UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The general board of studies will shortly proceed to make the following appointments:—(1) A reader in zoology, in succession to Mr. Bateson; stipend, 100*l*. a year. (2) A reader in metallurgy; the stipend is the net income arising from the benefaction of 10,000*l*. given for this purpose by the Goldsmiths' Company. (3) A lecturer in economics, in succession to Prof. Pigou; stipend, 100*l*. a year. (4) A lecturer in historical and economic geography; stipend, 150*l*. a year. (5) A Royal Geographical Society lecturer in regional and physical geography; stipend, 150*l*. a year. (6) A Royal Geographical Society lecturer in surveying and cartography; stipend, 50*l*. a year. Candidates are requested to send their applications to the Vice-Chancellor, with testimonials if they think fit, on or before July 28.

The electors to the Frank Smart studentship in botany give notice that they will shortly proceed to the election of a student. Any graduate of the University is eligible for the studentship provided that not more than fourteen complete terms have elapsed after his first term of residence. The successful candidate must devote himself to research in botany. The studentship is ordinarily tenable for two years. The value of the studentship is 100*l*. per annum, or such larger or smaller annual sum as the fund may produce. A candidate must send his name, with a statement of the course of research which he proposes to undertake, and such evidence of his qualifications as he thinks fit, to the Vice-Chancellor, Gonville and Caius College Lodge, on or before Tuesday, June 23.

The general board of studies has appointed Dr. Anderson university lecturer in physiology, Mr. F. H. A. Marshall university lecturer in agricultural physiology, Mr. C. G. Lamb university lecturer in electrical engineering, and Mr. C. E. Inglis university lecturer in mechanical engineering, all for five years.

The first examination for the diploma in mining engineering will be held in the Michaelmas term. The examiners nominated are Mr. E. H. Liveing, formerly professor of mining in the Yorkshire College, Leeds; Prof. H. Louis, Armstrong College of the University of Durham; and Mr. C. T. Heycock, of King's College.

Mr. R. C. Maclaurin, St. John's College, has been approved by the general board of studies for the degree of Doctor in Science.

LONDON.—The assembly of the faculties of University College has been fixed for Thursday, July 2, at 3 o'clock, when Prof. A. F. Pollard will read a report on the work of the session, and the results of the University, scholarship and class examinations will be announced. Scholars and medallists will be presented to Sir Edward Fry, F.R.S., who will deliver an address.

MR. A. D. HALL, director of the Rothamsted Experimental Station, will deliver a course of lectures on July 13–18 at the Graduate School of Agriculture, which the United States Department of Agriculture is holding this year at Cornell University. Mr. Hall will also deliver two lectures at the University of Illinois, Urbana, on July 7 and 8.

IN an address at the University of Wisconsin, Madison, on Sunday, Mr. Bryce is reported by the *Times* to have dwelt upon the useful relation which the State universities of western America bear to the States, commenting on the immense service rendered to scientific agriculture by the University of Wisconsin in increasing the product of the soil and the quality of the live-stock, making the farmer's life more interesting, and checking the influx of the people to the cities. It is wise, he remarked, not to allow practical subjects to oust theoretical physical science and human subjects. Theoretical science is the source and strength of progress in all industries and practical arts.

ONE of the departments of the Hungarian Exhibition at Earl's Court illustrates the progress and present position of education in Hungary. Starting with a section devoted to kindergartens and elementary schools, all the grades of education up to the universities, and colleges of university standing, are explained by suitable exhibits. A sketch of this part of the exhibition, which appeared in the *Times* of June 12, says that in every one of the grades photographs are on view illustrating the pupils and students at work in their classes. A very interesting feature is the model State farming school, in which all branches of farm work are taught to pupils between the ages of twelve and fifteen. Nursery-gardening instruction forms part of the curriculum at these schools also, and attention is paid to home and industrial work. The age at which education in Hungary is compulsory is in the kindergarten from three to six, and in the ordinary elementary school from six to twelve, while evening classes are given to pupils between the ages of twelve and fifteen. A *minimum* collection of implements used in all elementary schools is on view, embracing a wide selection of objects from chemical, mechanical, and electrical appliances to natural history specimens. The training college section contains excellent specimens of woodwork, and equally fine articles of lace and embroidery. Another feature is the attention paid to hygiene. So keen are the State authorities on securing a high standard of physical culture that every boy when he enters has his height measured and his strength tested. These details are entered in a register, which is kept as a record of his physical growth during his school years.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 19.—"Secondary β Rays." By Prof. J. A. **McClelland**. Communicated by Prof. J. Joly, F.R.S.

This paper deals with the secondary radiation of β particles from a plate exposed to the β rays from radium. It contains, in the first place, a detailed investigation of the intensity of this secondary radiation in different directions in the plane of incidence of the primary rays, and for different values of the angle of incidence.

The results show that the secondary β particles may be divided into two parts. One portion of the radiation has a maximum value in the direction of ordinary reflection, and is referred to as the "reflected" rays. The reflected rays differ very little in intensity for different substances.

The author in previous papers has compared the intensity of the secondary β rays from a large number of substances, and showed that it depends on the atomic weight of the substance. The secondary radiation increases with the atomic weight, and in such a way that the elements fall into divisions corresponding to the chemical periods. When the secondary radiation is analysed, as in the present paper, and the observations so taken as to exclude or reduce to a minimum the portion referred to above as the reflected rays, the connection with the atomic weight is brought out even more clearly than before.

The reflected rays are a more important fraction of the whole in the case of elements of low atomic weight, as for these substances the other portion of the radiation—the true secondary—is small.

The reflected rays are more marked when the angle of incidence is large.

Further evidence that there is a decided difference between the reflected rays and the other portion of the secondary rays, is given by measurements of the absorption in a direction in which the reflected rays are a maximum and in a direction where they are absent or a minimum. The reflected rays are similar in velocity to the primary rays, and vary little with the substance emitting them; the velocity of the true secondary rays is less than that of the primary rays, and depends on the substance emitting them.

The origin of the two parts of the secondary radiation is discussed in the paper, and the view taken that the reflected rays are some of the primary particles which in their path in the exposed plate have not entered into or caused change of energy in any atomic systems, thus retaining their original velocity and obeying approximately the law of reflection. The true secondary rays, on the other hand, are looked upon as β particles expelled from the atoms of the exposed substance by the entry of the primary particles.

The paper further contains the results of measurements with a hemispherical ionisation vessel which give the sum

of the secondary radiations in all directions from the exposed plate for different angles of incidence of the primary rays. A comparison of these results with those referring to the plane of incidence only, shows that the reflected rays are not strictly confined to the plane of incidence. Further work on this subject is in progress.

May 7.—"Helium and Radio-activity in Rare and Common Minerals." By the Hon. R. J. **Strutt**, F.R.S.

(1) Helium can be detected in almost all the minerals of the earth's crust.

(2) The quantity is in most cases about what might be anticipated from the traces of uranium and radium which the minerals contain. This is illustrated by the following selected results, which are given in round numbers only :—

Mineral	Helium present, c. mm. per kilo.	Helium ratio, *i.e.*, ratio of helium to uranium oxide
Samarskite	1,500,000	14
Hæmatite	700	9
Galena	2	17
Quartz	2	10

(3) Where much higher helium ratios than the above have been observed, the excess of helium can always be connected with the presence of thorium, except in one outstanding case. Thus the experiments afford no evidence in favour of helium production by radio-activity of ordinary elements.

(4) The outstanding case is beryl, which contains abundance of helium, without anything approaching a sufficient radio-activity to explain its presence. This helium cannot be connected with any known constituent of beryl.

(5) Igneous rocks, and probably siliceous minerals generally, contain small quantities of argon. In other minerals its quantity is negligible, at all events in comparison with the helium present. Nor is there any indication that it increases with the amount of radio-active material.

May 21.—"A Further Note on the Nutrition of the Early Embryo: with Special Reference to the Chick." By E. **Emrys-Roberts.** Communicated by Prof. C. S. Sherrington, F.R.S.

(1) The secretion of the resting mammalian uterus contains protein, mucin, and salts; during the pro-œstral stage the proportion of mucin is decreased.

(2) The profuse mucinous secretion of mammalia during pro-œstrus is derived, not from the body of the uterus, but from the cervix and vagina.

(3) The nutrition of the embryonic chick is not dependent upon the yolk alone, but also upon the egg-white.

(4) Assimilation of the egg-white is divisible into three heads—the water, the salts, and the proteid.

(5) Of the three, the water is at first extracted at the most rapid rate, *i.e.* the percentage of water decreases as incubation proceeds.

(6) The percentage of salts in the egg-white remains more or less unchanged throughout incubation.

(7) The proteid of the egg-white is assimilated, not by a process of osmosis, but by a process of digestion performed by the chorionic cells.

(8) During this process the egg-white is considerably altered in composition and reaction, being converted, as incubation proceeds, into a more and more vitreous mass with a peculiar set of reactions, the outstanding reaction being that demonstrating the presence of albumoses and peptones.

Physical Society, May 22.—Dr. C. Chree, F.R.S., president, in the chair.—The spectrum top: F. P. **Sexton.** The coloured bands seen when a Benham top is rotated are explained. The effect depends upon the position of the sector lines and on a contrast. The rates of growth of the colour sensations are assumed to be in the order red, green, and blue, where red is the greatest, and the rates of decay are assumed to be in the inverse order. The colour in the inner ring with an anti-clockwise rotation, and also the second ring, are explained.—The coefficient of diffusion: B. W. **Clack.** The practicability of a new method for the determination of the coefficient of diffusion of salts through water, and to find how this coefficient varies with the concentration of the solutions, is discussed. The apparatus consists of a special kind of flask of about 450 c.c. capacity fitted with a vertical glass tube of known dimensions. The flask, filled with the salt solution, was suspended in cooled distilled water. The apparatus was so designed that one end of the vertical tube was maintained in contact with a salt solution of constant concentration, while the other end was kept in contact with distilled water. As the salt diffuses through the tube the weight of the flask varies, and an expression was deduced by which it is possible to find the value of the coefficient of diffusion from this rate of change in weight, which was automatically recorded. The salts experimented upon were NaCl, KCl, and KNO_3. The coefficient for NaCl and KCl decreases as the concentration of the solution decreases. For KNO_3 the opposite phenomenon is exhibited.—The production of small variable frequency alternating currents suitable for telephonic and other measurements: B. S. **Cohen.** A new method for producing these currents is described; this consists of a form of vibrating wire interrupter which operates a make-and-break contact. This is used to put a source of potential on and off a resonating circuit tuned to any desired frequency. The alternating current is taken from a small transformer in the resonating circuit. A series of damped wave-trains of any frequency can be produced by this means, the trains following each other with the frequency of the wire vibrations. The theory of action of the various circuits, and some applications of the waves to both telephonic and general electrical measurements, are given.

Mathematical Society, June 11.—Prof. W. Burnside, president, in the chair.—Relations between the divisors of the first n natural numbers: Dr. J. W. L. **Glaisher.**—Electrical resonance: Prof. H. M. **Macdonald.**—A form of the eliminant of two binary quantics: A. L. **Dixon.**—Perpetuant syzygies of the nth kind: H. **Piaggio.**

Royal Astronomical Society, June 12.—Mr. H. F. Newall, F.R.S., president, in the chair.—An example of Prof. Karl Pearson's calculation of correlation in the case of the periodic inequalities of long-period variables: H. H. **Turner.** After tabulating Chandler's periodic inequalities, the author worked out the correlation according to Prof. Pearson's method, and then made an examination of eight stars in detail for which special information was available.—Report of the expedition to Flint Island for the observation of the total solar eclipse of 1908 January 3: F. K. **McClean.** The author gave an account of his expedition, to undertake which he chartered a steamer to start from Auckland for Tahiti and Flint Island, being joined by a small party of astronomers from Australia and New Zealand. The difficulties of landing were overcome, and all preparations made, in spite of almost continual rains. Heavy rain came on upon the morning of the eclipse, and only ceased just as totality commenced. Very successful photographs of the corona and prominences were taken, which were shown to the meeting. Mr. McClean recommended the observation of the eclipse of 1910 in Tasmania, and Mr. Crommelin remarked that Halley's comet would come to perihelion about the time of the eclipse, and could be much better observed in the southern than in the northern hemisphere.—Observations of the sixth, seventh, and eighth satellites of Jupiter from photographs taken at the Royal Observatory, Greenwich: **Astronomer Royal.**—The orbit of Jupiter's eighth satellite: P. H. **Cowell** and A. C. D. **Crommelin.** Two hypotheses were considered, the one of direct and the other of retrograde motion; the question was not finally decided, but retrograde motion seemed much more probable. The orbit had 31° inclination from the ecliptic, and a period of about two years, but no definitive orbit could be obtained until the satellite had been again observed at the next opposition of the planet.—The mathematical theory of two star drifts, and on the systematic motions of zodiacal stars: A. S. **Eddington.**—The lunar bright rays: H. G. **Tomkins.** The author showed the different characteristics of the bright rays on the moon, and explained his theory that they are caused by salt efflorescence. Photographs were shown of saline regions in India and other countries, as well as specimens of saline deposits. He considered that there was evidence of a radial arrangement of terrestrial salt districts.

EDINBURGH.

Royal Society, May 4.—Prof. Crum Brown, vice-president, in the chair.—Sunset and twilight curves and related phenomena: D. M. Y. **Sommerville.** The objects of the paper were (1) to describe certain curves which approximate to the graphs of the time of sunset (or sunrise) and end of twilight (or daybreak) all the year round for various latitudes; (2) to tabulate the yearly phenomena of light and darkness for different latitudes under various conditions. The case of the earth was first discussed, and then the investigation was extended to cases in which the inclination to the ecliptic was given arbitrary values ranging from 0° to 90°, and in which also the same range was given to the limiting depression below the horizon of the sun's centre consistent with twilight conditions. The various possible combinations of daylight, twilight, and true night which make up any complete day were examined, and some interesting mathematical relationships obtained.—The electromotive force of iodine concentration cells in alcohol and water: Principal A. B. **Laurie.** The results show that if the E.M.F. is calculated from the mass equation constant determined by Jakowkin and the Nernst equation for osmotic pressure and E.M.F., the experimental results agree very closely where the potassium iodide is present in excess, but only approximately where the potassium iodide and iodine are present in sensibly the same proportions. In alcohol cells the E.M.F. results show a very close agreement with the Nernst equation for cells in which the potassium iodide is in excess, and also show that there is evidently a similar complex formed in the presence of alcohol as there is in the presence of water. The E.M.F. of cells in which mixtures of alcohol and water are used indicates that at 0° C. the dissociation of the potassium iodide is less for such mixtures than it is for alcohol or water, this effect disappearing at 25° C. Experiments with cells in which solutions of equal strength of iodine and potassium iodide were used, dissolved in water round the one electrode and dissolved in alcohol round the other electrode, show an E.M.F. of nearly two-tenths of a volt, the water solution being positive, and the action of the cell transferring iodine from water to alcohol and potassium iodide from alcohol to water. This alcohol-water cell has a considerable temperature coefficient, showing that heat is being absorbed during the passage of the current, but not so large as would be required by the Nernst equation if it was a purely gas-pressure cell. When connected to a galvanometer this cell gives a current for some hours.—Preliminary statement on the morphology of the cone of *Lycopodium cernuum* and its bearing on the affinities of Spencerites: Dr. W. H. **Lang.** The cone of *Lycopodium cernuum* is the most complex in the genus, but it was shown that in Spencerites certain of the most characteristic features were either distinctly visible or at any rate strongly suggested. Whatever view of their relationship be taken, there appeared to be a *prima facie* case for regarding the morphology of the cone as essentially the same in the two forms.—The origin of the adaxially curved leaf trace in the Filicales: D. T. Gwynne **Vaughan** and Dr. R. **Kidston.** As exhibited in *Thamnopteris Schlechtendali*, the leaf traces leave the stele in a thoroughly protostelic manner when free, at first appearing as an oval mass of xylem with a central protoxylem. While in this form an island of parenchyma appears adaxially to the protoxylem, which, gradually increasing, eventually displaces the centripetal xylem. By progressive stages the characteristic leaf trace becomes curved, and assumes the characteristic horse-shoe form so common to the Filicales.—A new species of Dineuron and of Botryopteris from Pettycur, Fife: Dr. R. **Kidston.**—The inca or inter-parietal bone, its homology and nomenclature: Dr. W. R. **Smith.**

May 18.—Prof. A. Gray, vice-president, in the chair.—The cohesion of steel, and on the relation between the yield points in tension and in compression: G. H. **Gulliver.** In a homogeneous isotropic solid the directions of maximum shearing stress are inclined at 45° to the directions of principal stress. Because of internal friction, the surfaces of sliding will be inclined to the direction of maximum tension at an angle which is greater than 45° by half the angle of friction. Experiments on steel bars lead to the value 0·176 for the coefficient of friction, a value which corresponds closely with the ordinary coefficient of friction for dry metallic surfaces. The shearing stress along a surface of sliding is always greater than the frictional resistance due to normal stress upon the same surface. Assuming this to be due to a cohesive force acting normally to the same surface, the author calculated the value of this cohesion for steel as being 3·384 times that which corresponds with the tension yield point, or 2·384 times that which corresponds with the pressure yield point. Experiment fully corroborated this conclusion. Experiments also confirmed the further conclusion that the fracture of a bar under tension begins in a direction normal to the axis.—The preparation of a glass to conduct electricity: C. E. S. **Phillips.** A mixture consisting of thirty-two parts of sodium silicate, eight parts of borax, and one part of Powell's glass is fused in a platinum crucible. The air bubbles are rapidly removed from the mass by means of a vacuum pump, and the resulting glass pressed into plates or cast in the usual way. The conductivity of this material is comparatively high, being about 1000 times greater at 20° C. than ordinary soda glass at 100° C. Its specific resistance is 5×10^8 ohms at 20° C. The index of refraction is 1·6, the density 2·6, and the softening point 551° C. On account of the high coefficient of expansion, viz. 0·00015, the conducting glass cannot be welded to ordinary tubing except by means of glasses with intermediate coefficients of expansion. The study of the surface changes was made by means of an electrical method depending upon the negative electrification of cadmium when in contact with a moist surface of the conducting glass. It was found in this way that the substance attracted less moisture with time, and therefore slowly improved. Some experiments were shown which proved that the glass conducts electricity through its mass, and that the effect is not merely a surface one.

PARIS.

Academy of Sciences, June 9.—M. H. Becquerel in the chair.—An apparatus designed for micrometric levellings: M. **Gouy.** A microscope furnished with a wire micrometer, and standing upon a tripod the feet of which are ivory points, slides on a plane horizontal disc of polished glass. The micrometer wire being first set on the object the position of which is to be measured, its position on the standard scale is found by sliding the tripod over the disc until the divisions of the scale are in focus. As showing the accuracy obtainable by this simple method, the probable error of a setting of the micrometer, the microscope remaining fixed, was found to be 0·043 μ, whilst when the microscope was moved over the disc between each setting the probable error of a setting was 0·042 μ.—The direct addition of hydrogen to the polyphenols: Paul **Sabatier** and A. **Mailhe.** Previous attempts to apply the Sabatier and Senderens reaction to the diphenols and triphenols have failed, due, as is now found, to the employment of too high a temperature in the reaction. At a temperature of about 130° C., in a rapid current of hydrogen, hydroquinol, pyrocatechol, resorcinol, and pyrogallol give good yields of the corresponding *cyclo*hexadiols and triols respectively. Hydroquinol gave the *cis*-quinite exclusively, and pyrocatechol and resorcinol also appeared to give the *cis*-compounds, although this point has not yet been completely proved. Since this method yields these compounds easily, and in a very pure state, a special study is being made of the properties of these derivatives.—Magnetic observations at Tananarive: E. E. **Colin.** Three tables are given showing the results of the absolute measures of declination, of inclination, and of the horizontal intensity, from May, 1907, to April, 1908.—The exact analysis of marsh gas. The dissociation of several hydrocarbons obtained in the grisoumeter and eudiometer: Nestor **Gréhant.**—The regulation of electrogenic groups: J. L. **Routin.**—The development in a continued fraction of an algebraical number: M. **Auric.**—The true cause of the doubling of the curve of loss of activity of conductors covered with a dielectric layer, rendered radio-active, and with an electric charge: Ed. **Sarasin** and Th. **Tommasina.**—The sign of electric dichroism and of magnetic dichroism: Georges **Meslin.**—The self-induction spark: André **Léauté.** The essential cause of the striæ

observed for the first time in the photographs of M. Hemsalech is the existence of two circuits in parallel.—Catalytic dehydrations of organic compounds: J. B. **Senderens.** Several inorganic substances have been found by the author to possess catalytic properties, the most active being precipitated alumina dried at a temperature below a red heat. This substance at about 300° C. splits up ethyl ether into ethylene and water, acetic acid (at 350°) into acetone, water and carbon dioxide, propionic acid into diethylketone, water and carbon dioxide, ethyl acetate into water, ethylene, carbon dioxide and acetone, and ethyl oxalate into water, carbon monoxide and dioxide, and ethylene.—The action of silver nitrate upon chloroauric acid, and the preparation of fulminating gold: Jules **Jacobsen.** Pure chloroauric acid, prepared by the action of chlorine upon pure gold in suspension in hydrochloric acid, is precipitated by silver nitrate, the precipitate having the composition $Au(OH)_3.4AgCl$. A solution of ammonia removes the silver chloride from this substance, leaving a yellow, flocculent precipitate of fulminating gold. Analyses of this latter gave figures corresponding to the formula $Au(OH)_2NH_2$.—The separation of ammonia and the amines by means of boiling absolute alcohol: Jean **Bertheaume.** It is shown that this commonly used method of separation is imperfect, a determination of the solubilities of ammonium chloride and methylamine hydrochloride proving that at least 8·5 per cent. of ammonium chloride is always present in methylamine hydrochloride purified in this manner.—Contribution to the study of the artificial peroxydiastases: J. **Wolff.** A study of the oxidation of pyrogallol by hydrogen peroxide in presence of colloidal ferrocyanide of iron. The effects of the latter are shown to be in all respects comparable with those of the natural peroxydases.—A new mica of the paragonite group: Ph. **Barbier.** This mica is characterised by its proportions of soda (7·6 per cent.) and lithia (1·2 per cent. to 2·0 per cent.), the association of these two elements, sodium and lithium, being unusual. The name hallerite is proposed for the new mineral.—A certain function of hepatic replacement exercised by the feather in birds: Jean **de La Riboisière.** For any species of bird the amount of liver and feathers, referred to 100 grams of the total weight, may undergo extensive variations. But it would appear that in each species those individuals having more liver have less feathers, and reciprocally.—The *rôle* of the yeasts and the nature of the vine in the formation of bouquet in wine: A. **Rosenstiehl.**—The iron deposits of Coatquidan: F. **Kerforne.** This deposit was worked for iron ore in 1825, but after some time was abandoned. The ore is a red hæmatite, containing a considerable proportion of fine quartz grains. Its geological level is at the base of the Armorican grit.—The principles to be applied to render buildings aseismic: Montessus **de Ballore.** Armoured concrete is the best material for building purposes in countries liable to earthquakes.

DIARY OF SOCIETIES.

THURSDAY, JUNE 18.

ROYAL SOCIETY, at 4.30.—(1) An Electrical Method of Counting the α Particles from Radio-active Matter; (2) The Charge and Nature of the α Particle: Prof. E. Rutherford, F.R.S., and Dr. Hans Geiger.—The Scattering of the α Rays by Matter: Dr. Hans Geiger.—Studies of the Processes Operative in Solutions. Part VI., Hydration, Hydrolation and Hydrolysis as Determinants of the Properties of Aqueous Solutions; VII., The Relative Efficiencies of Acids as deduced from their Conductivities and Hydrolytic Activities; VIII., The Influence of Salts on Hydrolysis and the Determination of Hydration Values; IX., The Determination of Optical Rotatory Power in Solutions; X., The Changes Effected by the Reciprocal Interference of Cane Sugar and other Substances (Salts and Non-electrolytes): Prof. H. E. Armstrong, F.R.S., and others.—The Electrolytic Properties of Dilute Solutions of Sulphuric Acid: W. C. D. Whetham, F.R.S., and H. H. Paine.—The Giant Nerve Cells and Fibres of *Halla parthenopeia*: Dr. J. H. Ashworth.—On Methods for the Continuous (Photographic) and Quasi-continuous Registration of the Diurnal Curve of the Temperature of the Animal Body: Prof. A. Gamgee, F.R.S.

CHEMICAL SOCIETY, at 8.30.—The Thermal Decomposition of Hydrocarbons, Part I., Methane, Ethane, Ethylene and Acetylene: W. A. Bone and H. F. Coward.—The Rusting of Iron: W. A. Tilden.—Studies on Elementary Zirconium: E. Wedekind and S. J. Lewis.—(1) The Constituents of Canadian Hemp. Part I., Apocynin; (2) A New Synthesis of Apocynin: H. Finnemore.—The Constitution of the Diazonium Perbromides: F. D. Chattaway.—Cholestenone: C. Dorée and J. A. Gardner.—A New Form of Potash Bulb: A. E. Hill.—Solubility of Silver Chloride in Mercuric Nitrate Solutions: B. H. Buttle and J. T. Hewitt.

LINNEAN SOCIETY, at 8.—Altitude and Distribution of Plants in Southern Mexico: Dr. Hans Gadow, F.R.S.—The Marine Algæ collected in the Indian Ocean by H.M.S. *Sealark*: A. Gepp.—Nudibranchs from the Red Sea, collected by Mr. C. Crossland: Sir Charles Eliot, K.C.M.G.—The Algæ of the Yan Yean Reservoir, Victoria: G. S. West.—Bryozoa from the Indian Ocean, chiefly from the Collections made by H.M.S. *Sealark*: A. W. Waters.—On *Gardenia Thunbergia*, Linn., and its Allies: Dr. Otto Stapf, F.R.S., and J. Hutchinson.—*Exhibits:* Portfolio of Coloured Drawings illustrating the Flora of Bombay Island: Mrs. Harry Gay.—Specimens of *Melitella pusilla*, Somm., belonging to a New Genus of Compositæ, recently discovered by Cavaliere S. Sommier, in the Island of Gozo, near Malta: J. F. Duthie.

TUESDAY, JUNE 23.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—The Kurdish Tribes of the Ottoman Empire: Mark Sykes.

FARADAY SOCIETY, at 7.45.—Annual General Meeting.—At 8.15.—Recent Developments of the Kjellin and Rochling-Rodenhauser Electric Induction Furnaces: J. Härden.—New Applications of Electrometallurgical Alloys: Adolphe Jouve.

THURSDAY, JUNE 25.

ROYAL SOCIETY, at 4.30.—*Probable Papers:* Have Trypanosomes an Ultra-microscopical Stage in their Life-history? Colonel D. Bruce, C.B., F.R.S., and Captain H. R. Bateman.—The Action of Chlorine upon Urea whereby a Dichloro Urea is Produced: Dr. F. D. Chattaway, F.R.S.—Further Note on a Luminous Glow generated by Electrostatic Induction in an Exhausted Vessel made of Silica: Rev. F. J. Jervis-Smith, F.R.S.—On the Reflection of Waves from a Stratum of Gradually Varying Properties, with Application to Sound: Dr. J. W. Nicholson.—The Electrical Forces of Mitosis and the Origin of Cancer: A. E. and A. C. Jessup, E. C. C. Baly, F. W. Goodbody, and E. Prideaux.—The ω-Function—a Class of Normal Functions: E. Cunningham.—And other papers.

FRIDAY, JUNE 26.

PHYSICAL SOCIETY (at the National Physical Laboratory, Bushy House, Teddington), at 3.30.—Demonstrations of Work in Progress in the Laboratory.

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