

Book Review

The Symmetry System. By Mirjan Žorž. 333 pages. Publ. by Mirjan Žorž, 2002. (ISBN 961-236-224-6).

‘The Symmetry System’ by Mirjan Žorž attempts to re-found virtually all fields of science (chemistry, physics, genetics, cosmology, and of course crystallography) in terms of the theory of point groups as revised by the author on the basis of unproved assumptions (the most often used expression in this book is perhaps “it is obvious that”). This book introduces a theory that contrasts so strikingly with all the scientific knowledge that it is not surprising it had to be published privately. The scientific level can also be understood by the literature cited: 180 out of 259 references are from journals of mineral collectors, the bulk of the rest being represented by dissertations and obscure journals, all in Slavonic languages.

The reader who approaches this book should be ready to abandon all what he has learnt so far to follow the new categories introduced by the author. Only point groups are retained (but renamed), all the rest – including space groups – is rejected. For example, we learn that there are not seven crystallographic systems, as we have believed so far, but nine (p. 9–13). The eighth system is called “Bioaxonic”, and contains the point group m : this point group no longer belongs to the monoclinic system, because it characterizes “the vast majority of automotive beings”. The ninth system is termed “Monoaxonic” and contains the point group 1; the reason why it is not included in the triclinic system is “the lack of any symmetry element”.

The introduction of these two new systems is however of minor importance in the system developed by the author, because he finally does not use the notion of system, but introduces instead a new classification (p. 9–32) in terms of nine “symmetry clusters” or “morphies”, on the basis of the number of “electric axes” (“limited spatial regions [...] where either a positive or a negative charge domains”) and their polarity. These electrical axes constitute the “orbital polyhedron” (“a superposition of all positive and negative charges (densities) of all trivial structural elements, e.g. atoms or molecules and their constituents”), the entity which, in the system developed by the author, replaces the unit cell (the next victim of this re-foundation). The orbital polyhedron leads the author to deny implicitly the law of rational intercepts, when he states (p. 51) that “a crystal can develop an infinite number of crystallographic faces around an orbital polyhedron with all possible crystallographic axes including inverted ones”.

A central role in this theory is played by the concept of “symmetry aspects” or “space specific parameters” (p. 6). “left” and “right”, “upper” and “lower”, “front” and “back”, and especially the “syn” and “epi” pair, meaning essentially a convex vs. concave aspect. The author is thus led to adopt five axes, and thus also five Miller indices (eventually non-integer) to describe tetragonal crystals in order to differentiate crystals elongated along $\langle 100 \rangle$ from those elongated towards $\langle 110 \rangle$. These axes become nine if the “syn” and “epi” axes have equal length (p. 7–8).

The text then proceeds with an analysis of the electrical axes in each “morphy”, simply on the basis of the assumption that two faces equivalent by symmetry are related by a non-polar electrical axis, polar electrical axes giving rise to unequally developed faces. New symmetry symbols are then

introduced ($\omega\sigma$ for cubic groups, $\Phi\sigma$ for non-cubic non-polar groups, $\chi\sigma$ for non-cubic polar groups) and used to rename point groups according to the Author’s taste (p. 31–38).

But we are only at the beginning of the nightmare. Many other obscure and essentially undefined concepts follow (p. 38–82): “giroidality” (symmetry with chiral spatial charge distribution), “centricity” (when “the nodal point coincides with the centre of their orbital polyhedrons”), “symmetry archaism” (“symmetries [...] that evolved first”), “resonant symmetries” (which concerns the “re-configuration of the electric axes”), “pleronic symmetries” (“defined by orbital polyhedrons that can completely fill the space”), “attachment modes” (“special spatial orientations [...] that produce different crystal morphologies”). We also learn (p. 83) that a twinned crystal is *more stable* than an untwinned one “because of more efficient accretion of trivial orbital polyhedrons”, and on the basis of this idea the author devotes 168 pages to the morphological analysis of twins and epitaxies. This actually represents the only part of some interest in the book (some nice photos are given), if the reader has the patience of making abstraction of all the categories used by author and of translating his language into something understandable.

But the ambition of this theory is by no means limited to crystalline matter. In fact, from page 251 the author starts applying his categories to the Universe (introducing essentially a new cosmology in terms of – guess what? – the orbital polyhedron of large masses: stars, planets, galaxies, nebulae), the atomic structure of matter (and we learn, for example, that the molecule of hydrogen is a *twin* of two atoms and that the fine structure of the spectrum of hydrogen “is the result of the switch between the syn ad epi conformations”), the subatomic particles (we discover, for example, that the α -decay is a process of *untwining*; and we also learn about new particles, called “monons” which are “polar lobes of a single electrical axis” once separated, of symmetry 0 – perhaps a reminiscence of Leibniz’s Monad? – which immediately *twin*, forming a photon). This analysis leads the author to what is perhaps his “best” achievement, the states of the Universe. We learn about two new states of existence: the ε -state, where “all matter and anti-matter in the Universe with all of their possible symmetries are accreted into a single mass” and where “everything, up to the last single monon, is accreted” but we can still differentiate “the positive and negative charges”; and the Π -state, which is the “ultimate interpenetration *twinning* process”, where “we even cannot differentiate between the positive and negative aspect, i.e. charge”.

After having introduced, *en passant*, a new standard for the measurement of time (p. 304–306), the author concludes stating that “it is not a problem to move faster than the speed of light: the problem is in [...] an accelerating mechanism” (p. 312); that “the entropy of Universe is a constant” (p. 315); and with a brief analysis of automotive beings, which leads him to the result that “the DNA molecule is [...] a *twin* composed of two chiral strands” (p. 322).

In conclusion, this is not a scientific treatise, but rather an early XIX-style philosophical dissertation to which Hegel’s definition of Schelling’s philosophy can be directly applied: a “night in which all cows are black”.

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