in their lectures, and they have tried out the material of this book in the monthly magazine published at their institution. The great number of illustrations includes diagrams and sketches, as well as fine photographs, well reproduced. Not as fresh-looking as Rey's book, this one has perhaps twenty times as much information in it, while requiring about twice the concentration to dig it out. When dug, however, it is sound.

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Soil Physical Conditions and Plant Growth. Vol. II of *Agronomy.* Byron T. Shaw, Ed. New York: Academic Press, 1952. 491 pp. $8.80.

This book, prepared under the auspices of the American Society of Agronomy, is a compilation by nine authors of five principal divisions dealing with the effect of the physical condition of the soil upon plant growth. The introduction by the editor succinctly states the purpose of the book:

> It is the purpose of this monograph to provide students and professional agriculturists with a critical and authoritative evaluation of the present knowledge on this subject and to point out those areas in which additional data are needed.
>
> It is postulated that all physical attributes of the soil, such as apparent density, aggregation, pore-size distribution, friability, and others, influence plant growth through their effects on: (1) soil moisture, (2) soil air, (3) soil temperature, and (4) mechanical impedance to root development and shoot emergence. The first chapter of the monograph describes the soil as a physical system and considers methods by which the physical characteristics of the soil can be modified. The succeeding chapters deal with each of the four fundamental edaphic factors previously listed. In each chapter a description of the essential features of the phenomenon is first given. This is followed by a discussion of how the physical character of the soil affects the particular edaphic factor being discussed. An evaluation of the significance of that factor to plant growth follows. In the final chapter the interactions among the four fundamental factors are discussed in relation to other factors affecting plant growth.

In addition to consideration of the direct effect of physical properties of the soil on plant growth, indirect effects of these properties upon nutrient supply, pH, etc., are considered.

The five divisions of the book are: "Soil as a Physical System," by Lyle T. Alexander and H. E. Middleton; "Mechanical Impedance and Plant Growth," by J. F. Lutz; "Soil Water and Plant Growth," by L. A. Richards and C. H. Wadleigh; "Soil Aeration and Plant Growth," by M. B. Russell; and "Soil Temperature and Plant Growth," by S. J. Richards, R. M. Hagan, and T. M. McCalla. All chapters are thoroughly documented, including the most comprehensive review of the literature on the respective chapters that this reviewer has seen.

This book is of first importance to senior and graduate students in soils, to professional agriculturists, and to botanists engaged in research. In addition, this reviewer feels that the book could be used profitably as a text in soil classes where the application of soil physical properties to plant growth is emphasized.

The authors and editor are to be commended for an outstanding summary of the literature, of great value to all technical workers interested in the growth of plants.

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Scientific Book Register

Improving Undergraduate Instruction in Psychology. Report of a study group supported by the Carnegie Corporation of New York and the Grant Foundation which met at Cornell University, June 27–August 16, 1951. Dael Wolfle, Chairman. New York: Macmillan. 1952. 60 pp. $1.25.

Science and Hypothesis. Repr. H. Poincaré. New York: Dover, 1952. 244 pp. $2.50; $1.25 paper.

Forestry and Its Career Opportunities. Hardy L. Shirley. New York–London: McGraw-Hill, 1952. 492 pp. Illus. $6.50.

Investment Castings for Engineers. Rawson L. Wood and Davidlee Von Ludwig. New York: Reinhold, 1952. 477 pp. Illus. $10.00.

Food and Population and Development of Food Industries in India. Mysore: Central Food Technological Research Institute, 1952. 357 pp. Illus.

Styrene: Its Polymers, Copoloymers and Derivatives. American Chemical Society Monograph 115. Ray H. Boundy and Raymond F. Boyer, Eds. New York: Reinhold, 1952. 1304 pp. Illus. $20.00.

Annual Review of Physical Chemistry, Vol. 3. G. K. Rollefson, Ed., and R. E. Powell, Assoc. Ed. Stanford, Calif.: Annual Reviews, 1952. 416 pp. Illus. $6.00.

The Immaculate Forest. An account of an expedition to unexplored territories between the Andes and the Amazon. W. R. Philipson. New York: Philosophical Library, 1952. 223 pp. Illus. $4.50.

Semimicro Qualitative Analysis. 3rd ed. Paul Arthur and Otto M. Smith. New York–London: McGraw-Hill, 1952. 285 pp. Illus. $4.00.

Polarography: Inorganic Polarography, Organic Polarography, Biological Applications, Amperometric Titrations, Vol. II. 2nd ed. I. M. Kolthoff and James J. Lingane. New York–London: Interscience, 1952. 990 pp. Illus. $11.00.

Contributions to the Theory of Nonlinear Oscillations, Vol. II. S. Lefschetz, Ed. Princeton, N. J.: Princeton Univ. Press, 1952. 116 pp. $1.50.

The Evolution of Chemistry: A History of Its Ideas, Methods, and Materials. Eduard Farber. New York: Ronald Press, 1952. 349 pp. Illus. $6.00.

Fundamentals of Engineering Electronics. 2nd ed. William G. Dow. New York: Wiley; London: Chapman & Hall, 1952. 627 pp. Illus. $8.50.

Nerve Impulse. Transactions of the Third Conference, March 3–4, 1952, New York. H. Houston Merritt, Ed. New York: Josiah Macy, Jr. Fdn., 1952. 176 pp. Illus. $3.50.

Theory of Numbers. B. M. Stewart. New York: Macmillan, 1952. 261 pp. Illus. $5.50.

Organic Syntheses, Vol. 32. Richard T. Arnold, Ed. New York: Wiley; London: Chapman & Hall, 1952. 119 pp. $3.50.