

Homogeneous Hydrogenation; by B.R. James, Wiley-Interscience, New York, 1973, xiv + 525 pp. £12.50.

Chemists with a variety of research interests have welcomed the opportunity provided by transition metal ions and complexes, to study catalytic hydrogenation under homogeneous conditions. This, together with the applicability of many of the established methods of physical organic and inorganic chemistry, has led to very rapid growth of the subject. Dr. James' book provides a comprehensive account of this development up to the end of 1970, and literature between then and mid-1972 is summarised in an appendix. The bulk of the material is contained in chapters devoted to (vertical) transition metal Groups, with ions and complexes of the more important metals (Co, Rh, and Ir) receiving chapters to themselves.

Within each chapter the presentation is usually chronological, but the full range of results is brought to bear in the search for the mechanisms of the various systems. Summaries of the more extensively studied systems appear in tabular form, and the final chapter draws together the common themes of both mechanisms and investigative procedures and provides cross-references to the survey chapters. Homogeneous hydrogenation of unsaturated fats and the Ziegler-type catalysts also have separate chapters, and a miscellany of processes are dealt with in the penultimate chapter. Work pertaining to a particular metal or complex is accessible via the index and the text is also amply cross-referenced.

There is no doubt that the book will be very useful and practitioners will want it on their shelves. The beginner can now take this with appropriate reviews of hydrides and other contextual topics as a framework for an assault on the current literature. In terms of the time it can save, the book is of excellent value.

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Organic Syntheses: Collective Volume 5, edited by H.E. Baumgarten, John Wiley & Sons, Inc., New York, 1973, xiv + 1234 pages, \$24.95

The present volume is a revised and updated edition of Volumes 40–49 of "Organic Syntheses", the well-known series of proven merit. The syntheses of over 300 compounds are described in detail, either to illustrate a general procedure or to provide a reliable preparation of a specific compound. Since these procedures all have been checked by independent groups of workers, they may be considered quite reliable.

There is much in this volume which the organometallic chemist will find obviously useful: the synthesis and synthetic applications of a variety of organometallic reagents, such as $\text{CH}_2=\text{CHCH}_2\text{Li}$, $\text{Ph}_2\text{C}=\text{NMgBr}$, Ph_2CHNa , unsolvated $n\text{-C}_4\text{H}_9\text{MgCl}$, $\text{C}_6\text{Cl}_5\text{MgCl}$, $\text{CH}_3\text{C}\equiv\text{CNa}$, ICH_2ZnI , PhHgCCl_3 ; the

syntheses of some (few) organometallic compounds, such as triphenylaluminum, ruthenocene and some ferrocene derivatives; procedures for a number of organophosphorus compounds ($i\text{-Pr}_2\text{PCl}$, $\text{ClCH}_2\text{PSCl}_2$, $\text{Me}_2\text{P(S)P(S)Me}_2$, $\text{Ph}_2\text{PC}_6\text{H}_4\text{Br-}p$, $[\text{Ph}_3\text{PCH=CH}_2]\text{Br}$, PhCH=CHPOCl_2 and 3-methyl-1-phenylphospholene oxide); preparations of some ligands for transition metal chemists (2,2'-bipyridine, $\text{ArN}\equiv\text{C}$, 1,2-(RS) $_2\text{C}_6\text{H}_4$); methods for many generally useful reagents such as diazomethane, benzyne, ketene, α -pyrone, trimethyl- and triethyloxonium tetrafluoroborates, potassium *t*-butoxide and zinc-copper couple. Also useful are the details provided concerning the purification of the common solvents which the organic and organometallic chemist uses. However, the many other organic compounds of diverse types whose preparations are described here may also play a part in the future development of organometallic chemistry.

The utility of this volume is enhanced by the excellent indices which include a reaction index, a compound index, a formula index, a solvent and reagent index, an apparatus index, an author index and a general index.

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DIETMAR SEYFERTH

Organometallic Compounds. Methods of Synthesis, Physical Constants and Chemical Reactions. 2nd Edition (Edited by M. Dub), Vol. 2. Compounds of Germanium, Tin and Lead, Including Biological Activity and Commercial Application. First Supplement; by R.W. Weiss, Springer-Verlag, Berlin/Heidelberg/New York, 1973, xxv + 1116 pages, DM 112.90; US \$50.80 (Approx.)

This supplement surveys the literature and patents on organometallic compounds of germanium, tin, and lead covered by volumes 62–69 of Chemical Abstracts, though the information given is mainly taken from the original publications not the abstracts. Methods of synthesis, physical constants, and reactions are briefly indicated, and any information on biological activity and commercial application is included. The coverage naturally includes organometallic compounds containing germanium, tin, or lead bonded to transition metals.

This set of publications is very useful in any organisation concerned with organometallic chemistry, and certainly all purchasers of the earlier volumes will wish to add this one to their set. But for those concerned with organic derivatives of Group IV it is an essential, and many will wish to have it available in the laboratory as well as in the library. The presentation is economical of space, and the book represents very good value at today's prices.

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