

Book review

"Organophosphorus Stereochemistry", edited by W. E. McEwen and K. D. Berlin, Part I, "Origins and P(III and IV) Compounds," xviii + 387 pages, \$ 30.00; Part II, "P(V) Compounds", xv + 319 pages, \$ 31.90, Dowden, Hutchinson and Ross, Inc. via Halstead Press (Wiley), New York, 1975.

These volumes are part of the Benchmark series edited by C. A. WanderWerf. They consist of short introductory remarks by the editors followed by reproductions of articles in these areas of Organophosphorus Stereochemistry: I. Historical Perspectives, II. Pseudo-Rotation, III. Phosphines and Other Phosphorus(III) Compounds, IV. Phosphonium Salts and Phosphine Oxides in Volume I; and I. The Wittig Reaction, II. Phosphoryl Compounds and Derivatives, III. Phosphoranes in Volume II. For example, in the section on Pseudorotation there is a two page comment by the editors followed by reproductions of six papers including the classic one by R. S. Berry, J. Chem. Phys., 32, 933 (1960), a communication on cyclic phosphates by Dennis and Westheimer, and four articles from Accounts of Chemical Research by Westheimer, Muetterties, Holmes, and Ugi, et. al.

In the last 20 years, development of our knowledge of the structural dynamics of phosphorus has been one of the outstanding achievements in chemistry. By 'structural dynamics', I mean the structural changes in molecules both unimolecularly and in interactions with other molecules; therefore, it includes pyramidal inversion of phosphines, pseudorotation of pentacoordinate phosphorus compounds, and structural changes during chemical reactions. Clearly, stereochemistry provides powerful insight into these phenomena. Many chemists will profits from these volumes which provide not only a summary of the conclusions but also ready access to the experiments and results.

One might criticize the Benchmark volumes on the basis of need. The reproduced articles already are in the literature and cheap photocopying enables any reader to assemble a set of related articles. However, on reading these volumes I find real value in having these important articles together in bound form with perspective provided by the editors. Review

articles and monographs suffer, in my opinion, from their removal from the action of the original literature. I find that students learn much faster if they confront problems through the original literature as they move through text and lectures. In addition, the reproductions enable the presentation of views by different authors in immediate juxtaposition: for example, the different approaches of Westheimer, Muetterties, Holmes, Ugi, et. al., and Mislow (the latter in section IV of Volume I) to pseudorotation. Therefore, these volumes and others in the Benchmark series provide a valuable source for researchers and students.

With the wisdom that accompanies hindsight, it's possible to make some critical comments. It would have been valuable to have more comments from the editors and fewer reviews. This might have enabled a reduction in size so that one concise volume might have resulted particularly if the editors had been more critical in their selection of papers. This approach to a discipline could produce the best monographs and advanced texts. Unfortunately, these volumes on the structural dynamics of organophosphorus compounds appear too long and too expensive for use in most courses. Nevertheless, they should make a valuable addition to libraries where there is any interest in phosphorus, structural dynamics, stereochemistry, or reaction mechanisms.

Department of Chemistry
Wesleyan University
Middletown, Connecticut 06457 (USA)

PAUL HAAKE