

*The Ionization of Carbon Acids*, by J.R. Jones, Academic Press, London, 1973, VII + 236 pp. £4.80 (\$13.50)

All organic compounds containing carbon—hydrogen bonds are, in principle, carbon acids. Experience in the practice of organic chemistry shows, however, that under normal conditions the commonly encountered C—H bonds appear to be inert. This apparent paradox becomes rectified when one's horizon is expanded to cover somewhat uncommon compounds, or by using unusual (though nowadays readily available) techniques. Under these circumstances the opening statement does assume proper veracity. Clearly a scientific answer to this dilemma should be available through investigation of the ionization of carbon acids. This is the task which Dr. J.R. Jones has set for himself, and in which he has succeeded remarkably well.

In a brief introductory chapter the author sets the stage by pointing to the rapid development in this subject during the last decade or so. Of the 650 references contained in this book, 500 have appeared since 1960, and 450 of those since 1965. The rates of ionization of carbon acids are treated in Chapters 2 and 3, the former being concerned with methods and the latter with results. This pattern, methods and results, is repeated in the next two chapters which are concerned with acidities of carbon acids. Through this presentation the reader gains insight into experimental techniques, as well as the physical basis of the methods, which then allows proper appreciation of the results of such investigations. The types of carbon acids considered include hydrocarbons, cyano and nitro compounds, ketones, sulphones, heterocyclic compounds, and others. Highly basic media are discussed next. This is a topic of practical significance to most chemists, particularly in the advantages which can be derived from use of dipolar aprotic solvents such as dimethyl sulphoxide. The subject of ion association has tended to be neglected by many kineticists. In a chapter bearing this title Dr. Jones has performed a service in showing, first that this phenomenon is to be reckoned with, and second that quantitative data are already available (e.g. for metal alkoxide—alcohol solutions) making such systems amenable to quantitative treatment. Rate-equilibrium correlations (Bronsted relationship etc.) are covered next and the reader is given a balanced account of a subject which is in considerable flux at this time. Kinetic hydrogen isotope effects and solvent isotope effects are treated in two readable chapters which comprise a quarter of the text. The book concludes with a short but very useful chapter on the labelling of diverse molecules.

In summary, Dr. J.R. Jones has provided a highly readable and authoritative account of this important field, which will be of value to most chemists. Technical production is maintained at a commendably high standard and at a price of £4.80 (\$13.50) the book will find itself on the bookshelves of individual chemists as well as in libraries.

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