

CO, including carbenes and acyl. In the normal Gmelin fashion, trinuclear means three osmium atoms, so that compounds containing  $\text{Os}_3\text{M}$  ( $\text{M} = \text{Mo}, \text{W}, \text{or Pt}$ ) and  $\text{Os}_3\text{Pt}_2$  cores are also discussed. Literature coverage is comprehensive to the end of 1992, but there are many citations from 1993. The organisation, and thus to some degree the bias, is in terms of composition, that is to say it deals principally with preparations, structures, and spectroscopic properties. It is not so easy to track down reactivity and mechanism. However, this is not a criticism, merely a comment. These volumes continue to be an invaluable source of information, and should be available to all organometallic chemists.

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*The Chemistry of Organophosphorus Compounds, Volume 3: Phosphonium Salts, Ylides and Phosphoranes*, Frank R. Hartley (ed.), (in the series *The Chemistry of Functional Groups*, Saul Patai (ed.)), Wiley, Chichester, price £120.00.

The third volume of this four volume series on the chemistry of organophosphorus compounds continues the tradition, established in Volumes 1 and 2, of an introductory chapter by Gilheany (300 references) covering structural and bonding aspects in phosphonium ylides, salts and phosphoranes. Regrettably, however, much of the material relating to the phosphonium ylides is duplicated in the chapter by Bachrach and Nitsche (95 refs), creating the impression that Volume 3 is simply a collection of individual contributions rather than a well planned overview of the subject. This impression is further underlined by the separate (albeit admirable) treatment of the photochemistry of ylides, phosphoranes and phosphonium salts in the chapter by Dankowski (121 refs).

The longest chapter, by Christeau and Plénat, which describes the preparation, properties and reactions of phosphonium salts (910 refs) is very well written and offers a fascinating insight into the uses of these types of compounds. Likewise the chapter by Burgada and Setton (citing 360 references, reviews and books) extensively covers the wide variety of chemical behaviour exhibited by these important 5-coordinate phosphorus compounds, and includes a discussion of their interesting dynamic behaviour.

The topics discussed by Santhanam under the heading 'Electrochemistry of ylides, phosphoranes and phosphonium salts' (58 refs) develop some of the themes of his earlier article in Volume 2 of this series,

but once again the chapter contains information on radical anions in unsaturated clusters of the type  $[\text{Fe}_4(\text{CO})_{11}(\text{PR})_2]$  and related cobalt systems which seem totally inappropriate. It is also not clear to this reviewer why the final chapter by Feilchenfeld (403 refs) concerning the chemical analysis of organophosphorus compounds is included in the present volume. Certainly the volume's sub-title gives no inkling that it contains a review concerning the important analytical techniques described here. Furthermore although this chapter competently discusses a comprehensive array of analytical techniques of considerable interest to organophosphorus chemists, it surely should have been included in a different volume of this series.

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*Handbook on Metals in Clinical and Analytical Chemistry*, H.G. Seiler, A. Sigel, and H. Sigel (eds.), Marcel Dekker, New York, 1994, pp. 753 + xvii, US \$195. ISBN 0-8247-9094-4

This book represents a massive effort by the eminent editors and by the authors. It is written in two principal parts. Part I details briefly the role of metal ions in clinical chemistry and then discusses the collection, storage, transport, and treatment of samples. It concludes with general discussions, replete with basic references, of eight basic analytical techniques. Part II deals with individual metals in 43 separate chapters covering 60 different metals, all within a common frame of chemistry, technical uses, physiology, and analytical determination. Each chapter has a set of basic references. There are, in all, more than 80 contributors.

Considering a couple of chapters at random, Chapter 19 on barium describes the chemistry in only seven lines: it is a dense metal, of little commercial application and many of its compounds are insoluble. Technical uses cover half a page. The physiology contribution is a bit longer, but apparently this element has, as yet, no clear biological function. The analysis recommendations are clear but minimal. There are 22 references. In contrast, iron chemistry requires nearly two pages, and its uses half a page. However, it needs to be recognised that the intention of these sections is not to provide a review but to give enough background for the reader to understand why specific methods of analysis are recommended, and little more. The physiology etc. occupy about four pages, enough to specify something of iron requirements, distribution, and storage in humans, and the effects of iron overload and deficiency. The analyti-

cal methodology and recommendations occupy about three pages and there are 61 references.

No element receives much more attention than iron, and none much less than barium. However, this is not a manual but a handbook, and as such appears to be an excellent first reference for recommended methods for specific metals in clinical samples. It will probably constitute a useful reference to all those, an increasing number, interested in problems of the interaction of metal compounds, especially those with unpleasant

characteristics, with animals including humans. The association of these particular editors with this specific handbook is an indication of a reliable and useful production.

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