

Organic Reactions, Volumes 35 and 36, A.S. Kende, Editor in Chief, Wiley-Interscience, 1988, Volume 35, xxi + 650 pages, £62.50, ISBN 0-471-83252-7, Volume 36 xvii + 602 pages, £57.50, ISBN 0-471-85748-3.

Almost all synthetic chemists, whether based in organic, inorganic or organometallic chemistry, have occasion to make use of one of the "standard reactions" of organic synthesis. In order to optimise the desired synthesis it is usually necessary to conduct a search of the literature to discover whether the reaction has been done before on one's own or a closely related substrate. The Organic Reactions series consists of critical reviews of the more important and generally applicable reactions, and has over the years become a standard and indispensable source of reference. Its particular value lies in the fact that each review is extremely comprehensive, containing, mainly in tabular form, all the published examples of the reaction which the reviewer has been able to uncover. This concise presentation of information is extremely valuable to the experimentalist, who is attempting to choose appropriate conditions for a synthetic transformation.

Volume 35 opens with a review of the Beckmann reaction by Robert E. Gawley, with particular reference to elimination-additions, fragmentations and rearrangement-cyclisations. As is customary in these reviews there is a brief experimental section giving detailed instructions for particular reactions, and some 360 pages of tabulated examples. Chapter 2, by E.J. Behrman, reviews the persulphate oxidation of phenols and arylamines, the so-called Elbs and Boyland-Sims oxidations. The final chapter details fluorination with diethylaminosulphur trifluoride (DAST) and related aminofluorosulphuranes. This reagent has become extremely important in recent years in carbohydrate chemistry, and the increase in interest in fluorinated compounds for medicinal purposes ensures that this will remain an active area of research over the next few years.

The first chapter of Volume 36, by Pat N. Confalone and Edward M. Huie, discusses the [3 + 2] cycloaddition reactions of nitrones with alkenes, an area which has enjoyed considerable interest recently. Not only is this reaction extremely valuable for heterocyclic syntheses, but many of the oxazolidines produced undergo reductive cleavage to provide a synthesis of amino alcohols. There will also be considerable scope in the future for a review of the cycloadditions of nitrones with other types of multiple bonds. The next chapter, by Robert Engel, reviews the addition of phosphorus to sp^2 carbon. This is a wide-ranging discussion and reflects a revived interest in the synthesis of organophosphorus compounds, particularly for pharmacological purposes. This is the only chapter in which the authors have clearly produced their own diagrams, and although these differ from the typeset diagrams they are nonetheless clear and attractive. Organometallic chemists will find this chapter of some interest, with particular reference to the synthesis of new ligands. The final chapter of this volume, by Jaroslav Málek, is the second section of a review of reductions by metal alkoxylaluminium hydrides, considering the reactions of carboxylic acids and their derivatives, nitrogen compounds and sulphur compounds. The first section, detailing the reactions of aldehydes and ketone appeared in *Organic Reactions*, Volume 34 in 1985. Although these reagents are not strictly organometallics, this section will prove of considerable interest to organometallic chemists.

All the reviews in these volumes have been produced to the high standards which

we have come to expect from this series. There are few errors, presentation is excellent and they are well referenced, generally to the end of 1985. This series should be considered indispensable to every chemistry library, and the publishers are to be commended in that they have kept the price sufficiently low that specific volumes could be considered for individual purchase.

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Mechanisms of Inorganic and Organometallic Reactions, Volume 5; Edited by M.V. Twigg, Plenum Press, New York, 1988, xvii + 466, pages, ISBN 0-306-42841-5, US\$85.-

This book is a continuation of a series which is now well established, and covers the relevant literature for the period July 1985–December 1986, although some earlier work is discussed, where appropriate, for comparative purposes. The chapter titles, with authors (number of pages and number of references in parentheses), are as follows: Electron Transfer: General and Theoretical, by R.D. Cannon (3 pages, 29 refs.); Redox Reactions between Two Metal Complexes, by A.G. Lappin (21 pages, 106 refs.); Metal–Ligand Redox Reactions, by A. Bakác and J.H. Espenson (39 pages, 360 refs.); (Substitution) Reactions of Compounds of the Nonmetallic Elements, by N. Winterton (43 pages, 735 refs.); Substitution Reactions of Inert-Metal Complexes — Coordination Numbers 4 and 5, by R.J. Cross (21 pages, 85 refs.); Substitution Reactions of Inert-Metal Complexes — Coordination Numbers 6 and Above: Chromium, by D.A. House (24 pages, 188 refs.); Substitution Reactions of Inert-Metal Complexes — Coordination Numbers 6 and Above: Cobalt, by R.W. Hay (28 pages, 114 refs.); Substitution Reactions of Inert-Metal Complexes — Coordination Numbers 6 and Above: Other Inert Centers, by J. Burgess (22 pages, 176 refs.); Substitution Reactions of Labile Metal Complexes, by S.F. Lincoln (24 pages, 119 refs.); Substitution and Insertion Reactions (of Organometallic Compounds), by D.J. Darensbourg and D.J. Mangold (31 pages, 96 refs.); Metal–Alkyl and Metal–Hydride Bond Formation and Fission; Oxidative Addition and Reductive Elimination, by D.A. Sweigart and N.J. Stone (23 pages, 171 refs.); Reactivity of Coordinated Hydrocarbons, by L.A.P. Kane-Maguire (19 pages, 73 refs.); Rearrangements, Intramolecular Exchange, and Isomerizations of Organometallic Compounds, by B.E. Mann (18 pages, 199 refs.); Homogeneous Catalysis of Organic Reactions by Complexes of Metal Ions, by D.P. Riley and S.J. Tremont (40 pages, 182 refs.); and Volumes of Activation for Inorganic and Organometallic Reactions: A Tabulated Compilation, by R. van Eldik (11 pages, 85 refs.). Additionally, there is a Subject Index (13 pages).

It will be evident that Chapters 10–15 (the last six) are of principal interest to organometallic chemists.

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