

Under the head of Physics of the Ether are considered the constants of mirrors and lenses, the combinations of these to form telescopes and microscopes, the spectrometer and spectrum analysis, magnetic and electric fields of force, absolute measurements of electric current, quantity, potential difference and resistance, battery electromotive forces and resistances, the use of galvanometers, the absolute determination of capacity and comparison of capacities, electro-magnetic induction, efficiency curves for incandescent lamps, thermo-electric power, and radiation.

On the assumption that such a course should be progressive in difficulty, the last parts require decidedly greater proficiency on the part of the student. Many juniors will find it necessary to read with special care the theoretic discussion of capacity. In the exercise on radiation Boys' radiomicrometer is employed in place of thermopile and galvanometer.

The book closes with a few tables of constants, of natural functions and of logarithms.

Upon the whole, this volume is a welcome addition to the literature of the subject. Apart from some obvious typographical errors, it may be consulted with confidence in the accuracy of its statements. While many other laboratories are less generously equipped than the Ryerson physical laboratory, and therefore cannot substitute this book for local instruction cards, it contains so much of good suggestion and is so well methodized that many instructors will surely utilize it in the improvement of the instructions which they prepare for their own students.

W. LE CONTE STEVENS.

SCIENTIFIC JOURNALS.

THE *American Naturalist* for April, which has just been received, opens with an article on the Sarcostyles of the *Plumularidæ*, by Professor C. C. Nutting, followed by the third chapter of the work on the wings of insects, by Professor J. H. Comstock and Mr. J. G. Needham. The present chapter treats of the specialization of wings by reduction and is illustrated by twenty-three cuts. There are briefer articles as follows: 'A Case of Variation in the Number of Ambulacral Systems of *Arbacia punctulata*, by H. L.

Osborn; 'Relationship of the Chriacidæ to the Primates,' by Charles Earle; 'Further Notes on Thermometer Crickets,' by C. A. Bessey and E. A. Bessey; 'Pollination of the Closed Gentian by Bumblebees,' by R. J. Webb.

Popular Astronomy for June opens with an article on 'Scales of Seeing,' by Mr. A. E. Douglass, of the Lowell Observatory, in which he discusses a standard scale which he hopes will be generally adopted and used for comparison. There are articles by Dr. Herman S. Davis on women astronomers and Orrin C. Harmon on the astronomy of Shakespeare, and short articles by Messrs. E. J. Wilczyuski, J. A. Parkhurst and the editors, Professor W. W. Payne and Mr. H. C. Wilson.

A NEW journal of interest to students of agricultural science, entitled *Revue des Hybrides Franco-Américains*, has been published since January of this year by M. P. Gouy, Vals près Aubenas.

SOCIETIES AND ACADEMIES.

PHILOSOPHICAL SOCIETY OF WASHINGTON.

THE 486th meeting of the Philosophical Society was held at 8 p. m., May 28th, at the Cosmos Club. Two biographical sketches were read before the regular exercises for the evening. The first was of Mr. C. H. Kümmel by Mr. Marcus Baker, the second of Mr. Orlando M. Poe by Mr. O. H. Tittmann. The first scientific paper was by Mr. Louis A. Fischer, who described and illustrated in a general way the methods for comparing 'line' with 'end' standards. He also described in detail a special method for comparing such standards depending upon small auxiliary abutting pieces, the principal features of which are that they are very light and that the lines ruled upon them are so close to abutting surfaces (about 0.8 mm.) that the distance between the lines when the pieces are in contact with one another may be measured with the micrometer screw of any ordinary microscope. He called attention to the fact that certain systematic errors amounting to one part in 300,000 were discovered in the lengths of bars determined by the Fizean, or reflection, method at the International Bureau of Weights and Measures. This method was used