The second chapter, namely 'Radical cations as reactive intermediates in aromatic activation', by J.K. Kochi, is also of direct interest to organometallic chemists, since activation by Hg^{II} and Th^{II} electrophiles and oxidative substitution of methylarenes by Fe^{III} oxidants are surveyed, along with electrophilic aromatic nitration and other important reactions that can involve radical-cation intermediates. The account has the stamp of authority that one would expect from the leading authority in the field.

The remaining chapters are all good; they are tandem radical cyclizations, a general strategy for the synthesis of triquinane sesquiterpenes, by D.P. Curran; free radical thermochemistry, by D.D.M. Wayner and D. Griller; nucleophilic substitution by the $S_{RN}1$ mechanism on alkyl halides, by R.A. Rossi, A.B. Pierini, and S.M. Palacios; two decades of spin trapping, by E.G. Janzen and D.L. Haire. (The chapter on the $S_{RN}1$ mechanisms includes *ca.* 5 pages on the reactions of Me_3SnM (M = Li or Na) with alkyl halides.)

This volume is strongly recommended. It represents good value at today's prices.

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Reductions by the alumino- and borohydrides in organic synthesis, J. Seyden-Penne, VCH Publishers Inc., Lavoisier Tec. & Doc., New York and Paris, 1991, pp. 206. £42.00. ISBN 1-56081-099-8.

In the last fifty years there have been many variations on, and applications of, hydride reagents derived from the simple sodium borohydride and lithium aluminium hydride. A number of useful reagents of varying selectivity and stereochemistry have been developed for use in organic synthesis. This book is an attempt to bring together a lot of information which is scattered throughout the literature to enable the organic chemist to select the appropriate hydride reagent for a specific task. The book is a translation of one which originally appeared in French. Nevertheless it is quite up-to-date and there are a number of references to work which appeared in 1990.

The book is in three parts. The first part describes the more useful reagents based on aluminium and boron hydrides including variants with different alkoxy groups and those to which transition metal salts have been added. The second, and larger, part of the book is devoted to a description of the reduction of the main functional groups. These chapters describe not only the outcome of reductions but also the way in which selectivity between the reduction of competing sites on the same molecule has been developed. The chapters deal respectively with the cleavage of carbon–heteroatom single bonds, double bonds, triple bonds and miscellaneous systems. There are a wealth of examples illustrating the range of selectivity that is available so that the reader can select the most appropriate reagent for the desired reduction. The final part of the book is a set of synoptic tables which summarize the products obtained from reductions and guide the reader to the relevant part of the text. The book contains adequate references to

the recent original literature using a slightly unusual but workable system, based on the initials of the first two authors.

Given that the book is a translation, there are relatively few inaccuracies, but some of the structures have groups missing, and in a few cases, e.g. on page 27, the stereochemistry is wrongly given. I note also that hydride reagents are a useful way of introducing deuterium and tritium labels stereospecifically into an organic molecule, and although these reactions are mentioned from time to time in the text, it would have been useful if the information could have been brought together in one place. Nevertheless this volume is a useful source book on reductions by aluminium and borohydrides and their applications in organic synthesis.

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Organic synthesis, the roles of boron and silicon, S.E. Thomas, Oxford Chemistry Primers 1, Oxford University Press, Oxford, 1991, pp. 94. £4.99 (Paperback). ISBN 0-19-855662-4.

This book is the first of a series which has as its aim the provision of 'accessible accounts of a range of essential topics in organic chemistry' affording a 'source of material commonly presented in lecture courses yet not adequately covered in existing text's. This particular book provides a concise account of the role of organo-boron and organo-silicon compounds in synthesis. Having lectured to both undergraduates and graduates on the application of these elements in organic synthesis, I can see the need for a slim volume of this type which provides a perspective of current applications and which can be read before the detailed reviews and comprehensive books are tackled. The presentation of the text is clear and the major points are well-exemplified from a range of different syntheses. Use is made of a column to one side of the main text to provide some brief parenthetical explanatory notes. The question which every organic chemist needs to address is 'When do I use these reagents?', is answered in the many examples. A picture of the geometry of the transition state is important in understanding the stereochemical outcome of many reactions of silicon and boron enolates and this is well-covered, with attention being paid to the introduction of chirality at appropriate points. In any book of this size where there are space limitations, it is obviously possible to quarrel with content and find omissions; for example, the use of silicon hydrides for hydrogenolysis. And perhaps there might have been a few more comparisons between different methods of achieving the same objective. However this is a useful text for the advanced undergraduate and postgraduate about to embark on an organic synthesis. It makes a good start to this new series. The paperback is priced at £4.99 as a result of a generous subsidy for the series from I.C.I. This form of sponsorship is a commendable way of furthering the education of chemists and I hope that we shall see further examples.

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