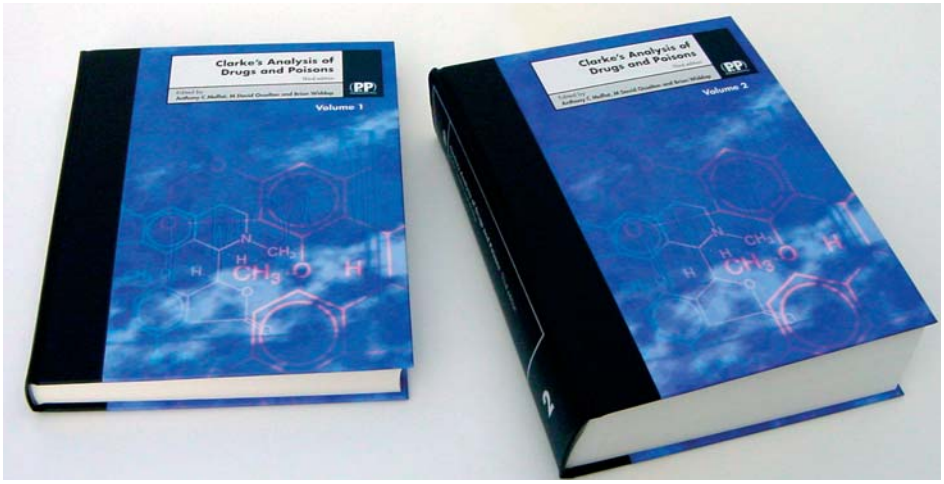
BOOKS

Long awaited edition will find a prominent place in analytical laboratories

'Clarke's analysis of drugs and poisons', 3rd edition, edited by A. C. Moffat, M. D. Osselton and B. Widdop. Volume 1 pp 648, volume 2 pp 1632. Price £350. London: Pharmaceutical Press; 2003. ISBN 085369 473 7.



It is 17 years since the publication of the 2nd edition of 'Clarke', as this book is known by the analytical profession. Considering the number of new drugs legitimately introduced since that time and recognising that analytical methodology improves its sensitivity by a factor of 1,000 every 10 years, it is not difficult to justify the publication of this latest edition.

For those acquainted with previous editions, the new work has a familiar feel. The large amount of extra material, however, means it can no longer be contained in a single handy volume. The new edition is literally two distinct books. Volume 1 has 18 chapters on general topics, usually environments in which an analyst might work, and a further 13 chapters on specific analytical techniques. Volume 2, the bulk of the work, contains the familiar monographs and some usefully indexed data.

Although the first volume may be considered a textbook to be read at leisure or for general education, it still contains much factual information that does not necessarily appear in the monographs in volume 2. For example, the chapters on drugs in hospital toxicology and therapeutic drug monitoring contain extensive lists of therapeutic and toxic plasma levels for drugs.

The chapters in volume 1 are written by authors of international repute and may safely be taken as authoritative statements of current practices and state of the art. My reservations relate to how the message is put across. The chapter on thin-layer chromatography, for example, is written without a diagram or picture of the physical operation involved in this form of chromatography. Would a description without such an illustration make any sense to someone who does not know what the technique does?

The desirable goal of covering each subject area in reasonable depth may occasionally result in overlapping material. However the chapters are not written in isolation and considerable work has evidently gone into integrating some aspects. The chapters on chromatography list standard systems for thin-layer chromatography, high performance liquid chromatography and gas chromotography and these are mostly the systems used in the monographs.

The chapter on drugs in sport is particularly relevant at the moment, with an Olympic year coming up, although I would rather have seen the treatment of racehorses and humans kept as separate discussions. Reading the popular press on drugs in sport would lead to the simplistic idea that a named drug is either present or not present in the test sample. It is particularly illuminating to discover that the testing rules are no more specific and that "the finding of a prohibitive substance means the finding of the substance itself or a metabolite of the substance". Further, the definition of the presence of high levels of testosterone in male athletes depends not on the detection of the substance itself, but on the ratio of the substance to luteinising hormone in the same subject. It would have been useful to expand on these important points.

Most of the chapters on methodology have been completely rewritten or cover new subjects. Although chromatography was the mainstay of quantitative drug analysis in the latter half of the 20th century, in more recent years, analysts have explored every available technique and this is illustrated by the chapters on nuclear magnetic resonance, near infrared spectroscopy and, as discussed in a chapter on emerging techniques, acoustic spectroscopy and lab-on-a-chip developments. Neither the chapter on mass spectrometry nor the one on high performance liquid chromatography, however, do full justice to the importance of HPLC-GC in modern bioanalysis.

The second volume contains over 1,300 updated monographs and 400 new ones; no compounds appearing in the second edition appear to have suffered the fate of nearly 200 that were dropped from the first edition, although the older analyst should be warned that "amphetamine" now appears as "amfetamine". Almost all monographs now include ultraviolet, infrared and mass spectra. Despite the wealth of detail on new techniques in volume 1, few of these techniques and approaches have found their way into the monographs. Perhaps this is because the general philosophy of the work is geared towards screening or identification rather than quantification. Thus, methods of analysis in plasma, when mentioned, describe mainly traditional HPLC or GC methods.

There is a chapter on pharmacokinetics and drug metabolism in volume 1, which rightly stresses the importance of understanding these facets of drug behaviour when interpreting the results of analyses. It was disappointing therefore that more information was not available in the monographs. Even where a section on disposition does appear in the monograph it is often brief, although with the importance placed on metabolism and pharmacokinetics in the registration process for new drugs it is unlikely that detailed information is missing from the scientific literature. Where statements on disposition are given, no reference is included, which seems a surprising omission.

Volume 2 concludes with a hefty section (Part 3) on drug data containing indexes of analytical data, most of which presumably already appears in the monographs and the chapters on techniques. Much of this is probably more easily retrieved from an electronic version of the product, but it is useful to have it indexed in this hard-copy version. These listings also emphasise the enormous amount of careful practical work that must have gone into compiling the data.

Because of its comprehensive all-purpose coverage the monographs need careful reading. For example TLC analyses may list the chemical entity that occurs in a dosage form (for example, nandrolone esters), whereas the bioanalyst more usually is looking for the free, active entity.

I did not set out to discover any typographical errors (the prerogative of the book reviewer throughout the ages), mainly because I did not expect to see any, but I could not help wondering what the "pared serum and saliva samples" were in the chapter on drugs and saliva. And the unfortunate subject who died three days after committing suicide intrigued me too.

The new edition has been four years in preparation and has been eagerly awaited. Despite the wide subject matter, its value to the specialist is not diluted and I have no doubt it will find a prominent, and deserved, place in all laboratories involved in aspects of drug analysis.

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