

At this point in time, the Gmelin Institut has brought us up to date on silver and its alloys and compounds. This will greatly aid all those who must search the literature in this area. Of course, research marches on and new work continually adds new results to the literature, but it is very welcome to have such a thorough 1970–1976 literature baseline available.

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DIETMAR SEYFERTH

*Progress in Inorganic Chemistry, Vol. 19*, edited by S.J. Lippard, Interscience—John Wiley & Sons, New York, 1975, 367 pages, \$22.50.

Volume 19 continues the aims and format of earlier volumes in this valuable series by presenting detailed compilations on topics of current interest to inorganic chemists. Articles in this volume are biased toward structural aspects of five different areas of coordination chemistry.

Chapter 1 on "Oxidation–reduction and related reactions of metal–metal bonds" by T.J. Meyer is 50 pages long and presents a detailed survey of the properties, preparations, and reactions of compounds containing metal–metal bonds. The types of compounds discussed include binary metal carbonyls (e.g.,  $(OC)_5Re-Re(CO)_5$ ), ligand-bridged systems (e.g.,  $[(\pi-C_5H_5)Fe(CO)SCH_3]_2^+$ ), and clusters, (e.g.,  $M_6X_8]^{4+}$ ). The two sections on electrochemical studies and chemical oxidation–reduction reactions provide some interesting comparisons and contrasts between the two methods for synthesizing complexes with metal metal bonds.

Chapter 2 (53 pages) on "Transition metal complexes containing tridentate amino acids" by S.T. Chow and C.A. McAuliffe illustrates the complicated nature and equilibria in which a wide variety of potentially tridentate ligands can function. The chapter is focused toward bio-inorganic chemistry and organizes a large amount of data around the different physical characterization techniques. Unfortunately, the accuracy and usefulness of this chapter is negated somewhat by a large number of proof-reading and/or publishing errors.

The chapter by G.A. Ozin and A. VanderVoet on "Cryogenic inorganic chemistry: A review of metal–gas reactions as studied by matrix-isolation infrared and Raman spectroscopic techniques" presents an up-to-date summary of the equipment, techniques, and the results obtained from reactions involving co-condensation of metal atoms and gases and "matrix isolation" techniques. Much of the discussion centers around the preparation, identification, and thermodynamic stability of the binary products obtained by co-condensation of a wide variety of metal atoms and gases such as CO, O<sub>2</sub>, and N<sub>2</sub>.

The chapter (65 pages) on "The structural and magnetic properties of first row transition metal dimers containing hydroxo, substituted hydroxo, and halogen bridges" by D.J. Hodgson is a detailed correlation between the structures of magnetically condensed dimers and their magnetic properties. Most of the examples are copper(II) complexes, with a much smaller number of iron(III) and chromium(III) complexes being discussed.

"The coordination chemistry of indium" (73 pages) by A.J. Carty and D.G. Tuck is a large, factual listing of complexes under the headings of neutral complexes of indium(III), cationic complexes of indium(III), and anionic complexes of indium(III). Other sections describe the chemistry of indium in its lower oxidation states and compounds containing metal-indium bonds.

This volume has a good, detailed subject index; also, it contains a less detailed cumulative index of the topics presented in Volumes 1-19 of the series.

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*Inorganic Reaction Mechanisms. Vol. 4 (A Chemical Society Specialist Report);* A. McAuley, Senior reporter, The Chemical Society, London, 1976, xviii + 398 pages, £ 23.00, \$63.25.

This, the fourth in the series of Specialist Periodical Reports on Inorganic Reaction Mechanisms issued by the Chemical Society, maintains the excellent standard set by the earlier volumes. The team of reporters has expanded since the first two volumes but the original quartet of Burgess, Hague, Kemmitt, and McAuley is still there, McAuley having taken over from Burgess as captain for this volume. (It is to be hoped that his translation to Victoria will not affect his continuance in this rôle.) M.A.R. Smith paired with Kemmitt in the Organometallic line-up in Volume 3 and Coe, Moore, Scott, and Stedman have been added to the team this time. This expansion must have eased the load considerably, especially since the number of citations has dropped from ca. 1750 to 1500, and the length of the book by ca. 20%. All these reporters have considerable experience in their fields, and their combined strength is considerable.

The format of this volume is identical with that of the previous one with major divisions into Electron Transfer Processes, Substitutions and Related Reactions, Reactions of Biochemical Interest, and Organometallic Compounds. The subdivision within these sections is clear-cut, and cross-referencing is excellent. The authors sometimes take the opportunity of describing highlights in their topics in a short introduction. This tendency, albeit subjective, should be encouraged. The coverage appears to be quite thorough although it would be almost presumptuous to comment other than favourably without having done an equivalent amount of literature work to the authors. Such is not the case with this reviewer! Anyone wishing to catch up with developments in a particular area will be enormously helped by these volumes which leave only recent papers to be searched, coverage extending to December 1974 in this volume.

The style of reporting is factual, concise, and possibly dry, but opportunity is taken occasionally for critical assessment. One frequently has the need to refer to the original papers for elucidation of conclusions described but this is inevitable and, in fact, desirable. The authors have explicitly restricted themselves almost entirely to the kinetic approach to mechanism which avoids the more egregious flights of fancy indulged in occasionally by preparative chemists.