

of the series is to illustrate, by the history of the work and influence of a few great men of various nationalities, the truth that in the study of the history of science is to be found a strong appeal to the spirit of community among men. It is suggested that this line of study will show that all nations have borne their share in building up the structure of knowledge according to the opportunities and civilisation of the times. Succeeding lectures are as follows:—February 21, Descartes (1596–1650), Prof. H. Wildon Carr; February 28, Newton (1642–1727), Prof. A. R. Forsyth; March 7, Pasteur (1822–1895), Sir D'Arcy Power; March 14, Helmholtz (1821–1893), Sir W. M. Bayliss; March 21 (at University College, Gower Street, W.C.1.), Darwin (1809–1882), Prof. Karl Pearson.

THE annual prize distribution was held at the Sir John Cass Technical Institute on Wednesday, January 31, and the awards were distributed by Sir Thomas Holland. The chairman of the governing body, the Rev. J. F. Marr, in giving a summary of the work of the Institute during the past session, stated that during this period a total of 1073 students had been in attendance—the highest figure yet attained. The year had not been an easy one, for financial considerations were and still are conspicuously in the foreground. The needs of technical education cannot be satisfactorily met without mutual trust and confidence between the public authorities and those administering the funds placed at their disposal, and without a full belief in the national value of technical education. Despite the restricted accommodation in the science departments, 31 students had been engaged in research work and five papers had been published, bringing the total number of original investigations issued from the Institute to 120. For the second year in succession a student of the metallurgy department had been awarded the first prize (Silver Medal) in the City and Guilds of London Institute examination in non-ferrous metallurgy.

THE Attorney-General, Sir Douglas McGarel Hogg, distributed the prizes at the Borough Polytechnic on Friday, February 2. Mr. J. Leonard Spicer, chairman of the governors, referred to the fact that Sir Douglas Hogg's father, Mr. Quintin Hogg, was the founder of the great Polytechnic in Regent Street, and Sir Douglas himself had throughout his life been associated with that Institute. Sir Douglas Hogg, in his address, said with regard to the work of the Institute, that it was not their desire to turn out a number of half-fledged amateurs to compete with the men in the workshops, but by technical instruction to enable those in the workshops to make themselves more efficient and to make greater progress in the industry to which they belonged. The policy of the governors in supplementing the experience of the workshop by trade instruction, and of selecting teachers who themselves had worked in the trades, is undoubtedly sound. The women's side of the Polytechnic is strong, and some of the activities of the Borough Polytechnic are unique in the south-eastern counties of England; the School of Bakery and Confectionery has no parallel, and the Department of Painters' Oils, Colours and Varnishes represents highly specialised and valuable technological departments. The Polytechnic has received valuable assistance from expert trade committees, trades unions, and associations of employers, in order to keep its work closely related to the current needs of industry. Principal Bispham, in his report, stated that both in quality and bulk the work of the past session was a record one and altogether a worthy tribute to the former principal, Mr. C. T. Millis, who has recently retired.

Societies and Academies.

LONDON.

Royal Society, February 8.—L. Bairstow, Miss B. M. Cave, and Miss E. D. Lang: The resistance of a cylinder moving in a viscous fluid. The equations of motion of a viscous fluid in the approximate form proposed by Oseen are taken as a basis for calculations of the resistance of a circular cylinder and the surface friction along a plane. In the case of the circular cylinder experimental information obtained at the N.P.L. is wholly suitable for the purposes of comparison with the present calculations. A resistance coefficient is found which is about 30 per cent. greater than that observed at the limit of the range of observation. Calculations for the plane show singularities at the edges, but lead to a resistance which is in rough agreement with experiment.—G. I. Taylor: The motion of ellipsoidal particles in a viscous fluid. According to Dr. G. B. Jeffery ellipsoidal particles immersed in a moving viscous fluid assume certain definite orientations in relation to the motion of the fluid. Ellipsoidal particles of aluminium and immersed in water glass take up such positions, but they take a long time to get to those positions. In the meanwhile they oscillate in the way indicated in Dr. Jeffery's analysis.—W. E. Dalby: Further researches on the strength of materials. In a new apparatus, an alternating load, push and pull, can be applied to a test piece in such a way that the curves of load and elastic extension are recorded photographically. The yield in tension and compression is found to be substantially the same, and the modulus of elasticity is the same, but alternating load is met by alternating response. When a load of either sign is removed the response is elastic, but imperfectly so. When a load is re-applied, but of opposite sign to the load removed, the response is mainly plastic. By means of a new instrument an alternating torque can be applied to a test piece in such a way that the curves of torque and elastic twist are recorded photographically. This shows that alternating torque is met by an alternating response in shear. It is possible to predict a practical fatigue limit from these diagrams.—Lewis F. Richardson: Theory of the measurement of wind by shooting spheres upward. A steel sphere, about the size of a pea or a cherry, is shot upwards from a gun, which is not rifled. The gun is inclined from the vertical towards the advancing air, and the tilt adjusted by trial until the returning sphere falls very close to the gun. The tilt is then some measure of a weighted average of the wind, in the region extending from the ground up to the maximum height attained. This height is found from the time of absence of the sphere. The observation of the tilt and time is repeated for greater and greater heights in succession. Mathematically speaking, the problem involves a "linear integral equation of the first kind," which is solved approximately by transforming it into a moderate number of algebraic simultaneous equations. In the general part of the theory an approximation which fails at the vertex of the trajectory is made. A special and sufficiently correct theory or a correction to the general theory meets this difficulty.—Ernest Wilson: On the susceptibility of feebly magnetic bodies as affected by tension. When magnetite is subjected to tensile stress of 50–130 kgrm. per sq. cm. as a maximum, the susceptibility for a given value of the magnetic force at first increases and then decreases as the specific load continuously increases, and exhibits a reversal point as in iron. The magnetic force at which the percentage increase in permeability has a maximum value is

less than the magnetic force at which maximum susceptibility occurs.—L. C. Jackson and H. Kamerlingh Onnes: (1) Investigations on the paramagnetic sulphates at low temperatures; (2) Investigations on the paramagnetism of crystals at low temperatures.—W. D. Womersley: The specific heats of air, steam, and carbon dioxide.—D. W. Dye: The valve-maintained tuning fork as a precision time standard. The valve-maintained fork is steady in frequency to a degree beyond that required for most purposes. The most serious cause of variation of frequency is that due to temperature. The temperature must be kept constant to 0.1° C. if accuracy to one part in a hundred thousand is required. By the use of a special steel ("elinvar") having a very small temperature coefficient of elasticity, it is probable that the variation of frequency with temperature could be reduced to one-tenth that of ordinary steel forks. The other factors causing variation of frequency are not themselves variable without attention to an extent which would cause a variation of more than a very few parts in a hundred thousand. By suitably choosing the capacities and the anode voltage, a variation of voltage of ± 10 per cent. will cause a change of only about one part in a million in frequency.

Geological Society, January 24.—Prof. A. C. Seward, president, in the chair.—S. H. Haughton: On reptilian remains from the Karroo beds of East Africa. Three specimens of a small fossil from black shale from the middle of the Karroo formation, near Tanga, on the coast of Tanganyika Territory, represent a new genus and species of aquatic reptile resembling Mesosaurus. It may be regarded as an aquatic adaptation of Youngina. If so, the shale at Tanga is approximately of the same age as the Middle Beaufort beds of South Africa.—Rev. C. Overy: Glacial succession in the Thames catchment-basin. A definitive succession-grouping for high-level gravels of the Thames catchment-basin is established. A norm series with effective nomenclature for the Berkshire-Oxfordshire area is suggested, namely, P₃₅₀, P₃₀₀, P₂₈₅, P₂₃₀, P₂₁₀, P₁₆₀, P₁₃₅. Grading and analysis in the Hampshire and London areas result in the establishment of the norm series for the whole river-system. In this way light is thrown on the age of the Goring Gap, the mode of deposition of the plateau-gravels, glacial succession in the Thames basin, and the bearing of the distribution of drift constituents on the history of the Thames river-system. Evidence is given for the course of the pre-Pleistocene Thames, for the continuity of the Evenlode, Goring Gap, Henley Gorge, Colne-Lea divide, and Essex-coast system.

Physical Society, January 26.—Dr. Alexander Russell in the chair.—C. Chree: A supposed relationship between sunspot frequency and the potential gradient of atmospheric electricity. Dr. L. A. Bauer has concluded that both the range of the diurnal inequality of atmospheric electricity potential gradient and the mean value of the element for the year increase and diminish with sunspot frequency. The conclusion was based on observational data from the Ebro Observatory, Tortosa, Spain, between 1910 and 1920. Kew electrical data from two periods of years, the Ebro data utilised by Dr. Bauer, and magnetic data from Kew Observatory were treated mathematically. The results indicate that if a relationship of the kind exists, the sunspot influence must be very much less in the case of atmospheric electricity than in that of terrestrial magnetism.—J. J. Manley: A further improvement in the Sprengel pump. The pump was described in Proc. Phys. Soc., vol. 34, p. 86. The present improvement provides a mercury seal during

periods when the pump is out of use, whereby the formation of fresh-air skins is prevented.—D. Owen: Null methods of measurement of power factor and effective resistance in alternate current circuits by the quadrant electrometer. The methods are extended to high-tension circuits. The usual formula for the quadrant electrometer is applicable only when the needle is maintained at its mechanical and electrical zero.—C. E. Prince: An electro-capillary relay for wired wireless. The relay is intended for use with a calling device in connexion with high-frequency currents acting as carrier waves for telephony over power-mains. The high-frequency current is rectified and passed through a thread of mercury which is contained in a capillary tube, and is in contact at each end with some acid containing platinum leads. The passage of the current causes the mercury thread to move. The capillary tube is arranged horizontally on a beam which, as soon as the mercury moves, overbalances in consequence of the weight of the latter and closes the circuit of a call bell or lamp. In series with the thread and with a rectifier is arranged a condenser in which the charge that has passed round the circuit is stored, and after the call this charge is sent through the mercury and acid in the reverse direction; this restores the mercury to its original position. If the call be unanswered the same result is produced more slowly by a high-resistance leak. The instrument responds to currents of 4 or 5 or even 2 microamperes. The total movement appears to be proportional to the coulombs which pass.

Linnean Society, February 1.—Dr. A. Smith Woodward, president, in the chair.—Sir Sidney F. Harmer: On Cellularine and other Polyzoa.—Sir Nicholas Yermoloff: Notes on *Chaetoceros* and allied genera, living and fossil. *Chaetoceros* is highly differentiated for pelagic life; it occurs in the planktons of the colder seas, sometimes, especially in spring, in colossal numbers. Some 100 living species have been described, but only 6 or 7 are common in the planktons. The parent cells, each consisting of two valves with a hoop between them, form colonies, holding together by means of long setae; they have thus great floating capacity. Several species develop internal organs, covered with a thick siliceous wall, called statospores, inside the mother-cells. Their function is not known. The mother-cells, or colonies, as such, never appear in any fossil marine deposits, though the spores appear fairly often. The spores of *Chaetoceros* have been taken in the past as separate Diatom genera, and classified and named as such. Fossil spores of *Chaetoceros* are frequent in Miocene diatomaceous earths. The most common form is *Syndendrium Ehr.*, the spore of *Chaetoceros diadema* Gran, which is very common in the planktons.—H. L. Clark: Some echinoderms from West Australia.

CAMBRIDGE.

Philosophical Society, January 22.—Mr. C. T. Heycock, president, in the chair.—Sir Joseph Larmor: (1) The stellate appendages of telescopic and entoptic diffraction. (2) Can gravitation really be absorbed into the frame of space and time? (see NATURE, February 10, p. 200).—H. F. Baker: The representation of a cubic surface upon a quadric surface.—H. Hartridge and F. J. W. Roughton: Measurements of the rate of oxidation and reduction of hæmoglobin. Methods were devised for estimating instantaneously the percentage saturation of hæmoglobin with oxygen, for mixing instantaneously either reduced hæmoglobin with an oxidising agent or oxyhæmoglobin with a reducing agent, and for preparing rapidly the reduced

hæmoglobin solution in large quantities. Oxidation takes place exceedingly rapidly, in approximately one-hundredth part of a second at 10°C ., whereas reduction takes approximately one second. The rate of reduction agrees with the formula deduced on the assumption that the reaction is mono molecular, and the ratio of the rates of the two reactions was of the same order as the value of the equilibrium constant. In the body both changes take place at temperatures considerably higher than those used. They would be expected therefore to be even faster (some ten or twenty times) in the body than in these experiments.—**J. T. Saunders**: A method of measuring the carbon dioxide output of aquatic animals. The method is based on the fact that, from measurements of the hydrogen ion concentration of solutions of bicarbonates of known concentration in equilibrium with carbon dioxide, the tension, and so the amount dissolved, of carbon dioxide can be calculated.—**Miss D. Eyden**: Changes in the specific gravity of *Daphnia pulex* L. *Daphnia pulex* increases in specific gravity immediately after feeding and diminishes after starvation. These changes may account for the vertical movements of forms living in the plankton.

DUBLIN.

Royal Irish Academy, January 22.—Prof. Sydney Young, president, in the chair.—**A. K. Macbeth**: The action of sulphur chloride on ammonia and on organic bases. The action of sulphur chloride on ammonia was examined quantitatively. No sulphur nitride hitherto unknown was isolated, but a new derivative containing sulphur, nitrogen, and hydrogen was described. This compound, which it is proposed to call hexasulphamide, appears to have the composition S_6NH_2 . The action of sulphur chloride on the aromatic amines was examined qualitatively, and the course of the reaction at low temperatures was studied with *o*-toluidine, *N*-dithiotoluidine being isolated.—**T. P. C. Kirkpatrick**: Charles Willoughby, fellow of the King and Queen's College of Physicians. In 1690 Dr. Charles Willoughby wrote a paper dealing with the political economy and vital statistics of Ireland which he sent to William King, then Bishop of Derry. It was published in full in the Proceedings of the Royal Irish Academy in 1857. Recently a letter from King has come to light in which he gives information about the condition of the people in the country, and the difficulties in collecting statistical information. Some letters from Willoughby to King throw an interesting light on medical practice in Dublin at the end of the seventeenth century. While studying medicine in Padua, where he graduated M.D. in March 1663/4, Willoughby made a collection of botanical specimens, which he afterwards presented to Merton College. Willoughby was one of the founders, and was the first director of the Dublin Philosophical Society, and in 1675 he was elected president of the College of Physicians. He died in 1694.

PARIS.

Academy of Sciences, January 22.—**M. Albin Haller**.—**G. Bigourdan**: The co-ordinates of the Observatories of Muette and Passy.—**L. Lecornu**: The orbit of Mercury. A development of a suggestion of M. Haag in a recent note, showing that the displacement of the perihelion of Mercury can be explained by adding to the Newtonian attraction a small tangential force and a small force directed towards the sun.—**L. Maquenne**: Remarks on a recent communication of MM. P. A. Dangeard and Pierre Dangeard. A discussion of some consequences

of the observation that leaves of *Aucuba japonica* suffer no loss of vitality over a period of several months if preserved in a vacuum and exposed to light.—**E. Leclainche** and **H. Vallée**: Vaccination against symptomatic anthrax by toxins. A discussion of the difficulties and limitations attending vaccination by toxins derived from *B. Chauvoei*.—**A. Blondel**: The determination as a function of the initial conditions of the free oscillations of alternators working in parallel and connected individually with motors with theoretical regulation, instantaneous and fixed. Application to synchronous motors.—**A. de Gramont**: Observations on the structure of the chromium spectrum. Directing attention to the recent experimental confirmation by M. Catalan of the theoretical views propounded by the author in November 1922.—**C. Guichard**: Polar figures reciprocal with respect to a sphere.—**A. Guntz** and **Benoit**: The heat of oxidation of the metals of the alkaline earths. A repetition of earlier work with purer material. The heats of oxidation of calcium, strontium, and barium were found to be 152.7, 141.8, and 134.04 calories respectively.—**A. Bigot** and **Mme. E. Jérémine**: New observations on the geology of the Hague (Manche). **M. Philippe Glangeaud** was elected corresponding member for the section of mineralogy in the place of the late Otto Lehmann.—**Erwand Kogbetliantz**: The double means of Cesàro.—**S. Stoilow**: Continued functions and their derivatives.—**C. Kuratowski**: The effective existence of functions representable analytically every Baire class.—**M. Alliaume**: The nomographic resolution of systems of equations.—**H. C. Levinson**: The Einstein gravitation of systems.—**Emile Picard**: Remarks on the preceding communication.—**G. Poivilliers**: A method of stereoscopic representation of topographical surfaces.—**Paul Dienes**: The relativist electromagnetic theory.—**G. Gire**: The dissociation of potassium chloro-iridate.—**Pierre Steiner**: The ultraviolet absorption spectra of the alkaloids of the isoquinoline group. Narcotine, hydrastine, and hydrocotarnine. The ultraviolet absorption spectrum of narcotine is determined by the benzene ring of its molecule; the isoquinoline nucleus only displaces the absorption towards the red end. For papaverine, on the contrary, it is the isoquinoline and not the benzene ring which is the determining factor.—**A. Catalan**: The structure of the arc spectra of molybdenum, selenium, and chromium.—**F. W. Klingstedt**: The ultraviolet spectra of aniline and the toluidines. The results are given in diagram form, and differ considerably from the data obtained by earlier workers in the same field.—**Mlle. Chamié**: The ionisation produced by the hydration of quinine sulphate. A direct connexion between ionisation and the amount of water taken up is proved.—**A. Bouzat**: A class of unstable hydrates known as hydrates of gases. Confirmation of M. Villard's hypothesis. Many gases form hydrates possessing the following properties: their formula is $\text{M} \cdot 6\text{H}_2\text{O}$, they are unstable, formed with a small heat evolution starting with the constituents in the solid state, and on dissociation lose all the six molecules of water at once.—**L. Franchet**: A new industrial material of the neolithic age. An account of the discovery of neolithic agricultural implements made of polished sandstone, at Piscop.—**Pierre Lesage**: The persistence of the characters produced in plants by salt.—**Antonin Némec** and **Kvapil Karel**: The biochemical study of forest soils.—**V. Crémieu**: The growth of plants and the principles of physics.—**L. M. Betancès**: The ageing of the hæmatic cell.—**G. Ramon**: Dissociation of the diphtheria toxin-antitoxin complex and the recuperation of the antitoxin.—**F. Heim**, **E. Agasse-Lafont**, and **A. Feil**: The rôles of lead and turpentine in the professional

pathology of painters. From a comparative study of painters divided into two groups, one using paints containing lead and the other working with lead-free paints, the authors conclude definitely that it is not turpentine but lead and its compounds which are the cause of renal lesions and hypertension in painters.

Official Publications Received.

Abstract-Bulletin of the Nela Research Laboratory, National Lamp Works of General Electric Company, Cleveland, Ohio. Vol. 1, No. 3, October. Pp. ix+303-521. (Cleveland.)

Summary of the Annual Report of the Naval Observatory for the Fiscal Year 1921. (Appendix No. 2 to the Annual Report of the Chief of the Bureau of Navigation.) Pp. 53. (Washington: Government Printing Office.)

Nauka Polska: jej Potrzeby, Organizacja i Rozwój. (Polish Science: its Needs, Organisation and Progress.) III. (Year-Book of the Mianowski Institution for the Promotion of Scientific Research Work.) Pp. vi+250. (Warszawa.) 150 marks.

Report of the Department of Mines for the Fiscal Year ending March 31, 1922. (Sessional Paper No. 15.) Pp. iii+48. (Ottawa.) 5 cents.

Department of the Interior: United States Geological Survey. Mineral Resources of the United States in 1921 (Preliminary Summary). Pp. iv+102A. (Washington: Government Printing Office.)

Crichton Royal Institution, Dumfries. Eighty-third Annual Report, for the Year 1922. Pp. 49. (Dumfries.)

National Museum of Wales. Fifteenth Annual Report (1921-22) presented by the Council to the Court of Governors at a Meeting held in Cardiff on the 27th October 1922. Pp. 35+6 plates. (Cardiff.)

Diary of Societies.

SATURDAY, FEBRUARY 17.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir Ernest Rutherford: Atomic Projectiles and their Properties (1).

MONDAY, FEBRUARY 19.

ROYAL GEOGRAPHICAL SOCIETY (at Lowther Lodge, Kensington Gore), at 5.—Dr. R. L. Sherlock: The Influence of Man as an Agent in Geographical Change.

INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting), at 7.—F. P. Sexton and others: Discussion on Esprit de Corps.

ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.—H. V. Lanchester: Architecture and Architects in India.

ARISTOTELIAN SOCIETY (at University of London Club), at 8.—C. E. M. Joad: The Problem of Freewill in the Light of Recent Developments in Philosophy.

FARADAY SOCIETY (at Chemical Society), at 8.—Prof. A. W. Porter and J. J. Hedges: The Law of Distribution of Particles in Colloidal Suspensions with Special Reference to Perrin's Investigations, Part II.—D. B. McLeod: A Relation between the Viscosity of a Liquid and its Coefficient of Expansion; The Viscosity of Liquid Mixtures showing Maxima; A Relation between Surface Tension and Density.—M. Cook: Crystal Growth in Cadmium.—F. H. Jeffery: Electrolysis with an Aluminium Anode, the Anolyte being (1) Solutions of Sodium Nitrite, (2) Solutions of Potassium Oxalate.—S. D. Muzaffer: Electric Potential of Antimony-Lead Alloys.

ROYAL SOCIETY OF ARTS, at 8.—Dr. H. P. Stevens: The Vulcanisation of Rubber (Cantor Lectures) (3).

TUESDAY, FEBRUARY 20.

ROYAL STATISTICAL SOCIETY (at Royal Society of Arts), at 5.15.—J. Hilton: Statistics of Unemployment derived from the Working of the Unemployment Insurance Acts.

INSTITUTE OF TRANSPORT (at Institution of Electrical Engineers), at 5.30.—F. Bushrod and J. F. S. Tyler: Modernisation of Passenger Railway Stations.

ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—The Secretary: Report on the Additions to the Society's Menagerie during the Month of January 1923.—Prof. H. M. Lefroy: Exhibition of Cinematograph Films of the Housefly.—Dr. N. S. Lucas: Reports on the Deaths which have occurred in the Society's Gardens during 1922.—Prof. E. Lönnberg: Remarks on some Palearctic Bears.—E. W. Shann: The Embryonic Development of the Porbeagle-Shark, *Lamna cornubica*.—R. Gurney: Some Notes on *Leander longirostris*, M. Edwards, and other British Prawns.

INSTITUTION OF CIVIL ENGINEERS, at 6.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN (Scientific and Technical Group), at 7.—A. S. Newman: The Causes of Static Trouble in the Kinematograph, and Means for its Elimination.

ILLUMINATING ENGINEERING SOCIETY (at Royal Society of Arts), at 8.—W. J. Jones, E. A. Marx, Jr., and others: Discussion on the Projection of Light.

ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—P. E. Newberry: The Bebs Sed Festival of Ancient Egypt.

SOCIOLOGICAL SOCIETY (at Royal Society), at 8.15.—Prof. J. A. Thomson: Biological Contributions to Sociology.

WEDNESDAY, FEBRUARY 21.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. A. C. Pearson: Greek Civilisation and To-day (2), Progress in the Arts.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—R. L. Braithwaite: The Flow of Lymph from the Ileo-Caecal Angle and its possible bearing on (1) the formation of Gastric and Duodenal Ulcer, and (2) the cause of other types of Indigestion.

INSTITUTION OF AUTOMOBILE ENGINEERS (at Institution of Mechanical Engineers), at 7.30.—Informal Meeting.

ROYAL METEOROLOGICAL SOCIETY, at 7.30.—Col. E. Gold and others: Discussion on Reform of the Calendar, by C. F. Marvin.—Dr. S. Fujiwara: The Growth and Decay of Vortical Systems.—Dr. S. Fujiwara: The Mechanism of Extratropical Cyclones (Third memoir on Vortical Phenomena).

ROYAL SOCIETY OF ARTS, at 8.—C. Ainsworth Mitchell: Handwriting and its Value as Evidence.

ROYAL MICROSCOPICAL SOCIETY, at 8.—Sir William Maddock Bayliss: Microscopical Staining and Colloids.—A. Mallock: Note on the Resolving Power and Definition of Optical Instruments.

THURSDAY, FEBRUARY 22.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. B. Melville Jones: Recent Experiments in Aerial Surveying (2).

ROYAL SOCIETY, at 4.30.—G. I. Taylor and C. F. Elam: The Distortion of an Aluminium Crystal during a Tensile Test (Bakerian Lecture).

ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Dr. W. G. Savage: Canned Foods in Relation to Health (Milroy Lectures) (1).

INSTITUTION OF STRUCTURAL ENGINEERS, at 7.30.—E. Godfrey: Shear Resistance.

CHEMICAL SOCIETY (at Institution of Mechanical Engineers), at 8.—Principal J. C. Irvine: Some Constitutional Problems of Carbo-hydrate Chemistry.

CAMERA CLUB, at 8.15.—E. R. Ashton: Picturesque India.

FRIDAY, FEBRUARY 23.

ASSOCIATION OF ECONOMIC BIOLOGISTS (in Botanical Theatre, Imperial College of Science and Technology), at 2.30.—Sir John Russell, H. G. Thornton, and others: Discussion on Partial Sterilisation of Soil: Present Views as to its Effects and their Causes.

PHYSICAL SOCIETY OF LONDON, AND RÖNTGEN SOCIETY (at Imperial College of Science and Technology), at 3.—Demonstrations: Major C. E. S. Phillips: A Method of Measuring X-ray Intensity.—E. J. Evans: Intermittent Discharge from Sectorless Winshurst Machine.—L. H. Clark: An X-ray Balance.—H. B. Gough: Ionometer.—W. E. Schall: Spectrometer for Measuring End-radiation.—Dr. F. L. Hopwood: The Onoscope.

EUGENICS EDUCATION SOCIETY (at Royal Society), at 5.—Dr. L. Hogben: Intersexuality and Sex Reversal.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—E. R. Flint: Abnormalities of the Hepatic and Cystic Arteries and Bile Ducts.

PHYSICAL SOCIETY OF LONDON, AND RÖNTGEN SOCIETY (at Imperial College of Science and Technology), at 5.—Discussion on The Measurement of X-rays.—Sir William H. Bragg: Introductory Address.—Prof. S. Russ: The Measurement of X-ray Intensity and the Necessity for an International Method.—F. T. Harlow and E. J. Evans: The Quality of X-rays produced by Various Types of High-tension Generators and an Incandescent X-ray Bulb.—Dr. M. Berry: Practical Measurements for Medical Purposes.—Dr. G. W. C. Kaye and Dr. E. A. Owen: X-ray Protective Materials.

JUNIOR INSTITUTION OF ENGINEERS, at 7.30.—A. J. Tracey: Characteristics, Operation, and Maintenance of Underground Cables.

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. A. S. Eddington: The Interior of a Star.

SATURDAY, FEBRUARY 24.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir Ernest Rutherford: Atomic Projectiles and their Properties (2).

BRITISH PSYCHOLOGICAL SOCIETY (at Bedford College), at 3.—Prof. T. H. Pear: An Examination of some Current Beliefs concerning Muscular Skill.—Miss M. MacFarlane: The Use of Mental Tests in American Schools and Clinics.

PUBLIC LECTURES.

SATURDAY, FEBRUARY 17.

HORNIMAN MUSEUM (Forest Hill), at 3.30.—Dr. F. A. Bather: A Limestone Cliff and the Animals that built it.

MONDAY, FEBRUARY 19.

KING'S COLLEGE, at 5.30.—Dr. W. Brown: Psychology and Psychotherapy (1). (Succeeding Lectures on February 26 and March 5.)

TUESDAY, FEBRUARY 20.

LONDON SCHOOL OF ECONOMICS, at 5.—S. P. Vivian: Statistics, before, during, and after the War: Population.

SCHOOL OF ORIENTAL STUDIES, at 5.—Dr. T. G. Bailey: The Sansis, or Thieves of India; their Language, History, and Customs.

KING'S COLLEGE, at 5.15.—Dr. J. H. Orton: The Bionomics of Marine Animals (1). (Succeeding Lectures on February 22 and February 23).—At 5.30.—Prof. H. Wildon Carr: Physical Causality and Modern Science (1). (Succeeding Lectures on February 27, March 6, 13, 20, and 27).—Prof. A. J. Toynebee: The Expansion of Europe Overland (1). (Succeeding Lectures on February 27, March 6, 13, 20, and 27.)

WEDNESDAY, FEBRUARY 21.

INSTITUTION OF ELECTRICAL ENGINEERS, at 5.15.—Prof. Miles Walker: The Control of the Speed and Power Factor of Induction Motors (1). (Succeeding Lectures on February 26, March 14 and 21.)

KING'S COLLEGE, at 5.30.—Prof. F. Soddy: A Physico-Chemical Theory of the Instability of Western Civilisation.

SATURDAY, FEBRUARY 24.

HORNIMAN MUSEUM (Forest Hill), at 3.30.—S. H. Warren: The Interplay of Land and Sea.