

Calendar of Discovery and Invention.

April 25, 1839.—Many objections were raised against building ships of iron, but the two real difficulties arose through the disturbance of the compass and the fouling of the hulls. Airy did more than any one to solve the compass problem, but in his autobiography is the entry, "I had in this year (1839) a great deal of troublesome and on the whole unpleasant correspondence with the Admiralty about the correction of the compass in iron ships. I naturally expected some acknowledgment of an important service rendered to Navigation: but the Admiralty peremptorily refused it. . . . The general success of the undertaking soon became notorious, and (as I understand) led immediately to extensive building of iron ships." The vessels Airy used in his experiments were the *Rainbow* and *Ironsides*, and his results were published in a paper to the Royal Society on April 25, 1839.

April 25, 1848.—So far back as 1746 the Government offered a reward of £20,000 for the discovery of a passage by sea between the Atlantic and Pacific north of 52° N., and many explorers sought for the route. Among these was the heroic Franklin. He left England with the *Erebus* and *Terror* in 1845 with 129 men, but none survived. In 1859 relics of the expedition were discovered, and among them this entry, "April 25, 1848: the ships were deserted on April 22nd, having been in the ice since September 12th, 1846. Sir John Franklin died June 11th, 1847, and the total loss to this date has been nine officers and fifteen men. The rest (105 in number) landed here and start to-morrow for the Great Fish River."

April 27, 1857.—The earliest photographs of stars were obtained by Whipple at Cambridge, Mass., in 1850, but double-star photography was inaugurated by G. P. Bond, who on April 27, 1857, with an exposure of eight seconds, obtained an impression of Mizar, the middle star in the handle of the Plough.

April 27, 1888.—In a lecture at the Royal Institution on this day, Wimshurst described his famous influence machine. Of this machine it was said it "completely revolutionised the science of static electricity, for there had never been before its introduction a machine for the production of static charges which was not the subservient slave of the hygrometric condition of the atmosphere." Wimshurst constructed more than ninety such machines.

April 27, 1893.—Thirty-four years ago, Rudolph Diesel explained at Augsburg his ideas on the famous heat engine now bearing his name. The Diesel engine was the result of theoretical inquiries which he published under the title, "The Theory and Construction of a Rational Heat Motor."

April 29, 1820.—The founder of the rubber industry in England, Thomas Hancock, took out his first patent on April 29, 1820, for "an improvement on the application of a certain material to certain articles of dress and other articles that the same may be rendered more elastic." It was, however, not until twenty-three years later, on Nov. 21, 1843, that he patented 'vulcanised' rubber, the term 'vulcanisation' being suggested by his partner Brockedon, Vulcan, of mythology, being considered representative of the sulphur and heat required by the process.

April 30, 1799.—A century ago the most important chemical factory in the world was that of Charles Tennant and Co. at St. Rollox, Glasgow. In 1788, Tennant had discovered a method of controlling chlorine by the admixture of lime, and on April 30, 1799, he patented his method of producing chloride of lime or bleaching powder, a substance for which at first he obtained £140 a ton.

E. C. S.

Societies and Academies.

LONDON.

Linnean Society, Mar. 17.—E. M. Marsden-Jones and W. B. Turrill: An improved herbarium method for geneticists, ecologists, and taxonomists. The method has been used at Kew for some years, and, with minor modifications, is capable of very wide application. The process consists in the sticking down of the specimens in the living condition. The best results have been obtained with paste, not with gum or glue, 'Gloy' being the best so far tested. A sheet of paper or card is brushed over with a thin layer of the paste, and the specimens placed on this. They are dabbed down and the sheet is placed in a press and considerable pressure applied. It is advisable to look at the preparations within a few hours, and remove any excess paste. After a few days the specimens are dried; they retain their shape, and sometimes their colour, indefinitely. With some plants, ironing through blotting-paper with a hot iron gives excellent results.—Miss F. Haworth: Lichen dyes. *Parmelia saxatilis* (gathered preferably after a wet day) and *P. omphalodes* are used in the preparation of Harris tweed, and give a characteristic smell to the cloth. Three methods of dyeing are used: (1) Boiling the lichen and wool together; (2) soaking in ammonia for a week; (3) boiling with ammonia for about two hours until mucilaginous, folding dye and cloth alternately and covering with rain water with a little alum, boiling for twenty minutes, and then washing the cloth in cold water. Generally the best results are obtained where numerous soredia are present. Rock lichens give the best dyes, those species with a large flat thallus rarely producing a permanent dye, though *Peltigera canina* gives a yellow colour with cotton.—F. E. Fritch: Heath-association on Hindhead Common. The relative grouping of the different species varies considerably with the time since the last fire, with the aspect, and with soil features. The character of the vegetation shortly after a fire depends upon the size of the growth that was burned, but ultimately *Calluna* becomes completely dominant and more or less completely hides the codominant, but largely prostrate, *Ulex nanus*. On slopes facing south *Erica cinerea* may become a temporary dominant for some years. Fires cause little ultimate change. Plants like *Pteridium* and *Molinia* may exhibit a limited increase of area in the first year after a fire, but do not advance after the vegetation has closed up.

Geological Society, Mar. 23.—E. S. Cobbold: The stratigraphy and geological structure of the Cambrian area of Comley (Shropshire). The exact positions of the excavations made by the author since 1906 are recorded, and the stratigraphy and tectonics as revealed by them and by the surface-features described. The folding and faulting of the Cambrian fall naturally into four groups: (1) post-Mesonacidian and pre-Paradoxidean, general direction unknown; (2) post-Paradoxidean and pre-Caradocian, general direction north-north-west to south-south-east; (3) post-Caradocian and pre-Silurian, general direction north-east to south-west, all the result of compressive forces; and (4) post-Silurian, tensional stresses responsible for the Church Stretton Fault. The facts detailed indicate seven diastrophic phases of various intensities. Special attention is given to the complicated Dairy Hill area, where recent work has fully substantiated the inference previously drawn from the Comley breccia-bed, that a peak or promontory of Lower Cambrian sandstone remained above water during the accumulations of some 300 feet or more of strata of the Paradoxidesgroomi zone.

EDINBURGH.

Royal Society, Mar. 28.—W. Peddie: Magnetism and temperature in crystals. In earlier papers the development of expressions for the mutual actions of the magnetic molecules, which Weber postulated, were given, subject to the condition that temperature motions of the molecules were neglected. These are now taken into account. An equation of thermomagnetic state is deduced, and subject to the choice of a unit of energy variable with the direction of magnetisation in the crystal, it may be put into a form similar to the thermomechanical equation of state of Van der Waals. Like that equation, it may be put into a form which is the same for any crystal, magnetised in any direction, when the magnetic field, the magnetic intensity, and the temperature are expressed as multiples of the corresponding 'critical' quantities.—Miss W. M. Smith: The after-images of coloured light. With stimulation by red, green, and blue lights, no observable fundamental difference was noted in the case of the two latter, possibly because the blue light contained a considerable admixture of green. The succession of colours seen in the after-images can be represented as originating in three independent colour sensations, red, green, and blue respectively. These can be regarded as varying with time in accordance with a simple harmonic law involving logarithmically decaying amplitudes.—H. H. Read: The igneous and metamorphic history of Cromar, Deeside, Aberdeenshire. The three phases of igneous activity of this region are (1) the geosynclinal phase, with the intrusion of gabbro sills of pre-metamorphism age; (2) the movement phase, consisting of the injection of acid igneous material during the later stages of the movement-period; and (3) the post-movement phase, exemplified by the intrusion of cross-cutting granites entirely later than the crystal movements. The chief rock of the movement phase is oligoclase-biotite-gneiss considered to result from the union of acid soda-rich injected material with sedimentary pelitic schists. Injection of similar magnetic material into hornblende-schists resulted in the formation of pseudo-dioritic rocks. Post-consolidation phenomena of this injection are due to the action of alkaline solutions producing myrmekite, shimmer aggregates, etc.—A. Calder: Rôle of interbreeding in the development of the Clydesdale breed of horses. Using Sewall Wright's coefficient of inbreeding, it is found that during the early history of the breed very little inbreeding has been practised. A method is outlined by which a measure can be obtained of the contribution of any particular sire to the average percentage of inbreeding for the breed, the degree of concentration of his blood in animals inbred to him, and the rate at which his blood is diffused through the breed. The homozygosity of the Clydesdale breed, relative to the condition existing in the foundation stock, has been increased by 6.25 per cent. by inbreeding alone.—Y. Tamura: The effects of implantation upon ovarian grafts in the male mouse. Implantation of ovary on to the surface of the kidney of the male demonstrated that in the majority of cases the graft survives and retains the typical ovarian structure. If the germinal epithelium is unimpaired, proliferation occurs and continues until the graft has attained the stage at which it was at the time of operation. The original follicles undergo degeneration.

MANCHESTER.

Literary and Philosophical Society, Mar. 8.—E. Butterworth: A new method of electro-conductivity titration. A continuous reading method of con-

ductivity titration employing thermionic valves is described. The apparatus comprises, in its simplest form, two valves, one arranged as an audio-frequency oscillator giving approximately a pure wave form, the other arranged as a rectifier. The titration cell is included in the oscillator circuit in such a manner as to give a sensibly constant peak value of alternating current with appreciable variation of resistance of the cell. The voltage across the cell is then measured by means of the rectifier after the manner of the Moullin voltmeter. The amount of standard substance added is plotted against the anode current of the rectifier. 'Voltage' effects at the electrodes of the cell are excluded. The main advantages of the method lie in the speed and ease of working; the sensitivity can be readily varied within wide limits.

SHEFFIELD.

Society of Glass Technology (Birmingham meeting), Mar. 16.—Th. Teisen: Some further developments in recuperative glass furnaces. A new design of recuperator was described in which there is an increase in efficiency: (1) the greater heating surface ensures a higher temperature of the secondary air; (2) the reduction in space results in smaller radiation and convection losses. With the development of the recuperative furnace there has been a demand for large units. When built on the 2-recuperator principle the design outlined has certain drawbacks, to overcome which a new design has been developed on the 'tetra' recuperative principle. This design has four recuperators instead of two, arranged symmetrically in each corner of the base. A simple application of a patent system of oil firing was described. Furnaces working on this system can be fired either with oil alone or with coal or producer gas in the ordinary way, combined with oil as auxiliary fuel.—Violet Dimpleby, S. English, W. E. S. Turner, and F. Winks: The properties of some soda-lead oxide glasses. Successive replacement of soda by lead oxide gives glasses with progressively decreasing annealing temperature and thermal expansion. The action of boiling water on the glasses has been investigated and the percentage loss in weight determined; lead oxide glasses are better than those containing lime, while those containing barium oxide are the worst of the series. An important new set of factors has been determined by which the thermal expansion of lead oxide and barium oxide glasses can be calculated. The factors originally proposed by Winkelmann and Schott in 1895 need revision, and the following are the new values: SiO_2 , 0.15; ZnO , 0.21; Al_2O_3 , 0.52; ZrO_2 , 0.69; MgO , 1.35; PbO , 3.18; CaO , 4.89; BaO , 5.2; Na_2O , 12.69; K_2O , 11.7.

PARIS.

Academy of Sciences, Mar. 14.—The president announced the death of Daniel Berthelot, member of the Academy.—Pierre Termier: That the crystallophyllian series of the Vanoise and of Mont-Pourri (Savoy Alps) is Permian or Carboniferous. In 1861, Lachat suggested that the felspar and chlorite rocks of Modane were metamorphosed coal measures, but the view was not accepted. As the result of recent observations, the author considers it definitely proved that the metamorphic strata of Vanoise, Becca-Motta, Aiguille-dû-Midi, and Mont-Pourri are of the Permian or Carboniferous age.—Gabriel Bertrand and J. Perietzeanu: The presence of sodium in plants. It is pointed out that indirect methods for determining sodium in the presence of preponderating proportions of potassium are unsatisfactory, and for this reason a direct method has been used, the precipitation of the triple acetate of uranyl, magnesium,

and sodium. By this reaction quantities of sodium between 0.25 mgm. and 2.5 mgm. can be determined, even in the presence of relatively large quantities of potassium. All the plants examined, thirty-five in number, contained sodium in amounts varying from 0.0017 per cent. to 3.507 per cent. of the dry material.—A. Th. Schloesing and Désiré Leroux: The influence of drying and warming soils on the proportion of phosphoric acid soluble in water. Confirmation and extension of the work of Lebediantzef on the same subject.—E. Mathias: Contribution to the study of fulminating material (lightning). Is it hot or cold?—E. Bataillon: The origin of the amphiasier of segmentation in the parthenogenesis of the batrachians, and the problem of regulation.—Bertrand Gambier: Surfaces having a ds^2 of Liouville and their closed geodesics.—Georges Bouligand: The principle of the positive singularities of Picard.—Paul Lévy: The iteration of functions and the idea of regular growth.—D. V. Jonesco: A class of functional equations.—Huguenard, A. Magnan, and A. Planiol: A monograph for the measurement of rapidly varying pressures and an indicator for the study of high-velocity thermal machines.—Ernest Esclançon: The stability of projectiles in their movement round their centre of gravity.—V. Nechville: Star streams and the solar apex.—Raymond Chevalier: A new ferromagnetic ferric oxide. A study of the magnetic properties of ferric oxides produced by the action of hydrogen peroxide and varying quantities of caustic soda on ferrous sulphate solutions. The effects of varying temperatures were also studied.—Henri Gutton and Jean Clément: The propagation of electromagnetic waves round the earth.—Jean Cabannes: The distribution of energy on thermic elastic waves in the midst of a fluid and the diffusion of light by liquids.—Albert Péard: New study of some radiations of mercury, krypton, and xenon from the point of view of their meteorological applications. The results of a detailed study of the following lines are given: Mercury, 435.8, 491.6, 546.1, 577.0, and 579.1; krypton, 557.0, 587.1; xenon, 462.4, 467.1, 473.4.—Emile Rousseau: A special action of the radiations of the mercury arc.—Pierre Brun: The surface tensions of water-alcohol mixtures. Diagrams are given embodying the experimental results for the surface tensions of water—ethyl alcohol—propyl alcohol and water—ethyl alcohol—isoamyl alcohol mixtures.—G. Denigès: The preparation and composition of crystallised blue complex compounds of phosphorus and molybdc acid and of arsenic and molybdc acid.—N. Maxim: The action of organo-magnesium compounds on the N-tetraphylphthalimides.—P. Idrac and R. Bureau: Experiments on the propagation of radiotelegraphic waves at high altitudes.—L. Eblé and J. Itié: The values of the magnetic elements at the Station of Val-Joyeux (Seine-et-Oise) on Jan. 1, 1927.—M. and Mme. A. Chauchard: Researches on the cerebral localisations in fishes.—Philippe Fabre: Neuro-muscular stimulation by progressive currents in man.—J. Risler and Foveau de Courmelles: The radiant shock.—Charles Pérez: The postlarval evolution of the pleopods in Galathea.—A. Paillet: Experimental *gattine* (silkworm disease) in silk worms.—René Fabre and Henri Simonnet: Contribution to the study of hæmolysis by the photosensitising action of hæmatoporphyrin.

GENEVA.

Physical and Natural History Society, Feb. 17.—Paul Langevin: The equilibrium between matter and radiation. The author gives expressions for the number of light quanta the energy of which is comprised between given limits, both as in classical

statistics and according to the more recent statistical theories of Bose-Einstein and of Pauli. At high temperatures all the formulæ approach the same expression, which, completed by considerations borrowed from the theory of general relativity, defines the conditions of the genesis of electrons and protons in the interior of the giant stars.—Th. Posternak: A new reaction of pyruvic acid. The liquid to be examined is diluted with its own volume of concentrated hydrochloric acid. Some crystals of phloroglucinol are added and the whole maintained at the boiling-point for three or four minutes. If the colour (or precipitate, according to the quantity of pyruvic acid present) turns green after neutralisation with sodium carbonate, the reaction is positive.—P. Dive: The impossibility of an ellipsoidal stratification of the planets. The author establishes by calculation the impossibility of conceiving the planets as constituted of ellipsoidal layers, if it is admitted that gravity is normal to surfaces of equal density.—Rolin Wavre: The stratification of a heterogeneous fluid mass in rotation. The author demonstrates the three following propositions: (1) Surfaces of equal density tend towards the ellipsoidal form as the centre is approached, (2) if the surfaces were homothetic they will be ellipsoidal, (3) and since, according to Dive, ellipsoidal stratification is impossible, a stratification in homothetic surfaces of a heterogeneous fluid is impossible.—E. Guyénot and O. Schotté: Graft of a regenerated member and induced differentiation. A regenerated member removed from the foot of 45 days' growth and showing first indications of digits, was transferred to the back of the tail of the same Triton. The subsequent development gave a tail. This regenerated portion transplanted with a section of tissue from the base of the foot on to the tail, however, continued to develop in the form of a foot. Hence it is the base which gives the morphogenetic impulse to the regenerating tissue.—E. Pittard: The cranial capacity of the Boschiman Hottentots. Measurements made on 101 skulls lent to the author by the Cape Town Museum have given different averages from those of Broca, namely, masculine skulls 1395.3 c.c. (Broca 1317); feminine skulls 1268 c.c. (Broca 1253).

ROME.

Royal National Academy of the Lincei, Jan. 16.—V. Volterra: Laws of biological fluctuations.—O. M. Corbino: The Volta effect and the mechanism of the voltaic pile. The Volta effect is considered, and its bearings on the actions of the ionised gas cell, the mechanical cell, and the electrolytic cell are discussed.—O. M. Corbino: The electronic theory of the voltaic cell. Since the Volta effect exists in a vacuum and therefore independently of chemical action, the metallic couple, such as zinc-copper, constitutes a natural means for producing an electrostatic field, even in a space of large dimensions. Like a permanent magnet, such a couple creates round itself a magnetic field. The energy of this field is of purely physical origin and is derived from the varying energy of linking of the conduction electrons to the different metals. In the ionisation cell obtained by immersing a metallic couple in an ionised gas, the electrostatic field due to the Volta effect produces a permanent current without furnishing energy, which is supplied from outside. In the hydro-electric cell of the Daniell type the Volta effect is more important; the energy is produced by virtue of the formation of neutral copper and the destruction of neutral zinc, the greater part of the e.m.f. being formed at the contact between the two metals.—L. Cambi and Ada Clerici: Ferroso-ferric cyanides. Atomic groupings of the form $[Fe(CN)_5X]$ are able to exert chromogenic

functions analogous to those of the group $[\text{Fe}(\text{CN})_6]$; that is, the groups contained in the ferrous-ferric cyanides may preserve the co-ordinative distribution of the complex ions of the alkaline salts from which they are derived. The presence alone of ferrous and ferric ions is not sufficient for the formation of blue cyanides.—E. Bompiani: Analytical and geometrical investigations on Laplace's equation.—M. Picone: Metaharmonic functions.—F. Tricomi: Limitations of the solutions of certain equations with partial derivatives.—E. P. Lane: Quadrics having for generatrices the tangents asymptotic to a point of a surface.—N. Spampinato: The problem of complex multiplication for any pure body of Abelian functions.—G. Vranceanu: Geodetic stability.—U. Barbieri: Determination of astronomical latitude carried out at Andrate in August 1926. The geodetic and astronomical latitudes of Andrate are respectively $45^\circ 31' 38.9''$ and $45^\circ 31' 9.8''$; and since those of Mondovi were found to be $44^\circ 23' 24.3''$ and $44^\circ 23' 42.48''$, the geodetic and astronomical amplitudes between the two points are $1^\circ 8' 14.6''$ and $1^\circ 7' 27.3''$ respectively.—N. Siracusano: A noteworthy deduction from Bohr's theory. On the assumption that the only atomic model is that of Bohr, it is shown that the natural chemical elements cannot number 138.—L. Mazza: Products formed during the action of lead accumulators (ii). X-ray photographic results show that the paste of the positive plates of lead accumulators consists almost solely of lead peroxide in a normally-charged or greatly overcharged cell and of mixtures of the peroxide and sulphate in cells either partially or completely discharged.—A. Bartorelli: A demonstration of the interdependence between Curie's and Haüy's laws. Objections are raised to Viola's proof (1918) that it is possible to pass from Curie's law to that of Haüy.—U. Panichi: Crystal lattices. Molecular space and atomic number. With the halides of the alkali metals the molecular space increases with the molecular number. For analogous compounds having the same molecular number, the molecular space increases as the ratio of the atomic number of the metal to that of the non-metal diminishes. When this ratio is constant or almost so for non-analogous compounds, that is, those having non-isovalent metals, the molecular space diminishes as the valency increases.—C. Jucci: Maternal and paternal heredity in the capacity for larval development of the reciprocal crosses between two races of silkworms. The results of crossing white with mottled silkworms show that these two characters have a definite value or hereditary power which does not change when the sense of the crossing is inverted. The influence of the factor is immediate when its incidence is maternal but slow when it is supplied by the paternal parent.

Official Publications Received.

BRITISH.

- Home Office. Judicial Statistics, England and Wales, 1925. Criminal Statistics: Statistics relating to Criminal Proceedings, Police, Coroners, Prisons and Criminal Lunatics for the Year 1925. (Cmd. 2811.) Pp. iv+222. (London: H.M. Stationery Office.) 4s. net.
- Journal of the Chemical Society: containing Papers communicated to the Society. March. Pp. viii+liii+529-700. (London: Gurney and Jackson.)
- University College of Wales, Aberystwyth: Welsh Plant Breeding Station. The Animal Complex and the Pasture Complex. (Series H, No. 5.) Pp. 54. (Aberystwyth.) 3s. 6d.
- University College of Wales, Aberystwyth: Agricultural Department. Advisory Bulletin, No. 2: The Nutritive Value of Grasses, as Pasture, Hay and Aftermath, as shown by their Chemical Composition. By T. W. Fagan. Pp. 23. (Aberystwyth.)
- 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). By L. F. Spath. Pp. iii+84+7 plates. (Calcutta: Government of India Central Publication Branch.) 4.12 rupees; 8s.

- County Library Conference, November 18th and 19th, 1926, held in the First Avenue Hotel, High Holborn, London, W.C. Report of the Proceedings. Pp. 121. (Dunfermline: Carnegie United Kingdom Trust.)
- Some Impressions of the Public Library System of the United States of America. Pp. 90. (Dunfermline: Carnegie United Kingdom Trust.)
- Union of South Africa: Department of Agriculture. 11th and 12th Reports of the Director of Veterinary Education and Research. Part 2, January 1927. Pp. iii+819-1361+9 plates. (Pretoria: Government Printing and Stationery Office.) 10s.
- The Wellcome Historical Medical Museum, 54A Wigmore Street, London. Pp. 118. (London: The Wellcome Foundation, Ltd.)
- Lister Centenary Exhibition at the Wellcome Historical Medical Museum. Handbook, 1927. Pp. 216. (London: The Wellcome Foundation, Ltd.)
- Transactions of the Optical Society. Vol. 28, No. 2. Pp. ii+45-116. (London: Optical Society, Imperial College of Science.)
- Board of Education. Second Report of the Standing Joint Committee representative of Local Education Authorities and Associations of Teachers on Scales of Salaries for Teachers in Technical and Art Schools in which the Local Educational Authorities accept Responsibility for the Salary Scales. England and Wales, February 1927. Pp. 30. (London: H.M. Stationery Office.) 3d. net.
- The Scientific Proceedings of the Royal Dublin Society. Vol. 18 (N.S.), No. 32: The Correlation of Nutritive Value with Dry Matter Content of Pastures. By E. J. Sheehy. Pp. 389-398. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 1s.
- Imperial Institute. Annual Report, 1926, by the Director, Lt.-Gen. Sir William Furse, to the Board of Governors. Pp. iii+46. (London.)
- Tanganyika Territory. Report of the Department of Agriculture for the Year ending 31st March 1926. Pp. 37. (Dar es Salaam: Government Printer.)
- Reports of the Council and Auditors of the Zoological Society of London, for the Year 1926; Prepared for the Annual General Meeting, to be held on Friday, April 29th 1927, at 4 p.m. Pp. 75. (London.)
- Transactions and Proceedings of the Royal Society of South Australia (Incorporated). Vol. 50. Edited by Prof. Walter Howchin, assisted by Arthur M. Lea. Pp. iii+350+53 plates. (Adelaide.) 21s.
- Year-Book of the Department of Agriculture, Ceylon, 1927. Pp. ii+66+20 plates. (Peradeniya: Department of Agriculture.)
- Melbourne Astrographic Catalogue 1900-0. Vol. 1: Zones - 65° and -66°. Rectangular Co-ordinates and Diameters of Star Images, from Photographs taken and measured under the Direction of R. L. J. Ellery and Pietro Baracchi; revised and prepared for Publication under the Supervision of Dr. J. M. Baldwin. Pp. xxx+334. (Melbourne: H. J. Green.)

FOREIGN.

- Ministry of Agriculture, Egypt: Technical and Scientific Service. Bulletin No. 60: The Development of the Egyptian Cotton Plant. By M. A. Bailey and T. Trought. Pp. ii+46+13 plates. (Cairo: Government Publications Office.) 5 P.T.
- Actes de la Société Helvétique des Sciences Naturelles. 107^e Session annuelle du 30 août au 1^{er} septembre 1926 à Fribourg. Pp. 146+266+22. (Aarau: H. R. Sauerländer et Cie.)
- United States Department of Agriculture. Department Bulletin No. 1429: The Parasites of *Popillia japonica* in Japan and Chosen (Korea) and their Introduction into the United States. By Curtis P. Clausen and J. L. King and Cho Teranishi. Pp. 56. 15 cents. Department Bulletin No. 1453: The Cheese Skipper as a Pest in Cured Meats. By Perez Simmons. Pp. 56. 15 cents. (Washington, D.C.: Government Printing Office.)
- University of California Publications in American Archaeology and Ethnology. Vol. 21, No. 8: The Uhle Collections from Nieveria. By A. H. Gayton. Pp. 305-329+plates 91-97. 35 cents. Vol. 24, No. 1: The Uhle Pottery Collections from Nazca. By A. H. Gayton and A. L. Kroeber. Pp. 46+21 plates. 60 cents. (Berkeley, Calif.: University of California Press; London: Cambridge University Press.)
- Proceedings of the United States National Museum. Vol. 60, Art. 10: The North American Two-Winged Flies of the Family Simuliidae. By Harrison G. Dyar and Raymond C. Shannon. (No. 2636.) Pp. 54+7 plates. Vol. 70, Art. 12: Tanaodon, a new Mollusc Genus from the Middle Devonian of China. By Edwin Kirk. (No. 2661.) Pp. 4+1 plate. Vol. 70, Art. 17: Description of a new Dragon Fly from Lower Siam belonging to the Genus *Urothemis*. By F. F. Laidlaw. (No. 2666.) Pp. 3+1 plate. (Washington, D.C.: Government Printing Office.)
- Proceedings of the American Academy of Arts and Sciences. Vol. 62, No. 1: Ants of the Genus *Amblyopone* Erichson. By William Morton Wheeler. Pp. 29. 75 cents. Vol. 62, No. 2: The Geology of Saint Helena Island. (Shaler Memorial Series.) By Reginald A. Daly. Pp. 31-92+25 plates. 3 dollars. (Boston, Mass.)
- International Hydrographic Bureau. Special Publication, No. 19: Ocean Currents in relation to Oceanography, Marine Biology, Meteorology and Hydrography. By Rear-Admiral A. P. Niblack. Pp. 43. (Monaco.) 30 cents.
- Bulletin of the National Research Council. Vol. 11, Part 3, No. 57: Molecular Spectra in Gases; Report of the Committee on Radiation in Gases. By Edwin C. Kemble, Raymond T. Birge, Walter F. Colby, F. Wheeler Loomis and Leigh Page. Pp. 358. (Washington, D.C.: National Academy of Sciences.) 4 dollars.
- Conseil Permanent International pour l'Exploration de la Mer. Rapports et Procès-verbaux des Réunions, Vol. 42: Investigations of the Production of Plankton in the Oslo Fjord. By Torbjørn Gaarder and H. H. Gran. Pp. 48. Journal du Conseil. Rédigé par E. S. Russell. Vol. 2, No. 1. Pp. 107. (Copenhagen: Andr. Fred. Høst et fils.)

CATALOGUES.

- Catalogue of Standard Literature, including Library Sets, Greek and Latin Classics, Modern and Private Press Books, First editions, French Literature, etc. (No. 294.) Pp. 86. (London: Francis Edwards.)
- Wild-Barfield Electric Furnaces. Pp. 8. (London: Automatic and Electric Furnaces, Ltd.)
- A Complete List of Chapman and Hall's Scientific and Technical Books. Pp. 96. (London: Chapman and Hall, Ltd.)