

Book review

“Progress in Inorganic Chemistry”, Volume 22, Edited by S.J. Lippard, Wiley–Interscience, New York, 1977, 435 pp, \$ 25.95.

The latest volume in this long-running series maintains the good quality and far-ranging scope of topics characteristic of many of its predecessors. Four chapters are included. G.W. Daub presents a brief account of oxidatively induced cleavage of transition metal–carbon bonds drawing on results published through mid-1975. In his chapter “Chemical Applications of Magnetic Anisotropy Studies on Transition Metal Complexes”, S. Mitra provides a thoroughly readable treatment of relatively recent applications of magnetic anisotropy measurements in the determination of ground state electronic properties. Together with his earlier article on experimental techniques (in another series), this chapter provides an efficient introduction to and a summary of results derived from a valuable but underexploited physical technique. For those committed to an understanding of the intricacies of electronic structure in low symmetry complexes J.C. Donini, B.R. Hollebhone, and A.B.P. Lever offer “The Derivation and Application of Normalized Spherical Harmonic Hamiltonians”. This chapter is entirely theoretical and contains, or develops the methodology for obtaining, basis functions, Hamiltonians, and matrix elements for octahedral and tetrahedral subgroups. Impetus for the experimental chemist to study this treatment, which is heavy going, is not provided. Interpretations of experimental results are omitted, with literature citations to applications of the theory apparently meant to suffice. The utility of other chapters notwithstanding, this volume is likely to be most broadly appreciated because of “The Coordination and Bioinorganic Chemistry of Molybdenum” by E.I. Stiefel. This exhaustive treatment (223 pages, 44 figures, 860 references) is the best single review of the (non-organometallic) chemistry of this element yet written. Emerging structural and reactivity systematics are well displayed in coverage which extends into 1975. Chemists and biochemists concerned with the still perplexing and capricious behavior of molybdenum will be well served by this chapter, which stands as the primary reference source for contemporary molybdenum coordination chemistry.

R.H. HOLM

Department of Chemistry
Stanford University
Stanford, CA 94305 (U.S.A.)