

Book review

Dynamic Nuclear Magnetic Resonance Spectroscopy, edited by L.M. Jackman and F.A. Cotton, Academic Press, Inc., New York, 1975, xiv + 660 pages, \$48.00.

The study of molecular processes which are rapid on the nuclear magnetic resonance timescale has had a profound effect on the development of contemporary inorganic, organic, and organometallic chemistry. The goal of this volume is to provide in the words of the editors "a comprehensive progress report" on developments in dynamic NMR. To this end the editors have assembled an outstanding series of chapters by noted authorities, and despite the seemingly diverse and widespread nature of the topics covered, the result is a coherent, close-knit, and highly informative treatise. It is also a treatise that has been sorely needed.

An appreciation of the scope of this report and the stature of the contributors follows immediately from a description of the contents: "Time-Dependent Magnetic Perturbations" (H.S. Gutowsky); "Delineation of Nuclear Exchange Processes" (W.G. Klemperer); "Band-Shape Analysis" (G. Binsch); "Application of Nonselective Pulsed NMR Experiments - Diffusion and Chemical Exchange" (L.W. Reeves); "Determination of Spin-Spin Relaxation Times in High-Resolution NMR" (R. Freeman and H.D.W. Hill); "Rotation about Single Bonds in Organic Molecules" (S. Sternhell); "Rotation about Partial Double Bonds in Organic Molecules" (L.M. Jackman); "Dynamic Molecular Processes in Inorganic and Organometallic Compounds" (J.P. Jesson and E.L. Muetterties); "Stereochemically Nonrigid Metal Chelate Complexes" (R.H. Holm); "Stereochemical Nonrigidity in Organometallic Compounds" (F.A. Cotton); "Fluxional Allyl Complexes" (K. Vrieze); "Stereochemical Nonrigidity in Metal Carbonyl Compounds" (R.D. Adams and F.A. Cotton); "Dynamic NMR Studies of Carbonium Ion Rearrangements" (L.A. Telkowski and M. Saunders); "Conformational Processes in Rings" (F.A.L. Anet and R. Anet); "Proton Transfer Processes" (E. Grunwald and E.K. Ralph). The coverage ranges from the mathematical and theoretical to the practical and experimental. The text is relatively free of typographical errors, and the index is of sufficient detail to be useful.

Thus, the editors and contributors have succeeded admirably in producing a work which will appeal to a very wide spectrum of scientists, and which will no doubt be the standard reference work on dynamic nuclear magnetic resonance spectroscopy for a number of years.