SOILS AND FERTILIZERS

This book covers the broad field of soils and soil amendments, with emphasis on their role in crop production.

Portions of this book deal with soil physics, portions with soil classification and a considerable portion with soil chemistry. While a more complete treatment of any of these subjects can be found in other books, this text serves a useful function in bringing them together and evaluating their importance in terms of crop production. This book is well written in simple, non-technical language.

In general, the book can be considered as having two main parts. The first 15 chapters deal with such subjects as origin and classification of soils, soil water, soil air, and physical and chemical properties of soils. The remainder of the book deals largely with fertilizers, their composition and effects. The revisions for this edition have been much more extensive in the last half of the book. In the first 15 chapters, 60% of the citations are dated 1929 or earlier, and only 13% are dated 1950 or later. In the second half of the book, only 18% of the references are dated prior to 1929 and 24% are dated 1950 or later. While the more recent references in the latter part of the book tend to deal, to a large extent, with work on the eastern seaboard—50% of the references since 1950 are from New Jersey—many of the citations are to bulletins or journal papers and this part of the book is in general up to date and authoritative. As reliance has apparently been placed largely on recent textbooks in the revision of the first 15 chapters—approximately 60% of the 1950 to 1953 references are to textbooks—the first half of the book tends to be below the latter half in quality.

There is a tendency, apparently, in an effort for clarity and simplicity, to treat controversial issues in a somewhat one-sided manner. One example of this is furnished by the discussion of dust mulches on pages 98 to 100. The fact that there is disagreement among agronomists on this subject is noted. However, only such evidence as supports the conclusion that a dust mulch is effective in conserving moisture is presented. This somewhat one-sided presentation is also apparent in the discussion of the concepts of Willcox in Chapter 26. The concepts of Willcox are discussed very ably but the fact that these concepts are not accepted by many scientists is not discussed.

To the advanced student and professional worker, the principal value of this book is in the fertilizer portions, but to the beginning student the book serves as a generally reliable guide to the broad field of soil and plant relationship.—WILLIAM SHRADER.

ANNUAL REVIEW OF PLANT PHYSIOLOGY

This volume contains 15 authoritative reviews covering some of the more specialized as well as general topics of plant physiological research.

Five deal with special areas under the general topic of growth and growth substances. Of these, Veldstra's article on structure/activity relationships of auxins may be singled out as the most informative, concise treatment to date of this active field. Nitsch's presentation of general as well as of more unique physiological and biochemical aspects of fruit growth is a lucid revelation of remarkable progress now being made in this specialized area. Went has presented an integrated discussion of the temperature effect in different phases of plant development and its relationship to other factors in growth as revealed in studies under controlled environmental conditions. The latter two articles taken together are of general interest in bringing out much new information with far-reaching botanical and possible practical implications. Recent work on herbicides is reviewed by Crafts, and, on the physiology of root growth by Burström.

Current rapid exploration of intermediary metabolism in plants is reflected in four articles on organic acids (Burris), nitrogen metabolism (Wood), photosynthesis (Brown and Frenkel), and the use of respiratory inhibitors (James).

Four articles deal with more specialized subjects and their biosyntheses: Hematin compounds in plants (Hill and Hartree), the biogenesis of terpenes (Haagen-Smit), the plant sterols (Bergmann), and fluorescent substances in plants (Goodwin).

Of general biological interest is a comprehensive review of Mycorrhizal relations in plants by Melin which emphasizes nutrient (growth factor) requirements of the fungi and recent evidence for their contribution to the nutrition of the host plants.

Recent findings in the more classical plant physiological subjects, permeability, osmotic relations, etc., are included in Virginia's review entitled "Physical Properties of Protoplasm".

The total absence for the first time of any paper dealing specifically with mineral nutrition of plants is noteworthy considering the prerogative of plant physiology in this vast and fruitful domain.

The general impression of the book is that with respect to quality, integration of material and general interest, it probably even surpasses the high standards of the earlier three volumes in the series.—FOLKE SKOOG.

SYMPOSIUM ON LIGHT MICROSCOPY
Presented at the 25th annual meeting, American Society for Testing Materials, Published by the Society, 1916 Race St., Philadelphia, Pa. 1953. 6 by 9 heavy paper cover, 132 pp. $2.50.

Papers in this symposium are representative of the applications of the microscope as a technical tool in a number of fields and the techniques of its use. A number of specific fields are covered including the following: methods and apparatus of microscopy, polarized light microscopy and supplementary techniques, examination of metallic specimens, microscopy of resins and their plastics, and methods of particle-size analysis. Many of the papers have excellent reference lists and a wealth of illustrations.