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Book review

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**Metal Complexes in Organic Chemistry**, by R.P. Houghton. Cambridge University Press, Cambridge - London - New York - Melbourne, 1979, vii + 308 pages, £21.00 (hard cover); £7.50 (paperback).

This book is said to be intended primarily for advanced undergraduates, graduates at the start of a research career in organic chemistry, and practising organic chemists who wish to learn more about the chemistry of metal complexes. It is thus introductory rather than encyclopaedic; the author emphasises principles rather than facts, and in general factual information is presented only to illustrate principles. The coverage is necessarily selective, and, for example, except for Ziegler-Natta polymerization of alkenes the metal-catalysed polymerization of unsaturated organic compounds is omitted. The term complex is liberally interpreted, so that, for example, reactions of organic halides catalysed by  $\text{Ag}^+$  ions are described, as is mercuriation of aromatics by  $\text{Hg}(\text{OAc})_2$ .

There are five chapters. The first (72 pages) describes general principles, which are well presented. The second (50 pages) is concerned with the effects and uses of complex formation. The third (58 pages) discusses nucleophilic substitutions at saturated carbon, including reactions of halides catalysed by aluminium chloride and other Lewis acids and by silver salts. The fourth (43 pages) surveys the use of metal complexes in addition to multiple bonds between carbon and oxygen or nitrogen, and includes a brief account of asymmetric additions of Grignard reagents and organolithium compounds to carbonyl groups. The final chapter (72 pages)

deals with oxidative addition and insertion, including, of course, homogeneous hydrogenation.

The account is easy to read, and the numerous clear formula and reaction schemes aid understanding. There is a good subject index. I would have welcomed more references to the original papers, or at least a lead into them through reviews. (Most of the approximately 150 references are to reviews.) At several points I found my attention caught by interesting information and I would have liked to look up more detail, only to find no guidance to the source.

The book can be confidently recommended to those for whom it is intended. It is well produced, and reasonably priced; the paperback edition is especially good value.

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