Homogeneous Hydrogenation; by B.R. James, Wiley-Interscience, New York, 1973, xiv + 525 pp. £12.50.

Chemists with a variety of research interests have welcomed the opportunity provided by transition metal ions and complexes, to study catalytic hydrogenation under homogeneous conditions. This, together with the applicability of many of the established methods of physical organic and inorganic chemistry, has led to very rapid growth of the subject. Dr. James' book provides a comprehensive account of this development up to the end of 1970, and literature between then and mid-1972 is summarised in an appendix. The bulk of the material is contained in chapters devoted to (vertical) transition metal Groups, with ions and complexes of the more important metals (Co, Rh, and Ir) receiving chapters to themselves.

Within each chapter the presentation is usually chronological, but the full range of results is brought to bear in the search for the mechanisms of the various systems. Summaries of the more extensively studied systems appear in tabular form, and the final chapter draws together the common themes of both mechanisms and investigative procedures and provides cross-references to the survey chapters. Homogeneous hydrogenation of unsaturated fats and the Ziegler-type catalysts also have separate chapters, and a miscellany of processes are dealt with in the penultimate chapter. Work pertaining to a particular metal or complex is accessible via the index and the text is also amply cross-referenced.

There is no doubt that the book will be very useful and practitioners will want it on their shelves. The beginner can now take this with appropriate reviews of hydrides and other contextual topics as a framework for an assault on the current literature. In terms of the time it can save, the book is of excellent value.

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Organic Syntheses: Collective Volume 5, edited by H.E. Baumgarten, John Wiley & Sons, Inc,, New York, 1973, xiv + 1234 pages, $24.95

The present volume is a revised and updated edition of Volumes 40—49 of "Organic Syntheses", the well-known series of proven merit. The syntheses of over 300 compounds are described in detail, either to illustrate a general procedure or to provide a reliable preparation of a specific compound. Since these procedures all have been checked by independent groups of workers, they may be considered quite reliable.

There is much in this volume which the organometallic chemist will find obviously useful: the synthesis and synthetic applications of a variety of organometallic reagents, such as CH_2=$CHCH_2Li$, Ph_2C=NMgBr, Ph_2CHNa, unsolvated n-C_4H_9MgCl, C_6Cl_5MgCl, $CH_3C{\equiv}CNa$, ICH_2ZnI, $PhHgCCl_3$; the