

Book review

New Pathways for Organic Synthesis: Practical Aspects of Transition Metals; by H.M. Colquhoun, J. Holton, D.J. Thompson and M.V. Twigg, Plenum Press, New York/London 1984, xiv + 454 pages, \$U.S. 59.50.

This book is intended to provide a practical guide to transition metals as tools in organic synthesis. Its scope is very large and it discusses organometallics both as stoichiometric reagents and as catalysts, homogeneous and heterogeneous. The material is organised from the perspective of an organic chemist, with chapters on carbon-carbon bond forming reactions, cyclisations, heterocyclic synthesis, isomerisation, carbonyl chemistry, oxidation and reduction. An additional chapter gives preparations of commonly used catalysts (for example $(\text{Ph}_3\text{P})_4\text{Pd}$ and $(\text{Ph}_3\text{P})_3\text{RuCl}_2$) and advises on the precautions necessary for their use. The emphasis throughout is on useful transformations and many helpful details of selectivity, functional group tolerance and suitable scale are given. Additionally, experimental procedures are given for typical reactions.

In a survey of this extent any individual reviewer or reader must find omissions. I would particularly have liked to see some uses of allylpalladium chemistry in ring synthesis and a discussion of the isomerisation of strained species such as cubane and quadricyclane. The discussion of modes of hydrogen activation is excellent and a similar guide through the minefield of oxidation mechanisms would have been welcome. The most usual substrate (ethyl acetate) for heterogeneous asymmetric hydrogenation over modified Raney nickel is barely discussed despite the availability of reactions of 99% enantioselectivity by 1979. However, these are minor points, and most of the reactions important to the bench organic chemist are well documented.

This book will prove an invaluable tool to the synthetic organic chemist and many will find the purchase of their own copy well worthwhile. The organometallic chemist should also find much of interest. Literature coverage seems complete up to the end of 1980 with a few references to 1981 and 1982, and the references are generally well chosen. In view of the rapid advances in this field the authors should perhaps be encouraged to consider a second volume.

*School of Chemistry and Molecular Sciences,
University of Sussex,
Brighton, BN1 9QJ (Great Britain)*

PENNY A. CHALONER