

ductive bodies (by locomotion, water, air, forcible discharge, larger animals and insects). In like summary and interesting fashion the relations of flowers and insects are pointed out, the treatment being much too brief for the average reader with the limited acquaintance with flowers and flower structure which he is supposed to possess.

Half a dozen pages are given to a discussion of the struggle for existence among plants, the factors noted being decrease of water and light, changes in temperature and soil composition, devastating animals, plant rivalry, adaptation, migration and destruction. A dozen pages are taken up with the nutrition of plants, the principal topics being photosynthesis, the manufacture of proteids, digestion (14 lines), assimilation (5 lines), respiration and 'carnivorous plants.'

The remaining chapters (XI. to XV.) are given to a discussion of plant societies, in which the factors (water, heat, soil, light and wind) are first pointed out, followed by citations of examples of hydrophyte xerophyte, mesophyte, and halophyte societies, with suggestions as to their significance. Throughout the book the illustrations are superb, and add much to its value and interest.

As a summary of the ecological view of plant life for those already well grounded in botany, the book leaves little to be desired. It will be profitable reading for the student who has had what may be called General Botany in colleges and universities, but as a first book to be used by pupils in the secondary schools it will prove to be too difficult where thoroughness and accuracy are desired, otherwise it will be found too superficial. As a book for secondary schools it calls the attention of the pupil to many interesting phenomena, whose significance he can but vaguely comprehend because of his unfamiliarity with different types of plants. It is probable that the author recognized some of these difficulties after completing the book, as in the accompanying pamphlet of 'suggestions to teachers,' he says (p. 3) "if there has been no previous study of plants it will be necessary for the teacher at the outset, to train the pupils to recognize the great groups. This may be done in a series of laboratory exercises, which

include comparison and drawing." Any teacher who has tried it, will say that the training of pupils 'to recognize the great groups' of plants ('algæ, mushrooms, lichens, mosses, ferns, gymnosperms, monocotyls and dicotyls, and if possible, liverworts, equisetums and club-mosses') is a pretty large undertaking for a half year's work, and if done well there will be little time left for the subject-matter of this book. Thus the author's own suggestions require a previous study of plants, and the book is therefore *not* a 'first book of botany.'

CHARLES E. BESSEY.

THE UNIVERSITY OF NEBRASKA.

SCIENTIFIC JOURNALS AND ARTICLES.

American Chemical Journal, October. 'On Potassium Cyanide as a Condensing Agent,' by A. Smith; 'Camphoric Acid,' by W. Noyes; 'The Action of Bromine on Metachlor-, Metabrom-, and Metaiodanilines,' by H. L. Wheeler and Wm. Valentine; 'A Simplification of Beckmann's Boiling point Apparatus,' by S. L. Bigelow. The liquid is heated by passing a current of electricity through a platinum wire immersed in the liquid. 'A Contribution to our Knowledge of Dicarboxyl Cuprous Chloride,' by W. A. Jones.

November: 'The Rate of Action of Water on Certain α -, β -, and γ -Halogen Substituted Fatty Acids,' by E. De Barr; 'The Occlusion of Hydrogen by Metallic Cobalt and other Metals,' by G. P. Baxter; 'On the Nature of the Oxyazo Compounds,' by W. McPherson; 'A Contribution to the Study of Liquid Mixtures of Constant Boiling-point,' by G. Ryland; 'The Action of Benzoyl Chloride on the Phenylhydrazones of Benzoin,' by P. C. Freer; 'Notes on the Space Isomerism of the Toluquinoneoxime Ethers,' by W. C. Morgan; 'A Dissolver,' by A. J. Hopkins. The author has devised a simple device for rapidly dissolving salts. J. E. G.

IN *The American Naturalist* for November, J. H. Comstock and J. D. Needham continue the series on 'The Wings of Insects,' with an interesting account of the development of wings containing a discussion of the origin of the tracheation of the wing. 'A Contribution to the Morphology of *Pennaria tiarella*' McCrady,

is furnished by Martin Smallwood, who also discusses the development of the Medusa and the origin of the sex cells. The Medusæ of *Pennaria* are considered to be in a degenerate condition. The 'Reversal of Cleavage in *Ancyclus*' is described by Samuel J. Holmes, who considers that it has a special significance from the fact that the left-handedness of this genus has probably arisen independently of that of *Physa* and *Planorbis*. The 'Synopsis of North American Invertebrates' is continued by C. H. Turner, who furnishes a 'key to the Fresh-Water *Ostracoda*.' In the Reviews of Recent Literature, zoology claims an unusually large share.

THE *Journal of the Boston Society of Medical Sciences* commences its fourth volume with the October number. Under the title 'Recent Additions to the Warren Museum of the Harvard Medical School,' Thomas Dwight describes briefly a series of interesting abnormal human backbones. G. Hay discusses 'A Curious Relation between the Positions, as given by Dr. Weiland, of two Linear After-Images, studied in connection with the Law of Listing, and the Corresponding Angles of two Pairs of Great Circle Planes, as given by Helmholtz.' J. H. Wright contributes three beautiful plates showing a number of 'Photographs of Malarial Parasites.'

SOCIETIES AND ACADEMIES.

THE NEW YORK SECTION OF THE AMERICAN CHEMICAL SOCIETY.

THE October meeting of the New York Section of the American Chemical Society was held on Friday evening, October 6th, at the Chemists' Club, 108 West 55th Street.

The following papers were read :

'Some Notes on the Year's Progress in Applied Chemistry,' by William McMurtrie.

'Filters for Purifying Public Water Supplies,' by Allen Hazen.

'The Mordanting and Dyeing of Silk,' by Rafael Granja.

Robert Wilhelm Eberhard Bunsen, In Memoriam. A Tribute from former Pupils.

Dr. Doremus asked for original papers for presentation at the conference to be held in Paris next August.

The question of holding an extra meeting in November was discussed, but no final action taken.

E. E. SMITH,

Sec'y Pro. Tem.

THE regular meeting of the Section was held in the assembly room of the Chemists' Club, 108 West 55th Street, on Friday evening, November 10th. Sixty members were in attendance, Dr. C. T. McKenna presiding. The following papers were read :

1. Wm. McMurtrie, 'Some Notes on the Year's Progress in Applied Chemistry.'

2. M. Trubek, 'The Technical Analysis of Licorice Paste.'

3. P. A. Levene, 'On the Chemistry of Mucin.'

Dr. McMurtrie's continuation of his paper on the year's progress in applied chemistry was full of valuable material, and covered a wide range of subjects, among them the electrolytic production of alkali, the production of ozone on a large scale for bleaching oils and purification of water, improved shorter methods for manufacture of white lead, and a very full comparison of the efficiency of different gases and gas burners, as well as recent experimental work on the cause of light in the Welshbach mantle, and the best mixtures for the purpose.

It is expected that this paper will be published in full.

The question of a joint meeting with the Philadelphia Section was brought up by the Chairman, who stated that it had been decided to postpone the proposed meeting until after the holidays.

DURAND WOODMAN,

Secretary.

THE WASHINGTON BOTANICAL CLUB.

THE tenth regular meeting of the Club was held at the residence of Mr. C. L. Shear, October 4, 1899. The evening was devoted to informal accounts of the season's work in the field. Mr. Shear described his investigations on the coast of Oregon and Washington, where he was engaged more particularly in studying the sandbinders. *Carex macrocephala*, *Poa macrantha*, and *Elymus arenarius*, he stated, were the best examples of this class of plants in that region. Mr. Pieters spoke of the peculiar conditions of plant growth in the lake district of Central Florida, each variety of soil yielding a different