Societies and Academies.

PARIS.

Academy of Sciences, June 24.—**Marcel Brillouin**: Movements of the oceans. The Newtonian potential of the ridge in cylindrical co-ordinates.—**B. Cabrera** and **A. Duperier**: The paramagnetic properties of the rare earths. Details of measurements of the variations of the magnetisation coefficients of sulphates and oxides of the rare earths between 20° C. and 400° C. The Curie-Weiss law applies to some of the rare metals, but not to all.—**F. E. Myard**: The correct control of a motor-car.—**Bertrand Gambier**: Geometrical configuration of right lines or circles.—**S. Finikoff**: The periodic series of Laplace containing a W congruence.—**Pasquale Calapso**: Rectilineal congruences on focal surfaces to which correspond lines of curvature.—**Georges de Rham**: Multiple integrals and *Analysis situs*.—**Maurice Gévrey**: Hypotheses concerning the solution of problems at the limits of the elliptic type.—**J. Delsarte**: A fundamental problem of the theory of vortices.—**R. Wavre**: A desideratum formulated by Tisserand and the theory of planetary figues.—**Marcel Chopin**: High temperature determinations of the specific heat of nitrogen and carbon dioxide. The method used aims at the nearly complete elimination of the corrections in a calorimetric measurement of the specific heats of gases at high temperatures. For nitrogen,

$$C_p = 6{\cdot}82 + 0{\cdot}00058t,$$

and for carbon dioxide,

$$C = 8{\cdot}9 + 0{\cdot}61(t/100)^{0{\cdot}673}.$$

These results are compared with earlier data.—**C. Raveau**: There is no second law (of thermodynamics). Outline of a concrete thermodynamics.—**R. Darbord**: Electrostatic calculations concerning the electric discharge between two spheres.—**Fahir Emir**: Superficial layers and superficial solutions of myristic acid. The thickness of the saturated film of myristic acid is 16 A. This is exactly half the distance found by the X-ray method (Becker and Jancke) for the solid acid, and confirms the hypothesis of Marcelin.—**Pierre Chevenard** and **Albert Portevin**: The phenomena during reheating of hypertempered steels.—**A. Sanfourche**: The oxidisability of silicon and the allotropic modification of Moissan and Siemens. Experiments on the effect of the state of division of silicon on its oxidisability and solubility in hydrofluoric acid. **A. Tian**: The solidification of saccharose. Catalysis by water.—**A. Travers** and **Schnoutka**: The hydrated polycalcium aluminates.—**Ligor Bey** and **M. Faillebin**: A reaction of resorcinol and a new coloured indicator.—**E. Bœdtker** and **R. Kerlor**: The synthesis of a dicymyl,

$$p\,.\,p\,-CH_3\,.\,C_6H_4\,-C(CH_3)_2\,-C(CH_3)_2\,-C_6H_4(CH_3).$$

—**A. Wahl** and **J. Lobeck**: The naphthisoindigotines.—**Paul Fleury** and **Jean Marque**: The reducing power of the polyalcohols towards alkaline solutions of potassium iodomercurate. The amount of reduced mercury can be utilised under certain well-defined conditions for the quantitative determination of mannitol, inositol, dulcitol, and glycol.—**L. Petitjean**: The acceleration of masses of air in atmospheric movements.—**Jean Lugeon**: A method of determining from a great distance the geographical position and velocity of certain discontinuities or meteorological disturbances by means of the atmospherics they emit.—**G. Nicolas** and **Mlle. Aggéry**: *Cerasus Caroliniana*, a new example of andromonœcia. A new type of bacterial disease.—**Mlle. M. L. Verrier**: The structure of the eyes and the physiology of vision in selachians. The eyes of selachians (*Scyllium*, *Mustelus*, *Acanthias*, *Raja*) are inferior to those of the majority of other fishes.—**Gruvel**: The influence of the piercing of the Suez Canal on the marine fauna of the coasts of Syria. A description of about a dozen species of fish which have passed into the Mediterranean from the Indian Ocean and the Red Sea.—**P. Vignon** and **E. Séguy**: The presence of the raised median nervure in the Diptera.—**G. Mouriquand** and **A. Leulier**: The antirachitic action of certain cholesteric lipoids in *Helix Pomatia*.

GENEVA.

Society of Physics and Natural History, June 6.—**E. Rogovine**, **L. Wohlers**, and **P. Wenger**: A micro method for the determination of uric acid. The method, described in detail for practical applications, is based on oxidation by excess of potassium ferricyanide followed by a back titration of the excess of ferricyanide.—**Th. Stephani** and **E. Cherbuliez**: Researches on antituberculous chemotherapy (copper and the rare earths). The use of the copper and didymium derivatives of di-iodosalicylic aldehyde and of copper benzoate in solution in oil (they are insoluble in water) has given very encouraging results in the treatment of tuberculosis of the guinea-pig and also in man. These substances are innocuous and their cost is small.—**E. Briner** and **R. Wunenburger**: The ozonation of acetylene. The ozonation of this hydrocarbon with a triple bond has given rise to glyoxal, that is to say, to a substance containing the same number of carbon atoms as the hydrocarbon submitted to ozonation. On account of its great instability, the ozonide of acetylene has not been prepared in the pure state.—**Basile Luyet**: Sensitivity to the ultra-violet in *Mucor* as a function of age. Experiments have been made on *Mucor hiemalis*. By irradiating cultures of ages from 1 to 38 hours, it has been found that up to the age of 22 hours the fatal dose is 10 to 20 sec. and that it changes suddenly to 20 min. when the sporangia have been formed.—**F. Chodat**: The genetics of strawberries. Heterosis. Crossing the Dufour and Moutot varieties has given a very vigorous hybrid. The proportion of large plants was 62 per cent for the hybrid against 4·5 per cent in the Moutot descendants and 15 per cent in the Dufour descendants.

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, Vol. 15, No. 3, Mar. 15).—**Otto Struve**: The longitude of the galactic centre as derived from the intensities of detached calcium lines (see NATURE, May 11, p. 737).—**Milton L. Humason**: The large radial velocity of N.G.C. 7619 (see NATURE, May 25, p. 811).—**Edwin Hubble**: A relation between distance and radial velocity among extra-galactic nebulæ (see NATURE, May 25, p. 811).—**Harlow Shapley**: Studies of the galactic centre. (4) On the transparency of the galactic star clouds (see NATURE, May 11, p. 737).—**Selig Hecht** and **Ernst Wolf**: The visual acuity of the bee and its relation to illumination. Visual acuity was measured by the determination of the minimum illumination required to produce response to movement of patterns consisting of equal black and white bars. It varies with illumination much as does the human eye, being poor at low illuminations, and increasing with increased illumination, at first rapidly and then slowly, to a maximum. The maximum for both is between 50 and 100 millilamberts, but the human eye can resolve the environment about a hundred times better than the bee's eye. Bees can resolve the environment much more accurately vertically than horizontally. The results are in accord with anatomical findings.—

C. F. Roos: Some problems of business forecasting. Given the necessary supply functions, cost of production functions, etc., available to most business undertakings, it is possible to compute useful figures referring to replacement and enlargement of plant.—**Victor K. La Mer** and **J. W. Temple**: The autoxidation of hydroquinone catalysed by manganous salts in acid solutions: a reaction whose velocity is proportional to the driving force.—**George B. Kistiakowsky**: The temperature coefficients of some photochemical reactions. The rates of reaction of stoichiometric mixtures of hydrogen and oxygen and of carbon monoxide and oxygen have been investigated; the temperature coefficients increase with rising temperature.—**M. H. Stone**: Linear transformations in Hilbert space. (1) Geometrical aspects. Transformations in complex space which may be applicable to the formulation of the quantum theory.—**Neal H. McCoy**: On commutation rules in the algebra of quantum mechanics.—**H. S. Vandiver**: Some theorems concerning properly irregular cyclotomic fields.—**Gilbert N. Lewis** and **Joseph E. Mayer**: The thermodynamics of gases which show degeneracy (*Entartung*). A mathematical extension, to all types of molecules, of the work of Bose on photons and of Einstein on monatomic molecules.—**Albert W. Hull** and **Irving Langmuir**: Control of an arc discharge by means of a grid (see NATURE, May 18, p. 776).—**Joseph Kaplan**: The heat of dissociation of nitrogen. The value found from a consideration of the energy of the nitrogen molecule in the *D*-level is about 9 volts.—**Katharine B. Blodgett**: Exponential yield of positive ions in argon.—**F. Rasetti**: On the Raman effect in diatomic gases. Observations on nitrogen, oxygen, and carbon monoxide give results in good agreement with theory.—**Carl Barus**: Adiabatic expansion in case of vanishing increment (2).—**Edwin H. Hall**: On electrons that are 'pulled out' from metals. The 'free' and 'associated' electrons of the author's dual theory of metallic conduction are renamed 'thermions' and 'valence electrons'. A discussion of Millikan and Eyring's experimental results on the basis of this theory. The evidence indicates that the thermions are very few compared with the number of atoms (1 to 10^5 or 10^6). Valence electron conduction is effected by intermittent trains of electrons.—**Carl E. Howe**: A preliminary report on the measurement of the $K\alpha$ line of carbon. Measurements were made by reflection at grazing incidence from a ruled grating in a vacuum spectrograph. The unweighted mean was $44{\cdot}60 \pm 0{\cdot}04$ A.—**F. Zwicky**: On the imperfections of crystals. The differences between the theoretical and observed breaking strength of crystals has led to a theoretical examination of suggested microscopical cracks in crystals. The phenomenon may be related to cold-hardening and similar effects.—**Leonard J. Neuman**: The mechanism of spark discharge. In argon at low pressures with nickel grid and sodium-coated electrodes, the liberation of electrons from the cathode by bombardment with swift positive ions is the predominating mechanism; with increasing pressure, generation of electrons in the gas by collisions between swift positive ions and neutral molecules becomes more important.—**John W. Gowen**: The cell division at which crossing-over takes place. It occurs in *Drosophila* in the chromosomes as they prepare for the first maturation division.—**George H. Shull**: An unexpected association of factors belonging to three linkage groups in *Œnothera* and its explanation.—**George D. Snell**: An inherent defect in the theory that growth rate is controlled by an autocatalytic process. The increasing volume of the growing organism invalidates the usual mass action equation applied to growth processes. Appropriate equations are derived.—**Robert Emerson**: Chlorophyll content and rate of photosynthesis. The chlorophyll content of *Chlorella vulgaris* can be controlled by culture in a medium containing appropriate salts, glucose, and less iron than is normally used. At high light intensities, photosynthesis is a function of chlorophyll content. The curves for rate of photosynthesis as a function of temperature at different chlorophyll contents are similar in form.—**Morgan Upton**: Functional disturbances of hearing in guinea-pigs after long exposure to an intense tone. There is first an increase of sensitivity to the exposure frequency and then desensitisation to all intensities of it but no general change in the auditory mechanism. This is evidence for a 'resonance' theory of hearing.—**Thomas Wayland Vaughan**: Studies of orbitoidal Foraminifera: the subgenus *Polylepidina* of *Lepidocyclina* and *Orbitocyclina*, a new genus.

Official Publications Received.

BRITISH.

The Journal of the Institution of Electrical Engineers. Edited by P. F. Rowell. Vol. 67, No. 391, July. Pp. 813-936+xxxiv. (London: E. and F. N. Spon, Ltd.) 10*s.* 6*d.*

Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1185 (M. 58): The Strength of Tubular Struts. By Prof. Andrew Robertson. (E.F. 199.) Pp. 44. 2*s.* 6*d.* net. No. 1231 (Ae. 382): The Skin Friction on a Circular Cylinder. By A. Fage. (T. 2739.) Pp. 9+3 plates. 9*d.* net. (London: H.M. Stationery Office.)

Annual Report of the Auckland Institute and Museum for 1928-29, adopted at the Annual General Meeting held on 29th May 1929. Pp. 42+2 plates. (Auckland, N.Z.)

CATALOGUE.

Ancient Geography: a Catalogue of Atlases and Maps of all Parts of the World from XV Century to Present Day. (New Series, No. 3.) Pp. 144+5 plates. (London: Francis Edwards, Ltd.)

Diary of Societies.

SATURDAY, AUGUST 10.

MINING INSTITUTE OF SCOTLAND (at Glasgow).

CONGRESSES.

AUGUST 4 TO 9.

GENEVA INSTITUTE OF INTERNATIONAL RELATIONS.

Monday, Aug. 5, at 10 A.M.—K. Zilliacus: The Structure and Working of the League of Nations.
At 8.30.—E. J. Phelan: The Future of the International Labour Organisation.

Tuesday, Aug. 6, at 10 A.M.—Norman Angell: The Economic Causes of War.
At 8.30.—Henri Rolin: The Peaceful Settlement of all Disputes.

Wednesday, Aug. 7, at 10 A.M.—Prof. J. L. Brierly: The Contribution of Law to Peace.
At 5.30.—H. S. Grimshaw: The Problems of Native Labour.
At 8.30.—The Unreadiness of Public Opinion.

Thursday, Aug. 8, at 10 A.M.—Arnold Forster: The Freedom of the Seas and the Outlawry of War.
At 3.—W. T. Layton: Reparations and Debts.
At 5.30.—G. A. Johnston: Industrial Relations.

Friday, Aug. 9, at 10 A.M.—A. E. Zimmern: The Preparation of Public Opinion.
At 3.—Prof. S. de Madariaga: The Monroe Doctrine and the League of Nations.
At 5.30.—Prof. C. K. Webster: The Far East.

AUGUST 9 TO 12.

APIS CLUB INTERNATIONAL CONFERENCE (at Berlin).

Friday, Aug. 9, at 9 A.M. (at Institut für Bienenkunde, Berlin-Dahlem).

Saturday, Aug. 10, at 8 A.M.—Excursion by car round Berlin, with inspection of apicultural objects of interest in the museums, and of the air-port.

Sunday, Aug. 11, at 10 A.M.

Monday, Aug. 12, at 9 A.M.—By car to Pichelsdorf; thence by steamer, visiting the bee-farm and mating-station of the Institut.

Papers will be read during the conference on the natural history, physiology, and pathology of *Apis mellifera*, L., the investigation of honey and wax, plant pollination, history of apiculture, etc., as well as with practical beekeeping topics. There will also be communications by Prof. Fiche on recent methods of honey analysis, and by Dr. Krotschy on medical investigations on bee-poison.