BOOK REVIEW

MINERAL NUTRITION OF PLANTS AND ANIMALS
By F. A. GILBERT. 131 pp., 29 figures. University of Oklahoma Press, Norman, Oklahoma. 1949. $2.75

THIS book treats broadly the interesting subject of mineral deficiencies of human beings and foraging animals, and aims to present the essentials of nutritional problems. Dr. Gilbert earned the A.M. and the Ph.D. degrees at Harvard in plant taxonomy and physiology, and became Professor of Botany at Marshall College in 1927.

The book contains 22 short chapters. Following the introduction is a short chapter (8 pages) on early history of plant nutrition. Chapter III is devoted to classification of the elements essential in nutrition, including the energy elements. After that comes a discussion of individual minerals—phosphorus, calcium, magnesium, potassium, sulfur, iron, copper, cobalt, manganese, zinc, iodine, boron, molybdenum, aluminum, silicon, sodium and chlorine, fluorine, and finally, arsenic, lead, and selenium. The last chapter discusses human nutrition.

Although plants are recognized as the intermediary in supplying animals with their chemical needs, plants differ in nutritional characteristics according to the environment in which they are produced, notably with respect to the nature of the soil solution. These differences are reflected in the growth and health of animals.

Livestock, it is pointed out, cannot function normally without nutritious forage; and forage of desirable qualities can only be produced on soils which contain the needed mineral constituents in proper amounts and proportions. It is significant, perhaps, that the two most abundant mineral elements of the soil—silicon and aluminum—occur only in traces in the animal body. Animals require relatively large amounts of chlorine and sodium, and traces of cobalt and iodine, whereas these elements are evidently not necessary for normal functioning of plants, but they are absorbed by plant roots. On the other hand, boron and molybdenum are apparently not needed by animals but are essential to plant life.

Before extensive exploitation by white men in this country, there were perhaps little if any mineral deficiencies in the forage or in farm produce. Now that the soils have eroded extensively and are being drained of their more soluble minerals, nutritional deficiencies of man and beast occur commonly, in some localities more than in others.

The book provides terse information on the present status of nutritional problems. It will probably be well received by those who wish up-to-date information on mineral nutrition and on ways of correcting mineral deficiencies in plants and animals. For the scholar of nutritional problems the book will have no particular value. The bibliography of 329 references seems well selected. Considering the nature of the subject and the large amount of research work reported, the author has done a fairly good job in assembling and synthesizing the literature.—Arthur W. Sampson, School of Forestry, Univ. of Calif., Berkeley, Calif.