

county boroughs is that many of the councils have either erected or decided to erect, technical schools, or have taken over existing schools, for the purpose of supplying technical instruction under their direct control, to which they have decided to apply the whole of the funds at their disposal, which in some cases include the proceeds of a rate levied under the Act of 1889."

At the Cambridge summer meeting, recently concluded, a lecture was delivered in the hall of St. John's College, on the late John Couch Adams, by Dr. Donald MacAlister. The lecture gained in interest from the fact that Dr. MacAlister was a personal friend of the late professor, and was in consequence able to supply many interesting details as to his life. This was particularly the case when speaking of Dr. Adams' early training. Many know that Adams was a sizar of St. John's, but perhaps few realise what a strenuous course of self education had preceded his election. He taught himself algebra when a boy at his father's farmhouse in Cornwall, and prepared himself for Cambridge at a country school and at the local Mechanics' Institute. A curious entry is to be found in Adams' diary for June 26, 1841, during his second year at Cambridge: "Went to Johnson's (the bookseller in Trinity Street) and read Professor Airy's report on the state of astronomical science," showing, as Dr. MacAlister explained, that his interest lay in that direction at that time as at a slightly later date. In the Tripos it is well known that Adams was as far above the second wrangler, in an exceptional year, as the second was above the wooden spoon. In a surprisingly short space of time, by 1846, Adams became celebrated for his discovery of Uranus, but it may not be remembered that for a short time he was a Professor at St. Andrews. On his return to Cambridge as the Lowndean Professor, he became associated with Pembroke College, as from 1853 he was a Fellow there. The University, as a memorial, has undertaken the publication of his works, and a monument of some kind is shortly to be placed in Westminster Abbey.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, August 28.—M. Lœwy in the chair.—On a typhoon of last year in the China seas, by M. H. Faye.—R. P. Chevalier, Director of the Meteorological Observatory of Zi-Ka-Wey, has sent an account of the terrible typhoon of October 7-10, 1892, which led to the loss of the British mail steamer *Bokhara*, to M. Faye. A close study of the phenomenon has revealed the fact that there was no high-pressure area for a distance of 600 to 1000 miles round the centre. This result is entirely in opposition to Ferrel's theory which asserts that every cyclone is surrounded by a high-pressure area representing an anti-cyclone. P. Chevalier is also convinced that in low latitudes cirrus clouds form a constant indication of a distant typhoon. According to him, the centre of a typhoon and its direction are indicated by the point on the horizon whence the cirri appear to diverge, an observation which would locate the origin of typhoons in the region of low-latitude cirri, *i.e.* at a height of about 1200 or 1300 m., instead of at the surface of the earth, as often supposed. But P. Chevalier believes that the interior motions of the cyclone are represented by rectilinear convergent trajectories curved by the rotation of the earth, so that the air ascends in all the phenomena, except at the centre, where even he does not go so far as to deny the descending movement so clearly observed by Manille. He observes, however, that the foot of the cyclone was lifted above the surface at intervals, to descend in another portion of its track, and that it was independent of the nature of the ground, thus characterising itself as a phenomenon originating in the higher atmospheric strata exclusively.—Chrono-photographic study of the different kinds of locomotion in animals, by M. Marey.—In order to photograph different animals in motion, reptiles must be placed in a sort of circular canal where they can run on indefinitely, the chrono-photographic apparatus being placed above this canal. Fishes are made to swim in a similar canal filled with water illuminated from above, so that they appear dark on a light ground, or from above, so as to appear light on a dark background. The principal difficulty lies in causing the animal to move in its natural manner. Some interesting analogies may be observed between simple creeping and more complex movements. An eel and an adder progress in the water in the same manner; a wave of lateral inflexion runs incessantly from the head to the tail, and the speed of background propagation of this wave is

only slightly superior to the velocity of translation of the animal itself. If the eel and the adder are placed on the ground, the mode of creeping will be modified in the same manner in the two species. In both, the wave of reptation will have a greater amplitude, and this amplitude grows more and more as the surface becomes smoother. In fishes provided with fins, and in reptiles possessing feet, there remains, in general, a more or less pronounced trace of the undulatory motion of reptation. The grey lizard, when photographed at the rate of forty or fifty exposures per second, exhibits this clearly, and also reveals the fact that the mode of progression by means of the feet is diagonal, and analogous to trotting. This gives rise to an alternation of convexity and concavity in the body on each side.—On a property of a class of algebraic surfaces, by M. Georges Humbert.—On the third principle of energetics, by M. W. Meyerhoffer.—The new principle recently added by M. Le Chatelier to thermodynamics, to the effect that every form of energy may be decomposed into two factors, one of which is of a constant magnitude, was enunciated two years ago by M. Meyerhoffer in the following form: everything which takes place in the world consists of processes in which the different capacities change their potential without changing in quantity, where the two factors are the capacity (*Inhalt*) and the potential.

GÖTTINGEN.

Royal Society of Sciences.—The *Nachrichten* (April to June) contains the following papers of scientific interest.

April.—H. Weber: Researches in the Theory of Numbers in the domain of Elliptic Functions, III. Th. Liebisch: The Spectrum Analysis of the Interference Colours of Biaxial Crystals. G. Bodländer: Experiments in Liquids containing Substances in Suspension, I.

June.—Lazarus Fletcher: Remarks on the Catalogue of the Meteorite Collection of the Göttingen University. F. Kohlrausch and W. Hallwachs: On the Density of Dilute Watery Solutions (with diagrams). F. Hultsch: The Approximate Values of irrational square roots given by Archimedes (with diagrams).

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