



BOOK REVIEWS

Fundamentals of Electrochemical Analysis—Second Edition: Z. Galus, Ellis Horwood, Chichester, 1994. Pages xiii + 606. £69.50. ISBN 83-01-11255-7 (PWN, Poland).

This second, revised, edition is 12% larger than the first, and each of the retained chapters have been brought up to date. Two small chapters, one on analytical problems in trace analysis and one on micro- and modified-electrode systems, have been introduced. Three chapters dealing with higher-order chemical reactions involving charge transfer have been condensed into one. Some of the outdated and less-important parts have been omitted. The chapters are not wholly in the stand-alone form, but repetition of some aspects in various chapters prevents the reader's attention being distracted by constantly having to refer to other parts of the book. Having said that, I must say that the improved Index, and better lay-out of the Table of Contents, makes cross-referencing much easier. The considerable improvement in the quality of the paper and print, and the excellent work of the translation editors, should ensure that this book remains as a standard reference work on electrochemical analysis. It is reasonably priced.

J. B. Craig

Inorganic Trace Analysis—Philosophy and Practice: A. G. Howard and P. J. Statham, Wiley, Chichester, 1993. Pages: xii + 182. £39.95. ISBN 0-471-94144-1.

Many an analyst will welcome this book. The authors state their objective quite clearly in the preface . . . 'to help develop a thinking approach to trace analysis by pulling together scattered information on the techniques and materials which are used in trace analysis' and they seem to have achieved this end.

There are eight chapters, each of which deals with a specific topic and provides a self-contained source of information on that subject. The opening chapter succinctly introduces the philosophy of trace and ultra-trace analysis and the sorts of problems encountered. This is very important as without understanding the contents of this chapter much of the rest of the book would be meaningless. Chapters 2 and 3 deal with the Working Environment and Laboratory Materials. The importance of a clean laboratory and possible sources of contamination are stressed. I was especially pleased to see a section on 'The Human' as this potential source of contamination is often overlooked when attempting to reduce contaminants in a laboratory and the authors are to be congratulated on its inclusion. The chapter on laboratory materials is a veritable mine of useful information. It covers all of the major materials used for making laboratory ware and shows how these can introduce contamination to samples.

Chapters on Storage, Reagents and Water Supply follow. The chapter on storage explains many of the pitfalls in selecting apparatus for use and provides sound strategies for decontaminating it before use. In the past methods for cleaning equipment such as glassware tended to be passed down from one analyst to another like some arcane ritual, but this book explodes many of the myths encountered and provides sound procedures for dealing with this thorny problem. The chapters on reagents and water supply are full and well worth reading for any practising analyst. The only disappointment is that in discussing reagents possible contamination from organic solvents is not covered, an oversight which I hope will be corrected in any future revisions of this book.

The longest chapter in the book is devoted to Working Practices and covers a wide range of topics from sampling to quality control. It does not seek to lay down strict methods but strives to provide the background information necessary for the analyst to develop sound methods. It is interspersed with warnings on the handling of hazardous materials and the only omission that I could see was that the grinding of materials of unknown history should be treated with great caution. The book closes with a discussion on trouble shooting. Although by no means an exhaustive treatment of the subject it fits in well with the tenor of the rest of the book by providing guidelines rather than descriptive methods.

This is a book I would have no hesitation in recommending both to practising analysts and to students as its approach is worthy of study and consideration by all striving to achieve the highest quality in trace analysis.

E. J. Glazier

Ecotoxicology Monitoring: M. Richardson (editor), VCH, Weinheim, 1993. Pages: xxv + 384. DM 192.00. ISBN 3-527-28560-1.

When is a chemist not a chemist?—when an analytical chemist has to investigate environmentally relevant properties of materials.

The increasing demands placed on the analyst, not just to quantify levels of specified substances or to identify components of mixtures, are frequently pushed to the limits by the requirement to report on "any other toxic or noxious substance present". As a consequence, the cost of testing escalates from expensive to prohibitive, and it is not surprising that attention has been devoted to ways of measuring the toxic effects themselves, an approach now becoming rather widespread. The

traditionally trained chemist then faces a dilemma—biological testing is far removed from chromatography and spectroscopy, and the techniques for handling living organisms seem at first so different from those used in conventional chemical analysis.

However, recent developments, especially in the use of luminescent bacteria for toxicity testing—commercially available as the Microtox[®] and Lumistox[®] test kits—have brought such procedures within the capabilities of the chemist and, moreover, they are now officially recognised by government bodies in many countries. They have been shown to yield toxicity data as effectively as alternative tests involving fish or small animals, but at much lower cost and in a shorter time.

This timely book, taking as its starting point a symposium in Leeds in 1992, and subsequently expanded to include additional invited contributions, presents a broad and well balanced view of this fascinating field. Section 1 covers Microbiological testing, including the use of luminescent bacteria. Section 2 deals with Alternative biological testing, including the use of invertebrates, daphnia, micro-algae, seaweeds and enzymes. Section 3 gives a helpful comparison of the performance of the Microtox[®] test approach with those of other toxicity tests, and on its applicability for environmental testing. Interesting legal aspects and case histories are presented in Sections 4 and 5.

This volume makes fascinating reading and will be both accessible by and informative for a wide cross-section of scientists of different disciplines. It is well produced, referenced and illustrated. The editor and his team are to be congratulated on the coverage, style and presentation of this essential work of reference.

It is to be hoped that this book will help to establish ecotoxicological testing, not as a “no-man’s land” between Chemistry and Biology, but as a key area of common ground, enabling chemical data on environmental samples to be complimented by biological observations. It deserves to succeed.

I. L. Marr

Bioluminescence and Chemiluminescence: A. A. Szalay, L. J. Kricka and P. Stanley (editors), Wiley, Chichester, 1993. Pages xiii + 548. £90.00. ISBN 0-471-941646.

This volume contains the proceedings of the VIIth International Symposium on Bioluminescence and Chemiluminescence held in Banff, Canada, between 14 and 18 March 1993. As contributions were on a world-wide scale it gives a good indication of the current global prolific research activity in this field.

Papers are grouped into five sections: Instrumentation for Light Detection (47 pages); Molecular Biology and Biochemistry (190 pages); Chemiluminescent and Bioluminescent Assays (201 pages); Cellular Luminescence (61 pages) and finally a section on Chemiluminescence and Bioluminescence representing novel approaches to non-assay problems (36 pages).

A useful alphabetically arranged index is given which not only gives subject headings accompanied by appropriate page references but also lists all the names of the contributors and the page(s) where their paper(s) can be found. There is no comment on any discussion which may have ensued from the presented papers.

If one accepts that for rapidity of publication the contents have not been subjected to peer review and that the quality of presentation is variable, there can be no doubt that this volume represents an excellent up-to-date reference source of recent and on-going research in Bioluminescence and Chemiluminescence.

R. R. Moody

Catalysis of Organic Reactions: J. R. Kosak and T. A. Johnson (editors), Dekker, New York, 1993. Pages: xv + 581. US\$185.00. ISBN 0-8247-9140-1.

This book is No. 53 in a continuing series of reference books on ‘Chemical Industries’. The book is simply a compilation of technical papers and poster synopses presented at the 14th Conference on “Catalysis of Organic Reactions”, held in Albuquerque, New Mexico, during April 1992. In all there are 47 articles (*ca.* 580 pages) which cover a diverse array of topics, such as hydrogenations, oxidations, aminations, *etc.* The authors are mainly from North American industries but some are also from American and European institutions. There is no doubting the expertise of the authors and each article is in itself well written, informative and a model account of a precise area.

However, most books which stem from conference proceedings leave this reviewer with serious doubts about their necessity and general usefulness. I consider such books to have a Readers Digest approach—they can be interesting, easy to pick up and to peruse a single article, and useful to while away the time in a doctor’s or dentist’s waiting room. However, if I want the whole story, then the primary literature is the only source. Library budgets, especially for British universities, are so tight that great care has to be exercised in buying books. The good work contained in ‘Catalysis of Organic Reactions’ will appear elsewhere (if not already), *i.e.*, in the primary literature—and so spending money on the book becomes more difficult to justify.

The 47 articles (ranging in size from 4 to 48 printed pages) generally have introduction, experimental, results and discussion sections as well as listing references. There is a 7 page general index.

J. L. Wardell