BOOK REVIEWS

SOIL SURVEY MANUAL (REVIEW NO. 1) 1

A very different publication from the early edition of 1937, is the Soil Survey Manual issued in August 1951. It has been entirely revised and in the process become more than three times as large. The sections listed in the early edition are amplified or rather, rewritten, and several subjects, such as color, consistency, and stoniness, have been expanded to form main section headings. As it is to be expected, that almost indispensable aid to soil science— aerial photography—is very fully covered. Well developed is also the section on yield production and soil management practices, aspects that the New Zealand soil surveyor is not directly concerned with.

The new Manual compared to the early one is a record of progress in sixty years—a record that should give a feeling of pride to soil scientists. (or pedologists!) Symptomatic of this progress is the move forward into definitions, many of which were criticized in the earlier Manual.

Alongside the Manual is tops, 17. The members of the staff of the Division have written the various sections, and the Chief of the Division has successfully handled the tremendous job of unification.

Foreign soil scientists look to U.S.A. to give a lead in how to make soil surveys, and a study of the Manual shows they will be far from disappointed.

There are only a few points in the text on which I desire to make some comment and these it will be obvious can hardly be taken as criticism. The impression is given that excavations or borings are chiefly needed to identify the profile of a soil unit (p. 14). Perhaps more emphasis could have been placed on the use of the soil auger to check and in more cases than is implied to locate the boundary. Topsoil and subsoil, popular names for soil layers, are said to be terms difficult to define and poor respectively (p. 15) I find these very helpful in writing reports that I hope the farmers will read, believing they understand that the topsoil is the humus bearing layer and the subsoil, the layer below it in which the plant roots are found. The classification of stoniness (pp. 217-18) becomes complicated when the designation of the soil shown in Fig. 41 depends on the location of the soil boundary. The rather fruitless differentiation of soil types, popular names for soil layers, are said to be terms difficult to define and poor respectively (p. 15) I find these very helpful in writing reports that I hope the farmers will read, believing they understand that the topsoil is the humus bearing layer and the subsoil, the layer below it in which the plant roots are found.

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The recent laudable progress toward a more concise terminology for the description of the color (Munsell notation), texture, structure, consistency, permeability, stoniness, and salinity of soils in the United States is summarized. With the rapid development in this field of soil science it is inevitable that there still exist many differences in terminology and ideas about soils even in this country. While one side of controversial issues is usually emphasized in the Manual, mention is made of other views in most cases. The issue concerning the differentiation of soil types and soil phases is thrown open for debate.

A few controversial issues are not adequately presented by the Manual. Many soil scientists in the United States do not agree either that a soil must be capable of supporting land plants or that the lower limit of biological activity corresponds with the lower boundary of the soil. The rather fruitless differentiation between weathering and soil formation processes is retained from the earlier edition. The discussion of parent materials from the standpoint of their mode of origin rather than a discussion of parent rocks based on properties of the rocks is probably the weakest section of the Manual. However, even the mention of these points is probably not to emphasize them in proportion to the many fine features of this publication.

The advances in cartographic techniques are presented in a section on choice of base maps, a greatly improved and expanded section on the use of aerial photographs in soil surveys, and an appendix on map compilation and reproduction. In view of the present widespread use of aerial photographs as base maps in the United States, the discussions on map preparation with the plant table and the compass traverses have been placed in the appendices.

The discussions of the uses of soil surveys, the new sections on yield predictions and soil management practices, and soil grouping on the map reflect the state-of-the-art in soil surveys in the United States today. The relationship of soil surveys to other fields of agricultural research and their utility in getting the results of these researches back to the areas where they are applicable are very ably presented in the section on soil survey reports.

The excellent, short, general bibliography has been revised. A special bibliography of representative soil surveys from contrasting regions of the United States and some sample descriptions of soil series are helpful additions to the text.

This book is the soil surveyor's Bible in the United States. The Soil Survey Manual should be on the reference shelf of every agronomist and soil scientist. — E. P. Whiteside.

MINERAL NUTRITION OF PLANTS
Edited by Emil Truong, Madison, Wis.: The University of Wisconsin Press. 469 pages (illus.). 1951. $6.00.

Mineral Nutrition of Plants is a symposium of 18 papers presented at the University of Wisconsin in September 1949. The contributors include Daniel I. Arnon, O. Biddulph, G. B. Bod-