

Carbocation Chemistry, by P. Vogel. Elsevier Science Publishers, Amsterdam etc., 1985, xxiv + 596 pages. U.S. \$129.75; DM 350.00. ISBN 0-444-42522-5.

There have been several books on carbocations, but the subject is of such importance and interest that any new, reasonably accurate, and up-to-date account will be received with much interest. This particular volume has the great advantage of being written by a single author, who has considered the subject as a whole and then developed a systematic treatment of it. The approach and content are indicated by the chapter headings, which are as follows. Introduction (59 pages); the study of carbocations in the gas phase (24 pages); carbocations in solution (38 pages); investigation of long-lived carbocations in the condensed phase (37 pages); substituent effects on the stability of charged molecules (64 pages); solvation of cations and anions; carbocations as reactive intermediates (97 pages); carbocation rearrangements (49 pages); carbocations and organometallic complexes (69 pages); carbocations in organic synthesis (63 pages). The chapter on carbocations and organometallic complexes will be of particular interest to readers of this journal; the topics dealt with are: the theory of π -complexes; the theory of isolobal fragments; pyramidal carbocations; metallaalkyl cations; carbocation reactions as models for transition metal complex chemistry; transition metal complexes of allyl, dienyl, and trienyl cations; reactions of metallic ions in the gas phase; transition metals as remote substituents. The final chapter also has an interesting 19 page section on the use of organotransition metal cations in organic synthesis.

This account can be recommended both to those wishing to build up a thorough general background of knowledge of carbocation chemistry in its broadest sense and those seeking specific detailed items of information. (I was disappointed, however, to find that this book, like all the others I have consulted, fails to provide me with the guidance I am seeking on the relative abilities of various types of group to provide anchimeric assistance to carbocation formation by 1,2-bridging.) There are some minor defects, such as the definition of the Hammond postulate only in terms of a multistep reaction, ("the less stable the intermediates the more the transition state resembles them"); what emerges with special clarity from the context in which it is presented is how completely the postulate is simply a restatement of the Bell-Evans-Polanyi principle, which is described in some detail.

The book is very readable, and the English is good, with only small errors (e.g. the occasional use of silicium for silicon). The printing is by direct reproduction of typed pages, with all the disadvantages that involves, but in spite of this the book is very highly priced. An extremely unsatisfactory feature is that the footnotes are mixed up with literature citations in the lists of references at the end of the book, so that unless one looks up every reference number important footnotes are inevitably overlooked.

In the U.S.A. and Canada this book is available from Elsevier Science Publishers Co. Inc., P.O. Box 1663, Grand Central Station, New York, NY 10163.