

PARIS.

Academy of Sciences, June 4.—M. Janssen, President, in the chair.—On the equilibrium of a heterogeneous mass in rotation, by M. H. Poincaré. This is a generalization (worked out on a fresh basis) of M. Hamy's theorem of fluids in rotation. If all the surfaces of the several liquid layers in contact were ellipsoids, then all these ellipsoids would be homofocal, which is impossible unless all the layers be assumed of equal density.—On the rainbow, by M. Mascart. The results are here published of the author's researches on this phenomenon in connection with M. Boitel's recent communication on the supernumerary arcs of the rainbow.—Experimental researches on the action of the brain, by M. Brown-Séquard. The experiments with rabbits here described tend to show that the so-called motor centres and the other parts of one hemisphere of the encephalon may determine movements in both sides of the body through the influence of gravitation alone. This conclusion, while opposed to the generally accepted doctrines, is in harmony with the views advocated by M. Brown-Séquard in previous communications to the Academy. It is evident, he remarks, that the motor zone of each side of the brain is capable of producing movements in the corresponding members on either side, and not, as is commonly supposed, on that side alone which is opposed to the centre of irritation.—Observations of Sawerthal's comet made at the Observatory of La Plata with the Gautier 0.217m. equatorial, by MM. Beuf, MacCarthy, Salas, and Delgado. These observations cover the period from March 9 to April 2, 1888, and the position of the Observatory is given at lat. $-34^{\circ} 54' 30''$, long. W. of Paris 4h. om. 58s.—Determination of the ohm by M. Lippmann's electrodynamic method, by M. H. Wuilleumier. The true value of the ohm as worked out by this process is given by the relation $\frac{106 R'}{R}$, the

resistance of the conductor between two given points A and B being $R = 0.301889 \cdot 10^9$. The value thus obtained is represented by the resistance at 0° of a column of mercury with section 1mmq. and length 106.27cm.—On electro-chemical radiophony, by MM. G. Chaperon and E. Mercadier. By the method here adopted, the authors have succeeded in obtaining an electro-chemical radiophone whose effects are analogous to those of the selenium electric instruments, possessing equal intensity and being capable of like applications.—On the action of the alkaline phosphates on the alkaline earthy oxides, by M. L. Ouvrard. The author has made a comparative study of baryta, lime, and strontian, for the purpose of determining the nature of the compound substances that may be obtained by fusion of these bases and some of their salts with the alkaline phosphates.—On some new gaseous hydrates, by M. Villard. To those already known the author now adds analogous hydrates of methane, ethane, ethylene, acetylene, and protoxide of nitrogen. They are generally less soluble, less easily liquefied, than those previously obtained, and are decomposed at the respective temperatures of $21^{\circ} 5$, 12° , $18^{\circ} 5$, 14° , and 12° . It is shown in the case of methane and ethylene that a gas may form a hydrate above its critical temperature of liquefaction, and that these two gases have a critical temperature of decomposition considerably higher than the others.—Contribution to the study of the ptomaines, by M. Oechsner de Coninck. Having recently obtained a ptomaine in $C_8H_{11}N$, the author here determines by analysis a certain number of salts, and describes the preparation of the chloromercurates and iodomethylate.—On the development of the grain of wheat, by M. Bolland. It results from these studies that wheat may be advantageously reaped eight or ten days earlier than is customary. During this latter period the grain ceases its independent growth, and may continue to complete its development just as well in the cut ear as on the standing stalk. The point is obviously of great importance to growers, who have thus so much more time to harvest their crops.—Influence of the organic temperature on convulsions produced by cocaine, by MM. P. Langlois and Ch. Richet. Some experiments are described tending to show that the higher the temperature of the animal the more susceptible it becomes to the toxic effects of cocaine. It is inferred that refrigeration should be a general method apt to diminish the effects of toxic substances causing convulsions.—On the chemical action and vegetative alterations of animal protoplasm, by M. A. P. Fokker. Continuing his already-described experiments, the author here shows that, besides the property of producing fermentations, protoplasm possesses that of undergoing vegetative changes, thus confirming his already expressed opinion that the formation of hematocytes is a case of heterogenesis.

STOCKHOLM.

Royal Academy of Sciences, June 6.—A review of the researches on the electricity of the air, by Prof. Edlund.—Researches on the elasticity and tenacity of metallic wires, by Dr. Isberg.—On the probability of finding large numbers in the development of irrational decimal fractions and of continued fractions, by Prof. Gylden.—Researches on a non-linear differential equation of the second order, by the same.—On the forms and varieties of the common herring, by Prof. F. A. Smitt.—On the integration of the differential equations in the N body, problem iv., by Prof. Dillner.—New remarks on the genus Williamsonia, by Prof. A. G. Nathorst.—Contributions to the knowledge of the hydroids of the western coast of Sweden, by M. Segerstedt.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Poems in the Modern Spirit: C. Catty (Scott).—Rural Water Supply: C. L. Hett (Spon).—Contribution à la Météorologie Electrique, Notes: Prof. J. Luvini (Turin).—Natural History Transactions of Northumberland, Durham, and Newcastle-upon-Tyne, vol. ix. Part 2 (Williams and Norgate).—Morphologisches Jahrbuch, 13 Band, 4 Heft: C. Gegenbaur (Williams and Norgate).—Bulletin of the New York State Museum of Natural History, No. 3 (Albany).—Rapport Annuel sur l'Etat de l'Observatoire de Paris, 1887 (Gauthier-Villars, Paris).—Archives Italiennes de Biologie, Tome 9, Fasc. 3 (Loescher, Turin).—Zeitschrift für Wissenschaftliche Zoologie, 46 Band, 3 Heft (Williams and Norgate).—Botanische Jahrbücher, Neunter Band, 5 Heft (Williams and Norgate).—Geological Magazine, June (Trübner).—Journal of the Society of Telegraph-Engineers and Electricians, No. 73 (Spon).—Proceedings of the Bath Natural History and Antiquarian Field Club, No. 3, vol. vi. (Bath).—Hand-book of the Amaryllidæ: J. G. Baker (Bell).—Elementary School Atlas: J. Bartholomew (Macmillan).—A Season in Sutherland: J. E. Edwards-Moss (Macmillan).—The Encyclopædic Dictionary, vol. vii. Part 1 (Cassell).—Teoría Elemental de las Determinantes: F. Amorétti and C. M. Morales (Biedma, Buenos Ayres).—The Clyde from its Source to the Sea: W. J. Millar (Blackie).—General Physiology: Dr. J. G. M'Kendrick (MacLehose, Glasgow).—An Illustrated Manual of British Birds, Part 3: H. Saunders (Gurney and Jackson).—Die Natürlichen Pflanzenfamilien, 18 and 19 Liefg.: Engler and Prantl (Leipzig).—Ueber Kern- und Zelltheilung im Pflanzenreiche (Heft 1 of Histologische Beiträge): E. Strasburger (Fischer, Jena).—Sea-side and Way-side Nature Readers, No. 2: J. M. Wright (Heath, Boston).—Report on a Part of Northern Alberta and Portions of Adjacent Districts of Assiniboia and Saskatchewan: J. B. Tyrrell (Dawson, Montreal).—The Forest Flora of South Australia, Part 8: J. E. Brown (Adelaide).—Journal of the Chemical Society, June (Gurney and Jackson).

CONTENTS.

PAGE

The Boys' "Yarrell." By Prof. Alfred Newton, F.R.S.	145
Theory and Use of a Physical Balance	146
The Flora of West Yorkshire	147
Our Book Shelf:—	
Mitchell: "A Manual of Practical Assaying"	148
Jones: "Asbestos, its Production and Use"	148
Seidel: "Industrial Instruction"	148
Letters to the Editor:—	
Electric Fishes in the River Uruguay.—Dr. P. L. Sclater, F.R.S.	148
The Salt Industry in the United States.—F. Tuckerman	148
Prof. Greenhill on "Kinematics and Dynamics."—Prof. J. G. MacGregor	149
Further Use of Ptolemy's Theorem (Euclid, VI. D) for a Problem in Maxima and Minima. (With Diagram.)—E. M. Langley	149
Davis's "Biology."—The Reviewer	149
M. Faye's Theory of Storms. (With Diagram.) By E. Douglas Archibald	149
The Visitation of the Royal Observatory	153
Industrial Training	155
Weismann on Heredity. By P. Chalmers Mitchell	156
Imperial Geological Union. By Sir J. Wm. Dawson, K.C.M.G., F.R.S.	157
Notes	158
Astronomical Phenomena for the Week 1888	
June 17-23	161
Geographical Notes	161
Our Electrical Column	161
Wheat Cultivation. By Prof. John Wrightson	162
University and Educational Intelligence	163
Scientific Serials	164
Societies and Academies	165
Books, Pamphlets, and Serials Received	168