light spring for each loop, so as to keep it taut. The lamp can then be used in any position.

Tungsten seems to be the favourite metal, as it gives a very high efficiency. It is probable the lamp of the future will have an efficiency of nearly a candle per watt, and this is promised by the use of tungsten. At the same time, it must be admitted that to make a wire with a resistance of 500 ohms small enough to give twenty candles with 20 watts is a triumph of inventive skill.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The board of anthropological studies recommends in a report to the Senate (1) that a diploma in anthropology be established; (2) that an advanced student who has studied some branch of anthropology under the direction of the board, and has presented a thesis, which thesis has been approved for a certificate of research, shall, on the payment of such fees as the Senate may from time to time determine, be entitled to a diploma testifying to his competent knowledge of anthropology; (3) that any member of the University having graduated before the date of the establishment of the diploma, who has presented a thesis on some branch of anthropology, which thesis has been approved by the board, shall, on the payment of such fees as the Senate may from time to time determine, be entitled to a diploma testifying to his competent knowledge of anthropology.

The John Winbolt prize for engineering for 1907 has been awarded to J. E. Sears, St. John's College, for his essay "On the Longitudinal Impact of Metal Rods with Rounded Ends."

The special board for biology and geology has nominated Mr. A. E. Shipley the representative of the University on the council of the Marine Biological Association from the annual meeting of the association in 1907 to the annual meeting in 1908.

MANCHESTER.—The provision for study and research in metallurgy has been recently very materially increased. The equipment for metallography, as also for the heat treatment and mechanical testing of metals, has been brought up to date. Dr. H. C. H. Carpenter, late of the National Physical Laboratory, was elected professor of metallurgy a short time ago, and Mr. C. A. Edwards (Carnegie scholar of the Iron and Steel Institute) has just been appointed demonstrator and research assistant.

SHEFFIELD.—The University council has appointed Mr. Arthur Holden to the post of assistant lecturer and tutor in mathematics. Mr. Holden, who was a scholar of Queens' College, Cambridge, is at present lecturer in mathematics at St. Mark's College, Chelsea. He will enter upon his new duties next session.

THE plans for the restoration of the main building of the Merchant Venturers' Technical College, Bristol, have now been approved by the Society of Merchant Venturers; they involve very considerable changes in the arrangements of the original building. From the description of the provision to be made in the new building, it appears that the governors are concentrating the work of their college so as to provide a much more extensive equipment for those departments which train civil, mechanical, electrical, and mining engineers, and prepare for the B.Sc. degrees of the University of London in science and engineering. With this end in view, they will discontinue certain portions of the work formerly undertaken by the college.

REPRESENTATIVES of the University of London to the number of nearly a hundred are this week paying a visit to the University of Paris. The party includes Sir Edward Busk (Vice-Chancellor of the University), Sir Philip Magnus (the Parliamentary representative of the University), Sir Arthur Rücker (the Principal), Dr. Pye-Smith (ex-Vice-Chancellor), members of the Senate, Deans of the several faculties, Mr. P. J. Hartog (Academic Registrar), and other guests. On May 21 the visitors assembled in the grand amphitheatre of the Sorbonne under the presidency of M. Briand, Minister of Public Instruction, who with M. Liard, Vice-Rector of the University of Paris, delivered addresses of welcome, and Sir Edward Busk replied. Prof. Alfred Croiset and Prof. Gardner, Dean of the Faculty of Arts of the University of London, also spoke. Afterwards the English visitors were entertained at lunch by the municipality of Paris, and in the afternoon paid a visit to Versailles. A reception in honour of the visitors was given by the British Ambassador in the evening. On May 22 there was an excursion to Chantilly. To-day is to be devoted to an inspection of the various departments and laboratories of the Paris University; in the afternoon a reception will be given in honour of the visitors at the Elysée by the President of the Republic and Mme. Fallières. In the evening the English visitors will be the guests of the University of Paris at dinner at the Sorbonne, when the French Ministers of Public Worship and of Foreign Affairs are expected to be present. The dinner will be followed by a concert in the great hall, and a conversazione in the reception rooms of the Sorbonne. The party will return to London to-morrow.

THE urgent needs of the University of Oxford led to an important meeting being held on May 16 to consider a scheme for raising a fund to meet them. Lord Curzon, Chancellor of the University, presided over a large and distinguished assembly, and in the unavoidable absence of the Lord Chancellor proposed a resolution:—"That a fund be raised, entitled the Oxford University Appeal Fund, to meet the needs of the University as set forth in the letter signed by the Chancellor and Vice-Chancellor, which was published in the newspapers on May 2, 1907." Speaking in support of the resolution, Lord Curzon announced that the fund was being started with promises and gifts amounting to 57,000*l*., which includes 10,000*l*. from Mr. Brassey, 10,000*l*. from Mr. W. W. Astor, 2500*l*. from Mr. W. F. D. Smith, 2000*l*. from Lord Curzon, and five donations of 1000*l*. Following the Chancellor's eloquent appeal, the Chancellor of the Exchequer seconded the resolution (which was eventually carried unanimously), and took the opportunity to point out several directions in which the work of Oxford University needed development to keep the University abreast of modern needs. The Archbishop of Canterbury moved:—"That a body of trustees of not less than nine, nor more than twelve, be appointed for the administration of the fund, composed of one-third resident and two-thirds non-resident members of the University, and that the hebdomadal council be requested by the Chancellor to nominate the University representatives, and that the Chancellor and Vice-Chancellor be authorised to consult with the leading supporters of the movement as to the appointment of non-resident trustees." Lord Milner seconded the resolution, and it was carried. A further resolution was adopted appointing a committee to consider the best means of raising subscriptions to the fund. Though we are of opinion that the provision of adequate funds for our universities is a State duty, we hope that until that duty is recognised by the Government our men of wealth will see to it that the work at Oxford is not hampered by the want of what is really a modest amount when compared with the greatness of the needs of the University.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 14.—"The Purification and Testing of Selenion." By R. **Threlfall**, F.R.S.

The paper deals with the purification and testing of considerable quantities of selenion with the object of investigating the electrical constants of the element in the pure state. It was found that Ekman's and Petterson's method is suitable and satisfactory as a means of purification of selenion from other known elements, with the possible exceptions of mercury, tellurium, and arsenic. The analytical separation of selenion from tellurium was investigated, and it was found that the most satisfactory method is by fractional sublimation of the dioxides. It is shown that a sharp separation can be made by subliming a mixture of the oxides containing one part

of tellurium to ninety-nine parts of selenion at a temperature of 360° C. The sublimate contains certainly less than one-tenth per cent. of tellurium, and probably less than one-fortieth per cent., the extreme limit of analytical discrimination.

A thorough investigation showed that tellurium cannot be detected in presence of selenion in quantity by spectroscopic analysis. Details as to the method of carrying out Ekman's and Petterson's purification are given. The purified product was tested for arsenic with constant reference to check and blank trials, and it was found that arsenic was present to the extent of 0·00038 per cent. Mercury was sought for by the method suggested by Marcel, and also by Dr. Sand with a special electrolytic apparatus, but none was found.

The remaining difficulty in regard to a possible solubility of selenion dioxide in selenion was not entirely overcome, though it is shown that by distillation of a mixture of selenion and selenion dioxide in an inert gas nearly, if not all, the dioxide can be separated, but there does not seem to be any perfectly satisfactory criterion as to the complete absence of dioxide. This uncertainty prevented the subject of the conductivity of really elemental selenion from being undertaken, but the highly purified material obtained was examined by Messrs. Vonwiller and Mason with respect to its specific inductive capacity. The material employed by these observers was returned to the author for re-examination, and it is shown that no material amount of impurity was introduced during the necessary meltings and treatment which it had undergone.

Royal Microscopical Society, April 17.—Mr. G. C. Karop in the chair.—The Podura scale: E. M. **Nelson.** The author traced the efforts of previous observers to interpret the markings on the scales, giving figures—which were drawn to an enlarged size upon the board—to illustrate the various interpretations, including the result of his own observations.—The root bacteria of pulse: Dr. Antonio **Rodella.**

Zoological Society, April 23.—Dr. J. Rose Bradford, F.R.S., vice-president, in the chair.—The ears of the African elephant as a race character: R. **Lydekker.** To illustrate this paper, a large number of photographs and several specimens were exhibited. The author considered that there must be many more local races than those already named by Dr. Matschie, although, with the present material, he hesitated to give separate designations to several of these. He ventured, however, to propose new names for the elephant of the eastern side of Cape Colony; for that of Mashonaland, as typified by a head in the Imperial Institute; for that of the Lake Rudolf district, as represented by a head presented to the British Museum by Mr. H. S. H. Cavendish; and for the Somali elephant, as typified by a head in the collection of S.A.R. le Duc d'Orléans at Wood Norton, this last race being characterised by the very small ears, which, however, were quite different in shape from those of *E. a. knochenhaueri.* The author also directed special attention to a skull from the Albert Nyanza district, for which he had previously suggested the name *E. a. albertensis.* Differing in many points from those of other African elephants, this skull showed a remarkable resemblance to that of the extinct Indian *E. planifrons,* thus suggesting the descent of the African elephant from that species.—Descriptions of three new species and five new subspecies of Siberian birds: S. A. **Buturlin.**—A list of small mammals obtained in the islands of Saghalien and Hokkaido by Mr. M. P. Anderson for the Duke of Bedford's exploration of eastern Asia: Oldfield **Thomas.** Fourteen species were recorded from Saghalien and thirteen from Hokkaido. The faunas of the two islands proved to be very similar to each other, although in some cases subspecific differences between the representative forms in each were perceptible. In one genus only, Micromys, the relationship of Hokkaido seemed to be with the main island of Japan rather than with Saghalien.—A list of the cold-blooded vertebrates of Saghalien: G. A. **Boulenger.**—Notes on hybrid bears: H. **Scherren.** The author referred to cases that had occurred in the society's gardens, the long series bred by Herr Nill in his zoological garden at Stuttgart (now broken up), and a recent case in the garden at Halle-an-der-Saale. Reference was also made to cases said to have occurred at Cologne and Hanover, but for these the evidence was not conclusive.—Some new species of earthworms of the family Eudrilidæ, belonging to the genera Polytoreutus, Neumaniella, and Eminoscolex from Mt. Ruwenzori: F. E. **Beddard.**—South American pseudoscorpions of the family Cheliferidæ in the collections of the British and Copenhagen Museums: C. J. **With.**

Physical Society. April 26.—Prof. J. Perry, F.R.S., president, in the chair.—Electrical conduction produced by heating salts: A. E. **Garrett.** The experiments described are divided into two series. The first, of a preliminary nature, consisted in testing a large number of inorganic compounds up to a temperature of 360° C. Several compounds, chiefly halogen salts, were found to produce easily detected conductivity when heated. In the case of zinc iodide, conductivity could be detected at the ordinary temperatures of the laboratory. The second series was confined to special cases in order to ascertain the causes of the increased conductivity. It was found that in all the cases tried a formula of the form $I = a\theta^{\frac{1}{2}}e^{-\frac{b}{\theta}}$, where I = saturation current, a and b constants, and θ the absolute temperature, represents with fair accuracy the connection between the saturation-current and the absolute temperature.—Solenoids which will move under the action of the earth's magnetic field: W. B. **Croft.** In showing Ampère's experiments, it is not very easy to complete the theory of magnetism by making a solenoid point to the north. Many years ago Ritchie made a solenoid with an iron core, which acted as a motor with the help of a mercury commutator. A copper solenoid without core was shown which had been made to rotate in this manner. The method is unsatisfactory and uncertain, owing to the rigidity assumed by the skin on the surface of mercury in certain conditions. The ampere mercury contacts cause no difficulty when a wire rotates on its own axis, but there are strong hindering forces when the wire is pushed through the mercury, partly from the skin and partly from amalgamation. The best pattern for a solenoid is suggested by the moving coil of an electrodynamometer. Two of such were shown, which were conveniently worked by four dry cells in series. Each of these was hung with very thin metal strip by bifilar suspension, the threads about 5 inches long and 1/10th inch apart. The bifilar control makes the movements manageable; it is convenient to set the coils N. and S., or the axis of the corresponding magnets E. and W., so as to make these swing up to the meridian when a current is sent through the coils.—The influence of pressure upon convection currents, and a criticism of J. Stark's relation between kathode fall of potential and temperature: W. S. **Tucker.** Stark employed as kathode a wire mounted radially in a globe-shaped vessel. The wire was heated electrically, and its resistance, and hence its temperature, determined. He refers to the weaknesses of the method:—(1) the conduction of heat away from the wire by its leads causes the observed mean temperature to be too low; (2) the error made in assuming the kathode dark space temperature to be that of the heated kathode. The author's apparatus was devised to show how seriously these weaknesses affect Stark's results.—A simple apparatus for mechanically illustrating the tangent and sine laws: J. A. **Tomkins.**

Geological Society. May 1.—Sir Archibald Geikie, Sec.R.S., president, in the chair.—The xerophytic character of coal-plants, and a suggested origin of coal-beds: Rev. Prof. George **Henslow.** It is held that the characteristic feature of the great coal-forests was xerophytic, and the vegetation appears to be of an upland type. Illustrations are given from recent and Carboniferous plants to show the characters of leaf, root, and stem which separate these classes of plants. The position of coal-seams is accounted for by the action of earth movements in late Carboniferous times; these threw the forest-bearing surface into shallow waves and troughs, which became gradually accentuated, the latter being gradually filled with sediment, upon which, during intervals of rest, new forest growth took place.—Petrological notes on the igenous rocks lying to the south-east of Dartmoor: H. J. **Lowe.** The rocks described are

contained in the Newton Abbot district, the region east of the Dart and south of the Teign. They are most nearly related, both geologically and petrologically, to those of south-west Devon, or the Plymouth district described by Worth.

Society of Chemical Industry, May 6.—Mr. R. J. Friswell in the chair.—An apparatus for the estimation of carbonic acid: H. W. **Rowell.** The sample of carbonate is decomposed by a suitable acid and boiling, and the carbon dioxide collected and weighed in potash bulbs. The apparatus consists of a 70 c.c. flask with a ground-glass stopper carrying a stoppered funnel, for admitting acid and subsequently air, and a bulb water vapour trap. An air washing tube, drying tubes, potash bulbs, and a supporting stand and aspirator complete the apparatus.—The works chemist as engineer: O. **Guttmann.** All chemical works have a large number of engineering problems to solve, and, as a rule, the chemist will have to look after them. The author explained in detail the selection of a site, the disposition of buildings and plant, the erection of buildings to standard sizes, materials, plant, &c., in view of the products to be worked and any special risks attached to them. The installation of a power-house and the many engineering details which are of advantage in the economy and control of the production of power, smoke preventers, automatic stokers and special grates, as well as water softeners and feed-water heaters, were dealt with. The author emphasised strongly that "works operations were not simply laboratory operations writ large." In his opinion it was useless to teach chemical technology with the help of beakers and test-tubes. To train a chemist properly, he ought to go to college better prepared, and have at least four years of study, with more mechanics and physics in the beginning and a proper course of chemical technology in the end. After that it is only necessary that manufacturers should realise that a works chemist is not solely an analyst, but a highly useful practical technologist, who, given a little confidence, will in a short time repay his salary many times over. The paper concluded with the sentence:—"We have heard too much about the many chemists engaged on research in the large colour works of Germany. Highly valuable as they are and important as their discoveries were, the German chemical industry is infinitely more indebted to that far greater number of works chemists, who patiently and thoroughly investigated the manufacturing processes, who had the ability to devise improvements and economies, and who found generous manufacturers and their college-trained sons to give them their confidence. It is on these lines that we must progress."

PARIS.

Academy of Sciences, May 13.—M. A. Chauveau in the chair.—A functional equation occurring in the theory of certain equations on derived partials: Émile **Picard.**—Theory of the speaking condenser of M. Argyropoulos: Marcel **Deprez.** Explanation of the theory of the condenser in the secondary coil or transformer of microphone described by M. Argyropoulos on May 6.—The glucose coming from the "potential sugar" (*i.e.* the glucosides) of the blood: R. **Lépine** and M. **Boulud.** Experiments on dogs showing the effect of invertin and fibrin on the quantity of glucose which is set free in defibrinated blood from the glucosides present (compare Lépine and Boulud, *Comptes rendus*, October 8, 1906).—The employment of potassium permanganate to remove sodium thiosulphate (so-called "hyposulphate") in photography: Albert **Granger.** The author points out that the preservation of photographic positives and negatives obtained by means of silver salts depends upon the total elimination of the thiosulphate ("hypo") used for fixing them. Many oxidising agents have been introduced to destroy the last traces of thiosulphate, for example, the perborates and persulphates. These salts are, however, very inconvenient. They are expensive, and they tend to spoil either positives or negatives if allowed to act beyond a certain time. It is difficult to tell, too, when they have completed the oxidation of the thiosulphate. Potassium permanganate is free from these disadvantages, and the following method of procedure is suggested for ordinary work. The positive or negative, after rinsing two or three times for about a minute with water, is placed in a porcelain or glass dish, and for half-plate size 250 c.c. of dilute permanganate, made by diluting 10 c.c. of a solution containing 1 gram per litre, is added. If the solution turns brownish add more permanganate until a pink tint remains. Then place the print in a 1 per cent. oxalic acid solution to remove any faint brown deposit. Wash with ordinary water until clear. Oxalic acid gives a precipitate with ordinary water, thus giving an indication when washing is completed.—Observations of the new planet ZB made at the Marseilles Observatory: M. **Coggia.**—The expedition to Turkestan for the observation of the solar eclipse of January 14, 1907: Milan **Štefánik.**—Approximate convergence in mathematical analysis: Ernst **Fischer** (compare M. Riesz, *Comptes rendus*, March 18).—A general method for the solution of Dirichlet's problem: S. **Bernstein.**—The representation of equations of the fourth nomographic order with three and four variables: Maurice **d'Ocagne.**—The resistance of air to the movement of bodies: M. **Canovetti.**—The rapidity of detonation of explosives: M. **Dautriche.** This is a continuation of work already published (*cf. Comptes rendus*, vol. cxliii., p. 641).—The alteration of the absorption bands of crystals, and the law of variation of delay of movement of electrons at different temperatures: Jean **Becquerel.**—Nernst's theory and the values of the differences of potential at the point of contact of two electrolytes in solution: J. **Guyot.**—The liquefaction of air: Georges **Claude.**—The phosphorescence of calcium compounds containing manganese.—Influence of the constitution and mass of the molecules on the wave-lengths of the radiation emitted: L. **Bruninghaus.**—Action of fluorine on selenium. Preparation of tetrafluoride of selenium: Paul **Lebeau.** Working with metal vessels, so as to prevent any chance of oxyfluorides being obtained, the author prepared tetrafluoride of selenium by direct union, and found it to be a colourless liquid, boiling about 100° C., and forming a white crystalline solid at about −80° C. Brought into contact with water, the compound decomposes with evolution of heat, giving a solution containing selenious and hydrofluoric acids,

$$SeF_4 + 2H_2O = SeO_2 + 4HF.$$

The compound behaves as if saturated, so that the hexafluoride of selenium mentioned by Prideaux (Chem. Soc., vol. lxxxix., p. 316) might require further investigation.—Spontaneous oxidation of cobalt hydrate in alkaline solution: André **Job.**—The silicates of aluminium and calcium: O. **Boudouard.**—The constitution and properties of samples of steel containing boron: Léon **Guillet.**—Condensation of oxalic esters with tertiary aromatic amines: A. **Guyot.**—Some caoutchouc-bearing plants of the south of Madagascar: J. **Constantin** and H. **Poisson.**—Observations on the constitution of the membrane of the Péridiniens: Louis **Mangin.**—The delimitation and relations of the principal species of *Illipées*: Marcel **Dubard.**—The influence of light on the assimilation of the reserve organic matter of plants and bulbs by the plantules in the course of their germination: W. **Lubimenko.**—The function of sieve tubes (botanical): M. **Molliard.**—The comparative effect on the heart of different potassium salts of the same molecular concentration: H. **Busquet** and V. **Pachon.**—The occurrence of iron in animal and vegetable tissues: A. **Mouneyrat.** The author states that he has found iron in all tissues, and that, in fact, iron seems to be a constant constituent of all living cells.—The extraction of the pigments from batrachians: A. **Magnan.**—The adipose tissue replacing the vibratory muscles of the wings after the nuptial flight in queen-ants: Charles **Janet.**—The glacial formations of the Chaux-d'Arlier: Paul **Girardin** and Fritz **Nussbaum.**—The oceanic lithology of ancient seas: J. **Thoulet.**

CAPE TOWN.

South African Philosophical Society, March 27.—Mr. S. S. Hough, F.R.S., in the chair.—A property of symmetric determinants connected with the simultaneous vanishing of the surface and volume of a tetrahedron: T. **Muir.**—The development of the ovary and embryo-sac in *Cassia Tomentosa*: W. T. **Saxton.**—The fertility of some colonial soils as influenced by the geological conditions: C. F. **Juritz.** Chemical analyses of the soil may be of

three different types, according as they show (1) how much plant food exists in a form immediately available for plants; (2) what proportions are present as a reserve stock; or (3) the aggregates of the plant-food constituents in the soil. The third type of analysis may have its value for the geologist, but only the first and second afford the farmer any indications of the land's worth, the former indicating its immediate productiveness and the latter its permanent value. Until recently sufficient samples had not been analysed by a method that could be taken as a trustworthy means of ascertaining the reserve stock of plant food in the colony's soils, nor had the Geological Commission progressed to an extent sufficient to enable it to be used as a working basis. Furthermore, the soils that had been analysed had been selected from definite fiscal divisions without regard to geological conditions. Some 200 soils had, however, been selected from the number hitherto analysed and taken as fairly representative of various geological formations. Of the soils derived from the pre-Cape rocks, those from the Malmesbury slates in the south-western part of the Colony were found to be poor all-round on the average. In the northern portion of the country, where the Campbell Rand series extended over a large area, the soils were rich in lime. The soils derived from the Table Mountain series, which were the lowest rocks of the Cape system and consisted of little else than silica, lacked all the essential mineral ingredients of plant food. Above the Table Mountain series lay the Bokkeveld beds, and these produced soils with satisfactory proportions of plant food. The highest rocks of the Cape system, namely, the Witteberg series, produced soils which may be anticipated to resemble those of the similar Table Mountain series, and the few that had been analysed bore out this view. This was the district in which bone-diseases in cattle prevailed. Of the soils of the Karroo system, those derived from the Burghersdorp beds and Stormberg series were found to be well supplied with potash and phosphates, and contained large proportions of lime. This was also the case with the soils formed from the Uitenhage series, in the Cretaceous system. For hundreds of miles fertile silts were transported by rivers in flood. To the silts thus brought down from the Karroo, the Oudtshoorn division owed its fertility, and the soil of that division was now undergoing transportation to the sea, except where deposited in the Riversdale and Mossel Bay divisions en route.—Some new fossil reptiles from Victoria West: Dr. R. **Broom.** A description is given of three new reptiles found by Mr. T. J. R. Scholtz at Victoria West, in beds which are believed to correspond to the Lystrosaurus beds of Colesberg, Middelberg, and Cradock. Hitherto almost the only fossils known from these beds have been the aquatic Lystrosaurus and fish.—Solifluction: Prof. E. H. L. **Schwarz.** Solifluction is a term coined by Andersson for the flow of saturated soil down mountain sides. Originally used only for regions covered with ice and snow, the object of the present paper is to show that the same action goes on in temperate countries, only to a smaller extent, producing stone courses in the mountainous districts, and a gradual downward creep of soil and subsoil in parts of the country which have less relief. Under the same term must be included the flow of volcanic ashes saturated with water, which are characteristic of the so-called mud-volcanoes in South America, Java, &c.

DIARY OF SOCIETIES.

THURSDAY, MAY 23.

ROYAL SOCIETY, at 4.30.—The Relation of Thallium to the Alkali Metals: a Study of Thallium Sulphate and Selenate: Dr. A. E. H. Tutton, F.R.S.—On the Frictional Resistances to the Flow of Air through a Pipe: Dr. J. H. Grindley and A. H. Gibson.—Chemical Reaction between Salts in the Solid State: Dr. E. P. Perman.—Studies on Enzyme Action, IX., The Nature of Enzymes: Prof. H. E. Armstrong, F.R.S., and Dr. E. F. Armstrong.—Studies on Enzyme Action. The Enzymes of Yeast: Amygdalase: R. J. Caldwell and S. L. Courtauld.—On Light Elliptically Polarised by Reflection especially near the Polarising Angle: a Comparison with Theory: Prof. R. C. Maclaurin.

ROYAL INSTITUTION, at 3.—Chemical Progress—Works of Berthelot, Mendeléeff, and Moissan: Sir James Dewar, F.R.S.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Present State of Direct Current Design as Influenced by Interpoles: F. Handley Page and Fielder J. Hiss.—Hot Wire Watt Meters and Oscillographs: J. T. Irwin.

FRIDAY, MAY 24.

ROYAL INSTITUTION, at 9.—Recent Contributions to Electric Wave Telegraphy: Prof. J. A. Fleming, F.R.S.

LINNEAN SOCIETY, at 3.—Anniversary Meeting.

PHYSICAL SOCIETY, at 5.—On the Measurement of Mutual Inductance by the Aid of a Vibration Galvanometer: A. Campbell.—Note on the Rate of Decay of the Active Deposit from Radium: W. Wilson and W. Makower.—Exhibition of Apparatus for Relay Working of Long Submarine Telegraph Cables: S. G. Brown.

MONDAY, MAY 27.

ROYAL GEOGRAPHICAL SOCIETY, at 3.—Anniversary Meeting.

SOCIOLOGICAL SOCIETY, at 8.—Functional Relations of the Family and the City: Dr. W. Leslie Mackenzie.

VICTORIA INSTITUTE, at 4.30.—Mencius: Rev. F. S. Turner.

TUESDAY, MAY 28.

ROYAL INSTITUTION, at 3.—Malaria, Sleeping Sickness, Tick Fever, and Allied Diseases: Prof. G. H. F. Nuttall, F.R.S.

ZOOLOGICAL SOCIETY, at 8.30.

SOCIETY OF ARTS, at 8.—Sheffield Plate and Electro Plate: Sherard Cowper-Coles.

FARADAY SOCIETY, at 7.50.—Annual General Meeting.—At 8.15.—Contributions to the Chemistry of Gold: F. H. Campbell.—Reduction of Oxides, Sulphides, &c., by Means of Metallic Calcium: Dr. F. Mollwo Perkin.—Exhibit of Thermostatic Apparatus: Dr. T. M. Lowry.

WEDNESDAY, MAY 29.

BRITISH ASTRONOMICAL ASSOCIATION, at 5.—Mr. C. Michie Smith on his Work at Kodaikânal.

SOCIETY OF ARTS, at 8.

THURSDAY, MAY 30.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: The Solubility of Air in Fats, and its Relation to Caisson Disease: Dr. H. M. Vernon.—Mitosis in Proliferating Epithelium: Dr. J. O. Wakelin Barrett.—An Experimental Inquiry into the Nature of the Substances in Serum which Influence Phagocytosis: George Dean.—The Correlation of Ovarian and Uterine Functions: E. S. Carmichael and F. H. A. Marshall.

ROYAL INSTITUTION, at 3.—Chemical Progress—Work of Berthelot, Mendeléeff, and Moissan: Sir James Dewar, F.R.S.

SOCIETY OF ARTS, at 4.30.—Irrigation Colonies in India: Laurence Robertson.

FRIDAY, MAY 31.

ROYAL INSTITUTION, at 9.—Recent Journey Across Africa: A. Henry Savage Landor.

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