

be utilized for the construction of electric dynamometers.—Fauna of the "Upper Taconic" of Emmons, in Washington County, New York, by Charles D. Walcott. This paper deals specially with the fauna represented by *Atops trilineatus* and *Elliptocephala asaphoides* from the black Taconic slate near Bald Mountain, Washington County, as described by Dr. Emmons in his second memoir on the "Taconic System." The paper is accompanied by a plate illustrating nineteen specimens of this fauna.—On the amount of moisture remaining in a gas after drying by phosphorus pentoxide, by Edward W. Morley. This quantity is here determined by the method applied in the case of sulphuric acid, the process consisting in drying the gas with phosphorus pentoxide and then passing it through a weighed apparatus in which the gas is first slightly moistened, then much expanded, and lastly again dried by phosphorus pentoxide.—Is there a Huron group? by R. D. Irving. In this paper the author inquires whether there can be carved off from the upper part of the great complex of rocks ordinarily known as Archæan, a *Huronian* series, entitled to rank with such groups as the Cambrian, Siberian, &c. In this first part of the memoir it is shown that the series on the north shore of Lake Huron mapped by Logan on Plate iii. of the atlas to the geology of Canada (1863) is entitled to rank as a separate group by its intrinsic characters and its structural distinction from the older Archæan and younger Cambrian and pre-Cambrian rocks of that region.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 3.—M. Hervé Mangon in the chair.—On some properties relative to the action of crystalline plates on light, by M. Mascart. It is shown that a system of waves on the same plane traversing a crystalline plate with parallel faces is decomposed into two systems of polarized waves with unequal retardation which at the exit are reconstituted in a system of waves in a state of vibration different from the first. From this is deduced the theorem that the action on light of any group of crystalline plates, endowed or not with rotatory power, is equivalent to that of a single plate with axis parallel to the incident axis and perpendicular to the incident rays.—On an experiment with M. D. Colladon's artificial waterspout, by M. Mascart. The action of this ingenious apparatus, as well as that of M. Weyher, seems to show that there is undoubtedly an ascending movement in the central part of all cyclonic phenomena. With regard to the recent waterspout in Lake Geneva, it is pointed out that the ascending motion stated to have been witnessed by M. Dufour and other observers, could scarcely be an optical illusion, as maintained by M. Faye. Some of the water seen to ascend was afterwards precipitated as rain, drenching some men engaged on the railway.—Remarks on M. Colladon's recent experiment, by M. Faye. In reply to the foregoing, it is pointed out that in a series of remarkable experiments conducted under like conditions, M. von Bezold, Director of the Berlin Central Meteorological Observatory, has, on the contrary, produced a descending movement in the direction of the long axis. But M. Faye rejects both classes of experiments, holding that his theory is neither refuted by the first, nor confirmed by the second, as none of the apparatus in question really succeeds in reproducing a natural waterspout.—Experimental study of human locomotion, by MM. Marey and Demy. In continuation of their previous communications on this subject, the authors here analyze, by means of the photochronographic process, the movements of the trunk in walking and running. The accompanying diagrams show the successive figures of a runner photographed from above at intervals of one-tenth of a second.—On the non-existence of spontaneous tetanus, by M. Verneuil. The existence is denied of spontaneous or medical as opposed to traumatic or surgical tetanus. It is shown, however, that besides the latter there also exists a variety of the disorder, for which the term tetanus by absorption is proposed.—Researches on the apparently spontaneous movements of contraction and relaxation which after death are continued in the muscles so long as the *rigor* lasts, by M. Brown-Séquard. The results are described of numerous experiments carried out on rabbits, dogs, and monkeys by means of the graphic process, showing that complex muscular action continues after death throughout the whole period of *rigor mortis*; that is, until putrefaction sets in, which may at times be deferred for several weeks. The action is mostly irregular, but occasionally almost rhythmic, and the more decided movements occur not in the

early stages, but towards the end, sometimes in the second, third, and even fourth week. It is made clear that they cannot be attributed to changes of temperature, variations of humidity or ozone, barometric pressure, or other atmospheric influences, nor yet to magnetism or electricity, at least to any great extent. It will be shown in a future communication that they are due to the persistence of muscular irritability; that is, to the fundamental property of the living muscular tissue surviving till arrested by putrefaction.—General results of fresh studies on several series of fatty and aromatic monamines, by M. Malbot. These studies deal with the ethylamines, the propylamines, butylamines, amylamines, caprylamines, and aromatic amines. Their whole history is cleared up, and a general interpretation is arrived at of their formation. Whether occurring in the free state or in combination, they result from a conflict of energies between the rival affinities of ammonia and the amines for the ether and its acid. With regard to their formation, the author's experiments seem to favour the ethylene theory of Berthelot rather than that of ethyl advocated by Hofmann.—A memoir on the syphon barometer was presented by M. Govi, who credits Torricelli with the first idea, and Pascal with the practical execution and first employment of this instrument, the invention of which has been successively attributed to Robert Hooke, Robert Boyle, and Borelli. He shows that the principle was known to Torricelli in 1644, when he used it to explain to Ricci the theory of the cistern barometer; also that Pascal was acquainted with it in 1653, while Hooke mentions it for the first time in 1665, Boyle in 1666, and Borelli in 1667.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

The Student's Hand-book to the Microscope: A Quekett Club Man (Roper and Drowley).—Weather: Hon. Ralph Abercromby (Kegan Paul).—Our New Zealand Cousins: Jas. Inglis (Low).—Our Fancy Pigeons: George Ure (Mathew, Dundee).—The Solomon Islands and their Natives: H. B. Guppy (Sonnenschein).—The Solomon Islands, their Geology, &c.: H. B. Guppy (Sonnenschein).—A Sketch of Geological History: Prof. E. Hull (Deacon).—Factors in Life: Prof. H. G. Seeley (S.P.C.K.).—Pictorial Geography of the British Isles: M. E. Palgrave (S.P.C.K.).—Sixth Annual Report of the U.S. Geological Survey: J. W. Powell (Washington).—Journal of the Royal Statistical Society, September (Stanford).—Mind, October (Williams and Norgate).

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