BOOK REVIEWS, continued

Soil Science, Principles and Practices

The increasing number of non-farm youth taking soils courses has increased the diversity of backgrounds and goals of students in these courses. The availability of one more textbook or reference book for the beginning soils courses will aid the instructors in meeting the needs of each student.

The author followed the subtitle, Principles and Practices, in developing the sequence of chapters. The earlier chapters describe the mineral fraction, the organic fraction, physical properties, water relationships, aeration, temperature, and cation exchange. These chapters will be stimulating to science oriented students. The other students will need encouragement and help in the sections describing the structure of silicate minerals, the organic compounds and functional groups, water potential and ion-exchange. The remaining chapters assume an understanding of the principles presented in the first eight chapters.

The two chapters on soil formation and soil classification are less technical than the preceding chapters. The first section is entitled, "General Nature of Soil Formation" and describes the author's approach. This material is excellent for the students not desiring to become pedologists. For the latter, the discussion is accurate but brief. Soil classification is based on the system adopted in 1965. However, terms from earlier classification systems are defined in the glossary. The climate, native vegetation, eluviation, and illuviation processes and major geographical locations for each soil order are discussed.

The final chapters are introduced by the chapter titled, "Concepts of Soil Productivity and Fertility." This chapter introduces the reader to essential elements, available forms of nutrients, and various response curves and surfaces. The following four chapters discuss nutrients applied as fertilizers in respect to: chemical transformations, role in the plant, and fertilizer production and application practices. These chapters will aid the students in understanding the complexities of efficient nutrient utilization. The inclusion of flow charts to summarize the transformations of the nutrients would have aided the readers in comprehending the interrelationships.

The chapter entitled, "Fertility Management," includes soil sampling, soil testing, economics of fertilizer applications, and control of nutritional quality of plants. The chapters on liming, erosion, salinity, and water management provide the readers with the scientific background for many of the management practices recommended to and used by many farmers.

The concluding chapter, "Soils and the Quality of the Environment" is timely. The students should be encouraged to read this chapter during the first week of the course and to reread it at the conclusion.

The book is relatively free of errors. The author has made frequent and excellent use of line drawings and photographs. Although the principles are discussed, the students majoring in horticulture, forestry, and natural resources will not find many examples relating principles of soil management to non-agronomic plants. However, for students going into positions that are associated with farming, this book will be a useful reference book. The students majoring in animal science and agricultural economics will appreciate the frequent references to practices that influence nutritional quality of plants, disposal of animal wastes, and production costs. In the experience of the reviewer, some of the topics which are given brief discussions are more efficiently presented in lecture than in writing. Therefore, Soil Science, Principles and Practices complements rather than competes with the lecturer.—F. L. HIMES, Professor of Agronomy, The Ohio State University, Columbus, Ohio.

1972 Agricultural Engineers Yearbook
American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, Michigan 49085. 610 pages. 1972. $10.00.

The 1972 Agricultural Engineers Yearbook of official ASAE Standards, Recommendations, and Data is now available from the American Society of Agricultural Engineers. This 610-page soft cover book includes 11 standards never before published.

These involve such key subjects as the Safety-Alert Symbol, Hand Signals, Sleeve Hitch for Small Tractors, Waste Storage Tanks, etc. ASAE Standards on Safety for Agricultural Equipment, Aluminum Irrigation Tubing, Lighting of Agricultural Equipment on Highways, Design of Surface Drainage Systems, are among those published with major technical revisions.

In addition to the 128 voluntary standards covered in the 1972 Yearbook, this edition also includes a classified directory of components, materials, and complete units of equipment manufactured by over 2,100 companies. A feature of this year's edition is reader service cards for use in obtaining additional product information from the 81 Yearbook advertisers.

Other regular features of the Yearbook include Nebraska Tractor Test Data; roster of ASAE committees, members, consulting engineers; educational programs in agricultural engineering; and Society information.

Probability, Statistics, and Data Analysis

The authors of this book have set out to present an "introductory description of the ideas of probability and statistics, which uses the elementary calculus and addresses itself not only to probability theory, of which distribution theory is a part, but to the collection and assessment of data." In this endeavor they have succeeded admirably. For the student of statistics, who has the necessary mathematical background, this book provides a "cookbook" of standard statistical methods. Rather it is a textbook for a course in the theory of data analysis.

As a text this book has much to recommend it. The first seven chapters, roughly the first half of the book are devoted to developing a background for data analysis. In this section the authors develop a probability calculus based on relative frequency. They then consider mathematical distributions, functions of random variables, distribution of sample statistics and stochastic processes, all of which serve as a basis for the data analysis to follow.

The last half of the book, chapters eight through sixteen, are devoted to the interpretation of data. In this section are covered such topics as goodness of fit, likelihood theory, Bayesian inference, statistical tests, interval estimation, decision making, curve fitting and the analysis of variance even though the basic ideas behind these procedures are well developed. On the other hand such topics as likelihood procedures and tests of hypothesis and significance are clearly presented. Similarly, the distinction among several kinds of interval estimates is clearly made.

For the student of statistics, who has the necessary mathematical maturity, this book has many features to recommend it. The authors have used a fresh, new approach to the development of topics useful for the interpretation of data. The graded guide to texts on statistics, on pages 509-11, would be of particular use to a student.

Some agriculturalists could use this book to develop a real understanding of the interpretation of data. It would not be the kind of book, however, which belongs on the shelf of the average agronomist.—R. G. PETERSON, Professor of Statistics, Oregon State University, Corvallis.

Ecology of Soil Fungi
By D. M. Griffin, Burgmann College, Australian National University, Canberra. Syracuse University Press. 193 pages. 1972. $9.95.

This book is an outgrowth of course lectures on the ecology of soil fungi presented by the author to senior undergraduate and graduate students in agricultural science and related disciplines. However, the content is of a level to be of interest and value to the more experienced researcher in soil biology. The book fills an important gap in the fast developing, diverse field of soil ecology in bringing together the literature on the inter-