stream which maintains the radium emanation and its successive products in equilibrium. An accurately made air-tight guard ring plate condenser was used as measuring chamber, since it alone is open to complete theoretical treatment. With regard to the three a-radiators (emanation, radium A, and radium C) only, observation and calculation gave a more than one per cent. agreement beyond 4 cm. plate distance, but at small plate distances a greater disagreement. An absolute measure of radium emanation and hence of radium itself can be obtained from the saturation current.—G. Halledauer: Communication from the Radium Institute, No. 175. A method of measuring the smallest quantities of emanation and its application to the determination of the radium content of some meteorites. The charge method can be freed from certain errors if the ionisation chamber is completely separated from the electrometer whilst charging, and only at the end and for measurement brought into brief contact with it. Emanation quantities of 10<sup>-14</sup> Curie may be determined with certainty. For five iron meteorites an average of  $0.55 \times 10^{-13}$ , and for five stone meteorites  $6.6 \times 10^{-13}$  gm. radium per gram, was found, in practical agreement with other authors.—H. H. Handel-Mazzetti: New Chinese plants, descriptions continued.—A. Limberger: Symbiosis of Anabæna with Azolla.

January 22.—H. Handel-Mazzetti: Map of a journey in the Chinese province of Hunan. H. Witt's surveys including the latitude of Wukang and of Dsingschou were utilised. Dr. H. Mazzetti as a botanist had no astronomical survey instruments, but in his survey emphasised the nature of the country within a wide range of his route, producing a general route map of scale 1:300,000 and maps of I: 100,000 near Hsikwangshan and Yunschan.

# Official Publications Received.

United States Department of Agriculture: Bureau of Agricultural Economics. Atlas of American Agriculture. Prepared under the Supervision of O. E. Baker. Part 1: The Physical Basis of Agriculture. Section E: Natural Vegetation. Grassland and Desert Shrub, by H. L. Shantz; Forests, by Raphael Zon. Pp. 29. (Washington: Government Printing Office.) 50 cents.

Department of the Interior: Bureau of Education. Bulletin, 1924, No. 18: Introduction of Algebra into American Schools in the Eighteenth Century. By Lao Genevra Simons, Pp. vi+80. (Washington: Government Printing Office.) 15 cents.

The National Benzole Association. Second Report of the Joint Benzole Research Committee of the National Benzole Association and the University of Leeds. (Presented March 18th, 1925.) Pp. 246. (London: National Benzole Association). The Indian Forest Records, Vol. 11, Part 1: The Constituents of

The Indian Forest Records, Vol. 11, Part 1: The Constituents of some Indian Essential Oils. By John Lionel Simonsen. Parts 14-15. Pp. 9. 3 annas; 4d. Vol. 11, Part 3: Regeneration with the Assistance of Taungya in Burma. By H. R. Blanford. Pp. 41+10 plates. 1.4 rupees; 2s. (Calcutta: Government of India Central Publication Branch)

rupees; 2s. (Calcutta: Government of India Central Publication Branch.)

Transactions of the Geological Society of South Africa. Vol. 27, January to December, 1924. Pp. iv+77+6 plates. (Johannesburg.) 42s. Proceedings of the Geological Society of South Africa. Containing the Minutes of Meetings and the Discussion on Papers read during 1924. To accompany Vol. 27 of the Transactions, January to December, 1924. Edited by the Hon. Secretary. Pp. iii+xlii. (Johannesburg.)

Department of Commerce: Bureau of Standards. Scientific Papers of the Bureau of Standards, No. 497: Thermal Expansion of Aluminium and various important Aluminium Alloys. By Peter Hidnert. Pp. 697-731. (Washington: Government Printing Office.) 15 cents.

Unemployment and the Calcutta University Propaganda for a Solution by Educational Colonies, Homecrofting and Homecrafting. Two Series of Articles by Capt. J. W. Petavel. Pp. xvi+vii+90+12. (Calcutta: "Capital," Ltd.) 8 annas; 9d.

New South Wales. Department of Mines: Geological Survey. Bulletin No. 10: Silica. By L. F. Harper. Pp. 19+10 plates. 1s. Bulletin No. 12: Coke. By L. F. Harper. Notes on By-Products by H. P. White. Pp. 45+9 plates. 1s. 9d. Bulletin No. 14: Asbestos, Emery, Fluorspar, Fuller's Earth, Graphite, Phosphates, Talc, and Soapstone. By H. G. Raggatt. Pp. 31. 1s. Bulletin No. 15: Diatomite. Siliceous Earths and Sands. By E. J. Kenny. Pp. 18+2 plates. 1s. (Sydney: Alfred James Kent.)

Proceedings of the Cambridge Philosophical Society. Vol. 22, Part 4, March 12. Pp. 481-600. (Cambridge: At the University Press.) 7s. 6d. net.

Transactions of the Royal Society of Edinburgh. Vol. 53, Part 3, No.

Transactions of the Royal Society of Edinburgh. Vol. 53, Part 3, No. 30: Geology of the Outer Hebrides. Part 2: South Uist and Eriskay. By Prof. T. J. Jehu and R. M. Craig. Pp. 615-641-45 plates. (Edinburgh: R. Grant and Son; London: Williams and Norgate, Ltd.) 5s. 6d.

Proceedings of the London Mathematical Society. Second Series. Vol. 23. Pp. lxxi+524. (London: Francis Hodgson.)
Ministry of Public Works, Egypt. Physical Department Paper No. 16:
Metallic Spirit-Levels. By E. B. H. Wade. Pp. 9+4 plates. (Cairo: Government Publications Office.) 5 P.T.
The Annual Report of the Gresham's School Natural History Society, 1924. Pp. 14. (Holt, Norfolk.)

## Diary of Societies.

#### SATURDAY, APRIL 4.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Prof. J. H. Ashworth: The Nervous System and some Reactions (II.): Of Marine Annelids and Earthworms.

BRITISH ASSOCIATION OF MANAGERS OF TEXTILE WORKS (at Textile Institute, 16 St. Mary's Parsonage, Manchester), at 6.—F. A. Tomlinson: The Outside Growths of Cotton.

SWICH AND DISTRICT NATURAL HISTORY SOCIETY (at Ipswich). — J. Reid Moir: The Antiquity of Man in Ipswich (Presidential Address).

#### MONDAY, APRIL 6.

ROYAL SOCIETY OF MEDICINE (War Section), at 4.30 .- Annual General

ROYAL SOCIETY OF MEDICINE (War Section), at 4.30.—Annual General Meeting.

VICTORIA INSTITUTE (at Central Buildings, Westminster), at 4.30.—Dr. E. Ash: Psychotherapy: Mind in Curative Action.

ROYAL INSTITUTION OF GREAT BRITAIN, at 5.—General Meeting.

SOCIETY OF ENGINEERS (at Geological Society), at 5.30.—E. R. Matthews: Problems in Designing and Constructing Sea Defence Works.

BRITISH PSYCHOLOGICAL SOCIETY (Education Section) (at London Day Training Collego), at 6.—Dr. Jessie White: Scientific Pedagogy.

INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting), at 7.—A. Collins and others: Discussion on Insulation Problems in High-voltage Engineering.

Engineering.

Aristotelian Society (at University of London Club), at 8.—P. Leon:

Aristotelia Knowledge.

Society of Chemical Industry (London Section) (at Royal Society of Arts), at 8.—Prof. W. A. Bone: The Constitution of Coal.

Surveyors' Institution, at 8.

ROYAL GEOGRAPHICAL SOCIETY (at Æolian Hall), at 8.30.—Major-Gen. Sir Percy Cox: A Journey behind Muscat to the Jebel Akdhar.

INSTITUTION OF ELECTRICAL ENGINEERS (Western Centre).—S. T. Allen: Radiators and Heating, with special reference to Material.

#### TUESDAY, APRIL 7.

INSTITUTION OF PETROLEUM TECHNOLOGISTS (at Royal Society of Arts),

ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—F. G. S. Whitfield: The Relaconsider society of London, at 5.30.—F. G. S. Willied: The Relation between the Feeding-habits and the Structure of the Mouth-parts in the Asilidæ (Diptera).—O. Thomas: The Mammals obtained by Mr. Herbert Stevens on the Sladen-Godman Expedition to Tonkin.—W. M. Le Gros Clark: The Skull of Tupata minor.—Dr. R. H. Hunter: The Extensor Muscles in the Hind-foot in Mammals.

EXTENSOR MISCISS IN CHARGE HIND-TOOL IN MAINTAINS.

INSTITUTE OF METALS (Birmingham Section) (at Chamber of Commerce, Birmingham), at 7.—Annual Meeting.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—F. E. Lamplough: The Manufacture of Optical Glass (Traill-Taylor Memorial Lecture).

INSTITUTION OF AUTOMOBILE ENGINEERS (Coventry Centre) (at Broadgate

Institution of Automobile Engineers (Coventry Centre) (at Broadgate Café, Coventry), at 7.15.

Society of Chemical Industry (Birmingham and Midland Section) (Jointly with the Chemical Engineering Group) (at Birmingham University), at 7.15.

Institution of Electrical Engineers (Scottish Centre) (at 207 Bath Street, Glasgow), at 7.30.—E. A. Watson: The Economic Aspect of the Utilisation of Permanent Magnets in Electrical Apparatus.

Institution of Engineers and Shiffbullders in Scotland (at 39 Elmbank Crescent, Glasgow), at 7.30.—W. I. Hay and D. McArthur: Canadian Bulk Cargo Vessels on the Great Lakes.

HULL Chemical and Engineering Society (at Grey Street, Hull), at 7.45.—Annual Meeting.

ROYAL Anthropological Institute, at 8.15.—Dr. H. S. Stannus: Some Types of Natives from Nyassaland, Normal and Abnormal.

Röntgen Society (at British Institute of Radiology), at 8.15.—R. Craig Rodgers: The Organisation and Equipment of X-ray Rooms arranged for Private Radiologists.—G. T. Loughborough: Acute X-ray Burns.

### WEDNESDAY, APRIL 8.

ROYAL ASTRONOMICAL SOCIETY, at 5.—A. N. Rriloff: Sir Isaac Newton's Formula for the Attraction of a Spheroid on a Point of its Axis.—Dr. J. H. Jeans: A Theorem of von Zeipel on Radiative Equilibrium.—Prof. H. H. Turner: Note on the 284-year Cycle in Chinese Earthquakes,—Royal Observatory, Greenwich: Characteristic Movements of Sunspots

Sunspots.

RADIO SOCIETY OF GREAT BRITAIN (Informal Meeting) (at Institution of Electrical Engineers), at 6.—E. C. Atkinson: Home-made Wireless Components and Sets.

INSTITUTION OF AUTOMOBILE ENGINEERS (Wolverhampton Centre) (at

Wolverhampton).

### THURSDAY, APRIL 9.

Institution of Electrical Engineers (Tees-Side Sub-Centre) (at

INSTITUTION OF ELECTRICAL ENGINEERS (1998-SIGE SUB-CENTRE) (at Cleveland Technical Institute, Middlesbrough), at 7.15.

INSTITUTION OF ELECTRICAL ENGINEERS (1rish Centre, Dublin) (at Trinity College, Dublin), at 7.45.—P. J. Hayes: Automatic Telephony. OIL AND COLOUR CHEMISTS' ASSOCIATION (at 8 St. Martin's Place, W.C.2.) at 8.—B. D. Porritt: Some Problems of the Paint and Rubber Lodgethies. Industries.

INSTITUTE OF CHEMISTRY (Liverpool Section) (at St. George's Restaurant, Liverpool).