

Preface to the Third Edition

Since the second edition of this book there has been so much published in the field that two points seemed clear. One was a sense that a new, up-to-date monograph was needed. The other was the reluctance of two or even three people to undertake the daunting task of covering all the ground. Our response was to call on others to help and, thus, to produce the present, multiauthored volume. Each of the contributing authors was in a position to write authoritatively, from hands-on research experience. We are confident that this has led to a better book than the three of us would have produced. As always in a book where different chapters are written by different authors, there is some variation in style and we chose not to try to smooth it all out.

In every chapter the objective has been to be comprehensive, if not encyclopedic. Putting it a little differently, we, and the other authors, have aimed to mention all pertinent literature references, although the amount of emphasis accorded each paper necessarily varies.

Since the volume of literature to cover is now so large, a few topics that might have been included (or were in the second edition) have been omitted or are covered only in limited detail. Notable ones are the treatment of metal-metal bonding in edge-sharing and face-sharing biocapped octahedra, and metal cluster compounds of rhenium. Also, the vast field of catalysis by dirhodium compounds has been restricted to only the area of chiral catalysts.

The physical properties and bonding of many compounds are, in general, described in two places, to varying degrees. There are some specific reports regarding properties of compounds of certain metals in the first fifteen chapters. Comprehensive discussions (i. e., not element specific) are provided in Chapter 16.

To assist the user of this book a few comments about how it is organized and indexed are pertinent. Because of the element by element (or group of elements) organization, and the division of each chapter into numerous sections and subsections, as well as the extensive tables of compounds, the table of contents plays the part of an index to a major extent. The index itself is thus limited to general topics and concepts that turn up often throughout the book. Individual compounds are, in most instances, not listed there.

Many other people contributed to the production of this volume in addition to those who wrote chapters that were not written by the editors themselves. We are very grateful to these authors, but we are also much indebted to others. The word indispensable must be reserved for Mrs. Debbie Murillo. She created the book from the scattered and mangled fragments available after the tragic and utterly unexpected illness of Ms. Beverly Moore, who contributed much to preparing early drafts. For Debbie's mastery of computerized book publishing as well as her selfless devotion to the task, we owe her a debt that cannot be fully repaid. We have also had major assistance from Dr. Xiaoping Wang and Mr. Dino Villagrán in preparing many of the illustrations, and we thank Mrs. Julie Zercher for efforts in searching computer files.

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Multiple Bonds between Metal Atoms

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