

Book reviews

Schrader, B.: Raman/infrared atlas of organic compounds, 2nd edn. VCH, Weinheim Basel Cambridge New York 1989, DM 680.00

This book presents a collection of Raman and IR spectra in the same (wave number) scale of 1044 organic molecules of all kind, including some metalorganic compounds and a few anorganic molecules like H₂O or CO₂, with a documentation by various indexes. The main advantage of this book as compared to other compilations is the combination of the two spectra, which give complementary informations on the considered molecules. A theoretician will mostly be interested in the vibration frequencies and a rough classification of their intensities, as they are explicitly listed on each spectrum, but these can't give the flavour of the real spectra. Schrader's compilation is recommended to anyone who is interested in vibrational spectra and who does not mind the rather high price which is, however, justified by the size of the book (~1130 pages letter size) and the quality of the reproductions.

W. Kutzelnigg, Bochum

Modern models of bonding and delocalization. Eds: J. F. Liebman, A. Greenberg. VCH, Weinheim Basel Cambridge New York 1988. XIV, 462 pp., 195.00 DM, £66.00 (ISBN 3-527-26957-6/0-89573-714-0)

This new volume of the series "Molecular Structure and Energetics" contains reports by 9 specialists in several fields of theoretical organic chemistry—predominantly ring systems and excited states, emphasizing either quantum chemistry, physical chemistry or synthetic chemistry.

The first three chapters are purely theoretical. The broadest one is by Dewar (chapter 1) who interprets an impressive diversity of organic and metal-organic chemistry. He notes that "the inability to interpret phenomena in terms of the MO model nearly always reflects failure on the part of the interpreter rather than on the part of the model itself". His conceptual lucidity will hopefully enlighten the chemical community so that this situation may be overcome in the future. Paddon-Row and Jordan discuss Through-Space and Through-Bond orbital interactions with the help of the qualitative concepts of Theoretical Organic Chemistry in chapter 3. In chapter 2, the bonding in three-membered rings is discussed by Slee from the viewpoint of the density-gradient doctrine. The useful traditional concepts of atoms and bonds in molecules, as derived during the long history of chemical experience by the chemists, are not very sharply defined. Here, sharply defined but different concepts of atoms and bonds are introduced which may form an additional fruitful facet of chemical reasoning.

The concepts mentioned above are used to differing extents in the remaining six reviews on special topics. The photochemistry of excited Rydberg states of a few small molecules is discussed by Evleth and Kassab in chapter 8, and Rettig treats bond twisting of excited π -systems (chapter 5). More chemically oriented are the articles on special compounds such as the atranes (chapter 4 by Wu, Lu and Wu), or on small or exotic C-O-N derivatives such as dioxymethylen, ketene, diazirine, dioxirane etc. (chapter 6 by Kafafi, Martinez, Herron; chapter 7 by Murray; chapter 9 by Berson, Birney, Dailey, Liebman).

So this volume contains articles of interest and value for rather different experts. Consequently the volume may be recommended for the departmental library.

W. H. E. Schwarz, Siegen