with its maker, who therefore doesn't hide behind any notions or ideas that contaminate its genuine character.

To get at a genuine understanding of architecture, it is useful to use the approach that scientists employ to discover nature's secrets.

Edward Wilson outlines what science achieves:

(1) Systematic gathering of knowledge about the world, which is organized and condensed into basic principles as far as possible.

(2) Results must pass the test of independent and repeated verification.

(3) It helps to quantify information, for then, principles can use

mathematical models.

(4) Condensation of information via systematization and classification helps in storage.

(5) A safeguard for truth comes from consilience: the horizontal links across diverse disciplines.

Consilience acts as a test for the soundness of a theory. Within itself, a theory might look good even when it contains fundamental flaws. Internal consistency can be misleading, since it could relate several false assumptions, but in a very convincing manner. We normally should be able to transition from one sound theory into another one that acts on a distinct domain. If there is a contradiction, then something is wrong. It could be that there is no barrier but a large gap, in which case that needs to be filled in.

Architectural theory can be formulated and verified by employing two mechanisms: internal hypotheses that are repeatedly verified, and external consilient links to other disciplines that have a verifiable basis. These include the hard sciences.

Good architecture is less of a reductionist discipline and must necessarily be a synthetic discipline. If it is applied in a reductionist manner, then it probably contains serious errors that damage the environment. To be adaptive means to synthesize many distinct responses to human needs and natural order.

Most important is for architecture to be directly linked to human evolution, the physical needs of the organism, and to use information according to evolved culture. Neglecting the biological origins of human needs and behavior detaches architecture from the world and from humanity. The architect should design a building that makes common people feel comfortable, and not to be liked just by architects. It should also adapt to its locality, not designed for somewhere else, or for no place in particular.

5. Architectural Theory

By Nikos A. Salingaros

Extracts from: Anti-Architecture and Deconstruction (AAAD), Third Edition (Umbau-Verlag, Solingen, 2008). Reprinted by permission.

Architectural Theory (*AAAD*, pages 149-150)

In order to discuss any supposed contributions to architectural theory, it is necessary to define what architectural theory is. A theory in any discipline is a general framework that:

(1) explains observed phenomena;

(2) predicts effects that appear under specific circumstances; and

(3) enables one to create new situations that perform in a way predicted by the theory.

In architecture, a theoretical framework ought to explain why buildings affect human beings in certain ways, and why some buildings are more successful than others, both in practical as well as in psychological and aesthetic terms. One important requirement of an architectural theory is to coordinate and make sense of scattered and apparently unrelated observations of how human beings interact with built form. Another is to formalize those observations into an easy-to-apply framework that can be used for design.

Sadly, architecture is only now embarking on a long-overdue formulation of its theoretical basis. It is not an exaggeration to say that up until now, the field has been driven by personal whim and fashion rather than being supported by any theoretical foundation. As a result of a serious misunderstanding (due to scientific ignorance by three generations of architects), a voluminous body of writings has been mistaken for "architectural theory", even though it is nothing of the sort. This material is taught to architecture students, and is studied by practicing architects; nevertheless, it merely serves to promote certain stylistic fashions and dogmas rather than an understanding of architectural form. Enough genuine architectural theory now exists to form a nucleus from which the topic can be built. This nucleus consists of the writings of Christopher Alexander (Alexander, 2001; Alexander *et al.*, 1977), Léon Krier (1998), the present author (Salingaros, 2006), and a few others.

Genuine architectural theory has developed into two parallel strands. The first is the approach based on solutions that work historically. Not surprisingly, this strand turns to traditional architecture, using its typologies in an innovative manner. Architects ignorant of this strand of architectural theory misjudge it, falsely thinking that it merely copies older models, whereas in fact, it is using a well-developed vocabulary to generate novel solutions. The second strand of genuine architectural theory is based on science.

Here, models from biology, physics, and computer science are used to explain how architectonic form emerges, and why human beings react in certain predictable ways to different structures. The scientific approach is in many ways complementary to the traditional approach to design. The main difference in practice is that, since the scientific approach is not tied to any specific typology, it leads to a much broader design vocabulary than does the traditional approach.

Architects have difficulties in appreciating the scientific strand of genuine architectural theory, because of certain misstatements in the body of existing architectural texts. Authors claiming to explain architectural form using scientific theories and their vocabulary are invariably confused, and so confuse the reader. Much of this architectural literature is plainly incorrect, but architects have insufficient scientific knowledge to realize this. Well-respected architectural commentators write misleading statements that are taken as meaningful explanations by architects and students, who then become so bewildered that they cannot appreciate genuine scientific explanations. They confuse spurious explanations for the real thing.

This regrettably happens because in architecture, there is as yet no basis for judging between a true and a false theory. Other fields were able to develop their theoretical basis only after they instituted such a criterion, putting in place a mechanism for distinguishing sense from nonsense. Architects erroneously believe that such a set of criteria can exist only in an experimental subject such as physics, without realizing that architecture is itself an experimental field. The problem is that the observational, experimental side of architecture has been willfully neglected for several decades, to the point where its practitioners have forgotten this fundamental quality of their discipline.

The Necessity for Theory (*AAAD*, pages 164-166)

I pointed out which contemporary authors have in my opinion actually contributed to creating a theoretical foundation for architecture. I also argued that what is currently accepted by many architects as architectural theory is not theory at all, but rather a clever

means to propagate a particular design style. Outsiders (which includes most people) naively assume that contemporary architecture possesses a theoretical basis, like for example chemistry and neuroscience, which explains why buildings ought to look the way they do. However, a mass of writings mislabeled as architectural theory only helps to generate and support certain images; those images are then copied, and used as templates for buildings in an alien style. That is not a theoretical foundation. Those writings fail to satisfy any of the accepted criteria for a theory in any field.

Every discipline has a store of knowledge accumulated over time, which explains a huge range of phenomena. (Architecture has been collecting information for millennia). Some of this knowledge is codified into a compact theoretical framework; other parts are strictly phenomenological but tested by observation and experiment. Facts and ideas combine in a particular manner, common to all proper disciplines.

The crucial characteristic of a valid theoretical framework is a transparent internal complexity coupled with external connectivity. This arises from the way explanatory networks develop in time:

(1) More recent knowledge about a topic builds upon existing knowledge.

(2) Older knowledge is replaced only by a better explanation of the same phenomenon, never because a fashion has changed — this process creates multiple, connected layers of knowledge.

(3) A theory in one discipline must transition sensibly to other disciplines.

This means that there ought to be some interface where one discipline merges into another, all the way around its periphery. Any theory that isolates itself because it is incomprehensible to others is automatically suspect. A tightly-knit internal connectivity, along with a looser external connectivity, provides the foundations for a mechanism of self-correction and maintenance. This holds true for any complex system.

Architecture as a profession has repeatedly disconnected itself both from its knowledge base, and from other disciplines in an effort to remain eternally “contemporary” (the much-publicized recent connections to philosophy, linguistics, and science notwithstanding, since they are now exposed as deceptions). This is, of course, the defining characteristic of a fashion; the opposite of a proper discipline. Again and again, architecture has ignored derived knowledge about buildings and cities, and has embraced nonsensical slogans and influences.

Those who profit from the instability and superficiality of the fashion industry are deathly afraid of facing genuine knowledge about the world. It would put them out of business. Architects and critics periodically change the reigning fashion so as to keep the market stimulated. They have to devote an enormous amount of resources to promoting whatever ephemeral style is in vogue. In order to sell their fashion, they are obliged to suppress any application of accumulated architectural knowledge. This prevents a theoretical basis from ever developing. Ever-changing fashion is parasitic on timeless processes.

Critics dismiss neo-traditional buildings as facile copies of classical prototypes, even though those need not resemble anything built in the previous two millennia. The architectural media declare that "a classical column represents tyranny", and that by confessing to an attraction to classical architecture, we somehow support totalitarianism. At the same time, a liking for non-classical vernacular architecture of any kind is ridiculed. In this instance, we are branded as being ignorant and "sentimental" (which, in contemporary architectural values, is an unforgivable offense). Novel buildings with human qualities, which nevertheless have nothing to do with the classical typology, are also forbidden.

People are now misled to believe that the "architecture of the future" is necessarily broken and twisted, and made out of glass and polished metal. Any doubt is dispelled by awarding their architects the most prestigious prizes. Some of those who participate in disseminating this style act from an almost religious conviction. They fervently believe that they are doing civilization a favor, promoting the future and protecting us from backwardness and retrogression. Architectural schools are steeped in righteousness. Ever since the Bauhaus of the 1920s, many schools' aim has been to restructure society for the betterment of all people; whether those welcome this or not. If ordinary people are sentimental about past methods of design, and crave buildings that appeal to the human scale, that is only an indication of human weakness.

We stand of the threshold of a historic architectural reckoning. A new architecture mixes exuberant curved forms and fractal scaling with the broken forms of deconstruction. Let me suggest that architects who wish to be contemporary ought to drop their deconstructive baggage. They should instead extend a hand to those whom they have formerly disdained and slandered — I mean the traditionalists, and those innovative architects who respect human scale and sensibilities. By mixing novel forms with typologies that have undergone a competitive selection during historical time, we can define a new architecture that is fit for human beings instead of remaining forever alien. Younger

practitioners have been duped into identifying novelty with the essential "alien look" of deconstruction. Nevertheless, a new generation of architects is intelligent enough to realize what is going on, and to snap out of an unfortunate deception.

The Traditional Patrimony (*AAAD*, pages 112-115)

Some traditions are anachronistic and misguided, but as reservoirs of traditional solutions against which to check new proposals they are of immense importance. A new solution may at some point replace a traditional solution, but it must succeed in reestablishing the connections to the rest of knowledge. In the context of social patterns, architecture, and urbanism, new solutions are useful if they connect to traditional social, architectural, and urban patterns (i.e., all those before the 1920s). If there is an obvious gap where nothing in a discipline refers to anything outside, then there could be a serious problem.

Recently, Edward Wilson has introduced the notion of "consilience" as "*the interlocking of causal explanations across disciplines*" (Wilson, 1998a). Consilience claims that all explanations in nature are connected; there are no totally isolated phenomena. Wilson focuses on incomplete pieces of knowledge: the wide region separating the sciences from the humanities. He is happy to see it being slowly filled in by evolutionary biologists, cognitive neuroscientists, and researchers in artificial intelligence. At the same time, he is alarmed by people in the humanities who are erasing parts of the existing body of knowledge. These include deconstructive philosophers. Wilson characterizes their efforts as based on ignorance. On Derrida's work, he writes: "*It … is the opposite of science, rendered in fragments with the incoherence of a dream, at once banal and fantastical. It is innocent of the science of mind and language developed elsewhere in the civilized world, rather like the pronouncements of a faith healer unaware of the location of the pancreas.*" (Wilson, 1998b: p. 41).

Unfortunately, most of the humanities today subscribe to belief systems that damage the web of consilient knowledge. Although never directly expressed, the goal of deconstruction is to erase institutions of knowledge. What Derrida has said is alarming enough: "*Deconstruction goes through certain social and political structures, meeting with resistance and displacing institutions as it does so … effectively, you have to displace, I would say 'solid' structures, not only in the sense of material structures, but 'solid' in the sense of cultural, pedagogical, political, economic structures.*" (Norris, 1989: p. 8).

Many people crave novelty without regard for possible consequences. This craving is often manipulated by unscrupulous individuals. Not