NEW BOOKS

Advances in Agronomy

Vol. 4. Edited by A. G. NORMAN, xi + 416 pages. Academic Press, Inc., 125 East 23rd St., New York 10, N. Y. 1952. $8.50. Reviewed by M. S. ANDERSON, USDA, Beltsville, Md.

Volume 4 follows the general pattern of the three preceding volumes. Soil and plant science problems are discussed from widely varied viewpoints. Minor elements are given particular consideration. The chapter on copper in nutrition reviews the nutritional status of this element in different countries of the world. Rapidly changing theories regarding the place of this element in nutrition are discussed.

Another chapter deals with manganese in soils and in plants. Deficiency symptoms in different kinds of plants are discussed; foliar spray methods of correcting deficiencies are also described.

Three of the nine chapters of the book are written by authors in countries other than the United States. "Grassland Agronomy in Australia" covers many phases of plant and soil science in relation to pasture improvement in that country. Additions of phosphates and trace or minor elements are particularly emphasized. It would seem that some information regarding the phosphorus content of Australian soils would add greatly to a reader's knowledge of the soils of that country.

Readers should particularly welcome the chapter on atomic energy and plant sciences prepared by the U. S. Atomic Energy Commission. Many experimental developments in the field of atomic science are reviewed. The national program of research in plant sciences is summarized in three tables: one table lists the projects under way in national laboratories and totally supported university projects; another lists the partially supported research in soils, fertilizer, and plant nutrition at various institutions; and a third table lists projects in supporting subjects such as biochemistry and genetics.

Vegetation control on industrial lands is written by an author in industry. This excellent chapter could be of even greater value to agricultural readers if a few more references to the work of agricultural institutions were included.

A chapter on the soil and vegetation of forests covers 69 pages, and is indeed a miniature monograph on the subject.

Advances in Carbohydrate Chemistry

Vol. 7. C. S. HUDSON, M. L. WOLFROM, and S. M. CANTOR, editors. ix + 370 pages. Academic Press Inc., New York, N. Y. 1952. $7.50

THIS newest volume, like its forbears, should be useful for those who are unable to keep up with all of the original research coming out in the various phases of carbohydrate chemistry. It is, again like its predecessors, composed of very complete and authoritative reviews of limited parts of carbohydrates and each chapter is well endowed with bibliography and references to original research.

The reviews of fructose, psicose, sorbose, and tagatose, and of the 2-amino sugars cover subjects that have not been adequately treated before. Modern

ideas of stereochemistry and ring configuration were used to account for the peculiar properties of the 1,6-anhydrohexofuranoses in one fascinating chapter.

Dairy Engineering

ARTHUR W. FARRALL. xvii + 477 pages. 2nd ed. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y., and Chapman & Hall, Ltd., London, England. $6.00. Reviewed by H. A. TREBLER, National Dairy Research Laboratories, Inc.

THIS excellent book is in its second enlarged edition, proving that it is definitely filling a need as an elementary textbook for students and operators concerned with the purchase, operation, and maintenance of processing and auxiliary equipment in the dairy field. The strength of the book is now, as before, in the clear and simple discussion of the mechanical and maintenance features of equipment which is well supported by a good selection of illustrations.

As might possibly be expected in these days of extreme specialization, the author is in need of a well-informed collaborator in the borderline fields of chemical and sanitary engineering and chemistry. For instance, the rather misleading term of "detergent" frequently used by old-timers in the industry to designate specifically a dairy cleaning compound containing gritty material is rapidly being discontinued. Also, the use of barium salts for boiler water treatment in plants that use steam in direct contact with foods or food contact surfaces is inadvisable becaue of high cost and toxicity. No mention is made of the general use of reducing agents, such as sodium sulfite, in boiler waters to remove the last traces of oxygen. It would be difficult to figure heat transfer with the formulas as printed on page 93 or to run B.O.D. tests with oxygen-free dilution water.

However annoying these many minor mistakes in borderline fields may be to the initiated, they certainly do not detract too much from the general usefulness of the book for the purpose for which it is primarily intended and for which it can still be strongly recommended.

Beet Sugar Economics

R. H. COTTRELL, xiii + 379 pages. The Caxton Printers, Ltd., Caldwell, Idaho. 1952. $5.00.

AN ACCURATE, even minute profile of the beet sugar industry is provided in this book. As a case history of an industry, it should be of interest, not only to chemists and technologists in the beet sugar industry, but to those concerned with the economy of the West and to food and agricultural scientists as well. In discussing the industry's problems, Cottrell stresses that the industry is a chemical one and is behind in its chemical research.

The book contains discussions on sugar marketing, nutrition of sugar, sugar legislation, and outlines the case for reliance on both continental and off-shore sugar.

The Comparative Biochemistry Of the Carotenoids

T. W. GOODWIN. x + 356 pages. Chapman and Hall, 37 Essex St., London WC 2, England. 1952. 50 s.

THIS is a comprehensive biochemical treatment of carotenoids which covers very well the research work and literature, up to its time of publication, to produce a valuable and readable treatise. A great deal of work obviously has gone into its preparation.

Information is presented systematically and effectively. The author discusses distribution of carotenoids in plants and animals with a review of the evidence for their biogenesis and functions. The problem is presented clearly, although the great amount of data and information prevents arrival at definitive answers. Readers who keep in mind the great difficulties involved in biochemical appraisal of the subject in its present state will find this work very valuable.