

Publications

Book reviews

Nutritional Evaluation of Long-Chain Fatty Acids in Fish Oil, edited by S.M. Barlow and M.E. Stansby (Academic Press, 111 Fifth Ave., New York, NY 10003, 1982, 318 pp., \$29.50).

This book represents a collection of papers and edited discussion from a symposium of the same title held in London during October 1981. Included are 10 papers under four topic headings: production and fatty acid composition of fish oils; partially hydrogenated fish oils and cardiac lipidosis; longer term cardiac lesions; and possible beneficial effects in heart disease. The edited discussion runs to some 32 pages. As anyone who has ever tried knows, the transcription and conversion to literate English of a taped discussion are tasks of truly heroic proportions. This book might be considered an outgrowth of the Canadian rapeseed oil problem. There was sufficient belief in the production of cardiac lipidosis and necrosis by erucic acid that rape had to be genetically reengineered to produce an oil essentially free of this fatty acid. It is logical, therefore, to inquire into the possible physiological activity of long-chain monoenethenoid fatty acids in partially hydrogenated fish oils. Conversely, unhydrogenated fish oils appear to lower the incidence of coronary thrombosis. These two topics are considered in detail in this volume and both appear now to be subject to explanation at the enzymatic level. Christophersen et al. particularly consider the slow oxidation of erucic acid in the heart and adaptation by increased production of peroxisomal-oxidation enzymes. A rat life-span study (Duthie and Barlow) was unfortunately not quite complete at the time of writing. Similarly, the action of eicosapentaenoic acid (20:5 ω 3) in preventing coronary thrombosis is thought to occur at the level of prostaglandin, thromboxane and prostacyclin syntheses and possibly be related to platelet aggregation.

In general the rapeseed seemed at times to be seen as a Canadian-European problem, somewhat extraneous to United States research interests. Similarly, the present topics may be viewed as a Scandinavian problem. While this may be true of the economic aspects of the problem, the scientific aspects are of considerable general interest. Inclusion of edited discussion contributes significantly to the value of the book. The text is prepared from camera-ready copy and harmless typos occur relatively frequently, i.e., p. 284—lipofusions and p. 295—microcopolical. This volume can be recommended to nutritionists and biochemists working with lipids and those industrial lipid chemists concerned with public health claims.

Biochemistry and Metabolism of Plant Lipids, edited by J.F.G.M. Wintermans and P.J.C. Kuipere (Elsevier Biomedical Press, 52 Vanderbilt Ave., New York, NY, 1982, 606 pp., \$85 USA and Canada, Dfl. 200 elsewhere).

This book is the proceedings of the 5th International

Symposium of the Biochemistry and Metabolism of Plant Lipids held in Groningen, The Netherlands, in June 1982, and is also volume 8 in the series "Developments in Plant Biology." Volume 3 in this series (1979) was titled **Advances in the Biochemistry and Physiology of Plant Lipids**. The editors are to be congratulated on the extremely rapid publication of the proceedings. Included are the plenary lectures, short communications and poster sessions, some 109 papers in all. Sections include 17 papers on biochemistry and metabolism of fatty acids, 22 on plant membrane lipids, 6 on seed lipids, 10 on catabolism, 16 on function as related to the structure of membranes, 18 on ecological and physiological factors, 18 on isoprenoid compounds. Contributions are quite short, averaging less than six pages each of camera-ready loosely spaced copy including text, figures, tables and bibliography. Since every paper begins on an odd-numbered (right-hand) page there is a certain amount of lost space and there is in fact a predominance of 4-page papers.

One constructive approach to a volume of this type is to view it as something of an annotated directory of workers in the field. There are enough papers under each topic heading that the bibliographies furnish a representative entry into the literature and the combined texts give a short synopsis of the paths down which active research is proceeding. Poster sessions have made a major contribution to resolving the meeting room space and time requirements of symposia and have permitted acceptance of relatively large numbers of submissions. Inclusion of all these presentations in the proceedings volume, however, may lead to serious problems as evidenced by this book. This volume should be available in any reasonably large library utilized by lipid chemists or biochemists. It would be expected to have a useful life of approximately three years.

Advances in Chromatography, Vol. 20, edited by J.C. Gidding, E. Grushka, J. Cazes and P.R. Brown (Marcel Dekker, Inc., 270 Madison Ave., New York, NY, 1982, 286 pp., \$45).

The latest volume in this series contains six chapters: HPLC and its application to protein chemistry, by M.T.W. Hearn; Chromatography of vitamin D₃ and metabolites, by K.T. Koshy; HPLC, Applications in a children's hospital, by S.J. Soldin; The silica gel surface and its interactions with solvent and solute in liquid chromatography, by R.P.W. Scott; New developments in capillary columns for GC, by W.G. Jennings; and Analysis of fundamental obstacles to the size exclusion chromatography of polymers of ultrahigh molecular weight, by J.C. Gidding. The chapters differ drastically in approach, length and coverage. Approximately one-third of the book is Hearn's authoritative chapter which cites 357 references including many from the period 1980-1981. A rather large portion of this chapter focuses on amino acid derivatives and chiral separations. Soldin briefly discusses therapeutic drug monitoring and then settles down to anti-

Publications

convulsants and catecholamines. The columns chosen for use were described as failing after 300 analyses even with elaborate daily washing procedures. Some laboratories apparently have an amazing reluctance to utilize second-generation HPLC columns. Jennings presents a very brief commentary on fused silica technology and presents numerous application figures which tend to extol the capabilities of products related to a specific commercial venture. Scott presents interesting experimental data on the silica surface. To a great extent, however, this material is more relevant to silica manufacture than to practical use in the average laboratory. Gidding presents a strongly mathematical consideration of his topic. The tabulation of symbols used runs a full two pages. Of most interest to lipid chemists is the reasonably long (42 pages), well documented (142 references) coverage of D_3 by Koshy. The author truly covers chromatography with separate sections on open column chromatography, thin layer and paper, gas chromatography, HPLC and GC-MS. In the liquid chromatography section, six separate types of packings are considered. The HPLC section considers various sample matrices, photochemical isomers and metabolites.

This series tends to contain a fairly large proportion of highly theoretical chapters. Many chapters, however, are of general interest to anyone utilizing chromatographic procedures. Occasionally, chapters of direct interest to lipid chemists are included: i.e., Vol. 18, long-chain fatty acids; Vol. 16, Steroid hormones; Vol. 10, Terpenes; and Vol. 8, Fat-soluble chloroplast pigments. As such, it is not a series that the average lipid chemist would acquire personally. As a reference series, however, it should be available to every analytical laboratory.

Comprehensive Analytical Chemistry, Vol. XIII Analysis of Complex Hydrocarbon Mixtures: Part A—Separation Methods, 382 pp.; Part B—Group Analysis and Detailed Analysis, 480 pp., edited by S. Hala, M. Kuras and M. Popl (Elsevier Scientific Publishing Co., 52 Vanderbilt Ave., New York, NY 10017, 1981, 862 pp. total, \$95.75 ea.).

These volumes represent translations of a Czechoslovakian text. Part A covers distillation, liquid chromatography, gel chromatography, preparative gas chromatography, adductive crystallization, molecular sieves, thermal diffusion, chemical reactions and other separation and purification methods. Part B covers mass spectrometry, infrared spectroscopy, nuclear magnetic resonance, ultraviolet spectroscopy, liquid chromatography, chemical methods, statistical methods, analytical gas chromatography, HPLC and TLC, fluorescence and phosphorescence, UV spectroscopy and Raman spectroscopy. This volume concludes with a survey of analyses of industrial hydrocarbon mixtures subdivided into gases, liquids and solids. References extend into 1978 and 1979 and are largely from sources familiar to American readers. In fact, repeated reference to ASTM procedures and products generally available in the United States com-

pletely negates any initial hesitation that this might be an Eastern European text. Coverage tends toward the theoretical, but not mathematical, approach. With so many topics to be covered there is an occasional feeling of lack of desirable depth. Printing and paper quality are excellent. The index in Part A is quite brief, while that in Part B is much more comprehensive. Even at the current average of \$0.11/page for technical books the price seems rather high. These volumes can be recommended for a specialized graduate level text or general reference work for a library used by those with any interest in hydrocarbons.

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Membrane Fluidity: Biophysical Techniques and Cellular Regulation, edited by Morris Kates and Arnis Kuksis (The Humana Press Inc., PO Box 2148, Clifton, NJ 07015, 1980, 445 pp., \$54.50 U.S., \$64.50 elsewhere).

It attests to the usefulness of this book that it apparently disappeared from my office shortly after its receipt and, when it proved unavailable in the library, I recently rediscovered it around the laboratory.

The volume is a proceedings of a Satellite Symposium of the XIth International Congress of Biochemistry, at which different areas of the role of lipids in cell membrane fluidity were reviewed. Part I deals with Measurement of Membrane Lipid Composition and Fluidity. It includes a cautionary account by Lands on the problems associated with defining membrane fluidity and interpretation of techniques for its assessment. Part II consists of attempts to correlate membrane fluidity with physiological activity. It includes accounts on responses of Bacilli and poikilotherms to environmental temperature change and effects of membrane lipids on mobility of lymphocyte surface immunoglobulins, plasma membrane Mg^{2+} ATP-ase activity, alkaline phosphate in red cell membranes, and membrane permeability in porcine malignant hyperthermia. Part III has seven chapters on fatty acid changes accompanying various physiological events and Part IV has six chapters on phospholipid changes. Both parts include events in microorganisms, isolated cell populations, and organ systems. The final part deals with homeostatic regulation of membrane fluidity. This part includes an account by Åkesson on regulation of phospholipid N-methylation in the hepatocyte.

Like many published proceedings, the accounts given are far from exhaustive and most reference lists are brief. Nevertheless, this volume contains many useful reviews which provide a starting point for more in-depth study. By today's standards the price is not exorbitant.

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