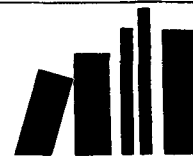


New Books

L.A. Witting and J.F. Gerech, Book Review Editors



Aquametry, Part I by John Mitchell, Jr., and Donald Milton Smith (John Wiley and Sons, New York, 1977, 632 p., \$29.95).

Since publication of his book, "Aquametry," in 1948, the name John Mitchell Jr. has seemed synonymous with the Karl Fischer method for water. In the second edition, "Aquametry" is broadened to include all methods for determination of water. The expanded treatise is written in three parts. Part I includes chemical, physical, and separation methods. Part II will cover techniques based on electrical measurements, and Part III will be devoted to bringing applications of the Karl Fischer reagent up-to-date.

"Aquametry" is Volume 5 of the Wiley-Interscience Chemical Analysis Series. Part I is clearly printed on good paper and is bound in the dark green cloth characteristic of the series. The scope and thoroughness of coverage are impressive.

An introductory chapter on the structure and physical properties of water is followed by chapters devoted to chemical, gravimetric, thermal, and separation methods. Visible and ultraviolet spectrometric methods, infrared spectrophotometry, nuclear magnetic resonance, and radiochemical methods are each covered in a separate chapter. Miscellaneous instrumental methods and physical methods complete the book. Nearly 2,000 references are cited in the text.

This volume will be useful to anyone interested in the determination of water from fractional parts per million to high purity. A section of the index lists substrates in which the water is measured. If you wish to analyze for water in brick walls, cheese, hops, or tung fruit, there are choices of methods for each. I was disappointed that the authors did not make comments on the relative merits of the alternative methods. Another annoyance was the arrangement of references at the end of each chapter. The listing is alphabetical by author. This makes it almost impossible to locate in the text the citation from a familiar author, a favored journal, or a recent publication date.

E.M. SALLEE
Procter & Gamble
Cincinnati, OH 45224

Lipid Metabolism in Mammals, Vol. 1 & 2, Edited by F. Snyder (Plenum Press, New York, 1977, Vol. 1, 402 p., \$42.50; Vol. 2, 390 p., \$42.50).

Volume 1 begins with an introductory chapter dealing with general pathways in the metabolism of lipids in mammalian tissue, 34 pages (Van Golde and Van den Bergh). This is followed by chapters dealing with nine specific tissues: Liver, 116 pages (Van Golde and Van den Bergh); Gastrointestinal Tissue, 38 pages (Johnston); Red Blood Cells, 28 pages (Shohet); Plasma Lipoproteins, 50 pages (Kane); White Cells, 18 pages (Elsbach); Platelets, 10 pages (Deykin); Adipose, 30 pages (Shapiro); Brain, 50 pages (Wykle); and Cardiac Muscle, 33 pages (Gilbertson). Volume 2 continues this sequence through; Lung, 38 pages (Frosolono); Kidney, 45 pages (Tou and Huggins); Gonadal Tissue, 49 pages (Coniglio); Mammary Glands, 15 pages (Dils); The Eye, 44 pages (Broekhuysse and Daemen); Skeletal Muscle, 20 pages (Waku); Skin, 28 pages (Grigor); Calcified Tissues, 56 pages (Dirksen); Cancer Cells, 18 pages (Lee and Snyder); Haderian Gland, 11 pages (Rock); Cul-

tured Cells, 30 pages (Bailey); and Lipid Changes in Membranes during Growth and Development, 33 pages (Pasternak).

With a book of this type it is rather inevitable that some elementary material common to most tissues tends to be mentioned frequently, although the first chapter was designed to minimize this. The average reader, however, is not apt to read straight through the two volumes from cover to cover. Relatively free-standing chapters on each tissue probably best serve the needs of most readers. An attempt was made to evaluate completeness of coverage by following a minor topic, glycolipids, through the various chapters. This may have been an unfortunate choice. Coverage tends to concentrate almost exclusively on the glycerolipids, sphingomyelin, and sterols. Where relatively unique lipids predominate, such as the diester waxes and related materials in the skin, coverage is present. Glycosphingolipids are covered in the chapters on the kidney and the brain but ignored in the introductory chapter and in the chapters on the erythrocyte and the intestine. Similarly the sulfated glycolipids in testes rate one short paragraph. Glycolipid metabolism in transformed cells is covered slightly more extensively (one paragraph) in the chapter on brain than in the chapters on cancer and cell culture where the topic is barely mentioned and completely omitted, respectively. The persistent reader finally finds this topic discussed in the final chapter on membrane changes during growth and development. Emphasis has been placed on normal metabolism and in some cases the detours in abnormal metabolism are so brief that they might better have been omitted, i.e., one and one-half pages on fatty liver. Other topics such as respiratory distress syndrome and testicular degeneration are covered in somewhat more detail. In the case of the eye both pathological conditions and the generalized phenomenon of aging are considered. Membrane instability is considered in the case of the erythrocyte, and the genetic lipid storage diseases are covered in brain.

The literature on lipid metabolism is quite extensive. These two volumes provide a valuable service in organizing this material so that lipid metabolism in different tissues may be readily compared or contrasted. Literature citations through 1973 and 1974 are reasonably frequent, and occasional citations into 1975 and 1976 are present. References include complete titles and inclusive pagination. The art work is well executed, and the rare halftones are of excellent quality. These two volumes are strongly recommended to anyone interested in mammalian lipid metabolism.

LLOYD A. WITTING
Supelco, Inc.
Bellefonte, PA 16823

Methods in Membrane Biology, Vol. 8, Edited by E.D. Korn (Plenum Press, New York, 1977, 368 p., \$32.50).

Several of the past volumes of this series have been entirely devoted to specific topics such as plasma membranes (Vol. 3), biophysical approaches (Vol. 4), and transport (Vol. 5). The four chapters of the current volume focus on membrane lipids. The first chapter by P. Zahler and V. Niggli deals with "The Use of Organic Solvents in Membrane Research." In addition to considering lipid extraction from the membrane, emphasis is placed on

solubilization of the entire membrane in a form suitable for fractionation. Thirteen methods including those of Folch, Bloor, and Bligh and Dyer are specifically described. The second chapter by R.A. Klein and P. Kemp covers "Recent Methods for the Elucidation of Lipid Structure." Starting with the usual chromatographic techniques for isolation, they go on to mention the older standbys of low temperature crystallization, urea adduct formation, and Hg or Ag adducts. Under wet chemical methods, the trenchant observation is made that the BF₃-methylation of bound fatty acids is considered overrated by many workers. Resolution of diastereoisomers is also covered. Most of the chapter is devoted to mass spectrometry, proton nuclear magnetic resonance spectroscopy, and ¹³C nuclear magnetic resonance spectroscopy. It would be impolite to comment on the number of readers who would undoubtedly profit from carefully perusing the section on artifacts and contaminants. In the third chapter, M. Kates considers the procedures for "Synthesis of Stereoisomeric Phospholipids for Use in Membrane Studies." All of the usual phospholipids, PC, PE, PS, PI, PG DPG, PA, and sphingolipids are covered as are a number of phospholipid analogues. The fourth chapter by B.J. Gaffney and S-W. Chen deals with "Spin-Label Studies of Membranes." This reviewer is not enough of a physical chemist to comment intelligently on the coverage provided. Recent discoveries relative to the specific localization of certain phospholipid classes on the inside or outside of membranes have excited particular interest. The spin-labels provide opportunity to consider the motion of lipids in membranes.

A true method makes very poor reading since it is designed for use at the bench. This is not really a methods book in that sense. Kates, for instance, considers methods for synthesis but does not actually get down to recipes and working conditions. More ground can be covered in this fashion, and the reader is probably best referred to the original manuscripts for exact details. A secondary advantage of this type of coverage is a much more readable book. This volume can be strongly recommended to every lipid chemist interested or involved in analysis.

LLOYD A. WITTING
Supelco, Inc.
Bellefonte, PA 16823

New Publications



The Relationship between Engine Oil Viscosity and Engine Performance - Part II, ASTM, 1916 Race St., Philadelphia, PA 19103, 64 p., soft cover, 1977, \$12 + 3% shipping charges U.S., Canada, Mexico; 5% shipping charges elsewhere; ASTM Special Technical Publication 621-S1.

The Interpretation of Infrared Spectra—An Audio-Visual Program, J.H. van der Maas, E.T.G. Lutz, 122 color slides and taped cassette commentary, Heyden & Son, Kor-Center East, Bellmawr, NJ 08030, 122 color slides, taped cassette commentary, instructor's guide, student course books, \$160.

Proceedings of Symposium on Sorghum and Millets for

Human Food, Vienna, 1976; Tropical Products Institute, 56-62 Gray's Inn Road, London, WC1X 8LU, England; 138 p., 1977, £3.45 including postage; £4.65 airmail postage.

Proceeding of Conference on Handling, Processing and Marketing of Tropical Fish, 1976; Tropical Products Institute, 56-62 Gray's Inn Road, London, WC1X 8LU, England; 511 p., 1977, £11 including postage; £15 including airmail postage.

First International Statistical Review of the Synthetic Rubber Industry, International Institute of Synthetic Rubber Producers Inc., 45 Rockefeller Plaza, New York, NY 10020, 50 p., 1977, 8½ x 11, \$15.

The following Food and Agriculture Organization publications may be ordered from FAO, UNIPUB, Box 433, Murray Hill Station, New York, NY 10016:

State of Food and Agriculture 1976, 157 p., illus., 1977, \$11.75.

Wholesomeness of Irradiated Food, 44 p., 1977, \$4.

Program for the 1980 World Census of Agriculture, 80 p., 1976, \$8.50.

FAO Production Yearbook, 1976, Volume 30, 296 p., 1977, \$15.

Codex Alimentarius Commission: Report of the Joint FAO/WHO Food Standards Regional Conference for Asia, 181 p., 1976, \$12.

FAO Commodity Review and Outlook, 1976/77, 113 p., 1977, \$15. ●



Soybean processors elect officers

The National Soybean Processors Association has elected John G. Reed Jr. of Continental Grain Co. as chairman of the NSPA Board of Directors for 1977/78. Other officers are C. Lockwood Marine, Central Soya, vice-chairman; Preston C. Townsend, Townsends, Inc., secretary; Gaylord O. Coan, Gold Kist, Inc., treasurer. President and chief staff officer is Sheldon J. Hauck. NSPA's 33 member firms process and market more than 95 percent of all soybeans crushed in the continental United States. ●

New USDA grants

The USDA has begun a \$15 million competitive grant program for research in four plant-related areas as well as basic research on human nutrition. Grants totaling \$10 million will be available for plant-related research into photosynthesis, biologic stress from plant pests, biologic nitrogen fixation, and gene transfers. A total of \$5 million will be available for basic research on human nutrition. Joe L. Key, research professor of botany and chairman of the division of biological sciences, University of Georgia, has been named to direct the grant program. ●