tures have greatly expanded. In immobilized enzyme systems, owing to the possibility of coupling chemical reactions to transport (diffusion) processes, highly organized spatio–temporal structures may occur. Hardt et al. present their theoretical analysis on a membrane-containing immobilized papain and they also show the possibility of signal propagation in the plane of the membrane. Kernevez develops a numerical analysis to solve the problems of optimal control or to identify unknown kinetic parameters in reaction–diffusion coupled processes. Lefever gives a stochastic model for the investigation of dissipative structures and proves that in the phosphofructokinase reaction dissipative structures may occur, which is a novel feature in the theory of glycolytic oscillations. Bunow and Colton claim, on the ground of a numerical analysis of a model system, that in the case of a pH sensitive, base or acid consuming or producing system, if mass transport limitations are imposed, multiple steady states may appear.

In addition, there are articles about various themes, e.g., Monsan et al. deal with the mechanism of action of glutaraldehyde, Engasser and Horvath discuss the 'buffer shuttle mechanism', Gelff and Henry treat the performance of immobilized enzyme columns, etc.

Last but not least there are very useful review articles in this book, e.g., the one written by Porath about bioaffinity and hydrophobic chromatography, or the survey by Broun about the current trends in the field covered by the meeting. Thomas presents an excellent review of the results obtained with artificial enzyme membranes, including fundamental kinetic modelling, the new properties due to the membrane shape (active transport, memory, oscillation, etc.) and a survey of the applications.

Veronika Jancsik

Laboratory Techniques in Biochemistry and Molecular Biology
Volume 4: Part 1. Chemical Modification of Proteins
Part II. Separation Methods for Nucleic Acids and Oligonucleotides

Edited by T. S. Work and E. Work
North-Holland Publishing Company; Amsterdam, Oxford/American Elsevier; New York, 1976
xiii + 492 pages. Dfl. 130.00, $ 51.95

A new methods-oriented book is always welcomed by scientists. Now, a new volume of the well-known series edited by Work and Work has become available. Volume 4 consists of two parts, both designated for day-to-day bench use.

The first part written by A. N. Glazer, R. J. Delange and D. S. Sigman is about the chemical modification of proteins. The authors give the reader a fairly broad view of the most valuable methods in protein chemistry and biochemistry. Protein and amino acid analysis is carefully reviewed on an up-to-date basis. Probably the most useful section is the detailed interpretation of the various methods concerning the modification of protein side-chains. The application range of the particular techniques is critically discussed and the descriptions are detailed enough to be used without reference to the original papers. A special merit of this part is the review on the practical use of affinity and photoaffinity labels in protein chemistry.

The second part is entitled 'Separation Methods for Nucleic Acids and Oligonucleotides' written by H. Gould and H. R. Matthews. Nucleic acid research is still one of the most rapidly developing fields in molecular biology and it is difficult therefore to keep up with new methods. In an earlier volume of this series G. G. Brownlee summarized RNA sequencing methods which, of course, involve many separation techniques. It is a pity that this volume does not deal with some of the problems listed there because some powerful methods have been developed since the former book was written.

This review concentrates on the separation problems

of nonradioactive RNA. The different types of chromatographic and electrophoretic methods are very carefully described and a separate chapter deals with the choice of the proper method. The absence of newer methods of fractionation of oliginucleotides and DNA fragments limits the usefulness of an otherwise excellent book.

The price of this volume is a bit too high, though the separate parts are available also in paperback form.

B. Sain

Progress in Isoelectric Focusing and Isotachophoresis

Edited by F. G. Righetti
North-Holland Publishing Company; Amsterdam, 1975
425 pages. Dfl. 120.00, $ 47.85

This book covers the basic aspects as well as the recent developments of isoelectric focusing and isotachophoresis, two excellent analytical techniques of protein separation. The 31 lectures presented at the Third International Symposium on Isoelectric Focusing and Isotachophoresis are collected into three main parts:

I. General Aspects and Methodology
II. Application of Isoelectric Focusing
III. Isotachophoresis.

Biomedical applications of the two methods are well treated both in routine diagnosis and in research: screening of human sera, sweat, isoenzymes in normal and pathological tissues, etc. A new approach, the separation of nucleic acids (mRNAs for α- and β-globin chains) is reported, applications to the analysis of membrane and mitochondrial proteins and in separations of whole cells, subcellular particles, bacteria and viruses are presented. Problems due to extreme pH, artifacts and the stability of pH gradient are extensively discussed. Fortunately, the advantages as well as limitations and pitfalls of the methods are presented in several papers. Particular emphasis is placed on the use of isoelectric focusing as a probe for interacting proteins.

A round table discussion is included on the fundamental and practical aspects of isoelectric focusing and isotachophoresis, containing valuable hints on ampholines, spacers, additives extreme pH, micromethods and interacting molecules.

To make the symposium volume approach the value of a manual, a detailed list of the most important papers published in the field of isoelectric focusing and isotachophoresis and a subject index is added at the end of the book.

The publication of the material of this symposium is a 'fit for life' certificate of these excellent, however somewhat expensive analytical methods developed by LKB-Producter in the last ten years. The volume will be useful for people working in the fields of biochemistry, microbiology, cell biology and other related parts.

József Batke

This comprehensive volume explores the numerous experimental techniques that must be mastered by researchers in plant biology, biochemistry and biotechnology. As the interest in biochemical and molecular methods of investigating physiological processes rises, there's a concurrent development of new, faster, and more sensitive experimental procedures, allowing us to explore the inner workings of animal and plant organisms. *Analytical Techniques in Biochemistry and Molecular Biology*guides the reader through these methodologies, beginning with the preparation of solutions Analytical Techniques in Biochemistry and Molecular Biology. Rajan Katoch Biochemistry Laboratory Department of Crop Improvement CSKHPKV Palampur, HP India rajankatoch@yahoo.com. ISBN 978-1-4419-9784-5. e-ISBN 978-1-4419-9785-2.Â This work may not be translated or copied in whole or in part without the written permission of the publisher (Springer Science+Business Media, LLC, 233 Spring Street, New York, NY 10013, USA), except for brief excerpts in connection with reviews or scholarly analysis. Use in connection with any form of information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed is forbidden. biology and biotechnology to separate biological macromolecules, usually proteins or nucleic acids, according to their electrophoretic mobility. Mobility is a function of the length, conformation and charge of the molecule. As with all forms of gel electrophoresis, molecules may be run in their native state, preserving the molecules' higher-order structure or a chemical denaturant may be added to remove this structure and turn the molecule into an unstructured linear chain whose mobility depends only on its length and mass-to-charge ratio.Â The ratio of bisacrylamide to acrylamide can be varied for special purposes, but is generally about 1 part in 35. The acrylamide concentration of the gel can also be varied, generally in the range from 5% to 25%. Part I1 separation methods for nuclelc acids and oligonucleotides. Hannah Gould and H . R . Matthews . . . Contents . . . List of abbreviations . . . Oligonucleotide nomenclature . . . Chapter 1 . Choice of method . . .Â There is an abundance of recent literature on the chemical modification of proteins. The laboratory-oriented treatment of the subject in Methods in Enzymology, vol. XI (Hirs 1967)and vol. XXVB (Hirs and Timasheff 1972) is particularly comprehensive and valuable. A monograph by Means and Feeney (1971) is also an excellent source of references and methods. Chapter 17--MODIFICATION of nucleic acidsÂ The final section on nucleic acids will describe the basic procedures used in molecular biology including gene cloning, PCR and sequence analysis.Â 7 PART I General Biochemical and Biophysical Methods Topics covered: â€¢ Microscopy â€¢ Spectrophotometry â€¢ Fluorescence and Flow Cytometry â€¢ Radioactivity â€¢ pH and Buffers â€¢ Centrifugation 8 CHAPTER 1--MICROSCOPY Cells are small and in almost all situations a microscope is needed to observe them and their subcellular components.