BOOK REVIEWS, continued

Spanner psychrometers. In addition, many of the papers contain tables of very useful data.

Anyone contemplating the use of psychrometry would well use this volume as a starting point.—John F. Stone, Department of Agronomy, Oklahoma State University, Stillwater, OK 74074.

Classification of Soils and Sedimentary Rocks

This mimeographed publication from the Centre for Resource Development, University of Guelph contains papers by the five principal speakers at a March 1970 conference. Several of the papers were rewritten after the conference which delayed publication until late 1972.

F. F. Riecken discussed soil development processes based mainly on research in Iowa. He noted that the use of additional properties not currently diagnostic in soil taxonomy aid in deciphering processes. He pointed out that processes assist in classification but that classification is not an end in itself. Soil processes affect the kind of model employed to make useful soil maps. The question then arises of the use of a property that could be derived by different processes. Professor Riecken observed that whether new series will be needed in future mapping may depend on more critical examination of properties and processes involved in their formation.

G. V. Middleton reviewed some basic concepts in classifying sedimentary rocks. In 1972 an international committee prepared a guide to stratigraphic classification as an attempt to arrive at agreement on principles and to establish acceptable terminology and rules for stratigraphic procedures. Stratigraphic codes differ in recognizing soil stratigraphic units.

In describing petrographic classifications, Middleton noted that the major classes are clastic, chemical and organic. The main aspects of rocks are their composition, structure (macroscopic), and texture (microscopic). He concluded by stating that developing concepts, establishing operational rules for measurement, understanding of processes, and the evolution of classification must proceed simultaneously.

G. D. Smith discussed some of the present basic concepts used in classifying soils and noted that the viewpoint toward taxonomy in any country is unavoidable influenced by the extent of kinds of soils within its boundaries, by governmental policies toward soil use, and by the concept of soil itself. He described eight guidelines that were used in developing the US taxonomy and stated that in selecting differentiae they must be soil properties. The most useful for higher categories may be either those that result from soil genesis or those that affect soil genesis because these properties have the greatest number of accessory properties.

In discussing the development of concepts and diagnostic criteria for soil classification, L. P. Wilding emphasized the need to quantify soil variability because he believes that what we recognize as random today may be assigned to a systematic source as we gain more understanding of the impact and interrelationships of soil forming factors, processes, and landscape parameters. Professor Wilding discussed eight reasons for studying soil variability including those related to genesis, taxonomy, and mapping of soils. He illustrated variability for soil series concepts, mapping unit delineations, grided plots, and soil pits based on Ohio data.

The final paper by J. C. Griffiths on aspects of classification highlights attempts of sedimentary geologists to provide meaningful classifications and suggests possible courses of action for the future. He stated that ideally the classes should be mutually exclusive and exhaustive, however, in practice this seems difficult to achieve. He drew attention to a lesson that may be learned from using tables, triangles, conic sections or other geometrical forms to display some interrelationships of the elements in a domain.

Professor Griffiths defined fundamental properties of elements as those necessary to "explain" or predict the derived properties which may in turn be considered as dependent behavioral properties. Much of his work has been concerned with the establishment of classification of aggregates using these five fundamental properties. He pointed out that if the procedures for measuring a property are not closely related to the concept of the property then the measure may be impossible to interpret. Various means of cluster analysis help show similarities among objects, computer programs are available, and a systematic approach forces the investigator to make his procedures operationally sound.

The seminar was an attempt to create a dialogue between soil scientists and sedimentary geologists. These articles and their references provide a starting point for understanding the different approaches to classification of earth materials of mutual concern and hopefully will encourage each of us to continue to reap the benefits that such dialogues can produce.—R. W. Arnold, Department of Agronomy, Cornell University, Ithaca, N.Y.

The Soil and Crop Science Society of Florida Proceedings

This well-presented journal includes papers from a large number of researchers in Florida institutions and other near-by states. These papers were part of the thirty-second annual meetings of the Society at St. Petersburg, Florida on December 5, 6, and 7, 1972. The topics covered are wide-ranging and varied, including everything from local forest and crop problems to tropical soils of Viet Nam. The plants and soils of Florida receive the major emphasis in these discussions.

International and Metric Units of Measurement

The second edition of this reference book is intended, according to its publisher, to serve as an up-to-date compilation of American and international units of measurement and their conversion factors. Recent changes in definitions and fundamental units have necessitated revisions in standard measurements in several areas. Revised tables are included in the handbook to accommodate the new liter, new atomic energy, electrical, and magnetic units, and revised values of the Avogadro constant. The soil scientist will find the sections on density and concentration, flow, length, and mass the most useful of the newly-revised materials.