

## Science News a Century Ago

### The Entomological Society

At a meeting of the Entomological Society held on March 7, 1836, various rare and singular species of insects were exhibited by different members, including a specimen of the kangaroo beetle from Mexico, an insect of great rarity, shown by J. G. Children, secretary of the Royal Society, by whom also some curious specimens of lepidopterous larvæ from New Zealand were exhibited. Five memoirs were presented including one on the Golofa beetle of Venezuela, another on a description of a new species of water beetle from Cambridgeshire and a third entitled "Description of New and Notes upon other Orthopterous Insects".

### Fossil Remains of Mammalia in India

On March 9, 1836, a paper by Captain Cautley was read to the Geological Society "On the Remains of Mammalia found in a Range of Mountains at the Southern Foot of the Himalayas, between the Sutlej and the Burhampooter". The hills to which the author referred lay between the Jumna and the Ganges; they did not reach more than 3,000 ft. above sea-level, and consisted of marls, sandstones and conglomerates. In the marl had been found remains of a species of anthracotherium bear, caston, deer, horse, gavial, crocodile, tortoises, fishes and fresh-water shells. The sandstones west of the Jumna had yielded a still greater number of mammalian remains, those hitherto determined belonging to the mastodon, elephant, rhinoceros, hippopotamus, hog, horse, deer, carnivora (canine and feline), crocodile, gavial, tortoise and fish. Captain Cautley's memoir was accompanied by a large collection of bones in a fine state of preservation which he presented to the Society's museum.

### Magnetic Compasses in Iron Ships

WHEN iron steam vessels were first employed, two of the most serious objections to their use arose from the rapidity with which they became encrusted with marine growths and from the disturbance of the compass. When the vessels were employed only in rivers and narrow channels, these matters could be allowed for, but when vessels were sent overseas, the disturbance of the compass made navigation very difficult. Some of the first investigations into the question were made by Commander E. J. Johnson, and at a meeting of the Royal Society held on March 10, 1836, a memoir was read entitled "Report of Magnetic Experiments tried on Board an Iron Steam Vessel, by Order of the Right Hon. the Lords Commissioners of the Admiralty by Edward J. Johnson, Esq., Commander, R.N., communicated by Captain Beaufort by Command of the Admiralty".

The vessel used for the experiments was the *Garryowen*, 281 tons burden, built and engined by Lairds at Birkenhead and owned by the City of Dublin Steam Packet Co. The vessel was placed under the direction of Commander Johnson in Tarbert Bay in the Shannon on October 19, 1835. Various compasses were placed on the quay of the harbour, and as the *Garryowen* was warped from her anchorage towards them, head first and then stern first, observations were made on the deflection of the compasses. Further observations were made on compasses placed in various positions in the ship.

Little resulted from these experiments; but they led to the more important ones made two years later by Airy in the *S.S. Rainbow*.

### The Paris School of Medicine

ACCORDING to *The Times* on March 12, 1836, "in the midst of an immense concourse of the pupils of the School of Medicine, M. Sanson, the surgeon of the Hotel Dieu, was proclaimed Professor of Clinical Surgery as successor to Dupuytren, after a public competition which had lasted two months. The unsuccessful candidates, gentlemen of considerable eminence, were Messrs. Laugier, Blandin, Pelletier, Berard, Guerbois and Jaubert."

## Societies and Academies

### LONDON

Royal Society, February 27. W. R. GRAHAM, Jun., H. D. KAY and N. R. MCINTOSH: (1) A convenient method for obtaining bovine arterial blood. W. R. GRAHAM, Jun., T. S. G. JONES and H. D. KAY: (2) The precursors in cow's blood of milk fat and other milk constituents. S. J. FOLLEY and P. WHITE: (3) The effect of thyroxine on milk secretion and on some blood constituents of the lactating cow. The processes taking place in the mammary gland during milk secretion in the dairy cow have hitherto been difficult to investigate because no satisfactory method has been known for obtaining arterial blood without serious disturbance to the animal. Such a method has now been devised, and consists in puncture of the internal iliac artery through the wall of the rectum. The method is relatively safe and more than 150 arterial punctures have been made with only one fatal casualty. The following findings have been made: (1) the fat of cow's milk is derived in the main from the non-phospholipin fatty acids of the blood; (2) the phosphorus compounds of the milk derive their phosphorus from the inorganic phosphate of the blood plasma, and not from the phosphoric esters or the phospholipins of the blood; (3) relatively large quantities (up to 30 per cent) of the blood sugar are removed from the blood on passage through the mammary gland; (4) the number of volumes of blood required to produce one volume of milk is of the same order whether calculated from the fatty acid changes, inorganic phosphate changes, or sugar changes between arterial and venous blood. A rapid circulation of blood—probably at the rate of 300–400 volumes for each volume of milk secreted—takes place through the mammary tissue. There is a suggestion that one of the factors controlling the quantity and quality of the milk secreted is the arterial blood sugar level. This can be raised and kept above the normal level in the cow by thyroid feeding or thyroxin administration. The effect of thyroxin administration on the volume and quality of milk secreted by the cow has been carefully examined and the results subjected to statistical treatment. Under proper conditions a considerable increase in milk volume and in milk fat percentage and also in the percentage of non-fatty solids in the milk occurs. L. E. BAYLISS, R. J. LYTHGOE and KATHERINE TANSLEY: Some new forms of visual purple found in sea fishes with a note on the visual cells of origin. A number of new forms of visual



purple, which are found in sea-water fishes and which have maxima of absorption between 505  $m\mu$  and 545  $m\mu$ , are described. The absorption curves were obtained by a null-point photo-electric spectrophotometer. The instrument is capable of giving accurate readings with 0.5 c.c. of solution, and with a light intensity which is not sufficient to bleach the visual purple. It was found that there are alterations in the form of the absorption curves as a result of 'bleaching' of the yellow substances in the control solution, also there may be changes in the curve when the visual purple is extracted with distilled water. A histological examination of the retinae was made on each of the species used. The variety of visual purple carried by a species cannot be related to the available data on the depth which that species normally frequents, to the ancestry of the species, or to the histology of the retina of origin.

## DUBLIN

Royal Dublin Society, February 4. P. A. MURPHY: Some effects of drought on potato tubers. Ten forms of drought effect on potato tubers are defined and described, including cracking, hollow heart, prolongation, gemmation, chain tuberisation, independent tuber formation, premature sprouting, softening, glassy-end, and drought and heat necrosis; and the underlying physiological problems are discussed. Loss of water from developing tubers leads to the suppression of dormancy, and has an important effect on the value of seed potatoes. V. BARRY and T. DILLON: The preparation of alginic acid. Details are given of the method already described by the authors for the preparation of alginic acid from seaweed. Analysis of the barium salt and polarimeter measurements confirm the view already put forward that alginic acid is a polymer of a complete sugar acid  $C_6H_{10}O_7$ . V. BARRY, T. DILLON and P. O'MUINEACHAIN: The acetylation of alginic acid. This cannot be accomplished by any of the usual methods, but takes place readily when the substance is treated with hydriodic acid and acetic acid, and left standing for about twelve hours. Three products are obtained, one soluble in acetone, one soluble in alcohol, and one in aqueous alcohol. They are all diacetyl derivatives corresponding to the formula  $C_6H_8O_7(COCH_3)_2$ . They are probably diacetyl derivatives of alginic acid in different stages of degradation.

## PARIS

Academy of Sciences, January 27 (*C.R.*, 202, 257-360). HENRI DOUVILLÉ: The granitic sands in relation with tectonic accidents of the Eocene and with the limits of the stages. GABRIEL BERTRAND and LAZARE SILBERSTEIN: The comparative proportions of sulphur and nitrogen in plants cultivated on the same soil. Tabulated results of analyses of thirty-three plants, showing the percentage of nitrogen on the dry material and the ratio of sulphur to nitrogen. The nitrogen varies between 2.0 and 5.3 per cent, the ratio S/N between 0.052 and 0.495. ALEXANDRE BRGOT and RAOUL FORTIN: The test boring at Incarville, near Louviers (Eure). The thicknesses of the strata traversed are compared with the results obtained at Calvados and at Ferriere-en-Bray. CHARLES POISSON: The study of the magnetic anomalies at Tananarive. Description of the simplified method of taking the observations, necessitated by the large number of readings required. MARCEL VASSEUR: Laplace invariants and projective

deformation of surfaces. R. O. KUZMIN: The method of quadrature of Tchebycheff. J. FAVARD: An extremal property of the integral of a periodic function. JULIEN KRAVTCHEVSKO: The problems of conformal representation of Helmholtz; the existence of solutions of the problems of the wake and bow in a perfect fluid limited by plane walls. ALEXANDRE GHICA: Systems of orthogonal functions of one complex variable. ARMAND RAUCH: The extension of a theorem of M. Valiron on the directions of Borel. F. H. VAN DEN DUNGEN: A new principle of mechanics. WANG SHIH-KY: The diffusion of stellar light. HENRI CAMICHEL: The spectrum of Nova Herculis observed with the large Meudon telescope. LÉON CONVERS: The surface tension of calcium amalgam. The surface tension of calcium amalgams was measured by the drop method for twelve concentrations, the highest being 0.0033 per cent. Some irregularities were attributed to the effect of oxidation. FRÉDÉRIC JOLIOT, MOSHÉ FELDENKRAIS and ANDRÉ LAZARD: The use of carbon tetrachloride for raising the voltage of electrostatic generators of the Van de Graaff type. The limit in a given apparatus working in air was 650 kilo-volts: the introduction of carbon tetrachloride vapour into the air raised the limit to 1,250 kilo-volts. There is no explanation at present of how the carbon tetrachloride vapour acts. NICOLAS MINORSKY: A method of integrating some differential equations by electrical means. C. BUDEANU: The transfer of deforming phenomena. Mathematical analysis of alternating current circuits. PIERRE CARRÉ: An attempt at the interpretation of some differences of properties of the alkyl chloro-sulphites and chloroformates, from the electronic point of view. PIERRE BARCHEWITZ: The application to absorption measurements of a simplified model of Jamin's apparatus with polarised light. MAURICE PARODI: The residual rays of magnesium oxide. By modifying the method of Born for cubical crystals of the type NaCl a result is obtained for MgO in agreement with the experiments of Barnes, Brattain and Seitz. HENRI BIZETTE: The electrical double refraction of compressed nitrogen. Kerr's constant for gaseous nitrogen, reduced to one atmosphere, for the radiation 0.578  $\mu$  of the mercury arc and at the temperature 22° C., is  $B = 0.02 \times 10^{10}$ . W. BRONIEWSKI, J. T. JABLONSKI and ST. MAJ: The solidification diagram of the copper-tin alloys. Previous workers on this subject have not agreed on the interpretation of their results, probably owing to the extreme slowness in the establishment of the equilibria. The authors annealed their specimens for 200-400 hours, and studied the heating curve. JEAN BUREAU: The crystalline varieties of the hydrated barium and strontium nitrites. The hydrate  $Sr(NO_2)_2 \cdot 4H_2O$ . GABRIEL VALENSI: The kinetics of the oxidation of spherules and metallic powders. MME. MARIE FREYMANN and RENÉ FREYMANN: The constitution of the oximes and their absorption spectrum in the near infra-red. The NH group and the OH group are characterised by definite bands in the infra-red; the application of this method confirms the view that oximes exist in two isomeric forms. The ratio of the two forms differs considerably with the nature of the alkyl groups. HENRI MOUREU: The electric moment of tantalum pentachloride and the structure of the compounds  $AX_5$ . Tantalum pentachloride, according to the results of the experiments cited, possesses an electric moment, and hence cannot possess a symmetrical formula. JEAN BRETON and PAUL LAFFITTE: The limits and velocities of



detonation of some gaseous mixtures. **ANDRÉ KLING** and **MAURICE ROUILLY**: A rapid method for determining the amount of carbon dioxide in gaseous atmospheres. **LOUIS MÉDARD** and **ROBERT MARCHAND**: The Raman effect of the neutral alkyl sulphates. The differences between the Raman spectrum of sulphuric acid and those of methyl and ethyl sulphates are greater than the differences between the spectra of the alkyl nitrates and nitric acid and suggest a peculiar molecular structure for sulphuric acid. **Mlle. Blanche Grédy**: Comparison of the Raman spectra of the 2-octene-1-ols and some of their *cis* and *trans* derivatives. **VICTOR HARLAY**: Some cupric and cuprous combinations of thiosemicarbazide and its derivatives. **MARCEL GODCHOT** and **Mlle. Germaine Cauquil**: The action of selenium dioxide on some cyclanones. **MARTIAL FÉLIX TABOURY** and **ROGER PAJEAU**: Beryllium bromide as a catalyst in the bromination of benzene. **J. JUNG** and **E. RAGUIN**: The petrography of an epicristallophyllian series of the Beaujolais. **MAURICE ROQUES**: The relations between the amphibolites and peridotites at Sarrazac (Dordogne). **FERNAND JACQUET**: The lower Eocene age of the phosphate deposits of Senegal. **PIERRE COMTE**: The Devonian of Léon (Spain). **Mlle. Marie Chaubert**: The certain presence of the Llandovery in the Gothlandian of the Montagne Noire. **JOSEPH BOUGET**: The distribution of aphid on the high ground and the lower parts of the Pyrenees valleys (Adour region). The greatly increased yield of potato plants exposed to high winds, as on hill-tops or on the coast, is explained as being due to the unfavourable effects of the wind on the plant aphid, the latter being known to carry disease. **JULIEN COSTANTIN**: Remarks on the preceding communication of J. Bouget. **STEFAN JELLINEK**: The parallelism of the physiological and morphological action of the cathode (commercial direct current on the human skin). **RENÉ HAZARD**: Sparteine, the antagonist of yohimbine on adrenaline hyperglycaemia. **RAOUL MICHEL MAY**: The duration of subcutaneous brephoplastic grafts of thyroid in the rat. **ETIENNE RABAUD**: Stereotropism of the hermit crabs. **VICTOR PLOUVIER**: The presence of amygdonitrile glucoside in the genus *Cotoneaster* and the leaves of *Cydonia vulgaris*. **THÉOPHILE CAHN** and **JACQUES HOUGET**: The transformation of glycogen into lactic acid in muscular extracts of normal and diabetic dogs. The experiments described show that diabetic muscle is capable of converting glycogen into lactic acid, but with a lower velocity. **RAYMOND HAMET**: Bulbocapnine, a type of a new group of medicaments.

#### AMSTERDAM

Royal Academy of Sciences (*Proc.*, 38, No. 10, December 1935). **L. RUTTEN**: The Antilles arc. There is no distinction stratigraphically or tectonically between the Greater and Lesser Antilles. They are to be considered as a recent tectonic structure. **J. G. VAN DER CORPUT**: Distribution functions (2). **F. A. H. SCHREINEMAKERS**, **MISS J. C. LANZING** and **C. L. DE VRIES**: Influence of the nature of the membrane and the temperature on the osmotic system of water and oxalic acid. This system behaves quite differently according to whether the membrane is a pig's bladder or 'cellophane'. **A. N. J. HEYN**: Chemical nature of some growth hormones as determined by the diffusion method. The hormones from the coleoptile tips of *Avena* and the root tips of *Vicia Faba* are shown to be identical with auxin *a* and

that from the sporangiophore of *Phycomyces nitens* with indolylacetic acid. **J. J. WAKKIE**: Notes on the possible structure of the chlorophyll granules in the plastid. Attempt to produce an anisotropic fluorescent chlorophyll model which will reproduce the properties of chlorophyll in the plastid. **W. BEIJERINCK**: Polymorphism and colour of the *Calluna* flower. Observations on the varieties found in the heath land of the Drenthe province of Holland. **W. BEIJERINCK**: The opening of the flower buds of *Calluna vulgaris*, L., Salisb. The influence of temperature and water-supply on the opening of the buds of this flower. **B. VAN DER EYKEN**: Denture and teeth development in the Irisfelle (*Salmo irideus*). (2) Tongue. Studies on embryos to determine the stages in the development of the teeth. **C. P. RAVEN**: Experimental investigations on glycogen metabolism of the organisation centre in the amphibian gastrula (2). **C. P. RAVEN**: Assimilatory induction in the dorsal lip of the blastopore of the amphibian gastrula.

### Forthcoming Events

[Meetings marked with an asterisk are open to the public.]

#### Saturday, March 7

**BIOCHEMICAL SOCIETY**, at 2.30.—(at University College, London, W.C.1).—Annual General Meeting.

**BRITISH PSYCHOLOGICAL SOCIETY**, at 3.—(at Bedford College, Regent's Park, N.W.1).—Symposium on "Appetites". Papers by Prof. David Katz, C. A. Mace and Dr. C. A. McCurdy.

#### Monday, March 9

**ROYAL SOCIETY FOR THE PROTECTION OF BIRDS**, at 3.—(in Westminster Palace Rooms, 44, Victoria Street, S.W.1).—Annual General Meeting. Discussion on "Bird Sanctuaries".

**ROYAL GEOGRAPHICAL SOCIETY**, at 5.—E. R. Gunther: "Variations in Behaviour of the Peru Coastal Current".

#### Tuesday, March 10

**ROYAL INSTITUTION**, at 5.15.—Prof. Edward Mellanby, F.R.S.: "Drug-like Actions of Some Foods" (succeeding lectures on March 17, 24 and 31).

**INSTITUTION OF CIVIL ENGINEERS**, at 6.—D. Anderson: "The Construction of the Mersey Tunnel".

#### Wednesday, March 11

**ROYAL SOCIETY OF ARTS**, at 8.—Dr. G. W. C. Kaye: "The Acoustics of Halls".

#### Thursday, March 12

**ROYAL SOCIETY**, at 11.30.—Discussion on "Surface Phenomena—Films" to be opened by Prof. E. K. Rideal, F.R.S.

#### Saturday, March 14

**ROYAL INSTITUTION**, at 3.—The Right Hon. Lord Rutherford, O.M., F.R.S.: "Recent Researches on Transmutation" (succeeding lectures on March 21, 28 and April 4).

**INSTITUTE OF METALS**, March 11–12.—Annual General Meeting to be held at the Institution of Mechanical Engineers, Storey's Gate, Westminster, S.W.1.

March 11, at 10.—W. R. Barclay: Presidential Address.

(March 10.—Special Discussion on "Metallic Wear", to be opened by Dr. H. W. Brownsdon.)