Publications

Book reviews

Human Nutrition. A Comprehensive Treatise, Vols. 1, 2, 3A, 3B, and 4, edited by Roslyn B. Alfin-Slater and David Kritchevsky (Plenum Press, New York, 1979, 496 pp., $39.50; 452 pp., $37.50; 290 pp., $25; 424 pp., $39.50; 478 pp., $37.50).

These volumes were designed for the researcher or advanced student of nutritional sciences. The first volume, edited by Myron Winick, is concerned with prenatal and postnatal nutrient requirements. The volume is not an attempt to cover all aspects of developmental nutrition. It consists of discussions of what the editor sees as the most important aspects of the field at present. The first three chapters cover nutrition and metabolic development, and nutrition and cellular growth. The fourth chapter deals with a topic of great current interest, namely nutritional control of some brain neurotransmitters. The following chapters are discussions of nutrition and pregnancy; early infant nutrition; breast feeding and bottle feeding; malnutrition and learning; and nutrition and neural development in children. Chapters follow on malnutrition and infection; nutrition in dental development; and pediatric nutrition as it may relate to development of atherosclerosis. The final three chapters are on iron deficiency; behavior and brain chemistry; inborn errors of metabolism; and nutritional in-hospital management of chronic diarrhea in children.

Volume 2, edited by Derrick B. and E.F. Patrice Jeliffe, is concerned with nutrient requirements for growth and development. This volume is divided into three parts. Part I deals with influences on growth and includes discussions on nutrient needs; genetic and nutritional interactions; nondietary factors and nutrition; and metabolic anomalies. Part II, entitled "Ages of Man (Perspectives)," is concerned with nutritional needs from the maternofetal through adult life. There is an emphasis on the young child, however, so there are separate chapters dealing with the normal young child, failure to thrive, and protein energy malnutrition and obesity in the young child. The third part deals with growth monitoring and nutritional assessment.

Companion volumes 3A and 3B deal with nutrition and the adult; 3A is concerned with the macronutrients and 3B with the micronutrients. Both volumes are edited by the general editors, Alfin-Slater and Kritchevsky. Volume 3A begins with a discussion of the recommended dietary allowances and how they are formulated, then continues with chapters on the digestion, metabolism and functions of the macronutrients. The micronutrients and their interactions with common drugs are the major subjects of volume 3B. This volume also includes discussions on nutrition for the older adult and the aged.

The final volume, edited by Robert E. Hughes, deals with the metabolic and clinical applications of nutrition. This volume includes discussions on the hematopoietic system; nutritional disorders of the nervous system; nutrition and the musculoskeletal system; interactions between the gastrointestinal tract and nutrient intake; nutritional mutual relationships among aging, nutrition and health; effects of failure of the endocrine system on nutrient absorption, transport and utilization; metavitamins and food fads; the effects of ethanol and infectious diseases on nutrition; obesity; and nutrition and the kidney.

There is a wealth of information in these volumes. All contributors are experts in their fields and the general quality of the chapters is good. As with all multiauthored works, there is a variety of styles and some contributions are more enjoyable and informative than others. There is considerable repetition of some information, which can become irritating when one is reading all volumes in a short time. This repetition may, however, have some advantages in that individual volumes can stand alone. In view of the cumulative cost of all volumes, many students and researchers may wish to purchase just one or two volumes dealing with their particular interests.

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Aquametry, 2nd Edition, Part III, by John Mitchell, Jr., and Donald Milton Smith (John Wiley & Sons, New York, NY, 851 pp., 1980, $75).

This book also carries a listing of Vol. 5 in *Chemical Analysis,* a series of monographs on analytical chemistry and its applications, edited by P.J. Elving and J.D. Winefordner, a Wiley-Interscience publication, John Wiley & Sons, New York. Aquametry is the branch of measurement dealing with water content in matter. This book is devoted to methods using the Karl Fischer reagent. Eighty percent of the book deals with quantitative determination of water and the remaining part deals with quantitative determinations of organic functional groups and inorganic compounds. A review of the state-of-the-art for analysis of water content reported since 1977 is the subject of Chapter 1 and 75 references are cited. Chapter 2 comprises a concise summary of methods described in the following 13 chapters. This chapter is useful to guide a casual reader to the perspective of the book and after reading the book, it is a handy reference. The remaining 12 chapters deal with different groups of compounds and materials analyzed for water content using the Karl Fischer reagent. References are cited at the end of each chapter for a total of 1,146 citations.

Water content in a range of materials is discussed. These range from monomeric substances to complex commercial materials. This book is recommended for research and quality control chemists. It is a comprehensive treatise on which to build programs for the research chemist. It is either a reference method or viable alternative method for assessing water content for the quality control chemist. This book effects of hepatic failure; cardiac failure; and the relationships of diet to cancer. Further chapters are concerned with presents detailed procedures of how-to-do-it, sketches of

equipment set-up, discusses limitations and shows comparisons with corroborating referee analysis. Unfortunately, the book is costly for the individual researcher, but it should be high on the list for chemists to recommend to librarians.

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Lipids in Evolution, by W.R. Nes and W.D. Nes (Plenum Press, 227 W. 17th St., New York, NY, 1980, 244 pp., $29.50).

This is the latest volume in the *Monographs in Lipid Research* series edited by D. Kritchevsky. Previous volumes include *Fungal Lipid Biochemistry,* by J.O. Weete, and *Lipid Metabolism in Mammals,* vols. 1 and 2, by Fred Snyder. Previous reviews in this area have focused largely on the acetate pathway with emphasis on the phylogenetic distribution of enzymes for sequential fatty acid desaturation and elongation. In 1966, the *Advances in Lipid Research* series, also edited by D. Kritchevsky, included an early review of this topic by Robert Shaw. Nes and Nes, however, have focused largely, although not exclusively, on the isoprenoid pathway. Particularly stressed are the squalene/epoxysqualene cyclases and subsequent reactions such as alkylation at C-24. The biosynthetic pathway branchpoint at epoxysqualene to cycloartenol or lanosterol is cited as dividing photosynthetic and nonphotosynthetic organisms. Considerable emphasis is also placed on the distribution of anaerobic and aerobic pathways. Many of the lipids discussed will seem quite unfamiliar to the average lipid chemist. These include halogenated cyclic isopentenoids in seaweeds and a glycerol tetraether made up of two glycerol molecules cross-linked by two octaisopentenoidal chains in *Sulfolobus acidocaldarius.*

Nes and Nes have drawn together data on a rather fantastic panoply of strange lipids and biosynthetic pathways to lipids and their phylogenetic distribution. Taken within the context of this series, the present volume fills a definite niche. Extensive author and subject indices make this a convenient reference to areas that probably are quite foreign to most lipid chemists. The assumed level of familiarity with biological classifications, the authors' style and organizational structure combine to make this strictly a reference-type book rather than interesting reading suitable for the private library.

Advances in Chromatography, Vol. 18, edited by J.C. Giddings, E. Grushka, J. Cazes and P.R. Brown (Marcel Dekker, 270 Madison Ave., New York, NY, 1980, 292 pp., $38.50).

The current volume in this series contains five chapters: "The Characterization of Long-Chain Fatty Acids and Their Derivatives by Chromatography," by Lie Ken Jie; "Ion-Pair Chromatography on Normal and Reversed Phase Systems," by Hearn; "Current State of the Art in the HPLC Analysis of Free Nucleotides, Nucleosides, and Bases in Biological Fluids," by Brown, Krstulovic and Hartwick; "Resolution of Racemates by Ligand-Exchange Chromatography," by Davankov; and "The Analysis of Marijuana Cannabinoids and Their Metabolites in Biological Media by GC and/or GC-MS Techniques," by Gudzinowicz, Gudzinowicz, Hologgitas and Driscoll.

The GC of fatty acids would appear to have been so extensively covered through the years by Ackman that a chapter in this area is superfluous. Perhaps, for this reason, Lie Ken Jie includes TLC and HPLC and in the case of GLC focuses primarily on positional isomers of branched, unsaturated, oxygenated or cyclic fatty acids with data presented for multiple liquid phases. A typical figure presents equivalent chain length (ECL) data on the methyl-branched C-18 methyl esters on three phases. A typical table lists the ECL for dimethylene-interrupted diacetylenic C-18 methyl esters on nine phases. The section on TLC is similar with illustrations of the positional *cis* and *trans* isomers of octadecenoates on plates containing $AgNO_3$. HPLC of the saturated and unsaturated fatty acid esters also is briefly described. It is particularly interesting to see a chapter such as this that takes somewhat the same materials through GC, TLC and HPLC. Other chapters in this volume may not be of particular interest to lipid chemists. It should be noted, however, that Hearn has become quite well known for his pioneering work on the HPLC of peptides and proteins. In general, this volume falls into the reference category for lipid chemists.

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New publications

Power Plants: Effects on Fish and Shellfish Behavior, edited by Charles H. Hocutt, Jay R. Stauffer, Jr., John E. Edinger, Lenwood W. Hall, Jr., and Raymond P. Morgan II, Academic Press Inc., 111 Fifth Ave., New York, NY 10003, 1980, 346 pp.

Colour: Its Measurement, Computation and Application, by G.J. Chamberlin and D.G. Chamberlin, Heydon and Son Ltd., Spectrum House, Hillview Gardens, London NW4 2JQ, 1980, 137 pp. For those engaged in the measurement, matching, control and specification of color in the visual arts, cosmetics, chemistry and television.

Industrial Organic Chemicals in Perspective, Part II: Technology, Formulation and Use, by Harold A. Wittcoff and Bryan G. Reuben, John Wiley and Sons Inc., New York, NY, 1980, 502 pp.

Physics of Thin Films, Advances in Research and Development, Vol. II, edited by George Hass and Maurice H. Francombe, Academic Press Inc., 111 Fifth Ave., New York, NY 10003, 1980, 336 pp.

Aquatic Toxicology, Proceedings of the Third Annual Symposium on Aquatic Toxicology, edited by J.G. Eaton, P.R. Parrish and A.C. Hendricks, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103, 1980, 417 pp., $39 (less 20% to ASTM members).