

Book Reviews

Organometallic Chemistry Reviews; Section B—Annual Surveys;

Vol 5, No. 1. MAIN GROUP METALS, GROUPS IIIB AND VB: ANNUAL SURVEYS COVERING THE YEAR 1968; edited by D. SEYFERTH and R. B. KING. Elsevier Sequoia, Lausanne, 1969, 188 pp. Subscription price (4 issues) \$(U.S.) 19.70.

This is the second year in which *Annual Surveys* have been incorporated as *Section B* of *Organometallic Chemistry Reviews*. The first issue of Vol. 5 covers the Main Group Metals, Groups IIIB and VB, and contains seven review articles by four experienced authors. The same authors reviewed similar fields of chemistry in Vol. 4 of the series covering 1967.

The first review by D. S. Matteson summarizes in 84 pages the rapid advances which have occurred in carborane and alkyl and aryl borane chemistry. The carborane section commences with an assessment of the nomenclature systems proposed in 1968 for carborane compounds. This is followed by sections on developments in dicarbollide chemistry, icosahedral carboranes, small carboranes, pentaborane and decaborane derivatives. The section on alkyl and aryl boranes reviews the rapidly expanding field of hydroboration reactions and brings the reader up to date in other areas of "classical" organo boron chemistry. The article as a whole lists 259 references.

The remaining elements of Group IIIB are reviewed in the following three surveys by J. J. Eisch. The 32 page (108 references) article on organoaluminium chemistry deals with developments in studies on association of simple and mixed organoaluminium compounds, Lewis base adducts, aluminium-hydrogen bonds, aluminium-carbon bonds and finally mentions some catalytic applications of organoaluminium derivatives. Two shorter articles on the less expansive developments in the chemistry of organo derivatives of gallium, indium and thallium conclude the review of the Group IIIB metals.

The remaining three articles in this issue are concerned with advances in the field of organoarsenic compounds (46 pages; 192 references), organoantimony compounds (12 pages; 31 references) and organo bismuth compounds (2 pages; 3 references). These derivatives are reviewed expertly by G. O. Doak and L. D. Freedman. The relative space occupied by each of the three elements reflects the current emphasis in research and application of organo derivatives of these metals.

Throughout the volume extensive use is made of helpful diagrams and reproduction is generally good. The overall coverage of material published in 1968

is pleasingly thorough, and the arrangement of the material well executed. To the Organometallic Chemist the *Surveys* remain a must as a vital aid in keeping abreast of the rapid advances occurring in the field.

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Organometallic Chemistry Reviews; Section B—Annual Surveys;

Vol. 5, No. 2. MAIN GROUP METALS, GROUPS IA, IIA AND IIB: ANNUAL SURVEYS COVERING THE YEAR 1968; edited by D. SEYFERTH and R. B. KING. Elsevier Sequoia, Lausanne, 1969, 146 pp. Subscription price (4 issues) \$(U.S.) 19.70.

In the short time since its inception, *Annual Surveys of Organometallic Chemistry (Organometallic Chemistry Reviews B)* has become the authoritative record of progress in this area of chemistry. The present issue (No. 2 of Vol. 5) contains reviews of the organometallic chemistry of lithium (W. H. Glaze), Sodium and Potassium (W. H. Glaze), Beryllium (E. C. Ashby), Magnesium (E. C. Ashby), Calcium (E. G. Ashby), Zinc (J. G. Noltes), Cadmium (J. G. Noltes), and Mercury (D. Seyferth). Each author provides a comprehensive coverage of the relevant literature for 1968, and the whole issue reviews approximately six hundred publications. In general, brevity and lucidity are well combined and each review can be understood without frequent reference to the original literature. However, the section on organolithium compounds would be more intelligible if the subject matter had been subdivided as in the reviews of organomagnesium and organomercury compounds. The inclusion of a brief review of organocalcium chemistry is to be commended and it is to be hoped that it succeeds in its aim to stimulate activity in this neglected area. The short account of organocadmium chemistry could have been combined with that on organozinc chemistry since most of the references for the former section are included in the latter and parts of the discussion of organocadmium compounds duplicate those for organozinc compounds. A noteworthy feature of the section on organomercury compounds, and to a lesser extent that on organomagnesium chemistry, is the injection of critical comment and an attempt to assess the evidence in matters of controversy. The mercury review also makes very effective use of references to earlier *Annual Surveys*, giving an wholly admirable sense of continuity to developments in this area.

This issue is essential reading for all interested in the chemistry of Main Group organometallic compounds, both for an authoritative account of previous work and for the stimulus it provides for further work. Some parts should appeal to a very wide range of readers, *e.g.* the subsection dealing with the use of organomercurials in organic synthesis.

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