New Books

J. F. Gerecht, Book Review Editor

Handbook of Chromatography, Vol. I and II, Edited by Gunter Zweig and Joseph Sherma, (CRC Press, 1972, Vol. I, 784 p., $35.00; Vol. II, 343 p., $19.95).

Handbook of Chromatography is the first attempt to place information from four branches of chromatography in a single work. The editors have carried out this immense task commendably and have provided references where appropriate. In these days of microfilmed journals which make extraction of data difficult, analysts will reach for this work with gratitude, despite the availability of the data from the original sources.

Volume I consists of an index containing "over 12,000 compounds" and 546 tables containing retention data obtained by gas (GC), liquid (LC), paper (PC) and thin layer (TLC) chromatographies. Electrophoresis and high pressure liquid chromatography are not covered, the latter probably because it is too recent. The GC and LC tables compare separations on different packings and give column dimensions, temperatures, flow rates and detectors used for each. For PC and TLC the type of paper or adsorbent, solvent system and visualization technique are listed.

The first 100 pages of Volume II comprise a working description of all four chromatographic methods which is useful for review, but not a substitute for comprehensive texts. Detecting agents, critical for PC and TLC, occupy 86 pages (453 sprays). The preparation, color of spot, general applicability and, in some instances, detection limits are given. Sixty pages are devoted to sample isolation and derivative formation under 24 class headings. GC liquid phases are listed alphabetically with applications and polarities, and are followed by a tabulation of McReynolds Constants. Adsorbents, supports, PC papers, TLC plates and ion exchangers from many suppliers are described. An extensive book directory containing both English and foreign texts concludes the second volume.

The researcher using the tables of Volume I will undoubtedly find the data to be the most useful and up to date compilation (to 1970) of this type available. Because of the multitude of sources, the retention values have not been standardized; for example, GC data is encountered in seven different forms. Use of the list of tables or the compound index is mandatory because of the nonconsecutive placement of some tables. For instance alcohols by LC are found in Tables 5, 11, 37, 54, 69 and 71. A binding error in the list of tables makes it appear that many TLC tables are omitted, though they are found among those of PC.

It would be unrealistic to expect the first edition of a publication of this magnitude to be free of error. Among the serious ones in Volume II are the incorrect definition of R_f value (p. 4) and advice to use a magnetic stirrer for hydrating Biogel P (p. 291). One can dispute that packed and capillary GC columns give resolutions that are "not too different" (p. 11), or that peak height measurement is satisfactory for quantitation with temperature programing (p. 19). In Volume I other errors require a watchful eye to avoid difficulties: Table GC 2 is headed "Acids, Aliphatic; Methyl Esters," while in fact it contains esters of alcohols to octyl; inconsistent labeling in several tables causes some derivatives to be headed "compound" (p. 5, p. 52). Omissions such as the absence of an explanation for subscripts in Table GC 52 (p. 65) create particular annoyances.

It would be beneficial in future editions to present more complete coverage of the abbreviations on the end papers and to tabulate them under the various chromatographic headings, since there is little standardization in abbreviations between these methods as currently used. Expansion of the GC solid support section to include additional foreign supports should also be considered.

In spite of its minor deficiencies this handbook can justify its high initial cost each time a new method of separation is to be devised. Without question, the wealth of data and information that it puts into the hands of the chromatographer for easy reference make both volumes a worthwhile addition to his or her reference collection.

THOMAS WOLF
JOHN H. CALLAHAN
Colgate-Palmolive Company
909 River Road
Piscataway, New Jersey 08854

Molecular Mechanisms of Antibiotic Action on Protein Biosynthesis and Membranes, Proceedings of a Symposium, Granada, June 1-4, 1971, Edited by E. Munoz, F. Garcia-Ferrandiz and D. Vaquez (Elsevier Scientific Publishing Co., New York, 1973, 804 p., $27.50)

This book has three sections: I. "Molecular Mechanisms of Antibiotic Action on Protein Biosynthesis"; II. "Molecular Mechanisms of Antibiotic Action on Synthesis of Peptidoglycans"; and III. "Molecular Mechanisms of Antibiotic Action on Membranes."

Section I includes on 336 pages of 22 research papers on the effects of antibiotics on protein biosynthesis. The majority deal with the ribosome cycle, initiation, elongation and termination of peptide bond formation in bacterial cells. Contrary to what is stated in the preface of the book, eucaryots are barely mentioned; there are only two papers on the inhibition of protein synthesis in yeast and one on the inhibition of protein synthesis by diphtheria toxin. Section I deals extensively with the effects of streptomycin and related drugs on the translational process. Furthermore it reports experiments exploiting mutant methodology to elucidate the mechanisms of action of the antibiotics. One paper summarizes all known mutations leading to the alteration of ribosomal protein. In addition one paper describes the effects of colicins, which are not antibiotics in the classical sense but sometimes exert functions quite like them.

Section II contains on 116 pages of seven articles describing the action of antibiotics on cell wall biosynthesis in bacteria and yeast. This section contains some excellent contributions describing the mechanism of action of cycloserine, cycloheximide and penicillin, with a special emphasis on the latter.

Section II includes 305 pages of 13 papers on the action of ionophore antibiotics. This section covers a wide variety of aspects of ionophore antibiotics, from chemistry to effects on permeability of biological membranes. Furthermore the role of lipids in the mechanism of action of a number of antibiotics is discussed in some detail.

The book quite clearly comprises two parts, one describing the effects of antibiotics on protein biosynthesis and the other their interaction with cell walls and membranes. These two fields of biochemical research seem

worlds apart. Thanks to the organizers of the Granada symposium, we have one volume on antibiotics that covers more than just one aspect of this very important class of chemical compounds. On the other hand, only those antibiotics interfering with the translational process in protein biosynthesis are discussed. Of equal interest to all workers in the field are the antibiotics interfering with the transcription of any kind, especially since inhibitors of reverse transcriptases have received a substantial amount of publicity as potential anticancer drugs.

Each research paper in this book is written by a leading scientist with great care and sometimes great detail. The fact that the editors did not limit the contributors in any way makes some papers much better than any journal article, but a summary for each paper would have been advisable.

The book includes an appendix of the structural formulae of the antibiotics covered, an index of the antibiotics and a subject index. Unfortunately the structural formulae of the antibiotics are given in the appendix as they appear in the text. There is no uniformity in the drawings, which makes it unnecessarily difficult to compare their structures. The index of the antibiotics refers only to those pages where the structural formulae are given. The subject index has a mere 142 entries and refers only to the first pages of the relevant article. Unfortunately the editing was very poor. With a little more effort on the part of the editors, this could have been an excellent book. As it now stands, it is a collection of excellent research articles on some aspects of certain antibiotics.

KLAUS M. HERRMANN
Department of Biochemistry
Purdue University
West Lafayette, Indiana 47907 ■

Concern expressed over cuts in weather services

Concern over proposed federal budget cuts for weather services to food and fiber producers was expressed Friday, April 27, in Washington at a meeting of the Agricultural Meteorology Study Panel of the Agricultural Research Institute.

The panel believes that the recent decisions to reduce personnel and funding for weather observations, forecasts and climatic evaluations for farmers and ranchers will have an adverse effect on the capability of these individuals to meet the national needs for food and fiber. It was pointed out that this year's adverse weather has already caused substantial losses, especially to livestock, vegetable and fruit growers. These losses will be felt by the consumer in terms of higher food prices in local grocery stores.

Panel members warned that federal budget cuts in the application of weather information to agricultural problems could only increase the risk of further losses at a time when the nation is facing unprecedented demands on its food suppliers. The panel is convinced that crop and livestock losses could be minimized by increasing and improving weather forecasting services to farmers. For instance, according to one panel member, if sugar beet farmers in Ohio had been better warned of flooding, they could have salvaged a larger portion of their crops. Another panel member, speaking for the cattle industry, said, "Improved weather forecasts would have helped stockmen to prepare for bad weather. As it was, Iowa lost 44,000 hogs and 107,000 cattle. The value of livestock lost in Colorado alone was $25 million." ■

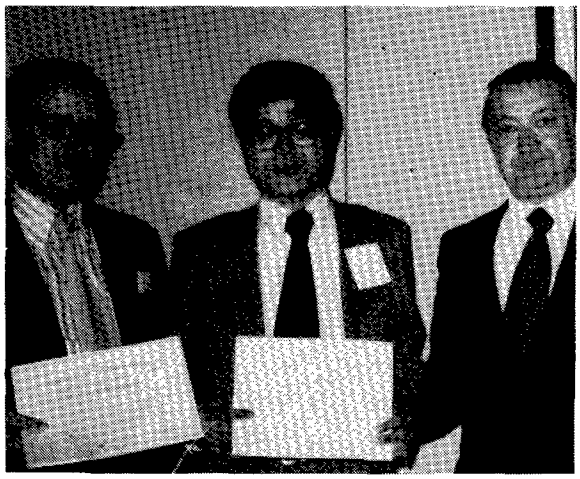
NE Section symposium features six speakers

Symposium speakers Pete Kalustian, Kalustian Assoc.; Paulson, Parkson Corp.; Francis Luddy and George Wannamaker, USDA; Karl Klein, DeLaval Separator Co.; and Gary Allen, Merrill, Lynch, Pierce, Fenner and Smith, Inc.

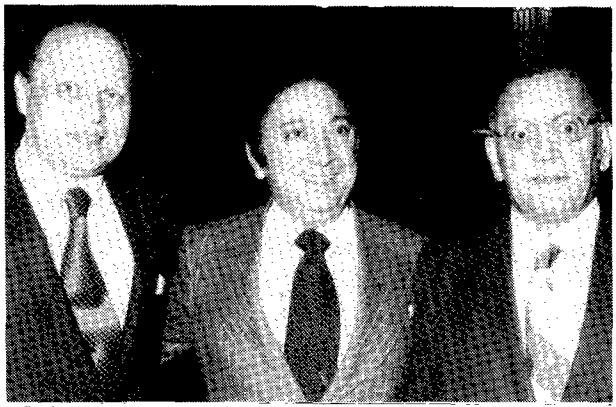
Members and guests of the AOCS Northeast Section convened at the Robert Treat Hotel, Newark, N.J., on April 10, 1973, for a 1 day symposium on palm oil, organized by Manny Eijadi and Peter Kalustian. The oil's technological, scientific and economic aspects were discussed by six speakers, including Kalustian, Paulson, Luddy, Wannamaker, Klein and Allen.

Highlighting the 12th annual symposium was the presentation of the Student Award to two recipients nominated by Hans Kaunitz of Columbia University, Chairman of the Student Award Committee. David Min was honored for his work titled "Isolation and Identification of *trans*-3,5-Dimethoxystilbene from High Quality Tall Oil Fatty Acids by Liquid Chromatography and Mass Spectrometry" (JAOCS 49:675 [1972]).

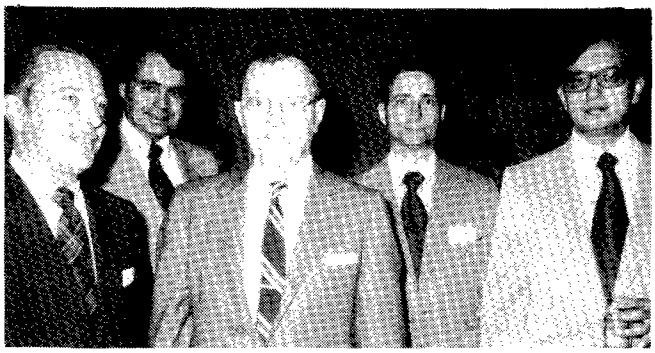
John Wineburg was recognized for his paper on "NMR Chemical Shift Reagents in Structural Determination of Lipid Derivatives: III. Methyl Ricinoleate and Methyl 12-Hydroxystearate," presented in part at the JOCS-AOCS 1972 Joint Meeting in Los Angeles. Each student received a check and certificate from Stan Dominik, president of the Section. ■



Award recipients Wineburg, Temple University, and Min, Rutgers, with President Dominik.



Left to right: George E. Wannamaker, luncheon speaker; Manny Eijadi, chairman, and Pete Kalustian, cochairman, of the symposium.



William Barnes, Bradford Soap Works; Dick Marquie, Humko Products; Ray Wiech, consultant; Gary Abend, Henkel Inc.; and M. Bajaj, Baker Castor Oil Co.