Experienced space and socio-geometric connectivity

The twentieth century's scientific and technological advances enabled a whole new level of living that brought quality of life in terms of vastly improved medical care, transport, energy availability, and communications. In our time we have come to take all of this for granted. Nevertheless, in parallel with these developments, humankind lost a timeless connection to the world that did not involve science, because this connection is not quantitative. We tend to forget and dismiss our inherited socio-geometric patterns whenever they cannot fit into the mentality created by advancing technology. This loss of patterns has caused the loss of essential aspects of our existence, and it has profound implications for energy use.

Talking about connecting viscerally to a building characteristically makes people in our contemporary culture uneasy. We have lost part of our sense of attachment to a place, even if we normally don’t notice it consciously. Effects of friendliness or hostility are ignored, and they are claimed not to exist. We have grown accustomed to buildings that emphasize the look and feel of technology: buildings that are, in fact, little more than an image. How, really, do we connect with a building, with a space, with a place? How do the parts of a building connect with each other? Connectivity can be described in mathematical terms through processes occurring in space; it depends on how we perceive that space. For millennia, our ancestors built sacred places and buildings that connect us to the location, and act as a catalyst to connect us to each other. For them, living in a pre-industrial age, it was easier to understand this connection than it is for many of us today.

We connect to our environment — as distinct from merely reacting to it — only through coherent complex structures. Coherence and symmetries of form make possible the continuation of the biophilic effect from living systems into artificial complex designs or structures. Twentieth-century and contemporary buildings that
have either minimalist or disordered forms cannot connect with the user. The result is an intentional lack of coherent complexity in the built environment.

A dramatic demonstration of the principles of Biophilia and human socio-geometric patterns can be seen when they are violated. Failing to respect evolved architectural and urban typologies, twentieth-century architects and urbanists went ahead and constructed block housing and high-rises with segregated functions as the solution to urban problems. These implementations were uniformly disastrous.

Firstly, architects and planners ignored evolved urban codes that had proved themselves through the centuries. The reason given (but never tested) was that a new, industrial society needed an entirely new form for the city. Instead, they built monstrous blocks. These architects showed incredible arrogance in their approach to design, believing they could force their will on both people and urban functions and override forces that shape urban form and human use. For example, they designated the fourth storey and roof for specific commercial activities that never took place. Socio-geometric patterns of human use preclude such spaces and locations from ever being used in the imagined manner, just as the “playgrounds” and “plazas” designed according to some abstract geometry have remained despised, feared, and unused.

Secondly, architects and planners constructed dwellings and neighborhoods devoid of any intimate contact with nature. A family isolated inside an immense block housing project is detached from nature. Their quality of life drops. Even the fundamental pattern of “2 Meter Balcony” [see below], which could at least be used to grow plants, is stubbornly ignored by architects of apartments in high rises (Alexander et al., 1977). The new style and the ideological attraction to its visual vocabulary overrides any other concerns, and thus architects fail to address these crucial issues. Having some trees in a vast windswept plain outside the block is totally useless. Most twentieth-century attempts at living environments have failed because they contradict all the rules for the traditional design of urban spaces and gardens in the interest of a “new style” that is image-based.

Thirdly, architects and planners created monofunctional urban segregation, which violates the most basic urban patterns that make a city grow in the first place. Cities exist in order to connect people with each other and to mix activities. Incredibly, twentieth-century urbanism took the anti-urban slogan of spatially separated uses as a starting point, and governments used it to reconstruct their cities after World War II. These anti-urban practices were legislated into zoning laws so that it became illegal to build living urban fabric. The problem is that self-proclaimed experts were offering toxic advice on architecture and planning, and some of these people held positions of great academic and media prestige. Politicians and decision makers followed their advice simply out of respect for authority.

**Connecting beyond everyday experience**
I highlight here questions about connecting to place in a more complete manner. How far can we intensify our emotional connection and still explain it biologically? Emotional highs come from love, music, art, architecture, poetry, and literature. Mechanisms of response are all biological (sensory apparatus), although the most important elements are still incompletely understood. Connection is achieved through dance, music, art, and architecture. The common properties among these creations include patterns, regularity, repetition, nesting, hierarchy, scaling, and fractal structure. They are demonstrable geometrical patterns, perceived by our ancestors and more traditional people today as mystical properties. Going further, the highest artistic expression is related to religion. Bach, Mozart, Botticelli, Michelangelo, generations of anonymous artists and architects of Islamic art and architecture, and mystics of the world achieved such profound connection. By seeking God through beauty, human beings have attained the highest level of connection to the universe.

For millennia, human beings have sought to connect to some sacred realm through architecture. Though we have as yet no scientific explanation for such a phenomenon, we cannot deny either its existence or its importance for the quality of human life. We experience this connection — a visceral feeling — in a great religious building or a place of great natural beauty. The Egyptian architect Hassan Fathy speaks about the sacred structure even in everyday environments (Fathy, 1973). Christopher Alexander (2001-2005) describes connecting to a larger coherence, and such a connection is in fact one of the principal factors in enhancing our quality of life. Nevertheless, we hardly even have the vocabulary to talk about it.

Without specifying any particular organized religion, spirituality grounded in physical experience can lead to connectivity. Is this connective mechanism by which we try to interact with our creator the same effect as Biophilia? Maybe it is, only possibly more advanced and thus a far more intense source of emotional nourishment (i.e. fulfillment, joy, elation) than that obtained from strictly physical experience. Can we transcend biological connection as the source and standard for aesthetic appreciation and enjoyment so as to achieve an even higher spiritual connection? As opposed to religious experience or a religious attitude, religious belief itself is abstract, being resident in the mind. But the connection associated with religious experience can occur through geometry, the physical senses, music, rhythm, color, etc. Religious connection can be very physical, oftentimes intensely so. This physical connection gives us the materialization of sacred experience.

Dance, song, and music express temporal rhythm. Classical Indian Bharatanatyam dance, African shamanic dance, Native American religious dance, whirling dervishes in Mevlana, Turkey, and Hassidic dances are all mystical dance forms that contain geometric qualities of periodicity and temporal scaling coherence. Greek culture historically interlaced mystical dance with musical experience giving birth to Classical Tragedy, features that evolved into the main emotional component in the celebration of Christianity. In the West the Masses of Bach, Haydn, and Mozart show fractal temporal structure — an inverse power-law scaling. Sacred chant in all religions connects human beings to a story, ritual, and precious cultural reference.
point. Holy days are marked by special song, such as the Byzantine Easter service, Passion Plays, Kol Nidre during Yom Kippur, Buddhist ceremonial chant, etc.

In architecture all over the world, the House of God displays the connective qualities we seek, often to their highest possible extent. Independent of the particular religion or style, this effect is found among all religious building types. Architects of the past instinctively built according to rules for generating scaling coherence. All the examples I have mentioned — whether music, dance, art, or architecture — have common mathematical qualities: fractals, symmetries, rhythm, hierarchy, scaling distribution, etc. Deliberate creations by traditional humanity the world over were trying to connect to a reality that expresses truth, order, and measure beyond our everyday experience.

**Sponsored disconnection**

Within this biophilic framework, some religions have been more successful than others in fighting against the despoliation of nature and our dehumanization. (This very crude technology/nature opposition was justified by falsely presenting it as a condition to economic and technological progress). The more conservative of the organized religions seem to have fared much better at saving their heritage in recent decades. Fearing the intrusion of foreign cultures and the exploitation by foreign commercial interests, they have tried to shield themselves from what are rightly perceived as consumerist and nihilistic currents in Western art and culture. Ironically, many established religions in the West have embraced those same artistic trends in an effort to remain “up-to-date” so as not to lose members. We have concrete examples in recent churches that, far from evoking the love and image of God, instead conjure the image either of secular neutrality (warehouse/garage) or an expression of evil (slaughterhouse/crematorium).

An established Church that sponsors and builds religious art and its own temples in a style that induces anxiety will likely be judged as an accomplice to a global nihilistic movement. Buildings that generate anxiety, consciously or unconsciously, compromise the very continuity of such a Church. Anxiety, alienation, and consumerism have little to do with love, charity, and compassion. Anxiety-inducing forms are instead associated with power, transgression, and sadism; therefore their attraction is that of a cult of power. Negative reaction by more traditional religious authorities against contemporary church buildings in the West is not usually reported because of its politically explosive implications, but it exists, and it is damning. New churches that are praised by the western press are condemned as anti-religious by Eastern religious authorities (who apparently have not lost as much of their sacred connection) on the basis of the fashionable churches’ geometry.

A State, too, can commission prominent public buildings that through their style objectively evoke anxiety. A hostile reaction to buildings in a nihilistic style that the government has sponsored turns into hostility against the government itself. This does not bode well for political stability in the coming decades, when citizens wake
up to the fact that public money spent on anxiety-inducing buildings promoted by an ideological elite drove their country into debt. The past few decades have seen a building spree of unpleasant structures (museums, art galleries, schools, hospitals, libraries, government buildings, monuments, etc.) and environments in an ill-conceived desire to conform to a “contemporary” architectural fashion. These trigger aggression, visual violence, and embody utter pointlessness in their design.

We have already witnessed foreign reaction to such nonsensical and psychologically aggressive buildings in the rich Western countries but we misinterpreted it as hostility towards the West’s economic wealth rather than a legitimate critique of the architecture proper. Nevertheless, similar buildings and urban regions built in developing countries by those same “star” architects who build showcase buildings in the West arouse the same hostile sentiments among the local population. Don’t be fooled by a superficial biological analogy between monstrous offices and apartment blocks with beehives: we need entirely different patterns to live an emotionally healthy life than insects do. I believe that a correct interpretation of the negative reaction ordinary people experience around contemporary buildings in the fashionable style is based upon its rejection of biophilic patterns, but the soundness of this negative reaction is conveniently negated by a powerful architectural establishment that promotes such buildings all over the world. The accusations of nihilism from both within and without Western society are deflected onto “foreigners”, while critics of Western fashionable architecture are deemed not sufficiently “contemporary”.

Appendix

My own description of Pattern 167 — SIX-FOOT BALCONY: The minimum social space is defined with a depth of six feet, preferably with partial enclosure. Recessed balconies provide a sense of enclosure. But if they are narrower than this, are totally exposed and entirely cantilevered, they are rarely used.