

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The preliminary resolutions in reference to the admission of graduates of other Universities to courses of advanced study and research were passed *nem. con.* by the Senate on April 25. The Syndicate for the purpose will now proceed to frame the detailed regulations for carrying the scheme into effect.

An Exhibition of fifty guineas a year for three years is offered by the Clothworkers' Company for the encouragement of Physical Science. Candidates must be non-collegiate students of one term's standing, or persons not yet in residence who propose to become non-collegiate students next October. The examination will be held next July. Information as to conditions, &c., may be obtained from the Censor, Fitzwilliam Hall, Cambridge.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, April 22.—M. Marey in the chair.—On the effects of the air carried below, without gyration, in the interior of tempests, water-spouts, and tornados, by M. H. Faye. The author shows that water-spouts are of the same type as, though on a smaller scale than, cyclones and typhoons. He illustrates by an experiment the character of the air-movements in the case of a water-spout. A gyratory movement at the base of a cloud causes the formation of a descending cone which has no effect below until the apex reaches the ground or water, when the air from above carried down in the centre of the cone escapes with violence in every direction. The phenomenon consists then of an interior comparatively calm core, down which proceeds air from the upper regions, and this is surrounded by a shell of cloud having a rapid rotatory motion. The analogy of the air-movements in cyclones and typhoons is brought out by a detailed consideration of (1) a storm encountered by the corvette *l'Églé*, (2) a typhoon which passed centrally over Manila Observatory on October 20, 1882. The calm column in the latter case was much hotter (11°) and drier than the surrounding shell of storm; the direction and force of the wind, temperature, and humidity were continuously registered, and completely bear out the explanation advanced.—On a new type of wells in the granitic rocks of Sweden, by M. Nordenskiöld. These are artesian wells bored to a depth of from 30 to 50 metres in solid crystalline rocks in the hope of meeting with water coming through horizontal cracks expected to occur in the mass owing to the variations of temperature suffered by the surface portions. Such cracks supplying sweet water have invariably been encountered at a depth of 33 to 35 metres.—On a new deposit containing uranium, by M. Nordenskiöld. A uraniferous substance giving nitrogen (see "Notes," p. 8). Crystals forming at the bottom of a solution of greater specific gravity than themselves, by M. Lecoq de Boisbaudran. The inverse effect to that previously described by the author, where substances were shown to crystallise under some circumstances at the top of solutions of less specific gravity than the crystals. Crystals of sodium sulphate, floating on a solution of sodium iodide saturated with the sulphate, gradually disappeared, re-crystallising around a sulphate crystal previously fixed at the bottom of the solution. The same phenomenon occurs with ice in a dilute ammoniacal solution. This action depends on small temperature variations, as previously explained.—Every algebraical surface may be described by means of an articulated system, by M. G. Koenigs.—On curves of the fourth class, by M. Georges Humbert.—On the dilatation of water, by M. Stéphane de Lannoy. The author discusses the dilatometer method of taking the expansion of water, and tabulates his results with three instruments. A table is then given comparing the mean results with Rosetti's values, and with the corresponding quantities calculated from these values for the same temperatures by the air-thermometer.—Specific heat and boiling-point of carbon, by M. J. Violle. Above 1000° C. the mean specific heat of graphite increases linearly with the temperature, thus— $C_0' = 0.355 + 0.00006t$. 2050 calories are given up by 1 gram of graphite on cooling from the volatilisation temperature to 0° . The temperature of ebullition must therefore be 3600° C.—Electric resistance at the contact of two metals, by M. Edouard Branly. It is shown that certain pairs of metals, such as copper-zinc, have no contact resistance, whereas other pairs, lead-aluminium, lead-iron, tin-aluminium, tin-iron, bismuth-iron, bismuth-aluminium for instance, have an electric contact resistance.—On an optical method of studying alternating currents, by M. J.

Pionchon.—On photography in natural colours, by the indirect method, by M.M. Auguste and Louis Lumière. Several negatives are prepared with differently coloured screens, and each is used to print off in a layer of the appropriately tinted bichromated-gelatine.—Molecular rotation and molecular deviation, by M. Ph. A. Guye.—On some derivatives of quinine-dioorthoamido-benzoic acid, $C_{20}H_{20}O_2(NH.C_6H_4.CO_2H)_2$, by M.M. J. Ville and Ch. Astre.—Remarks on the *pars intermedia* of Weisberg, by M. A. Cannieu.—On the absorbent power of the bladder in man, by M.M. A. Pousson and C. Sigalas. Healthy vesical epithelium is impermeable in general, but absorption may take place (1) when the subject with a healthy bladder requires to void its contents, the urine then bathing the prostatic portion of the urethra; (2) when the vesical epithelium is altered.—On the seat of the colouration of brown oysters, by M. Joannes Chatin.—On the presence of a diastase in *vims cassés*, by M. G. Gouinard.
Erratum.—In the last report, p. 622, line 19 from bottom of second column, "left-handed" curves should read "skew" curves.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Anales del Museo de la Plata. Paleontologia Argentina, ii, and iii. (Contributions to a Knowledge of the Fossil Vertebrates of Argentina): R. Lydekker (La Plata).—A Manual of Forestry: Prof. W. Schlich. Vol. 3: Forest Management (Bradbury).—Organic Chemistry: Prof. I. S. Scarf (Collins).

PAMPHLETS.—Catalogue of the Michigan Mining School, 1892-4 (Houghton).—City and Guilds of London Institute Report, March (London).—An Historical and Descriptive Account of the Field Columbian Museum (Chicago).—Sixty-third Annual Report of the Royal Zoological Society of Ireland (Dublin).—Science and Art Museum, Dublin, Art and Industrial Department. Collection of Weapons, &c., chiefly from the South Sea Islands, deposited in the Museum by the Board of Trinity College, Dublin, July 1894 (Dublin).—On the Relation of Diseases of the Spinal Cord to the Distribution and Lesions of the Spinal Blood-Vessels: Dr. R. T. Williamson (Lewis).—The Federated Institution of Mining Engineers. Report of the Proceedings of the Conference on Inland Navigation, Birmingham, February 12, 1895 (Newcastle-upon-Tyne).—Temperaturmaalingen, i. Lofoten, 1891-1892 (Christiania, Werner).

SERIALS.—Mittheilungen der Hamburger Sternwarte, Nos. 1 and 2 (Hamburg).—English Illustrated Magazine, May (Strand).—Longman's Magazine, May (Longmans).—Good Words, May (Isbister).—Sunday Magazine, May (Isbister).—Quarterly Review, April (Murray).—American Journal of Mathematics, April (Baltimore).—London Catalogue of British Plants, Part 1, 9th edition (Bell).—Journal of the Institution of Electrical Engineers, April (Spon).—Journal of the Royal Microscopical Society, April (Williams).—Bulletin of the American Museum of Natural History, Vol. 6, 1894 (New York).—Natural Science, May (Rait).—Century Magazine, May (Unwin).—Contemporary Review, May (Isbister).—National Review, May (Arnold).

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