

116°, consequently phenyl  $\alpha\beta$ -dibromic propionic methyl ether. The leaves of this plant, too, are rich in methyl cinnamate. This is the first instance of cinnamic methyl ether being found in the vegetable kingdom.—Prof. van Bemmelen made on behalf of Dr. E. A. Klobbie a communication entitled “Qualitative-analytic determination of osmic tetroxide,” which will be inserted in the report of the meeting.—Prof. H. A. Lorentz on optical phenomena, depending on the mass and the charge of the ions (II.). The author discussed the question whether the density of the absorbing gas itself and of other gases, with which it is mixed, has any influence on the position of the absorption lines in the spectrum. The formulæ show no appreciable influence, if the absorption is small in a layer of the thickness of one wave-length.

DIARY OF SOCIETIES.

THURSDAY, JUNE 9.

ROYAL SOCIETY, at 4.30.—On a New Constituent of Atmospheric Air: Prof. W. Ramsay, F.R.S., and Morris H. Travers.—Experiments on Aneroid Barometers at Kew Observatory and their Discussion: Dr. C. Chree, F.R.S.—The Nature of the Antagonism between Toxins and Anti-Toxins: Dr. C. J. Martin and Dr. T. Cherry.—Some Differences in the Behaviour of Real Fluids from that of the Mathematical Perfect Fluid: A. Mallock.—On the Heat Dissipated by a Platinum Surface at High Temperatures: J. E. Petavel.

ROYAL INSTITUTION, at 3.—Modern Methods and their Achievements in Bacteriology: Dr. E. E. Klein.

MATHEMATICAL SOCIETY, at 8.—On the General Theory of Anharmonics: Prof. E. O. Lovett.—Point-Groups in a Plane, and their Effect in determining Algebraic Curves: F. S. Macaulay.—On a Regular Rectangular Configuration of Ten Lines: Prof. F. Morley.—On the Calculus of Equivalent Statements (eighth paper): H. MacColl.—On the Conformal Representation of a Pentagon on a Half Plane: Miss M. E. Barwell.—On a Continuous Group defined by any Given Group of Finite Order (second paper): Prof. Burnside, F.R.S.

FRIDAY, JUNE 10.

ROYAL INSTITUTION, at 9.—Some Experiments with the Telephone: Lord Rayleigh.

ROYAL ASTRONOMICAL SOCIETY, at 8.—Observations of Phenomena of Jupiter's Satellites in the Year 1897: John Tebbutt.—Occultations of Ceres and Venus: Cambridge Observatory.—Reply to Dr. Rambaut's Note on the Effect of Chromatic Dispersion: David Gill.—Right Ascensions and Declinations of Eight Stars in Aquarius, and their Probable Proper Motions: C. J. Merfield.—Further Researches on the Orbit of  $\gamma$  Lupi: T. J. J. See.—On the Actinic Qualities of Light as affected by different Conditions of Atmosphere: Rev. J. M. Bacon.

PHYSICAL SOCIETY, at 5.—Exhibition of a Model illustrating Dr. Max. Meyer's New Theory of Audition: Prof. S. P. Thompson, F.R.S.—Attenuation of Electric Waves along a Line of Negligible Leakage: Dr. E. H. Barton.—Diffusion Convection: A. Griffiths.

MALACOLOGICAL SOCIETY, at 8.—On the Land Shells of Curaçoa and the Neighbouring Islands: Edgar A. Smith.—On the Anatomy and Synonymy of the Genus *Mariaella* (Gray): W.-M. Webb.—A Note on a New Form of Arionidae from the Alps in Austria: J. F. Babor.—Descriptions of New Land Shells from Ceylon: E. R. Sykes.—List of the Land and Freshwater Mollusca of South Africa: J. C. Melvill and J. H. Ponsoby.

SATURDAY, JUNE 11.

ROYAL INSTITUTION, at 3.—The Temples and Ritual of Asklepios at Epidaurus and Athens: Dr. R. Caton.

GEOLOGISTS' ASSOCIATION (Waterloo Station, S.W.R.), at 1.50.—Excursion to Godalming. Director: T. Leighton.

TUESDAY, JUNE 14.

ROYAL HORTICULTURAL SOCIETY.—Lecture on Hybrid Orchids.

ANTHROPOLOGICAL INSTITUTE, at 8.30.—Evidence of Lake Dwellings on the Banks of the Costa, near Pickering, North-east Yorkshire, with Illustrative Specimens: Captain the Hon. Cecil Duncombe.—Exhibition of a Large Collection of Stone Implements from Illinois and Ontario, with Descriptive Remarks: Rev. James Oliver Bevan.—On Marriage Laws and Customs of the Cymri: R. B. Holt.

WEDNESDAY, JUNE 15.

ROYAL METEOROLOGICAL SOCIETY, at 4.30.—Frequency of Non-Instrumental Meteorological Phenomena in London with Different Winds from 1763 to 1897: R. C. Mossman.—Progress of the Exploration of the Air by means of Kites at Blue Hill Observatory, Mass., U.S.A.: A. Lawrence Rotch.

ROYAL MICROSCOPICAL SOCIETY, at 7.30.—Exhibition of Sponges: B. W. Priest.—At 8.—Report on the Foraminifera of the Malay Archipelago (continuation): F. W. Millett.

THURSDAY, JUNE 16.

ROYAL SOCIETY, at 4.30.

LINNEAN SOCIETY, at 8.—Observations on the Seasonal Variations of Elevation in a Branch of Horse-Chestnut Tree: Miller & Christy.—On Pantopoda collected by Mr. W. S. Bruce in the Neighbourhood of Franz-Josef Land: G. H. Carpenter.—Morphological Relationships of the Actiniaria and Madreporaria: J. E. Duerden.—On some Fossil Leporines: Dr. C. I. Forsyth Major.

CHEMICAL SOCIETY, at 8.—Ballot for the Election of Fellows.—Preparation of a Standard Acid Solution by Direct Absorption of Hydrogen Chloride: Dr. G. T. Moody.—Researches on the Terpenes. III. Halogen Derivatives of Fenchene and their Reactions. IV. On the Oxidation of Fenchene: J. A. Gardner and G. B. Cockburn.

SATURDAY, JUNE 18.

GEOLOGISTS' ASSOCIATION (London Bridge, L.B.S.C.), at 12.25.—Excursion to Crowborough. Directors: G. Abbott and R. S. Herries.

BOOKS, PAMPHLET, SERIALS &c., RECEIVED.

BOOKS.—Dante's Ten Heavens: E. G. Gardner (Constable).—Die Zelle und die Gewebe: Prof. Dr. O. Hertwig, II. (Jena, Fischer).—Lehrbuch der Botanik für Hochschulen: Prof. Strasburger and others, Dritte verbesserte Auflage (Jena, Fischer).—Th. Thoroddsen, Geschichte der Isländischen Geographie, Autorisierte Übersetzung von A. Gebhardt, Zweiter Band (Leipzig, Teubner).—Angling Days: J. Dale (E. Stock).—Essai sur la Classification des Sciences: Prof. E. Goblot (Paris, Alcan).—Automobiles sur Rails: J. Dumont (Paris, Gauthier-Villars).—Ostwald's Klassiker der Exakten Wissenschaften, Nos. 93 to 96 (Leipzig, Engelmann).—Practical Plant Physiology: Prof. W. Detmer, translated by S. A. Moor (Sonnenschein).—Year-Book of the Scientific and Learned Societies of Great Britain and Ireland, 15th Annual Issue (Griffin).—The Heat Efficiency of Steam Boilers: B. Donkin (Griffin).—Introduction to Algebra: Prof. G. Chrystal (Black).

PAMPHLET.—Summary Survey of the Geological Survey Department for the Year 1897 (Ottawa).

SERIALS.—Berichte der Naturforschenden Gesellschaft zu Freiburg i.B., Zehnter Band, 1, 2, 3 Heft (Freiburg i.B.).—Bulletin of the American Mathematical Society, May (N.Y., Macmillan).—Astrophysical Journal, May (Chicago).—Zeitschrift für Physikalische Chemie, xxvi. Band, 1 Heft (Leipzig).—Bulletins de la Société d'Anthropologie de Paris, Tome viii. No. 6 (Paris, Masson).—National Review, June (Arnold).—Scribner's Magazine, June (S. Low).—Strand Magazine, June (Newnes).—Fortnightly Review, June (Chapman).—Engineering Magazine, June (222 Strand).—Transactions of the Royal Society of Edinburgh, Vol. xxxviii. Parts 3 and 4; Vol. xxxix. Part 1 (Edinburgh, Grant).—Proceedings of ditto, Vol. xxii. No. 1 (Edinburgh, Grant).—Meteorological Record, Vol. xvii. No. 67 (Stanford).—Quarterly Journal of the Royal Meteorological Society, April (Stanford).—Geographical Journal, June (Stanford).—Journal of Botany, June (West).—Observatory, June (Taylor).—Atlantic Monthly, June (Gay).

Geological Model of London and Suburbs: J. B. Jordan (Stanford).

CONTENTS.

PAGE

Lord Rayleigh's "Sound." By L. R. W. . . . . 121

Hawks and Hawking. By R. L. . . . . 122

The Rudiments of Physics and Chemistry . . . . . 123

Our Book Shelf:—

Buchanan White: "The Flora of Perthshire."—

I. H. B. . . . . 124

Ricks: "Manual Training: Woodwork. A Handbook for Teachers" . . . . . 124

Barringer: "A Description of Minerals of Commercial Value" . . . . . 124

"Ludwig Otto Hesse's Gesammelte Werke, herausgegeben von der Mathematisch-Physikalischen Classe der Königlich Bayerischen Akademie der Wissenschaften."—G. . . . . 124

Ives: "Krömsköp Colour Photography" . . . . . 124

Letters to the Editor:—

Liquid Hydrogen.—Prof. J. Dewar, F.R.S. . . . . 125

Printed Matter and Photographic Plates.—A. A. C. Swinton . . . . . 125

The Transport of Live Fish.—D. O'Connor . . . . . 125

Ceremonial Dances of the American Indians . . . . . 125

On a New Constituent of Atmospheric Air. By Prof. William Ramsay, F.R.S., and Morris W. Travers . . . . . 127

Lyon Playfair. By H. E. R. . . . . 128

Osbert Salvin, F.R.S. By N. . . . . 129

Notes . . . . . 129

Our Astronomical Column:—

The Companion to Procyon . . . . . 134

The Liverpool Observatory . . . . . 134

Sunspot Periods and Natural Phenomena . . . . . 134

Double and Multiple Southern Stars . . . . . 134

The Royal Observatory, Greenwich . . . . . 134

Gutta Percha. (Illustrated.) By Dr. E. F. A. Obach 136

Horn-feeding Larvæ. (Illustrated.) By W. H. McCorquodale . . . . . 140

University and Educational Intelligence . . . . . 141

Societies and Academies . . . . . 141

Diary of Societies . . . . . 144

Books, Pamphlet, Serials, &c., Received . . . . . 144