

Castle, Denmark, which consisted originally of Red Danish dairy cattle and Jersey cattle, are discussed. The yield during the first 10-week period of milking appears to be the most trustworthy measure of a cow's milk-yielding qualities. The records of the cross-bred cattle (F_1) show no indication of any single Mendelian factor in the inheritance of milk characters.—A. R. Olson and G. Glockler: The critical and dissociation potentials of hydrogen. A heated platinum filament covered with calcium oxide in a vacuum tube containing purified dry hydrogen at 0.1 mm. of mercury pressure was used as the source of electrons. The beam of electrons passed through platinum stops to which varying accelerating and retarding potentials could be given, and fell on an ionisation cylinder connected with a quadrant electrometer. The dissociation potential of hydrogen appears to be 3.16 volts; eight breaks occur in the current-potential curves, five of which correspond with lines of the Lyman series.—G. L. Clark and W. Duane: (1) The reflection by a crystal of X-rays characteristic of chemical elements in it. Crystals of the compounds KI, KI_3 , CsI, CsI_3 , and $CsIBr$ have been investigated and X-rays characteristic of iodine, caesium, and bromine have been identified which obey the regular laws of crystal reflection. The method used is to determine the position of peaks in the ionisation curve by rotating the crystal (corresponding to reflections from the various planes), and, setting the ionisation chamber at one of these peaks, to move the crystal and the ionisation chamber, the latter at twice the rate of the former. A series of peaks are obtained referring to one set of planes alone. For KI, wave-lengths of these correspond with the $K\alpha$ and $K\beta$ wave-lengths of iodine. The distance between the 100 planes is 3.53×10^{-8} cm. KI_3 is found to be a cube slightly distorted with the edge 4.70×10^{-8} cm. long. CsI_3 appears to be a rhombic crystal with caesium atoms at each corner and iodine atoms at the centre and at points equidistant from the centre along the body diagonals. $CsIBr_2$ is also a rhombic crystal. (2) On the abnormal reflection of X-rays by crystals. Reflections of X-rays have been obtained from potassium iodide which are not in accord with the usual laws of crystal-reflection. The peaks caused in the ionisation curve are termed "X-peaks." For small deviations of the X-ray beam, the X-peak is outside that due to the 130 planes; for larger deviations, it is between those due to the 100 and 130 planes. The X-peak does not appear unless the incident beam contains X-rays of shorter wave-length than those in the K-series of iodine.—G. L. Clark: The significance of the experimentally determined crystal structures of the alkali polyhalides. It appears from X-ray analysis of the polyhalides KI_3 , CsI_3 , $CsIBr_3$, $CsICl_2$, that the three halogen atoms lie a diagonal of the crystal lattice, the heaviest in the centre; the metal atoms are at the corners. Other polyhalides are closely related chemically and crystallographically, and probably have similar structures, apparently closely related to the simple halide unit cubes, the halide group replacing a halogen atom. The size of the metal atom determines the dimensions of the unit cell and thus the relative stabilities of the polyhalides of the group.—E. B. Wilson: Electric conduction: Hall's theory and Perkins' phenomenon. Perkins has shown that the addition of a negative charge to a conducting strip of graphite decreases the conductivity. This is contrary to what might be expected on a free electron theory of conduction, but can be explained on Hall's theory of conduction by streams of electrons and ions, the latter taking a predominant part.

NO. 2799, VOL. III]

Official Publications Received.

- Report of the Director of the Royal Observatory, Hongkong, for the Year 1922. Pp. 17. (Hongkong.)
- Department of Commerce: U.S. Coast and Geodetic Survey. Serial No. 225: Reconnaissance and Signal Building. By Jasper S. Bilby. (Special Publication No. 93.) Pp. v+77. (Washington: Government Printing Office.) 30 cents.
- Smithsonian Institution: United States National Museum. Bulletin 100: Contributions to the Biology of the Philippine Archipelago and Adjacent Regions: Ophiurans of the Philippine Seas and Adjacent Waters. By Prof. Rene Kœhler. Pp. x+486+103 plates. Bulletin 124: The Type Species of the Genera of Chalcidoidea or Chalcid-Flies. By A. B. Gahan and Margaret M. Fagan. Pp. iii+173. 15 cents. (Washington: Government Printing Office.)
- Report of the Aeronautical Research Institute, Tôkyô Imperial University. No. 1: Hikôki ni taisuru Kaze no Hôkô to Hayasa wo kirokuru Kikai (An Instrument to measure the Direction and Speed of Wind relative to an Aeroplane). By Tamaru-Takurô. Pp. 23. Y. 0.50. No. 2: A New Air Velocity Calculator. By Toyotarô Suhara. Pp. 25-31. Y. 0.70. No. 3: On the Diurnal Variations of Winds in different Coastal Stations of Japan. By Torahiko Terada and Tatsu Kobayasi. Pp. 33-85. Y. 1.10. No. 4: On the Decay of Vortical Motion in a Viscous Fluid. By Kwan-ichi Terazawa. Pp. 87-135. Y. 0.90. No. 5: On the Distribution and Variation of Temperature in the Cylinder and Piston of an Aircraft Engine. By Toyotarô Suhara and Naoto Sato. Pp. 137-170. Y. 1.20. (Tôkyô: Maruzen Kabusiki-Kwaisha.)
- Neue Denkschriften der Schweizerischen Naturforschenden Gesellschaft (Nouveaux Mémoires de la Société Helvétique des Sciences Naturelles). Band 53. Pp. xx+402+54. Band 54. Pp. iv+291+32 Tafeln. Band 55. Pp. viii+149. Band 56. Pp. vi+126+28 Tafeln. Band 57. Pp. xi+325. Band 58. Pp. viii+251. (Basel, Genf and Lyon: Georg and Co.)
- Statens Meteorologisk-Hydrografiska Anstalt. Årsbok, 4, 1922. 2: Nederbörden i Sverige. Pp. 173. (Stockholm.)

Diary of Societies.

MONDAY, JUNE 25.

- SOCIETY OF BIOMETRICIANS AND MATHEMATICAL STATISTICIANS (at University College), at 8.—Dr. T. H. C. Stevenson: The Social Distribution of Causes of Death in England and Wales.
- ROYAL SOCIETY OF MEDICINE (Odontology Section), at 8.—L. E. Claremont: Case of Fibro-Cystic Disease of the Lower Jaw.—Dr. A. Hopewell-Smith: Two Ootomes; Some Observations on the Histology and Pathology of the Dental Pulp.
- ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.30.—Presentation of the Royal Gold Medal.

TUESDAY, JUNE 26.

- IMPERIAL EDUCATION CONFERENCE (at Institution of Mechanical Engineers), at 8.—Miss L. De Lissa: Recent Developments in Infant Education and their Connexion with the Work of the Elementary Schools.
- ROYAL ANTHROPOLOGICAL INSTITUTE, at 8.15.—de Balfi Crawshaw: Exhibit of Eoliths from the South Ash Pit on the Kentish Chalk Plateau, and of Stone Implements from Mesopotamia.—S. Hazzledine Warren: The Palaeolithic Succession of Stoke Newington.
- SOCIOLOGICAL SOCIETY (at Royal Society), at 8.15.—Dr. E. Jenks: The Function of Law in Society.

WEDNESDAY, JUNE 27.

- ROYAL SOCIETY OF ARTS, at 4.—Annual General Meeting.
- ROYAL SOCIETY OF MEDICINE (Surgery Section), at 5.30.—Dr. W. Mayo, Sir Berkeley Moynihan, J. Sherren, G. Grey Turner, and A. J. Walton: Discussion on the Surgery of the Hepatic and Common Bile Ducts.
- IMPERIAL EDUCATION CONFERENCE (at Institution of Mechanical Engineers), at 8.—Lt.-Gen. Sir Robert S. S. Baden-Powell, Bart.: The Boy Scout and Girl Guide Movement.

THURSDAY, JUNE 28.

- ROYAL SOCIETY, at 4.30.—Prof. V. H. Blackman, A. T. Legg, and F. G. Gregory: The Effect of a Direct Electric Current of very Low Intensity on the Rate of Growth of the Colicottile of Barley.—Miss R. M. Tupper-Carey and Prof. J. H. Priestley: The Composition of the Cell Wall at the Apical Meristem of Stem and Root.—L. J. Harris: The Titration of Amino- and Carboxyl-Groups in Amino-Acids, Polypeptides, etc.—Dr. M. S. Pembrey, N. W. MacKeith, W. R. Spurrall, E. C. Warner, and H. J. Westlake: Observations on the Adjustment of the Human Body to Muscular Work.—F. A. E. Crew: Studies in Intersexuality. II. Sex-Reversal in the Powl.—Prof. W. Finkler: Analytical Studies on the Factors causing the Sexual Display in the Mountain Newt (*Triton alpestris*).—Prof. G. A. Schott: The Scattering of X- and γ -Rays by Rings of Electrons—The Effect of Damping of the Incident Radiation.—Major P. A. MacMahon: A Class of Transcendents of which the Bessel Functions are a Particular Case.—Dr. L. C. Martin: The Photometric Matching Field.—Prof. G. P. Thomson: Test of a Theory of Radiation.—Dr. A. Ll. Hughes and P. Lowe: Intensities in the Helium Spectrum.—A. A. Dee: The Effect of Quenching from above the Carbide Transition Temperature upon the Magnetism of Steel.—T. S. P. Strangeways and H. E. H. Oakley: The Immediate Changes observed in Tissue Cells after Exposure to Soft X-Rays while growing *in vitro*.
- INSTITUTION OF ELECTRICAL ENGINEERS (at British Museum (Natural History)), at 8.30.—Annual Conversations.
- ROYAL SOCIETY OF MEDICINE (Urology Section), at 8.30.—Prof. C. G. Chinnston: Certain Points in Connexion with Nephritis.

FRIDAY, JUNE 29.

- SOCIÉTÉ DES INGÉNIEURS CIVILS DE FRANCE (British Section) (at Institution of Mechanical Engineers), at 8.30.—M. Barrillon: The Port of Rouen and the Lower Seine.