contain brand-new results. I realize that an increasing number of authors prefer this sort of publication over the uncertain gauntlet of peer review, which can delay or block the communication of results, sometimes unfairly. Nevertheless, the journals are where such work belongs, not merely because of their editorial and printing standards, but mainly because they reach a far larger fraction of the scientific community than any other mode of communication.

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Organoboron Compounds

Organoborane Chemistry. THOMAS ONAK. Academic Press, New York, 1975. xii, 360 pp., illus. $38. Organometallic Chemistry.

This book on a rapidly growing branch of organometallic chemistry is timely and welcome, despite the fact that it is the fourth monograph published within the past five years in which recent contributions by H. C. Brown and his associates occupy the central position. The three earlier books are: H. C. Brown, *Boranes in Organic Chemistry* (Cornell University Press, 1972); H. C. Brown with G. W. Kramer, A. B. Levy, and M. M. Midland, *Organic Syntheses via Boranes* (Wiley-Interscience, 1975); and G. M. L. Cragg, *Organoboranes in Organic Synthesis* (Dekker, 1973). The first is a lucid, semiautobiographical account, mainly describing Brown's own contributions and those of his associates, and the literature coverage is necessarily limited. The second book is a sequel to the first and emphasizes details of experimental procedures. The literature coverage in the book by Cragg is more extensive, but its focus is entirely on organic synthesis.

In contrast, the book under review is basically an encyclopedic reference book. The literature coverage, with approximately 2000 references, appears to be reasonably comprehensive through 1972. For example, of some 30 organoboron papers published in 1972 by H. C. Brown, all but a few are cited. Another useful feature is the inclusion of about 40 tables of various physical constants and of various types of organoboron compounds classified according to their structure.

As it is in most other reference books, the discussion of the subject matter is concise and, in general, lacking in depth. In some cases even results that were shown to be erroneous by later studies are presented as originally reported, together with the corrected ones. This tendency seems most pronounced in chapter 5.

An intentionally brief 20-page discussion of the chemistry of organopolyboranes in chapter 6 does not provide the reader with the overall picture. A more penetrating discussion would have served as a bridge between the coverage of organopolyboranes and that of organomonoboranes, two major branches of organoboron chemistry that have been almost totally isolated from each other. Several largely independent topics in chapter 7 might as well have been incorporated in earlier chapters. As it is, some of them might elude many readers.

The book may be recommended to those who are interested in a comprehensive source of literature in this field. It should prove particularly valuable when used in conjunction with the other recent monographs.

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Solution Chemistry

The Organic Chemistry of Electrolyte Solutions. JOHN E. GORDON. Wiley-Interscience, New York, 1975. xxii, 554 pp., illus. $27.50. Interscience Monographs on Organic Chemistry.

The book under review can best be described as an unusually comprehensive review of electrolyte solution chemistry with emphasis primarily, but not exclusively, on aspects pertinent to organic chemistry. The most striking characteristic of the book is its breadth. Virtually every aspect of solution chemistry receives sufficient coverage to introduce the reader to current views and to guide him to the original literature. There is no other single book that meets this need.

The book is divided into sections on salt effects, ion solvation, and ion association. Roughly the first half of each section deals with the general principles and extant theories in the area, and the second half of the section presents examples of the applications of these principles and theories to studies of organic reactions. The coverage in each section ranges over aqueous, dipolar aprotic, nonpolar, and molten salt solutions, and includes consideration of micelles and various ion-complexing agents such as the crown ethers. Mixed solvent systems are also discussed in each section, and proper attention is given to the importance of endostatic conditions. There is considerable emphasis throughout on water structure and hydrophobic interactions. The author appears to favor, perhaps unduly, the Frank and Wen model and the importance of ice I structure. Nearly every technique that has been applied to the study of solution properties is mentioned and referenced at the appropriate point.

The section on salt effects is particularly thorough in its treatment of the mutual interactions of salts and nonelectrolytes in solutions. The coverage beautifully updates the now quite old (1952) review of this subject by Long and McDevit.

I heartily recommend the book to researchers in solution chemistry. Its major utility will almost certainly be as a guide to the literature. There are over 1800 references, and the coverage is quite thorough through the middle of 1973. Tables are extensive enough to serve as data references in a few cases, but more frequently they are designed for illustrative purposes or as guides to the original literature. The presentation of material is largely neither critical nor selective. Throughout, the book tends to lapse into the style of annual reports of the Chemical Society, presenting what is essentially an annotated bibliography. Perhaps this is unavoidable in coverage of such breadth of fields in which firm conclusions are rare. Nevertheless, the general failure to distinguish between questionable and generally accepted theories or results diminishes the book's value as an introduction to the field.

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Infrared Spectroscopy

Metal Carbonyl Spectra. P. S. BRATERMAN. Academic Press, New York, 1975. x, 286 pp., illus. $22.25. Organometallic Chemistry.

Braterman's book is mainly about the infrared spectra of transition-metal carbonyl compounds. Although this may seem to be a rather narrow subject for an entire book, the references in the far from comprehensive list number 378. Interest in the infrared spectra of the metal carbonyls derives in part from their central place in inorganic and organometallic chemistry. In addition, the generally intense absorptions due to the carbonyl stretching modes furnish textbook examples of specific group frequencies. The relatively simple patterns of lines in

the 2000-cm^{-1} region may be elaborated upon by use of ^{13}CO or $C^{18}O$ labeling to produce a body of vibrational data from which one might hope to extract information about the metal-carbonyl bonding interaction. Because the carbonyl stretching modes are much higher in frequency than any other normal mode of metal carbonyl molecules, they may, with the aid of simplifying assumptions, be treated independently of the other normal modes. Braterman thoroughly describes the approximate normal-coordinate treatments and provides a balanced account of what the parameters derived from vibrational analyses have at one time or another been thought to signify.

In a later chapter, Braterman presents selected vibrational data for metal carbonyls. Although coverage of the literature is far from complete, the many tables are sure to be useful. The book should also be useful as a self-study text for anyone beginning to use infrared spectroscopy in organometallic research. It includes a long chapter on experimental methods and another on interpretation of spectra.

A single chapter covers other forms of spectroscopy of metal carbonyl compounds, including photoelectron, electronic, and ^{13}C nuclear magnetic resonance spectra. The chapter is too brief to be of much value as a critical discussion.

This is a well-written and useful book.

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