A. The quality of living structure and the healing effect

There exists overwhelming evidence that biophilic environments, both natural and artificial, exert a healing effect on the human body. It is also true that this healing effect acts on the designer’s own body when he or she is creating biophilic design. The biophilic effect is taking place here at the closest, most intimate scale, making the designer healthier through feedback during the act of creation or making. The opposite effect is also probably true: designing and building anti-biophilic structures is at best not a healing process. This neutral or negative feedback on the designer would be counterbalanced by some other positive effect during the act of design (more on that later).

Christopher Alexander described the “quality without a name” — the “QWAN” — a quality that for practical purposes can indeed be named as the “quality of living structure” (Alexander, 1979). It describes systemic harmony, organized complexity, and coherence in our surroundings: present in many structures that we are exposed to. We receive nourishment from artifacts and environmental settings that possess the quality of living structure to any significant degree. The quality of living structure provides a universal criterion to judge whether situations and settings produce a healing effect. The interaction is also mutual: by creating objects and environments having this positive emotional quality, we experience the healing process in our own bodies.

As we read Alexander today, after having learned about the biophilic basis of adaptive design, we recognize the quality of living structure as depending strongly upon biophilia. And yet it adds many more layers of connectivity and interaction. The quality of living structure incorporates other factors, such as the evolved interactions among human beings, and between social groups and the built environment. These complex ways of interacting and connecting are discoverable, and can be documented as patterns (Alexander et al., 1977). Patterns that describe healthy socio-geometric configurations in human society go beyond biophilia, which is our inherited response to biological forms and natural environments.

We could measure the structure of our environment analytically, and then compute various parameters to check whether it matches the known frameworks for biological systems. But the best method of all is to use the massively parallel
computer that is the human perceptive system. That is exquisitely designed to detect the quality of living structure in our surroundings. The results of such a computation do not present a quantitative answer, but instead an unmistakable feeling in our body due to hormones and nerve signals. Our response tells us whether the environment contains living structure or not.

To get an accurate picture of the quality of living structure, therefore, we focus on our spontaneous feelings when placed in any physical setting or spatial configuration. A design solution that has been constrained by socio-geometric patterns is expected to possess the quality of living structure. But such a configuration is always so complex that it can be evaluated only in person, directly, using one's senses — all of them. That is why ultimately, our perceptual system is the only judge of what physical setting has the highest positive emotional qualities. Those judgments cannot be arrived at analytically, or from a picture, or by intellectual arguments. The body’s complex response is the smartest criterion.

B. Patterns as living configurations

I would like to establish the relationship among the quality of living structure, patterns, and biophilia. When we try to explain Alexandrine patterns through biophilia, we succeed with many but by no means all of them. What is taking place outside biophilia so as to generate all the other patterns? Those non-biophilic patterns document our complex interactions with built spaces, geometries, and other human beings, going beyond the primary recognition of persons as biological organisms. Some of these additional interactions occur on a higher organizational level, the level of social interactions.

Specific geometrical configurations, spaces, structures, settings, surfaces, and connective frameworks act as catalysts for human contact, and thus generate a healing effect through their geometry. Those special settings define design patterns. By analogy, chemical catalysts also act indirectly: without them certain critical interactions could never occur, yet the catalyst itself is fixed and never changes. Socio-geometric patterns document the wellbeing of people interacting with the geometry of the built environment. Although the positive emotional effect of those patterns is the same as that produced by biophilic environments, there is no direct application here of organic geometry. Hence the large number of design patterns that go beyond biophilia.

All the effort that Alexander and others put into documenting design patterns is geared towards one objective: to bring out people’s humanity. The quality of living structure frees people from environmental stresses due to the geometry of objects and spaces that could be making us feel anxious and unwell. This protection from stress liberates us to be more fully human (and also keeps us healthy). A high quality of living structure allows people to live life more fully, helped rather than inhibited by their immediate built environment. Freed from anxiety induced by hostile buildings, spaces, and surfaces, we can allow our emotions to play freely on the basic level of our consciousness.
Architecture that aims for user wellbeing, and for comfortable stimulation coming from the geometry of the environment, must therefore include patterns. Otherwise, the healing environmental effect will never occur, or it might happen accidentally, which is not a good working method for someone who wants to understand how to achieve consistent results. A living environment allows people to feel free to move around and interact, to combine their lives with the lives of others, and that sensation (conscious or subconscious) comes from very specific constraints placed on design. Successful constraints can be re-used to create living environments again and again, or in a different location altogether.

C. Patterns in the computer world

The quality of living structure has not yet caught on among architects, but it was picked up and used by computer scientists (under its original term QWAN). The computer science community adopted the pattern method, which led to major developments still going on today. The first application was for writing complex software, since patterns provide a useful tool for organizing complexity. After that, patterns came to be appreciated especially for helping to structure and catalyze productive human interactions. Today, those applications cover a large variety of topics, including the following:

1. Real-time human interaction patterns are a resource for teams working on software development. These organizational patterns help to manage group collaboration projects.

2. Design patterns for human-machine interactions are crucially important to hardware and software development. Connecting us better to the program application and helping us to use a computer more intuitively lies at the heart of the information revolution.

3. Design patterns for human interactions in virtual space are essential for designing social media platforms.

These are only some of the many social pattern applications used in information and communications technology. Patterns are helping to run our modern society through information exchange. Aside from the visual and organizational display patterns on the screen, none of these have any relation to biophilia. Such patterns are extra-biophilic, but essential nevertheless. Getting back to architecture, all the design patterns that are not directly biophilic are of an interactive or social type. They contribute on a different level than biophilia, yet act together with the more directly biophilic patterns to define healing environments for human users.

D. Formal design sidelines patterns

Well-intentioned or not, I don’t believe that architects of the past several decades have tackled their responsibility over how they hugely control the lives of other human beings. But a new generation is changing that in becoming more sensitive.
Some younger architects, especially those practicing adaptive and sustainable design, are showing great interest in the topics discussed here. By addressing biophilia, their buildings aim at having a positive effect on the mental and physiological health of the people in and around them.

Several decades of formalistic design, however, has left us in a poor position to make such comparative judgments. Most of us are woefully out of practice. Image-based and formal design practices sidelined the use of immediate feelings in architecture, making the quality of living structure irrelevant in a discipline that for the most part evaluates designs exclusively through other means. When we do bring the quality of living structure back into architecture’s toolbox, we shall need to evaluate situations with different degrees of living structure. We will do this using our own direct emotional responses, which have to be re-introduced in today’s practice.

Perhaps — and this is merely a conjecture — what actually happened is that early 20th century architects decided to ignore the quality of living structure in the built environment. (They certainly knew about it, because all architects during the millennia before them used it as the basis for critical judgment). Introducing arguments that removed feeling as a criterion for evaluating forms, spaces, and surfaces in architecture from then onwards was an effective way of eliminating the quality of living structure from design. This step certainly opened the door to an unprecedented vocabulary of non-adaptive forms never built before. It gave innovation, but at a tremendous emotional price.

E. The thrill of power

And how do those architects who don’t practice biophilic design, or search for the quality of living structure, get their emotional satisfaction from design? Nobody is happily going to perform design as a profession unless it gives back some pleasure. We have to look for another psychologically rewarding effect triggered by the act of design. The only candidate I can identify is satisfaction due to power. A designer gets an adrenaline high from shaping the built environment, and enjoys playing with form at will, often without any restrictions. But this is freedom without responsibility: the ultimate license to create without thinking about the consequences. For designs expressing creative freedom without pattern constraints could turn out to be oppressive for users.

Paradoxically, the more a design expresses a designer’s personal will, the stronger is the excitement. Top practitioners, in particular, can indulge themselves and get rewarded for it. They get intoxicated with the absolute power to shape human lives, by deciding on the shape and dimensions of the spaces in which people will live and work. Nevertheless, the creative freedom permitted in architecture (tightly dictated by trend-setters, power brokers, and influential critics) is far from total. For several decades, architects are taught — or allowed — to create anything except that which has the quality of living structure. This restriction is socialized into architectural education and in the media coverage of architecture.