

After an introduction by K. Burger on the state-of-the-art, four chapters are devoted to metal complexes of aminoacids (T. Kiss), of peptides and their derivatives (I. Sòvågò), of carbohydrates and sugar-type ligands (K. Burger and L. Nagy) (an unprecedented review to my knowledge) and of nucleic acid bases, nucleosides and nucleotides (H. Lonnberg). Two more chapters are concerned with the acid-base properties of bioligands (B. Noszàl) and the thermodynamic and kinetic aspects of four metalloproteins (carboxypeptidase A, carbonic anhydrase, Cu,Zn-superoxide dismutase and transferrin) (J. Horose and Y. Kidani). Although the chapters are mainly concerned with coordination and protonation equilibria in solution, the structures of the various species are discussed with frequent references to the structures in the solid state. The book appears therefore useful not only to the chemist interested in solution equilibria but also to the structural chemist interested in the structure of metal complexes with bioligands.

The bibliography is exhaustive (for the first time journals from East countries and from India are covered) and updated (many references to papers in press or to be published).

One final word of blame for the proof-reader who left several misprints throughout the text. In conclusion the book can be recommended to undergraduates, postgraduates and researchers in inorganic chemistry and molecular biology and it appears indispensable to the ever growing number of coordination chemists who are addressing their interest to bioligands.

P. Orioli
Università di Firenze
Italy

Chemical Kinetics: The Study of Reaction Rates in Solution

By Kenneth A. Connors, published by VCH, Weinheim/New York/Basel/Cambridge, 1990, XIII, 480 pp., 96 figs., 54 tables, DM168. —, £61. —.

The book gives an excellent presentation of the study of reaction rates in solution and helps students to understand the details of the mechanisms of reactions in solution phase.

This is a textbook, not a research monograph, and is probably best suited for a one-semester graduate and advanced undergraduate level course, but it could also be used for self-studies and for reference.

The book consists of eight chapters: after an introductory chapter, phenomenological kinetics is treated in three subsequent chapters. The theory of chemical kinetics, in the form most applicable to

solution studies, is described in chapter five and is used in subsequent chapters.

The book contains considerable material on treatments of mechanistic interpretations of the transition state theory, structure-reactivity relationships, and solvent effects, which is not found in competing books.

A number of proposed problems have been added at the end of each chapter and answers to selected problems are presented in an appendix.

Our impression is that this book will appeal to students because each chapter is a well-written, cohesive unit in which basic principles are clearly discussed and terminology is well defined.

This book will prove most useful to chemistry scientists with interests in all fields concerned with the rates of chemical reactions in solution.

Mirto Mozzon
Centro di Chimica Metallorganica del CNR
Istituto di Chimica Industriale
Università di Padova
Padua
Italy

Metal-Metal Bonds and Clusters in Chemistry and Catalysis

Edited by John P. Fackler Jr., published by Plenum, New York, 1990, 341 pp., US\$75. —.

This is an interesting book which should find its place in most chemical libraries. The book contains 21 contributions presented at the 7th Industry-University Cooperative Chemistry Program Symposium held in 1989 at Texas University. The papers are grouped in four sections dealing with multiple metal-metal bonds, metal clusters in catalysis and materials, and with bonding and spectroscopic aspects. The first section is mainly devoted to the developments which followed the discovery of metal-metal triple and quadruple bonds. In Albert Cotton's introductory paper on this topic, the rate of growth of this area is shown to follow an exponential law, as more metals are found to be able to form multiple bonds. In this section the subject is covered under all angles by various authors from the synthetic to the theoretical point of view.

The cluster sections are also well developed covering various aspects of the chemistry in solution, thermochemistry, homogeneous and heterogeneous catalysis, surface chemistry and semiconductors. Solid state organometallic chemistry is also beginning to take its place in such a multiform area with the novel aspects of clusterification in zeolites, metals clusters and metal-metal bonded arrays in condensed phases, accompanied by the use of magic-angle

spinning NMR spectroscopy for the investigation of metal carbonyl dynamic behaviour in the solid state. Theoretical aspects of the electronic structure of metal dimers and clusters, as well as the use of photoelectron spectroscopy for the investigation of the energies and bonding in systems containing multiple bonds, and the luminescent properties of the late-transition and post-transition metal complexes are discussed in the last section of the book.

The general impression is that of a book capable of providing a broad overview of the state-of-the-art on an apparent disparate area. In my opinion this book should be valuable both to the general readership and to the world of 'cogniscendi' providing the latter with a good indication of what-is-going-on and the former with a rapid, though not superficial,

scan of this field of research. As happens often with books derived from Conference proceedings, the content and style of presentation of the various papers is not exceedingly homogeneous. Each paper, however, seems to provide adequate coverage of the literature on the specific subject under discussion. The abstracts collected in the last section are not very useful and might have been omitted without much loss. In conclusion, I believe this is a highly readable book, reasonably priced, which should find its place on the bookshelf of most preparative and structural organometallic chemists.

Dario Braga
Dipartimento di Chimica 'G. Ciamician'
University of Bologna
via F. Selmi 2
40126 Bologna
Italy