

BOOK REVIEW

The Organic Compounds of Magnesium, Beryllium, Calcium, Strontium, and Barium; by S. T. IOFFE AND A. N. NESMEYANOV, North Holland Publishing Company, Amsterdam, 1967, xii + 735 pages, D.fl. 100.—

Series: *Methods of Elemento-Organic Chemistry*. Volume 2; edited by A. N. NESMEYANOV AND K. A. KOCHESHKOV

This monograph is largely a translation of a book originally published in Russia during 1963, but it includes some references to work published in 1964. It derives in a sense from the same authors' "Handbook of Organomagnesium Compounds, Vols 1-3", but differs in several important respects. Firstly, the present work is much more up to date. Secondly, the earlier three-volume work was largely an extensive list of reactions, whereas the work under review provides much detail on preparative problems, and covers various mechanistic aspects: in many ways it reads like a more up-to-date version of Kharasch and Reinmuth's classic book on Grignard reagents which appeared in 1954. As the title indicates, it differs from Kharasch and Reinmuth in covering all the Group IIA metals (except radium). Some idea of the relative amounts of information pertaining to the elements listed in the title is given by the numbers of pages devoted to them: these are, respectively, 650, 28, 8, 2, and 4.

Faced with such a comprehensive compilation of information (there are over 3500 references) one must be full of admiration for the authors' diligence, quite apart from their scholarship. The book certainly is scholarly, but it is fair to say that comments, correlations, and interpretations appear rather less frequently than mere descriptions of literature reports. This feature of the book is particularly apparent in Chapter 3 which concerns the important topic of the structure of Grignard reagents. The authors were clearly at a disadvantage in having to deal with this formerly controversial topic at a time when some of the most significant papers were just appearing. They report on most of the good, bad and indifferent papers which appeared up to 1964, but the reader is largely left to draw his own conclusions as to what is significant and what is not. Chapter 19 deals with radical reactions, e.g. those between Grignard reagents and alkyl halides in the presence of transition metal halides. The reader should note that the authors here tend freely to use the word "radical" both in the sense of "free radical" and of "organic group", a practice which is potentially confusing to those interested in mechanisms. Various free-radical reactions of Grignard reagents are omitted from this Chapter and do not appear elsewhere.

The book has been well produced and appears to be reasonably free from trivial errors: but the title of section (c) on page 685 is badly misnamed. In my opinion it will be an essential purchase for most general chemistry libraries, and any chemists who use metal alkyls for other than routine purposes will probably feel the need to purchase a personal copy, despite the high price. Not the least of the book's virtues lies in the way it shows up the backward state of present knowledge concerning organocalcium, -strontium, and -barium compounds.

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