

Societies and Academies.

LONDON.

Royal Society, May 31.—E. Griffiths and G. W. C. Kaye: The measurement of thermal conductivity, No. 1. Three types of apparatus of the "plate" type are described for the rapid precision determination of the thermal conductivities of materials at low conductivity. Energy was supplied by electrical means and temperatures were measured by thermocouples. An average time for the attainment of the "steady state" was 30 minutes or less, and the average accuracy of measurement of the conductivity was about 1 per cent. Among the topics discussed was the thermal resistance at the bounding faces of a material, the effect of superimposing layers of compressible material, the measurement of the thickness of compressible material, the dependence of the conductivity of timber on structure and moisture-content and the variation of the conductivity of rubber with mineral content.—G. W. C. Kaye and J. K. Roberts: The thermal conductivities of metal crystals. I.—Bismuth. A "plate" apparatus measuring thermal conductivities as high as 0.02 C.G.S. with an accuracy of about 1 per cent., using specimens 2 cms. by 1 cm. in area and about 1 or 2 mm. in thickness was used. The conductivities of single crystals of metallic bismuth in directions parallel and perpendicular to the trigonal axis at 18° C. are, in C.G.S. units, 0.0159 and 0.0221. The ratio of conductivities is 1.39. The mean value 0.0191 agrees well with the figure 0.0193 obtained on bars by Jaeger and Diesselhorst in 1899. Thus in the case of bismuth metal in the aggregate, the distribution of the constituent small crystals is random, and the effect on the thermal conductivity of any inter-crystalline layers is not appreciable.—C. V. Drysdale and S. Butterworth: The distribution of the magnetic field and return current round a submarine cable carrying alternating current. Pt. I. (By C. V. Drysdale.) An exact knowledge of the magnetic field distribution in the neighbourhood of a submarine cable is of great importance in connexion with leader gear and the propagation of radio signals between submerged stations. Investigations have been carried out since 1918 at the Admiralty Experimental Stations at Parkeston Quay and Shandon, with the object of determining the magnitude and phase of the magnetic field in and above the surface, and of the return current in the water, as well as the velocity of propagation and attenuation of the electro-magnetic waves in the water and the shielding effect of the cable armouring. Measurements were made with an alternating current potentiometer on horizontal and vertical search coils above and below the surface and on electrodes in the water at frequencies from 50 to 500 periods per second. Pt. II. (By S. Butterworth.) Expressions for the distribution of electric force due to a long cable carrying alternating currents and immersed in a sea of uniform depth have been obtained in the form of Fourier integrals and formulæ have been developed which cover the following cases: (1) The field above the surface of the sea when the depth of the water is small; (2) the field above the sea at large distances from the cable, there being no restriction in regard to depth; (3) the field below the surface of the sea for points vertically above the cable; and (4) the field below the surface of the sea at large distances from the cable when the depth of the sea is great. The results for points above the surface of the sea have been verified by tests in which the sea is replaced by a sheet of lead. The formulæ are in

substantial agreement with actual sea observations.—S. Russ: The effect of X-rays of different wave-lengths upon some animal tissues. Two regions in the X-ray spectrum were selected, and it was arranged that equal doses of X-ray energy were absorbed in their passage through the tissues. In these circumstances more profound effects were produced by the longer wave-lengths (0.45-0.30 Å.U.) than by the shorter wave-lengths (about 0.168 Å.U.), both upon the normal skin of the rat and upon Jensen's rat sarcoma. The degree of this differential action is more pronounced in the case of the skin than it is for the tumour, the numerical values being 6 and 2.6 respectively. These numbers are termed "therapeutic factors."—E. F. Armstrong and T. P. Hilditch: A study of catalytic actions at solid surfaces. Pt. XI.—The action of alumina and certain other oxides in promoting the activity of nickel catalyst. In the absence of any carrier for the nickel, the presence of a small proportion (up to 5 per cent.) of an oxide, such as that of aluminium or magnesium, increases the catalytic activity of the reduced metal. When the nickel oxide is deposited on a support, *e.g.* kieselguhr from which the metallic constituents have been extracted, the catalyst is inferior to that on natural kieselguhr. Its activity is restored if about 20 per cent. of alumina is precipitated with the hydroxide of the nickel. If this proportion of alumina is first deposited on the acid-extracted kieselguhr and the nickel hydroxide or carbonate then precipitated on to this preparation, the catalytic activity of the product generally exceeds that of nickel on the natural kieselguhr. It seems that the action of the non-reducible oxide is mainly mechanical and connected with increase or diminution of the surface area of the exposed nickel.—N. K. Adam: The structure of thin films. Pt. IV.—Benzene derivatives.—A condition of stability in monomolecular films. Derivatives of benzene, such as hexadecyl phenol, containing one long chain and one polar group in the para position, orient on water surfaces like fatty acids, the phenol group forming the head of the molecule in contact with the water. Compounds such as cetyl palmitate, palmitic anilide, etc., which contain one polar group placed between two chains or one chain and a ring, do not adhere to a water surface well enough to give measurable condensed films. The para sulphonic acids in hexadecyl and octadecyl benzene give soap-like solutions in water. Pt. V. Bromine in the α position, in the bromo-acids and esters, increases the cross-section of the molecules in the films. The bromine atom increases the solubility of films of the higher fatty acids. It also lowers the temperature of change from condensed to expanded films; but it does not appreciably affect the properties of the films, when expanded. The double linkage in the α β position relative to the COOC₂H₅ group increases the cross-section of the molecule in the films, as it does in iso-oleic acid.—W. B. Rimmer: The spectrum of ammonia. Of the three bands which are associated with the spectrum of ammonia, the ultra-violet band has already been investigated in detail by Fowler and Gregory, and is represented in the solar spectrum. The "Schuster bands" λ 5635 and λ 5670, have given no sign of resolution under high dispersion, and it is probable that they do not occur in the solar spectrum. The "a band" of Eder and Valenta is of great complexity, consisting of about 3000 lines; there is no conclusive evidence that this band occurs either in the solar spectrum or in the spectrum of sunspots. The Schuster bands seem to have their origin in the normal ammonia molecule and the ultra-violet band is probably due to emission from

a more stable combination of nitrogen and hydrogen. The α band appears to be associated with a combination of nitrogen and hydrogen of intermediate stability. The occurrence of the ultra-violet band alone in the solar spectrum indicates that only the most stable combination of nitrogen and hydrogen can exist under the conditions that obtain in the reversing layer.

Royal Microscopical Society, May 16.—E. J. Sheppard, vice-president, in the chair.—W. M. Ames: Applications of the microscope in the manufacture of rubber. This work falls into two divisions, examination of pigments and examination of micro-sections of rubber, both of which involve special methods. For work on pigments, particularly when investigating particle size, slides should be prepared by the method of Green so as to ensure uniform distribution of the pigment in one plane. The microscope enables relative particle sizes to be determined with certainty. Owing to the great resiliency of rubber, the preparation of sections sufficiently thin to be examined by transmitted light is difficult. Inorganic pigments if present can be identified, and their distribution studied. Certain organic materials such as fibre, reclaimed rubber, glue, and rubber substitute can also be identified. The behaviour of the sulphur formations in the rubber can be observed as the rubber perishes, and a comparison made between natural and artificial (heat) ageing. The variation, with temperature, of the solubility of sulphur in vulcanised and unvulcanised rubber can also be observed. When rubber under strain is examined, vacua are found between the separate units of sulphur formations, and at the poles of crystalline pigments, but have not been detected in the case of gas-black or zinc oxide. Permanent internal deformation is visible in the rubber after retraction.

Geological Society, May 16.—Prof. W. W. Watts, vice-president, in the chair.—W. B. R. King: The Upper Ordovician rocks of the South-Western Berwyn Hills. The district described lies in the south-eastern corner of the 1-inch Ordnance Survey Map, Sheet 136 (Bala). The area is one where the beds strike in a north-easterly and south-westerly direction, with dips nearly vertical. The black graptolitic shale-group is of shallow-water, probably lagoon, origin. The area appears to have been one of shallow water throughout Upper Ordovician times, and actually became land at the end of that period. The gap in the succession occasioned by this uplift was greatest in the south-east, near Welshpool; while the areas on the north (Glyn Ceiriog) and west (Bala) remained under the sea. The shallowing of the water in these areas is, however, manifested by the deposition of either gritty beds or oolitic limestones. A new species of Calymene is described from the upper part of the Ashgillian, where it is taken as a local index-fossil.—W. J. Pugh: The geology of the district around Corris and Aberllefenni (Merioneth). The succession and structure of an area of about 25 square miles, lying south-east of Cader Idris, are described. The area has been surveyed on the scale of 6 inches to the mile. The rocks are partly Lower Silurian and partly Upper Ordovician in age. The Valentian succession is similar to that described at Machynlleth (O. T. Jones and W. J. Pugh, Q.J.G.S. vol. lxxi. (1915-16), p. 343), and the same classification is retained. It is considered to rest conformably upon the Bala series. The general strike, from south-west to north-east, is determined by the fact that the area lies on the south-eastern flank of the Harlech Dome; but the district is crossed by important folds transverse

to the normal strike. These structures have been correlated with those described farther south at Machynlleth.

Aristotelian Society, May 28.—Prof. A. N. Whitehead, president, in the chair.—C. Delisle Burns: The contact of minds. The word "mind" is taken to mean mental process or percipient event, and thus to refer to all such facts as thinking, feeling, and the sensation which accompanies or is part of thinking. It is generally admitted that mental processes are grouped so that they "belong to" distinct persons or selves; but there is also a connexion between these groups of mental processes in co-operation or communication or intercourse between persons. In communication "I" am aware that "you" are thinking, that is to say, I am aware that you are or have a mind; or it may be said that I am aware that an "other" mind exists. The problem to be considered, then, is *how* I come to know that another mind exists. The traditional view is that "I" come to know that other minds exist by a process of inference, based upon a comparison of my "body" with other bodies. This traditional view has already been attacked by Lossky and others. It seems false, first, because it implies a very unlikely description of psychological development. Secondly, at any stage in life the differences between my own body and other bodies in my contemplation are so great that the likeness can scarcely be a valid logical ground for the belief that other minds exist. As an alternative to the traditional view, therefore, it is suggested that Prof. Alexander's term "enjoyment" may provide an explanation of the way in which "other" minds come to be known. But enjoyment must then be taken *not* to imply any process peculiar to "my" thinking or feeling. That is to say, there must be enjoyment of co-operation or communication. As objects are given in contemplation, so other minds are given in another form of awareness. There is, then, direct contact of minds, not "through" bodies or across any bridge which is non-mental. This, however, does not mean that mind is not bodily; since mental process is probably the name for a relation, the terms of which are bodily. We need not assume that mental process is explicable in terms of "body" or that "body" is explicable in terms of mental process: but the contact of minds occurs in one area of reality and the contact of bodies in another, and the two are inseparable, as the force called gravitation is inseparable from "mass."

DUBLIN.

Royal Irish Academy, May 14.—Prof. Sydney Young, president, in the chair.—J. J. Nolan and J. Enright: Experiments on large ions in air. The effects of such substances as sulphur dioxide and ammonia on the development of large ions were investigated. The effect of temperature on the large ions was examined. The large ion is unaffected up to 100° C., but at that temperature begins to break up. The coefficient of recombination between large and small ions was determined. The conditions under which multiple charges on the large ion can occur were investigated. The large ion in the atmosphere has probably a single electronic charge.

EDINBURGH.

Royal Society, May 7.—Prof. F. O. Bower, president, in the chair.—Miss A. V. Douglas: The sizes of particles in certain pelagic deposits. Samples of sea bottom brought back by the *Quest* from the South Atlantic bottoms were examined for the distribution of sizes of particles. The estimation is made by

allowing continuous deposit of the particles from suspension in water upon one pan of a balance and thence ascertaining the rate of deposit and estimating the associated sizes, employing Stokes's law. The result is a measure of relative numbers of particles of each equivalent spherical radius. Six samples are treated, three of diatomaceous ooze, and three of globigerina ooze. The features of the curves showing proportionate distribution of sizes confirm the characters formed by Sven Odén from the *Challenger* specimens.—R. A. **Houstoun** and W. H. **Manson**: Note on a new method of investigating colour blindness. In a previous paper Dr. Houstoun investigated 23 cases of congenital colour blindness and exhibited the results by contour lines on the colour triangle. The same method has been applied to 14 cases of colour blindness induced by disease. The results show that there is no difference in kind between the two classes of cases, and that here also trichromasy passes into monochromasy directly without passing through dichromasy as an intermediate case.—W. **Peddie**: The mechanism behind relativity. The Lorentzian equations of transformation from one reference frame to another were introduced in order that Maxwell's equations of propagation of electromagnetic action should be invariant in form under the transformation. Besides this explicit assumption, there is, further, the implicit postulate of a single unique luminiferous ether through which action is propagated at a constant (or approximately constant) speed. The theory of relativity was originated by the latter postulate as much as by the former. The compulsion to adopt Lorentzian relativity disappears if we postulate instead that each atom of matter is associated with a strain form (in an underlying ether) through which alone it receives light, and that it emits light into the similar strain forms of other atoms. The Michelson-Morley result, the aberrational effect, the Fresnel dragging coefficient, and the Doppler effect, all follow; and only the Newtonian relativity is employed, for light is propagated independently to each observer.—R. A. **Sampson**: On Lorentz's equations and the concepts of motion. This paper is a mathematical examination of the foundations of Lorentz's equations, with special reference to the time paradoxes which it is well known that they imply. As a result a group or family of similar equations emerges, among which Lorentz's form occupies a peculiar place. Other members of the family introduce no paradoxes and are equally competent to explain all the known critical experiments.—J. **Marshall**: The interior and exterior space-time forms of the Poincaré electron in Weyl's geometry. Forms for ds^2 are obtained from Weyl's gauging equation. Assuming $g_{14}=0$, the value of $\phi\mu$ is obtained, and arising from the ds^2 form, a pressure is shown to act inwards on the electron.

PARIS.

Academy of Sciences, May 14.—M. Albin Haller in the chair.—C. **Guichard**: The triple orthogonal systems of M. Bianchi. Application to a problem on reciprocal polars with respect to a sphere.—M. de **Sparre**: Concerning hammering in return mains.—J. L. **Walsh**: A theorem of algebra.—René **Garnier**: Uniform functions of two independent variables defined by the inversion of an algebraic system to total differentials of the fourth order.—Georges **Bouligand**: The singularities of harmonic functions.—H. G. **Evans** and H. E. **Bray**: Poisson's formula and the problem of Dirichlet.—J. **Haag**: The resolution of certain equations of Fredholm by means of an

integral series.—Max **Morand**: The electromagnetic origin of inert mass and heavy mass.—Maurice **Nuyens**: Gravific field due to a massic sphere taking into account the cosmic constant.—Pierre **Steiner**: The ultra-violet absorption spectra of the alkaloids of the isoquinoline group: narceine. The ultra-violet absorption curve of narceine resembles generally that of narcotine and of opianic acid. The curve of hydrocotarnine is different from the preceding. So little as 0.05 milligrams of narceine in 2 c.c. of solvent can be detected spectrographically.—A. **Dauvillier**: High frequency spectrographic researches in the group of the rare earths. The results of a detailed examination of the L series of cerium, neodymium, samarium, europium, and gadolinium.—M. S. **Lambert**: Stereoradioscopy.—F. **Wolfers**: An appearance of reflection of X-rays at the surface of bodies.—Hector **Pêcheux**: The magnetism of steels. An account of measurements made with three steels of varying carbon content. For forged annealed steels the permeability decreases with increase of carbon.—G. **Athanasiu**: The sensibility of photographic plates containing mercury salts. Of the mercury salts studied, the plates with mercuric iodide were the most sensitive, with a maximum in the green, the sensibility decreasing rapidly and uniformly with the wave-length. Curves are given showing the relation between the sensibility and the wave-length for mercuric and mercurous iodides, mercurous bromide, and chloride.—P. **Lafitte**: The formation of the explosive wave. A study of the explosion of carbon bisulphide and oxygen, utilising the photographic method of Mallard and Le Chatelier.—Alfred **Marx** and Jean **Rozières**: The purification of liquids by the simultaneous action of centrifugal force and the electric field. The removal of colloidal matters in suspension from liquids has been attempted by centrifugal force and by electrical fields, but neither method has completely solved the problem on the industrial scale. The use of an electro-centrifugal separator (2700 turns per minute, voltage gradient 4000 volts per centimetre), has proved successful with dirty transformer oil, the breaking down voltage being increased from 19,000 to 31,000 volts. This material remained practically unchanged when rotated at the same speed without an electrical field; the latter, without rotation, also proved ineffective.—Paul **Pascal**: The preparation of sodium metaphosphate at a low temperature. By the interaction of sodium ethylate and ethyl metaphosphate, sodium metaphosphate is produced at a temperature between 35° and 40° C. Its cryoscopic behaviour proves this salt to have the formula NaPO_3 , differing from the polymers previously known. The salt may be heated to 800° C. without polymerisation.—Pastureau and H. **Bernard**: Tetramethylglycerol. The chlorhydrin $(\text{CH}_2)_2 \cdot \text{C}(\text{OH}) \cdot \text{CHCl} \cdot \text{C}(\text{OH})(\text{CH}_3)_2$, the mode of preparation of which has already been described by the authors, on treatment with an aqueous solution of potassium carbonate gives tetramethylglycerol.—Alfred **Gillet**: A verification of the antioxygen power of the polyphenols: relation between the fastness to light of dyes on the fibre and the presence in their molecule of the diphenol function (ortho- or para-). With the exception of pyrazolone dyes and cotton fabrics dyed with a copper mordant, great stability of dyes on fibre is closely related to the presence in the molecule of an *o*- or *p*- diphenol group.—Ph. **Schereschewsky** and Ph. **Wehrle**: The study of clouds by synoptic photography (the cloud week).—J. **Houdas**: The preservation of seeds in inert gases. Certain seeds (such as *Geubera Jamesoni*) lose their germinating power after exposure to air for a few weeks. In sealed tubes in an inert gas (hydrogen or

carbon dioxide) the germinating power of seeds of this plant has been proved to be unchanged after eleven years. The seeds of other plants have given similar results.—L. J. Simon: The determination of carbon in arable soil. The method of wet combustion with silver bichromate is recommended.—J. M. Lahy: The graphical study of the stroke in typewriting. The speed of typewriting is a function of the alternation of the hands. No general rule can be given as to the number of fingers to be used; the touch is personal, and the most favourable mode of working can only be obtained by study of the individual.—Auguste Lumière: The toxicity of autolysates and of tissue extracts.—J. Lopez-Lomba: Changes in weight of the organs of the pigeon in the course of B-avitaminosis. The changes of weight in ten isolated organs of the pigeon fed with a diet deficient in B-vitamins are shown graphically.—Samec and V. Isajević: The composition of glycogen. A comparison of the properties of starch and glycogen. There are various points of difference, the most marked being the higher proportion of phosphorus in the glycogen.—J. Voicu: The effect of humus in small and larger doses on the fixation of nitrogen by *Azobacter chroococcum*.—Alphonse Labbé: The influence of the increasing P_H of sea-water on the rapidity of segmentation of the eggs of *Halosydna* and *Sabellaria*.—Robert Dollfus: The trematode of mother-of-pearl in Provence mussels.—Foveau de Courmelles: The similitude of forms of shock in medicine, their dangerous but avoidable superposition. A discussion of anaphylactic shock produced by X-ray treatment, and means of avoiding it.

CAPE TOWN.

Royal Society of South Africa, April 18.—Dr. A. Ogg, president, in the chair.—C. von Bonde: Note on the Heterosomata (flat-fishes) of South Africa. Some abnormalities are discussed which are occasionally found in pigmentation, scales, etc., of flat-fish generally, and in particular in some new species described.—T. Stewart: Some notes on the drought of 1922–23 on Table Mountain. The first rainfall observations on Table Mountain were begun in January, 1881, when a gauge was placed at a spot called Disa Head, the elevation of which, above the sea-level, is about 2500 feet. Additional gauges were fixed, until by the year 1900 there were eleven in all. The average rainfall for 30 years on the highest portion of the mountain is about 75 inches. The average for the same gauges for 1922 was about 66½ inches, and there were ten years of the 30 when the average was lower. On no previous dry season has the precipitation at Waai Kopje (elevation 3100 feet)—which gives results for 42 years—been so low as it has been for the seven months, September–March, 1923. If the Disa Head station is taken as indicating the conditions at the 2500 feet level, the dry seasons of 1883–84, 1919–20, and 1920–21 were drier than the last one.—J. S. Thomas: The sulphide and hydrosulphide of ammonium. By the action of hydrogen sulphide on alcoholic solutions of ammonia at 0° C., solutions were obtained in which the ratio $[NH_3]/[H_2S]$ approximated to 1; *i.e.* the solution consisted mainly of ammonium hydrosulphide. Ammonia reacts with ammonium hydrosulphide suspended in ether extremely slowly, but on the addition of a small quantity of alcohol a rapid reaction takes place and a heavy yellow oil separates, having the composition $(NH_4)_2S_2NH_3$. This substance is very unstable, and is extremely toxic. When this oil is allowed to stand, transparent cubic crystals separate for which the ratio $[NH_3]/[H_2S]$ was found to be 2. This substance appears to be anhydrous ammonium monosulphide.

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Official Publications Received.

- Annales de l'Institut de Physique du Globe de l'Université de Paris, et du Bureau Central de Magnétisme terrestre. Publiées par les soins de Ch. Maurain. Tome Premier. Pp. 323. (Paris: Les Presses universitaires de France.) 75 francs.
- Scientific Papers of the Bureau of Standards. No. 465: Composition, Purification, and Certain Constants of Ammonia. By E. C. McKelvy and C. S. Taylor. Pp. 655–693. 10 cents. No. 466: Wave Length Measurements in the Arc Spectra of Gadolinium and Dysprosium. By C. C. Kiess. Pp. 695–706. 5 cents. (Washington: Government Printing Office.)
- Annual Report of the Zoological Society of Scotland for the Year ending 31st March 1923. Pp. 24+8 plates. (Edinburgh.)
- Ministry of Public Works, Egypt: Physical Department. Meteorological Report for the Year 1918. Pp. x+136. (Cairo: Government Publications Office.) P.T. 30.
- County Borough of Eastbourne. Annual Report of the Meteorological Observations for the Year 1922. Pp. 24. (Eastbourne.)

Diary of Societies.

- SATURDAY, JUNE 9.
- ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Dr. A. W. Hill: The New Zealand Flora.
- MONDAY, JUNE 11.
- VICTORIA INSTITUTE (at Central Hall, Westminster), at 4.30.—E. W. Maunders: The Two Sources of Knowledge: Revelation and Science (Annual Address).
- TUESDAY, JUNE 12.
- ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Prof. J. B. Leathes: The Role of Fats in Vital Phenomena. (Croonian Lectures (2).)
- ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—R. Broom: The Structure of the Skull in the Carnivorous Dinosaurian Reptiles.—N. A. Mackintosh: The Chondrocranium of the Teleostean Fish *Sebastes marinus*.—R. I. Pocock: The External Characters of Pigmy the Hippopotamus (*Cherapys liberiensis*) and the Suidæ and Camelidæ.—Major E. E. Austen: A Revision of the Family Pantophthalmidæ (Diptera), with Descriptions of new Species and a new Genus.—R. Dart and Dr. C. W. Andrews: The Brain of the Zeuglodontidæ (Cetacea), with a Note on the Skulls from which the Enderonian Casts were taken.—O. Thomas and M. A. G. Hinton: Mammals collected by Capt. Shortridge during the Percy Sladen and Kaffrarian Expedition to Orange River.
- BRITISH PSYCHOLOGICAL SOCIETY (Education Section) (at London Day Training College), at 6.—Dr. P. B. Ballard: The Validity of certain New Methods of Testing.
- QUEKETT MICROSCOPICAL CLUB, at 7.30.—J. Burton: Notes on Fixing, Staining, and Mounting Freshwater Algae.—Secretary: Notes on Mounting and Report of Petrographical Interest on the Deposits sent by Mr. Hamm to the Club.—J. H. Barton: Demonstration of a New Form of Microscope.
- ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—Rev. W. H. Leembrugger: Social Transitions among the Natives of New Georgia, Solomon Islands.
- THURSDAY, JUNE 14.
- ROYAL SOCIETY, at 4.30.—Dr. C. Chree: Magnetic Phenomena in the Region of the South Magnetic Pole.—O. R. Howell: The Catalytic Decomposition of Sodium Hypochlorite by Cobalt Peroxide.—Nina M. Hosali: The Seismic Waves in a Visco-Elastic Earth.—J. W. Landon and H. Quinney: Experiments with the Hopkinson Pressure Bar.—S. F. Grace: Free Motion of a Sphere in a Rotating Liquid at Right Angles to the Axis of Rotation.—B. F. J. Schonland: The Passage of Cathode Rays through Matter.
- ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Prof. J. B. Leathes: The Role of Fats in Vital Phenomena. (Croonian Lectures (3).)
- OPTICAL SOCIETY (at Imperial College of Science and Technology), at 7.30.—S. G. Starling: Levels and Level Bubbles.—T. F. Connolly: A New Form of Balloon Theodolite.—E. W. Taylor: The Primary and Secondary Image Curves formed by a Thin Achromatic Object Glass with the Object Plane at Infinity.
- CHEMICAL SOCIETY, at 8.30.—Prof. C. Moureu: Les gaz rares des sources thermales, des grisons et autres gaz naturels (Lecture).
- ROYAL SOCIETY OF MEDICINE (Neurology Section), at 8.30.—Dr. L. R. Yealand: Hysterical Fits, with some reference to their Treatment.
- FRIDAY, JUNE 15.
- ROYAL SOCIETY OF ARTS (Indian Section), at 4.30.—Sir John H. Marshall: The Influence of Race on Early Indian Art (Sir George Birdwood Lecture).
- ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—Mr. and Mrs. D. E. Batty: A Simplified Method of Printing in the Gum-Bichromate Process (with a Demonstration).
- ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Sir Ernest Rutherford: The Life History of an Alpha Particle from Radium.
- SATURDAY, JUNE 16.
- ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Sir Ernest Rutherford: Atomic Projectiles and their Properties (VI).
- PUBLIC LECTURES.
- MONDAY, JUNE 11.
- UNIVERSITY COLLEGE, at 5.—N. Fryer: Unknown Central Europe.
- TUESDAY, JUNE 12.
- ST. BARTHOLOMEW'S HOSPITAL MEDICAL COLLEGE, at 5.—Dr. A. Balfour: Tropical Hygiene. (Succeeding Lectures on June 14, 19, and 21.)
- WEDNESDAY, JUNE 13.
- UNIVERSITY COLLEGE, at 5.30.—J. C. Gröndahl: Norwegian Literature of the Present Day.
- THURSDAY, JUNE 14.
- ST. MARY'S HOSPITAL (Institute of Pathology and Research), at 4.30.—Prof. G. Dreyer: Some New Principles in Bacterial Immunity and their application to the Treatment of Refractory Infection.