BOOK REVIEWS

Soil Biology

This volume consists of 17 chapters contributed by a spectrum of 17 specialists as summaries of knowledge in their areas of individual competence in soil biology. The soil system and major components of the soil population are described and discussed. Some of the subjects treated have been previously summarized by the same authors and are presented here with little change in concept or content. Moreover, coverage is not always complete and some aspects of soil biology are not considered at all. The volume has value, however, particularly to the advanced student and to the research worker, F. E. Clark, J. H. Warcup, and J. W. G. Lund are deserving of special commendation for their ability to view conventional topics (bacteria in soil, fungi in soil, and soil algae, respectively) from perspectives that are both enlightening and useful. An outstanding feature of the volume is its zoological focus. Each of the major groups of animals that inhabit soil is considered in a separate chapter that is brief but authoritative, and together these chapters comprise more than half of the total text. The approach throughout is ecological rather than biochemical, and the book emphasizes biological interrelationships and their determinants.

CONTENTS: The Soil System, A. Bugus; Bacteria in Soil, F. E. Clark; Fungi in Soil, J. H. Warcup; The Actinomycetes, E. Küster; Soil Algae, J. W. G. Lund; Protozoa, J. D. Stout and O. W. Heal; Foraminifera, C. Overgaard Nielsen; The flagellates, F. B. O'Connor; Lumbricidae, J. E. Satchell; Arthropoda (except Acari and Colembola), F. Raw; Acari, J. A. Wallwork; Collembola, W. G. Hale; Mollusca, P. F. Newell; The Importance of Antibiotics and Inhibiting Substances, D. Park; Soil Micro-Organisms and Plant Roots, D. Parkinson; The Decomposition of Organic Matter in the Soil, A. Bugus; Soil Micro-Organisms and Plant Protection Chemicals, N. Walker; Author Index; Subject Index.—DAVID FRAMER, Rutgers, the State University, New Brunswick, N.J.

Physiology and Geochronological Activity of Thiobacilli
By G. A. Sokolova and G. I. Karavaiko, 283 p. 114 tables. 64 fig. 1968. $3.00.

Microbiological Processes in the Formation of Sulfur Deposits
By M. V. Ivanov, 298 p. 70 tables. 106 fig. 1968. $3.00.


This atlas contains about 260 electron micrographs selected from about 4,000 samples. Three succeeding atlasses will present infrared, X-ray diffraction, and thermal analysis data on the same samples. Each text page has a column in English and an equivalent column in German.

After a brief introduction, there are short general sections on the electron microscope and sample preparation. The diagrams in the sample preparation section are excellent as is the quality of the printing throughout. Structure diagrams and a brief discussion of the structure of the kaolin minerals and the montmorillonite group are given. Referring to these basic structures, the structures of the mica group, pyrophyllite and talc, the chloride minerals, interstratified minerals, and attapulgite, sepiolite and related clay minerals are very briefly described. Shorter sections follow on simple iron and aluminum minerals, quartz, cristobalite and tridymite, simple carbonates, amorphous and a few miscellaneous substances. Formulas, a brief discussion, and one or more electron micrographs are presented for each mineral type or group member. A useful bibliography is presented at the end of the book.

The English text has a few errors, but is generally well written, with a slight foreign flavor. The brief discussion of the minerals and their structure is authoritative. It is evident that the authors know their minerals. By 1968 standards the best electron micrographs in the atlas are of replicas, some of which are of very good quality. The transmission electron micrographs range from good to poor in quality.

With duplicate discussions in two languages, the atlas is much longer than single language editions would have been. The text discussion and the corresponding electron micrograph are almost never on the same or facing pages and sometimes are separated by 30 pages or more. Frequently the discussion of the electron micrograph consists of a single sentence. Since infrared, X-ray and thermal data will be obtained on these same samples, it seems likely that extensive interpretations of the electron micrographs and other data could have been made, had all the data for each mineral been published together. The usefulness of the volume is further decreased by presenting insufficient information on the origin of many of the samples. For example, the source of the nontronite from Garfield, Washington, is merely labeled "Garfield, USA."

It is difficult to decide the place of this atlas. With its present deficiencies, it will not be worth $40.00 to many people. Some of these deficiencies may be partially overcome by the three atlases to follow, that present additional data on these samples. Thus, the whole may be more valuable than the sum of its parts.—J. A. KITTRICK, Washington State University, Pullman, Wash.


Soil-Plant Relationships

The new revised edition has more than twice as many pages as the original text published in 1957. The author recognizes in his preface to the second edition that an understanding of soil-plant relationships requires an integration of measured factors that describe quantitatively pertinent soil properties and any other characteristics of the environment that impinge on growth of plants. He succeeds very well in leaving the impression that soil and plant scientists have a long way to go before all our significant gaps can be made, much less integrated. The serious student of soil science who is searching for meaningful viewpoints regarding the current state of knowledge and the limitations which it imposes on making useful predictions regarding soil-plant relationships under practical field conditions will find many stimulating ideas and thoughtful discussions in each of the chapters. It is refreshing to find a text in soil science that is aimed at stimulating new interest and