"Intensify this Awe":
Threeness, the Triad, and Christopher Alexander

[Original longer title: Identifying the Conceptual and Practical Power of Christopher Alexander's Theory and Practice of Wholeness: Clues as Provided by British Philosopher J. G. Bennett's Systematics of the Triad]

David Seamon
Department of Architecture
Kansas State University
Manhattan, KS 66506
triad@ksu.edu
www.arch.ksu.edu/seamon

> All the efforts I have made have, at their heart, just this one intention: To bring back our awe…
> and to allow us to begin again to make things in the world which can intensify this awe
> —Christopher Alexander (*The Nature of Order,* vol. 4, 335).

Since I was first introduced to Alexander's *Pattern Language* by an Architecture colleague at the University of Oklahoma in the fall of 1981, I have been deeply drawn to his work and use one text or another in lecture courses and seminars I teach for design students at Kansas State University. In this presentation, I'd like to explore why, as an environment-behavior researcher involved in phenomenological studies, I find such conceptual and practical power in Alexander's work.

My answer to this question may at first seem simplistic: I argue that Alexander's work is powerful because it presents a theory and practice of wholeness *that is actually whole.* Crudely said, there is something about Alexander's work whereby, much of the time, the parts all seem to fit and point toward meaningful conceptual and practical results, most strikingly in his writings and understandings, less dependably in his designs and built work.

What I want to do today is to use English philosopher J. G. Bennett's thinking about wholeness to try to clarify what I mean when I say that Alexander's theory and practice of wholeness is actually whole. I am interested in what might be called "a phenomenology of wholeness"—any effort, conceptual or applied, that seeks to understand how parts can appropriately belong together so that some larger structure emerges with its own identifiable autonomy, dynamic, and integrity (Bortoft 1985, 1996; Seamon 2006b).

From the 1920s until his death in 1974, Bennett (1897-1974) sought to develop a conceptual method— what he called *systematics*—to clarify the pattern and order of wholes by drawing upon the qualitative significance of number. From a phenomenological perspective, one can argue that Bennett's achievement is a phenomenology of wholes in which each integer—1, 2, 3, 4, and so forth up to 12—points toward a different mode of togetherness and belonging in regard to the thing being studied, which, in Alexander's case, is largely order and wholeness. In this presentation I draw on Bennett's understanding of three, threeness, and what Bennett calls the *triad* to give clues to the remarkable conceptual and applied power of Alexander's work. Most broadly, my tack in the presentation is to use one approach to wholeness— Bennett's—to understand better another approach to wholeness—Alexander's [1].

Bennett's Systematics

In his four-volume masterwork *The Dramatic Universe*, written between 1956 and 1961 (Bennett, 1956-61; Bennett 1993), Bennett worked to find a way to identify and understand the underlying pattern and structure of a particular thing—be it an object, action, relationship, situation, process, or whatever—by turning to the experienced quality of number. Thus Bennett contended that the qualitative significance of oneness could be drawn upon to indicate the particular whole in which one is concerned, while the qualitative meaning of twoness could be used to indicate the various differences, polarities, and complementarities present in the whole. Yet again, he contended that threeness could help to define relationship and process, while four-ness could help define activity; fiveness, significance; sixness, event; seveness, transformation; and so forth. The central assumption of systematics is that there is something inherent in number itself that is fundamental to the way the world is and the way we can understand it. As Bennett's colleague Anthony Blake explains, "If we are able to penetrate more deeply into the nature of number, then we must become able to see reality more clearly" (Blake 1991, 2).

Bennett used the word *system* to designate the underlying pattern that a specific number represents. Further, by using the Greek word for the particular number followed by the suffix *–ad,* he gave each system a name. Thus the *monad* represents one-ness; the *dyad,* twoness; the *triad,* threeness; the *tetrad,* fourness, and so forth. Bennett argued that each of these systems would offer varying but equally accurate perspectives on the particular thing in which the researcher is interested. In this way, he or she might gain a more comprehensive and integrated understanding of the thing and be better able to appreciate and to work with it (table 1 summarizes systems and attributes up to eightness and the octad) [2].

The First Eight Systems

System	Attribute
(1) Monad	Wholeness
(2) Dyad	Complementarity
(3) Triad	Action & relatedness
(4) Tetrad	Activity
(5) Pentad	Potential
(6) Hexad	Event
(7) Heptad	Transformation
(8) Octad	Completedness

Table 1

In this presentation, I draw on Bennett's understanding of threeness and the triad as a means to help understand why I find Alexander's efforts so powerful intellectually and satisfying emotionally. I hope to show that an interpretation, in terms of threeness and the triad, offers insight into the conceptual and practical strengths of Alexander's work.

The Triad and Alexander's Wholeness

Threeness, Bennett argues, relates to relationship, process, action, dynamism, and reconciliation. "Without an understanding of the triad," writes Bennett (1993, 36), "it is difficult to make any real change in the world." My aim here is to summarize Bennett's understanding of the triad and then to ask what insights it offers for better understanding Alexander's theory and practice of wholeness [3].

In Bennett's terminology, the triad is a system of three independent but mutually related qualities, each of which Bennett designates by the word *impulse*, to suggest a sense of force or motivation that, blending with the two other impulses of the triad, leads to a specific mode of action, process, or happening [fig. 1].
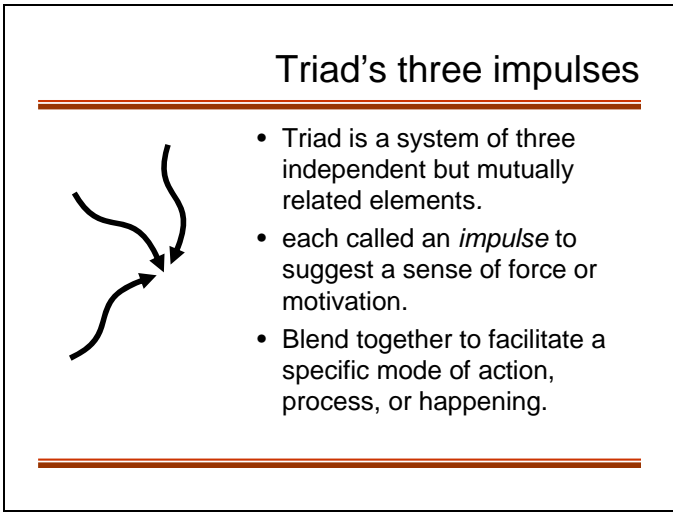
Triad's three impulses

- Triad is a system of three independent but mutually related elements.
- each called an *impulse* to suggest a sense of force or motivation.
- Blend together to facilitate a specific mode of action, process, or happening.

Fig. 1

To identify the specific character of each of these impulses, Bennett uses the terms *affirming*, for the impulse that acts or initiates; *receptive*, for the impulse that is acted upon or resists; and *reconciling,* for the impulse whereby the affirming and receptive impulses might be brought together in a particular action, process, or dynamic. Bennett further simplifies the designation of these three impulses by calling the affirming impulse, *first*; the receptive, *second*; and the reconciling, *third;* or most succinctly, *1, 2,* and *3.*

At the same time, each of the three impulses can occupy each of the three positions in the triad. He calls each of these three positions a *term*, thus the first position is the *initiating term;* the second position, the *characterizing term;* and the third position, the *outcome*. The result is illustrated in table 2.

Triad's Impulses & Terms

The three impulses:
1—affirming impulse (active or initiating)
2—receptive impulse (passive, receiving, resisting, or denying)
3—reconciling impulse

The three terms:
( )⟶( )⟶( )⟶
 initiating term   characterizing term   outcome

Table 2

The next move that Bennett makes points to the considerable conceptual and practical power of the triad: He points out, as shown in table 3, that each of the three impulses can occupy any of the three terms, thus he arrives at six distinct triads that, he argues, encompass all possible actions, relationships, and situations, whether of the world, of human experience, or of the lived relationship between the two. For convenience, he gives these six triads the labels of *interaction, identity, expansion, concentration, order,* and *freedom.* He contends that each of these six triads illustrates a particular mode of dynamic, process, action, or experience. What I next do is briefly overview each of these six triads and consider in what ways they shed light on Alexander's aim of understanding and making wholeness. [4]

Table 3

The Triads of Interaction and Identity

Most broadly, two triads—interaction (*1-3-2*) and identity (*2-3-1*)—relate to the typical regularity and unfolding of everyday life. One of the most important phenomenological notions is the *lifeworld*—the taken-for-granted pattern, context, and tenor of everyday life. The miraculous thing about the lifeworld is that, most of the time, it *just happens,* and a good amount of routine, regularity, and cyclicity founds this "just happening." The triads of interaction and order help one understand why the lifeworld mostly just unfolds with little or no intentional intervention [fig. 2].
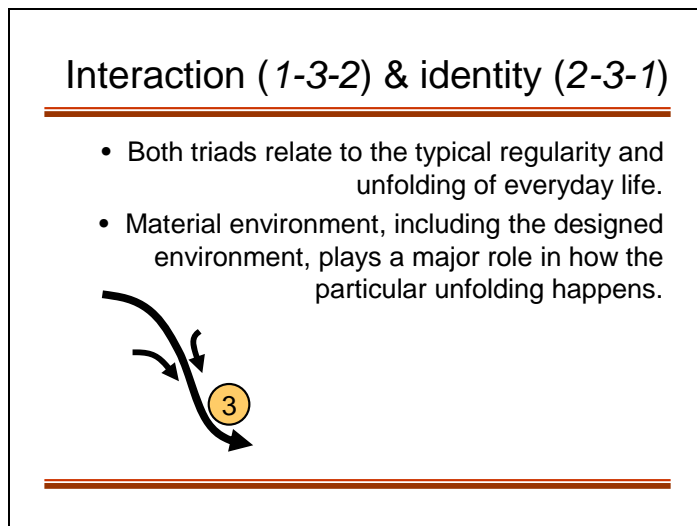

Fig. 2

Clearly in Alexander's work, a major aim is understanding the central role that the physical and designed environments contribute to the unfolding of the lifeworld, particularly in ways that make daily life more graceful, robust, and memorable. Alexander claims this understanding might facilitate better designs in the sense that more buildings and places might be made to evoke comfort, pleasure, and joy—in other words, sustain more beneficial and gratifying interaction and identity, both human and environmental.

How do the triads of interaction and identity relate to Alexander's claim that well-made everdayness might better sustain human and environmental well being? The triad of interaction relates to the automatic unfolding of the lifeworld in that this triad points to "the endless flux of interlocking events going on in the world" (ibid. 49). This unceasing progression of interconnected actions that in sum compose the rhythm of daily life everywhere can be interpreted through the *1-3-2* relationship, which says that an active and passive impulse are brought into relationship and action through some reconciling impulse. For example, the simple action of a boy's tying his shoe lace could be described in terms of boy (manifesting

active impulse or *1*) through shoe lace (receptive impulse or *2*) producing tying (reconciling impulse or *3*) [5] [fig. 3].
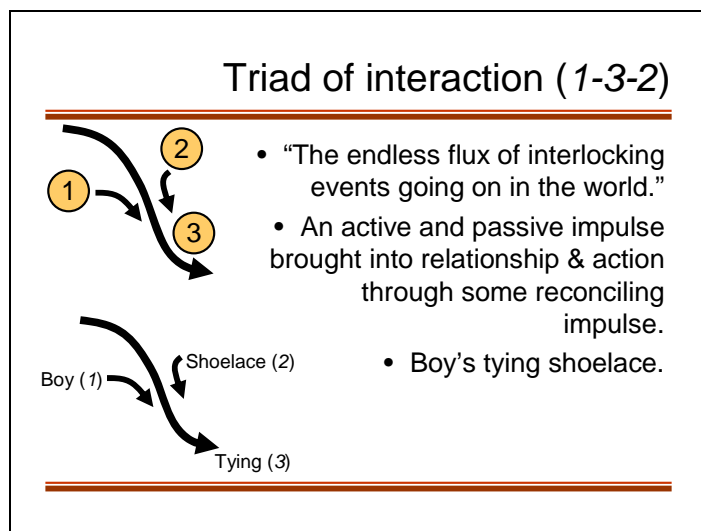

Fig. 3

In turn, the triad of identity (*2-3-1*) indicates how, through repeating an action, skill, or situation, they become a part of who and what we are—our identity as individual or group, including environmental and place aspects. In the case of the boy just mentioned, the receptive impulse would be the boy unable to tie his shoe lace (*2*), who keeps practicing (active impulse or *1*) until being able to tie his shoe lace becomes an automatic part of who he is—his identity (*3*) [fig. 4].
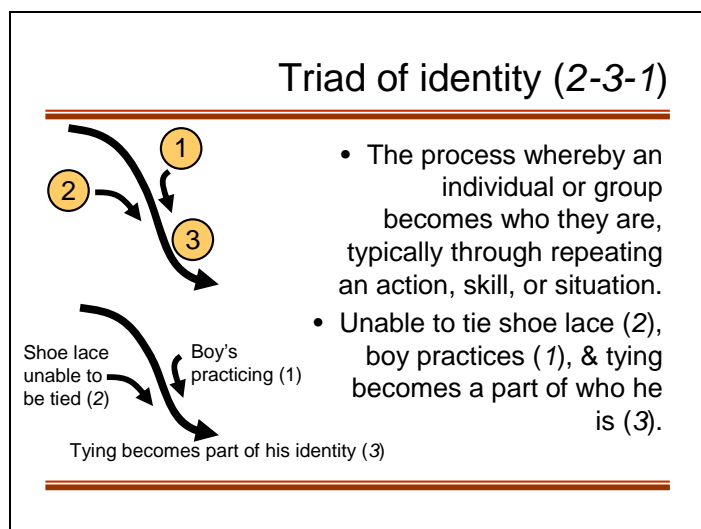

Fig. 4

Jane Jacobs' picture of the street ballet of her New York City's Hudson Street neighborhood (Jacobs 1961) is a good example of how environmental and place elements contribute to the triads of interaction and identity. In regard to the triad of interaction, one can point to the way the various Hudson Street participants come together in that particular place more or less the same ways day after day to evoke a particular place ambience and "sense of place"—for example, Jacobs' putting out her garbage can, students walking by on their way to school, the delicatessen assistant stacking empty creates outside the shop door, and so forth. Jacobs emphasizes that environmental elements—small blocks, primary uses, higher densities, and range in building age and type—play a major role in affording street ballet. There

are specific physical elements, in other words, that, if present, sustain place interaction and, if not present, weaken and even destroy place interaction. In terms of the interaction triad, one can say that, out of would-be participants (*1*) carrying out their daily activities in a supportive environment (*2*), the vibrancy of place ballet arises (*3*).

At the same time, the individuals participating in the street ballet's regularity, many of them more or less repeating the same actions and situations day after day, absorb that place as part of their identity and also contribute to the identity of the place itself through being regular participants. In terms of the identity triad, a supportive physical environment (*2*), providing a place for a vibrant place ballet (*3*) contributes to the sense of identity for individuals and groups (*1*). As Hudson Street is the happening of more or less the same interconnected encounters, events, and situations—i.e., triads of interaction—so, through this regularity and sameness, Hudson Street takes on identity both for itself and for the participants of which it is comprised—triads of identity.

One important component of Alexander's body of work is understanding ways in which environmental and place qualities (*2*), interacting with place participants (*1*) contribute to human and environmental interaction and identity (*3*). For example, I would argue that one reason Alexander's *Pattern Language* remains so popular with the general public is because the work delineates qualities of the designed environment that contribute to robust environmental interaction and identity. Patterns like "magic of the city" (no. 10), "web of public transportation" (16) or "corner grocery stores" (89) work to generate vibrant urban districts grounded in people's moving about, interacting, and encountering each other more or less regularly. In turn, patterns like "identifiable neighborhood" (14), "neighborhood boundary" (15), "activity nodes" (30), and "main gateways" (53) point to environmental elements that contribute to both individual and place identity, partly because the designed environment contributes a physical permanence and continuity to the world in which peoples' experiences and actions unfold [figs. 5 & 6].
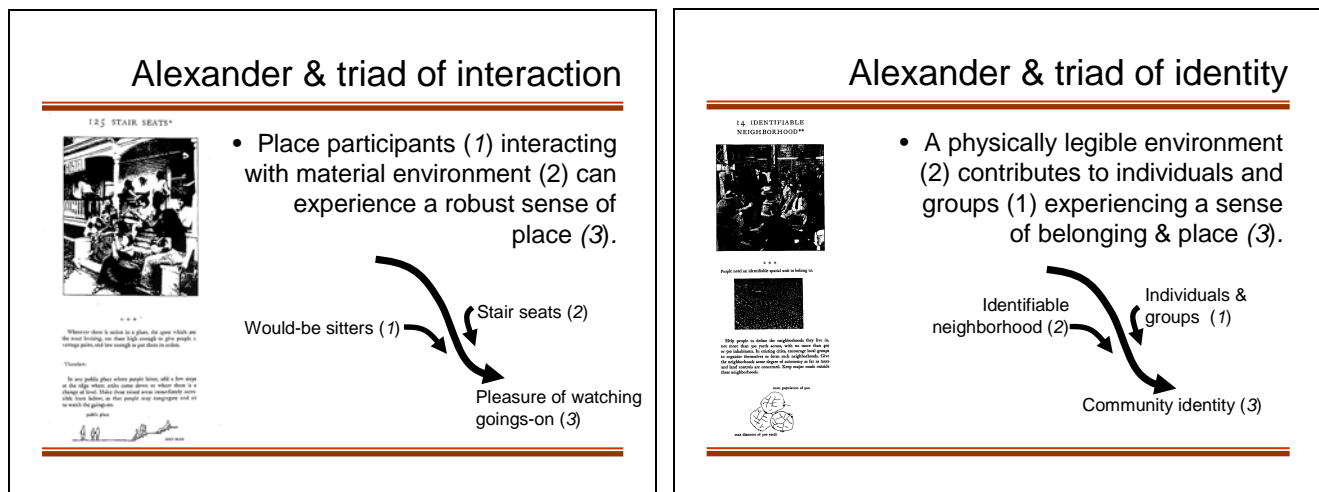
Figs. 5 & 6

The Triads of Expansion and Concentration

The next two triads described by Bennett relate to processes whereby human beings and the worlds in which they find themselves can improve and, in Alexander's terms, create a deepening richness of environmental action, meaning, and experience. Unlike the triads of interaction and identity, which both insure that an action or situation remain more or less the same (thus the enduring dynamism of Hudson Street as a particular place with a particular ambience and identity), the triads of expansion and concentration elucidate actions and situations whereby some sort of transformation or progress can unfold.
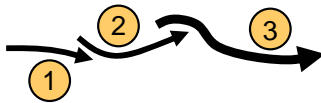
Fig. 7

Fig. 8

Bennett describes the triad of expansion (*1-2-3*) as relating to growth and creation [fig. 8]. Some sort of active agent (*1*) acts on a responsive ground (*2*) in such a way that some kind of development or improvement results (*3*). Clearly, a key aspect of Alexander's process of understanding and making involves moments of seeing, of designing, and of constructing whereby there is a "just right" fit between person (*1*) and the situation to be understood, made, or improved (*2*), with the result of greater healing and wholeness (*3*). One of his most explicit descriptions of the lived dynamics of this "right fit" is in volume 2 of *Nature of Order,* where he lays out the possibility of what he calls "wholeness-extending transformations." He writes:

> The essence of life in any system lies in the adaptive response of each new development in the system to the previously existing state…. It *cannot* be achieved by a mechanical framework, by *any* mechanical system, nor by any stereotyped or stylistic response. Rather, it comes about only when the response of each act of building has been fresh, authentic, and autonomous, called into being by previous and present circumstance, shaped only by a detailed and living overall response to the whole (vol. 3, p. 22).

By being empathetically present to the moment—i.e., the expansion triad's engaged attunement between maker (*1*) and making process (*2*)—one understands what to do next design- and construction-wise to evoke more wholeness (*3*). A careful, insightful "coming to presence" between person and situation provides a more refined understanding of what that situation requires or reveals [fig. 9].
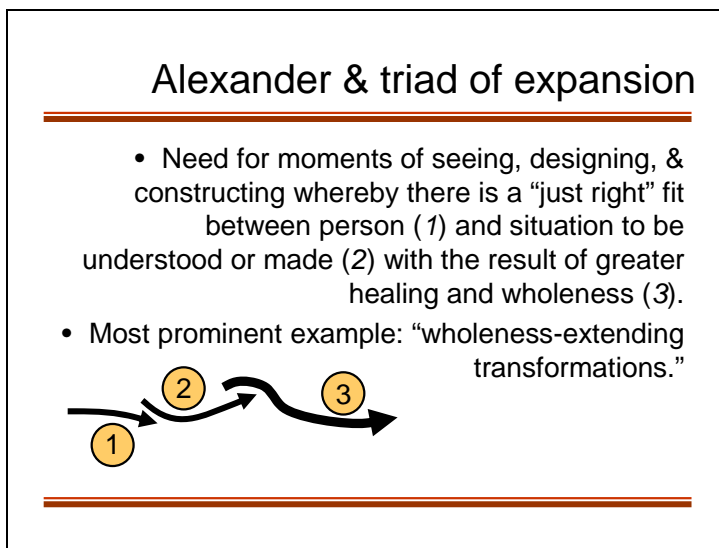

Fig. 9

Alexander argues that in pre-modern societies, this process of "coming to presence" was largely of the lifeworld, developed slowly over time through trial and error, then largely concretized through routine, tradition, and ritual [6]. Drawing primarily from evidence and examples of processes in nature as understood by the natural sciences, especially biology and physics, Alexander aims in volume 2 of *Nature of Order* to create an updated generative process that might be used for 21st-century architecture and design. His means toward this end, summarized in table 4, is a series of 10 structure-enhancing actions that he claims will always intensify the life and wholeness of a thing [7]. Alexander contends that, when thoroughly understood and practically mastered, these steps, always interconnected and overlapping, will contribute unfailingly to a living process that, at each stage in its development,

> always starts from the wholeness as it currently exists at that moment. At the next moment, we take a new step—introducing one new bit of structure (always composed of new, living, centers) into the whole. The new structure may be large, medium, or tiny; it may be physical or abstract; it may occur on the land itself or in a person's mind, or in the collective understanding of a group of people. But the point is that at every state of every life-creating process, the new bit of structure which is injected to transform and further differentiate the previously existing wholeness, will always extend, enhance, intensify the structure of the previous wholeness by creating further and stronger, living centers…. The structure-enhancing step, which again and again intensifies one center and creates 'hooks' to other new centers, might even be called *the* fundamental process (vol. 2, p. 216).

Alexander's 10 structure-enhancing actions

1. Step-by-step adaptation.
2. Each step helping to enhance the whole.
3. Always making centers.
4. Allowing steps to unfold in the most fitting order.
5. Creating uniqueness everywhere.
6. Working to understand needs of clients & users.
7. Evoking & being guided by a deep feeling of whole.
8. Finding coherent geometric order.
9. Establishing a form language that rises from & shapes thing being made.
10. Always striving for simplicity by which thing becomes more coherent & pure.

Table 4

Whatever the particular step in this process, the underlying effort is a triad of expansion involving an empathetic understanding and engagement with the moment: The maker, as initiating force, intimately encounters the present stage of making (receptive impulse) with the result that the appropriate understanding or action unfolds (reconciling impulse).

The fourth triad (*2-1-3*)—*concentration*, as Bennett calls it—is associated with unification and purification, and helps explain why Alexander's way of working is so arduous and sometimes dismissed by critics as unrealistic and hopelessly impossible. In this triad, the individual places himself, as receptive impulse, in front of a challenge (initiating impulse) that may or may not be met with successful results (reconciling impulse). We are not sure we can deal with the situation or solve the problem, but we encounter the challenge receptively (*2*) and thus place ourselves in the face of the challenge as affirming term (*1*). We don't know we'll solve the problem or succeed in the situation, *but we try* and may have positive results (*3*). This triad says that a receptive impulse initiates an action toward the affirming impulse, and the result, if successful is a new potential [fig. 10].
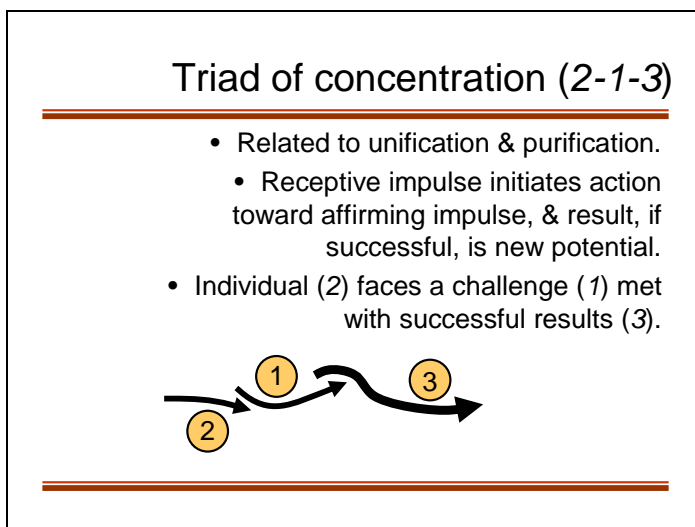

Triad of concentration (*2-1-3*)

- Related to unification & purification.
- Receptive impulse initiates action toward affirming impulse, & result, if successful, is new potential.
- Individual (*2*) faces a challenge (*1*) met with successful results (*3*).

Fig. 10

Alexander's struggles with the dynamics of the triad of concentration are well described in his description, in volume 1 of *Nature of Order,* of his long experience of seeking to understand wholeness. He explains that this learning process has largely been an arduous, trial-and-error effort of examining objects, buildings, and places that appeared to have a sense of life and wholeness. Though realizing that

no clear results were guaranteed, he came to see in time that there were certain identifiable properties that appeared over and over again. He writes:

> For twenty years, I spent two or three hours a day looking at pairs of things—buildings, tiles, stones, windows, carpets, figures, carvings of flowers, paths. Seats, furniture, streets, paintings, fountains, doorways, arches, friezes—comparing them, and asking myself: *Which one has more life?* And then asking: *What are the common features of the examples that have most life?* (*Nature of Order,* vol. 1, 144).

Another example of the triad of concentration in Alexander's work is found in the design experiment laid out in his *New Theory of Urban Design* (Alexander 1987), which involved a graduate-studio effort to bring order and a robust sense of place to a largely underdeveloped waterfront site in San Francisco. In envisioning each design project that might add to the wholeness of the site, the students were required to put themselves in front of seven rules—piecemeal growth, formation of centers, positive outdoor space, and so forth. This process of designing required the students (*2*) to be receptive to the rules (*1*), which work as the active impulse through which a particular design possibility (*3*) becomes the reconciliation. Interestingly, Alexander notes that, as the students had more practice with the rules, their ability to envision and design projects gained in strength. Through the challenge required by the design approach, the students had increasing success in mastering it. This increasing facility with the seven rules indicates how repetition of the process (triad of identity) transforms what was originally a difficult challenge into a manageable process. Continued striving leads to more and more success.

Bennett's description of the concentration triad accurately portrays the arduous process that Alexander undertook to identify the fifteen properties of wholeness and that the students underwent in mastering the seven design rules. Bennett writes:

> There is something I wish to do but cannot. I begin to train and undergo hardships to acquire the skills and strength to overcome the inadequacy. As a result, something gradually changes in me. This 'something' is a kind of bridge that integrates me inwardly and makes me stronger in the way I am connected to myself (Bennett 1993, 55).

Bennett's description here highlights one of the major quests that runs throughout Alexander's career: The courageous effort to struggle with the unknown and, out of that encounter, to find pattern, meaning, and actualizations of wholeness—sometimes more successfully and sometimes not. This is the heart of the triad of concentration—through placing one's self in front of an uncertain situation, he or she strengthens his or her ableness to know and to do.

The Triads of Order and Freedom

Bennett contends that the last two triads—*order* and *freedom*—help to explain why, on one hand, the world can be only as it is yet, on the other hand, can become otherwise [fig. 11]. He associates the triad of order (*3-1-2*) with constancy and determinism—with the fact that the world cannot be capricious and arbitrary. This triad indicates that reconciliation, acting through an affirmation, asserts order in receptivity. In this sense, the triad of order relates to the question, "Why is it that everything has to be as it is?" Thus, water can never run uphill nor can tomorrow precede yesterday nor can one physical body occupy the same space as another physical body in the same moment [fig. 12]. On the other hand, the triad of freedom (*3-2-1*) allows for the fact that the world *can* be otherwise—that there is something in human beings and the world that is free, and that this something involves those creative moments in which there is an opening "through which possibilities happen that otherwise could not" (ibid., 50). What was not present a moment before—a design inspiration, for example—is suddenly present [fig. 13].
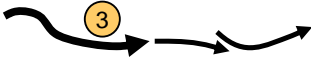
Fig. 11

Fig. 12
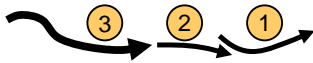
Fig. 13

In regard to the triad of order, one immediately recognizes that much of Alexander's work attempts to identify and understand underlying structures and patterns as they found environmental and human wholeness. Alexander strongly believes that, the more present and dense these patterns and structures, the more there is present wholeness and life, whether expressed as beauty, good health, robustness, or a powerful sense of place. Clearly, these patterns and structures are not contingent or socially constructed but *inherent in the world* and necessarily required in the world if it is to be meaningful and full of life.

For example, many of the patterns of *Pattern Language* assume an underlying constancy sustained by a resonance between social and environmental processes and structures—for instance, the role of physical proximity in generating human sociability or the role of a lived density of people and environmental elements in facilitating a place vitality. Perhaps the most direct claim that the world has a certain tacit structure is the fifteen properties of wholeness Alexander delineates in volume one of *The Nature of Order* (table 5). These properties presuppose and insist that there is a certain geometric and spatial constancy that founds ecological and human well being. The central aim is for researchers, designers, and policy makers to recognize and use these ordering qualities to inform their research and designs and thereby infuse them with more and more wholeness. About this order, Alexander writes:

> [A]ll space and matter, organic or inorganic, has some degree of life in it [sic], and that matter/space is more alive or less alive according to its structure and arrangement (*Nature of Order*, vol. 1, 4).

> [The key idea] is that what grows and unfolds, grows and unfolds as a natural consequence of what is, because it literally grows out of the wholeness—a structure in space— … a structure of symmetries that exist in the way that a given portion of space is differentiated (*Nature of Order*, vol. 4, 321).

Fifteen properties of wholeness

- Levels of scale
- Strong centers
- Boundaries
- Alternating repetition
- Positive space
- Good shape
- Local symmetries
- Deep interlock & ambiguity
- Contrast
- Gradients
- Roughness
- Echoes
- The void
- Simplicity & inner calm
- Not separateness

Table 5

If, in Alexander's work, the triad of order can be said to justify wholeness and shapes and presupposes the conditions of the physical world and human experience out of which wholeness might arise, the triad of freedom (*3-2-1*) sparks the moments of creative insight that allows one to see and make wholeness and thereby facilitate the intensifying "life" of space, place, and form for which Alexander aims. One can say that reconciliation (*3*), through receptivity (*2*), releases a new affirmation (*1*). Bennett claims that, in the triad of freedom, the reconciling force is an initiating term "associated with an *opening* through which possibilities happen" (ibid., 50). There is, he says, "an invisible reality that cannot be held within the limits of time and space."

Making contact with moments of freedom through which the invisible might be made real is essential in Alexander's way of understanding and making. One of his most explicit presentations of this style of working appears in *New Theory of Urban Design* with its third design rule of *visions*, which requires that "every project must first be experienced, and then expressed, as a vision which can be seen in the inner eye (literally)" (Alexander 1987, 50) [fig. 14]. Alexander emphasizes that such a vision

is a literal thing. It is not merely an idea or concept, but a thing seen and felt in the mind's eye as in a dream, perhaps literally seen in a dream. *And as a result it has intensely personal feeling.* It makes some feeling manifest, it carries us on a wave of life, makes us feel life, black, grey, or brilliant… but still it is life…. (ibid., 57).

Vision as triad of freedom

- Vision answers fundamental question:

  What shall we build in any given place… The question does not ask how [the project] is organized, how it is designed… but simply the most fundamental question of all: *What is it? What is going to be." (NTUD,* 53)

  Vision of a gate: "a narrow, high gateway arching over the street, with stairs. This gate would form the entrance to the project." (ibid., 115-16)
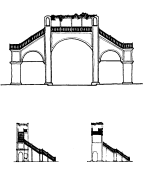
Fig. 14

In the style of revelatory discovery suggested by Alexander here, one recognizes Bennett's description of the freedom triad: "a creative impulse is liberated in the world because something new seeks to be born" (Bennett 1993, 50). The example Alexander gives of a vision is a farmer's sitting at the breakfast table one morning and telling his family that there is need to build a bridge over a stream before winter rains arrive. This farmer's call to build, says Alexander is "an act of vision" that the farmer's family see, carry in their minds, and then build (Alexander 1987, 57).

He contrasts this power of vision with a decision of the Berkeley Public Works department to build a culvert over a stream flooding a city street. Here, Alexander contends, is a process exactly opposite from the farmer's where "studies are prepared" and "each member of the engineer's team carefully protects himself against possible criticism" (ibid.). The bridge is built, but "purely as a bureaucratic act, entirely *without* vision." Whereas the farmer's bridge is imagined through the triad of freedom (*3-2-1*) and probably built with the care and attention of the triad of expansion (*1-2-3*), the engineers' bridge is planned and constructed through a triad of interaction (*1-3-2*), whereby uninspired template design and lackadaisical, slapdash assembly mark the process throughout.

The Reality of Interconnected Triads

Separating out the six triads is largely a heuristic convenience, since, in the real world, actions lead to other actions, and situations interpenetrate and evoke other situations. In any occasion or process, interconnecting sets of triads continually unfold, sometimes supporting situations of habituality and inertia, at other times sustaining creative efforts and processes that strengthen human and environmental well being [8].

What is perhaps most striking about Alexander's work is its tacit recognition of how, if any effort at a new theory and practice is to have real-world significance, all the triads must be present. One example is the "Postscript on Color" at the end of his *Production of Houses,* which describes a team effort in which local families build their own low-cost, self-help housing in Mexacali, Mexico (Alexander 1985, 376-78).

After Alexander's building team completes the first cluster of five houses, there arose the question of what colors they should be painted. Already exhausted from constructing the houses, the families and most team members wanted the easiest solution—painting the buildings white and leaving wooden portions natural—this action being a triad of interaction that would involve no real engagement with the question of how color might contribute to the wholeness and life of the houses.

Alexander, however, "had a vision of these buildings being somehow tinged with blue"—a sense of creative possibility illustrating a triad of freedom (3-2-1). Though most of the other team members were not keen on Alexander's vision, he insists, and the team begins a series of experiments, "painting one mock-up after another, slightly changing colors" (these many actions involving triads of concentration and interaction). After two weeks, the team has their first success—realization that the roof cornices should be "a heavenly blue" (triad of freedom). Another breakthrough is realized when the team understands that above the blue is needed a hairline of some other color (triad of freedom). In the first experiments (triad of concentration), a thin gold line is tried, but, eventually, the team determines that what is needed is a green hairline, but with "immense amounts of yellow in it" (triad of freedom). In turn, this discovery made the team realize that the blue itself should be faintly tinged with green, "so small a quantity that it was still quite blue—not blue green, but just subtly shifted" (triad of freedom).

With these understandings of color, it was then realized that the houses' white wall color needed changing (triad of expansion). To soften the brilliance of the white, the team realized that the whitewash must be tinged with green, "so lightly green that anyone who looks at it thinks it is white, but still it harmonizes softly with the blue and golden green above it" (triad of freedom). With these discoveries in place, the team next had to make sure they worked for the larger surfaces of the building walls. The entire wall of one of the houses was painted several times (triad of interaction) so that it was certain that the colors were right (triads of concentration and expansion). Alexander summarizes the experience:

> Altogether, the amount of mixing, and painting, and making other mixes, and painting them, and looking at them was enormous. It went on day after day, for almost the whole two weeks, in many cases intensified by the lack of understanding of the people round about, who felt that it should all be white, or who simply could not understand how carefully, with what concentration, it is necessary to keep going through trial and error over and again to get a thing just right…. [I]t is amazing to record, even now to write it down, how much work went into that one thing, to get it right (ibid., 377-78).

This color experiment illustrates Alexander's recognition that the process of making requires persistence and careful engagement as well as inspiration—in other words, triads of interaction and concentration as well as triads of freedom and expansion. He is willing to strive for the most thorough actualization of right fit and wholeness because he believes that the resulting environmental and architectural experience will benefit dwellers' everyday lives and contribute to their sense of individual and communal identity through everyday taken-for-granted triads of interaction and identity evoked through the house and neighborhood. He writes:

> The real meaning of beauty, the idea of houses as places which express one's life, directly and simply, the connection between the vitality of the people and the shape of their houses, the connection between the force of social movements and the beauty and vigor of the places where people live—this is all forgotten [today in the way most housing is constructed] (ibid., 14).

Perhaps the most remarkable quality of Alexander's work is that, in practically all his specific projects of understanding or making, there is an effort to lay out the task at hand in a multi-dimensioned way whereby a well-understood possibility might actually be transformed into a successful reality. Clearly,

Alexander's aim is not only the success of individual projects but also the possibility that these projects will all point toward a larger aim of reshaping deep down the ways that we understand and make our world. This possibility relates to what Bennett calls an *event*—a durable, influential effort that plays a larger or smaller role in making the future otherwise than what it would be without the event.

Will Alexander's Work Become an Event?

As I've already suggested, an *event,* as Bennett defines it, refers to a situation whereby what is potential becomes actual in a lasting way that has bearing on the future. An event, he says (Bennett 1993, 107) is "not matter in motion within a limited region of time and space," but an accomplishment that "asserts itself and reverberates through time and space. As the event occurs, it gains in concreteness" (ibid.) [9].

Will Alexander's theory and practice over time gain in concreteness and become an event? Has his work become an event already? Might his way of understanding and making eventually become an event and thus play an important role in changing the world? Will its impact grow in power and importance to such a degree that, as Alexander hopes, the result could be many built examples of "a harmonious whole that embraces nature and creates buildings, streets, and towns, in a fashion which has the same deep structure as nature, and has the same deep effect on us as a result" (*Nature of Order*, vol. 3, 3)?

In understanding the potential of an effort to become an event, Bennett draws on the six triads as arranged according to the hexagram illustrated in figure 15. Bennett argues that "the dynamism of every possible event is a combination of these six triads" (*Dramatic Universe*, vol. 3, 46). In other words, if Alexander's understanding and practice of wholeness is to become a durable force for reshaping and strengthening our human future, then there are six strategies, grounded in the six triads, that must be maintained if the effort is to have significant results. I want to end this presentation by briefly considering how Alexander's work incorporates these six strategies.

The Six Triads as Event

Order (*3-1-2*)

Freedom (*3-2-1*)

Interaction (*1-3-2*)

Identity (*2-3-1*)

Expansion (*1-2-3*)

Concentration (*2-1-3*)
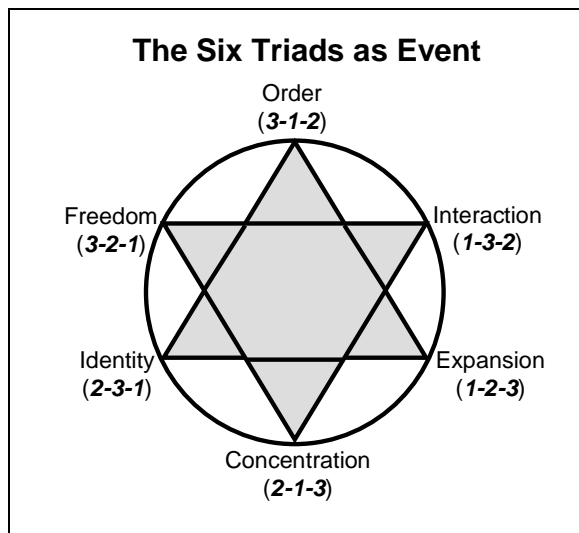
Fig. 15

I have attempted to show that one can find each of these six strategies—i.e., the six triads and thus the six strategies—at work in Alexander's understanding and practice. To me, this may be one reason why his work has such conceptual and practical power: Whether self-consciously or unself-consciously, he is aware of the need for a multi-dimensioned process that integrates potential and actualization, vision and results. As Bennett makes the point, "Success in action requires a nice balance between attention to what actually is and to what potentially might be" (*Dramatic Universe*, vol. 3, 49).

In his work, Alexander may not have perfectly achieved this "nice balance," but what perhaps is more important is his persistent effort to strive toward it by figuring out and trying to actualize wholeness. The potential long-term result, which for sure involves much hazard and may or may not happen, could become an event as Bennett defines it—in other words, the possibility, by no means certain, that Alexander's theory and practice of wholeness becomes a significant way of understanding and making such that it contributes to a major reshaping of how we interpret and build our world.

I close with a number of questions that will need to be answered if Alexander's efforts are to become an event in the sense that Bennett understands the term:

- How well does Alexander's theory, particularly the original pattern language and the fifteen properties, lay out an underlying structure of wholeness?
- Does the theory foster a usable way to allow this structure of wholeness to manifest through inspired understanding and making?
- Is there some way to synthesize Alexander's many specific efforts at understanding and generating wholeness (all the volumes in the "pattern language" series as well as the many other practical examples in *The Nature of Order*) into some simpler presentation that would be more accessible and useable, or is the possibility of a more "integrated version" impractical or even impossible?
- If there are gaps and inconsistencies in Alexander's understanding of wholeness, are there other intellectual and design efforts that might be drawn upon to provide clarity? For example, might Bill Hillier's space syntax theory provide one way to think about "centers" in a more holistic way or might Thomas Thiis-Evensen's theory of architectural archetypes (Thiis-Evensen 1987) offer guidance for laying out and designing buildings (e.g., rules 5 and 6 in *New Theory of Urban Design*)?
- Can there be developed conceptual and practical methods and tools that would allow Alexander's theory to be more readily grasped by newcomers? For example, could a workbook of exercises be developed to introduce newcomers to Alexander's discoveries regarding wholes—e.g., in regard to his Turkish-carpet work (Alexander 1993) or in regard to the properties of wholeness as he finds them in the natural world? Might Bennett's systematics or Goethe's way of science (Bortoft 1996, Seamon & Zajonc 1998) offer ways of seeing and understanding that might add vigor to Alexander's approach?
- Might there be practical exercises developed that would sensitize beginners to the process of wholeness-extending transformations? (Goethe's way of science might offer important possibilities here).
- Is a mentor already skilled with the process required to instruct newcomers into the considerable sensitivity, insight, and craft necessary to allow wholeness-extended transformations to unfold? Can the process be learned without the help of a "master" already skilled in the process?
- For the buildings and places that Alexander has actually built, have human and environmental wholeness, interaction, and identity actually been enhanced? Is anyone taking responsibility for post-occupancy-evaluation studies that would interpret success and failure in terms of understanding and making wholeness? (As far as I know, the only post-occupancy-evaluation study for any of Alexander's built projects is a report [Fromm & Bosselman 1983-84] on the Mexacali housing experiment conducted seven years after the five dwellings were completed).
- Are students and practitioners attempting an Alexandrian approach to design able to meet the difficult challenge of the approach and over time improve their design facility and create environments of wholeness? Is anyone recording these efforts systematically? [Kyriako Pontikos's proposed edited collection on Alexandrian "making" is an important effort in this regard].
- Can one, through practice, cultivate the moments of vision that are essential in Alexander's approach both for the overall design and also for the moments of making whereby the parts unfold in a widening structure of wholeness?
- What efforts can researchers and practitioners who find value in Alexander's work make to ensure that his work will live into the future? If there are not found ways to continue the work, through both

efforts at understanding and making, will Alexander's work survive in a lasting way and become an event as Bennett defines it?

▪ Are Alexander's efforts part of some larger "event" currently unfolding that attempts to move away from the conventional Western "dyadic" world view (i.e., subject vs. object, people vs. world, nature vs. culture, body vs. mind, experience vs. knowledge, male vs. female, and so forth) toward a relationalist, "triadic" understanding? I repeat Bennett's injunction that "Without an understanding of the triad, it is difficult to make any real change in the world" (Bennett 1993, 36).

Notes

1. The most accessible introduction to systematics is J. G. Bennett, *Elementary Systematics: A Tool for Understanding Wholes,* D. Seamon, ed. (Santa Fe: Bennett Books, 1993). One of Bennett's earliest accounts of systematics is available on line at: http://www.systematics.org/journal/vol1-1/GeneralSystematics.htm. This article, entitled "General Systematics," was originally published in *Systematics, 3* (1963): 5-18. This article is reprinted in *Elementary Systematics* as an appendix. Bennett's most extensive discussion of systematics is chapter 37 in volume 3 of his four-volume master work *The Dramatic Universe*. His most extensive discussion of triads is in chapters 27-31 in volume 2 of *Dramatic Universe*. Bennett's colleague Anthony Blake (1991, 2) highlights the central assumption of systematics: "There is something in number itself that is fundamental to the way in which the world is made and the way in which we can understand it. If we are able to penetrate more deeply into the nature of number, then we must become able to see reality more clearly."

A personal note. I first learned of Bennett's work in 1971 and studied with him for ten months in 1972-73. Bennett's ideas are not easily grasped, and he regularly emphasized the importance of finding them in one's own experience rather than trying to reason them out through logical thinking. In the early 1990s, I was introduced to a series of lectures that Bennett had given in 1963, providing an introduction to systematics and covering systems from monad to pentad. I felt these lectures were important because of their clarity and accessibility. I worked to edit them into written form; the result, *Elementary Systematics,* was published in 1993 by Bennett Books—a Santa Fe publishing firm that works to keep Bennett's writings in print.

2. On how systematics is different from the general-systems theory developed by Bertalanffy, see Bennett 1970. Clearly, the symbolic significance of numbers is an emphasis regularly found in the world's sacred traditions, and this emphasis is one source of Bennett's formulation of systematics. For an introduction to traditionalist thinking on the symbolic meaning of numbers, see Schneider 1994.

3. In an earlier paper, I interpreted Alexander's efforts from Bennett's systematics of fourness and the tetrad; see Seamon 2006a. The main aim of that paper was as follows: "In examining Alexander's theory of wholeness, I focus on Bennett's fourth-order system, or *tetrad*, which he… claims… helps to answer the question, "What is happening and why?" and thus lays out the aspects of any intentional and directed activity, which in Alexander's case relates most broadly to making as a process of creating coherence, order, and life, whether one speaks of an object, building, place, or some other made thing."

4. It is important to understand that the three impulses express themselves through the three components of a particular triad *but are not the components themselves.* Further, as the blending of the three impulses happens, they lose their separate identities, and something new arises. Bennett writes: "Although the three [impulses], as they meet to constitute the event, are distinct autonomous elements, within the event itself they are welded into one and abandon their separate identity. It is the emergence of something different, which is not merely the sum of the three [impulses] that constitutes the new event" (Bennett ca. 1950, 9). In his autobiography, *Witness* (Bennett 1974, pp. 185-88), Bennett describes how his deep interest in the triad arose and became an organizational core for *Dramatic Universe.*

5. Bennett provides a simple example of the triad of interaction in everyday experience: "I am sitting in my study on a cold winter evening and do not notice that the fire has burnt low until my body experiences a sensation of cold. My attention being thus drawn to the fire, I get up, take a poker and poke the fire. When I see that it is burning up, I return to my chair and continue reading.

"The whole event is a cycle of interactions, beginning and ending with the bodily sensations of cold and heat. It can be broken down into a series of triads, starting with my reaction to the sensation of cold. Here the physical sensation links the fall of temperature with my getting up and taking the poker. The environment is active and my body is passive; sensation is the reconciling impulse. When I get up and poke the fire, my body is active, the fire is passive, and the poker transmits the reconciling impulse. When I begin to feel warm again, the fire is active, my body is passive and the radiation of the fire and the wamr air of the room transmit the reconciling impulse.

"The roles of the different objects—air, body, poker, fire—change from one triad to the other. There is neither expansion nor concentration but a change in the distribution of energy. The event can be thus analyzed in greater or less detail, but it will always prove to consist of a nexus of triads in which one entity is acting on another through the medium of a third.

The affirmation never comes into direct contact with the denial and, therefore, nothing new is born of all the activity" (*Dramatic Universe*, vol. 2, 118).

6. One example he gives is Samoan canoe making, guided by a song that, verse by verse, directs the vessel's step-by-step making—finding a tree, cutting it down, hollowing the trunk, and so forth. Although every canoe made in this way would be unique, the clearly laid out procedure "guarantees that the operation being performed always fits beautifully and naturally into the gestalt of the canoe, as far as it has been created so far. Structure is preserved. Centers multiply and grow. The whole becomes alive" (*Nature of Order,* vol. 2, p. 87).

      Note that, as this process of making becomes more habitual and thus of tradition, the process experientially shifts from the triad of expansion to the triad of interaction (i.e., skilled craft). The Egyptian architect Hassan Fathy (1973, 24) details this shift: "Tradition is the social analogy of personal habit, and in art has the same effect of releasing the artist from distracting and inessential decisions so that he can give his whole attention to the vital ones. Once an artistic decision has been made, no matter when or by whom, it cannot profitably be made again; better that it should pass into the common store of habit and not bother us further.

      "Tradition is not necessarily old-fashioned and is not synonymous with stagnation. Furthermore, a tradition need not date from long ago but may have begun quite recently. As soon as a workman meets a new problem and decides how to overcome it, the first step has been taken in the establishment of a tradition. When another workman has decided to adopt the same solution, the tradition is moving, and by the time a third man has followed the first two and added his contribution, the tradition is fairly established. Some problems are easy to solve; a man may decide in a few minutes what to do. Others need time, perhaps a day, perhaps a year, perhaps a whole lifetime; in each case the solution may be the work of one man."

7. In examining these ten actions, one notes that various triads are involved. For example, actions 1, 2, 3, 4, 8, 9 and 10 relate most directly to triads of expansion, while action 6 requires a triad of concentration (being "actively passive" so one really comes to understand the world and needs of clients and users). Actions 5 and 7 point most directly to the triad of freedom. Obviously, in actualizing all of these actions over time, the triad of interaction manifests in the practical, nitty-gritty "doings." It can also be said that the entire notion of wholeness is premised in the triad of order and Alexander's claim that degree of life and wholeness is directly related to degree of physical-spatial order, which in turn is related to the fifteen properties of wholeness (see table 5).

8. Bennett provides a useful explication of the triad's complexity: "[The] relatedness [of the triad] establishes a nexus of connections that extends through all possible worlds. These many connections are possible because a term *A* of a triad *X* can also be a term of another triad *Y*, thus linking *X* and *Y* together. *X* can also be a term in a superordinate system *Z*. Thus triadic relatedness can comprise coordination, subordination, and superordination. For example, we have *A* as husband and father in system *X* but son in system *Y* of the preceding generation. In system *Y*, *A* fulfills the role of system *C*, the child in *X*. The family (*ABC*)=*X* is a term in the system *Z* consisting of the three generations of grandparents *D*, parents *E*, and children *F*. In this way, *X* fulfills the same role as the link between *D* and *F* as the child *C* fulfills as the link between *A* and *B*.

      "Evidently, the network of triads can be extended in all directions of space, time, and number. It can also be shown that any set of relations, however complex, can be reduced to a nexus of triads. It follows that relatedness is the systemic attribute of the triad, and, conversely, all cases of relatedness can be expressed as systems of the third order—that is, as triads" (Bennett 1993, 102-03).

9. As table 1 points out, "event" is associated with sixness and the heptad, which I have not introduced here because I feel that, already, the discussion has become quite complicated, and an extended explication of the heptad is not essential for thinking about the six triads as six strategies. Bennett contends that, through the heptad, the potential represented by fiveness and the pentad is given lasting concreteness and influence. In this sense, "the act of realization is dynamism transformed into substance" (*Dramatic Universe,* vol. 3, 44), and "the dynamism of every possible event is given by the six fundamental triads" (ibid., 46). Thus the hexad is "the system most appropriate for studying structures in process of realizing their significance as events" (ibid., 49).

      Elsewhere, Bennett writes: "The nature of the hexad is to provide the conditions for free and independent self-realization. This situation can also be regarded as a complete event standing out from the undifferentiated goings-on of the existing world…. Significance can be ascribed only to the concrete event that stands out from the general stream of happenings. Even an idea can be at the heart of an event. 'Universal suffrage' is an idea that only became significant in the context of the reform that was an event. Without events, neither people nor ideas can rightly be called either significant or insignificant. Only events… can exist concretely. I must, however, sound a note of warning. To deserve the name, an event is not matter in motion within a limited region of space and time. It has a pattern…. The event asserts itself and reverberates through time and space. As the event occurs, it gains in concreteness. Stating as *potentia*, it becomes *actus"* (Bennett 1993, 106-07).

References

Alexander, Christopher, Silverstein, Murray, Angel, Shlomo, Ishikawa, Sara, and Abrams, Denny, 1975. *The Oregon Experiment*. New York: Oxford University Press.

Alexander, Christopher, Ishikawa, Sarah, and Silverstein, Murray, 1977. *A Pattern Language*. New York: Oxford University Press.

Alexander, Christopher, 1979. *The Timeless Way of Building*. New York: Oxford University Press.

Alexander, Christopher, 1981. *The Linz Café*. New York: Oxford University Press.

Alexander, Christopher, Davis, Howard, Martinez, Julio, and Corner, Dan, 1985. *The Production of Houses*. New York: Oxford University Press.

Alexander, Christopher, Anninou, Artemis, King, Ingrid, and Neis, Hajo, 1987. *A New Theory of Urban Design*, New York: Oxford University Press.

Alexander, Christopher, 1993. *A Foreshadowing of 21st Century Art: The Color and Geometry of Very Early Turkish Carpets*. New York: Oxford University Press.

Alexander, Christopher, Black, Gary, and Tsutsui, Miyoko, 1995. *The Mary Rose Museum*. New York: Oxford University Press.

Alexander, Christopher, 2003. New Concepts in Complexity Theory Arising from Studies in Architecture: An Overview of the Four Books of *The Nature of Order* with Emphasis on the Scientific Problems which Are Raised (24 pp.). *Katarxis No. 3* [on-line journal at: www.katarxis3.com/; accessed 5 May 2007].

Alexander, Christopher, 2002-05. *The Nature of Order*, 4 vols. Berkeley: Center for Environmental Structure.

Alexander, Christopher, 2007. Empirical Findings from *The Nature of Order*, *Environmental and Architectural Phenomenology*, *18* (1): 11-19.

Bennett, J. G., ca 1950. The Triad [unpublished early chapter of *The Dramatic Universe,* vol. 1, photocopy].

Bennett, J. G., 1956-66. *The Dramatic Universe,* 4 volumes. London: Stoddard and Watkins.

Bennett, J. G., 1970. Systematics and System Theories. *Systematics, 7* (4): 273-78.

Bennett, J. G., 1974. *Witness: The Autobiography of John Bennett.* London: Turnstone.

Bennett, J. G., 1993. *Elementary Systematics: A Tool for Understanding Wholes.* D. Seamon, ed. Santa Fe, NM: Bennett Books.

Blake, Anthony, 1991. Talk on Triads, public lecture, Baltimore, April 5 [unpublished mimeograph transcript].

Bortoft, Henri, 1971. The Whole: Counterfeit and Authentic. *Systematics*, *9* (2): 43-73.

Bortoft, Henri, 1985. Counterfeit and Authentic Wholes. In D. Seamon and R. Mugerauer, eds., *Dwelling, Place and Environment: Toward a Phenomenology of Person and World* (pp. 281-302). New York: Columbia University Press.

Bortoft, Henri, 1996. *The Wholeness of Nature*, Hudson, NY: Lindesfarne Press.

Fathy, Hassan, 1973. *Architecture for the Poor.* Chicago: University of Chicago Press.

Fromm, Dorit & Bosselman, Peter, 1983-84. Mexacali Revisited: Seven Years later. *Places, 1:*78-90.

Grabow, Stephen, 1983. *Christopher Alexander and the Search for a New Paradigm in Architecture*. London: Oriel Press.

Jacobs, Jane, 1961. *The Death and Life of Great American Cities.* NY: Doubleday.

Schneider, Micahel S., 1994. *A Beginner's Guilde to Constructing the Universe: The Mathematical Archetypes of Nature, Art, and Science.* New York: Harper.

Seamon, David, 2006a. Clarifying and Evaluating Alexander's Theory of Wholeness by Interpreting his Approach as a Tetrad of Activity," paper prepared for a special session on "Christopher Alexander's *The Nature of Order,"* annual meetings of the International Association for Environmental Philosophy (IAEP), Philadelphia, PA, October.

Seamon, David, 2006b. Interconnections, Relationships, and Environmental Wholes: A Phenomenological Ecology of Natural and Built Worlds, in Melissa Gleib (ed.), *Phenomenology and Ecology* (pp. 53-86). Pittsburgh: Simon Silverman Phenomenology Center.

Seamon, David & Zajonc, Arthur (eds.). *Goethe's Way of Science: A Phenomenology of Nature*. Albany, NY: SUNY Press.

Thiis-Evensen, Thomas, 1987. *Archetypes in Architecture.* NY: Oxford University Press.