

convex. The upper plate carries three adjusting screws against which a horizontal plane glass plate is held by springs. An opening in the upper plate allows the observer to view the Newton's rings formed between the lens and the glass plate when suitable illumination by sodium light is provided. The load and the lens are on opposite sides of the rod, and thus as the load is increased and the rod is bent by the bending moment, the distance between lens and plate is increased and the Newton's rings contract. For each ring that disappears at the centre, the distance between lens and plate increases by  $\frac{1}{2}\lambda$ , where  $\lambda$  is the wave-length employed. (2) A recording gyroscope. A vertical shaft carries a block to which is attached a horizontal axis. The axle of a cycle wheel is carried by a frame turning about this axis. When the wheel is spun and the proper precessional angular velocity is given to the vertical shaft, the plane of the wheel remains vertical. The upper part of the vertical shaft carries a smoked drum on which the record is made by two styles each operated by an electro-magnet. From the record taken can be found (1) the time of one complete revolution in precession, and (2) the number of revolutions of  $W$  about its own axis during that time.—D. H. Black: Some electrical properties of liquid sulphur. Films of distilled sulphur were obtained between two cones and the conductivity measured at various temperatures up to  $200^{\circ}\text{C}$ . It was found that the conductivity varied in a similar manner to the viscosity. The conductivity of liquid sulphur seems to be electrolytic in character.—T. M. Cherry: (1) The integrals of differential equations. (2) Poincaré's theorem on the non-existence of uniform integrals of dynamical equations.—H. W. Richmond and F. Bath: Loci having two systems of generating spaces.—R. Hargreaves: The quadratic form for radial acceleration, in the theory of relativity.—G. S. Carter: On the early development of the echinoderm egg. I—III.—D. Keilin: On the appearance of gas in the trachea of insects.—G. S. Adair: A comparison of the molecular weights of the proteins.—Miss I. A. Hoggan: The parasitism of *Plowrightia ribesia*.—R. C. Woodward: The overwintering of apple mildew *Podosphaera leucotricha*, in England.—K. G. Emeleus: The number of  $\beta$ -particles from radium-*E*. Using an electrical counter of the type devised by Geiger, the number of  $\alpha$ - and  $\beta$ -particles from a source of radium-*D*, radium-*E*, and radium-*F* in equilibrium has been measured. After correction for reflection of  $\beta$ -particles at the source, their numbers were about equal. The  $\beta$ -rays from radium-*D* would not be recorded under the conditions of these experiments. On this assumption, the observed  $\beta$ -radiation was due to disintegration of radium-*E*, and since this was in equilibrium with the radium-*F*, it follows that about one  $\beta$ -particle is emitted per disintegrating atom of radium-*E*.

### Official Publications Received.

Ministry of Public Works, Egypt: Physical Department. 1: Observations of Duration of Sunshine in Egypt and the Errors of an old Type of Recorder; 2: Anomalous Behaviour of the Silk Suspension of a Kew Magnetometer. By H. Knox-Shaw. 3: Corrections to Survey Department Paper No. 33—The Magnetic Survey of Egypt and the Sudan. (Physical Department Paper No. 15.) Pp. 15. (Cairo: Government Publications Office.) P.T.5.

Manchester Test of the Yacid Treatment of Tuberculosis in One Hundred Cases. Preliminary Report. By Alex. Clements. Pp. 28. (London: Quality Press, Ltd.)

Catalogue of India and Burma Forestry and Timber Exhibits in the India and Burma Pavilions; also in the H.M. Govt. Building, Lloyds Bank, Palace of Engineering, etc., British Empire Exhibition, Wembley, 1924. Pp. 139. (London: W. W. Howard Bros. and Co.)

Philosophical Transactions of the Royal Society of London. Series A, Vol. 24. A.620: The Principal Constituent of the Tides of the North Sea. By J. Proudman and A. T. Doodson. Pp. 185-219. (London: Harrison and Sons, Ltd.)

Leeds University. Nineteenth Report, 1922-23. Pp. 180. (Leeds.)  
Koninklijk Magnetisch en Meteorologisch Observatorium te Batavia. Jaarverslag, 1923. Pp. 28. (Wetlevreden: Landsdrukkerij.)

Museums of the Brooklyn Institute of Arts and Sciences. Report upon the Condition and Progress of the Museums, for the Year ending December 31, 1923. By William Henry Fox. Pp. 60+3 plates. (Brooklyn, N.Y.)

Ninty-ninth Annual Report of the Committee of the Bath Royal Literary and Scientific Institution for the Year 1923. Pp. 12. (Bath.)

The Physical Society of London. Proceedings. Vol. 36, Part 4, June 15. Pp. 241-340. (London: Fleetway Press, Ltd.) 6s. net.

Publications of the Kapteyn Astronomical Laboratory at Groningen. No. 32: On a Thermo-electric Method of measuring Photographic Magnitudes. By J. Schilt. Pp. ii+31. No. 35: The Proper Motions of the Hyades derived from Plates taken at the Helsingfors Observatory, by Prof. A. Donner. Measured and discussed by Prof. Dr. J. Van Rhijn and W. J. Klein Wassink. Pp. ii+19. (Groningen: Hoitsma Bros.)

Royal College of Surgeons of England. Annual Report on the Museum, by the Conservator. Pp. 24. (London: Royal College of Surgeons.)

Proceedings of the Cambridge Philosophical Society. Vol. 22, Part 2. Pp. 83-199. (Cambridge: At the University Press.) 5s. net.

Commonwealth of Australia: Institute of Science and Industry. Second Annual Report of the Director for the Period from the 1st July 1922 to the 31st December 1923. Pp. 76. (Melbourne: Albert J. Mullett.)

Department of Agriculture, Ceylon. Bulletin No. 55: Improvement of Yield in Hevea by the selection of Seed Bearers. By G. Bryce and C. H. Gadd. Pp. 42. Bulletin No. 68: Yield and Growth in Hevea Brasiliensis. By G. Bryce and C. H. Gadd. Pp. 74. (Peradeniya.) 15 cents each.

Report of the Proceedings of the Fifth Entomological Meeting, held at Pusa on the 5th to 10th February 1923. Edited by T. Bainbridge Fletcher. Pp. xiii+422+38 plates. (Calcutta: Government Printing Office.) 9.8 rupees.

Government of Madras. Annual Report of the Chemical Examiner, 1923. Pp. 13. (Madras.)

University of Illinois Engineering Experiment Station. Bulletin No. 142: An Investigation of the Fatigue of Metals, Series of 1923. A Report of the Investigation conducted by the Engineering Experiment Station, University of Illinois, in Co-operation with the National Research Council, the Engineering Foundation, the General Electric Company, the Allis-Chambers Manufacturing Company, the Copper and Brass Research Association, the Western Electric Company. By Prof. H. F. Moore and Prof. T. M. Jasper. Pp. 88. (Urbana, Ill.: University of Illinois.) 45 cents.

U.S. Department of Agriculture. Farmers' Bulletin No. 1407: The Mexican Bean Beetle in the East. By Neale F. Howard. Pp. 14. Farmers' Bulletin No. 1408: The House Fly and How to Suppress It. By L. O. Howard. Pp. 18. (Washington: Government Printing Office.) 5 cents each.

Proceedings of the Royal Society of Edinburgh: Session 1923-1924. Vol. 44, Part 2, No. 12: A Static Model for Helium. By Dr. H. Stanley Allen. Pp. 116-128. 1s. Vol. 44, Part 2, No. 13: The Cathode Fall of Potential in a High Voltage Discharge. By G. P. Thomson. Pp. 129-139. 1s. Vol. 44, Part 2, No. 14: The Electrolysis of Mixtures of Acetates and Trichloroacetates. By Ralph Edward Gibson. Pp. 140-152. 1s. 3d. (Edinburgh: R. Grant and Son; London: Williams and Norgate.)

Bulletin of the National Research Council. Vol. 8, Part 4, No. 46: The Geological Implications of the Doctrine of Isostasy. By Andrew C. Lawson. Pp. 22. (Washington, D.C.: National Academy of Sciences.) 40 cents.

Department of Commerce: Bureau of Standards. Miscellaneous Publication No. 57: Large Mollier Chart (Foot-Pound-Fahrenheit Units) Properties of Ammonia. 48 in. x 20 in. (Washington: Government Printing Office.) 10 cents.

Proceedings of the Society for Psychological Research. Part 93, Vol. 35, June. Pp. 235. (London: Francis Edwards.) 16s. net.

City and County of Kingston upon Hull: The Third Part of the United Kingdom. (British Empire Exhibition, Wembley, 1924: Hull Civic Fortnight, July 2nd to July 15th.) By T. Sheppard. Pp. 40+8 plates. (Hull: Municipal Museums.)

Jahrbücher der Zentralanstalt für Meteorologie und Geodynamik. Amtliche Veröffentlichung. Jahrgang 1919. Neue Folge, Band 56: Pp. xvi+A86+B35+C72. (Wien: Gerold und Komp.)

### Diary of Societies.

TUESDAY, JULY 15.

INSTITUTE OF CHEMISTRY STUDENTS' ASSOCIATION (London) (at University College), at 9.45 a.m.—Inaugural Meeting.  
ROYAL SOCIETY OF MEDICINE, at 5.—General Meeting.

WEDNESDAY, JULY 16.

INSTITUTION OF CHEMICAL ENGINEERS (Annual Corporate Meeting) (at Hotel Cecil), at 11 a.m.—Sir Arthur Duckham: Presidential Address.—Sir F. Nathan: The Work of the Educational Committee on the Training of a Chemical Engineer.—E. A. Alliot: Self-balancing Centrifugals.—G. W. Himus and Prof. J. W. Hinchley: Evaporation in Currents of Air.

FRIDAY, JULY 18.

ROYAL METEOROLOGICAL SOCIETY (Summer Meeting at the Rothamsted Experimental Station, Harpenden), at 2.15.—R. A. Fisher: Adaptation of Variety to Climate.—W. B. Haines: A Comparison of Three Different Types of Radiation Recorders.—Dr. B. A. Keen: A Study of Ground Water Level Changes in Soil Cylinders.

SATURDAY, JULY 19.

PHYSICAL SOCIETY OF LONDON (Special Meeting at Cambridge), at 4.15.—Sir J. H. Thomson: Radiations in a Discharge Tube.—Sir Ernest Rutherford and Dr. J. Chadwick: Recent Experiments on the Artificial Disintegration of the Elements.—Dr. G. F. C. Searle: A Two-dimensional Recording Accelerometer for Aeroplane Research.