

thought that the precaution of never separating the terminals of the electrical machine further than by a small fraction of the distance between the coats of the generator would ensure the absence of discharge between the coats; and in the conditions adopted, Meissner observed that when discharge took place by the passage of a spark between the terminals, there was a temporary increase of pressure; the effect being most marked in the case of CO_2 , and least marked in H. In Miss Martin's repetition of the experiments, the generator was put in a dark box, provision being made to let the gauge and the space between the coats of the generator be seen. It was then established that in no case could any deflection of the gauge be seen, except when luminosity could be detected in the generator. It was further observed that when the discharge passed through CO_2 a permanent contraction was produced. The experiments have been repeated by Prof. Thomson, and he finds that if wet CO_2 is used, the effect is more marked; but if carefully dried CO_2 is used, no contraction is produced.

PARIS.

Academy of Sciences, December 2.—M. A. Cornu in the chair.—On the extension of the ideas of Galois to the theory of differential equations, by M. Émile Picard.—Remark on a memoir, by M. Jaumann, entitled, "Longitudinal Light." A note by M. H. Poincaré. The author derives equations, from those found by M. Jaumann, which indicate properties for cathode rays not agreeing with facts, and hence considers that modifications are needed in the hypotheses put forward in the memoir.—On the presence of sodium in aluminium prepared by electrolysis, by M. Henri Moissan. It is shown that electrolytic aluminium contains in general from 0.1 to 0.3 per cent. of sodium, and that the presence of this impurity renders the metal easily attacked by water. Aluminium should always be used alone and pure, as it readily forms electric couples with every other metal, and is then easily attacked by water.—On the origin of argon and of helium in gases disengaged by certain sulphurous waters, by MM. L. Troost and L. Ouvrard. It is shown that, though argon is generally present in waters, helium is only found in certain mineral waters, and does not probably owe its origin to the atmosphere, but to the rocks through which the waters have percolated. M. Bouchard added some remarks on the therapeutic value of helium and argon, and supported the view that these gases have no action on the economy, but admitted that the metals present in helium containing minerals might have medical action when present in minimal amounts.—Structure of the mesenteric ganglia of the pig, by M. L. Ranvier.—Observations on Perrine's comet (16 November, 1895) made with the great equatorial at Bordeaux Observatory by MM. G. Rayet and L. Picart. Note by M. G. Rayet.—M. Ch. V. Zenger, in a note entitled "Studies in molecular physics," sets forth a very simple relation between the density and specific heat of chemical elements, and indicates a new view of the genesis of the elements.—Observations of Swift's comet (1895, August 20) made with the great telescope, and of Perrine's comet (1895, November 16) made with the 0.25m. equatorial at Toulouse Observatory, by M. Rossard.—Note on the construction of the calendar, by M. A. Auric.—On Lame's equation, by M. G. Floquet.—On the extension of Cauchy's method to systems of equations to the derived partials of any order whatever, by M. J. Beudon.—On the functions of two real variables and on the motion of an arbitrary function, by M. Émile Borel.—On orthogonal systems, by M. Paul Adam.—On a new determination of the ratio between the electrostatic and electromagnetic units, by M. D. Hurmuzescu. The value found gives

$$v = 3.0005 \times 10^{10} \text{ to } 3.0020 \times 10^{10}.$$

—Relation between the intensity of light and the chemical decomposition which it produces; experiments with mixtures of ferric chloride and oxalic acid, by M. Georges Lemoine. The chemical decomposition of a mixture of ferric chloride and oxalic acid is proportional to the luminous intensity.—On the presence of argon and helium in a natural source of nitrogen, by M. Ch. Moureu.—Experimental determination of the agglutinating power of oils, by M. Louis Campredon.—On a chromium amalgam and some properties of metallic chromium, by M. J. Féréé.—On a method of synthesis of complex amides, by M. Albert Colson.—New examples of the superposition of optical effects of asymmetric carbon atoms, by MM. Ph. A. Guye and Ch. Goudet.—On a zoological exploration of Corsica, by M. Louis Roule.—On the anatomy and systematic position of compound Ascidians of the genus *Sigillina*, Sav., by M. Maurice Caullery.—On the accumulation of sugar in beetroots, by M. L.

Maquenne.—The pliocene and quaternary glaciers of Auvergne, by M. Marcellin Boule.—On the geology and "tectonic" of the Central Caucasus, by M. E. Fournier.—On two new forms of quartz, by M. P. Termier.—On the effects of the tropical revolutions of the sun and of the moon on the barometric pressure, by M. P. Garrigou-Lagrange.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Congrès de l'Atmosphère 1894, Comptes Rendus (Anvers).—Introduction to the Study of Fungi: Dr. M. C. Cooke (Black).—Mensuration for the Use of Schools, &c.: Rev. A. D. Clarke (Rivington).—Modern Microscopy: M. I. Cross and M. J. Cole, 2nd edition (Baillière).—Practical Inorganic Chemistry: Dr. G. S. Turpin (Macmillan).—The Pterophorina of Britain: J. W. Tutt (Hartlepool, Röbsons).—Elementary Algebra: J. W. Welford and C. H. P. Mayo (Longmans).—University College, Nottingham, Calendar 1895-96 (Nottingham, Sands).—Compendio de Declinaciones Magnéticas en la Península Ibérica: Don R. P. de Figueroa (Madrid).—Lehrbuch der Entwicklungsgeschichte des Menschen und der Wirbeltiere, Dr. O. Hertwig, Fünfte Auflage (Jena, Fischer).—Principles of Metallurgy: A. H. Hioris (Macmillan).—Macmillan's Geography Readers, Book vii. (Macmillan).—Elements of Geometry: G. C. Edwards (Macmillan).—Essays in Taxation: Prof. E. R. A. Seligman (Macmillan).—Regeneration, a Reply to Max Nordau (Constable).—The Key of the Pacific, the Nicaragua Canal: A. R. Colquhoun (Constable).—Physical Chemistry: Prof. V. B. Lewes, 2nd edition (Whittingham).—Physical Measurements: F. C. Weedon (Gill).—Imperial University of Japan, Calendar 1894-95 (Tokyo).—Handbuch der Mineralchemie: Dr. C. F. Rammelsberg, Zweites Ergänzungsheft zur Zweiten Auflage (Leipzig, Engelmann).—Kurzes Handbuch der Kohlenhydrate: Dr. B. Tollens, Zweiter Band (Berlin, Treverdt).

PAMPHLETS.—Ethnography of the Mullet, Inishkea Islands and Portacloy, Co. Mayo: Dr. C. R. Browne (Dublin).—On Memory and the Specific Energies of the Nervous System: Prof. E. Hering (Open Court Publishing Company).—Spiritual Truth and Common Sense: B. Hodgson (Birmingham, Cornish).—On the Localisation of the Foramina at the Base of the Skull: Prof. E. Fawcett (Bristol, Arrowsmith).

SERIALS.—Botanische Jahrbücher, &c., Zweirundzwanzigster Band 1, Heft (Leipzig, Engelmann).—Zeitschrift für Physikalische Chemie, xviii, Band, 3 Heft (Leipzig, Engelmann).—History of Mankind: F. Ratzel, Part 3 (Macmillan).—Geological Magazine, December (Dulau).—Science for All, cheap edition, Part 1 (Cassell).—Geographical Journal, December (Stanford).—Bulletin de l'Académie Royale des Sciences, &c., de Belgique, Nos. 9 and 10 (Bruxelles).—Bulletin of the American Mathematical Society, November (New York, Macmillan).—Observatory, December (Taylor and Francis).—Companion to ditto, No. 235 (Taylor and Francis).—Strand Magazine, December (Newnes).—Live Stock Journal Almanac, 1896 (Vinton).—Science Progress, December (Scientific Press, Ltd.).

CONTENTS.

PAGE

The History of Mathematics. By G. B. M.	121
The Spiders of Burma. By R. I. P.	122
Colour Vision. By S. P. T.	124
Selborne Illustrated. By O. V. Aplin	126
Plant Physiology. By H. H. D.	127
Our Book Shelf: —	
Spanton: "Science and Art Drawing: Complete Geometrical Course"	128
Letters to the Editor: —	
The Discovery of the Anti-Toxin of Snake-Poison.—Prof. E. Ray Lankester, F.R.S.	128
The Maerjelen Lake.—Dr. C. S. Du Riche Preller	129
The Former Northward Extension of the Antarctic Continent.—Frank E. Beddard, F.R.S.	129
The Feeding Ground of the Herring.—Captain Alexander Turbyne	129
The Theory of Magnetic Action upon Light.—A. B. Basset, F.R.S.	130
The Barisal Gun.—Colonel H. S. Olcott	130
Remarkable Sounds.—C. Fox-Strangways	130
Flight of Birds across the Moon's Disc.—Robert H. West	131
A Luminous Centipede.—Rose Haig Thomas; R. I. Pocock	131
The Critical Temperature of Hydrogen.—Dr. Ladislav Natanson	131
A Meteor Photograph. (Illustrated.)	131
The Royal City of Zenobia. (Illustrated.)	132
Notes	133
Our Astronomical Column: —	
The New Comets	138
The Great Comet of 1843	138
Nebulosity around the Pleiades	138
The First Steps in Serum-Therapy	138
The Major Premiss in Physical Chemistry. By Robt. B. Warder	139
University and Educational Intelligence	140
Societies and Academies	141
Books, Pamphlets, and Serials Received	144