

## Book review

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*Transition Metal Hydrides; The Hydrogen Series, Vol. 1*, edited by Earl L. Muetterties, Marcel Dekker, Inc., New York, 1971, xvi + 342 pages, \$14.50.

This is Volume 1 of a series on the chemistry of that ubiquitous element, hydrogen, and is concerned with hydrogen in combination with transition metals. The first two chapters by the Editor give the essential physical properties of hydrogen and its isotopes (9 pages) and a brief systematic account of binary hydrides and hydrogen absorption on transition metals (21 pages). The remainder of the volume is concerned with transition metal hydride complexes, each chapter being by a different author or group of authors.

Fifteen years ago transition metal hydride complexes could have been reviewed in detail in a few pages. Now a full volume such as this is needed. All the known structures of hydride complexes are excellently reviewed by B.A. Frenz and J.A. Ibers in Chapter 3. The stereochemistry and fluxional character of transition metal hydride complexes as determined by spectroscopy, particularly NMR, is reviewed in very great detail by J.P. Jesson and the systematic chemistry of the hydride complexes by R.A. Schunn. The work finishes with a short summary of the role of transition metal hydride complexes in homogeneous catalysis by C.A. Tolman.

The development of the chemistry of transition metal hydride complexes during the last 15 years has had an enormous impact on our understanding of the catalysis of reactions involving olefins, mainly hydrogenation, isomerisation and carbonylation. This book therefore contains an enormous amount of material fundamental to the understanding of useful industrial reactions, as well as describing a new branch of chemistry. The book is comprehensive with extensive tables, and gives an excellent digest of the literature to 1970. It is warmly recommended to all working in its field. Each chapter is accompanied by a list of references, and the whole book by a name index of 19 pages and a combined formula and subject index of 9 pages. Under present-day inflation, the price of \$14.50 is reasonable, and it must be hoped that subsequent volumes can be produced at comparable prices. Volume 2 will be on borohydrides.

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

J. CHATT

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