Annual Review of Plant Physiology, Vol. I. Daniel I. Arnon, Ed. Stanford, Calif.: Annual Reviews; London, England: H. K. Lewis, 1950. 364 pp. $6.00.

This volume is the first annual review exclusively covering plant physiological subjects. Edited by D. I. Arnon and L. Machlis of the University of California, it is published by Annual Reviews, Inc., as an offshoot from the *Annual Reviews of Biochemistry,* in the same manner as the *Annual Reviews of Microbiology,* which were started a few years ago. In a sense, therefore, the appearance of *Annual Review of Plant Physiology* signifies the rapid growth and coming-of-age of the subject as an independent branch of biological science. The advantages to be gained from such a journal and the need for it have long been recognized, because it has been impossible in the past to provide systematic coverage of many topics in plant physiology. This has been particularly true for important topics in the field without a predominantly chemical or biochemical slant but also, to some extent, for the topics formerly covered in the *Annual Reviews of Biochemistry.* As a result of limitations of space, reviewers tended to present brief, disconnected statements and references rather than an evaluation of the material that would be useful to the uninitiated reader looking for general information. The increased freedom and change in orientation provided the authors by the knowledge that they are writing primarily for biologists are perhaps as great advantages as the increase in scope.

Titles of some topics have been transferred intact from the *Annual Reviews of Biochemistry,* others have been subdivided, and some new ones have been added. For example, the topic "Plant Growth Substances," formerly often covered as peripheral subject matter such diverse items as plant tropisms, the influence of light on plant growth, physiology of cell wall growth, and growth-regulating substances in horticulture and herbicides—to mention the titles of the 5 topics in this general category which appear in the present volume. The title "Mineral Nutrition of Plants" has been retained, but two excellent articles, "Aspects of Soil Chemistry in Relation to Inorganic Nutrition" and "Soil Moisture in Relation to Growth," have been added. Furthermore, it appears from the table of contents of the forthcoming Volume II that the more integral parts of this topic, such as mechanisms of absorption and transport, nutrient requirements, and functional roles of the elements, will also be presented in separate articles.

The present volume has given due emphasis to plant metabolism. It includes comprehensive treatments of the following: carbon dioxide fixation in green plants, transformation of sugars in plants, organic acid metabolism, respiration of higher plants, and postharvest physiology and biochemistry of fruits. The first article of this group summarizes the new evidence for photosynthetic intermediates, which has appeared as brief papers in various chemical and botanical journals. The rapid advances in the past few years which have resulted from the application of vastly improved analytical tools (isotope analysis and chromatography) toward the solution of the century-old problems of photosynthesis perhaps constitute a major achievement in biology. An integrated summary of this work is therefore of great general interest. In contrast, the work on plant katobolism in general and on respiration in particular appears to lean too heavily on studies of animals and microorganisms for information and guiding principles to have attained a general interest in its own right. The articles of this group, however, do contain much new material of special interest to plant physiologists, and perhaps the present clear summary of the status of plant respiration will make for more rapid progress in this field.

A paper entitled "Nitrogen Constituents in Plants with Special Reference to Chromatographic Methods," which is also a critical evaluation of recent work on several aspects of nitrogen metabolism, and an article on "Water Relations in Plant Cells and Tissues" complete the list of 15 topics covered in this volume.

It is hoped that the excellent standard set by this first issue can be maintained in the future. This would appear to be difficult in view of the present rate of progress. Unless a real effort is made to include summary articles of interesting but less common lines of research which are less adapted to general reviews, there will be excessive repetition.

The point has been made that the journal will provide an opportunity for the inclusion of applied plant physiology in horticulture, forestry, and other fields. The question may be raised, however, whether the gains from such new associations of subject matter, valuable as they may be, can outweigh the losses from dissociation with biochemistry and certain aspects of animal physiology. In the reviewer's opinion it is a cause for regret that the inauguration of the present journal inevitably will lessen the contacts of plant physiologists with other fields and persons dealing with basic chemical and biological research. By the exclusion of plant physiological topics from the *Annual Reviews of Biochemistry,* access to plant physiological literature will be less readily available to physical scientists and animal biologists, and the material covered in that journal will be, if not less accessible, at least less frequently encountered and read by many plant physiologists. The latter point may be the more serious. With the rapid expansion and emphasis on practical aspects of plant physiology, it is becoming increasingly urgent for plant physiologists to keep in touch with developments in the basic sciences which provide the only means for further advance. It is hoped that the drawbacks inevitably associated with the founding of the present journal will be overcome in the near future by this or still another annual review that will cover significant advances in the physical sciences as applied to problems in biology.

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