

mathematics, 14.4; botany, 47.8; zoology, 28.8; and geology, 14.3. The corresponding numbers in the B.Sc. examination of 1909 were:—chemistry, 58.5; physics, 30.5; pure mathematics, 35.4; applied mathematics, 42.1; botany, 33.3; zoology, 14.3; and geology, 14.3. The principal is asked to bring these and other points for consideration before the Senate and Council for External Students, since, in the opinion of the association, a serious injustice is being done to students and teachers.

We learn from *Science* that the bequests from the Kennedy estate for educational and public purposes are even larger than had been anticipated. Columbia University receives 472,000l., New York University 190,400l., and Robert College, Constantinople, 360,000l.; the bequests to the New York Public Library and the Metropolitan Museum of Art are about 560,000l. Barnard College and Teachers College, Columbia University, each receive 20,000l., as do Hamilton College, Elmira College, Amherst College, Williams College, Bowdoin College, Yale University, Tuskegee Institute, and the Hampton Institute, Lafayette College, Oberlin College, Wellesley College, Berea College, and Anatolia (Turkey) each receive 10,000l. *Science* also states that Mr. Carnegie's latest gift of 760,000l. to the Technical Institute in Pittsburgh is to be used approximately as follows:—460,000l. for increase of present endowment, 275,000l. for new buildings, 20,000l. for additional equipment, and 5000l. on grounds. The residue of the estate of the late Dr. Seesel, valued formally at "not more than 50,000 dollars," is divided between Yale and the University of Leipzig. With the income there is to be founded at each institution the "Theresa Seesel Fund" in memory of his mother, to be used for researches in biology.

The first volume of the report for the year ended June 30, 1910, of the U.S. Commissioner of Education has been received from the Bureau of Education at Washington. As usual, the publication of purely statistical information is postponed for the later volume. The commissioner, Dr. Elmer Brown, in his introduction to the volume ably summarises the tendencies and advances in the various grades of education which may be regarded as the outstanding features of the educational work of the year under review. The part of the introduction dealing with higher education is of special importance. Dr. Brown points out that by its higher education the place of the United States in the world's civilisation and its prestige before the more enlightened nations are largely determined. "It is," he says, addressing his countrymen, "a patriotic duty of the highest order that our colleges and universities, in all of the States, should get away from the more injurious forms of competition and enter into more effective cooperation." He enumerates many weaknesses requiring correction. He urges that an agreement among the colleges with respect to admission requirements, which should do away with minor differences that harass the preparatory schools, would rid the educational situation of some of its most serious embarrassments. There is, he continues, a great deal of possible division of labour, particularly as regards instruction and research, which is not yet realised. Much has yet to be done in the way of a general survey of the present provision in American institutions of higher education for advanced instruction with the view of determining where enlargement is needed. The excessive variations in the worth of American academic and professional degrees is still, says Dr. Brown, a cause of reproach abroad, and involves much injustice among Americans at home.

A NATIONAL conference will be opened at the Guildhall on February 28, at 3.30 p.m., by the Lord Mayor, with the object of securing a national system of industrial training. The conference has been organised by a special committee of the elected representatives of the chief associations of employers and workers and educational authorities. The intention is to urge upon the Government to supplement our present system of elementary education by providing by legislation a complete system of industrial, professional, and commercial training. Several resolutions will be submitted at the conference, among which may be mentioned the following:—"That this conference views with grave concern the large number of children annually

leaving school without practical training for definite vocations, and resolves that a national system of industrial, professional, and commercial training should be established, to which the children shall pass as a matter of course (unless the parents are prepared to undertake their future training) and without interval, for a definite period, to be thoroughly trained for entry to the particular calling for which they are best fitted, such training to be under fully qualified instructors. That the Government be urged to provide by legislation such a complete system of training, free to all scholars, and the expenses thereof defrayed from the National Exchequer." The National Industrial Education League, which it is proposed to establish at the meeting, will be composed of 2500 organised bodies of workpeople engaged in trade union, cooperative, and educational work, and, so far as can be at present ascertained, they represent more than three millions of workers, comprising 365 trades and professions in 421 cities and towns. Intending supporters of the league can obtain further information on application to the honorary secretaries, Craig's Court House, Charing Cross, London, S.W.

At the meeting of the Royal Society of Arts on February 1, presided over by Lord Cromer, Mr. P. J. Hartog read a paper on examinations in their bearing on national efficiency. He raised the important question as to whether it was not possible to test "general ability," and to separate the ablest candidates by methods involving less strain both on the successful and the unsuccessful candidates? Would it be possible, without reintroducing the evils of jobbery, to follow the lines laid down by Lord Cromer in the Egyptian Civil Service, and by Lord Selborne in choosing candidates for the Navy? He suggested the appointment of a Royal Commission to deal with the whole question, with a suitable reference, such as "To investigate and report upon the methods and efficiency for their purpose of examinations carried on by Government departments and other public bodies in the United Kingdom; to inquire into the influences of examinations on the previous education of candidates; and to suggest such changes as may seem desirable." The commission, he said, should be a small one, presided over by a statesman with experience of affairs, and there should be no attempt to achieve the impossible by including in it representatives of all parties concerned. Lord Cromer opened the discussion which followed. He compared the merits of competition and selection for securing the best candidates for any office. The principle of selection, he maintained, if only it can be properly carried out, possesses merits superior to those of competition. The former may or ought to result in the creation of leaders of men. The latter tends rather to produce a dull level of mediocrity. Of late years there has been a tendency, notably in the military, naval, and diplomatic services, to adopt the principle of selection in dealing with all the later stages of the careers of public servants more thoroughly than formerly. This movement, far from being arrested, should be pushed still further. The case of first appointments presents, naturally, greater difficulties. Some few years ago it became necessary to create a Sudanese Civil Service. In the first instance, the appointments were practically made by Lord Cromer. He found it, he said, a difficult task, but whatever success has attended the administration of Egypt during the last thirty years has been mainly due to the care which was taken in selecting and promoting officials.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 2.—Sir Archibald Geikie, K.C.B., president, in the chair.—Colonel Sir D. Bruce, F.R.S., Captains A. E. Hamerton and H. R. Bateman, and Dr. R. Van Someren: Experiments to investigate the infectivity of *Glossina palpalis* fed on sleeping-sickness patients under treatment.—Colonel Sir D. Bruce, F.R.S., and Captains A. E. Hamerton, H. R. Bateman, and F. P. Mackie: Experiments to ascertain if *Trypanosoma gambiense* during its development within *Glossina palpalis* is infective.—Captain R. McCarrison: Further experi-

mental researches on the etiology of endemic goitre—H. Hamshaw **Thomas**: The leaves of *Calamites* (*Calamocladus* section). Most of the material investigated originally came from the Halifax Hard Bed of the Lower Coal Measures. Most leaves were very small, being only 1-2 mm. long and 0.8-1 mm. broad. They are falcate in shape, and were borne on slender twigs in alternating whorls of four. The structure of these slender twigs differs somewhat from that of the young *Calamitean* stems already described by Williamson and others, but it may be compared in some features with the structure of the young stems of some modern *Equisetums*. The tissues of the small leaves show a concentric arrangement. In the centre there is a vascular bundle consisting of four or five small tracheides, surrounded by thin-walled elongated cells. The bundle is surrounded by a zone of cells with dense black contents, termed by Hick the melasmatic tissue, and is probably comparable with the bundle-sheath of the leaves of modern plants. The cells of the palisade-like assimilating tissue abut on to this; they have large spaces between them. The epidermis is thinner on the concave side of the leaf, and the stomata are situated on this face only. The latter are characterised by transversely striated guard cells, similar to those seen in many species of modern *Equisetums*. These leafy twigs seem to be identical with the impression species *Calamocladus charaeiformis* (Sternb.); their structure seems to indicate that they grew in a pendulous manner. Specimens have been obtained showing variations in structure from the normal type. Four other types of leaf have been discovered differing in size and in arrangement of tissues. In all of these there is a very conspicuous strand of sclerenchymatous fibres running up the adaxial side of the leaf, and forming a large part of its apex. These fibres become more conspicuous in the longer leaves. In some types the thin-walled (phloem) tissue of the bundle is much reduced, or even absent. The melasmatic tissue also varies considerably in amount. Some of these longer leaves were probably identical with *C. grandis* (Sternb.), others with *C. equisetiformis* (Schloth.). They are characterised by a more compact structure, with smaller and fewer intercellular spaces. The structure of the smaller leaves probably indicates that they grew in a moist situation, or where the atmosphere was humid. The larger leaves are more xeromorphic in character. The results obtained from this work indicate that the *Calamites* were truly microphyllous.—Dr. J. O. Wakelin **Barratt**: Complement deviation in mouse carcinoma. The object of the present investigation is to ascertain if in mouse carcinoma antibodies are produced in respect of the tumour. The method followed is an application of the complement deviation test, an extract of mouse tumour being employed as antigen. The experiments made fall into two groups. In one the serum of the rabbit or of man was employed as the source of complement; in the other the serum of the mouse served as the source of complement. In both cases the same result was obtained, namely, that the complement deviating power of the serum of mice with tumours was sometimes greater than that of normal mouse serum, but not unfrequently the serum of a mouse with a tumour was found to be identical in respect of its complement deviating power with that of a normal mouse.

Linnean Society, January 19.—Dr. D. H. Scott, F.R.S., president, in the chair.—C. H. **Wright**: Flora of the Falkland Islands. An endeavour has been made to define the distribution of plants in the islands and to show what changes have taken place in the flora since the publication of the "Flora Antarctica" in 1847. The plants are chiefly of dwarf habit, often with aromatic leaves, and conspicuous, often scented, flowers, which are produced chiefly between November and January. The earliest to appear is *Draba funiculosa*, Hook. f., in September. The extermination of the fox (*Canis antarcticus*) has rendered possible the keeping of sheep, with the result that plants previously common have now become rare; amongst these are the tussac grass (*Poa flabellata*, Hook. f.), cinnamon grass (*Hierochloa redolens*, R. Br.), and blue grass (*Agropyron repens*, Beauv.). *Primula farinosa*, var. *magellanica*, Hook. f., while still abundant, is much dwarfed in those islets where sheep have been introduced. *Veronica elliptica*, Forst. f., attains a height of 7 feet, and is the

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tallest plant on the islands, the next being *Chilotrichum amelloideum*, Cass. (the Fächima plant). *Azorella caespitosa*, Cav. (the balsam-bog), forms hard masses up to 10 feet long and 4 feet high, which rapidly decay on being wounded. The flora shows a great affinity with that of Magellan and Chile.—C. **Crossland**: The geological and geographical position of Khor Dongonab.—Mr. Hugh Scott summarised the following five reports:—R. E. **Turner**: Fossorial Hymenoptera. The author enumerates twenty-five species, of which thirteen are from the Seychelles, eleven from Aldabra and the adjacent islands, while one (a common Eastern form) was only found in the Chagos.—Prof. J. J. **Kieffer**: Two families of Diptera, the Cecidomyiidae (gall-flies) and the Chironomidae. No species of either family has previously been recorded from the Seychelles, and they have been but little collected in the tropics as a whole. Hence it is not very surprising that the twenty-four species of Cecidomyiidae and the forty-eight species of Chironomidae described in these papers are all new. The Cecidomyiidae all belong to genera which are not usually gall-formers; the Chironomidae, with one exception, all belong to European genera, and forms of larger size are absent. These families cannot at present throw much light on the affinities of the Seychelles fauna as a whole, owing to their not having been much studied in other lands in the same region, but it is of great importance that one should begin to gain some knowledge of their representatives in such places as the Seychelles.—Dr. K. **Kertész**: Report on a family of Diptera, the Stratiomyidae. This deals with nine species, of which two are new to science; two new genera are also described, one being established to receive an already known species. Of the seven species of Stratiomyidae from the Seychelles and Aldabra which are not new, one is also known from Madagascar, and the other six from various Eastern localities, such as Cocos-Keeling and various islands of the Eastern Archipelago so far as the Philippines.—E. **Meyrick**: Microlepidoptera of the groups Tortricina and Tineina. The author states that in these groups the Seychelles and Aldabra faunas must be considered separately. From the Seychelles he recognises 111 species, of which twenty-one are almost certainly imported, while the remaining ninety are probably endemic. These ninety consist in part of an "ancient but highly specialised fauna," analogous to the somewhat similar, but more primitive, fauna found in Mauritius and Réunion, and in part of forms which may have been derived sporadically from various parts of the Indian region. Among the material from Aldabra, Mr. Meyrick recognises nine species, all new, but belonging to widely distributed genera.

Mineralogical Society, January 24.—Prof. W. J. Lewis, F.R.S., president, in the chair.—F. H. **Butler**: Kaolin. The kaolinite in the Glamorganshire Coal Measures originated in the decomposition of felspar by carbonated underground water. The secondary mica and quartz of the Carboniferous grits and greisens are due primarily to the formation of potassium carbonate and aluminosilicic acid (Morozewicz), the acid breaking up into silica and aluminosilicic acid (i.e. kaolin less water of crystallisation), and the latter combining with the carbonate to yield muscovite and free carbonic acid. Kaolinite is destroyed concurrently with the growth of schorl in kaolin rock, and cannot, therefore, be a product of boration.—Dr. G. T. **Prior** and Dr. G. F. H. **Smith**: Schwartzembergite. Analyses recently made by the former show that this mineral is a complex iodate and oxychloride of lead, $Pb(IO_3)_2 \cdot 3[PbCl_2 \cdot 2PbO]$.—A. **Hutchinson**: An improved form of total reflectometer. The instrument is a goniometer of the suspended type with a large base plate, to which a telescope and collimator, a microscope bisecting the angle between them, and other apparatus can be clamped, and is intended for the measurement of minute crystals, and for the determination of the optic axial angle of biaxial crystals, and of the refractive indices by Kohlrausch's method.—T. **Crook**: A case of electrostatic separation. The apparatus consists of two copper plates, one of which is coated on one side with a layer of shellac. Good conducting minerals are attracted to the shellac-covered surface of the upper plate when it is charged by means of an electrophorus.

Institution of Mining and Metallurgy, January 25.—Mr. Edgar Taylor, president, in the chair.—*Adjourned discussion.* H. C. **Baydon**: Notes on Chilian mills in Russia. In this paper the author provides a useful and instructive treatise on the slow-running Chilian or "Edge runner" mill, invariably used in Russia for crushing gold ores as a preliminary to amalgamation, &c. After a brief historical summary, the paper gives descriptions of the standard type of Chilian mill now in use, and of the milling methods adopted in Russia, which are followed by notes on an improved type of Chilian mill and milling plant recently introduced. The descriptions are suitably illustrated, and there are ample statistics relating to mills and their efficiency. The author is of opinion that if the same amount of thought and attention were devoted to this type of mill as has been given to the heavy stamp plus tube mill combination in South Africa, it would prove a serious rival and give a product nearer to the ideal aimed at on that goldfield.—N. A. **Loggin**: Notes on placer mining, with special reference to hydraulic sluicing. The author here gives the results of a wide experience in placer mining conducted on the hydraulic sluicing system in the form of a collection of practical hints with regard to the whole of the process involved, from the initial determination of the value of the gravel to be mined down to the most suitable location of the dump. As might be anticipated, the chief points dwelt upon relate to the arrangement of an efficient supply of water to feed the "giants" and "deflectors" at the face of the mine, as this constitutes the *crux* of the problem, next in importance to which comes the construction of the flume in which the gravel is washed and relieved of its gold contents.

EDINBURGH.

Royal Society, December 19, 1910.—Prof. Bower, vice-president, in the chair.—Prof. A. C. **Seward**: The Jurassic flora of Sutherland. This contained a general account of the fossil plants collected by Hugh Miller, Dr. Marcus Gunn, and Mr. Archer from the Kimeridgian strata on the coast of Sutherland. Dr. Gunn's collection has been recently acquired by the British Museum. Thanks were expressed to Mr. H. B. Woodward for notes on the geology of the Sutherland plant beds. The flora of Sutherland, with a few types collected by Hugh Miller at Eathie (Cromarty), may be regarded as representing the Jurassic flora of Scotland as a whole, the specimens recorded from western localities being very few and fragmentary. The Scottish Jurassic flora includes several widely distributed species previously described from the Inferior Oolite series of Yorkshire and elsewhere, together with some Wealden types. From a botanical point of view, the Kimeridgian flora of Sutherland is interesting chiefly on account of the additional evidence it affords of the general uniformity of the Jurassic vegetation of the world, and as demonstrating the occurrence in north-west Europe in the Jurassic era of such genera as *Hausmannia*, *Laccopteris*, *Araucarites*, &c., which are now represented by species in the southern tropics or in south temperate latitudes.—Dr. A. A. **Lawson**: Phase of the nucleus known as synopsis. The argument was that synopsis was due, not to contraction, as generally supposed, but to growth.—Prof. R. J. A. **Berry**: The sectional anatomy of the head of the Australian aborigine.

January 9.—Prof. Hudson Beare, vice-president, in the chair.—Alan W. C. **Menzies**: A method for determining the molecular weights of dissolved substances by measurement of lowering of vapour pressure. The apparatus was so arranged that the temperature of the liquid, with the dissolved substance in it, was sustained at the temperature of the vapour coming from the boiling pure liquid, while, at the same time, part of the surface of the impure liquid was subjected to the pressure of this vapour, while the rest of the surface was subjected to the pressure of its own vapour, which was somewhat less, because of the dissolved substance. The difference of pressure was balanced by the difference of height of the two surfaces of the liquid. The method was found to be easy of manipulation, and to lead to satisfactory measurements.—Dr. George **Green**: The *modus operandi* of the prism. The action of a prism on a light "pulse" incident upon it was illustrated by means of the analogy between the pulse problem and the hydrodynamical problem presented

by a point disturbance moving uniformly over a liquid surface. Taking the ship-wave pattern to represent the general form of wave disturbance within a prism immediately after the incidence of a light pulse, the author applied the theory of group velocity to arrive at the general features of the wave system after emergence from the prism, deriving the usual formula for the resolving power.—Dr. John **Brownlee**: The relation of the mono-molecular reaction of life processes to immunity. The simple law of exponential decay was found to govern many of these processes. An interesting example was the mortality due to scarlet fever at different ages; the statistics for two large towns showed that this mortality amongst children diminished exponentially with increase of age.

PARIS.

Academy of Sciences, January 30.—M. Armand Gautier in the chair.—H. **Deslandres**: Researches on the movements of the solar atmospheric layers by the displacement of the lines of the spectrum. Lack of symmetry and peculiarities of the phenomenon. The author gives a short historical survey of the whole of the work done in this field, and proceeds to discuss in detail the observations made at the Observatory of Meudon from 1892 onwards. Special attention is given to the displacements of the K_{α} line and the views which have been put forward to explain the observed facts.—G. **Lippmann**: The action of external forces on the pressure of saturated vapours and the gases dissolved in a liquid. The lowering of the vapour pressure of a liquid in a capillary tube was first demonstrated by Kelvin. The explanation put forward by Kelvin involves the constancy of the vapour pressure throughout the whole column of the liquid, the variation being assumed to be produced in a discontinuous manner in the meniscus. The author proposes another explanation, according to which, for equilibrium, the tension of a dissolved gas varies with the level according to the same law as the pressure of the gas in the interior of the liquid. Saturated vapour can be regarded as a particular case of this theorem.—M. **Gouy**: The existence of a periodic element in the magneto-kathodic radiation. It is known that in a high vacuum the magneto-kathode bundle emitted by a wire serving as a kathode forms a luminous sheet, separated from the kathode by a dark space. Under certain conditions, dark and light fringes appear in this luminous portion. It has been found that the maximum intensity corresponds to rays the lengths of which are exact multiples of a certain length, α , which is inversely proportional to the value of the magnetic field.—D. Th. **Egoroff**: Sets of measurable functions.—R. **Bourgeois**: A cause of an instrumental error in the measurement of a base line. In the determination of a base line at Blida, invar wires, standardised at the International Bureau, were used. Certain discrepancies appeared in the results, outside the ordinary experimental error, and these were finally traced to the inclinations of the rule from the horizontal. The error was eliminated when the measurements were made in opposite directions over the same line and the mean taken.—Torres **Quevedo**: A mechanical construction for the linkage expressed by the formula $d\beta/da = \tan \omega$.—Auguste **Righi**: The probable ionising action of the magnetic field. Some experiments are described in which the discharge potentials between metallic electrodes in an exhausted tube were measured in magnetic fields of varying strength. The hypothesis that the magnetic field can produce ions offers a possible explanation of the observed facts.—C. **Limb**: Compounding alternators by means of electrolytic valves.—E. **Urbain**, Cl. **Scal**, and A. **Feige**: A new type of arc lamp having a mercury kathode and giving white light. An arc is struck in a quartz tube between an anode of tungsten and a kathode of mercury. The light is practically white, spectroscopic examination showing a continuous spectrum with the mercury lines superposed. The yield is high (0.45 watt per candle), and the arc works with a potential difference of 12 volts; the voltage can be increased by the presence of an inert gas in the tube.—J. **Boselli**: Reaction velocities in heterogeneous systems.—Louis **Hackepill**: The density, coefficient of expansion, and change of volume on fusion of the alkaline metals. The metals (caesium, rubidium, potassium, and sodium) were distilled in a high vacuum immediately before each

experiment and directly into the experimental tube. The expansion of the liquid metal was measured directly without the intervention of any other liquid; for the expansion of the solid, pentane was employed as the indicating fluid. It was found, incidentally, that benzene and toluene are rapidly attacked by liquid caesium without any evolution of gas; the nature of the compounds formed is being investigated.—**Daniel Berthelot** and **Henry Gaudechon**: The photolysis of complex acids by the ultra-violet rays. The action of uranium salts as catalysers. Details are given of the decomposition products of various dibasic, ketonic, and alcohol acids when exposed to ultra-violet light. The addition of small quantities of uranium salts, without altering the nature of the gases evolved, increases the velocity of the decomposition from four to six times.—**A. Job** and **P. Coissedet**: A crystallised green manganitartrate.—**E. E. Blaise** and **L. Picard**: The action of the chlorides of the α -alkoxy-acids upon the mixed organo-metallic derivatives of zinc.—**P. L. Viguier**: α -Bromocrotonic aldehyde. A description of the products of the reaction of this aldehyde with hydroxylamine, semicarbazide, hydrazine, phenylhydrazine, and urethane.—**V. Grignard** and **Ch. Courtot**: Some new derivatives of indene.—**Marin Molliard**: Nitrogen and chlorophyll in galls.—**P. A. Dangeard**: The determination of the active rays in the chlorophyll synthesis.—**Henri Labré** and **L. Violle**: The ingestion of mineral acids in the dog. The amount of bases secreted in the urine is increased by the ingestion of hydrochloric acid.—**M. Doyon**, **A. Morel**, and **A. Policard**: A demonstration of the exclusively hepatic nature of antirhombine. The extraction of this substance by a solvent for nuclear bodies.—**Clément Vaney**: Researches on the development of *Hypoderma bovis*.—**E. Pinoy**: The form of *Sporotrichum Beurmanni* in human lesions. Its fructification in the interior of the capillaries. The visibility of the parasite is largely dependent on the exact method of staining, and it is shown that in human lesions caused by this parasite the organism is more abundant than has been hitherto supposed.—**L. Bruntz**: The physiological significance of the leucocyte reactions of infections and intoxications.—**L. Mercier** and **R. de Drouin de Bouville**: Lepidorthosis in *Leuciscus rutilus* of the lake of Nantua.—**L. Cayeux**: The existence of limestones containing Gyroporella in the Cyclades.—**Louis Gentil**: The Riffian deposits of Morocco.—**Louis Fabry**: The registration of small artificial earthquakes at a distance of 17 kilometres. Small earthquakes caused by subsidences in mining districts have been recorded on the seismograph of the Marseilles Observatory.

DIARY OF SOCIETIES.

THURSDAY, FEBRUARY 9.

ROYAL SOCIETY, at 4.30.—(1) Certain Physical and Physiological Properties of Stovaine and its Homologues; (2) The Effect of some Local Anæsthetics on Nerve: Dr. V. H. Veley, F.R.S., and W. L. Symes.—(1) Experimental Researches on Vegetable Assimilation and Respiration. VIII. A New Method for Estimating the Gaseous Exchanges of Submerged Plants; (2) 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: Dr. F. F. Blackman, F.R.S., and A. M. Smith.

ROYAL SOCIETY OF ARTS, at 4.30.—Indian Superstitions: R. A. Leslie Moore.

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

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

MATHEMATICAL SOCIETY, at 5.30.—The Application of the Mathematical Theory of Relativity to the Electron Theory of Matter: E. Cunningham.

FRIDAY, FEBRUARY 10.

ROYAL INSTITUTION, at 9.—Robert Louis Stevenson: Sir Sidney Colvin.

ROYAL ASTRONOMICAL SOCIETY, at 5.—Anniversary Meeting.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Rivers and Estuaries: W. H. Hunter.

PHYSICAL SOCIETY, at 8.—Annual General Meeting.—Presidential Address: The Caloric Theory of Heat and Carnot's Principle: Prof. H. L. Callendar, F.R.S.

MONDAY, FEBRUARY 13.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Further Explorations in Bolivia: Major P. H. Fawcett.

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

TUESDAY, FEBRUARY 14.

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

INSTITUTION OF CIVIL ENGINEERS, at 8.—Further discussion: The Detroit River Tunnel, between Detroit, Michigan, and Windsor, Canada: W. J. Wilgus.—Probable Paper: Coast Erosion: W. T. Douglass.

WEDNESDAY, FEBRUARY 15.

ROYAL SOCIETY OF ARTS, at 8.—Modern Machine Bookbinding: G. A. Stephen.

ROYAL MICROSCOPICAL SOCIETY, at 8.—On some New Objectives and Eye-pieces by R. Winkel, of Göttingen: E. M. Nelson.—On the Recent and Fossil Foraminifera of the Shore-sands of Selsey Bill, Sussex. Addendum: E. Heron-Allen and A. Earland.

ROYAL METEOROLOGICAL SOCIETY, at 7.30.—Variation of the Depth of Water in a Well at Detling, Maidstone, compared with the Rainfall, 1885-1909: R. Cooke and S. C. Russell.—The Actinograph; an Instrument for Recording Changes in Radiation: A. W. Clayden.—New Cloudiness Charts for the United States: K. M. Clark.

SOCIETY OF DYERS AND COLOURISTS, at 8.—The Enzymes of Malt, and their Employment in the Textile Industries: R. J. May.

THURSDAY, FEBRUARY 16.

ROYAL SOCIETY, at 4.30.—Probable Papers: 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.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Uses of Chemistry in Engineering: J. Swinburne, F.R.S.

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