The book should be of great value for students in beginning soils courses in Latin American universities. It is written concisely and understandably. It should also serve as a valuable reference for soil scientists and others who have a practical interest in soils throughout the Spanish-speaking world.

There are many references to Puerto Rican conditions and agricultural practices. Even though many examples are local in nature, the implications are much broader because of considerable similarity in conditions and crops grown in many tropical areas. However, a more thorough treatment of the different kinds of soils that occur in the tropics would have been desirable.

There are a few typographical errors but generally these are sufficiently obvious that no confusion arises. A more serious error occurs in the structural sketch of kaolinite in Fig. 7(c). Also, aaphane is erroneously listed as a member of the kaolinite group.

The discussion of the hydrometer and pipette methods of mechanical analysis together is somewhat confusing. The procedure discussed for the pipette method is misleadingly simplified.

Many commendable features, not ordinarily found in basic soils textbooks, are included. For example, tables of solubilities of common soil salts and the relation of cation “normal” and hydrate sizes to their order of replacement and flocculating ability are given. Overall, the book can be highly recommended. It is believed that it will be readily accepted by Spanish speaking students of soil science.—B. L. ALLEN, Agronomy Department, Texas Tech University, Lubbock, Tex.

Phosphoric Acid, Phosphates, and Phosphatic Fertilizers


The reader will be dissappointed to find that this is not a new text, but a facsimile of the 1952 edition to which the author has appended a half-page introduction and a selected list of more recent references. The contents of its 29 chapters reflects the status of technology, knowledge of chemical principles, and mineral resources as of 1952. However, many important changes have occurred since 1952 in both process technology and knowledge of fundamental chemical principles. Omission of these changes detracts from the book’s value as a reference. While the text does provide a general background on developments in phosphoric acid technology up to 1952, it will not serve as a source of information for the advanced student, or satisfy those wishing to keep abreast of the dynamic growth of phosphate technology.

As to contents, 7 chapters are devoted to sources of phosphate rock and their properties. A number of the geographical deposits mentioned have faded from significance as more recently discovered deposits have assumed major importance. Much of the physical-chemical descriptions of mineral phosphates is outdated and invalidated by more recent studies. Thermal methods for producing phosphorus, phosphoric acid, fused phosphates, and metaphosphates are discussed in 4 chapters, with considerable emphasis on early TVA developments of processes and equipment that are now obsolete. Seven chapters describe wet-process technology for making phosphoric acid, superfosphatic, ammonium orthophosphates, and other watersoluble phosphates. These descriptions fail to recognize modern concepts of fundamental reaction mechanisms and changes in basic processes; cost analyses and comparisons require revision in light of current marketing and production conditions. Seven chapters discuss such miscellaneous uses of phosphates as leavening agents, water softeners, cleansing agents, compounds in metal-plating, clarifiers in sugar refining, and flame retardents.

Most of the methods of analysis given in the appendix are no longer recommended procedures.

The most important shortcoming, however, is that the reader will not be informed about many of the important new physical and chemical forms of phosphatic materials that have emerged since 1952. Examples of omissions are (1) major process developments in wet-process phosphoric acid production, (2) highly concentrated polyphosphoric acids prepared by thermal and wet-chemical methods (3) ammonium polyphosphate fertilizers and their sequestration properties, (4) the expanding technology and production of liquid and suspension-type fertilizers, (5) formulation of high-analysis fertilizers, and (6) developments in granulation technology, bulk-blending, and conditioning treatments that affect the physical characteristics of modern fertilizers.

This text will provide the reader with a general background on phosphatic raw materials, processes, and products from their early development up to about 1952. It will be necessary to consult more recent literature, however, for the fundamental chemistry, technology, and economics that apply to today’s highly diversified and scientifically oriented phosphate industry. —J. R. LEHR, Tennessee Valley Authority, Muscle Shoals, Ala.


The seventh edition of this well known text has been revised by the junior author, Dr. Brady. The revisions cover many of the advances in the field of soil science, and replace the sixth edition was published. The book continues its original objective to serve as a text for introductory courses in soil science.

The main revisions in this edition involve the chapters on soil classification, soil acidity and alkalinity, nitrogen and sulfur, and soils and the world’s food supply. The chapter on soil classification has been almost completely rewritten and now covers the new comprehensive system of soil classification adopted in the USA, as well as coverage of the old system. The material on soil acidity as it relates to hydrogen and aluminum ions has been brought up to date. The chapter on nitrogen has been revised and a section covering sulfur has been added to this chapter. The final chapter is completely new and covers soils and the world’s food supply. It replaces a chapter on fertility management of mineral soils in the preceding edition. Material from this chapter was incorporated in the various chapters covering specific plant nutrients.

Other changes in the book include a number of new photographs, and drawings, a reduction in the number of literature references, and the addition of a glossary of some 450 terms for soil science.

Because of the added material the overall length of the book has increased by nearly 100 pages. The price has also been revised upward, but by today’s book market values it is still moderately priced.

Dr. Brady is to be commended for his continued interest and efforts in revising this title which has now been in use nearly 50 years.—RCD.

Cleaning Our Environment: The Chemical Basis for Action

American Chemical Society, 1153 Sixteenth St., NW, Washington, D. C. 20036. 1969. 250 pages (paper bound) $2.75.

This report was prepared by the Subcommittee on Environmental Improvement of the Committee on Chemistry and Public Affairs of ACS under the chairmanship of Dr. L. M. Cooke. The aim of the subcommittee in preparing the report was not to inform the experts, but to provide technical information for legislators, administrators, and others who must deal with environmental problems at the state and local levels. This report represents a series of reports prepared by the committee of the Air Pollution Committee of the American Chemical Society and is based on the first four topics. Each of these chapters is followed by an extensive list of literature cited. A subject index is also included. Soil scientists will be especially interested in these chapters on the water environment and pesticides in the environment. Surprisingly, the report replaces a chapter on the fate of pesticides in the soil environment, although only three references to soil’s journals, and two of these were from 1936 and 1937.—RCD.