

stabilization of otherwise unstable E_2 and $RE=ER$ species are also highlighted.

Readers of this journal might be interested in Chapter 8 on 'Environmental and medicinal chemistry', by J. Reglinski. This is a short contribution but deals with general environmental problems, and particularly ways in which arsenic is incorporated via arsenosugars, lipid arsenates etc. into living matter. Section 8.4 begins with the sentence 'The Group 15 elements have a rich if somewhat dubious history of their use as medicines prior to the turn of the century'. Indeed the medicinal uses of arsenic and antimony have been declining for obvious reasons since then, but claims are being made for antimony therapy proving useful in the treatment of some parasitic diseases where resistance has been developed to standard organic therapies. The final chapter, by H. Onishi, is concerned with analytical methods, ranging from bench-top gravimetric and volumetric methods to more sophisticated mass-spectrometric, neutron-activation and atomic-emission methods.

Price dictates that this is a book for libraries but it should be made widely available as a ready source of information on elements in which increasing numbers of chemists have interests.

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Mercury and its Effects on Environment and Biology

A. Sigel, H. Sigel (eds)

Marcel Dekker, New York, 1997

648 pages. \$250

ISBN 0-8247-9828-7

This is the latest volume (Vol. 34) of the important *Metal Ions in Biological Systems* series edited by A. and H. Sigel. Mercury seems to be the longest-running metal in the toxic metals and metalloids saga; it is coming up to 30 years since the famous Wood *et al.* paper suggesting methylation of mercury by methyl cobalamin.

As there is much recent research in the mercury field, the appearance of this volume is welcome. The book concentrates on *where* the various forms of mercury exist (Chapters 2, 3, 4 and 5) and *how* the various processes of mercury biogeochemistry and environmental chemistry occur (Chapters 3, 7 and 8). The role of mercury in food chains and webs is covered in Chapters 9 and 10. The vital questions of toxicity are covered in detail in several chapters (Chapters 11–16). Newer work on genetic aspects is covered in three chapters (Chapters 17–19).

It can be seen that the book provides a well-balanced and comprehensive coverage of the environmental mercury picture as it is currently understood. Bearing

this detailed and up-to-date picture in mind, it is a disappointment that so little space was allowed for a summary of the current analytical situation for mercury and methylmercury. There have been numerous recent developments in the analytical chemistry of mercury and, with this in mind, it would have been more proportionate to the rest of the book if the author of Chapter 1 had been permitted more room to describe in greater detail the analytical work he mentions.

The book is good value for money. In any case, all workers in the mercury area will want to have it.

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The Systematic Identification of Organic Compounds

Ralph L. Shriner, Christine K. F. Hermann, Terence C. Morrill, David Y. Curtin and Reynold C. Fuson

ISBN 0-471-59748-1 Wiley-Interscience, New York, 1998, 7th edn xiii + 669 pages. £27.50

This book updates the sixth edition published 18 years ago, and is dedicated to the memory of R. L. Shriner, the major force behind the first edition in 1935. It is presented in 11 chapters plus appendices and covers the identification of unknowns, the classification of compounds by solubility, spectroscopic methods, chemical tests for functional groups, and synthesis of derivatives, separation of mixtures, problem exercises, and information on the chemical literature. In this edition, attempts have been made to modernize the text, and the chemical tests and spectroscopic methods have been separated.

The introductory chapter aims to justify the need for qualitative analysis, and gives a few basic safety instructions regarding the handling of unknowns. Chapter 2 then sets out to describe the strategy involved in identifying an unknown, and the options available. Although it mentions the use of (for example) NMR, it outlines its usage at a very basic level. This may be satisfactory for the beginner but it can be misleading; the reader would benefit from further information indicating the powerful nature of this technique. Chapter 3 begins the initial examination of the compound, including melting-point determination and the use of a polarimeter, although the equipment referred to is dated. Chapter 4, on elemental analysis, and Chapter 5, on the classification of solubility, are followed by a chapter on spectroscopic methods. This is a basic, concise and clear guide and the reference tables are good. Chapter 7, on the tests for functional groups, gives detailed experimental procedures, and is followed by a related chapter on derivative preparation. Both have had clean-up procedures added to this edition. Chapter 9 contains some useful problem exercises. Standard separa-

tion techniques such as distillation, extractions and chromatography, are then covered. Finally Chapter 11 covers literature sources where the lack of mention of the Internet is notable. The appendices are useful and comprehensive.

Overall, this is a comprehensive guide in some respects and includes much useful information, but it still has a

dated feel and would have benefited from the inclusion of photographs of more up-to-date equipment. Although it will undoubtedly be useful as a teaching guide, there are sections that have been dealt with better in alternative texts.

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