

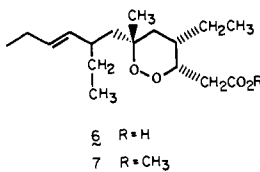
## Additions and Corrections

**Proton NMR Characterization of the Ferryl Group in Model Heme Complexes and Hemoproteins: Evidence for the  $\text{Fe}^{\text{IV}} = \text{O}$  Group in Ferryl Myoglobin and Compound II of Horseradish Peroxidase** [*J. Am. Chem. Soc.* **1983**, *105*, 782-787]. G. N. LA MAR,\* J. S. DE ROPP, L. LATOS-GRAZYNSKI, A. L. BALCH,\* R. B. JOHNSON, K. M. SMITH, D. W. PARISH, and R.-J. CHENG

Page 785: Figures 7 and 8 have been reversed (the captions are correct).

**Antifungal Peroxide-Containing Acids from Two Caribbean Sponges** [*J. Am. Chem. Soc.* **1983**, *105*, 7735]. D. W. PHILLIPSON and K. L. RINEHART, JR.\*

Page 7736: Structures 6 and 7 for plakortic acid and plakortin should have an ethyl group instead of a methyl on the alkenyl side chain, as shown below.



## Book Reviews\*

**Methods of Enzymatic Analysis. 3rd Edition. Volume 1. Fundamentals.** Edited by Hans Ulrich Bergmeyer [Boehringer-Mannheim, GmbH]. Verlag Chemie, Weinheim, Deerfield Beach, Florida. 1983. xxiv + 574 pp. \$116.00 subscription price, \$86.00 per volume.

This excellent source book should be on the book shelf in every laboratory that engages in any form of enzyme analysis. Its excellent and refreshingly concise descriptions of various aspects of enzyme based assay have already proven to be of significant practical value in my own laboratory.

The first edition of Dr. Bergmeyer's work appeared 20 years ago in a single volume. Now he begins his third edition with an initial volume entitled *Fundamentals* [and which is just that], which will be only the first of 10 volumes to be issued over the next 10 years. This series will cover sampling techniques, reagents, enzymes, metabolites (e.g., peptides, lipid, carbohydrates, nucleic acids), coenzymes, proteins without enzyme activity, and molecular biochemistry.

This particular volume is so full of useful methods, with accompanying critical evaluation, that it is difficult to single out any specific feature as "best". The book is organized in three sections, Introduction, Theory, and Application. Section 1 introduces general aspects of enzyme based analytical procedures, analysis of reliability, and precision and cost factors in assay development and projects future trends in enzymatic methods of analysis. Section 2 presents the theory and mathematic aspects of enzyme analysis in a very readable way. Especially noteworthy is the discussion by Manfred Gloger and Wilhelm Tischer on the kinetics of immobilized enzymes, an area that is continuing to increase in importance. Also worth noting are those portions of Section 2 that critique visual indicators for enzyme reactions including the important  $\text{H}_2\text{O}_2$ /peroxidase and tetrazolium/NADH redox indicators. Finally, the discussion of enzyme-linked immunoassay by Michael Oellerich is both a timely and clear treatment of the basics of ELISA.

Section 3 discusses the techniques and instruments of enzyme analysis, giving elemental principles and a critical analysis of the old standbys and the innovative techniques of the future. While this section covers nearly all the major techniques, it does so in a far less thorough fashion than the first two sections, albeit with a great many references to recent

reviews and significant journal articles. The survey nature of this section is not surprising in view of the projected scope of the succeeding volumes, and one can expect that these volumes, if done as well as the first, will fill the gap.

The only other major drawback to this series is its cost; \$116.00 is certainly outrageous even for a volume of high quality, and the price will be an impediment to its acquisition and use by the great many scientists who could benefit by possessing it for themselves rather than relying on their libraries.

William H. Scouten, *Bucknell University*

**Ion Exchange Membranes.** Edited by D. S. Flett (Head of Metals Extraction Division, Warren Spring Laboratory, Stevenage, England). John Wiley and Sons, New York. 1983. 210 pp. \$49.50.

This volume reports a symposium held in Britain by the Society of Chemical Industry. Its scope is practical: the structure and uses of the newer ion-permeable membranes.

Of particular interest are the papers on perfluorinated polymer membranes, now used in the alkali-chlorine industry and for electro dialysis. Radical advances in this area have been made in Japan, and there are four papers by Japanese authors, including M. Seko and his colleagues in Asahi Chemical Industry Co. These and two others from British laboratories describe the chemical and physical structures of perfluorinated membranes, including a novel membrane with functional sulfonate groups through most of its thickness and a thin zone of carboxylate groups on the side that faces the cathode in the alkali-chlorine cell. Extensive performance data are given in graphical form.

Other papers describe solid membranes such as  $\beta$ -alumina, used in high-temperature applications such as the sodium-sulfur electrochemical cell and electrorefining of metals. Again, the structure of  $\beta$ -alumina and its mode of conduction receives as much attention as its very interesting applications. More exotic applications include a solar cell and a heat engine that generates electricity directly instead of first doing mechanical work. The use of membranes in hydrometallurgy and waste metal recovery is described, and a short chapter summarizes the present state of ion-selective electrodes.

The volume begins with a plenary lecture by Patrick Meares, a leading authority who has been publishing on ion-exchanging membranes since 1955. He reviews the simpler theories of membrane transport that take

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

as a model for the membrane "a concentrated strong electrolyte solution thickened by the presence of a polymeric solute" and shows the fallacies of applying this model even to the classical cross-linked polymers, let alone to the new materials, some of them nonuniform on the microscopic scale, that are described in this Symposium. It is better, he says, to treat the membrane as a "a disordered ionic crystal", and he outlines the features of the "porous quasi-crystal model" proposed by N. I. Nikolaev in 1973.

Symposia are meant for specialists, but this book will be welcomed by the nonspecialist who wants to know what is happening today in this exciting and rapidly growing field.

Harold F. Walton, *University of Colorado*

**Principles of Instrumental Analysis. Second Edition.** By D. A. Skoog and D. M. West. Saunders College, Philadelphia. 1980. xi + 769 pp. \$21.95.

Judging from the fact that two copies of this book have been stolen from the students in my lab, this "classic" text on instrumental methods is certainly a valuable one. Covering virtually all of the spectroscopic, electrochemical, and chromatographic techniques in common use (they left out Auger spectroscopy and SIMS but not much else), it has earned a well-deserved place in analytical chemistry curricula. The second edition has expanded to include new techniques developed since 1970 along with more details on the theory behind spectroscopy and chromatography.

The revolution in modern electronics has not been overlooked. Recognizing the ever-increasing role of silicon in the laboratory, the authors have added two new chapters on electricity and electronics. Unfortunately, these are the weakest chapters of the book, containing some non-standard notation (e.g.,  $\alpha$  instead of  $\beta$  for a transistor's gain), a few serious misprints (such as a voltage regulator circuit that does not work), and devices which were pretty much obsolete before 1975 (germanium alloy transistors and core memory). Although these factors tend to be confusing at times, this section as a whole provides a number of enlightening examples of electronics in chemical instrumentation (and to be fair, it is not a trivial task to condense into two chapters what for me took 3 years of EE courses). In any case, kids these days speak BASIC better than English.

As a text on instrumental methods of analysis, this book is invaluable, but if you wish to really understand electronics you should use a text devoted to that. If you teach from it, be sure that you find the (few) mistakes before your students do.

Kurt W. Hillig, II, *University of Michigan*

**Standards in Absorption Spectrophotometry. Ultraviolet Spectrophotometry Group. Volume 1.** Edited by C. Burgess and A. Knowles (Glaxo Operations UK Ltd., and University of Bristol). Chapman and Hall, London and New York. 1981. 142 pp. \$24.00.

Volume 1 is a valuable addition to a library of a practicing spectroscopist. In particular, this compilation provides valuable references to the standards used in the United Kingdom as well as in the United States and other European countries. This volume reflects the interests of the UV spectrophotometry group of practicing spectroscopists in the UK and of a few overseas members. Even though this compilation was originally intended to be used for internal purposes dealing with the standardization of cells, photometric and wavelength standards, stray light, and recommended procedures, it was formalized and was published as a monograph.

The level of presentation is directed to the user and is not overburdened by excessive amounts of theory. The sequence of chapters is arranged in a logical manner and subjects of interest can be found easily. Also, additional references are provided at the end of each chapter.

Chapter 4, dealing with the liquid absorbance standards, presents a wealth of substances used as standards and includes their limitations. Also, a number of tables are presented providing comparison values of molar absorptivities which have been obtained by using different spectrophotometers. In general, these values are given in terms of four significant figures, while concentrations in some cases are listed with one significant figure (Tables 4-1, -2, -3, -4); presumably the concentration values are well established.

In the discussion of stray light (Chapter 6) the authors present a number of figures providing only a rather limited description in their headings. In the description of Figure 6-1, addition of different percentages would be very useful, even though this information is provided in the text (p 99). Figure 2 lacks specified concentrations for maleic acid; however, the effect of shifting the absorbance peaks toward longer wavelengths with increasing concentration is demonstrated.

Chapter 10 is very useful and provides well-established procedures for standardization and evaluation of monochromators, wavelength calibration, stray light measurement, and absorbance standards.

In summary, this monograph fulfills the goals set by the editors and the working groups associated with the UV Spectrophotometry Group.

Bruno Jaselskis, *Loyola University of Chicago*

**Synthetic Reagents. Volume 5.** Edited by J. S. Prizley. John Wiley and Sons, Inc., New York. 1983. 261 pp. \$74.95.

This volume continues the pattern of the earlier ones and contains reviews in depth of the organic chemistry of three inorganic reagents: ammonia (by R. Jeyaraman); iodine monochloride (by C. W. McClelland); and thallium(III) acetate and trifluoroacetate (by S. Uemura). There are brief introductions in which some history, properties, and preparative methods are given somewhat unevenly (ammonia is covered in 2 paragraphs which contain no numerical data at all, but 3 pages are devoted to the thallium salts, giving details of toxicity, crystal structure, storage, solubility, etc.). The bulk of the chapters takes up the reactions of the reagents with organic compounds in a systematic way, emphasizing potential preparative usefulness and concentrating on the more recent literature.

A special value of the type of treatment given in this book is the fact that it brings together the behavior of a particular reagent with all types of organic functional groups, whereas more conventional reviews generally focus on a single functional group, and discuss the various reagents that bring about a specific transformation. This feature is particularly useful when one wants to find out about potential interferences or possible lack of specificity.

The material is clearly set out with abundant equations and structural formulas, bibliographies are extensive, and the subject index is quite substantial. It is a pity that the price had to be set at a level that will discourage personal purchase, for the book is likely to be much in demand by organic chemists concerned with laboratory research.

#### Review of Textbooks for the "Brief" Organic Chemistry Course. II

(1) *Organic Chemistry*. By H. D. Embree (San Jose State University). Scott, Foresman and Co., Glenview, IL, 1983. 496 pp. \$23.95; (2) *Organic Chemistry: A Short Course*. Sixth Edition. By H. Hart (Michigan State University). Houghton Mifflin Co., Boston, MA. 1983. xx + 443 pp. \$26.65. (3) *Fundamentals of Organic Chemistry*. By H. G. Richey, Jr. (Pennsylvania State University). Prentice-Hall, Inc., Englewood Cliffs, NJ. 1983. xvi + 544 pp. \$25.95.

The following updates an earlier review [*J. Am. Chem. Soc.* 1983 105, 3371-2] in which the instructional effectiveness of the textbooks was analyzed in terms of five features. In the present review, those texts judged to be the most effective have been noted by a (+) in Table I.

**A. Typography, Illustration, Etc.** The quality of the typography and use of two-color graphics to illustrate concepts is excellent in the first two texts. Although the various highlighted features and problem insertions in the Hart text make it appear someone cluttered, both authors demonstrate that they have devoted considerable thought as to how the material should be illustrated.

**B. Student Exercises.** All of the texts display an adequate number of student problems. The Hart text, however, utilizes extensive in-chapter exercises, many of which include worked-out solutions. Embree's text contains marginal notes as to specific problems at the end of the chapter that would be particularly useful for review of a topic.

**C. Scope.** All three texts display an adequate but traditional coverage of topics. Hart's text includes 30 brief sections: "A Word About..." that discuss relevant and applied topics. This is also the only brief organic text that this reviewer has encountered that covers, albeit only briefly, "modern" IUPAC nomenclature conventions (e.g., the use of "2-methylpropyl" for the "isobutyl" group). The importance of systematic nomenclature conventions will become increasingly important as students become more involved in the use of computer data bases.

**D. Study Aids.** Although Student Study Guides (which include the answers to all or most of the problems) are available for all of these texts, they were not reviewed. The Study Guide to Hart's text includes many of the summaries, lists of definitions, etc., found within the texts of the other two. In addition, Hart includes summaries of reaction mechanisms, new reactions, learning objectives, sample questions, and chapter summaries. Embree's book includes marginal notes in each chapter locating

Table I

book no.	text feature analysis			
	A	B	C	E
1	+	+		+
2	+	+	+	+
3				+

earlier relevant sections that the reader may wish to review.

**E. Spectroscopy.** All three texts contain adequate discussions of IR, NMR, UV, and mass spectroscopy. Hart and Richey provide this in a chapter toward the end of their book. Embree, however, introduces the discussion somewhat earlier so that the spectroscopic properties of a number of functional groups can be considered in subsequent chapters.

**O. Bertrand Ramsay, Eastern Michigan University**

#### Volumes of Proceedings

**Waste Heat: Utilization and Management.** Edited by S. Sengupta and S. S. Lee. Hemisphere Publishing Company, New York. 1983. 1200 pp. \$125.00.

Contains a large number of papers, roughly averaging ten pages in length, given at a conference held in 1981 devoted to the ecological effects and the utilization of waste heat chemical and nuclear industries.

**Energy Storage and Redistribution in Molecules.** Edited by Juergen Hinze. Plenum Publishing Co., New York. 1983. xi + 615 pp. \$85.00.

Proceedings of two "workshops" held in 1980 at the University of Bielefeld, containing 33 papers reproduced from varied typescripts and provided with a modest subject index.

**Recent Developments in Mass Spectrometry in Biochemistry, Medicine, and Environmental Research, 8.** Edited by Alberto Frigerio. Elsevier Scientific Publishing Co., Amsterdam and New York. 1983. x + 346 pp. \$80.75.

Proceedings of the 8th International Symposium on the title subject, held in Venice in 1981, reproduced from typescripts of good quality, but not indexed.

**The Role of the Polymeric Matrix in the Processing and Structural Properties of Composite Materials.** Edited by James C. Seferis and Luigi Nicolais. Plenum Publishing Co., New York. 1983. xii + 684 pp. \$92.50.

Proceedings of a joint USA-Italy Symposium held in Capri in 1981, containing papers on chemical and environmental effects, short-fiber reinforcement effects, interfacial effects, and continuous fiber reinforcements and design, reproduced from typescripts, and indexed.

**Surveillance of Environmental Pollution and Resources by Electromagnetic Waves.** Edited by Terje Lund. D. Reidel Publishing Co., Dordrecht, Holland. 1978. xix + 402 pp. \$39.00.

Proceedings of a NATO Advanced Study Institute held in Norway in 1978, reproduced from typescripts and without an index.

**Analytical Techniques for Heavy Metals in Biological Fluids.** Edited by S. Facchetti. Elsevier Scientific Publishing Co., Amsterdam and New York. 1983. xii + 288 pp. \$83.00.

Contains the texts of 13 lectures given as a course of study at the Joint Research Centre, Ispra, Italy, in 1981, with some subsequent up-dating. The emphasis is on toxic metals. The text is reproduced from typescripts of good quality. There is a very brief subject index.

**Computer Applications in Chemistry.** Edited by Stephen R. Heller and Rudolph Potenzzone, Jr. Elsevier Scientific Publishing Co., Amsterdam and New York. 1983. xii + 394 pp. \$89.25.

Proceedings of the 6th International Conference on Computers in Chemical Research and Education, held in Washington in 1982. Contains articles of about 10 pages in length, abstracts of poster sessions, and a substantial subject index.

**Ions and Molecules in Solution.** Edited by N. Tanaka, H. Ohtaki, and R. Tamamushi. Elsevier Scientific Publishing Co., Amsterdam and New York. 1983. viii + 470 pp. \$125.50.

A collection of the invited papers presented at a symposium on Solute-Solute-Solvent Interactions held in Japan in 1982. Reproduced from fairly uniform typescripts; not indexed.

**Advances in Organic Geochemistry 1981.** Edited by M. Bjorøy et al. John Wiley and Sons, New York. 1983. xxi + 880 pp. \$225.00.

Proceedings of the 10th International Meeting, held in Norway in 1981. Contains papers of about ten pages in length in these categories: Organic Geochemistry in Exploration; Migration of Hydrocarbons; Environmental Organic Geochemistry; Deep-Sea Drilling; Diagenesis/Catagenesis and Organic Geochemistry of Coal and Kerogens; Biomarkers; and Miscellaneous. Set in type and well indexed. This is a good example of high quality in publication of proceedings, but one really has to pay for it!

**Effluent Treatment in the Process Industries.** By the European Federation of Chemical Engineering. EFCE Publication Series No. 31, Event No. 282. Pergamon Press, New York. 1983. 356 pp. \$59.50.

Contains the text of 25 papers given at a conference held in the United Kingdom in 1983, concerned with the safe disposal of gaseous, liquid, and solid wastes. An index would have improved its usefulness.

**Heat Transfer in Nuclear Reactor Safety.** Edited by S. George Bankoff and N. H. Afgan. Hemisphere Publishing Co., New York. 1982. 964 pp. \$95.00.

Contains eleven invited lectures and 48 papers given at a seminar held at Dubrovnik in 1980.

**Computer Applications in the Analysis of Chemical Data and Plants.** Science Press, Princeton, NJ. 1977/1978.

Contains the plenary and main lectures from the CHEMDATA 77 conference held in Finland. The areas represented are the following: Mathematical Models; Data Banks; Process Control.

**Polymer Alloys III: Blends, Blocks, Grafts, and Interpenetrating Networks.** Edited by Daniel Klemmner and Kurt C. Frisch. Plenum Press, New York and London. 1983. ix + 302 pp. \$45.00.

Proceedings of a symposium sponsored by the ACS Organic Coating and Plastic Division in 1981. Polymer alloys are defined as "multicomponent macromolecular systems". Eighteen papers, reproduced from typescripts, and an index make up the volume.

**Mobilization of Reverses in Germination.** Edited by Constance Nozolino, Peter J. Lea, and Frank A. Loewus. Plenum Press, New York and London. 1983. x + 312 pp. \$42.50.

Proceedings of the 1982 Symposium of the Phytochemical Society of North America, consisting of 12 papers and an index. One paper, on the Effect of Germination on Nutrient Changes, has no less than 313 references! Reproduced from uniform typescript.

**Vibrations at Surfaces.** Edited by C. R. Brundle and H. Morawitz. Elsevier Scientific Publishing Co., Amsterdam and New York. 1983. 309 pp. \$147.00.

Proceedings of the Third International Conference on the title subject, held at Asilomar, California, in 1982, consisting of a very large number of mostly short papers, reproduced from almost as many different typefaces, and provided with an index of the same number of pages as the table of contents.

**Advances in X-Ray Analysis. Volume 26.** Edited by Camden R. Hubbard, Charles S. Barrett, Paul K. Predecki, and Donald E. Leyden. Plenum Press, New York and London. 1983. xvii + 473 pp. \$62.50.

Proceedings of the 1982 Denver Conference on the Applications of X-Ray Analysis, consisting of a large number of papers on aspects of X-ray diffraction, with author and subject indexes, reproduced from a spectrum of typescripts.

**Soot in Combustion Systems and Its Toxic Properties.** Edited by J. Lahaye and G. Prado. Plenum Press, New York and London. 1983. viii + 433 pp. \$57.50.

Proceedings of a NATO "workshop" held in France in 1981, consisting of 20 papers, a summary, and an index, reproduced from typescripts.

**The Application of Laser Scattering to the Study of Biological Motion.** Edited by J. C. Earnshaw and M. W. Steer. Plenum Press, New York and London. 1983. xiii + 705 pp. \$89.50.

Proceedings of a NATO Advanced Study Institute held in Italy in 1982, consisting of a large number of papers, concluding statements, a photograph and a list of participants, and a subject index, reproduced from typescript.

**Recent Advances in Analytical Chemistry.** Edited by J. M. Thomas, R. Belcher, and T. S. West. The Royal Society, London. 1982. vi + 689 pp. £29.80.

Proceedings of a discussion meeting held in 1981, consisting of papers in the areas of atomic spectrometry, elemental, electronic, and molecular spectroscopy, electroanalytical chemistry, chromatography, sample handling, and microprocessors, all originally published in the "Philosophical Transactions of the Royal Society of London".

**Structure, Dynamics, Interactions and Evolution of Biological Macromolecules.** Edited by Claude H el ene. D. Reidel Publishing Co., Dordrecht, Boston, and London. 1983. xiii + 415 pp. \$65.00.

Proceedings of a colloquium held in Orl ans in 1982, dedicated to Professor Charles Sadron, consisting of 25 papers reproduced from typescripts and provided with a short index.

**Biological Aspects of Metals and Metal-Related Diseases.** Edited by Bibudhendra Sarkar. Raven Press, New York. 1983. 330 pp. \$52.00.

Proceedings of a symposium held in Toronto in 1981, including 21 papers and a subject index, set in type.

**Structure and Dynamics: Nucleic Acids and Proteins.** Edited by Enrico Clementi and Ramaswamy H. Sarma. Adenine Press, Guilderland, NY. 1983. xi + 487 pp. \$49.00.

Proceedings of a symposium held at La Jolla in 1982 under the auspices of the International Society of Quantum Biology. It is set in type and indexed, but some of the equations, which appear to have been reproduced directly from handwritten copy, look at first glance like Chinese or Runic.

**Ionic Liquids.** Edited by Douglas Inman and David G. Lovering. Plenum Press, New York and London. 1981. x + 450 pp. \$49.50.

Proceedings of a conference on Highly Concentrated Aqueous Solutions and Molten Salts, which took place at Oxford in 1978. Set in type and indexed.

#### Books on Applied Chemistry

**Foam Flotation: Theory and Applications.** By Ann M. Clark and David J. Wilson. Marcel Dekker, Inc., New York. 1983. 432 pp. \$65.00.

This book is intended "to provide those new to the field with a comprehensive guide to the literature", "to indicate some of the applications and possibilities", to review in detail precipitate and absorbing colloid flotation, and "to provide mathematical analyses of...physical models". In addition to the seven chapters, there is an extensive appendix that reviews the literature.

**Heat and Mass Transfer in Packed Beds.** By N. Wakao and S. Kagueli. Gordon and Breach Science Publishers, New York. 1983. xxii + 364 pp. \$73.50.

This book treats the theory of flow of heat and fluid in packed beds—systems composed of solid particles with fluid in the interstitial volume. It is essentially mathematical, and is not concerned with specific apparatus or processes. Extensive appendices include physical constants and computer programs.

**Handbook of Fluids in Motion.** By Nicholas P. Cheremisinoff and Ramesh Gupta. Ann Arbor Science Publishers, Ann Arbor, MI, and The Butterworth Group, Woburn, MA. 1983. xiii + 1202 pp. \$79.95.

"This book is intended to supply both the practicing engineer and the researcher with an authoritative reference work that comprehensively covers the field of applied fluid mechanics". The 42 contributed chapters are grouped under the headings: Single-phase Flows; Gas-Liquid Flows; Gas-Solid Flows; Liquid-Solid Flows; and Flow Phenomena.

**Studies of Scientific Disciplines: An Annotated Bibliography.** National Technical Information Service, Springfield, VA. 1982. iii + 185 pp. \$17.50.

This bibliography is about "social studies of science"; that is, studies of research activity, productivity, reputation and prestige, reward systems, etc. Chemistry takes up 20 pp, Biochemistry 12 pp, and Physics 24 pp. It is of special pertinence for science administrators.

**Encyclopedia of Composite Materials and Components.** Edited by Martin Grayson. John Wiley and Sons, New York. 1983. xxviii + 1161 pp. \$99.50.

This volume is a compilation of over 50 of the articles that are part of the "Encyclopedia of Chemical Technology". They are selected so as to bring related articles together; in the work from which they are drawn, they are scattered among other subjects as a result of alphabetical order.

**Annual Review of Materials Science. Volume 13.** Edited by R. A. Huggins, R. H. Bube, and D. A. Vermilyea. Annual Reviews, Inc., Palo Alto, CA. 1983. 454 pp. \$64.00.

The science of materials as a specific field has been recognized only relatively recently, and it is most interesting to see in this book an opening chapter on its emergence and evolution. David Turnbull, of Harvard University, offers the alternative term "ultramolecular science" for this discipline, which is concerned with relating ultramolecular structure to mechanical, magnetic, and electrical properties of matter. There are 17 contributions in this volume, and in many of them, chemistry is a strong component. For example, there are articles on erosion of metals, solid solutions, infrared methods for studying polymer surfaces, etc. One article has the intriguing title A Quarter Century of Plasma Spraying. As usual in this series, there are a good subject index and cumulative indexes of authors and chapter titles for Volumes 9–13.

**Sanitation in Food Processing.** By John A. Troller. Academic Press, New York. 1983. xiii + 457 pp. \$34.50.

Although this book is much concerned with rats, cockroaches, and

related undesirables, it pays due attention to the chemistry applied in slaying and repelling them. In the chapter on Cleaning and Sanitizing, for example, the chemistry of hypochlorous acid is discussed, with appropriate tables and equations.

**Handbook of Solvent Extraction.** Edited by Teh C. Lo, Malcolm M. I. Baird, and Carl Hanson. Wiley-Interscience, New York. 1983. xxiv + 980 pp. \$125.00.

This is a comprehensive work on the separation of the components of homogeneous liquid mixtures by means of liquid-liquid extraction. The first nine chapters cover general principles and are followed by extensive groups of chapters on industrial equipment and processes. The contributions have been drawn from all over the world and from both academic institutions and industries.

**Pyrolysis: Theory and Industrial Practice.** Edited by L. F. Albright, B. L. Crynes, and W. H. Corcoran. Academic Press, New York. 1983. xvii + 482 pp. \$65.00.

The emphasis of this book is on the production of olefins by thermal cracking of hydrocarbons. Its 18 contributed chapters range from fundamental discussions of the mechanism of fragmentation of methane, ethane, propane, and butane to such engineering topics as transfer-line exchanges. There are short bibliographies, which include some references to fundamental journals, and a subject index of modest proportions.

**Hazard Assessment of Chemicals—Current Developments. Volume 2.** Edited by Jitendra Saxena. Academic Press, New York. 1983. xiii + 361 pp. \$45.00.

This book consists of five contributed reviews and two case studies of chemical spills. The latter are the release of vinyl chloride in a train derailment in Manitoba and the infamous tetrachlorodibenzodioxin disaster at Seveso. The reviews, which are not closely related, deal with soil and aquatic ecosystems, transfer of chemicals between mother and fetus, epidemiology, and the National Toxicology Program's activities. There is an index of chemical substances as well as subjects.

**High and Low Erucic Acid Rapeseed Oils: Production, Usage, Chemistry, and Technological Evaluation.** Edited by John K. G. Kramer, Frank D. Sauer, and Wallace J. Pigden. Academic Press, New York. 1983. xx + 582 pp. \$79.50.

In 22 contributed chapters, this book treats production, use, chemistry, and toxicological evaluation of rapeseed oil, which has become a major commodity in the economy of Canada and other northern countries in the last 30 years. The health problems arising from the erucic acid content have led to the breeding and cultivation of new varieties with low erucic acid content.

**Controlling In-Plant Airborne Contaminants: Systems Design and Calculations.** By John D. Constance. Marcel Dekker, Inc., New York. 1983. 368 pp. \$45.00.

This book is intended "to provide a useful reference work for the practicing engineer in his evaluation and design of systems for the control of the industrial in-plant environment". It deals with ventilation in detail, and the control of dust, moisture, heat, and even noise. An extensive appendix includes specific problems and complete solutions to them. This book could be useful to those designing new laboratories as well as industrial plants.

**Mass Transfer in Engineering Practice.** By Aksel L. Lydersen. John Wiley and Sons, New York. 1983. xiii + 321 pp. \$39.95.

This book is intended "to provide a short refresher course for practicing engineers in each of the more common unit operations". Its eight chapters are devoted to diffusion, distillation, gas absorption and desorption, extraction, humidification, drying, adsorption and ion exchange, and crystallization.

**Encyclopedia of Emulsion Technology. Volume 1. Basic Theory.** Edited by Paul Becher. Marcel Dekker, Inc., New York. 1983. 744 pp. \$95.00.

This is a comprehensive work consisting of nine contributed chapters and is a completely new book meant to be complementary to the editor's "Emulsions: Theory and Practice". Mathematics is strongly evident, and the many references are primarily to fundamental journals.

**Demulsification: Industrial Applications.** By Kenneth J. Lissant. Marcel Dekker, Inc., New York. 1983. 176 pp. \$37.50.

This is a pragmatic book for those who need help in breaking emulsions. An introductory chapter covers theory, another chapter describes testing to determine the type of emulsion, and the remaining four chapters are devoted to demulsification methods, including such intriguing subjects as Heater Treaters, Gun Barrels, Water Knockouts, and the Lo-flo System. The references are eclectic and are strong in patents.