number, were disposed of. The statute as amended has now to pass the ordeal of Convocation, in which assemblage both non-residents and residents have a vote.

THE Board of Education is arranging to hold the Imperial Education Conference on April 25–28 next. The conference will be attended by representatives of all the Home Education Departments, English, Scotch, and Irish, and from most British dominions. It is proposed to devote the first two days of the conference to the consideration of problems connected with school education and the training of school teachers, and the last two days of the conference to the consideration of problems connected with education after the school stage and of certain administrative problems.

WE learn from *Science* that the Smithsonian Institution is about to come into possession of a bequest by the recent death of Mr. George W. Poore, of Lowell, Mass. His will provides, after certain minor legacies, that the residue of his estate be given to the Smithsonian Institution to form the Lucy T. and George W. Poore Fund, the income of which is to be used for the purposes for which the institution was founded. Mr. Poore explains in his will that he makes this bequest in the hope that "it will form an example for other Americans to follow by supporting and encouraging so wise and beneficent an institution as I believe the Smithsonian Institution to be."

SIR HENRY ROSCOE, chairman of the Appeal Committee for the new chemical laboratories at University College, London, has issued a further letter with reference to the appeal. As announced in NATURE of February 2, the sum of 25,000*l.* required for the site of the laboratories has fortunately been acquired. It is now desirable to make use of the site as quickly as possible by erecting the chemical laboratories on it. The estimated cost is about 50,000*l.* The president and committee are particularly anxious that this amount should be raised by Easter in order that the building may be begun this year, and may in this way be associated with the year of the King's Coronation. Gifts and promises can be addressed to his Royal Highness Prince Arthur of Connaught, or to Sir Henry Roscoe at University College, London.

A MEETING was held at Aligarh on January 10 at which it was decided to form a committee to be called "The Committee for the Foundation of a Mohammedan University," and to ask his Highness the Aga Khan to accept the office of president. We learn from *The Pioneer Mail* that many distinguished persons in India have accepted the office of vice-president, and that a representative committee has been appointed. The members of the committee include all trustees of the M.A.O. College, all members of the college and school staffs of Aligarh, all members of the central standing committee of the All-India Shia Conference, all editors of Mohammedan journals, and many representatives of other public bodies. Provincial committees are to be formed in each province, and the local committees of the M.A.O. Educational Conference are to be asked to become local branches of this committee. An appeal in various languages has been widely circulated, and the movement seems likely to be successful. A Reuter message from Calcutta on February 12 states that his Highness the Aga Khan and the Nawab of Rampur have each given 10,000*l.* towards the scheme for the foundation of this Mohammedan university at Aligarh. The donations to the fund now amount to about 66,660*l.* The Aga Khan confidently expects that the subscriptions will amount to twice this amount by March.

THE ninth annual report, for the year 1909–10, of the executive committee of the Carnegie Trust for the Universities of Scotland was adopted at the annual meeting of the trust on February 7. In connection with the endowment of research, the reports of the independent authorities who have examined the records of the year's work under the research scheme of the trust give evidence that its past success is being well maintained. The committee acknowledges the assistance rendered by the universities in providing the scheme with so many able workers, and in affording accommodation and supervision in their various laboratories. In the laboratory of the Royal College of Physicians, which in the department of medicine has taken a prominent share in the trust's scheme, the record of work for the past year is equally encouraging. The expenditure for 1909–10 upon the scheme of fellowships, scholarships, and grants, and upon the laboratory, was respectively 6824*l.* and 2454*l.*, towards the latter of which the Royal College of Physicians and the Royal College of Surgeons together contributed 1025*l.* The class fees paid in the universities and extra-mural colleges amounted during the year to 48,540*l.*, an increase of 1184*l.* as compared with the preceding year. The average amount paid per beneficiary was 12*l.* 12*s.* 9*d.* The expenditure left a balance of 1240*l.* to the credit of the scheme of payment of class fees, but as the statistics already to hand show an excess of expenditure of 2552*l.*, it is unlikely that any credit balance will remain at the close of the current year. The committee thinks a stage has been reached in the administration of the scheme of payment of class fees at which it becomes the duty of the committee to direct the special attention of the trustees to its operation in the past, and the modifications which now appear to be necessary. The committee is of opinion that it cannot secure itself against a deficit in future years under the present system, and that the scheme must be amended without delay. The first step it has taken is to announce that after the close of the current year it cannot continue to pay the fees in full, but must avail itself of the provision in the trust deed to pay in whole or in part. It follows that the system of paying for separate classes must be abandoned, and it is suggested that some scheme of paying a portion of the composite or inclusive fees for the several faculties shall be considered. A table published as an appendix to the report shows that up to September 30 seventy-five beneficiaries had voluntarily refunded the class fees paid by the trust on their behalf, amounting in all to 1689*l.*

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 9.—Sir Archibald Geikie, K.C.B., president, in the chair.—V. H. **Veley** and W. L. **Symes**: Certain physical and physiological properties of stovaine and its homologues. The bodies in question comprise the methyl-, amyl-, phenyl-, and benzyl-homologues of stovaine, and in addition a new compound recently prepared by M. Fourneau, viz. the propyl ester of dimethyl-amino-oxy-benzoyl-isobutyric acid. The densities of these diminish with increasing molecular weight, and the affinity value of the last-named is less than that already found by the former of the authors for stovaine and for its methyl homologue. Fourneau's new compound abolishes the contractility of muscle less rapidly than does stovaine or methyl-stovaine. It has also less effect on blood pressure and on respiration. Amyl-, phenyl-, and benzyl-stovaine appear to act more slowly on muscle than does stovaine, presumably on account of partial precipitation of their bases. On blood pressure, amyl-stovaine has rather more effect than has stovaine. The pronounced local anæsthetic properties possessed by all these bodies are discussed in the following paper.—W. L. **Symes** and V. H. **Veley**: The effect of some local anæsthetics on nerve. The bodies dealt with in the preceding paper have been compared with one another, and also with cocaine, as to their effects in blocking the physiological conductivity of frog's nerve. The anæsthetic block produced by these bodies, when complete for maximal single stimuli (Berne coil at 400 mm.), is also complete for single stimuli many times more intense (Berne coil at 200–100 mm.), A block complete to maximal single stimuli (coil at 400 mm.) is usually also complete to repeated stimuli with the same disposition of the coil. Partial blockage of individual nerve fibres has not been detected. Stovaine, its homologues, and Fourneau's new salt all block more actively than does cocaine. Stovaine, methyl-stovaine, and Fourneau's new salt block more rapidly than do the remaining bodies. Amyl-, phenyl-, and benzyl-stovaine block more slowly, and the resulting block is less rapidly washed out. Considered as local anæsthetics, phenyl- and benzyl-stovaine offer no advantage over the remaining bodies. Amyl-stovaine may

be of value on account of the relatively long duration of its effect. Methyl-stovaine is the least readily decomposed by faintly alkaline fluids such as lymph and cerebro-spinal fluid. Fourneau's new salt has the least effect on circulation and on respiration.—F. F. **Blackman** and A. M. **Smith**: Experimental researches on vegetable assimilation and respiration. VIII.—A new method for estimating gaseous exchanges of submerged plants. The plant is enclosed in a glass chamber, a current of water is kept flowing through the chamber, and samples of the affluent and effluent liquid are analysed at frequent intervals. The alteration in the amount of CO_2 in solution which the liquid undergoes in passing over the plant in the chamber is the measure of the respiration or assimilation that is taking place. For experiments on assimilation, the liquid supplied to the chamber can be enriched with any desired amount of CO_2, and by a special use of a CO_2 generating tower the amount of this gas dissolved can be kept constant for a long period of time. The glass chamber containing the plant is sunk in a large copper water-bath with a glass window, and the temperature and illumination can be controlled. When the conditions allow vigorous assimilation, much oxygen is given off as bubbles from the plant in the chamber, and these bubbles take up an appreciable amount of CO_2 from the solution. It is therefore necessary to collect and measure this gas and use it as a correction to the apparent diminution in the dissolved CO_2. The gas is separated from the liquid by a valve at the highest point of the apparatus, and collected automatically for analysis. This method has none of the limitations of the bubble-counting procedure exclusively employed previously for the investigation of the assimilation of water-plants, and, since it takes account of the CO_2 in solution and also of that in the gas bubbles, critical measurements can now be made of the assimilation throughout the whole range of the external factors that primarily control this function.—F. F. **Blackman** and A. M. **Smith**: Experimental researches on vegetable assimilation and respiration. IX.—On assimilation in submerged water-plants and its relation to the concentration of carbon dioxide and other factors. The experiments were carried out by a new method, which takes account of the alteration of the gases in solution as well as of the gases liberated as bubbles. The aim is to demonstrate the *nature* of the relation between assimilation and the chief environmental factors—CO_2 supply, light-intensity, and temperature. The relation is such that *the magnitude of this function in every combination of these factors is determined by one or other of them acting as a limiting factor.* The identification of the particular limiting factor in any definite case is carried out by applying experimentally the following general principle:—*When the magnitude of a function is limited by one of a set of possible factors, increase of that factor, and of that one alone, will be found to bring about an increase of the magnitude of the function.* From the data obtained, a new type of diagram is constructed, by which it is possible to foretell what value of assimilation in Elodea will be attained in any combination of medium magnitudes of the three factors of the environment. In this diagram, against the different values of assimilation as ordinates, are ranged three separate curves showing the degrees of CO_2 supply, temperature, and illumination, which are respectively essential for the attainment of each value of assimilation. For any hypothetical combination of the factors, it follows, by the principle of limiting factors, that if the three functional values corresponding potentially to these be ascertained from the diagram, then the actual magnitude of assimilation attained with that combination of factors will always be *the smallest of the three potential values.* The last section contains a critical account of the work of previous investigators who interpreted their results on the assumption that there was *a primary optimum* in the relation between assimilation and each external factor. The substantial work of Pantanelli led him to the conclusion that the position of the optimum for any one factor shifts with the magnitude of the other concurrent factors. This can only be a transitional point of view, and from this we have advanced to the standpoint that *the whole conception of optima in this connection is inapplicable,* and breaks down completely on careful analysis. The authors show in detail that all the experiments of previous workers are more harmoniously interpreted from the point of view of interacting limiting factors than by the conception of optima.

Geological Society, January 25.—Prof. W. W. Watts, F.R.S., president, in the chair.—H. H. **Thomas**: The Skomer volcanic series (Pembrokeshire). The rocks are traceable on the mainland from near St. Ishmaels on Milford Haven to Wooltack Head, and on the west occupy the islands of Midland, Skomer, and the Smalls. The thickness exposed is some 3000 feet, and the lateral extension some twenty-five miles. The chief evidence indicates that the rocks are of pre-Upper Llandovery age, but, from a consideration of the geology of the neighbouring country, it is probable that their true age is Arenig. The rocks are chiefly subaërial lava-flows, frequently interstratified with red clays They are separated into two main groups by a mass of sedimentary rocks barren of fossils. The lavas form well-defined groups. The rocks fall into eight chief types, two of which are of necessity new; in order of increasing basicity they are:—soda-rhyolites, soda-trachytes, keratophyres, skomerites, marloesites, mugearites, olivine-basalts, and olivine-dolerites. The first five types may be included in the alkaline class; they are rich in soda, and most of the felspars belong to albite-oligoclase varieties. The last three types are normal subalkaline rocks, in which the felspars range from oligoclase to labradorite.

February 8.—Prof. W. W. Watts, F.R.S., president, in the chair.—Prof. T. W. Edgeworth **David** gave an account of the researches pursued by him, in conjunction with Mr. R. E. Priestley, geologist to the British Antarctic Expedition of 1907–9, in the course of that expedition, more especially the investigations connected with glacial geology.

Physical Society, January 27.—Prof. C. H. Lees, F.R.S., vice-president, in the chair.—Prof. F. T. **Trouton**: A demonstration of the phase difference between the primary and secondary currents of a transformer by means of a simple apparatus. The apparatus is a primitive induction motor consisting of two horseshoe electromagnets with their axes coincident and vertical, and their planes at right angles. Above the poles a copper disc is pivoted. The primary current from a transformer is sent through one magnet and the secondary current through the other. With a suitable phase difference a rotating magnetic field is thus obtained. Inserting an iron core into the transformer diminishes the speed of rotation. A steel core will produce a greater negative rotation than an iron one. To demonstrate the hysteresis effect, it is necessary that the core should consist of a bundle of fine wires, otherwise the Foucault currents set up will introduce a lag. The effect of Foucault currents can be shown by introducing another coil within the transformer in place of the iron core and closing its circuit with a variable resistance.—Prof. J. A. **Fleming**: A note on the experimental measurement of the high-frequency resistance of wires. The author refers to a paper read by him in December, 1909, before the Institution of Electrical Engineers, on quantitative measurements in connection with radio-telegraphy (Journal Inst. Elec. Eng., vol. xliv., p. 349, 1910), in which he described an apparatus consisting of a differential air thermometer having tubular bulbs into which similar wires could be placed, and by means of which a comparison could be made of the high-frequency (H.F.) resistance R′ of a straight wire and its steady or ohmic resistance R. If two equal wires have passed through one a steady current A, and through the other a H.F. current A_1, then if these currents are adjusted until the rate of heat evolution in each case is the same, we have $A^2R = A_1^2R'$. Certain precautions are described in the paper for eliminating inequalities, but by means of correct reading H.F. ammeters as devised by the author, the ratio of the resistances R′/R can be determined from the ratio of the mean square currents A^2/A_1^2.—Prof. J. A. **Fleming** and G. B. **Dyke**: The measurements of energy losses in condensers traversed by high-frequency electric oscillations. In this paper an arrangement of apparatus is described for the purpose of measuring the internal energy losses in condensers traversed by high-frequency (H.F.) currents. It is shown that these energy losses in condensers may be considered as if they were due to a resistance loss in a hypothetical resistance in series with the condenser, the

condenser itself being supposed to have a perfect non-dissipative dielectric of the same dielectric constant.—Prof. J. A. **Fleming** and G. B. **Dyke**: Some resonance curves taken with impact and spark-ball dischargers. In the course of the experiments described in the previous paper on the measurement of energy losses in condensers, a large number of measurements had to be made with the cymometer of the frequency of oscillations in, and the inductance of, the secondary or condenser circuit. It was then an easy matter to draw complete resonance curves in each case, and this has accordingly been done with both the impact and spark-ball dischargers in the primary circuit, and for various resistances in the secondary circuit.

Mathematical Society, February 9.—Dr. H. F. Baker, president, in the chair.—E. **Cunningham**: The application of the mathematical theory of relativity to the electron theory of matter.—G. B. **Mathews** and W. E. H. **Berwick**: The reduction of arithmetical binary forms which have a negative determinant.—H. **Bateman**: Certain vectors associated with an electromagnetic field and the reflection of light at the surface of a perfect conductor.

CAMBRIDGE.

Philosophical Society, January 23.—Sir George Darwin, K.C.B., F.R.S., president, in the chair.—W. A. D. **Rudge**: (1) A constant temperature, porous plug experiment; (2) observations on the surface tension of liquid sulphur.—A. E. **Oxley**: The magnetic susceptibilities of certain compounds.

MANCHESTER.

Literary and Philosophical Society, January 24.—Mr. Francis Jones, president, in the chair.—Dr. A. N. **Meldrum**: The development of the atomic theory: (5) Dalton's chemical theory. The paper deals first with the principles, and afterwards with the genesis, of Dalton's chemical atomic theory. It is shown that it is impossible to suppose that the hypothesis of Avogadro had any influence on Dalton whilst engaged on the theory, the main principles of which are:—(1) that atoms of different kinds tend to combine in the proportion 1 : 1 rather than in any other, that the next proportion to occur is 1 : 2, then 1 : 3, and so on, and (2) that when two compounds of the same two elements are gaseous, the lighter is binary and the heavier tertiary. Dalton's explanation of them shows that Newton's postulate of similar particles, which are "mutually repulsive," was the fundamental idea of the chemical as it had been of the physical atomic theory. The author concurs with Roscoe and Harden in rejecting the account of the genesis of the theory which connects it with the discovery of the composition of marsh gas and olefiant gas, but is unable to accept their view, the gist of which is that Dalton first satisfied himself that the atoms of different gases have different sizes, and then devised the chemical theory. He concludes that it was Dalton's experiments on the combination of nitric oxide and the oxygen of the air that aroused his attention and made him apply his physical theory to the purposes of chemistry.—Prof. A. H. **Gibson**: The behaviour of bodies floating in a free or a forced vortex. The main conclusions drawn from the experimental results embodied in the paper are:—(1) In a free vortex. (*a*) Very small floating particles rotate in spiral paths, approaching with a continually increasing velocity, and finally disappearing down the funnel of the vortex. (*b*) If of moderate dimensions, the behaviour depends on the shape, size, weight, and position of the centre of gravity of the object, the lighter particles approaching more rapidly than those of a lower specific gravity. With homogeneous bodies of the same specific gravity, depth of immersion, and shape of plane of flotation, the larger shows the greater tendency to approach the centre. (2) In a forced vortex:—(*a*) Small bodies approach the centre with a radial velocity which is greater the greater the radius of rotation. (*b*) In homogeneous bodies of the same size and shape, the heavier shows the lesser tendency to approach the centre. (*c*) A non-homogeneous body shows a lesser tendency to approach the centre than does a homogeneous body of the same size, shape, and weight. If the centre of gravity of the non-homogeneous body is sufficiently low, the body works out to the outer edge of the vortex. (*d*) The shape of the body in itself has no effect on its behaviour so long as the vortex is a true forced vortex. As in the case of the free vortex, the knowledge of the forces called into play is adequate for an explanation of all the observed phenomena.

DUBLIN.

Royal Irish Academy, January 23.—Dr. H. F. Barry, vice-president, in the chair.—D. R. **Pack-Beresford** and Nevin H. **Foster**: The woodlice of Ireland, their distribution and classification. Twenty-five species of woodlice (Crustacea Isopoda Terrestria) are found in Ireland, and of these four species have been recorded from and are common in every county. Sketch-maps are given which show at a glance the various Irish county divisions in which each species has been taken. A series of synoptical tables is also included in the paper, which should prove useful in enabling students to diagnose any British species. Two plates illustrating *Metoponorthus melanurus*, B. L., and *Eluma purpurascens*, B. L. (species which have not yet been found in England), and a comprehensive bibliography, are also included.—John **MacNeill**: The early population-groups of Ireland, their nomenclature and chronology. The object of the paper was to distinguish the different classes of group-names found applicable to Irish population-groups in early times, and to assign an approximate period of origination to each class of names. The formulæ of the earlier names were distinguished and discussed, and a list drawn up under each formula. The paper dealt with the classification of the groups as free, tributary, and unfree, and identified the civil and military organisations of the petty States in ancient Ireland with the earliest traditional form of the Roman State.

Royal Dublin Society, January 24.—Prof. T. Johnson in the chair.—Prof. W. **Brown**: Mechanical stress and magnetisation of nickel, part ii., and the subsidence of torsional oscillations in nickel and iron wires when subjected to the influence of longitudinal magnetic fields. The results of experiments on magnetisation and torsion of nickel wire showed that a limit to the twist of the free end of the wire is reached with a certain definite longitudinal load. It was also shown by means of the subsidence of torsional vibrations that the greatest internal friction in the wire took place when it was surrounded by a longitudinal magnetic field of the same value as that in which the maximum twist occurred with a given load on the wire.—Dr. W. E. **Adeney**: The estimation of the organic matters in unpolluted and polluted waters with potassium bichromate and sulphuric acid. The investigations have been made with the view of discovering a rapid and accurate method of estimating the total oxidisability of the organic matters in unpolluted and polluted waters. The water is treated under suitable conditions, which are detailed in the paper, with a decinormal solution of potassium bichromate and sulphuric acid, and, after evaporation and digestion for a sufficient time in the water bath, the excess of bichromate remaining is determined by means of a decinormal solution of ferrous sulphate. The results of a number of estimations of a variety of waters are given, and they show that the method is capable of yielding concordant and accurate results.—Prof. Henry H. **Dixon**: The thermo-electric method of cryoscopy. The apparatus used in this method was devised in order to determine the freezing points of small quantities of solutions. With special devices for eliminating thermo-electric errors, it has been found possible, using one pair of junctions formed of copper and "eureka" alloy, to determine the freezing points of a 1 c.c. of solution with accuracy to 0·01° C. With a greater number of junctions greater accuracy may be attained. The method is particularly suitable for detecting very small differences of freezing point.

PARIS.

Academy of Sciences, February 6.—M. Armand Gautier in the chair.—P. **Idrac**: New observations on the spectrum of Nova Lacertæ (see p. 523).—Henri **Villat**: The discontinuous motion of a fluid in a canal containing an obstacle.—A. **Korn**: The helicoidal state of electrical matter: some new hypotheses for explaining mechanically electromagnetic phenomena.—Gaston **Gaillard**: Researches on the influence of velocity on the compass. At the high speeds attained in modern destroyers there is a possibility that the velocity may affect the indications of the compass. Some experiments in this direction have been carried out on a railway at speeds

between 80 and 120 kilometres per hour. The results obtained, so far, are inconclusive.—G. **Sagnac**: Optical systems in motion and the translation of the earth.—A. **Leduc**: The application of the Lenz principle to the phenomena accompanying the charge of condensers.—L. **Décombe**: A physical interpretation of non-compensated heat.—A. **Lafay**: A method of observation of the trajectories followed by the elements of an air current deflected by obstacles of variable forms. As an indicator, a gas is used the refractive index of which is higher than that of air, but approximately the same density. Such a gas casts a sharp shadow on a screen, and hence the motion of the air currents can be followed. Acetylene, a mixture of acetylene and carbon dioxide, and ethylene are suggested as suitable for this method of working.—MM. **Chéneveau** and **Heim**: The extensibility of vulcanised indiarubber.—G. **Friedel** and F. **Grandjean**: The structure of liquids with focal conics.—Louis **Matruchot**: A new fungus pathogenic to man. This fungus, to which the name *Mastigocladium Blochii* has been given, has been obtained in pure cultures direct from the lesions in man, and hence appears to be the sole cause of the diseased condition observed.—T. **Klobb**: The dextrorotatory phytosterols (anthesterols) from *Anthemis nobilis*.—Gabriel **Bertrand** and R. **Veillon**: The action of the Bulgarian ferment on the monobasic acids derived from reducing sugars.—A. **Marie** and M. **MacAuliffe**: Comparative measurements of individuals of both sexes from lunatic asylums with normal men and women. The inmates of the asylums are generally smaller than the normal, especially in the bust. Details of the comparison of various limbs and parts of the body are also given.—E. **Deschamps**: The treatment of epilepsy of gastro-intestinal origin. Remarks on a recent note of M. Doumer on the same subject.—A. **Bonnet**: Researches on the causes of the variations of the aërial entomological faunule.—M. **Gignoux**: The layers containing *Strombus bubonius* in the western Mediterranean.—J. **Bosler**: The relations between the earth currents and magnetic disturbances.—M. **Birkeland**: The zodiacal light.

DIARY OF SOCIETIES.

THURSDAY, FEBRUARY 16.

ROYAL SOCIETY, at 4.30.—The Constitution of the Alloys of Aluminium and Zinc: Dr. W. Rosenhain and S. L. Archbutt.—The Production and Properties of Soft Röntgen Radiation: R. Whiddington.—Experiments on Stream-line Motion in Curved Pipes: Prof. J. Eustice.

ROYAL GEOGRAPHICAL SOCIETY, at 5.—Research Meeting. Some Antarctic Problems: Prof. Edgeworth David, F.R.S.

LINNEAN SOCIETY, at 8.

ROYAL INSTITUTION, at 3.—Problems of Animals in Captivity: P. Chalmers Mitchell, F.R.S.

ILLUMINATING ENGINEERING SOCIETY, at 8.—*Discussion* on School Lighting. Openers: Dr. James Kerr and Dr. N. Bishop Harman.

FRIDAY, FEBRUARY 17.

ROYAL INSTITUTION, at 9.—The Stimulation of Digestive Activity: Prof. H. E. Armstrong, F.R.S.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Annual General Meeting. *Further discussion*: Modern Electrical Dock-equipment, with Special Reference to Electrically-operated Coal-hoists: W. Dixon and G. H. Baxter.

MONDAY, FEBRUARY 20.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—The Composition of the Acids flowing from the Thompson Displacement Apparatus for the Manufacture of Guncotton: G. W. MacDonald.—(1) Ammonium Sulphate and its Instability; (2) The Hydrolysis of Ammonium Salts: Watson Smith.—A Study of some Reactions in Gels: Emil Hatschek.—A New Still Water Calorimeter: J. H. Coste and B. R. James.

ROYAL SOCIETY OF ARTS, at 8.—Brewing and Modern Science: Prof. Adrian J. Brown.

VICTORIA INSTITUTE, at 4.30.—Science in Relation to Christian Missions: Rev. F. Baylis.

TUESDAY, FEBRUARY 21.

ROYAL INSTITUTION, at 3.—Heredity: Prof. F. W. Mott, F.R.S.

ZOOLOGICAL SOCIETY, at 8.30.—Report on the Deaths which occurred in the Zoological Gardens during 1910: Dr. H. G. Plimmer, F.R.S.—On *Tragelaphus buxtoni*, an Antelope from Abyssinia: R. Lydekker.—A Contribution to the Study of the Variations of the Common Salamander (*Salamandra maculosa*): E. G. Boulenger.—On a Collection of Fishes from the Lake Ngami Basin, Bechuanaland: G. A. Boulenger, F.R.S.—Observations on different Gibbons of the Genus Hylobates now or recently living in the Society's Gardens, and on a *Symphalangus syndactylus*, with Notes on Skins in the Natural History Museum: Dr. F. D. Welch.

ROYAL ANTHROPOLOGICAL SOCIETY, at 8.15.—Prehistoric and Aboriginal Pottery Manufacture: Rev. J. W. Hayes.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Coast Erosion: W. T. Douglass.

ROYAL STATISTICAL SOCIETY, at 5.—The Fatality of Fractures of the Lower Extremity and of Lobar Pneumonia. A Study of Hospital Mortality Rates, 1751-1901: M. Greenwood, jun., and R. H. Candy.

WEDNESDAY, FEBRUARY 22.

ROYAL SOCIETY OF ARTS, at 8.—Water Finders: Prof. J. Wertheimer.

GEOLOGICAL SOCIETY, at 8.—The Geology of the Districts of Worcester, Robertson, and Ashton (Cape Colony): R. H. Rastall.—Geology of Northern Albania: Baron Ferencz Nopcsa, Jr.

BRITISH ASTRONOMICAL ASSOCIATION, at 5.

THURSDAY, FEBRUARY 23.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: Transmission of Flagellates living in the Blood of certain Freshwater Fishes: Miss M. Robertson.—Report on the Separation of Tonium and Actinium from certain Residues and on the Production of Helium by Tonium: Dr. B. B. Boltwood.—The Secondary γ-Rays produced by β-Rays: J. A. Gray.—The Specific Heat of Water and the Mechanical Equivalent of the Calorie at Temperatures from 0° to 80° C. With Additional Note on the Thermoid Effect: W. R. Bousfield and W. E. Bousfield.—On the Measurement of Specific Inductive Capacity: Prof. C. Niven, F.R.S.

ROYAL INSTITUTION, at 3.—Problems of Animals in Captivity: P. Chalmers Mitchell, F.R.S.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Long Distance Transmission of Electrical Energy: W. T. Taylor.—Extra High Pressure Transmission Lines: R. B. Matthews and C. T. Wilkinson.

FRIDAY, FEBRUARY 24.

ROYAL INSTITUTION, at 9.—Mouvement Brownien et Réalité Moléculaire: Prof. Jean Perrin.

PHYSICAL SOCIETY, at 5.—Flames of Low Temperature supported by Ozone: Hon. R. J. Strutt, F.R.S.—The Movement of a Coloured Index along a Capillary Tube, and its Application to the Measurement of the Circulation of Water in a Closed Circuit: Dr. Albert Griffiths.—An Optical Lever of High Power suitable for the Determination of Small Thicknesses and Displacements: E. H. Rayner.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Design and Construction of Works for the Bacterial Purification of Sewage: R. J. Samuel.

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