



Book review

Recent Advances in Hydride Chemistry

Edited by M. Peruzzini, R. Poli, Elsevier, Amsterdam, 2001. 564+xii pp.; USD 199.50, Eur 199.50, ISBN 0-444-50733-7

This book is presented as a tribute to Luigi Venanzi, a much respected and admired practitioner of transition-metal organometallic chemistry since the time when he worked with Joseph Chatt in the early days of the flowering of the subject. It was intended that he should have been a contributor, both to the conference from which this volume grew and to the book itself. Unfortunately, Luigi died before he could do these things. The book turns out to be a fitting memorial of a talented scientist.

It is generally a mistake to name a volume 'Recent Advances in. . . .', if only because what is recent quickly becomes out of date, and hence of diminished interest. The exception might be if the volume is one of a series, which this is not. Hence I read through this book with two questions in my mind: how recent is the content, and how long will it retain its appeal? The answers appear to be rather positive, not least because some of the reviews are novel and others will remain valuable as summaries of the literature for some time to come. This is a reflection of the undoubted quality of many of the contributors. There are 18 chapters. For my personal taste, the reviews by R.H. Morris (Non-classical Hydrogen Bonding along the Pathway to Heterolytic Splitting of Dihydrogen), E. Clot et al. (Hydrides and Hydrogen Bonding: Combining Theory with Experiment), S.B. Duckett (Mechanistic Aspects of Inorganic Chemistry Probed via the Parahydrogen Phenomenon), A. Lledós et al. (Quantum Mechanical Phenomena in Dihydrogen and Polyhydride Transition Metal Systems), R.A. Henderson (Metal Hydride Intermediates in Hydrogenases and Nitrogenases: Enzymological and Model Studies) and A.J. Maeland (Hydrides for Hydrogen Storage) are particularly interesting. They describe chemistry to which the various authors have made

particularly significant contributions, and they also illustrate how the far hydride chemistry has come from being just a preparative problem. The new generation of hydride chemists must also be competent theoreticians and accomplished NMR spectroscopists. The subject has become very multi-disciplinary.

Some of the other 12 contributions are rather more specific, and perhaps of less wide appeal. Again, subjectively, the reviews by M. Hidai and Y. Nishibayashi, with its description of the elegant use of transition metal hydrides to protonate dinitrogen, and by R. Poli (Paramagnetic Mono- and Polyhydrides) were particularly interesting. The latter brought to mind one of my early papers, published nearly 40 years ago, in which we claimed to have prepared the first paramagnetic hydride complex. Embarrassingly, this turned out to be an impure dinitrogen complex! However, all the reviews are of a good standard, well referenced and generally readable. Apparently they were all subject to independent review.

Coming back to the questions posed above: the literature coverage is complete as far as it could be, but certainly to not later than some time in 2000 and a reader new to the area will surely need to check for subsequent publications; many of the reviews describe rather basic aspects of hydride chemistry and they will retain their value for some time to come. This book should certainly be useful for rather longer than the general run of conference-based publications. It is also a book that Luigi Venanzi would have appreciated and enjoyed.

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