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Book review

Carbanions: Mechanistic and Isotopic Aspects; by E. Bunce (Queen's University, Kingston, Ontario). Elsevier, Amsterdam, 1975. x + 270 pages, £12.80.

This book is the ninth of a well established series of monographs on reaction mechanisms in organic chemistry. Written with the advanced undergraduate as well as the graduate student very much in mind, it deals with several important aspects of carbanion chemistry. This is done from both mechanistic and structural points of view and in this way it complements very nicely some other available texts which tend to emphasise the more physical aspects.

The book consists of seven chapters, the first of which is devoted to a consideration of the kinetic and equilibrium acidities of carbon acids. Chapter 2 deals with the stereochemistry of carbanionic processes and the reader is given a very good account of how the use of hydrogen isotopes (particularly deuterium) has helped to unravel some difficult problems. The subject of tautomerism which is dealt with in Chapter 3 is not confined to a discussion on ketones but includes nitro compounds, nitriles and imines as well as amides and esters.

In Chapter 4 the author draws on the extensive work carried out on non-classical carbonium ions in order to discuss classical and nonclassical carbanions. Indeed this is one of the most noteworthy features of the book, the author has consistently drawn on information outside the field of carbanion chemistry in order that the properties and reactions of these species can be placed in perspective. Both Chapters 5 and 6 deal with molecular rearrangements with a few selected examples, such as the Favorskii reaction, considered in detail. The importance of orbital symmetry control is also brought out very clearly. The final chapter is concerned with the role of carbanions in reactions of organometallic compounds and serves to show that studies on the base-catalysed cleavage of carbon—metal bonds have provided valuable information concerning carbon—hydrogen bond cleavage.

The book contains more than 700 references to the original literature, some extending into 1973, as well as author and subject indexes. It will be essential reading for all those interested in the chemistry of carbanions and it is to be hoped that students will not be put off buying a copy by the rather high price.

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