

Journal of Organometallic Chemistry, 192 (1980) C17-C18
© Elsevier Sequoia S.A., Lausanne — Printed in The Netherlands

Book review

Advances in Inorganic Chemistry and Radiochemistry, Vol. 22, H. J. Emeléus and A. G. Sharpe, editors, Academic Press, New York/San Francisco/London, 1979, ix + 457 pages, \$48.00.

The latest volume in this excellent series contains seven papers covering a broad range of topics in inorganic chemistry. The first paper, "Lattice Energies and Thermochemistry of Hexahalometallate(IV) Complexes Which Possess the Antifluorite Structure" (H. D. B. Jenkins and K. F. Pratt), contains much new material in addition to a review of the literature on this periodically wide-ranging class of compounds. The authors present results of recent calculations of lattice energies and associated thermochemical data for many compounds, using a new minimization method which is set forth in detail.

"Reaction Mechanisms of Inorganic Nitrogen Compounds" (G. Stedman) offers a review through 1977 of the reactions mechanisms of some twenty "simple" compounds of nitrogen. The emphasis is heavily on solution chemistry. Attention is given to oxidations and reductions by metal complexes, including reactions of coordinated ligands, but coordination chemistry is not covered exhaustively.

The third paper, "Thio-, Seleno-, and Tellurohalides of the Transition Metals" (M. J. Atherton and J. H. Holloway) gives a brief review of these rather esoteric compounds. Most references are to synthetic and structural studies, but some spectroscopic, magnetic, and other data are included.

"Correlations in Nuclear Magnetic Shielding, Part II" (J. Mason) continues Part I from Vol. 18 of this series. This paper discusses the theoretical aspects of nuclear magnetic shielding in more detail. Shielding correlations with a variety of molecular properties are discussed; trends are noted and an attempt is made to identify the factors responsible. One misses the graphs which clarified these trends in Part I.

The fifth article, "Cyclic Sulfur-Nitrogen Compounds" (H. Roesky) reviews

the literature through 1977 on these species, including those in which the ring contains one atom other than nitrogen or sulfur. Again the emphasis is on the preparation and structures on these compounds, but their bonding and reaction chemistry are also covered.

"1,2-Dithiolene Complexes of Transition Metals" (R. P. Burns and C. A. McAuliffe) appears to be the first review of this area in several years. The preparations, structures, and properties of these complexes are described in periodic order, with some mention of their practical uses and welcome coverage of the patent literature. Other sections describe the 1,2-dithiolene ligands and their preparation (a glossary of abbreviations would have been useful here) and discuss what can be learned from various types of physical and electrochemical studies.

The final paper, "Some Aspects of the Bioinorganic Chemistry of Zinc" (R. H. Prince), is an excellent introduction to this topic and to metallo-enzyme chemistry in general. After a general introduction, the author concentrates on three well-studied zinc metalloenzymes: carbonic anhydrase, the alcohol dehydrogenases, and carboxypeptidase A. The emphasis is on describing how physical and chemical methods are used to elucidate the mechanism of action of the enzymes, and how the metal interacts with groups on the ligand protein to maximize catalytic activity. The author thoughtfully provides aids for the uninitiated reader, including a list of abbreviations, an extensive glossary, and even a brief review of enzyme kinetics.

Considering the specialized nature of the individual papers, this volume is probably priced beyond the reach of most individuals, especially organometallic chemists who will find little here relating to their specialty. It will be a valuable addition to library collections.

Ethyl Corporation
Research Laboratories
1600 W. Eight Mile Road
Ferndale, Michigan 48220

W. K. Dean