

p. 654.) WILLIAM HOVGAARD: An investigation of the stresses in longitudinal welds. A theoretical discussion based on experimental work on partially welded girders. W. H. INGRAM: On the dynamical theory of electrical commutator machines. CYRUS H. FISKE: The nature of the depressor substance of the blood. A method used for the separation of adenosine triphosphate from protein-free muscle filtrates, used at a temperature of 0° C., gives with fresh rabbit blood a substance which is indistinguishable from adenosine triphosphate. M. DEMEREC: Effect of X-rays on the rate of change in the unstable miniature-3 gene of *Drosophila virilis*. No significant change was observed with 600–1,800 r units of radiation. Regarding the gene as a complex organic molecule, which may be stable or unstable, the system of genes is like a balanced action. The effect of X-rays is to change the position of balance; this may account for the slight changes observed. C. W. METZ: Evidence indicating that in *Sciara* the sperm regularly transmits two sister sex chromosomes. CURT STERN: On the occurrence of translocations and autosomal non-disjunction in *Drosophila melanogaster*. No translocations between chromosomes I, II and III were found. Non-disjunction of the autosomes in males was frequent. DONALD F. JONES: Unisexual maize plants and their relation to diceism in other organisms. Diceicous maize has been produced from normal plants by combining two recessive genes located on different chromosomes. R. L. MOORE: Concerning compact continua which contain no continuum that separates the plane. MARSTON MORSE: Does instability imply transitivity? E. K. HAVILAND: On distribution functions and their Laplace-Fourier transforms. AUREL WINTNER: On the asymptotic formulae of Riemann and of Laplace. H. BATEMAN: Functions orthogonal in the Hermitian sense: a new application of basic numbers. PAUL S. EPSTEIN: The expansion of the universe and the intensity of cosmic rays. Zwicky has pointed out that the distance a light quantum can travel may be limited by the operation of the astronomical red shift. Linear extrapolation of the red shift leads to a very short time scale for the universe, namely, 1.8×10^9 years. The high observed intensity of cosmic rays requires the introduction of Einstein's cosmological constant. The types of expansion of the universe and their time scales are discussed. ARTHUR H. COMPTON: Scientific work in the *Century of Progress* stratosphere balloon. The balloon rose from Akron on Nov. 20, 1933, to a height of 18,665 metres and descended eight hours later near Bridgeton, N.J. Skylight at 90° from the sun was completely polarised. Above the highest layer of haze, the colour of the sky shaded through green to a deep blue, deficient of any purple hue. Radio signals were well transmitted on a wave-length of 19.7 metres. The temperature of the top of the balloon rose to -2° C., but the air temperature was about -55° C. During the descent, the gondola was opened at 8.1 kilometres, without any bad effects on the observers, due apparently to the short exposure to the very low pressure or high concentration of oxygen in the gondola. Cosmic ray observations were made successfully, but an unexpected rapid rotation of the balloon prevented the completion of the directional experiments. G. H. SHORTLEY and G. E. KIMBALL: Analysis of non-commuting vectors with application to quantum mechanics and vector calculus. OSWALD VELEN and A. H. TAUB: Projective differentiation of spinors.

Forthcoming Events

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

Tuesday, May 22

UNIVERSITY OF LONDON, at 5.15.—(at University College).—Prof. W. Vogt: "Experimental Vertebrate Anatomy" (succeeding lectures on May 24 and 25).*

BEDFORD COLLEGE FOR WOMEN, at 5.15.—Prof. David Katz: "Some Problems of Perception in Modern Psychology" (succeeding lectures on May 23 and 24).*

Official Publications Received

GREAT BRITAIN AND IRELAND

Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1564 (S. and C. 466): Further Experiments on a Model Fairey IIIE Seaplane. By A. S. Batson and A. G. Gadd. Pp. 6 + 8 plates. 6d. net. No. 1565 (Strut. 140): Elastic Instability of a Thin Curved Panel. By S. C. Redshaw. Pp. 15. 9d. net. No. 1568 (T. 3437): Calculation of Critical Reversal Speeds of Wings. By D. M. Hirst. Pp. 24 + 3 plates. 1s. 3d. net. No. 1569 (T. 3433): The N. P. L. Open Jet Wind Tunnel. By A. R. Collar. Pp. 17 + 10 plates. 1s. net. No. 1572 (T. 3466): An Improved Multitube Tilting Manometer. By Dr. R. Warden. Pp. 6 + 2 plates. 6d. net. (London: H.M. Stationery Office.)

The Academic Assistance Council. Annual Report, 1st May 1934. Pp. 14. (London: Academic Assistance Council.)

Report of the National Baby Week Council, 1933, presented and adopted at the Seventeenth Annual Meeting of the National Baby Week Council held in London on the 14th March 1934. Pp. 25. (London: National Baby Week Council.)

The Board of Greenkeeping Research. Report for 1933. Pp. 38. (Bingley: St. Ives Research Station.)

OTHER COUNTRIES

Canada: Department of Mines: Mines Branch. The Mineral Industries of Canada, 1933. Compiled by A. H. A. Robinson. (No. 738.) Pp. vii + 116 (34 plates). (Ottawa: King's Printer.) 25 cents.

Institut de France: Académie des Sciences. Annuaire pour 1934. Pp. 405. (Paris: Gauthier-Villars et Cie.)

Ministry of Finance, Egypt: Coastguards and Fisheries Service: Fisheries Research Directorate. Notes and Memoirs, No. 2: An Analysis of Arabian Seine Net Hauls on the Sea-coast near Ashtout El Gameel, August 1928–May 1929. By R. S. Wimpenny. Pp. ii + 113. (Cairo: Government Press.)

Madras Fisheries Department. Administration Report for the Year 1932–33. By Dr. B. Sundara Raj. Pp. iii + 74. (Madras: Government Press.) 10 annas.

Year Book American Amaryllis Society. Vol. 1: In Memoriam Henry Nehrling 1853–1929. Pp. 110. (Winter Park, Fla.: W. Hayward, Secretary, 2240 Fairbanks Avenue.)

U.S. Department of the Interior: Geological Survey. Bulletin 844–E: Reconnaissance of the Northern Koyukuk Valley, Alaska. By Robert Marshall. (Mineral Resources of Alaska, 1931.) Pp. ii + 247–256 + plate 6. 5 cents. Bulletin 849–G: The Girdwood District, Alaska. By C. F. Park, Jr. (Investigations in Alaska Railroad Belt, 1931.) Pp. viii + 381–424 + plate 33. 25 cents. Circular 7: Gold-Quartz Veins south of Libby, Montana. By Russell Gibson. Pp. 24. Circular 8: Beach Placers of the Oregon Coast. By J. T. Pardee. Pp. 41. (Washington, D.C.: Government Printing Office.)

Survey of India. General Report 1933, from 1st October 1932 to 30th September 1933. Pp. vi + 75 + 11 plates. (Calcutta: Survey of India.) 1.8 rupees; 2s. 6d.

Report of the Aeronautical Research Institute, Tôkyô Imperial University. No. 104: On the Yield Points of Mild Steel Beams under Uniform Bending. by Fujio Nakanishi, Masaharu Itô and Kikuo Kitamura. Pp. 273–289. (Tôkyô: Koseikai Publishing House.) 20 sen.

National Museum of Natural History. Report Series, Vol. 10, No. 1: Annual Report of the Director to the Board of Trustees for the Year 1933. (Publication 328.) Pp. 136 + 12 plates. (Chicago: Field Museum of Natural History.) 1 dollar.

Contributions from the Dudley Herbarium of Stanford University. Vol. 1, No. 5: New Plants from Baja California, by Ira L. Wiggins; New Western Erythroniums, by Elmer I. Applegate; Two New Species in *Heuchera* and *Cypripedium*, by Rimo Bacigalupi. Pp. iv + 161–193 (plates 11–17). (Stanford University, Calif.: Stanford University Press.) 1 dollar.

Stanford University Publications: University Series. Biological Sciences. Vol. 2, No. 5: Contributions toward a Monograph of the Sucking Lice, Part 5. By Prof. Gordon Floyd Ferris. Pp. 143. (Stanford University, Calif.: Stanford University Press; London: Oxford University Press.) 2 dollars.

CATALOGUES

Éditions Gauthier-Villars. Bulletin des Publications nouvelles (1er trimestre 1934). Pp. 26. (Paris: Gauthier-Villars.)

Catalogue of Lewis's Medical and Scientific Lending Library. Second Supplement, 1931–1933. Pp. 112. (London: H. K. Lewis and Co., Ltd.) 2s. net.

A Catalogue of Books on British and Foreign Birds. (No. 570.) Pp. 18. (London: Francis Edwards, Ltd.)

B.D.H. Glucotest Outfit for the Rapid Determination of Sugar in Urine. Pp. 4. (London: The British Drug Houses, Ltd.)