

described as a summary of the facts already established regarding the geology of the various parts of the globe, the essential features of its present mountain ranges and depressions, and the successive movements of the terrestrial crust of which these are the outcome. The work marks a new departure in the progress of physical geography.—Observations of Swift's new comet made with the Brunner equatorial at the Observatory of Toulouse, by M. B. Baillaud; and with the large equatorial at the Observatory of Bordeaux, by MM. G. Rayet and Picart. All these observations, extending from November 21 to November 27, give the same results: comet very faint and greatly diffused, making observations very difficult. Tables are also given of observations made at Algiers by MM. Trépiéd, Rambaud, Sy, and Renaux, during the same period.—Mechanical realization of thermodynamic phenomena, by M. Chaperon. Purely mechanical systems may be conceived, which present a striking analogy to heat-engines in respect of their influence on finite movements. The author here describes one of these systems, which is distinguished by its extreme simplicity.—On the correspondence between the characteristic equations of gases, by M. Ladislas Natanson. The author here shows that Wroblewski's posthumous memoir, published by the Vienna Academy in November 1888, forms a natural complement to Van der Waal's law that at absolute, that is, *corresponding* temperatures proportional to the critical temperatures of the different bodies, the pressures, *P*, of their saturated vapours are proportional to the respective critical pressures.—Method of measuring the spheric and chromatic aberrations of the objectives of the microscope, by M. C. J. A. Leroy. Findings in an artificial eye certain effects connected with the aberrations of sphericity and refrangibility, the author has applied the method known as "Cuignet's keratotomy" to the study of the aberrations of the eye, and of the objectives of the microscope. His present observations are confined to the objectives alone.—On the electric conductivity of the Eiffel Tower and its conductors, by M. A. Terquem. It is shown that the tower with its complete system of lightning conductors, constructed under the direction of MM. Becquerel, Berger and Mascart, is calculated to afford perfect security for a considerable space round about.—Fresh researches on the preparation and density of fluorine, by M. Henri Moissan.—Papers were submitted by M. Daniel Berthelot, on the electric conductivities and multiple affinities of aspartic acid; by MM. E. Jungfleisch and L. Grimbart, on some facts relative to the analysis of sugars; by M. G. Colin, on the varying effects of virulent substances used for inoculating animals; by M. P. Fliche, on the silicified woods of Algeria; by M. Stanislas Meunier, on the Phu-Hong meteorite, with remarks on the limerick type; and by M. Léon Teisserenc de Bort, on the distribution of atmospheric pressure over the surface of the globe.

DIARY OF SOCIETIES.

LONDON.

THURSDAY, DECEMBER 12.

ROYAL SOCIETY, at 4.30.—The Relation of Physiological Action to Atomic Weight: Miss H. J. Johnstone and Prof. T. Carmelley.—An Experiment in Investigation into the Arrangement of the Excitable Fibres of the Internal Capsule of the Bonnet Monkey (*Macacus sinicus*): Dr. Beevor and Prof. V. Horsley, F.R.S.—On the Effect of the Spectrum on the Haloid Salts of Silver: Capt. Abney, F.R.S., and G. S. Edwards.—Magnetic Properties of Alloys of Nickel and Iron: Dr. Hopkinson, F.R.S.

MATHEMATICAL SOCIETY, at 8.—On the Radial Vibrations of a Cylindrical Shell: A. B. Basset, F.R.S.—Note on 51840-Group: G. G. Morrice.—On the Flexure of an Elastic Plate: Prof. H. Lamb, F.R.S.—Notes on a Plane Cubic and a Conic: R. A. Roberts.—Complex Multiplication Moduli of Elliptic Functions for the Determinants - 53 and - 61: Prof. G. B. Mathews.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Annual General Meeting.—Election of Council and Officers for 1890.—Electrical Engineering in America: G. L. Addenbrooke. (Discussion.)

FRIDAY, DECEMBER 13.

ROYAL ASTRONOMICAL SOCIETY, at 8.
 QUEKETT MICROSCOPICAL CLUB, at 8.
 INSTITUTION OF CIVIL ENGINEERS, at 7.30.—Hydraulic Station and Machinery of the North London Railway, Poplar: John Hale.

SATURDAY, DECEMBER 14.

ROYAL BOTANIC SOCIETY, at 3.45.

SUNDAY, DECEMBER 15.

SUNDAY LECTURE SOCIETY, at 4.—The Geology of London (with Oxygen-hydrogen Lantern Illustration): Rev. J. F. Blake.

MONDAY, DECEMBER 16.

SOCIETY OF ARTS, at 8.—Modern Developments of Bread-making: William Jago.
 ARISTOTELIAN SOCIETY, at 8.—Symposium—Is there Evidence of Design in Nature?: S. Alexander, Dr. Gildea, Miss Naden, G. J. Romanes.

TUESDAY, DECEMBER 17.

ROYAL STATISTICAL SOCIETY, at 7.45.—Accumulations of Capital in the United Kingdom in 1875-85 (with reference to a Paper read in 1878): Dr. Robert Giffen.

INSTITUTION OF CIVIL ENGINEERS, at 8.—On the Triple-Expansion Engines and Engine Trials at the Whitworth Engineering Laboratory, Owens College, Manchester: Prof. Osborne Reynolds, F.R.S. (Discussion.)
 UNIVERSITY COLLEGE BIOLOGICAL SOCIETY, at 5.15.—Amphioxus: C. E. Franck.

WEDNESDAY, DECEMBER 18.

SOCIETY OF ARTS, at 8.—London Sewage: Sir Robert Rawlinson, K.C.B.
 GEOLOGICAL SOCIETY, at 8.—On the Occurrence of the Genus *Girvanella*, and Remarks on Oolitic Structure: E. Wethered.—On the Position of the Westleton Beds or "Pebble Sands" of Suffolk to those of Norfolk, and on their Extension Inland, with some Observations on the Period of the Final Elevation and Denudation of the Weald and of the Thames Valley, Part 2: Prof. Joseph Prestwich, F.R.S.

ROYAL METEOROLOGICAL SOCIETY, at 7.—Report of the Wind Force Committee on the Factor of the Kew Pattern Robinson Anemometer: drawn up by W. H. Dines.—On Testing Anemometers: W. H. Dines.—On the Rainfall of the Riviera: G. J. Symons, F.R.S.—Report on the Phenological Observations for 1889: Edward Mawley.
 UNIVERSITY COLLEGE CHEMICAL AND PHYSICAL SOCIETY, at 4.30.—The Magnetization of Iron and Nickel: J. J. Stewart.

THURSDAY, DECEMBER 19.

ROYAL SOCIETY, at 4.30.
 LINNEAN SOCIETY, at 8.—Intensive Segregation and Divergent Evolution in Land Mollusca of Oahu: Rev. John T. Gulick.—Dipteris; with Remarks on the Systematic Position of the Dictyotaceæ: T. Johnson.
 CHEMICAL SOCIETY, at 8.—On Frangulin: Prof. Thorpe, F.R.S., and H. H. Robinson.
 ZOOLOGICAL SOCIETY, at 4.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Australia Twice Traversed, 2 vols: E. Giles (Low)—Physiology of Bodily Exercise: Dr. E. Lagrange (Kegan Paul).—Linear Differential Equations, vol. 1.: Dr. T. Craig (Trübner).—Philosophy of the Steam-Engine: R. H. Thurston (Trübner).—The British Journal Photographic Almanac, 1890 (Greenwood).—Absolute Measurements in Electricity and Magnetism, 2nd edition: A. Gray (Macmillan).—Occasional Thoughts of an Astroonomer on Nature and Revelation: Rev. Dr. Pritchard (Murray).—Star-Land: Sir R. S. Ball (Cassell).—The Story of Chemistry: H. W. Picton (Isbister).—A Text-book of Assaying: C. Beringer and J. J. Beringer (Griffin).—History and Pathology of Vaccination, 2 vols.: Prof. E. M. Crookshank (Lewis).

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