

SYMMETRY: THE INTERFACE OF ART & SCIENCE

SPACE, ARCHITECTURE, AND THE UNCONSCIOUS

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Gerald Edelman: "How can signals be represented or transformed in such a system so that there is an orderly representation in space and time? The space problem, has been shown in principle to be related to the existence of less degenerate repertoires, arranged so that there is a map between the outside world and what is in the brain."

Disobeying the advice of an old shepherd not to climb the Windy Mountain [Monte Ventoso in Italy] because he could become insane, Petrarca became the author of one of the most amazing feats of the vanishing Middle Ages. He climbed the mountain and there, disturbed and fascinated by the numbness caused by the scale of the scenery, he wrote a letter to Dionigi da Borgo San Sepolcro. Petrarca had discovered in the scenery his differentiated condition as an individual.

For the first time he was a man 'apart' from the others.

In the 1960s and the beginning of the 1970s many people believed that after a space voyage an astronaut would return emotionally 'unbalanced', 'disconnected' from the average patterns of social behaviour. This belief disappeared soon after because micro-computers and graphic computers introduced a sort of cosmic space into our homes. The Press did the same thing regarding the Middle Ages, but it took a much longer time to render the imagination independent from daily life and to convert it into a sort of scenery.

In *Aircraft* Le Corbusier shows how the new space experience produced by the airplane takes place: a sensorial perception where scale, time, light, and gravity are intensely synamic. Animation and cinema have shown how this happens.

At the beginning aeronauts were also classified as social misfits, 'eccentrics'. Howard Hughes certainly knew about this. Our space-time perception is cultural: an illusion in continuous mutation. A metamorphosis unleashed by intense contamination amongst media of diverse natures, different 'props', various languages.

Gombrich, Umberto Eco — among others — have demonstrated how this phenomenon of mutations works in our system of meanings: our iconological mutation. From Villard de Honnecourt to the holographic cinema, as if knowledge were composed of asymmetric de-phased plates, allowing multiple combinations, exponential mutations.

The Press has fragmented, uninformed, and organized the Occidental world. The electronic and informatic universe de-uniformed, integrates, and disorganizes Western man. Our sense of 'order' today is very different from the mechanical 'order' of the 19th Century.

After the holographic cinema, the next step appears to be superconductivity.

In our complex network of meanings, the specular relationship between man and space falls definitively from the Euclidean universe.

What is the distance between space and thought?

Translating this by opposites: taking the brain as the architectonic frame: space and brain. What is the distance between brain and mind?

Werner Herzog filmed *Out of the Dark*: the life of Helen Keller — who became blind, deaf, and dumb while a child. It is a film which the cinematographic image itself becomes, step by step, one icon of one of the borders par excellence of man's exteriority.

Out of the Dark.

In 1984 the Argentinian writer Jorge Luis Borges confessed, during an interview with a television network, that he saw no usefulness in the use of cassette recorders to 'write' his texts, regardless of being engulfed in the most complete blindness for many years.

Informatics has disorganized the world and more clearly shown that our senses alternate dynamically.

Logical loopings and insoluble paradoxes are end results of combinations of different natures of perception that make 'impossible' all teleological attempts to decode the correspondence between space meaning and brain state. Structures open and close at the same time, which, in mathematical terms, put us near the space-time conditions in great gravitational masses.

Throwing himself back in time, Sigfried Giedion gave us a good idea, in his famous article 'Space conception in prehistoric art', of how these mutations in our system of meanings take place: "in the Museum of Laugierie Basse there was a small triangular block of stone with curved sides which called my attention because of its form. I took it into the sunlight. It then became evident that on its upper face, if

pronouncedly tipped downward, there was engraved outline of a bull. Its back haunches, as well as its hind legs, disappeared on the stone. However, the outline of the back was firmly engraved with a clear-cut bulge in the position of the shoulder blade. As is frequently the case in any pre-historic work of art, the head was vigorously moulded. At first sight it looked as if the animal was grazing on a narrow ledge of slightly convex ground with the front legs strongly enhanced standing on a lower level. When I raised the stone to replace it in its setting, I rotated it by pure chance to an angle of 180° . This gave the opportunity to see that the curve of the ground formed the neck and the breast of another animal which, according to our way of looking a painting, would be described as leaning on its head. The elongated neck and head of this gazelle-like creature stood out clearly under the angled light. The rest of the body was only rudimentarily outlined. Certainly, the animal had been portrayed in a full run. One front leg was placed along side the bull's head which, also due to the alteration of the light, had disappeared – at least from *our* sight. But through pre-historic man's eyes they were free."

The question is this: how does this complex reflection between man and space take place? What is our system of meanings?

Dr. Gerald Edelman, Director of the Neurosciences Institute of the Rockefeller University, recently proposed a new theory to decode the relationship between the structuring of the synaptic system and sensorial inputs. This means: the understanding of the nature of the brain's organization responsible for the perceptive functions.

Edelman has created a Darwinian theory for the brain. A theory, in a way, alien to the hypotatic logic of the Occident for which the instructional model is much more natural. A selective theory – whatever it may be – is, in logical terms, a coordinating operation of parts; a paratactic approach. Edelman worked out his theory starting from the discoveries he made in the field of immunology for which he received the Nobel Prize in 1972.

Information is stored in the brain by means of powerful probabilistic maps: synaptic pattern structures are formed from sensorial inputs, our senses and our perceptions. Space meanings as a logical resultant of brain workings in these maps.

Brain mapping produced by a system of synaptic shots.

Patterns created by sensorial data, sensorial inputs.

Patterns of synaptic connections.

Mathematically, our concept of 'number' reassumes its medieval 'topological' characteristic.

Gerald Edelman, Leif Finkel, and John Pearson have elaborated graphic simulations in computers which no longer operate algorithmically, but by selection in order to show plastically our cognitive mapping. Simulation in computer graphics to show a specular mapping of various faces: inputs and outputs.

In this network of informational paths, from outside-inwards and from inside-outwards, we have what we call mind, or super-signal: a signal that comprises all

others. A sort of informational 'black hole' and, at the same time, an informational 'pulsar'. And so, each human accomplishment, minute as it may be, is a sort of two-way mirror; frozen at an instance: a clone of this cognitive mapping that carries in itself subliminary logical references of that system.

Every code refers to another; every language brings a spatial component which is its epistemological paradigm; every language refers to some type of space and to some sort of logic.

Styles, civilizations and cultures reflect different logical principles in a permanent process of mutation. Architecture is, thus, an image of this mutation. If it were possible to provoke an immediate and radical alteration in our cognitive maps for an Egyptian model, or another one similar to that of the people who lived in Jericho about 10.000 years ago, the effect would certainly be hallucinating.

Our brain, cleverly asymmetric in its multi-dimensional plates of synaptic patterns, operates random and exponential combinatorial complexes.

Selective maps mirror themselves in archetypal systems.

Memory: a probabilistic assembly of data. The articulation between logical moires which are indexes of each other; in a greater or smaller degree of redundancy; in a bigger or less degree of degeneration, as specified by Edelman. Dynamic synaptic patterns: a structural galaxy as ephemeral as Schrödinger's cat, as a chance. A sufficiently ephemeral galaxy to allow the existence of various patterns in the same space and time.

It is a specular universe in continuous auto-regenerating loopings which leads us to the Incompleteness theorem of Kurt Gödel and the existence on our planet of not only a biosphere, but also an "ideosphere" as Douglas Hofstadter has shown.

The idea of signifying space or, in other words, making architecture, travels more and more from the outside to the inside of man. Logical mutation in great pockets of human life means behaviour mutation; a mutation of mentalities.

To operate space means to operate a complex of sensorial inputs.

Architecture as a frozen clone of our cognitive system.

Freud judged our mental universe as understood through the brain and acts of consciousness.

Thus, what we call the unconscious is nothing more than this complex probabilistic map that recreates itself from the constant regeneration of inputs and outputs in our brain, in our language, and between our brains and our language. Space as a frozen fragment; a frozen fragment of the unconscious. Its image. Mind.

The first astronauts from the U.S.A. went into space in small ballistic capsules attached already developed military attacking missiles.

Language is the condition of the unconscious.

When I lived in America, I flew for the first time in an airplane and later I made frequent trips. I could discover, on the ground, the tangled lines of Picasso — lines that go, then come back, that elongate themselves and then destroy themselves; I have seen the simplified solutions of Bracque and the vagrant line of Masson.

Yes, I have seen all of this and once more I understood that creator is always a coeval.

Gertrude Stein
Paris, 1938

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