

Societies and Academies.

PARIS.

Academy of Sciences, April 10.—M. Emile Bertin in the chair.—E. Borel: Arithmetical definition of a distribution of masses extending to infinity and quasi-periodic, with average density zero.—I. Fredholm: An application of the theory of integral equations.—J. Andrade: The mechanical problems of regulating springs.—P. Vuillemin: A new species of *Syncephalastrum*: the affinities of this genus.—E. Vessiot: The conformal geometry of systems of circles.—M. Janet: The invariant canonical forms of algebraical and differential systems.—T. Carleman: Demonstration of a theorem of M. Borel.—A. Myller: Remarks on M. Carleman's note.—A. Myller: Some properties of ruled surfaces in connection with the theory of parallelism of M. Levi-Civita.—H. Chrétien and P. Ditisheim: An electrochronograph recording the time, in figures, to hundredths of a second.—M. Sauger: A remarkable coincidence in the theory of relativity.—MM. Berloty and Combier: The eclipse of the sun of March 28, 1922, observed at the Observatory of Ksara (Syria).—I. Tarazona: Observation of the annular eclipse of the sun of March 27-28, 1922, made at the astronomical Observatory of Valencia (Spain).—J. Guillaume: Observations of the sun made at the Lyons Observatory during the fourth quarter of 1921. Observations were possible on 76 days during the quarter. The results are given in three tables showing the number of spots, their distribution in latitude, and the distribution of the faculae in latitude.—H. Chamaat: An arrangement permitting the elimination and determination of the correction factor of wattmeters.—C. Dévé: The noise caused by aeroplanes. The pitch of the sound heard as an aeroplane is passing overhead varies according to the distance of the observer's ear from the ground, rising about two octaves when the ear is lowered to about eight inches from the soil. Possible causes of this phenomenon are discussed.—J. Galibourg and F. Ryziger: A method of recognising cultivated Japanese pearls. The hole usually drilled in the pearl for attaching to an ornament is utilised. A mirror is formed by placing a minute drop of mercury in this hole, the pearl is illuminated from the side and the structure examined microscopically. Differences between the natural and cultivated pearl are brought out in this way, and reproductions of photographs illustrating the differences observed are given.—P. M. Monval: The preparation of ammonium chloride. Determinations of the solubilities in saturated solution of sodium chloride, sodium carbonate, ammonium chloride, and ammonium carbonate, singly and in combination, the results being summarised on a Le Chatelier square diagram.—P. Riou: The velocity of absorption of carbon dioxide by alkaline solutions. A contribution to the experimental study of the ammonia-soda process.—C. Chéneveau: An application of the optical method of determination of the solubility of one liquid in another.—R. Fosse and A. Hieulle: The tendency of formaldehyde to form hydrocyanic acid by oxidation in an ammoniacal silver solution. Formaldehyde was oxidised in strongly ammoniacal solutions containing ammonium chloride and silver nitrate by a large excess of potassium permanganate. Working with 10 milligrams of formaldehyde in each experiment, a yield of 30-36 per cent. of hydrocyanic acid was obtained.—A. Lanquine: The direction and dislocations of the Cheiron strata to the south of the upper Estéron, up to the high valley of Loup (Maritime Alps).—A. Guébbard: Remarks on the last Provençal earth-

quake.—P. Garrigou-Lagrange: Great movements of the atmosphere and weather prediction.—E. Gain: The ultra-maximum temperature supported by the embryos of *Helianthus annuus*. If the seeds are gradually dried and heated by stages, with interposed periods of cooling, the seed can survive exposure to much higher temperatures than has been hitherto supposed. One lot of seeds submitted to this treatment gave 80 per cent. germination after a final exposure to 145° C., but this result was exceptional; another lot of seeds gave only 2.5 per cent. of germinations after the same exposure.—A. Petit: Concerning the "awakening" of arable earth. In a recent paper A. Lumière has pointed out the favourable effect on soil of a thorough washing with water. This washing acts as though it removed products opposed to the germination of seeds. The author directs attention to the fact that he published similar observations in 1909.—W. Kopaczewski: The differentiation of phenomena of shock by contact.—R. Bayeux: Maximum respiration at very high altitudes. An account of experiments on two subjects at Chamonix (1050 metres), the Vallot Observatory on Mont Blanc (4370 metres), and at intermediate heights.—W. Koskowski: Nicotine and the inhibitory nerves of the heart. Nicotine does not act on the heart by the intermediary of the pneumogastric nerve, but directly on the intracardiac ganglia.—J. Mawas: The lymphoid tissue of the spiral valve of the middle intestine of *Ammocetes branchialis* and its morphological significance.—A. Dehorne: The muscular histolysis and phagocytosis in the coelom of the Nereids at sexual maturity.—K. Abrest: The toxic index of illuminating apparatus, of heating apparatus, and of explosion motors. The ratio of carbon monoxide to carbon dioxide produced in any form of lighting or heating apparatus is termed the toxic index. This magnitude has been estimated for various forms of lighting burners and radiators, and in the exhaust of explosion motors.

Academy of Sciences, April 18.—M. Emile Bertin in the chair.—E. Goursat: The problem of the thrust of earth. It is shown that the partial differential equations of M. Boussinesq, modified by M. Remondos, can be reduced to an integrable form.—E. Borel: Physical hypotheses and geometrical hypotheses.—E. Ariès: The maximum of the latent heat of evaporation.—G. Valiron: Integral functions.—E. Belot: The rôle of nebular media in the dynamics of stellar and planetary systems.—L. Bull: An apparatus for the rapid dissociation of images in cinematography by the electric spark. The film is stationary and the images, illuminated by electric sparks (at the rate of 50,000 per second), are received on a rotating total-reflection prism. The one disadvantage of the method is that the images are not parallel to each other from one end of the film to the other.—A. Nodon: The photogenic action of ultra-radiations.—E. Darmois: The action of acids on ammonium molybdo-malate. The polarimeter shows that this ammonium salt is very sensitive to the action of acids, and the diminution of the rotation appears to be proportional to the concentration of the hydrogen ions. The use of this method readily detects traces of sulphuric acid in vinegar.—A. Braly: A new method for the detection of gold and silver in minerals by means of the blowpipe.—A. Schoep: Soddite, a new radioactive mineral. This is a yellow crystalline mineral found associated with curite from Kasolo (Belgian Congo). It is a uranium silicate of the composition $12\text{UO}_3 \cdot 5\text{SiO}_2 \cdot 14\text{H}_2\text{O}$, and its radioactivity is in proportion to its high uranium content (86 per cent. UO_3). The name

sodditè is proposed for the mineral.—J. Thoulet: Deep submarine volcanic eruptions. Evidence of submarine eruptions furnished by deep-sea soundings near the Canaries and the Azores.—R. Souèges: The embryogeny of the Rosaceæ. The first stages of the development of the embryo in *Geum urbanum*.—M. and Mme. F. Moreau: Mycelium with protuberances found in the Ascomycètes.—J. Stoklasa: The influence of selenium and of radium on the germination of seeds. Both sodium selenate and selenite exert a toxic action on the development of seeds, the latter possessing the most marked effect. This toxic effect is partially neutralised if radioactive substances are present at the same time.—R. Argaud: The intranucleolar presence of the centrosome.—A. Lumière and J. Chevrotier: Antityphoid vaccination by scarification. As an alternative to vaccination by the mouth, which as yet has not been fully accepted, trials have been made of a process of immunisation by scarification. This method is free from the troublesome reactions caused by direct injection, but the immunity conferred is not quite complete.—MM. Cohendy and E. Wollman: Some results obtained by the method of growth under aseptic conditions. Experimental scurvy. Infection of the aseptic guinea-pig by cholera.—L. Corbière and A. Chevalier: The origin of *Spartina Townsendi* and its rôle in the fixation of marine mud.

Diary of Societies.

FRIDAY, MAY 12.

ROYAL ASTRONOMICAL SOCIETY, at 5.—J. Halm: A Method of determining Photographic Star Magnitudes without the Use of Screens or Gratings.—J. Halm: The Rotation of the Sun's Reversing Layer.—J. Evershed: Widened Lines in the Spectrum of Sirius.—A. Stanley Williams: Two Variable Stars in Gemini.—A. Stanley Williams: A Probably Variable Star in Gemini.—A. Stanley Williams: The Tawny Hue of Jupiter's Equatorial Belt.—A. N. Brown: Observations of RT Cygni (Ch. 7085) in 1917-22.—W. H. Steavenson: Observations of Nova Persei (1901) in 1921-22.

PHYSICAL SOCIETY OF LONDON (at Imperial College of Science and Technology), at 5.—S. O. Pearson and H. St. G. Anson: Demonstration of Some Electrical Properties of Neon-filled Lamps.—Dr. A. Griffiths and W. T. Heys: A New Apparatus for the Measurement of the Polarisation Capacity of Platinum Plates in Sulphuric Acid.—Dr. H. Chatley: The Molecular Forces involved in Cohesion.

ROYAL SOCIETY OF MEDICINE (Clinical Section), at 5.30.—Annual General Meeting.

JUNIOR INSTITUTION OF ENGINEERS (at Institution of Mechanical Engineers), at 7.30.—L. A. Legros: Tanks and Chain Track Artillery.

MALACOLOGICAL SOCIETY OF LONDON (at Linnean Society).

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Dr. H. H. Dale: The Search for Specific Remedies.

SATURDAY, MAY 13.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. O. W. Richardson: The Disappearing Gap between the X-ray and Ultra-violet Spectra. I. Grating Results.

MONDAY, MAY 15.

ROYAL GEOGRAPHICAL SOCIETY (at Lowther Lodge, Kensington Gore), at 5.—E. A. Reeves: The Evidence of a True North and South Directive Force in the Atmosphere.

ARISTOTELIAN SOCIETY (at University of London Club, 21 Gower Street, W.C.1), at 8.—Prof. T. P. Nunn, and others: Discussion on Prof. Whitehead's "Enquiry" and "Concept of Nature."

ROYAL SOCIETY OF ARTS, at 8.—F. T. Renwick: Modern Aspects of Photography (3) (Cobb Lectures).

ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.—J. A. Gotch: The First Half-century of the R.I.B.A.

TUESDAY, MAY 16.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. W. Bulloch: Tyndall's Biological Researches and the Foundations of Bacteriology (Tyndall Lectures) (1).

ROYAL SOCIETY OF MEDICINE (General Meeting of Fellows), at 5.

ROYAL STATISTICAL SOCIETY, at 5.15.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—J. F. Shepherd: Natural Colour Photography.

WEDNESDAY, MAY 17.

ROYAL METEOROLOGICAL SOCIETY, at 5.—Dr. A. E. M. Geddes: Weather and the Crop-Yield in the North-East Counties of Scotland, followed by a general discussion on R. H. Hooker's Presidential Address, The Weather and the Crops in Eastern England, 1885-1921.—Dr. H. P. Warren: A New Form of Direct-reading Barometer.

ROYAL SOCIETY OF MEDICINE (Surgery Section), at 5.30.—Annual General Meeting.

ROYAL MICROSCOPICAL SOCIETY, at 8.—Annual Exhibition of Microscopic Pond Life.

THURSDAY, MAY 18.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. F. Keeble: Plant Sensitiveness (II), To Contact and to Chemical Stimulation.

ROYAL SOCIETY, at 4.30.—*Probable Papers*.—Prof. T. B. Wood and Dr. J. W. Capstick: The Progress of Metabolism after Food in Swine.—C. G. Lamb: The Geometry of Insect Pairing.—G. E. Briggs: Experimental Researches on Vegetable Assimilation and Respiration. XV. The Development of Photosynthetic Activity during Germination of Different Types of Seeds.—G. E. Briggs: Experimental Researches on Vegetable Assimilation and Respiration. XVI. The Characteristics of Sub-normal Photosynthetic Activity resulting from Deficiency of Nutrient Salts.—J. A. Gardner and F. W. Fox: The Origin and Destiny of Cholesterol in the Animal Organism. Part 13. The Autolysis of Liver and Spleen.

ROYAL SOCIETY OF MEDICINE (Dermatology Section), at 5.—Annual General Meeting.

INSTITUTION OF MINING AND METALLURGY (at Geological Society), at 5.30.

INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Sir Ernest Rutherford: Electricity and Matter (Kelvin Lecture).

INSTITUTION OF AUTOMOBILE ENGINEERS (London Graduates' Meeting), at 8.—P. H. Hardy and L. B. Harris: Electrical Equipment.

CHEMICAL SOCIETY, at 8, followed by an Informal Meeting.

FRIDAY, MAY 19.

ASSOCIATION OF ECONOMIC BIOLOGISTS (in Botanical Lecture Theatre, Imperial College of Science and Technology), at 2.30.—W. Rushton: Further Contributions to the Biology of Freshwater Fishes.—Prof. J. H. Priestley: Toxic Action of Illuminating Gas on Plants (with Demonstration).

ROYAL SOCIETY OF MEDICINE (Otolaryngology Section), at 5.—Annual General Meeting.

INSTITUTION OF ELECTRICAL ENGINEERS (London Students' Section) (Annual General Meeting), at 7.—A. H. Reeves: The Elimination of Atmospherics in Radio-telegraphy.

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Sir William Bragg: The Structure of Organic Crystals.

SATURDAY, MAY 20.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. O. W. Richardson: The Disappearing Gap between the X-ray and Ultra-violet Spectra. II. Photo-electric Methods.

PUBLIC LECTURES.

(A number in brackets indicates the number of a lecture in a series.)

FRIDAY, MAY 12.

LONDON SCHOOL OF ECONOMICS, at 5.—Dr. P. Giles: Modern Views of Indo-European Origins (1).

UNIVERSITY COLLEGE, at 5.15.—A. E. M. van der Meersch: Simplified Solutions for B.M. and S.F. Values for Rolling Loads (1);—at 5.30.—Prof. W. R. Shepherd: The Expansion of European Civilisation (2).

BIRKBECK COLLEGE, at 6.—Dr. E. J. Russell: Recent Work with regard to the Influence of Soil Conditions on Agriculture (1).

GRESHAM COLLEGE, at 6.—A. R. Hinks: Astronomy (4) (Gresham Lectures).

TUESDAY, MAY 16.

UNIVERSITY COLLEGE, at 5.—Sir Arthur Shipley: Insects and Disease (3).

KING'S COLLEGE, at 5.30.—Prof. H. Wildon Carr: The Principle and Method of Hegel (3): The Philosophical Sciences.

GRESHAM COLLEGE, at 6.—Sir Robert Armstrong-Jones: Physic (1) (Gresham Lectures).

WEDNESDAY, MAY 17.

SCHOOL OF ORIENTAL STUDIES, at 5.—Dr. R. A. Nicholson: The Idea of Personality in Sufism (1).

UNIVERSITY COLLEGE, at 5.15.—Dr. D. H. Scott: The Early History of the Land Flora (4).

KING'S COLLEGE, at 5.—Dr. A. Harker: Tertiary Igneous Action in Britain (1);—at 5.30.—Prof. J. F. Van Bemmelen: The Morphological Character of the Skin Pattern in Insects and Mammals.

GRESHAM COLLEGE, at 6.—Sir Robert Armstrong-Jones: Physic (2) (Gresham Lectures).

THURSDAY, MAY 18.

UNIVERSITY COLLEGE, at 2.30.—Prof. W. M. Flinders Petrie: Recent Discoveries in Egypt (1);—at 5.15.—Sir Joseph J. Thomson: Atoms, Molecules, and Chemistry (3).

ST. MARY'S HOSPITAL (Institute of Pathology and Research), at 5.—Major-Genl. Sir W. B. Leishman: Enteric Fevers in the War.

GRESHAM COLLEGE, at 6.—Sir Robert Armstrong-Jones: Physic (3) (Gresham Lectures).

FRIDAY, MAY 19.

LONDON SCHOOL OF ECONOMICS, at 5.—Dr. P. Giles: Modern Views of Indo-European Origins (2).

UNIVERSITY COLLEGE, at 5.15.—A. E. M. van der Meersch: Simplified Solutions for B.M. and S.F. Values for Rolling Loads (2);—at 5.30.—Prof. W. R. Shepherd: The Expansion of European Civilisation (3).

BIRKBECK COLLEGE, at 6.—Dr. E. J. Russell: Recent Work with regard to the Influence of Soil Conditions on Agriculture (2).

GRESHAM COLLEGE, at 6.—Sir Robert Armstrong-Jones: Physic (4) (Gresham Lectures).