

Additions and Corrections

Tunneling in Elimination Reactions. Structural Effects on the Secondary β -Tritium Isotope Effect [*J. Am. Chem. Soc.* 1994, 116, 6107–6110]. SUE LIN AND WILLIAM H. SAUNDERS, JR.*

Page 6110: The absorbances of products and reactants in Table 4 are interchanged. Table 4 should read:

Table 4. Molar Absorbances of Products and Reactants

compd	λ , nm	$\epsilon \times 10^{-4}$
4 ^b	249.9 ^a	1.73
5 ^b	248.0 ^a	1.62
6 ^b	298.4 ^a	1.52
1	249.9	0.032
2	248.0	0.014
3	299.0	<0.01

^a Position of maximum absorbance. ^b Olefins from 1, 2, and 3, respectively.

The correct values were used in the calculations so this error did not affect the results given in the paper.

Book Reviews *

Bioinorganic Catalysis. Edited by Jan Reedijk (Leiden). Marcel Dekker: New York, 1993. xiii + 496 pp. \$195.00. ISBN 0-8247-9004-9.

Except for the broadly oriented introductory chapters, this book consists of in-depth research treatises written by an impressive collection of experts in their fields. The coverage does not include all types of bioinorganic catalysts but is dominated by a fairly broad spectrum of those involved in electron transfer processes. Not too many years ago "Bio" in the title of this excellent volume would have figuratively been written in lowercase subscripts as far as emphasis was concerned. Early bioinorganic chemists were primarily concerned with measuring the interactions between metal ions and ligands that had something to do with biology, e.g. amino acids. The results of these initial studies gave birth to uninhibited speculation as to how metal ions behave in biological media. Then came the spectroscopists. Extraordinarily detailed analyses of exotic spectra bored all but the most avid practitioners of the art. Uninhibited speculation as to how metal ions behave in biological media flowed forth. The present volume, which focuses on the catalytic aspects of a number of biologically important metal ions, well demonstrates how the field has matured and changed to the point where "Bio" and "Inorganic" almost deserve equal billing on the title page. Biological function is increasingly recognized as something worthy of consideration. In this book there still remain vestiges of a gap between the two fields. To some extent, certain of the authors' vantage points are more suited to a bioinorganic conference than to one, say, on enzyme mechanisms, but there are a number of exceptions.

The three introductory chapters are entitled Introduction to Bioinorganic Chemistry (Jan Reedijk), Introduction to Homogeneous Catalysis (Roger A. Sheldon), and Relationship Between Enzymatic and Heterogeneous Catalysis (Edward A. Stiefel). These chapters cover a total of 27 pages in all and only partially succeed in satisfying the editor's goal of providing a bridge between biology and the broader aspects of catalysis in inorganic chemistry. Although, the authors present interesting insight, these are the weakest chapters in the book owing to the unresolvable tension between the scope of the material to be covered and constraints imposed by brevity. However, the concept is sound and deserves further development in the future.

Chapter 4, by E. Tsuchida and K. Yamamoto, dealing with oxidative polymerization of phenols and thiophenols by metal ion complexes, is written in the older bio style. About 10% of the chapter is devoted to enzymic reactions with the remainder concentrating on the "model" reactions studied by the authors. Chapters 5 (D. J. Evans, R. A. Henderson, and B. E. Smith) and 6 (R. S. Pilato and E. I. Stiefel) present a natural and up-to-date pairing of nitrogenase and molybdenum-cofactor chemistry. These are followed by an interesting chapter written by R. Cammack on five classes of nickel enzymes: one class comprises the

more familiar plant urease enzymes while the other four classes are involved in bacterial electron transfer processes. Another chapter presenting a current survey of the two vitamin B-12 cofactors has been written by L. G. Marzilli.

A grouping of four chapters focuses on reactions involving metal ions and oxygen in its various oxidation states in biological systems: K. D. Karlin, Z. Tyeklar, and A. D. Zuberbühler have combined forces to produce a lengthy (55 pages) section dealing with the formation, structure, and reactivity of copper dioxygen complexes; G. D. Dismukes reviews the chemistry of the oxidation states of Mn and then describes the pertinence of this chemistry to polynuclear manganese enzymes, including those active in photosynthesis; a chapter by L. Que on oxygen activation at non-heme iron centers followed by one on oxygen activation at heme centers (D. Mansuy and P. Battioni) provide thorough coverage of these areas. Novel enzyme systems exhibiting very interesting chemistry are described in the next two chapters. A. Butler writes on vanadium bromoperoxidase, found in marine algae and a terrestrial lichen. This enzyme catalyzes the oxidation of bromide and iodide by hydrogen peroxide, leading to a variety of products including halogenated organic substrates. J. A. Duine and J. A. Jongejan describe redox metalloenzymes that occur in certain archeobacteria and methylotrophs and that are unusual in that they require a quinone cofactor for activity. The book concludes with a chapter in which the editor speculates on future developments in the title area. All in all, this text is an excellent source for becoming informed about a considerable amount of fascinating chemistry and biochemistry involving metal ions. All sections are reasonably up-to-date, with references into 1991 being cited throughout.

An amusing peculiarity of the book requires comment. The authors consistently use the word "hydron" where "hydrogen ion" is appropriate. It seems this is another example of some committee or the other dictating the replacement of a familiar and perfectly good scientific usage with one that is strange and arcane.

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Time-of-Flight Mass Spectrometry and Its Applications. Edited by E. W. Schlag (Universität München). Elsevier: Amsterdam, The Netherlands, 1994. x + 414 pp. \$122.75. ISBN 0-444-81887-8.

This book was previously published in 1994 as a special issue of the *International Journal of Mass Spectrometry and Ion Processes*, Volume 131, and is being published in book form to provide a survey of current applications from many of the active groups in the field. After a foreword by the editor, there are 21 chapters with the following headings: Laser Assisted Reflectron Time-of-Flight Mass Spectrometry by B. A. Mamyrin; How to Specify the Ion Optical System of a Time-of-Flight Mass Spectrometer by T. Bergmann and T. P. Martin; The Application of Ion

*Unsigned book reviews are by the Book Review Editor.