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The cosmic and the digital code

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ABSTRACT

The cosmic code has been made manifest in the work of certain artists. This paper begins with a brief quotation from the recently developed theory of continuous creation (Duana Elgin) and with remarks of Teilhard de Chardin on networks leading to a "syntonization of brains."

Examples of a painted cosmic code are cited in the work of Cezanne and van Gogh. As precursor of the digital code, Kandinsky's preoccupation with the proto-element of painting, the point, is discussed. The common strains between man, earth and cosmos, as revealed by Malevich and Lissitizky, gives rise to a new aspect of the cosmic code.

Toward the end of the twentieth century, we come to ask the basic questions concerning life, evolution, and the processes of brain and cosmos. The digital code, for instance in the multi-dimensionality of fractal geometry, yields the vision of "behavior" in universal scenarios. Examples from artistic as well as scientific research are given.

The theories of Rupert Sheldrake (the creative universe), Ilya Prigogine (unstable fields), and David Bohm (implicit order)--theories of a generation of what could be called spiritual physicists and chemists who have continued the cosmogenesis of Teilhard de Chardin--have made us more and more "aware of the existence of codes or systems of information storage which are manifest in the individual or in the cosmos. When such a system is activated by a certain form of energy, the codes begin to generate recognizable phenomena" [1].

It is this energy which is crystallized by the artistic process. And, as far as we are capable, we can recognize this energy as the cosmic code in the work of certain artists. Their tool is in*form*ation and per*form*ance. The process is characterized by a chain of conscious-unconscious actions which evoke the sense of the ever-repeating process of cosmic recreation. And now, contemporary artists are using digital code as the basis for today's hypermedia and telecommunication technologies [2].

Whereas the concept 'digital code' is widely understood today, it is far more difficult to define what is meant by 'cosmic code.' It depends on our personal understanding of cosmos and our personal understanding of universe (or, hyper-universe).

To begin, it might be enough to state that Teilhard de Chardin becomes the point of reference and to mention that a researcher like Duane Elgin with his theory of continuous creation gives us the perspective of an even more speculative--not to say more advanced--set of hypotheses. Elgin's theory sets the universe before our eyes as "a seven-dimensional, self-organizing system ... fully connected with itself... [which] has worked, moment by moment, since its birth, to maintain itself ... [with the result that] ... the entire fabric of the cosmos--matter-energy and space-time--is being 'woven together' as a single resonance pattern ... [and] observing or reflective potentials are present throughout the cosmos" [3].

Before we observe or participate in forms of digital productions that broaden artistic standards, activities like telecommunication, interactive multimedia, cybernetic sculptures, and computer-based environmental installations, we should acquire a basic understanding of our cosmic background. In 1947 Teilhard de Chardin already saw the machine as a possible "form of an ever more deeply penetrating organism," envisioned the machine being placed and used, for example, as an "extraordinary network of radio and television communications which, perhaps anticipating the direct syntonization of brains through the mysterious power of telepathy, already link us all in a sort of 'etherized' universal consciousness." To which he added, "the insidious growth of those astonishing electronic computers ... are also paving the way for a revolution in the sphere of research" [4].

"atomization" into the totality of the cosmos.

Let's stop for a moment. Where are we within the context of a so-called art history? For decades a superficial view of an x-style in regard to the x-artist or vice versa has redirected our view, averting it from the by-far-deeper consideration of artistic production and artistic-scientific theory. However, at our present stage, we should be conscientiously noticing, elaborating, demonstrating the very unique and very close connections binding this century's art to its scientific research: natural, biological, technological, and cosmologic. Ten years remain in the century for the enterprise, and it involves a complete reorientation of art history towards a set of multi-layered perspectives: history of art as a theory of continuous creation.

The key postulate: to put art into the context of the new scientific vision of this century. And, to echo the assertion I made in my book The Electronic Bauhaus: we, the participants of the cultural community, must do it [9]. We would then have made our authentic contribution, both on a historic and on a practical level, to such questions as, for instance, those of Jim Lovelock's within his Gaia-hypotheses: "To what extent is our collective intelligence also part of Gaia? Do we as a species constitute a Gaian nervous system and a brain which can consciously anticipate environmental changes?" [10]. Only then will we be able to embrace a dialogue, only then will we participate in a dialectic such as that between the Gaia-hypothesis and an artist like Lissitzky, who, in the 1920's, was able as a result to draw near to that elusive bridge between the digital and the cosmic codes. In Lissitzky's terms the "image" is just a symbol of Gestaltung; the essential artistic act focuses on processes lying latent in nature and the universe, processes which the artistic creation can make manifest.

In 1924 in Locarno, Lissitzky wrote that art, left uncorrupt to operate on its own terms, will achieve the same results as modern science. "Like science, it has decomposed form into the basic elements to rebuild them within the universal laws of nature. Both came to the same formula: Each form is the solidified visual elementum of a process. Work is a resting place of growing, not the goal" [11]. The work introduces the concept of an "imaginary space." Lissitzky's examples include the transformation of acoustic into optical phenomena, the superimposition of colorful light beams by polarization, the stereoscopic operations generated by movement passing through color-media, all precursors of our present day artistic technologies.

SPACESHIP EARTH AND THE NEW ELECTRONIC BRAIN

The terror of Hitlerism and Stalinism brought the most advanced research in art to an end, at least in Europe. Refugees like Moholy-Nagy succeeded in sowing the seed of the new vision in the American context. In Europe about two decades elapsed after Malevich's death (in 1935) before the "electronic geste" made its appearance, a term coined by mathematician, architect, and composer Xenakis in 1958. He, Karlhein Stockhausen and some other composers used their music to introduce into the perception of the mathematical, later digital, code a deep sensitivity to the penetration of the cosmic. In architecture and environmental planning, Le Corbusier saw a new brain being born with the advent of electronics and was aware of the cosmic code with which man seeks to balance his/her personal bios: "... nature (the environment), that incredible vascular system, in which everything is embodied: sun, moon, the stars, the inconceivable unknown, waves, the earth with it inclined axis responsible for the seasons, body temperatures, blood-stream, nervous system, respiration system, digestion system, day and night, the solar day ..." [12]

Then came yet another vision: an exodus from the earth, the phenomenon of

rising up into the sky. From the second half of the 1950s on, machines were being prepared to leave the earth. This advent of rocket ships and satellites gave birth to a new philosophy, "Spaceship Earth." Towards the end of the 1960s, the "Leonardo-type" Buckminster Fuller, who coined the term, proposed twelve distinct periods of historical transformation in our physical and cosmological environments, our present period counting as number ten. Operating with a concept of universe as the "aggregate of all consciously apprehended and communicated (to self or relayed to others) experience of man" [13], Fuller sees mind as performing the "paramount function of conserving the scenario 'Universe.'" It is mind which apprehends, comprehends, and employs the "metaphysical, weightless, omni-intercooperative generalized principles of Universe--in strategically effective degree and within a critical time limit" [14].

Towards the end of the twentieth century, along with the terrifying question of our survival on Spaceship Earth and intimately connected with it, we begin posing the basic questions of life, evolution, the processes of brain and cosmos. Apparently digital visual pattern in the advanced research of chaos and cosmos go far beyond "traditional" mathematics and on towards the use of the computer not only as means for calculation but as a research laboratory in and of itself. The multi-dimensionality of fractal geometry, for example, gives us a window onto the "behavior" of universal scenarios. And inside these self-referential systems, scientist/artists discover the image-ideograms, regarded as the "hieroglyphics" of the electronic age. It is here that the digital code can be seen to be the carrier of the continuing complexity, in the sense of Teilhard's tradition: consciousness. Except for the computer graphics and animation produced by the founders of the Bremen school of dynamic systems [H. O. Peitgen, P. H. Richter, 15], artists have not yet, or only rarely, developed to the point of a Gestalt-interface between the self-organizing, self-referring system and the resonance of their own art.

But we have developed some fascinating approaches. Machine vision, as it had been called, becomes transformed into multi-media/hyper-media-supported vision or into the Gestalt machine which is interwoven with human activity (for example, dance or performance). Shawn Brixey from the Center for Advanced Visual Studies at MIT (directed by sky-artist Otto Piene) has initiated "Performance Phenomena," a project which is trying to see human performance as the focus of fundamental processes of the universe. For his piece "Aqua Echo," he uses as central art apparatuses an audible laser interferometer and ice recording mechanisms. The interferometer creates collisions of microscopic wavefronts of light and turns them into sound; ultra-pure water is introduced to freeze the resulting attracting nucleating materials. Brixey: "The memory-laden ice crystals are then introduced into large bodies of ultra-pure, super-cooled water where they spontaneously 'teach' that water their memory (and finally) evaporate into the atmosphere and into the air we breathe" [16]. Cosmic code is captured in a holographic code.

Science and art actually share the search for interactive computerized systems and apparatuses to process and visualize information from the nearest point to the most distant sky, universe, hyper-universe. The "Digital Orrery," to cite an example, was designed to investigate the long-term stability of the solar system. Designed and constructed by six people in one year, the Digital Orrery uses a specialized parallel computer architecture, making it 60 times faster than a VAX 11/780. The digital code follows the past and future cosmic code to determine the orbits of the five outer planets of the solar system for the past 100 and the future 100 millions years [17].

Both for cosmological science as well as for artistic research, the interface of the cosmic code with the digital code is a productive challenge. If we experience space, we have points of orientation for our cosmic existence. And we are children of space. By understanding space, we understand something essential about ourselves. If art turns

to space, it does so by using different codes. One of the most intriguing of these codes, first detected as a painted code, then emerging as a comprehensive philosophical code, and finally as a code of the digital alphabet, reveals itself in the last analysis to be the cosmic code.

By way of conclusion, consider a comparison of today's telematic nomad with the ocean nomad of the unbound wide "cultural realm of the sea" [18]. The ocean nomad of the Pacific lived, and partly still lives, the antithesis of the earth-bound, terrestrial culture. He experienced the ocean in the real sense. Navigation, the essence of the life of the ocean nomad, the means of survival, the source of life-style, was only possible through exact knowledge of the "cosmic conditions." His culture was dominated by space and fluidity. "Polynesia is the most remote subversion of the cultural symptoms of land" [19]. The cosmology culminated in solarism: the central positioning of the sun; a solar culture.

For the telematic nomad, "navigation" becomes a question of survival as well. The cosmic code may serve as a "proto-element" of a new language to navigate ourselves and our Spaceship Earth. The very strong belief in a coming solar culture will serve us in two ways: to understand the complexity of light and to help us use it intelligently, practically, as a source of energy. Not only helpful, this result is inevitable. The telematic nomad is also dominated by space and fluidity: the permanent flux of thoughts and images which may lead to new, different kinds of life-energy.