

to the influence of a memoir by Hann, published some ten years since, and then points out that the idea was further developed in von Helmholtz's "Mechanics of the Earth's Atmosphere." He then expounds his own method, and closes with the hope that it may lead meteorology out of the region of vacillating ideas that now control it into a broader field, and "place it among the exact sciences, where everything is reduced to numerical computation, and thus, to an important extent, further its application to daily practice."—Prof. Osgood writes on some points in the elements of the theory of functions.—On the motion of a homogeneous sphere or spherical shell on an inclined plane, taking into account the rotation of the earth, by Prof. A. S. Chessin, discusses some interesting illustrations akin to Foucault's experiments with the pendulum and the gyroscope.—From the Notes we learn that the Council have arranged for a colloquium in connection with their summer meeting at Buffalo, at which are to be delivered two courses of six lectures each, viz. on the subject of linear differential equations and their application, by Prof. M. Bôcher, and on the Galois theory of equations, by Prof. J. Pierpont.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, August 10.—M. A. Cornu in the chair.—Researches on cyanic acid, by M. Berthelot. By studying the reaction between acetic acid and potassium cyanate it was found to be possible to separate the heat evolved by the simple replacement of the cyanic by acetic acid, from the heat evolved in the subsequent decomposition into ammonia and carbon dioxide. The value thus found for the heat of neutralisation of cyanic acid (12.25 calories) was confirmed by the observation that no reaction takes place between potassium cyanate and boric acid (heat of neutralisation, 11.6 calories).—Researches on the volatility of lævulic acid, by MM. Berthelot and André. Lævulic acid is slightly volatile *in vacuo* at ordinary temperatures. Analysis of the residual acid showed that its composition was not quite the same as the original acid, possibly owing to the formation of an anhydride.—On the reactions taking place in the cold between phosphoric acid and ether in the presence of water, by MM. Berthelot and André.—M. Marcellin Langlois presented two memoirs on thermochemistry.—On the lunar photographs offered to the Academy by M. Weinek, Director of the Prague Observatory, by M. Lœwy.—On the part played by the dielectric in the discharge by the Röntgen rays, by M. Jean Perrin.—Photography in the interior of a Crookes' tube, by M. G. de Metz. By the use of the method previously described, it has been found possible to draw up tables of relative permeabilities to X-rays and kathode rays. With the exception of lead, which is slightly more transparent for the kathode rays than for the X-rays, the two tables are identical, and even this exception appears to be capable of explanation. The kathode rays, like the X-rays, appear to be non-polarisable.—Remarks on the preceding communication, by M. H. Poincaré. In the experiments described in the previous paper, the kathode rays have to traverse a piece of card. It has still to be shown that this card does not give out X-rays.—Researches on the principles of vegetable digestion, by M. V. Poulet. The carefully-cleaned root-hairs of a number of plants gave, on pulverising and extracting with dilute acid, traces of ferrous tartrate. This appears to play an important part in the process of vegetable digestion; and it is suggested that, in the absence of iron in the soil, it is the non-formation of this salt which causes etiolation: that chlorophyll itself in the pure state contains no iron, being now well established.—On a new property of the corpuscle of the silk-worm disease, by M. J. M. Krassiltschik.—On the heterogamic fertilisation of the algæ *Ectocarpus secundus*, by M. C. Sauvageau.—Alteration in the elimination of phosphates, under the influence of the Röntgen rays, by M. L. Lecerle. The rate of elimination of phosphorus appears to be increased.

NEW SOUTH WALES.

Linnean Society, June 24.—Mr. Henry Deane, President, in the chair.—A new family of Australian fishes, by J. D. Ogilby. In this paper the author proposed to segregate in a new family, under the name *Melanoteniidae*, certain small fresh-water

percesocoid fishes belonging to the Austrogaean region, which differ from all other members of that group by the structure of the first dorsal fin, which consists of a single stout and pungent ray followed by two or more flexible unarticulated rays; by the thoracic insertion of the ventral fins, &c.—New genera and species of Australian fishes, by J. D. Ogilby.—On the Australian *Cliviniidae* (Fam. *Carabidae*), by T. G. Sloane. Thirty-one new species of *Clivina* were described, bringing the total for Australia up to eighty-three, divisible into thirteen groups.—On the bag-shelters of certain lepidopterous larvæ of the genus *Teara*, by W. W. Froggatt. A general account is given of the curious bag-like diurnal shelters fabricated by the gregarious larvæ of moths of the genus *Teara*, with particulars of the life-history of *T. contraria* bred from nests obtained near Sydney.—Diatomaceous-earth deposits of the Warrumbungle Mountains, by Prof. T. W. E. David.—In the neighbourhood of the diatomaceous-earth deposits two formations are represented: (1) the permo-carboniferous coal measures and (2) trachyte lavas, dykes and tuffs, with which last are associated the deposits of diatomaceous-earth, and a seam of lignite. At one of the outcrops, fossil leaves (*Cinnamomum Leichhardtii*, Ettingsh.) occur on a horizon immediately above and intimately associated with the diatomaceous-earth. The latter is largely made up of diatoms (the genus *Melosira* predominating) and sponge spicules; and the age of the deposit is provisionally set down as early Eocene or late Cretaceous. The author emphasised and discussed the significance of the fact that all the diatomaceous deposits hitherto found in New South Wales occur in association with volcanic rocks.

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