

commissioned to explore the Missouri from the point of view of the most direct and practicable water communications across the continent to the Pacific for commercial purposes. They achieved this object and also helped to attract traders to the regions west of the Mississippi by their accounts of possibilities of development.

Nov. 14, 1917.—Philby in Arabia

H. St. J. B. Philby arrived in the Gulf of Bahrain on a political mission to Riyadh, in the course of which he crossed the country from Ojair to Jedda, returned to Basra and once more set out to Riyadh. Thence he journeyed south to Wady Dawasir, thus penetrating some distance into the Nejd. In 1920-22, Philby crossed from Amman to Kabala near the Euphrates. With him went Major A. L. Holt, who had already made extensive surveys between Bagdad and Haifa. Philby's greatest Arabian exploit, however, was the crossing of the Rub' al Khali, the great waterless southern desert, in the early months of 1932. Starting from Hufuf on Jan. 7, he succeeded in reaching Sulaiyil, covering 1800 miles in 90 days. Finds of flint implements and freshwater shells indicated the site of an old riverbed or lake at Bir Maqran, and at Wabar craters of meteoritic origin were discovered. The first crossing of this desert, though by a different route, was in 1931, by Mr. Bertram Thomas.

Societies and Academies

LONDON

Royal Society, Nov. 3.—J. Mellanby: Secretin. Secretin may be prepared from the duodenal mucous membrane by (a) extraction with absolute alcohol, (b) precipitation by dilute acid, and (c) resolution of the precipitate in acid alcohol and precipitation by acetone. The product has the percentage composition of a sulphur-containing protein. It is soluble in water but insoluble in dilute acid. The physiological actions of secretin are: (a) the production of a copious secretion of pancreatic juice, (b) the contraction of intestinal muscle, and (c) the secretion of a small quantity of bile.—Margaret Hill and A. S. Parkes: Studies on the hypophysectomised ferret (1, 2, 3). Hypophysectomy of the male during the breeding season (June) caused regression to the anæstrous condition in about a month; the regression being characterised by decrease in testis weight and by aspermatogenesis. The experimentally produced degeneration is about three times as rapid as the normal decline into anæstrus. In the female ferret, removal of the pituitary body about two hours after the beginning of copulation did not inhibit ovulation, which occurs in the normal animal about 36 hours after mating. It would thus appear that some ovulation-producing substance is secreted by the anterior pituitary body within two hours of the beginning of copulation. The corpus luteum, however, failed to develop, and there were no signs of pregnancy or pseudo-pregnancy.—J. D. Gillett and V. B. Wigglesworth: The climbing organ of an insect, *Rhodnius prolixus* (Hemiptera; Reduviidae). It is present in both sexes of the adult, but is absent in the nymphs. It occurs on the distal end of the tibia of the anterior and middle pairs of legs. It enables the insect to climb upwards on clean glass at almost a right angle, but it is of little use in the reverse direction. The

organ is a little oval sac of pliant chitin filled with blood. On its lower surface it bears about 5000 tubular hairs, $1\ \mu$ in diameter, which appear to be the outlets of unicellular glands producing an oily secretion. At their free ends the anterior surface of these hairs is cut away obliquely so that only their hind margin comes in contact with the surface as the insect climbs. Among these hairs are about 50 delicate tapering hairs arising from large sockets and projecting slightly beyond the others. These appear to be sense organs. They are surmounted by a spindle-shaped mass of cells giving off a nerve fibre.

Physical Society, Nov. 4.—M. Fahmy: A further point of analogy between the equations of the quantum theory and Maxwell's equations. A previous paper (*Proc. Phys. Soc.*, 43, 124; 1931) dealt with an analogy between the electromagnetic equations in free space and the equations of the quantum theory, exhibited by means of five-dimensional geometry. In the present paper the analogy is pursued further and leads to the Eddington relation between the number of electrons in the universe and its radius.—Lewis F. Richardson: Time-marking a cathode-ray oscillogram. Time-marks have been arranged as little blurs or gaps in the trace, by periodically unfocusing the electron stream. The current in, and voltage across, a conductor can thus be recorded together with the time on a single oscillogram.—T. C. Richards: The elastic constants of rocks with seismic applications. The results of a geophysical survey by means of the seismic method over a large oil-bearing limestone structure in south-west Persia indicate that the limestone possesses a higher elastic velocity at its lower boundary than at its upper. Specimens of the limestone at different depths obtained by 'coring' do not give the same elastic constants when measured by a simple optical method, and the bearing this result has on the practical seismic observation is discussed.—L. R. Wilberforce: A common misapprehension of the theory of induced magnetism. It is usually stated that if any given magnet is immersed in a medium of permeability μ the magnetic field around it is similar to that in a vacuum, but diminished in strength in the ratio of $1:\mu$. This statement is inconsistent with the ascertained experimental laws of induced magnetism.

PARIS

Academy of Sciences, Oct. 3 (195, 565-588).—Ernest Esclangon: The total eclipse of the sun of August 31, 1932, observed in the United States and in Canada. In spite of some cloud, good spectrographs of the corona were obtained, also some excellent general photographs of the corona.—Lucien Daniel: The experimental production of small bulbs in the leek.—Claude Chevalley and André Weil: An arithmetical theorem on algebraical curves.—Nikola Obrechhoff: A general method of summation of divergent series.—D. Riabouchinski: Some considerations on the hydrodynamical interpretation of the periodicity of sunspots. An account of experiments with a glass globe containing water, rotating on its axis and containing a stirrer rotating in the same direction, but faster than the globe. Some air was admitted to the globe and photographs are reproduced showing the internal movements. The theory of J. Wilsing on the constitution of the sun is discussed from the point of view of these experiments.—Louis de Broglie: Remarks on the magnetic moment and moment of rotation of the electron.—

J. Gilles: The intensities of the components of the hyperfine structure of the most intense lines of the visible spectrum Hg I. The hyperfine structure of the term (Hg 199) 7^2D_3 .—J. Durand and E. Raguin: The granite of the region of Pinet (Aveyron).—D. Montet: The action of radioactivity in plant physiology. The experimental conditions necessary to prevent confusion between the effects of catalysis and radioactivity are indicated. The use of a salt possessing manurial effects, such as a nitrate, should be avoided.—René Petit: The magnification of correcting glasses.—F. Vies and A. de Coulon: New experiments on the rôle of the electrostatic conditions in the appearance of spontaneous cancers in mice.

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, 18, 525-565, Aug. 15, 1932).—Lester S. King and Clyde E. Keeler: Absence of corpus callosum, a hereditary brain anomaly of the house mouse. Preliminary report. The character segregates sharply, is probably inherited as a unit character, is not sex-linked and is not due to the presence of the rod-less gene.—T. R. Hogness and R. Ruth Comroe: A search for evidence of the radioactive decomposition of barium. Working on the idea that barium might dissociate into xenon and helium, five rock specimens, all probably of Palaeozoic age, were disintegrated and the residual gases examined. No xenon was found spectroscopically. By the method used, 10^{-7} c.c. or about 3×10^{12} atoms of xenon could have been detected. Hence it is calculated that, if barium is radioactive, its half-life period is not less than 10^{15} – 10^{18} years.—W. H. Rodebush and W. C. Klingelhoefer: The reaction of chlorine with hydrogen. Atomic chlorine has been prepared and its reaction with hydrogen gas investigated at low temperature.—James H. Hibben: An investigation of intermediate compound formation by means of the Raman effect. Evidence was obtained for the formation of compounds in solution between aluminium chloride and ethyl alcohol, and zinc chloride and methyl alcohol, and for polymerisation of aluminium chloride in water.—Sylvia M. Mills: (1) Double innervation of melanophores. When an area on a specimen of *Fundulus heteroclitus* was denervated, a few of the melanophores which expand over a black background fail to contract over white. Response to electrical and mechanical stimulation also suggests double innervation.—(2) Neuro-humoral control of fish melanophores. The melanophores of a denervated region show a progressive lag, greatest at the centre of the region, in their responses to stimulation. Similar results were obtained with an isolated tail. It is suggested in explanation that melanophore nerves, when stimulated, produce a secretion causing melanophore contraction; this secretion is probably not carried in the blood system.—Arthur Bramley: Gamma radiation. A theoretical discussion using an oscillator which accounts for the needle-like character of the radiation field for very high frequencies.—Chester Stock: An Upper Oligocene mammalian fauna from southern California. The fauna of the Sespe beds of Kew Quarry, which occurs to the west of the Simi Valley, Ventura County, California, is more advanced than that from the Sespe beds north of the Simi Valley (*NATURE*, 130, 675, 1932). Its age is considered to be not later than Lower Miocene or earlier than Upper Oligocene.—A. D. Michal and J. L. Botsford: (1) An extension of the new Einstein geometry. Developments of the paper by Einstein

and Mayer on "Unified Field Theory" (1931).—(2) Simultaneous differential invariants of an affine connexion and a general linear connexion.—S. S. Wilks: The standard error of a tetrad in samples from a normal population of independent variables. An exact expression is derived but it is said to lead to very complicated results.

Forthcoming Events

MONDAY, Nov. 14

UNIVERSITY OF LEEDS, at 5.15.—Prof. H. H. Swinerton: "Fossil Clues and Hereditary Problems".
ROYAL GEOGRAPHICAL SOCIETY, at 5.—"Early Maps of Great Britain". E. Heawood: "The Tschudi Map"; Miss J. B. Mitchell: "The Matthew Paris Maps"; R. A. Pelham: "The Gough Map".

TUESDAY, Nov. 15

CHADWICK PUBLIC LECTURE, at 5.15—(at the Royal United Services Institution, Whitehall).—Sir Pendrill Varrier-Jones: "The Employment of Tuberculous Patients".
BRITISH INSTITUTE OF PHILOSOPHY, at 8.15—(at University College, Gower Street, W.C.1).—Sir Arthur Eddington: "Physics and Philosophy".
UNIVERSITY COLLEGE, LONDON, at 5.30.—Prof. E. J. Garwood: "Kangchinjunga".
BRITISH PSYCHOLOGICAL SOCIETY, at 8.30.—A. H. Seymour: "The Borderland between Education and Industry".

WEDNESDAY, Nov. 16

BRITISH ACADEMY, at 5—(Annual Lecture on a Mastermind).—Prof. James Gibson: "Locke".
ROYAL METEOROLOGICAL SOCIETY, at 5.—J. Edmund Clark, I. D. Margary, R. Marshall and C. J. P. Cave, "Report on the Phenological Observations in the British Isles, December 1930 to November 1931".
ENTOMOLOGICAL SOCIETY OF LONDON, at 8.30.—Discussion on "The Law of Priority in Nomenclature," to be opened by Prof. W. A. F. Balfour-Browne.

THURSDAY, Nov. 17

CHEMICAL SOCIETY, at 8.—Discussion on "Combustion of Gases in Electric Discharges", to be opened by Prof. G. Ingle Finch.
BEDFORD COLLEGE FOR WOMEN, at 5.15—(Stevenson Lecture).—Sir Josiah Stamp: "The Relation of Finance to Rationalisation".
UNIVERSITY COLLEGE, LONDON, at 5.30.—Sir Charles Sherrington: "Reflex Action" (succeeding lecture to be announced later).

FRIDAY, Nov. 18

ROYAL INSTITUTION, at 9.—Dr. R. G. Canti: Cultivation of Living Tissue Cells".

Official Publications Received

GREAT BRITAIN AND IRELAND

Report for 1931 (No. 40) on the Lancashire Sea-Fisheries Laboratory at the University of Liverpool and the Annual Report of the Marine Biological Station (No. 45) at Port Erin, Isle of Man. Edited by Prof. James Johnstone and Dr. R. J. Daniel. Pp. 169+7 plates. (Liverpool: University Press of Liverpool.) 6s.
Third Annual Reports of the National Radium Trust and Radium Commission, 1931-1932. Pp. 43. (London: H.M. Stationery Office.) 9d. net.
Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1471 (T.3247): A Flight Path Recorder suitable for Performance Testing. By R. P. Alston, D. A. Jones and E. T. Jones. Pp. 8+8 plates. 9d. net. No. 1473 (T.3250): Graphical Solutions for Inviscid Flow. By Dr. H. F. Winny. Pp. 16+4 plates. 1s. net. No. 1462 (Strut. 68): Method of Testing Strength and Stiffness of Large Wing. By I. J. Gerard. Pp. 5+5 plates. 6d. net. No. 1467 (T.3255): Applications to Aeronautics of Ackeret's Theory of Aerofoils moving at Speeds greater than that of Sound. By Prof. G. I. Taylor. Pp. 7+5 plates. 6d. net. (London: H.M. Stationery Office.)