

NEW BOOKS

Biochemistry and Physiology of Nutrition Vols. I & II

Edited by GEOFFREY H. BOURNE AND GEORGE W. KIDDER. xiv + 641 pages. Academic Press Inc., New York, 1953. Vol. I \$13. Vol. II \$15. Reviewed by WILLIAM J. DARBY, Division of Nutrition, Vanderbilt University School of Medicine, Nashville, Tenn.

These two volumes contain 23 chapters by 28 authorities. The subject matter covered includes: the history of nutrition and of vitamins; water and electrolyte metabolism; carbohydrate metabolism; amino acids; biosynthesis of proteins; lipid metabolism; fat soluble vitamins; vitamin B-complex; vitamins and hematopoiesis; vitamin C; intracellular localization by histochemical methods of enzymes and vitamins; structural changes in vitamin deficiency; microbiology of digestion; invertebrate nutrition; energetics; hydrolytic and phosphorolytic enzymes; respiratory enzymes; co-enzymes; iron; calcium and phosphorus; trace elements; and application to human nutrition. Calories, starvation, obesity, and nutrient composition of foods are either omitted or but mentioned.

The work is stated to be directed to all workers dealing with problems of metabolism as well as to the nutritionist. Such a broad editorial goal is reflected in the great variation in depth of treatment of the subject which one finds in the chapters and the variation in care with which chapters have been documented by literature references. This is neither a textbook nor a monograph. Indeed, it is disappointing that such an expensive publication, the authors of which include many outstanding workers in the field of nutrition, should be so uneven of quality and comprehensiveness.

The extremes of variation and thoroughness with which chapters have been prepared may be illustrated by contrasting the 102 pages with 765 references devoted to vitamin C to the 36 pages and 198 references devoted to the dozen or so members of the vitamin B-complex. Especially useful, provocative, or somewhat stimulating chapters include the discussion of intracellular localization by histochemical methods of enzymes and vitamins, the microbiology of digestion in vertebrate nutrition, trace elements, and vitamin C. The chapter on the early development of the science of nutrition is singularly uninformative and includes no references other than two of the older biographies of Lavoisier.

The chapter on the history of the vitamins, although annotated, is less well written than the same author has published in a number of places elsewhere. The section on water and electrolyte metabolism contains 53 references, 29 of which are to reviews, books, committee reports, or published lectures. The two volumes culminate in 77 pages devoted to the science of human nutrition. All of the known nutrients are mentioned in this chapter and given as thorough discussion as permitted by space limitations.

There is a dearth of charts, graphs, and pictorial material, especially in Volume I. This same volume, in particular, shows evidence of hurried processing. The copy submitted for review contains several areas of defective type or inking. Each volume contains an independent subject and author index.

These books are too expensive in relation to their content of new material not readily available elsewhere. Indeed, several of the chapters are such obvious condensations of the same authors' better writings elsewhere that they have a staleness disappointing to this reviewer.

Publishers of items as costly as these should recognize that the buyer expects and deserves something more than these books provide.

Soils and Fertilizers

FIRMAN E. BEAR. xiii + 420 pages, 1953. John Wiley & Sons, Inc., New York; Chapman & Hall, Ltd., London. Price \$6.00. Reviewed by K. D. JACOB, U. S. Department of Agriculture, Beltsville, Md.

This thoroughly up-to-date book, of which the first edition was published in 1924 under the name of "Soil Management" and the third edition in 1942 under the present name, has been completely rewritten and greatly enlarged for the fourth edition. Although the book, the stated purpose of which is "to consider soils in relation to crop production," is intended "primarily for use in beginning courses in soils in agricultural colleges," it presupposes some familiarity by the reader with the fundamentals of geology, chemistry, physics, and botany.

The author, who is Chairman, Department of Soils, Rutgers University, has had many years of experience as a research worker, teacher, and administrator in soil science, and he has long been recognized as an authority in this field. He has admirably succeeded in

bringing together in a small space a vast amount of factual information, which is presented in the clear, concise, and easily readable style that has characterized the previous editions of this book and his numerous other writings.

The book comprises 27 chapters, each replete with tables and illustrations and accompanied by a list of selected references, including discussions of factors affecting plant growth; nitrogen, mineral, and water requirements of crops; origin, classification, chemical composition, and physical properties of soils; biological processes in soils; soil water, soil air, and soil solutions; control of soil water; plowing and cultivating; organic matter; soil conservation; animal agriculture; and yield potentialities of crop plants.

Ten chapters are concerned with soil and fertilizer resources of nitrogen, phosphorus, potassium, calcium, magnesium, sodium, sulfur, and trace elements; mixed fertilizers; selection and use of fertilizers; and miscellaneous topics. The volume is well indexed.

The care with which the book was edited is evidenced by the very few typographical errors noted by this reviewer. Several errors of fact occur. For example, it is stated (pp. 263, 341) that solubility in hot water is the sole basis of laboratory tests for available potash in fertilizer materials and mixtures, whereas, in truth, available potash in mixed fertilizers is determined by extraction with ammonium oxalate solution. The citric acid test for soluble phosphorus in fertilizers involves the use of a 2% solution of citric acid, rather than a 1% solution (pp. 242, 341).

Contrary to the inference (p. 262), the crude potash salts carnallite, kainite, and polyhalite are not available for purchase in the United States.

To this reviewer's knowledge, iron pyrites is not extensively mined in Mexico (p. 309). The statement (p. 240) that "many of the advantages that once obtained in the production of ammonium phosphate were set aside by the development of the superphosphate-ammoniation process" may well be questioned.

It is not clear how production of potassium nitrate would be favored by expanded manufacture of nitric acid for use in the solubilization of phosphate rock (pp. 242, 392).

This volume will serve a very useful purpose as both a text book and a ready reference. Those interested in fertilizer technology and manufacture should not expect to find in it more than elementary information thereon.