

SCIENCE

EDITORIAL COMMITTEE: S. NEWCOMB, Mathematics; R. S. WOODWARD, Mechanics; E. C. PICKERING, Astronomy; T. C. MENDENHALL, Physics; R. H. THURSTON, Engineering; IRA REMSEN, Chemistry; J. LE CONTE, Geology; W. M. DAVIS, Physiography; O. C. MARSH, Paleontology; W. K. BROOKS, C. HART MERRIAM, Zoology; S. H. SCUDDER, Entomology; C. E. BESSEY, N. L. BRITTON, Botany; HENRY F. OSBORN, General Biology; C. S. MINOT, Embryology, Histology; H. P. BOWDITCH, Physiology; J. S. BILLINGS, Hygiene; J. McKEEN CATTELL, Psychology; DANIEL G. BRINTON, J. W. POWELL, Anthropology.

FRIDAY, JUNE 3, 1898.

CONTENTS:

<i>On a Flicker Photometer</i> : PROFESSOR OGDEN N. ROOD	757
<i>The New York Zoological Park</i> : PROFESSOR HENRY F. OSBORN.....	759
<i>Engineering Notes</i> : PROFESSOR R. H. THURSTON.....	764
<i>Current Notes on Physiography</i> :— <i>Physical Geography of New Jersey</i> ; <i>Physiographic Types</i> : PROFESSOR W. M. DAVIS.....	765
<i>Current Notes on Meteorology</i> :— <i>Cyclones of the Philippine Islands</i> ; <i>Physiological Effects of High Altitudes</i> ; <i>Fog on the North Atlantic Ocean</i> ; <i>Cloud Study and Photography</i> : R. DEC. WARD.....	766
<i>Current Notes on Anthropology</i> :— <i>Ethnography of Western Asia</i> ; <i>Bibliography of Peru</i> ; <i>The Lamp of the Eskimos</i> : PROFESSOR D. G. BRINTON.....	767
<i>Scientific Notes and News</i> :— <i>Summer School of the Illinois Biological Station</i> ; <i>The International Congress of Applied Chemistry</i> ; <i>General</i>	768
<i>University and Educational News</i>	773
<i>Discussion and Correspondence</i> :— <i>Color Vision</i> : C. LADD FRANKLIN. <i>A Precise Criterion of Species</i> : PROFESSOR C. B. DAVENPORT. <i>Electrical Anæsthesia</i> : DR. E. W. SCRIPTURE	773
<i>Scientific Literature</i> :— <i>Lockyer on the Sun's Place in Nature</i> : PROFESSOR EDWIN B. FROST. <i>Astronomy</i> : PROFESSOR M. B. SNYDER. <i>Kollmann's Entwicklungsgeschichte des Menschen</i> : DR. ALFRED SCHAPER. <i>Titchener's Primer of Psychology</i> : PROFESSOR H. C. WARREN.....	777
<i>Scientific Journals</i>	782
<i>Societies and Academies</i> :— <i>The Chemical Society of Washington</i> : WILLIAM H. KRUG. <i>The Academy of Natural Sciences of Philadelphia</i> : DR. EDWARD J. NOLAN.....	782

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Prof. J. McKeen Cattell, Garrison-on-Hudson, N. Y.

ON A FLICKER PHOTOMETER.

IN the September number of the *American Journal of Science* for 1893 I described a photometric method founded on flickers which I had proved to be independent of color, and stated that there did not seem to be any reason why it should not be applied to ordinary photometric work. In January, 1896, Professor F. P. Whitman published, in the *Physical Review*, an account of a photometer with a revolving disc of cardboard, in which this flicker method was utilized with more or less success. Afterwards I constructed and experimented with five different forms of flicker photometers, and in November, 1896, read a paper on the subject before the National Academy of Sciences.

I propose here to give a short account of one of these forms, and to mention a few experiments that were made with it by myself and others.

The two sides of the white, upright, 90° prism, P, are illuminated with the lights to be compared, coming from the incandescent lamps L and L', and the flicker is brought about by the rapid motion of the cylindrical lens, or biprism of small angle, C. This is caused to oscillate horizontally by a train of toothed wheels, W, which can either be turned by hand, or better by a small electromotor, E, the speed of which is regulated by a friction break. When the apparatus is in action the two illuminated sides