

*Comprehensive Coordination Chemistry. Volume 3, Main Group and Early Transition Metals*, xiv + 1601 pages. ISBN 0-08-035946-9

About 20% of this volume is devoted to the main group elements and the remainder to the early transition metals. The contributors are as follows: alkali and Group 2 metals (D.E. Fenton, 80 pages), boron (B. Gyori and J. Emri, 24 pages), aluminium and gallium (M.J. Taylor, 48 pages), indium and thallium (D.G. Tuck, 30 pages), silicon, germanium, tin, and lead (P.G. Harrison, 52 pages), arsenic, antimony, and bismuth (C.A. McAuliffe, 92 pages), sulphur, selenium, tellurium, and polonium (F.J. Berry, 12 pages), halogenium species and noble gases (A.J. Edwards, 12 pages), titanium (C.A. McAuliffe and D.S. Barratt, 40 pages), zirconium and hafnium (R.C. Fay, 90 pages), vanadium (L.F. Vilas Boas and J. Costa Pessoa, 132 pages), niobium and tantalum (L.G. Hubert-Pfalzgraf, M. Postel, and J.G. Reiss, 114 pages), chromium (L.F. Larkworthy, K.B. Nolan, and P. O'Brien, 270 pages), molybdenum (A.G. Sykes, G.J. Leigh, R.L. Richards, C.D. Garner, J.M. Charnock, and E.I. Stiefel, 215 pages), tungsten (Z. Dori, 50 pages), isopolyanions and heteropolyanions (M.T. Pope, 36 pages), lanthanides (F.A. Hart, 70 pages), and actinides (K.W. Bagnall, 100 pages).

The arrangement of material according to the periodic table should make it easy to locate particular topics but there are also a reasonably good subject index and an extensive formula index.

As the editors acknowledge in their introduction, 'coordination chemistry' can be defined only by drawing a series of arbitrary boundaries. The notion of writing a comprehensive account of the subject is thus beset with difficulties and these are especially apparent in the present volume. The editors' definition of a coordination compound as the product of association of a Brönsted base with a Lewis acid has been taken by contributors to include inter alia both molecular binary compounds, e.g.  $\text{AsCl}_3$ , and those with three-dimensional lattices, e.g.  $\text{CrF}_2$ , disilenes  $\text{R}_2\text{Si}=\text{SiR}_2$ , siloxane and stannoxane polymers, and interstitial hydrides. There is even a section on the extraction and properties of titanium metal.

Although it may be argued that the use of 'comprehensive' means that anything can legitimately be included, the looseness with which the term 'coordination chemistry' has been understood by a few of the contributors does raise an important question about the purpose of this vast publishing enterprise. I assume that the volume is primarily intended as a work of reference to provide an introduction for readers wishing to know what kinds of compounds are formed between particular classes of Brönsted bases on the one hand and Lewis acids such as metal ions or boron halides on the other. Where the contributors have borne the aims of the book in mind and have approached their task in a systematic way, with a logical order for dealing with various ligands (usually according to donor atoms) and various oxidation states, the chapters are excellent. It is easy to find the information required, and the extensive use of tables and schemes means that related topics are brought to the reader's attention. Where, however, the subject matter means that the terms Brönsted base and Lewis acid are less clear, there is a tendency for the book to become an account of miscellaneous topics in inorganic chemistry, many of which are better dealt with elsewhere. Indeed, in places the book is superficial rather than comprehensive. The editors could have helped with more cross references. For example, half a page on Ziegler-Natta catalysis with 3 references is bound to be

superficial: if there is a fuller account in Volume 6 a simple cross reference would have been helpful to the reader. Quibbles about content are, however, minor. All in all, this book will be a major reference for all working in the field of coordination chemistry and stimulating reading also for organometallic chemists, even though compounds with metal-carbon bonds have been largely excluded. Several of the contributors have completed truly herculean tasks and written chapters of outstanding quality.

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*Comprehensive Coordination Chemistry, Volume 4, Middle Transition Elements.* xxii + 1405 pages, ISBN 0-08-035947-7.

This volume surveys the coordination chemistry of the metals Mn to Ir inclusive, with the exception of Tc, a review of which should appear later elsewhere.

The high standards of content and presentation achieved on the companion series "Comprehensive Organometallic Chemistry" have been maintained in this series and the chapters, although multi-authored, are uniformly readable, comprehensive and clearly arranged.

The organometallic content of the various chapters is, by definition, relatively small, although there are some exceptions. For example the alkyls and aryls of manganese receive detailed coverage and the general chemistry of cyanide and isocyanide complexes of all of the metals in question is thoroughly reviewed and referenced. This volume is, nevertheless, recommended general reading for the organometallic chemist, both because of the thorough referencing to organometallic areas, and because of the wealth of chemistry contained in this volume which has close organometallic interest.

The editors and publishers are to be congratulated on their production of a very valuable reference series.

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*Comprehensive Coordination Chemistry, Volume 5, Late Transition Elements,* xiv + 1258 pages, ISBN 0-08-035948-5

This is the fifth volume of the seven volume series of Comprehensive Coordination Chemistry, dealing with the elements nickel, palladium and platinum, copper, silver and gold, and zinc, cadmium and mercury. This series represents a worthy addition to the growing family of Pergamon reference works.

The volume opens with an extensive chapter on the coordination chemistry of nickel. This is organised primarily according to the oxidation state of the metal, and secondly according to the ligand type. The second chapter, on platinum, divides the