

Creek and Epping, belonging to the Notonectinae, and a new species of *Salda* from Wentworth Falls.—**W. A. Haswell**: Critical notes on the Temnocephaloidea. A description is given of the female part of the reproductive apparatus in various species of Temnocephala from Australia, New Zealand, and South America. The relations of the vesicles variously known as receptacula seminis, receptacula vitelli, and vesiculæ resorbientes are described and their functions and homologies discussed.—**P. Brough, J. McLuckie, and A. H. K. Petrie**: An ecological study of the flora of Mt. Wilson. Pt. I.: The vegetation of the basalt. The origin and distribution in Eastern Australia of the Malayan floristic elements are discussed, and an account is given of the structure, composition, inter-relationships, and distribution of the plant communities occupying the basalt caps at Mt. Wilson, the flora of which is largely composed of Malayan elements. A detailed study is made of the overlapping of the Malayan flora of the basalt, and the endemic flora of the adjacent sandstone.

WASHINGTON, D.C.

**National Academy of Sciences (Proc., Vol. 10, No. 11, November)**.—**H. Fricke and O. Glasser**: The secondary electrons produced by hard X-rays in light elements. The ionisation current was measured in ionisation chambers (0.5-9 c.c. in volume) constructed entirely of the material under examination, which are small in comparison with the path of the photo-electrons in the chamber. In these circumstances, the current can be represented, according to Compton's theory of scattering of X-rays, as the sum of two quantities, one of which is independent of the effective atomic number of the scattering substance. The ratio of these quantities is determined and agrees with that calculated, using Compton's theory, from other data, for two nearly homogeneous radiations.—**C. Barus**: The diffusion of hydrogen into air, measured by the interferometer U-gauge. Essentially, the method is to measure the pressure at the closed top end of a vertical tube while hydrogen diffuses from the open bottom end. Using various tubes of different length and diameter, the diffusion constant is always considerably higher than the generally accepted value.—**W. N. Birchby**: White light interference fringes with a thick glass plate in one path. A glass plate is inserted in one of the paths of a Michelson interferometer. The fringes are alternately red and green, while the central fringes are indeterminate. For the central region the effect is due to interference in one narrow range of the spectrum superimposed on uniform illumination from the rest of the spectrum.—**J. Kendall and J. F. White**: The separation of isotopes by the ionic migration method. If isotopic ions have significant different mobilities, it should be possible to effect separation by electrolysis (NATURE, June 2, 1923, p. 763). Preliminary short runs were made in which it was found possible to effect separation of iodide and thiocyanate ions (16 per cent. mobility difference), barium and calcium ions (8 per cent. difference), barium and strontium ions (5 per cent. difference), and iodide and chloride (about 1 per cent.). A 5 cm. sodium chloride section (0.1 N) between sodium hydroxide and acetate was moved 1000-2000 cm. with inconclusive results. The tubes used, 1.5 in. wide, are not big enough to give segments suitable for ordinary analysis.—**W. J. Crozier**: On the possibility of identifying chemical processes in living matter. Chemical transformations proceed according to Arrhenius's equation, that the velocity of monomolecular change is proportional to the exponential of  $-E/RT$ , where R is the gas constant, T the absolute temperature, and E is the amount of heat

required to convert 1 gm. molecule of the reactant from an inactive to a reactive form. E is thus characteristic of the reactant and, in simple chemical processes, of the catalyst. The velocities of many biological processes are influenced by temperature in a manner similar to ordinary chemical reactions, and the critical increments, or *temperature characteristics*, of the former fall into definite groups. Physiological transformations of a similar type give identical values for this constant suggesting the presence of similar catalytic agents (*not enzymes*). This points to the possibility of the identification of chemical transformations in undisturbed living matter.—**R. L. Moore**: Concerning sets of segments which cover a point set in the Vitali sense.—**A. E. Kennelly**: Time constants for engineering purposes in simple exponential transient phenomena.

Official Publications Received.

Publications of the Astronomical Institute of the University of Amsterdam. No. 1: Researches on the Structure of the Universe. 1: The Local Starsystem deduced from the Durchmusterung Catalogues. By A. Pannekoek. Pp. ii+122+6 charts. (Amsterdam: Staatsdrukkerij.)

Europe as an Emigrant-exporting Continent and the United States as an Immigrant-receiving Nation. Hearings before the Committee on Immigration and Naturalization, House of Representatives. Sixty-eighth Congress, First Session, March 8, 1924. Serial 5-A. Statement of Dr. Harry H. Laughlin. With Appendices printed by Authorization of the Committee, including (1) Text of Immigration Act of 1924 and the Proclamation of the President in connection therewith, (2) Report of the Rome Conference on Emigration and Immigration, and (3) Other important Studies and Official Reports on Migration Problems down to November 19, 1924. Pp. v+1231-1437. (Washington: Government Printing Office.)

Department of the Interior: Bureau of Education. Bulletin, 1924, No. 7: Statistics of Public High Schools, 1921-1922. Prepared under the Direction of Frank M. Phillips. Pp. 69. 10 cents. Bulletin, 1924, No. 11: Manual Arts in the Junior High School. By William E. Roberts. Pp. iv+89. 15 cents. Bulletin, 1924, No. 20: Statistics of Universities, Colleges and Professional Schools, 1921-22. Prepared under the Direction of Frank M. Phillips. Pp. 161. 20 cents. (Washington: Government Printing Office.)

Department of Commerce: U.S. Coast and Geodetic Survey. Serial No. 273: Earth Movements in California. By William Bowie. (Special Publication No. 106.) Pp. 22. (Washington: Government Printing Office.) 5 cents.

Ministry of Agriculture, Egypt: Technical and Scientific Service. Bulletin No. 48 (Botanical Section): The Effects of Heat Treatment of Cotton Seed and its Germination and on the subsequent Growth and Development of the Plants. By James Templeton. Pp. 9+3 plates. (Cairo: Government Publications Office.) 5 P.T.

Air Ministry: Meteorological Office, London. Southport Auxiliary Observatory (The Fernley Observatory of the Corporation of Southport). Annual Report and Results of Meteorological Observations, for the Year 1923. By Joseph Baxendell. Pp. 28. (Southport: Fernley Observatory; London: Meteorological Office.)

Havsforskningsinstitutets Skrift. No. 17: Wasserstandsregistrierungen in Helsingfors 1904-1920. Von Henrik Requist. Pp. 75+3 plates. 15 Fmk. No. 19: Dagliga vattenståndsuppgifter 1921. Referat: Tägliche Wasserstandsangaben 1921. Av Henrik Requist. Pp. 30. 3 Fmk. No. 20: Regelbundna iakttagelser av havets temperatur och salthalt under år 1921. Referat: Regelmässige Beobachtungen von Temperatur und Salzgehalt des Meeres im Jahre 1921. Av Gunnar Granquist. Pp. 54. 6 Fmk. No. 22: Isarna vintern 1920-21. Referat: Das Meeris im Winter 1920-21. Av Gunnar Granquist. Pp. 79+11 plates. 30 Fmk. No. 24: Ström- och vindobservationer vid fyrskuppen år 1922. Referat: Strom- und Windbeobachtungen an den Leuchtschiffen im Jahre 1922. Av Gunnar Granquist. Pp. 40. 4 Fmk. No. 25: Havsforskningsinstitutets värsamhet under år 1922. Av Rolf Witting. Pp. 25. 3 Fmk. No. 26: Regelbundna iakttagelser av havets temperatur och salthalt under år 1922. Referat: Regelmässige Beobachtungen von Temperatur und Salzgehalt des Meeres im Jahre 1922. Av Gunnar Granquist. Pp. 53. 6 Fmk. No. 27: Thalassologiska vaxpeditionen 1923. Referat: Die thalassologische Terminfahrt im Jahre 1923. Av Risto Jurva. Pp. 28+1 plate. 4 Fmk. No. 29: Dagliga vattenståndsuppgifter 1922. Referat: Tägliche Wasserstandsangaben 1922. Av Henrik Requist. Pp. 44. 7 Fmk. No. 31: Havsforskningsinstitutets värsamhet under år 1923. Av Rolf Witting. Pp. 25. 4 Fmk. (Helsingfors.)

A Short Account of the Growth of the University of Leeds. Pp. 31. (Leeds.)

Leeds University. General Prospectus. Jubilee edition. Pp. 47+6 plates. (Leeds.)

Diary of Societies.

MONDAY, FEBRUARY 2.

CAMBRIDGE PHILOSOPHICAL SOCIETY, at 4.30.  
 ROYAL INSTITUTION OF GREAT BRITAIN (General Meeting), at 5.  
 ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Prof. Z. Cope: Extravasation of Bile.  
 SOCIETY OF ENGINEERS (at Geological Society), at 5.30.—A. S. Buckle: Presidential Address.