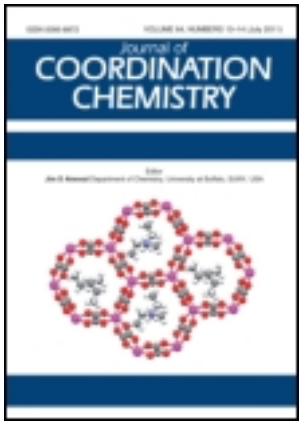

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Introduction to coordination chemistry, by Geoffrey A. Lawrance

George B. Kauffman [a]
[a] Department of Chemistry , California State University, Fresno , Fresno, CA 93740-8034, USA
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BOOK REVIEW

Introduction to coordination chemistry, by Geoffrey A. Lawrance, Chichester, UK, Wiley & Sons, Ltd., 2010, xiii + 290 pp., $155.00 (hardbound), ISBN: 978-0-470-51930-1

Compared to organic chemistry, which is limited to carbon compounds with four bonds around each carbon center, the coordination chemistry of metals and metalloids deals with compounds exhibiting coordination numbers extending from 2 to 14 and formal oxidation states ranging from negative values to as high as +8. Thus, because coordination chemistry is the chemistry of the vast majority of the elements, it occupies a central role in the "central science." Furthermore, since many coordination compounds contain organic molecules as ligands that may influence their reactivity and behavior, an understanding of organic chemistry is necessary in this field. Moreover, because spectroscopic and magnetic properties are involved in understanding coordination compounds, knowledge of analytical and physical methods is important.

Summarizing the field, Geoffrey Alan Lawrance, Professor in the School of Environmental and Life Sciences of the University of Newcastle, Callaghan, Australia, concludes the preamble of the text under review here, "Coordination chemistry is demanding and frustrating – but it rewards the student by revealing a diversity that can be at once intriguing, attractive and rewarding. Welcome to the wild and wonderful world of coordination chemistry – let's explore it" (p xiii).

Lawrance's book is a volume in "Inorganic Chemistry, A Wiley Series of Advanced Textbooks" that "reflects the pivotal role of modern inorganic and physical chemistry in a whole range of emerging areas, such as materials chemistry, green chemistry and bioinorganic chemistry, as well as providing a solid grounding in established areas such as solid state chemistry, coordination chemistry, main group chemistry and physical inorganic chemistry."

Although Lawrance's book is part of the series of advanced textbooks, he insists that it is an introductory text with a pragmatic approach. Nevertheless, he assumes that the reader will have completed an introductory tertiary-level course in general chemistry or its equivalent and thus be familiar with basic chemical concepts, including the foundations of chemical bonding. He takes a descriptive approach and avoids mathematical and theoretical details unless necessary. He recommends that the chapters be read in the sequential order, but each can be read independently. Each chapter concludes with a brief summary of key concepts in gray boxes. Also, limited sets of annotated references, some as recent as 2009, for further reading are presented at the end of each chapter. Topics that are important but not central to the book's main

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themes are relegated to two appendixes, ''Nomenclature'' (8 pp.) and ''Molecular Symmetry: The Point Group'' (5 pp.). A 7 double-column page index is user friendly.

The book consists of eight chapters: 1. ''The Central Atom'' (14 pp., the shortest chapter); 2. ''Ligands'' (25 pp.); 3. ''Complexes'' (41 pp.); 4. ''Shape'' (42 pp.); 5. ''Stability'' (47 pp., the longest chapter); 6. ''Synthesis'' (35 pp.); 7. ''Properties'' (20 pp.); 8. ''A Complex Life'' (22 pp.); and 9. ''Complexes and Commerce'' (17 pp.). British spelling is used consistently, and the volume is replete with numerous examples of the importance of coordination compounds in daily life as well as with figures, tables, numbered chemical equations, reaction schemes, and even cartoons. ''Catchy'' section titles abound, reflecting the author's sense of humor and adding a light touch to the volume.

Lawrance provides for the student's self-assessment of his or her understanding of the material in each chapter by providing sets of questions and answers. However, to limit the size of his book, he provides these on the supporting web site: http://www.wiley.com/go/lawrance. Because the book was written during the depths of the worst recession since the 1930s, all figures in the text were printed in grayscale to reduce the price, but color versions of the figures are available on Lawrance's web site. Figures and drawings use primarily ChemDraw and Chem3DPro, and where required, coordinates for structures are from the Cambridge Crystallographic Data Base, with some protein views in Chapter 8 drawn from the Protein Data Bank (http://www.rcsb.org/pdb).

I am pleased to recommend this comprehensive, insightful, and readily accessible text that deals with all aspects of coordination chemistry in a single book to both undergraduate students and to anyone concerned with one of inorganic chemistry's most interesting and exciting fields.

George B. Kauffman
Department of Chemistry
California State University, Fresno
Fresno, CA 93740-8034, USA
Email: georgek@mail.fresnostate.edu