

THE JANUSIAN PROCESS AND SYMMETRY IN SCIENTIFIC AND ARTISTIC CREATIVITY

Albert Rothenberg

Clinical Professor of Psychiatry, Harvard University P.O. Box 1001
Canaan, NY 12029, U.S.A

I shall describe a finding from my research on creativity, the identification of a particular cognitive creative process that helps account for the presence of symmetry and asymmetry in created forms. This mode of creative cognition is designated the janusian process (based on the Roman god with diametrically opposed faces, Janus). The janusian process is concisely defined as actively conceiving multiple opposites and antitheses simultaneously. According to both experimental and empirical evidence I have presented, the janusian process operates extensively in creative thinking in both art and science. Therefore, as opposites may be described as symmetries derived both from dichotomies and polarities, and multiple simultaneous opposites constitute multiple symmetries, the janusian process accounts in some degree for the presence of symmetry and multiple symmetries in several important as well as groundbreaking scientific discoveries and in a large number of outstanding works of art as well. The modification of effects of the janusian process in the final phases of creative production accounts for asymmetry manifestations.

In creative scientific work, the janusian process, as I have shown, has four distinct but somewhat overlapping phases:

The first phase, Motivation to Create--specifically to produce something new and valuable--is very strong in scientific creation. It is purposeful, and often guided by aesthetic feelings and goals. The second phase is Deviation or Separation, in which one or both of the apposition elements to be brought together are focused upon or identified. In this phase, the creative thinker begins to deviate from accumulated knowledge and the usual canons of approach to the particular problem or area of concern. The third is Simultaneous Opposition or Antithesis, in which pairs, sets, or series of opposites are simultaneously brought together in a conception that leads directly to the creative outcome. During this phase, several factors may coalesce gradually or virtually all at once. The opposite or antithesis of an element or elements in focus in the second phase may in the third phase be separately and substantively formulated; then, both of the opposites or antitheses are simultaneously brought together. Or else, a substantively new opposite or set of opposites are formulated virtually at the moment of simultaneous pairing or grouping in the creative conceptualization. The fourth and final phase is Construction of the Theory, Discovery, or Experiment, which consists of the modification, elaboration, and application of innovative insights within simultaneously opposite formulations. Often developed here are representations of simultaneous opposition such as metaphors, modifications of conflicting elements through logical resolution, as well as elaborations through analogic and deductive reasoning.

In art, there are several phases as well, but instead of a stepwise deviation and separation in which one pole of the opposite is first identified or defined, multiple opposites are usually constructed all together at the temporal moment that they are simultaneously conceived.