

Book Reviews*

Progress in Nuclear Magnetic Resonance Spectroscopy. Volume 15. Edited by J. W. Emsley (The University, Southampton), J. Feeney (National Institute for Medical Research, London), and L. H. Sutcliffe (The University, Liverpool). Pergamon Press: New York, 1984. 424 pp. \$120.00. ISBN 0080-315100.

This latest edition of the series features six articles. The first two articles, Topical Magnetic Resonance by R. E. Gordon, P. E. Hanley, and D. Shaw (Oxford Research Systems Ltd.) and NMR Studies of Metabolites in Living Tissue by R. A. Iles (London Hospital Medical College) and A. N. Stevens and J. R. Griffiths (St. George's Hospital Medical School) comprise essentially half of the book, and together they provide a nice review of the applications of NMR to living organisms (excluding imaging techniques). The third article, Computer Assisted Analysis of Carbon-13 NMR Spectral Data by N. A. B. Gray (Stanford University) is a good critical review of computer methods for structure elucidation using carbon-13 NMR data. It includes actual illustrative examples of computer printout from some of the programs under evaluation. The next article, Anisotropies in Spin-Spin Coupling Constants and Chemical Shifts as Determined from the NMR Spectra of Molecules Oriented by Liquid Crystal Solvents by J. Lounila and J. Jokisaari (University of Oulu), includes both theoretical treatments and experimental results. Many references are given. Although the stereochemical principles defining conditions for the observation of anisochronous NMR signals for enantiotopic nuclei have been known for years, The Determination of Absolute Configuration Using Nuclear Magnetic Resonance Techniques by P. Rinaldi (Case Western Reserve University) emphasizes the practical and experimental aspects of the problem and in particular the use of chiral auxiliary agents to assign absolute configurations. After a general introduction, the application of the NMR methods to a number of common classes of organic compounds is reviewed. The final article, Nuclear Magnetic Double Resonance; The Use of Difference Spectroscopy by J. K. M. Sanders and J. D. Mersh (Cambridge) reviews double resonance techniques with an emphasis on the use of difference spectroscopy to make the analysis of the experimental results more facile. A discussion of the relative merits of two-dimensional NMR techniques vs. one-dimensional double-resonance experiments is included.

This volume has been reproduced directly from the manuscripts provided by the authors. As a result, the quality and readability of the text varies from article to article, and the reviews have not been polished by the editorial process. One advantage of this reproduction method should be rapid publication. Indeed, the last article contains references up through at least part of 1983. The other articles, however, contain references only through 1981, with a very few from early 1982 in some cases. As a result, some of the work described is mainly of historical interest at this time. For example, some of the techniques discussed in the first article have now been vastly improved upon.

This volume will be of interest to institutional libraries and to those who already possess the previous volumes in the series. The breadth of topics covered in the volume ensures that most NMR spectroscopists and users of the technique will find some of the articles valuable and interesting, but it also ensures that for most readers, at least some of the articles will be of only cursory interest.

Devens Gust, Arizona State University

Pharmaceutical Process Validation. Drugs and the Pharmaceutical Science Series. Volume 23. Edited by Bernard T. Loftus (Consultant) and Robert A. Nash (St. John's University). Marcel Dekker, Inc.: New York and Basel, 1984. xvi + 286 pp. \$55.00.

The broad message of this book is that a product is defined not only by specifications but also by the manner in which it is made. The concept that "process validation is a documented program which provides a high degree of assurance that a specific process will consistently produce a product meeting its predetermined specifications and quality attributes" (FDA guideline definition) has probably been recognized by man since the bronze age, but the concept has received considerable attention over the last decade in the pharmaceutical industry partly as a result of CGMP regulations but also partly through the recognition by the drug industry that product specifications may not totally define the quality of a drug product, particularly in the case of sterile products, in spite of increasingly sophisticated analytical techniques.

Although this book predominantly deals with process validation of pharmaceutical processes, the concepts certainly apply to bulk chemical manufacturing and, in general, to any manufacturing process.

The book is a collection of ten chapters, each contributed primarily by persons affiliated with well-known drug houses. The first chapter, written by editor Bernard T. Loftus, discusses the regulatory basis for process validation from perhaps the FDA viewpoint, as a result of the author's years of experience in numerous positions in the FDA. This is the "why" chapter of the book. The remaining chapters deal with the "how" of process validation, in terms that range from the very shallow and obvious to the overly specific.

The most lengthy chapter of the book (70 pages) is an excellent discussion, with 79 references, of the Validation of Sterile Products by Michael J. Akers (Eli Lilly) and Neil R. Anderson (Purdue).

If time permitted reading only one chapter of the book, a good general perspective of validation can be found in the chapter Process Validation of Raw Materials by Ira R. Berry of Pharmacaps. The chapter also discusses in greatest detail one of the most controversial topics in validation today—process challenge.

Other chapters consider important topics such as prospective process validation, retrospective process validation, and analytical methods validation.

Whether the book totally clarifies all issues concerning validation may be questionable, recognizing that the FDA has recently issued the second draft of Guideline on General Principles of Process Validation in March 1984. There are four major areas of concern voiced by the Validation Advisory Committee of the Pharmaceutical Manufacturers Association that apparently need further discussion. In addition, the concept of process challenge needs better definition, if guidelines can be set at all, since this area has a major economic impact on those persons subject to the FDA guideline.

The book holds few surprises for experienced persons actively engaged in pharmaceutical and chemical process development. Not everyone will agree with the methodology presented or the definitions and interpretations of validation regulations and concepts presented. Various organizations probably have developed or will develop their own unique approach to process validation consistent with company philosophy and the FDA guideline.

However, the book is full of very pertinent comments that will be of value to those persons newly entering chemical development, pharmaceutical development, and manufacturing areas. The chapters have been thoughtfully organized, errors are minimal, and the text is generally well written. This book is worth reading, in addition to the FDA guideline, particularly the chapter on Retrospective Process Validation, which receives scant attention in the latest draft of the guideline.

Allan Hydorn, Parke Davis

The Peptides: Analysis, Synthesis, Biology. Volume 5. Special Methods in Peptide Synthesis. Part B. Edited by Erhard Gross (N.I.H.) and Johannes Meienhofer (Hoffman La Roche, Inc.). Academic Press: New York, 1983. xxviii + 508 pp. \$79.50. ISBN 0-12-304202-X.

This volume continues a series devoted to bringing critical reviews in peptide chemistry to the scientific community. The book is composed of six chapters: Synthesis of Polypeptides by Recombinant DNA Methods by R. Wetzel and D. Goeddel; Acidolytic Deprotecting Procedures in Peptide Synthesis by H. Yajima and N. Fujii; Side Reaction in Peptide Synthesis by M. Bodanszky and J. Martinez; Quantitation and Sequence Dependence of Racemization in Peptide Synthesis by N. L. Benoiton; α,β -Dehydroamino Acids and Peptides by K. Noda, Y. Shimohigashii, and N. Izumiya; and Unusual Amino Acids in Peptide Synthesis by D. Roberts and F. Vellaccio.

The areas discussed although somewhat specialized, have gained increasing importance to chemists involved in the synthesis of peptides. In particular, the chapter on recombinant DNA methods presents an overview of the methodologies used to express peptides and proteins in various microorganisms. It addresses many of the techniques and strategies available to the "genetic engineer" and discusses the problems encountered during biosynthesis, purification, and isolation of gene products. Given the explosion of methodologies in this field, the authors have done a good job. They concentrate most of their discussion on desacetylthymosin α_1 and leukocyte interferon A and present a compilation of gene products expressed in foreign cells. The chapter is by

*Unsigned book reviews are by the Book Review Editor.

necessity somewhat superficial and should be considered an introduction to this field. At the same time the uninitiated peptide chemist may have difficulty with the nomenclature.

The chapter on unusual amino acids presents an extensive compilation of α -amino acid analogues that have been used in structure-activity studies. More than 500 analogues are listed and the chapter should serve as excellent source material. Specific characteristics of α,β -dehydroamino acids are reviewed in Chapter 5, which discusses both the biological properties and chemical synthesis of these important derivatives. Racemization concerns every synthetic peptide chemist. The excellent chapter by N. L. Benoiton is a readable, scholarly treatise on this subject. It should be useful to the novice and the expert in that it presents a critical review of experimental findings and the theoretical basis for racemization during coupling.

The synthesis of crystallizable ribonuclease A by Yajima and co-workers was a milestone in peptide chemistry. An important consideration on the way to this compound was the choice of conditions for removal of protecting groups. The chapter on acidolytic cleavage is an up-to-date comparison of the methods available, the problems inherent to each method, and strategies for minimizing side reactions. By focusing the discussion on the final deprotection of ribonuclease A, the authors provide an exciting example of the application of organic chemical manipulations to a challenging synthetic problem. Finally, the excellent chapter by Bodanszky and Martinez provides an extensive discussion on potential side reactions that may occur during protection, deprotection, and coupling reactions. It will prove very useful during the planning of a synthetic strategy or in understanding the basis for poor yields experienced during the preparation of a peptide.

In conclusion, I found Volume 5 to be a readable and interesting addition to the series "The Peptides". It should be a useful source book for any synthetic peptide chemist.

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Volumes of Proceedings

Coal Liquid Mixtures. Institution of Chemical Engineers, G. O. Davis, Chairman. Pergamon Press: London. 1983. 415 pp. \$48.50.

Proceedings of the First European Conference on the subject, held in England in 1983, containing the typescript texts of 25 papers; not indexed.

Chemical Instabilities. NATO ASI Series C. Volume 120. Edited by G. Nicolis and F. Baras. D. Reidel Publishing Co.: Dordrecht and Boston. 1984. xxvi + 40 pp. \$58.00.

Contains the typescripts of 28 papers delivered at a NATO Advanced Research Workshop held in Austin, Texas, in 1983, dealing with chemical kinetics, combustion, interfaces, geology, and materials science.

Posttranslational Covalent Modification of Proteins. Edited by B. C. Johnson. Academic Press: New York and London. 1983. xviii + 424 pp. \$37.00.

Proceedings of an international conference sponsored by the Oklahoma Medical Research Foundation in 1982, including typescripts and transcripts of discussions.

Thermochemistry and its Applications to Chemical and Biochemical Systems. NATO ASI Series C. Volume 19. Edited by M. A. V. Ribero da Silva. D. Reidel Publishing Co.: Dordrecht and Boston. 1984. x + 845 pp. \$97.00.

Consists of a large number of papers given at the Fourth USSR-FRG Symposium, held in Tübingen in 1982, and author and subject indexes.

Eukarotic Cell Cultures: Basics and Applications. *Advances in Experimental Medicine and Biology*. Volume 172. Edited by R. T. Acton and J. T. Lynn. Plenum Press: New York and London. 1984. c + 556 pp. \$75.00.

Contains the texts of 29 papers given at the Second International Cell Culture Congress, held in Alabama in 1981.

Natural Products and Drug Development. *Alfred Benzon Symposium 20*. Edited by P. Krogsgaard-Larsen, S. B. Christensen, and J. Kofod. Munksgaard: Copenhagen. 1984. 559 pp. D.Kr. 375.00.

Consists of a large number of papers, all set in type, given at the Alfred Benzon Symposium 20, held in Copenhagen in 1983. It is concluded with a poem, "Why are chemists not poets?", by chemist Carl Djerassi.

Zeolites: Science and Technology. NATO ASI Series E. Volume 80. Edited by F. Ramoa Ribero, A. E. Rodrigues, L. Deane Rollman, and C. Naccache. Martinus Nijhoff: The Hague, Boston, and Lancaster. 1984. xi + 698 pp. \$85.00.

Proceedings of the NATO Advanced Study Institute held in Portugal

in 1983, consisting of 24 papers classified under Catalysis, Industrial Applications, Physical Characterization, and History, Structure, Synthesis; not indexed.

Malcolm Dole Symposium. *Journal of Polymer Science: Polymer Symposium 71*. Edited by A. G. Pinkus. Wiley-Interscience: New York. 1984. v + 275 pp.

Proceedings of a memorial symposium, containing papers on physical polymer chemistry. This soft-bound book is part of the annual subscription to the *Journal of Polymer Science*.

Formaldehyde: Toxicology, Epidemiology, Mechanism. Edited by J. J. Clary, J. E. Gibson, and R. S. Waritz. Marcel Dekker: New York and Basel. 1983. J. E. Gibson, and R. S. Waritz. Marcel Dekker: New York and Basel. 1983. xvi + 280 pp. \$45.00.

Proceedings of a meeting sponsored by the Formaldehyde Institute in 1982, consisting of the typescripts of 11 papers and an index.

Absorption on and Surface Chemistry of Hydroxyapatite. Edited by D. N. Misra. Plenum Press: New York and London. 1984. viii + 179 pp. \$39.50.

Ten typescript papers presented at a symposium held at Kansas City in 1982 constitute this volume.

Isopentenoids in Plants: Biochemistry and Function. Edited by W. D. Nes, G. Fuller, and L. Tsai. Marcel Dekker: New York and Basel. 1984. xi + 596 pp. \$99.75.

Contains 25 papers from a Symposium on the Biochemistry and Function of Isopentenoids in Plants, held at the USDA Western Regional Research Center in 1982, and an index.

Yield, Flow, and Fracture of Polycrystals. Edited by T. N. Baker. Elsevier Science Publishers: New York. 1983. xi + 361 pp. \$77.50.

A meeting held in 1982 at the University of Strathclyde in honor of Professor Norman J. Patch gave rise to the 15 papers in this volume, set in type and well indexed. An appendix contains a list of Professor Patch's publications.

Advances in Nitrogen Fixation Research. *Advances in Agricultural Biotechnology 4*. Edited by E. Beeger. Martinus Nijhoff: The Hague. 1984. xxii + 760 pp. \$87.50.

Proceedings of the 5th International Symposium on Nitrogen Fixation, held in the Netherlands in 1983, consisting of typescripts of a large number of papers, posters, and attendant discussion; no subject index.

Aspects of Chemical Evolution. *Advances in Chemical Physics. Volume 55*. Edited by G. Nicolis. John Wiley and Sons: New York. 1984. xvi + 286 pp. \$50.00.

Proceedings of the XVIIth Colvay Conference on Chemistry, held in Washington in 1980.

Chromatography and Mass Spectrometry in Nutrition Science and Food Safety. *Analytical Chemistry Symposia Series. Volume 21*. Edited by A. Frigerio and H. Milon. Elsevier Science Publishers: Amsterdam and New York. 1984. xi + 305 pp. \$113.50.

Contains 27 papers in typescript form and international symposium held in Montreux in 1983; not indexed.

Contemporary Topics in Polymer Science. Volume 4. Edited by W. J. Bailey and T. Tsuruta. Plenum Press: New York and London. 1984. xv + 1013 pp. \$125.00.

Proceedings of the U. S.-Japan Polymer Symposium held in 1980 in Palm Springs, consisting of a large number of typescript papers and a subject index.

Transition Metal Catalyzed Polymerizations: Alkenes and Dienes. *MMT Press Symposium Series. Volume 4. Part B*. Edited by R. P. Quirk. Hardwood Academic Publishers: New York. 1983. x + 421 pp.

Contains the papers, set in type, presented at the Eleventh Midland Macromolecular Meeting, 1981, together with discussions, a glossary of abbreviations (who would have guessed that ISBL stands for "inside battery limits"?), and a subject index.

Nucleic Acids: the Vectors of Life. *Jerusalem Symposium on Quantum Chemistry and Biochemistry. Volume 16*. D. Reidel: Dordrecht and Boston. 1983. xi + 578 pp. \$74.00.

Contains the typescripts of 43 papers given at the 1983 Jerusalem Symposium on Quantum Chemistry and Biochemistry, plus the recommendations of the IUPAC-IUB Joint Commission on Biochemical Nomenclature on the subject "Abbreviations and Symbols for the Descriptions of Conformations of Polynucleotide Chains".

Protein Synthesis: Translational and Post-translational Events. Edited by A. K. Abraham, T. S. Ikhom, and I. F. Pryme. Humana Press:

Clifton, NJ. 1984. xvii + 477 pp. \$59.50.

Contains the typescripts of 33 papers from the 13th Linderström Long Conference, held in Norway in 1983, and a subject index.

Chemistry for the Future. Edited by H. Grunewald. Pergamon Press: Oxford and New York. 1984. xi + 456 pp. \$95.00.

Contains a large number of papers and plenary lectures in typescript from the 29th IUPAC Congress, held at Köln in 1983. The subject areas include new advances in inorganic, organic, and physical and theoretical chemistry, the production of basic chemical materials, education in chemistry, and chemical information flow. Not indexed.

Fundamental Research in Homogeneous Catalysis 4. Edited by M. Graziani and M. Giongo. Plenum Press: New York and London. 1984. x + 208 pp. \$42.50.

A collection of the ten plenary lectures given at the 3rd International Symposium on Homogeneous Catalysis, held in Milan in 1982; dedicated to the memory of Minoru Tsutsui.

Les Polymères Organiques Utilisables à Températures Élevées: Applications. Durabilité. Environnement. Edited by B. Sillon. Institut Français du Pétrole. Editions Technip. 1983. xii + 508 pp. FF 420.

Contains the typescripts of all the papers presented at a symposium held at the Institut Français du Pétrole in 1982. All but two of the papers are in French; no index.

Peptides: Structure and Function. Proceedings of the Eighth American Peptide Symposium. Edited by V. J. Hruby and D. H. Rich. Pierce Chemical Publications: Hruby Rockford, IL. 1983. xxxi + 927 pp. \$57.00.

Eleven pages are required just to list the papers given at the Eighth American Peptide Symposium, held in Arizona in 1983. There is a good subject index and a substantial glossary of abbreviations, some of which, even so, remain mysteries, such as Iaa, defined as "isoamylamide".

Trace Element Speciation in Surface Waters and its Ecological Implications. NATO Conference Series 1. Volume 6. Edited by G. G. Leppard. Plenum Press: New York and London. 1983. xii + 320 pp. \$45.00.

Proceedings of the NATO Advanced Research Workshop held in Italy in 1981, consisting of the typescripts of 17 papers, the attendant discussions, and a subject index.

Treatment of Disposal of Pesticide Wastes. ACS Symposium Series. No. 259. Edited by R. F. Krueger and J. N. Seiber. American Chemical Society: Washington. 1984. 372 pp. \$64.95.

Based on a symposium sponsored by the ACS Division of Pesticide Chemistry at the 186th Meeting of the American Chemical Society in Washington, August 1983. Indexed.

Organic Coatings. Science and Technology. Volume 6. Edited by G. D. Parfitt and A. V. Patsis. Marcel Dekker: New York and Basel. 1984. xi + 534 pp.

Contains the texts of 25 papers presented at the Eighth International Conference, held in Greece in 1982. Set in type, but not indexed.

Second SCI-RSC Medicinal Chemistry Symposium. Special Publication No. 50. Edited by J. C. Emmett. Royal Society of Chemistry: London. 1984. vii + 324 pp. £24.00. ISBN 0-85186935-1.

Contains 19 papers in typescript form delivered at a symposium held in Cambridge in 1983; not indexed.

Health and Safety in the Chemical Laboratory: Where Do We Go from Here? Special Publication No. 51. Royal Society of Chemistry: London. 1984. vii + 198 pp. £16.50. ISBN 0-85186945-9.

Contains 14 papers from a symposium sponsored by the Federation of European Chemical Societies held at the University of Lancaster in 1983.

Coatings and Surface Treatment for Corrosion and Wear Resistance. Edited by K. N. Strafford, P. K. Datta, and C. G. Googan. Ellis Horwood; distributed in North America by John Wiley and Sons: New York. 1984. 362 pp. \$79.95. ISBN 0470-20090-1.

Proceedings of a conference held at Newcastle Polytechnic in 1983, consisting of 23 papers in the areas of Metallic and Inorganic Coatings, High Temperature Coatings, and Polymeric and Paint Coatings.

Ion Exchange Technology. Edited by D. Naden and M. Streat. Ellis Horwood; distributed in North America by John Wiley and Sons: New York. 1984. 742 pp. \$110.00. ISBN 0470-20089-8.

Proceedings of a conference organized by the Society of Chemical Industry in 1984, consisting of papers grouped into the areas of Water Treatment, Fundamentals, Special Applications, Ion Exchange Developments, and Hydrometallurgy.

Cationic Polymerization and Related Processes. Edited by E. J. Goethals. Academic Press: Orlando and London. 1984. x + 431 pp. \$35.00. ISBN 0-12-287470-6.

Contains the typescripts of papers given at a symposium held in Ghent in 1983 and a subject index.

Profitability of Food Processing 1984—Onwards. Institution of Chemical Engineers Symposium Series No. 84. Pergamon Press: New York and London. 1984. iv + 430 pp. \$61.00. ISBN 0-08-030279-3.

Proceedings of a conference held in 1984 dealing with chemical engineers in the kitchen. The topics, such as Processing-extrusion Cooking and Product Recovery from Wastes, are undoubtedly worthy of scientific study, but they do little to whet the appetite.

Fluid Mixing II. Institution of Chemical Engineers Symposium Series No. 89. Pergamon Press: New York and London. 1984. iv + 207 pp. \$30.00. ISBN 0-08-031416-3.

The proceedings of a 1984 Symposium held in the United Kingdom, consisting of 12 typescript papers of interest to chemical engineers.

Photochemistry and Photophysics in Polymers. Edited by N. S. Allen and W. Schnabel. Elsevier Science Publishers: New York. 1984. xii + 425 pp. \$155.00. ISBN 0-85334-269-5.

The proceedings of a conference on Polymer Photochemistry held in Berlin in 1983, reprinted from the Journal of the same name (Vol. 5, Nos. 1-4), and provided with a subject index.

Biochemical and Clinical Aspects of Neuropeptides: Synthesis, Processing and Gene Structure. Edited by G. Koch and D. Richter. Academic Press: Orlando and London. 1983. xv + 316 pp. \$32.00. ISBN 0-12-417320-9.

Contains 22 papers from the 5th Conference on Macromolecular Synthesis, held in Hamburg in 1983, reproduced from a dazzling variety of typescripts, and provided with a solid subject index.

Mineral Processing and Extractive Metallurgy. Edited by M. J. Jones and P. Gill. Institution of Mining and Metallurgy: London. 1984. viii + 750 pp. £50.00. ISBN 0-900488778.

This softbound volume in the awkward A4 size contains the typescripts of 56 papers presented at an international conference held in Kuumming in 1984, with emphasis on non-ferrous metallurgy. The editors are to be complimented on the extraordinary speed with which this volume was published, but the lack of an index is especially keenly felt in a work of this size.

Reagents in the Minerals Industry. Edited by M. J. Jones and R. Oblatt. Institution of Mining and Metallurgy: London. 1984. x + 294 pp. £50.00. ISBN 0-900488-78-6.

Contains a large number of selected papers given at a conference held in Rome in 1984, dealing with the inorganic and organic chemistry used in separating minerals from ores. The book is A4 size, nicely set in type, but not indexed.

Modern Chlor-Alkali Technology. Volume 2. Edited by C. Jackson. Ellis Horwood; distributed in North America by John Wiley and Sons: New York. 1984. 389 pp. \$89.95. ISBN 0470-27471-9.

Contains 24 contributed papers from the International Chlorine Symposium, held in London in 1982.

Solid-Liquid Preparation. Edited by J. Gregory. Ellis Horwood; distributed in North America by John Wiley and Sons: New York. 1984. 363 pp. \$81.95. ISBN 0470-20021-9.

Contains 22 papers presented at a symposium organized by the Society of Chemical Industry, held in London in 1983.

Environmental Sampling for Hazardous Wastes. ACS Symposium Series No. 267. Edited by G. E. Schweitzer and J. A. Santolucito. American Chemical Society: Washington, D.C. 1984. x + 134 pp. \$34.95. ISBN 0-8412-0884-0.

Based on a work shop sponsored by the Committee on Environmental Improvement of the American Chemical Society, the U.S. Environmental Protection Agency, and the University of Nevada—Las Vegas, held in 1984.

Methods of Krypton-85 Management. Radioactive Waste Management Series. Volume 10. Edited by W. Hebel and G. Cottone. Harwood Academic Publishers, Inc.: New York. 1983. viii + 309 pp. \$34.50. ISBN 3-7186-0167-2.

Proceedings of a meeting organized by the Commission of European Communities and held in Brussels in June 1982, consisting of a Study Report (228 pp), four complementary papers, the conclusions of a panel discussion, and a list of participants.

Enzyme Catalysis and Control. Current Topics in Cellular Regulation. Volume 24. Edited by M. Deluca, H. Lardy, and R. L. Cross. Academic Press: Orlando, FL. 1984. xxiii + 509 pp. \$89.00. ISBN 0-12-152824-3.

Proceedings of a conference held in Los Angeles in June 1983 to honor Dr. Paul Boyer on his 65th birthday, published as Volume 24 of "Current Topics in Cellular Regulation", and containing a subject index, a cumulative contributors index, and the tables of contents of the previous 23 volumes.

Measurement Techniques for Polymeric Solids. Edited by R. P. Brown and B. E. Read. Elsevier Science Publishing Co.: New York. 1984. xi + 221 pp. \$96.50. ISBN 085334-274-1.

Proceedings of a conference arranged by the National Physics Laboratory (U.K.) held in December 1982, consisting of 12 of the invited papers plus summaries of four others, and a subject index, all reprinted from the journal *Polymer Testing*, Vol. 4, No. 2-4.

Quantum Chemistry of Polymers—Solid State Aspects. NATO ASI Series C. Volume 123. Edited by J. Ladik and J.-M. André. D. Reidel: Dordrecht. 1984. xvii + 422 pp. \$59.00. ISBN 90-277-1741-9.

Proceedings of a Nato Advanced Study Institute held in Braunlage, FRG, in 1983, consisting of 18 papers and subject and author indexes.

Monte Carlo Methods in Quantum Problems. NATO ASI Series C. Volume 125. Edited by M. H. Kalos. D. Reidel: Dordrecht. 1984. vii + 291 pp. \$43.00. ISBN 90-227-1755-9.

Contains 17 papers given at the NATO Advanced Workshop held in Paris in 1982; subject index. The breadth of the spectrum of typescripts is eye-catching.

Instrumental Analysis of Foods: Recent Progress. Volume 2. Edited by G. Charalambous and G. Inglett. Academic Press: Orlando, FL. 1983. xviii + 539 pp. \$51.00. ISBN 0-12-168902-6.

Proceedings of the Third International Flavor Conference, held in Corfu in 1983; subject index. The titles of some of the papers suggest that contamination of food by the components of plastic packaging is a matter of current concern.

Adhesive Joints: Formation, Characteristics, and Testing. Edited by K. L. Mittal. Plenum Press: New York and London. 1984. xiii + 931 pp. \$125.00. ISBN 0-306-41633-6.

Contains the large number of papers given at an international symposium held under the auspices of the American Chemical Society in Kansas City in September 1982, divided into sections on Substrate and Interfacial Aspects, Factors Influencing Behavior of Adhesive Joints, Evaluation and Characterization, Durability and Stability Aspects, Stress Analysis and Performance Aspects, and Fracture Aspects. Also contains a subject index and 18 pages of notes about the contributors.

Proteinase Action. Symposia Biologica Hungarica 25. Edited by P. Elodi. Heyden and Sons: Philadelphia. 1984. xi + 474 pp. \$55.00. ISBN 963-05-3887-3.

Proceedings of an International Workshop held in Debrecen, Hungary, in August 1983, divided into sections on General Aspects, Proteinases and Regulation, Proteinase Inhibitors, and Proteinase of Plant and Microbial Origin; transcripts of the discussion and a subject index are included.

Electrochemical Detectors: Fundamental Aspects and Analytical Applications. Edited by T. H. Ryan. Plenum Press: New York and London. 1984. viii + 172 pp. \$39.50. ISBN 0-306-41727-8.

Contains eleven papers given at a symposium sponsored by the Royal Society of Chemistry in September 1981. Subject index.

Laser Processing and Diagnostics. Springer Series in Chemical Physics. Volume 39. Edited by D. Bäuerle. Springer-Verlag: Berlin and New York. 1984. xii + 551 pp. \$34.00. ISBN 3-540-13843-9.

Proceedings of an international conference held at Linz, Austria, in July 1984, subdivided into these sections: Laser-solid Interactions; Photophysics and Chemistry of the Molecule-Surface Interactions, Photoassisted Chemical Processing; Diagnostics of Laser Processing, Materials, and Devices; Laser Diagnostics in Reactive Gaseous Systems. Subject index.

Electrochemical Cell Design. Edited by R. E. White. Plenum Press: New York and London. 1984. vii + 398 pp. \$65.00. ISBN 0-306-41805-3.

Contains 19 selected contributions from a symposium held in Houston in March 1983 and a subject index.

Chemistry and Physics of Solid Surfaces V. Springer Series in Chemical Physics. Volume 35. Edited by R. Vanselow and R. Howe. Springer-Verlag: Berlin and New York. 1984. xxii + 554 pp. \$45.50. ISBN 3-540-13315-1.

This volume, dedicated to the late Gosse A. Bootsma, contains 21 review articles written by the invited speakers at the Sixth International Summer Institute in Surface Science, held at the University of Wisconsin/Milwaukee in August 1983. Subject Index.

Chemistry and Biotechnology of Biologically Active Natural Products. Studies in Organic Chemistry. Volume 17. Edited by Cs. Szantay. Elsevier Science Publishers: Amsterdam and New York. 1984. xvi + 378 pp. \$77.00. ISBN 0-444-99608-7.

Proceedings of the Second International Conference on the Subject, held in Budapest in August 1983, containing the typescripts of 22 papers, the opening address and remarks, and a keyword subject index.

Photochemistry and Photobiology. Volumes 1 and 2. Edited by Ahmed H. Zewail. Harwood Academic Publishers: New York. 1983. Volume 1: XLVI + 738 pp. Volume 2: XLVI + 671 pp. \$175.00 (set). ISBN 3-7186-0205-9.

Proceedings of an international conference held at the University of Alexandria Research Center, in Egypt, where the sun always shines, in January 1983. The papers in Volume 1 are reprinted from the journal *Laser Chemistry*. All papers are set in type, but there is no index. The pertinence of ancient wisdom is shown by the subtitle, which is written in ancient Egyptian hieroglyphics: "Changes with rays of light".

Magnetic Resonance: Introduction, Advanced Topics, and Applications to Fossil Energy. NATO ASI Series C: Volume 24. Edited by L. Petrakis and J. P. Faissard. D. Reidel: Dordrecht. 1984. xi + 807 pp. \$98.00. ISBN 90-277-1752-4.

Proceedings of a NATO advanced Study Institute held in Crete, in July 1983, containing 19 lectures and many research papers. Subject index.

Characterization of Heavy Crude Oils and Petroleum Residues. Collection Coloques et Seminaires No. 40. Institute Francais du Petrole. Editions Technip: Paris. 1984. xxi + 524 pp. FF 480. ISBN 2-7108-0475-1.

This soft-bound volume contains five plenary lectures and a large number of papers in English and French, delivered at a symposium held in Lyon in 1984. The papers fell into the following groups: Geochemical Analysis; Fractionation and Characterization; Relations Between Structural Characteristics and Properties. Not indexed.