

M. Georges **Meslin**.—An experimental contribution to the physiology of death, by MM. N. **Vaschide** and Cl. **Vurpas**.—On the principal alimentary Leguminosæ of the French colonies, by M. **Bailand**.

ST. LOUIS.

Academy of Science, April 6.—Prof. F. E. Nipher reported that he had apparently succeeded in producing a distortion of a magnetic field by means of explosions. The apparatus used was a transformer consisting of concentric coils wound upon brass tubes. The outer tube was five inches in diameter and six feet long, wound with more than four thousand windings of No. 16 wire. This coil was traversed by a continuous current from a storage battery. Within this, and separated from it by an air-space of an inch, is a secondary coil of equal length, having more than twenty-five thousand windings of No. 25 wire. This coil is connected to a D'Arsonval galvanometer. Within the tube on which this coil is wound is a smaller brass tube within which a train of black gunpowder is laid. This tube is open at both ends, and has practically no recoil when the explosion is made. When hung by a bifilar suspension on cords ten feet in length, the recoil is about an inch. When the exciting current is small compared with the capacity of the battery, the galvanometer reading is very steady. When the train is exploded, a sudden and marked throw of the galvanometer results, which could be accounted for by an increase in the permeability of the long explosion chamber. The deflection reverses when the field is reversed. The hot gases liberated in the explosion are all diamagnetic, and tend to decrease the observed effect. In two cases the galvanometer deflection was in the opposite direction from that stated above, and this is being further inquired into. When seven tubes between the two coils are simultaneously exploded, only slight effects can be obtained, and these deflections are wavering, or to and fro, in character. A wire was threaded through the inner combustion tube, through which a current of three amperes was passed. This circuit was opened and closed with no visible effect. The galvanometer circuit is shielded by tin-foil, which is also connected with the explosion tube, and grounded. Sparks an inch long to the tin-foil produce no result. When the explosion tube is removed from the transformer, and taken near the galvanometer or the storage battery, no deflection is produced by the explosion. An explosive mixture of gases from water electrolysis under atmospheric pressure produces a much less violent explosion, and produces a correspondingly less effect. The scale reading of the galvanometer changes by more than twenty divisions with the heaviest explosions, and an exciting current of 0.6 ampere. With smaller explosions or feebler currents, the effect is diminished. No deflections can be produced by striking the table upon which the transformer rests, nor by striking the transformer itself, even when it moves slightly under the blow. The secondary and primary coils are held rigidly in fixed position with respect to each other. Arrangements have now been made to place the explosion tube in the focal line of a parabolic cylinder of metal, the galvanometer coil being in the focal line of a similar mirror. Either or both are to be surrounded by an exciting coil. This line of research was suggested by Young's account of his observation of five solar outbursts in 1872, which were each accompanied by sharp fluctuations in the magnetic tracings at Kew and Stonyhurst.

DIARY OF SOCIETIES.

THURSDAY, APRIL 23.

ROYAL INSTITUTION, at 5.—Hydrogen: Gaseous, Liquid and Solid: Prof. Dewar, F.R.S.

SOCIETY OF ARTS, at 4.30.—The Province of Sind: Dr. Herbert M. Birdwood.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Distribution Losses in Electric Supply Systems: A. D. Constable and E. Fawcett.—A Study of the Phenomenon of Resonance in Electric Circuits by the Aid of Oscillograms: M. B. Field. *And, if time permit.*—Divided Multiple Switchboards: An Efficient Telephone System for the World's Capitals: W. Aitken.

FRIDAY, APRIL 24.

ROYAL INSTITUTION, at 6.—Some Recent Investigations on Electrical Conduction: The Hon. R. J. Strutt.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Bacterial Sewage-Disposal Works, at Ash, Dover: H. S. Watson.

NO. 1747, VOL. 67]

PHYSICAL SOCIETY, at 5.—An Electrical Thermostat: H. Darwin.—Dimensional Analysis of Physical Quantities and the Correlation of Units: A. F. Ravenshear.—Note on the Dimensions of Physical Quantities: R. J. Sower.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Address by the president, J. H. Wicksteed.—The Education of Engineers in America, Germany and Switzerland: Prof. W. E. Dalby.

MONDAY, APRIL 27.

SOCIETY OF ARTS, at 8.—Mechanical Road Carriages: W. Worby Beaumont.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Four Years' Arctic Exploration in the *Fram*: Captain Otto Sverdrup.

INSTITUTE OF ACTUARIES, at 5.—On the Valuation of Staff Pension Funds. Part II. Widows' and Children's Pensions: H. W. Manly; With Tables by H. Foot.

TUESDAY, APRIL 28.

ROYAL INSTITUTION, at 5.—The Blood and some of its Problems: Prof. Allan Macfadyen.

SOCIETY OF ARTS, at 7.30.—Visit to the Whitefriars' Glass Works.—Modern Table Glass: Harry Powell.

ANTHROPOLOGICAL INSTITUTE, at 8.15.—The Classification of the Materials of Anthropology: E. N. Fallaize.—Measurements of the Colonial Coronation Contingent: J. Gray.—Implements used by West Australian Natives in Manufacture of Glass Spear-Heads: H. Balfour.

WEDNESDAY, APRIL 29.

SOCIETY OF ARTS, at 8.—Automatic Wagon Couplings on British Railways: T. A. Brockelbank.

GEOLOGICAL SOCIETY, at 8.—The Age of the Swiss Alpine Lakes: Dr. C. S. DuRiche Preller.—On a Shelly Boulder-Clay in the so-called Palagonite-Formation of Iceland: Helgi Pjetursson.

THURSDAY, APRIL 30.

ROYAL SOCIETY, at 4.30.—Croonian Lecture: The Cosmical Function of the Green Plant: Prof. K. A. Timirjazev.

ROYAL INSTITUTION, at 5.—Hydrogen: Gaseous, Liquid and Solid: Prof. Dewar, F.R.S.

FRIDAY, MAY 1

ROYAL INSTITUTION, at 9.—Recent Advances in Stereochemistry: Prof. W. J. Pope.

CONTENTS.

	PAGE
School Geometry Reform. By J. Harrison	577
Systematic Petrography. By Prof. Grenville A. J. Cole	578
Alternating Current Engineering. By C. C. G.	580
The Principles of Dyeing. By W. M. G.	581
Agricultural Research in Italy. By A. D. H.	582
Our Book Shelf:—	
Righi and Dessau: "La Telegrafia senza Filo"	582
South: "Catalogue of the Collection of Palearctic Butterflies Formed by the late John Henry Leech"	583
Frankland: "Bacteria in Daily Life."—Prof. R. T. Hewlett	583
Letters to the Editor:—	
A New Theory of the Tides of Terrestrial Oceans.—R. A. Harris	583
March Dust from the Soufrière.—Prof. T. G. Bonney, F.R.S.	584
The Lyrid Meteors.—John R. Henry; Prof. A. S. Herschel, F.R.S.	584
Mendel's Principles of Heredity in Mice.—W. Bateson, F.R.S.	585
Experiment to Illustrate Precession and Nutation. (Illustrated.)—Rev. H. V. Gill	586
Distribution of Pithophora.—Kumagusu Minakata	586
Pedigrees. By Francis Galton, F.R.S.	586
Standardisation	587
Italian Visit of the Institution of Electrical Engineers. (With Diagram.)	588
Notes	589
Our Astronomical Column:—	
Nova Geminorum	593
Spectrum of the Nebulosity Surrounding Nova Persei	593
Stellar Parallax. By W. E. P.	594
Ridgway's American Birds. By R. L.	594
A Periodical of Precious Plants	594
Interaction Between the Mental and the Material Aspects of Things. By Sir Oliver J. Lodge, F.R.S.	595
University and Educational Intelligence	597
Scientific Serial	597
Societies and Academies	598
Diary of Societies	600