BOOK REVIEWS

Practical Soil Science

This book is essentially a manual of methods, corresponding in part to that of the Soil Survey manual (USDA, 1951) and in part to standard methods of soil chemical analysis and soil physical analysis. Chapters are entitled: Morphological Characteristics of Soils; Soil Mapping and the Compilation of a Soil Map; Methods of Determining the Physical Properties of a Soil; Chemical Methods of Soil Investigation; Methods of Determination of the Exchangeable Cations and of the Absorption Capacity; Determination of Soil Acidity, Water Extracts.

The first chapter covers definitions and descriptions of typical kinds of soils. Color, mechanical composition, and structure criteria for describing soils are given with example descriptions of Chernozem, Serezoem, and Brown Mountain-Forest soils. The second chapter concerns the directions for mapping, including descriptions of climate, relief, geology, vegetation, and the map legend. The third takes up physical measurements such as specific gravity, aggregation, and moisture measurements. The fourth describes total elemental analysis, CO₂, mineral components, nitrogen, exchangeable ions, and cation exchange capacity, acidity, lime dosage, base saturation, and gypsum. The final chapter concerns analysis of water extracts of soils including water-soluble humus. Appendices list atomic weights, acid and alkaline strengths, and indicators used.

The book provides the soil scientist with a Russian view of classical methods, some with new names attached, as reflecting Russian studies of methods familiar to western scientist. The text is lucid, and the map legend is excellent. The translation committee has made a useful selection, and the reviewer feels that the book should be on the reference shelves of all soil scientists concerned with classification and analysis of soils.—M. L. Jackson, University of Wisconsin, Madison.

Khimicheski Analiz Pochvy (Chemical Analysis of Soil)

This book was first published in 1923, and revised in 1927 and 1932 by K. Gedroits. The present edition, revised and edited by N. P. Remenikov, has been somewhat abridged at the expense of material more thoroughly treated in other volumes of Gedroits’ works. Moreover, a number of obsolete chemical methods have been omitted and new methods developed since 1932 have been added. The book covers most phases of soil chemical analysis including total elemental analysis, soil acidity, microelements, and examination of the soil solution, soil-water extracts, and the exchange complex. Considerable attention is given to methods for the study of soil organic matter, and an evaluation of these methods by qualified American soil scientists could be worthwhile. It is quite evident that Gedroits was a very meticulous chemist. For example, his chapter on “Preparation of soil material for investigation in the laboratory” might be considered a classic. The book is apparently the standard Soviet text on soil chemical analysis, and it, therefore, gives a valuable insight into the present status of soil chemical analysis in the USSR.—C. A. Bower, U. S. Salinity Laboratory, Riverside, Calif.

Experimental Soil Microbiology

This laboratory manual is designed for advanced undergraduate and graduate students with an interest in soil microbiology. It contains 33 exercises. The first five deal with soil moisture, texture, organic matter, reaction, and exchange capacity. Nine cover general groups of soil organisms (arthropods, nematodes, protozoa, algae, fungi, bacteria, viruses), and the remainder, various associations and activities of single organisms. These range from the usual nitrogen transformation studies to such others as pesticide decompositions and the Fusarium wilt of tomato.

The manual is meritorious in several respects. Exercises are carefully chosen to cover a wide range of problems, and nicely reflect the current and diverse areas of interest in soil microbiology. Most of the references are of recent vintage and of high quality and therefore provide excellent leads for supplemental reading. Directions for the individual exercises are terse, almost skeletal, and consequently the student is offered both orientation and challenge.

The major weakness of this manual is carelessness in the writing, terminology, and final proofreading, leading to altogether too many annoyances. Mechanically the manual sets a poor example for the student, and places the teacher who wishes to emphasize care and accuracy as fundamental in laboratory work and in scientific writing under a distinct handicap. Added to numerical errors and inconsistencies are many others in diction and terminology.

“dehydrogenase activity of soil” in the table of contents appears in bold, oversize type, in the exercise heading itself as “dehydrogenase activity of cell.” Most such errors are readily obvious to the casual reader, but at a first glance a few leave the reviewer short-changed in the question, “How many phages influence the bacterial population of soil?” intended as a challenge to the student’s imagination, or was it intended to ask “how may” instead of “how many”? In the exercise proper, 10 cultures are listed from a maximum on p. 107, only 14 species are named. It is unfortunate that for a student manual, the binomial nomenclature of Bergey’s Manual was not consistently followed.—F. E. Clark, ARS, USDA, Ft. Collins, Colo.

Treatise on Soil Science
By K. D. Glinka. Translated from Russian from the fourth posthumous edition, edited 1951, which was revised by the Soil Scientists of the Dokuchaev Soil Institute, Academy of Sciences of the USSR. This book was published by the Israel Program for Scientific Translations in 1963 for the National Science Foundation and the U. S. Department of Agriculture, under the Public Law 480 program. 674 pp. Paper bound, $6.75. (Available from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C. OTS 61-31002.)

Although Prof. Glinka’s book was written more than 50 years ago and even the last (posthumous) edition of it was published more than 30 years ago, it is still one of the best, if not the very best, books on soil science ever written. Quite naturally, some pages and sections of it are out-of-date and now have only historical interest. Yet, no serious student of soil science would fail to find in the book a great many thought-provoking and stimulating ideas and discussions, which are just as fresh and burning now as they were at the time of writing the book and for which he would look in vain in many of the most recent textbooks published anywhere. It is safe to say that no student of soil science is fully qualified to call himself a soil scientist unless he has read this book.

Unfortunately, the translation of this book into English leaves a great deal to be desired. With maximum allowance for the technical difficulties of translating Russian text, this translation can hardly be graded higher than mediocre, especially so because there is no excuse for its major defect—a rather frivolous inequivalence. The translators took upon themselves the task of “editing” the original text, which really is none of their business unless it has been requested.

Here are a few random examples from the translation:

Glinka’s statement (p. 66 second paragraph from top) that “summarizing up what has been said above about the chemical composition of humus, it should be pointed out that not everything in this field is already clear and properly understood and that the problem needs, indeed, a great deal of further study” is translated as: “Summarizing up, we should point out that the chemical composition of humus has not been fully answered as yet.” (p. 88, second paragraph from top)