suggesting modifications and substitutions which will give the students some work for investigation in place of continuous verification.

The greater part of the descriptive sections of the 'Practical Zoology' is from the pen of the late T. Jeffrey Parker, and we note all the characteristics which made his 'Elementary Biology' so popular. It is an interesting and excellent book; and, in the reviewer's opinion, a better single volume offering a year's course in general zoology has not yet appeared.

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SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES.

SECTION OF ASTRONOMY, PHYSICS AND CHEMISTRY.

AT the May meeting of the Section, Professor R. W. Wood, of the Johns Hopkins University, read a very interesting paper on 'Anomalous Dispersion and its Bearing on Astrophysical Problems,' making special reference to the explanation of the flash spectrum in this way.

Dr. William S. Day, Columbia University, read a paper on 'An Experiment Relating to the Application of Lagrange's Equations of Motion to Electric Currents.'

The experiment described was analogous to one mentioned by Maxwell in his 'Treatise on Electricity and Magnetism,' Section 574, Volume II. Maxwell's experiment was made for the purpose of discovering whether or not in the expression for the kinetic energy of an electric current there was a term depending on the product of the current and the velocity of the conductor. In a single linear circuit having only one degree of mechanical freedom, the expression for the kinetic energy of the system in the most general case would be of the form

$$T = \tfrac{1}{2} I\dot{x}^2 + K\dot{x}\dot{y} + \tfrac{1}{2} L\dot{y}^2$$

in which $\dot{x}$ is the velocity of the mechanical coordinate, $\dot{y}$ is the current, I is a quantity of the nature of mass, L is the self-induction of the circuit, and K is the coefficient of the term consisting of products. Just what mechanical coordinate is to be represented by x is partly a matter of choice. Maxwell chose one whose velocity means a motion of the wire in the direction of its length. There is one other coordinate which seems to be geometrically possible, although it is not one that is naturally suggested by the most satisfactory hypotheses now in vogue as to the nature of an electric current. This other coordinate is one such that its velocity means a rotation of the wire carrying the current around its axis of figure. If x has this meaning, then if the coefficient K is not zero, Lagrange's equations of motion show that if a current is suddenly started or stopped in a wire there would be an impulsive torque acting on the wire. The experiment was performed to look for such an effect if it existed. A straight piece of aluminium wire 30 cm. long and 0.25 cm. in diameter was suspended by a quartz fiber in such a way that it was free to rotate, and by means of mercury cups a current could be passed through it at pleasure. No effect of the kind considered was detected. If the value of K expressed in C.G.S. electromagnetic units, and referred to a centimeter length of the wire, had been as great as 0.00002, it could have been detected.

S. A. MITCHELL.

SCIENTIFIC JOURNALS AND ARTICLES.

THE May number (Vol. VIII., No. 8) of the *Bulletin of the American Mathematical Society* contains the following articles: 'The March Meeting of the Chicago Section,' by T. F. Holgate; 'Concerning Angles and the Angular Determination of Planes in 4-Space,' by C. J. Keyser; 'Note on the Sufficient Conditions for an Analytic Function,' by D. R. Curtiss; review of Scheffers's 'Theory of Surfaces,' by J. M. Page; review of 'Recent Books on Mechanics,' by E. B. Wilson; 'The Galois Theory in Burnside and Panton's Theory of Equations,' by B. S. Easton; 'Shorter Notices'; 'Notes'; 'New Publications.' The June number (Vol. VIII., No. 9) contains: 'The April Meeting of the American Mathematical Society,' by F. N. Cole; 'The Infinitesimal Generators of Parameter Groups,' by T. J. I'a. Bromwich; 'On the Parabolas (or Paraboloids) through the Points Common to two Conics (or Quadrics),' by T. J. I'a. Bromwich; 'A Second Definition of a Group,' by E. V. Hun-