

in a gynaemastic maniac, by A. Raggi.—On varied systems of forces, by G. Bardelli.

Fasc. vi.—Origin of the *Tractus olfactorius* and structure of the olfactory lobes of man and of other mammalia, by C. Golgi.—Some theorems on the development in series by analytic functions, by S. Pincherle.

*Atti della R. Accademia dei Lincei*, vol. vi., fasc. 7.—On the tombs and dwellings of Iberian families existing in Italy, by L. Pigorini.

*Natura*, March.—A heat-electrometer, by G. Gandini.—On the origin of electricity of thunderclouds (concluded), by F. G. Nachs.—Alpine meteorology, by P. F. Denza.

## SOCIETIES AND ACADEMIES

### LONDON

Zoological Society, April 29.—Anniversary Meeting.—Prof. W. H. Flower, F.R.S., president, in the chair.—After some preliminary business the report of the council on the proceedings of the Society during the past year was read by Mr. Sclater, the secretary. It stated that the number of fellows on December 31, 1881, was 3213, against 3309 at the same time of the previous year. The total receipts for 1881 had amounted to 25,810*l.*, against 27,388*l.* for 1880. The ordinary expenditure for 1881 had been 24,651*l.*, against 24,753*l.* for 1880; and the extraordinary expenditure 1036*l.*, against 1825*l.* for the preceding year. The sum of 1000*l.* had been devoted to the repayment of the mortgage debt on the Society's freehold premises, which had thus been reduced to 6000*l.* This expenditure had left a balance at the bankers of 1203*l.* to be carried forward for the benefit of the present year. The assets of the Society on December 31 last, after payment of all liabilities, were estimated to amount to nearly 20,000*l.*, exclusive of the value of the library and collection of living animals. As regards the gardens in the Regent's Park, little has been done in the way of special works during 1881, but the buildings and walks had been kept in good repair, and several of the former had been thoroughly repaired and painted. The number of visitors to the Society's Gardens in 1881 had been 648,604, against 675,979 in 1880. The zoological lectures having been well attended during the past year, would be continued during the present season. The number of animals in the Society's collection on December 31 last was 2294, of which 617 were mammals, 1389 birds, and 258 reptiles. Eleven mammals, 17 birds, and 11 reptiles belonging to species new to the collection had been exhibited in 1881, and during the same year a considerable number of mammals, birds, and reptiles of a different species (of which detailed lists were given) had reproduced their kind in the Society's Gardens.—It was moved by Viscount Powerscourt, seconded by Mr. Howard Saunders, that the best thanks of the meeting be given to the Council for their report. The motion having been adopted, the meeting proceeded to elect the new Members of the Council and the officers for the ensuing year, and a formal ballot having been taken, it was declared that Mr. H. E. Dresser, Prof. Mivart, F.R.S., Mr. Henry Pollock, Mr. W. Ayshford Sanford, and Capt. George E. Shelley had been elected Members of the Council in place of the retiring Members; that Mr. F. Du Cane Godman had been re-elected into the Council in the place of Mr. Edward R. Alston, deceased; and that Prof. Flower, LL.D., F.R.S., had been re-elected president, Mr. Charles Drummond reasurer, and Mr. Philip Lutley Sclater, M.A., Ph.D., F.R.S., secretary to the Society until the next anniversary.

Physical Society, April 22.—Prof. Clifton, president, in the chair.—New member, Dr. E. Hopkinson.—The president announced that copies of the Report of the Lightning Rod Committee could be obtained from Dr. Guthrie, Science Schools, South Kensington, price five shillings per copy.—A paper was then read by Mr. W. F. Stanley on the evidence of a flowing liquid moving by rolling contact upon the interior surface of a pipe. In his experimental work on fluids, published last year, the author has endeavoured to show that liquids flowing in a tube move by rolling contact on or past the resistant surfaces of solids, and upon like principles that the moving parts of a flowing liquid move by rolling contact on the more quiescent parts of its own mass, so that in no case is there any element of sliding, gliding, or shearing motion such as is generally assumed. Further experiments tend to support this view in the case of liquids flowing through pipes. The difficulty in the experiments arose from the friction of the pipe impeding the free motion of the

particles. The principle was investigated by allowing liquids of various kinds, such as solution of mastic varnish, to flow through pipes, the liquids containing colouring matter, or air particles to assist the eye. The author illustrated the effects by diagrams on the screw.—Dr. W. H. Stone, Mr. Blaikley, Dr. Guthrie, and the President, offered some remarks on the paper.—Mr. J. M. Whipple exhibited the magnetograph curves obtained at the Kew Observatory during the past week, showing the progress of the recent magnetic storms. After stating that two unusually large spots were now passing over the sun's disc, he remarked that although the magnets at Kew were somewhat disturbed on the 14th, they were nearly stationary until the night of the 16th, when, about 11.45 p.m., they became strongly affected, and from then till 8 p.m. on the 17th, the magnetic storm raged. The horizontal component of the earth's magnetic force was at one time reduced more than 0.05 mm. mgrs. below its average value, and the vertical component by about 0.07 of the same units. This happened about 6 a.m. of the 17th. A little after noon of the same day both forces became so increased, that the light spot left the scale of the instrument for nearly two hours. A second period of magnetic disturbance commenced at about 3.40 a.m. of the 20th, and was violent up to 2 p.m., subsiding gradually until 7.45 p.m. of the 21st. During this period, the magnetic force, though fluctuating largely, did not experience such great changes of intensity as were indicated by that of the 17th. Mr. Whipple then alluded to the work of Prof. W. G. Adams, and suggested that sun-spots only produced such effects when cutting certain lines of force, which he imagined might extend for a limited angular distance round the earth's radius vector. Prof. Adams pointed out the desirability of increasing the number of self-recording magnetic observatories, especially in the southern hemisphere, and after mentioning that the French were about to equip such an observatory at Cape Horn, expressed the wish that the Cape of Good Hope Observatory might again be provided with magnetometers.—The Rev. S. J. Perry remarked on the exceptional nature of the storm which he had seen recorded at Brussels, and stated that in Belgium the telegraph service had been disorganised by it. Attention was also called to the auroral displays in America, and Mr. Lecky, Dr. Guthrie, the President, and others, spoke on the general phenomena of the storms.—It was then announced that the meetings of the Society in May would be held on the 6th and 20th, instead of on the 13th and 27th, as previously announced; also that the Society would hold a meeting at the Clarendon Laboratory, Oxford, on June 17, by invitation of the president.

Victoria (Philosophical) Institute, May 1.—Prof. Reinsch gave the results of his researches into the mode of the formation of coal. The lecture was illustrated by several large drawings and photographs. The professor stated that he had examined with the microscope no less than 2500 sections of coal, and had come to the conclusion that coal had not been formed by the alteration of accumulated land plants, but that it consisted of microscopical organic forms of a lower order of protoplasm, and although he carefully examined the cells and other remains of plants of a higher order, he computed that they have contributed only a fraction of the matter of coal veins, however numerous they may be in some instances, he referred to the fact that Dr. Muck, of Bochum, held that algae have mainly contributed to the formation of coal, and that marine plants were rarely found in coal, because of their tendency to decompose, and that calcareous remains of mollusks disappeared, on account of the rapid formation of carbonic acid during the process of carbonic action.

Royal Horticultural Society, March 28.—Sir J. D. Hooker, in the chair.—*Savagus floccosus*: Mr. Pascoe exhibited specimens of this beetle from Queensland, attached apparently by a species of *Isaria*, while living.—*Doryanthes Palmeri*: Sir J. D. Hooker exhibited a leaf, some five feet long, and a cluster of flowers from a spike twelve feet in length, bearing a fanicle of flowers, eighteen inches in length.—*Coryanthes macrantha*, exhibited by S. T. Laurence; the fertilisation of which, by insects, is described by Mr. Darwin, in his "Fertilisation of Orchids"

### EDINBURGH

Royal Society, April 17.—The Rev. Dr. Lindsay Alexander, vice-president, in the chair.—Prof. Blackie communicated a paper on the definite article in Greek, with special reference to the revised version of the New Testament. He showed by quo-

tations from classical Greek authors, that the Greeks were anything but particular in the use of the article, and apparently attached little importance to it; and hence a slavish rendering of the article when it occurred into English, not only led in many cases to bad English, but displayed ignorance of true scholarship. This fault, the author maintained, the revisers had in not a few instances made their own.—Prof. Blyth, in a paper on the action of the microphone, pointed out that the action due to the aerial waves of sound directly, and that due to the tremor of the frame-work which supported the microphone, must be carefully distinguished, the latter being probably the source of the jarring that so commonly accompanies telephonic sounds. As the result of a series of ingeniously-contrived experiments, he concluded that the true microphonic action, as far as it related to the transmission of articulate sounds, is due to the direct action of air-pulses upon the temporary minute "arc-lights" which exist as soon as the carbon points are shaken asunder by the tremor of the frame.—Prof. Marshall submitted an account of experiments made by Prof. C. Michie Smith, Mr. R. T. Omond and himself, in reference to the lowering of the maximum density point of water by pressure. The lowering was measured indirectly by calculation from observed thermal effects when the pressure in a mass of water at a given temperature was suddenly diminished from several tons' weight on the square inch to the atmospheric pressure. This thermal effect is a heating effect when the temperature of the water is below that of the maximum density, a cooling effect when above. A thermoelectrical junction let into the pressure apparatus, and connected to a delicate galvanometer, noted the changes of temperature, while the pressure was measured by means of one of Prof. Tait's high-pressure gauges, formerly described. From their first and preliminary series of experiments, they had deduced a lowering of the maximum density point of water by 2° C. per ton's weight increase of pressure.

## PARIS

Academy of Sciences, April 24.—M. Jamin in the chair.—The following papers were read:—Movements of various parts of a liquid in a vessel or reservoir, whence it flows through an orifice (continued), by M. de Saint Venant.—Researches on the distribution of heat in the dark region of solar spectra, by M. Desains. With a rock-salt prism, he found the position of the cold bands and the maxima always nearly the same. But there was not the same agreement in the relative values of the intensities of successive maxima and minima (especially in the region of great wave-lengths). The maxima were much greater in 1882 than in 1879 (doubtless owing to dryness of the air).—Memoir on the temperature of the air at the surface of the ground, and of the earth to 36 m. depth, also of two pieces of ground, one bare, the other turf-covered, in 1881, by MM. Becquerel. The mean air-temperature, 11°15, is higher than in the two immediately preceding years.—On quarantines at Suez, by M. de Lesseps.—Separation of gallium, by M. Lecoq de Boisbaudran. He uses advantageously cupric hydrate, instead of carbonate of baryta or lime, for precipitation of galline; the copper is easily eliminated with sulphuretted hydrogen.—Report on a memoir relating to the hygienic and economical properties of maize, by M. Fua. M. Fua proves the value of maize as food; maladies attributed to it have been really due to badly kept and diseased maize.—On hypercycles, by M. Laguerre.—On the theory of uniform functions of a variable, by M. Mittag-Leffler.—On Fuchsian functions, by M. Poincaré.—Solution of the general problem of indeterminate analysis of the first degree, by M. Méray.—The minima of sun-spots in 1881, by M. Ricco. The northern hemisphere was observed (at Palermo) without spots, 23 days; the southern, 94 days. There were 12 periods of minima in the north, and 18 in the south. The intervals of minima differ little from the time of a solar rotation. A certain stability of minima thus indicated, especially in the northern hemisphere, was confirmed by observations of longitude.—On the actinic transformation of Foucault mirrors and their applications in photography, by M. de Chardonnet. A plate of rock crystal, silvered so as to be opaque to sight, forms a filter, permeable exclusively by dark rays of short wave-length, and which may be used for photography without intervention of visible light. Very white crown glass or thin Saint Gobain glass may be used instead of rock salt.—On magnetic perturbation, by M. Mascart. A magnetic storm of large extent seems to have begun (after some preliminary indications) on the night of April 13, and continued a week or more; strong shocks occurred on the 16th and 20th.—Winter of 1881-1882 at Clermont and at Puy-de-Dôme, by M.

Alluard. These stations showed intervention of temperature with altitude on 78 nights in four months (November to February), or nearly two-thirds; the minima on Puy-de-Dôme ranging from 7 to 13 degrees above those at Clermont. New proof was had of the rule that whenever an area of high pressures covers central Europe, and especially France, the intervention in question occurs. M. Faye, referring to the fact that Mont Blanc is sometimes seen from Puy-de-Dôme, distant 280 km., suggested observation of geodesic refraction between them.—On the equivalent of carbon determined by combustion of the diamond, by Prof. Roscoe. Representing O by 15'46, C becomes 11'07.—On the decomposition of salts of lead by alkalies, by M. Ditte.—Action of sulphuretted hydrogen on solution of sulphate of nickel in the cold state, by M. Baubigny.—Researches on ozone, by M. Maillefert. He describes its action on sulphur, selenium, tellurium, sulphides, and some organic matters.—On the absorption of volatile bodies with the aid of heat, by M. Schloesing. He illustrates this by several experiments; e.g. powders of carbonate of ammonia pass into a small tower of coke, sprinkled with dilute sulphuric acid; a part of the alkali is carried beyond. If the temperature be raised to 100°, the absorption is total, and almost instantaneous. M. Schloesing proposes to apply the principle to determination of nitric acid in the atmosphere.—On the oxidation of pyrogallol in an acid medium, by MM. Clermont and Chautard.—On the insoluble modification of pepsin, by M. Gautier.—On nuclei with intense polychroism in dark mica, by M. Lévy. These are due to zircon.—On the action of permanganate of potash against accidents from the poison of Bothrops, by M. Couty. His conclusions, from experiment, are adverse to use of the permanganate as antidote.—On the abyssal malacological fauna of the Mediterranean, by M. Fischer. From 555 m. to 2660 m., about 120 species of mollusca were dredged, of which only about 30 are really abyssal. The number of species diminishes sensibly with the depth. All the deep species are also found in the Atlantic.—On some attempts at hybridation between different species of Echinoidea, by M. Köhler. These were successful, e.g. in the case of a Spatangus and a Psammechinus.—On some points of the anatomy of Holothurians, by M. Jourdan.—On the pyloric ampullæ of Podophthalmate crustaceans, by M. Mocquard.—On the vitality of trichinae encysted in salt meat, by M. Fourment. In salt meat prepared fifteen months back were live trichinae, which were fully evolved in the alimentary canal of a new host, and caused death.

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