

IN THE SPIRIT OF SYMMETRY: UNIFICATION OF MIND AND WORLD BY EDUCATION

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Abstract: *Being conscious of the rapid approach of my retirement, I feel it about time to elaborate the inner context of my various contributions to ISIS-Symmetry and to set them into a general, comprehensive perspective (cf. refs. Klein, P. 1990-2004). As a physicist, I know „physics“, the system of natural laws, as valid for the whole universe, that appears as a system of selforganizing matter. As an educator, I see my duty in fostering young people to develop their minds towards awareness and cognition of these laws, so as to make them the indispensable basis of a successful, satisfying, and beautiful conduct of life. The ideas were already conceived in Romantic theory of erudition through symmetry.*

1 UNIFICATION IN MIND THROUGH SYMMETRY: EDUCATION

The central problem of all (European) philosophy is the question for the ontological relation between the world, the human mind, and God as their creator. Within the comprehensive system of Romantic Natural Philosophy, symmetry, through its specific

unity of cognitive strength and enchanting beauty, appears as the symbol of a spiritual, even mystic unity of divine governance over mankind and nature (Oersted). It comprizes the highest and most abstract aspects as well, as also the most elementary components of the mental relations between the self, the universe, and God. Hence, symmetry is of special importance during the early development of the human mind, when it acts as a guide to develop the individual self and the system of general cognitive structures during the self-constitutional phases called childhood and youth - phases which, however, need to be assisted and guarded by education.

2 ROMANTICISM IN EDUCATION: FRIEDRICH FROEBELS PEDAGOGY

At that point, the world of Romantic Naturphilosophie has also rendered the ideas and the suitable mental framework for the perhaps richest and most sensitive educational program on duty of that essential, even venerable mission. The program itself, then, was conceived by Friedrich Froebel, theoretically in his book on „Die Menschenerziehung“ (1827), practically by the pedagogy of the „Spielgaben“.

Froebel understands the child as both, an organismic and a spiritual entity, as a creature, that unfolds from a germ by means of intrinsic energy and innate laws. Thus a child in fact represents the very essence of the divine intention when He created the world; it figures as the richest, the most advanced, most beautiful and touching representative of the self-creative nature as well as of the intrinsic spirit of mankind - in that respect it might appear nearly like a sanctuary. As such, the child deserves careful and loving attendance - a moral obligation for parents and for society's responsibility.

Now, the suitable basis of development must be a well adapted mental presence of nature, mankind and God within the horizon of the child's mind and physical experience. In accordance to the child's only rudimentary state of development, this representation must become manifest on an elementary level, that nevertheless comprises its very essence and final goal.

3 FROEBELS PRACTICE: „THE GIFTS“

At that point, symmetry again comes into focus: it is the very concept that comprises all of these conditions. By his „Spielgaben“ (gifts for play), Froebel conceived a system of material objects for playing and learning activities, which stimulate the whole personality on the elementary level as well as in a far-reaching perspective:

- The Ball (the sphere), represents the comprehensive, i.e. the most general, yet indeterminate symmetry of the universe,

- the Cube, as an integer polyhedron, is the symbol of oriented space, of physical stability, and of solidity of matter,
- the Cube, divided in several different manners, gives access to plane ornaments and to visualisation of arithmetics.

These basic integral polyhedra are supported by colored papers (for paper folding, pattern matching etc.), by sticks and knots and - of course - by free experience of the natural environment in explorative games -- all these experiences animated and enriched by corporeal, verbal and artistical activities. They help the child to find its own individual way to the world, to God and to the own personal self, by „assimilation“ of and „accomodation“ to an elementary, well ordered environment that is mentally obtained mainly through objects that represent the dimensions of symmetry in the process of orientation for life:

- „Lebensformen“ (forms of life) help the child to get aware of the symmetries and structures of objects of daily life: *elementarization by reduction*;
- „Erkenntnisformen“ (forms of cognition) guide to mathematical laws by means of playing with geometrical objects: *rationalization by systematization*;
- „Schönheitsformen“ (forms of beauty) give access to the unity of order and emotion, of receptive and expressive mental structures, as present in the active experience of symmetry: *emotionalization by sensual expression*.

The importance of early encounter with the „Gifts“ for the holistic formation of the personality of a genius has impressively been testified by Frank Ll.Wright. By examples from my own courses I suggest adaptations of these ideas as an approach to interdisciplinary, yet „normal“ contemporary school practice.

SUMMARY: THE ETHICAL DIMENSION OF SYMMETRY

The program of Raffaello's „Stanza della Segnatura“ renders an artistic verification of the great program of a unification of mind, nature and God. Our interpretation will make us understand this unity as a specification of Kants „esthetic judgement“, which in „Critique of Judgement“ he understands as the very essence of humane acting in the world, insofar as „beauty is the morally good in appearance“ (Schiller). Thus our considerations will culminate in being induced to identify symmetry as a symbol of „esthetic“ ethics.

References

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