

apparently obligatory brief description of the fundamentals of photoelectron spectroscopy and its applications to transition metal compounds. Studies upon metal carbonyls and substituted metal carbonyls are then described, followed by sections dealing with metallocenes,  $\eta^5$ -cyclopentadienylmetal carbonyl complexes, bent bis( $\eta^5$ -cyclopentadienyl) $ML_n$  complexes, metal  $\beta$ -diketonates and related complexes, alkene complexes,  $\pi$ -allyl complexes, transition metal complexes with alkyl, or with *O*-, *N*- or *S*-donor ligands, metal-metal bonded complexes and metalloporphyrins. The review concludes with a brief consideration of the future prospects for photoelectron spectroscopy. This review has many good features, not least of which is that it is copiously illustrated with both photoelectron spectra and molecular orbital diagrams, but it does suffer textually in several places from ambiguous or misleading wording (it is clear that the authors are not writing in their parent tongue). There are also occasional discrepancies between peak designations in the text and in the illustrations, and the authors have a particularly annoying habit of, for example, writing  $A^1$  and  $A^{11}$  for  $A'$  and  $A''$ . To redress the balance, however, it must be said that this article summarizes a wealth of information in an enlightened and critical manner. Of especial importance, the authors clearly highlight invalid or questionable assignments, thus guaranteeing the usefulness of this review for many years.

In conclusion, this is an excellent book (if rather costly, considering that it is camera-ready copy). It should be of interest to all organometallic and coordination chemists, and should be in all libraries attached to academic and industrial laboratories. This volume is in the true spirit of the original series, and it is hoped that Volume 10, when it appears, will continue this tradition.

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*Hydrogenation Methods*, Paul N. Rylander, Academic Press, London, New York, 1985, xv + 193 pages, £40. ISBN 0126053650.

This is a further volume of the new series detailing "best synthetic methods" for various types of transformations in organic chemistry. The aim of the work is said to be "to give the reader ready access to what can be done with hydrogenation and how to do it". In this it succeeds only marginally.

The book opens with an introductory chapter on general aspects of catalysis and is thereafter organised according to substrate, with chapters on alkenes, aldehydes and ketones, acid derivatives, reductive alkylation, nitriles and oximes, nitro compounds, arenes, their derivatives, and heterocycles. Chapters on dehydrohalogenation and miscellaneous hydrogenolyses complete the book. This last chapter is possibly the most useful, since the material collected is not readily available elsewhere in an up to date form. The author's greater interest and expertise in the area of heterogeneous catalysis is self-evident; homogeneous catalysis of the processes he describes is treated extremely briefly or not at all. Readers should note that the structure of the chiral ligand BPPM on page 48 is incorrect.

This volume seems to be largely a reworking of the author's earlier book, "Catalytic Hydrogenation in Organic Syntheses". It is, however, substantially shorter (193 against 325 pages), has fewer literature references (1200 against 2000) and is somewhat more expensive. Literature coverage has been updated to 1983, with some references from 1984. It is unfortunate that the use of dated names such as olefins and acetylenes is continued and that some rather trite statements such as "High actual yields are always desirable" could not have been avoided. I found the index unhelpful. Only substrates are comprehensively listed and the value of indexing such specific compounds as zoaptanol and methyl hardwickiate seems dubious, when neither Wilkinson's catalyst nor platinum complexes appear. The book is nicely presented and well organised but is too slight to be useful as anything but an introductory text, for which it is much too expensive.

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