

prejudice. She has so long and so loudly insisted that she leads the world in all organization and administration that it is a shock to find that her civil service is admittedly inefficient. It is already well known that her social science, as reflected in the infant death-rate, is inefficient. Various branches of her educational system are very weak and ill-organized. We are beginning at last to realize that German face-values are not always true values. But this, though entertaining, is not necessarily comforting to us. Is our own Home Civil Service, devoted though it is, selected on a system that is calculated to secure men who have, as part of their outfit, the scientific method of thought? We do not want pure or applied scientists for our service any more than the Germans want lawyers. We believe that the German engineers are wrong in the system that they would substitute for the legal system. What is needed for an efficient civil service is a class of men and women trained to think, to see and to foresee.—*London Times Educational Supplement*.

SCIENTIFIC BOOKS

Soils, Their Properties and Management. By T. LITTLETON LYON, Ph.D., Professor of Soil Technology; ELMER O. FIPPIN, B.S.A., Extension Professor of Soil Technology; and HARRY O. BUCKMAN, Ph.D., Assistant Professor of Soil Technology, all of Cornell University. New York, The Macmillan Company. 764 pages.

This is a very complete text on soil technology, as can be seen from the following chapter heads: I. Some General Considerations; II. Soil-Forming Processes; III. The Geological Classification of Soils; IV. Geological Classification of Soils (Continued); V. Climatic and Geochemical Relationships of Soils; VI. The Soil Particle; VII. Some Physical Properties of the Soil; VIII. The Organic Matter of the Soil; IX. The Colloidal Matter of Soils; X. Soil Structure; XI. The Forms of Soil Water and their Movement; XII. The Water of the Soil in its Relation to Plants; XIII. The Control of Soil Moisture; XIV. Soil Heat; XV. Availability of Plant

Nutrients as Determined by Chemical Analysis; XVI. The Absorptive Properties of Soils; XVII. Acid or Sour Soils; XVIII. Alkali Salts; XIX. Absorption of Nutritive Salts by Agricultural Plants; XX. Organisms in the Soil; XXI. The Nitrogen Cycle; XXII. The Soil Air; XXIII. Commercial Fertilizers; XXIV. Soil Amendments; XXV. Fertilizer Practise; XXVI. Farm Manures; XXVII. Green Manures; XXVIII. Land Drainage; XXIX. Tillage; XXX. Irrigation and Dry Farming; XXXI. The Soil Survey.

Particular attention should be drawn to the all too brief chapters on the organic matter and the colloidal matter of soils, both of which are admirably done. The discussion is clear and to the point. Too often organic matter is hazily treated, and colloids neglected entirely. As a book of reference for students of soils this text is exceptionally good, not only for the subject-matter itself, but also for the profuse bibliography. But as a text for a general class in soil technology it is somewhat too comprehensive, and the subject-matter not sufficiently coordinated. The various phases of soil study are taken up as separate subjects and not treated as parts of a whole. Although the soil is a very complex material, its various functions work together and should be studied in their interrelationships.

There are a few corrections to be made. The word "protein" is better than "proteid," page 12, line 7. The formula for kaolinite on page 22 does not agree with the formula on page 9. The latter is correct. On page 128, line 14, "proteosis" should be "proteoses." There is too frequent use of the phrase "and the like" after a series of names. It is as bad as too many "and so forths."

The typography and binding are excellent. Such illustrations as are given are good, but a text should be more profusely illustrated for the average student. Good pictures well chosen add very greatly to the pedagogic value of a text-book. All things considered, however, the authors are to be congratulated on producing a book so complete, so accurate, so well written, and so useful to all students of the soil.

C. W. STODDART

STATE COLLEGE, PA.