

Book reviews

Inorganic Reaction Mechanism, Vol. 5. Senior Reporter, A. McAuley, The Chemical Society, Burlington House, London, W1V 0BN, 1977, price £29.00.

This volume follows the same approach, coverage and format in recording the different aspects of inorganic reaction mechanisms as was used in previous volumes of the series. The volume covers the literature of the period from January 1975 to June 1976. The main headings of the Table of Contents are as follows: (1) Electron Transfer Processes; (2) Substitution and Related Reactions; (3) Reactions of Biochemical Interest; (4) Organometallic Compounds. One can see from these titles that all areas of current research on mechanisms of inorganic reactions are included. The reporters, who are to be congratulated on having done a fine job, are J. Burgess, R.D. Cannon, J.N. Davidson, D.N. Hague, A.G. Lappin, P. Moore and G. Stedman.

This volume maintains the high standards set by previous volumes for completeness of literature coverage and readability. The chapters vary somewhat depending on the style and interest of the reporter, but the variations cause little trouble to the reader. Some accounts are sketchy, others are more detailed and even include some tables of data. However, it is understood that the reader in search of more information will have to go to the original literature referred to in the volume.

These volumes must have considerable utility to chemists doing research on the solution kinetics and mechanisms of inorganic reactions. Certainly the volumes should be part of the reference collection of any research chemistry library. Continued attempts should be made to lessen the time (now about two years) between publication of the volume and the latest literature coverage. Unfortunately, the price of these volumes will generally preclude individuals from the purchase of their own personal copies.

F. Basolo
Department of Chemistry
Northwestern University
Evanston, Illinois 60201
U.S.A.

Aspects of Homogeneous Catalysis, Editor, R. Ugo, Reidel, U.S. \$ 39.50.

In the last few years there have been numerous books dealing with homogeneous catalysis by transition-metal complexes. Indeed, the present volume is the third in a series edited by R. Ugo, its predecessors having appeared in 1971 and 1974, respectively. This large spate of publications certainly means that there has been a good deal of overlap in much that has been written and this criticism must be made of at least one chapter of the present volume.

There are three contributions: the first, by J.E. Lyons, is entitled *Transition Metal Complexes as Catalysts for the Addition of Oxygen to Reactive Organic Substrates* (137 pages); the second, by J.M. Basset and R. Ugo, is entitled *Structure and Electronic Relations between Molecular Clusters and Small Particles: an Essay to the Understanding of Very Dispersed Metals* (38 pages); the final section, by I. Ojima, K. Yamamoto and M. Kumada, is entitled *Asymmetric Hydrosilylation by Means of Homogeneous Catalysts with Chiral Ligands* (42 pages).

The reviewer found the last of these the most useful for various reasons. Firstly, because he is unaware of other reviews covering just this subject, and secondly, because the authors are among the leaders in the field. Furthermore, it is one which is still relatively compact and seventy-two references provide complete cover for the period ending 1976.

In contrast, it is noted that in another book, entitled *Fundamental Research in Homogeneous Catalysis*, edited by M. Tsutsui and R. Ugo (!), the introductory article is by J. Lyons and covers a topic which overlaps significantly with his contribution in the book under review. In fairness, it should perhaps be pointed out that this latest book is actually a collection of lectures given at a symposium, rather than a survey.

In Lyons' contribution, there is much discussion of dioxygen metal complexes. However, the timing may be a little unfortunate in that recent crystallographic data have caused significant revisions to formerly widely propagated theoretical models based on O—O bond lengths which were regarded as exceptionally long.

In many ways, in a book of this sort, the chapter by Basset and Ugo is the most ambitious. The initial parts concern molecular clusters and their characterization in terms of size range and bonding. It is not immediately obvious to the reviewer why a section such as that entitled *Geometric Aspects of the Relation between Very Small Particles and Molecular Clusters* should have a place in a book dealing with homogeneous catalysis.

Despite some of the above criticisms, there is much of value in this book.

M.F. Lappert
Sussex University, Brighton, Gt. Britain