MAGNESIUM—THE FIFTH MAJOR PLANT NUTRIENT

This very fine, up-to-date monograph on magnesium by Dr. Jacob is a summary of the world literature with references, together with a great deal of the author's own work.

All phases of magnesium in its relation to agriculture, including chemical properties, contents of plants, deficiency symptoms, relationship with other elements, functions of magnesium in plants, the importance of magnesium for animals, economy of the soil, methods of determination, magnesium contents, fertilizer experiments, and magnesium containing fertilizers, are included.

The discussions are very complete, and written clearly and concisely. Magnesium deficiency symptoms are described for over 35 different crops, and the book contains 8 color plates and 10 black and white pictures of magnesium deficiencies on various crops.

There is a very excellent discussion of the role of magnesium in plant physiology and its relationship to other plant nutrient elements. Also the section on the magnesium content of soils and its interaction with other elements is of special interest.

The book gives a comprehensive account of the present state of knowledge of magnesium in soils, plants, and animals. It is technically correct, easy to read and highly recommended.—K. C. Birkin.

RESULTS OF 1957 FUNGICIDE TESTS
The American Phytopathological Society for several years has sponsored the publication of results from tests on newer fungicides. The Results of 1957 Fungicide Tests for the first time has been prepared primarily as a review and is issued as a single copy. This replaces the previous practice of combining reprints of serial articles published in Agricultural Chemicals. The Results of 1957 Fungicide Tests can be secured at $1.00 per copy only from A. B. Groves, Department of Plant Pathology and Physiology, Winchester Fruit Research Laboratory, Rural Route 3, Winchester, Virginia. All orders should be accompanied by remittances made out to The American Phytopathological Society. An added charge will be made for postage and handling where orders must be billed.

ATOMIC ENERGY IN AGRICULTURE

This volume, one of the Atoms for Peace Series written under the general editorship of D. Wragee Morley, reviews some papers relating to agriculture which were presented at the international conference on the peaceful uses of atomic energy held at Geneva in August, 1955. It will probably find no direct use in teaching, although it could be used to develop an appreciation for the many applications of atomic energy in agriculture.

The author presents the highlights of the use of ionizing radiations in inducing mutations from the early experiments of Muller and Stadler to work at the Brookhaven National Laboratory and to Gregory's studies with peanuts in North Carolina. He discusses the use of radio-isotopes in tracing the paths of carbon in the photosynthetic process. He touches on the use of radioactive phosphorus, calcium, and other elements as a means of studying nutrient uptake and assimilation in plants. Interesting examples of using radio-active tracers in entomology and forestry research are related. Considerable space is devoted to research on the use of atomic radiation for food preservation.

This is not a book directed to scientists but to laymen interested in science. The presentation is brief, clear, and interesting. It does not strive for completeness but will surely challenge the new reader in this field.—D. G. Hanway.

ELEMENTARY SOIL AND WATER ENGINEERING

This is an excellent textbook on simple soil and water engineering practices as applied to farm planning.

The authors, with their forceful style of writing and their logical presentation of subject matter, give the reader, without previous engineering training, a working knowledge of the more important engineering techniques used in planning and establishing simple engineering practices. The understanding and skill of the student to gather and organize field data is developed by a comprehensive discussion on land surveying, including map making and reading, and field exercises.

The principles involved in planning are briefly but clearly presented. The skillful use of tables and monographs enable the reader to interpret soil and other factors for specific problems.

The many well chosen illustrations and pictures acquaint the beginner with practically all of the major soil conservation practices used in land use planning.

The book, with its references to source material, can also serve as a practical working guide to anyone interested in soil conservation farm planning.—A. J. Wojta.

SOILS OF THE SUGAR BELT, PART I: NATAL NORTH COAST
By B. E. Beater, Oxford University Press, Capetown, 105 pp., 1957, 35s.

Soils of the Sugar Belt is a report of a soil survey predominately European-owned sugar cane plantations along the north coast of Natal in South Africa. Material in the report is presented in three parts. Part I covers the distribution and area of the soil groups, and characteristics of the soils including structure and texture, and chemical composition. The latter includes oxides composition of various horizons of the soils, oxides composition of clay fractions of selected horizons of the soils, pH, and computed molar ratios including silica-sesquioxide ratios of the clay fractions of the horizons.

Part II covers the fertility of the soil groups. Readily and diffusely available nutrients, exchangeable cations, carbon, nitrogen, and organic matter are discussed. Drainage, erosion, and general productive capacity of the soils are analyzed. Part III is mainly a description of various soil series.

The report is well illustrated with 10 plates which show aspects of the terrain and soils. A colored map, scale 1 inch = 1 mile, shows the distribution of the "Soil Groups of the Sugar Estates." Soil maps of the soil groups (Part I) and of the various soil series (Part III) are described only in very general terms. Chemical characteristics (Parts I and II) are given either as averaged analyses to represent a particular kind of soil, with analyses of horizons also, but averaged, on data representing a specific kind of soil from one test pit. To a reader not familiar with the soils of the region, such presentation of data is confusing and not easily understood. Only one set of data of exchangeable cations, exchange capacity, base saturation, carbon, nitrogen, C/N ratios, and organic matter is given per tested soil per soil group. The reader must guess whether these values represent one horizon of the soil profile (and which horizon) or whether they are averages for all horizons of the tested soil. The soils would be more easily understood had the writer presented detailed descriptions by horizons or representative soils of the soil groups, and had presented his chemical data in correlation with these.

Soils discussed in the report are considered to be lithogenous [Lithosols], lateritic earths [Red and Yellow Litosols], sub-tropical black earths, Podzolic and Alluvial soils. Soils are grouped on the colored map in relation to their parent material, e.g., "Soils derived from Tugela schist; soils derived from old granite, etc. Distribution of mapping units or soil series is not shown. The map is essentially a parent-material map.—Robert V. Ruhle.

ION EXCHANGE RESINS, 2ND EDITION

In view of the many recent developments in the field of ion exchange resins this revision of a book first published in 1930 is quite justified. As the pamphlet stated in the preface, "The second edition, like the first, is designed to serve those who have just become interested in ion exchange technology and, in addition, those who have been working in a narrow area of ion exchange and are curious about the over-all aspects of the field." Approximately one-third of the book is devoted to the theory and mechanism of ion exchange and to the methods of studying and characteristics of ion exchange resins. The remainder of the book, except for a chapter on the design and economics of ion exchange units, deals with various applications of ion exchange resins. The applications covered are largely industrial but there is a short discussion of the use of resins as sources of plant nutrients. Of the chapters dealing with applications, those entitled "Ion Exchange in Chemical Engineering," "Permselective Membranes, and Their Applications" will probably be of most interest to soil scientists. The book will be a useful reference for agronomists involved in work with ion exchange resins.—C. A. Bower.