

### Historic Natural Events.

**Feb. 16-19, 1898. Dust Haze.**—A dense haze occurred over a large part of the eastern Atlantic off West Africa, extending for at least 1500 miles north and south and a great but unknown distance east and west. The haze was caused by very fine red dust, so fine that it was impossible to sweep it up, and so dense that the sun and stars were completely obscured for two days. When visible the sun was generally red, but one observer described it as "a perfect blue ball" and another as greenish. At Teneriffe the occurrence was preceded by a strong and very hot southerly wind, but during the haze there was no wind. Many insects were observed, of species not generally found on the island. The dust evidently originated in Africa, for it was much coarser near the coast, and was thrown overboard from ships in large quantities.

**Feb. 18, 1770. Damage by Lightning.**—During morning service St. Keverne's Parish Church, Cornwall, was struck by lightning. The vicarage seat was torn to pieces and a large piece of oak was thrown 20 feet. The vicar's sister was knocked down senseless, the wooden part of one of her pattens was broken and it and her shoe were burnt, as well as parts of her clothes and body. The spire was rent, and stones from it were thrown on the tops of many houses; one that fell through a roof was found to weigh 14 lb. Some smaller stones were found at a distance of a quarter of a mile.

**Feb. 20, 1661. The 'Dantzig Phenomenon'.**—A remarkable and extremely beautiful halo complex was seen at Dantzig between 10.30 and 11.51 A.M. In addition to the usual halos of 22° and 46°, the circumzenithal ring and various arcs of contact, there were no fewer than seven mock suns, some white, some of various colours, arranged with perfect symmetry. This is probably the most complete optical display on record.

**Feb. 20, 1835. Great Earthquake.**—Concepcion, Talcahuano, and other Chilean towns were ruined by an earthquake felt over an area of more than 400,000 square miles. Sea-waves, 28 feet and more in height, swept over the coast and even caused damage at Juan Fernandez, 420 miles from Chile. The coast of Chile was raised by 4 or 5 feet, though it afterwards subsided by half that amount. The volcanoes of the Chilean Andes, a range 150 miles in length, were unusually active before, during, and after the earthquake.

**Feb. 21, 1861. Great Storm in Southern England.**—This storm was noteworthy for the destruction of a wing of the Crystal Palace and of the cathedral tower at Chichester, which fell in spite of desperate efforts to shore it up.

**Feb. 21, 1922. Glazed Frost.**—During the night of Feb. 21, in the region of the Great Lakes, a light rain fell at a temperature below freezing point. A coating of ice formed on everything out of doors, and as the rain continued falling, the ice grew thicker. Trees were so heavily coated that they began to give way and the air was full of rifle-like reports as the huge limbs snapped off. Sidewalks in streets were piled high, and as the rain continued whole streets became blocked as the trees were split from top to base and fell. Trains ceased to run, and telegraph and telephone wires were snapped by the weight of ice. Newspaper presses stopped, and only the radio enabled people to keep in touch as they could not venture into the streets. Recovery was slow. The train service resumed after several days, but it was months before all the telegraph equipment was replaced.

**Feb. 21-23, 1903. Red Rain.**—Dust or 'red rain' fell over an area of 20,000 square miles in the southern half of England and Wales as well as in many countries on the Continent. It is estimated that in England and Wales alone the total quantity of dust was not less than 10 million tons. It was traced back to the Sahara, south of Morocco, where it was raised by a strong north-east wind; it travelled on the western side of an anticyclone over south-west Europe for a distance of at least 2000 miles in a wide sweep around Spain and Portugal, probably across the Azores. In Europe the fall was associated with oppressive heat, and visibility was limited to short distances.

**Feb. 22, 1909. Meteor Trail.**—A very fine meteor passed the length of the English Channel at 7.34 P.M. from a point 45 miles south-south-west of Beachy Head to 87 miles south-south-east of Start Point. This distance of 150 miles was traversed in less than six seconds, giving a velocity of at least 25 miles per second relative to the earth, at a height of about 50 miles. The meteor left an unusually well developed 'streak', which was visible for nearly two hours. It brightened appreciably in the first half-minute, and the main part drifted gradually north-westward while the ends remained almost stationary. The long-continued brightness of the streak was attributed to some unknown form of electrical action, possibly similar to the aurora, rather than to incandescent matter.

### Societies and Academies.

LONDON.

**Royal Society, Feb. 6.**—A. H. Davis and E. J. Evans: Measurement of absorbing power of materials by the stationary wave method. The paper describes an apparatus set up for determining the acoustical absorption coefficient of small samples of material for sound, incident perpendicularly, and discusses the theory of the method and of its corrections. Stationary wave coefficients for certain practical materials are compared with coefficients obtained by a 'reverberation' method, in which random incidence of sound is employed.—J. W. Fisher and H. T. Flint: The equations of the quantum theory. These equations are obtained by analogy with Maxwell's equations applied to empty space. They are expressed by means of a five-dimensional system of co-ordinates with the adoption of a metric after the manner of Weyl and Eddington in four-dimensions. The quantum problem is shown to be a radiation problem in five-dimensions, and the equations proposed are invariant.—J. Hargreaves: The effect of nuclear spin on the optical spectra (2). The paper contains a general method for dealing with the effect of a nuclear spin of possibly more than half a quantum, by the use of multiple wave functions, and is applied in detail to the cases of a nuclear spin of 1,  $1\frac{1}{2}$ , and  $4\frac{1}{2}$  quanta respectively. The interaction energy of the nucleus and electron spins is neglected, without effect on the kinematical problem of determining the multiplet intensities.—E. Rudberg: Characteristic energy losses of electrons scattered from incandescent solids: The velocity distribution of an initially homogeneous beam of electrons, after scattering from a solid target kept at incandescence, has been studied by means of a magnetic deflection apparatus. The curves show a sharp peak due to reflected electrons and several small maxima for slightly lower values of the energy. These maxima are characteristic of the substance forming the target, their positions with respect to the reflected peak remain constant for a wide range of bombarding voltages, and when target and electron gun are rotated, are also independent of angle of scattering. These maxima are associated with

inelastic collisions with the target atoms, involving definite energy changes, such as excitation and ionisation.—J. A. Gaunt: Continuous absorption: This paper investigates afresh the problem of the rate of absorption of light by electrons which are initially bound to a nucleus, or free and 'colliding' with a nucleus, and after absorption are free in either case. Such a process gives rise to a continuous absorption spectrum and is the main source of the general opacity in stellar atmospheres and interiors. The interest and difficulty of the problem lie in the effective evaluation of the formal quantum theoretical expression for the absorption coefficient. Kramers' classical formula is asymptotically correct in the region in which one would expect it to be so by the correspondence principle. The deviations of astrophysical significance are found. The discrepancy between the requirements of Eddington's stellar theory and Kramers' formula is probably retained by the quantum theory of continuous absorption.

Optical Society, Jan. 16.—O. G. Hay: The Ross modification of the Hilger interferometer is for testing large optical elements when the free aperture of the test element is larger than the normal aperture of the interferometer. A pair of mirrors moved over the surface to be tested reflect a test beam and a reference beam and so enable any two areas to be compared. Any error introduced, by mechanical motion, into the test beam is compensated by a similar error in the reference beam. The two beams are linked together throughout the whole of the optical train of the interferometer.—J. S. Preston: The reflection factor of magnesium oxide. The factors were measured by means of a small integrating hollow sphere with three openings, one for illumination, another for observation through a photometer, and the third covered by a test plate or by the specimen to be examined. Results. Total factor under diffused light = 0.0974.

Apparent factor for	90°	incidence and	45°	view	=	1.00 <sub>5</sub> .
"	"	"	45°	"	90°	" 1.00 <sub>0</sub> .
"	"	"	diffuse	"	45°	" 1.00.
"	"	"	"	"	90°	" 0.98.

## EDINBURGH.

Royal Society, Feb. 3.—R. W. Wrigley: On changes of rock temperatures and irregularities of the earth's rotation. The investigation is based upon a series of deep rock temperatures dating from 1837 taken at the Calton Hill. After the removal of the effects of atmospheric changes at the surface, the residuals show a certain fluctuation. A fifty years' series of deep soil temperatures at Greenwich, when similarly treated for the removal of surface variations, shows similar fluctuations. There is a close correlation between these temperature variations and the minor fluctuations in the moon's longitude. Sliding of the earth's crust over the core combined with more local variations of longitude may cause the latter, and the rock temperatures would be influenced by the consequent changes of pressure in intermediate layers of the earth's crust.—S. Williams: The morphology of *Trichomanes aphlebioides* Christ, with special reference to the Aphlebioid leaves. *T. aphlebioides* is endemic to New Guinea where it grows on tree trunks in humid forests. It was first collected by K. Lauterbach in 1890 and briefly described by Christ in 1901. The scandent rhizome possesses a protostele similar to that of *T. scandens*. The fronds measure up to 60 cm. long and are 4.5 pinnate. In addition to these normal fronds, the plant possesses hair-like aphlebioid leaves. These latter are borne singly at the nodes, and their position and structure indicate that they are the first fronds of the axillary branches. Anatomically they

show great reduction in relation to the moist and shady habitat. They may serve to promote transpiration and possibly also to protect the young fronds.—J. S. Patel: The presence of a kuogenic substance in the corpus luteum of the cow: The corpus luteum of the cow contains not only a hormone which produces the pregnancy changes in the genital tract (corpus luteum hormone, beta factor), but also a water-soluble substance which induces beta production in the ovary of the immature mouse. This substance was mistaken by many authors for corpus luteum hormone. It resembles certain pituitary extracts in action and chemical behaviour and is perhaps identical with the supposed RHO-2.—P. Koiler: Genetic studies on the *A* and *B* races of *D. obscura*. The taxonomist cannot distinguish *A* from *B*, but cytologically and genetically they are dissimilar. The racial hybrid male is infertile the female fertile. Experiment involving the use of several sex-limited characters and crossing-over showed that the only male which was fertile was one with a *Y*-chromosome of race *B* and a racially compound *X*, the ends of which were from *B*, the middle from *A*. Crossing over in the ends of the *X* was greatly reduced in the case of the racial hybrid. There are probably genes in the ends of the *X*, physiologically dissimilar in the two races, which determine fertility. The relation of puberty to testis size and to cytoplasmic constitution is examined. No such relation exists.—F. A. E. Crew and L. Mirskaia: Maturity in the female mouse. Puberty and maturity are distinguished and defined. In this study the albinos reached puberty earlier than did the coloured; in them the cornified stage of first oestrus lasted longer before mating, and more commonly they mated at the time of the first oestrus. Pregnancy following the first oestrus was more frequent.—Alan Mozley: Reports of the Jasper Park Lakes Investigations, 1925-26. The mollusca of Jasper Park. The Biological Board of Canada sent two expeditions under the charge of Dr. Chas. H. O'Donoghue to Jasper National Park in the Canadian Rockies to investigate the possibilities of augmenting its fishing facilities. The present report deals with the Mollusca mainly from the systematic point of view. Forty-seven species or varieties are recorded and described, and while none of them are new they nearly all vary from the previously known forms. The collection is noteworthy in two respects: first, all the specimens were taken at altitudes between 4000 ft. and 7000 ft.; and secondly, no such detailed study of fresh-water mollusca has been made within a radius of 2000 miles. This report is intended to be preliminary to one dealing with the ecology of the group.

## PARIS.

Academy of Sciences, Jan. 6.—Gabriel Bertrand and M. Mokragatz: The distribution of nickel and cobalt in plants. Nickel and cobalt have been found in all the plants examined. The quantities of nickel found, expressed on the dry material, range from 0.02 parts per million in polished rice to 3.5 parts per million in an edible fungus, *Cantharellus cibarius*. The proportions of cobalt are usually from one-fifth to one-tenth of the nickel present.—Paul Pascal: Amides and imides derived from vanadium. A study of the interaction of ammonia and vanadyl chloride at different temperatures. At -80° C. vanadyl amide, VO(NH<sub>2</sub>)<sub>3</sub> is produced, but cannot be separated from ammonium chloride: at 85° C. or higher temperatures the imide VONH is formed.—V. Lalan: The fundamental tensors of plane varieties.—Jacques: Certain networks traced on quadrics.—Maurice Janet: A series of functions considered by Hermite and its application to a problem of the calculus of variations.—R. Tams Lyche: A problem of interpolation.—

Vladimir Bernstein: The regions of holomorphy of the series of Dirichlet.—Giulio Krall: The variation of domain in the problem of Dirichlet.—Fr. Girault: The law of gravitation.—Maurice Nuyens: A new method of integration of gravific equations of a massic and electromagnetic field with spherical symmetry.—J. F. Cellerier: The scientific analysis of musical sounds. The principle of the method employed is based on the conversion of the acoustic phenomena into electrical vibrations the characteristics of which can be determined with a high degree of precision. As an example, the results of the examination of the note emitted by a motor horn is given.—J. B. Galle and G. Talon: Recherches relating to the propagation of radioelectric waves carried out on the occasion of the eclipse of May 9, 1929. In recognition of the importance of researches on the propagation of radioelectric waves in its relations with solar activity, arrangements were made, on the occasion of the solar eclipse expedition to Indo-China, to carry out measurements of the electric field produced by distant wireless stations, observations on atmospherics, and the apparent variations of emitting station as given by radio goniometry. A summary of the results obtained is given.—G. Ferrié: Remarks on the preceding note. Comments on the results obtained in connexion with retarded wireless echos.—J. Perreu: The limiting heat of solution of hydrated manganese chloride.—R. Levailant: Some reactions of sulphurous and carbonic esters. Description of the preparation and properties of the compounds  $\text{SO}_2[\text{CH}(\text{CH}_2\text{Cl})_2]$ ,  $(\text{CH}_2\text{Cl})_2 \cdot \text{CH} \cdot \text{SO}_2\text{Cl}$ , and  $(\text{CH}_2 \cdot \text{CH}_2\text{Cl})_2\text{SO}_4$ .—M. Tiffeneau, Mlle. Jeanne Lévy, and E. Ditz: Some pairs of amino alcohols. The preparation of each isomer separately. In the preparation of the amino alcohols  $\text{ArAr}'\text{C}(\text{OH})\text{CH}(\text{NH}_2)\text{CH}_3$  by the interaction of the organo-magnesium compounds with amino ketones, either of the two stereoisomeric forms predicted by theory can be obtained at will by inverting the order of introduction of the radicles Ar and Ar'.—Raymond Delaby and Raymond Charonnat: The synthesis of dioxy-pyramidon.—Pierre Viennot: Intrusions of the Trias in the Adour basin.—Marcel Casteras: The structure of the mountains of Gar and Cagire (Haute-Garonne).—Louis Dangeard: Algal reefs and pebbles in the ferruginous oolite of Normandy.—Mlle. A. Dusseau: The chlorophyll of the leaves of wheat. Physical measurements of alcoholic extracts of chlorophyll may serve for the identification of the variety of wheat.—Alphonse Labbé: The pallial organs of some Dorididae.—A. Policard and M. Bouchariat: Contribution to the study of pulmonary anthracosis. The tolerance of cultures of tissues towards particles of coal. Results of growing lung tissue from the embryo fowl in plasma containing fine particles of coal in suspension. No poisonous action of the coal could be detected. These experiments tend to confirm the view that pulmonary anthracosis is an anatomical state and not a disease.—C. N. Dawydoff: The larvæ of the Polyclades of the coasts of Annam.—Emile F. Terroine and Fr. Szucs: The relation between aminopuric nitrogen and proteid nitrogen in micro-organisms.—H. Hermann, F. Caujolle, and F. Jourdan: The elimination of some alkaloids and some genalkaloids by the bile ducts. The presence in the bile of quinine, nicotine, strychnine, and genostrychnine, atropine, and genatropine has been proved.—R. Fosse, A. Brunel, and P. de Graeve: A new fermentation of uric acid produced by the liver of various animals. Uric acid can be totally converted into allantoin by a ferment in horse liver or by the liver of *Rana viridis*.—Mlles. Marguerite Champagne and Gilberte Mourot: The estimation of allantoin in animal urine.—J. Magrou: The interpretations of biological actions at a distance.

—H. Bordier: The efficacy of medical d'Arsonvalisation in erythematous lupus.

#### GENEVA.

Society of Physics and Natural History, Nov. 21.—G. Tiercy: The new refrigerating installation of the chronometric department of the Observatory of Geneva. The Observatory of Geneva has recently completely reorganised its chronometer service. In particular, an apparatus has been set up for testing chronometers with a modern automatic refrigerator; this installation can keep a temperature in the chronometer chamber which is constant within  $0.2^\circ\text{C}$ . The same constancy can be maintained in the chambers used for higher temperatures.—R. Wavre: A possible agreement between geodesy and the theory of the precession of the equinoxes. D'Alembert put the following problem: Are the geodesic measurements of the terrestrial flattening entirely included between the limits which are assigned to them by the theory of precession? Poincaré showed that the studies, to the first approximation, of Clairaut and his successors led to a disagreement. He did not determine the agreement possible using the second approximation. The author, who has made a methodical study of the second approximation, shows that this agreement is possible. The problem of D'Alembert may be solved without abandoning the fluid character of the earth considered as a whole.—E. Briner and H. Kuhn: Some new ammonia addition compounds of phenols. On the basis of a manometric method, the authors have detected and characterised by their formulæ, dissociation pressures and heats of formation, numerous new compounds formed by ammonia with phenols, naphthols, oxy-anthraquinones, and substituted derivatives of these substances.—B. Susz and E. Briner: The true energy yields in the production of ozone by the silent discharge and their improvement. The authors have established by electrical and calorimetric methods the true yields in the production of ozone by the silent discharge. These yields, improved by cooling, exceed 200 grams of ozone per kilowatt-hour. This makes the use of ozone particularly economical.

#### LENINGRAD.

Academy of Sciences (*Comptes rendus*, No. 20, 1929).—P. Lazarev and L. Teile: The action of blood-vessel dilators on the sensitiveness of the eye in peripheral vision. Experiments were made with amyl nitrite and nitroglycerine and it was found that these substances cause after the first 1-3 minutes a sharp decrease in the sensitiveness of the eye; then an increase occurs and after 5-9 minutes the sensitiveness becomes more than double the normal minimum.—P. Lazarev and N. I. Kolesnikova: The staining of boris glass by the action of radium rays. No effect has been observed from the action of  $\gamma$ -rays;  $\beta$ - and  $\gamma$ -rays acting together produce a purplish-brown stain; the combined action of  $\alpha$ - and  $\beta$ -rays results in producing a substance with a high absorption in the blue part of the spectrum and smaller absorption in the red part. The substances produced by  $\alpha$ - and  $\beta$ -rays possess a different velocity of reverse transformation under the influence of benzole and of high temperature.—P. Lazarev and N. Rodzevitch: The phenomena of ionisation of a gas during the discoloration of colouring substances in visible and in ultra-violet light. While there is no ionisation effect when cyanine is discoloured by the action of ordinary light, the action of ultra-violet rays produces ionisation. Similar results have been obtained with crystal violet.—A. N. Tsvetkov: The theory of physiological units. The physiological unit is the

minimum quantity of the living substance which is still excitable. Theoretical calculations show that the unit should be about  $\mu^3$  in size.—A. I. Leskov : The occurrence of *Buxus sempervirens* L. in the northern Caucasus. The forests in which boxtrees are found contain about 75 per cent of species of plants which must be regarded as Tertiary relics.

### Official Publications Received.

#### BRITISH.

Memoirs of the Punjab Irrigation Research Laboratory, Lahore. Vol. 1, No. 3 : A Statistical Examination of the Discharge of the Indus at Sukkur and its Relation with Up-stream Sites. By B. H. Wildson, with R. Partha Sarathy. Pp. 40. (Lahore.) 1.12 rupees; 2s. 4d.

The Journal of the Quekett Microscopical Club. Edited by W. S. Warton. Ser. 2, Vol. 16, No. 96, December. Pp. 95-150. (London: Williams and Norgate, Ltd.) 5s. net.

The British Electrical and Allied Industries Research Association (Incorporated). Ninth Annual Report, October 1, 1928, to September 30, 1929. Pp. 75. (London.)

Transactions of the Royal Society of Edinburgh. Vol. 56, Part 2, No. 18; Notes on the Development of *Callichthys littoralis*. By Frances M. Ballantyne. Pp. 437-466+3 plates. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.) 5s.

Department of Scientific and Industrial Research. Building Science Abstracts. Compiled by the Building Research Station and published in conjunction with the Institute of Builders. Vol. 2 (New Series), No. 12, December 1929. Abstracts Nos. 2444-2646. Pp. v+425-548. (London: H.M. Stationery Office.) 9d. net.

The Marine Biological Station at Port Erin (Isle of Man): being the Forty-third Annual Report of the former Liverpool Marine Biology Committee, now the Oceanography Department of the University of Liverpool. Drawn up by Prof. Jas. Johnstone. Pp. 31. (Liverpool: University Press of Liverpool.) 1s. 6d. net.

The North Staffordshire Field Club. Transactions and Annual Report, 1928-29. Vol. 63. Pp. 178. (Stafford.) 7s. 6d.

Geological Survey Department, Tanganyika Territory. Short Paper No. 4: The Soil and Agricultural Development in relation to the Geology of portions of the Northern Kilima and Southern Bukoba Provinces. By Dr. E. O. Teale. Pp. 32. (Dar-es-Salaam: Government Printer.) 4s.

Transactions of the Institute of Marine Engineers, Incorporated. Session 1929, Vol. 41, January. Pp. 885-981. (London.)

Dominion Museum, Wellington, New Zealand. Bulletin No. 12: Fishing Methods and Devices of the Maori. By Elsdon Best. Pp. viii+230. (Wellington, N.Z.: W. A. G. Skinner; London: New Zealand Government Office.) Paper, 6s.; cloth, 11s.

#### FOREIGN.

Department of the Interior: U.S. Geological Survey. Water-Supply Paper 607: Surface Water Supply of the United States, 1925. Part 7: Lower Mississippi River Basin. Pp. iv+115. 20 cents. Water-Supply Paper 608: Surface Water Supply of the United States, 1925. Part 8: Western Gulf of Mexico Basins. Pp. vi+268. 39 cents. Water-Supply Paper 609: Surface Water Supply of the United States, 1925. Part 9: Colorado River Basin. Pp. v+145. 15 cents. Water-Supply Paper 610: Surface Water Supply of the United States, 1925. Part 10: The Great Basin. Pp. v+141. 20 cents. Water-Supply Paper 613: Surface Water Supply of the United States, 1925. Part 12: North Pacific Slope Drainage Basins. B: Snake River Basin. Pp. vi+271. 30 cents. Water-Supply Paper 614: Surface Water Supply of the United States, 1925. Part 12: North Pacific Slope Drainage Basins. C: Pacific Slope Drainage Basins in Oregon and Lower Columbia River Basin. Pp. vi+198. 30 cents. Water-Supply Paper 636-B: Suspended Matter in the Colorado River in 1925-1928. By C. S. Howard. (Contributions to the Hydrology of the United States, 1929.) Pp. ii+15-44. (Washington, D.C.: Government Printing Office.)

Department of the Interior: U.S. Geological Survey. Bulletin 810-B: The Chandalar-Sheenjek District, Alaska. By J. B. Mertie, Jr. (Mineral Resources of Alaska, 1927-B.) Pp. ii+87-139+2 plates. Bulletin 812-B: The Kevin-Sunburst Oil Field and other Possibilities of Oil and Gas in the Sweetgrass Arch, Montana. By Arthur J. Collier. (Contributions to Economic Geology, 1929, Part 2.) Pp. iv+57-189+plates 11-18. 30 cents. (Washington, D.C.: Government Printing Office.)

Department of the Interior: U.S. Geological Survey. Professional Paper 158-B: The Contact of the Fox Hills and Lance Formations. By C. E. Dobbins and John B. Reeside, Jr. (Shorter Contributions to General Geology, 1929.) Pp. ii+9-25+plates 4-5. (Washington, D.C.: Government Printing Office.)

Contribution from the Cenozoic Laboratory of the Geological Survey of China and the Department of Anatomy, Peking Union Medical College, Peking. Vol. 8, No. 1. Bulletin of the Geological Survey of China. Preliminary Note on Additional *Sinanthropus* Material discovered in Chou Kou Tien during 1923. By Prof. Davidson Black. Pp. 15-20+6 plates. (Peking.)

Institut de France: Académie des Sciences. Annuaire pour 1930. Pp. 390. (Paris: Gauthier-Villiers et Cie.)

University of Illinois Engineering Experiment Station. Circular No. 18: The Construction, Rehabilitation and Maintenance of Gravel Roads suitable for Modern Traffic. By Prof. Carroll G. Wiley. Pp. 57. 30 cents. Circular No. 19: Equipment for Gas-Liquid Reactions. By Prof. Donald B. Keyes. Pp. 14. 10 cents. (Urbana, Ill.)

United States Department of Commerce: Bureau of Standards. Research Paper No. 112: Optical Heterogeneity of a Fused Quartz Disk. By L. W. Titton and A. Q. Tool. Pp. 619-628. 5 cents. Research Paper No. 113: Data on Ultra-Violet Solar Radiation and the Solarization of Window Materials. By W. W. Coblenz and R. Stair. Pp. 629-689. 15 cents. (Washington, D.C.: Government Printing Office.)

#### CATALOGUES, ETC.

The Nickel Bulletin. Vol. 3, No. 1, January. Pp. 40. (London: The Mond Nickel Co., Ltd.)

Illustrated Catalogue of the Will Day Historical Collection of Cinematograph and Moving Picture Equipment, for Sale by Tender. Pp. 56+24 plates. (London: Harris and Gillow.)

Catalogue of Scientific Journals and Transactions of Learned Societies; a Selected List of Books on Travel, Topography, Ethnology, Anthropology and kindred Subjects; Books on Economics, Statistical Literature and Business, etc. (N.S. No. 2.) Pp. 82. (London: Wm. Dawson and Sons, Ltd.)

Calendar for 1930. (London: Express Letter Service.)

Eastman Organic Chemicals. List No. 21, January. Pp. 95. (Rochester, N.Y.: Eastman Kodak Co.)

### Diary of Societies.

#### FRIDAY, FEBRUARY 14.

GENETICAL SOCIETY (at John Innes Horticultural Institution, Merton), at 2.30.—Experiments on *Primula sinensis*.—Miss de Winton and J. B. S. Haldane: Demonstration of the Genetics of Diploid and Tetraploid Forms.—Dr. C. D. Darrington: Exhibition of Cytological Preparations of the Tetraploid.—Dr. F. W. Sansome: Exhibition of Slides Illustrating Pollen Behaviour in the Tetraploid.—J. B. S. Haldane: The Genetics of the Tetraploid.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 4.—E. W. Hey Groves: The Hunterian Oration.

ROYAL ASTRONOMICAL SOCIETY (Annual General Meeting), at 5.—President's Address on the Award of the Gold Medal to Dr. J. S. Plaskett, for his Valuable Observations of Stellar Radial Velocities and the Important Conclusions derived from them.

PHYSICAL SOCIETY (at Imperial College of Science), at 5.—W. E. Summerhays: The Diffusion Constant of Water Vapour.—M. C. Johnson: A Method of Calculating the Numerical Equation of State for Helium below 6° Absolute, and of Estimating the Relative Importance of Gas Degeneracy and Interatomic Forces.—F. D. Smith: The Magnetostriction Constant for Alternating Magnetic Fields.—Demonstration by D. Kempson of a Working Model Illustrating the Mosaic Theory of the Compound Eye, due to Aitenburg.

INSTITUTION OF ENGINEERING INSPECTION (at Royal Society of Arts), at 5.30.—Prof. A. F. C. Pollard: Optical Aids to Engineering Inspection.

ROYAL SOCIETY OF MEDICINE (Clinical Section), at 5.30.

MALACOLOGICAL SOCIETY OF LONDON (Annual Meeting) (at Linnean Society of London), at 6.—H. Watson: (a) On the Anatomy and Affinities of *Plicatula*; (b) On the Central Nervous System of *Spondylus*.—J. R. le B. Tomlin: Some Preoccupied Generic Names. II.—Dr. F. A. Schilder: Remarks on Type Specimens of some Recent *Cypræidae*.—Exhibit: *Cypræa-Arabica* Group. Eggs and Spawn of Terrestrial Mollusca.

INSTITUTION OF LOCOMOTIVE ENGINEERS (Manchester Centre) (at 36 George Street, Manchester), at 7.—K. W. Willans: Water-tube Boilers Suitable for Locomotives.

INSTITUTION OF MECHANICAL ENGINEERS (Informal Meeting), at 7.—G. S. Taylor: Lantern Lecture.

OIL AND COLOUR CHEMISTS' ASSOCIATION (Manchester Section) (at Milton Hall, Manchester), at 7.—R. G. Daniels: Common Sense and Nitrocellulose Lacquer.

SOCIETY OF CHEMICAL INDUSTRY (South Wales Section) (at Technical College, Cardiff), at 7.15.—E. A. Rudge: Timber as a Material of Construction.

INSTITUTION OF AUTOMOBILE ENGINEERS (Coventry Centre) (at King's Head Hotel, Coventry), at 7.30.—L. H. Pomeroy: The Double-six Engine.

JUNIOR INSTITUTION OF ENGINEERS (Informal Meeting), at 7.30.—Technical Film—The Manufacture of Staybrite and Stainless Steels.

INSTITUTE OF METALS (Sheffield Local Section) (at Sheffield University), at 7.30.—S. Matthews: Recent Developments in Measuring Instruments.

ROYAL SOCIETY OF MEDICINE (Ophthalmology Section), at 8.—F. Moore: Unusual Coloration of Sclerotics.—R. Pickard: The Red Field and Optic Disc Resistance in Glaucoma and Allied Conditions.

ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. A. F. Pollard: History à la Mode.

ROYAL AERONAUTICAL SOCIETY (Yeovil Branch) (at Yeovil).—Flight-Lieut. H. R. W. Waghorn: The Schneider Trophy Contest of 1929.

#### SATURDAY, FEBRUARY 15.

ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Rev. G. Cooke: Tonality and Expression in Song-Writing.

#### MONDAY, FEBRUARY 17.

VICTORIA INSTITUTE (at Central Buildings, Westminster), at 4.30.—Brig.-Genl. H. Biddulph: The Date of Ecclesiasticus.

ROYAL SOCIETY, EDINBURGH, at 4.30.—Prof. Carl Størmer: Do the Wireless Echoes of Long Delay come from Space Outside the Moon's Orbit?

ROYAL GEOGRAPHICAL SOCIETY (at Lowther Lodge), at 5.—Lt.-Col. R. C. F. Schomberg: Climatic Conditions in the Tarim Basin.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—R. H. O. B. Robinson: The Role of Short Circuit Operations in the Treatment of Cholelithiasis.

INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting), at 7.—M. E. Fox, W. E. Warrilow, and others: Discussion on The Nickel-Iron Battery and its Uses.—E. C. McKinnon and others: Discussion on The Lead Battery and its Uses.

INSTITUTION OF MECHANICAL ENGINEERS (Graduates' Section—London), at 7.—W. W. S. Robertson: Strip Rolling Mills and Auxiliary Machinery.

TEXTILE INSTITUTE (London Section) (at Barrett Street Schools), at 7.—E. J. Steele: Man's Quest for Fibres.

BRADFORD TEXTILE SOCIETY (at Midland Hotel, Bradford), at 7.30.—W. Hunter: Some Reflections on Wool and its Uses.