BOOK REVIEWS, continued

The Ecology of Soil Fungi

The book emphasizes the European approach to the study of soil fungi, and the direct observation. The observation method certainly is useful in some cases, but is difficult, very time-consuming, and suffers from individual differences in observations. The methods described in the United States utilize more biological statistical analyses, plate counts, and isolation techniques. A typical example of this is on page 92 where the author uses a direct observation for the study of spreading of Verticilium in the soil.

The chapter on the decomposition of humic acids leaves some doubt in my mind about the author’s knowledge of this subject. The use of a fraction for decomposition studies without further characterization of the organic constituents can lead to serious errors in making a conclusion. A study here of the carbon compounds present would have been far more useful than a study of the ash. On the other hand, the chapters on the physiology of the fungi were well done and contribute some rather recent information to this field.

I don’t imply that the work on isolation and observations were not equally well done, but that they emphasize again the difference between American and European workers. I feel the book generally is well written and would be a useful addition to the library of anyone working in this field.—HARRY H. JOHNSTON, Wilmington College, Wilmington, Ohio.

Handbook of Geophysics, Revised Edition

The orientation of this reference book is far removed from problems of soil science and crop production. It is pointed toward design engineers and scientists working on missile and satellite projects. However, amid the wealth of information on global geophysics is much material pertinent to those concerned with the surfaces of land areas of the world. H.H. Lettau and D.A. Haugen contributed two meteorological sections:

1. “Empirical models of thermal structure in the lower atmosphere and soil”
2. “Empirical models of wind structure.”

In the chapter on terrestrial surface parameters, C.E. Molineux offers a rich section on “Bearing strengths of natural surfaces.” This chapter also includes sections on oceanography, earth tremors, permafrost, and geodesy.

Aspects of radiation of biological and meteorological interest are treated in five sections: A. Visual albedo; B. Luminance and illumination of the atmosphere; C. Measured intensities and bandwidths of atmospheric infrared absorption bands (J. N. F. King); D. Methods of calculating infrared absorption of the principal atmospheric absorption bands (J. I. F. King); and E. Solar radiation (P. R. Gast).

Other sections or chapters that will be of interest deal with precipitation, clouds, meteorological instruments, and probabilities of surface air temperatures and wind speeds.

This is an excellent handbook. The text is readable, and a great quantity of information is given clearly in the many tables, maps, and figures.—WYRTON COVEN, ARS, USDA, Ithaca, New York.

Fertilizer Use—Nutrition and Manuring of Tropical Crops, 2nd Edition

Part I discusses the role and effect of fertilizers, both macro and micro, organic and inorganic fertilizers and the factors as well as the cultural operations which influence the efficient use of nutrient by the crops.

Part II contains the common and scientific names of 37 important tropical and 2 non-tropical crops with their soil type preference. The discussion of the culture and the formulation of the fertilizer treatment which could serve as a guide in the use of fertilizers is based mainly on the published materials listed under each crop.

Part III affords the agricultural workers the much needed information which is not available in many agricultural books. It includes a large number of tables giving conversion factors for weights, measures, chemicals, and fertilizers; nutrient contents of fertilizers and chemical composition of clays, rocks and soils; plus other related information.

Part IV gives a list of English, German, Dutch and French books which are valuable references for work on plant nutrition, field plot techniques, soils and fertilizers. The index of authors of the 2nd Edition contains 105 more names than the 1st Edition.

This book is well written and well illustrated with plates, figures and tables. Anyone interested in this subject should read it and use it easily as a general guide in the use of fertilizers. There are not many books of this size which contain as much information as given in it. It is an excellent reference and should be in the library of all agricultural institutions and soil scientists.—N. J. GALVEZ, College of Agriculture, University of the Philippines, Laguna.

Multilingual Vocabulary of Soil Science, 2nd Edition Revised

This is a revision of the first edition which was published in 1954. It has been edited by those listed above following the suggestions of an advisory committee which was established during the 6th International Soils Congress in Paris. This committee’s committee involved various editors in the field. The book contains a preface in three languages, namely, English, French, and Spanish. A table of contents is also in the same three languages. The terms have been grouped according to subject into 22 categories including a total of 353 terms. One term appears on a page with the definition given in nine languages. (In some instances, the English definition is given according to the usage in the United States and separately in the United Kingdom.) The nine languages are: English, French, Spanish, German, Portuguese, Italian, Dutch, Swedish, and Russian. The definitions are not translations of one language into another, but are definitions as used in the countries where the respective languages are used. A separate index is given in each of the nine languages. Most of the definitions are given in fairly general terms and should, therefore, be of considerable interest to the layman. Likewise, it should be of interest and value to soil scientists even though the terms are general and lack the specificity which is usually desired in scientific work.—J. F. LUTZ, North Carolina State College, Raleigh.

Radiation Technology in Food, Agriculture, and Biology

Radiation may be very effective in sterilizing food or medical supplies. The technology of food irradiation is adequately described in this book, which is addressed to industrialists, economists, agriculturalists, biologists, and others with only a basic knowledge of chemistry, physics, and biology. The required background in each of these sciences is developed in the book. These sections of the book will not be very helpful to specialists in these sciences, as they are necessarily over-simplified, but they will probably be useful to those for whom the book is intended.

Probably of most interest to agriculturists is the rather complete discussion of the interaction of radiation with living organisms. Nearly half of the book is devoted to this subject, the treatment starting with radiolysis of water and progressing through radiation effects on organic compounds, including vitamins, carbohydrates, proteins, and fats, to radiation effects on plants and animals. Radiation dosages required to kill or inactivate various insect pests, pathogenic bacteria, and enzymes are given.

Applications of radiation in fields other than food processing are poorly treated in this book. Potentially important applications in insect eradication, plant breeding, and soil sterilization are mentioned very briefly or not at all. Obviously, the authors are rather at home in discussing these fields. Agronomists will wonder at the reference to "lucerne grass" in the concluding paragraphs on radioactive contamination in the biosphere.—R. G. MENZEL, ARS, USDA, Beltsville, Md.