"Plant Growth Regulation" will be of particular interest to botanists and plant physiologists engaged in basic studies with plant growth regulators. However, agronomists, horticulturists, foresters, and others who use such materials in their work will also find this text an invaluable source of information. The papers included bring together scattered information, make comparisons, and evaluate conflicting opinions relating to the responses of plants to growth substances. Phenoxyl and benzonic acid herbicides, the gibberellins and several other synthetic growth substances are considered in detail. The implications of interactions between native growth substances and synthetic materials are discussed. A number of the authors consider the role which plant growth substances may assume in the future in understanding plant growth more fully. Their possible use in modifying plant growth for economic purposes is considered. This volume is an excellent record of progress made in the study of plant growth regulators during the past few years. It can be wholeheartedly recommended for use by serious students in the field.—K. P. BUCHHOLTZ, Agronomy Department, University of Wisconsin.


The advances in soil mechanics and in soil physics during the past two decades have given increased incentive for the exchange of knowledge between civil engineers and agricultural soil scientists. The conference on pore pressure and suction in soils, held in London in March 1960, demonstrated that such exchange could be fruitful.

The conference was organized by the British National Society of the International Society of Soil Mechanics and Foundation Engineering and supported by the Institution of Civil Engineers. A number of well known engineers took an active part but participation was not limited to engineers. The list of authors includes scientists who have been active in agricultural research (R. K. Schofield, G. D. Richards, and W. C. Byers, for example). The 18 articles and the written commentaries occupy 151 pages. The contents range from fundamental considerations of effective stress to measurements of pore pressures in saturated soils beneath engineering structures. The material is well written. Tables and graphs are well presented. Photographs, however, suffered considerably in the reproduction.

Modifications of Terzaghi’s equation for effective stress, making the equation applicable to unsaturated soils, should be of great interest to soil physicists. Various approaches to this problem are made in the articles by Skempton, Jennings, Croune and Coleman, Bishop, and Aitchison.

Methods for measuring pore pressures are given special consideration in six of the articles. The distinction and interrelation between the two terms pore pressure and suction appearing in the title of the conference was emphasized by Croune and Coleman. Confusion has often resulted from the equating of the two terms, after making due allowance for their opposite sign. The authors have distinguished correctly between them by noting that the suction corresponds to the negative pore-water pressure in the absence of, or corrected for, the overburden pressure, whereas the pore-water pressure in general includes the additive effect (only partly additive in the case of unsaturated soil) of the overburden.—PAUL R. DAY, Department of Soils and Plant Nutrition, University of California, Berkeley.


This volume contains the proceedings of the Third Colloquium on Plant Analysis and Fertilizer Problems held at Montreal, Canada, in August 1959. It contains 30 papers covering soil fertilization problems and plant analysis techniques for detecting deficiencies. The authors come from ten countries, including the United States, the United Kingdom, Canada, South Africa, the Congo, the USSR, Brazil, France, Israel, and Japan.

The subject is divided into two major areas, (1) the development and application of plant analysis techniques to crop fertilization problems, and (2) the fundamental relations of tissue composition, mineral nutrient status, and yield of plants. This book summarizes some of the newer knowledge concerning the basic principles, techniques, and limitations of plant analysis as a tool for determining the fertilizer needs of plants. There are discussions on the correlations between nutrient balance and crop yields of deciduous fruits and vines, citrus fruits, and row and plantation crops. There are other papers dealing with the uptake, interactions, and balance of ions and plant composition, the influence of mineral nutrition on organic nutrition, and the influence of environment, growth, and other factors on plant composition. The papers have been summarized by the author, in which he discusses the limitations of plant analysis as a research and diagnostic tool.

This book has been carefully edited and will be a useful addition to libraries and to individual researchers interested in various aspects of plant and soil analysis.—S. C. WIGGANS, Dept. of Horticulture, Oklahoma State University, Stillwater.


The Dutch Text apparently carries on extended discussion of all material relative to this study. The English Text, to which this review is confined, was intended to be a summary of the book. It was apparently further shortened due to publication costs. For this reason the English summary will be difficult for those who do not already have considerable background in the subjects discussed.

The study of geological, pedological, and ecological factors of a typical Dutch landscape have been approached with ambition and scholarship. Active geomorphological processes are illustrated in many of the pictures. Aspects of stratigraphy, sedimentation and erosion are discussed in relation to landscape. Pedologists and soil scientists who have given some thought to working with the soils which are to be diked and drained will be interested in the formula for predicting subsidence. The author has shown evidence to distinguish between fresh water and marine sediments by their particle size distribution. Material relating to ecology in addition to the description of physical environment referred to above includes vegetation maps, plant community descriptions, and photographs of many of them. Also, sequence photographs of a developing area are shown. The many supporting maps and graphs represent much work and carry considerable information.

Volume A has been translated into English and too often retains Dutch word order. In this respect it is not up to the standard of comparable publications from the Netherlands.—JOHN F. FLEMING, VCS, USDA, Beltsville, Md.


The original edition of this volume, published in 1956 by Hoepli, was one of the first complete treatises on this subject and has served as a standard reference. The revised edition is enlarged by 68 pages and supplemented by many recordings of flame emission spectra from a large series of metals. The revision was particularly concerned with radiation interferences and instrumentation.

The first part of the book provides basic information on flame photometry, particularly the nature of the flame, the vaporization, ionization and dissociation of substances introduced into the flame, the origin of emission spectra, intensity of radiation, mechanisms of excitation of atoms and molecules, and radiation interferences. The next part of the monograph, devoted to instrumentation and evaluation techniques, is largely a description of fuels, fuel and oxygen metering devices, atomizers and burners, costs. The third part, deals with practical aspects of flame photometry and the fourth part comprises a detailed account of the interferences in flame photometric analysis and the measures for their elimination.

The book is concluded with a brief survey of the applications, which flame photometry finds in agriculture, biology, food chemistry, medicine, industry and criminology. The part devoted to agriculture stresses the use of flame photometry to determine the nutrient contents of soil and plant by flame spectrography, and the use of flame photometers in the modern soil testing laboratories. The authors give 76 selected references concerned with soil analysis, radiation interferences in the emission of calcium, and trace element investigations.