

Book review

Determination of Organic Structures by Physical Methods, Vol. 5; edited by F.C. Nachod and J.J. Zuckerman, Academic Press, Inc., New York, 1973, xv + 367 pages, \$26.00

While the title of this series implies that it deals with organic systems, it has always contained many organometallic examples. Commendably, the editors have continued to broaden the scope of the series to reflect the increasing interest in and importance of metal and metalloid containing molecules. Volume 5 contains a series of reviews on methodology, several of which cover relatively new topics. All of the chapters are written by authors who have contributed significantly to their subject areas.

Chapter 1 on Electron Diffraction by J. Karle is particularly notable for its section on how to read an ED paper. It contains only a few references to organometallic molecules. Chapter 2 by J.W. Faller on Spin Saturation Labeling (a new name for a particular facet of the Nuclear Overhauser Effect) illustrates the utility of the technique in studying reaction mechanisms. Chapter 3 by R.G. Lawler and H.R. Ward on Dynamic Nuclear Polarization is an excellent theoretical and experimental survey of organic systems. Organometallic applications are not mentioned but certainly exist. Chapter 4 on ion-cyclotron resonance spectroscopy by J.I. Brauman and L.K. Blair covers a new field which has expanded so rapidly in the last few years that many of the examples they have chosen are already not the most illustrative. Organometallic applications of ICR are just beginning to appear in the literature now. Chapter 5 on NQR spectroscopy by M.G. Voronkov and V.P. Feshin deals with organic, organometallic and even some purely inorganic compounds. It is particularly comprehensive of the Russian literature. The main review ends for the most part with the 1969 literature, but the authors laudably provided the only Appendix in the book to carry the review into the 1972 literature in Russia and the 1971 literature in other countries. Chapter 6 on Mössbauer Spectroscopy by N.W.G. Debye and J.J. Zuckerman is a review of iron and tin organometallic data. The final chapter by S.I. Sasaki on Automated Chemical Structure Analysis Systems reviews several papers on the interesting but complex topic of computer synthesis of molecular structures from spectral data.

This volume (and the series in general) is an excellent source of readable reviews and is thoroughly useful to organic, organometallic and inorganic chemists.

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