

contributed in an important fashion to the development of the area and has brought together chemistry, biology, physics and medicine, to solve interdisciplinary problems in the area of living systems.

This volume deals exclusively with the biological effects of metal alkyls introduced into the biosphere, most accomplished via the action of micro-organisms on the bottom of rivers, lakes, etc. Chapters deal with the “Global bioalkylation of the heavy elements” (Thayer); the “Analysis of organometallic compounds in the environment” (Mennie and Craig); the “Biochemistry of methylgermanium species in natural waters” (Lewis and Mayer); the “Biological properties of alkyltin compounds” (Arakawa and Wada); and of “Alkyl derivatives of lead” (Yamamura and Arai) and of “Selenium and tellurium” (Karlsen and Frankenberger, Jr.); the “Metabolism of alkyl arsenic and antimony compounds” (Vahter and Marafante); the “Making and breaking the Co–alkyl bond in  $B_{12}$  derivatives” (Pratt); the “Methane formation by methanogenic bacteria: redox chemistry of coenzyme F430” (Jaun); the “Synthesis and degradation of organomercurials by bacteria” (the Editors); and the “Biogenesis and metabolic role of halomethanes in fungi and plants” (Harper).

Curiously, the element which is most associated in the lay mind with this field, i.e. mercury, does not have a detailed presentation. Unfortunately, the author responsible for this topic was unable to make his contribution and the editors, in the short “Organomercurial” chapter mentioned above, outline the reasons why, via excerpts from a fax received from the proposed contributor; they also provide a summary of recent pertinent references to benefit those who wish to know more.

The editors should be congratulated on bringing together a set of chapters which truly cover this broad field (aside from mercury!) in an intensive fashion.

*Photosensitive metal–organic systems, mechanistic principles and applications*, edited by C. Kutal and N. Serpone (ACS Advances in Chemistry Series, no. 238), American Chemical Society, Washington, DC, 1993, 448 pp., US\$109.95. ISBN 0-8412-2527-3.

This volume is based on an ACS symposium that dealt with photosensitive metal–organic systems. Some 21 of the 23 symposium presentations are included in this book of refereed chapters. The chapters deal variously with the photochemistry, photo- and redox catalysis of inter alia tungsten, iron and ruthenium carbonyls, rhenium and molybdenum complexes,  $d^4$  bimetallic systems, polyoxotungstates, metal carbynes, copper complexes, surface-

confined species, palladium and platinum films, several anionic clusters, cationic organometallic compounds, etc. Techniques include time-resolved IR spectroscopy, photochemistry in the millisecond-to-picosecond regime, luminescence probes of DNA binding, the use of heterogenous and microheterogenous media, and photopolymerization. This is a useful contribution to an enormous field.

*Mechanisms of inorganic and organometallic reactions*, Vol. 8, edited by M.V. Twigg, Plenum, New York, 1994, 500 pp., US\$125.00. ISBN 0-306-44437-2.

This is the eighth in a series of edited volumes that present ongoing critical reviews of the primary literature on mechanisms of inorganic and organometallic reactions. Coverage is as comprehensive as possible over a time range from January 1990 to June 1991.

There are 15 chapters, covering “Electron transfer” (Endicott et al.); “Redox reactions between two metal complexes” (Macartney); “Metal–ligand redox reactions” (Warren and Lappin); “Reactions of compounds of non-metallic elements” (Steadman); “Ligand exchange reactions of inert-metal complexes — coordination numbers 4 and 5” (Cross); “Substitution reactions of inert-metal complexes — coordination numbers 6 and above”, — “chromium” (House), — “cobalt” (Hay), — “other inert centers” (Burgess); “Substitution reactions of labile metal complexes” (Tregloan); “Substitution and insertion reactions” [of organometallic compounds] (Poë); “Metal–alkyl and metal–hybride bond formation and fission” (Pike); “Reactivity of coordinated ligands” (Hay, et al.); “Rearrangements, intramolecular exchanges, and isomeriations of organometallic compounds” (Orrell); “Homogenous catalysis of organic reactions by transition metal complexes” (Bochmann); and, finally, a compilation of “Volumes of activation for inorganic and organometallic reactions” (Neubrand and van Eldik).

This contribution maintains the high standards of the series and is essential reading for mechanistically inclined inorganic chemists.

The Editor's Desk