The 'Application of Capillary Electrophoresis to Pharmaceutical Analysis,' is reviewed in chapter 18 by K.D. Altria. This is a well written chapter listing 60 references, and describing systems for the separation of a variety of pharmaceutical compounds. In addition, chapter 18 shows how impurities in drugs can be determined readily by CE at the 0.05 to 0.1% levels, and emphasizes chiral separation of enantiomeric drugs. Chapter 19 (38 references) by Herold et al. reviews the 'Separation of Peptides and Protein Digests by Capillary Electrophoresis.' This chapter covers in detail the effects of buffer and sample handling on peptide mapping by CE, and describes the use of photodiode array detector in peak identification. In addition, chapter 19 reviews approaches for micropreparative peptide separation and identification by MALDI-TOF-MS (matrix assisted laser desorption ionization-time of flight-mass spectrometry), and discusses important applications including purity confirmation and characterization of recombinant proteins. Finally, and for completeness, K.D. Altria reviews in chapter 20 'Additional Application Areas of Capillary Electrophoresis' including the analysis of small ions, agrochemicals, carbohydrates, vitamins, biomedical applications, amino acids, particulates, bacteria and dyes. This chapter review 139 recent references.

In summary, the book is a very useful guidebook for CE practitioners as well as a reference book for researchers and graduate students. I highly recommend this book for libraries and individuals active in the field of CE.

Ziad El Rassi

Basic DNA and RNA Protocols. Methods in Molecular Biology, vol. 58; Edited by A.J. Harwood. The Humana Press; Totowa, 1996. xiii+514 pp. $ 99.50 (pb). ISBN 0-896-03331-X

The profound expansion in the sequence information of genes and their function in, e.g. human, makes detailed DNA and RNA analysis very important for many scientific and routine investigations. The context of this book (514 pages) includes protocols that cover some frequently used techniques for DNA, RNA analysis, gene cloning and subcloning, PCR techniques, DNA sequencing, site-directed mutagenesis and protein synthesis. Each of the 58 chapters/protocols begins with a brief introduction followed by materials, methods and notes sections. As a technical laboratory manual this handbook serves its purpose well by being easily readable and in contrast to most other handbooks, manuals and methodological manuscripts this handbook includes note sections for each chapter. These sections give the reader a series of valuable hints for establishing successful experiments or even pinpointing handling errors. However, since no discussion section is present, it would have been of convenience for at least some readers, if a few of the introductions were extended beyond their few lines to include a description of the potentials of the described method. In other words, although it is a technical handbook, brief orientations of questions/problems that have been solved using the particular technique may improve the practical applications of the book.

While the PCR technique in particular has revolutionized the possibility for gene specific mutation analysis, a broad set of RNA and DNA analyses are used whenever new mutations are described as plausible disease causing determinants. However, it seems that the book suffers from a lack of powerful techniques, e.g. single strand conformation polymorphism analysis and denaturing gel analysis, for finding and analysis of DNA for sequence variations. Furthermore, since PCR-based assays for detection of known point mutations are becoming central for many scientific and clinical projects many readers might have benefitted from a chapter describing the principles for establishing such assays.

In conclusion, this handbook adds to the number of comprehensive books dealing with methods used in molecular biology. However, since some central methods for RNA and DNA analysis have been left out of the book, it probably will not be selected as *the* laboratory handbook.

Niels Rüdiger

The Natural Selection of the Chemical Elements; Edited by R.J.P. Williams and J.J.R. Frausto da Silva. Oxford University Press; Oxford, 1996 xxvi+646 pp. £75.00 (hc). ISBN 0-19 855843-0

Chapter 1. The development of man's ideas concerning nature – gives an impression of the classical western (i.e. Greek) attempt to understand the environment by relating all natural manifestations to a few (i.e. four) basic elements: earth, water, and fire. The authors try to explore the possibilities of this four-element universe by substituting with: solid, liquid, gas, and energy; and they use this idea as an organizing principle for the following treatment. This is a brilliant idea that gives the reader an opportunity to rethink the path from our senses to our statements.

Less interesting is an account of ideas developed in China that contribute little if anything to the understanding of modern chemistry. It would have been more interesting to learn about the theoretical problems for the Greek philosophers induced by a scientifically inadequate language, or to learn about experiences from the applied chemistry harvested in the rich Arab culture.

The rest of the chapter deals with the development of modern views, including hard facts such as atomic structure in relation to the periodical system and an introduction to kinetic gas theory and different forms of energy. This account posed no problems for this reviewer (with a background in chemistry), but he reached his limits to understanding when he was confronted with the following sentence: "It is generally accepted that gravitational and electrical fields have been generated in the universe by the big bang expansion of rest mass into simultaneously created space, and their distribution has been affected by its subsequent non-homogeneous development."

Chapter 2. Order in chemical systems: elements and their combinations – contains a general description of intramolecular binding of atoms to molecules and intermolecular binding of the latter to condensed phases. The authors have chosen a non-mathematical approach, and for this reason (?) they have ignored molecular orbital theory, which even in its simplest version (LCAO) could have given a more clear background of molecular morphology. The present account based on valence shell electron pair repulsion theory gives rise to several blunders such as a dioxygen molecule with a double bond instead of being a biradical (of extreme importance for survival of life), and a lack of clear distinction between the little molecule CO_2 and the infinite molecule SiO_2 – and why it has to be so (also of some importance to the development of life!). There are other peculiarities such as two tables with data about the size of cations, but none for anions, and a sizeable gap between the level of information in the main text and in a figure such as Fig. 2.26. But, given the space, the description is from workable to useful – the latter applied for the condensed phases, and the chapter concludes with an excellent summary.

Chapter 3. The balance between order and disorder – re-introduces the idea of balanced systems between order and disorder, that is between solids, liquids, and gases and connects this with energy. This particular view on order and disorder is followed consistently, but readers, tending to think in structural terms, should remember that order in this book means chemical bonds. Thermodynamic criteria for equilibria and non-equilibria are well treated, but the topic remains difficult. It adds to the difficulties that the conventions used differ slightly from what is common for this reviewer and for authors of newer textbooks for undergraduates.

Chapter 4. Phase equilibria – illustrates such balances for bulk phases for people, highly experienced in analyzing multi-component phase diagrams for rocks and alloys. Maybe they will benefit from the fact that the authors have given up the non-mathematical approach