

techniques. An excellent feature is that the student is expected to investigate, by physico-chemical methods and chemical analysis, the compounds he has prepared.

The justification for the inclusion of a review of the book in this Journal is that there is a good 36 page section on organometallic compounds, including preparation of a range of main group and transition metal compounds [e.g.  $\text{PhLi}$ ,  $\text{Ph}_3\text{P}$ ,  $\text{PhB}(\text{OH})_2$ ,  $\text{Ph}_4\text{Si}$ ,  $\text{Ph}_4\text{Ge}$ ,  $n\text{-Bu}_2\text{Sn}(\text{O}_2\text{CPh})_2$ ,  $(\text{C}_5\text{H}_5)_2\text{Fe}$ ,  $(\text{C}_5\text{H}_5)\text{Fe}(\text{C}_6\text{H}_4\text{CHO})$ ,  $(\pi\text{-C}_5\text{H}_5)_2\text{TiCl}_2$ , and  $\text{PhCO}_2\text{MeCr}(\text{CO})_3$ ] and the use of transition metal complexes as catalysts.

The book is very well produced, and has an excellent index. It may well be adopted at many universities as a class text, but even at the other universities everyone concerned with providing laboratory courses in inorganic or organometallic chemistry should have it available.

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*Organometallic Reactions, Volume 4*, edited by E.I. Becker and M. Tsutsui, Wiley-Interscience, New York, 1972, 460 pages, US\$27.50.

This book contains three chapters on topics of interest to the preparative organometallic chemist. The practical importance of each chapter is increased by the presence of numerous detailed experimental procedures taken from the literature. In general, much interesting chemistry is discussed. The two longest chapters are by groups of Soviet authors and provide useful English language reviews of areas of organometallic chemistry which have received considerable attention in the Soviet Union.

The first chapter, by Hancock, Levy, and Tsutsui, entitled " $\sigma$ - $\pi$  Rearrangements of Organotransition Metals", is the weakest of the three for the following two reasons:

(1) An organizational plan which has no clear chemical significance; (2) Numerous misleading errors in nomenclature and related items. For example, on page 5 the authors talk about  $\sigma$ -alkyl compounds when they mean  $\sigma$ -allyl compounds and about  $\pi$ -allene complexes when they mean  $\pi$ -allyl complexes. Despite such shortcomings, even this chapter contains much interesting information and many useful experimental procedures.

The second chapter, by Reutov and Ptitsyna, entitled "*Onium Compounds in the Synthesis of Organometallic Compounds*", provides a well-organized summary of the use of aryldiazonium and diarylhalonium salts for the synthesis of main group organometallic compounds. No transition metal organometallic chemistry is discussed in this chapter even though aryldiazonium salts have been used for the preparation of arylazo derivatives of cyclopentadienyl molybdenum and tungsten carbonyl systems and arylazo and diaryliodonium salts have been used for the preparation of aryliron derivatives. As might be expected, the authors seem to overemphasize the importance of onium salts in organometallic synthesis relative to other very useful synthetic reagents, notably organomagnesium and organolithium compounds. Despite

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these minor shortcomings, this chapter again contains much interesting information and many useful experimental procedures.

The third chapter, by Perevalova and Nikitina, entitled "*Reactions of Bis( $\pi$ -cyclopentadienyl)transition Metal Compounds*", is clearly the outstanding one of the book and would have made an excellent book by itself. The material is well-organized and provides detailed descriptions of many procedures useful in synthetic organometallic chemistry.

One drawback of the book is the publication delay. Two years seem to have elapsed between the time the manuscripts were sent to the publisher and the actual publication date. Some of the manuscripts were even completed earlier. Thus Perevalova and Nikitina completed their chapter in 1968. However, they have added an Appendix discussing the relevant literature during the period 1968–1970. Fortunately, the organization of this Appendix is the same as that of the main body of their chapter.

In summary, this book should be available to all laboratories which either are involved or may become involved in synthetic organometallic chemistry. Clearly, all institutional libraries should own a copy of this interesting and potentially useful book.

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*Organosilicon Derivatives of Phosphorus and Sulfur*; by S.N. Borisov, M.G. Voronkov and E.Ya. Lukevits, Plenum Press, New York – London, 1971, xiv + 343 pages, \$25.00.

This book, which is the fourth volume in a series of Monographs in Inorganic Chemistry, edited by E.G. Rochow is a translation (by C.N. Turton and T.I. Turton) of a Russian text published in 1968. The English translation has been updated to include literature published up to June 1, 1969 due to the 25% increase in the total number of publications in the intervening 18 months.

This book is unquestionably an impressive accomplishment. It represents the first systematic and comprehensive documentation of all available literature dealing with synthetic methods, physical, chemical, and biological properties, analytical techniques and practical applications of all types of phosphorus- and sulfur-containing organosilicon compounds.

A total of 1679 references are cited. The text has two chapters, the first dealing with phosphorus-containing compounds and the second dealing with sulfur-containing compounds. The references for each chapter appear at the end of that chapter which is very convenient. The organization of the references is similar to that used in the third volume of this series with works by Russian authors (29% of the total) being listed separately from those of "foreign" authors. As has been noted<sup>1</sup> previously, this represents "an unnecessary and undesirable nationalistic practice in an area of international activity."

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