Additions and Corrections

Alkane Functionalization at Nonheme Iron Centers. Stoichiometric Transfer of Metal-Bound Ligands to Alkane [*J. Am. Chem. Soc.* **1993**, *115*, 11328–11335]. TAKAHIKO KOJIMA, RANDOLPH A. LEISING, SHIPING YAN, AND LAWRENCE QUE, JR.*

Page 11329: The complex [$FeBr_2$(NTB*)]Br should be labeled **4** and the complex [$FeCl_2$(NTB*)]Cl should be labeled **5**.

Book Reviews *

Perspectives on Bioinorganic Chemistry. Volume 2. Edited by Robert W. Hay (University of St. Andrews), Jon R. Dilworth (University of Essex), and Kevin B. Nolan (Royal College of Surgeons in Ireland). JAI Press: Greenwich, CT. 1993. xii + 292 pp. $90.25. ISBN 1-55938-272-4.

After a list of contributors, an introduction to the series, a forward by the editors, a dedication to Michael Green, and the preface by Hay, thereare six chapters with the following headings: Dynamics of Iron(II) and Cobalt(II) Dioxygen Carriers by P. Richard Warburton and Daryle H. Busch; Homodinuclear Metallobiosites by David E. Fenton and Hisashi Okawa; Transferrin Complexes with Non-Physiological and Toxic Metals by David M. Taylor; Transferrins from a Structural Perspective by Edward N. Baker; Galactose Oxidase by Peter F. Knowles and Nobutoshi Ito; and Chemistry of Aqua Ions of Biological Importance by David T. Richens. There is not a subject index.

Bioanalytical Instrumentation: Methods of Biochemical Analysis. Volume 37. Edited by Clarence H. Suelter (Michigan State University). John Wiley and Sons: New York. 1994. xvi + 325 pp. $95.00. ISBN 0-471-58260-3.

This volume focuses on the application of special instrumental techniques to problems in biology. After a preface by the editor and a list of abbreviations, there are five chapters with the following headings: X-ray Crystallography of Proteins by J. P. Glusker; Transmission ElectronMicroscopy and Scanning Probe Microscopy by Karen L. Klomparens and John W. Heckman, Jr.; Quantitative Fluorescence Imaging Techniques for the Study of Organization and Signaling Mechanisms in Cells by Margaret H. Wade, Adriaan W. de Feijter, Melinda K. Frame, and Melvin Schindler; Automated Enzymes Assays by John A. Lott and Daniel A. Nealon; and Rapid-Scanning Stopped-Flow Spectroscopy by Peter S. Brzovic and Michael F. Dunn. There are author and subject indexes and cumulative author and subject indexes for Volumes 1–37 and the supplemental volume.

Annual Review of Physical Chemistry. Volume 44. Edited by Herbert L. Strauss (University of California), Gerald T. Babcock (Michigan State University), and Stephen R. Leone (University of Colorado). Annual Reviews: Palo Alto, CA. 1993. xii + 530 pp. $48.00. ISBN 0-8243-1044-6.

This is a volume of the continuing series published by Annual Reviews Inc., a nonprofit scientific publisher established to promote the advancement of sciences. The volumes are organized by Editors and Editorial Committees who invite qualified authors to contribute critical articles. After a preface by the editorial board, there are 17 chapters with the following headings: Almost 50 Years of Physical Chemistry at the University of Texas by N. Hackerman and A. Campion; Scattering-State Spectroscopy as a Probe of Molecular Dynamics by P. D. Kleiber, W. C. Stwalley, and K. M. Sando; Aspects of Structure and Energy Transport in Artificial Molecular Assemblies by Paul W. Bohn; Theory of the Equation of State at High Pressure by Marvin Ross and David A. Young; Pressure Stability of Proteins by Jerson L. Silva and GreogorioWeber; Anderson Localization and the Exceptions by Philip Phillips; The Adiabatic Theory of Heavy-Light-Heavy Chemical Reactions by Rex T. Skodje; Ordering in Metal Halide Melts by Mario P. Tosi, David Long Price, and Marie-Louise Saboungi; Local Treatment of Electron Correlation by Svein Saebo and Peter Pulay; Scanning Tunneling Microscopy Studies of Low-Dimensional Materials: Charge Density Wave Pinning and Melting in Two Dimensions by Hongjie Dai and Charles M. Lieber; Reaction of Small Molecules at Well-Characterized Iron Surfaces by Steven L. Bernasek; High-Resolution Spectroscopy of Solid Hydrogen by Takeshi Oka; Computer Simulation of Hydrogen-Bonding Liquids by Branka M. Ladanyi and Munir S. Skaf; Hydration Forces by S. Leikin, V. A. Parsegian, D. C. Rau, and R. P. Rand; Vibrationally Mediated Photodissociation: Exploring Excited-State Surfaces and Controlling Decomposition Pathways by F. F. Crim; Shock Tube Techniques in Chemical Kinetics by J. V. Michael and K. P. Lim; and In-Situ Electrochemical Surface Science by Michael J. Weaver and Xiaoping Gao. There are also author and subject indexes and cumulative author and cumulative chapter title indexes for Volumes 40–44.

Application of Graph Theory and Topology in Inorganic Cluster and Coordination Chemistry. By R. B. King. CRC Press: Boca Raton, FL. 1993. 230 pp. $69.95. ISBN 0-8493-4298-8.

Professor King is responsible for many applications of topology and graph theory in inorganic chemistry. The present book is a comprehensive review of such applications due to him and to other authors.

The first two chapters are entitled Topology, graph theory, and polyhedra and Symmetry and group theory. They provide the mathematical background expressed in simple language with many illustrations.

Chapter 3 describes briefly the atomic orbitals involved in coordination polyhedra with four to nine ligands, explaining why 8-vertex polyhedra of relatively high symmetry, namely the cube, the hexagonal bipyramid, and the D_{3h} 3,3-bicapped trigonal prism, are spd-forbidden coordination polyhedra.

Chapters 4 and 5 provide a unified treatment of planar hydrocarbons, boranes, and carboranes using graph theory and Hückel theory. In planar hydrocarbons delocalization in the plane of the molecule leads to the aromaticity that is familiar to organic chemists, whereas in boranes and carboranes delocalization in three dimensions in the deltahedra leads to a similar stabilization (3D-aromaticity). This applies to the icosahedral carboranes as well as octahedral $B_6H_6^{2-}$. Thus in simple terms the HMO picture of the molecular orbitals in benzene corresponds to the graph spectrum of a hexagon while the orbitals in polyhedral systems are described by the spectrum of the complete graph with as many vertices as atoms of the deltahedron. Related treatments apply to *nido* or *arachno* electron-richer compounds which contain more than the $2n + 2$ skeletal electrons necessary for globally delocalized n-vertex deltahedra without vertices of degree 3.

Chapters 6–11 continue the aforementioned approach by reviewing systematically the structure and bonding in other classes of inorganic compounds, namely molecular and ionic metal clusters as well as some metal oxide structures. Thus Chapter 6 shows octahedral $Rh_6(CO)_{16}$ as an analogue of benzene. In a similar way biphenyl analogues can be constructed by joining $Rh_6(CO)_{16}$ octahedra through a Rh–Rh bond, yielding $Rh_{12}(CO)_{30}^{2-}$, or naphthalene analogues by fusing two such octahedra either on an edge, yielding $Rh_{10}C_2(CO)_{24}^{2-}$, or on a face, giving $Rh_9(CO)_{19}^{3-}$. The last type of fusion can be extended to an anthracene analogue by fusing two octahedra on opposite faces of a third octahedron.

Chapter 7 refers to early transition metal clusters, Chapter 8 to post-transition metal clusters, and Chapter 9 to infinite solid state structures with metal–metal interactions. In Chapter 9 the analogy with condensed polycyclic aromatics is extended to ternary molybdenum sulfides formed by fusion of molybdenum octahedra; such ternary chalcogenides of molybdenum, called Chevrel phases, have superconducting properties. Chapter 10 deals with metal oxides with metal–metal interactions and

*Unsigned book reviews are by the Book Review Editor.