

Solombola. Nothing had been ascertained regarding the fate of the steamer *Varna* or her crew.

AT the meeting of the Berlin Geographical Society on the 8th inst. some communications were made regarding the latest undertakings of the German explorers now at work:—Dr. Paul Giussfeldt had undertaken to ascend the Aconcagua, the highest peak of the Chili Cordilleras (6934 metres); he failed on account of the extreme cold, but succeeded in taking a number of interesting photographs. Dr. Steiner, a member of the Antarctic expedition had proceeded northward from Punta Arenas, and had drawn a remarkable geological map of the country he traversed. He intends to penetrate into Chile. Dr. Hettner is about to start on an exploring tour through Canada with a view of discovering coal deposits.

NEWS of the German African traveller, Dr. Fischer, has just arrived from Zanzibar. He was at some days' distance from Ngaren Erobi, had 800 followers, and had forced his way through the Massai district. He thus seems to have joined other caravans, as he had started with only 350 men himself. Ngaren Erobi is to the west of the Kilima Ngaro, and under $36\frac{1}{2}^{\circ}$ E. long., and 3° S. lat.

LIEUT. BOVE is just starting on a second expedition to Terra del Fuego. Thence he intends to penetrate into Graham's Land. The Italian Geographical Society bears the cost of this expedition, which will sail from Genoa and go by way of Monte Video.

DR. OSCAR LENZ is now writing an account of his second great African journey. It will be published by Brockhaus (Leipzig), and will be entitled "Timbuktu, Reise durch Marokko, die Sahara und den Sudan, ausgeführt im Auftrag der Deutschen Afrikanischen Gesellschaft."

SCIENTIFIC SERIALS

Bulletin de la Société d'Anthropologie de Paris, tome vi. fasc. 1, 1883.—Presidential address.—Conditions to be observed by the competitors for the annual "Godart Prize" of 500 francs, founded in 1862; and for the "Broca Prize" of 1500 francs for the best memoir on a question of human or comparative anatomy, or of physiology referring to anthropology. This prize was founded by Madame Broca in 1881, and is biennial.—Report by M. Pozzi of a highly ornamented so-called medical pipe, found in an ancient mound in Kentucky. This fine specimen of the workmanship of the prehistoric mound-builders of the New World is identical with those found in California, and supposed to have been used for producing blisters and moxas.—M. Ball described the post-mortem appearances of the brain of the Batignolles cretin, whose abnormal condition had been brought to the notice of the Society last year.—On social instinct, by Dr. Prat.—On supposed human imprints found in clay beds at Carson in Nevada, by Dr. W. Hoffman.—An interesting paper on the superstitions and faith in sorcery still persisting in South Italy, by M. Mari-court.—On an anomaly of the brachial biceps, by M. G. Hervé.—On M. Hamy's Case of anthropometric instruments, approved of by the Society, for the use of travellers engaged in Anthropological determinations.—A case of hydrocephalus in a child of ten years, by Dr. de Grandmont, considered specially in reference to the ophthalmic lesions associated with this condition, and their probable joint dependence among other causes on too near relationship between the parents, as intermarriage between first cousins of degenerate constitution.—The reproduction in man of a simian muscle, the scalenus intermedius of the anthropoid apes, by Dr. Testut.—Observations on polyandry in Koulo and Ladak, by M. Ujfalvy, based on personal investigations during his travels in the Western Himalayas. In Koulo polyandry and polygamy subsist side by side; in Ladak with similar physical and economic conditions, polygamy, which necessitates a certain degree of material prosperity, is less frequent. The prevalence of polyandry among savage tribes in ancient times, and the organisation of matriarchy, or maternal supremacy, in tribal and domestic rule, were considered by M. Rousset in the discussion which followed the reading of M. Ujfalvy's important communication.—A discussion on the anthropological study of the crania of great criminals, chiefly in reference to the connection of criminality with any fixed cranial malformation, by M. Manouvrier.—Considerations of the nature of the arterial sulci of the cephalon in man, by M. Danilo.—On the development of the human skeleton, by M. de Merjkowsky, with special

reference to the embryological affinities; between the higher and lower animals, the author believing that in the human foetus we have a reproduction of a simian form, which gives support to the theory of development as applied to man.—An anomalous formation of the first rib, by M. G. Hervé.—On the brain of an insane person, by M. Rey, in which the frontal and antero-posterior circunvolutions were extraordinarily developed, together with an excessive weight of the brain.—On a successful attempt to inoculate a monkey with matter taken from an indurated chancre, by M. Pozzi.—On the substance used by the North American Indians to poison their arrows, by Dr. Hoffman.

SOCIETIES AND ACADEMIES LONDON

Geological Society, June 20.—J. W. Hulke, F.R.S., president, in the chair.—Henry Yorke Lyell Brown, Edward St. F. Moore, John Henry Nichols, and Henry Parker, were elected Fellows, and Baron F. von Richthofen, of Berlin, a foreign correspondent of the Society.—The following communications were read:—On the discovery of *Ovibos moschatus* in the forest bed, and its range in space and time, by Prof. W. Boyd Dawkins, F.R.S. The specimen described by the author formed part of the collection of the late Rev. F. Buxton, and was obtained by a fisherman from the forest-bed of Trimmingham, four miles from Cromer. The edges are sharp, and the red matrix adhered in places, so that the author regards its geological position as satisfactorily established. It is the posterior half of the upper surface of the skull of an adult female *Ovibos moschatus*. The author describes the range in space and time of this animal, mentioning the different instances in which its remains have been found in Britain. These are, in some cases, undoubtedly post-glacial; but he inclines to consider the lower brick-earth of the Thames Valley, where the musk-sheep has been found at Crayford, as anterior to the boulder clay, which occupies the district to the north. This deposit at Trimmingham, however, is certainly pre-glacial, and so *Ovibos moschatus* belongs to a fauna which arrived in our country prior to the extreme refrigeration of climate which characterised the glacial epoch, and afterwards retreated northwards to its present haunts, showing, with other evidence, that this epoch did not form a hard and fast barrier between two faunas.—On the relative age of some valleys in Lincolnshire, by A. J. Jukes-Browne, B.A.—On the section at Hordwell cliffs, from the top of the Lower Headdon to the base of the Upper Bagshot Sands, by the late E. B. Tawney, M.A., and H. Keeping, of the Woodwardian Museum. Communicated by the Rev. Osmond Fisher, M.A. The authors, after a brief sketch of the literature of the subject and of the method which they have adopted in measuring the beds in the Hordwell section, passed on to describe these, viz. the freshwater Lower Headdon series, and the so-called Upper Bagshot Sands of the Geological Survey. They make the whole thickness of the former 83½ feet. The bed numbered thirty-two in their section they identified with the Howledge limestone on the other side of the Solent. It is almost the highest seen in the section, and underlies the true Middle Headdon which is now no longer exposed. The authors pointed out that in their opinion the late Marchioness of Hastings and Dr. Wright have somewhat misapprehended the position of these several beds. Details were then given of the remainder of the section, and comparisons made with the details published by former authors; after which the authors described the underlying estuarine series, or Upper Bagshot Sands, which has a thickness of 17½ feet.—On some new or imperfectly known Madreporaria from the Coral Rag and Portland Oolite of the counties of Wilts, Oxford, Cambridge, and York, by R. F. Tomes, F.G.S.—The geology of Monte Somma and Vesuvius, being a study in vulcanology, by H. J. Johnston-Lavis, F.G.S. The author, after referring to the vast amount of literature which has appeared dealing with the same subject, stated that his object was to lay before the Society the results of his personal observations. The external form and general features of Monte Somma having been described, the origin of the present condition of the volcano was discussed in some detail, and the geological structure of the mountain and of the surrounding plain, as revealed by well-sections, was carefully considered. As the result of his observations the author believes that he is able to define eight successive phases in the history of the volcano; and the events which took place during these several periods, with the products of the eruption during each, were

discussed in detail. The earliest certainly recognised phase in the history of the mountain was distinguished by chronic activity exhibited in outflows of lava and the ejection of scoria and ash. Possibly, however, a still earlier and paroxysmal stage is indicated by some of the phenomena described. Phase II. was a period of inactivity and denudation, [which was brought to a close by the violent paroxysms of Phase III., followed by the chronic activity of Phase IV. Phase V. marks the return of a period of inactivity and denudation, which was again followed by the paroxysms of Phase VI. and the less violent outbursts of Phase VII., the last subsiding into the chronic activity which is the characteristic of Phase VIII., the modern period of the history of the volcano. The products of each of these periods of eruption were described in great detail. The eruptive phenomena which are illustrated by these studies of Somma and Vesuvius were then considered, together with the nature and result of the denudation which alternated with eruptive action in originating the present form of the mountain. The paper concluded with a statement of fifty propositions on the subject of vulcanology which appear to the author to be established by the studies detailed in the paper.—Note on "cone-in-cone" structure, by John Young, F.G.S.—A geological sketch of Quidong, Manaro, Australia, by Alfred Morris, F.G.S.

Anthropological Institute, June 12.—Prof. Flower, F.R.S., president, in the chair.—Dr. E. B. Tylor, F.R.S., read a paper on old Scandinavian civilisation among the modern Esquimaux. Amongst other evidences of contact with European civilisation, the author made particular mention of the lamps used by the Esquimaux for cooking and for warming their dwellings: one of these primitive-looking lamps was exhibited by Dr. John Rae, F.R.S.; it consists of a flat semicircular dish of steatite or potstone about 18 inches in diameter and 2½ inches deep, with slightly sloping sides; in it the natives burn oil, using for wick fragments of sphagnum arranged along the edge of the lamp. Dr. Tylor considered that the metal lamps used in the south of Europe, and some of those used in Scotland at the present day, were exactly the same in principle as these Esquimaux lamps, and that they must all have been developed from the same original idea.—The director read a communication from Mr. J. H. Rivett-Carnac, describing some palæolithic stone implements found by himself and Mr. J. Cockburn in Banda, a hilly district of the North-Western Provinces of India. Specimens of these implements were exhibited, presented by Mr. Rivett-Carnac to the Institute.—Dr. E. B. Tylor read a paper by Mr. A. W. Howitt, on Australian beliefs.

June 19.—A special meeting was held at Piccadilly Hall, by invitation of Mr. Ribeiro, to view the Botocudo Indians brought over by him to this country. Mr. Hyde Clarke, vice-president, was in the chair, and Mr. A. H. Keane read a paper on the Botocudos. Mr. Ribeiro presented the Institute with a small collection of typical Botocudo weapons.

June 26.—Prof. Flower, F.R.S., president, in the chair.—The election of Ernest G. Ravenstein was announced.—Mr. Worthington G. Smith exhibited a collection of palæolithic implements from Leyton and Walthamstow.—Mr. R. B. White read a paper on the aboriginal races of the north-western provinces of South America. This paper referred to a strip of country about 600 miles in length by from 100 to 250 in width, bounded on the west by the Pacific Ocean, and extending from one degree north latitude to the eighth parallel. It is now embraced by the States of Cauca and Antioquia, two of the nine states of the Columbia Union, which was formerly called New Granada.—Mr. J. Park Harrison read a paper on the relative length of the first three toes of the human foot. The author adduced evidence to show (1) that a long second toe was a racial characteristic existing at the present day in Egypt (according to Pruner Bey), South-west Africa, and many of the Pacific Islands, including Tahiti. It appears also to have prevailed amongst the ancient Peruvians and Etruscans; (2) when met with in Europeans, excepting perhaps in Italy, it may be attributed mainly to narrow shoes, but sometimes to mixture of blood; (3) Mr. Harrison had ascertained by measurements that a second toe even slightly longer than the first was not, as generally supposed, common in statues of the best period of Greek art, nor in accordance with the rules laid down in Flaxman's lectures at the Royal Academy; (4) unfortunately the peculiarity was being perpetuated by casts of the feet of Roman or Græco-Roman statues, which in some cases, as for instance that of the left foot of the Farnese Apollo, were modern restorations. Travellers were asked to observe the respective lengths of the toes in foreign countries and especially in Italy.

EDINBURGH

Mathematical Society, July 13.—Mr. J. S. Mackay, president, in the chair.—Prof. C. G. Knott read a paper on quaternions, and Mr. D. Munn one on radical axes and centres of similitude.

SYDNEY

Linnean Society of New South Wales, May 30.—Rev. J. E. Tenison-Woods, F.L.S., vice-president, in the chair.—The following papers were read:—Notes on a lower jaw of *Palorchestes Asael*, by Charles W. De Vis, B.A.—Synonymy of Australian and Polynesian land and marine mollusca, by John Brazier, C.M.Z.S.—On some Mesozoic fossils from Central Australia, by the Rev. J. E. Tenison-Woods, F.G.S. The author describes the nature of the deposit from qualitative analysis and microscopic examination, noticing the occurrence of various fossils too imperfect for specific identification. The author describes also the two new species, *Trigonia mesembria*, a clearly Cretaceous form of the section "Glabræ," and *Pecten psila*, which the author considers may only be a variety of *P. socialis*, Moore. He also described a *Belemnites*, probably *B. australis*, Phillips, of a very aberrant type of the section "Hastati." In conclusion, he considered that, as many of Moore's Wollumbilla (Jurassic) fossils were found in this formation, there was either a confusion of type, or that the Wollumbilla beds were part of the lower Cretaceous formation of Central and North-East Australia.—Contribution to a knowledge of the fishes of New Guinea (No. 4), by William Macleay, F.L.S. One hundred and thirty species of fishes are here recorded, chiefly from the extreme south-east of New Guinea, making, with those enumerated in the three previous papers, 409 species in all, collected by Mr. Goldie on the island. One new genus (*Tetracentrum*) and 33 new species are described, chiefly from fresh water.—A second half-century of plants new to South Queensland, by the Rev. B. Scortechini, F.L.S. The author enumerates 50 plants not previously quoted from Southern Queensland, and either belonging to the tropical flora of Northern Australia, or indigenous to the southern and temperate portions of the continent. He also notices some of the changes of nomenclature resulting from the fusion of the genera *Pithecolobium*, *Calliandra*, and *Enterolobium* with *Albizzia*.

PARIS

Academy of Sciences, July 16.—M. Blanchard, president, in the chair.—On the whirlwinds of dust observed by Colonel Prejevalsky in Central Asia, by M. Faye. Like those of Mexico, India, and the Sahara these sandstorms are shown to have the same origin and mechanical action as the tornadoes of the United States and all waterspouts. They are all alike spiral movements descending with vertical axis and invariably moving horizontally nearly in a straight line. The popular belief that the dust on land and water at sea ascends from the surface to the higher regions is due to an optical illusion.—Active or dynamic resistance of solids. Graphic representation of the laws of longitudinal thrust applied to one end of a prismatic rod, the other end of which is fixed, by MM. de Saint-Venant and Flamant.—On the cause of death in the case of freshwater animals plunged into salt water and *vice versa*, by M. Paul Bert. In the case of freshwater animals the fatal effect is caused by the action of chloride of sodium, a conclusion already arrived at by M. de Varigny. In the opposite case death is caused by the absence of chloride of sodium, which it is found impossible to replace either by salts of soda or of magnesia, by glycerine, sugar, or any other substances calculated to give fresh water the consistency of the marine liquid. Several interesting attempts at acclimatisation are described.—On the puna, or "mountain sickness," experienced by travellers at great altitude, by M. A. d'Abbadie. The symptoms are fully described, but M. P. Bert enters a protest against some of the suggested remedies, especially blood-letting.—On some of the results already obtained by the submarine explorations of the *Talisman*, by M. A. Gaudry. Amongst these results are several new species of mollusks, sponges, and crustacea.—On the separation of gallium from various substances (continued); separation from molybdenum, by M. Lecoq de Boisbaudran.—A fresh contribution to the study of intra-vascular sanguineous concretions, by M. G. Hayem.—Brief description of an electric indicator (one illustration), by M. J. Caudey.—On the observation made by M. Gonneriat of the great comet of 1882 (one illustration), by M. Ch. André.—On the changes produced in the duration of the Julian year by the variations of the quantities on which this

duration depends, by M. A. Gaillot.—On the longitudinal impact of a prismatic rod fixed at one end and acted on at the other, by M. J. Boussinesq.—Remarks on the calculus of a definite integral, by M. R. Radau.—On surfaces of the third order, by M. C. Le Paige.—On a new theorem of dynamic electricity, by M. L. Thévenin.—On the currents of emersion and the movement of a metal in a liquid and currents of emersion, by M. Kroncholl.—A new pile made of oxide of copper, described by MM. F. de Lalande and G. Chaperon.—On the density of liquid oxygen, by M. S. Wroblewski.—The salts of protoxide of gold, by M. Ad. Carnot.—On the alcoholate of barytum, by M. de Forcrand.—The action of aldehyde on propylglycol, by M. Arnaud de Gramont.—Researches on the extraction of cinchonamine, by M. Arnaud.—On a new glycerine, "Mesitylenic Glycerine," $C_6H_3(CH_2OH)_3$, by M. A. Colson.—On coal as a heat-generator and on the conversion of its azote into ammonia, by M. Scheurer-Kestner.—A contribution to the history of the development of the heart (four illustrations), by M. Vulpian.—A comparative study of echinoderms: on the organisation of crinoids, by M. Edm. Perrier.—On the structure and texture of the spleen in the common eel, by M. C. Phisalix.—Physiological researches on the secretion of the Morren glands in the earthworm, by M. Ch. Robinet.—Researches on the structure of the breathing apparatus in cephalopods, by M. P. Gorod.—Changes and migrations of plant-lice. Complete biological evolution of the *Tetraneura ulmi*, by M. J. Lichtenstein.—On the colouring function of the *Drosera rotundifolia*, by M. P. Duchatre.—On the physiological part played by the undulations of the lateral walls of the epidermis, by M. J. Vesque.—Cloudiness at Bourges, with meteorological tables of observations from 1867 to 1881, by M. Hervé Mangon.—On the culture of quinquinas in Bolivia, and on some other agricultural products of that country, by M. Sacc.

BERLIN

Physiological Society, July 13.—Dr. Martius spoke on the nature of the heart's systole, more particularly as to whether it was a simple or a tetanic contraction of the heart's muscle. For some time many experiments have been made on this subject with the neuromuscular apparatus, but no secondary tetanus having been produced by the application of this physiological electroscope, it was concluded that the systole was not tetanic but a merely simple contraction. It was, however soon observed that other contractions, unquestionably tetanic, such as the voluntary tetanus, the strychnine tetanus, &c., generated no secondary tetanus, or at all events not in every case. The absence of secondary tetanus in the case of the heart's systole was therefore no conclusive proof of the simple nature of this contraction. Dr. Martius accordingly sought a more decisive means of settling the question, through the aid, namely, of the capillary electrometer, having first, however, made sure of the capability of the instrument he employed to follow with ease and certainty undulations of current of much greater frequency than occur in the case of the natural tetanus and reaching as high as forty per second. The capillary electrometer having then, by means of two needles thrust into a normal rabbit's heart *in situ*, been circularly closed, it was found that each systole responded by a merely simple displacement of the meniscus. The systole was consequently determined to be no tetanic but a purely simple contraction. Dr. Martius further described the following method towards an exact enumeration of very frequent vibrations of the capillary electrometer, which to the eye present merely the vanishing rim of the quicksilver cup. Let one fasten to the lever of a chronometric electromagnetic tuning-fork, instead of the pencil, a square piece of paper performing a known high number of movements per second. The square piece of paper will then appear to stand still and to have a gray border on its upper and under side. Let one next place this gray border between the ocular of the microscope and the meniscus of the capillary electrometer. Does the meniscus make just as many movements per second as the square piece of paper, the quicksilver cup will appear to stand still. Does, however, the number of movements not tally, the difference between the two will then be apparent and easily counted, and the number of movements on the part of the paper being known, the actual number of the movements of the quicksilver is also determined.—Prof. Kronecker gave a report on the experiments made by Dr. Jastrebow as to the mode, rhythmus, and innervation of the movements of the vagina of rabbits.—These communications were at the close illustrated by demonstrations.

VIENNA

Imperial Academy of Sciences, May 4.—R. Maly and R. Andreasch, studies on caffeine and theobromine (fifth paper).—A. F. Reibenschuh, on methyl-biguanidine and its compounds.—F. Emich, on ethyl-biguanidine and its compounds; contributions to a knowledge of biguanidine.—W. Biedermann, on the excitability of the spinal cord.—T. Gerst, on the method of determining the orbit from three complete observations.—St. Wolyncervicz, on the determination of the orbit of the *Isabella* planet (210).—S. Wroblewski and K. Olszewski, on the liquefaction of nitrogen and carbon monoxide.—M. Neumayer, on climatic zones during Jurassic and Cretaceous epochs.—T. F. Wolfbauer, on the chemical composition of the water of the Danube near Vienna in the year 1873.—E. von Fleischl, on the distribution of the fibres of the optic nerve over the cones of the human retina.

May 10.—C. von Ettingshausen, contribution to knowledge of Tertiary flora of Sumatra.—Dr. Steir, to the morphology and systematics of culmian and carbon flora.—F. Anton, definitive determination of the orbit and ephemeris of the *Bertha* planet (154).—Zd. Skraup and A. Cobenzl, on two chinoline base, naphthochinoline, formed of naphthylamines.

May 25.—A. Adam Riewicz, on the theory of brain-pressure and on the pathology of brain-compression.—A. Delbovier, report on prophylaxis and therapeutics of typhus.—T. Kachler and F. V. Spitzer, on the formation of isomeric camphor bibromides.—G. Niederist, on Reichenbach's picamar.

May 30.—Anniversary meeting.—The meeting was opened by the substitute of the Curator, Herr von Schmerling.—An address was given by Prof. Zeissberg, of the Historical Class of the Academy, on the youth of Archduke Charles.—The reports of the past year were read by the General Secretary, Prof. Siegel, and the Secretary of the Mathematical Class, Prof. Stefan. Then the obituary notes on the members deceased during the past year were read by the secretaries.—In the Mathematical Class Prof. Senhofer (Innsbruck) was elected member, E. Mojsisowics (Vienna), corresponding member. Prof. Richard Owen (London), W. E. Weber (Göttingen) were elected honorary members, Julius Schmidt (Athens), Hermann von Abich (St. Petersburg), Prof. Ferdinand Zirkel (Leipzig), foreign correspondents.—The Baumgartner prize was awarded to Carl Exner for his paper on the scintillation of stars, and the Lieben prize to V. R. Ebner (Graz), for his experiments on the causes of anisotropism of organic substances.

CONTENTS

	PAGE
Zoology at the Fisheries Exhibition, I.	289
Precautions against Cholera	291
The Life of Edward Henry Palmer. By Prof. W. Robertson Smith	292
Ants and their Ways. By Alfred R. Wallace	293
Letters to the Editor:—	
The Matter of Space.—Prof. A. S. Herschel (<i>With Diagram</i>)	294
On Lord Rayleigh's Dark Plane.—Prof. Oliver J. Lodge (<i>With Diagram</i>)	297
Antihelios.—Dr. Henry MacCormac	299
Disease of Potatoes.—Worthington G. Smith	299
"Waking Impressions."—Mrs. E. Hubbard	299
A Remarkable Form of Cloud.—B. J. Hopkins	299
Triple Rainbow.—R. P. Greg	300
A Remarkable Meteor.—B. G. Jenkins	300
The Function of the Sound-Post in the Violin.—R. Howson	300
Sand.—J. G. Waller	300
On Mounting and Photographing Microscopic Objects (<i>With Diagrams</i>)	300
On the Old Calendars of the Icelanders. By Herr Geelmuyden	303
The Orfe, a Fish Recently Acclimatised in England	304
Snow and Ice Flora. By Mrs. Mary P. Merrifield	304
Notes	305
Our Astronomical Column:—	
The Ellipticity of Uranus	308
Physical Notes	308
Geographical Notes	309
Scientific Serials	310
Societies and Academies	310