

Societies and Academies.

LEEDS.

Philosophical and Literary Society, June 19.—J. Ewles: A torsion magnetometer. A new instrument for laboratory use based on the principle that the couple required to hold a magnet of moment M at right angles to a field H is MH . Magnetic forces are removed by balancing against the torsion in a phosphor bronze strip supporting the 'needle.' All the experiments usually performed with both the deflection and vibration magnetometers may be performed with this instrument.—F. A. Long: Note on the behaviour of a neon-tube under heavy discharge. When using a neon ('Osglim') lamp in parallel with the coils of an electromagnet, the discharge through the lamp on breaking the current was of bright bluish-violet colour instead of the usual pink glow, and included two or more flashes. An examination of current voltage during the discharge shows that at the commencement a current of several amperes passes, while the voltage falls much lower than the usual extinction value.—C. W. Shoppee: On the possibility of ring-chain valency tautomerism and of a type of mobile-hydrogen tautomerism analogous to the Wagner-Meerwein re-arrangement. Part 5: Pinacolic electron displacement as an explanation of various intramolecular transformations. A discussion and an attempted correlation of various intramolecular transformations on the basis of tautomeric change. The general mechanism proposed gives a satisfactory explanation of many known changes, and where divergences occur between theory and fact, reinvestigation confirms the theoretical prediction.—L. R. Johnson and A. Wormald: Potassium thiocyanate and the diastatic action of saliva and plant-diastases. Potassium thiocyanate exerts an activating influence on the diastatic action of human saliva, and this effect is significant, even with concentrations of the salt which may be present in the saliva. The thiocyanate appears to accelerate the first stages only in the hydrolysis of starch, and the rate of formation of reducing sugars is not markedly increased. The stimulating effect of this salt on the germination of potatoes and barley is discussed in relation to its influence on diastatic action.—R. G. S. Hudson and F. W. Anderson: On the Lower Carboniferous corals. *Hettonia fallax*, gen. et sp. n. The genus *Hettonia*, a member of the Clisiophyllidæ, is characterised by a solid central column built of an axial rod surrounded by tabular thickening. *Hettonia fallax*, the only species as yet described, is remarkable in that it possesses a distinct gerontic stage in which there is no columella, and therefore simulates *Caninia*. In addition, dedifferentiation is a common occurrence in this species. Certain new and undescribed structures are recognised in the ephebic stage of the corallite, and are attributed to calcular gemmation. The prototheca and part of the brephic structure are built while the young corallite is still attached to the parent individual, and remain there after separation of the young form.—Lorna I. Scott and Ada B. Whitworth: A structural peculiarity of the exodermis of the root of *Pelargonium*. In the root of *Pelargonium* the hypodermal cells develop a convex band of thickening, which runs round each cell on the radial and transverse walls. At maturity, the bands consist of lignified cellulose, with traces of silica, and show characteristic optical properties, which disappear on treatment with cellulose solvents.—W. Garstang and Margery I. Platt: On the asymmetry and closure of the endostyle in *Cyclosalpa*

pinnata. The authors describe from sections the structure of the closed endostyle of *Cyclosalpa pinnata*. They confirm the absence of the left marginal band, and confirm it as due to the development of an interlocking mechanism by which the endostyle is firmly closed as a tube. The missing band, however, is present at both extremities with normal relations. The endostyle possesses a posterior growing point (cf. larval *Amphioxus*).

PARIS.

Academy of Sciences, June 25.—Gabriel Bertrand and Georges Nitzberg: α -Glucoheptulite. This alcohol is obtained by the action of reducing agents on α -glucoheptulose. It has the composition $C_7H_{16}O_7$, and is strongly levorotatory. Details of the chemical and physical properties are given.—J. Constantin: Notes of Alpine pathology. Study of a parasite of *Picea excelsa*. The attack on the tree is more serious the greater the height above sea-level.—A. Calmette, J. Valtis, and A. Lacomme: New experimental researches on the tuberculous ultravirus. Proofs of the existence of tuberculous infection in infants of tubercular mothers. A distinction is drawn between true bacillar heredity, resulting from the direct transmission of the normal forms of the Koch bacillus, which is rare, and infection by the ultravirus, which is very frequent, and which does not appear to have grave consequences for the health of the infant provided the risk of reinfection is removed. Prophylactic measures suitable for the latter type of infection are suggested.—André Blondel: The yield of translucent diffusing globes and the principle of the conservation of the luminous flux.—P. Helbronner: The deviations from the vertical in Corsica.—G. Friedel: Remarks on a memoir of W. G. Burgers on uniaxial crystals possessing rotatory power.—Edmund Wilson was elected a Foreign Associate in the place of the late M. Lorentz: Frédéric Swarts was elected Correspondant for the section of chemistry.—R. Coenen: Isothermal surfaces.—G. Vranceanu: The absolute differential calculus of congruences.—Alfred Rosenblatt: The conditions of unicity of a solution of ordinary differential equations.—Miécislas Biernacki: Suites of holomorph functions.—V. A. Kostitzin: An integro-differential equation.—Raphaël Salem: The determination of the order of magnitude at the origin of certain trigonometrical series.—André Roussel: A pseudo-differential of a function.—Alexandre Ghika: The square functions capable of summation along the contours of their domains of holomorphism.—R. Tambs Lyche: The convergence of the series $\sum_{r=0}^{\infty} \left[\begin{matrix} x \\ r \end{matrix} \right] z^r$.—Nikola Obrechhoff: The summation of Taylor's series on the contour of the polygon of summability by the method of M. Borel.—Georges Valiron: A generalisation of a theorem of M. Landau.—E. Cartan: Closed Riemann spaces admitting a transitive continued group of displacements.—J. Haag: The calculation of certain elastic deformations, with application to the inertia of spirals.—Jean Baurand: The determination of the profile of a circular wave of small amplitude at the surface of a liquid.—Mme. E. Chandon: The variation of the latitude of the Paris Observatory.—A. Danjon: The photometric study of Algol with the visual cat's-eye photometer. The results of the observations are shown graphically.—P. Lejay: A method of recording the oscillations of a free pendulum and its applications to measurements of gravity. A modification of a method making use of Hertzian waves described in a previous communication. With photographic

oscillographs it is possible to read the record to 0.0001 second.—**Marcel Chopin**: A new method for measuring the temperature of a gas. The readings of a thermometer or a thermo-couple placed in a gas in motion are not exact owing to the radiation from the surrounding walls, the resulting error being considerable at high temperatures. The method proposed is based on the known relation between the weight of gas which passes through an orifice in a thin wall, the section of the orifice, the difference of pressure on the two sides of the wall, and the temperature. An outline is given of the application of this apparatus to the determination of the specific heat of gases at high temperatures.—**Emmanuel Dubois**: The Volta effect. From the experiments described it is concluded that water vapour plays an important part in the Volta effect.—**P. Daure**: Study of the secondary radiations observed in the molecular diffusion of light by fluids (the Raman effect).—**A. Blanc**: The photo-electric current as a function of the field in air at ordinary pressure.—**Mlle. C. Chamié**: The phenomenon of grouping of atoms for emanations and for mixtures of radioelements. The emanations of the radioelements given out to the air or dissolved in mercury form groups of atoms. With mixtures of radioelements heterogeneous groups are formed to a certain extent, but at the same time there are groups formed by members of the same family.—**A. Tian**: A reaction of double decomposition between saline vapours: fumes produced with gaseous salts.—**René Wurmser and Jean Geloso**: The limiting potential of solutions of glucides.—**Aubel and Bourguet**: The passage of pyruvic acid to alanine. A mixture of pyruvic acid and ammonia, in presence of colloidal palladium stabilised by starch, absorbs hydrogen very slowly: the completion of the reaction requires continuous shaking for six days. Pure alanine was extracted from the product of the reaction.—**E. Tassilly, A. Belot, and M. Descombes**: The use of solid caustic alkalis for the saponification of esters. The method detailed is shown to be of general application and is especially useful in the case of esters difficult to saponify or giving abnormal results by the ordinary method.—**Mme. Ramart-Lucas and F. Salmon-Legagneur**: The comparative stability of isomers according to their absorption spectra. Transpositions in the series of glycols and aldehydes.—**P. Brenans and Ch. Girod**: The triiodophenol obtained with the 5-iodo and 3.5-diiodosalicylic acids.—**Ch. Mauguin**: Study of the chlorites by means of the X-rays.—**E. Roch and C. Tingry**: The western termination of the Moroccan Haut-Atlas.—**Daniel Chalonge**: Study of the nocturnal variations of atmospheric ozone. The upper atmosphere does not contain less ozone at night than during the day. No seasonal variation was shown by the nocturnal proportion of ozone.—**Henryk Arctowski and Edward Stenz**: Study of the dusts which fell in the centre of Poland between April 26 and 28, 1928. Analyses of the dusts exclude the hypothesis of volcanic or Saharan origin and suggest that the dust came from Southern Russia.—**V. Hasenfratz and R. Sutra**: The immediate principles of the seeds of two species of *Combretum*.—**Philippe Fabre**: Chronaxy by cathode vacuum tubes.—**E. Huguénard and A. Magnan**: The production of electricity by the electric eel.—**Tahir Ertogroul**: The use of Wood's light for the early diagnosis of *grasserie* in silk worms. Silkworms in the early stages of this disease can be readily distinguished from healthy specimens under Wood's light.—**Paul Rossi**: Tuberculous ultravirus can exist in milk obtained from a tuberculous teat.—**Ch. Hruska**: The rôle of traumatism in the infection of the goat by anthrax through the alimentary canal.

Academy of Sciences, July 2.—**P. Helbronner**: Details concerning the measurement of the arc of the meridian in the French Alps.—**André Blondel**: A general method for measuring the absorption of a diffuser specimen.—**Pierre Weiss**: The specific heat of nickel above the Curie point. The atomic heat of nickel above the Curie point shows the same slow increase as copper. Their difference is constant and is equal to the part of the atomic heat corresponding to the kinetic energy of one degree of freedom.—**Léon Guillet, Galibourg, and Ballay**: The critical points and the martensitic tempering of nickel and nickel-chromium steel castings. A study of the changes in transformation temperatures produced by the addition of silicon, manganese, nickel, and chromium.—**Ch. Laforest-Duclos**: The prediction of cyclones in the Caribbean Sea and the Mexican Gulf.—**B. de Kerékjártó**: An elementary demonstration of the last theorem of Poincaré.—**Alfred Haar**: The unicity of solutions of partial differential equations.—**Hadamard**: Observations on the preceding communication.—**R. Guillery**: A recording manometer with a permanent control of its readings. The instrument described and indicated is designed to remove errors due to friction, can be altered in range by changing the spring, and can be easily calibrated.—**Th. de Donder**: Relativist thermodynamics of electromagnetic systems in motion.—**F. Pasteur**: The thermal utilisation of the solar radiation.—**Mario A. da Silva**: Electrons and positive ions in pure argon. From the experimental results given it is concluded that, within the limits of the sensibility of the measuring apparatus used, all the negative ions are electrons, starting with a mean effective field of 40 volts/cm.—**Mlle. Paule Collet and Francis Birch**: The paramagnetism of iron in potassium ferricyanide. For temperatures between 0° C. and 200° C., the atom of iron carries 12 magnetons.—**M. Ponte**: Absorption by excited mercury vapour and the reversal of the green line and its satellites.—**Edmond Rouelle**: A new category of ferro-magnetic frequency multipliers.—**C. Marie and P. Jacquet**: The hygroscopic and catalytic properties of electrolytic copper deposited in the presence of gelatine. These copper deposits contain small proportions of gelatine, copper sulphur, and water. Some peculiarities in the drying are detailed, and it is noted that the presence of these impurities confers catalytic properties on the copper, which, from the point of view of synthesis of water from hydrogen and oxygen, correspond with the action of finely divided copper reduced from the oxide at 220° C.—**Mme. Irène Curie and Frédéric Joliot**: The number of ions produced by the α -rays of radium C' in air.—**Mlle. Jeanne Lévy and J. Sifras**: The passage from a C₆ ring to a C₅ ring with molecular transposition by isomerisation of the oxides of phenylcyclohexene and of 1-phenyl-4-methyl-cyclohexene. The isomerisation of these compounds by distilling with a trace of anhydrous zinc chloride gives two isomeric oxygen products for each oxide. One is a ketone produced without molecular transposition, the other is an aldehyde containing the C₅ ring.—**Albin Marty**: The hydrogenation of the ether oxides.—**J. O. Haas and C. R. Hoffmann**: The geothermic situation of the petroleum bearing basin of Pêchebronn. A summary of the results of a series of thermometric determinations in the Pêchebronn oil region. It does not appear possible, as yet, to give a full explanation of the data. It is, however, certain that the rises of temperature cannot be explained by the presence of oil accumulations.—**Paul Corbin and Nicolas Oulianoff**: Contact metamorphism produced by the protogin of Mont Blanc.—**E. Rothé and Mme. A. Hée**: The magnetic properties of the stratigraphic

zones of the Rhine valley. The interpretation of the results of magnetic surveys requires a knowledge of the magnetic susceptibility of the underlying minerals, and these are frequently lacking. The magnetic susceptibility of over forty specimens from the Rhine valley are given.—R. Esnault-Pelterie: The law of the variation of the density of the atmosphere as a function of the height.—M. Bridel, C. Charaux, and G. Rabate: Amelarioside, a new glucoside from the bark of *Amelanchier vulgaris*.—Lucien Daniel: The formation of thylles in grafted plants.—Mme. L. Randoin and R. Lecoq: The water soluble vitamins of group B. The probable existence of a thermostable and alkali stable factor necessary to life.—Georges Bourguignon and André Walter: Technical simplifications in the measurement of chronaxy in man with condensers. Description of the apparatus.—A. Gourvitch: Specific dynamic action in the cockroach.—Marcel Avel: Castration in *Lumbricus* does not prevent the evolution of the secondary sexual characters, anatomical and physiological.—G. Guittoneau: A spore-forming bacillus acting as a lactic ferment at high temperatures. No lactic organism hitherto described possesses a notable activity above 55° C. The organism now described, named *Thermobacillus tarbellicus*, multiplies most rapidly at 68° C., and survives exposure to a temperature of 100° C. for half an hour.—G. Marinesco: The rôle of autolysis in the pathogeny of Charcot's disease.

GENEVA.

Society of Physics and Natural History, May 24.—Arnold Pictet and Mlle. Ferrero. Heredity in the tufted guinea-pig. Dissociable conditional and localisation factors. The authors have proved the production of two types by crossing tufted guinea-pigs with smooth guinea-pigs. These types follow Mendel's law.—R. Wavre: The rigorous solution of the problem of figures of equilibrium. Starting with data more general than hitherto, the author gives a simpler demonstration of the impossibility of a distribution in homothetic surfaces of layers of equal density of a heterogeneous fluid in rotation.—E. Rod and G. Tiercy: Note on the rate of the chronometer *Nm* of the Observatory of Geneva. The authors have carried out a series of observations which show that the rate of this chronometer, during two months, remains between +1.01 seconds and +1.32 seconds. The pressure effect is normal: some anomalies appear to arise from accidental temperature variations.—E. Joukowsky: The cementation of the quaternary gravels. A working hypothesis. The author applies the well-known fact of the reduction in the solubility of calcium carbonate in the presence of carbon dioxide when the temperature is raised between 0° C. and 50° C., and admits that cold waters have, other conditions remaining the same, a greater incrusting power than warm waters. He shows that the cementation, in a given spot, in the peripheral portions of a glacier, should be stronger during its retreat than during its advance.

LENINGRAD.

Academy of Sciences (*Comptes rendus*, No. 7).—N. G. Chetaiev: The equations of Poincaré.—A. Tsvetkov: The spontaneous movements of *Paramecium caudatum*. Quantitative studies on movements of *Paramecium* show that the movements are due to some disturbances of intracellular chemical equilibrium.—L. Berg: The origin of northern elements in the fauna of the Caspian Sea. The Caspian fauna includes a series of northern forms, like *Stenodus leucichthys*, gull., *Limnocalanus grimaldi* de Guerne, *Chiridothea entomon caspia* Sars, etc. Hypotheses offered by previous authors are analysed, and

it is concluded that these northern forms reached the Caspian Sea by way of the Volga, the basin of which has been, during the postglacial period, in connexion with a large lake basin adjoining the Baltic Sea.—B. Gorodkov: The work done by the expedition of the Academy to the sources of the River Gyda (Yeniseisk Province). A preliminary account of the expedition, which has done some geographical, botanical, zoological, and ethnographical work in the regions hitherto unexplored.

Comptes rendus, No. 8.—K. Sapozhnikova: Respiration of wheat seeds in ionised air. Results of the experiments indicate that ionised air exercised an inhibitory action on the respiration of seed, and the inhibition is due to the presence of free ions not only of oxygen, but also of nitrogen and of other gases of the air.—S. Arcybyshev and J. Parfianovich: The radio-activity of springs and minerals in the vicinity of the River Sludanka. Determinations of radio-activity of natural waters and minerals.—K. Matvejev: Tungsten deposits in the Southern Ural. A mineralogical and chemical study of the deposits.—L. Sturm and T. Simakova: Microbiological examination of some specimens of sulphur from the Crimea and Turkestan. Specimens of sulphur from various deposits showed different bacteriological characteristics. In some of these only bacteria oxidising sulphur were found; in others, desulphurating bacteria were also present.

SYDNEY.

Royal Society of New South Wales, June 6.—A. R. Penfold: The chemistry of Western Australian sandalwood oil (Part 1). Although it has been proved equivalent, if not superior, to the East Indian oil in pharmacology, the chemical composition of Australian sandalwood oil has been the subject of much controversy during recent years. It is very complex in composition, much more so than the East Indian. Various sesquiterpene alcohols, which constitute 95 per cent of the oil, have been identified and a simple colour reaction for distinguishing the two types of oils devised.

VIENNA.

Academy of Sciences, May 10.—W. Leithe: The natural rotation of polarised light by optically active bases (1). The influence of the solvent on the rotation of *d*-*a*-pipercolin and its chlorohydrate.—K. Menger: The metrics of Hilbert's space.—O. Dischendorfer and E. Nesitka: Nitrated *m*s-phenyl-dinaphtho-pyranes (3). Condensation of aldehydes with phenols.—O. Richter: Sodium, a necessary nutrient element for a marine aerophilic luminous bacterium. Sodium chloride has a double task, nutrient and osmotic. The minimum quantity of sodium chloride to be added to a stock solution of peptone and to fulfil both tasks is about 0.5 per cent, the maximum 5 per cent, the optimum 2.3 per cent. But other sodium salts or salts containing minute traces of sodium will do. Sodium is essential, sodium nitrate being the most effective sodium salt.

Official Publications Received.

BRITISH.

Journal of the Society for the Preservation of the Fauna of the Empire. New Series, Part 8. Pp. 137. (London: H. F. and G. Witherby.) 3s. 6d.
Transactions of the Royal Society of Edinburgh. Vol. 56, Part 1, No. 1: The Igneous Intrusions between St. Andrews and Loch Leven. By Dr. Frederick Walker and John Irving. Pp. 17+1 plate. 2s. 6d. Vol. 56, Part 1, No. 2: Size in relation to Internal Morphology. No. 3: The Vascular System of Roots. By Dr. Claude W. Wardlaw. Pp. 19-55. 4s. 6d. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.)
The Journal of the Royal Anthropological Institute of Great Britain and Ireland. Vol. 58, January to June, 1928. Pp. 303+24 plates. (London.) 15s. net.