BOOK REVIEWS, continued

Soils and Soil Fertility

This third edition of a well-known and widely-used book is based on the second edition written by the senior author and published in 1957. The many instructors and thousands of students who used that earlier book will probably find that this one is also to their liking. It is a good practical text. The readability and pertinence that helped make the previous edition a long-time favorite have been retained.

In comparison with the earlier edition, several topics have now been consolidated and expanded, or even made into separate chapters. For example, a chapter on “Land Use and Soil Management” replaces the one on “Crop Rotations and Soil Fertility.” A chapter on “Water Management” has been added to include both irrigation and water conservation. The geographic range of the book has been extended by substituting an enlarged chapter, “Amending the Soil,” for the former chapter on “The Principles and Practices of Liming.”

Soil and Soil Fertility is intended for use as a text in the introductory course for students in the agricultural and environmental sciences. Since most students in colleges of agriculture take only one course in soils, the subject matter is designed to be comprehensive enough to stand by itself with a minimum of prerequisites. The authors report, however, that there has been found that a course in chemistry is very helpful. We believe that the title of the book accurately indicates its purpose to serve primarily those students who plan to manage soils or work in some agriculturally-related area. Approximately two-thirds of the book is devoted to soil chemistry, fertility, and management. Instructors who emphasize soil science as a discipline will probably not find their preferred proportions of physics, chemistry, microbiology, morphology, etc. in this text. Also students with strong backgrounds in basic sciences or with plans for careers in soil science would likely benefit from a more rigorous approach.

Our contemporary writers of textbooks on soils still think in terms of the 1938 USDA Classification System rather than in the language of the new system of Soil Taxonomy. Translation between these two systems is necessary for most soil scientists. However, beginning students with little exposure to any classification system are confused by this translation and the duplicating terminologies. They would, perhaps, prefer that we forget pedocals, podsols, brunizems, and the like and not perpetuate two different systems.

For so many pages, this attractive volume is surprisignly compact. Although the exterior appearance is entirely different, the instructor familiar with the earlier edition will recognize many of his old landmarks inside. A portion of the figures have been carried over in either the original or rearranged form. There appear to be fewer figures and considerably fewer tabulations for the added materials and rearrangements, subject matter follows the same general sequence as in the earlier edition.

We believe that this new edition will be welcomed by many instructors and students and that Soils and Soil Fertility will continue to be popular and widely used.—L. T. Kuritz and John J. Hassett, University of Illinois, Urbana-Champaign.

Erosion and Sediment Control on Urban and Construction Sites—An Annotated Bibliography
American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, Michigan 49085. 13 p. 1972. $4.00. Order number SP 0272.

The purpose of this bibliography is to serve as a reference to the latest field applications and research papers on control of sediment in urban areas. Compiled by ASAE’s Committee on Pollution by Sediment, this softcover publication will be useful to people engaged in design, construction, and research.

Soil Conservation Society of America. Included with each item is the complete title, author, date of publication, publisher, price, and complete mailing address of the group distributing the reference. The 100-word synopsis with each listing describes the specific information included in the full-length document.

Soil Genesis and Classification

The stated objective for this excellent book was to summarize the body of knowledge called pedology, and to direct readers to sources of additional information in the literature. This objective is accomplished in this extremely well-illustrated and smoothly-written textbook. Although the three authors must have each written separate chapters, the writing is uniform throughout and appears to be the work of one individual.

The book has 26 chapters with about equal space given to soil genesis and to soil classification plus an appendix. Chapter 1, the introduction, traces the history of soil genesis theory and then states 13 fundamental concepts useful in the understanding of soil genesis. The authors then examine the soil as an anatomical specimen, as an energy transformer, and as an open system. Following this, each study of soil genesis are discussed and finally definitions are given of terms like pedon, polypedon, and the soil individual.

Chapter 2 is a technical manual on soil morphology which may be difficult for readers studying on their own who lack field experience. Chapter 3 is an 11-page treatment of soil micropedology, while Chapter 4 describes soil sampling for genesis studies and the standard laboratory analytical methods. Weathering and soil formation are covered in a separate chapter followed by two chapters on pedogenic processes—internal and external. Table 6.1 is a gem presenting genetic processes and categorizing them as to whether additions, losses, translocations, or transformations of materials are involved. The next five chapters are devoted to the effects on soil of the generally accepted genetic factors—parent material, relief, climate, organisms, and time.

Starting with Chapter 13 the subject shifts to soil classification and begins with a historical sketch. Modern soil classification systems are covered in the next chapter. Space is devoted to work done in the Soviet Union, Germany, France, Belgium, Brazil, United Kingdom, Canada, and Australia. The soil units of the FAO/UNESCO also are outlined in this chapter, numerical classification is introduced, and the groundwork laid for describing the US Comprehensive System of Soil Classification, which is the basis for the next 10 chapters of the book—one for each of the 10 soil orders of the system. The final two chapters discuss natural soil bodies and soil landscapes (called soilscapes) and the interpretations of soil classifications and maps.

Each chapter of the book is well documented with references. The references are mainly from United States periodicals but a good number of foreign references are cited. The years of study reported span more than 80 years, but most of the articles cited are from recent studies.

Of special note are the excellent diagrams and sketches which abound throughout the book. For example, each of the chapters describing soil orders has a landscape diagram and a diagram showing some relationships between the suborders of the soil order being discussed. Also noteworthy is the appendix which includes profile descriptions and analytical data for soils representing each of the 10 soil orders. Although no color prints of soil profiles appear in the book, the authors state that the Marbut memorial collection of 2 by 2 slides which can be obtained from the Soil Science Society of America is a good supplement to the book for classroom use.

The book appears to be well suited for a college undergraduate course in soil genesis and classification. The abundant references listed also will make the book a good starting place for graduate students to begin thesis studies. Graduate students and teachers who feel the need for a reference book could find the book a useful reference.—F. C. Westin, Professor, Plant Science Department (Soils), South Dakota State University, Brookings, S.D.