

## Book Reviews\*

**Advances in Chemical Physics. Volume LVIII.** Edited by I. Prigogine and S. A. Rice. John Wiley and Sons: New York. 1985. ix + 381 pp. \$75.00. ISBN 0-471-81349-4.

This volume contains four articles. The first, written by T. Keyes and A. J. Masters, considers recent work concerning the kinetic theory of self-diffusion of a tagged particle and the related correlation functions. The Boltzmann equation and Enskog theory are briefly reviewed and their deficiencies are presented, particularly their inability to predict the long time tails observed in correlation functions by means of computer simulations. The article then reviews various approaches which have been considered in order to devise a more complete theory. The emphasis is on the resummation of divergent ring terms in density expansions and on mode-mode coupling techniques within a Zwanzig-Mori projection operator formalism.

The second article, by G. A. Natanson, discusses the implications of the symmetry of molecular wave functions under permutations of identical nuclei, as required by the Pauli exclusion principle. The article reviews various group theoretical approaches to this problem and discusses the relationships between these. The consequences of this symmetry for microwave spectroscopy are also considered. The author emphasizes his own work in the field, not surprisingly. However, the article has somewhat of a subjective tone which makes it hard for a nonspecialist to assess its overall objectivity. On the other hand, the article is aimed mainly at specialists who should be capable of forming their own judgments about the merits of the different approaches reviewed.

The third article, by J. N. Weber and R. S. Berry, provides quite a detailed analysis of the experimental and theoretical work on the kinetics of dissociation and relaxation in Rb and Cs halides. The systems have been extensively studied in shock tubes and flames and a great deal of experimental data are reproduced and summarized in this article. These alkali halides are also simple enough that a rather complete kinetic model can be presented and analyzed in terms of the data.

The final article in this volume considers the virial theorem and its extensions in classical, quantum, and relativistic mechanics. This article, by G. Marc and W. G. McMillan, is interesting in its very general scope, including applications in thermodynamics, solid-state physics, quantum chemistry, the theory of stochastic processes, and others. It is written so as to be accessible to anyone with a reasonable physical training and does not require a great deal of background of the reader for the most part. In this regard the first two articles of this volume require much more in the way of background, while the third article is intermediate in the generality of its appeal.

Michael F. Herman, Tulane University

**Advances in Inorganic and Bioinorganic Mechanisms. Volume 3.** Edited by A. G. Sykes (University of Newcastle). Academic Press: Orlando, FL. 1984. x + 384 pp. \$95.00/£69.00. ISBN 0-12-023803-9.

This volume will serve a wide range of inorganic and bioinorganic chemists and will be a valuable addition to their libraries.

The opening chapter (by Moore, Eley, and Williams) contains an exhaustive review of the electron-transfer reactions of class I cytochromes *c*. For this reviewer, who is inexpert in this area, the first 40 pages dealing with background information such as classification, structures, and experimental methodology were extremely valuable, although it may be that readers who are more knowledgeable will find that some of this material can be omitted. The second half of the chapter is surely of value to expert and novice alike. The NMR work, much of which is from the authors' own laboratories, is very lucidly described, and the dangers of overinterpretation are clearly stated.

The second chapter (by Segal and Sellars) discusses redox processes at solid-liquid interfaces in which both the solid and the liquid undergo chemical reaction. Such processes have great significance in materials science but have not received adequate attention by chemists. The present review concentrates on the reactions of the transition-metal oxides and sulfides and enables the reader to understand what is presently known about the kinetics and mechanism of the rapid dissolution of solid phases. In particular, the authors discuss the role of the nature of the solid surface itself in determining the rates of such reactions.

The third chapter (by Buxton) provides an authoritative review of pulse radiolysis studies on metalloproteins and metalloporphyrins. A well-written and brief discussion of the radiolytic generation of free radicals in water is included at the beginning, and this adds to the

readability of the chapter as a whole. Having read the chapter, this reviewer would suggest that the discussion of the metalloporphyrins might have preceded that of the metalloproteins, for the simple reason that the former appear to react by a few coherent and predictable pathways while the metalloproteins are much more difficult to understand. The chapter is, however, very valuable, and the reader will find it of value either as an overview of the field or as a source of specific data.

The fourth chapter (by Frew and Jones) is related to the previous one in that it is concerned with the structure and function of peroxidases and catalases. The introductory section contains examples of the various types of peroxidases and catalases but does not attempt to discuss the occurrence and characterization of all known peroxidases. A brief X-ray structure section contains succinct accounts of the known crystal structures and also serves to suggest that much more crystallographic work should be done in this area. The mechanistic section, which constitutes the major portion of the chapter, is detailed and very carefully organized.

The fifth chapter (by Weighardt) is concerned with the chemistry of hydroxylamine and its complexes. This chemistry is related to that of the more widely studied nitrosyl complexes, since hydroxylamine oxidation is an established source of nitrosyl complexes and vice versa. The present article is both broad in scope and complete; it surely contains virtually everything which is known in this field and will stimulate further research in the area. The chapter is both authoritative and critical, which makes it particularly valuable.

The sixth chapter (by van Eldik) is entitled Reactions Involving Coordinated Ligands, but it wisely considers only a subset of such reactions. The chapter includes an excellent account of metal carbonato complexes and manages to be both brief and complete. The author is to be commended for concentration on newer ground while providing suitable references to earlier material.

The final chapter (by Fallab and Mitchell) is concerned with binuclear dioxygen complexes of cobalt. The authors concentrate on the mechanisms of formation and decomposition of the  $\mu$ -peroxo- and  $\mu$ -superoxo-dicobalt(III) species, and consequently the present chapter serves as an excellent follow up to the chapter by Sykes in Volume I of this series. The coverage here is exhaustive, and consequently the chapter is rather long (65 pages). It does, however, provide the reader with a very clear picture of the subject.

Derek J. Hodgson, University of North Carolina

**Allenes in Organic Synthesis.** By Gary M. Coppola and H. F. Schuster (Sandoz Research Institute). John Wiley and Sons: New York. 1984. xvi + 358 pp. ISBN 0-471-872-849.

The premise of this book is that the allene functional group, once regarded primarily as a bonding curiosity, has come of age. The presence of the allene moiety in a variety of natural products has drawn attention to methods of preparation; furthermore, with the discovery of a number of efficient transformations of functionalized allenes, these compounds may be considered standard intermediates for synthesis.

The subject matter is organized according to structural type (terminal, internal, cyclic allenes) and functional group substitution (vinyl allenes, hydroxy and oxo substituted, hetero substituted, and haloallenes). There are additional chapters on classes of reactions (addition, cycloaddition, organometallic intermediates), and there is also a short section on Claisen rearrangements of propargyl systems and subsequent reactions of the allenic products. The subject index will be helpful, although it is not exhaustive.

This book should be a generally useful reference for synthetic chemists.

Kathlyn A. Parker, Brown University

**Analytical Measurement and Information. Advances in the information theoretic approach to chemical analyses.** By K. Eckschlager and V. Stepanek (Czechoslovak Academy of Sciences). Research Studies Press Ltd.: Letchworth, Herts., England. 1985. xii + 140 pp. \$39.95. ISBN 0471-90652-2.

This slim volume is a research monograph, and its stated purpose is "to comprehensively summarize recent results achieved in the development of the information theory approach to the evaluation of methods, procedures, and results in chemical analysis". The book only has 140 pages, so the topics are not developed in detail. It could be characterized as a brief survey of a selected few topics in information theory as applied to analytical chemistry.

The book begins with a four-page Introduction. Chapter 1 is also introductory and is only four pages long. Chapter 2 briefly presents three

\*Unsigned book reviews are by the Book Review Editor.

information measures: the Brillouin measure, Shannon's entropic information measure, and a divergence measure. Chapter 3 discusses the application of the various information measures to standard analytical procedures—qualitative analysis, quantitative analysis of one- and multi-component samples, trace analysis, and quality control. Several examples are presented where the information measures are applied to analytical determinations. Chapter 4 discusses the sources of uncertainties in analytical procedures and highlights the role of calibrations and sampling. There is no summary or conclusions section, which would have been useful to tie together the subjects discussed. References are given at the end of each chapter.

The authors refer to an earlier monograph (1979) often in this work. The reader would have difficulty following some of the discussion without having the earlier book on hand. There is a substantial amount of overlap between the earlier volume and this one as well.

This book has been reproduced directly from a typescript. The typewriter used has a font that gives the book an unusual appearance. All greek and mathematical symbols appear to have been hand-drawn.

Peter C. Jurs, *The Pennsylvania State University*

**Polymer Processing and Properties.** Edited by G. Astarita and Luigi Nicolais (University of Naples). Plenum Press: New York and London. 1984. xi + 450 pp. \$69.50. ISBN 0-306-71728-6.

This book constitutes the proceedings of the European Meeting on Processing and Properties, held June 13–16, 1983, in Capri, Italy. The meeting was organized under the auspices of the Provincial Committee of the European Delegates to the International Committee on Rheology and was supported by the European Societies on Rheology.

The 40-odd papers are divided into five sections, two of which are on processing and one each on processing and properties, properties, and structural modeling. Approximately half of the papers are from European laboratories with most of the others being from the U.S. and Canada.

Each of the five sections is headed by an invited lecture. For the first section Kamal and Bata's paper reviews current thinking in Polymer Shaping Operations and provides an excellent overview on this very important aspect of polymer processing. For the second section, the less extensive paper by Denson on Operations Other Than Shaping focuses primarily on devolatilization or stripping, a field which in recent years has been getting growing attention. In the third section Janeschitz-Kriegl and Kugler discuss Heat Transfer and Kinetics of Flow Induced Crystallization. In the fourth section, Knausenberger et al. discuss New Findings on the Mechanical Behavior of Plastics. The last invited lecture was by de Vries on Structural Modeling of Polymer Properties.

The invited lectures provide a good overview of current research interests in five areas of importance in the processing-properties field. For American readers the associated research papers give insight into the research interests of the most active European research centers.

James M. McKelvey, *Washington University in St. Louis*

**Mycotoxins: Production, Isolation, Separation and Purification.** Edited by V. Betina (Slovak Polytechnical University, Bratislava). Elsevier Science Publishers: Amsterdam and New York. 1984. viii + 528 pp. \$113.50. ISBN 0-444-42289-7.

As promised by the title, this volume provides an extensive treatment of current knowledge on production, isolation, separation, and purification technology for most of the major chemical groups of mycotoxins. It is listed as Volume 8 in the "Development in Food Science" series. The book is divided into two parts with the first or general part containing chapters that are rather perfunctory and of an introductory nature on such topics, among others, as Toxicogenic Fungi and Their Occurrence and Biological Effects of Mycotoxins. Chapter 6 in the general part entitled Applications of Chromatographic Techniques in the Separation, Purification and Characterization of Mycotoxins by C. P. Gorst-Allman and P. I. Steyn makes a reasonably good attempt at detailing practical information used in the authors' laboratory.

The remaining chapters, or special part, of the book are devoted to a more in-depth discussion of the various chemical groups of mycotoxins. The following are included: aflatoxins and related toxins, tricothecenes, ochratoxins and related dihydrocoumarins, citrinin and related substances, zearalenone and brefeldin A, cytochalasans, patulin and other small lactones, rubratoxins and related substances, hydroxyanthraquinones, gliotoxin and epipolythiodioxopiperazines, aspergillol acid and related pyrazine derivatives, cyclopiasonic acid and related toxins, *Alternaria* metabolites, cladosporin (asperentin), roquefortine, PR toxin, chlorine-containing peptide (cyclochlorotine), and secalonic acid D. Two groups of mycotoxins are not included, namely, the ergot alkaloids and the toxins from basidiomycetes. No comment was made by the editor as to why they were excluded, and it is somewhat surprising that a major toxic group of fungal metabolites such as the ergot alkaloids, which are

classic examples of mycotoxins, was not included.

The special part is the most valuable portion of the book and provides those aspects giving the book its unique place among the many treatises currently available in the area of mycotoxins. Most chapters contain, in addition to production and isolation information, physical and chemical properties including spectroscopic data where appropriate. However, there is some inconsistency in emphasis of the data among the various authors of chapters, a problem not uncommon in books with chapters written by different authors. For example, in the tricothecene chapter by Ch. Tamm and M. Tori extensive spectroscopic data are provided; whereas in the chapter covering rubratoxins by R. M. Davis and J. L. Richard little, if any, spectroscopic data are included.

This volume can be highly recommended to those scientists interested in the isolation and purification of mycotoxins.

James E. Robbers, *Purdue University*

**Advances in Lipid Research. Volume 20.** Edited by R. Paoletti (University of Milan) and D. Kritchevsky (Wistar Institute). Academic Press: New York. 1983. xi + 367 pp. \$48.50. ISBN 0-12-024920-0.

Volume 20 of this well-known series contains seven articles covering a wide range of topics. The highlight of Volume 20 is the article by M. Dobiasova, entitled Lecithin:Cholesterol Acyltransferase and the Regulation of Endogenous Cholesterol Transport. This is a highly informative, thorough, and well-written review of this important enzyme. The author considers the reaction and its role in lipid metabolism, substrates, purification and properties of the enzyme, and clinical aspects. The article is well referenced and is a good source of background information.

The article by B. J. Kudchodkar, entitled Relationship of Cholesterol Metabolism to the Metabolism of Plasma Lipoproteins: Perspectives from Methodology, discusses methods used to estimate body pools of cholesterol, kinetic analyses of cholesterol turnover, and the relationship of whole body cholesterol metabolism to the metabolism of plasma lipoproteins. The article by W. Hotz, entitled Nicotinic Acid and Its Derivatives: A Short Survey, is of interest but would be more useful if it had included other pharmacological agents of clinical importance for the management of lipid disorders.

Other articles in this volume are Apolipoproteins and Lipoproteins of Human Plasma by G. M. Kostner, Heparin and Atherosclerosis by H. Engelberg, Lipids of Actinomycetes by J. N. Verma and G. K. Khuller, and The Role of Sterols in Sperm Capacitation. This book is recommended for institutional libraries.

David L. Williams, *State University of New York at Stony Brook*

#### Volumes of Proceedings

**Industry and the Environment in Perspective. Special Publication 46.** Edited by R. E. Hester. Royal Society of Chemistry: London. 1983. xii + 222 pp. \$24.00 (nonmembers). ISBN 0-85186-895-9.

Fourteen lectures given at a Symposium organized by the Industrial Division of the Royal Society of Chemistry have been adapted to make up this volume. The lectures give a general review of the status of such subjects as acid rain, waste management, heavy metals, etc., as of 1983. Not indexed.

**Solid State Chemistry in Catalysis. ACS Symposium Series. Volume 279.** Edited by Robert K. Grasselli and James F. Brazdil. American Chemical Society: Washington. 1985. xii + 365 pp. \$64.95. ISBN 0-8412-0915-4.

Twenty typescript papers based on a symposium held at the National Meeting of the ACS in August–September 1983 make up this volume. An index of contributors and a substantial subject index are included.

**Polymer Stabilization and Degradation. ACS Symposium Series. Volume 280.** Edited by Peter P. Klemchuk. American Chemical Society: Washington. 1985. xii + 446 pp. ISBN 0-8412-0916-2.

There were 29 papers given at a symposium held at the National Meeting of the ACS in April 1984 making up this typescript volume. Much of the work reported deals with inhibition of oxidation or with photolysis. There are indexes of contributors and of subjects.

**Fourier Transform Infrared Spectroscopy: Industrial, Chemical, and Biochemical Applications.** Edited by T. Theophanides. D. Reidel Publishing Company: Dordrecht and Boston. 1984. vii + 192 pp. \$29.95. ISBN 90-277-1783-4.

The rapid development of FTIR has already begun to make graduate students disdainful of the previously admired grating instruments, and it is not surprising that conferences devoted entirely to the subject should be organized. This one was held in St.-Jovite, Quebec, in 1982 and included papers on instrumentation, metal-molecule interactions, accessories, and data processing techniques. Indexes of contributors and subjects are included.

**Bio-Organic Heterocycles: Synthetic, Physical Organic, and Pharmacological Aspects. Studies in Organic Chemistry. 18.** Edited by H. C. Van der Plas, L. Ötvös, and M. Simonyi. Elsevier Science Publishers: Amsterdam and New York. 1984. xii + 425 pp. \$94.50. ISBN 0-444-99585-4.

This volume of typescripts of nine plenary lectures and 36 short manuscripts derived from poster presentations arises from the Third FECHM Conference on the subject, held in Hungary in 1984. The Discussions are also included, as well as a subject index and a list of contributors.

**Nutritional and Toxicological Aspects of Food Safety. Advances in Experimental Medicine and Biology. Volume 177.** Edited by Mendel Friedman. Plenum Press: New York. 1984. xii + 584 pp. \$79.50. ISBN 0-306-41708-1.

Twenty-six typescript papers, complete with references, tables, photos of fetal hamsters, and an index, arising from a symposium held in San Francisco in 1982, make up this volume.

**Chitin, Chitosan, and Related Enzymes.** Edited by John P. Zikakis. Academic Press: Orlando, FL. 1984. xxiv + 423 pp. \$39.50. ISBN 0-12-780950-3.

Proceedings of Joint U.S.-Japan Seminar held at the University of Delaware in 1984. The papers are concerned with drug delivery and other applications, enzymology and genetic engineering, structure, and biological and physicochemical properties. Indexed.

**Determination and Assessment of Pesticide Exposure. Studies in Environmental Science. Volume 24.** Edited by Marie Siewierski. Elsevier Science Publishers: Amsterdam and New York. 1984. viii + 222 pp. \$75.00. ISBN 0-444-42416-4.

Contains the papers given at a Working Conference held in Hershey, PA, in 1980, grouped in the following categories: Exposure Assessment Overview; Pesticide Exposure: Occupational-Public Health Aspects; Techniques for Assessing Pesticide Exposure; and Reducing Pesticide Exposure: Equipment and Systems Modification. Not indexed.

**Recent Advances in the Chemistry of  $\beta$ -Lactam Antibiotics. Special Publication No. 52.** Edited by A. G. Brown and S. M. Roberts. Royal Society of Chemistry: London. 1985. viii + 391 pp. \$48.00 (paper). ISBN 0-85186-955-6.

Proceedings of the Third International Symposium, held in Cambridge in 1984, consisting of the typescripts of 22 papers and also the posters presented. There is neither an index nor a list of contributors.

**Coherence and Energy Transfer in Glasses. NATO Conference Series IV: Materials Science. Volume 9.** Edited by Paul A. Fleury and Brage Golding. Plenum Press: New York. 1984. xiv + 419 pp. \$62.50. ISBN 0-306-41638-7.

This volume is the result of a NATO Workshop held at Cambridge University in 1982. It contains 16 papers plus the attendant discussions and "Comments" which are in effect short papers. Indexed.

**Drug Determination in Therapeutic and Forensic Contexts. Methodological Surveys in Biochemistry and Analysis. Volume 14.** Edited by Eric Reid and Ian D. Wilson. Plenum Press: New York. 1984. xv + 419 pp. ISBN 0-306-41809-6.

The increasing importance of the analytical detection of drugs, toxins, etc., and their metabolites is a type of commentary on the times. This book is based on papers given at a Bioanalytical Forum on the subject, held at the University of Surrey in 1983. The editor describes it as "a pool of know-how and lore". His preface is more than ordinarily readable and touches the hearts of editors everywhere when he writes: "Dark thoughts do, however, arise about an investigator's 'life style' when, amongst a growing minority one encounters inconsistencies, omissions or other 'rough spots' hardly attributable to work pressures---". How true!

**Analytical Laser Spectroscopy. NATO ASI Series B: Physics Volume 119.** Edited by S. Martellucci and A. N. Chester. Plenum Press: New York. 1985. viii + 290 pp. \$52.50. ISBN 0-306-41897-5.

This volume contains in typescript form the lectures, seminars, and contributed papers given at a NATO Advanced Study Institute held in Italy in 1982. Indexed.

**Non-Linear Phenomena in Solids—Modern Topics.** Edited by M. Borissov. World Scientific, Inc.: Singapore. Distributed in the U.S. by Taylor and Francis: Philadelphia. x + 474 pp. \$60.00. ISBN 9971-966-72-7.

Contains 16 typescript papers given at a symposium held in Varna, Bulgaria, in 1984. No index.

**Determination of Surface Structure by LEED.** Edited by P. M. Marcus and F. Jona. Plenum Press: New York. 1984. xiv + 565 pp. \$89.50. ISBN 0-306-41664-6.

A volume in the IBM Research Symposium Series, containing the texts of papers given at a conference held in 1980. LEED, which should not be confused with LED, is low-energy electron diffraction. The editor states in the preface that when LEED "analysis is properly done, we will know when it is correct. Much of the book concerns standards for the designation of 'properly done'." The index is substantial.

**Polymers as Biomaterials.** Edited by Shalaby W. Shalaby, Allan S. Hoffman, Buddy D. Ratner, and Thomas A. Horbett. Plenum Press: New York. 1984. x + 389 pp. \$62.50. ISBN 0-41886-X.

Contains the texts, in typescript, of the papers given at a symposium held at the National Meeting of the American Chemical Society in March 1983. The topics include both medical and pharmaceutical aspects. Indexed.

**Metal-Containing Polymeric Systems.** Edited by John E. Sheats, Charles E. Carraher, Jr., and Charles U. Pittman. Plenum Press: New York. 1985. x + 523 pp. \$79.50. ISBN 0-306-41891-6.

Contains 26 papers, which are expanded versions of those given at a symposium held at the National Meeting of the American Chemical Society in August 1983. The topics range from solar energy conversion and nuclear fusion to biological activity and applications in synthesis. The text is in various typescripts; the subject index is substantial.

**Adhesive Chemistry. Developments and Trends. Polymer Science and Technology. Volume 29.** Edited by Lieng-Huang Lee. Plenum Press: New York. 1984. xii + 868 pp. \$115.00. ISBN 0-306-41888-6.

Contains the papers, in typescript, given at a symposium held in Seattle in 1983, arranged under six headings: Chemistry of Adhesion—the Importance of Interface; Physics of Adhesion—Characterization of Surface and Bulk of Adhesive Systems; Radiation-Curable Adhesives; Anerobic and Structural Adhesives; and Trends in Adhesive Research. Discussion; contributor and subject indexes.

**Peptides 1984.** Edited by Ulf Ragnarsson. Almquist and Wiksell International: Stockholm. 1984. xxiv + 633 pp. SEK 600. ISBN 91-22-80715-6.

The 18th European Peptide Symposium, held in Sweden in 1984, gave rise to the large numbers of papers presented here in typescript form. The index of contributors occupies 2.5 pages with four columns per page; the subject index is just short of twice that length.

**Structure and Motion. Membranes, Nucleic Acids, and Proteins.** Edited by E. Clementi, G. Corongiu, M. H. Sarma, and R. H. Sarma. Adenine Press: Guilderland, NY. 1985. xiv + 571 pp. \$97.00. ISBN 0-940030-12-8.

This volume of proceedings of a symposium held in Rome in 1984 is unusual for the fact that it begins with the text of an address by Pope John Paul II. The papers, which are set pleasantly in type, fall in these categories: Conceptual and Theoretical Background; Structure and Motion; Cells, Membranes and Proteins; and Structure and Motion: Nucleic Acids. Subject index.

**Molecular Liquids: Dynamics and Interactions. NATO ASI Series C: Volume 135.** Edited by A. J. Barnes, W. J. Orville-Thomas, and J. Yarwood. D. Reidel Publishing Company: Dordrecht. 1984. viii + 590 pp. \$79.50. ISBN 90-277-1818-2.

Contains 19 papers from a NATO Advanced Study Institute, held in Florence in 1983. Papers are grouped under the headings Theoretical Background, Experimental Techniques, and Computer Simulation. There is also a list of poster presentations and a subject index.

**Current Topics in Chinese Science. Section B: Chemistry. Volume 3.** Prepared by Science Press. Gordon and Breach: New York. x + 563 pp. \$68.00. ISBN 0-677-40385-2.

This softbound volume is a collection of all the articles in chemistry from the preceding year of *Science in China* and *Science Bulletin*. It is set in type, but not indexed.

**Techniques and Applications of Thin Layer Chromatography.** Edited by J. C. Touchstone and J. Sherma. John Wiley and Sons: New York. 1985. xvi + 395 pp. \$70.00. ISBN 0-471-88017-5.

Proceedings of the Third Biennial Symposium, held in New Jersey in 1982, containing 28 typescript papers and a subject index.

**Lithium: Current Applications in Science, Medicine, and Technology.** Edited by Ricardo O. Bach. John Wiley and Sons: New York. 1985. xx + 422 pp. \$80.00. ISBN 0-471-80073-2.

The 28 papers in this volume are based on presentations at the 35th Southeastern Regional Meeting of the American Chemical Society, held in Charlotte, North Carolina, in 1983. The scope of the subject is broad and ranges from recovery from brines to lithium in psychiatry, with visits to organolithium on the way. Indexes of contributors and subjects are indexed, and everything is neatly typeset.

**Fluctuations and Sensitivity in Nonequilibrium Systems. Proceedings in Physics. Volume 1.** Edited by W. Horsthemke and D. K. Kondepudi. Springer-Verlag: Berlin and New York. x + 273 pp. \$29.00. ISBN 0-387-13736-X.

Proceedings of an international conference held at the University of Texas in 1984, containing 36 papers in typescript. The contributors are indexed, but the subjects are not.

**Gas Enzymology.** Edited by H. Dehn, R. P. Cox, and H. Toftland. D. Reidel Publishing: Dordrecht and Boston. 1985. xi + 250 pp. \$44.00. ISBN 90-277-1900-4.

Contains the typescripts of 16 papers given at a Symposium held at Odense University in 1984. The subject of the symposium is defined as the study of those enzymes that can interact with gases, such as CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, etc. Contributor and subject indexes.

**Adhesion 9.** Edited by K. W. Allen. Elsevier Applied Science Publishers: London and New York. 1985. viii + 198 pp. \$52.50. ISBN 0-85334-328-4.

The 22nd Annual Conference on Adhesion and Adhesives, held at the City University, London, in 1984, gave rise to the twelve typescript papers in this volume. The topics range from inelastic electron tunnelling to monitoring adhesive solvent vapors in the footwear industry (one wonders about an adhesive solvent; modern technology is full of surprises!).

**The Science of Chromatography. Journal of Chromatography Library Volume 32.** Edited by Fabrizio Bruner. Elsevier Science Publishers: Amsterdam and New York. 1985. xx + 476 pp. \$92.50. ISBN 0-444-42443-1.

Contains the lectures given at the A. J. P. Martin Honorary Symposium, held in Italy in May 1985. The lack of an index can be forgiven in the light of the extraordinary promptness of publication.

**Natural Products Chemistry 1984. Studies in Organic Chemistry. Volume 20.** Edited by R. I. Zaleski and J. J. Skolik. Elsevier Science Publishers: Amsterdam and New York. 1985. xviii + 686 pp. \$142.50. ISBN 0-444-42457-1.

This volume is a collection of Invited Section and Colloquium Lectures from the 14th IUPAC International Symposium, held in Poznan in 1984. The rubrics are Structure and Properties of Natural Products; Synthesis and Transformation and Synthesis of Nucleic Acid Fragments; Physical and Theoretical Methods in the Structure Elucidation of Natural Products; Bioorganic Chemistry; and Biopolymers and Genetic Engineering in Agriculture with Emphasis on Nitrogen Fixation. Not indexed.

**Drug Analysis.** Edited by Anthony F. Fell and James N. Miller. Pergamon Press: Oxford and New York. 1983. iv + 191 pp. \$10.00 per issue. ISSN 0731-7085.

This is a special issue of the *Journal of Pharmaceutical and Biomedical Analysis* to present the plenary and keynote papers from the First International Symposium in Drug Analysis held in Brussels in 1983. Not indexed.

**Physics and Chemistry of Electrons and Ions in Condensed Matter. NATO ASI Series C: Volume 130.** Edited by J. V. Acrivos, N. F. Mott, and A. D. Yoffe. D. Reidel Publishing Company: Dordrecht and Boston. 1984. xviii + 732 pp. \$99.00. ISBN 90-277-2799-0.

A NATO Advanced Study Institute held in Cambridge in 1983 provided the basis for the chapters in this book. They are arranged under the headings Properties of Crystalline Materials; Properties of Amorphous Solids and Liquids; Metal to Insulator Transitions; and Low-dimensional Materials. Indexes of contributors and subjects.

**Extraction '84. Institution of Chemical Engineers Symposium Series. Volume 88.** Pergamon Press: Oxford and New York. 1985. vi + 322 pp. \$33.50. ISBN 0-08-031439-2.

Contains the typescripts of 23 papers given at a symposium on Liquid-Liquid Extraction Science held in Scotland in 1984. Many of the papers are concerned with radioactive and transuranium elements. Not indexed.

**Better Ceramics Through Chemistry. Materials Research Society Symposium Proceedings. Volume 32.** Edited by C. J. Brinker. North-

Holland, Elsevier Science Publishers: New York and Amsterdam. 1984. xiv + 398 pp. \$74.50. ISBN 0-444-00898-5.

Contains the typescript papers from a symposium held in New Mexico in 1984. The rubrics are Science of Sol-Gel Processing; Applications of Sol-Gel Processing; Chemical Synthesis of Ceramic Powders; Characterization of Gels and Powders; and Novel Materials Through Chemical Synthesis. Indexes of contributors and subjects.

**The Acid Digestion Process for Radioactive Waste. Radioactive Waste Management. Volume 11.** Edited by L. Cecille and R. Simon. Harwood Academic Publishers: New York and London. 1983. x + 108 pp. \$35.00. ISBN 3-7186-0174-5.

Contains the six typescript papers of a seminar held in Belgium in 1982. Not indexed.

**Microencapsulation and Artificial Cells.** Edited by T. M. S. Chang. Humana Press: Clifton, NJ. 1984. vii + 320 pp. \$65.00. ISBN 0-89603-073-3.

An international symposium on the title subject, held in Montreal in 1983, gave rise to the papers in this volume, which, *mirabile dictu*, is set in real type! The rubrics are Introduction; Biotechnology: Enzymes, Cells, and Microorganisms; Artificial Red Blood Substitutes; Adsorbents and Immunosorbents; Drug Delivery Systems; and General. Subject index.

**Advanced Theories and Computational Approaches to the Electronic Structure of Molecules. NATO ASI Series C: Volume 133.** Edited by Clifford E. Dykstra. D. Reidel Publishing: Dordrecht and Boston. 1984. viii + 236 pp. \$39.00. ISBN 90-277-1810-5.

Contains 13 typescript papers that constituted a NATO Advanced Research Workshop held in Colorado Springs in 1983, a bibliography on the subject, and a subject index.

**Photophysics and Photochemistry Above 6 eV. Studies in Physical and Theoretical Chemistry. Volume 35.** Edited by Francoise Lahmani. Elsevier Science Publishers: Amsterdam and New York. 1985. xxii + 672 pp. \$139.00. ISBN 0-444-42463-6.

Proceedings of the 38th International Meeting of the Société de Chimie Physique, held in France in 1984. The large number of papers, some in French but mostly in English, are in typescript form and are accompanied by abstracts. No subject index.

**Chemical Reaction Engineering. Volume 8. Institution of Chemical Engineers. European Federation of Chemical Engineering Publication Series. No. 37.** Pergamon Press: Oxford and New York. 1984. xiv + 826 pp. \$77.00. ISBN 0-08-030283-1.

Contains the typescripts of the large number of papers given at the Eighth International Symposium, held in Edinburgh in 1984. No indexed.

**Dynamics on Surfaces. Jerusalem Symposia on Quantum Chemistry and Biochemistry. Volume 17.** Edited by B. Pullman, J. Jortner, A. Nitzan, and B. Gerber. D. Reidel Publishing: Dordrecht and Boston. 1984. x + 479 pp. \$69.00. ISBN 90-277-1830-8.

The 17th Jerusalem Symposium on Quantum Chemistry and Biochemistry, held in 1984, generated the many typescript papers in this volume. There is a substantial subject index.

**Defect Properties and Processing of High-Technology Nonmetallic Materials. Materials Research Society Symposia Proceedings. Volume 24.** Edited by H. H. Crawford, Y. Chen, and W. A. Sibley. North-Holland, Elsevier Science Publishers: New York and Amsterdam. 1984. xviii + 482 pp. \$85.25. ISBN 0-444-00904-3.

The typescripts of lectures and papers presented at a symposium held in Boston in 1983 make up this volume. The rubrics are Properties and Structure of Defects, Processing Methods and Variables, and Application. Indexes of contributors and subjects.

**Recent Advances in the Chemistry of Meat. Special Publication No. 47.** Edited by Allen J. Bailey. Royal Society of Chemistry: London. 1984. viii + 245 pp. \$27.00 (paper). ISBN 0-85186-905-X.

The Food Chemistry Group of the Royal Society of Chemistry and the Food Group of the Society of Chemical Industry organized the symposium, held in 1983, of which this volume is the Proceedings. It contains twelve papers in typescript form. Not indexed.

**Enzyme Engineering. Volume 7. Annals of the New York Academy of Sciences. Volume 434.** Edited by A. I. Laskin, G. T. Tsao, and L. B. Wingard. New York Academy of Science: New York. xviii + 596 pp. \$135.00 (paper). ISBN 0-89766-263-6.

This special volume of the "Annals of the New York Academy of Sciences" contains the papers presented at the Seventh International Enzyme Engineering Conference, held in Pennsylvania in 1983. The

rubrics are Stability and Stabilization of Enzymes; Enzyme Processes and Processing Steps of Industrial Interest; Enzymes in Preparative Chemistry; New Methods, Enzymes, and Approaches; Modified Enzymes and Enzyme-like Compounds; Immobilized Microbial and Plant Cells and Organelles; Enzyme Sensors and Assays; and Enzymes and Hydrocarbon Substrates and Environments. The papers are pleasingly set in type, and there is an index of contributors and a substantial subject index.

**Recent Advances in Liquid Crystalline Polymers.** Edited by L. Lawrence Chapoy. Elsevier Applied Science Publishers: New York and London. 1985. xvi + 339 pp. \$60.00. ISBN 0-85334-313-6.

The 22 papers in this volume are based on the proceedings of the European Science Foundation Workshop on Liquid Crystal Polymers, held at Lyngby in 1983. They are nicely set in type and are arranged under the rubrics Synthesis, Structure, Properties Relationships; Theory; Characterization; and Applications. Subject index.

**The Protection of Exothermic Reactors and Pressurized Storage Vessels. Institution of Chemical Engineers. European Federation of Chemical Engineering Publications No. 35.** Pergamon Press: Oxford and London. 1984. vi + 380 pp. \$45.00. ISBN 0-08-030280-7.

The 29 typescript papers in this volume are the proceedings of EFCE Event No. 292, which eventuated in 1984 at the Gateway Theater, in Chester. Not indexed.

**Macro- and Microemulsions. Theory and Applications. ACS Symposium Series. Volume 272.** Edited by Dinesh O. Shah. American Chemical Society: Washington, DC. 1985. x + 502 pp. \$84.95. ISBN 0-8412-0869-4.

This volume of 30 typescript papers is based on a symposium held at the 186th Meeting of the American Chemical Society, in Washington, in 1983. It is divided into Microemulsions and Macroemulsions. An index of contributors and a substantial subject index are included.

**Catalysis of Organic Reactions. Chemical Industries Series. Volume 18.** Edited by John R. Kosak. Marcel Dekker: New York and Basel. 1984. xiv + 482 pp. \$75.00. ISBN 0-8247-7153-2.

The 23 typescript papers in this volume derive from the Ninth Conference on the subject, held in Charleston, SC, in 1982. They have a generally industrial flavor. There is a section on homogeneous catalysis, a larger one on heterogenous catalysis, and a section of selected topics, in which is introduced an arresting new term "ammonoximation", applied to the conversion of cyclohexane to its oxine by reaction with ammonia and oxygen.

**Catalytic Transition Metal Hydrides. Annals of the New York Academy of Sciences. Volume 415.** Edited by D. W. Slocum and W. R. Moser. New York Academy of Sciences: New York. 1983. x + 325 pp. \$65.00 (paper). ISBN 0-89766-225-3.

A conference held at the New York Academy of Sciences in 1982 gave rise to the papers in this special issue of the "Annals of the New York Academy of Sciences". They are arranged under these headings: Hydride Structures and Reactivity Phenomenon; Hydrides in Carbon Monoxide Reactions; Hydrides in Alkenes and Alkyne Reactions; and Hydrides in Hydrogenation of Organic Substrates. There is much information on the mechanism of the Fischer-Tropsch and related reactions. All papers are set attractively in type; there is no subject index.