

Preface to the Second Edition

Popular wisdom states that “if it isn’t broken don’t mend it”! This book has been received extremely well by academics in chemistry, biology, botany, soil science, geography, and environmental science as a course text at the introductory level. From the glowing reviews it has received, with hardly a note of criticism and few suggestions for improvement, one could be forgiven for thinking that a new edition of the book is not required. After all, most of the methods mentioned in the book are classical and have been well established for years, if not for several decades. Nevertheless, this book is not just a collection of analytical recipes but also aims to give students an understanding of the role of analytical methods in the broader picture of environmental pollution control. As our understanding of the impacts of pollution is constantly improving there have been changes in some of the regulations relating to many of the “classical” pollutants discussed in this book. This is especially true of environmental standards, which are continually changing in the light of new knowledge. Furthermore, newer techniques have been developed for monitoring these pollutants in the environment. It is therefore necessary to keep students updated with the current status of environmental analytical methodology and the associated regulations of these pollutants as well as to keep them informed about present day and future concerns in environmental pollution. For example, in air pollution there has been a shift from ambient to indoor air pollution monitoring in recognition of the fact that most people spend much more time indoors than outdoors, and that their exposure to air pollution is therefore related more to indoor than to ambient pollution levels. The way air pollution is reported has also been changed recently with the Air Quality Index (AQI) replacing the Pollutant Standards Index (PSI) in USA, and AQIs are now being adopted by many industrialised and developing countries. Open path and remote sensing methods are being increasingly used to monitor a wide variety of air pollutants in old (*e.g.* air quality monitoring, emission testing) and newer (*e.g.* fence line monitoring, upper atmosphere studies)

applications. Novel techniques have been developed for characterisation of atmospheric aerosols, including those that can analyse individual particles. New portable monitors are being developed for a variety of air and water pollutants, and personal air pollution monitoring is becoming increasingly popular. Biomonitoring methods are also being adopted as a low cost alternative for monitoring air pollution. There is greater concern over many emerging organic water pollutants (*e.g.* endocrine disruptors). Although analysis of these pollutants is beyond the scope of this introductory book because of the expensive techniques required, nevertheless, students should have a general awareness of these current issues and this book aims to provide that. Furthermore, there has been a growth in the World Wide Web (www) with new web sites and web pages being added daily as well as greater accessibility to the Internet even in the more remote regions of the globe. Also the Internet is playing a greater role in education, research and business throughout the world at all levels. All these issues have been addressed in the second edition but without making any major changes to the general layout and content of the material in comparison to the first edition. A section has also been included on ethics. It is increasingly being recognised that science and research ethics has to be taught to students at an early stage in order to improve the standard of their work and provide safeguards against scientific fraud. This is no more important than in the field of environmental analysis where low-quality and fraudulent data can have drastic consequences on those affected by environmental pollution as well as the laboratory analyst and researcher reporting such data. Finally, where appropriate, references have been updated and increasing use has been made of www references. A list of useful web sites is also included as well as a list of relevant journals and their web sites. We hope this will be of some value as we wish to see students producing quality research at the earliest stage and publishing their results in international journals. This will no doubt encourage their interest in, and enthusiasm for, protection of the environment, as this will be a major priority for future generations. Hopefully this edition will prove to be useful to students, academics and laboratory technicians for some years to come. Users are directed to appropriate web sites where they may update the various guidelines and standards, which will continue to change and grow in number.

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