

New Books

Annual Review of Plant Physiology

Volume 8, edited by A. S. CRAFTS, LEONARD MACHLIS, and JOHN G. TORREY. Annual Reviews Inc., Palo Alto, Calif., 1957. 477 pages. \$7.00. Reviewed by P. W. ZIMMERMAN and A. E. HITCHCOCK, Boyce Thompson Institute, Yonkers 3, N. Y.

THIS volume contains 19 selected topics in the field of plant physiology, written by reviewers who are qualified in each subject. There is a preface by the new editor about the purpose of this and previous volumes, and he describes plans for future volumes. An introductory chapter by W. J. V. Osterhout on "The Use of Aquatic Plants in the Study of Some Fundamental Problems" concerns ion-exchange phenomena. Other chapters, authors, and reviewers' comments are as follows:

"Apparent Free Space," G. E. Briggs and R. N. Robertson—terminology defined and discussed in relation to solute uptake;

"Mineral Nutrition of Plants," H. G. Gauch—absorption, translocation, and function of specific elements;

"Nitrogen Metabolism in Plants: Ten Years in Retrospect," F. C. Steward and J. K. Pollard—recent advances relating to chromatography and radioautography are also included;

"Photochemistry of Chlorophyll," J. L. Rosenberg—*in vitro* and *in vivo* studies of chlorophyll, especially sensitized oxidation-reduction reactions including flash illumination;

"Biochemistry of Chloroplasts in Relation to the Hill Reaction," K. A. Clendenning—describes methods and results obtained with purified preparations of chloroplasts;

"Auxin Relations in Roots," B. Aberg—critical review of auxin regulation of root growth;

"The History and Physiological Action of the Gibberellins," B. B. Stowe and T. Yamaki—comprehensive review of work on a new subject with 202 citations;

"Stock and Scion Relations," W. S. Rogers and A. B. Beakbane—nutrition, morphology, and physiological effects on growth and fruiting;

"Ascent of Sap," K. N. H. Greenidge—results associate ascent of sap within living wood by unknown mechanism;

"Drought Resistance in Plants and Physiological Processes," W. S. Iljin;

"The Sugarcane Plant," G. O. Burr, C. E. Hartt, H. W. Brodie, T. Tani-

moto, H. P. Kortschak, D. Takahashi, F. M. Ashton, and R. E. Coleman—growth habit, nutritional requirements, and commercial aspects, 256 citations;

"Mass Culture of Algae," H. Tamiya—describes methods of mass culture that may bring industrialization in near future;

"Permeability of Plant Cells," R. Collander;

"Physiology of Phloem," K. Esau, H. B. Currier, and V. I. Cheadle—translocation associated with metabolic energy;

"Physiological Ecology," W. D. Billings—stresses microenvironment studies;

"Physiological Genetics," H. J. Teas—examples of joint application of physiology and genetics;

"Effects of Antibiotics on Plants," P. W. Brian—classifies literature on toxic effects;

"Soluble Oxidases and Their Functions," W. D. Bonner, Jr.—critical review.

As with the seven previous volumes, this review will be a very useful reference book.

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