

graphy of the world is carried on by such contacts as these, and the present paper, therefore, constitutes a theory of the action of these detectors.—**J. Walker**: The extraordinary ray resulting from the internal reflection of an extraordinary ray at the surface of a uniaxial crystal. By the principle of least time it is shown that the diameter of the extraordinary wave-surface described round the point of incidence, that is, conjugate to the reflecting surface, is coplanar with the incident and reflected extraordinary rays, and is the median of the triangle formed by these rays and a parallel to the reflecting surface. The direction-cosines of the reflected ray are then obtained in terms of those of the incident ray and the said diameter of the wave-surface.—**S. Butterworth**: The evaluation of certain combinations of the ber, bei, and allied functions.

NEW SOUTH WALES.

Linnean Society, March 26.—**Mr. W. W. Froggatt**, retiring president, in the chair.—*Annual General Meeting*.—Presidential address: "A Century of Australian Civilisation, from a Zoologist's Point of View." The address was devoted to a consideration of the great changes that have been wrought by the advent of the white man with his domestic animals, in the displacement of the aboriginal population and the original fauna, in the course of a hundred years' civilisation.—*Ordinary Monthly Meeting*.—**Mr. W. S. Dun**, president, in the chair.—**A. H. S. Lucas**: Notes on Australian marine algæ. No. 1.—**H. J. Carter**: Revision of the Australian species of the subfamilies Cyphaleinæ and Cnodaloninæ (family Tenebrionidæ).

April 30.—**Mr. W. S. Dun**, president, in the chair.—**A. B. Walkom**: Stratigraphical geology of the Permo-Carboniferous system in the Maitland-Branxton district, with some notes on the Permo-Carboniferous palæogeography in New South Wales. The vertical succession of the formations represented in the area under consideration—Lower Marine Series, Greta Coal Measures, and Upper Marine Series—has been worked out in some detail. Vertical sections of the Lower Marine Series were obtained in three localities, showing a thickness of nearly 4800 ft. In his important monograph on the geology of the Hunter River Coal Measures of New South Wales (1907), Prof. David mapped the outcrop of this series and gave numerous detailed sections of the coal seams developed at many points along the outcrop; but, at this time, very little was known about the development between Branxton and Pokolbin. Additional data now available show that in four localities, as elsewhere, the main Greta seam is split, and that the upper split has been struck in each case; the lower split seems to be entire at Rothbury, but splits again further north.—**A. B. Walkom**: The geology of the Permo-Carboniferous system in the Glendonbrook district, near Singleton. The Glendonbrook district lies from five to fifteen miles E. by N. from Singleton. Permo-Carboniferous rocks are developed there in a small isolated basin. They consist chiefly of sandstones, conglomerates, and shales belonging to the Lower Marine Series, Greta Coal Measures, and Upper Marine Series. The whole basin is only some three miles in diameter, and is surrounded by rocks of Carboniferous age. Further to the west, nearer Singleton, owing to heavy faulting, rocks belonging to the Upper Coal Measures and Upper Marine Series also appear. All these rocks are described more or less in detail, and their relations to one another discussed. A coal seam about 10 ft. thick occurs in the Greta Coal Measures in the basin mentioned above.—**A. B. Walkom**: Notes on some recently discovered occurrences of the pseudomorph, glendonite. Glendonite, a pseudomorph after

glauconite, has been recorded from seven horizons in New South Wales and Tasmania, all, however, in the Upper Marine Series. In this paper, the occurrence of the mineral in rocks of the Lower Marine Series is recorded for the first time, with details of a comparison of crystals from both series.

BOOKS RECEIVED.

"J." A Memoir of John Willis Clark. By A. E. Shipley. Pp. xi+362. (London: Smith, Elder and Co.) 10s. 6d. net.

The Essence of Buddhism. By P. L. Narasu. Second edition. Pp. xx+359. (Madras: S. Varadachari and Co.)

The Posture of School Children. By J. H. Bancroft. Pp. xii+327. (London: Macmillan and Co., Ltd.) 6s. 6d. net.

Jesus Christus und sein Stern. By A. Stentzel. Pp. vi+240+16 plates. (Hamburg: Astronomischen Korrespondenz.) 6 marks.

Schriften der Naturforschenden Gesellschaft in Danzig. Neue Folge. Dreizehnten Bandes. Zweites Heft. Pp. 1+167. (Danzig.)

34 Bericht des Westpreussischen Botanisch-Zoologischen Vereins. Pp. 20+268. (Danzig.)

Le Système du Monde des Chaldéens à Newton. By J. Sageret. Pp. 280. (Paris: F. Alcan.) 3.50 francs.

Determinative Mineralogy, with Tables. By Prof. J. V. Lewis. Pp. iv+151. (New York: J. Wiley and Sons; London: Chapman and Hall, Ltd.) 6s. 6d. net.

The Textile Fibres. By Dr. J. M. Matthews. Third edition. Pp. xi+630. (New York: J. Wiley and Sons; London: Chapman and Hall, Ltd.) 17s. net.

A Monograph on Johnes's Disease (Enteritis Chronica Pseudotuberculosis Bovis). By F. W. Twort and G. L. Y. Ingram. Pp. ix+179+9 plates. (London: Baillière, Tindall and Cox.) 6s. net.

Cambridge County Geographies. Lincolnshire. By Dr. E. M. Sympson. Pp. viii+193+2 maps. (London: Cambridge University Press.) 1s. 6d.

The Control of Water, as Applied to Irrigation, Power, and Town Water Supply Purposes. By P. A. M. Parker. Pp. vii+1055. (London: G. Routledge and Sons, Ltd.) 21s. net.

Pflanzenmikrochemie. By Dr. O. Tunmann. Pp. xx+631. (Berlin: Gebrüder Borntraeger.) 18.50 marks.

Grundzüge der geologischen Formations- und Gebirgskunde. By Prof. A. Tornquist. Pp. iv+296. (Berlin: Gebrüder Borntraeger.) 6.80 marks.

The Venom of Heloderma. By L. Loeb, with the collaboration of C. L. Alsberg, E. Cooke, E. P. Corson-White, and others. Pp. vi+244. (Washington, D.C.: Carnegie Institution.)

The Food of Some British Wild Birds. By W. E. Collinge. Pp. vii+109. (London: Dulau and Co., Ltd.)

Human Behavior. By Profs. S. S. Colvin and W. C. Bagley. Pp. xvi+336. (London: Macmillan and Co., Ltd.) 4s. 6d. net.

The Science of the Sciences. By H. Jamyn Brooks. Pp. 312+ix. (London: D. Nutt.) 3s. 6d. net.

Maps and Survey. By A. R. Hinks. Pp. xvi+206+xxiv plates. (London: Cambridge University Press.) 6s. net.

Hampstead Heath: its Geology and Natural History. Prepared under the auspices of the Hampstead Scientific Society. Pp. 328+xi plates+3 maps. (London: T. Fisher Unwin.) 10s. 6d. net.

Memoirs of the Geological Survey. England and Wales. The Concealed Coalfield of Yorkshire and Nottinghamshire. By Dr. W. Gibson. Pp. vi+122+iii plates. (London: H.M.S.O.; E. Stanford, Ltd.) 1s. 6d.

Annual Report of the Council of the City and Guilds of London Institute. Pp. xlix+125. (London: Leonard Street, E.C.)

Weights and Measures Act, 1904. Board of Trade Notices Annotated. By H. Cunliffe and G. A. Owen. Vol. i. Pp. viii+199+vii plates. (Smethwick: H. Cunliffe.) 5s. net.

A Bibliography of the Tunicata, 1469-1910. By J. Hopkinson. Pp. xii+288. (London: The Ray Society; Dulau and Co., Ltd.) 15s. net.

Tanners' Year Book, 1913. Pp. 178. (London: The Technica Publishing Company.)

Hausa Folk-Lore, Customs, Proverbs, &c. Collected and Transliterated with English Translation and Notes. By R. S. Rattray. 2 vols. Vol i., pp. xxiv+327. Vol ii., pp. 315+iii plates. (Oxford: Clarendon Press.) 2 vols., 30s. net.

Handbuch der Pharmakognosie. By A. Tschirch. Lief. 31-34. (Leipzig: C. H. Tauchnitz.)

Metallographie. By Dr. W. Guertler. Erster Band, Die Konstitution. Heft 7-12. (Berlin: Gebrüder Borntraeger.)

Yorkshire Type Ammonites. Edited by S. S. Buckman. Part ix. (London: W. Wesley and Son.)

Outlines of Stationery Testing. By H. A. Bromley. Pp. 74. (London: C. Griffin and Co., Ltd.) 2s. 6d. net.

The Earth: its Genesis and Evolution. By A. T. Swaine. Pp. xviii+277+xii plates. (London: C. Griffin and Co., Ltd.) 7s. 6d. net.

Electricity in Mining. By Siemens Brothers Dynamo Works, Ltd. Pp. xiv+201. (London: C. Griffin and Co., Ltd.) 10s. 6d. net.

Einführung in die Spektrochemie. By Prof. G. Urbain. Pp. viii+213+9 plates. (Dresden and Leipzig: T. Steinkopff.) 9 marks.

The Oxford Geographies:—A Commercial Geography of the World. By O. J. R. Howarth. Pp. 236. (Oxford: Clarendon Press.) 2s. 6d.

DIARY OF SOCIETIES.

THURSDAY, JUNE 12.

ROYAL SOCIETY, at 4.30.—Recent Researches on the Palatine in Relation to Geology, Ethnology, and Physics: Commendatore Bori.—The Growth and Sporulation of the Benign and Malignant Tertian Malarial Parasites in the Culture Tube and in the Human Host: J. G. Thomson and D. Thomson.

MATHEMATICAL SOCIETY, at 5.30.—The Electromagnetic Force on a Moving Charge in Relation to the Energy of the Field: Sir J. Larmor.—Einige Ungleichungen für zweimal differenzierbare Funktionen: Prof. E. Landau.—(1) The Fractional Part of n^k ; (2) The Trigonometrical Series Associated with the Elliptic θ -functions: G. H. Hardy and J. E. Littlewood.—A Proof that every Equation of Degree n has n Roots Real or Imaginary: W. N. Roseveare.—The Evaluation of a Certain Definite Integral: J. Hammond.—Foucault's Pendulum: Dr. T. J. F. A. Bromwich.

FRIDAY, JUNE 13.

ROYAL ASTRONOMICAL SOCIETY, at 5.—Note on Variable Stars of Cluster Type: H. C. Plummer.—The Determination of Maxima and Minima of Variable Stars of Long Period: M. E. J. Gheury.—A Photographic Determination of the Proper Motion of 250 Stars in the Neighbourhood of Σ 443: A. A. Rambaut.—The Planet Jupiter in 1890: A. Stanley Williams.—The Origin of Solar Electricity: J. A. Harker.—Note on a Method of Balancing Dome Shutters: W. H. Maw.—Devices for Subtabulation: T. C. Hudson.—Some Spectrographic Measures of the Solar Rotation at the Kodaikanal Observatory: J. Evershed and T. Royds.—Preliminary Results of Observations made with the Cookson Floating Zenith Telescope: A. S. Eddington.—Probable Papers: The Spectrum of Nova Geminorum No. 2, 1912, April, and 1913, February-April: Rev. A. L. Cortie.—The Position of the Sun's Axis as Determined from Photographs of the Sun from 1874 to 1912: F. W. Dyson.

MALACOLOGICAL SOCIETY, at 8.—Note on the Genus *Pseudomalaxis*, Fischer, and Descriptions of a New Species and a New Subgenus: Marqués de Monterosato.—Note on the Freshwater Mollusca found with *Unio auriculatus*, Spengler, at Barn Elms, Surrey: A. S. Kennard and B. B. Woodward.—The Land Mollusca of the Kermadec Islands: Tom Iredale.—Definitions of Further New Genera of Zonitidae: G. K. Gude.

PHYSICAL SOCIETY, at 8.—Some Experiments on Tinfoil Contact with Dielectrics: G. E. Bairsto.—A Method of Measuring the Pressure of Light by Means of Metal Foil: G. D. West.

MONDAY, JUNE 16.

VICTORIA INSTITUTE, at 4.30.—From Suez to Sinai: A. W. Sutton.

TUESDAY, JUNE 17.

MINERALOGICAL SOCIETY, at 5.30.—The Crystal-habit of Topaz from New Brunswick, Canada: H. V. Ellsworth.—(1) The Meteoric Stone of Barot, Punjab; (2) Mineralogical Notes: Dr. G. T. Prior.—Photographs illustrating Crystal-structure as Revealed by Röntgen Radiation: W. L. Bragg.

ROYAL STATISTICAL SOCIETY, at 5.—The Trade of the British Empire: Simon Rosenbaum.

WEDNESDAY, JUNE 18.

ROYAL MICROSCOPICAL SOCIETY, at 8.—(1) The Measurement of Working Aperture; (2) A Method of Investigating Diatom Structure: Hamilton Hartridge.—The Higher Bacteria (Sphaerotilus): E. Moore Mumford.—The Structure of the Nucleus: E. J. Sheppard.

ROYAL METEOROLOGICAL SOCIETY, at 4.30.—Pilot Balloon Observations in Barbados, 1910-1912: J. S. Dines.—The Harmattan Wind of the Guinea Coast: H. W. Braby.—The Correlation of Rainfall: J. Peek and Dr. E. C. Snow.

THURSDAY, JUNE 19.

ROYAL SOCIETY, at 4.30.—Probable Papers: Atomic Specific Heats between the Boiling Points of Liquid Nitrogen and Hydrogen. 1. The Mean Atomic Specific Heats at 50° Absolute of the Elements a Periodic Function of the Atomic Weights: Sir James Dewar.—An Active Modification of Nitrogen produced by the Electric Discharge. V.: Hon. R. J. Strutt.—The Electrical Emissivity and Disintegration of Hot Metals: Dr. J. A. Harker and Dr. G. W. C. Kaye.—A Method of Measuring the Viscosity of the Vapours of Volatile Liquids, with an Application to Bromine: Dr. A. O. Rankine.—The Efficiency of Selenium as a Detector of Light: E. E. Fournier d'Albe.—Synthesis of the Anhydrides of α -Aminoacyl Glucosamines: A. Hopwood and C. Weizmann.—The Flexure of Telescope Mirror-discs arising from their Weight, and its Influence upon Resolving Power: H. S. Jones.—(1) A Condition that a Trigonometrical Series should have a certain Form; (2) Trigonometrical Series the Cesaro Partial Summations of which Oscillate Finitely: Prof. W. H. Young.

LINNEAN SOCIETY, at 8.—Impressions of the Feeding-tracks of *Linnaea maxims* and *Helix aspersa*: Mrs. Longstaff.—African Species of the Genus *Crotalaria*: E. G. Baker.—*Aphareocaris*, nom. nov. (Aphareus, Paulson), a Genus of the Crustacea Family Sergestidae: Dr. W. T. Calman.—Water-colour Drawings of Australian and South African Plants: Miss Fuller.—An Anatomical Study of the Cone-genus *Lepidostrobis*: Dr. Agnes Arber.—Fresh-water Rhizopoda from North and South America: G. H. Wallis.—A Revision of the Genus *Symphytum*, Tourn.: Cedric Bucknall.—Some New British Plants: Dr. C. E. Moss.

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