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## Book reviews

*Molybdenum Enzymes, Cofactors, and Model Systems*  
E.I. Stiefel, D. Coucouvanis and W.E. Newton (Eds.),  
ACS Symposium Series 535, American Chemical Society,  
Washington, DC, 1993, pp. 387 + xi, \$94.95 ISBN  
0-8412-2708-X

Molybdenum is the only element from either the second and/or the third transition series to be a normal constituent of biological systems. Its importance in nitrogen fixation has been recognised for over 60 years, and in other enzymes in the nitrogen, carbon, and sulfur cycles for rather less. Nitrogenase is perhaps the odd enzyme out in terms of its complexity and because the molybdenum is bound in a cofactor (FeMoco) which is different from that (Moco) apparently common to all other molybdenum enzymes. This book is a timely and informed set of reviews of our understanding of the function of molybdenum in biological systems.

The book opens with a survey of the occurrence and function of molybdenum enzymes by one of the foremost researchers in molybdoenzymes, E.I. Stiefel, followed by discussions of the various molybdenum-cofactor enzymes, all by acknowledged experts in the various topics. The second section is devoted to nitrogenase and nitrogenase models. It is salutary that not withstanding the thirty years which have passed since cell-free extracts of nitrogenase have become available, and despite the enormous amount of work in the genetics, biochemistry, and chemistry of nitrogen fixation, culminating in some hard structural data, we still do not know how it works. What has been achieved are tremendous advances in techniques, in structural chemistry, the application of NMR and EPR spectroscopy, genetics, and coordination chemistry to specify just a few of the areas, which have implications for many aspects of science. This book is a challenge to those who insist on financially quantifiable proceeds for every piece of research. I would recommend it to anyone wishing to learn of the breadth, possibilities, and achievements of bioinorganic chemistry. The reviews are authoritative, and from most of the world

leaders in their various areas. It should be of value to researchers and students alike.

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*Catalysis of Organic Reactions*  
John R. Kosak and Thomas A. Johnson (eds.), Chemical Industries Series 53, Marcel Dekker, New York, 1993, pp. 581 + xv, USD185  
ISBN 0-8247-9140-1

The chapters of this book contain the papers presented at the 14th Conference on "Catalysis of Organic Reactions" which was held at Albuquerque in April, 1992. The 47 contributions cover a wide range of topics, including asymmetric hydrogenation and novel hydrogenation catalysts particularly designed to facilitate the reduction of specific functional groups. There are chapters on catalytic oxidation and on the production of important industrial intermediates such as phenols, monomers and various polymers and pharmaceuticals.

These short chapters provide a useful snapshot of the widespread importance of catalysis particularly in an industrial environment. Indeed many of the chapters are written by chemists working in industrial laboratories, and reveal the extensive development work that is often required not only to optimize a process but to make the catalytic system reliable and reproducible. They also provide useful examples of a facet of catalysis that is rarely appreciated by students. Other chapters describe the importance of an understanding of the role of surfaces in catalysis and the variations and improvements that can be achieved by using different supports.

If there were to be a criticism of the book, it would be that its value would be enhanced by an introductory chapter devoted to an overview of the current state of