New Books

Encyclopedia of Plant Physiology

By W. Ruhland. Springer-Verlag, Berlin W 35. Reviewed by Rudolph Seiden.

Three volumes of this monumental, multilingual work on plant physiology, published in 1958, are reviewed here. A total of 18 volumes is planned—six have previously appeared since 1955; nine more are to come, possibly by the end of 1960.

Volume VI (XXII + 1444 pp. Price: DM 268.-; if subscribed, DM 214.40) deals in eight chapters with the formation, storage, mobilization, and transportation of carbohydrates. Americans among the 36 contributors are H. G. Albaum (Brooklyn Coll.), W. Z. Hassid (Univ. California), F. Haurowitz (Indiana Univ.), V. Miller (Univ. Pittsburgh), F. Shafizadeh (Ohio State Univ.), and M. L. Wolfrom (Ohio State Univ.). Their contributions, as well as those of the British, Canadian, Australian, South African, Swedish, and Dutch authors, are printed in English and amount to approximately 37% of the text.

It is regrettable that the German articles do not include summaries in English, and vice versa; this is about the only noticeable shortcoming. Otherwise the work is prepared and printed with great care. There are numerous illustrations and tables; also hundreds of literature references at the end of each of the many subchapters. There is a three-column author index of 63 pages and separate German and English two-column subject indexes of 344 pages, for a unique total of more than 42% of the book's text pages.

To discuss in detail even a selected few of the most interesting review articles is not possible in a short space. In general, this volume covers all that is known today with respect to biogenic carbohydrates, including the influence exerted by enzymes on mono-, oligo-, and polysaccharides, pentosans, and cellulose; the sugar derivatives—from acyclic polyhydric alcohols and cyclites to ascorbic acid, mucilages, and chitin; the phosphorylated sugars and heterosides; the excretions of carbohydrates; and many other intertwined physiological processes occurring in the most wonderful factory known as a simple little plant.

Volume VIII (XXI + 1310 pp. Price: DM 286.-; if subscribed, DM 228.80) covers various aspects of nitrogen metabolism: absorption, fixation, assimilation, and dispensation of N in its different forms; the proteins and peptides, their synthesis and breakdown as well as their translocation, accumulation, and storage in seedlings, leaves, flowers, and fruits; the protein metabolism of fungi, algae, and bacteria; the amino acids; NH_3-detoxication and storage of $-NH_2$ groups; the metabolism of the nucleic acids and other N-compounds, including the biogenic amines and alkaloids; nitrification; and the geochemical importance of N, with emphasis on agricultural production and fertilizing.

Among the 34 contributors to this volume from all over the world are these American experts: Dr. and Mrs. O. N. Allen (Univ. Wisconsin), F. Haurowitz (Indiana Univ.), W. D. Loomis (Oregon State Coll.), P. K. Stumpf (Univ. California), and P. W. Wilson (Univ. Wisconsin).

Volume IX (X + 306 pp. Price: DM 88.-; if subscribed, DM 70.40) is concerned with the metabolism of sulfur- and phosphorus-containing compounds. American contributors are H. G. Albaum (Brooklyn Coll.), B. Axelrod (Purdue Univ.), R. S. Bandurski (Michigan State Univ.), B. J. Dirk Meeuse (Univ. Washington), Te May Ching (Oregon State Coll.), M. D. Thomas (Stanford Res. Inst.), and W. W. Umbreit (Merck Inst. Therap. Res.)—almost 50% of those who collaborated on this volume. Of particular interest are the chapters describing some of the not too common compounds formed in plants, e.g., thiols, sulfonium derivatives, sulfoxides, sulfones, isothiocyanates, phytine, polyphosphates, phosphatides, the P-containing coenzymes, and the adenosine phosphates (which play such an important role in energy transfer).

When this encyclopedic handbook is completed, it will no doubt represent the most complete and up-to-date work of its kind. The volumes available already—each dealing with a separate subject in numerous authoritative treatises—should be on the book shelves of all plant physiologists and in the reference libraries of colleges and research laboratories where scientists, students, or teachers might be searching for an answer to any question in plant physiology, plant chemistry, food research, or applied agricultural science.

Forest Fertilization

A handbook on forest fertilization has been published by the American Potash Institute. Among the contributors are E. T. York of API and C. O. Tamm, forest nutrition expert at Sweden's Forest Research Institute. Copies may be obtained from: Forest Fertilization Handbook, News Service, American Potash Institute, 1102 16th St., N.W., Washington 6, D. C.

Fertilizer Salesman's Handbook

National Plant Food Institute, 1700 K St., N.W., Washington 6, D. C. $1.50. 220 pages.

This manual is designed for the fertilizer salesman, but it will be useful to many others—dealers, county agents, soil conservation workers, research and production people, and some farmers.

Its 220 pages are bound looseleaf style so that pages may be added or replaced to bring the manual up-to-date.

It contains a wealth of information about fertilizers, their composition, use, and economic value. For instance, there are sections on how to figure fertilizer equivalents, how to take a soil sample, and how to lay out fertilizer test plots. There is one chapter on the economics of fertilizer use, with simple charts and tables that salesmen can show to potential customers.

One chapter of the manual is devoted to a study of the customer; information in this chapter is derived mainly from NPFI's recent survey of farmer attitudes toward fertilizer.

Throughout the book, there is liberal use of color, photographs, charts, tables, cartoons, and other visual aids that maintain reader interest. Perhaps the most outstanding virtue of this handbook is that it has been prepared to suit the needs of its intended primary audience—fertilizer salesmen. It is not just a hodgepodge of articles collected from everywhere and forced under one cover in the vague hope that it would do somebody some good. Page after page shows evidence of good planning, based on real knowledge of what was needed.

LITERATURE AVAILABLE

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