

very favourable, eleven negatives being obtained.—Observation of the lunar eclipse of April 11–12, 1903, by M. R. **Mailhat**. Eighteen negatives were taken and submitted to the Academy.—On M. Guichard's new transformation of surfaces of total constant curvature, by M. **Tzitzeica**.—On a new generalisation of the theorem of M. Picard on entire functions, by M. Georges **Remondos**.—Researches on electric convection, by MM. V. **Crémieu** and H. **Pender**. In spite of the contradictory nature of some of the experimental results obtained, the authors believe that they are justified in drawing the conclusion that charged metallic surfaces, either continuous or divided into sectors, and turning in air in their own plane, produce magnetic effects in the sense predicted by electric convection, and agreeing within 10 per cent. with the order of magnitude calculated for convection. The interposition of fixed armatures between the moving surfaces and the measuring apparatus appears to have no influence on the magnetic effects obtained.—On magnetic hysteresis at high frequencies, by MM. C. E. **Guye** and B. **Herzfeld**. The question has frequently been raised as to whether the energy lost by hysteresis in a magnetic cycle is independent of the speed with which the cycle is completed, and very contradictory results have hitherto been published. The chief cause of uncertainty is the presence of Foucault currents, and in the experiments described in the present paper an attempt has been made to eliminate this difficulty by the use of very fine iron wires, and a thermal method for measuring the energy dissipated in the wire has been adopted. Up to 1200 periods per second the energy consumed by hysteresis is independent of the velocity of the cycle.—On the magnetic properties of the terrestrial atmosphere, by M. Charles **Nordmann**. The magnetic properties of the atmosphere can only have a very small effect on the earth's magnetic field, and can only produce a negligible fraction of the diurnal period of a magnetised needle.—On electric sparks, by M. B. **Eginitis**.—The electrical separation of metallic powders and inert material, and of the metallic part of a mineral from its gangue, by M. D. **Negreano**.—On a self-registering galvanometer and a rotating contact, and their use in tracing the curves of alternating currents, by M. J. **Charpentier**. The mechanism controlling the introduction and motion of the sheet of paper upon which the curve is to be drawn is the chief characteristic of the recording galvanometer for which novelty is claimed.—The nature of the sulphur compound in the water from the Bayen spring at Bagnères-de-Luchon, by M. F. **Garrigou**. The Bayen water, before contact with air, contains a sulphhydrate of sulphur.—Soluble cellulose, by M. Léo **Vignon**. Oxycellulose, prepared from cellulose by means of hydrochloric acid and potassium chlorate, is acted upon by aqueous solutions of potash in the cold, with regeneration of cellulose and forming a soluble cellulose, which can be precipitated from the solution by hydrochloric acid, or chlorides of the alkalis and alkaline earths.—Physiological and histological observations on the Gephyrians (endothelial derivatives and pigmentary granules), by M. Marcel A. **Hérubel**.—On the existence of an axile filament in the adult conjunctival fibrilla, by M. P. A. **Zachariadès**.—Indophil reaction of the leucocytes in the aseptic suppurations caused by the subcutaneous injection of essence of turpentine, by MM. J. **Sabrazès** and L. **Muratet**.

### DIARY OF SOCIETIES.

**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.  
**INSTITUTION OF ELECTRICAL ENGINEERS**, at 8.—Divided Multiple Switchboards: An Efficient Telephone System for the World's Capitals: W. Aitken.  
**FRIDAY, MAY 1.**  
**ROYAL INSTITUTION**, at 9.—Recent Advances in Stereochemistry: Prof. W. J. Pope.  
**GEOLOGISTS' ASSOCIATION**, at 8.—The Zones of the White Chalk of the English Coast. IV.—Yorkshire: Dr. A. W. Rowe.  
**MONDAY, MAY 4.**  
**SOCIETY OF CHEMICAL INDUSTRY**, at 8.—Problems in the Fat Industry: Dr. Julius Lewkowitzsch.  
**SOCIETY OF ARTS**, at 8.—Mechanical Road Carriages: W. Worby Beaumont.  
**VICTORIA INSTITUTE**, at 4.30.—Report on the Congress of Orientalists held at Hamburg, together with a Short Description of the Laws of

Hammurabi, the Amraphel of Genesis, Ch. xiv., as Engraved on the Recently Discovered Monument: Dr. T. G. Pinches.  
**TUESDAY, MAY 5.**  
**ROYAL INSTITUTION**, at 5.—The Blood and some of its Problems: Prof. Allan Macfadyen.  
**SOCIETY FOR THE PROMOTION OF HELLENIC STUDIES**, at 4.30.  
**SOCIETY OF ARTS**, at 4.30.—The Lagos Hinterland: its People and its Products: Major J. H. Ewart.  
**WEDNESDAY, MAY 6.**  
**ENTOMOLOGICAL SOCIETY**, at 8.—Descriptions of twelve New Genera and Species of Ichneumonidae and three New Species of Ampulex from India: Peter Cameron.  
**SOCIETY OF PUBLIC ANALYSTS**, at 8.  
**SOCIETY OF ARTS**, at 8.—The Construction of Maps and Charts: G. J. Morrison.  
**THURSDAY, MAY 7.**  
**ROYAL SOCIETY**, at 4.30.—*Probable Papers*:—On *Lagenostoma Lomaxi*, the Seed of Lyginodendron: Dr. F. W. Oliver and Dr. D. H. Scott, F.R.S.—On the Physiological Action of the Poison of the Hydrophidæ: Dr. L. Rogers.—Preliminary Note on the Discovery of the Pigmy Elephant in Cyprus: Miss D. M. A. Bate.  
**ROYAL INSTITUTION**, at 5.—Hydrogen: Gaseous, Liquid and Solid: Prof. Dewar, F.R.S.  
**RÖNTGEN SOCIETY**, at 8.30.—Exhibition Evening.  
**CHEMICAL SOCIETY**, at 8.—(1)  $\beta$ -Bromonitrocamphor and  $\beta$ -Bromocamphoxyloxime. Influence of Impurities in Conditioning Dynamic Isomerism; (2) Spontaneous Decomposition of Nitrocamphor: T. M. Lowry.—The Active Constituents of *Butea fronsosa*: E. G. Hill.  
**LINNEAN SOCIETY**, at 8.—The Ingolfellidæ, fam. nov., a New Type of Amphipoda: Dr. H. J. Hansen.—The Evolution of the Marsupials of Australia: A. Bensley.—Copepoda Calanoida from the Farøe Channel, and Other Parts of the North Atlantic: Rev. Canon Norman, F.R.S.  
**INSTITUTION OF ELECTRICAL ENGINEERS**, at 8.—Applications of Electricity in Engineering and Shipbuilding Works: A. D. Williamson.—Electric Driving in Machine Shops: A. B. Chatwood.  
**FRIDAY, MAY 8.**  
**ROYAL INSTITUTION**, at 9.—Rural England: H. Rider Haggard.  
**ROYAL ASTRONOMICAL SOCIETY**, at 5.  
**MALACOLOGICAL SOCIETY**, at 8.—On the Necessity of Examining and Comparing the Animals before Determining some Species of the Genus *Oliva*: F. G. Bridgman.—Notes on some British Eulimidæ: E. R. Sykes.—Note on the Occurrence of *Planorbis marginatus*, Drap., and *Limnæa pereger*, Müll., in the Pleistocene of Bognor, Sussex: Alexander Reynell.

### CONTENTS.

	PAGE
Radium. By Prof. J. J. Thomson, F.R.S.	601
Entropy. By Prof. John Perry, F.R.S.	602
Vertebrate Morphology. By Dr. H. Gadow, F.R.S.	605
The Work of Marignac. By W. R.	607
Irrigation in the Western States of America	607
Our Book Shelf:—	
Chottoraj: "Algebra"	608
Young: Practical Chemistry and Physics.—J. B. C.	608
Andrews and Howland: "Elements of Physics"	609
Duncan: "First Steps in Photo-Micrography"	609
Letters to the Editor:—	
Radio-Active Gas from Well Water.—Prof. J. J. Thomson, F.R.S.	609
Can Dogs Reason?—Sir William Ramsay, K.C.B., F.R.S.	609
Bullfinch and Canary.—George Henschel	609
Mendel's Principles of Heredity in Mice.—Prof. W. F. R. Weldon, F.R.S.	610
The Discovery of Japan.—Kumagusu Minakata	610
Sir O. Lodge and the Conservation of Energy.—Dr. E. W. Hobson, F.R.S.	611
Density and Change of Volume of Nova Persei.—C. E. Stromeyer	612
A Katydid's Resourcefulness.—Arthur G. Smith	612
Aboriginal Remains in N.W. Florida	612
Positive Sciences at the International Congress of History. By Prof. Piero Giacosa	613
Julius Victor Carus (1823–1903). By J. A. T.	613
Notes	614
Our Astronomical Column:—	
Astronomical Occurrences in May	618
Nova Geminorum before its Discovery	618
Recently Discovered Terrestrial Gases in the Chromosphere	619
Catalogue of Measures of New Double Stars	619
"The Cambrian Natural Observer"	619
Seismological Notes	619
Dr. Goeldi on Brazilian Deer	620
The Pearl Fisheries of Ceylon. By Prof. W. A. Herdman, F.R.S.	620
University and Educational Intelligence	622
Societies and Academies	623
Diary of Societies	624