

The first of these includes a discussion of coordinative unsaturation, oxidative addition, cyclometallation and migration/insertion reactions. The description of oxidative addition is particularly exhaustive, with a discussion of the general principles followed by an extensive series of examples. In the second there is comprehensive coverage of the complete spectrum of homogeneously catalysed reactions ranging from hydrogenation to olefin metathesis by way of hydroboration, hydroformylation and polymerization reactions, and the chapter concludes with a short section on supported homogeneous and phase-transfer catalysis. Many of the examples are from recent literature and this chapter is particularly well referenced.

The book concludes with four appendices: units and fundamental constants, ionization enthalpies of atoms, ionic radii, and basic concepts of molecular symmetry and character tables. These appear to be identical to the appendices in the 5th edition.

In conclusion, the new edition represents a significant advance on the previous one, which was becoming somewhat dated. There is no doubt that every chemistry library should have a copy of this comprehensive reference work. However at £58.50 (hardback) it is debatable whether many undergraduates will be persuaded to purchase it as a textbook.

DEREK A. TOCHER
University College London, UK

Organozinc Reagents
Paul Knochel and Philip Jones (eds)
Oxford University Press, Oxford, 1999
xvi + 354 pages. £75
ISBN 0-19-850121-8

The preparation of diethylzinc and ethylzinc iodide, reported by Edward Frankland in 1849, was a landmark in chemistry; here were compounds which had many of the properties of typical organic compounds, yet contained a metal. However, although the potential usefulness of such organozinc reagents in synthesis was recognized and investigated, they were rapidly overshadowed, first by organomagnesium compounds and then by organolithium compounds. Recent years have seen a resurgence of interest in organozinc reagents (and in related zinc-mediated reactions). An important factor in this revival of interest has been the introduction of very reactive forms of zinc metal, which allow many more reagents to be prepared directly from the metal and an organic halide. The improved availability of the reagents has in turn led to recognition of their particular patterns of reactivity, either alone or in conjunction with other metals.

Both the preparation of organozinc reagents and their

use in uncatalysed and catalysed reactions are covered in this book, together with the preparation and reactions of organozincates and other bimetallic reagents, and the Reformatsky reaction and zinc-mediated Barbier reactions. Each chapter includes a summary of the chemistry covered, but the book is subtitled *A Practical Approach*, and its heart is a collection of detailed experimental protocols. These will be a very valuable resource for chemists wishing to exploit these reagents, though it is a pity that more thought was not given to the format of the book. For use as a laboratory manual it would have been better to use some form of ring binding so that the pages of the open book lay flat, and to paginate protocols so that the second page faced the first.

Besides the main text there is a list of organozinc reagents with references (useful); a list of suppliers (not very useful, as there is only limited reference to named suppliers in the text, and some named suppliers are omitted from the list); and an index (almost useless — a full list of the experimental protocols would have been much more valuable).

Organozinc Reagents is expensive, but not excessively so for a specialized book. Chemists involved in organic synthesis will certainly wish to have access to it, in the library if they cannot afford a personal copy.

B. J. WAKEFIELD
Ultrafine Chemicals, Manchester, UK

General Aspects of the Chemistry of Free Radicals

Z. B. Alfassi (ed.)
John Wiley & Sons, Chichester, 1999
x + 563 pages. £150
ISBN 0-471-98760-3

This is one volume from the series on the *Chemistry of Free Radicals*, edited by Zeev Alfassi (Ben Gurion University, Israel), the other titles to date being *Peroxy Radicals*, *N-Centered Radicals*, and *S-Centered Radicals*. There should be scope here for a series which would be the successor to the two classics in the field, Walling's *Free Radicals in Solution* (Wiley, 1957) and Kochi's edited *Free Radicals* (Wiley, 1973), but none of the present series has a foreword which sets out the editor's intentions. What results is rather like one of Patai's series on *Functional Groups* (Wiley): a series of vignettes at various levels reflecting the special interest of the authors, rather than a source of first resort on the general properties of radicals. The word 'general' in the title should not be taken to imply that some of the contents are not specialized or specific.

The first chapter, by G. R. Buettner, falls between two stools in trying to compress the basics of ESR spectroscopy into 18 pages. It cannot go deeply enough to be