

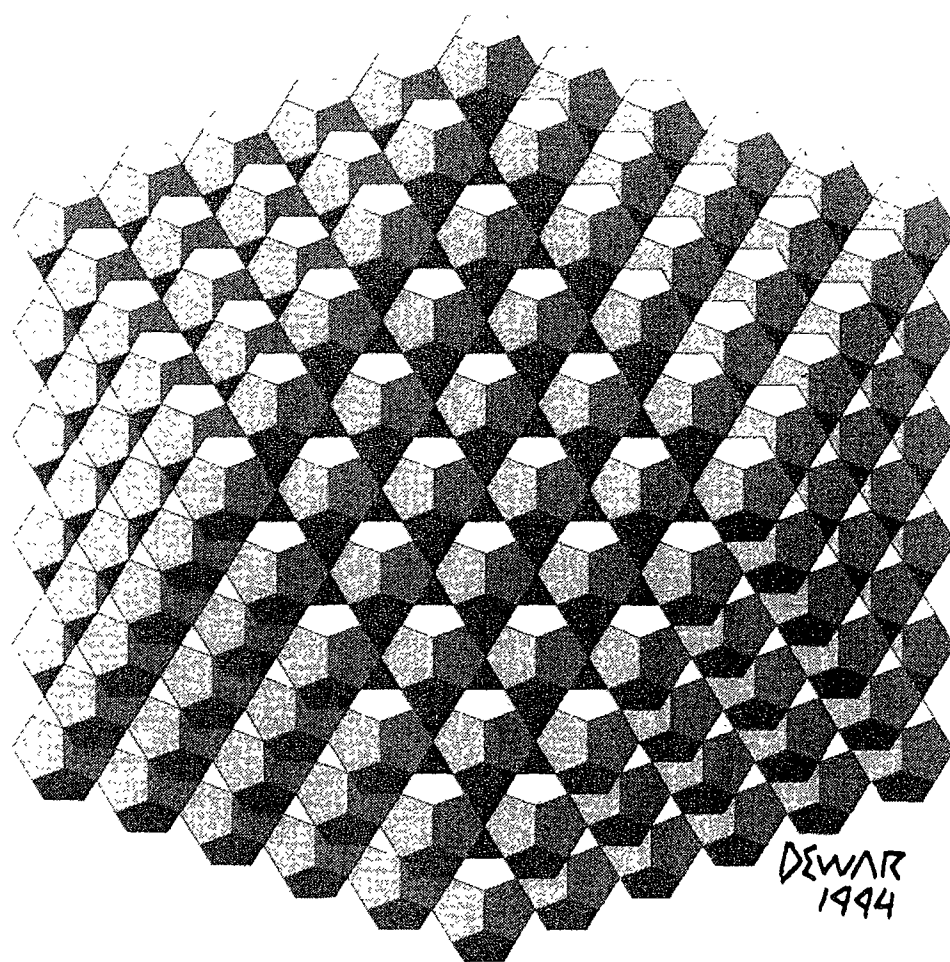
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VARIOUS ASPECTS OF SYMMETRY FROM THE VIEWPOINT OF *KOHSEI*

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JAPAN 343

I would like to explain various aspects of symmetric shapes by visual language from the viewpoint of *Kohsei*. *Kohsei* is a new concept of interdisciplinary study and education in the field of art and design in Japan. *Kohsei* is the unique field of Art and Design to study and teach about shapes, colours, compositions, rhythms, symmetries, etc. *Kohsei* does not have adequate term in English. Basic Art and Design is a similar term, I think. Far from the usual understanding of the word, basic does not mean first step or lower level study and education. The word "basic" means important and common to every field of Art and Design. In education, it is needed from primary school to university level, including graduate schools.

For example, in the field of science, mathematics is the basic of science. But, this basis is needed not only in primary schools but also in colleges and graduate schools. Its high level studies and researches contribute to improve every field of sciences and technologies. Similarly in "*Kohsei*", its high level studies, researches and experiments will contribute the development of the field of Art and Design. It will create not only unique and original works of Art and Design but more creative lessons in Art and Design education.

Especially, the constructive art, the optical art, the minimal art and geometric shapes in design are directly connected with the study of *Kohsei*.

Kohsei: the idea of Basic Art and Design

Let us try to make clear the concept *Kohsei* by another example. In Japanese, *Kohsei* is 構成 [kohsei], and "Basic Art and Design" is 基礎造形 [kisozohkei]. Recently, in the field of science, the name 基礎 [kiso] has appeared frequently. For example, 基礎医学 (Basic Medical Sciences), 基礎工学 (Engineering Sciences), etc. Basic Medical Science is the field that is common, basic and important to Clinical Medicine (internal medicine, surgery, ophthalmology, otology, etc.). On the other hand, anatomy, physiology, pathology, heredity, pharmacy science, etc. are included in Basic Medical Science.

If each field of clinical medicine is likened to each vertical bar of specialties, each field of Basic Science with 基礎 [kiso] is likened to each horizontal bar of medical

specialities. They have been different, as the relationship between vertical and horizontal points of view about them. According to Professor D. Nagy, the concept symmetry is very useful to make interdisciplinary bridges among various fields of art and science. *Kohsei* is based on similar idea to it, it means, *Kohsei* is very interdisciplinary directions of Art and Design. The development of both vertical and horizontal specialities makes the true improvement of the field of art and science.

The Subject of *Kohsei*

What is the common, basic and important part of the study in the field of Art and Design? These are shapes, colours, textures, compositions, balances, symmetries, rhythms, materials, the education of intuition and sense, grammars of visual languages, etc.

Symmetric shapes are regular and systematic. So, they have beauty based on rule. The rule is concerned to geometry. K. L. Wolf and R. Wolff showed that symmetry has four basic operations: *Translation* (translation), *Spiegelung* (reflection), *Drehung* (rotation) and *Streckung* (stretch), and we have thirteen types of compositions by combining them in the book "symmetry" by them. I think, however, photographic techniques should be recognised as operations of compositions. In this case, we can have an operation "black and white exchange" adding to four basic operations and thirty one types of compositions. Moreover, "distortion" creates various shapes of dissymmetry and broken-symmetry. Thus, photographic operation present interesting problems about symmetry to us. In the field of Art and Design, it is better to use photographic operations now.

The Comparison between *Kohsei* and the Basic Course in Bauhaus

Because the teaching programs and methods of Bauhaus school (1919~1933) was new, international and interdisciplinary, the idea of the school have given much influences to basic design education in the world. Then, what is the difference between Bauhaus in Germany and *Kohsei* in Japan?

In Bauhaus, its education of compositions by using geometric shapes and new materials was taught only to the beginner's courses. *Kohsei* is one of the fields of Art and Design. On the other hand, *Kohsei* is taught not only in primary schools but also in colleges and graduate schools. So, like pure and basic science, mathematics, is needed in the field of whole science, *Kohsei*, as a pure and basic art and design, is needed in whole this field.

Under such idea above mentioned, Prof. M. Takahashi established the first *Kohsei* course in Tokyo University of Education in 1949. He was my teacher, and I finished *Kohsei* course there. Later, I became a faculty member of *Kohsei* course in this school since 1972. Several years later, Tokyo University of Education transferred into the University of Tsukuba. So, I had taught *Kohsei* specially for 18 years until I retired from the University of Tsukuba in 1990. I have been a *Kohsei* teacher in Bunkyo University, near Tokyo, since 1990.

High level studies to the Basic Science and to the Basic Art and Design would become more important in future, I believe.

A List of Papers About *Kohsei* written by Asakura, N.

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- Asakura, N.: "An Introduction to Geometric Art" (in Japanese), Rikogakusha Co. Ltd., Tokyo, 1 - 213, 1975.
- Asakura, N.: "Geometrical Shapes in *Gestaltung*" (in Japanese) No.1 - No.6, The Bulletin of Kyoto University of Education Ser. A. No.31, No.33, No.35, No.36, No.37, No.39, 1967 ~ 1971.

(4) Light Art by Mirrors

- Asakura, N. : "Experiments with Mirror Reflections", Leonardo, Journal of the International Society for the Arts, Sciences and Technology, vol.23 No.1, 71 - 74, 1990.
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• Asakura, N.: "The Mirrorish Functions and Their Effects in the Creation of Art and Design" (in Japanese), The Bulletin of Japanese Society for Science of Design No.56, 37 - 44, May 1986.

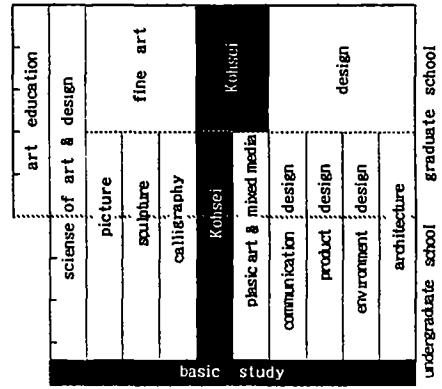
(5) Study on Material: "Paper"

• Asakura, N.: "Creating with Paper" (in Japanese), Bijutsu-shuppansha Co. Ltd., Tokyo, 1 - 315, 1982.

The Comparison : Basic Course of the Two Schools



(Bauhaus in Germany)



(The University of Tsukuba in Japan)

The Relationship of Two Shapes (in the two dimension)

