

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—Mr. S. H. Vines, M.A., D.Sc. Lond., F.R.S., and Prof. J. H. Poynting, M.A., have been approved for the degree of Doctor in Science.

Fortunately for research in pathology, the opposition to the acceptance of the John Lucas Walker Studentship proved abortive, and it was accepted by a majority of nearly five to one last Thursday.

Dr. Michael Foster, Sec.R.S., has been appointed the University representative on the Council of the Marine Biological Association till the next annual meeting of the Association.

The following Entrance Scholarships and Exhibitions in Natural Science will be open for competition in the coming summer:—Downing College: Natural Science, June 1, 50*l.* per annum; Peterhouse: Mathematics, Chemistry, and Physics, 40*l.* to 60*l.* per annum; date to be announced in June; non-Collegiate students: Physical Science, July, in connection with Oxford and Cambridge Schools Examination Board, 50 guineas per annum for three years, tenable at Oxford or Cambridge, open to non-Collegiate students of not more than one term standing, or to persons not yet in residence. Apply to the Rev. F. G. Howard, Cambridge.

SCIENTIFIC SERIALS

American Journal of Mathematics, vol. ix. No. 2, January.—The number opens with a continuation of Mr. Greenhill's memoir, wave-motion in hydrodynamics, in which is discussed wave-motion in the following cases: § 21, across a channel with sides sloping at any angle; § 22, against a uniformly-sloping shore; § 24, in a cone; § 25, in a cylinder; and § 23 contains an algebraical solution of waves against a shore.—Prof. Sylvester's lectures on the theory of reciprocants give notes of lectures xvii. to xxiv., with an extract from a letter of M. Halphen in which the existence of *invariants* in general is established *a priori*; this is given as introductory to the theory of differential invariants.—A memoir in the theory of numbers, by A. S. Hathaway, contains an historical introduction of interest. The second part considers fundamental principles and definitions, then a problem and the consequences of its solution, and then turns the question of ideal solution of the problem into the question of the establishment of a given theory of ideals; the demonstrations are left for the reader to supply. The third part is occupied with a rigorous establishment of the theory of ideals indicated in the second part.—The next paper, on a theorem respecting the singularities of curves of multiple curvature, by H. B. Fine, is a generalisation of a portion of a previous paper (vol. viii. No. 2) by the same writer.—The number closes with two short notes—one on pencils of conics, by H. D. Thompson (let the eight points in which a conic intersects a quartic be divided into two groups of four, and a conic be passed through each group: the two residual—four-point—groups lie on a conic; an exceptional case in Cayley's theorem, which had been overlooked by the author, is mentioned and references given to where it is discussed); the other consists of observations on the generating functions of the theory of invariants, by Capt. P. A. Macmahon.

Notes from the Leyden Museum, edited by Dr. F. A. Jentink, vol. ix. No. 1, January 1887, contains, among other memoirs, the following:—J. Buttikofer, on a collection of birds made in the highlands of Padang, in West Sumatra, by Dr. C. Klaesi. This paper gives details of 189 birds in this collection, and is prefaced by a short history of the various published accounts of the birds of Sumatra from the first memoir by Sir Stamford Raffles in 1822. The only new species described is a swift (*Hirundinapus klaesii*).—Dr. R. Horst, descriptions of earthworms. Describes as new a gigantic earthworm from a coffee-plantation in Sumatra, *Moniligaster houtenii*; and also from the same country, *Rhinodrilus tenkatei*, n.sp.—Dr. Th. W. van Lidth Jeude, on a collection of reptiles and fishes from the West Indies. Describes three new lizards and a new fish taken during the Dutch Expedition to the West Indies.—There are also ten papers on new or little-known insects.

Rendiconti del R. Istituto Lombardo.—Results of the observations made by Dr. M. Rajna at the Brera Observatory on the diurnal oscillations of magnetic declination during the year 1886, communicated by E. G. V. Schiaparelli. These observations were taken as in previous years at 8 a.m. and 2 p.m.,

the diurnal variation being obtained by determining the difference in time between the two periods. The monthly averages thus determined and tabulated show for the whole year a mean of 6'72.

Bulletin de l'Académie Royale de Belgique, January.—On some curious effects of molecular forces in contact with a solid and a liquid, by G. Van der Mensbrugghe. Some experiments are described tending to illustrate the expansive force possessed by the contact layer between a solid and a liquid, and the existence of which the author claims to have been the first to demonstrate.—On Fermat's last theorem, by P. Mansion. It is shown that, if there exist integers x, y, z , verifying Fermat's relation $x^n + y^n = z^n$, where $x < y < z$, then not only the middle term, y , as shown by de Jonquières, but also the largest, z , and the smallest, x , are compound numbers.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, March 3.—“Preliminary Note on a *Balanoglossus* Larva from the Bahamas.” By W. F. R. Weldon.

A preliminary account was given of the degradation of a *Balanoglossus* larva, found during the latter half of last year in the deep waters round the Bahama. Up to the period of the development of a pair of gill-slits, this larva resembled, except in its pelagic habit, the larva found in Carolina by Bateson. After this stage, degradation set in, resulting in the atrophy of the two posterior pairs of body cavities, and the reduction of that in the præoral lobe: the gills and notochord, together with the greater part of the nervous system, disappeared, and the trunk diminished in size. The result was a bell-shaped creature, with a large præoral lobe, on the sides of which was developed a curious arrangement of tentaculiferous grooves. The alimentary canal remained functional, but the creature gradually shrivelled up, and (probably) died.

“Studies of some New Micro-Organisms obtained from Air.” By G. C. Frankland and Dr. Percy F. Frankland.

In previous communications to the Royal Society by one of the authors,¹ details have been given of a number of experiments on the presence of micro-organisms in the atmosphere. In these investigations a solid culture medium was employed, which not only greatly facilitated their enumeration, but also presented them in an *isolated* condition. In this manner the authors have met with a number of different varieties of aerial micro-organisms, which have hitherto remained either unknown or undescribed. They have therefore undertaken the characterisation of a number of these organisms by growing them in various cultivating media and observing the different appearances which they subsequently exhibit, by studying them microscopically in stained and unstained preparations, and by cultivating them on gelatine-plates, and describing the colonies to which they give rise. They have likewise made a number of drawings to illustrate the appearances which they present under the various examinations to which they have submitted them. To further facilitate their identification the authors have provisionally given them names, by which they have endeavoured to represent some of their most striking individualities.

The authors venture to hope that by thus characterising some of the organisms most prevalent in the atmosphere, they may prove of assistance in those investigations which have for their object the study of the particular physiological changes which are brought about by specific micro-organisms.

The following is a list of the micro-organisms described:—

Micrococcus carnicolor	Bacillus plicatus
“ albus	“ chlorinus
“ gigas	“ polymorphus
“ chryseus	“ profusus
“ candicans	“ pestifer vermicularis
Streptococcus liquefaciens	“ subtilis minor
Sarcina liquefaciens	“ subtilis cereus
Bacillus aureus siccus	Saccharomyces roseaceus
“ aureus	“ liquefaciens
“ citreus	Mycelium fuscum.

¹ (1) “The Distribution of Micro-Organisms in Air,” Roy. Soc. Proc. vol. xl. p. 509; (2) “A New Method for the Quantitative Estimation of the Micro-Organisms present in the Atmosphere,” *ibid.* vol. xl. p. 443; (3) “Further Experiments on the Distribution of Micro-Organisms in Air by Hesse's method,” *ibid.* p. 446.