

quantities of it were found in the deserted camps, and unless preventive measures are promptly taken, from the wholesale destruction now going on, it will speedily share the fate of the *Macca-namia*.

At the two meetings of the St. Petersburg Chemical Society, September 28 and October 19, many papers of interest were read. We notice among them a valuable report of M. Bogussky on his researches into the velocity of chemical reactions and on its dependence upon the degree of concentration of the solutions; a paper of M. Alekséeff on the mutual solubility of soluble liquids, the conclusions of which were, however, warmly criticised; a paper of Prof. Butléroff on the di-isobutylene, classing this body among the homologues of the etylene series; and of M. Kovalefsky on the amount of mechanical power disengaged during chemical reactions, those of the sulphates of copper and zinc having been begun with in the course of researches undertaken by the author.

MR. THOMAS SOUTHWELL, of the Norfolk and Norwich Naturalists' Society, writes with reference to our notice of Mr. Marsham's "Indications of Spring" (*NATURE*, vol. xv. p. 128), that this remarkable series of observations commenced in the year 1736, is still continued by the Marsham family. In 1789 Robert Marsham communicated his observations to the Royal Society, they were read on April 2 and printed *in extenso*, in the *Philosophical Transactions* of that year. Robert Marsham died in 1797, and the observations were continued by his son Robert to the year 1810. From that time till 1836, no record was kept, but in the latter year a third Robert Marsham resumed them, by whom, and his son, the present Rev. H. P. Marsham, they have been continued to the present time.

The experienced Arctic cruiser, Mr. Lamont, writes to the *Times* of Tuesday in reference to Dr. Petermann's recent letter to the Geographical Society, expressing his decided conviction, founded on his own extensive experience and that of many other practical Arctic men, that all round the North as round the South Pole, there lies an eternal mass of ice a thousand miles in diameter, and perhaps miles thick in the centre. He does not believe that either "ship, sledge, man, beast, bird, or balloon, will ever get across it."

THE additions to the Zoological Society's Gardens during the past week include two Bonnet Monkeys (*Macacus radiatus*) from India, presented by Mr. Peter Varwell and Mrs. Leopold Evans; a Chinese Eyebrowed Thrush (*Leucodiotron canorum*) from China, presented by Mrs. Arabin; a Short-eared Owl (*Otus brachyotus*), European, presented by Mr. Josh. Lee; three Golden Orioles (*Oriolus galbula*), a Redwing (*Turdus iliacus*) European, presented by Mrs. A. H. Jamrach; a Dunlin (*Tringa cinclus*), European, presented by Mr. F. Cresswell; a Snowy Owl (*Nictea nivea*) from Lancaster Sound; a King Parrakeet (*Aprosmictus scapularis*) from New South Wales; a Greater Sulphur-Crested Cockatoo (*Cacatua galerita*), from Australia, deposited.

SCIENTIFIC SERIALS

Foggendorff's *Annalen der Physik und Chemie*, No. 11, 1876.—On the nature of elastic reaction, by M. Braun.—On the gliding of gas on glass walls, by M. Warburg.—Report on experiments of Dr. Root of Boston, on penetration of platinum by electrolytic gases, by M. Helmholtz.—Researches on the heat phenomena in the galvanic battery, and on electromotive forces, by M. Edlund.—Electro-magnetic properties of unclosed electric currents, by M. Schiller.—On the reply of M. Schlüsser and the asserted preferability of ebonite for the discs of influence-machines, by M. Holtz.—Observation on the division, among two acids, of the positive metal in a galvanic battery, by M. Fuchs.—On phenomena of motion in electrified surfaces of mercury, by M. Herwig.—On the galvanic behaviour of gold, and a new kind of Nobil rings, by M. Schiel.

THE *Naturforscher* (November, 1876).—From this number we note the following papers of interest:—On the transparency of the water of Lake Lemán, by F. A. Forel.—On the meteoric iron of Nentmannsdorf, near Pirna (Saxony), by F. E. Geinitz.—On the absorption of albumen by the leaves of *Dionea muscipula*, by A. Fraustadt.—On the simultaneous occurrence of sugar and oxalate of lime in plants, by G. Kraus.—On electrical dust figures in space, by E. Lommel.—On some experiments with plants in coloured light, by G. Kraus.—On the dependence of the co-efficient of interior friction of gases from temperature, by A. von Obermayer.—On ascending air-currents, by Herr Crompton.—On microscopical inclosures in South African diamonds, by E. Cohen.—On the deterioration of air through artificial light, by Friedrich Erismann.—On the mechanics of breathing and the circulation of matter in the animal body, by E. Pflüger.—On the chemical composition of beech-leaves and fir-needles in different states of development, by L. Dulk.

Morphologisches Jahrbuch, vol. ii. part 3.—On the skin and dermal sense-organs of Urodela, by F. Leydig, with four plates.—On the metamorphosis of Echiurus, by W. Salensky, one plate, giving four stages of development.—On the exoskeleton of fishes, part 1; a long and valuable paper, by O. Hertwig, with six plates, dealing with the exoskeleton of Siluroids and Accipenseroids.—Prof. Gegenbaur has another contribution on the morphology of the limbs of vertebrates.—R. Wiedersheim discusses "the most ancient forms of the carpus and tarsus found in existing amphibia."

Zeitschrift für wissenschaftliche Zoologie, vol. xxvii. Part 3.—On the development of the lower jaw in Mammalia, by Dr. J. Broek; a histological memoir.—An account of the anatomy of *Rhynchelmis limosella*, with four plates, by Franz Vejdivoski.—On the organisation and minute structure of the Daphnidæ and other Cladocera, by Dr. C. Claus, with four plates.—Description of a new hydroid polyp related to Allman's family Pennaridæ, by F. E. Schulze.

THE *Journal de Physique* for November, 1876, contains papers on illumination of transparent and opaque bodies, by M. Lallemaud; application of very thin layers of gold to cathetometers and other instruments of measurement, by M. Govi.—On the distribution of magnetism in cylindrical bars, by M. Bouty.—On the physical properties of gallium, by M. Lecoq de Boisbaudran.

SOCIETIES AND ACADEMIES

LONDON

Mathematical Society, London, December 14.—Lord Rayleigh, F.R.S., president, in the chair.—Mr. R. F. Davis, B.A., and Mr. H. Weston Eve, M.A., head-master of University College School, were elected members.—Prof. H. J. S. Smith, F.R.S., read a paper on the conditions of perpendicularity in a parallelepipedal system (the subject was of interest to crystallographers as well as to mathematicians).—Mr. Glaisher, F.R.S., gave an account of a paper by Prof. Cayley, F.R.S., on the condition for the existence of a surface cutting at right angles a given set of lines. "In a congruency or doubly infinite system of right lines, the direction-cosines α, β, γ of the line through any point x, y, z , are expressible as functions of x, y, z , and it was shown by Sir W. R. Hamilton in a very elegant manner that in order to the existence of a surface (or what is the same thing, a set of parallel surfaces) cutting the lines at right angles, $\alpha dx + \beta dy + \gamma dz$ must be an exact differential; when this is so, writing $V = \int (\alpha dx + \beta dy + \gamma dz)$, we have $V = c$, the equation of the system of parallel surfaces, each cutting the given lines at right angles." The author obtains his results from the analytical equations of a congruency, viz., $x = mz + p$, $y = nz + q$, where m, n, p, q are functions of two parameters, and m, n are given functions of p, q . The condition he gets for the existence of the set of surfaces is—

$$(1 + n^2) \frac{d^2 m}{dy^2} - (1 + m^2) \frac{d^2 n}{dx^2} + m n \left(\frac{d^2 m}{dx^2} - \frac{d^2 n}{dy^2} \right) = 0.$$

He verifies his results in the case of the ellipsoid.—Prof. Clifford, F.R.S., communicated two notes on the orthogonal transformation, and additions to former papers on transformation of elliptic functions.—Mr. Tucker read portions of papers by Mr. F. W. Frankland (New Zealand), on the simplest continuous manifoldness of two dimensions and of finite extent, (communicated by Mr. Spottiswoode, F.R.S.).—On the theory

of electric images and its application to the case of two charged spherical conductors placed opposite one another, Mr. W. D. Niven.—On viscous fluids, and Quaternion forms of some general propositions in fluid motion, Mr. J. G. Butcher (communicated by Mr. G. H. Darwin). An easy method of finding the invariant equation expressing any poristic relation between two conics, Prof. Wolstenholme.

Geological Society, December 6.—Prof. P. Martin Duncan, F.R.S., president, in the chair.—Thomas Collinson, P. Lindsay Galloway, the Rev. George Middleton, S. H. Needham, Maskell Wm. Peace, Nathaniel Francis Roberts, and John Stirling, were elected Fellows of the Society.—The President announced the sad loss the Society had sustained in the death of Mr. David Forbes, F.R.S., one of its secretaries, which took place on the morning of Tuesday, December 5. On this account the only paper read was on the intrusive character of the Whin Sill of Northumberland, by Mr. W. Topley, F.G.S., Assoc. Inst. C.E., Geological Survey of England and Wales, and Mr. G. A. Lebour, F.G.S., Lecturer on Geological Surveying at the University of Durham College of Science, Newcastle-on-Tyne. The Carboniferous Limestone series of the north of England contains a bed (or beds) of basalt, known as the "Whin Sill," regarding the nature of which opinion has long been divided. Some writers regard it as truly interbedded and contemporaneous; others look upon it as intrusive, and as having been forced laterally between the planes of bedding. The latter opinion is that held by the authors. Amongst the practical miners of the north of England there are very few who will admit any doubt that the Whin lies evenly, and at one constant horizon, amongst the strata. Clear cases to the contrary are looked upon as merely local variations, possibly due to successive eruptions of submarine lava. The work of the Geological Survey has shown that the Whin Sill lies at different horizons in different places: sometimes it even lies above the Great Limestone itself. In other words, the Whin Sill, which is supposed to mark the base of the Yoredale series, sometimes lies above the limestone which forms the top of that series. With the disappearance of the supposed base-line of the Yoredales goes also any good reason for drawing a line here at all. The authors traced the Whin Sill through Northumberland, as far north as Dunstanborough Castle, showing the varying positions at which it occurs in the Limestone series, and noting points of interest in some of the sections. The Whin shifts its position amongst the strata to the extent of 1,000 feet or more. It frequently comes up in bosses through the bedded rocks, and bakes the beds above it quite as much as those below, especially when those beds consist of shale. As to the age of the Whin Sill, nothing definite can be said.

EDINBURGH

Royal Society, December 18.—Sir William Thomson, president, in the chair.—The following communications were read:—On the roots of the equation $\rho \phi \rho = \alpha$, by Gustav Plarr, communicated by Prof. Tait.—Applications of the theorem that two closed plane curves cut one another an even number of times, by Prof. Tait.—On the distribution of volcanic debris over the floor of the ocean—its character, source, and some of the products of its disintegration and decomposition, by Mr. John Murray, communicated by Sir C. Wyville Thomson.—On new and little-known fossil fishes from the Edinburgh district, No. 1., by Dr. R. H. Traquair.—Note on the Ruff (*Machetes pugnax*), by Prof. Duns.

MANCHESTER

Literary and Philosophical Society, November 6.—Charles Bailey in the chair.—Wealden fossils from Columbia, South America, by John Plant, F.G.S.—The raised beaches of County Antrim, their molluscan fauna, and flint implements, by Mark Stirrup, F.G.S.

November 14.—E. W. Binney, F.R.S., F.G.S., president, in the chair.—Notice of a passage in Clement of Alexandria on the origin of certain arts and customs, and their introduction into Greece, by William E. A. Axon, M.R.S.L., &c.

BOSTON

Natural History Society.—Mr. S. H. Scudder's contributions on the orthoptera continue to be among the most important papers published by this society. His "century" of new forms has reached its sixth decade. His latest published paper is entitled "Critical and Historical notes on Forficulæ, including

Descriptions of new Generic Forms, and an Alphabetical Synonymic list of the described Species." This extends over fifty pages, and will be of great use to entomologists.—W. H. Niles has contributed a paper on the geological agency of lateral pressure, exhibited by certain movements of rocks, referring especially to observations in sandstone quarries at Berea, Ohio, and in limestone quarries at Lemont, Illinois.

VIENNA

Imperial Academy of Sciences, October 19, November 16, 23.—The following are some of the papers read:—Researches on the contractility of the capillaries, by M. Stricker.—On the integration of linear differential equations of the second order through simple quadratures, by M. Winkler.—On the discriminants of the Jacobi covariants of three ternary quadratic forms, by M. Igel.—On the fresh-water fishes of South-Eastern Brazil, by M. Steindachner.—On the absorption spectrum of hypermanganate of potash, and its use in analytical chemistry, by M. Brücke.—On the magnetic observations of the Austro-Hungarian Polar Expedition, 1872-74, by M. Weyprecht.—On the action of bromine on succinimide, and a new way of forming fumaric acid, by M. Kisielinski.—On the velocity of propagation of sound-waves from explosion, by M. Mach.—Three papers by M. Velten (sealed packet). 1. On the transference of material particles by the electric current; 2. On the polar and magnetic behaviour of plant-cells; 3. On the magnetic behaviour of portions of the cell contents.—On the heat-conductivity of ebonite, by the Secretary.

GENEVA

Physical and Natural History Society, November 2.—M. Lucien de la Rive gave an account of his researches on the specular reflection of surfaces covered with hairs, these being considered as cylinders with circular base. The condition necessary for a cylinder to present an edge of specular reflection is that the axis of the cylinder be found in the plane normal to the bissectrice of the angle of the luminous and visual rays. It results that it is only possible to have a luminous angle by starting from a certain inclination of the visual ray. This principle is proved mathematically. It is applied to bodies of various forms, and explains the apparently abnormal play of light on children's heads, for example, and on any surface covered with hair. (Vide *Archives des Sciences Physiques et Naturelles*, t. lvii. p. 219, Nov. 1876).

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