

Book review

The Chemistry of the Carbon-Halogen Bond; edited by S. Patai (a volume of the series *The Chemistry of the Functional Groups*), John Wiley & Sons, New York, 1973, Part 1, xiii + 607 pages, Part 2, xiii + 607 pages, each part \$32.50.

Organic halides play an important role in organometallic chemistry, Their reactions with metals serve in the preparation of a great diversity of organometallic compounds. They undergo oxidative addition to lower valent main group and transition metal species. Their coupling reactions with organometallic reagents are useful in organic synthesis and their dehydrohalogenation by organometallic bases finds application in the synthesis of unsaturated compounds. Thus a book on the carbon-halogen bond, if properly conceived and executed, should be of considerable interest and utility to the organometallic chemist. This book, however, fails in this respect and, in the opinion of the reviewer, has severe defects from the broader viewpoint of the organic chemist.

Two of the most important chapters of this book, as conceived by its editor, on the formation of the carbon-halogen bond and on modern synthetic uses of organic halides, are absent, presumably due to author delinquency. (Other planned chapters on isotopically-labelled halides, on fluorocarbons and on ORD and CD of organic halides also did not materialize.) The seventeen chapters (by 17 different authors or pairs of authors) which this volume does contain cover a broad range, from theoretical and structural aspects, to analytical and spectroscopic considerations, to mechanistic discussions, to photochemistry, radiation chemistry, electrochemistry and thermochemistry, to biochemistry. Among interesting and useful chapters that may be singled out are those on the electrochemistry of the carbon-halogen bond (J. Casanova and L. Ebersson), perhalo-compounds (T. Chivers), the photochemistry of the C-X group (P.G. Sammes) and general and theoretical aspects of the C-X bond (G.H. Wagnière). The several chapters on reaction mechanisms present the same general discussions that can be found in physical organic textbooks and monographs and these hardly needed repetition in this volume.

Very little, if anything, can be found in this book on the organometallic aspects mentioned above, nor is any discussion given of the interesting effects of α -, β - and γ -metal(loid)-containing functions on the chemistry of organic halides, with the exception of some specialized aspects in Chivers' chapter on perhalo-compounds.

While this volume possibly deserves inclusion on library shelves, in view of the unfortunate gaps in coverage already mentioned and the \$65 price tag, it cannot be recommended as worthwhile to the individual purchaser.

*Department of Chemistry
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139 (U.S.A.)*

DIETMAR SEYFERTH