

NEW BOOKS

Elements of Plant Protection

LOUIS PYENSON, 539 pages. John Wiley & Sons, Inc., New York, N. Y. 1951. \$4.96. Reviewed by M. P. JONES, Extension Entomologist, U. S. Department of Agriculture, Washington, D. C.

THIS BOOK provides a great deal of background information about insect pests, plant diseases, and weeds. Injurious mammals, birds, and invertebrates other than insects are also discussed. The general principles underlying the control of these pests are given.

About one third of the subject matter presented relates to insect pests and their control. It covers the morphology of insects and gives some well-illustrated examples of the life histories of some insects that typify the different groups. There is a listing of many insects by groups depending on their feeding habits. It discusses in a general way measures for insect control. The insects are discussed under headings depending on the manner of kill such as, stomach poisons, fumigants, and contact insecticides.

Following a general statement about the injurious mammals and birds there is a brief description of some of the more common species giving their food, habits, damage they cause, and in some cases life histories, one chapter deals with control of these pests.

Plant diseases are discussed under groups of causal organisms, such as, bacteria, fungi, and viruses. In addition to the narrative, which treats of hosts, symptoms, and life histories of the pathogens, there are listings of many of these under three headings: Disease, Causal Organism, and Host. The chemicals used in disease control are listed in a column along side the trade name and principal uses.

Drawings of a number of weeds are reproduced. This is followed by a classification list of weeds. Control is discussed under two headings: Cultural and Chemical.

Some of the different kinds of application equipment are covered in one chapter. There is a list of discussion questions following the text in each chapter. The book includes a list of selected references, a glossary, and 35 pages of index.

It should be useful as a textbook in high school and junior college and would provide a ready reference for many kinds of agricultural workers because it brings together under one cover certain specific information about the different groups of pests. It is not suited for use as a reference to specific control measures for

the pests listed because such information is scattered, is not up to date, and the book does not give sufficient information about the time or rate of application of the different insecticides and other chemicals.

The Chemistry and Technology Of Food and Food Products.

MORRIS B. JACOBS, PH.D. 2nd Edition, 3 Volumes, 2502 pages, Interscience Publishers, Inc., New York, 1951. \$42.00. Reviewed by DR. BERNARD L. OSER, Food Research Laboratories, Inc., Long Island City, N. Y.

AFTER A LAPSE of seven years Dr. Morris B. Jacobs and his associates have revised their encyclopedic work on The Chemistry and Technology of Food and Food Products. The second edition is substantially larger than the first (2502 vs. 1731 pages) and is more logically divided into three volumes rather than two.

Most of the 39 collaborators who participated as authors of individual chapters in this work revised their own contributions to the earlier edition. Ten of the 52 chapters now have different authors, in several cases Dr. Jacobs himself. The titles of the parts give some indication of the comprehensive scope of the book: Fundamentals (principally of food composition); Unit Operations and Processes; Sanitary and Quality Control; Foods (various categories of food products); Preservation; Production (by categories).

The editorial difficulties of evolving an integrated and well-balanced whole from these many parts, are apparent as one scrutinizes these volumes. On the one hand we find certain chapters written by outstanding experts in their special fields which are excellent examples of compact yet comprehensive technical writing. In sharp contrast are other chapters which appear to be written not by specialists but by literature reviewers.

It is not possible within the space of a brief review to do full justice to the individual contributions. If this reviewer were to single out any of the chapters for honorable mention without prejudice to the rest they would include: W. O. Lundberg's on Lipids, M. E. Stansby's on Fish, Shellfish and Crustacea, W. F. Geddes' on Cereal Grains, W. M. Urbain's on Meat and Meat Products, E. M. Mrak and G. MacKinney's on Dehydration, and the

editor's on Chemical Preservatives.

Conspicuous by their inadequate or out-of-date treatment are subjects like fluoridation of water or foods, the manufacture of frozen concentrated fruit juices or beverages (including coffee), the enrichment of margarine with vitamin A or carotene, the role of the browning reaction (which is considered only in relation to apricots). Various pesticides and disinfectants are discussed but no reference is made among rodenticides to warfarin or among insecticides to the benzene hexachlorides. Among laboratory procedures described in the chapter on Physical Chemistry of Foods discussion is lacking of paper chromatography and of moisture analysis by conductivity measurement.

Despite these faults—principally of omission—the task of the encyclopedist of providing historical and technical background as well as avenues to source material has been satisfactorily accomplished by Dr. Jacobs and his colleagues. However the specialist in any one of the rapidly advancing technological fronts will often find the treatment to be either too general or too obsolete for his purposes.

The typography of these volumes is excellent and the binding is sufficiently sturdy to withstand frequent usage. Illustrations are fairly profuse in some chapters, scanty in others. Each volume has its own abridged index and a table of contents of all three volumes, whereas the third contains a complete subject index.

Progress in the Chemistry of Fats and Other Lipids, Volume I

R. T. HOLMAN, W. O. LUNDBERG, AND T. MALKIN. 186 pages, including indices. Academic Press Inc., Publishers, New York, and Pergamon Press Ltd., London. 1952. \$7.00. Reviewed by J. C. COWAN AND K. T. ZILCH, Northern Regional Research Laboratory, Peoria, Ill.

THIS FIRST volume of a new series on chemistry of fats and other lipids, contains five chapters. Each chapter has been prepared by an authority in the field. All are well-written, up-to-date, and contain numerous formulas, tables, and schematic diagrams to aid the reader and student of fats. A limited number of photographic reproductions are incorporated in the text.

The chapters in the present volume were originally intended for publication in a new edition of the well-known Hefter-Schoenfeld's "Chemistry and Tech-

nology of Fats and Fat Products." Unfortunately, publication of a new edition of Hefter-Schoenfeld in English had to be abandoned in its early stages because of the untimely death of the Editor, Dr. H. Schoenfeld. In order that his work and the work of the numerous contributors would not be in vain, it was decided to publish completed and projected manuscripts as an annual Progress Series.

This is the first volume of the series on the chemistry of fats and other lipids, and the editors intend to have "authoritative, critical, and up-to-date surveys of each special branch of this rapidly expanding subject." The quality of the sections in this volume is high and the criticisms which may be directed toward them probably occur as a result of the change in objective and in editors.

The chapters in the present book cover not only the more recent work but much which has been published in books elsewhere. For example, the chapter on The Molecular Structure and Polymorphism of Fatty Acids and their Derivatives contains only four references to work more recent than 1940, indicating that this subject has not been expanding rapidly. Unfortunately, triglycerides are not covered although work in molecular structure of fatty acid glycerides has been comparatively active since 1940.

A chapter on Derivatives of the Fatty Acids does not take either Markley's or

Ralston's book on Fatty Acids as a starting point but covers much work reported in these books. However, the reviewers believe that the change in editors and objectives is primarily responsible for the variations from editorial policy.

The chapter on molecular structure and polymorphism of fatty acids discusses the X-ray examination of fatty acids by the single crystal and powder method and gives actual photographs showing long and short spacings for a number of fatty acids and derivatives.

The chapter on sterols covers the chemical constitution of the sterols, the quantitative determination and isolation, color reactions, distribution and classification of sterols, and the D-vitamins. The author proposes a new system of classification based on the optical rotation of sterols and their functional derivatives which divides the sterols into classes according to a distinguishing chemical feature. Bergmann's chapter is rather unique because of this new system of classification.

The chapter on phosphatides includes sections on the natural state of phosphatides, chemical structure of phosphatides, techniques of analysis and separation, systematic fractionation of phosphatides, and general properties. This chapter must necessarily be compared with a slightly more recent one in Gilman's "Organic Chemistry" by Herbert Carter. Carter's chapter is shorter,

more precisely written with regard to organic chemical structure, and this chapter contains more detailed information on isolation and systematic separation.

The chapter on chromatography covers elution analysis, frontal analysis, displacement analysis, and partition chromatography. The author's treatment is excellent and the chapter fulfills the editors' criteria of being an authoritative, critical, and up-to-date survey. It is good to see one of the editors hew to the announced policy and suggests that later volumes will be even better than Volume I.

The chapter on the derivatives of fatty acids is devoted primarily to derivatives of the carboxyl group, including nitrogen derivatives, acid chlorides, aldehydes, ketones, and phosphorus and arsenic derivatives. A minor portion of the chapter is devoted to reactions of the hydrocarbon chain. The part on derivatives of the carboxyl group is particularly authoritative on commercial aspects of the derivatives. The minor role given to reactions of the hydrocarbon chain does not permit adequate treatment of oxidation, hydrogenation, and other addition reactions or polymerization of fatty derivatives. Perhaps, it is the intention of the editors to have chapters covering these specific subjects in one of the forthcoming volumes.



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