BOOK REVIEWS, continued

"The Distribution and Abundance of Nematodes" discusses distribution within and without the host plant. The importance of extrinsic factors such as soil type and structure, environmental and climatic conditions, as well as agronomic practices are considered.

"Adaptation in Nematodes" details survival of the nematode in and outside the host and contains a discussion of attraction to and finding a host, invasion, growth and development, and reproduction and survival within the host tissue.

"Nematodes as a Cause of Disease in Plants" considers the effect of the environment, soil types, water stress, soil profile, soil chemicals, etc., on the disease complex between nematodes and plants. The effect of host and nonhost plants on population dynamics is also considered.

The final two chapters, "The Nature of Disease" and "Living with Disease," discuss concepts involving the spectrum of disease to give the reader a better understanding of disease as it is studied throughout the entire plant and animal kingdom. How the host and pathogen adapt to the disease complex and the effect of one upon the other, and how they are affected by agronomic, environmental, and climatic conditions.

The book asks as many questions as it answers and is valuable as a reference manual in formulating and designing research problems.

If the book has a shortcoming, it is that some scientists may feel that the reference material may have been unduly condensed. However, all important reference material is covered. —G. D. GRIFFIN, Utah State University, Logan, Utah.

Acid Sulfate Soils

The 8-day symposium drew 87 participants from 25 countries around the world. As a whole the 2 volumes present a balanced combination of theory and practice in 196 papers. Although there is some variation in quality of presentation, very few of the papers leave the reader wanting for substance. The text in a few papers suffers in translation, but the meaning is clear. These proceedings will serve as a reference base for future work on acid sulfate soils and are "must" reading for anyone dealing seriously in the subject. Eight recommendations and resolutions are set forth for future consideration. The symposium also created a working party on nomenclature and methods which reported in December 1973 its proposed definitions for sulfidic materials and the sulfuric horizon. The proposals should be seriously considered for adoption by the scientific community.

Volume I of the proceedings contains one summary paper, seven review papers, a map, and a bibliography. The lead paper by Pons sets the stage for the symposium. He recounts the evolution of knowledge about acid sulfate soils in the Netherlands and touches on the various subject areas covered in the symposium. The paper stands by itself as a brief but thorough review on acid sulfate soils.

A global map of acid sulfate soils by Kawalec and an extensive bibliography by Kawalec, Sombatpanit, and Van Breemen constitute a necessary and valuable backdrop to the symposium. The bibliography, spanning the period from 1863 to 1973, lists 230 references to first-hand or secondary information on actual and potential acid sulfate soils. References on relevant aspects and on soils affected by mine spoils or industrial pollution are not included. The map shows major and minor areas of acid sulfate soils. Accompanying references are listed by geographical area and are cross-indexed with the bibliography.

The genesis of acid sulfate soils is covered in papers by Rickard and by Van Breemen. Rickard discusses processes of sulfide (pyrite) accumulation through chemical and biochemical pathways. He concludes the iron source is principally ferric oxides and the source of sulfate is seawater. The most important pathway is biogenetic sulfate reduction by the bacteria Desulfovibrio with the supply of organic matter normally the limiting factor. Pyritic soil fabrics are commonly framboidal (spherical aggregates of pyrite microcrystallites). Van Breemen covers the processes of acid sulfate soil formation once sulfidic materials come into an oxidizing environment—a thorough coverage of chemical, microbial, physical, and morphological aspects. Jarosite is the most important product of pyrite oxidation if the soil pH is < 4.

Frink's paper on aluminum chemistry in acid sulfate soils, in a word sense, is a well-done review of aluminum chemistry in aqueous solutions and in soils. It also discusses the effect, often beneficial, of aluminum on the physical properties of soils.

Brinkman and Pons deal with recognition and prediction of acid sulfate soils in the field from kind of sedimentation, landform, vegetation, and (most extensively) soil characteristics. Kind of sediment and type of landform are poor general predictors of acid sulfate soils, but clear relationships exist in specific areas. Analyses by rapid and slow oxidation, by sulfide estimation, by X-ray fluorescence, and by microscopic examination are reviewed. In general the pH measured in the laboratory is lower than the pH realized in the field.

Van der Kevie discusses physiography (interesting to compare with previous paper), classification, and mapping. Major soil taxonomies (FAO/UNESCO and USDA) dealing with acid sulfate soils are compared. Some criteria and classes attributed to the USDA system are not presently a part of that taxonomy but probably should be considered for incorporation.

Sivere recounts the evolution of knowledge about acid sulfate soils and their potential uses. A practical point deals with the effect of acid soil conditions on the nutrition of plants, particularly the uptake of plant nutrients. The main adverse effect is inhibition of nutrient uptake and cell division in younger roots.

Coulter covers the commonly attempted methods of reclamation but considers it impossible at the present time to recommend generally applicable techniques for improving agriculture on acid sulfate soils. (Some profitable reclamation practices under given field situations are reported in Volume II.)

In Volume II, 26 papers are grouped under headings that parallel the principal review papers in Volume I.—W. C. LYNN, SCS, USDA, Lincoln, Neb.

1974–75 Agricultural Engineers Yearbook
Published by American Society of Agricultural Engineers. 2950 Niles Road, St. Joseph, Michigan 49085. 626 p. 1974. $12.00.

The 21st edition of AGRICULTURAL ENGINEERS YEARBOOK is now available—626 pages of information particularly significant to the agricultural engineering profession.

The new Yearbook includes 137 Standards, Recommendations and Data developed through ASAE's Cooperative Standards Program. These pertain to safety, design criteria, performance requirements, testing procedures. Standards cover not only agricultural but farm structures, irrigation and drainage facilities, and food and fiber processing.

Over 2000 U.S. companies are listed in the Yearbook's Product Directory. That Directory provides both a useful alphabetical listing of manufacturers with their complete mailing addresses and a breakdown of principal manufacturers organized by classification of manufactured product. This includes both manufacturers of specific components and/or materials and manufacturers of complete units of equipment. The Product Directory is updated yearly.

Users of the Yearbook may notice the Reader Service Cards at the back of the book. Whenever more information is needed on a product advertised in the Yearbook, a card can be sent to ASAE Headquarters postage paid—ASAE then forwards requests to manufacturers.

The Yearbook also includes Nebraska Tractor Test Data, a roster of consulting agricultural engineers, a list of ASAE committees, the ASAE membership roster, and other useful Society information. Member prospects may fill in the ASAE Membership Application at the back of the book.

AGRICULTURAL ENGINEERS YEARBOOK is an excellent reference for engineers, researchers, marketing managers, lawyers, sales representatives, dealers, teachers, executives associated with the agricultural industry.