

Societies and Academies.

LONDON.

Royal Society, January 28.—A. C. Seward: The Cretaceous plant-bearing rocks of Western Greenland. The paper deals briefly with the geology of the localities visited, and, more fully, with the plants collected on the coasts of the Nûgssuak Peninsula and on the south-east coast of Disko Island. The fossils obtained include many species previously described by Heer. The Cretaceous plants are regarded as a single flora; Heer's threefold division (Kome, Atane, and Patoot series) is not accepted. Several species of ferns and gymnosperms, generally characteristic of the oldest Cretaceous floras and closely allied to Jurassic types, are found associated with representatives of Angiosperms that are strikingly modern. The Greenland Cretaceous flora seems to be Wealden-Cenomanian in age. It is considered that several deciduous dicotyledons were evolved in Arctic regions, where, in Cretaceous days as now, a short summer with continuous sunshine alternated with a long period of semi-darkness. From their Arctic home the flowering plants spread to the south.—W. L. Balls and H. A. Hancock: Measurements of the reversing spiral in cotton hairs. The spirals in the cell wall of cotton hairs may be dexter or sinister, and their reversals are apparently predetermined during growth in length. Genetic and ordinary environmental influences do not affect the statistical peculiarities of the reversals. The final adult length of the hair and the time taken in reaching that length do affect the reversal distribution. Nearly all the seed hairs of *Gossypium* begin to grow on a sinistral spiral. The angle of the helix varies around two modal values, but local variations are quite unaffected by inversion from dexter to sinister.—R. H. Burne: A contribution to the anatomy of the ductless glands and the lymphatic system of the angler fish (*Lophius Piscatorius*). The thymus body lies free beneath the mucous membrane of the pharynx, connected with the branchial cavity by a tube. This tube is not a duct, but more nearly resembles the crypts characteristic of the mammalian tonsil. The thyroid body is occupied by a large lymph sinus, into which lymph passes through valved openings from ventral and branchial lymphatics, and from which it is conveyed to the heart by the inferior jugular. Distributed to the mucous membrane of mouth and pharynx, and to the skin of the forepart of the body, is a system of "fine" vessels, similar in structure to small arteries. These vessels are not part of the blood vascular system, but connect by their terminal branches with the ordinary lymphatics. They are probably an afferent system of lymphatics.—I. Gordon: The development of the calcareous test of *Echinus miliaris*. All elements of the permanent skeleton which are laid down in the larva are traced back to a single spherical granule. This granule, with two exceptions, becomes a triradiate spicule even in the formation of a tetroradiate spine. The exceptions are in the development of (a) the base of a typical echinoid spine where it becomes hexagonal (a modification of the triradiate symmetry), and (b) the component parts of a tooth. The development of the tetroradiate spine, the simple and the compound tube-feet discs, and the blade of a pedicellaria is new. The large buccal plates arise interradially, and there are two sets of buccal tube-feet—(a) five primary ones with simple discs; (b) five secondary ones with compound discs, which are at first ordinary ambulatory tube-feet.—F. G. Gregory and L. Batten: A critical statistical study of experimental data on the effect of minute electric currents on the growth rate of

the coleoptile of barley. A statistical analysis has been made of the data on which results described by Blackman, Legg, and Gregory for the effect of electrification on the growth of the coleoptiles of barley are based. Corrected data for the controls and four electrified sets show *positive* results, and, taken together, provide markedly significant evidence of the physiological effect of the discharge.—H. M. Fox: Chlorocruorin: a pigment allied to hæmoglobin. Chlorocruorin is a polychæte blood pigment. It is red in concentrated, green in dilute, solution. It exists in oxidised and reduced forms, having spectra analogous to oxy- and reduced hæmoglobin. The oxygen affinity is less than that of hæmoglobin. Specific chlorocruorins differ in oxygen affinities; some are unsaturated at atmospheric pressure. Whereas hæmoglobin and a number of related pigments all contain the same hæmatin nucleus, chlorocruorin has a different hæmatin.

Geological Society, January 6.—W. N. Edwards: Fossil plants from the Nubian sandstone of Eastern Darfur. The plant-remains described were found by Mr. G. V. Colchester at Jebel Dirra, 75 kilometres east of El Fasher, in Darfur. They occur in highly silicified quartzitic sandstone, belonging to the Nubian Sandstone, and are the first fossils to be found in that formation in Darfur. The species identified, which probably grew in dune conditions, are *Weichselia reticulata* (Stokes and Webb), *Frenelopsis hoheneggeri* (Ettingshausen), *Dadoxylon ægyptiacum* Unger, and indeterminate fern-fragments. The beds in which they occur are thus assigned to the Lower Cretaceous, or possibly to the base of the Upper Cretaceous.—Vincent G. Glenday and John Parkinson: The geology of the Suk Hills (Kenya Colony). The Suk Hills lie in the northern part of Kenya Colony, midway between Mount Elgon and the southern half of Lake Rudolf. Sekerr, their highest point, reaches an elevation of nearly 11,000 feet. With insignificant exceptions, the rocks are of Eozoic age, and fall into two groups: a series of completely metamorphosed sediments, probably including ashes, and microcline-orthogneisses. The former group so closely resembles the Turoka series from the border of Tanganyika Territory that they cannot be separated, the whole being contemporaneous in general terms. The second group seems to be intrusive into the first.

PARIS.

Academy of Sciences, December 7.—A. Lacroix and Const. A. Kténas: The modern lavas of Fouqué Kameni (Santorin). A comparison of the complete analyses of lavas of different dates (1925, 1869, 1866, 1846) shows that the composition has remained almost unchanged.—André Blondel: The mechanics of the resonance of torsion of crank shafts.—M. Kamerlingh Onnes was elected a foreign associate in succession to the late Sir Archibald Geikie, and R. A. Millikan was elected correspondent for the section of physics in succession to the late Sir James Dewar.—de Séguier: The divisors of the finite direct Abelian products.—Fatou: A property of certain multi-form analytical functions.—Armand de Gramont: A precision inverter permitting no articulated system.—R. Chambaud: The theory of thick circular arches.—D. Riabouchinsky: Some cases of irrotational movements in three dimensions.—Thomas Martin Lowry and Bawa Kartar Singh: The rotatory dispersion of nicotine. The results are given for three specimens of nicotine for 27 wave-lengths. The dispersion of nicotine was found to be simple.—Jean Barbaudy: The dehydration of aqueous alcohol by fractional

distillation in the presence of benzene.—A. **Boutaric** and Mme. Y. **Manière**: The influence of the hydrogen ion concentration on the velocity of flocculation of some negative colloids.—P. **Vaillant**: The influence of an electrostatic charge on the superficial conductivity of a plate of rock salt.—P. **Lebeau** and A. **Damiens**: An easy method for the preparation of fluorine. As electrolyte the compound $KF \cdot 3HF$, melting at $56^\circ C.$, is used. This is placed in a copper or nickel vessel, forming the negative electrode, the positive electrode being a nickel rod 8 mm. in diameter.—Marcel **Godchot** and Pierre **Bedos**: Monochlor-*o*-methylcyclohexanone.—I. **Pouget** and D. **Chouchak**: The radioactivity of the mineral waters of Hammam Meskoutine (Algeria).—N. A. **Critikos**: The seismic phenomena produced before and after the eruption of the volcano of Santorin.—M. **Bridel** and C. **Charaux**: The ferment extracted from the seeds of various species of *Rhamnus* or rhamnodiastase. Details are given for preparing this ferment from the seeds of *Rhamnus utilis*. It is of interest in that it produces a partial hydrolysis of glucosides, some of the glucoses remaining combined in the form of complex glucides.—Mme. H. **Gauthier-Lièvre**: Some observations on the algæ of Algeria in their relations with the pH .—L. **Plantefol**: The forms of growth of *Hypnum triquetrum*.—Raymond **Jacquot** and André **Mayer**: The equilibrium of the cellular constituents and the intensity of the oxidations of the cell. Imbibition and oxidations. The case of seeds.—René **Hazard** and L. J. **Mercier**: The action of the base tropine (tropanol) on the circulation.—P. **Reiss**: The development of the interior pH of the egg of the sea-urchin during fecundation and division.—Jules **Wolff** and Lucien **Grandchamp**: Some observations on the oxidisability of the iron contained in wine. The ferrous salts normally present in wine may be rapidly transformed into ferric salts under the influence of an oxydase, thus causing the phenomenon of *casse*.—L. C. **Maillard** and H. **Wunschendorff**: The formation of complexes between proteins and the hydrates of trivalent metals. The method of removing albumen by alums.—L. **Fournier** and P. **Mollaret**: The double hyposulphite of gold and sodium in the treatment of syphilis. The antisyphilitic action of this double salt is fairly energetic in large doses, but the general reactions and frequent skin troubles produced by the treatment present a serious obstacle to the use of this product in the treatment of human syphilis.—Stefan **Jellinek**: Death by electricity, practical results resulting from electropathological studies.

December 21.—L. **Lecornu**: Elastic transmissions. Reply to some criticisms by A. Blondel.—Maurice **Hamy**: The photography of stars in full daylight. An account of some results obtained by a method described in a previous communication. Photographs were taken at varying levels up to a maximum of 3274 metres. At this height, about midday, the extreme limit of photographic impression visible on the negatives, at 90° from the sun, was about the 6.5 magnitude.—A. **Desgrez** and J. **Meunier**: The mineral elements associated with oxyhæmoglobin from the blood of the horse. The metals were detected and roughly determined by the spectrograph. On the product from the first crystallisation, the hæmoglobin contains potassium, sodium, calcium, lithium, and minute traces of manganese. The second crystallisation reduces the marked preponderance of potassium without sensible variation of the calcium.—Félix **Mesnil**: The sensibility of trypanosomes of human origin to normal human serum.—Maurice de **Broglie** and Jean **Thibaud**: The total reflection and variation

of the refractive index of the X-rays in the neighbourhood of an absorption discontinuity of the mirror. The measured values for the refractive index agreed within the limits of the experimental error with those calculated by the theory of Drude from the dispersion of electromagnetic waves. Thus the optical properties of the X-rays are identical with those of ordinary light and follow the same laws. This supports the undulatory character of the X-radiations, whilst their photo-electric phenomena bring out their corpuscular or quantic aspect.—Amé **Pictet** and Alfred **Georg**: New syntheses of isomaltose and gentiobiose. Lævoglucosane is readily converted into dilævoglucosane, and the latter, by regulated hydrolysis with hydrochloric acid, gives a mixture of glucose and isomaltose. In the preparation of isomaltose by the condensation of glucose according to Fischer's method, there is formed a small quantity of gentiobiose.—E. **Mathias**: Contribution to the study of fulminating material: thermic heterogeneities. Discussion of the nature of ball lightning.—C. **Sauvageau**: The *bromuques* of Antithamnion. In a recent communication the author has indicated the presence of free bromine in the colourless refractive cells of *Antithamnionella sarniensis*, and has proposed the name of *bromuques* for these organs. Five species of Antithamnion, dried and pressed, have also been found to give the bromine reaction. Hence the *Blasenzellen* or gland-cells of Antithamnion act as organs for accumulating bromine.—René **Garnier**: A new method for solving the problem of Riemann.—Paul **Lévy**: The ratio between an integral series and its greatest term.—J. **Renaux**: A method of special perturbations.—Jean **Chazy**: The advance of the perihelion of Mercury.—Th. **Vautier**: The propagation of air waves produced by sparks or by percussion caps.—Mlle. Paule **Collet**: The constant paramagnetism of solutions: The atomic coefficient of magnetisation of chromium, whether deduced by the ascension method from a solution of potassium bichromate or from the attraction method using the solid salt, is the same.—Hippolyte **Copaux** and André **Copaux**: A method of estimating coloured gases, based on the use of the photo-electric cell, and its application to the case of nitrous vapours. The light, after passing through a column of the gas, falls on a photo-electric cell, and the deflexions of the galvanometer are plotted against the percentage of nitrogen peroxide. With gases containing between 0.2 and 0.7 per cent. of nitrogen peroxide, the latter can be determined with an accuracy of 0.02 per cent.—René **Dubrisay**: The application of capillary measurements to the study of mixtures of fatty acids. Measurement of the surface tension at the surface of separation of benzene solutions of mixtures of fatty acids and their alkaline aqueous solutions is shown to be a useful means of identifying certain acids and their mixtures.—A. **Kling** and A. **Lassieur**: The hydrogen exponent of water. In view of the fact that recent values for the pH of water range from 5.8 to 7.0, the authors have redetermined this constant with many precautions (distillations in platinum, no access of air containing carbon dioxide, etc.), finding for pure water $pH = 5.8$. This deviation from neutrality ($pH = 7.07$) may be attributed to the fact that water has a real acidity, or it may be that the current methods of measuring pH are faulty.—J. **Cournot** and K. **Sasagawa**: The variation with temperature of the resistance of ordinary mild and hard steels to shock by traction.—C. **Matignon** and J. **Cathala**: The action of phosgene upon glucina. The preparation of beryllium chloride. The use of sulphur chloride for the preparation of anhydrous beryllium chloride, on account of the difficulty of separating the sulphur chloride, leads to

an impure product. Carbonyl chloride, now a commercial product, gives good yields of anhydrous beryllium chloride, when passed over beryllium oxide heated to 1000° C. in quartz vessels.—A. Raynaud: The bromination of zinc in the presence of various organic solvents.—A. Cornillot: The constitution of the chloro-derivatives of the phthalonic series.—Jacques Bourcart and M. E. Denaeyer: The lithological characters of the lavas of Ahagar, Central Sahara (Jacques Bourcart expedition, 1922–1923).—R. Furon: Geological observations on the Kabul valley (Afghanistan).—Ch. Maurain and L. Eblé: The propagation of seismic waves in limestone.—Jean Lecarme: The ultra-violet radiations of the sun at great altitudes. Using a method of measuring the intensity of the ultra-violet radiations depending on the decomposition of oxalic acid in the presence of uranyl sulphate as a catalyst, measurements have been carried out at various altitudes, the highest being at the Mont Blanc Observatory (4350 metres). It was noted during these experiments that whilst the solar radiation produced a rapid decomposition of the oxalic acid, the effects due to the light of the mercury arc were scarcely sensible. From this it would appear that the solar ultra-violet energy is greater than that of the ordinary mercury arc, although the biological effects are less intense.—O. Munerati: Is there an after-ripening in recently plucked cereals?—Ch. Kilian: Observations on the postembryonic development of *Drosera rotundifolia*.—Mlle. Panca Eftimiou: On *Exoascus deformans*.—Lucien Daniel: Heredity in *Helianthus tuberosus Dangeardi*.—Em. André. Contribution to the study of the oils of the chaulmoogra group. The oils of seven different Flacourtiaceae, each regarded in the country of origin as possessing curative properties against leprosy, have been extracted and their chemical and physical constants determined. These possess one character in common, the deviation to the right of the plane of polarised light.—Marcel Baudouin: Radiographs for the diagnosis of the nature of the human work executed on the teeth in ethnography.—R. Bonnet: The influence of variations of external temperature on the magnitude of the specific dynamic action in the Polkilotherms.—André Mayer and L. Plantefol: The influence of the electrolytes of the medium on the gaseous exchanges of the mosses.—E. Fauré-Fremiet and Robert Wallich: A physical factor of cellular movement during the cultures of tissues *in vitro*.—A. Dorier: The faculty of encystment in water of the larva of *Gordius aquaticus*.—L. Rapkine and M. Prenant: The reaction of the blastocoelomic liquid in the pluteus of the sea urchin in the first phase of development.—Lucien Cavel: The nitrogen losses in the purification of sewage by the method of activated sludge.—G. Mouriquand and M. Bernhein: New researches on the relations between age and the appearance of troubles of avitaminosis C.

Official Publications Received.

Wisconsin Geological and Natural History Survey. Bulletin No. 65. Educational Series No. 8: The Geography of Southwestern Wisconsin, By W. O. Blanchard. Pp. viii+117. Bulletin No. 66, Economic Series No. 22: Limestones and Marls of Wisconsin. By Edward Steidtmann; with a Chapter on the Economic Possibilities of Manufacturing Cement in Wisconsin, by W. O. Hotchkiss and E. F. Bean. Pp. x+208+6 plates. Bulletin No. 67, Educational Series No. 9: A Brief Outline of the Geology, Physical Geography, Geography and Industries of Wisconsin. By W. O. Hotchkiss and E. F. Bean. Pp. iv+60. (Madison, Wis.)

Notas geofísicas y meteorológicas publicadas por el Observatorio Nacional de San Bartolomé de Bogotá. Numero 2: Los Huracanes de las Antillas. Por Rev. Simon Sarasola. Pp. vii+173. (Bogotá, Colombia.)

Memoirs of the Department of Agriculture in India. Chemical Series, Vol. 8, No. 5: Nitrogen Recuperation in the Soils of the Bombay Deccan, Part 1. By D. L. Sahasrabudhne and J. A. Daji. Pp. 53-68. (Calcutta: Government of India Central Publication Branch.) 4 annas; 5d.

Journal of the Royal Society of Western Australia. Vol. 11, 1924–1925. Pp. xiii+168+iii. (Perth.) 2s.

Institut de France: Académie des Sciences. Annuaire pour 1926. Pp. 380. (Paris: Gauthier-Villars et Cie.)

Bulletin of the National Research Council. Vol. 10, Part 3, No. 53: Transactions of the American Geophysical Union, Sixth Annual Meeting, April 30 and May 1, 1925, Washington, D.C. Pp. 80. (Washington, D.C.: National Academy of Sciences.) 1 dollar.

International Geodetic and Geophysical Union (Union géodésique et géophysique internationale): Section of Terrestrial Magnetism and Electricity. Bulletin No. 5: Transactions of Madrid Meeting, October 1924. Edited by Louis A. Bauer. Pp. viii+180. (Baltimore, Md.: Johns Hopkins Press.) 3.50 dollars.

Commonwealth of Australia: Institute of Science and Industry. Bulletin No. 29: Natural Enemies of Prickly Pear and their Introduction into Australia. By W. B. Alexander. Pp. 80+13 plates. (Melbourne: H. J. Green.)

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. 77: Anatomy of Hendersonia, a Primitive Helicoid Mollusk. By H. Burrington Baker. Pp. 273-303+plates 7-10. (Philadelphia.)

Union of South Africa: Department of Agriculture. Reprint No. 4, 1925: Weeds of South Africa, Part 3. By K. A. Lansdell. Pp. 34+5 plates. (Pretoria: Government Printing and Stationery Office.) 3d.

The Welsh Journal of Agriculture: the Journal of the Welsh Agricultural Education Conference. Vol. 2. Pp. 303+9 plates. (Cardiff: University of Wales Press.) 2s. 6d.

Diary of Societies.

SATURDAY, FEBRUARY 6.

ROYAL SOCIETY OF MEDICINE (Otolaryngology Section), at 10.30 A.M.—Dr. D. McKenzie: Report on a Case of Temporo-sphenoidal Abscess.—F. W. Watkyn-Thomas: Report on a Case of Necrosis of the Petrous Bone.

ASSOCIATION OF WOMEN SCIENCE TEACHERS (Annual General Meeting) (at St. Paul's Girls' School), at 10.30 A.M.—Educational Films, chiefly Scientific, shown by the Visual Education Society.—At 2.30.—Miss Coward: The Teaching of Hygiene in Schools; Short Papers on the same subject.

SOCIETY OF CHEMICAL INDUSTRY (South Wales Section) (jointly with Institute of Chemistry and Wales and Monmouthshire Junior Gas Association) (at University College, Singleton Park, Swansea), at 2.30.—C. A. Seyler: The Microscopy of Coal.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir Walford Davies: The Triad and the Perfect Fourth (1).

GILBERT WHITE FELLOWSHIP (at 6 Queen Square, W.C.1), at 3.—Miss L. E. Cheesman: Insect Collecting in the Society Islands.

INSTITUTE OF BRITISH FOUNDRYMEN (Lancashire Branch) (at Grand Hotel, Manchester), at 4.—J. G. Robinson: A Day in the Foundry (Lecture).

HULL ASSOCIATION OF ENGINEERS (at Technical College, Hull), at 7.15.—Fuel Oil and its Applications (Lecture).

MONDAY, FEBRUARY 8.

ROYAL IRISH ACADEMY, at 4.15.

BIOCHEMICAL SOCIETY (at Lister Institute), at 4.30.—H. Chick: Sources of Error in the Biological Method of Investigating Fat-soluble Vitamins.—P. Hirsch: The Serum Diagnosis of Malignant Growths with the Interferometer.—P. C. Raiment: The Oxidation of Uric Acid with Hydrogen Peroxide.—I. S. Machsan and D. Hoffer: The Synthesis of Fat by the Living Organism.—N. Wright: The Action of Hypochlorites on Amino Acids and Proteins.—R. H. Marriott: The Action of Sodium Sulphide on Hair.

ROYAL SOCIETY OF EDINBURGH, at 4.30.—Prof. H. Briggs: The Wheatstone Bridge as the Means of Measuring Linear and Angular Dimensions at a Distance, and its Application to Borehole Surveying.—Prof. E. T. Whittaker: On the Adjustment of Sir J. J. Thomson's Theory of Light to the Classical Electro-magnetic Theory.

VICTORIA INSTITUTE (at Central Buildings, Westminster), at 4.30.—Prof. F. F. Roget: A Philosophic Exponent of Latin Culture, Alexandre Vinet: Protestant Divine and Literary Critic (1797–1847).

ROYAL SOCIETY OF MEDICINE (War Section) (at Central Medical Board, Royal Air Force, 3 and 4 Clement's Inn), at 5.—Demonstration: The Medical Examination of Candidates for Aviation, with Particular Reference to the Physiological and Ophthalmological Tests Employed.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Prof. A. Tudor Edwards: The Surgical Treatment of Phthisis and Bronchiectasis.

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES (at Bedford College for Women), at 5.30.—Prof. J. Johnstone: Failure of Mechanistic Conceptions of Life: Neo-vitalism.

INSTITUTION OF STRUCTURAL ENGINEERS (Students' Meeting), at 6.—H. K. Dyson and others: Discussion.

INSTITUTION OF AUTOMOBILE ENGINEERS (Birmingham Centre) (at Chamber of Commerce, Birmingham), at 7.—I. D. Carpenter: Modern Chassis Frame Design and Body Mounting.

INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting), at 7.—R. J. Mitchell and others: Discussion on Modern Applications of Ball and Roller Bearings.

INSTITUTION OF ELECTRICAL ENGINEERS (North-Eastern Centre) (at Armstrong College, Newcastle-upon-Tyne), at 7.—Prof. S. P. Smith: An All-Electric House.

INSTITUTION OF MECHANICAL ENGINEERS (Graduates' Section), at 7.—E. C. Peters: Submerged Combustion and Submerged Flame Burners.

SURVEYORS' INSTITUTION, at 8.—E. M. Konstam: The Rating and Valuation Act, 1925.

ROYAL GEOGRAPHICAL SOCIETY (at Æolian Hall), at 8.30.

MEDICAL SOCIETY OF LONDON, at 8.30.—H. W. Carson, Dr. A. F. Hurst, and Dr. T. W. Eden: Discussion on Right Iliac Fossa Pain.