

An improved method of measuring the specific heats of metals at high temperature. A positively charged molybdenum cylinder surrounds a tungsten filament which acts as a thermionic emitter, and the whole is heated in a furnace. The changes in the thermionic current are measured by an oscillograph. The specific heat of tungsten at 2375° - 2475° K is 0.045 cal. per gm. and the atomic heat 8.3 cal. per gram-atom.—C. E. St. John and H. D. Babcock: Note on the pressure and currents in the sun's atmosphere. Gathering up the observations of different workers during the past few years, a chart is constructed showing a scheme for the distribution of factors in the sun's atmosphere according to level.—C. E. St. John and W. S. Adams: Convection currents in stellar atmospheres. High dispersion spectrograms of Sirius, Procyon, Arcturus and the sun show close agreement between the differences enhanced minus arc lines and high- minus low-level lines, both differences being apparently due to variation in convection currents with level. Convection currents seem to increase with temperature. The pressures in the atmospheres of all these stars are low and of the same order.—E. B. Wilson and W. J. Luyten: A statistical discussion of sets of precise astronomical measurements (III.); masses of the stars. The distribution of the logarithm of the mass of the stars is very close to normal—closer than might be expected from the meagre data. Systems with unusually big masses are not included.—T. R. Hogness and E. G. Lunn: The ionisation potentials of hydrogen as interpreted by positive ray analysis. Hydrogen is ionised by impact electrons from a tungsten filament, and the positive ions are drawn into a magnetic field where they are analysed. Three positive ions were found, H^+ , H_2^+ and H_3^+ , the H_2^+ ions predominating; no negative ions were detected. To determine the ionisation potentials, the voltage of the impact electrons was decreased by steps from a maximum until no ions were detected. The values obtained were: H^+ , 16.6 volts; H_2^+ , 15.7 volts; H_3^+ , 16.7 volts.—G. E. M. Jauncey and H. E. Stauss: The polarising angle for X-rays scattered by paraffin. A shift of the polarising angle was observed according qualitatively with Jauncey's equations for a corpuscular quantum theory of the scattering of polarised X-rays.—R. G. Dickinson: The combination of hydrogen and oxygen in the presence of activated mercury. Hydrogen and oxygen in a quartz reaction tube were exposed to a blast of air from a mercury lamp; the pressure decreased steadily, apparently owing to the formation of water.

Official Publications Received.

Smithsonian Miscellaneous Collections. Vol. 75, No. 2: Cambrian Geology and Paleontology, V. No. 2: Cambrian and Lower Ozarkian Trilobites. By Charles D. Walcott. (Publication 2788.) Pp. 53-66. Vol. 76, No. 11: The Freshfield Glacier, Canadian Rockies. By Howard Palmer. (Publication 2757.) Pp. 16+9 plates. Vol. 77, No. 1: A Chapter in the History of Zoological Nomenclature. By Leonhard Steiner. (Publication 2789.) Pp. 21. (Washington: Smithsonian Institution.)

Department of the Interior: Bureau of Education. Bulletin, 1924, No. 3: An Evaluation of Kindergarten-Primary Courses of Study in Teacher-Training Institutions. By Nina C. Vandewalker. Pp. iii+44. (Washington: Government Printing Office.) 5 cents.

Annuaire de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique, 1924. 90^e année. Pp. 450+9 planches. (Bruxelles: Maurice Lamertin.) n.p.

Department of Commerce: Bureau of Standards. Scientific Papers of the Bureau of Standards, No. 489: Primary Radio-frequency Standardization by Use of the Cathode-Ray Oscillograph. By Grace Hazen and Frieda Kenyon. Pp. 445-461. (Washington: Government Printing Office.) 10 cents.

Department of Commerce: U.S. Coast and Geodetic Survey. Serial No. 244: Tides; a Manual of the Harmonic Analysis and Prediction of Tides. By Paul Schureman. (Special Publication No. 98.) Pp. x+416+9 plates. (Washington: Government Printing Office.) 1 dollar.

Bulletin of the National Research Council. Vol. 8, Part 5, No. 47: Classified List of Published Bibliographies in Physics, 1910-1922. Compiled for Research Information Service by Karl K. Darrow. Pp. v+102. (Washington: National Academy of Sciences.) 2 dollars.

Journal de la Société des Americanistes de Paris. (Reconnue d'utilité publique.) Nouvelle Série, Tome 16. Pp. xxx+552. (Paris: 61 rue de Buffon.)

Proceedings of the Royal Society of Edinburgh, Session 1923-1924. Vol. 44, Part 3, No. 22: The Theory of Circulants from 1800 to 1920. By Sir Thomas Muir. Pp. 218-241. 2s. Vol. 44, Part 3, No. 23: On a Class of Partial Differential Equations. By Dr. E. L. Ince. Pp. 242-247. 9d. (Edinburgh: R. Grant and Son; London: Williams and Norgate, Ltd.)

Leeds University. Report to the Worshipful Company of Clothworkers of the City of London of the Advisory Committee on the Departments of Textile Industries and Colour Chemistry and Dyeing, during the Session 1923-24. Pp. 16. (Leeds.)

Memoirs of the Archaeological Survey of India. No. 18: Hindu Astronomy. By G. R. Kaye. Pp. v+134. (Calcutta: Government of India Central Publication Branch.) 3 rupees; 4s. 8d.

The Royal Technical College, Glasgow. Annual Report on the One Hundred and Twenty-eighth Session adopted at the Annual Meeting of Governors held on the 21st October 1924. Pp. 79. (Glasgow.)

Suomen Geodeettisen Laitoksen Julkaisuja: Veröffentlichungen des Finnischen Geodätischen Institutes. No. 3: Die Beobachtungsergebnisse der Südfinnischen Triangulation in den Jahren 1920-1923. Pp. iii+235. No. 4: Untersuchungen über Schwerkraft und Isostasie. Von W. Heiskanen. Pp. iv+96. (Helsinki.)

Mysore Government: Meteorological Department. Report on Rainfall Registration in Mysore for 1923. By C. Seshachar. Pp. xvii+35+2 plates+2 maps. (Bangalore: Government Press.)

Memoirs of the Department of Agriculture in India. Entomological Series, Vol. 8, Nos. 5, 6, 7, 8 and 9. No. 5: Papers on Indian Tabanidae; i. A Practical and Simple Method for rearing Tabanid larvae; ii. The Number of Moults in Tabanid larvae; iii. The Life History of *Tabanus crassus*, Walker, and the Identity of the Female of the Species; by P. V. Isaac. No. 6: Two Drosophilidae from Coimbatore; and No. 7: A New Aphidiphagous Fly; by J. R. Malloch. No. 8: Notes on Indian Odonata in the Fusa Collection; by Major F. C. Fraser. No. 9: On New and Old Oriental Cicindelidae; by Dr. Walther Horn. Pp. 53-91. (Calcutta: Thacker, Spink and Co.; London: W. Thacker and Co.) 1.4 rupees; 2s.

Publications of the South African Institute for Medical Research. No. 17: The Value of the Konimeter; being an Investigation into the Methods and Results of Dust-Sampling as at present practised in the Mines of the Witwatersrand. By A. Mavrogordato, with the Collaboration of J. Boyd, J. Innes, E. MacEwen, A. Pulford, L. G. Ray, G. D. Maynard, J. Moir, E. Cluver. Pp. 71+11 plates. (Johannesburg.) 5s.

Union of South Africa: Department of Agriculture. Science Bulletin No. 30 (Division of Chemistry Series No. 31): An Investigation into some Physical and Chemical Changes occurring in Grapes during Ripening. By P. R. v. d. R. Copeman. Pp. 38. (Pretoria: Government Printing and Stationery Office.) 3d.

Institut International d'Agriculture. Service de la statistique générale. Annuaire International de statistique agricole, 1923: International Year-book of Agricultural Statistics for 1923. Pp. xcv+471. (Rome.) 30 francs; 8s.

Animal Breeding Research Department, The University, Edinburgh. Report of the Director for the Period from 1st July 1923 to 31st March 1924. Pp. 12. (Edinburgh.)

U.S. Department of Agriculture: Weather Bureau. Monthly Weather Review Supplement No. 24: West Indian Hurricanes and other Tropical Cyclones of the North Atlantic Ocean. By Charles L. Mitchell. Pp. iii+47+11 plates. (Washington: Government Printing Office.) 25 cents.

Proceedings of the Cambridge Philosophical Society. Biological Sciences. Vol. 1, No. 3, October. Pp. 139-218. (Cambridge: At the University Press.) 12s. 6d. net.

Bergens Museum. Aarsberetning, 1923-1924. Pp. 82. (Bergen: A/S John Griegs Boktrykkeri.)

Bergens Museum Aarbok, 1923-1924. Hefte 1. Naturvidenskabelig Række. Pp. 166. Hefte 2. Naturvidenskabelig Række. Pp. 282. (Bergen: A/S John Griegs Boktrykkeri.)

Transactions of the Royal Society of Edinburgh. Vol. 53, Part 3, No. 27: Fossil Plants of the Calamopitys Type, from the Carboniferous Rocks of Scotland. By D. H. Scott. Pp. 569-596+6 plates. 6s. Vol. 53, Part 3, No. 28: On the Presence of Tetrads of Resistant Spores in the Tissue of *Sporocarpion furcatum* Dawson from the Upper Devonian of America. By Dr. R. Kidston and Dr. W. H. Lang. Pp. 597-601+1 plate. 1s. (Edinburgh: R. Grant and Son; London: Williams and Norgate, Ltd.)

Diary of Societies.

SATURDAY, DECEMBER 6.

ROYAL SOCIETY OF MEDICINE (Otolaryngology Section), at 10 A.M.
GILBERT WHITE FELLOWSHIP (at 6 Queen Square, W.C.), at 3.—E. W. H. Piper: Durham Cathedral (Lecture).
INSTITUTE OF BRITISH FOUNDRYMEN (at Chamber of Commerce, Birmingham), at 4.—D. Wilkinson: Malleable Iron.

MONDAY, DECEMBER 8.

ROYAL IRISH ACADEMY, at 4.15.
VICTORIA INSTITUTE, at 4.30.—Prof. T. G. Pinches: The Worship of Idols in Assyrian History in Relation to Bible References.
CAMBRIDGE PHILOSOPHICAL SOCIETY (at Cavendish Laboratory), at 4.30.—C. T. R. Wilson and Prof. G. I. Taylor: The Bursting of Soap-bubbles in a Uniform Electric Field.—Prof. E. A. Milne: Dissociative Equilibrium in an External Field of Force.—Dr. T. M. Cherry: Some Examples of Trajectories Defined by Differential Equations of a Generalised Dynamical Type.—J. Brill: Note on the Lorentz Group.—E. H. Neville: Note on the Harmonic Conic.