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Book Review

P.A. Chaloner, *Handbook of Coordination Catalysis in Organic Chemistry*, Butterworths, London, Boston, Durban, Singapore, Sydney, Toronto, Wellington, 1986, vi + 1002 pages, £45.00. ISBN 0-408-10776-6.

It is rare that one is fortunate enough to be able to review a book written by a close colleague, and even rarer that the book is of such high academic quality that one can happily perform this task without the fear of rapidly terminating a valued working relationship. I was thus delighted to have the opportunity to review Penny Chaloner's invaluable new book, which is a most welcome addition to the literature. It is particularly appropriate that this book be reviewed in Volume 72 of *Coord. Chem. Rev.*, as its opening chapter contains her review of the 1983 literature of platinum and palladium, and emphasizes her background in both organic and coordination chemistry.

The book is entitled "Handbook of Coordination Catalysis in Organic Chemistry", but the cynosure is homogeneous catalysis (and related reactions of polymer supported complexes). It must be said that this is only a 'handbook' for a victim of gigantism, but the thousand pages are used to excellent effect (in total, 3417 references are cited). The individual chapters deal with organic reactions catalysed by transition metal complexes, discussed according to reaction type. Thus, after a short introduction, the main chapters deal with hydrogenation and related reactions (208 pp., 801 refs.), reactions of carbon monoxide (90 pp., 295 refs.), other additions to carbon–carbon multiple bonds (96 pp., 386 refs.), isomerisation reactions (48 pp., 112 refs.), oxidation (230 pp., 741 refs.), reactions of the carbonyl group (50 pp., 140 refs.), formation of carbon-carbon bonds (190 pp., 768 refs.), and alkene metathesis (46 pp., 162 refs.). The book finishes with a useful glossary of terms and abbreviations, and a well constructed index.

This volume is a remarkable achievement for a single author. The danger with a book of this type is that it becomes a mere catalogue of reactions, a sort of Mrs. Beeton's "Book of Laboratory Management". This pitfall has been admirably avoided. Not only does this volume form an invaluable source of inspiration and advice for the organic chemist seeking a high yield selective synthesis, it includes critical discussion of the literature and a perceptive coverage of mechanistic considerations. In short, it not only fulfills the author's stated aim of showing the importance of homogeneous catalysis by metal complexes to organic chemists, and hence encouraging future developments, but it also highlights areas in which traditional coordination chemistry may be developed to yield systems of significant practical

application. This book is a recognition that coordination catalysis is now a unified field of chemical research for the 1980's and 1990's, and not merely an abstract collection of interesting, but slightly anomalous, reactions: homogeneous catalysis by coordination compounds is no longer a subject for haruspicy, it is an exciting and rapidly expanding area with its own tenets.

The quality of the camera-ready copy employed in this book is high, and the many illustrations are expertly produced and extremely clear. At less than half the cost per page of the average chemistry research text, this book represents remarkable value - it is, in fact, cheaper to buy it than it is to photocopy it! It should be in every academic and industrial chemistry library, and on the personal bookshelves of all research workers with an interest in either coordination chemistry or organic synthesis. It can be unreservedly recommended.

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