

## Early Science at Oxford.

February 22, 1683-4.—A letter from Mr. Aston dated Feb. 14 was read, which gave an account of an experiment lately shewn before ye Royal Society by Mr. Paget, viz. ye south pole of ye inclinatory needle followed ye flame of a quarter of a sheet of paper, 5 degrees, ye side of ye box being very little hot; ye inclinatory needle was hung in ye plane of ye meridian; ye North pole shunned ye flame.—With regard to a fountain in Poland, that is said to follow ye motion of ye Moon, is cold to ye touch, and yet easily inflammable, Dr. Plot informs us, that there is a spring in Lancashire, which, though cold, takes fire, and will harden eggs.

Concerning ye Lough-neagh stone, it was ordered, that ye Gentlemen of ye Society of Dublin should be desired, that they would be pleased to impart their thoughts concerning it, ye manner of its being made such, and of what materials it may be made.

1686-7.—Mr. Halley sent accounts (1) of Mr. Hooke's hypothesis concerning ye changes which seem to have happened in ye surface of ye Earth, from ye shells in beds found petrified in ye Alps, and other hills far from, and above ye sea; and again sea sand and shells, found at great depths underground. (2) Of an experiment of flint and steel in vacuo; which was that there were no sparks visible from ye collision, though they were very vivid in ye same receiver when ye air was admitted. (3) Of a very strange effect of lightning from France, viz. that something in it pierced through a piece of glass, making some holes about ye bignesse of pistol bullets, and melting ye edges of ye glass making it smooth like ye edges of a cup. (4) That ye French in Canada have found a whole mountain of lead ore, which lies bare; so that there is no need of mining.

Whereas Mr. Hooke thinks that there are not extant any authentic records of ye latitudes of places sufficiently to evince ye fixation of ye Poles, Dr. Bernard observes that ye latitude of Marseilles, taken by Pythias, in ye time of Alexander ye Great, appears to be ye same as 'tis now, and that in ye latter end of Julius Firmicus, is an observation of ye latitude of Oxford, taken about a hundred years since.

Mr. Lhwyd communicated ye following curiosities, sent out of ye Isle of Anglesey together with a collection of sea plants and shells:—Eggs of Skate and Dog-fish, *Favus marinus Sibbaldi*, and a broad leaved *Fucus* which had a facing of fine silk in appearance, and was all over garnished with small filaments standing upright, about an eighth of an inch long; much resembling ye stamina of flowers. This surface was easily scraped off, and was supposed to adhere to this plant after ye same nature that mosses, lichens, fungi, and such other vegetables adhere to stones, trees, bones, horns, etc.

February 23, 1685-6.—A discourse concerning sounds and echoes, drawn up by Mr. Walker, was by him communicated and read.—Dr. Plot communicated some shells, *Buccina*, in which ye spirals turn to ye left.

February 24, 1684-5.—A Horn was communicated by Dr. Plot, said to be a horn, which grew behind ye head of a woman, who was shewn in London about fourteen years since, and is reported to have shed her horn once in three years. This was sent by Mr. Ashmole to be laid up in his Repository.

A letter from Dr. Howman, dated Norwich Jan. 27, gave an account of a hydrophobia in an alderman of Norwich, caused by ye bite of a mad fox. Mr. Walker affirmed, that about fifteen years since a person died mad in Cheshire, having been bitten by a mad cat, which received its madness from ye bite of a mad dog.

## Societies and Academies.

LONDON.

Royal Society, February 12.—H. Muir Evans: A contribution to the anatomy and physiology of the air-bladder and Weberian ossicles in Cyprinidæ. In Cyprinidæ the air-bladder is constricted, so as to form an anterior and posterior chamber connected by a short duct. The Weberian mechanism is designed to conduct vibrations and not to register variations of pressure. The nerve-ganglion regulates tension of anterior sac and thus allows it to receive vibrations: it controls the sphincters and prevents undue lowering of tension when the pneumatic duct is open, and excess of tension due to pressure of gas in the posterior sac.—J. S. Huxley: Studies on amphibian metamorphosis. II. It is not always possible to induce metamorphosis of the axolotl by enforced air-breathing in a considerable number of specimens. This may be due to genetic differences between strains. When axolotls are so treated the dorsal fin falls over and fuses completely with the skin of the back. By using urethane it was found possible to keep frog tadpoles in narcosis for 8-12 days. If previously treated with thyroid, they metamorphosed as rapidly as controls. An atmosphere of oxygen is deleterious to tadpoles, and retards metamorphosis. A mixture of air and oxygen containing 40 per cent. oxygen allows metamorphosis to proceed at the same rate as in air. The dorsal fin of male newts which is developed in the breeding season is not caused to regress by administration of thyroid, unlike the larval fin-crest occupying the same position.—A. S. Parkes and J. C. Drummond: Effects of vitamin-B deficiency on reproduction. In a buck rat on a diet totally deficient in vitamin-B degeneration of testes and sterility ensue. The amount of degeneration can be generally correlated both with degree of deficiency and time on the diet. The fecundating power of the buck can be definitely correlated with degree of deficiency. Size of litter, however, shows little variation. The proportion of males among the young decreases.—A. Dendy: On an orthogenetic series of growth forms in certain tetraxonid sponge-spicules. The so-called streptasters or siliceous spicules of the Theneidæ and Pachastrellidæ are not asters, and the spirally twisted axis which they exhibit is not an elongated centrum. They are really derivatives of the primitive triact, which have arisen in accordance with a remarkable law of growth. These spicules, for which the name "dichotriacts" is proposed, appear to form an orthogenetic series of growth-forms, probably representing both a phylogenetic and an ontogenetic series. As in true asters, the increase in the number of rays is accompanied by diminution in size.—C. E. Walker: The meiotic phase in Triton (*Molge vulgaris*). As is the case in the ordinary somatic mitoses, the univalent filament splits in the telophase of the somatic division immediately preceding the 1st meiotic (heterotype) division. These semivalent threads rejoin in the early prophase; the univalent filaments thus formed join longitudinally, and at the anaphase whole somatic chromosomes are distributed to the daughter cells. The splitting of the univalent filament in the telophase of the last somatic division is not consummated until the 2nd meiotic division, when the chromosomes split into longitudinal halves. The 1st meiotic division is a unique phenomenon interpolated between two mitoses providing for the equal distribution of whole chromosomes.—W. E. Alkins: *Clausilia bidentata* (Ström) and *Cl. cravenensis* (Taylor): a statistical inquiry into the relationship of two similar species. *Clausilia bidentata* is widely spread in Britain and elsewhere; *Cl. cravenensis*

occurs only in a restricted area in the north of England, and its specific status has generally been questioned. The altitude, diameter, and diameter/altitude ratio in series of each species collected from limited loci in which both species live together in the same habitat, have been studied. While both species, and especially *bidentata*, are highly variable, and though local races may be distinguished within *cravenensis*, the two forms are clearly separated by biometric criteria, and there is no evidence of intermediate forms.

**Royal Microscopical Society, December 17.**—F. W. Rogers **Brambell**: The part played by the Golgi apparatus in secretion and its subsequent reformation in the cells of the oviducal glands of the fowl. The Golgi apparatus in the *cells of the alveolar glands* undergoes hypertrophy during periods of activity and reduction during periods of rest. It is not extruded with the secretion. The *ciliated epithelium* lining the entire oviduct is also secretory. During secretion the nucleus moves down the cell towards the lumen and the Golgi apparatus fragments, and is extruded from the cell. The nucleus then moves to the back of the cell and the Golgi apparatus reforms *de novo*. The albumen of the egg of the bird is homologous with the envelope of mucus formed around the egg of the mammal in the Fallopian tube. In this respect the egg of Ornithorhynchus and the marsupials is intermediate. The changes in the oviduct of the fowl between the laying of two successive eggs are comparable to the changes in the non-pregnant uterus of the mammal during the oestrous cycle.—R. J. **Ludford**: Some modifications of the osmic acid methods in cytological technique. By treating suitably fixed tissues, after osmication, for 14-21 days with water at 35°-40° C., a good general impregnation of the Golgi apparatus can be obtained. Sections can then be stained to demonstrate the mitochondria and nuclear structures. Before staining it is desirable to treat sections with 0.1 per cent. potassium permanganate, followed by sulphurous acid, in order to bleach the cytoplasm.

**Geological Society, January 7.**—A. K. **Wells**: The geology of the Rhobell Fawr district (Merionethshire). The area described covers some 30 square miles centred about the mountain-mass of Rhobell Fawr. The succession ranges from low down in the Lingula flags to the Bala mudstones. A feature of special interest is the development of an igneous cycle at a lower level than anywhere else in North Wales. The centre of eruption of which Rhobell is the denuded basal wreck, was a subaerial volcano which became active during the pre-Arenig interval. Basic intrusions are common at various horizons between the Dolgelly beds and the Upper Acid group, and are without exception sills. The area provides good illustrations of the action of an intrusive magma in persistently flooding certain horizons and invading selected rocks while leaving others unaffected. As a consequence of its position at the south-eastern "corner" of the Harlech dome, the strike changes almost through a right-angle in passing from south to north. Folding along north-and-south axes is dominant, but the folds have been buckled against the Rhobell mass, which acted as a resistant knot lying in advance of the hard core of the dome. The area is much faulted, the most important dislocations being parallel to those recently described from the Bala district.

PARIS.

**Academy of Sciences, January 12.**—A. **Lacroix**: The meteorite of Roda. A detailed mineralogical and chemical analysis of this meteorite is given, which only

differs from the terrestrial harzburgites by containing a higher proportion of iron.—Charles **Richet**, Eudoxie **Bachrach**, and Henry **Cardot**: The heredity of acquired characters proved by the displacement of the thermal optimum. A normal strain of lactic bacillus has a maximum development at a temperature of 36° C. A strain of this bacillus, grown for three years in the presence of potassium chloride, has the optimum temperature raised by 6° C. to 42° C.; and this change persists and is characteristic of this strain of bacillus.—C. **Camichel**, L. **Escande**, and M. **Ricaud**: Overflow weirs.—Paul **Vuillemin**: A normal classification, auxiliary classification, and practical grouping of the fungi.—Bertrand **Gambier**: The invariants of Gauss, Beltrami, and Minding.—A. **Kolmogoroff**: The axiomatic definition of the integral.—M. **Lavrentieff**: The sub-classes of the classification of M. Baire.—V. **Weniaminoff**: The limit-derivative of an analytical function.—Maurice **Roy**: The adherence of a perfect liquid to a solid which it wets and Lagrange's theorem.—Georges **Patart**: The influence of the cooling of a gaseous fluid previous to its compression. A demonstration of the advantages of a preliminary cooling of gases before compression.—Emile **Belot**: The movement of a vortex in a resisting medium: application to planetary vortices.—Rafael de **Buen**: The influence of the surface temperature on deep thermal changes in the western Mediterranean. A discussion of the experimental data given by Richard, Oxner, and Sirvent.—H. **Eyraud**: The projective Riemann character of the electromagnetic gravific field.—A. **Perot**: A photographic recorder and oscillograph.—Léon and Eugene **Bloch**: The spark spectrum of tungsten in the Schumann region. A catalogue of wave-lengths and intensities of tungsten lines between  $\lambda=1826$  and  $\lambda=1453$ .—Charles **Chéneveau**: The formation of optically disturbed media by the penetration of a transparent liquid into a transparent resin.—Jean **Thibaud**: Research on characteristic gamma spectra by crystalline diffraction. The method employed was that of the rotating crystal (velocity less than 1° in 24 hours) and Broglie photographic recorder. The  $\gamma$  spectra were obtained as fine lines without signs of any continuous bands. The crystal diffraction method furnishes a good confirmation of the values attributed to the  $\gamma$  frequencies by the method of excited  $\beta$  spectra.—Fred **Viès** and Mlle. **Madeleine Gex**: The ultra-violet absorption of petrols. A study of the changes produced in the absorption bands by fractional distillation.—H. **Pélabon**: The direct formation of the mercury oxychlorides. The three oxychlorides,  $\text{HgO} \cdot 2\text{HgCl}_2$ ,  $2\text{HgO} \cdot \text{HgCl}_2$ ,  $4\text{HgO} \cdot \text{HgCl}_2$ , can be formed directly from  $\text{HgO}$  and  $\text{HgCl}_2$  in the presence of water and of alcohol if the temperature is low. The first of these is white and is not formed if the temperature rises above 30° C., but once formed, can be heated to 100° C. without decomposition.—Emile **Luce**: Researches on the migratory aptitudes of the  $\alpha$ -naphthyl radicle.—**Royer**: The rotatory power of cholesterol bodies.—E. **Fournier**: A mode of capture by subterranean erosion, special to certain closed basins of the chain of the Jura.—Ch. **Gorceix**: The metric proof of the ovoid form of the earth. The ovoid proposed as the best representation of all the available geodesic measurements is intermediate between the ellipsoids of Clarke (1880) and Bessel (1841).—Jean **Piveteau**: The existence of a reptile with lacertilian affinities in the permian formations of Madagascar. The name *Broomia Madagascariensis* is given to this reptile, which is represented by a large number of well-preserved examples, only the head presenting difficulties.—G. **Mangenot**: The

mode of formation of starch grains in the latex of the Euphorbiaceæ.—Maurice Lenoir: The telophase of the first division in the embryonic sac of *Fritillaria imperialis*.—Vittorio Pettinori: The toxic action of *Amanita phalloides*. This poison acts not only on vertebrates, but also on infusoria, small crustaceans, the larvæ of insects and fishes. It has no action on the isolated heart of the frog, and probably is without action on lizards and frogs.—Gilbert Ranson: The cause of the green coloration appearing on oysters. The pigment of *Navicula ostrearia*, which is unaffected by the digestive juices of the oyster, is shown to be the cause of the green coloration.—Harry Plotz: Some observations on the mechanism of serum anaphylaxy. In anaphylaxy produced by serum injection two factors intervene: the physico-chemical state of the serum used for the sensitising injection, and the physico-chemical state of the second injection.—Georges Bourguignon and Mlle. Renée Déjean: Double chronaxy of the optical system in man.—Jean Camus and J. J. Gournay: Researches on diabetes and diuresis.

## MELBOURNE.

Royal Society of Victoria, November 20.—J. Ewart: Stock poisoning in the Northern Territory. Along the main stock route in the Northern Territory very heavy losses of stock have been experienced in recent years and their cause has been in doubt. The cause was determined, by actual experiments carried out in Central Australia on a herd of cattle, to be poisoning due to *Indigofera bovipurda*, the indigo cattle bane, and to *Isotropis atropurpurea*, the poison sage. The former is well known as a cattle-killer in Western Australia, but was not previously recorded as killing stock in the Northern Territory. It loses its poisonous properties when dried in a hot sun, owing to the ready decomposition of its alkaloid "cygnin." The *Isotropis* was not previously recorded as a poisonous plant. It is less poisonous than *Indigofera bovipurda*, but the poison is more stable. An extract obtained by Dr. Young is poisonous to guinea-pigs, but the nature of the poison is as yet unknown.—C. Fenner: The Bacchus Marsh basin, Victoria. At a period somewhat earlier than middle Tertiary, the whole of Eastern Australia, including Victoria, consisted of low undulating highlands and vast level plains, well wooded and well watered. Under these conditions great brown coal deposits of Victoria, etc., were built up. Later there came some differential uplift of the land, and associated with this there was an outpouring of basaltic lava (the "older basalts"), and about this time the subsidence of Bass Strait possibly commenced. Later, there was another volcanic period (the "newer basalts"); these flows dammed up many of the streams, and filled up some of the old valleys, forming lakes and twin streams and causing a complete change in the drainage system. The faulting which followed or accompanied this volcanic period gave rise to the great mountain system of Eastern Australia. Locally it caused additional alteration in the stream activities. Thenceforward the natural downward cutting, side-swinging, and headward erosion of the Bacchus Marsh streams brought about the formation of the basin as it exists to-day.—A. H. Coulsen: Geology of the Coimadai area, Victoria, with special reference to the Limestone series. Lower Ordovician and Permo-Carboniferous glacial rocks form the basement of the area, but the paper is concerned with the Kainozoic rocks. These comprise gravels, sands, etc., monchiquite dykes and basalt. The limestone, or more properly dolomite, contains fossils and a very finely laminated mudstone

with small grains which bear a strong resemblance to the pollen grains of *Pinus*. The grains sometimes have a quadrate centre and at others there is a suggestion of spines and wings. The fossils are all referable to the Pleistocene. The extreme uniform fineness of grain and the absence, with one or two possible exceptions, of calcareous organisms, suggest that the dolomitic limestone is the result of deposition of a chemical precipitate of magnesian limestone and differential leaching, in places, giving a more magnesian limestone. Basaltic lava flows followed the sedimentation in the lake, but were preceded by the outburst of a fine ash which has only been found in the limestone lake. The outpouring of basalt completely altered the drainage system of the area. Pyrete and Goodman's Creeks came into existence and deposited, in their initial stages, high level gravels as a capping over the older rocks. In deepening their channels they carried away much of the softer gravels of the old "Bullengarook River," destroyed the limestone lake, and removed most of the limestone, the remnant of which is now covered by the higher gravels of these streams.

## Official Publications Received.

- Carnegie Institution of Washington. Year Book No. 23, November 1, 1923, to June 30, 1924: with Administrative Reports through December 12, 1924. Pp. xx+43+325. (Washington, D.C.)
- Medical Schools of the World. Pp. 26. (New York: The Rockefeller Foundation.)
- Commonwealth of Australia: Institute of Science and Industry. Bulletin No. 28: Problems of the Viticultural Industry. By A. V. Lyon. Pp. 84. (Melbourne: H. J. Green.)
- University of Oregon Publication. Vol. 2, No. 7, November: A Proposed Classification of Igneous Rocks. By Edwin T. Hodge. Pp. 72. (Eugene: University of Oregon Press.) 1 dollar.
- Ministry of Agriculture, Egypt: Technical and Scientific Service. Bulletin No. 47: Cotton Growing in Relation to Climate in Egypt and the Sudan. By C. B. Williams. Pp. ii+31+9 plates. (Cairo: Government Publications Office.) 5 P.T.
- The South African Journal of Science. Vol. 21, November: Comprising the Report of the South African Association for the Advancement of Science, 1924, Cape Town. Pp. xi+698+xx. (Johannesburg.) 30s. net.
- Hampstead Scientific Society. Report of the Council and Proceedings, with a List of the Members, for the period October 1922 to September 1924. Pp. 70. (London: 32 Willoughby Road, N.W.3.)
- Nyasaland Protectorate: Department of Agriculture. Bulletin No. 1 of 1924: The Destruction of Vegetation and its Relation to Climate, Water Supply and Soil Fertility. Part 1: General Effects of the Destruction of Vegetation, by Dr. F. Dixey; Part 2: The Relation of Forest Vegetation to Climate, Water Supply and Soil Erosion, by J. B. Clements; Part 3: The Erosion of Arable Soil in Nyasaland and Methods of Prevention, by A. J. W. Hornby. Pp. 16. (Zomba.)
- Smithsonian Institution: The Smithsonian Institution's Study of Natural Resources. Niagara Falls: its Power Possibilities and Preservation. By Samuel S. Wyer. (Publication 2820.) Pp. vi+28+2 plates. (Washington, D.C.)
- Carnegie Institution of Washington. Annual Report of the Director of the Laboratory for Plant Physiology. (Extracted from Year-Book No. 23, for the Year 1924.) Pp. 155-143. (Washington, D.C.)
- New South Wales. Department of Mines: Geological Survey. Bulletin No. 7: Gold. By E. J. Kenny. Pp. 60+10 plates. 2s. Bulletin No. 8: Aluminium (Alumite and Bauxite). By L. F. Harper. Pp. 21. 1s. Bulletin No. 11: Cadmium and Mercury, or "Quicksilver." By E. J. Kenny. Pp. 12. 1s. (Sydney: Alfred James Kent.)

## Diary of Societies.

SATURDAY, FEBRUARY 21.

- BRITISH PSYCHOLOGICAL SOCIETY (at University College), at 3.—Miss Isabel Burnett: Motives in the Acquisition of Skill.—Prof. T. H. Pear: On Forgetting the Unpleasant: An Examination into Recent Criticisms of Psycho-analysis.
- ROYAL INSTITUTION OF GREAT BRITAIN, at 8.—W. Rothenstein: The Artist's Relation to Social and Religious Life (II.).
- PHYSIOLOGICAL SOCIETY (at London School of Medicine for Women), at 4.—G. Briscoe: Pressure of Phrenic Effects on Conduction of Respiratory Impulses.—E. E. Hewer and M. F. Lucas-Keene: Histological Preparations of certain Foetal Tissues (Human).—J. W. Pickering: The Supposed Deficiency of Pro-Thrombin in Haemophilic Blood.—W. Cramer: The Process of Secretion in the Thyroid Gland.—J. F. Fulton: Plurisegmental Innervation of Single Muscle Fibres (Frog).—A. St. G. Huggatt and Prof. J. Mellanby: Preparation and Properties of Secretin.—R. E. Havard and G. A. Ray: The Effect of Exercise on Blood Phosphate.—J. B. S. Haldane: Some Effects of ingesting  $MgCl_2$  and  $SrCl_2$ .—A. D. Ritchie: Chloroform Rigor in Frog's Muscle.—J. H. Burn and H. P. Marks: The Relation of the Thyroid Gland to the Action of Insulin.—F. C. Kelly: The Effect of Iodine on the Metabolism