there appear very few mentions of potentials elsewhere (it is not an index item save for the Introduction)—e.g. what about the relative oxidizing strengths of the oxides of nitrogen (or phosphorus)—under acidic and basic conditions? NMR and photoelectron spectroscopy are briefly mentioned but not dealt with in any detail throughout the volume. Thermodynamic data appear from time to time—but not in great depth.

If a descriptive undergraduate main group text is the aim of this book, then it succeeds very well. As a text for the serious researcher, it falls short of what it might have been!

PII: S0010-8545(02)00004-8

Chemical bonding and molecular geometry

Edited by Ronald J. Gillespie and Paul L.A. Popelier, Oxford University Press, Oxford, UK, 2001. ISBN 0-19-510496-X; US$63.50, soft cover

Ronald Gillespie is a well established inorganic chemist best known to undergraduates through the introduction of VSEPR theory permitting the easy prediction of the geometries of a very large number of inorganic species. More recently he has explored the ligand close packing model (LCP) to elucidate problems in geometry. Teamed up with Paul Popelier, author of "Atoms in Molecules" these specialists have written an authoritative volume to provide students with a comprehensive and detailed introduction to the principal models and theories of chemical bonding and geometry. This book is a 'must read' for any serious researcher interested in the shapes of molecules and the forces, which hold them together. Written in an easy style, the first few chapters dealing with bonding, fundamental aspects of quantum mechanics and VSEPR will be readily recognised and understood by senior undergraduates. This is followed in Chapter 5 by a discussion of the role of ligand–ligand repulsion in the LCP model. Chapter 6 deals with electron density and the Atoms in Molecules (AIM) theory and moves us to a somewhat higher level leading to the Laplacian of the Electron Density (Chapter 7). This is a very useful function, which reveals where the electron density is locally concentrated or depleted. The utility of the Laplacian is explained in a readable style in this chapter.

The final two chapters contain a large number of molecules for discussion using the previously introduced theories. Chapters have further reading references.

PII: S0010-8545(02)00005-X

Homogenous catalysis—mechanisms and industrial applications

Edited by Sumit Bhaduri and Doble Mukesh, Wiley-Interscience, New York, 2000, 239 pp. ISBN 0-471-37221-8; US$79.95, hard bound

This book grew out of a graduate level lecture course given by one of the authors at Northwestern University. It is pedagogical and selective rather than comprehensive. An objective was to draw a link between fundamental research and its successful commercial application. It is unusual for a chemistry book, to have a section devoted to the engineering aspects of the utilization of industrial catalysis. There are nine chapters dealing, inter alia, with chemical engineering fundamentals, carbonylation, hydroformylation, polymerization, alkene-based catalysis, oxidation and asymmetric catalysis. Useful from the course viewpoint is the presence of a set of questions/problems at the end of each chapter, some with answers provided, plus citations for further reading.

PII: S0010-8545(02)00006-1

Manganese and its role in biological processes, vol. 37 in the series metal ions in biological systems

Edited by Astrid and Helmut Sigel, Marcel Dekker, New York, 2000, 761 pp. ISBN 0-8247-0288-3; US$250.00, Hard Bound

Probing of proteins by metal ions and their low-molecular-weight complexes, vol. 38 in the series metal ions in biological systems

Edited by Astrid and Helmut Sigel, Marcel Dekker, New York, 2000, 690 pp. ISBN 0-8247-0289-1; US$250.00, Hard Bound

These volumes continue the excellent series edited by the Sigels, begun in 1973, required reading for researchers in the bioinorganic and biomedical fields and valuable editions to their bookshelves. Both follow the usual pattern of bringing together world experts to write authoritative chapters.

Volume 37 focuses on manganese with 20 chapters covering such diverse areas as the uptake of Mn in microorganisms and plants, the role played by manganese in carbohydrate recognition in plants, a survey of the proteins which contain Mn, reports on manganese isomerases, dioxygenases, catalases, peroxidases and, of course, superoxide dismutases. Its role in photosynthesis is also, obviously, covered in some depth. In reading through the book, it is evident that physical methods, especially X-ray methods and electron paramagnetic resonance techniques have been extremely important recently in elucidating the role that manganese plays.

Volume 38 has three main sections in 15 chapters. The breakdown of proteins via amide hydrolysis is very difficult due to the inherent stability of the amide

bonds—the early part of this volume surveys a range of artificial peptidases involving many different metal ions. The selective cleavage of protein backbones by certain metal ions, e.g. Fe, Co, Ni, Cu, is covered in the following section of the book. These studies involve 'footprinting' and 'cross-linking' reactions to map large regions of the protein. For example, protection against cleavage by various reagents is used to map surfaces of the protein that become less accessible to solvent through the protein interaction with the macromolecular partner. In the last chapters, synthetic proteins that mimic biological functions are discussed.

PII: S0010-8545(02)00007-3

Computational organometallic chemistry

Edited by Thomas R. Cundari, Marcel Dekker, New York, 2001, 428 pp. ISBN 0-8247-0478-9; US$185.00, Hard bound

This is a multi-author volume intended to cover a wide range of topics in computational and organometallic chemistry. In 15 chapters, plus the Preface, it covers many topics including force fields, molecular mechanics, steric effects, biological and medical topics, organic synthesis, classical organometallic chemistry as well as actinide chemistry etc. It is written at a senior undergraduate/graduate level and is intended to aid and encourage those who would like to employ computational methods for their applications.

'The Editors Desk'

PII: S0010-8545(02)00008-5