within the groups involves characters that are more difficult to distinguish.

In the second part, the grasses are described in detail, weeds as well as the cultivated forms. In the third part, they are treated according to their occurrence in fields, meadows, and pastures, and recommendations for management are included. In conclusion, grassland agriculture is discussed in its relation to food and feed economy. Agronomists with a reading knowledge of German will find this an interesting presentation, and the illustrations have value independently of the language. — Helen D. Hill.

BOTANY


This attractively illustrated book, written by two members of the University of California staff, is another commendable addition to the list of recently published texts in botany. The authors have taken full advantage of modern book design and abundant illustrations to produce a highly readable book for college use, one which it is a pleasure to take from the shelf. Interestingly and competently written, it covers the field thoroughly.

The authors emphasize recent discoveries in plant anatomy, photosynthesis, respiration, genetics, water relations, growth substances, chromosome structure, and many other subjects. Among the topics covered in the 22 chapters are classification and naming of plants, plant cell, stem, roots, leaf, flower, fruit, seed, and seedlings, inheritance, plant as a living mechanism, groups of plants, fission plants, algae, fungi, viruses, bryophytes, vascular plants, and evolution. — M. R. Haag.

FIFTY YEARS OF PLANT PHYSIOLOGY

By Th. Weevers, Emeritus Professor of Plant Physiology in the University of Amsterdam. Translated from the Dutch by Mrs. A. J. M. J. Rant with an introduction by F. W. Went. Waltham, Mass.: The Chronica Botanica Co. 308 pages. 1949. $5.00.

This is both a brief textbook of plant physiology and a history of the subject. The author was a student of Hugo de Vries in 1895, the same year that the latter's textbook of botany appeared. The next half-century in which the author engaged in teaching and research was an eventful one in the progress of the science and that progress is recounted here, each phase treated historically and with the author's personal criticisms and appraisals. The enormous number of published papers has, of necessity, been well screened and those surviving, covering 759 authors, not titles, are predominantly continental European. This is an advantage to an American reader who too frequently overlooks foreign contributions.

The subject is divided into its various branches on the lines adopted by de Vries. This explains why we find Photosynthesis in the chapter on Mineral Nutrition and taking up a major part of it. Mineral nutrition is given minor emphasis and the leading American contributor to this field is given only passing mention. Respiration and tropisms are dealt with at greater length.

The historical approach illustrates that the advances made during the half-century are tremendous and that the science has progressed in many of its phases from the descriptive to the more quantitative. Where early plant physiologies contained numerous illustrations, later ones contain structural formulae and chemical equations. These are used frequently in this book and are clear. The type is readable, typographic errors few, and the English style pleasing. All historical books must stop somewhere. This stopped about 5 years ago and so cannot be recommended as an up-to-date text, but can be recommended for a historical review and for profitable reading.—J. T. Sullivan.

WATER IN THE PHYSIOLOGY OF PLANTS


This volume, the twenty-first of a “New Series of Plant Science Books”, is a comprehensive reference book on water in the physiology of plants. It is written primarily for botanists and plant physiologists, but should also appeal to the physical chemist. The authors emphasize that much of the progress in the field of water relations of plants has resulted from studies in physical chemistry. The first two chapters, dealing with “Structure of Water” and “Properties of Solutions”, give a good background for subsequent chapters on “Osmosis and Osmotic Pressure”, “The Mechanism of Osmosis”, “Water as a Plant Component — Intracellular Distribution of Water”, “The Osmotic Quantities of Plant Cells”, “Active Cell Water Relations”, “Uptake and Movement of Water in Plants”, and “Water Loss and Water Retention”. The Bibliography covers 18 pages.

Soil moisture relations, which are of particular interest to agronomists, receive relatively little attention. Yet agronomists who are interested in the physiology of water in plants will find this volume of interest.—R. R. Robinson.