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; N. L. BRITTON, Botany; HENRY F. OSBORN, General Biology; H. P. BOWDITCH, Physiology; J. S. BILLINGS, Hygiene; J. MCKEEN CATTELL, Psychology; DANIEL G. BRINTON, J. W. POWELL, Anthropology.

FRIDAY, NOVEMBER 27, 1896.

CONTENTS:

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.

THE NATIONAL ACADEMY OF SCIENCES.

A SCIENTIFIC session of the National Academy of Sciences was held at Columbia University, New York, on Tuesday and Wednesday, November 17th and 18th, and a business meeting was held on November 18th to consider the report of the President of the Academy to Congress. The President of the Academy, Prof. Wolcott Gibbs, was prevented by illness from being present, and the sessions were presided over by President F. A. Walker, the Vice-President of the Academy. The following members were present: Henry L. Abbot, J. A. Allen, George F. Barker, Carl Barus, John S. Billings, Henry P. Bowditch, William H. Brewer, Charles F. Chandler, Cyrus B. Comstock, Edward D. Cope, Edward S. Dana, Samuel F. Emmons, Benjamin A. Gould, Arnold Hague, Asaph Hall, Charles S. Hastings, George W. Hill, Joseph Le Conte, O. C. Marsh, Alfred M. Mayer, Richmond Mayo-Smith, T. C. Mendenhall, Arthur Michael, A. A. Michelson, S. Weir Mitchell, Simon Newcomb, A. S. Packard, Charles S. Pierce, Ira Remsen, Ogden N. Rood, Henry A. Rowland, Charles S. Sargent, A. E. Verrill, Francis A. Walker, William H. Welch, R. S. Woodward. There were thirty-six members in attendance, seven more than at the corresponding meeting a year ago at Philadelphia. The following papers were entered to be read:

1. *On Certain Positive-Negative Laws in their Relation to Organic Chemistry.* A. Michael.

2. *The Jurassic Formation on the Atlantic Coast.* O. C. Marsh.

3. *The Hydrolysis of Acid Amides.* Ira Remsen.

4. *The Isomeric Chlorides of Paranitroorthosulphobenzoic Acid.* Ira Remsen.

5. *The Equations of the Forces Acting in the Flotation of Disks and Rings of Metal, with Experiments showing the Floating of Loaded Disks and Rings of Metal on Water and on other Liquids.* Alfred M. Mayer.

6. *On the Geographical Distribution of Batrachia and Reptilia in the Medicolumbian Region.* E. D. Cope.

7. *On the Physical Causes of the Periodic Variations of Latitude.* S. Newcomb.

8. *On the Solar Motion as a Gauge of Stellar Distances.* S. Newcomb.

9. *Memoir of F. B. Meek.* C. A. White.

10. *The Evolution and Phylogeny of Gastropod Mollusca.* A. E. Verrill.

11. *On Flicker Photometers.* O. N. Rood.

12. *A New Type of Telescope Free from Secondary Color.* C. S. Hastings.

13. *A Graphical Method of Logic.* C. S. Peirce.

14. *Mathematical Infinity.* C. S. Peirce.

Prof. Willard Gibbs was requested to prepare a biographical notice of the late Prof. H. A. Newton, of Yale University, and Prof. S. P. Langley, a notice of the late Dr. G. Brown Goode. In addition to the serious loss the Academy has suffered in the deaths of Newton and Goode, three of the twenty-two foreign associates have died very recently, Hugo Gyldén, August Kekulé and F. F. Tisserand.

On the evening of Wednesday, November 18th, Mrs. Henry Draper gave a reception to the Academy and invited guests. In the laboratory at her house an exhibit was arranged as follows:

1. (*a*) Photograph of Delegates to the Kelvin Jubilee, June, 1896; (*b*) Radiographs, Normal and Pathological, taken by A. W. Goodspeed, Assistant Professor of Physics, University of Pennsylvania. G. F. Barker.

2. Plates of Vital Statistics of the 28 Great Cities of the United States. J. S. Billings.

3. Stereoscopic Telescope and Binocular Dissecting Microscope. H. P. Bowditch.

4. Optical Glass. Relief Plates in Color. C. F. Chandler.

5. Photographs of the new Flying Machine. S. P. Langley.

6. Views of the Lias Formation in the United States. O. C. Marsh.

7. Small Model of Interferometer. A. A. Michelson.

8. Photographs illustrating Recent Progress in the Henry Draper Memorial. E. C. Pickering.

9. Photographs showing the Effect of Pressure on the Spectrum. H. A. Rowland.

10. (*a*) Photographs and Transparencies; (*b*) Recent Geological Maps. C. D. Walcott.

RECENT ADVANCES IN MALACOLOGY.

During the past year some notable work has been published, including not only contributions to the natural history of groups, anatomy, material for monographs, etc., but also a certain number of studies which lead to a change in the point of view of whole series of evolutionary processes. As these things are too late for the latest text-books, and liable to be overlooked by teachers who are not specialists, a brief reference to some of the more important may be useful. A remarkable series of investigations by F. Bernard, on the development of hinge teeth in Lamellibranchs,* is among the most striking in the results which flow from the facts observed on the nepionic stages in many genera.

After the prodissoconch stage, when the primitive pellicle secreted by the embryonic shell gland is continuous between the valves and the ligament is simply its uncalcified median part, come the nepionic stages of which Bernard has recognized two types among the species examined. One, which is the most common, has the shell oval with an arched dorsal hingeline and convex umbones; the other has a straight hingeline, a more elongated shell and the umbones not projecting. To these might have been added the fresh water *glochidium* and *lasidium*, had species of *Naiades* or *Mutelæ* been among the forms studied. In

* Bull. Soc. Géol. de France, 3me Sér. XXIII., pp. 104–154, and XXIV., pp. 54–82, 412–449, 1896.