BOOK REVIEWS

Pedology—A Systematic Approach to Soil Science


FitzPatrick prepared this book as an aid in teaching undergraduate students with a major or minor interest in soil science. He did not envision it as a treatise for the specialist, whether professor or graduate student. Although he does not say what prior training he expects of his own students at the University of Aberdeen, what I would consider appropriate is a knowledge of general geology, rigorous training in general soils, considerable familiarity with soil morphology, and adequate courses in the sciences.

The eight chapters vary in length and in probable difficulty for the undergraduate student. "Fundamental Concepts in Pedology" (6 p.) excites one interest in horizons, profiles, and soils as portions of a continuum. "Factors of Soil Formation" (39 p.) considers the familiar five factors, often in a fresh manner. "Processes in the Soil System" (27 p.) covers physical, chemical, and biological changes, and has an integrating section on the weathering unit. The reader will need considerable sophistication. "Properties of Soil Horizons" (26 p.) presumes familiarity with some working details of both soil morphology (gross and thin section) and soil chemical analysis. Up to this point FitzPatrick has been introduced in Geoderma in 1967 but now amplified, does not intrude unduly. But in "Nomenclature and Classification" (53 p.), the serious reader must memorize some terms. He will experience no overwhelming sense of frustration with these words and symbols in large part, because of the well-organized tables and text printed on green paper toward the end of the chapter. (In any case students are commonly less bothered than instructors by such things, because for them unfamiliarity with the text is normal.) Only one horizon (ison = fragipan) has detailed treatment, offered as an example of the "forthcoming treatment" of other horizons. I anticipate that the study of "Soil Classes of the World" (91 p.) will leave the student with a considerable sense of achievement. The figures with the generalized data, the plates with p.a. and p.b. color reproductions of soil profiles, and the soil class distribution maps will be particularly helpful. The problem of horizon symbolization is minimized for the casual reader by descriptive sentences. I doubt that "Soil Classification—A Review" (10 p.) will leave the student with much helpful information. The instructor will have encountered most of the material before, and will have established his biases beforehand. In the final pages FitzPatrick makes his own biases clear—hierarchical systems of soil classification have failed and will continue to fail. "Soil Relationships" (26 p.) requires study, but is then amply rewarding. The "Glossary" is abbreviated; "References" and "Index" are adequate but not all-inclusive.

I consider it unlikely that the book will be used as a single text for a course taught in the USA, but I easily visualize it in use as one of several texts. Certainly it should be among the books reserved for reading by students in any course concerned with pedology.—Henry W. Smith, Professor of Soils, Washington State University, Pullman, Washington.

A Textbook of Soil Chemical Analysis


This textbook is designed as a teaching aid as well as a practical guide for soil analysts. The subject matter is divided into 18 chapters. Most chapters include an introduction, a discussion of background and theory, and usually one or more recommended methods. The author has covered the analytical procedures normally found in books on soil chemistry, and he has included methods for the total elemental analysis of 33 trace elements. He also has a chapter devoted to sampling and analysis of waterlogged soils which is a valuable contribution. The only notable omission is the lack of a discussion on the problems of sampling normal soils.

There are about 1,400 references listed according to chapter at the back of the book. As this would suggest, the author has presented a fairly detailed historical background for the various methods up to about 1967. This may be helpful for someone doing a literature search, but a critical rather than a historical review would seem more appropriate for a book such as this. The lengthy historical reviews have no doubt contributed considerably to the high cost of the book.

The author has purposely selected analytical methods which require only common chemicals and simple equipment. He has also included 11 plates and numerous line drawings to illustrate the equipment and special apparatus required. The plates and figures are well done, and the text is well organized and easy to read. In accord with the present international trend, SI units are used throughout the book, and it will be necessary for the reader to be completely familiar with the use of cm, ml, dm, mS (millisiemens) for mhos, etc. However, for those units most likely to cause misunderstandings, the author includes the more commonly understood unit in parentheses.

Writing a book such as this is a monumental task for one person, and it is to be expected that the author does not have firsthand experience with all of the methods which are described. This can lead to problems as many soil chemists who have tried unsuccessfully to apply methods reported in the literature can verify. Also, specialists in some areas will undoubtedly disagree with the selection of some of the recommended methods. On the whole, however, the author has done a good job.

The book is relatively free of errors, but some omissions and mistakes do occur. For instance, tourmaline is not mentioned as a source of B (p. 384), dolomite is referred to consistently as MgCO₃ (p. 46), and N-15 is referred to as radioactive (p. 174).

In summary, this book should be a useful reference for soil chemists. The $30.00 price tag will probably put it out of reach of most students.—R. B. Corey, Department of Soil Science, University of Wisconsin, Madison.

The Living Filter


This film describes the Pennsylvania State University's 10-year study in waste water purification by spray irrigation. The LIVING FILTER proves that treated sewage can be made fit to drink by using soil as a natural filter. It further contends that natural methods, scientifically applied, represent a highly effective practical solution to the growing problem of sewage disposal. The film shows how the spray irrigation system works, advantages obtained in enriched crop and tree growth, effects on animals, and laboratory techniques used to analyze water samples. A spin-off project, now 3 years old, demonstrates that the soil can rejuvenate strip-mine spoil, growing lush grasses and trees in one season on the worst soil in the world.

It is suitable for Junior and Senior high students; municipal water authorities; water pollution consultants; environmental protection organzations; and the general adult population.

The 17-minute color film was written and narrated by Gilbert S. Aberg of Penn State's Department of Public Information, and was photographed and edited by George Hornbein, of Hornbein Wood Films, Lemont, Pennsylvania. —PM.