

Bouvier and H. Fischer.—On the structure and evolution of the protoplasm of the Mucorinaceæ, by M. L. Matruchot. —On the resistance of seeds to immersion in water, by M. Henri Coupin. Seeds differ greatly in their resistance to water, some living about the same time whether the water be renewed or not, others dying much sooner in the latter case.—Contributions to the knowledge of volcanic rocks in the French Alps, by M. W. Kilian and P. Termier.—On a quaternary tufa recognised at Montigny, near Vernon, by M. Gustave F. Dollfus.—On the land-slip of Saint-Pierre de-Livron, and the infiltration of layers of tufa, by M. E. A. Martel.—Embryological notes on the migration of spinal ganglia, by M. A. Canticu.—Contribution to the study of the albumenoid materials contained in cereal and leguminous flours, by M. E. Fleurent.—On the periods of treatment of black rot in the south-east of France.—A local magnetic pole in Europe, note by M. Mascart. M. Leist, of Moscow, has discovered at Kotchétovka, a village in the province of Koursk, a local magnetic pole where the magnetic needle stands vertically. A distance of 20 metres from this spot suffices to change the angle of dip by  $1^\circ$ .—Earthquake of May 6, 1898, communicated by M. Lewey.

## ST. LOUIS.

Academy of Science, April 18.—Mr. Carl Kinsley read a paper on series dynamo electric machines. He showed, by the results of tests of machines, that the relations between electromotive force, current, and speed can be represented by a surface. This is easily done, since for widely different currents, and for both dynamos and motors, the total induced electromotive force is strictly proportional to the speed when the current is constant. He stated that Frölich's empirical equation can be used to represent large portions of this surface, as suggested by Prof. F. E. Nipher. It was stated that the way in which a series motor will operate from a series generator can be predetermined; and, for cases reported, it was shown that computed results, throughout the complete range of working conditions, gave an average agreement with observed results to within 0.05 per cent. The method explained in the paper enables an engineer to design such a power transmission circuit accurately from shop tests of the machinery, and to operate the series motor at constant speed under all loads. It was shown that the resistance of the generator does not vary with the speed. This makes it possible to use a small series generator as a speed indicator, and so obtain instantaneous values of engine speeds from the voltmeter or ammeter readings, if the resistance of the outside circuit is kept constant. The practicability of this method of determining engine speeds was fully shown by the results reported in the paper.—Prof. J. H. Kinealy made some informal remarks on the ventilation of schools, and by means of a number of stereopticon views showed the different methods adopted for supplying the air required to the different rooms of school-houses.

## DIARY OF SOCIETIES.

## THURSDAY, MAY 19.

ROYAL INSTITUTION, at 3.—Heat: Lord Rayleigh.  
CHEMICAL SOCIETY, at 8.—The Action of Formaldehyde on Amines of the Naphthalene Series: G. T. Morgan.—On the Constitution of Oleic Acid and its Derivatives. Part I.: F. G. Edmed.

## FRIDAY, MAY 20.

ROYAL UNITED SERVICE INSTITUTION, at 3.—Experiences with Röntgen Apparatus in Afghanistan: Surgeon-Major Bevor.

## SATURDAY, MAY 21.

ROYAL INSTITUTION, at 3.—Biology of Spring: J. Arthur Thomson.  
GEOLOGISTS' ASSOCIATION (Paddington Station, G.W.R.), at 1.40.—Excursion to Penn and Coleshill. Director: W. P. D. Stebbing.  
ESSEX FIELD CLUB (at Chingford), at 7.—On the Preparation of Marine Animals as Transparent Lantern Slides: Dr. H. C. Sorby, F.R.S.

## MONDAY, MAY 23.

SOCIETY OF ARTS, at 8.—Electric Traction: Prof. Carus Wilson.  
ROYAL GEOGRAPHICAL SOCIETY, at 3.—Anniversary Meeting.

## TUESDAY, MAY 24.

SOCIETY OF ARTS, at 8.—The Goldfields of British Columbia: W. Hamilton Merritt.  
LINNEAN SOCIETY, at 3.—Anniversary Meeting.  
ROYAL VICTORIA HALL, at 8.30.—Wood: Prof. H. Marshall Ward, F.R.S.

## THURSDAY, MAY 26.

ROYAL SOCIETY, at 4.30.  
ROYAL INSTITUTION, at 3.—Heat: Lord Rayleigh.  
INSTITUTION OF ELECTRICAL ENGINEERS at 8.

## FRIDAY, MAY 27.

ROYAL INSTITUTION, at 9.—Sir Stamford Raffles and the Malay States: Lieut.-General the Hon. Sir Andrew Clarke.  
PHYSICAL SOCIETY, at 5.—A Simple Interference Method of Reducing Prismatic Spectra: Mr. Edser and Mr. Butler.—Some further Experiments on the Circulation of the Residual Gaseous Matter in Crookes Tubes: Campbell Swinton.

## SATURDAY, MAY 28.

ROYAL INSTITUTION, at 3.—The Biology of Spring: J. Arthur Thomson.  
GEOLOGISTS' ASSOCIATION (Liverpool Street Station, G.E.R.), at 11.45.—Long Excursion to Aldeburgh and Westleton. Directors: W. Whitaker, F.R.S., F. W. Harmer, and E. P. Ridley.

## BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—Praktikum der Wissenschaftlichen Photographie: Dr. C. Kaiserling (Berlin, Schmidt).—Industrial Electricity: translated and adapted from the French of H. de Graffigny, and edited by A. G. Elliott (Whittaker).—Alternating Currents of Electricity: A. Still (Whittaker).—The Angora Goat: S. C. Cronwright-Schreiner (Longmans).—Scientific Method in Biology: Dr. E. Blackwell (E. Stock).—Report of Investigations on the Life History of Salmon (Glasgow).—Supplement to the Bibliography of Algeria from the Earliest Times to 1895: Sir R. L. Playfair (Murray).—The Blood: how to examine and diagnose its Diseases: Dr. A. C. Coles (Churchill).—Applied Bacteriology: T. H. Pearmain and C. G. Moor, 2nd edition (Baillière).—Elementary Conics: Dr. W. H. Besant (Bell).—Examples in Analytical Conics for Beginners: W. M. Baker (Bell).—Five Years in Siam: H. Warington Smyth, 2 Vols. (Murray).—De Danske Barkbiller: E. A. Lovendal (Kjøbenhavn, Det Schubothske Forlag).

PAMPHLETS.—West Florida and its Relation to the Historical Cartography of the United States (Baltimore).—Die Jungfraubahn Elektrischer Betrieb und Bau: C. Wüst-Kunz and L. Thormann (Zürich, Fussli).—Second Annual Report of the New York Zoological Society (New York).—London County Council: Report of the Technical Education Board for the Year 1897-98 (King) Light and Fire Making: H. C. Mercer (Philadelphia, MacCalla).—Metric Equivalents of Imperial Weights and Measures and Thermometric Equivalents (*Pharmaceutical Journal* Office).—The Adulteration of Dairy Produce: R. H. Wallace (Edinburgh, Anderson).—Kromscope Colour Photography: F. Ives (Photochromoscope Syndicate).

SERIALS.—Engineering Magazine, May (222 Strand)—Journal of the Franklin Institute, May (Philadelphia).—American Journal of Science, May (New Haven).—Bulletin de la Société Impériale des Naturalistes de Moscou, 1897, No. 3 (Moscow).—Notes from the Leyden Museum, January (Leiden, Brill).—Psychological Review, May (Macmillan).—Papers and Proceedings of the Royal Society of Tasmania for 1897 (Hobart).

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