NEW BOOKS

Manures and Fertilisers

A. M. SMITH. 275 pages. Thomas Nelson and Sons, Ltd., London. Price 15 Shillings. Reviewed by FIRMAN E. BEAR, Rutgers University, New Brunswick, N. J.

THIS is the twelfth of a series of the Nelson Books on Agriculture, intended primarily for students and practical farmers. The author, who is associated with the college of agriculture of the University of Edinburgh, has confined his discussion to plant nutrition and to soil amendments in relation thereto. He deals particularly with organic manures, liming materials, and fertilizers. He starts by deploring the necessity of having to use the commercial terms phosphoric acid (P_2O_5) and potash (K_2O), preferring to deal with elements, as some of the more progressive agricultural nations of Northwest Europe do.

The material in the book is well chosen and lucidly presented. The chapter on residual values of manures and fertilizers is especially interesting.

Since soil is so intimately involved it would seem that at least one chapter should have dealt with soil *per se*. One can agree with the author that the outlook for the world population in another 60 or 70 years is troublesome but not necessarily "black." Also, there is really no very good reason for the controversy between the advocates of "natural" manures and fertilizers, which are complementary.

One of the most interesting statements has to do with nitrogen losses, 56 per cent of the nitrogen that was applied in the 14-ton-an-acre annual application of manure to the century-old Rothamsted plots being unaccounted for in harvested crops and in the soil. One might well differ with the author on the need for applications of sulfur and iron. Little consideration is given to the use of rock phosphate as such, which is a subject of much interest in United States.

There is no discussion of the tendency toward cation-equivalent constancy in plants or of the use of chelated forms of trace elements, notably of iron.

Some attention is given to the possible positive value of sodium and the negative value of chlorine in fertilizers, but not as much as they deserve. The competitive phase of anion absorption by plants is neglected.

More illustrative material would have helped. But, in general, this is a first-class presentation of the subject and American readers will find the book highly interesting and worthy of careful study.

Soil and Fertilizer Phosphorus In Crop Nutrition

Edited by W. H. Pierre and A. G. Norman. xvi + 492 pages. (American Society of Agronomy, Monograph Series No. IV) Academic Press, Inc., 123 E. 23rd St., New York 10, N. Y. 1953. $9.00. Reviewed by VINCENT SAUCHELLI, Davison Chemical Corp., Baltimore, Md.

THE literature on phosphorus is voluminous, and recently has been increasing at a rapid rate. The amount of work being devoted to the investigation of soil and fertilizer phosphorus in crop nutrition in all parts of the world is prodigious. This volume is, therefore, a long-needed, ably edited book, which brings together in one place complete, comprehensive, authoritative, and up-to-date information on the numerous phases of the subject through the collaboration of 29 American and foreign specialists.

This book is the outcome of a symposium held on the campus of the University of Illinois at Urbana, Illinois, on August 26-28, 1952, under the sponsorship of the American Society of Agronomy, the Soil Science Society of America, and the National Soil and Fertilizer Research Committee. In this volume are discussions of the physiology and biochemistry of phosphorus in green plants, of the relationship between the soil and plants involved in nutrition; the chemistry of phosphorus in acid, neutral, alkaline and calcareous soils; the use of soil tests for determining phosphorus availability and a consideration of the other methods employed in determining the amounts of plant-available phosphorus present in different soils. A comprehensive review is given of the value and use of phosphatic fertilizers, the comparative value of different phosphatic compounds currently used in agriculture and how such management practices influence the uptake of the indigent and applied phosphorus. The laboratory methods of evaluating the plant-availability of phosphatic materials receive considerable attention.

Because phosphates are not uniformly distributed throughout the world, although interest in them is world-wide, it is good to find here an excellent presentation of the problems of distribution, geology, composition of deposits, and the technological and economic factors associated with the mining and distribution of phosphates, even though the data are concerned chiefly with the situations existing in the United States.

The problems of fertilizer phosphorus comprise relationships of the current phosphorus status of various soil types the differing needs of food and fiber crops, and the projection of domestic and foreign estimates of supplies and consumption into the future. These problems are adequately considered in the final three chapters.

It may be proper to observe how interest in commercial fertilizers is at present being generated in all civilized parts of the world. Much of this current world interest is undoubtedly due to the educational efforts of the Food and Agriculture Organization of the United Nations.

Farmers, research men, and statesmen are everywhere demonstrating that they recognize the importance of fertilizer phosphorus in the national economy and health.

Phosphorus is one of the essential plant nutrients which experience has shown to be limiting in crop production in most agricultural soils. But up until about the turn of the Century, relatively little was known scientifically about the status of phosphorus availability, of different soil types, and the complex relationships of soil phosphorus, applied phosphates and the proper feeding of crop plants: These numerous, interrelated problems of geology, pedology, physiology and biochemistry have since received intensive attention from scientists in all the countries of the world.

Research workers in the United States have been especially prolific during the past 25 years in reporting on the results of their investigations in the broad field of soil phosphorus, soil-plant relationships and phosphorus fertilization. Because of the huge accumulation of data in this rapidly advancing area of science, it was a happy circumstance that the previously mentioned Symposium was held in 1952, for the critical review and assessment of the present status of knowledge in these fields.

The objectives set out by the sponsors of the Symposium have been satisfactorily achieved by each of the 29 authors whose contributions at the Symposium constitute the contents of this volume. For those who care to delve more deeply into that phase of the subject covered by each chapter, they will find a comprehensive bibliography appended to that chapter.

The authors and sponsors deserve the acclaim and gratitude of all who are interested in this subject for this much needed compilation of technical and descriptive data on the role of phosphorus in crop nutrition. All will find this monograph an indispensable source of valuable, useful information.