## Societies and Academies.

LONDON.

**Geological Society**, April 1.—**Bernard Smith**: The glacier-lakes of Eskdale, Miterdale, and Wasdale, Cumberland; and the retreat of the ice during the 'Main Glaciation'. From a review of the available evidence in the north-west of England it is concluded that the Great Ice Age in Cumberland and the Irish Sea basin comprised at least three main episodes. This paper is confined chiefly to the second—that of the 'Main Glaciation'. The withdrawal of the combined Irish Sea and Lake District ice towards the close of this episode is discussed, and it is concluded that the split between the two ice-sheets progressed northwards, Irish Sea ice tending to shrink on one hand towards the sea-basin westward and north-westward, whilst the Lake District ice—breaking up into tongues or local glaciers—tended to shrink north-eastward and eastward. The stages in the formation of the lakes and their deposits are described, and the positions of the ice-fronts at different times are indicated. Of the deposits, special reference is drawn to beaches, especially those fringing islands, to normal lake-deltas, and to a variety referred to as 'scale-deltas'.—**Rev. Joseph Fowler**: The 'one-hundred foot' raised beach between Arundel and Chichester. Prestwich, in 1858, assumed that the 15-foot raised beach at Brighton is represented by the 100-foot raised beach west of Arundel. Clement Reid seems to accept this identification. There is, however, no proof, either of (1) any differential movement in the general process of elevation, or (2) a fault between the two series that might account for the discrepancy in levels. Moreover, the 'rounded shingle', cited by Prestwich as connecting the two series of marine material, is almost certainly of Tertiary age. It seems safer to assume the presence of two stages of raised beach—a '100-foot' and a '15-foot' beach. Clement Reid appears really to support this view when he is considering the different ages of the Selsey deposits. So also, more recently, does H. J. O. White. Nevertheless, it must be noticed that there is, apparently, no ascertained example of the 100-foot beach east, or of the 15-foot west, of the Arun Valley.

**Royal Meteorological Society**, April 15.—**W. D. Flower**: An analysis of the cold front over Egypt on Mar. 7, 1929. The usual autographic records of wind, temperature, humidity, and pressure at Heliopolis and Ismailia were used, with records of the vertical temperature gradient at the latter station. The cold air advanced in the form of a wedge with its nose above the surface of Ismailia, but as a flat wedge on the surface at Heliopolis.—**W. H. Pick**: A note on the relationship between fog and relative humidity. The fogs occurring at synoptic hours at Cardington during the years 1929 and 1930 are examined and it is shown that the majority of them were accompanied by unsaturated air, as determined by readings of the dry and wet bulb thermometers. This concurrent occurrence of unsaturated air is independent of the intensity of the fog, even the majority of the very thick fogs being so accompanied. —**H. Jameson**: Temperature observations on Adam's Peak, Ceylon. Observations of temperature made at the summit of Adam's Peak, Ceylon, altitude 7360 feet, on twenty-three days in January and February 1930, are discussed and compared with simultaneous observations at Nuwara Eliya, a valley station at 6170 feet. The night temperatures showed the normal differences between a valley and a peak site. During the day, however, there was a sharp rise of temperature in the morning, lasting until about 11 A.M., and giving much higher temperatures than might be expected at that altitude. This was followed by a steady fall, until the constant night temperature was reached about 6 P.M. These day temperatures were probably due to mountain winds converging up the Peak in the morning, and forming cloud over it before midday.—**S. P. Wiltshire**: The correlation of weather conditions with outbreaks of potato blight. The present investigation has been carried out to see if the correlation established by Dutch workers between the weather and blight outbreaks holds good in England, and the results obtained indicate that while the requisite conditions occur more or less regularly before outbreaks, such conditions are not invariably followed by attacks of the disease. The fact that outbreaks do not usually occur without the weather requirements being fulfilled, though negative in character, appears to be of value in practice, and in the intensive seed potato growing area of Friesland, where as many as ten sprays may be applied in a year, the service has enabled the grower to wait with some degree of safety for appropriate weather conditions before spraying.

PARIS.

**Academy of Sciences**, Mar. 16.—**L. Cayeux**: The epigenic origin of the Jurassic dolomites of the Pyrenees. The formation of these dolomites is a case of the general problem of the dolomitisation of a limestone.—**H. Vincent** and **L. Velluz**: The cryptotoxic properties of the halogen substituted oxybenzoic acids. The results of a systematic study of the cryptotoxic properties of the chlorine, bromine, and iodine derivations of salicylic acid. Salicylic acid is from two to three times as active as its isomers, and sodium diiodosalicylate possesses 280 times the cryptotoxic activity of sodium salicylate: it also possesses antiseptic properties.—**C. de La Vallée Poussin**: Some extensions of the method of *balayage* of Poincaré and on the problem of Dirichlet.—**E. Mathias**: The existence or non-existence of lightning *en chapelet*.—Thomas Hunt Morgan was elected *correspondant* for the Section of Anatomy and Zoology.—**Arnaud Denjoy**: Riemann's hypothesis on the distribution of the zeros of $\xi(s)$, related to the theory of probabilities.—**Paul Lévy**: Some theorems on enumerable probabilities.—**G. Pfeiffer**: The construction of the general operator permuting the intervals of a linear and homogeneous partial differential equation of the first order.—**E. Kogbetliantz**: The summability $(C, \delta)$ of developments according to Hermite polynomials.—**Henri Mineur**: The dynamics of variable masses according to the laws of Newton and of Einstein.—**Mme. E. Chandon**: The mean depth of a canal calculated by means of the harmonic constants of two stations.—**E. Fichot**: Remarks on the preceding communication. —**L. Brillouin**.—Elasticity, thermal agitation, and fusion of solids.—**Paul Ansiau**: The realisation of a mercury vapour pump. Description of construction, with a diagram, mode of working, and performance of a mercury vapour pump.—**Pierre Auger** and **Mlle. Thérèse Meyer**: The directions of emission of photoelectrons. Experiments have been carried out with the $K\alpha$ radiation of uranium, and the results compared with calculations based on Sommerfeld's theory.—**Mlle. M. Chenot**: The phenomena of propagation in ionised gases by discharges of very high frequency.—**Constantin Salceanu**: The magnetic rotatory polarisation of some higher homologues of the organic fatty acids. The acids studied were decanoic, lauric, myristic, palmitic, and stearic. Perkin's rule is only true as a first approximation, as systematic differences appear for the higher terms. —**Pierre Montagne**: The application of a square

diagram to the representation and calculation of the equilibrium in the water gas reaction.—**R. Wurmser** and **J. Geloso**: The oxido-reduction potential of solutions of glucose.—**L. Bull** and **Mlle. Suzanne Veil**: The kinetic study of Liesegang's rings.—**Picon**: Pure cerium sulphide. Sterba's method, the interaction of cerium oxide and hydrogen sulphide at a high temperature, gives a product free from oxygen provided the temperature is 1500°-1600° C. At 1000° C. the sulphide still contains 2 per cent of oxygen. The pure sulphide melts at 2200° C. and is stable at the melting point. The reaction with carbon dioxide at 700° C. is unusual, $Ce_2S_3 + 4CO_2 = 2CeO_2 + 4CO + 3S$.—**M. Bourguel**: The formation of an intermediate form in an acetylene transposition. The prolonged action of sodium amide at 60°-70° C. upon $C_6H_5.C \equiv C.CH_3$ gives a sodium derivative, from which treatment with dilute acid gives $C_6H_5.CH_2.C \equiv CH$ and an isomer which does not react with ammoniacal cuprous chloride. This isomer absorbs oxygen giving $C_6H_5.CO.CO.CH_3$, and its composition is undetermined.—**Henri Termier**: The discordances of the meso- and cenozoic series in Central Morocco and the Middle Atlas.—**L. Eblè** and **J. Itié**: The values of the magnetic elements at the Val-Joyeux station (Seine-et-Oise) on Jan. 1, 1931. The only special point is the clear increase in the vertical component. This has now the same value as it had on Jan. 1, 1911, after having undergone in the twenty-year interval an oscillation characterised by a relative maximum in 1918 and two minima in 1915 and 1926.—**N. P. Péntcheff**: The proportion of krypton and xenon in some Bulgarian natural gases. The spectrophotometric method of Moureu and Lepape was used in these determinations. The results are in agreement with the astrophysical theory of Moureu and Lepape.—**Kalé**: Contribution to the morphological study of the stem of *Triticum vulgare*.—**P. Vignon**: The teeth of the labrum of certain gasteropods with turbinated shell, and the relations which they may develop with the varices.—**Mlle. Odette Tuzet**: The parabasal apparatus and the dictyosomes in *Reniera simulans* and *Hymeniacidon sanguinea*.—**Maurice Piettre** and **Boris Celan**: The rôle of the different cellular elements in the mobilisation of the lipoids in the mammary gland; Donné's corpuscle.—**Maurice Lecamp**: Experimental duplications of the posterior limbs in the toad *Alytes obstetricans*.—**Ch. Joyeux** and **J. Pieri**: The hibernation of the virus of Mediterranean exanthematic fever. It is proved that *Rhipicephalus sanguineus* can harbour the virus of this fever during the winter, or for at least the first part of the winter. There are indications that the virus is attenuated by this hibernation.

GENEVA.

**Society of Physics and Natural History**, Nov. 20.—**Arnold Pictet**: The existence of two markings in guinea-pigs, one dominant, the other recessive. In guinea-pigs, the marking of the body is dominant in the monohybrid of uniform coloration, whilst the marking of the extremities is simply recessive. These two monohybrid systems fit into each other to form a dihybrid system, so that the heredity relations between the uniform fur and the two kinds of markings are governed by a double pair of inheritance factors.—**E. Bovier**: The ammonites of the upper Sinemurian of Champfromier (French Jura). The author gives a list of the ammonites from the Lias which he has collected at Champfromier. From these the presence of the three following Oppel zones is inferred: *Echioceras raricostatum* zone, *Oxynoticeras oxynotum* zone, and *Asteroceras obtusum* zone. He then points out the differences observed between the sections of British authors and his results, as well as the slight value to be attached to the stratigraphy in 'hemeræ' of the late S. S. Buckman.—**Henry Goudet**: The optical activity of certain anthracene derivatives. By the reduction of benzyloxanthrone-$\beta$-carboxylic acid ($[\alpha]_D^{20} = -71 \cdot 6°$) an optically inactive $\gamma$-benzylanthracene-$\beta$-carboxylic acid is obtained. This fact tends to prove the non-existence of a medial linkage between the atoms of carbon 9 and 10 of the anthracene. Its value as a crucial test, however, is diminished by the fact that the inactivity of the $\gamma$-benzylanthracene-$\beta$-carboxylic acid thus obtained might not be due to the constitution of the acid itself, but to a racemisation produced during the reduction.—**R. Wavre**: The axes connected with a fluid and criteria of stability. The author shows at the start that the central axes of inertia and the axes connected to the equivalent solids must be distinguished. He then points out a general criterion of stability of a relative equilibrium, from which he deduces as particular cases the criteria of Poincaré and Kelvin. This general method will be developed in a work on the whole question.—**G. Tiercy**: The dimensions of the terrestrial spheroid. The author notes that the value for the terrestrial flattening, 1/294, takes account, to the second approximation, of all known measurements, whether geodetic, precessional or of the mean superficial density of the earth. The author adopts this value although the geodetic institutes admit others, about 1/297. Taking all known measurements into account, he derives the following values for the axes of the terrestrial spheroid;

Semi-major axis = 6378·250 kilometres.
Semi-minor axis = 6356·555 kilometres.

Dec. 4.—**Jean Weiglé**: The work of removing electrons. The work which must be supplied to tear off an electron from a metal is due, at least in part, to the electrostatic attraction of the metal on this electron. This problem is treated by the method of images and the force thus calculated is called the force of the image. The author has studied these forces when the metal is surrounded: (1) by an infinite dielectric, and (2) by a dielectric layer. He has also considered the theory of images in dielectrics from a general point of view. These theoretical results may be submitted to various experimental proofs suggested by the author.—**Paul Rossier**: The index of absolute colour and stellar statistics. This study comprises the calculation of the difference, visual magnitude of a star minus the bolometric magnitude: properties of the minimum of the difference. The application to the eye appears to be fairly exact, especially for hot stars. The proportion of hot stars is higher than that given by visual observations. A difficulty in Russell's evolution theory is thus eliminated.—**Charles Jung**: The albumin and globulin of the blood serum. The author's experiments appear to prove that precipitation by sodium sulphate in solution gradually increasing in concentration gives globulins in which the nitrogen percentage also increases. The fraction precipitated with the proportion 21·5 per cent differs little from that precipitated by carbon dioxide, according to the technique employed. The average nitrogen percentage of the total globulins is 14·8 per cent, which would lead to the factor 6·75 when determining by nitrogen, admitting that the proportion of englobulin and the pseudo-globulins varies but slightly.—**E. Galfre**: The study of some electrochemical phenomena in metallic osteosynthesis. As a result of various researches on osteosynthesis, the author has arrived at the conception that it is electrolytic phenomena which preponderate in operating failures. Working with various pieces of prothesis

fixed in the bone, he has measured very substantial potential differences, varying between 150 and 350 millivolts. The conductivity of bone is fairly high. On the other hand, micro-determinations of the calcium set free by the presence of plates show figures of the order of 5 mgm. in 8 days. This proves the danger of couples. These couples do not even require a bimetallic material, but may be produced with a single metal.

## Official Publications Received.

BRITISH.

Tanganyika Territory: Department of Agriculture. Annual Report 1929-30. Part 1: Agricultural Administration and Progress. Pp. ii+37. 2s. Part 2: Agricultural Investigation. Pp. ii+49. 2s. (Dar es Salaam: Government Printer.)

Geological Survey Department: Tanganyika Territory. Short Paper No. 7: Notes on the Mineral Deposits in the Newala-Lindi Area. By G. M. Stockley; with Petrological and Mineralogical Notes on certain Associated Rocks, by Frank Oates. Pp. ii+34. (Dar es Salaam: Government Printer.)

Memoirs of the Geological Survey of India. Palæontologia Indica. New Series, Vol. 11: Revisions of Indian Fossil Plants. Part 2: Coniferales (b. Petrifactions). By Dr. B. Sahni. Pp. 47-124+plates 7-15. (Calcutta: Government of India Central Publication Branch.) 7.6 rupees; 12s.

Transactions of the Geological Society of South Africa. Vol. 33, January to December 1930. Pp. iv+134+8 plates. 42s. Proceedings of the Geological Society of South Africa: [containing the Minutes of Meetings and the Discussions on Papers read during 1930. To accompany Vol. 33 of the Transactions. Pp. iii+lxvi. (Johannesburg.)

Southern Rhodesia. Report of the Director, Geological Survey, for the Year 1930. Pp. 13. (Salisbury.)

Union of South Africa: Department of Agriculture. Science Bulletin No. 93: Prickly Pear and its Eradication. By C. R. van der Merwe. (Division of Chemistry, Series No. 107.) Pp. 32. (Pretoria: Government Printing Office.) 3d.

Southern Rhodesia: Geological Survey. Bulletin No. 10: The Geology of the Country West of Mount Darwin. By B. Lightfoot and R. Tyndale-Biscoe. Pp. 54+6 plates. (Salisbury.) 2s. 9d.

The Annual Report of the Visitors of the Royal Institution of Great Britain for the Year ending December 31st, 1930. Pp. 21. (London.)

Transactions and Proceedings of the Perthshire Society of Natural Science. Vol. 9, Part 1, 1929-30. Pp. 34+xiv+11 plates. (Perth.)

FOREIGN.

U.S. Department of Commerce: Coast and Geodetic Survey. Special Publication No. 172: First-Order Leveling in New Jersey. By Howard S. Rappleye. Pp. 35+2 plates. (Washington, D.C.: Government Printing Office.) 10 cents.

Field Museum of Natural History. Report Series, Vol. 8, No. 2: Annual Report of the Director to the Board of Trustees for the Year 1930. (Publication 287.) Pp. 267-522+plates 21-40. (Chicago.)

Bulletin of the American Museum of Natural History. Vol. 59, Art. 6: Metacheiromys and the Edentata. By George Gaylord Simpson. Pp. 295-381. (New York City.)

Review of Legal Education in the United States and Canada for the Year 1930. By Alfred Z. Reed. Pp. iii+67. (New York: The Carnegie Foundation for the Advancement of Teaching.) Free.

Cornell University Agricultural Experiment Station. Bulletin 515 Some Shade-Tree Pests and their Control. By Glenn W. Herrick. Pp. 26. (Ithaca, N.Y.)

CATALOGUES.

Essentials in Photography. Pp. 12. (London: Burroughs Wellcome and Co.)

Memorandum on the Hilger Interferometers. Pp. 14. (London: Adam Hilger, Ltd.)

The Nickel Bulletin. Vol. 4, No. 4, April. Pp. 93-124. (London: The Mond Nickel Co., Ltd.)

Leitz Large Metallographic Microscope MM. Pp. 28. Leitz Workshop Material Testing Microscope. Pp. 12. Leitz Appliances for the Preparation of Metallurgical Specimens. Pp. 8. (London: E. Leitz.)

A Catalogue of Book Bargains. (No. 526.) Pp. 16. (London: William Glaisher, Ltd.)

## Diary of Societies.

*FRIDAY*, MAY 1.

CERAMIC SOCIETY (Building Materials Section) (at Imperial College of Science and Technology), at 10.30 A.M.—M. Barrett: Night Architecture.—W. A. McIntyre: Durability of Terra Cotta with Particular Reference to the Filling of Blocks.—M. Barrett: Stock Terra Cotta.—M. Barrett: Metallised Terra Cotta.—At 2.30.—E. R. F. Cole: Kiln Products in Architecture.—G. Haworth: Informal Talk on Modern Machinery Used in Three Processes of Brick-making, *i.e.* Semi-plastic, Stiff-plastic, and Plastic Wire-Cut.—W. Emery: Notes on the Firing of a Blue Brick Oven.

ROYAL SOCIETY OF MEDICINE (Otology Section) (Annual General Meeting), at 10.30 A.M.—Dr. Schmaltz: The Physical Phenomena Occurring in the Semi-circular Canals during Rotatory and Thermic Stimulation.—Dr. H. W. Barber: Eruptions Involving the External Auditory Meatus.—Discussion: Non-malignant Diseases of the External Ear and Auditory Meatus.

ROYAL ASTRONOMICAL SOCIETY (Geophysical Discussion), at 4.30.—Dr. G. M. B. Dobson: Variations and Distribution of Atmospheric Ozone.

ROYAL SOCIETY OF MEDICINE (Laryngology Section) (Annual General Meeting), at 4.30.—Prof. G. Portmann: A Big Tumour of the Deep Regions of the Face Removed by Operation, with Cure.—Dr. A. Brown Kelly, Dr. D. R. Paterson, and others: Discussion on Obstruction at the Upper End of the Œsophagus (Excluding Pharyngeal Diverticula).

PHYSICAL SOCIETY (at Imperial College of Science), at 5.—Prof. J. E. Lennard-Jones: Cohesion (Lecture).

ROYAL INSTITUTION OF GREAT BRITAIN, at 5.—Annual Meeting.

ROYAL SANITARY INSTITUTE (at Town Hall, Batley), at 5.—Councillor H. Crothers and Councillor H. S. Houldsworth: Housing, with Special Reference to the Housing Act, 1930, from the Aspect of a Town Councillor.—Dr. T. Gibson and H. Hornby: Housing, with Special Reference to the Housing Act, 1930, from the Administrative Standpoint.

NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY (at Royal Society of Arts), at 6.—Miss S. Bevington: The Causes of Juvenile Drifting.—A. H. Seymour: *Personnel* Work in Modern Industry.

INSTITUTION OF ELECTRICAL ENGINEERS (Meter and Instrument Section), at 7.—Prof. W. M. Thornton: High-Voltage Precision Measurements (Lecture).

INSTITUTION OF MECHANICAL ENGINEERS (Informal Meeting), at 7.—J. Harrison and others: Discussion on Selling Engineering Products.

GEOLOGISTS' ASSOCIATION (in Architectural Theatre, University College), at 7.30.—Prof. P. G. H. Boswell: The Glacial Deposit of East Anglia, with Especial Reference to the Industries of Early Man.

ROYAL SOCIETY OF MEDICINE (Anæsthetics Section), at 8.30.—Annual General Meeting.

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. D'Arcy W. Thompson: Charlotte Brontë in Brussels.

*SATURDAY*, MAY 2.

ROYAL SANITARY INSTITUTE (at Town Hall, Batley), at 10 A.M.—Major D. S. Rabagliati and others: Discussion on The Practical Value of Meat Inspection.

INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS (Eastern District Meeting) (at Chelmsford), at 11.30 A.M.

INSTITUTION OF ELECTRICAL ENGINEERS (Meter and Instrument Section) (at Cambridge).

*MONDAY*, MAY 4.

ROYAL SOCIETY OF EDINBURGH, at 4.30.—L. R. Cox: A Contribution to the Molluscan Fauna of the Laki and Basal Khirthar Groups of the Indian Eocene.—Dr. H. Boschma: On the Identity of *Sacculina triangularis* and *Sacculina inflata*.—Dr. S. Williams: An Analysis of the Vegetative Organs of *Selaginella grandis*, Moore, together with some Observations on Abnormalities and Experimental Results.—Prof. L. M. Milne-Thomson: On the Operational Solution of the Homogeneous Linear Equation of Finite Differences by Generalised Continued Fractions.—Dr. A. C. Aitken: Further Numerical Studies in Algebraic Equations and Matrices.—Dr. D. Meksyn: Electromagnetic Phenomena in a Uniform Gravitational Field.

VICTORIA INSTITUTE (at Central Buildings, Westminster), at 4.30.—Rev. A. H. Finn: Types in Scripture.

ROYAL INSTITUTION OF GREAT BRITAIN, at 5.—General Meeting.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Sir Arthur Keith: Human Monsters and Malformations (1): The Light which Experimental Embryology has thrown on Monstrous Births.

SOCIETY OF ENGINEERS (at Geological Society), at 6.—A. M. A. Struben: Hoof Dams.

BRITISH PSYCHOLOGICAL SOCIETY (Education Section) (at London Day Training College), at 6.—Miss M. Mactaggart: Four Cases Illustrating the Technique of Remedial Teaching.

SOCIETY OF CHEMICAL INDUSTRY (London Section) (Annual General Meeting) (at Chemical Society), at 8.—Prof. W. A. Bone: The Constitution of Coal.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—C. P. Skrine: The Highlands of Persian Baluchistan.

*TUESDAY*, MAY 5.

ROYAL SOCIETY OF ARTS (Dominions and Colonies Section), at 4.30.—Sir Arthur W. Hill: Recent Research Work in South and East Africa.

ROYAL SOCIETY OF MEDICINE (Orthopædics Section), at 5.30.—Annual General Meeting.

INSTITUTION OF CIVIL ENGINEERS, at 6.—Sir Thomas Stanton: James Forrest Lecture.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.30.—W. P. Rowe: Maori Art.

*WEDNESDAY*, MAY 6.

INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS (Free State District Meeting) (at 35 Dawson Street, Dublin), at 10.30 A.M.

ROYAL SOCIETY OF MEDICINE (History of Medicine Section) (Annual General Meeting), at 5.—Dr. G. C. Peachey: Thomas Trapham, Cromwell's Surgeon, and others.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Sir Arthur Keith: Human Monsters and Malformations (2): Monsters which result from an Imperfect Separation of Twin Embryos. A Review of the Various Types which are thus produced.

GEOLOGICAL SOCIETY OF LONDON, at 5.30.—Dr. C. A. Matley: The Geology of the Country around Mynydd Rhiw and Sarn, South-Western Lleyn (Carnarvonshire).—Dr. E. Greenly and Prof. P. G. H. Boswell: An Ordovician Grit from Anglesey, with its Bearing on Palæogeography and upon the Tectonics of the Mona Complex.