Symmetry: Culture and Science

SYMPOSIUM Symmetry of Patterns

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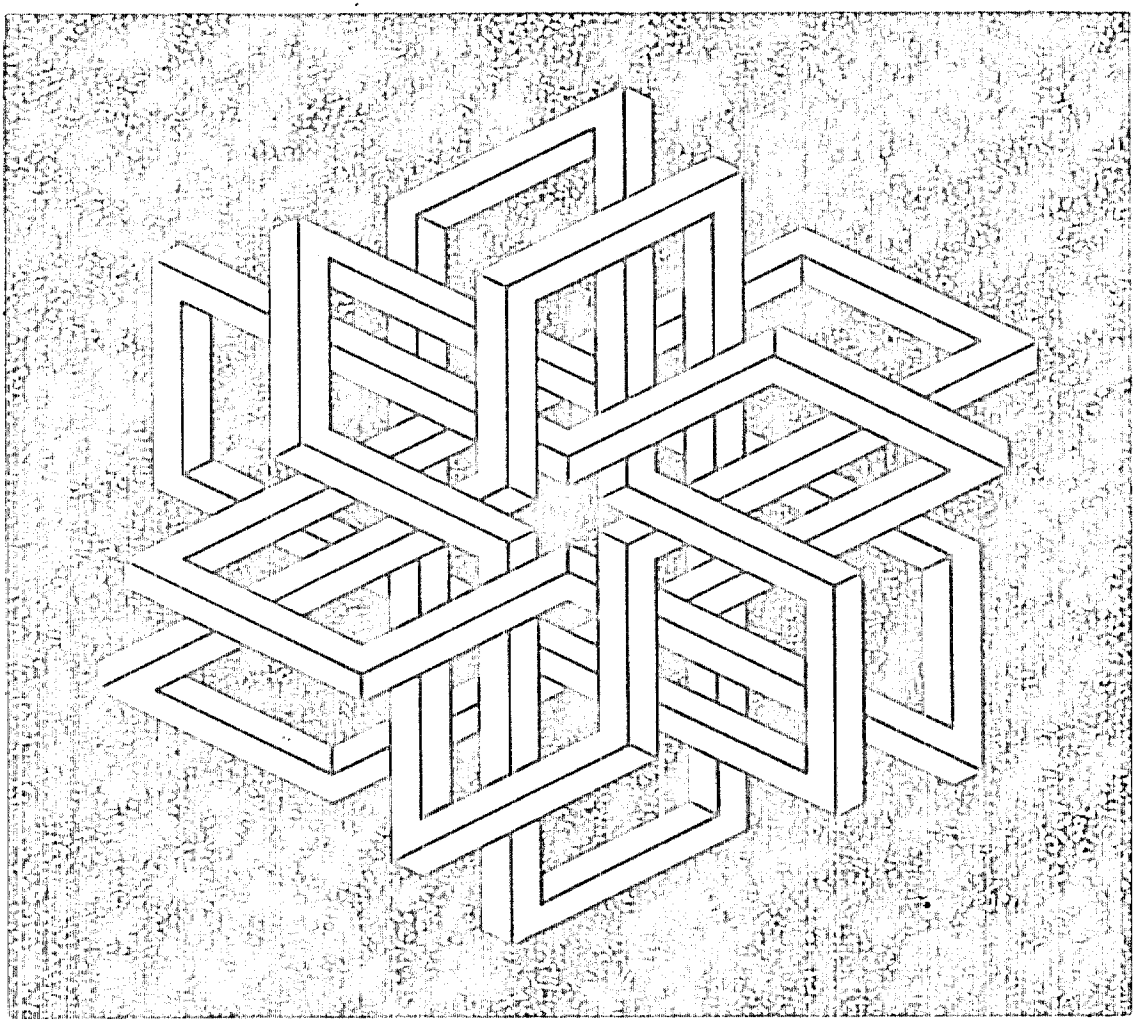

THE STATE OF THE ART OF SYMMETRY STUDIES (PATTERNS IN APPROACHING OBJECTS OF SCIENCE)

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One can realize a virtual contradiction in arguments for and against institutionalization of symmetry studies. We often meet complains that colleagues feel: their interest in symmetry studies is considered a peripheric one by those peers, who are cultivating the traditional core themes of their mother discipline. Therefore, one can rely upon less support for symmetry-related activities.

What are the evidences of institutionalization of symmetry studies?

— Society ————> ISIS-Symmetry;
— Journal ————> Symmetry: Culture and Science;
— Symposia ————> Symmetry of Structure, Symmetry of Patterns;
— Institute ————> Symmetrion;
and a foundation, seminars, curricula, monographs, etc.

A consequence of these evidences is disciplinarization of this real inter-discipline. Institutionalization usually causes to cease the interdiscipline as such. Therefore disciplinarization of symmetry studies would conclude to the death of this valuable interdisciplinary and intercultural field of learning. (See the case of systems research in the 70s.)
The essence of symmetrology is embodied by it's bridging role. Symmetry studies need people working in their background discipline, with open eyes and interest towards other disciplines and arts, and artists not becoming scientists (symmetrologists), but being interested in, and fertilized by the achievements of different sciences.

Why do we need symmetrology? Because the mentioned interaction can only rise certain questions, which later can be solved and react to the source field. Let's see some examples:
— The question of the lack of fivefold symmetry in the inorganic nature, vs. its existence in the organic nature led to the discovery of quasicrystals, which fertilized not only geometry, but architecture and art as well.

— Biological asymmetry of the human brain led to psychological consequences and to the development of new methods of computing.

— Geometry and space structures put questions, the solution of which introduced new techniques in architecture, both as an art, and as a field of engineering.

— The understanding of certain symmetries of the structure and the motion of animals led to the construction of improved mechanical robots (mechatronics).

— Symmetry used to be for many centuries a pure aesthetic phenomenon, but cubism in the 20th century opened new vistas for reflecting the world by new ways and methods, and challenged many artists to open doors to science.

It is well-known from psychology that people are thinking in patterns. So do and did many scientists and artists, too. Their patterns are determined by the paradigms of their individual disciplines, their field and style of art, and their cultural origin. Symmetry, as a tool, made easier human understanding, i.e. to brake the walls between these separate paradigms. Symmetry studies evolved a new paradigm, which provides a common view of the problems for representatives of any kind of science, art and culture, and approach to the unity of the recent split culture, and combines the efforts and products of the rational and emotional hemispheres of the human mind.

At the same time, we have to notice, this paradigm will work only while one remains a representative of his/her given original field of activity and fertilizes his/her own discipline/art with the new world view, provided by a paradigm, which made possible to see the world otherwise. We hope, the way of approaching to the reality through the concepts of symmetry/asymmetry will never become a pattern, while we will do our best to promote it's institutionalization (symmetrionization), which is a precondition of it's acknowledgement by the scientific community.