BOOK REVIEWS

The Classification of Some British Soils According to the Comprehensive System of the United States


The preface of this volume states the purpose well:

The primary aim is to increase understanding of the American classification for those mainly familiar with British soils. One or more profiles have been selected for each Great Group believed to be of importance in Britain. The result is a collection of 78 soil profile descriptions, with accompanying analytical and micromorphological data relevant to their classification in the American system. In classifying each profile to subgroup level an international 'label' is provided for some of our most important types of soil.

The monograph can be divided into three main parts. The first consists of three chapters providing background and orientation. The second and main part consists of the profile descriptions and other data mentioned in the preface. The third is a final chapter in which limitations and usefulness of the American system are discussed.

Among the three introductory chapters, the first promises to be of more interest to American readers than the second and third. The chapter sketches the development of soil classification in the United States and summarizes criticisms of the 7th Approximation from several countries. The second chapter describes the approach and basis for preparation of the monograph, whereas the third summarizes definitions of the diagnostic horizons in the American system.

Six chapters form much the largest part (160 p.) provide the data on the 78 profiles, arranged by soil orders, suborders, and great groups. Introductory remarks indicate the concept of each class provide background for the profile data, which are comparable to those now being published in the United States.

Most of the final chapter on the usefulness and limitations of the American system for soil surveys in Great Britain iskeyed to soil orders. For example, difficulties are expected with the Alfisol order because of problems in identification of argilllic horizons. Many of the soils in question are formed in regoliths with lithological discontinuities and thus have inherited textural differences within their profiles. Micromorphological data will be required in many instances to identify argilllic horizons, and even such data may be equivocal. The prominent place given to base saturation in the system also promises to give unhappy results in Britain. The long history of liming in Great Britain has altered the base saturation of soils in some fields so that substantially identical profiles will be on opposite sides of a base saturation limit in the system. A further objection by pedologists in Britain is that use of the American system would require the splitting of a number of well-known series. That same result was predicted in the United States prior to adoption of the system in 1965, and subsequent history bears out the prediction. Whenever a system of soil classification is modified or replaced, changes in concepts of classes such as soil series inevitably follow. Soil series are recognized and defined within some classification system, whether it is spelled out clearly, indifferently, or poorly.

The monograph will be of greatest interest to two groups of readers. One will be those individuals who would like to know more about the soils of Great Britain. The second group will be those working directly with the classification of soils.

As indicated in the preface, detailed information on the morphology and composition of a large group of British soil profiles is assembled under one cover. This will allow pedologists outside of Britain to get a better picture of its soils than before.

The summary of early criticisms of the 7th Approximation also puts them under one cover and thus makes them more readily available, which should be useful.

For readers concerned with the structure of the system, the final chapter will be of most interest for its discussion of the limitations and usefulness to soil surveys in Britain. Listed among the advantages are the detailed definitions and systematic nomenclature. Among the disadvantages are the complex definitions of diagnostic horizons and large numbers of classes per category. The chapter left me with the impression that the authors thought the American system of soil classification would be useful for international communication but not so good for soil surveys in Britain. Furthermore, the final chapter can serve as a substitute for the kind of insight so earnestly desired by Robert Burns when he wrote the lines:

O'wad some Pow't the gif te gie us
To see ous reles as others see us!

ROY W. SIMONSON, College Park, Maryland.

Pedology, Weathering, and Geomorphological Research


This book's stated objective is to fulfill the need of a textbook for geomorphologists and sedimentary petrologists working in Quaternary research.

Included in the 12 chapters are: the soil profile, horizon nomenclature, and soil characteristics; soil classification; weathering processes; the products of weathering; processes responsible for the development of soil profiles; factors of soil formation; influence of parent material on weathering and soil formation; weathering and soil development with time; topography-soil relationships; vegetation-soil relationships; climate-soil relationships; and use of soils in Quaternary stratigraphic studies. In addition, a very short appendix contains an outline of data necessary for describing soil profiles and five small-scale maps of the continental United States depicting periodic precipitation and temperature. No caption appears with the annual precipitation map.

There are about 450 literature citations which are not always appropriately representative of the total relevant literature. A high percentage of the references appeared in the 1960's. Over 100 figures appear in the text; many illustrations are of superior quality which adds greatly to the clarity of presentation. All line drawings are clear and legible. The current USDA system of soil classification and the metric system are used throughout the text. Selected topics are generally well covered; however, complete exclusion of fauna and faunal activity as a factor of soil formation is very disappointing. This pedogenic factor has affected the morphological and biochemical properties of many soils throughout the world. Discussion of processes responsible for soil profile development is somewhat incomplete and poorly organized. Although clearly explained, the system of horizon designation uses unconventional E (A2 or albic) and K (carbonate) nomenclature throughout the text.

The author is to be complimented for his excellent compilation of data relevant to the use of soils in Quaternary stratigraphic investigations. It is highly unlikely that this book will be used as a single text for any course but it should be useful as a supplemental class reference and it is recommended for libraries of institutions where courses concerned with pedology are taught.—VICTOR W. CARLISLE, University of Florida, Gainesville, Florida.

Soil Conditions and Plant Growth


The general purpose of this book is to present a "critical account" of the interrelations between soil and plant in determining plant growth." It covers nearly all of the biological, chemical, and physical attributes of soils and the ways in which these attributes may influence plant growth. Most of the chapters have been modified to include new information and new concepts which have emerged since the ninth edition was published in 1961. An entirely new chapter on waterlogged soils has been included, reflecting the world wide importance of this subject in the production of rice, and in the ecology and reclamation of salt marsh.