

Science News a Century Ago

Giraffes for the Zoological Society

At a meeting of the Zoological Society held on February 9, 1836, a letter was read which had been received from M. Thibaut at Malta, giving an account of the capture and condition of four giraffes which he had procured for the Society. He started from Cairo on April 15, 1834, and arrived at Dongola on July 14, 1834, whence he proceeded by caravan to the deserts of Cordova. On August 16 the Arab hunters succeeded in tracking a full-grown female accompanied by a young one. They soon overtook the former on their fleet coursers, and killed it. The next day they captured the young one. It was necessary to keep it some distance from the caravan for three or four days in order progressively to accustom it to society, when it began to take food, principally of camels' milk. M. Thibaut remained three months in the desert and captured four other giraffes. Difficulty was experienced in transporting them to Cairo and to Malta, but since they had arrived at the latter place every attention was being paid them by Mr. Boucher, the Consul-General. (*Athenæum*.)

Commodore Barron's Steam Ram

THOUGH Captain John Ross in his "Treatise on Navigation by Steam", 1828, had pointed out that a steam man-of-war could disable an opponent by ramming her, the first description of a steam ram was probably that given by Commodore James Barron, U.S.N., on February 11, 1836. His proposed vessel, which he called a "prow-ship", was to have a triple hull. The middle vessel was to be 150 ft. long, 20 ft. wide, and the side vessels 125 ft. long and 20 ft. wide. The prow of the middle hull was to be of solid timbers with iron plates 3 or 4 inches thick affixed to them. The vessel was to be driven by paddle wheels placed between the hulls, the power being supplied by three 120-horse power engines; the speed of the vessel was to be about 8 or 10 knots. "The object of this vessel," said the inventor, "is to destroy men-of-war by running into them with such impetuosity as to break down their sides sufficiently to admit water in such quantities as would defy all possible efforts to prevent immediate sinking. . . . Ancient as well as modern history furnished us with many proofs of the decided effects of this mode of attack. . . . The instances of destruction occasioned to vessels by one running into another are too numerous to admit of a doubt that if the plan recommended above should be adopted on a proper scale, it could never fail of effecting its object." According to Admiral G. N. Preble, U.S.N., a model of the prow-ship was exhibited in 1836 in the rotunda of the Capitol at Washington, and was afterwards removed for preservation to the Naval Academy, Annapolis.

Description of the Daniell's Cell

On February 11 and 18, 1836, a paper was read before the Royal Society entitled "On Voltaic Combination", the paper being in the form of a letter addressed to Faraday by J. F. Daniell, professor of chemistry in King's College, London. The author, after expressing his obligations to Faraday for the important light which his research in electricity had

thrown on chemical science, proceeded to state that he had obtained further confirmation of that great principle discussed and established by Faraday, namely, the definite chemical action of electricity, and had thus been led to the construction of a voltaic arrangement which furnished a constant current of electricity for any required length of time. After describing various experiments, Daniell said that his *constant battery* consisted of a hollow copper cylinder, containing within it a membranous tube formed by the gullet of an ox, in the axis of which is placed a cylindrical rod of zinc. The dilute acid was poured into the membranous tube, and the space between the tube and the cylinder was filled with a solution of sulphate of copper. When the battery was charged in the manner he described, it produced a perfectly equal and steady current of electricity for many hours together.

Anatomy, Physiology and Pathology of the Brain

"A COURSE of Lectures on these interesting and important subjects was commenced by Dr. Spurzheim on Thursday last, in the Webb St. Theatre of Anatomy, in the presence of a very numerous class of Medical Students. The Doctor, in an admirable Introductory Address, forcibly illustrated the advantages which must result to medical practitioners from their being acquainted with the structure of the brain, and with its healthy and diseased functions, and commented in a spirited manner on the *insane* practice which an ignorance of these subjects leads people to adopt, with a view to cure *insanity*.

"The lecture was exceedingly well received, and appeared to give great satisfaction. We have no doubt that all classes of medical men will feel it a duty to attend these valuable Discourses." (*Lancet*, February 11, 1836.)

Societies and Academies

LONDON

Royal Society, January 30. R. A. McCANCE: Experimental sodium chloride deficiency in man. Three subjects were subjected to a weighed diet containing minimal quantities of sodium chloride. Fluids were not restricted. The protein intake was augmented by incorporating 'ashless' casein in the diet. Sweating was carried out in a radiant heat bath, and the sweat was collected quantitatively on mackintosh sheeting. Urine, faeces and insensible perspiration were also collected. The sodium, chloride, nitrogen and potassium balances were determined on two subjects. The deficiency, which was severe, led to a loss of 25-35 per cent of the body sodium. The symptoms were loss of the sense of flavour, considerable weakness and fatigue, a sense of constriction in the chest on the least exertion, and cramps. The subjects at first lost weight *pari passu* with sodium, but later the weight ceased to fall and thereafter fluctuated without reference to the sodium. Many of the symptoms and signs and also the blood changes closely reproduced clinical or experimental Addison's disease, but there were points of difference also, for example, no fall of blood pressure. As sodium chloride was restored, the weight rose, the nitrogen balance became positive, the blood urea fell, and

health was regained. D. Y. SOLANDT: The measurement of accommodation in nerve. Experiments are outlined by which A. V. Hill's theory concerning the time constant of 'accommodation' in the electrical excitation of nerve is verified. The predicted linear relation between relative threshold and time-constant of exponential rise of current was found for certain motor nerves of frogs, fishes, crabs, lobsters and man. The slope of this line is the reciprocal of λ , the time-constant of 'accommodation'. Measures of λ were thus obtained on a variety of nerves under various conditions. The sciatic nerves of normal 'winter' frogs showed an average value of $\lambda = 35$ msec.; the average value for human ulnar nerve was 58 msec. Increasing the concentration of calcium or potassium in the environment of frog's nerve was found to lower λ . Decreasing the calcium ion concentration raised λ until, in the absence of calcium, it approached infinity. No other treatment (excepting changes in temperature) was found by which λ could be raised. The effect of calcium on λ is much greater than potassium. This shows that the time-constants of 'accommodation' and of 'excitation' are independent.

PARIS

Academy of Sciences, December 30 (C.R., 201, 1445-1528). JULIEN COSTANTIN: The Dauzère variety, a mutation of the Roquelaure (Gers) potato. The combined action of high altitude and fungi modifies the physiological properties of the tubers. In the case of the Roquelaure variety, the symbiotic fungi have created a new variety which has been stable for about twenty-five years. GABRIEL BERTRAND and LAZARE SILBERSTEIN: The comparative amounts of sulphur and phosphorus in plants cultivated in the same soil. Experimental results proving the importance of sulphur compared with that of phosphorus in the development of plants. The ratio of sulphur to phosphorus ranges from 0.38 to 4.0. For about half the plants examined, the ratio was greater than unity. NICOLAS KRYLOFF and NICOLAS BOGOLIUBOFF: Invariant measurements and transitivity. J. SOULA: Certain indefinitely derivable functions. L. KANTOROVITCH: A space of functions with limited variation and the differentiation of a series term by term. LOUIS GABEAUD: The appearance of a shock wave in an aerodynamic field with subsonic velocities. ADRIEN FOCH: The numerical evaluation of the turbulence of aerodynamic blowers. MLE. MARIE BLOCH and JEAN DUFAY: The analysis and interpretation of the nebular spectrum of Nova Herculis. Lines identified included those of hydrogen, helium, oxygen, carbon and nitrogen. The spectrum corresponded with that of the planetary nebulae. EMILE SEVIN: The geometrical relations presented by material particles. PAUL SANTO RINI: The registration of the position of equilibrium of the beam of a microbalance by a high-frequency method. JEAN VILLEY: Tuyères with non-isentropic flow. PIERRE JACQUET: A new method of obtaining perfectly polished metal surfaces. Description of a method applicable to copper and certain copper alloys based on the anodic attack of the metal in a concentrated aqueous solution of orthophosphoric or pyrophosphoric acid. Three photomicrographs are reproduced of copper polished with emery, alumina and by the proposed method. FRED VLÈS: The relations between the electro-chemical constants, the infra-red spectrum and the reactional properties. ERWIN HEINTZ: The infra-red spectrum of the amino-acids

and of the polypeptides. ALBERT ARNULF and BERNARD LYOT: A spectrograph with large aperture applicable to the ultra-violet. JEAN MOLNAR: A photochemical decomposition of the nitrophenols. EUGÈNE COTTÉ: The inflammation of fire-damp by the filaments of incandescent electric bulbs. Many experiments lead to the conclusion that the filaments of ordinary electric light bulbs are a possible danger in atmospheres containing marsh gas, but the results obtained by Couriot and Meunier in 1898 are opposed to this view. Experiments now described show that whether explosion takes place or not when a bulb is broken depends on the size of the hole and the dimensions of the bulb. PAUL CORRIEZ: The electrical resistivity and magnetic susceptibility of sugar carbon after undergoing various thermal treatments. Sugar carbon, after heating to various temperatures between 1,000° C. and 2,000° C., shows a decrease in resistance and an increase in magnetic susceptibility as the temperature is higher. ETIENNE CANALS, PIERRE PEYROT and ROGER NOËL: The fluorescence of some pure substances. Measurements of the fluorescence of seven fatty alcohols and benzyl alcohol are given. All the alcohols examined were fluorescent, the benzyl alcohol being much more fluorescent than the fatty alcohols. FÉLIX FRANCOIS: The system antimony iodide - sodium iodide - water. ANDRÉ CHRÉTIEN and GEORGES VARGA: The system stannic chloride - hydrochloric acid. JACQUES BOURCART: The marine Quaternary in the Gulf of Cadiz. GÉRARD WATERLOT: The tectonic of the north-east edge of the Poitevin Marais. ROBERT LAFFITTE: The Danian and the Nummulitic in western Aurès. J. DEVAUX: The temperature of atmospheric ozone. From measurements in the infra-red spectrum it is concluded that the temperature of atmospheric ozone, supposed uniform, is low, much below 0° C. AUGUSTE and RENÉ SARTORY and JACQUES MEYER: Study of the organism isolated from a primary sporotrichotic arthritis with vertebral metastasis. The organism isolated appeared to be new and was named *Sporotrichum (Rhinocladium) verticilloides*. CHARLES HAMANT: Hydrocyanic acid and nitrates in the course of the germination of *Sorghum*. JEAN LE CALVEZ: The gametes of some Foraminifera. HENRI NOUVEL: The founder Nematogen of *Dicymennea eledones* and its larva. W. KOPACZEWSKI and STANISLAS MARCZEWSKI: Interchangeable anaphylactic phenomena. JEAN LOISELEUR: The mode of action of radioactive bodies on the proteins. JACQUES MONOD: The rate of growth as a function of the concentration of food in a population of *Glaucoma piriformis* in a pure culture. MLE. YVONNE GARREAU: Some organic salts of a diaminoquinone disulphonic acid. R. GUILLEMET: The catalysed fermentation of some fructoholosides. ALBERT GORIS and HENRI CANAL: The synthesis of 2'.6'.dioxy-4'.methoxy- β -phenyl-propionophenone. The ketone prepared synthetically has been proved to be identical with that isolated from the essence of *Populus balsamifera*. MME. ANDRÉE ROCHE and JEAN ROCHE: The variations of osmotic pressure and the size of the hæmocyannin molecules in the course of prolonged fasting (estivation or hibernation) in certain species of *Helix*. MME. HÉLÈNE SPARROW: Attempts at vaccination with Rickettsias of the marine I virus of Tunis. CHARLES NICOLLE: Remarks on the preceding note. JEAN CUILLÉ, PAUL LOUIS CHELLE and FRANCIS BERLUREAU: The existence in France of a new hæmatozoan of the ox, *Eperythrozoon Wenyoni*.