

*Advances in Organometallic Chemistry, Vol. 13*; edited by F.G.A. Stone and R. West, Academic Press, New York/San Francisco/London, 1975, ix + 562 pages, \$44.50, £21.35.

This latest addition to a widely respected series continues the pattern of earlier volumes. It contains six chapters written by workers in various fields of organometallic chemistry and summarizes the current position of chemical research in those fields. In line with the pattern which has been established in the last few volumes in this series, the first article is of an historical nature, and in this case is by J.S. Thayer, who presents an historical perspective of the entire field of organometallic chemistry. While this certainly makes interesting reading, particularly in the use that it makes of quotations from early classical papers in the field, it is necessarily very brief, and for the active researcher in organometallic chemistry probably presents little that is new. One must also query, in a volume at this level, the suitability of including short sections describing the organometallic chemical literature, and discussing the teaching of organometallic chemistry. The impression is left that, however interesting this chapter itself may be, it might have more suitably been placed in a journal such as the *Journal of Chemical Education*.

The second chapter by W.E. Silverthorn is concerned with arene transition metal chemistry. This is a well-written and comprehensive review of an area that has developed substantially, particularly since it was last reviewed in 1965. The coverage of arene metal derivatives is comprehensive, and in particular new synthetic methods, such as metal vapour synthesis, are included.

Joyce Y. Cory contributes the third chapter dealing with organometallic benzheterocycles containing a metal atom from Group III, IV, V or VI. While there have been earlier reviews dealing with the heterocyclic chemistry of individual metals, the emphasis in this particular chapter is on the heterocyclic systems, and the presentation and comparison of related species containing different metal atoms, is a useful one. Of especial interest is the discussion of effects caused by the heteroatom replacement and of structural features of benzheterocycles, particularly those dealing with conformational preferences and inversions. The discussion of heterocyclic systems with 6, 10 and 14  $\pi$ -electrons is also an interesting feature. Then follows a chapter by D.E.M. Roundhill dealing with hydrido complexes of nickel, palladium and platinum. This is an area where there has been substantial activity in the last few years, and an up-to-date review is valuable. The chapter describes synthetic methods, briefly reviews structures and reactions, and then concentrates heavily on a discussion of the catalyzed addition of HX to multiple bonds, and of homogeneous hydrogenation or isomerization. The chapter is well-organized, clearly written and contains useful discussion, in addition to comprehensive literature coverage. P.M. Henry then contributes a chapter on palladium-catalyzed organic reactions, an area in which he has made substantial contributions. The emphasis is on mechanisms, and most of the discussion is concerned with palladium-catalyzed reactions of olefins, with a shorter section reviewing the analogous reactions of acetylenes, particularly the work of Maitlis.

Finally, J.D. Smith and D.R.M. Walton contribute a guide to the literature of the organometallic chemistry of the main group of elements. This is a companion to the comparable articles in earlier volumes by Bruce, which dealt with organo-transition-metal chemistry. This chapter is a useful source of information to the appropriate literature and provides a most extensive coverage. Not only text books and review journals, but conference reports through to compound and formulae registers are discussed, including an Appendix containing references to approximately 630 articles available in the primary literature.

This volume maintains the excellent standards established by its predecessors in this series. It is a high quality production which has been carefully edited, and it is largely free of the common discrepancies between the various chapters which are typical of many comparable series. For any practising organometallic chemist a subscription to this series is a must, and this volume will contribute its share in winning new subscribers.

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*Landolt-Börnstein, Numerical Data and Functional Relationships in Science and Technology. New Series (Ed. in Chief K.-H. Hellwege). Group III. Crystal and Solid State Physics, Vol. 7. Crystal Structure Data of Inorganic Compounds. Part b1; by W. Pies and A. Weiss, Springer-Verlag, Berlin/Heidelberg/New York, 1975, xxiii + 674 pages, DM 560.*

Volume 7 of Group III of this encyclopaedic work is concerned with Crystal Structure Data of Inorganic Compounds. Part b of the volume, which deals with compounds of the elements O, S, Se, Te, is sub-divided into sub-parts b1, and b2. Part b1, the subject of this notice, deals with oxides, hydroxides, and oxide hydroxides, including such species containing also water or ammonia. (The b2 section will contain oxide hydrides, simple oxide halides, and simple hydroxide halides, oxo-compounds of halides and xenon, and compounds of sulphur, selenium and tellurium). The book systematically lists data on all the relevant structures which have been determined by means of X-ray, neutron, or electron diffraction and for which at least the lattice constants are known, but, in addition, information is given on other substances which are known to be isotopes of compounds having established structures. Literature coverage extends to the end of 1971. Compounds are systematically listed, and so easy to find, but Sub-volume III 7h will provide general indexes for the whole of Volume 7.

The compilers of this volume have very successfully discharged a mammoth task, and in doing so have greatly eased the problem faced by research workers wishing to find out what structural information is available in the