

How Curry and Sunshine encouraged the development of 'Clarke' in 1963

Tony Moffat outlines the history of 'Clarke's analysis of drugs and poisons' and describes what readers can expect to see in the latest edition of this standard reference text for forensic toxicologists, which was published in December 2003

The latest edition of the world-renowned standard reference text for forensic toxicologists — 'Clarke's analysis of drugs and poisons' — has just been published. The dog-eared, stained copies on laboratory benches are a testament to its usefulness. It has gained its reputation by being a reliable source of evaluated and accurate information. The information in Clarke has been designed to provide methods and data to enable analysts to detect, identify, quantify and profile drugs and poisons in a wide variety of situations.

The history of Clarke, as the book is now affectionately known, dates from the Third International Meeting on Forensic Immunology, Medicine, Pathology and Toxicology held in London in 1963. At that meeting, Dr Alan Curry convened a group to discuss how information for the identification of drugs and poisons could be exchanged. These needs arose from a variety of situations such as suspected poisonings, doped racehorses and white powders suspected of being drugs of abuse. Rapid screening methods were needed as well as supporting information from the application of the new chromatographic and spectroscopic techniques. Dr Alan Curry and Dr Irving Sunshine subsequently made proposals for the contents of a compendium of analytical data for drugs and poisons that would meet the perceived needs. It was recognised at that time that it would take the efforts of many toxicological laboratories to provide such information.

In answer to the above, George Clarke convinced the Royal Pharmaceutical Society to publish such a compendium of methods and data. He was well qualified to do this, as he was an acclaimed toxicologist at the Royal Veterinary College, becoming England's first professor of chemical toxicology in 1968. Throughout his career he was a leader in many professional bodies having been President of the International Association of Forensic Toxicologists (TIAFT) (1963), Forensic Science Society (1965) and British Academy of Forensic Sciences (1968).

The first edition, published in 1969, was titled 'Isolation and identification of drugs'. It contained 10 chapters giving detailed methodology to perform analyses in a variety

of situations such as fast screening methods for use in hospital biochemistry laboratories as well as robust and accurate methods for use in forensic science laboratories where the results could be cross-examined in a court of law. There were also about 900 monographs for drugs and poisons giving analytical data for identification as well as references for quantitative methods.

The increasing workload of toxicology laboratories led to the expansion of the first edition by the publication of a supplemental volume six years later in 1975. The chapter on screening tests for common drugs was completely rewritten to reflect the advances in available instrumentation and changing drug use and abuse patterns. Other chapters were brought up to date and new chapters on mass spectrometry and radioimmunoassay introduced. An additional 250 monographs were added to include veterinary drugs and modern drugs of abuse.

By the beginning of the 1980s, Clarke had won pride of place in forensic toxicologists' bookshelves and had become an indispensable part of their lives. Poisoning cases, the abuse of drugs and solvents and drug abuse in sport had all increased enormously. A new edition was therefore planned in 1981 under my senior editorship assisted by three senior toxicologists: John Jackson (forensic toxicology), Michael Moss (doping in sport) and Brian Widdop (hospital toxicology) since George Clarke had died in 1978.

To acknowledge George's vision for the book and to recognise that it was normally called Clarke by its users, it was renamed 'Clarke's isolation and identification of drugs'. This was a much larger volume with 18 chapters and over 1,300 drug monographs. It was aimed to provide the means for detecting, identifying and quantifying most drugs and other toxic substances with a new function — to assist in interpreting the results. Thus a new section on disposition in the body was added to the drug monographs. Pictures of ultraviolet and infrared spectra were added for the first time, but we did still not have the space to include pictures of mass spectra. These had to be published as a separate book. It was also planned for use not only in hospital and toxicology laboratories, but expanded in scope to be used in numerous others such as quality control laboratories, environmental laboratories, and clinical laboratories engaged in therapeutic drug monitoring or research into pharmacokinetics and drug metabolism.

Toxicologists have used 'Clarke' as the standard reference text for many years

The third edition, just published, is titled 'Clarke's analysis of drugs and poisons' to reflect the increased occurrence of pesticides, other poisons, drugs misused in sport and drugs of abuse. As before, a team of editors, including myself, David Osselton (forensic toxicology) and Brian Widdop (hospital toxicology) coupled with the editorial department of the Pharmaceutical Press undertook the work to complete the project. It has been divided into two volumes for ease of use — especially for teaching purposes. Volume 1 contains the 31 chapters that describe the philosophy and practice in terms of methodology and analytical techniques. Additional areas covered include drugs of abuse, alcohol and drugs in driving, workplace drug-testing, postmortem toxicology, drugs in saliva and hair analysis. New techniques are also included, for example, Raman and near-infrared spectroscopy and capillary electrophoresis.

Volume 2 contains over 1,730 monographs (an additional 400 substances) with full mass spectra being included for the first time.

A major change is the provision of the information as a CD-ROM so that searches can be made rapidly.

Future improvements are planned including more advanced CD-ROM versions that will enable combined searches on the analytical data from the same or different techniques. More frequent updates can also be made using electronic means, thus ensuring the continued success of Clarke in the future.

Tony Moffat, DSc, FRPharmS, is senior editor of 'Clarke's analysis of drugs and poisons' and the Royal Pharmaceutical Society's chief scientist