

paternal ones, the maternal group always going to the pole to remain in the spermatocyte.—Roscoe G. Dickinson and Allan C. G. Mitchell: Decomposition of ammonia by optically excited mercury atoms. The photochemical decomposition is sensitised by mercury vapour illuminated by a cooled quartz mercury arc with radiations of less than 2340 Å.U. filtered off. Diffuse band fluorescence in the green and ultra-violet accompanies the action.—J. M. Cork, C. James, and H. C. Fogg: The concentration and identification of the element of atomic number 61. *L*-series lines of the new element were given by a neodymium concentrate obtained from a large quantity of Brazilian monazite sand.—Gregory Paul Baxter and Howard Warner Starkweather: (1) The density of oxygen and its compressibility below one atmosphere (ii). The average corrected normal density is 1.42897, the coefficient of deviation from Boyle's Law -0.00092 per atmosphere, and the molal volume 22.4144 litres. The atomic weight of helium (density 0.17846) is 4.0001, the last decimal place being without special significance. (2) The density, compressibility, and atomic weight of nitrogen. The average density at 1 atmosphere is 1.25036. The average of the coefficient of deviation from Boyle's Law between 0 and 1 atmosphere is -0.00045 and the average atomic weight 14.006(7).—William D. Harkins and Hugh A. Shadduck: The synthesis and disintegration of atoms as revealed by photography of Wilson cloud tracks (see NATURE, Dec. 18, 1926, p. 875).—Hugh Stott Taylor and John Reginald Bates: Photosensitised decompositions by excited mercury atoms. Various gases, with and without mercury vapour, were passed through a system including a cooled mercury arc; the difference in the rate of increase of pressure in each pair of experiments indicated the occurrence of decomposition. Water gives oxygen and hydrogen in excess, ethyl alcohol gives acetaldehyde and other decomposition products, benzene gives some diphenyl, and so on. Ammonia gives a big excess of hydrogen, suggesting decomposition by stages, probably through hydrazine.—Cecilia H. Payne: (1) Some applications of the ionisation formula. Graphical illustration of the principles of the comparison of the state of ionisation of the atmospheres of stars for which both temperature and pressure differ. Curves for pressure change at constant temperature give the ratio in partial electron pressure in the atmospheres of two stars of known temperature, if the intensity ratio of the corresponding spectrum line is known. (2) On the spectra of stars of class *cF8*.—Willard J. Fisher: The apparition dates of the Andromede (or Bielid) meteor swarms. The method used by H. A. Newton is applied to the known records of this shower. Apparitions may be expected yearly about Nov. 16-19. Three of the 'plots' converge at Nov. 16.7, 1935 U.T.—Maynard M. Metcalf: Larval stages in a protozoan. The Opalinidæ, which are commensals in the recta of frogs and toads, are arranged in an evolutionary table ranging from Protoopalina, an archaic genus of the Triassic, cylindrical in form and with two nuclei, through a flattened form, through another cylindrical form with four or more nuclei, to the flat Opalina, which may be broad or narrow. Opalinids from tadpoles showing all these varied stages in development have been found.—S. Lefschetz: Transformations of manifolds with a boundary.—Paul Slavenas: A possible way to discuss the fundamental principles of relativity. The method is applied to the motion of a rigid system relative to another in Euclidean space, and it is found that Euclidean space admits the law of uniform translation, and that the moving system undergoes contraction in the direction of motion.—

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R. L. Moore: Concerning paths that do not separate a given continuous curve. In space of two dimensions, every two points that do not belong to a given continuous curve may be joined by a simple continuous arc that does not disconnect that curve.—W. A. Manning: On simply transitive primitive groups.—L. E. Dickson: Quadratic forms which represent all integers.—Luther Pfahler Eisenhart: Congruences of parallelism of a field of vectors.—Gordon T. Whyburn: Concerning certain types of continuous curves.—H. S. Vandiver: Summary of results and proofs concerning Fermat's last theorem (second note).

Official Publications Received.

BRITISH.

The Journal of the Institute of Metals. Vol. 36. Edited by G. Shaw Scott. Pp. xi+785+58 plates. (London.) 31s. 6d. net.

The Journal of the Polynesian Society: containing the Transactions and Proceedings of the Society. Vol. 35, No. 4, December. Pp. 267-354. (New Plymouth, N.Z.) 10s. 6d.

Memoirs and Proceedings of the Manchester Literary and Philosophical Society, 1925-26. Vol. 70. Pp. 151+xxxvi+iv. (Manchester.) 12s.

Aeronautical Research Committee: Reports and Memoranda. No. 1049 (Ae. 235): The Direct Measurement of the Angle of Flight Path of an Aeroplane as a means of eliminating the Effect of Air Currents on the Measurement of Lift and Drag. By E. T. Jones and H. L. Stevens. (C.I. Instruments, 91.—T. 2319.) Pp. 9+2 plates. 9d. net. No. 1051 (Ae. 236): Second Report on Full Scale Experience with the Slot and Aileron Control fitted to a Bristol Fighter. By H. L. Stevens. (A.2.b. Stability—Full Scale Experiments, 41.—T. 2320.) Pp. 3+2 plates. 4d. net. (London: H.M. Stationery Office.)

FOREIGN.

U.S. Department of Agriculture. Farmers' Bulletin No. 1494: Tobacco Cutworms and their Control. By S. E. Crumb. Pp. ii+14. 5 cents. Department Bulletin No. 1423: The Cadelle. By E. A. Back and R. T. Cotton. Pp. 42. 10 cents. (Washington, D.C.: Government Printing Office.)

Proceedings of the United States National Museum. Vol. 69, Art. 22: Descriptions of New and Little Known Diptera or Two-winged Flies. (No. 2648.) Pp. 26. (Washington, D.C.: Government Printing Office.)

Proceedings of the Imperial Academy. Vol. 2, No. 9, November. Pp. xxv-xxvi+459-519. (Ueno Park, Tokyo.)

Carnegie Institution of Washington. Annual Report of the Director of the Department of Terrestrial Magnetism. (Reprinted from Year Book No. 25, for the Year 1925-26.) Pp. 185-235. (Washington, D.C.: Government Printing Office.)

Acta Societatis Scientiarum Fennicæ. Tom. 50, No. 7: Recherches sur les mouvements propres des étoiles dans la zone photographique de Helsingfors, II. Par Ragnar Furuholm. Pp. 162. (Helsingfors.)

Department of Commerce: Bureau of Standards. Scientific Papers of the Bureau of Standards, No. 533: Relations between Rotatory Power and Structure in the Sugar Group. Part I: Introductory Article and Articles 1 to 10. By C. S. Hudson. Pp. 241-331. 35 cents. Scientific Papers of the Bureau of Standards, No. 539: Radiometric Measurements on the Carbon Arc and other Light Sources used in Phototherapy. By W. W. Coblenz, M. J. Dorcas and C. W. Hughes. Pp. 535-562. 15 cents. (Washington, D.C.: Government Printing Office.)

Institut de France: Académie des Sciences. Annuaire pour 1927. Pp. 882. (Paris: Gauthier-Villars et Cie.)

Veröffentlichungen des Geophysikalischen Instituts der Universität Leipzig. Zweite Serie: Spezialarbeiten aus dem Geophysikalischen Institut. Band 3, Heft 3: Über Luftdruckwellen; synoptische Darstellung der 24 täglichen und der 8 täglichen Welle für die Zeit vom 10 Dezember 1923 bis zum 19 Febr. 1924. Von Paul Mildner. Pp. 173-239+9 Tafeln. (Leipzig.)

Cornell University: Agricultural Experiment Station. Bulletin 453: An Economic Study concerning the Operations of Fruit and Vegetable Shippers in Western New York. By Roger D. Corbett. Pp. 67. Bulletin 456: Sunflowers as compared with Corn as a Silage Crop for New York. By R. G. Wiggans. Pp. 29. Memoir 104: Pasture Studies. By R. G. Wiggans. Pp. 59+4 plates. (Ithaca, N.Y.)

Department of the Interior: Bureau of Education. Bulletin, 1926, No. 11: Residence and Migration of University and College Students. By George F. Zook. Pp. vii+127. (Washington, D.C.: Government Printing Office.) 20 cents.

Diary of Societies.

SATURDAY, FEBRUARY 26.

BRITISH PSYCHOLOGICAL SOCIETY (Industrial Section) (at Royal Anthropological Institute), at 11 A.M.—Dr. C. Delisle Burns: The Group Mind in Industry.

MERSEYSIDE AQUARIUM SOCIETY (at Liverpool University), at 3.—Prof. J. Johnstone: Address.

NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS (Associates' and Students' Section) (at Neville Hall, Newcastle-upon-Tyne), at 3.—W. Leebetter: Winning Thin Seams of Great Britain.—Papers open for further discussion:—Screening and Washing Plant at Deaf Hill Colliery, by L. F. H. Booth; Steam and Electric Locomotives for Colliery Purposes, by P. F. Hope.

ROYAL INSTITUTE OF GREAT BRITAIN, at 3.—Dr. J. B. McEwen: Beethoven (1).