

Calendar of Geographical Exploration

Nov. 21, 1793.—Japan and Russia

A storm drove a Japanese vessel carrying rice to Yezo far out to sea, and in early June of the following year the Japanese sailors reached the Aleutian Islands, recently taken by the Russians. They remained there some ten months and reached Okhotsk at the end of June of the next year. Thence they were taken overland to Irkutsk, where they remained eight years. They were then taken to St. Petersburg, where the Czar received them and gave them furs. Finally they were sent back by sea round Cape Horn to Japan with Capt. Krusenstern's expedition, which was intended to conduct a Russian envoy to Japan. They were handed to the Japanese authorities in 1805. A Japanese work written in 1830, in four volumes, describes their experiences. It is also interesting to note that Krusenstern's voyage was the first Russian circumnavigation of the globe. He left Kronstadt in 1803, rounded Cape Horn, made some observations in the Marquesas Islands and thence proceeded to Kamchatka and Japan; he examined the strait between Sakhalin and the mainland but thought that Sakhalin was a peninsula of Asia. Lisianski, who accompanied Krusenstern in another vessel, discovered the island named after him. The Russian voyage added much to the scientific knowledge of the Pacific; observations of temperature in deep waters and of currents and tides were taken and astronomical records were kept.

Nov. 21, 1754.—Basin of the Saskatchewan

Anthony Hendry, on an expedition for the Hudson Bay Company, reached his farthest west, about 114° W., a little south of 52° N. Hendry left York Factory at the mouth of the Hayes River in June 1754, and using various portages reached Moose Lake and the Saskatchewan River. He explored the region between the north and south branches of that river, spent the winter with the Blackfeet Indians and returned via the Red Deer River to the South Saskatchewan.

Nov. 23, 1878.—British Honduras

Henry Fowler, the Colonial Secretary, started from Belize, went up the Belize River and explored much of the previously unknown interior. Capt. T. A. Joyce, of the British Museum, has carried out important archaeological work in this region in recent years, disclosing a great wealth of Maya ruins. These surveys have also contributed to geographical knowledge of a little-known region.

Nov. 25, 1913.—Gertrude Bell in Arabia

Gertrude M. L. Bell arrived at Damascus, whence she set out on her 1500 mile journey in Arabia. She travelled to Hasan near Teima and thence turned east, reaching Hayil, which had only once previously seen a European woman, Lady Anne Blunt, who had visited it in 1878. The cool reception which she received here made it impossible for her to go south as she had hoped and she turned north-east to the Euphrates, returning to Damascus via Bagdad and Palmyra. Her Arabian experiences began in 1899; her subsequent travels and archaeological explorations made her reputation as an authority on Asia Minor and the northern borderlands of Arabia. She died in Bagdad in 1926 while engaged in the organisation of a museum of antiquities.

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Societies and Academies

LONDON

Royal Society, Nov. 10.—Lord Rutherford, C. E. Wynn-Williams, W. B. Lewis and B. V. Bowden: Analysis of α -rays by an annular magnetic field. With the assistance of Dr. J. Cockroft, an electromagnet has been designed which provides a uniform magnetic field, of the order of 10,000 gauss, in an annular gap in which α -rays can be bent into a circle of 40 cm. radius. The particles are emitted from a source placed in the gap, and are detected by a small ionisation chamber symmetrically situated on the opposite end of a diameter. The interior of the whole magnet is exhausted to a low pressure (0.001 mm. mercury). As in previous experiments the ionisation chamber is connected to an amplifier, and individual α -particles are automatically counted by a system of thyratrons. The analysis is carried out by adjusting the magnetic field so as to bring groups of different velocities successively on to the slit of the counting chamber, the high velocity edge of a group being very sharply defined. Moreover, it is necessary to measure small changes of the magnetic field with great accuracy. A special method has been developed for this purpose, and the relative velocities of a number of α -particle groups have already been determined with an accuracy of about 1 in 3,000. The weak group of α -particles from radium C, numbering only 1 in 4,000 of the main radium C' group, comprises two distinct components.—W. A. Bone, D. M. Newitt and D. T. A. Townend: Gaseous combustion at high pressures (14). Explosions of hydrogen-air and carbonic oxide-air mixtures at initial pressures up to 1,000 atmospheres. With regard to the actual explosions it was found that:—(1) In those of theoretical hydrogen-air media there was a quite definite increase in the explosion times with density at initial pressures exceeding 250 atmospheres; although at 750 atmospheres detonation was instantaneously set up at the firing point with such violence as to preclude work at any higher pressures; (2) in explosions of theoretical carbon monoxide-air media the characteristic lag in the explosion time, as well as the exothermic effects observed during the cooling period—both of which had hitherto consistently increased with the density—reached their maxima at an initial pressure somewhere between 350 and 500 atmospheres, and thereafter remained constant up to 1,000 atmospheres, indicating that the nitrogen activation effect had reached maximum within this density range; (3) in $2\text{CO} + \text{O}_2 + 3.76\text{CO}$ explosions the explosion times, which were always very much shorter than in the corresponding $2\text{CO} + \text{O}_2 + 3.76\text{N}_2$ explosions and had remained nearly constant up to initial pressures of 250 atmospheres, began definitely to increase thereafter with the density, and about the same point some slight carbon deposition began to be manifest during the explosions, the two circumstances probably being connected. The rates of pressure fall during the first second of the cooling period immediately after the attainment of maximum pressure were always much faster than in the corresponding $2\text{CO} + \text{O}_2 + 3.76\text{N}_2$ experiments.

Society of Public Analysts, Nov. 2.—Theodore Rendle: Observations on changes in raspberries after picking. The ripening process in raspberries is more rapid than in most fruits. Accompanying the ripening

there occurs the production of a relatively large amount of volatile organic bodies not due to the action of micro-organisms. The pectic substances in raspberries are subject to rapid change, with the destruction of their gelling power; this change is arrested by the application of heat.—W. R. Schoeller and H. W. Webb: The separation of uranium from tantalum, niobium and titanium. Uranium is quantitatively precipitated by tannin from neutralised tartrate solution in presence of ammonium acetate and chloride. It is quantitatively precipitated from oxalate solution by tannin and a slight excess of ammonia. Uranium, like zirconium, thorium, aluminium and iron (group B) can be quantitatively separated from tantalum, niobium and titanium (group A) by tannin precipitation of the last three elements from feebly acid oxalate solution half-saturated with ammonium chloride. In tartaric hydrolysis, uranium interferes with the normal course of precipitation in the case of niobium, but not of tantalum or of mixed pentoxides in which tantalic oxide preponderates.—E. J. King: A new form of filter stick: its use in gravimetric analysis. A new form of filter stick, particularly suitable for the micro-analysis of silicic acid, has been devised.—F. J. Warth: A new method for the iodimetric titration of phenols. The conditions under which iodine is absorbed by phenols are discussed. Under certain specified conditions, in the presence of sodium hydroxide two-thirds of the theoretical amounts of iodine are absorbed by phenols, including the cresols.

PARIS

Academy of Sciences, Oct. 10 (195, 589-632).—Maurice Fréchet: The behaviour of certain nuclei of Fredholm repeated indefinitely and the probabilities in chain.—J. Mirguet: A class of surfaces admitting a continuous tangent plane.—A. Kulakoff: The relations between the real parts of the characters of groups.—Pierre Dive: The identity of two bodies possessing the same Newtonian potential in a common interior region.—J. Pérès and L. Malvard: The application of the electrical method to a problem concerning the wing of finite spread.—Li Hen: Some statistical properties of the Cepheids.—P. de Fonbrune: A new micro-manipulator. A pneumatic control is described possessing the advantages that the needle or micropipette is unaffected by shaking of the hand; all movements of the control lever are exactly reproduced on the microscopic scale by the needle point. More than one of these instruments can be used in the field of the objective at the same time.—A. Piccard and M. Cosyns: The study of the cosmic radiation at great altitudes. Results obtained during the ascent made on August 18, 1932. A curve is given showing the relation between the barometric pressure and the intensity of the radiation, the latter measured by two types of ionisation chamber. As regards the effects of screens, 4 cm. of paraffin had no visible effect, but 4-5 cm. of lead caused a diminution of 20-35 per cent.—Mlle. Suzanne Veil: The periodic precipitation of some silver salts. Study of the precipitation of silver arsenate, chromate and phosphate in gelatine.—Kapp: The determination of hydrogen sulphide in trade effluents. The errors caused by the oxidation of the gas by the oxygen dissolved in the effluent can be avoided by adding cadmium sulphate: cadmium sulphide is not readily oxidised and can be carried to the laboratory for analysis without change.—A. Stieber: Two combina-

tions of boron trichloride, one with hydrogen arsenide and the other with phosphorus trichloride. These new compounds have the formulæ BCl_2AsH_2 and BCl_2PCl_2 .—G. Schuster: The use of hydrobromic acid for the characterisation of the arylarsinic acids.—G. Florence, J. Enselme and M. Pozzi: Contribution to the study of the variations as a function of the pH of the ultra-violet spectra of some hexavalent heterocyclic compounds.—J. Durand: The granite of Laguëpie (Tarn-et-Garonne).—J. Malavoy and S. Serpokryloff: New geological observations in the loop of the Niger.—F. Link: Records of atmospherics. The observations were made at the Observatory of the Pic-du-Midi at an altitude of 2,860 metres, between November 1931 and August 1932. A statistical study of the results gave maxima corresponding to heights of 35 km., 115 km. and 235 km. The first maximum corresponds with the maximum ozone concentration, the second with the Kennelly-Heaviside layer and the third to the reflecting layer found by the echo method.—Paul Chauchard: The variations of salinity measured by means of the electrical conductivity: study of the Rance at Le Chatelier.—N. Em. Renescu and B. B. Olszewski: Chloral hydrate in the organism. The narcotic action of chloral hydrate has been variously attributed to chloroform produced by decomposition, to the formation of carbon monoxide, and to the effects of unchanged chloral hydrate. The author's experiments are in agreement with the last view. Chloral was found in relatively large quantities in all the organs, whilst chloroform was found in traces only and was absent from some organs.—J. R. Denis, P. Paris and P. Rémy: New experiments, under natural conditions, on the phototropism of freshwater plankton.—Emile André and Armand Bloch: The etho-esters of glycerol or etho-glycerides of the liver oil of *Scymnorhinus lichia*.—M. Aynaud: The parasitism of Infusoria in the walls of the stomach of the sheep.—A. Lacassagne: The appearance of cancer of the breast in male mice, submitted to injections of folliculin.

Forthcoming Events

MONDAY, Nov. 21

ROYAL SOCIETY OF ARTS, at 8—(Fothergill Lecture).—Com. A. N. G. Firebrace: "Fire Fighting".
CHADWICK PUBLIC LECTURE, at 7.30—(at the Technical College, Bradford).—Prof. S. D. Adshead: "Some Recent Developments in the Housing Problem".
ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Evelyn Cheesman: "The Island of Malekula, New Hebrides".

TUESDAY, Nov. 22

BRITISH SCIENCE GUILD, at 4.30—(Eighth Annual Norman Lockyer Lecture, in the Goldsmiths' Hall, Foster Lane, E.C.).—Sir Frank Smith: "Industrial Research and the Nation's Balance Sheet".
ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.30—(at the School of Hygiene and Tropical Medicine, Keppel Street, W.C.1).—Gabrielle M. Vassal: "Life in the French Congo".
KING'S COLLEGE, LONDON, at 5.30.—M. T. Halcrow: "The Water Power Developments of the British Isles" (succeeding lectures on Nov. 29 and Dec. 6).
UNIVERSITY OF LEEDS, at 8.—Dr. C. D. Ellis: "Recent Advances in our Knowledge of the Atom".

WEDNESDAY, Nov. 23

ROYAL ANTHROPOLOGICAL INSTITUTE, at 5—(at the School of Hygiene and Tropical Medicine, Keppel Street, W.C.1).—Discussion on "The Evidence of Man's Kinship with the Primates", to be opened by Dr. Solly Zuckerman.