Science News a Century Ago

Sir Charles Bell on the Brain

On April 30, 1835, Sir Charles Bell continued the reading to the Royal Society of his paper on the relation between the nerves of motion and of sensation and the brain. The report of his paper said: "The author enters into a minute anatomical investigation of the structure of the spinal cord, and of its relations with the encephalon, and with the origin of the nerves. He finds that the spinal cord is constituted in its whole length, by six pairs of columns, namely, two posterior, two lateral and two anterior; each column being composed of concentric layers, and invested with an external coating of cineritious substance, and all the columns being divided from each other by deep sulci, which penetrate nearly to the centre of the cord. On tracing the posterior columns in their ascent towards the encephalon, they are seen to diverge laterally at the *calamus scriptorius*, or bottom of the fourth ventricle, and to proceed into the substance of the cerebellum. . . ."

Quetelet's Natural Philosophy

Among the "Analyses of Books" contained in the *Records of General Science* of May 1835 is a notice of the "Facts, Laws and Phenomena of Natural Philosophy etc. Translated from the French of Professor Quetelet of Brussels, with notes by Robert Wallace".

"For this translation," the notice ran, "we are indebted to the industry of some young ladies in the vicinity of Glasgow. Mr. Wallace, the editor, states that having been called to give some lessons to some young ladies who were desirous of acquiring a knowledge of Natural Philosophy, he proposed that he should employ M. Quetelet's work as a text book. This proposal was adopted, the work translated, and the result of their labours is now presented to the public. It is extremely gratifying to see the tender sex not only enriching our books of science with their pencils, but actually studying something more than mere superficialities. M. Quetelet is concise in his statements of facts, of which the work forms a good digest. . . . The recent important discoveries in electricity of Dr. Faraday have entirely escaped the notice of the author, but should have been introduced by the editor, as they include some very curious phenomena and constitute a very essential part of the science".

Gurney's Oxy-Hydrogen Light

"The Bude Light," said the *Mechanics' Magazine* of May 2, 1835, "is a name given by Mr. Gurney (of steam-carriage abortion celebrity) to a new light which he has discovered, and so named after his new place of residence in Cornwall. It is obtained by directing a stream of oxy-hydrogen gas on a quantity of powdered egg shells. The light is represented to be 140 times greater than any of those now employed in lighthouses—so intense, indeed, that Mr. G. lately stated to the House of Commons Committee on Lighthouses 'his belief that it would be possible to make his light, by certain management, point out the precise situation of a coast beacon to a ship three or four miles at sea, under circumstances of a fog so dense that no other light—not even the sun—could penetrate it to any distance'!"

Societies and Academies

PARIS

Academy of Sciences, March 11 (*C.R.*, **200**, 869–992). LUCIEN CAYEUX: The conglomerate structure in lacustral medium in the old sedimentary series of France. RICHARD FOSSE, PAUL DE GRAEVE and PAUL EMILE THOMAS: The identification of small quantities of amino acids by elementary analysis. The method is based on the conversion of the amino-acid into a hydantoic acid with potassium cyanate and condensation of this with xanthydrol. CHARLES NICOLLE and MME HÉLÈNE SPARROW: The weak pathogenic power, for small apes, of the murin virus I from rats at the port of Tunis. J. CABANNES and J. DUFAY: The annual variation of the intensity of the bright lines of the night sky. The results suggest that the polar aurora and the emission of the nocturnal sky may have a common cause. HENRI LAGATU and LOUIS MAUME: The kinematics of lime and magnesia and their physiological relation in the tobacco leaf. Method of leaf relays. SYLVAIN WACHS: The reduced form of a quaternion unilateral linear substitution. N. AKHYESER and M. KREIN: A quadrature formula of Tchebicheff. ROBERT MEYNIEUX: The functional equations expressing the theorems of addition and of others more general. ALEXANDRE DUFOUR: The possibility of deciding experimentally the difference between classical kinematics and relativist kinematics. Z. HORAK: The effect of the friction of pivoting on the shock of elastic bodies. SIMON DE BACKER: Viscous fluids and waves capable of propagation. ANTOINE BRUN: The variable stars of the great nebula of Orion. A list of ten new variable stars. VICTOR NAGGIAR: The production of threads and vortices in nematic liquids. JACQUES SOLOMON: The applicability of the principle of conservation of the moment of quantity of motion to nuclear processes. N. THON: The constitution of the double layer and the trend of the curve of potential in the electrolytic neutralisation of metallic ions. G. WATAGHIN: The thermal equilibrium of elementary corpuscles. LÉON ENDERLIN: Study of the magnetic susceptibility of tetraphenylrubene and its dissociable oxide. The magnetic measurements agree with thermochemical data and tend to establish that the oxygen of the dissociable rubene oxide is connected with the organic substratum by normal valencies. This is a new argument in favour of the formula adopted for oxyrubene. C. H. CARTWRIGHT and J. ERRERA: The intramolecular isomerism of α-picoline studied in the extreme infra-red. The hypothesis of the existence of the second tautomeric form of α-picoline is not confirmed by these researches. ANDRÉ CHARRIOU and MLLE. SUZANNE VALETTE: The influence of alkaline iodides on the properties of photographic emulsions. RENÉ AUDUBERT: The sensibility of photon counters. JEAN ROULLEAU: The mechanisms of the photopotential of sheets of oxidised copper. LÉONARD SOSNOWSKI: The artificial radioactivity of iridium. The iridium was produced by the action of neutrons from beryllium irradiated with radium. The artificial radioactivity thus induced is fairly intense. The results are not in agreement with those of Fermi. HENRI MURAOUR and ANDRÉ MICHEL-LÉVY: The origin of the luminosities which accompany the detonation of explosives. E. DUCHEMIN: The influence of light on periodic precipitations in gelatinous media. The precipitation of silver chromate, phosphate and

arsenate. CHARLES DUFRAISSE and MARIUS BADOCHE: The relations between the optical properties of the medium and the photochemical constants of tetraphenylrubene. Study of the absorption spectrum. The positions of the absorption bands vary with the nature of the solvent, but there is no evidence of the formation of any definite compound of the rubene with the solvent. ANDRÉ MEYER and MLLE. MADELEINE MAURIN: Some reactional properties of 4.hydroxyquinaldine. CLÉMENT DUVAL: The coloration of cobalt salts. HENRI WAHL: The chlorine derivatives of *p*-xylene. Along with the 2,5 dichloroxylene already known, the 2,3 isomer is formed in the proportion of about 5 per cent. The constitution of the latter has been established by synthesis. JOSEPH HOCH: A general method of synthesis of the nitrogen substituted ethylenic amines, R : C : CR′.NR″(Ar). ROBERT LEVAILLANT: The symmetrical sulphates of amyl, hexyl, heptyl and butyl. The reaction used was that between a chlorsulphonate, $ClSO_3R$, and a sulphite, R_2SO_3, in the presence of a trace of zinc chloride as catalyst. CHARLES PRÉVOST: The iodoargentobenzoic complex as agent of iodation; probable structure of the complex. PIERRE BEDOS and ADREIN RUYER: The constitution of △ 3,4.cyclohexene-1,2 diol. Some αβ-derivatives of adipic acid. GEORGES MIGEON: The variation of the volume and the modifications of the network of the sepiolites as a function of the temperature. HENRI LONGCHAMBON: The sepiolite of Ampandrandava (Madagascar). ANDRÉ RIVIÈRE: New observations on the secondary of the Anti-Elbourz (Persia). GEORGES DEFLANDRE: The presence of microdiaclases in fragments of flint. Their importance in the artificial coloration of microfossils, and in particular, Foraminifera. ALBERT ROBAUX: Extension of the formations of the upper Cretaceous, the Eocene and the Oligocene of the Flysch series in the south of the Province of Cadiz. LOUIS EBLÉ and GASTON GIBAULT: The values of the magnetic elements at the station of VAL-JOYEUX (Seine-et-Oise) on January 1, 1935. CONSTANTIN T. POPESCO: The undulatory movements in the leaves of *Dracœna indivisa* and *Alocasia macrorhiza*. RAYMOND POISSON and RENÉ PATAY: *Beauveria doryphorœ*, a Muscardine parasite of *Leptinotarsa decemlineata*. A. PAILLOT: Leutocytic nodules and various reactional processes in silk worms experimentally infected with *Streptococcus bombycis*. EMILE HAAS: The measurement of accommodative amplitude. EMILE BRUMPT: Paludism in birds. *Plasmodium paddæ* of *Padda oryzivora*. The utilisation of this parasite for chemicotherapeutic researches on paludism. MLLE. GERMAINE COUSIN: The phenomena of neoteny in *Acheta campestris* and its hybrids. HENRI NOUVEL: The glycogen reserves in the Orthonectides. Study of their evolution. W. KOPACZEWSKI: Serum gelification by cancer-producing agents. MME. MARIE PHISALIX, AUGUSTIN BOUTARIC and JEAN BOUCHARD: The action of some snake poisons on the fluorescence of solutions of uranine. MLADEN PAIĆ and MLLE. VALERIE DEUTSCH: The specific rotatory power, the rotatory dispersion and the polarimetric determination of the seric proteins. GEORGES ANTOINE: The presence of siliceous particles in animal tissues. After destruction of the organic matter in various organs of man and animals, siliceous particles remain which the author regards as silica of interposition, of outside origin. MME. YVONNE KHOUVINE: Study of some plant membranes. RENÉ DUJARRIC DE LA RIVIÈRE and ETIENNE ROUX: Has heavy water any action upon bacteria? The bactericidal action is very small, if any. LOUIS BESSON: The influence of temperature and season on mortality. ARISTIDE MALHERBE, RAYMOND VILENSKI and NOËL HERMAN: Researches on the remnants of audition in deaf mutes. Bone perception and its utilisation in teaching. MLLE. DINAH ABRAGAM: The action of titanium on rats, carriers of Jensen sarcomas. Injections of titanium compounds reduced the mortality due to the tumours.

LENINGRAD

Academy of Sciences (*C.R.*, **4**, No. 8–9; 1934). L. KANTOROVITCH: A generalisation of the integral of Stieltjes. K. EVSTROPJEV and N. SUJKOVSKAJA: Influence of the composition of glass on the value of the phase potential. V. JUZHAKOV: Migration of electrons from sodium into rock salt. V. CHLOPIN and A. SAMARCEVA: Researches in the chemistry of polonium. (1) Some compounds of bivalent polonium. V. LUKASHEVITCH: Sodium amalgam with traces of iron. K. GORBUNOVA and A. VAGRAMIAN: The passive state of the cathode. M. POLIAKOV: Heterogeneous and homogeneous catalysis, H_2+O_2. V. SADIKOV, R. KRISTALLINSKAJA, H. LINDQUIST-RYSAKOVA and V. MENSHIKOVA: Effect of the temperature regime during the splitting of protein in an acetoclave upon the composition of the autoclavolysate. R. BELKIN: Interaction of the external and internal factors during ontogenesis in Amphibia. (1) Influence of temperature on the metamorphosis of tadpoles of *Rana temporaria* produced by thyroxin. The influence of temperature is more important than that of thyroxin. L. POLEZHAJEV: Determination of a regeneration. K. V. KOSIKOV: The attached *X*-chromosomes in *Drosophila simulans*. E. HASRATIAN: The problem of the relation between the duration of the conditioned stimulus and the magnitude of the conditioned reflex. V. NOVIKOV: The problem of hardiness in seedlings of alfalfa varieties. B. RUBIN and L. NAUMOVA: Activity of enzymes as a varietal character. V. TRUPP: The problem of chemical processes in vegetables during storage. A. VOLOGDIN: *Archeocyathi* from the basin of the River Laba in the northern Caucasus. Fresh finds of *Archaeocyathus* sp. in the Caucasus confirm the existence of the Cambrian system in the lower sections of the Caucasian palæozoic strata. N. SOUSTOV: New data on the geology of the Khibiny district.

VIENNA

Academy of Sciences, January 31. GEORG KOLLER and HERMANN HAMBURG: (1) Constitution of *Diploschistes* acid. This acid, which occurs in *Diploschistes scruposus* and *D. bryophilus*, and gives a deep blue colour with baryta solution, consists of lecanoric acid and a second depside, $C_{16}H_{14}O_8$, built up of orsellinic acid and *s*-methylpyrogallolcarboxylic acid. (2) A component of *Pertusuria dealbata*. This component, a lichen acid of the formula $C_{19}H_{16}O_{11}$, proves to be thamnolic acid. ERICH MOLL: Aerological investigation of periodic mountain winds in V-shaped Alpine valleys. OTTO BANKOWSKI: Reciprocal replaceability of the hydrogen atoms of the co-ordination space of a complex salt and of water. RICHARD WEISS and LUDWIG CHLEDOWSKI: Formation of cyclic compounds from aromatic diamines by means of chloral. EMIL ABEL, OTTO REDLICH and WALTER STRICKS: Iodion catalysis of deuterium peroxide. The velocity

constant of this catalysis at 25° is 1·13, those for HDO_2 and H_2O_2 being 1·19 and 1·57 respectively. FRANZ KNOLL: The Bruns-Hermite series in statistics.

February 7. LEOPOLD SCHMID and SIEGMUND MARGULIES: Gossypol. RUDOLF TOTH: Stratigraphical observations on the trias chalk of the Hohen Wand region in Lower Austria. VICTOR F. HESS: Criticism of Arthur Wagner's paper entitled "Critical Remarks on the Daily Course of Cosmic Ultra-radiation". HANS PRZIBRAM: Lower males of the stag-beetle, *Lucanus cervus*, L. as heat-forms. LEONORE BRECHER: Chrysalis coloration of the cabbage butterfly, *Pieris brassicæ*, L. and of *Vanessa Jo* and *V urticæ*. H. BOERSCH: Determination of the structure of simple molecules by electron interference. E. BARONI and A. FINK: Investigations on the concentration of D_2O in natural ice. F. WERNER: Reptiles of the [islands of the] Ægean Sea.

February 14. H. MANN: A law of normal divisors. KARL MAYRHOFER: Partial fraction series. FRITZ PRENN: Dragon-fly fauna of the Tyrol (biology of *Somatochlora arctica*, Zett. and *S. alpestris*, Selys). RICHARD WEISS and JOSEF EBERT: Conversion of dialkylidenecyclohexanes into the isomeric dialkylphenols. (1) Dibenzylidenecyclohexanone to 2 : 5-dibenzylphenol.

February 21. HERBERT HABERLANDT, BERTA KARLIK and KARL PRZIBRAM: Fluorescence of fluorite. (3) Line fluorescence spectrum. The spectra for different yttrofluorites and fluorites exhibit general agreement but individual divergences. One yttrofluorite showed the blue europium bands, and with a fluorite from Weardale the Eu lines were strong in comparison with those of Tb. With fluorites from Eastern Turkestan and Cornwall, the lines were intensified by radium radiation, the presence of very short-lived centres being indicated. WOLFGANG HOFF and FRANZ URBACH: Attainment of a photochemical equilibrium with silver bromide. ALFONS KLEMENC, RAOUL WECHSBERG and GEORG WAGNER: Gas-analysis methods for determining carbon suboxide in presence of carbon dioxide, carbon monoxide and oxygen. Various methods, especially the use of fractional crystallisation at temperatures of about −100° C., were employed for separating these gases. F. ANGEL and OTTO FRIEDRICH: Form of magnetite. OTMAR ECKEL: Radiation research in certain Austrian lakes. FRITZ LIEBEN and STEPHAN MOLNAR: Behaviour of the combination glycocoll-alcohol towards yeast which has been shaken with oxygen. The amount of glycocoll taken up by the yeast is increased by the presence of alcohol, while the uptake of alcohol is checked when glycocoll is present.

Forthcoming Events

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

Saturday, April 27

ROTHAMSTED EXPERIMENTAL STATION.—Conference on the "Swarming of Bees and the Practical Means of Controlling it".

Sunday, April 28

BRITISH MUSEUM (NATURAL HISTORY), at 3 and 4.30.—M. A. Phillips: "Mammals".*

Monday, April 29

BRITISH MUSEUM (NATURAL HISTORY), at 11.30.—G. J. Arrow: "Horned Beetles".*

VICTORIA INSTITUTE, at 4.30.—George H. Kimble: "The Expansion of the Habitable Earth in Old Testament Times".

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Prof. G. Barbour: "Floods and Flood-Control in China and America".

Tuesday, April 30

ROYAL PHOTOGRAPHIC SOCIETY (SCIENTIFIC AND TECHNICAL GROUP), at 7.—Dr. Oliver C. de C. Ellis: "The Afterglow in Gaseous Explosions".

Thursday, May 2

INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Sir William Bragg: "The Molecular Structure of Dielectrics" (Kelvin Lecture).

Friday, May 3

ROYAL INSTITUTION, at 9.—Sir William Larke: "Iron and Steel".

IRON AND STEEL INSTITUTE, May 2–3. Symposium on the "Welding of Iron and Steel" to be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W.1.

Official Publications Received

GREAT BRITAIN AND IRELAND

World Power Conference. Annual Report, 1934. Pp. 18. (London: World Power Conference.)

Forestry Commission. Utilization Series, No. 2: Report on the Demand for Timber in Coal-Mining in England and Wales. Pp. vi+77. (London: H.M. Stationery Office.) 1*s.* 3*d.* net.

Report of the United Kingdom Sugar Industry Inquiry Committee. (Cmd. 4871.) Pp. iv+123. (London: H.M. Stationery Office.) 2*s.* net.

The Archæology of Rochford Hundred and South-East Essex. By William Pollitt. (Museum Handbooks, No. 7.) Pp. 59+22 plates. (Southend-on-Sea: Public Library and Museum Committee.) 6*d.*

University of Oxford: Committee for Advanced Studies. Abstracts of Dissertations for the Degree of Doctor of Philosophy. Vol. 7 (Dissertations accepted during 1934). Pp. iv+129. (Oxford: Clarendon Press; London: Oxford University Press.) 3*s.* net.

OTHER COUNTRIES

Ingeniørvidenskabelige Skrifter. A. Nr. 38: Radiation from a Vertical Antenna over Flat Perfectly Conducting Earth. By Dr. P. O. Pedersen. Pp. 50. 6.00 kr. B. Nr. 12: Miscellaneous Papers. By Dr. P. O. Pedersen. Pp. 105. 6.00 kr. (Copenhagen: G. E. C. Gad.)

Department of Agriculture: Straits Settlements and Federated Malay States. Scientific Series, No. 16: The Toxic Value of *Derris* Spp. By N. C. E. Miller. Pp. ii+44+2 plates. (Kuala Lumpur: Department of Agriculture.) 50 cents.

Commonwealth of Australia: Council for Scientific and Industrial Research. Pamphlet No. 52: Systematic Entomology—Contribution 1: i. Notes on the Genus *Hexamera* B. and B. (Dipt. Tachin.), by A. L. Tonnoir; ii. Australian *Hamitermes* (Isoptera), with Descriptions of New Species and hitherto Undescribed Castes, by G. F. Hill. Pp. 31+3 plates. (Melbourne: Government Printer.)

Indian Forest Records. Vol. 20, Part 13: Results of Experiments on the Kiln Drying of Wood with Ozonized Air. By Dr. S. N. Kapur. Pp. ii+20. (Delhi: Manager of Publications.) 8 annas; 10*d.*

British Guiana: Second Legislative Council, Fourth Session, 1933: Geological Survey Department. The Kaburi District: 1933 Progress Report. By Dr. D. R. Grantham, S. Bracewell and Dr. G. J. Williams. Pp. 22+2 plates. (Georgetown: Government Printers.)

Mémoires de la Société de Physique et d'Histoire Naturelle de Genève. Vol. 41, Fasc. 3: Études sur la partie occidentale du Lac de Genève, 2: Histoire malacologique du Lac de Genève. Par Jules Favre. Pp. 295–414+plate 13. (Genève et Bâle: Georg et Cie.) 10 francs.

Ochrona Przyrody: Organ Państwowej Rady Ochrony Przyrody. Rocznik 14. Pp. iv+235+4 plates. (Kraków: Państwowej Rady Ochrony Przyrody.)

Proceedings of the American Academy of Arts and Sciences. Vol. 70, No. 1: The Melting Curves and Compressibilities of Nitrogen and Argon. By P. W. Bridgman. Pp. 32. 65 cents. Vol. 70, No. 2: Observations on the Behavior of Animals during the Total Solar Eclipse of August 31, 1932. By William Morton Wheeler, Clinton V. MacCoy, Ludlow Griscom, Glover M. Allen and Harold J. Coolidge, Jr. Pp. 33–70. 75 cents. (Boston, Mass.: American Academy of Arts and Sciences.)

Report of the Aeronautical Research Institute, Tôkyô Imperial University. No. 117: On the Motion of High-pressure Powder Gases and Compression Waves in the neighbourhood of the Muzzle of a Rifle. By Kwan-ichi Terazawa, Mitsuo Tamano and Sin-iti Hattori. Pp. 439–492+9 plates. (Tôkyô: Koseikai Publishing Office.) 75 sen.