

## *Book Review*

**Trace Analysis, Volume 2**, edited by James F. Lawrence. Academic Press, London, 1983. pp. 275, £23.20.

The first two volumes of this series on trace analysis have liquid chromatography as a common theme. Volume 2 deals with selected topics in HPLC, steric exclusion (gel-permeation) chromatography and trace enrichment. The book opens with "Trace Analysis of Vitamins by Liquid Chromatography" by J.N. Thompson. The chemical and physiological properties of each vitamin are described, before methods of analyses are given. This is a well-written comprehensive survey of journal and monograph literature to 1981, with particular emphasis on the analysis of the different forms of each vitamin (isomers and derivatives). Specific analytical problems are discussed, which, if heeded, will greatly ease the life of the newcomer to this field of analysis. I found this a most readable and stimulating chapter.

R.C. Willoughby and R.F. Browner's contribution on "Combining Liquid Chromatography with Mass Spectrometry" underlines a significant problem in liquid chromatography: there is no single universal detector. As part of their sales-pitch for GLC-MS, the authors point out that none of the commonly used detectors provide structural information. However, this is not to say that some of the methods cannot do this, for some (u.v. and electrochemical detectors) could. Both off-line and on-line LC-MS interfaces are described. The sheer variety of the latter, each with its own advantages or disadvantages, rather deals the death blow to the 'universal detector status' of MS. Nonetheless, this is a reasonably balanced, though rather optimistic, discussion of current developments and applications of LC-MS interfaces. The authors, quite rightly, suggest as a future trend "the development of simple, relatively inexpensive interfaces . . .".

The chapter on steric exclusion chromatography by R.E. Majors and T.V. Alfredson appears rather unexpectedly in a book on trace analysis: in practice, the inclusion of this topic works very well. The authors delineate the ways in which this technique can be applied to trace analyses, before embarking upon a series of applications. The practical problems of the technique are discussed, and trouble-shooting procedures described. The element of surprise links this chapter with the next but one on HPLC analysis on unmodified silica. J.B. Green and P.L. Grizzle point out that the trend to obsolescence of unmodified silica may be reversed as current research employing mobile phases containing additives, progresses. The authors give an essentially pragmatic account of the applications of this technique, which nevertheless challenges some of the current received wisdom of HPLC. Both these chapters succeed as interesting and useful contributions.

After a rather untidy start, W.A. Saner's review of Trace-enrichment Techniques moves into top gear with the section on forms of trace-enrichment. This is followed by a fairly selective review of clinical, environmental and pharmacological applications. I found this to be one of the least readable chapters, and yet its subject matter, at the very heart of an analytical procedure, must be judged as crucial.

Overall, the book, like most of its genre, is neither recent enough to provide a truly state-of-the-art review of current techniques in a field where much of what was published in the last seven years is already obsolete, nor is it sufficiently thorough to act as a classic monograph. I suspect that its proper role is to introduce the new worker to this rapidly expanding area, to stimulate workers in related fields, and to provide individuals with a basis for developing better methods. In these respects this volume more than adequately succeeds. The book is well produced (physically) with sewn bindings and wipe-clean covers, and wonder of wonders, its sterling price appears to be a direct translation of its dollar price; a welcome breath of economic honesty.

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