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BOOK REVIEW

Progress in Boron Chemistry: edited by R. J. Brotherton and H. Steinberg, Oxford, Pergamon Press, 1970; Vol. 2, 272 pages; Vol. 3, 370 pages. £7. per volume.

These books, published in 1970, follow the first volume which came out in 1964. There is considerable evidence that manuscripts have been held up. The majority of articles include references to papers in 1967, but some are quite sparse in this respect, and only quite exceptionally are 1968 references found. The authors of the eleven reviews constituting the two volumes are acknowledged authorities. However, only exceptionally are the reviews particularly novel, and in that context I draw attention to the long contribution of W. G. Woods and R. J. Brotherton on "Oxidations of Organic Substrates in the Presence of Boron Compounds."

The articles in Volume 2 are dominated by polyhedral boron assemblies. Thus L. J. Todd's surveys "The Chemistry of Polyhedral Borane Ions"; R. E. Williams deals with the "Carboranes"; T. L. Heying deals with "Polymers Containing Clusters of Boron Atoms" (this is a useful brief review which does not seem to have any predecessor); J. D. Odom and R. Schaeffer deal with the "Use of Isotopic Labels in the Study of Carboranes and Binary Compounds of Boron and Hydrogen"; R. Thompson deals with "The Chemistry of Metal Borides and Related Compounds," and J. G. Bower with "Elemental Boron; Preparation, Properties and Applications." There is a good deal of overlap between this material and "Polyhedral Boranes" edited by E. L. Muetterties and W. H. Knoth (Marcel Dekker Inc., 1968), and with articles in "Boron, Metallo-Boron Compounds and Boranes", edited by R. M. Adams (Interscience Publishers, 1964), and "The Chemistry of Boron and its Compounds" by E. L. Muetterties (John Wiley and Sons, Inc., 1967). Rather curiously, these sources are rarely referred to, which is a further indication of possible delay during the publication process.

Whereas Volume 2 is perhaps of greater interest to the inorganic chemist, Volume 3 principally serves the organic specialist. The topics dealt with are as follows: "Oxidations of Organic Substrates in the Presence of Boron Compounds" by W. G. Woods and R. J. Brotherton; "Neighboring-group Effects of Boron in Organoboron Compounds" by D. S. Matteson; "Thermochemistry of Boron Compounds" by A. Finch and P. J. Gardner; "Some Recent Developments in Boron-Nitrogen Chemistry" by H. Nöth; "Organic Boron–Sulfur Compounds" by B. M. Mikhailov. The paper by Matteson to some extent duplicates the same author's review in "Organometallic Chemical Reviews"; rather curiously he has two pages of rather polemical material on the 4-membered B_2N_2 ring, which is concluded by "all claims for 4-membered ring structures are highly questionable." This is entirely invalidated by a footnote which acknowledges a 1967 X-ray investigation of such a compound. Finch and Gardner's contribution is another of the more useful ones. The title is a little misleading, however, since donor–acceptor complexes are not discussed. The article by Nöth is complete only up to July 1967, but this is not too serious, since the subject has not advanced particularly markedly since that date except for a number of crystal

structures. The article by Mikhailov is an almost exact replica of one by the same author in Russian Chemical Reviews, and its outdatedness is emphasized by the absence of references to reviews on the same topic published in "Organometallic Chemical Reviews" in 1966, and more recently in "Quarterly Reports of Sulphur Chemistry". There are some very curious statements on page 366 on quantitative matters which are certainly wrong, and are incompatible with data quoted by Finch and Gardner.

Despite the criticisms made above, specialists in boron chemistry will no doubt wish to purchase these volumes.

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