

transformation of matter taking place throughout the universe at a rate necessary to account for the radiation from stellar objects; a non-static line element for the universe is derived mathematically and its implications examined.

Official Publications Received.

BRITISH.

Commonwealth Bureau of Census and Statistics, Canberra. Official Year Book of the Commonwealth of Australia. No. 22, 1929. Prepared under Instructions from the Minister of State for Home Affairs by Chas. H. Wickens. Editor: John Stonham. Pp. xxxii+1074. (Melbourne: H. J. Green.) 5s.

University College of Wales, Aberystwyth: Welsh Plant Breeding Station. Grazing and Manurial Trials on Permanent and Prepared Swards; and Factors affecting Seed Production of Red Clover. (Series H, No. 11, Seasons 1921-1929.) Pp. iii+91. (Aberystwyth.) 3s. 6d.

The Journal of the Institution of Electrical Engineers. Edited by P. F. Rowell. Vol. 68, No. 403, July. Pp. 801-944+xxxii. (London: E. and F. N. Spon, Ltd.) 10s. 6d.

Cambridge Observatory. Annual Report of the Observatory Syndicate, 1929 May 19-1930 May 18. Pp. 3. (Cambridge.)

Proceedings of the Malacological Society of London. Edited by R. Winckworth. Vol. 19, Part 2, July. Pp. 59-82. (London: Dulau and Co.) 10s. net.

The National Physical Laboratory. Report on the Physics Department for the Year 1929. (From the Report of the Laboratory for the Year 1929.) Pp. 58-94. (London: H.M. Stationery Office.) 2s. net.

Leeds University: Department of Pathology and Bacteriology. Annual Report by Prof. Matthew J. Stewart and Prof. J. W. McLeod; with Abstract Report on Experimental Pathology and Cancer Research by Prof. R. D. Passey. Pp. 15. (Leeds.)

Research Council of Alberta. Report No. 23: Preliminary Soil Survey adjacent to the Peace River, Alberta, West of Dunvegan. Pp. iv+33+6 plates. (Edmonton: W. D. McLean.) 50 cents.

Report of the Director of the Royal Observatory, Hong Kong, for the Year 1929. Pp. 16. (Hong Kong.)

The North of Scotland College of Agriculture. Guide to Experiments and Demonstration Plots at Craibstone, 1930. Pp. xii+58. (Aberdeen.)

Transactions of the Royal Society of Edinburgh. Vol. 56, Part 3, No. 24: The Carboniferous Sediments of Kintyre. By Dr. William J. McCallien and Robert B. Anderson. Pp. 599-619+1 plate. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.) 3s. 6d.

Transactions of the Optical Society. Vol. 31, No. 2, 1929-30. Pp. v+53-112. (London.) 10s.

University of Reading: the National Institute for Research in Dairy- ing. Annual Report for the Year ending 31st July 1929. Pp. 87. (Reading.)

Department of Scientific and Industrial Research. Building Science Abstracts. Vol. 3 (New Series), No. 6, June. Abstracts Nos. 1129-1290. Pp. 197-235. (London: H.M. Stationery Office.) 9d. net.

Indian Journal of Physics, Vol. 4, Part 7, and Proceedings of the Indian Association for the Cultivation of Science, Vol. 13, Part 7. Conducted by Sir C. V. Raman. Pp. 541-589. (Calcutta.) 12 annas; 1s.

Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1290 (Ae. 439): The Equations of Motion of a Viscous Fluid in Tensor Notation. By C. N. H. Lock. (T. 2798, revd.) Pp. 28, 1s. 6d. net. No. 1306 (Ae. 446): Lateral Stability Calculations for the Bristol Fighter Aeroplanes. By Dr. A. S. Halliday and C. H. Burge. (T. 2905.) Pp. 13+17 plates. 1s. net. (London: H.M. Stationery Office.)

The Scientific Proceedings of the Royal Dublin Society. Vol. 19 (N.S.), No. 40: The Nitration of substituted Diaryl Ethers:—Phenyl-p-tolyl Ether. By Joseph Reilly, P. J. Drummond and T. Gray. Pp. 461-465. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 6d.

FOREIGN.

R. Osservatorio Astrofisico di Catania. Annuario 1930. Pp. iv+50. (Catania.)

Koninklijk Nederlandsch Meteorologisch Instituut. No. 1064; Ergebnisse aerologischer Beobachtungen, 17, 1928. Pp. iv+41. 2.50 f. No. 108; Seismische Registrierungen in De Bilt, 15, 1927. Pp. ix+63. 1.00 f. (Amsterdam: Seyffardt's Boekhandel.)

Ministerio de Agricultura de la Nación, República Argentina. Memoria correspondiente al ejercicio de 1928 presentada al Congreso de la Nación por el Ministro de Agricultura, Doctor Juan B. Fleitas. Pp. 105. (Buenos Aires.)

U.S. Department of Agriculture. Leaflet No. 61: English Sparrow Control. By E. R. Kalmbach. Pp. 8. 5 cents. Circular No. 117: The Asiatic Beetle, a Serious Pest in Lawns. By H. C. Hallock. Pp. 8. 5 cents. Circular No. 118: Calculating Waterfowl Abundance on the Basis of Banding Returns. By Frederick C. Lincoln. Pp. 4. 5 cents. (Washington, D.C.: Government Printing Office.)

Proceedings of the Academy of Natural Sciences of Philadelphia, Vol. 82. Leeches (Hirudinea) from China, with Descriptions of New Species. By J. Percy Moore. Pp. 169-192+plates 7-8. (Philadelphia.)

Bulletin of the National Research Council. No. 75: Weather and Health; a Study of Daily Mortality in New York City. Prepared under the direction and with the advice of the Committee on the Atmosphere and Man, Division of Biology and Agriculture, National Research Council, by Ellsworth Huntington. Pp. 161. (Washington, D.C.: National Academy of Sciences.) 2 dollars.

Reprint and Circular Series of the National Research Council. No. 92: Report of the Committee on Sedimentation, 1928-1929. Pp. ii+122. 1 dollar. No. 93: Guide Leaflet for Amateur Archaeologists. Pp. 11. 25 cents. (Washington, D.C.: National Academy of Sciences.)

U.S. Department of Commerce: Bureau of Standards. Bureau of Standards Journal of Research. Vol. 4, No. 6, June. (R.P. Nos. 176-182.) Pp. 737-874. (Washington, D.C.: Government Printing Office.) 40 cents.

Smithsonian Institution: United States National Museum. Bulletin 76: Asteroides of the North Pacific and adjacent Waters. By Prof. Walter Kenrick Fisher. Part 3: Forcipulata (concluded). Pp. iii+356+93 plates. (Washington, D.C.: Government Printing Office.) 1.40 dollars.

United States Department of the Interior: Geological Survey. Bulletin 813-B: The Chakachamna-Stony Region, Alaska. By Stephen R. Capps. (Mineral Resources of Alaska, 1928.) Pp. ii+97-123+2 plates. 10 cents. Water-Supply Paper 618: The Green River and its Utilization. By Ralf R. Woolley. Pp. xv+456+35 plates. 1.25 dollars. Water-Supply Paper 621: Surface Water Supply of the United States, 1926. Part 1: North Atlantic Slope Drainage Basins. Pp. vi+274. 30 cents. (Washington, D.C.: Government Printing Office.)

Bulletin of the Earthquake Research Institute, Tokyo Imperial University. Vol. 8, Part 2, June. Pp. 91-319+11 plates. (Tokyo: Iwanami Shoten.) 2.70 yen.

Journal of the College of Agriculture, Imperial University of Tokyo. Vol. 10, No. 5, March 31st. Pp. 329-388. (Tokyo: Maruzen Co., Ltd.) 2.00 yen.

Statens Meteorologisk-Hydrografiska Anstalt. Årsbok, 9, 1927. iv, Meteorologiska iakttagelser i Sverige, Band 69. Pp. x+177. 7.00 kr. (Årskb. 11, 1929. ii: Nederbörden i Sverige. Pp. 160. 5.00 kr. (Stockholm.)

Jahresbericht der Hamburger Sternwarte in Bergedorf für das Jahr 1929. Pp. 30+8 Tafeln. (Bergedorf.)

CATALOGUE.

South and Central America: a Catalogue of Books, Pamphlets, Engravings, Maps and Original Drawings relating to Latin America with the British Colonies of Falkland Is., Honduras and Guiana. (Catalogue 528.) Pp. 80. (London: Francis Edwards, Ltd.)

Diary of Societies.

CONGRESS.

AUGUST 7 TO 15.

INTERNATIONAL HORTICULTURAL CONGRESS (in London).—*Papers to be read on Aug. 8, 11, and 13:—*

Prof. Priestley: Vegetative Reproduction from the Standpoint of Plant Anatomy.

Dr. Van der Lek: Anatomical Structure of Woody Plants in Relation to Vegetative Propagation.

Dr. R. Salaman: Vegetative Mutations.

Prof. E. Baur: Production of Mutations by External Stimulus.

Dr. F. E. Denny: The Excitation of Dormant Buds under External Influence.

John Innes Horticultural Institution: Graft Hybrids.

John Innes Horticultural Institution: Vegetative Production of Polyploids.

John Innes Horticultural Institution: Sterility.

G. E. Yerkes: Raising Root Stocks from Seed.

Dr. C. G. Dahl: Root Stocks from Seeds of known Parents.

Dr. R. J. D. Graham and L. B. Stewart: Special Methods of Practical Utility in the Vegetative Propagation of Plants.

Miss Mary E. Reid: The Influence of the Nutrient Conditions of Seeds and Cuttings upon the Development of Roots.

Prof. P. W. Zimmerman: Factors influencing Root Growth of Cuttings.

Dr. A. B. Stout: The Inter-relations between Vegetative Propagation and Seed Reproduction.

N. Eshberg: Varieties grown on own Roots.

Prof. N. I. Vavilov: The Wild Progenitors of Fruit Trees in Turkestan and in the Caucasus.

R. G. Hatton: The Development of a Research Programme around the 'Build Up' of a Fruit Plant.

Dr. H. Faes: Vine Propagation.

L. Ravaz: The Influence of American Stock on French Vines.

W. G. Freeman: Vegetative Propagation of Cacao and the West Indies Citrus.

Prof. T. Tanaka and Y. Tanaka: Propagation of Citrus Fruits in Japan.

Prof. H. J. Webber: Studies on Rootstock Reactions in Citrus.

Dr. F. F. Halma: The Propagation of Citrus by Cuttings.

Dr. H. P. Traub: The Ripening Process in Fruits, with special reference to the Fig and the Grapefruit.

Prof. B. T. P. Barker: The Fruit Tree Complex in Relation to Environment: Some current Investigations at Long Ashton.

Prof. N. E. Hansen: Fruit Stocks where Mercury Freezes.

Prof. E. C. Auchter: American Experiments in Propagating Deciduous Fruit Trees by Stem and Root Cuttings.

W. T. Macoun: National Tastes in Apples.

Dr. L. Filewicz: The Frost Injuries of Fruit Trees in Poland in 1928-29, with special reference to the Influence of the Stock and Scion upon the Resistance of the Apple-trees against the Frost.

Dr. P. J. S. Cramer: Rubber Budding.

W. A. Orton: Propagation in Tropical Countries.

Prof. P. Work: Some Scientific Problems in connexion with Vegetable Seeds.

Eng. G. Jacobsen: Electric Heating of Soil in Hotbeds and Hot-houses.

Prof. E. Fedtschenko: The Horticultural Work of Russian Botanical Gardens.

Prof. C. Regel: The Botanical Garden of the Present Day.

H. J. Rumsey: Horticultural Progress in Australia.