

in low temperature matrices (R.H. Hooker, K.A. Mahmoud, A.J. Rest and H.G. Alt, *J. Organomet. Chem.*, 419 (1991) 101 is covered twice, in schemes 6.31 and 7.8; not only is there no cross-referencing in the text but even the formula of the *same* intermediate is typeset differently in the two places,  $(\eta^5\text{-cp})\text{Cr}(\text{CO})_2\text{Me}$  and  $\eta^5\text{-cpCr}(\text{CO})_2\text{Me}$ . The key point about this reaction is that it appears to involve formation of a methyldiene hydride  $\text{Cr}(\text{=CH}_2)(\text{H})$ , one of the few examples of  $\alpha$ -migration. Given the teaching aims of the book, this seems an excellent opportunity at least to make a passing comment to link the photochemistry of carbonyls and alkyls, the topics of two chapters and also to give the reader some idea of the strength of the chemical evidence for the formation of this species.

It is the lack of critical discussion, which concerns me. By its very nature, much of the experimental evidence for photochemistry and photophysics comes from 'sporting techniques', such as matrix isolation or flash photolysis. Although such techniques can never have the same certainty as X-ray analysis of isolated products, the conclusions from some experiments are rather more tentative than others. Of course, an assiduous student ought to check all of the original references but, in a teaching text, I feel that the student might benefit from a guiding hand. Nevertheless, the author provides a good selection of references so the student is not left helpless. My greatest concern is the presence of a number of misprints in the formulae of compounds; for example  $(\eta^5\text{-cp})_2\text{W}(\text{CO})_3\text{H}$  instead of  $\eta^5\text{-cpW}(\text{CO})_3\text{H}$ , which could seriously throw many students.

Despite my reservations, enterprise should not be discouraged. Professor Roundhill should be complimented on covering this topic singlehanded. I hope that a second edition will soon be forthcoming, without the misprints, with a degree of cross-referencing and, perhaps even a tenth chapter devoted to a few detailed case studies to show students how photochemists really tackle scientific problems.

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*Gmelin Handbook of Inorganic and Organometallic Chemistry* (8th Edition)  
*Os-Osmium, Organo-osmium Compounds, Volume B3*,  
 Springer, Berlin, 1994, 282 + xi pages, DM 1790.  
 ISBN 3-540-93697-1

*Volume B5*, Springer, Berlin, 1994, 389 + xi pages, DM 2290. ISBN 3-540-93698-X

These two volumes are concerned with tri-nuclear organo-osmium compounds, which are being dealt with in a strictly logical sequence, though this is not always evident from the date of publication. Volumes B2 and B4, which also deal with such compounds, would appear to have dropped behind schedule. The B series as a whole describes di- to poly-nuclear organo-osmium compounds.

The first volume covers tri-nuclear compounds that contain no carbon-bonded ligands other than CO, and discusses the literature up to at least mid-1993. The second volume covers compounds with single carbon-atom donors other than, or in addition to, CO. It is a companion to Volume B6 (the index for which it also contains), published in 1993, and describes the literature up to the end of 1993.

The Gmelin organisation is to be congratulated on the accuracy, quality and rapidity of publication. To produce a conventional book such as these are, including data considerably less than a year old at the time of publication, is a measure of the superb standard of these and of the related publications. The cost may appear high, but at just over DM 6 per page cannot be considered to be excessive compared with the real cost of other methods of sampling the literature. The presentation follows the usual user-friendly Gmelin format, and, for myself at least, it is preferable to scanning reams of computer printout, and each volume is, of course much more comprehensive than a simple list of references. I very much hope that Gmelin will continue to be a growing resource, available to as many chemists as need to scan the literature.

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*Lithium Chemistry: A Theoretical and Experimental Overview*

A.-M. Sapse and P. v. R. Schleyer (eds.), Wiley, New York, 1995, xi + 595 pages, £71.  
 ISBN 0-471-54930-4

There has been an upsurge in interest in recent years in the structures and other physical properties of compounds of the alkali metals, especially lithium, much of it stimulated by the increasing availability and reliability of appropriate computational techniques. Professor Schleyer, along with his colleagues, has played a major