

correlation exists between amplitude of variation and luminosity or period. The diameter of the Cloud is about twelve degrees and its linear diameter not less than 15,000 light years. HENRY NORRIS RUSSELL and DONALD H. MENZEL: The terrestrial abundance of the permanent gases. Although nitrogen is one of the most abundant elements in stars and nebulae, on the earth it forms 0.02 per cent only even of the superficial material. A theoretical discussion leads to the view that the so-called permanent gases were mainly lost by escape into space within a short time of the birth of the earth as matter ejected from considerable depths in the sun. HARLOW SHAPLEY: On the linear diameters of 125 large galaxies. Nothing comparable in size to our galaxy has been found (diameter 30 kiloparsecs). The average galaxy is a little less than 2 kiloparsecs in diameter; the Large Magellanic Cloud is comparable with the mean of the 125 largest systems in 25 selected groups. New values are derived for distances and mean density of matter in these groups. W. E. CASTLE and HANS NACHTSHEIM: Linkage interrelations of three genes for rex (short) coat in the rabbit. Three races of these rabbits, with abnormally short, soft and plush-like hair and curly whiskers have arisen in recent years by a recessive mutation in a different gene. The genes responsible for two of the mutations are in the same chromosome (10-12 per cent crossing over), but the other is in a different chromosome. These races may become important commercially for their pelts. W. E. CASTLE: The gene theory in relation to blending inheritance. Generally speaking, alternative characters (gene determined) characterise individuals; blending characters are more fundamental and characterise species, genera and families. The cytoplasm of the egg affords a mechanism (for example, the organiser of the amphibian egg) for the transmission of such blending characters, though genes borne in chromosomes may modify them. The present assumption that they are determined indirectly by genes is unproved. M. DEMEREC: The effect of X-ray dosage on sterility and number of lethals in *Drosophila melanogaster*. Working under standardised conditions, induced sterility and frequency of induced lethals are approximately proportional to dosage. HARRY H. LAUGHLIN: The specific formula of heredity. MARCUS M. RHOADES: (1) A cytogenetical study of a reciprocal translocation in *Zea*. (2) A secondary trisomy in maize. G. H. PARKER: The colour changes of elasmobranch fishes. Two skates, indistinguishable in colour, became lighter and darker respectively when placed in a white and a black tank. Changing the fish over reversed the changes, one assuming a pinkish hue. Two to twelve hours was required for the changes. EDWIN B. WILSON: On overlap. PAUL S. EPSTEIN: On the temperature dependence of ferro-magnetic saturation. The theory of ferro-magnetism deduced by the author in 1932 fits very well data published by Allen and Constant, which lead to the rule that the ratio of saturation intensity at any temperature to that at the absolute zero, plotted against the ratio of temperature to Curie point, for all ferro-magnetic crystals of the cubic system gives one universal curve. J. L. WALSH: A duality in interpolation to analytic functions by rational functions. G. A. MILLER: Groups involving a small number of squares. F. J. MURRAY: A theory for *-operators analogous to the theory of reducibility for self-adjoint transformations in Hilbert space.

Forthcoming Events

Friday, April 6

SOCIETY OF CHEMICAL INDUSTRY (CHEMICAL ENGINEERING GROUP)—at Leeds. Joint meeting with the Yorkshire Section and the Food Group. Conference on "Air Conditioning, with special reference to the Food Industries". Papers by Dr. Ezer Griffiths, Dr. M. C. Marsh and Dr. L. H. Lampitt.

NINTH INTERNATIONAL CONGRESS OF PURE AND APPLIED CHEMISTRY, April 5-11, to be held at Madrid. Prof. O. Fernández: president.

Official Publications Received

GREAT BRITAIN AND IRELAND

Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1304 (T.V.C. 64): Torsional Resonance Characteristics of a Twelve Cylinder Vee Aero Engine. By B. C. Carter and N. S. Muir. Pp. 39+33 plates. 3s. net. No. 1554 (Strut. 91, 97 and 146): Buckling of Thin Plates in Compression. By H. L. Cox. Pp. 21+8 plates. 1s. 3d. net. No. 1556 (T. 3374): Pitching Moment due to Rotation in Pitch. By Dr. A. S. Halliday, L. W. Bryant and C. H. Burge. Pp. 27+20 plates. 1s. 9d. net. No. 1558 (I.C.E. 946): Tests of a Roots Type Aircraft Engine Supercharger. By the Staff of the Engine Experimental Dept., R.A.E. Pp. 23+16 plates. 1s. 9d. net. (London: H.M. Stationery Office.)

Researches published from the Wards and Laboratories of the London Hospital during 1933. 31 Papers. (London: H. K. Lewis and Co., Ltd.) 7s. 6d. net.

University of London: University College. Annual Report, February 1933-February 1934. Pp. ii+156. (London: Taylor and Francis.)

Committee of the Privy Council for Medical Research. Report of the Medical Research Council for the Year 1932-1933. (Cmd. 4503.) Pp. 161. (London: H.M. Stationery Office.) 2s. 6d. net.

Department of Scientific and Industrial Research. Index to the Literature of Food Investigation. Vol. 5, No. 1, March 1933; No. 2, September 1933. Compiled by Agnes Elisabeth Glennie. Pp. viii+283. (London: H.M. Stationery Office.) 5s. net.

OTHER COUNTRIES

Carnegie Institution of Washington. Year-Book No. 32, July 1, 1932-June 30, 1933, with Administrative Reports through December 15, 1933. Pp. xx+388. (Washington, D.C.: Carnegie Institution.)

U.S. Department of Agriculture. Circular No. 307: Control of Aphids on Alfalfa in the Antelope Valley, Calif. By R. A. Blanchard. Pp. 7. (Washington, D.C.: Government Printing Office.) 5 cents.

Department of Agriculture: Straits Settlements and Federated Malay States. Economic Series, No. 4: Bark Consumption and Bark Reserves on Small Rubber Holdings in Malaya. By H. D. Meads. Pp. iii+50+9 plates. (Kuala Lumpur.) 50 cents.

Smithsonian Miscellaneous Collections. Vol. 91: Reports on the Collections obtained by the First Johnson-Smithsonian Deep-Sea Expedition to the Puerto Rican Deep. No. 3: A New Crab of the Genus *Cyclodorippe*. By Mary J. Rathbun. (Publication 3230.) Pp. ii+1+1 plate. No. 4: Two New Crinoids. By Austin H. Clark. (Publication 3231.) Pp. ii+5+2 plates. No. 5: A New Nematode of the Genus *Diplotrisena* from a Hispaniolan Woodpecker. By Everett E. Welr. (Publication 3232.) Pp. ii+3. No. 6: New Trematode Parasites of Birds. By Emmett W. Price. (Publication 3233.) Pp. ii+6+1 plate. No. 7: New Digenetic Trematodes from Marine Fishes. By Emmett W. Price. (Publication 3234.) Pp. ii+8+1 plate. (Washington, D.C.: Smithsonian Institution.)

Memoirs of the Geological Survey of India. Palaeontologia Indica. New Series, Vol. 9, Memoir No. 2: Revision of the Jurassic Cephalopod Fauna of Kachh (Cutch), Part 6. By Dr. L. F. Spath. Pp. viii+659-945+plates 125-130. 13.8 rupees; 22s. New Series, Vol. 22, Memoir No. 1: Echinoidea from the Persian Gulf. By E. L. G. Clegg. Pp. ii+35+3 plates. 2.8 rupees; 4s. 6d. (Calcutta: Geological Survey.)

Kungl. Svenska Vetenskapsakademiens Handlingar. Tredje Serien, Band 12, No. 6: The Structure of certain Fossil Spore-Bearing Organs believed to belong to Pteridosperms. By T. G. Halle. Pp. 103+15 plates. Tredje Serien, Band 13, No. 1: Meteorologische Turbulenzuntersuchungen. I. Von Hilding Köhler. Pp. 54. (Stockholm: Almqvist und Wiksells Boktryckeri A.-B.)

Ochrona Przyrody: Organ Państwowej Rady Ochrony Przyrody. Rocznik 13. Pp. iv+207+3 plates. Państwowa Rada Ochrony Przyrody. No. 35: Sprawozdanie z Działalności Państwowej Rady Ochrony Przyrody w Roku 1933. Napisał Prof. Dr. Władysław Szafer. Pp. 26. (Kraków: Państwowej Rady Ochrony Przyrody.)

Polska Akademia Umiejętności, Prace Rolniczo-Leśne, Nr. 7: Badania nad Glebami Górkimi (Researches on Mountain Soils). By Tadeusz Wasowicz. Pp. 47. (Kraków: Polskiej Akademii Umiejętności.)

Union of South Africa: Department of Mines: Geological Survey. The Geology of Capetown and adjoining Country: an Explanation of Sheet No. 247 (Capetown). By Dr. S. H. Haughton; with a Chapter on Underground Water Resources, by H. F. Frommurge. Pp. 90+2 plates. (Pretoria: Government Printer.) 5s. (including Map).