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# Aspects of Order and Chaos for the Cityscape

Nickolaos A. Rombos

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# ASPECTS OF ORDER AND CHAOS FOR THE CITYSCAPE[1]

NICKOLAOS A. ROMBOS

*Nickolaos Rombos is a graduate teaching assistant at the Syracuse School of Architecture. He earned his first professional degree in Greece and has practiced both in Greece and this country. Mr. Rombos taught in his homeland before beginning graduate studies here. He has been interested in design theory and in constructional techniques, and holds several patents for industrial construction systems.*

Spatial experience is biological in function since metabolic process is the precondition of sensory perception and sensory perception is the basis of aesthetic process.

Spatial experience and perception affect behavior in the stimulus-response processes. Spatial experience is the result of careful coordination of certain subtle clues and is affected by visible or invisible (conceptual) phenomena—conscious or subconscious. Since none of these clues is sufficient to locate ourselves in space, or to explain spatial situations, the rest of experience is a matter of combining, ordering and uniting the sensations into recognition of things and events. Kinaesthetic parameters influence perception since there is an intimate association between the sense of contact, the action of notion, and optical representation.

One of the goals of this study is definition of those factors which affect through visual perception and human behavior. An understanding of the factors which create the feeling of boredom is one of these concepts. According to Heron (1957) ". . . the higher organisms actively avoid a completely monotonous environment." [2] The visual environment thus is affecting the life of higher organisms. Human sensitivity may be blunted seriously by constant exposure to steady stimulation which at a certain moment ultimately will deaden perception. The importance of variability in the life of humans, and their need for visual change, thus is obvious.

It was Heron also who stated that: "Variety is not the spice of life; it is the very stuff of it." [3] We must not forget that when we are discussing concepts like this, we should always remember that they are relative terms, relative to the actor's psychological conditions, beliefs, and past spatial experience, relative to the spatial situation and to the temporal period or moment; relative to the psychophysical and cultural parameters of the actor or the observer of the situation.

We also must not forget that stress comes either from too much or too little stimulation. According to Fitch (1965) sensory deprivation, or too little, is as deleterious as too much. Tiredness and psychosomatic fatigue because of environmental conditions also affect human behavior towards "delinquency." Parr (1965) has pointed out that ". . . growing perceptual monotony of the urban milieu may contribute to the rise of juvenile delinquency." [4]

Monotony and variety, as noted previously, are terms relative to the relationships between actor (or observer) and environment. The observer (or visitor) usually experiences the city differently than do its inhabitants, who experience the city according to the boundaries of their territories or orbits. Both the inhabitant and the visitor experience the city according to their movements through its spaces. The final image of both is transformed and translated in

different conceptual patterns through their personal-cultural criteria or familiarity with certain environmental symbols (urban spatial order, architectural forms, signs, people, vegetation and so forth.)

It is possible also for different inhabitants of the same city to possess different images for it, since they will be experiencing the city through their territorial movements. However, these remarks do not preclude the possibility of conceiving the public image of the city through the descriptions of the different images of its inhabitants. A systematic organization of this information can give us the final conception of the ordered and chaotic, the monotonous or complex, and other environments. This is all that we can do at this stage; we cannot do more. We cannot transform the image of a city with no more than diagrams which record descriptive public images. The rest of the task is the designer's. He is responsible for understanding first of all these conceptual images and secondly for reordering and rearranging the parts of the city which evidence monotony or excessive complexity.

This is not an easy task because the inhabitants of the city have images which form a complex web of territorial movements and spatial experience. The transformation of one environmental form may affect other images, providing a new order of environmental experiences. Nevertheless it is possible to achieve a form more satisfying to a greater number of inhabitants, and this is one of the encouragements to the designer.

The designer has to understand, describe, define, and organize the urban public images under a hierarchical pattern of visual priorities. This pattern then will have to be coordinated, juxtaposed and evaluated in relationship to the other hierarchical patterns of urban and socioecological needs of the city, in order to find the objective priorities for renewal. Once these hierarchical priorities are established the process must begin again, since the environmental images, and the socio-cultural, ecological, and economical environments and situations of the city will have changed. The process for the evaluation of the visual criteria can be divided and should be studied separately from the other principles, processes, and elements of the city. This does not mean separation of the problem into irrelevant pieces but rather the separation of the parts of it which can be studied within an autonomous network and the coordination of them with a major matrix representing the bio-ecological and socio-cultural priorities of the city.

I believe that it is important for us to find at which points the different matrices (which constitute the problem of the city) interact, and which parameters affect their coordination with the others. We have to find a vocabulary and a productive system within each matrix (probably organized under the same communicative system or language) in order to be able to translate every input through the computer and to find immediately the parameters which affect the form of the problem or the form of its solution.

One of the languages which we have to establish is a language governing spatio-temporal concepts. I believe that we have to proceed from the general to the special, from the uniform to the diverse, from the simple to the complex, inheriting the examples of the bio-physical world.

Thus we must start defining the hierarchical principles which constitute visual perceptions. I believe that the most significant of these are space-time and the human mind, the most metaphysical drive of which is to understand, to order, to rearrange and simplify in ever more understandably and orderly constructive ways. Order and disorder are the principles which create the major hierarchies of spatial arrangement.

According to Copleston (1957), Liebniz believes that the conception of space and time is possible only in terms of relational order. The order of co-existent phenomena is space, while the order of successive phenomena is time.[5]

Order and complexity are antagonistic, in that order tends to reduce complexity while complexity tends to reduce order. According to Deese (1967), "We perceive more easily (and remember for similar reasons) those things which are simple and well organized. Chaos is difficult to perceive as such." [6] "Physical clarity," according to Alexander, ". . . cannot be achieved in a form until first there is some programmatic clarity in the designer's mind and actions." [7] According to Lynch (1960), "A good environmental image gives its possessor an important sense of emotional security. He can establish a harmonious relationship between himself and the outside world." [8] Lynch also remarks that disorientation creates loss of the sense of balance while chaos creates a feeling of disorientation. "Although life is far from impossible in the visual chaos of the modern city, the same daily action could take on new meaning if carried out in a more vivid setting." [9]

As I stated previously, the concepts of order and disorder are relative to the environmental situation and to the psychological condition and past spatial experience of the observer. This, accordingly, is why Lynch and Rivkin (1959) state that "Sense of order can finally be achieved by familiarity despite physical chaos . . . An old hand may recognize a shopping district as an organized entity where strangers say it is chaotic." [10]

The discovery of the principles which characterize spatial organization is one of the fundamental objectives of aesthetic science. Probably the most organized scientific attempts for the understanding and classification of these principles have been undertaken under the gestalt psychologists, who attempted to coordinate visual concepts of spatial organization with the physio-psychological conditions of man. In brief, gestaltists believe that ". . . the whole is more than the sum of the parts." [11] For the conception of a group of 'n' coexistent objects in space there is always a number 'm' representing the different comparative morphological relations of them and a number 'r' representing their relational order in space. Gestaltists also have pointed out that things located together or close to one another in the visual field tend to be grouped together; that objects tend to be grouped by resemblance and that proximity is the basis for the obvious and competing organization. One of the most important concepts of gestaltists was their notion of "good form." According to Desse (1967), they believed that such forms (such as the cross) are determined by innate organization in the perceptual system.

Lynch also attempted to define a few new terms dealing with the cityscape, concerning aspects for order and good environmental form. His terms "legibility" (apparent clarity of the cityscape), "imageability" (the clarity in a physical object which gives it a high probability of evoking a strong image in any given observer), or "invisibility" almost seem to suggest concepts which have been introduced in the past by the aestheticians and the gestaltist psychologists under the terms "order," "disorder," "hierarchy," "good form," and so forth. Lynch attempted to go further by providing definition of his terms so as to express not only a simple spatial organization but rather to introduce an understanding of what Ehrenzweing (1967) calls "hidden order." [12]

Half a century ago, according to Lynch," . . . Stern discussed this attribute of an artistic object and called it 'apparency' . . . He felt that one of its two basic functions was 'to create images which by clarity and harmony of form fulfill the need for vividly comprehensible appearance.' In his mind, this was an

essential first step toward the creation of inner meaning." [13] At this point, we can say that Lynch's message was to show that visual forms of the cityscape sometimes do not play an important role for their inhabitants even if they correspond to their cultural aspects for morphological aesthetic, unless they possess a "hidden order" which translates them into pieces of art. Certainly we can remark that this "hidden order" is a term relative to the cultural and psychophysical parameters of the observer. Additionally we can remark that they are affected also by the spatio-temporal changes of the city. Accordingly their symbolic, hidden, or apparent patterns lose or sometimes (very seldom) keep their qualitative values for the inhabitants of the city.

Arnheim (1967) classified some of the over-all qualities of order. According to him the basic requirements for the creation of visual order belong to different hierarchical levels, ranging from the lower which is "homogeneity," to the higher which is "hierarchy." "Coordination" or "texture" is an intermediate level within the hierarchy, referring to a consistency in importance of all of the parts constituting the whole. Arnheim also identifies "accident" as a well preorganized morphological condition which establishes more dynamic morphological relationships with its juxtaposition to the fundamental ordered pattern. "Disorder" defines no prestructured relationships. According to Arnheim, "Disorder . . . is not the absence of all order but rather the clash of uncoordinated orders." [14]

Order implies the notion of arrangement of parts into a whole, whether the parts are objects or pieces of information, and may be defined as the degree and kind of lawfulness governing the relations among the parts of an entity. According to Arnheim, "The relation between partners is disorderly when there is no clear cut way of telling whether they conform or contrast, whether they are coordinated or subordinated." [14] Parker (1926) proposed the following concepts as the most important which organize the elements of aesthetic form: (a) the principle of organic unity (every needful principle must be in the unity); (b) the principle of the theme (all other principles serve the principle of the theme); (c) the principle of thematic variation (its role is to make echo and reecho in our minds the major theme); (d) balance (opposition or contrast is never absent in balance); (e) the principle of hierarchy and evolution (evolution is the unity of the process when the earlier parts determine the later and all together create a total meaning).[15]

I believe that the above remarks from Arnheim and Parker, as well as the previous discussion of the aspects which consider spatial-visual order for the cityscape can be applied also to architecture and art. A good piece of architecture, or the urban whole will be created only if we understand the profound meaning of these considerations and coordinate them with the other human and ecological needs for order.

## Footnotes

1. This text is a portion of a thesis entitled *The Manifold Meanings of Space*, the major goals of which were the organization, coordination, juxtaposition, and reordering of observations and conclusions from the psychosociological, bio-ecological, and morphological world with those of architecture and urbanism.
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