New Books

Chemistry of the Soil

Edited by FIRMAN E. BEAR. x + 373 pages, $8.75. ACS Monograph No. 126. Reinhold Publishing Corp., 430 Park Ave., New York, 1955. Reviewed by R. F. REITEMEIER, Agricultural Research Service, USDA, Beltsville, Md.

THERE HAS BEEN a need for a comprehensive volume on soil chemistry, and this monograph should help to satisfy it. Because of the wide variety of topics which can be considered a part of this subject, Dr. Bear obtained the assistance of 13 soil scientists, 11 from the U. S. and two from Europe, in writing this book. The presentation is divided into 10 chapters, an introduction, and an appendix on methods of soil analysis, each prepared by one or two authors. Each chapter includes a pertinent bibliography, and a general subject index is provided for the entire book.

The topics discussed cover the nature and reactions of the various soil constituents, chemical aspects of soil development, physicochemical and colloidal phenomena of soils, acidity and salinity effects, and the relationships of soil chemistry to plant nutrition.

The multiplicity of authors and the broad coverage of the subject contribute to some unevenness of readability, several chapters stressing mathematical and specialized approaches, while others are more descriptive. Duplication of certain topics appears to exceed an irreducible minimum. For example: clay minerals are described in chapters 2, 3, and 8; trace elements are discussed in chapters 8, 9, and 10; soil phosphorus in chapters 4, 6, and 10; and ion activities and exchange in chapters 3, 4, and 10.

Attention is called here to a few selected examples of specific errors or questionable statements. On page x, it is definitely implied that cobalt, iodine, and fluorine are currently considered essential plant nutrients. In table 2.4, fine clay should be "$<0.2\mu$." In chapters 3, 8, and 10, the terms "absorption" and "adsorption" are frequently interchanged, evidently typographically. On pages 123, 219, and 222 the expression "pK" is used in three different senses. On page 299, the statement that "the Ca/K on the roots is narrower than that on the soil" appears exactly opposite the conclusion drawn from table 10.7. On pages 303 and 304, the square root sign is missing from the right side of the two equations. In the first equation on page 331, "X N" is missing from the numerator. For the first equation on page 356, the determination of "ppm correction for Na" is not described. In addition to errors of this nature, about 150 minor errors, mostly typographical, were noted.

Despite such deficiencies, anyone having an interest in the chemistry of soils should have access to this book. It should enjoy wide usage not only as a reference volume but as a text in soil chemistry courses.

LITERATURE AVAILABLE

Aerial Applicator Laws. Revised edition of summary of state laws affecting aerial applicators of chemicals for agriculture. Dept. A&F, FARWEST GENERAL AGENCY, Exchange Bldg., Seattle 4, Wash.

Anhydrous Shipping. A 24-page booklet describes and illustrates 1-ton shipping containers for anhydrous ammonia and other gases. Dept. A&F, COLUMBIANA BOILER CO., 200 W. Railroad St., Columbiana, Ohio.

B_{12} in Feed. Four-page memo discusses importance of vitamin B_{12} in chicken nutrition and other topics of interest to those in animal health and feed fields. Dept. A&F, MERCK & CO., INC., Rahway, N. J.

Chlorates. Bulletin discusses analysis and application of chlorates and perchlorates used as weed killers and defoliants. Dept. A&F, AMERICAN POTASH & CHEMICAL CORP., Los Angeles, Calif.

Ferric Sulfate. Folder gives how-to-use instruction for agricultural ferric sulfate, which is said to improve soil structure and correct soil alkalinity, as well as supply iron for enriching soil. Dept. A&F, STAUFFER CHEMICAL CO., 636 California St., San Francisco 8, Calif.

Freeze Drying. Descriptions of freeze-drying units and related production and laboratory equipment for preserving heat-sensitive substances such as biologicals and food. Dept. A&F, ARTHUR S. LAPINE & CO., 6001 S. Knox Ave., Chicago 29, Ill.

Iron Chelate. Revision of pamphlet on Perma Green iron with eight pages of color photographs. Dept. A&F, REFINED PRODUCTS CORP., 625 Schuyler Ave., Lyndhurst, N. J.

Lard. Revised edition of "Lard as a Shelf Item" discusses hydrogenation and antioxidants, as well as other factors in the production of lard. H. R. Kraybill, Dept. A&F, AMERICAN MEAT INSTITUTE FOUNDATION, 939 E. 57th St., Chicago 37, Ill.

Meat Research. Eighty pages on meat research in progress at AMIF, including discussion of irradiation, antioxidants, utilization of tryptophan, and similar studies. H. R. Kraybill, Dept. A&F, AMERICAN MEAT INSTITUTE FOUNDATION, 939 E. 57th St., Chicago 37, Ill.

Methionine in Feeds. Brochure on formulation of broiler feeds with methionine includes data from feed efficiency experiments. Dept. A&F, DU PONT CO., Wilmington, Del.

Nabam Fungicide. Illustrated booklet gives directions for using Chem-Bam (a formulation of nabam fungicide) to control early and late blight on 18 different crops. Dept. A&F, Chem-Bam Division, CHEMICAL INSECTICIDE CORP., 129 Montague St., Brooklyn, N. Y.

Oil Chemistry. Four pages on equipment for the oil chemistry laboratory. Dept. A&F, ARTHUR S. LAPINE & CO., 6001 S. Knox Ave., Chicago 29, Ill.

Radiochemicals. Catalog and price list for carbon-14, tritium, and deuterium compounds. Dept. A&F, 575 Albany St., Boston, Mass.

Science in Industry. Six scientific principles and six inventions that reshaped civilization are described in illustrated 32-page booklet. Dept. A&F, DU PONT CO., Wilmington, Del.

Stable Isotope List. Details of sales and loan policy with respect to stable isotopes. Dept. A&F, Oak Ridge National Laboratory, UNION CARBIDE NUCLEAR CO., Oak Ridge, Tenn.

Starches and Gums. Twenty pages show wide range of uses for starches, gums, dextrins, flours, and polyvinyl acetate emulsions in food, confectionary, and other industries. Dept. A&F, PAISLEY PRODUCTS, INC., 630 W. 51st St., New York 19, N. Y.

Sulfide Ion Source. Eight-page manual of procedures and suggested uses for Sulfi-Down, a replacement for hydrogen sulfide in analysis. Dept. A&F, A. DAIGGER & CO., Kinzie at Wells St., Chicago 10, Ill.

Vapam. Six-page leaflet on use of Vapam soil sterilant to destroy weeds, fungi, nematodes, and soil insects. Dept. A&F, STAUFFER CHEMICAL CO., 380 Madison Ave., New York City, or 636 California St., San Francisco, Calif.