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Book review

"Cryochemistry", M. Moskovits and G. A. Ozin, ed., John Wiley and Sons, New York/London/Sydney/Toronto, 1976, xi + 532 pages, \$32.50.

This book presents a collection of eleven chapters prepared by ten authors representing nine different laboratory groups now engaged in some aspects of Cryochemistry. These cover, in considerable detail, the techniques, instrumental design, and potential applications of this exciting field which is the outgrowth of nearly two decades of study and development by scientists in many laboratories. This book presents only a partial view of the field as seen by these ten authors, and the orientation is primarily toward preparative techniques with some details of Raman and electronic spectroscopy for selected systems. The book is especially complete in terms of the work of Ozin and associates on techniques and the reactions of transition metals with CO, O₂ and N₂ (240 pages); of Skell and associates on organometallic and organic reactions with main group and transition metal atoms (58 pages) and of Timms and associates (76 pages) on reactions of atoms of both metals and non-metals. Andrews presents a summary of his alkali metal atom reaction work (35 pages) and some reactions of main group atoms with O₂, S₂, Se₂, and the halides are discussed by Ogden (30 pages). Spectral studies of matrix-isolated atoms are discussed by Gruen (52 pages) and some very interesting photochemical studies are discussed by Burdett and Turner (32 pages).

Although these topics are covered well and there are many references to the literature through 1976, the book is a collection of articles and not a coherent, or complete review of the field. For example, there is minimal coverage of the research of Weltner, Kasai, and associates who have done much of the matrix ESR work currently available; of Milligan and Jacox who probably were the real pioneers of this field after the initial work of Pimentel and associates at Berkeley; of Brewer, Pitzer and associates who were among the first to combine low temperature and high temperature techniques; and of many others in the field. Also, it would have been useful to compile an author index to help the reader save time in following up work from a particular laboratory.

Nonetheless, the book will serve a useful purpose in providing an up-to-date summary of these particular aspects of the expanding and exciting field of Cryochemistry.

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