

**SCHOULES:** Application of generalised statistical mechanics to the calculation of the entropy of gases with rigid molecules. De Donder's generalised statistical mechanics is used to calculate the entropy of a gas of rigid molecules. With the classical statistics the formulæ of Ehrenfest and Trkal are obtained. The Bose-Einstein and Fermi-Dirac statistics are also employed and a general formula for the entropy in terms of the energy is deduced. **M. BERTRAND:** Mechanism of pulmonary ventilation in the turtles. The triphasicism of the respiratory movements is caused by the occlusion of the glottis. The expiration which precedes the central pause is purely passive. **Z. M. BACQ:** Physiological observations on the heart, the muscles and the nervous system of an ascidian (*Ciona intestinalis*). The chronotropism of the heart of *Ciona intestinalis* is not modified by non-toxic doses of adrenaline, acetylcholine or the ions of potassium, calcium and barium.

### Forthcoming Events

[Meetings marked with an asterisk are open to the public.]

Sunday, February 17

BRITISH MUSEUM (NATURAL HISTORY), at 3 and 4.30.—  
Dr. Isabella Gordon: "Deep-sea Crustacea".\*

Monday, February 18

BRITISH MUSEUM (NATURAL HISTORY), at 11.30.—A. C. Townsend: "The Linnæus Collection in the Library".\*

CHADWICK PUBLIC LECTURE, at 5.15—(at the Royal Society of Tropical Medicine and Hygiene, Mansion House, 26 Portland Place, W.1).—Dr. William A. Robson: "A Hundred Years of Public Health Administration".\*

UNIVERSITY OF LEEDS, at 5.15.—Prof. B. Melville Jones: "The Stalling of Aeroplanes".\*

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Major R. E. Cheesman: "The Islands of Lake Tana".

Tuesday, February 19

ROYAL HORTICULTURAL SOCIETY, at 3.—Annual Meeting.  
Lord Aberconway: Presidential Address.

Wednesday, February 20

ROYAL SOCIETY OF ARTS.—Lieut.-Col. J. D. Restler: "Water Supplies from Underground Sources".

INSTITUTE OF PHYSICS, at 8—(at the Science Museum, South Kensington). Informal discussion on "Modern Magnetic Materials and their Application".

Thursday, February 21

ROYAL SOCIETY, at 4.30.—Dr. F. W. Aston: "The Isotopic Constitution and Atomic Weights of Hafnium, Thorium, Radium, Titanium, Zirconium, Calcium, Gallium, Silver, Carbon, Nickel, Cadmium, Iron and Indium". J. M. Stagg: "The Diurnal Variation of Magnetic Disturbances in High Latitudes".

Friday, February 22

INSTITUTION OF CHEMICAL ENGINEERS, at 11—(at the Hotel Victoria, Northumberland Avenue, London, W.C.2).—Thirteenth Annual Corporate Meeting.  
W. Macnab: "Chemical Engineering in Explosives Manufacture" (Presidential Address).

INSTITUTION OF MECHANICAL ENGINEERS, at 5.30.—Annual General Meeting.

Dr. H. E. Merritt: "Worm Gear Performance".

INSTITUTION OF PROFESSIONAL CIVIL SERVANTS, at 5.30—(at the Royal Society of Arts).—R. A. Watson Watt: "The Cathode Ray Oscillograph".\*

ROYAL INSTITUTION, at 9.—Prof. A. O. Rankine: "Some Experiments in Gravitation and Magnetism".

### Official Publications Received

#### GREAT BRITAIN AND IRELAND

Department of Scientific and Industrial Research. Report for the Year 1933-34. (Cmd. 4787.) Pp. iv+192. (London: H.M. Stationery Office.) 3s. net.

Department of Scientific and Industrial Research. Report of Test by the Director of Fuel Research on the Plant of the British Coal Distillation Company, Ltd., at Newbold, Leicestershire, Test carried out 11th to 25th March 1933. Pp. iv+29. (London: H.M. Stationery Office.) 9d. net.

Report on the Third Mycological Conference, 1934. Pp. 32. (Kew: Imperial Mycological Institute.) 2s. net.

#### OTHER COUNTRIES

Denkschriften des Schweizerischen Naturforschenden Gesellschaft. Band 69, Abh. 2: Die Mittlere Kreide in den helvetischen Alpen von Rheinal und Vorarlberg und das Problem der Kondensation. Von Arnold Heim und Otto Seitz, unter Mitarbeit im Felde von Siegfried Fussenegger. Pp. xi+185-310+3 plates. (Zürich: Gebrüder Fretz A.G.)

Publications of the Dominion Observatory, Ottawa. Vol. 12: Bibliography of Seismology. No. 3: July, August, September, 1934. By Ernest A. Hodgson. Pp. 47-64. (Ottawa: King's Printer.) 25 cents.

Mysore Geological Department. Bulletin No. 15: Cunninghamite in the Limestones of Kudurekanave (Mysore State). By B. Rama Rao. Pp. iv+36+7 plates. (Bangalore: Government Press.) 1 rupee.

The Coconut Research Scheme (Ceylon). Bulletin No. 1: Report on the Soap Industry in Ceylon. By Dr. R. Child. Pp. iv+45. (Lunuwila: Coconut Research Scheme.)

League of Nations: Health Organisation: Permanent Commission on Biological Standardisation. Report of the Second International Conference on Vitamin Standardisation (London, June 12th to 14th, 1934). Pp. 13. (Geneva: League of Nations.)

A Study of the Life History and Food Habits of Mule Deer in California: a Contribution from the Wildlife Division, United States National Park Service. By Joseph S. Dixon. (Reprint from California Fish and Game, Vol. 20, Nos. 3 and 4.) Pp. 146. (Sacramento: California State Printing Office.) 25 cents.

Baltische Geodätische Kommission. Sonderveröffentlichung No. 3: Bestimmung der Längenunterschiede der Landeszentralen im Jahre 1929, 2: Die Berechnung der Längendifferenzen der Landeszentralen, von F. Pavel; Die Berechnung der Längendifferenzen der Landeszentralen, von Ilmari Bonsdorff. Pp. 49+91. (Helsinki.)

Proceedings of the American Academy of Arts and Sciences. Vol. 69, No. 11: New Bands of the Ionized Nitrogen Molecule. By F. H. Crawford and P. M. Tsai. Pp. 407-437. 60 cents. Vol. 69, No. 12: The Relation of the Eyes to Chromatophoral Activities. By G. H. Parker, F. A. Brown, Jr., and J. M. Odiorne. Pp. 439-462+1 plate. 60 cents. (Boston, Mass.)

U.S. Department of the Interior: Office of Education. Pamphlet No. 57: Aids in Book Selection for Secondary School Libraries. By Edith A. Lathrop. Pp. iii+28. 5 cents. Pamphlet No. 58: The Economic Outlook in Higher Education for 1934-35. By Henry G. Badger. Pp. 49. 5 cents. Bulletin, 1934, No. 3: Economics through the Elimination of Very Small Schools. By W. H. Gaumnitz. Pp. v+54. 10 cents. (Washington, D.C.: Government Printing Office.)

U.S. Department of the Interior: Geological Survey. Bulletin 857-E: Core Drilling for Coal in the Moose Creek Area, Alaska. By Gerald A. Waring. (Mineral Resources of Alaska, 1932.) Pp. ii+155-173+plates 6-9. 10 cents. Bulletin 864-A: Mineral Industry of Alaska in 1933. By Philip S. Smith. (Mineral Resources of Alaska, 1933.) Pp. ii+94. 10 cents. Professional Paper 185-A: Studies on the Alkalinity of some Silicate Minerals. By R. E. Stevens. (Shorter Contributions to General Geology, 1934-35.) Pp. ii+13. 5 cents. Professional Paper 185-F: A Lower Lance Florule from Harding County, South Dakota. By Edward Wilber Berry. (Shorter Contributions to General Geology, 1934-35.) Pp. ii+127-133+plates 25-27. 5 cents. Professional Paper 185-G: Halloysite and Allophane. By Clarence S. Ross and Paul F. Kerr. (Shorter Contributions to General Geology, 1934-35.) Pp. ii+135-148+plates 28-29. 5 cents. (Washington, D.C.: Government Printing Office.)

University of California Publications in Anatomy. Vol. 1, No. 7: On the Cutaneous Nerve Areas of the Forearm and Hand; their Sizes, Variations and Correlations studied in a Small Sample of Young Adult Males. By I. MacLaren Thompson, Verne T. Inman and Bernard Brownfield. Pp. iii+195-236. (Berkeley, Calif.: University of California Press; London: Cambridge University Press.) 50 cents.

Proceedings of the United States National Museum. Vol. 83, No. 2975: Some Fossil Corals from the West Indies. By John W. Wells. Pp. 71-110+plates 2-5. (Washington, D.C.: Government Printing Office.)

#### CATALOGUES

Watson's Microscope Record. No. 34, January. Pp. 24. (London: W. Watson and Sons, Ltd.)

A Catalogue of Books and Periodicals on Botany, Agriculture, Forestry, Fruit-Culture, Gardens and Gardening, Herbs, Tobacco. (No. 499.) Pp. 94. (London: Bernard Quaritch, Ltd.)

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