

Societies and Academies.

PARIS.

Academy of Sciences, August 27.—M. A. d'Arsonval in the chair.—Jean Perrin: Observations on fluorescence. The fluorescence of a solution depends on its concentration, thickness of layer, and light-absorbing power of the solvent. An attempt is made to define specific fluorescence, measurable by a coefficient independent of these factors.—D. Mordouhay-Boltovsky: Certain categories of transcendental numbers.—Jules Baillaud: The astronomical station of the Pic du Midi. This observatory is characterised by the purity of the sky and clear images. The advantage of the height (2870 metres) is not obtained at the price of undue fatigue on the part of the workers. Observations would appear to be possible except during the late winter and spring months.—A. A. Guntz: Phosphorescent sulphide of zinc. The partial substitution of cadmium sulphide in the zinc sulphide gives a more durable phosphorescence and causes changes in the colour of the light. It also renders the phosphorescent sulphides more easy to insolate.—André Charriou: The absorption of sodium hyposulphite by photographic papers. The elimination of sodium hyposulphite from photographic papers is much more rapid and complete, if the washing is carried out with solutions of sodium or ammonium bicarbonate instead of with water.—Ch. Kilian and V. Likhité: The development of *Hendersonia foliorum*.—Maurice Piettre: The chemical relations between humic materials and coal.

WASHINGTON, D.C.

National Academy of Sciences (Proc. Vol. 9, No. 8, August 1923).—C. Barus: (1) The vibration of air in tubes capped at both ends. The air columns are actuated by telephones. Pressure changes are measured by an interferometer U-tube. With H-tubes and straight tubes there is a frictional but no special frequency effect. (2) The vibration of the air filament in quill tubes capped at both ends.—J. P. Minton and J. G. Wilson: Correlation between physical and medical findings on normal ears. Curves showing the relation between the root mean square pressures exerted on the ear drum by a telephone receiver diaphragm, plotted on a logarithmic scale, and the frequencies, plotted on a linear frequency scale, are used. In most of the fifty-four cases cited, the physical and medical findings for normality of the ear are in agreement.—T. Y. Thomas: The Einstein equations of the gravitational field for an arbitrary distribution of matter.—W. T. Councilman: The root system of *Epigaea repens* and its relation to the fungi of the humus. The roots of this member of the Ericaceae, which is found only in America and Japan, are devoid of root hairs; the place of the latter appears to be taken by the hyphae of a fungus which penetrate between and into the cells of the roots. The roots break up into a number of fine capillaries which ramify the humus near the surface of the soil. The relationship appears to be one of symbiosis.—J. V. Leech: The symmetry of the internal ears in flatfishes. Although the left eye of flatfish migrates during development until it comes to lie beside the right eye, the left ear remains in its original position. Examination of the left and right ears of numerous specimens of *Pseudopleuronectes americanus* and *Limanda ferruginea* showed no difference in structure. In consequence, the mode of action of the ears of these fish in equilibration is difficult to understand.—A. Bramley: Motion of an electric particle in a Riemann space. An infinitesimal particle revolving about the atomic nucleus describes a definite orbit with constant

velocity.—W. M. Davis: (1) The marginal belts of the coral seas. The islands in the Pacific, in addition to the formerly glaciated islands of the colder seas, can be grouped in three categories: (a) Volcanic islands with cliffs, generally without submarine banks or coral reefs and mostly in the colder seas. (b) Islands with cliffs and submarine banks, sometimes with coral reefs; an intermediate or marginal belt about 5° wide between latitudes 25° and 30° north and south of the equator. (c) Volcanic islands without cliffs but having lagoons rimmed by coral reefs. The data supports the postulate of unstable islands associated with changes of ocean level and temperature, i.e. Darwin's theory modified by glacial control factors. (2) The depth of coral-reef lagoons. The stable rock platform hypothesis for the foundation of atolls is rejected on the grounds of the absence of cliffs and of such platforms on islands thought to represent uplifted atolls. Lagoon-enclosing reefs on subsiding foundations would produce lagoons of moderate depth; increased rate of subsidence would be counterbalanced by increased inwash of detritus. Shallow pre-glacial lagoons would be deepened by continued degradation during the lowering of the glacial ocean. The subsidence theory also accounts for submarine banks at varying depths in the coral seas.

SYDNEY.

Linnean Society of New South Wales, July 25.—Mr. A. F. Basset Hull, president, in the chair.—R. H. Anderson: A revision of the Australian species of the genus *Bassia*. Forty-two species of the genus *Bassia* are discussed, of which nine are described as new, and four as new combinations. A key to all the Australian species is given.—Jessie K. Steel: Anatomical features of the mature sporophyte of *Selaginella uliginosa*. The species is primitive. The radial type of shoots, together with the frequent occurrence of a Selago condition, the mixed arrangement of the sporangia in the cones, and the presence of four megaspores within the megasporangium, all point to a close relationship with the more primitive members of the Lycopodiales.—C. Hedley: Studies on Australian Mollusca. Pt. xiv. New species of the genera *Hemidonax*, *Pitaria*, and *Umbraculum* are described. From the Great Barrier Reef a considerable body of species is noted, which were named from New Caledonia and have now extended to Australia.

Official Publications Received.

- Department of Agriculture and Natural Resources: Weather Bureau. Annual Report of the Weather Bureau for the Year 1919. Part 3: Meteorological Observations made at the Secondary Stations during the Calendar Year 1919. Pp. 357. (Manila: Bureau of Printing.)
- Northampton Polytechnic Institute, St. John Street, London, E.C. Educational Announcements (Evening only) for the Session 1923-1924. Pp. 81-232. (London.)
- Department of Commerce: Bureau of Standards. Scientific Paper No. 474: Series in the Arc Spectrum of Molybdenum. Pp. 113-129. (Washington: Government Printing Office, 1923.) 10 cents.
- Department of the Interior: Bureau of Education. Bulletin, 1923, No. 17: Educational Surveys. By Prof. Edward Franklin Buchner. Pp. 44. Bulletin, 1923, No. 24: Educational Extension. By Charles G. Maphis. Pp. 32. Bulletin, 1923, No. 26: Educational Work of the Young Women's Christian Association. By Education and Research Division, National Board of Y.W.C.A. Pp. 24. (Washington: Government Printing Office.) 5 cents each.
- Report on the Zoological Survey of India for the Years 1920 to 1923. Pp. lvi. (Calcutta: Government Printing Office.) 1 rupee: 2s.
- Imperial Department of Agriculture for the West Indies. Report on the Agricultural Department, Grenada, January-December 1922. Pp. iv+14. (Trinidad.) 6d.
- Transvaal University College (University of South Africa). Calendar 1923. Pp. 270+6 plates. (Pretoria.)
- Ministère de l'Instruction publique et des Beaux-Arts. Enquêtes et documents relatifs à l'enseignement supérieur. 118: Rapports sur les observatoires astronomiques de Province. Année 1922. Pp. 130. (Paris: Imprimerie Nationale.)
- Rapport annuel sur l'état de l'Observatoire de Paris pour l'année 1922. Par M. B. Baillaud. Pp. 32. (Paris: Imprimerie Nationale.)