SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES.—SECTION OF ASTRONOMY AND PHYSICS, DECEMBER 7, 1896.

Prof. J. K. Rees gave a very interesting review of the work of Newton, Evans and others upon the probable orbit and period of the great shower of meteors which were seen in 1833 and 1866, and which are soon due again. Attention was also called to the work of Leverrier, and Opholtzer in finally settling the period of this swarm at about 33¼ years. At the request of Prof. Stone observations were made at all the large observatories, on the night in November, to see if by chance an unusual number of meteors should be observed, thus indicating that the swarm had so scattered out that some of the advanced guard would appear even three years ahead of the general mass. The number observed by Prof. Rees was no greater than normal and the results were rather negative.

H. C. Parker, upon a universal method of measuring current, showed how it is possible and convenient to measure currents varying from a fraction of a microampere to a megalampere, *i. e.*, from, say a hundred millionth, to a million amperes, simply using a voltmeter, or a delicate galvanometer, in connection with a series of shunts. He exhibited a series of such shunts ranging from 0.1 ohm to 0.00005 ohm which had been determined with the double bridge with an error not to exceed 0.1%.

W. Hallock then exhibited some mechanical devices by means of which it is possible to illustrate the interference of two beams of light with any desired phase difference, and another showing how a beam of plane polarized light is resolved into two beams at right angles to each other on entering a double-refracting medium.

Dr. T. A. Humason reported upon the meteors seen on December 4th, as follows: While riding in Central Park opposite West Seventy-second Street, at twenty minutes to five, on the afternoon of December 4th, I saw a meteor so brilliant as to be plainly visible, though it was then about sunset and quite light. The meteor caught my attention at an altitude of fifty degrees, a little south of east, and descended almost vertically and with rapid motion, until it reached an altitude of fifteen degrees, when it disappeared. The head had a diameter of about fifteen minutes and was very clearly defined. A train, two or three degrees in length, was also visible. The eastern sky was almost covered with clouds and the meteor seemed to be between them and myself, though it is probable that it was above the clouds and was seen through them. The meteor vanished in mid-air, without passing behind any intervening object, and as meteors are usually extinguished within five or ten miles of the earth it seems probable that this was near the end of its journey and not far above the city.

At the same time people on Brooklyn bridge observed a meteor in the northeastern sky. It is possible that these were one and the same; and if so, owing to the difference of direction from the two points of observation, the meteor must have been very near. But it is quite possible that the observers on Brooklyn bridge were looking at a different meteor, for another was seen at the same time from Fordham, and directly east of that place, which would have been visible in the northeastern sky from Brooklyn bridge.

At the time these meteors were seen, another was observed passing over Passaic, N. J., and moving eastward; another over Irvington-on-the-Hudson, moving northeastward, and one over Danbury, Conn., also traveling in a northeasterly direction. It is evident that this was not a single meteor seen from these several places, but that there were several meteors traveling in slightly different directions. As large meteors seldom or never travel in groups and as they are usually shattered near the end of their course, it is probable that this came into the atmosphere a single, large meteor and that it burst not far from here, the fragments taking slightly different directions. All of these observations would be satisfied by the following hypothesis: Passaic, Irvington and Danbury are almost in a straight line. It is probable that the meteor approached this neighborhood, passing over Passaic and moving eastward; that immediately after passing Passaic it separated into three or more parts, one turning slightly to the north and passing over Irvington and Danbury, another continuing in a straight line and passing over Fordham, and a third turning

slightly south and passing over New York. Another report states that a meteor was also seen over Rahway, N. J., which burst and came to the ground in four parts. This was probably another offshoot from the same original, and must have left it, if this hypothesis is correct, before it reached Passaic.

W. HALLOCK,
Secretary of Section.

SECTION OF BIOLOGY, DECEMBER 14, 1896.

PROF. J. G. CURTIS, Chairman, in the chair.

Dr. Arnold Graf made a preliminary report on 'Some New Fixing Fluids.'

Mr. J. H. McGregor read a paper entitled 'An Embryo of *Cryptobranchus*.' The embryo described is about 16 millimetres long, and is the first to be recorded of this species. Prominent among its external features are the excessive amount of yolk, the marked ventral flexure in the cervical region and the very early and almost simultaneous appearance of the two pairs of limbs. The dorsal surface is pigmented, the pigment cells being arranged in transverse bands, one band over each metamere of the body. Lateral line sense-organs can be distinguished. Among the most striking internal characters may be mentioned the dorso-ventral flattening of the notochord, the late appearance of entoderm and alimentary organs generally, due doubtless to the great mass of the yolk. The primordial skull is unusually well developed. The auditory vesicle has an endolymphatic duct ending blindly immediately under the skin on the top of the head. Along the sides of the body a system of organs occurs which are probably homologous with the embryonic sense-organs described by Beard in the sharks.

Dr. J. L. Wortman spoke of the *Ganodonta*, a new and primative suborder of the Edentata from the Eocene of North America. One section or family of the suborder, viz: the *Stylinodontidæ*, is composed of *Hemiganus*, *Psittacotherium*, *Ectoganus* and *Stylinodon*, and forms a closely connected and consecutive phylum, reaching from the base of the Puerco to the Bridger formation and leading directly to the Gravigrada or ground sloths. A second family, viz: the *Conoryctidæ*, composed of *Conoryctes* and *Onychodectes*, may be regarded as ancestral to the Armadillos. The character and origin of the Edentate fauna of South America was discussed at length and the conclusion reached that its original home was in North America. It was further held that there was a migration to the southward before the close of the Eocene and that there must have then been an early land connection between the two continents.

C. L. BRISTOL,
Secretary.

THE AMERICAN CHEMICAL SOCIETY.

THE regular meeting of the New York Section of the American Chemical Society was held, by invitation of Drs. Morton and Leeds, at the Stevens Institute of Technology, Hoboken, on the 11th inst.

An unusually large representation from the Society's membership gave attention to the proceedings.

Dr. Leeds described the development of methods for the quantitative estimation of micro-organisms in waters with especial reference to the study and control of discolorations and offensive odors in water supplies, such as afflicted the city of Brooklyn in the summer just passed; a matter entirely distinct from the bacteriology of water in a pathogenic sense, and, therefore, in nowise at issue with work of that character.

Dr. Leeds recommended that engineers in charge of water supplies should familiarize themselves with the simple apparatus and manipulation necessary to enable them to foresee the approach of conditions favorable to the growth of these micro-organisms productive of color and odor, and thus be enabled to take such steps as may be applicable to the hindrance or prevention of their development.

After the reading of Dr. Leeds' paper the Society was invited to adjourn to Dr. Morton's lecture room, where all preparations were complete for the very interesting and beautiful experiments which followed.

The causes of the phenomena of fluorescence were explained, and many illustrations given by the aid of solutions, colored screens and monochromatic light. Particularly striking were the effects produced by the substance

'Thallene,' isolated from petroleum residues some years ago by Dr. Morton.

Another adjournment to Dr. Morton's house, where the meeting was brought to a close with an informal reception.

The members present were united in their appreciation of Dr. Morton's hospitality, and the meeting must be recorded as one of the most enjoyable held by the New York Section.

DURAND WOODMAN,
Secretary.

BOSTON SOCIETY OF NATURAL HISTORY.

A GENERAL meeting was held Wednesday, December 2d, forty-eight persons present. The evening was devoted to a commemoration of the life and services of Thomas Tracy Bouvé, who had died on June 3, 1896.

Dr. James C. White read a letter from Mr. Charles J. Sprague, recalling some of the prominent characteristics of Mr. Bouvé as a man, and of his business abilities and scientific attainments. Dr. White then read an appreciative review of Mr. Bouvé's long and important services to the Society and to science. Prof. Alpheus Hyatt spoke of Mr. Bouvé's work in the Society since 1870, and Prof. W. O. Crosby gave an account of Mr. Bouvé's contributions to scientific literature, and of his work in connection with the Society's collections of minerals, rocks and fossils.

A letter from Prof. James Hall, reminiscent of the early days of the Society and of the services rendered to science by Mr. Bouvé and several of his associates, was read; also letters from Profs. Goodale and Putnam.

SAMUEL HENSHAW,
Secretary.

THE ALABAMA INDUSTRIAL AND SCIENTIFIC SOCIETY.

THE regular winter meeting of the Society was held in the city of Birmingham on Tuesday, December 15, 1896. Mr. Fred. M. Jackson, President of the Society, was in the chair, and ten members were present. A committee appointed at the last meeting to arrange for the collection, monthly, of statistics of the iron ores, coal, coke, limestone and other mineral resources and products of the State, reported by recommending a plan by which the collection of these statistics would be undertaken by Mr. W. M. Brewer, under the auspices of the Society and of the State Geological Survey. The plan recommended by the committee was adopted, and it is the intention to prepare monthly tables of statistics, to be furnished to such of the technical journals as may wish to publish them, and to be kept on file in the offices of the Secretary of the Society and of the State Geologist.

Two papers were presented, viz.: On Gold Milling in Clay County, Alabama, in the Idaho district, by Joshua Franklin, and on the Manganese Deposits of Georgia, by Wm. M. Brewer.

Mr Franklin gave the details of his recent experience in treating with profit the low-grade gold ores of Clay County with a Huntington mill, shaking coppers, blanket sluices and amalgam traps. The paper of Mr. Brewer was read by title only, being delayed in the mail.

After the reading of the papers there followed an instructive discussion of the subject of coke-making, Dr. Phillips, Mr. Jackson, Mr. Erskine Ramsay, Col. A. J. Montgomery and others taking part therein. The great importance of the recovery of the by-products of the coking ovens was particularly dwelt upon. This subject has often been discussed at previous meetings, and a number of experiments have been made at several points near Birmingham with a view to utilizing some, at least, of these now generally wasted products.

The next meeting, at which the officers for the ensuing year will be elected, will be held some time about the beginning of the summer months.

EUGENE A. SMITH,
Secretary.

NEW BOOKS.

Habit and Instinct. C. LLOYD MORGAN. Edwin Arnold, London and New York. 1896. Pp. 351.

Outlines of Psychology. WILHELM WUNDT. Translated by Charles Hubbard Judd. Leipzig, Wilhelm Engelmann. Pp. xviii+342.

Outlines of Electricity and Magnetism. CHARLES A. PERKINS. New York, Henry Holt & Co. 1896. Pp. viii+272.

Star Atlas. WINSLOW UPTON. Boston and London, Ginn & Co. 1896. Pp. iv+29 and plates.