SCIENCE

FRIDAY, NOVEMBER 1, 1912

CONTENTS

The American Association for the Advancement of Science:—
Some Chemical Relations of Plant and Soil: PROFESSOR W. J. V. OSTERHOUT 571

The Organic Constituents of Soils: OSWALD SCHREINER 577

The Drift in Secondary Education: DR. WILLARD J. FISHER 587

Scientific Notes and News 590

University and Educational News 593

Discussion and Correspondence:—
An Electromotive Force due to Mechanical Acceleration: PROFESSOR D. E. COMSTOCK. *Reversion of Amblystoma:* R. D. O. JOHNSON. *The Life Histories of the Fern Rusts of the Genus Uredinopsis:* W. P. FRASER. *"Pawlow":* PROFESSOR J. F. ABBOTT. 594

Scientific Books:—
Bonola's Non-Euclidean Geometry: PROFESSOR GEORGE BRUCE HALSTED. *Allen's Commercial Organic Analysis:* PROFESSOR W. A. NOYES. *Headley's The Flight of Birds:* F. A. L. 595

Special Articles:—
The Evening Primroses of Dixie Landing, Alabama: PROFESSOR HUGO DE VRIES and H. H. BARTLETT. *The Great Crested Grebe and the Idea of Secondary Sexual Characters:* J. S. HUXLEY. *Volcanic Action in the Black Hills of South Dakota:* N. H. DARTON 599

The International Congress of Prehistoric Anthropology and Archeology: PROFESSOR GEORGE GRANT MACCURDY 603

MSS. intended for publication and books, etc., intended for review should be sent to the Editor of SCIENCE, Garrison-on-Hudson, N. Y.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

SOME CHEMICAL RELATIONS OF PLANT AND SOIL[1]

IN order to arrive at a satisfactory theory of living matter it is evidently necessary to know what substances are indispensable to metabolism and to ascertain the rôle of each of these substances.

Despite much study it is not yet clear what constituents of the soil are absolutely needful for plants. An excellent example is found in sodium chloride, which is indispensable for animals, but is generally thought to be unnecessary for plants. This difference between plants and animals would be of fundamental importance if true in all cases, but recent experiments have shown that sodium chloride is just as necessary for many marine plants as it is for animals. It would not be surprising to find cases where sodium or chlorine are likewise necessary for land plants.

The condition in which the necessary substances exist in the soil has both practical and theoretical importance. In certain forms they are said to be "available" to the plant, in others not. A convenient method of determining quantitatively the substances which are "available" in a soil is one of the prime needs of practical soil study. In view of the difficulties with existing methods it would seem worth while to try to separate the available salts from the soil by means of an electric current.

[1] An address delivered at the Symposium on the Soil before Section G, American Association for the Advancement of Science, at Washington, 1911, the scope being limited to a brief presentation of elementary principles.