eggs. It is thus larger than an ostrich egg, but much smaller than the egg of the Epiornis, which is equal to 148 hen's eggs.—Various plants and other specimens were presented.

VIENNA

Imperial Academy of Sciences, Nov. 6.—Prof. Mach presented a paper on physical experiments as to the sense of equilibrium in man. From experiments on himself, he is led to think that Flourens' turning phenomena, the orientation of equilibrium and of motion, the phenomena of giddiness, certain optical movements, &c., may be explained by supposing that the nerves of the ampullæ of the semicircular canals respond to every stimulus (which commonly involves a turning of the contents of the canal), with a sensation of turning.—Dr. Boué gave results of 33 years' observations on the circumstances attracting lightning strokes. He points out that the lightning often strikes low objects, though higher may be nearer; and he considers that constancy of course, in thunder clouds (from presence of mountain chains, &c.) and repeated discharges at particular points, may afford an explanation, in the superior attraction, viz. of subterranean masses of metal in certain regions.—Prof. Niemtschik made a communication on the construction of an ellipse inscribed in a circle, centre and tangent being given.

Nov. 13.—Prof. Pfaundler described three forms of apparatus he had devised for showing the composition of vibrations occurring at right angles to each other.—M. Stefan gave a paper on evaporation, examining theoretically the experiments lately described. From the formulæ of his dynamical theory of gases, he calculates the mean courses of the vapour-molecules of ether and sulphuretted hydrogen from one collision to the next; these are 23 and 32 respectively, the millionth part of a millimetre being taken as unit; also, from these, the diameter of the molecules; which are 0·9 and 0·7.

Nov. 20.—M. Puschl presented a paper on the co-motion (*Mitbewegung*) of light in moved media. He states the following conclusions: (1) Through participation of the ponderable atoms in propagation of light, the latter may, in various bodies, be more or less retarded, but in no case is it considerably accelerated. (2) The specific refractive power of a body is connected with the substance of its atoms, and independent of its density, so long as the internal nature of the atom substance remains the same. (3) The internal nature of atoms is modifiable through external pressure, crystallisation, solution, mixture, and especially chemical action. (4) The ether waves sent out from substances themselves are not produced immediately through the motions of the atoms as a whole, but mediately, through corresponding disturbances and concussions of the atom substance, which vibrates in the periods natural to it, according to the specific elasticity and the dimensions of the atoms.—Prof. Luess read a paper on the earthquakes of Southern Italy. He specified some points, in Sicily, and neighbouring islands, from which shocks spread radially in various directions (Etna, however, not being one of these centres); in other cases the earthquakes seemed to take a quite irregular course.—Dr. Weiss made some observations tending to identify the comet lately discovered by Coggia and Winnecke with Comet 1818 I.—M. Payer presented some fossils brought by the Weyprecht expedition from Spitzbergen.

BOSTON, U.S.

Natural History Society, Nov. 19, 1873.—Mr. F. W. Putman gave an account of the anatomy of *Bdellostoma*, and compared it with that of *Myxine* (known as hag-fish), illustrating his remarks with series of dissections, showing the brain, skeleton, intestine, ovary, liver, heart, branchial sacs, &c. These two genera of fishes form the family of *Myxinidæ*, and have similar habits and a very close external resemblance, although they can be readily distinguished by the number and position of the brandial outlets, and by the position of the œsophageal duct. Mr. Putnam said that his dissections, though in great part repetitions of those of Müller, made over thirty years ago, showed conclusively the natural separation of the genera by their internal structure.—Mr. L. S. Burbank read a paper on the "Surface Geology of North Carolina," with especial reference to some phenomena of Northern drift. From the facts noted the following inferences may be drawn:—(1) The time which has elapsed since the close of the drift period must be very short compared with the previous ages, during which the solid ledges were disintegrated by chemical and atmospheric agencies. 2) Boulders of the drift do not, in general, owe their rounded forms to attrition by glacial action, but, while still in place, assumed these forms by disintegration and exfoliation. (3) Whatever the force or agency of the drift may have been, it did not produce the great mass of the drift material by mechanical action in wearing and grinding down the solid rocks, but has merely carried forward and commingled the materials already disintegrated.—The secretary read an extract from a letter dated St. John's, Newfoundland, Nov. 10, 1873, from Mr. Alexander Murray, the geologist of Newfoundland, to Professor Jules Marcou, giving an account of a remarkable marine monster, which recently made its appearance off the shores of that island, and of a severed arm or tentacle of the same in his possession. The tentacle measured on October 31, having then been several days in strong brine and shrunk in consequence, seventeen feet, but was said to have measured nineteen feet previously.

PARIS

Academy of Sciences, Jan. 12—M. Bertrand in the chair.—The following papers were read:—Tables of Jupiter, by M. U. J. Leverrier. The author finds that the influence of all the small planets on Jupiter is inappreciable.—Third memoir on chemical dynamics, by M. Becquerel. This paper dealt with the action of water in chemical combinations and with the effects of water and other liquids acting as electrodes.—On the distribution of magnetism in soft iron, by M. Jamin.—On the heat set free by the combination of nitrogen with oxygen, by M. Berthelot.—On the osteology of the anterior limbs of the *Ornithorhyncus*, &c., as compared with that of the corresponding members of reptiles, birds, and mammalia, by M. Ch. Martins.—On the problem of three bodies, by M. F. Siacci.—Studies on diffraction, by M. A. Cornu. The author gave a method for the geometrical discussion of diffraction problems.—On the physiology of the flight of birds in relation to the action of the wing on the air, by M. Marey.—Organogenesis compared with androgenesis (*l'androcée*) in its relation with natural affinities (class of *Cruciferæ*), by M. Ad. Chatin.—On the transformation of the vibroscope into a tonometer, and on its use for determining the absolute number of vibrations, by M. A. Terquem.—On chloral and its combinations with albuminous substances, by M. J. Personne.—On an acoustic pyrometer, by M. J. Chautard. This instrument depends on the variation of wave-length of a sonorous wave when the vibrating air is heated.—On a re-agent paper for detecting urea, by M. Musculus.—On the formation of gum in fruit trees, by M. Ed. Prillieux.—Researches on the glands of *Rosa rubiginosa* and on their contents, by M. R. Guérin.—On the geometrical properties of rational fractions, by M. F. Lucas.—On theorems of indeterminate analysis, by Father Pepin.—On the action of definite ternary systems compounded of mannite, borax, and water on polarised light, by M. L. Vignon.—On the artificial production of crystals of calcic oxalate resembling those produced by plants, by M. Vesque. The method consisted in causing solutions of potassic oxalate and calcic chloride to mingle very slowly in a third neutral liquid by causing them to flow through strips of blotting paper, or one solution and the neutral liquid were mixed and the other introduced in the same way, or the solutions were diffused into each other through a dialyser.—Notes on the storms of the year 1869, by M. Fron.

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ERRATUM.—Vol. ix. p. 128, 1st col. line 35, for "18 degrees" read "180 degrees."