

influence of density on the viscosity of dropping liquids, by E. Warburg and J. Sachs.—On the conductivity of heat of tourmaline, by Franz Stenger (2 figures).—The expansion of crystals by heat, by Eug. Blasius (3 figures).—On the passage of electricity in gas, by F. Narr (with tables).—Remarks on the resistance box of Siemens and Halske, by E. Dorn (4 figures).—On the known dichromatic colour-systems, by Arthur König (1 figure).—On the sensibility of normal eyes for the perception of light of long wave-length, by Arthur König and Conrad Dieterici (1 figure and tables).—Metallic and total reflection of isotropic media explained by means of Neumann's system, by E. Ketteler.—Experimental determination of the wave-length of the invisible prismatic spectrum, by S. P. Langley (5 figures and table).—Demonstration research on the relation between light polarised by reflection and by refraction, by G. Krebs (4 figures).—On a freezing apparatus, by E. Lommæl (1 figure).

*Journal de Physique théorique et appliquée*, August.—On the electric conductivity of very weak saline solutions, by M. E. Bouty (7 parts, 30 pages, with figures and tables).—The influence of heat and magnetism on the electrical resistance of bismuth, by M. A. Righi.—Variation in the physical properties of bismuth placed in a magnetic field, by M. Hurion.—Variation of the resistance of bismuth and some alloys with the temperature, by M. A. Leduc.—On some experiments illustrating an explanation of Hall's phenomenon, by Shelford Bidwell.—Note on Hall's phenomenon, by Herbert Tomlinson.—The explosive wave, by MM. Berthelot and Vieille.—Researches on the compressibility of gases, by E. H. Amagat.—Memoir on the compressibility of air and carbonic acid at 1, 8, and from 20 to 300 atmospheres, by E. H. Amagat.—On a new form of the relation  $F(pvt) = 0$ , relating to gases, and on the law of the expansion of these bodies at constant volume, by E. H. Amagat.

## SOCIETIES AND ACADEMIES

### SYDNEY

**Royal Society of New South Wales**, August 6.—H. C. Russell, B.A., President, in the chair.—Four new members were elected. Donation: received consisted of 327 vols. and pamphlets, forty-six anthropological photographs, and a collection of fossils.—A paper was read by Mr. Lawrence Hargrave on the trochoid plane. The paper was explanatory of some models of animal progression exhibited by the author before the Society, and gave in detail the opinions and deductions he had formed from his observations of the natural motions of animals. The author was of opinion that there was evidence to show that Nature almost universally used the trochoid plane for the transmission of force, and that its use by man opened up a wide field for engineers; he asked the opinion of the members whether there were grounds for believing that the trochoid plane was a distinct mechanical power, and if not under what head they classed it.

### PARIS

**Academy of Sciences**, September 29.—M. Rolland, President, in the chair.—Remarks in connection with a work "On the Origin of the Earth," presented to the Academy by M. Faye. The book is described as mainly historical, recording the various theories on the cosmogony of the universe that have prevailed from primitive times down to the present day.—Observations on a preceding communication dealing with the theory of the form of the planets, by M. F. Tisserand.—On the vegetation of the *Amaranthaceæ*: distribution of the fundamental substances amongst the various parts of this family of plants and its congeners at the various periods of their growth, by MM. Berthelot and André.—A simple process for effecting the separation of cerium and thorium from mixtures in which these elements are found, by M. Lecoq de Boisbaudran.—On the solubility of the prussiate of gallium; rectification of a previous communication by M. Lecoq de Boisbaudran.—On the trinomial linear equation in matrices of any order, by Prof. Sylvester.—Report of the Commissioners, MM. Bouley, Bert, Gosselin, Marey, Pasteur, Vulpian, and Richey, on various communications touching the treatment of cholera. Of the eight communications received since the last report, five are undeserving of mention. The three others are rather theoretical than practical, and that of Dr. Pereda y Sanchez alone seems to contain a few suggestions worthy of further consideration.—On the second experiment made by MM. Tissandier brothers to propel a screw balloon by means of electricity, by M. G.

Tissandier. This trial, made on September 26 at Auteuil with improved appliances, yielded all the results that could be expected from a balloon constructed with an exclusive view to experimental study. The vessel proved perfectly stable, obeying every movement of the rudder, and enabling the aeronauts to execute numerous manœuvres in various directions above Paris.—Observations of Barnard's comet and of Luther's planet made at the Observatory of Nice, by M. Perrotin.—Observations of Wolf's comet made at the Paris Observatory (equatorial of the West Tower), by M. G. Bigourdan.—Observations of the same comet made at the Paris Observatory (equatorial *coudé*), by M. Périgaud.—Observations of the same comet made on September 21 at the Observatory of Bordeaux with the meridian circle, by M. Courty.—Note on the group of points in involution marked on a surface, by M. Le Paige.—Description of a new polarising prism presenting some advantages over those of Nicol and of Hartnack and Prazmowski, by M. E. Bertrand.—Note on the products obtained from tellurium acted on by nitric acid, by MM. D. Klein and J. Morel.—On the employment of the sulphate of copper (blue vitriol) for the destruction of mildew, by M. Ad. Perrey. Vines recently treated with this solution in the department of Saône-et-Loire were everywhere distinguished from the surrounding plants by the bright green colour and healthy appearance of their foliage. But this remedy seems to be efficacious only in the case of young vines from four to six years old.—Report on the present climatic conditions and sanitary state of the isthmus of Panama, by M. R. Regnier. The prevailing notions regarding the insalubrity of this region appear to be unfounded. Its temperature varies from 24° to 30° C. in winter, rising to 35° in summer. The climate is hot and moist, with two seasons, summer and winter, the latter being the rainy season and the shorter of the two. Although the climate does not produce the same depressing effect on Europeans as many other tropical countries, certain hygienic precautions should be taken and scrupulously observed. Two large hospitals, one at Panama, the other at Colon, have been erected for the treatment of the men at present employed in the construction of the canal. A health resort has also been established at Taboga, and these various measures are stated to have reduced the mortality almost to a lower rate than in many great centres of industry. It is at present about 2.5 per cent., a proportion not exceeding the average of European countries.

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