SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 13.—Sir J. J. Thomson, president, in the chair.—L. **Bairstow** and A. **Berry**: Two-dimensional solutions of Poisson's and Laplace's equations. Starting from a theorem stated in Lamb's "Hydrodynamics," problems involving solutions of Poisson's equation are interpreted in terms of the motion of the conventional inviscid fluid of hydrodynamics. The theorem states that the continuous acyclic motion of such a fluid inside or outside a rigid boundary can be reproduced by a system of sources round the boundary in all cases for which the fluid is at rest at infinity. The special point of the present paper is the formation and solution of an integral equation in order to find the strength of the sources. The answer appears as a series of integrals which is convergent in the four illustrations given; proof of convergency in the full mathematical sense is not attempted. The method of solution is applicable to boundaries of any shape and to more than one boundary. The integrals are easily obtained by graphical and mechanical methods.—Dr. G. H. **Thomson**: The cause of hierarchical order among the correlation coefficients of a number of variates taken in pairs. From the tendency towards "hierarchical" order among correlation coefficients in mental tests, the conclusion has in the past been drawn that all these correlations are due to the presence of a general factor, and that none of them are due to group-factors which run through two or more tests, but not through all. Although *perfect* hierarchical order can only be produced in this way, an approximation to perfection can be attained without any general factor by leaving the number and identity of the group and specific factors in each variate to chance. A card experiment is described in which this is done, and specimens of the resulting hierarchies are given. The proof depends on the formulæ of Pearson and Filon for the correlation of errors of correlation.—Dr. G. N. **Watson**: The transmission of electric waves round the earth. From Austin's experimental results it appears that the magnetic force due to a Hertzian oscillator varies as $\operatorname{cosec}\frac{1}{2}\theta \exp.(-A\lambda^{-\frac{1}{2}}\theta)$ at angular distance θ from the oscillator, where λ is the wave-length and, in the case of signals over the sea, the constant A has the value 9·6. It seems impossible to obtain any formula resembling this from a theory of pure diffraction, and it is therefore necessary to examine the hypothesis (put forward by Heaviside and others, and submitted to some analytical treatment by Eccles) that the upper regions of the atmosphere act as a reflector of the waves. It is found that a formula of Austin's type is a consequence of this hypothesis, and that the numerical value of A given by Austin is obtained by assigning suitable values to the conductivity of the reflecting layer and its height above the surface of the earth. The problem of waves over dry land is also considered and the appropriate value of A determined.

Geological Society, February 5.—Mr. G. W. Lamplugh, president, in the chair.—Dr. A. Logie **Du Toit**: The geology of the Marble Delta (Natal). The paper deals with the crystalline dolomitic marbles of Port Shepstone (Natal), rocks that have already been the subject of several communications to the society; but its main object is to demonstrate that certain "boulders" of alkali-granite, formerly regarded as inclusions, are in reality parts of intrusive tongues, and to discuss the mutual relations of the igneous rocks and the adjacent dolomites.

Linnean Society, February 6.—Sir David Prain, president, in the chair.—N. E. **Brown**: (1) A new species of Lobostemon in the Linnean herbarium; (2) Old and new species of Mesembryanthemum, with critical remarks. (1) Mr. C. C. Lacaita, in 1917, being engaged on a critical revision of Echium, directed the author's attention to a sheet written up by Linné as *Echium argenteum*, which upon examination could not be identified with any specimen at Kew or the British Museum, or even in herbaria at the Cape. It is entirely different from *Lobostemon argenteus*, Buek, syn. *Echium argenteum*, Bergius, with which Linné supposed it to be identical. This single specimen, collected at least 147 years ago, does not appear to have been found by any other collectors since that date. The locality given, "montibus nigris," by Linné, is Zwartberg, as confirmed by Governor Tulbagh's list (Proc. L.S., 1917–18, Suppl., p. 10), where it is No. 145—these figures appearing on the sheet itself, and in the list written up as *Echium fruticosum*, a name abandoned before publication. (2) This paper gave the history of the genus Mesembryanthemum from the time of Adrian H. Haworth, between 1794 and 1821, who published four monographs of the genus, described mostly from living plants, cultivated by himself or at Kew. His short descriptions are insufficient for identification, but happily a large number of his species are represented by a series of coloured drawings by George Bond and Thomas Duncanson, two artists employed at Kew between 1822 and 1835 to make drawings of the plants cultivated there. The result is that many hundreds of excellent drawings are in existence at Kew, but unpublished and practically unknown, and the attention of botanists is directed to them, about one-fourth of them being of species of Mesembryanthemum.

Optical Society, February 13.—Prof. F. J. Cheshire, president, in the chair.—Lord **Rayleigh**: The possible disturbance of a range-finder by atmospheric refraction due to the motion of the ship which carries it. It was stated that the suggestion had been put forward that the action of a range-finder adjusted for a quiescent atmosphere may be liable to disturbance when employed upon a ship in motion, as a result of the variable densities in the air due to such motion and the consequent refraction of the light. The question arises as to the direction and magnitude of the effect, and whether or not it would be negligible in practice. This question was treated mathematically in the paper.—L. C. **Martin** and Mrs. C. H. **Griffiths**: Deposits on glass surfaces in instruments. The first section of the paper contained a summary of the various phenomena that have been described under the name of "film." In instruments deposits occur most frequently on the graticules, and a discussion is given as to the probable action of the lubricants in bringing about the formation of the deposit. The qualities desirable in a lubricant to be used on optical instruments are also enumerated, and a brief summary is made of the results of hitherto published information on the subject of the deposits. The second section gives a short classification of the deposits according to their microscopic appearance, and describes a series of experiments made to test the cause of the formation of the deposit. The experiments were conducted by means of brass cells into which graticule blanks were fitted as windows, these glass surfaces being examined microscopically during the course of the experiments.

Royal Meteorological Society, February 19.—Sir Napier Shaw, president, in the chair.—Dr. S. **Chapman**: The lunar tide in the earth's atmosphere. The lunar tidal variation of barometric pressure has been well determined at Batavia, from fifty years' hourly record, and from shorter series of data, extending over about five years in each case at St.

Helena, Singapore, Rome, and Samoa. As very little was known about its dependence on latitude, season, and the distance, declination, and phase of the moon, a new and detailed discussion has been made of thirty and twenty-eight years' records of barometric pressure at Batavia and Hong Kong respectively. The results are described in this paper, and considered alongside the pre-existing values from the stations above-named, together with the Greenwich determination recently published in the Quarterly Journal of the society. It appears that the amplitude varies approximately as the fourth power of the cosine of the latitude, while the phase varies somewhat irregularly from 33° (Samoa) to 114° (Greenwich), where 90° corresponds with the occurrence of maximum pressure when the moon is on the meridian. No dependence on lunar phase or declination was detected, while as regards the moon's distance, an increase of amplitude from apogee to perigee was observable, though less than the increase in the tide-producing force. Distinct evidence of a seasonal variation of amplitude and phase was shown by both the Hong Kong and Batavia determinations. The conclusion drawn from the various results is that the lunar atmospheric tide is not a simple tidal phenomenon, but is complicated by other effects, notably by resonance with an adjacent free period of vibration of the atmosphere, and possibly also by more local causes, such as the rise and fall of the ocean.—M. **Christy**: The gunfire on the Continent during 1918: its audibility at Chignal St. James, near Chelmsford. Observations on the audibility of the Continental gunfire have been made by the author for four years. The results for previous years were brought forward in earlier papers. In 1918 the first sounds were heard on the evening of May 8 and the last on August 26, thus confirming previous experience that there is audibility at the writer's post of observation in Essex only during the summer months. The period of audibility in 1918 amounted to 15 weeks, 5 days. In previous years the periods were: 1915, 17 weeks, 3 days; 1916, 15 weeks; 1917, 19 weeks, 4 days. The average for the four years is 17 weeks. A feature of 1918 was that the sounds were less loud and distinct than in previous years, and there were none of the periods of extreme loudness which had been noticed before.

SHEFFIELD.

Society of Glass Technology, February 19.—Mr. J. Connolly in the chair.—J. D. **Cauwood**, Constance **Muirhead**, and W. E. S. **Turner**: The properties of the lime-soda glasses: (2) The resistance to water and other reagents. Several glasses had been melted on a small scale, and the lime content increased by definite amounts. The resistance of each glass to the following reagents—water, caustic soda solution, sodium carbonate solution, hydrochloric acid—had been tested. In every case it was found that increasing the lime content brought about increasing resistance.—S. **English** and W. E. S. **Turner**: The properties of the lime-soda glasses: (3) The thermal expansions. The same series of glasses mentioned above (*i.e.* lime contents increasing to 10 per cent.) had been tested in regard to thermal expansion. It had been proved that the expansion decreased as the lime content increased. Both papers proved the value of lime as a constituent of ordinary glasses.—Prof. P. H. **Boswell**: Impressions of the glass industry of the United States gathered on a recent visit. The author dealt first with the supplies of raw materials as found in the States. Six sands were in general use; one of them, a beautiful sand from Rockwood, Detroit, was used exclusively for optical glass. The American "sands" are not found as such, but in the form of sandstone (fairly soft). This is blasted, washed by water, under pressure, into the bottom of the pit, whence it is dredged up to the top of the pit. It is emptied into concrete bins, and works down through steam pipes until it emerges as dry, clean-running sand. Prof. Boswell afterwards dealt briefly with American supplies of potash and felspar, and then passed on to the question of refractories. He showed a specimen of a glasshouse pot which had been developed by Dr. Bleininger, and this pot, after the melt had been performed, was perfectly white in colour and very close in texture. In making their pots the Americans were substituting Cornish kaolin by kaolin from Georgia, and using ball-clays from Tennessee and Kentucky in place of those from Devon and Cornwall.

PARIS.

Academy of Sciences, February 10.—M. Léon Guignard in the chair.—The president announced the death of Jean Jacques Théophile Schlœsing, member of the section of rural economy and the oldest member of the Academy.—A. **Lacroix**: Dacites and dacitoides, with reference to the lavas of Martinique. The name dacitoide is proposed for a class of mineral hitherto classified as andesites and allied to dacites. Twelve complete analyses of Martinique minerals are given and discussed from the point of view of this new classification.—J. **Bergonié**: The reconstitution of isolated muscles or of muscular groups by intensive rhythmic faradisation. The method has special reference to the treatment of wounded men; it causes no nervous fatigue, and for the greater part of the time of application is not felt. The improvement in many directions is marked.—M. Jean Effront was elected a correspondant for the section of rural economy in succession to M. Leclainche, elected member of the section. L. **Roy**: The dynamical resistance of steel.—A. **Sanfourche**: The oxidation of nitric oxide by dry air. The rate of oxidation of nitric oxide was studied over a range of temperatures from −50° C. to 450° C. The first stage of oxidation, to nitrous anhydride, is very rapid, and is unaffected by temperature. The oxidation of nitrous anhydride to nitrogen peroxide is a reversible reaction, takes an appreciable time, and the rate is dependent on the temperature if above 200° C.—L. **Joleaud**: The migrations at the neogene epoch of Hipparion, Hippotraginæ, and Tragelaphinæ.—M. **Rouch**: The land and sea breezes at Bayonne.—M. **Mirande**: The microchemical reactions and localisations of the alkaloid of *Isopyrum thalictroides*.—J. **Pantel**: The *rôle* of calcium in the mineralisation of the nucleus of the excreting cells in the Phasmides.—R. **Fosse**: The formation, by oxidation of organic substances, of an intermediate term spontaneously producing urea. Proteins and amino-acids, oxidised by potassium permanganate by Béchamp's method, give appreciable proportions of urea, and the amounts are increased if ammonia is present. The urea formed is separated and estimated by the xanthydrol method previously described by the author.—Em. **Bourquelot** and M. **Bridel**: The biochemical synthesis, with the aid of emulsin, of the β-glucoside of α-naphthyl alcohol.—E. **Debains** and E. **Nicolas**: The causes of death in horses immunised with dead bacteria or bacterial extracts.

MELBOURNE.

Royal Society of Victoria, November 7, 1918.—Mr. J. A. Kershaw, president, in the chair.—R. T. **Patton**: Notes on fossil Eucalypt leaves from the Tertiary at Bulla. Dr. E. F. J. **Love**: The real significance of the

Michelson-Morley experiment.—Prof. A. J. **Ewart**: (1) Contributions to the flora of Australia. No. 27. (2) The synthesis of sugars from formaldehyde. A detailed account was given of the polymerising action of various alkalis on formaldehyde, and also of the influence of temperature, dilution, etc. In the presence of a calcium salt the polymerising action of sodium hydrate is greatly increased, and evidence is brought forward to show that the polymerising action is analogous to that of a condensing enzyme.

December 12, 1918.—Mr. J. A. Kershaw, president, in the chair.—F. **Chapman**: New or little-known fossils in the National Museum. Part xxiii.: Some Hydroid remains of Lower Palæozoic age from Monegetta, near Lancefield. These are well-preserved specimens, and are referred to the order Calyptoblastea. Two new genera and four new species are described. The genera represented are Mastigograptus, Ruedemann, Archæolafoëa, gen. nov., and Archæocryptolaria, gen. nov. Gonothecæ appear to be present in three of the forms. The horizon is the lowest in the Ordovician.—R. T. **Patton**: The structure, growth, and treatment of some common hardwoods. Attention was directed to the core-wood of some hardwoods which are soft and sappy, such as is shown by timber grown in excessive shade, the result of overcrowding whilst young. The author showed that there was no advantage in stacking timber on end, and gave the rates of drying of timber cut in various ways. The electrical resistance of a piece of timber determined whether it was properly seasoned. Estimates of the growth and timber yield of mountain ash and Messmate were explained in the form of curves, from which the forest yield at various ages could be predicted.—J. T. **Jutson**: The sand-ridges, sand-plains, and sand-glaciers at Comet Vale, in sub-arid Western Australia. The physical features of Comet Vale, sixty miles north of Kalgoorlie, include a portion of a "dry lake" (Lake Goongarrie), and a belt of rocky "high" lands on its western shore composed of ferruginous laterite and "greenstones," and dissected by narrow valleys. North, north-west, and east are extensive sand-plains with ridges trending east and west. Immediately to the west of the "high" lands a sand-plain slopes gently to the west. The sand drifts eastward through some "passes" in a laterite ridge (the western end of the "high" land area) and spreads out as "sand-glaciers," according to the term used by Free. The sand forming the smooth sand-plain and glaciers is wind-borne. This will probably explain the origin of extensive sand-plains elsewhere in Western Australia. The eastward march of the sands has blotted out the drainage lines to the west of the "high" lands.—Dr. C. **Mackenzie** and W. J. **Owen**: Note on the parathymus gland in the marsupial. Three glands new to science in the Platypus have lately been described by the authors. One of these, the parathymus, has since been described by them in the Tasmanian Devil, in which it is larger than in the Platypus.—N. C. B. **Allen** and Prof. T. H. **Laby**: The sensitivity of photographic plates to X-rays.

SYDNEY.

Linnean Society of New South Wales, September 25, 1918.—Prof. H. G. Chapman, president, in the chair.—Prof. W. N. **Benson**: The geology and petrology of the Great Serpentine Belt of New South Wales. Part viii.: The extension of the Great Serpentine Belt from the Nundle district to the coast.—G. I. **Playfair**: New and rare fresh-water Algæ. Sixty-six new forms are described and figured, twenty-eight being admitted to specific rank, twenty-nine classed as variations, and nine as forms; one genus is proposed as new.—Dr. J. **Shirley** and C. A. **Lambert**: The stems of climbing plants. Abnormal stem-structures in climbing plants have for their object the free flow of elaborated sap in the bast-tissues. Seven classes of Dicotyledons and two of Monocotyledons are proposed, based on the arrangement of the tissues concerned.—Dr. V. F. **Brotherus** and the Rev. W. W. **Watts**: The mosses of North Queensland. Being essentially Malaysian, rather than Australian, in their affinities, the number of new species was smaller than was anticipated. Seventeen genera new to Australia are listed, and some thirty known species. One genus and fourteen species are described as new.—Dr. R. J. **Tillyard**: Mesozoic insects of Queensland. Part iv. Hemiptera Heteroptera: the family Dunstaniidæ. With a note on the origin of the Heteroptera. Originally described in 1916 as a Lepidopteron by the author, the fossil *Dunstania pulchra* has created considerable interest and discussion. This paper, first of all, gives an account of the various suggestions that have been put forward as to its true affinity, and shows that opinions have favoured its relationship with no fewer than four orders (Lepidoptera, Homoptera, Diptera, and Plectoptera). Having definitely rejected all these, the author only found the true solution from the study of more recently discovered material from the same Upper Triassic beds at Ipswich, Queensland. These prove that the family Dunstaniidæ belongs to the Hemiptera Heteroptera. The new material is described and placed in two new genera, Dunstaniopsis and Paradunstania, each containing a single new species. The venation is worked out by comparison with the nymphal tracheation of a recent Heteropteron (Syromastes sp.). Finally, in considering the origin of the Heteroptera, the author shows that the Dunstaniidæ are closely related to the Permian fossil Prosbole, placed by Handlirsch in a separate order, Palæohemiptera. This order is considered to be only a sub-order within the Hemiptera; and the Dunstaniidæ, which are true Heteroptera, are derived from the immediate ancestors of Prosbole, not from Prosbole itself.

Royal Society of New South Wales, December 4, 1918.—Mr. W. S. Dun, president, in the chair.—Marguerite **Henry**: Some Australian Cladocera. The fresh-water Crustacea dealt with in this paper were collected at Kendall, Cumbalum, Casino, and Byron Bay on the north coast; in the neighbourhood of Sydney; and at the Lett River, Blue Mountains, Port Stephens, Bathurst, Mudgee, and Corowa. Twenty-six species were found, of which nine are described as new.—J. H. **Maiden**: Notes on Eucalyptus (with descriptions of two new species in co-operation with Mr. R. H. Cambage). No. vi. One of the two new species described is a Box from just south of the Gulf of Carpentaria, the other a Stringybark from the Blue Mountains, long confused with *E. capitellata* originally described from Port Jackson. The Flooded Gum of the coastal districts is proposed to be raised to the rank of a species, following an almost forgotten suggestion of Mr. Walter Hill, of Brisbane, made many years ago. It is suggested that Müller's abandoned name for the morrel-tree of Western Australia should be revived, and a remarkable variety of *E. pyriformis* is described from the interior of that State. The paper contains a number of critical notes in regard to the distribution and morphology of Australian gum-trees.—Dr. T. H. **Johnston** and Miss M. **Bancroft**: Some new sporozoon parasites of Queensland fresh-water fish. On various occasions there have broken out in western Queensland serious epidemics amongst the fresh-water fish, resulting in their wholesale destruction, and, as a result, pollution of the water supply has taken place. The authors have investigated the outbreak in order to determine its cause. They have been engaged in field work, and in the course of their inquiry came across a number of minute protozoon parasites of

fishes. These tiny parasites form cysts in various organs of the body, particularly in the gills. They do not seem to have any marked detrimental effect on their hosts. The parasites are distributed amongst five distinct genera, all belonging to the Sporozoa. Of these five genera only one had been previously recorded from Australia.—H. G. **Smith**: The occurrence of the terpene terpinene in the oil of *Eucalyptus megacarpa*. This somewhat rare terpene has not previously been detected in eucalyptus oils. The oil of this species consists principally of terpenes with about 30 per cent. of cineol (eucalyptol) and a small quantity of the esters geranylacetate and butylbutyrate. The characteristic terpinenenitrosite, m.p. 155° C., was prepared without difficulty. It is interesting that terpinene should occur in a species belonging to the earlier portion of the genus Eucalyptus and in Western Australia, while the corresponding terpene phellandrene is found in the oils of the more recent species growing in the south-eastern portion of the continent.

BOOKS RECEIVED

The Drift to Revolution. (Papers for the Present. Third series. No. 9.) Pp. 52+iv. (London: Headley Bros., Ltd., 1919.) 1*s*.

The Strawberry in North America: History, Origin, Botany, and Breeding. By Prof. S. W. Fletcher. Pp. xiv+234. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1917.) 8*s*. net.

Le Nubi. By Luigi Taffara. Parte prima. Pp. 67. Parte ii., Atlante (plates). Tav. xxvi. (Roma: Tipografia Ditto L. Cecchini, 1917.)

Joys of the Open Air. By William Graveson. Pp. 115. (London: Headley Bros., Ltd., n.d.) 3*s*. 6*d*. net.

America at School and at Work. By Rev. Dr. H. B. Gray. Pp. xx+172. (London: Nisbet and Co., Ltd., 1918.) 5*s*. net.

The Spiritual Foundations of Reconstruction: A Plea for New Educational Methods. By Dr. F. H. Hayward and Arnold Freeman. Pp. lxi+223. (London: P. S. King and Son, Ltd., 1919.) 10*s*. 6*d*. net.

Dynamics. Part ii. By R. C. Fawdry. (Bell's Mathematical Series.) Pp. viii+179–355+vii. (London: G. Bell and Sons, Ltd., 1919.) 2*s*. 6*d*.

The A B C of Aviation. By Capt. V. W. Pagé. Pp. xii+13–274+7 plates. (New York: The Norman W. Henley Publishing Co.; London: Crosby Lockwood and Son, 1918.) 12*s*. 6*d*.

Standard Tables and Equations in Radio-telegraphy. By Bertram Hoyle. Pp. xiv+159. (London: The Wireless Press, Ltd., 1919.) 9*s*. net.

DIARY OF SOCIETIES.

THURSDAY, FEBRUARY 27.

ROYAL INSTITUTION, at 3.—Prof. H. M. Lefroy: How Silk is Grown and Made.

ROYAL SOCIETY, at 4.30.—Hon. R. J. Strutt: Scattering of Light by Solid Substances.—Sir James Dobbie and Dr. J. J. Fox: The Constitution of Sulphur Vapour.—Dr. W. G. Duffield, T. H. Burnham, and A. H. Davis: The Pressure upon the Poles of the Electric Arc.

CHILD-STUDY SOCIETY, at 6.—Dr. P. B. Ballard: The Claim of the Individual Child.

INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Dr. S. F. Barclay and Dr. S. P. Smith: The Determination of the Efficiency of the Turbo-alternator.

FRIDAY, FEBRUARY 28.

PHYSICAL SOCIETY, at 5.—Philip R. Coursey: Simplified Inductance Calculations, with Special Reference to Thick Coils.—Dr. Ralph Dunstan: Demonstration of Some Acoustic Experiments in Connection with Whistles and Flutes.—G. A. Brodsky: Demonstration of a New Polariser.

ROYAL INSTITUTION, at 5.30.—Sir Oliver Lodge: Ether and Matter.

SATURDAY, MARCH 1.

ROYAL INSTITUTION, at 3.—Hon. J. W. Fortescue: The Empire's Share in England's Wars—Eastern Europe.

MONDAY, MARCH 3.

VICTORIA INSTITUTE, at 4.30.—M. J. Rendall: The Vocation of a Teacher.

ARISTOTELIAN SOCIETY, at 8.—Mrs. N. A. Duddington: Our Knowledge of Other Minds.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—*Adjourned Discussion*: A. R. Ling: Refractometry and its Applications in Technical Analysis.—*Papers*: F. Esling: Notes on the Setting Time of Portland Cement.—Dr. G. H. J. Colman and E. W. Yeoman: The Determination of Benzol, Toluene, etc., in Coal Tar and similar Products.—Dr. P. E. Spielmann and F. Butler Jones: Estimation of Carbon Disulphide. A Critical Examination of the Various Methods usually employed.

TUESDAY, MARCH 4.

ROYAL INSTITUTION, at 3.—Prof. H. Maxwell Lefroy: How Silk is Grown and Made—Mulberry Silk.

ROYAL SOCIETY OF ARTS, at 4.30.—Prof. J. C. McLennan: Science and Industry in Canada.

ZOOLOGICAL SOCIETY, at 5.30.—Dr. J. A. Murray: Report on the Deaths in the Gardens during the Year 1918.—G. A. Boulenger: A Collection of Fishes from Lake Tanganyika, with Descriptions of Three New Species.—Miss Joan B. Procter: The Skull and Affinities of *Rana [illegible] igillata*, A. Dum.

WEDNESDAY, MARCH 5.

ROYAL SOCIETY OF ARTS, at 4.30.—B. D. Porritt: The Rubber Industry—Past and Present.

GEOLOGICAL SOCIETY, at 5.30.—Col. T. W. Edgeworth David: Geology at the Western Front.

ROYAL AERONAUTICAL SOCIETY, at 8.—Capt. A. P. Thurston: The All Steel Aeroplane.

THURSDAY, MARCH 6.

ROYAL SOCIETY OF ARTS, at 4.30.—W. R. Gourlay: The Need for a History of Bengal.

INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—G. L. Addenbrooke: Dielectrics in Electric Fields.

CHILD-STUDY SOCIETY, at 6.—Miss S. Walker: The Training of Teachers from the Child Study Standpoint.

CHEMICAL SOCIETY, at 8.—Prof. J. W. Nicholson: Emission Spectra and Atomic Structure.

FRIDAY, MARCH 7.

ROYAL INSTITUTION, at 5.30.—Prof. H. C. H. Carpenter: The Hardening of Steel.

SATURDAY, MARCH 8.

ROYAL INSTITUTION, at 3.—Sir J. J. Thomson: Spectrum Analysis and Application to Atomic Structure.

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