

rheumatism.—M. H. Lechappe gave further details of his apparatus for producing acetylene.—On an instrument for indicating ascending or descending movements in aerostats, by M. Aug. Coret.—New nebule discovered at the Observatory of Paris, by M. G. Bigourdan.—Observations of the Perrine comet (1896, December 8) made at the Toulouse Observatory with the Brunner equatorial, by M. F. Rossard.—On the first integrals of differential systems, by M. P. Painlevé.—On the poles of uniform functions of several independent variables, by M. Antonne.—On Taylor's series, by M. Eugène Fabry.—On the integration of the equation $d^2u/dt^2 = d^2u/dx^2 - u$, by M. Le Roux. The law of transparency of gases for the X-rays, by M. L. Benoist. Experiments on sulphurous acid, methyl chloride, and air show that the absorption is proportional to the density of the gas employed.—On the velocity of reduction of chromic acid by phosphorous acid, by M. G. Viard. The velocity of the reaction is given by $dx/dt = K(A - x)^{1/2}$, where x is the quantity of chromic acid reduced at the time t and A the initial quantity.—Action of hydrogen sulphide and hydrogen selenide upon phosphoryl trichloride, by M. A. Besson. With hydrogen sulphide in the cold the oxysulphide $P_2O_3S_3$ is formed in small quantity; at 100° the oxychlorosulphide $P_2O_3S_2Cl_4$ is also found. The latter forms a colourless liquid distilling at 104° under a pressure of 10 mm. of mercury. Dry hydrogen selenide with excess of phosphoryl chloride gives HCl , P_2Se_5 , and an oily liquid which gives with water metaphosphoric and hydrochloric acids.—On some salts and some derivatives of dinitro-orthocresol, by M. P. Cazeneuve. The potassium, ammonium, barium and calcium salts are described, also the acetyl and amido-derivatives.—Action of ethoxalyl chloride upon pseudocumene and mesitylene, by M. E. Bouveault. The reactions were carried out in presence of aluminium chloride, and follow the normal course.—On the diminution of the nitrogenous material in wheat from the department of the Nord, by M. Ballard.—On the influence of the section of the spinal medulla, in the cervical region, upon the repletion of the heart paralysed by electrification, by MM. J. L. Prevost and C. Radzikowski.—Influence of temperature and food upon the respiratory quotient of the moulds, by M. C. Gerber. The spores of *Sterigmatozystis nigra* were cultivated in Raulin's fluid, in which the only organic substance present was tartaric, malic, or citric acids, either alone or with saccharose in the proportions met with in fruit. The ratios of $CO_2 : O_2$ found were, 1.68 for citric acid, 1.76 for malic acid, and 2.47 for tartaric acid. The results are parallel to those obtained from fruits.

DIARY OF SOCIETIES.

THURSDAY, JANUARY 28.

ROYAL SOCIETY, at 4.30.—On the Capacity and Residual Charge of Dielectrics as affected by Temperature and Time: Dr. J. Hopkinson, F.R.S., and E. Wilson.—On the Electrical Resistivity of Electrolytic Bismuth at Low Temperatures and in Magnetic Fields: Prof. Dewar, F.R.S., and Prof. Fleming, F.R.S.—On the Selective Conductivity exhibited by certain Polarising Substances: Prof. J. C. Bose.

ROYAL INSTITUTION, at 3.—Some Secrets of Crystals: Prof. H. A. Miers, F.R.S.

SOCIETY OF ARTS, at 8.—The Mechanical Production of Cold: Prof. James A. Ewing, F.R.S.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Electrical Interlocking, the Block, and Mechanical Signals on Railways: F. T. Hollins.

FRIDAY, JANUARY 29.

ROYAL INSTITUTION, at 9.—The Polarisation of the Electric Ray: Prof. J. C. Bose.

INSTITUTION OF CIVIL ENGINEERS, at 8.—An Experimental Investigation of the Efficiency of a Pelton Waterwheel: S. Henry Barraclough.

SUNDAY, JANUARY 31.

SUNDAY LECTURE SOCIETY, at 4.—Ancient and Modern Views of Fire: Dr. C. W. Kimmins.

MONDAY, FEBRUARY 1.

SOCIETY OF ARTS, at 8.—Material and Design in Pottery: Wm. Burton.

SOCIETY OF CHEMICAL INDUSTRY, at 8.

VICTORIA INSTITUTE, at 4.30.—Paper by Dr. J. D. Macdonald, F.R.S.

TUESDAY, FEBRUARY 2.

ROYAL INSTITUTION, at 3.—Animal Electricity: Prof. A. D. Waller, F.R.S.

ZOOLOGICAL SOCIETY, at 8.30.—General Account of his Expedition to the North Pacific: G. E. H. Barrett-Hamilton.—A Catalogue of the Reptiles and Batrachians of Celebes, with special reference to the Collections made by Drs. P. and F. Sarasin in 1893-96: G. A. Boulenger, F.R.S.—Further Contributions to the Knowledge of the Phytophagous Coleoptera of Africa, including Madagascar: Martin Jacoby.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Diversion of the Periyar: Colonel J. Pennycook, R.E.—Cold Storage at the London and Indian Docks: H. F. Donaldson.

MINERALOGICAL SOCIETY, at 8.—On Altaite from Burma: Prof. Henry Louis.—On Nematite from Afghanistan: F. R. Mallet.—Chemical Analysis of Derbyllite: G. T. Prior.—Homogeneous Structures and Circular Polarisation: William Barlow.

WEDNESDAY, FEBRUARY 3.

GEOLOGICAL SOCIETY, at 8.—The Sub-genera *Petalograpthus* and *Cephalograpthus*: Miss G. L. Elles.—On some Superficial Deposits in Cutch: Rev. J. F. Blake.—Coal—A New Explanation of its Formation or the Phenomena of a New Fossil Plant considered with reference to the Origin, Composition, and Formation of Coal Beds: W. S. Gresley.

ENTOMOLOGICAL SOCIETY, at 8.—On Obscure and Little-known Microlepidoptera from the Collection of Mr. J. B. Hodgkinson: Mr. Tutt.—Seasonal Dimorphism in African Butterflies: Dr. A. G. Butler.

SOCIETY OF PUBLIC ANALYSTS, at 8.—The Composition of Meat Extracts and similar Products: Otto Hehner.—The Distillation of Formaldehyde from Aqueous Solution: Norman Leonard, Harry M. Smith, and H. Droop Richmond.—Some Analyses of Water from an Oyster Fishery; Remarks on Formaldehyde: Charles E. Cassal.

THURSDAY, FEBRUARY 4.

ROYAL SOCIETY, at 4.30.—The following Papers will probably be read:—On the Condition in which Fats are absorbed from the Intestine: B. Moore and D. P. Rockwood.—The Gaseous Constituents of certain Mineral Substances and Natural Waters: Prof. W. Ramsay, F.R.S., and Morris W. Travers.—Some Experiments on Helium: Morris W. Travers.—On the Gases enclosed in Crystalline Rocks and Minerals: Prof. W. A. Tilden, F.R.S.—On Lunar Periodicities in Earthquake Frequency: Prof. C. G. Knott.

ROYAL INSTITUTION, at 3.—Some Secrets of Crystals: Prof. H. A. Miers, F.R.S.

SOCIETY OF ARTS, at 8.—The Mechanical Production of Cold: Prof. James A. Ewing, F.R.S.

LINNEAN SOCIETY, at 8.—A Revision of the Tribe Naucleæ (Nat. Ord. Rubiaciæ): Dr. G. D. Haviland.—A Contribution to the History of New Zealand Echinoderms: H. Farquhar.

CHEMICAL SOCIETY, at 8.—The Oxidation of Nitrogen: Lord Rayleigh.—Researches in the Stilbene Series, I.: Dr. J. J. Sudborough.—Diortho-substituted Benzoic Acids, III.; Hydrolysis of Substituted Benzamides: Dr. J. J. Sudborough, Percy G. Jackson, L. L. Lloyd.—Apparatus for Steam Distillation: Dr. F. E. Matthews.—Oxidation of Sulphurous Acid by Potassium Permanganate: T. S. Dymond, F. Hughes.

INSTITUTION OF MECHANICAL ENGINEERS, at 7.30.—Fourth Report to the Alloy Research Committee: Prof. W. C. Robert-Austen, C.B., F.R.S.

CAMERA CLUB, at 8.15.—Flying Machines and Automatic Guns: Hiram Maxim.

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