

from south-west by south; by 11.30 we were inclosed in a darkness that might almost be felt, and at the same time commenced a downpour of mud, sand, and I know not what; ship going north-east by north, seven knots per hour under three lower top-sails; put out the side-lights, placed two men on the look-out forward, while mate and second mate looked out on either quarter, and one man employed washing the mud off binnacle glass. We had seen two vessels to the north and north-west of us before the sky closed in, adding much to the anxiety of our position. At noon the darkness was so intense that we had to grope our way about the decks, and although speaking to each other on the poop, yet could not see each other. This horrible state and downpour of mud, &c., continued until 1.30, the roarings of the volcano and lightnings being something fearful. By 2 p.m. we could see some of the yards aloft, and the fall of mud ceased. By 5 p.m. the horizon showed out in the north and north-east, and we saw West Island bearing east and north, just visible. Up to midnight the sky hung dark and heavy, a little sand falling at times, the roaring of the volcano very distinct, although in sight of the North Watcher, and fully sixty-five or seventy miles off it. Such darkness and time of it in general few would conceive, and many, I dare say, would disbelieve. The ship, from truck to water-line, is as if cemented; spars, sails, blocks, and ropes in a terrible mess; but, thank God, nobody hurt or ship damaged. On the other hand, how fares it with Anjer, Merak, and other little villages on the Java coast?"

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—The Natural Science Scholarships at Christ Church have been awarded after examination to Mr. R. E. Scholefield, of Leeds Grammar School, and Mr. H. Bankes Price, of Christ's College, Brecon. The Brakenbury Natural Science Scholarship at Balliol College has been awarded to Mr. R. P. Baker, of Clifton College. The following gentlemen were distinguished in the examination:—Mr. W. H. Littleton, Royal School of Mines, Mr. T. H. J. Watts, of Llandoverly School, and Mr. C. E. Rice, of Derby Grammar School.

An examination will be held on January 29 at Queen's College for the election of a scholar in Natural Science.

CAMBRIDGE.—The Special Board for Mathematics, in publishing, after the lapse of two-thirds of the present term, a list of professorial lectures on Mathematics, with a list of College lectures open to all members of the University, states that six associated Colleges, Peterhouse, Pembroke, Corpus, Queens', St. Catharine's, and Downing, provide no lectures on higher Mathematics this term, while none will be given during the year at Jesus, Trinity Hall, Magdalen, Sidney, Cavendish, and Selwyn. St. John's does not as yet open any of its advanced lectures to other than its own students. Trinity, on the contrary, has five advanced courses this term open to the University, viz. Mr. Thomson on Electrostatics and on Statics and Attractions, Mr. Ball on Higher Differential and Integral Calculus, Mr. Glazebrook on Geometrical Optics, and Mr. Glaisher on Elliptic Functions. At King's Mr. Stearn is lecturing on Electrostatics, at Christ's Mr. Hobson on Magnetism, at Clare Mr. Mollison on Fourier's Theory and Heat. Several subjects in higher Mathematics are unrepresented by lectures this year, such as Differential Equations, Calculus of Finite Differences, Calculus of Variations, Theory of Probability, Lagrange's and Bessel's Functions, Higher Dynamics, Newton's "Principia," Planetary Theory, and Precession. The Board regret that no conference of mathematical lecturers has been held, and that there is no uniformity of procedure between the different Colleges. In all the other chief departments of study, programmes of advanced lectures for the whole year were published last June. It is somewhat of a reproach to Cambridge mathematicians that no such list is published in regard to what was once so distinctively the characteristic study of Cambridge.

The following are the examiners for the Natural Sciences Tripos of 1884:—Prof. A. M. Marshall (zoology), Dr. F. Darwin (botany), Mr. Langley (physiology), Dr. R. D. Roberts (geology), Mr. L. Fletcher (mineralogy), Mr. W. N. Shaw (physics), Mr. A. Hill (human anatomy), Mr. Pattison Muir (chemistry).

The recommendations of the General Board of Studies as to the Professor of Pathology, new readers, University lecturers,

demonstrators, grants for apparatus, &c., will be voted on December 6 at noon.

Prof. Foster has been appointed on the University Library Syndicate; Prof. Foster and Dr. Vines, the Botanic Garden Syndicate; Revs. Coutts Trotter and E. Hill, the Museums and Lecture Rooms Syndicate; Messrs. H. Darwin and J. J. Thomson, the Observatory Syndicate; Prof. Cayley, the University Press Syndicate; Dr. Gaskell and Mr. A. S. Lea, the Oxford and Cambridge Examinations Syndicate; Prof. Foster, the State Medicine Syndicate; Prof. Stuart and Mr. J. Ward, the Teachers' Training Syndicate.

The following appointments on Special Boards have been made:—Mr. A. S. Lea (medicine), Dr. Ferrers (mathematics), Prof. Stokes (physics and chemistry), Mr. J. E. Marr (biology and geology).

Prof. Macalister has been appointed Examiner in the 2nd M.B. in place of the late Mr. James Shuter.

Mr. W. Gardiner of Clare College has been approved as a Teacher of Botany for the purposes of medical study.

SCIENTIFIC SERIALS

THE *Journal of Anatomy and Physiology*, vol. xviii. part 1, October, 1883, contains:—On the development of the suspensory ligament of the fetlock in the foetal horse, ox, roe deer, and sambar deer, by Prof. Dr. J. Cunningham, M.D. (plate 1).—On the action of infused beverages on peptic digestion, by Dr. J. W. Frazer (plate 2).—On a method of promoting maceration for anatomical museums by artificial temperature, by Prof. Struthers, M.D.—On the wax-like disease of the heart, by Prof. D. J. Hamilton, M.D. (plate 3).—On the relations of the dorsal artery of the foot to the cuneiform bones, by A. Hensman.—Researches into the histology of the central gray substance of the spinal cord and medulla oblongata, by Dr. W. Ainslie Hollis, part 2 (plate 4).—On some points in the anatomy of the chimpanzee, by J. B. Sutton.—Observations upon the osteology of *Podiceps montanus*, by Dr. R. W. Shufeldt (plate 5).—Short notes on the myology of the American black bear, by Prof. F. J. Shepherd, M.D.—Total absence of the left lobe of the thyroid body, by Dr. W. J. Gow.—Note respecting the course of the flexor longus digitorum pedis, by Dr. Sinclair White.—On the os centrale in the human carpus, by Prof. W. Gruber.

THE *Quarterly Journal of Microscopical Science* for October, 1883, contains:—Observations on the genus *Pythium*, by H. Marshall Ward, M.A. (plates 34 to 36).—On budding in Polyzoa, by Prof. A. C. Haddon, M.A. (plates 37, 38).—On the structure and relations of Tubipora, by Sydney J. Hickson, B.A., B.Sc. (plates 39, 40).—On the malleus of the Lacertilia and the malar and quadrate bones of the mammalia, by M. L. Dollo (plate 41).—Notes on Echinoderm morphology, No. 6; on the anatomical relations of the water-vascular system, by P. Herbert Carpenter, M.A.—Recent researches upon the origin of the sexual cells in hydroids, review by A. G. Bourne, B.Sc.—On the osteology and development of *Syngnathus peckianus* (Storer), by J. Playfair McMurrich, M.A. (plates 42, 43).

THE *American Journal of Science*, November, 1883.—Results of some months' examination of the spectra of sunspots with an instrument of high dispersion, by Prof. C. A. Young.—On the meteoric iron mass found by F. M. Anderson near Dalton, Whitfield County, Georgia, in 1879 (two illustrations), by Charles Upham Shepard, sen. The analysis gave iron 94.66, nickel 4.80, cobalt 0.34, with traces of phosphorus, chromium, and manganese.—Notice of some varieties of corundum recently found at Sungchang, Zanskar district, Western Himalayas, by the same author.—Phenomena of the Glacial and Chauplain periods about the mouth of the Connecticut Valley, that is, in the New Haven region (two maps), by James D. Dana. The author concludes that two simultaneous movements existed in the glacier ice—a lower along the valley, an upper crossing it obliquely; that both transported drift material, and that on reaching Long Island Sound the lower changed its own direction of flow for that of the general glacier mass across the Sound and Long Island.—On a variety of desclouzite from Zacatecas, Mexico, by Samuel L. Penfield.—On Hybocrinus, Hoplocrinus, and Bærocrinus (two illustrations), by Charles Wachsmuth and Frank Springer.—Note on Mr. Nipher's papers on the evolution of the American trotting horse (one illustration), by W. H. Pickering. The author holds that we may foretell the speed attained for a few years in advance, but not the

ultimate speed, nor when it will be reached.—On the discovery of Utica slate graptolites on the west side of the Hudson River, a few miles north of Poughkeepsie, by Henry Booth.—On Becraft's Mountain, near Hudson, Columbia County, New York (one illustration), by William Morris Davis. After describing the district formations, and their relative and absolute positions, the author deals with the question of nonconformity between the Lower and Upper Silurian systems of the locality and the relations of these systems elsewhere. In another communication he discusses the question of nonconformity at Rondout, New York.—Notice of agricultural, botanical, and chemical results of experiments on the mixed herbage of permanent meadows, conducted for more than twenty years in succession on the same land, by D. P. Penhallow. The results are tabulated, and are valuable as showing the influence of different fertilisers upon the character of vegetation and the total produce.—Note on Mr. Backhouse's observations on physiological optics, by W. Le Conte Stevens.

Bulletin of the Belgian Académie Royale des Sciences, des Lettres, et des Beaux Arts, August 5, 1883.—Report on M. Gravis' anatomical researches on the vegetative organs and structure of the *Urtica dioica*, by MM. Ed. Morren and Gilkinet.—Report on M. Paul Albrecht's work on the pelvisternum of the Edentates, by MM. P. J. Van Beneden and Van Bambeke.—Note on a thunderbolt which fell near Gougny on July 11, 1868, by M. D. Van Bastelaer.—Report on M. Delaey's steam engine of universal application, by M. Maus.—Remarks on some new fossils found in the Belgian Tertiary formations, by M. P. J. Van Beneden.—Note read to the Academy on presenting the two first parts of his work on the theory of the diurnal, annual, and secular movements of the axis of the globe, by M. F. Folie.—Observations on a recent note by M. P. J. Van Beneden, touching the discovery of the Bernissart fossil iguanodons, by M. E. Dupont.—Note on the influence of respiration on blood-pressure, by MM. Em. Legros and M. Grifffé.—Report on M. G. Tiberghien's philosophic dissertation on time, by M. A. Le Roy.—Note on M. de Sonnaz's historical studies on the county of Savoy, by M. Rivier.—Communication on some autographs of Grétry, by M. Stanislas Bormans.

Archives Italiennes de Biologie, tome iv. fasc. 1, October 31, 1883, contains:—On the zoological station at Naples, by C. Emery.—On le charbon in birds, by E. Perroncito.—On a true diffused kidney in certain mollusca, by S. Trinchese.—On the optic lobes of birds, by J. Bellonci.—On the oscillations of the typhoid fever epidemic at Paris in connection with the rainfall and sewage of that city, by L. Pagliani.—On paraldehyde as antagonistic to strychnine, by V. Cervello.—On the active properties of *Nigella sativa*, by P. Pellacani.—On the genesis of Ptomaines, by F. Coppola.—Researches as to the poison of *Triton cristatus*, by A. Capparelli.—Embryological researches as to the mammalian kidney, by C. Emery.—Histological researches as to the nervous centres, by C. Golgi.—Obituary notices of P. Pacini, N. A. Pedicino, and Victor Colomiatti.

Zeitschrift für wissenschaftliche Zoologie, Bd. xxxix., Heft 1, September 28, 1883, contains:—Researches on the interstitial connective tissue in mollusca, by Dr. J. Brock (plates 1 to 4).—On the germinal layers of the tail end of *Lumbriculus variegatus*, with a contribution to the anatomy and history of this worm, by Dr. C. Bulow (plate 5).—On the histogenesis of the bones in Teleostei, by Carl Schmid-Monnard (plates 6 to 9).—Remarks concerning the blood lacunæ and the connective tissue in Najadæ and Mytilidæ, by W. Flemming.—Contributions to the histology of the Echinoderms, No. 1, the Holothuria (Pedata) and the nervous system of the Asteridæ, by Dr. Otto Hamánn (plates 10 to 12).

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, November 15.—Sir John Lubbock, Bart., F.R.S., president, in the chair.—Messrs. Philip Crowley and J. Murray were elected Fellows of the Society.—Mr. Charles B. Plowright exhibited a young pear tree showing *Rastelia cancellata*, Jacq., produced from *Podisoma sabinae*, therefore supporting the observations of A. S. Cæster in *Botaniska Notiser* for 1865; also examples of *Puccinia graminis* on wheat produced from *Ecidium* on *Mahonia aquifolia*; the *Ecidiospores* were sown June 2, 1883, the *Uredospores* were sown June 10, and the ripe *P. graminis* was gathered September 10,

1883. He likewise called attention to examples of *Ecidium rumicis* on *Rumex obtusifolius*, *R. hydrolapathum*, *R. conglomeratus*, and *Rheum officinale*, the same being produced from *Puccinia phragmitis*.—Prof. P. Martin Duncan showed a specimen of coral (*Desmophyllum crista-galli*) which had grown upon an electric telegraph cable off the shores of Spain; it possessed radicles, apparently due to the presence of a worm close beneath the base of the coral.—Mr. E. P. Ramsay exhibited a series of rare New Guinea birds, and Mr. R. B. Sharpe made remarks thereon.—Mr. T. Christy exhibited a fine living and healthy specimen of *Trevesia sundaica*, Miq. (the so-called *Gastonia palmata*), or probably a new species. This peculiar and handsome plant has rarely been seen in this country, and of late years almost been lost sight of.—Dr. J. Murie showed and made remarks on specimens of *Ascaris bicolor* from the living walrus at the Westminster Aquarium.—Mr. F. I. Warner drew attention to a series of specimens of *Orchis incarnata* from Hampshire.—A paper was read by Mr. A. W. Bennett, on the reproduction of the Zygnemaceæ, as a solution of the question, Is it a sexual character? De Bary twenty-five years ago, and since then Wittrock, have instanced what they have deemed sexual differences between the conjugating cells, though most later writers rather ignore essential physiological distinctions. Mr. Bennett has directed his investigations chiefly to the genera *Spirogyra* and *Zygnema*, and from these he supports the inference of the above-mentioned authors. He finds there is an appreciable difference of length and diameter in the conjugating cells, that deemed the female being the larger. The protoplasmic contents he also finds pass only in one direction, and change first commences in the chlorophyll bands of the supposed male cells, with accompanying contraction of the protoplasmic material. The genera *Mesocarpus*, *Staurospermum*, and the doubtful form *Craterospermum* have likewise been examined, and, though showing differences, yet on the whole substantiate the view above enunciated of cell sexuality.—There followed the reading of notes on the antennæ of the honey bee, by Mr. T. J. Brint, in which he describes the minute structure of the segments, the joints and certain rod and cone like organs, previously referred to by Dr. Braxton Hicks, of highly sensitive function.—A paper was read on the Japanese Languriidæ, their habits and external sexual characteristics, by Mr. G. Lewis. He remarks that a representative of the family has been found in Siberia, lat. 46° (*L. menestriesi*); there are none in Europe, and one is known from Egypt. Others inhabit the Malay Archipelago, Ceylon, and the American continent. The author infers from the geographical distribution of these beetles that they have emanated from a tropical area. Some in the imago state cling to the stems of brushwood; others sit on the leaves of the moist shade-loving plants in the forests, while still others frequent debris on hill sides. Their colours are all dull, their bodies elongate and not structurally adapted for boring. The sexes show peculiar differences in size, and monstrous enlargement and obliquity of the head, volume of tibia, &c.—A paper was read by Prof. P. Martin Duncan on the replacement of a true wall or theca by epitheca in some Serial Coralla, and on the importance of the structure in the growth of incrusting corals. After alluding to the discussions which have taken place regarding the value of epitheca in classification, the author states that one form of this structure is simply protective, and that another form is of high physiological value, for it replaces entirely the usual theca or wall. The anatomy of the hard structures of a *Cœloria* illustrates the second proposition, for the broad base is covered by an epitheca, within which is no wall or "plateau commun," the septa, remarkable nodular walls (described in detail), and the columellæ arise from the epitheca directly, and it limits the interseptal loculi inferiorly. In a *Lepetoria* the same replacement of a wall by epitheca is seen. In incrusting *Porites* and such *Astræidæ* as *Leptastræa* the majority of the corallites of the colony arise from this basal epithecate structure, and grow upwards, budding subsequently from their sides.

Royal Meteorological Society, November 21.—Mr. J. K. Laughton, F.R.A.S., president, in the chair.—The Earl of Dalhousie, K.T., T. H. Davis, D. C. Embleton, J. Hargreaves, and J. L. Lewington were elected Fellows of the Society.—The following papers were read:—Report on temperatures in two different patterns of Stevenson screens, by E. Mawley, F.R.Met.Soc. The screens employed were an ordinary Stevenson screen obtained from Casella, and a new Stevenson screen made in accordance with the recommendations of a committee appointed by the Council of the Society. The new screen is two