

Observations of the Solar Eclipse of April 16, 1893." Communicated by Dr. Common, F.R.S.

This report merely states the work undertaken by the British observers during the recent total solar eclipse, and the number and kind of photographs that were obtained. This information has appeared, from time to time, in these columns. A more detailed report, giving the results of the discussion of the pictures will shortly be published.

#### PARIS.

**Academy of Sciences, June 12.**—M. Loewy in the chair.—Experimental verifications of the theory of weirs without lateral contraction, the sheet being free below, by M. J. Boussinesq.—On a simplification introduced into certain formulæ depending upon the resisting power of solids by introducing the greatest linear extension  $\Delta$  which can be supported by the material, in the place of the corresponding elastic force  $R_0$ , by M. J. Boussinesq. In formulæ relating to the strength of elastic solids in motion, mechanicians as a rule introduce a quantity  $R_0$  denoting the greatest tension which a fibre can sustain upon unit sectional area without breaking, instead of the maximum elongation  $\Delta$  which does not endanger the texture. M. Boussinesq shows that many formulæ may be considerably simplified by introducing  $\Delta$ . Thus the maximum velocity  $V$  which can be safely impressed upon an element of a solid under concussion is related to the velocity of sound in the solid and to  $\Delta$  in a manner given by the formula  $V = k\omega\Delta$ , where  $k$  is a constant depending on the figure and mass of the solid, and  $\omega$  is the velocity of sound in it. If  $V$  be the peripheral velocity of a flywheel in the form of a narrow ring with a large radius, the maximum safe velocity is given by the formula  $V = \omega\sqrt{\Delta}$ .—On various methods of observing the so-called anomalous focal properties of diffraction gratings, by M. A. Cornu.—On the extraction of zirconia and thorina, by M. L. Troost.—Study of some new phenomena of fusion and volatilisation produced by means of the heat of the electric arc, by M. Henri Moissan.—On Liouville's linear element surfaces, and surfaces with constant curvature, by M. Émile Waelsch.—On a general property of electric and magnetic fields, by M. Vaschy.—Study of the filtration of liquids, by M. R. Lézé. A porous vessel containing the liquid to be studied was placed in a test-tube and subjected to very rapid rotation. By a comparison of the weights of the porous vessel and its contents before and after rotation, the velocity of outflow through the porous walls due to centrifugal force was ascertained. Taking that of distilled water as unity, the figure for a five per cent. solution of sodium chloride was 1.023, for the nitrate 1.051, for ammonium sulphate 0.993. The velocity of efflux for alcohol solution showed a minimum at 40°, where it was 0.50. The numbers are those for a pressure of eight or ten atmospheres applied during ten minutes, during which the tubes travelled from 40 to 50 km.—On the combinations of molybdates and sulphurous acid, by M. E. Péchard.—On bromine-boracites; bromine compounds of iron and zinc, by MM. G. Rousseau and H. Allaire.—On fluorides of copper, by M. Poulenc.—Action of electricity upon the carburisation of iron by cementation, by M. Jules Garnier.—On the rotatory power of bodies belonging to an homologous series, by M. Ph. A. Guye. It is shown theoretically that if the schematic tetrahedron is slightly deformed, the rotatory powers of a homologous series of bodies must pass through a maximum.—On the rotatory powers of the ethers of valeric and glyceric acids, by MM. Ph. A. Guye and L. Chavanne. This paper contains experimental evidence supporting the conclusions of the previous paper.—Heat of formation of some derivatives of indigo, by M. R. d'Aladern.—On right-handed licareol, by M. Ph. Barbier.—A new apparatus for measuring the intensity of perfumes, by M. Eugène Mesnard. The instrument is based upon the property of essence of terebenthine of extinguishing the phosphorescence of phosphorus when mixed with the surrounding air in a certain minimum proportion. The phosphorescent body is a small piece of starch dipped into a concentrated solution of phosphorus in carbon bisulphide. After once determining the quantity of essence necessary to extinguish phosphorescence, the quantity of essence contained in air may be ascertained by passing sufficient of the air through the apparatus to produce extinction. This air is mixed with other air containing a known quantity of the essential oil or other perfume to be examined, and the odoriferous power of the latter is given by the quantity required to produce a "neutral" scent.—On the fertilisation of the Puccinice, by M. Paul Vuillemin.—Magnesian chalk of the environs

of Guise (Aisne), by M. H. Boursault.—On the cavern of Boundoulaou (Aveyron), by MM. E. A. Martel and Émile Rivière.—On the utilisation of the waste products of the vineyard, by M. A. Muntz.—Mode of action of the substances produced by microbes upon the circulatory apparatus, by MM. Charrin and Gley.—On a soluble derivative of  $\beta$ -naphthol, by MM. Dujardin-Beaumez and Stackler.—On morbid intercurrents in sulphate of quinine fevers, by M. Alcide Treille.

#### BOOKS, PAMPHLETS, and SERIALS RECEIVED.

**BOOKS.**—Primitive Music: R. Wallaschek (Longmans).—Life with Trans-Siberian Savages: B. D. Howard (Longmans).—Nineteen Charts of the Isle of Wight and Solent Tides from Portland Bill to the Owers: T. B. C. West and F. H. Collins (Potter).—Photography Annual, 1893 (Iliffe).—Lehrbuch der Zoologie, new edition: Dr. R. Hertwig (Jena, Fischer).—Das Kleine Botanische Practicum für Anfänger, new edition: Dr. E. Strasburger (Jena, Fischer).—Die Pilzgärten einiger Sudamerikanischer Ameisen: A. Möller (Jena, Fischer).—Smithsonian Meteorological Tables (Washington).—On the Chemistry of the Blood: L. C. Wooldridge (K. Paul).—Walks in the Ardennes, new edition: edited by P. Lindley (London).—On English Lagoons: P. H. Emerson (Nutt).

**PAMPHLETS.**—The Condition of the Western Farmer: A. F. Bentley (Baltimore).—Report of the Trustees of the South African Museum, 1892 (Cape Town).—Il Terremoto a Roma del 22 Gennaio, 1892: Dr. G. Agamenone (Roma).—The Brighton Life Table: Dr. A. Newsholme (Brighton).—Die Medicinische Electrotechnik und ihre Physikalischen Grundlagen: Dr. J. L. Hoorweg (Leipzig, Engelmann).—Ueber das Norian oder Ober-Laurentian von Canada: F. D. Adams (Stuttgart, Koch).—Geometrical Constructions for Cutting from a Core of Revolution: E. A. Engler (St. Louis).

**SERIALS.**—Proceedings of the Bath Natural History and Antiquarian Field Club, Vol. vii. No. 4 (Bath).—Journal of the Polynesian Society, Vol. 2, No. 1 (Wellington).—Bulletin of the New York Mathematical Society, Vol. 2, No. 9 (New York, Macmillan).—Journal de Physique, June (Paris).—Séances de la Société Française de Physique, November-December, 1892 (Paris).—Proceedings of the American Philosophical Society, Vol. xxxi. No. 140 (Philadelphia).—Proceedings of the Academy of Natural Sciences of Philadelphia, 1893, Part 1, January-March (Philadelphia).—Bulletins de la Société d'Anthropologie, No. 5, June 15 (Paris, Masson).—Reale Istituto Lombardo di Scienze e Lettere, Rendiconti, Serie 2, Vol. 26, fasc. xi.-xii. (Milano, Hoepli).—Psychological Memoirs: edited by G. Murray, Part 2 (Dulau).—Zeitschrift für Physikalische Chemie, xi. Band, 6 Heft (Leipzig, Engelmann).—The American Naturalist, June (Philadelphia).—Bulletin de la Société d'Encouragement pour l'Industrie Nationale, Avril (Paris).

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