SCIENCE.

FRIDAY, NOVEMBER 23, 1883.

THE NOVEMBER MEETING OF THE NATIONAL ACADEMY OF SCIENCES.

For the first time in nineteen years, and the second time in its history, the National academy held its mid-year meeting in New Haven, Nov. 13–16. Thirty-three of the ninety-three members were in attendance, and during its four days' session twenty papers were presented.

The meeting was conspicuous for the discussion which most of the papers called forth, and for the general participation of the members in these discussions. It was interesting, also, for the report of the committee on the solar eclipse of last May, which included the detailed reports of the expedition to Caroline Island by the principal participants, Professors Holden and Hastings. It will further be remembered by the members from other cities for the marked hospitalities they received at the hands of their confreres of New Haven, and for its many social pleasures, culminating in the brilliant public reception given them by the president, Professor Marsh, at his residence. The new buildings recently finished, or in process of erection, for the furtherance of scientific research and instruction in Yale college, were also examined with interest, together with the treasures of the Peabody museum, where the finely mounted collections of Professors Verrill and E. S. Dana, and the fossil vertebrates of Professor Marsh, called forth much admiration.

The generous discussion to which the papers gave rise was provoked at the very start by the paper of Dr. Graham Bell upon the formation of a deaf variety of the human race, which had a broad, practical interest, and which consumed the entire morning session of the first day. Mr. Bell claimed, that, from purely philanthropic motives, we were pursuing a method in the education of 'deaf-mutes' distinctly tending to such a result, supporting his assertions by statistics drawn from the published reports of the different institutions in this country devoted to the care of these unfortunates. They are separated in childhood from association with hearing-children, and taught what is practically a foreign language, — a practice which isolates them from the rest of the community throughout their lives, and encourages their intermarriage. Such marriages were increasing at an alarming ratio, and with calamitous results. As a remedy for this danger, Dr. Bell would have the children educated in the public schools, thus bringing them into contact with hearing-children in their play, and in instruction wherever they would not be placed at a disadvantage, as in drawing and blackboard exercises. He would also entirely discard the sign-language, and cultivate the use of the vocal organs, and the reading of the lips.

The report on the solar eclipse covered a variety of topics, and will fill some hundred and fifty printed pages. In presenting it, Prof. E. S. Holden merely touched upon the principal points, and gave the leading results, in much the same form as they have already been given in this journal. The objects of the expedition were successfully carried out; and Professor Holden regarded his special work — the search for a possible planet interior to Mercury — as proving the non-existence of the small planets reported by Professors Watson and Swift.

Dr. C. S. Hastings read in full the greater portion of his report upon the spectroscopic work, which concluded with a critical review of the generally received theories of the solar atmosphere, and suggested, instead, that the corona was a subjective phenomenon, largely due to the diffraction of light.

The presentation of these reports occupied the entire morning session of Wednesday, and their discussion the greater part of the afternoon session.

In criticising the current use of the word 'light' in physics, Professor Newcomb opened a long and interesting discussion. He urged that photometric measurements were comparatively valueless, because they estimate a part only of the radiant energy of the sun; whereas the quantity which should be determined was the number of ergs received per square centimetre. Professor Langley, however, asserted that it would be impossible to estimate the radiant energy received from the stars with our present appliances: not all the stars combined would produce deflection, even in so sensitive an apparatus as the bolometer.

Another feature of marked interest was Professor Rowland's exhibition of photographs of the solar spectrum, obtained by his new concave gratings, by which he had prepared a map of the spectrum much more detailed than heretofore secured, and free from the defects of scale found in previous photographs.

Professor Asaph Hall communicated the results of his researches upon the mass of Saturn, based upon new measurements of the distances of the outer satellites. He determines the relative mass of the sun to that of Saturn to be as 1 to $\frac{1}{3482}$.

Professor Brewer took the occasion of the academy's meeting in the city of his residence to exhibit samples of his experiments of many years' duration upon the subsidence of particles in liquids. They showed the action of saline and organic matter, of acids and of freezing, upon the precipitation of sediments. Most of the samples had been undisturbed for five or six years, and showed varying degrees of opalescence, resulting from the suspension of matter in the fluid.

We have mentioned only the more important papers, or those which provoked a fuller discussion than usual. The following complete list will show how largely the physical side of science predominated at the meeting. In *astronomy*, besides the reports on the eclipse of May 6, papers were read by A. Hall, on the mass of Saturn; by S. P. Langley, on atmospheric absorption; and by O. T. Sherman (present by invitation), on personality in the measures of the diameter of Venus: in *mathematics*, by S. Newcomb, on the theory of errors of observation, and probable results: in *physics*, by S. Newcomb, on the use of the word 'light;' by W. H. Brewer, on the subsidence of particles in liquids; and by H. A. Rowland, on a new photograph of the solar spectrum: in *meteorology*, by E. Loomis, on the reduction of barometric observations to sea-level: in *geology*, by T. S. Hunt, on the Animikie rocks of Lake Superior; by J. D. Dana, on the stratified drift of the New-Haven region; by B. Silliman, on the mineralogy and lithology of the Bodie mining-district; and by J. S. Newberry, on the ancient glaciation of North America: in *chemistry*, by W. Gibbs, on phospho-vanadates, arsenio-vanadates, and antimonio-vanadates, and on the existence of new acids of phosphorus: in *physiological chemistry*, by R. H. Chittenden (present by invitation), on new primary cleavage forms of albuminous matter: in *paleontology*, by J. Hall, on the Pectenidae and Aviculidae of the Devonian system; and by O. C. Marsh, on the affinities of the dinosaurian reptiles: in *anthropology*, by A. G. Bell, on the formation of a deaf variety of the human race; and by J. W. Powell, on marriage institutions in tribal society.

The report of the committee on glucose, appointed by the president in conformity with a request from the government, was accepted by the academy, and will be transmitted to Congress with the president's report. This will also embody the proceedings of recent meetings of the academy, the report of the committee on alcohol, and that on the eclipse of the sun, together with the thanks of the academy to the secretary of the navy and the officers of the Hartford for their co-operation in the expedition to Caroline Island. It will also include an expression of the approval of the academy of the efforts now making to secure a system of uniform time.

The next stated session of the academy will be held in Washington in April next, and it is probable that the following mid-year session will be held in Cambridge.