that under certain structural conditions surfactant molecules can combine to form associated species as a result of their amphiphilic character. Even at relatively low concentrations, spherical aggregates in the form of micelles or vesicles can occur, and these can act as microreactors which influence the activity or selectivity of many reactions. The book shows in an impressive way that recently gained knowledge about these microheterogeneous (colloidal) phases can lead to new applications. The large wealth of material is presented in 40 chapters, which range in character from reviews to research reports with experimental details. The 95 authors who have been enlisted for the work come from 12 different countries. To impose some order on the wide range of topics, at least in the list of contents, the chapters have been arranged in five parts, but these differ greatly in size and importance.

Part 1 is devoted to the synthesis and transformations of amphiphiles. In addition to a survey of industrial syntheses there are chapters on special topics, such as detergents which are able to act in supercritical phases. The synthesis of labile amphiphiles for the organ-targeted transport of pharmaceutical agents is also discussed.

Part 2 is concerned with chemistry in isotropic phases and mesophases, and in view of the title of the book this part can be regarded as the central core. Its opening chapters describe the current state of knowledge about the control of reactivity in aqueous aggregates of amphiphilic systems, with emphasis on the role of microemulsions as reaction media. Much attention is devoted to electroorganic syntheses in the presence of amphiphiles. As well as progress reports on reactions and syntheses in emulsions and microemulsions using liquid or supercritical carbon dioxide, and on micellar autocatalysis, there are some very practically oriented contributions, for example on the use of amphiphiles for fast and efficient detoxification of military materials.

Part 3 deals with aspects of polymerization chemistry, which can be improved in many ways by the presence of amphiphilic systems. For example, it is possible to produce stable macro- or microemulsions as systems in which lattices with adjustable uniform particle sizes can be synthesized. There are articles on polymerization in various types of amphiphilic aggregates, and on the polymerization of unsaturated amphiphiles in the aggregated state. The resulting macromolecules often have the same shape and size as the original aggregates, and retain their properties. The related method involving the polymerization of adsorbed ("admicellar") monolayers or double layers can be used to modify certain types of surfaces through the formation of a practically monomolecular film.

Part 4, "Particle Precipitation", deals with a highly topical theme, as the method can be used to produce nanomaterials with special magnetic, electronic, or photoelectronic properties. The four chapters, some quite long, provide an overview of methods for forming organic and inorganic nanoparticles and also for incorporating them into amphiphilic double layers.

Lastly, Part 5 includes a discussion of morphological problems involved in forming supramolecular amphiphilic aggregates. Several chapters describe the use of amphiphiles and their aggregates as templates for constructing mesoporous materials. Such molecular sieves with regular porous structures may be used to complement the zeolites which have a smaller pore size.

Looking at the book as a whole, the topics covered relate well to each other, but the individual chapters have almost the nature of independent essays. The unusually large index (56 pp.) provides a quick way of finding the topics and information one is seeking. The wealth of aspects covered, the interdisciplinary character, and not least the good mixture of established knowledge and new developments, will ensure interest to a wide readership. In his preface the editor addresses the book to industrial chemists, university researchers, and students. However, only fairly advanced students will be able to benefit from this substantial work. Its structure makes it unsuitable as a student textbook, but some of the chapters may be useful for teaching purposes, for example, as a basis for seminars. There are relatively few printing errors, but on page 13 sarcosine, although correctly described, is shown wrongly in the formula.

To summarize, I can recommend this as an excellent book which fills a gap in the market and certainly justifies its place as the 100th volume of the series.

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New Advances in Analytical Chemistry, Vol. I + II. Edited by *Atta-ur-Rahman.* Harwood Academic Publishers, Amsterdam 2000. xxi + 1245 pp., softcover $ 240.00—ISBN 90-5823-031-7

Anyone who expects from its title that *New Advances in Analytical Chemistry*, edited by Atta-ur-Rahman of the University of Karachi, Pakistan, should be a new textbook on analytical chemistry will soon be disappointed on taking a closer look into the contents. Instead, it is an extensive monograph consisting of two independent parts. The first part consists of 16 articles on current topics in NMR and ESR spectroscopy, the second part of 11 chapters on modern mass spectrometry as well as two additional chapters on selected aspects of NQR spectroscopy and capillary electrophoresis.

All the chapters deal with separate topics, and there is the strong impression of a collection of review articles with limited coherence. In general, this type of book is very useful for the scientist who would like to gain information on a particular analytical technique at an advanced level. From the viewpoint of clarity, however, it is difficult to understand why the chapters on NQR spectroscopy and capillary electrophoresis were included here. It would have been much more useful to incorporate these chapters into similar monographs on other general topics which might be planned for the future.

The editor has taken on the challenge of imposing a degree of consistency on a monograph of more than 1200 pages with almost 30 groups of authors. Fortunately, a brief subject index for each of the two parts has been provided by the editor. This allows one to search for keywords within each part of the book. On the other hand, the layout of the text

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is not consistent throughout the chapters, although most of the cited references have a uniform format.

One significant problem with this book is its lack of up-to-dateness: For example, in the rapidly evolving field of proteomics, which is covered in the chapter "Advances in Protein Analysis and Sequencing by Mass Spectrometry", it is hardly acceptable that not a single reference in this chapter is more recent than 1997. The majority of the cited references originate from the first half of the 1990s. In other chapters the situation is similar. In the most extreme cases some chapters, in this book published in the year 2000, do not contain any references later than 1993. As many of the chapters are not mainly concerned with the basics but with current applications of the analytical methods, a reader who wishes to be informed about the state of the art of a particular technique would be better served by one of the readily available review articles in the scientific journals.

Who is likely to benefit from this book? Of course, specialists in the fields discussed will find this monograph useful for their work and may consider purchasing it because of the good technical quality of selected chapters. For example, V. G. Voinov has succeeded in providing a clear, well illustrated, and concise introduction to resonance electron capture mass spectrometry for analysis of organic compounds, which is currently one of the most sensitive analytical techniques available. On the other hand, the chapter by M. A. P. Martins and co-authors on NMR spectroscopy of isoxazoles is so specialized that only a very limited number of scientists worldwide will be able to make use of these more than 50 pages, three quarters of which are tables with chemical shifts. For graduate students and postdoctoral researchers, selected chapters are excellent and highly valuable tools to get acquainted with the particular analytical methods. My assumption, however, is that this book is not likely to exceed the status of a library copy, because of its indistinct profile.

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Capillary Electrochromatography. Edited by *Keith D. Bartle* and *Peter Myers*. (Series: Chromatography Monographs.) Royal Society of Chemistry, Cambridge 2001. xiii + 149 pp., hardcover £ 49.50.—ISBN 0-85404-530-9

Capillary electrochromatography (CEC) is a modern analytical separation technique which combines the retention principle of liquid chromatography with the principle of electroosmotic flow that drives the mobile phase in capillary electrophoresis (CE). Because of its separating capability and selectivity it has a great potential, but although it is now some 20 years since it was introduced, it has not yet become established as a routine method. Research on improvements to the separation system and instrument design, and into gaining a fuller understanding of the principles, is still continuing. This book is the second monograph on the method that has appeared, and it is an excellent introduction for anyone about to enter the field. Considering the complexity of this separation technique, it is a rather slim volume. Neverthless, it covers the subject fully and in an understandable way, without getting lost in too much detail.

In the introductory chapter one of the editors, Keith Bartle, explains the basic principles clearly and concisely. Thus at the start all the essential features of the method, especially the respects in which it differs from HPLC, are set out. These include the high separating efficiency and peak capacity, as well as the combination of electrophoretic migration with chromatographic retention when CEC is applied to charged analytes.

Norman Smith contributes a short chapter on the instrumental requirements for CEC. In most cases these can be met by adapting commercially available CE systems, and consequently, when the latter were introduced about ten years ago, there was an upsurge of interest in CEC. Adapting CE instruments for CEC involves minor modifications, but some of these may be already incorporated by the manufacturer. There also exist instruments that have been developed especially for CEC and nano-HPLC. Smith describes the instrumental problems and the necessary modifications to CE equipment in great detail, but gives no further information about the specially developed instruments that he mentions.

The second editor, Peter Myers, who is well known as an expert on column packing materials, provides a short discussion of stationary phases for CEC. In addition to the familiar reverse-phase materials used in HPLC, he describes strong ion-exchange phases which have a hydrophobic center and have been specially developed for CEC. The author's treatment of this topic is very clear and thoroughly competent, but one would have liked to be given more detail about some aspects, in particular the highly active ion exchangers.

Chapter 4, by Vincent Remcho and co-authors, returns in greater depth to an aspect mentioned in the introduction, with a detailed discussion of the role of electroosmosis in CEC. The chapter also contains a theoretical treatment of the separating efficiency of CEC, and in the course of that provides the reader with a complete theoretical toolkit for dealing with CEC using packed columns.

In contrast to packed-column CEC, a chapter by Rozing and Dittmann is devoted to open tubular CEC (OT-CEC). The authors begin with a very detailed discussion of band-broadening effects in OTCEC and high-pressure chromatography in open tubes, with mathematical formulas and diagrams. This section contains much fundamental information. The chapter continues by describing three important approaches to improving the phase ratio in open tubes, with examples of their use.

In a chapter devoted to the coupling of CEC with mass spectrometry, Lord and Gordon discuss the question of detection sensitivity. The chapter begins with a very informative 7-page introduction to the coupling of liquid-phase separation methods with modern mass spectrometry, including variants using a tandem mass spectrometer. Different types of interfaces, such as liquid junction, co-axial sheath flow, and on-line nanospray, are described in detail and their merits compared. Much useful advice for putting these into practice is given.

The book ends with two chapters on applications of CEC. The first, by Euerby and Gillot, deals with analysis in the pharmaceutical field, describing applications to products including steroids,

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