

Références

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Structure Reports

Volume 45A of *Structure Reports* has recently been published. It covers the literature for metals and inorganic compounds for 1979 (vi + 445 pages), and costs 136 Dutch guilders for subscribers with standing orders. The full price

for individual copies is 160 guilders but personal subscribers may buy a copy for their own use at 80 guilders. Volume 44B should be published later in 1981.

Orders should be placed direct with the publisher, D. Reidel Publishing Company, PO Box 17, 3300 AA Dordrecht, The Netherlands, or with Polycrystal Book Service, PO Box 11567, Pittsburgh, PA 15238, USA, or with any bookseller. Trade orders should be sent to Reidel.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (J. H. Robertson, School of Chemistry, University of Leeds, Leeds LS2 9JT, England). As far as practicable books will be reviewed in a country different from that of publication.

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Structure and bonding. Vol. 37. Structural problems.

Edited by J. D. DUNITZ *et al.* Pp. 216. Berlin, Heidelberg, New York: Springer-Verlag, 1979. Price DM 88.00, US \$48.40.

This recent volume in the series *Structure and Bonding* consists of three articles related to structural inorganic chemistry. Although the topics are diverse, the first two contributions on Jahn–Teller effects and cubic structure types will be of more interest to crystallographers than the last article on polyhalogens. Nevertheless, all three chapters are presented in a well organized format and are in keeping with the standard of excellence established in this series.

The first contribution in this volume is *Local and Cooperative Jahn–Teller Interactions in Model Structures* by D. Reinen and C. Friebel. As the title suggests, this article presents a detailed discussion and theoretical treatment of the well known Jahn–Teller effect in which octahedral coordination with σ -antibonding E_g ground states may result in geometrical distortion. The authors' model structures are limited to octahedral coordination of equal ligands. The first part of the article is a descriptive review of the local Jahn–Teller effect with several examples. Greater detail is given to describing cooperative Jahn–Teller phenomena that can occur as a result of lattice environment effects for both isolated and bridged octahedra. Some of the factors related to 'cooperative' Jahn–Teller deformation include orbital ordering (related to lattice orientation of the polyhedra), effects of counter-ion type, and the concentration of affected metal ions (such as d^9 Cu²⁺) in a host lattice. The subject is

developed further with a detailed examination of Jahn–Teller distortions in various nitro complexes and, in a separate section, a discussion of octahedral distortion in host-lattice structures. Various other examples are also given. Overall, the authors have provided a well balanced descriptive and theoretical account of Jahn–Teller effects observed by various spectroscopic and structural methods. This article will prove especially interesting and useful for structural inorganic chemists specializing in solid-state chemistry of transition-metal complexes.

The second chapter is *The Frameworks (Bauverbände) of the Cubic Structure Types* by E. E. Hellner. This extensive article (80 pages) is an ambitious approach to organizing all cubic structure types into a descriptive system of construction patterns or frameworks (*Bauverbände*). The *Bauverbände* notation consists of a symbol for one of the sixteen invariant cubic lattice complexes (a capital letter) along with additional indicators for the particular coordination polyhedron. Ideally, the *Bauverbände* classification symbol should not only permit the reconstruction of the structure type, but it should also show the relationship between different types. Under this system the structure types are grouped into families, main classes, and subclasses. In developing his subject, the author describes in some detail the homogeneous and heterogeneous sphere packings in the cubic system as well as the relations between structure types. The bulk of the article consists of examples used to explain the classification system. Since as many as two hundred different compounds are considered, it is fortunate for the reader that a good formula index is included at the end of the chapter. Finally, the numerous excellent illustrations in the article are indispensable to the reader's