

current, but at rare intervals a warm current, known as El Niño (The Child), because it usually appears about Christmas, flows down the Peruvian coast. Early in 1925 this warm current was abnormally developed, temperature rose 10° or 20° higher than usual, and violent thunderstorms occurred.

**Mar. 7, 1927. Earthquake in Tango District (Japan).**—A strong earthquake occurred in the Tango peninsula on the north side of the main island of Japan. The number of lives lost was 3017, while several small towns were ruined. Crust-displacements took place along two old faults nearly at right angles to one another. On the Go-mura fault, the ground shifted, along 11 miles, by so much as 9 ft. 2 in. horizontally and 2 ft. 7 in. vertically. Repeated surveys in the central tract showed that movements continued for a year or more, and that the crust was divided into a number of blocks that moved easily and not always in the same directions.

**Mar. 8, 1920. Haloes in America.**—A very fine display of solar haloes began at 11.30 A.M. at Ellendale, South Dakota, and other parts of the central United States. In addition to the haloes of 22° and 46°, there were visible circumscribed arcs, parhelia, anthelion of 180°, and other phenomena, some of which exhibited brilliant prismatic colours. The phenomena awakened great interest in the subject in America.

**Mar. 8 (or 10), 1543. Mississippi Flood.**—The history of De Soto's expedition on the North American continent states: "Then God, our Lord, hindered the work with a mighty flood of the great river, which at that time began to come down with an enormous increase of water, which in the beginning overflowed the wide level ground between the river and the cliffs; then little by little it rose to the top of the cliffs. Soon it began to flow over the fields in an immense flood, and as the land was level without any hills, there was nothing to stop the inundation. . . . On Mar. 18, 1543, . . . when the Spaniards were marching in procession, the river entered with ferocity through the gates of the town of Aminoya (a short distance below the mouth of the Arkansas River), and two days later they were unable to go through the streets except in canoes. . . . The flood was 40 days in reaching its greatest height, which was April 20, and it was a beautiful thing to look upon the sea where there had been fields, for on each side of the river the water extended over twenty leagues of land, and all of this area was navigated by canoes, and nothing was seen but the tops of the tallest trees."

## Societies and Academies.

### LONDON.

**Royal Society, Feb. 20.**—A. C. Davies, F. Horton, and E. Blundell: Critical potentials for the excitation of soft X-rays from iron. Critical potentials for excitation of soft X-rays from solids, and for production of secondary electrons from solids, under electronic bombardment, do not conform with the view that characteristic displacements take place of electrons forming the outermost extranuclear groups in the bombarded atoms. The experiments deal with critical potentials for soft X-ray excitation from iron, rolled into thin strip from a drawn wire, for different temperatures and also for the same specimen at room temperatures, after being subjected to various heat treatments. Many critical potentials were produced, mostly persisting throughout the subsequent conditions of the target, once they had made their appearance; only one—at 201 volts—justifies the

conclusion that its presence was dependent upon the iron strip being at a high temperature.—L. M. T. Gray and D. W. G. Style: The absorption of light by chlorine, bromine, and their gaseous mixtures. The independence of the absorption of chlorine of the intensity or nature of the incident radiation was tested by various methods. Extinction coefficients of bromine vapour have been determined at room temperature for certain mercury arc lines. The absorptions of mixtures of chlorine and bromine confirmed the existence of BrCl.

**Linnean Society, Jan. 23.**—H. W. Renkema and John Ardagh: Aymer Bourke Lambert and his 'Description of the Genus *Pinus*'. Lambert was the son of a country gentleman, of Boyton, Wiltshire. Among his friends at Oxford, where he matriculated in 1779, were Joseph Banks and the principal founder, in 1788, of the Linnean Society, James Edward Smith. Lambert was an original fellow of the Society and for fifty years was vice-president. His chief contributions to botanical science were the accumulation of a large library and herbarium, and the spacious monograph of the genus *Pinus*. A detailed description was given of the contents of all the copies of the volumes of the various editions to which the authors, in Holland and London respectively, have had access or on which they have been able to obtain reliable information.—G. Tandy: Sundry observations on *Caulerpa*. On the low wooded islands and inner reefs of the Australian Great Barrier system, two species are of importance as sand- and shingle-binders, and it is probable that nowhere else in the world are conditions so favourable for this habit. They are in the broad sense (for they are polymorphic) *C. racemosa* (Forsk.) J. C. Agardh and *C. cupressoides* (Vahl) C. A. Agardh. The latter is common on Batt Reef, which belongs to an inner series and is not a linear or true barrier reef. The former is very common on Low Isles and is a member of the turf of the mangrove park.

**Physical Society, Jan. 24.**—J. M. Nuttall and E. J. Williams: A method of examining stereoscopic photographs. The photographic plates are replaced in the cameras and illuminated, and a system of movable pin points is used to trace out the contour of the image (see NATURE, May 25, 1929, p. 799). The chief advantage of the method is its simplicity—practically no computation is required and it is not necessary to know the stereoscopic angle, the magnification, etc.—Miss A. W. Leyshon: Characteristics of discharge tubes under 'flashing' conditions, as determined by the use of a cathode ray oscillograph. Current-voltage characteristics are determined. Current-time and voltage-time curves are derived from the oscillograph records. The method might prove useful in investigations on intermittent discharges in various gases under different conditions of pressure and disposition of the electrodes.

**Royal Meteorological Society, Feb. 19.**—G. C. Simpson: The distribution of terrestrial radiation. (a) The geographical distribution of incoming and outgoing radiation during January and July has been determined and was exhibited on maps. (b) The incoming and outgoing radiations for each 10° zone of latitude have been calculated for each month of the year. (c) The result indicates great uniformity in the intensity of the outgoing terrestrial radiation, both in time and space, and that, except for small uncertain irregularities, the total outgoing radiation from the earth as a whole just balances the incoming solar radiation at all periods of the year.—C. K. M. Douglas: The cyclonic depressions of Nov. 16 and 23, 1928. Autographic records are reproduced showing the conditions close to the

centres of these two intense cyclones. In both cases the first cold front soon advanced beyond the trough line of the cyclone. This happens with nearly all intense cyclones, owing to the fact that the gradient wind behind the cold front is much greater than the rate of travel of the cyclone itself, even when this is large. The speed of advance of these cyclones was greater than that of the general current in which they travelled. This 'excess velocity' is characteristic of systems with warm sectors.

## DUBLIN.

Royal Irish Academy (at Belfast), Feb. 10.—K. G. Emeléus: Velocities of ions in the cathode dark space. Existing data for the distribution of velocities in positive rays are discussed with the view of obtaining the distribution at the front surface of the cathode; little definite information is obtained, but an analogy is found between the capture of electrons by protons and by  $\alpha$ -particles. The distribution at the cathode is calculated from Aston's and Brown and Thomson's results for the space-charge in the dark space. The possible effect of the cathode glow in distributing the velocities of particles traversing it is discussed, with the bearing of the results on sputtering.—A. Mahr: The Viking sword from Ballinderry, Co. Westmeath. The blade shows the inlaid name of the maker, Ulfberht, a well-known Frankish smith whose blades have been found scattered from France to Esthonia. Another name, Hiltipreht, appears on the silver gilted quillon. The name is Bavarian or Austrian, and Hiltipreht must have worked somewhere on the Low Rhine, where the Norsemen got their first supply of such weapons. Hiltipreht was not the owner but the cutler of the sword. In 841 the Vikings destroyed the famous town Wijek bij Duurstede in South Holland, at the time the important emporium for Scandinavian trade. Our sword was presumably then brought to Norway and from Norway to Ireland. Thorgestr, first Norwegian King of Dublin, raided Clonmacnois in 843, and as the Ballinderry Crannog is only a few miles distant we may assume that the sword came into Irish hands on this occasion.—J. K. Charlesworth: Some geological observations on the origin of the Irish fauna and flora. During the glacial period, life was impossible in Ireland and off the western coast and just possible in the case of Arctic forms off the southern coast. A fauna and flora entered over a land connexion during the Aurignacian oscillation, but with the exception of the Arctic species was probably exterminated during the succeeding glaciation. The greater part of the Irish fauna and flora entered post-glacially by a land-bridge, aided by accidental dispersal.

## PARIS.

Academy of Sciences, Jan. 20.—Charles Moureu, Charles Dufraisse, and Pierre Lotte: The phenomena of luminescence in the satellites of rubrene. Two phosphorescent hydrocarbons: the so-called 'brown' substance and the yellow substance.—Jean Baptiste Senderens and Jean Aboulenc: The catalytic dehydration of the fatty alcohols by alkaline bisulphates. The boiling points of the first members of the series up to isobutyl alcohol are too low for any reaction with sodium bisulphate to take place, but from isoamyl alcohol onwards mixtures of ether and hydrocarbon are obtained. Normal heptyl alcohol gives heptyl ether without heptylene.—Marcel Delépine was elected a member in the Section of Chemistry, in the place of the late Charles Moureu.—L. Godeaux: The connected points of cyclic involutions belonging to an algebraic surface.—P. Vincensini: Certain normal congruences.—Bertrand Gambier: Systems of circles,

of spheres, and of hyperspheres.—Pierre Humbert: Bessel functions of the third order.—K. Kunugui: The classes of dimensions.—J. A. Grégoire: A new mode of transmission of rotations with conservation of the velocity between two shafts with variable angle. Hooke's joint, a combination of two Cardan's joints, although theoretically perfect, gives rise to practical difficulties. The new joint proposed is theoretically homokinetic, and has been practically realised in connexion with motor-cars.—Renaux: Contribution to the study of the reduction of photographic negatives. Discussion of a method of studying the position of stars from photographs.—J. Dufay: A new astronomical photometer: application to the study of two variable stars with eclipses.—J. Galibourg: The ageing of cold-hardened metals. A continuation of the study of the effects of cold-hardening on nickel.—P. Vaillant: The absorption of cobalt salts in concentrated solutions. From the whole of the experimental results obtained, it is concluded that for solutions of cobalt salts the modifications arising in the absorption spectrum from the substitution of one anion for another, from a change of concentration, or from a change of solvent, can be reduced to a Kundt displacement and a change of intensity. These results are not necessarily in disagreement with the ionic theory.—P. Dutoit and Chr. Zbinden: The spectrographic analysis of organs. The ashes of about fifty human organs have been submitted to spectrographic analysis by the arc spectrum method: a summary of the results is given.—Ediën and Ericson: The spectrum of aluminium in the extreme ultra-violet.—E. Sevin: The means of deciding between the corpuscular nature and the purely undulatory nature of light and of the X-rays.—Fahir Emir: Surface solutions on mercury. Study of oleic acid. A description of the special precautions taken to prevent oxidation of the mercury surface. The thickness of the saturated film found was 24 Å., as against 23 Å. found previously for water. This confirms the hypothesis of molecular juxtaposition at the point of saturation.—Victor Henri: The heat of dissociation of the molecule of oxygen and the energy of activation of the oxygen atom. From work based on the study of the absorption spectrum of nitrogen peroxide, the energy of the normal dissociation of the oxygen molecule is deduced as 128,000 calories.—Mlle. Suzanne Veil: A mixed nickel-cobalt oxide and the corresponding ferrite.—L. Meunier and M. Lesbre: A new method of observation of the evolution of solutions of chromic salts.—R. Bernard and P. Job: The oxidation of cobalt salts in alkaline media. From a spectrophotometric study of this reaction, it appears that the passage from the cobaltous to the cobaltic state is through the intermediary of a percobaltic compound,  $\text{CoO}_2$ , in which the cobalt is tetravalent.—J. Grand: Bromomalonic dialdehyde. This exists in the forms  $\text{CHO} \cdot \text{CHBr} \cdot \text{CHO}$  and  $\text{CH}(\text{OH}) \cdot \text{CBr} \cdot \text{CHO}$ ; the second of these possesses acid properties and gives well crystallised metallic salts.—L. Palfrey and B. Rothstein: The 1, 3-cyclohexanediol (resorcite) stereochemical isomers and halogen derivatives.—F. François: The selenoxanthidrols. Their basicity. The replacement of the oxygen of xanthidrol by selenium does not change the basic character of this alcohol.—H. Besairie and Mlle. E. Basse: New stratigraphical and palæontological observations on the lower and middle Cretaceous of the province of Maintirano (west of Madagascar).—Raymond Furon: Some new points of the geology of the western Sudan (Diawara, Kaarta, and Fouladougou).—Laurent Rigotard: The rôle of sulphur in the formation of plant soil. A study of the part played by sulphur in the formation of Alpine soils.—Louis Dangeard: The presence of *Solenopora* in the oolitic and pisolitic formations of

the Lusitanian of Mortagne (Orne).—M. Bridel and C. Charaux: Researches on the variation of the coloration of plants in the course of drying. A new chromogen, oroberol, extracted from *Orobis tuberosus*.—B. Soyer: The variation of the permeability of the cells in the course of growth in a ligneous plant. Measurements of the permeability of the plant cell show that the migrations in spring and autumn are accompanied by marked modifications in the cellular permeability, modifications facilitating the circulation of the liquids in the tissues.—P. Chevey: The value of the method of examination of the scales applied to fishes of the intertropical zone. A difference of only 4°-5° C. between the summer and winter temperatures of the sea is sufficient to change the rate of growth of fishes as shown on the scales. Conclusions are drawn regarding the thermal changes in the coastal waters of Siam, Cochin China, and Tonkin.—J. Millot: Colulus and non-functional fibre producing structures in the Araneidae.—C. N. Dawydoff: Some observations on the *Ctenoplana* of Chinese seas.—L. Garrelon, D. Santenoise, H. Verdier, and M. Vidacovitch: The pancreas and pneumogastric excitability. The pancreas exerts an important action on the functional activity of the growing nervous system, by secreting and pouring into the blood a vagotonising hormone not identical with insulin.—René Hazard and Michel Polonovski: The physiological rôle of the tertiary amine function in the pyrrolidine-piperidine nucleus. The importance of the idea of isomerism.—R. Meesmaecker: A new colour reaction of ergosterol. The differentiation of ergosterol from irradiated ergosterol. The colour is developed by addition of anhydrous zinc chloride, with or without acetic anhydride, to the ergosterol in chloroform solution. With zinc chloride alone, the colour depends on whether the sample has been exposed to light or not.—L. Lutz: The soluble ferments secreted by the Hymenomyces. Hydrocarbons and terpene oxides, constituents of the essential oils and the antioxygen function.—M. Azéma and H. Pied: Vanadium in the blood of Ascidians. The presence of vanadium in the blood of *Phallusia mamillata*, first discovered by Henze, is confirmed, and two other Ascidians, *Ascidia mentula* and *Phallusia fumigata*, also gave strong spectroscopic evidence of the presence of vanadium. *Botrylloides*, and *B. smaragdus* also contained vanadium, but in smaller amount.—Constantino Gorini: Heterogeneous mammary cocci, their dissociation.—E. Plantureux: The nature of the transmissible lysis of bacteria.—Arnault Tzanck and Jean Charrier: The treatment of grave hæmorrhage of different forms.

## BRUSSELS.

Royal Academy of Belgium, July 6.—Cl. Servais: The geometry of the tetrahedron (3). The congruence of the axes of symmetry of the paraboloids conjugated to a tetrahedron.—Th. de Donder: Affinity (2). Study of physico-chemical systems with the added condition that the masses may vary.—Th. de Donder: The invariantive theory of the calculus of variations (6).—André Jamotte: Note on the discovery of a *Glossopteris* flora in the Lukuga valley, in the neighbourhood of Greinerville (Belgian Congo). The flora described shows great affinities with that of the middle part of the *Ecce* series of the typical region of the Karroo. The *Ecce* series is considered to be of Permian age.—Erwin Schuntner: The application of continuous groups to discontinuous linear groups.—Constant Lurquin: The criteria of probability in the sense of Bienaymé-Tchebycheff.

Aug. 3.—Raymond Defay: Introduction to the thermodynamics of open systems.—Erwin Schuntner: The application of continuous groups to discontinuous

linear groups (2).—Lucien Godeaux: Remarks on the envelope of the Lie quadrics of a surface.—P. E. Bourgeois and J. F. Cox: Contribution to the research on the cause of the non-uniform distribution of the longitudes of the peristars of the spectroscopic double stars.

## ROME.

Royal National Academy of the Lincei: Communications received during the vacation, 1929.—O. M. Corbino: Functioning of the triode with strong magnetic coupling with an iron nucleus between plate circuit and grid circuit.—A. Angeli and Zvi Jolles: Certain oxidation processes determined by normal diazo-hydrates. It was shown recently that, under the action of stannous hydroxide, normal diazobenzene hydrate loses its oxygen atom to give rise to a highly labile product,  $C_6H_5.N:NH$ , which afterwards undergoes a series of transformations, one of these resulting in the formation of benzene. This oxidising action of diazobenzene hydrate has now been demonstrated with ferrous hydroxide, hydrogen peroxide, hydroxylamine, potassium ferrocyanide, and ammonium sulphide.—B. Longo and C. Paderi: The biological significance of alkaloids on plants. Experiment shows that alkaloids act, both on seeds and on plants containing them, as true excitants. The exciting action is specific in the case of plants, but not with seeds.—B. de Finetti: The possibility of exceptional values for a law of aleatory increments.—G. Colonnetti: Alterations in the elastic condition of a mortised arch effected by addition of a chain.—B. Finzi: Observations on the regular motion of viscous liquids.—F. Lamberti: The component elementary motions of the relative baricentric motion of a material system.—E. Raimondi: Dynamic effect of a translatory current investing a thin cylinder in the neighbourhood of an independent plane wall.—M. Merola: Study of the variable SX Herculis. A series of 82 photometric observations made on this star at Capodimonte between Aug. 27, 1927, and Dec. 1, 1928, allow of the determination of two maxima and two minima, thus confirming the irregularity of the period and of the light curve noticed by other observers.—S. Aurino: The photometric system of Naples. Comparison of the Draper Catalogue with the Astrographic Catalogue of Catania reveals the existence of a systematic error in the Draper Catalogue function of stellar magnitude. The photometric system of Naples appears to be in excellent agreement with Miss Leavitt's system of photographic photometry (Harvard).—C. Cannata: The ballistic hypothesis and the verification of the law of areas in the orbits of telescopic stars. Results are given which show that, for the orbits of telescopic stars, the perturbations induced by the ballistic hypothesis are generally insignificant. Moreover, with rare double stars in which such perturbations appear relatively conspicuous, these are always within the limits of observational errors. For orbits of slight eccentricity, the perturbations leave undisturbed the obedience to Kepler's second law.—E. Persico and F. Scandone: The Hall effect with extended electrodes (2).—M. Lelli: W. Thomson's minimum heat theorem. Comparison is made between the Joule heat evolved in unit time by a conductor traversed by a current and that evolved when, not the current intensity, but the values of the potential (supposed everywhere continuous) at the electrodes are fixed, and when also at every point Ohm's law of movement but not that of continuity of current is satisfied. This is equivalent to comparing the effective stationary regime naturally established in the conductor with others provoked by keeping the terminal potentials unchanged by immission in certain zones and emission in others. The result shows that, in the former case, the Joule heat generated is at a minimum, an extension

of Thomson's minimum heat theorem being thus deduced. The corresponding theorem of electrostatics is capable of analogous extension.—F. de Carli: Viscosity isotherms of binary mixtures (5): The system nitrobenzene-stannic bromide. Thermal analysis of this system does not reveal the formation of a compound between the components, but investigation of the viscosity-composition relationship demonstrates the existence of an additive compound, probably  $2C_6H_5 \cdot NO_2, SnBr_4$ , stable in the liquid state.—Giam-battista Dal Piaz: Geological data on the regions of the Aurine Alps and of the Giant Vedrettes (Upper Adige) (2).—G. Brunelli: The skeleton of teleostians studied by means of radiography, in relation to the mechanics of movement.—U. Cassinis and L. Bracaloni: Normal and alimentary alcoholhæmia during physical exercise (2).

### Official Publications Received.

#### BRITISH.

- The Quarterly Journal of the Geological Society. Vol. 85, Part 4, No. 340, December 31st, 1929. Pp. 389-689+plates 23-47. (London: Longmans, Green and Co., Ltd.) 7s. 6d.
- River Flow Records: Ness Basin. River Garry (Inverness-shire): Report on River Flow, July to September 1929. By W. N. McClean. Pp. 4+3 tables. (London: River Flow Records.) 1s. 6d.
- World's Poultry Congress, Crystal Palace, London, 22nd to 30th July 1930. The Post-Congress Tour, 31st July to 11th Aug. 1930. Pp. 24. (London: Ministry of Agriculture.)
- Proceedings of the Cambridge Philosophical Society. Vol. 26, Part I, January. Pp. 121. (Cambridge: At the University Press.) 7s. 6d. net.
- Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1266 (E. 34): Experiments on Flame Extinction in Gaseous Mixtures. By Squadron Leader W. Helmore. Work performed for the Aeronautical Research Committee at the Cambridge University Engineering Laboratory. (I.C.E. 680, revised.) Pp. 17+4 plates. (London: H.M. Stationery Office.) 1s. net.
- Pharmaceutical Society of Great Britain: Pharmacological Laboratories. Fourth Annual Report, 1929. Pp. 16. (London.)
- Worcestershire County Council: Agricultural Education Sub-Committee. Ox Warble Fly: Report on the Demonstration and Experiments carried out in Worcestershire in 1928 and 1929. Pp. 26. (Worcester.)
- Liverpool Observatory and Tidal Institute. Annual Report, 1929. Pp. 15. (Liverpool.)
- Gold Coast Survey Department. Professional Paper No. 1: Notes on the Application of the Method of Least Squares to the Adjustment of Triangulation and Level and Traverse Networks. By J. Clendinning and F. Yates. Pp. iii+81. (Accra: Government Printing Office.) 10s.
- Transactions and Proceedings of the New Zealand Institute. Vol. 60, Part 3, September 1929. Pp. iv+379-520+plates 33-59. (Wellington, N.Z.)
- Hull Museum Publications. No. 161: Meaux Abbey. By T. Sheppard. Pp. 32. No. 162: Catalogue of the Mortimer Collection of Prehistoric Remains from East Yorkshire Barrows. By T. Sheppard. Pp. viii+146. 1s. No. 163: Hull Museum Treasures. By T. Sheppard. Pp. 32. No. 164: Cissbury; Evolution of Furniture; Lincolnshire Worthies. By T. Sheppard. Pp. 22. No. 165: Catalogue of the Fawcett Collection of F. S. Smith's Sketches of Old Hull. By T. Sheppard. Pp. v+32. No. 166: The Position a Museum should hold in the Life of a Community? by Sir Frederic G. Kenyon: The Mortimer Collection of East Yorkshire Antiquities, by T. Sheppard. Pp. 10. (Hull.)
- Proceedings of the Geologists' Association. Edited by A. K. Wells. Vol. 40, Part 4, January 31st. Pp. 307-394+plates 27-32. (London: Edward Stanford, Ltd.) 5s.
- Journal of the Chemical Society. January. Pp. iii+185+xvi. (London.)
- Department of Scientific and Industrial Research. Report for the Year 1928-29. (Cmd. 3471.) Pp. v+200. (London: H.M. Stationery Office.) 3s. 6d. net.

#### FOREIGN.

- United States Department of Agriculture: Weather Bureau. Monthly Weather Review. Supplement No. 32: Climatological Data for Southern South America. By W. W. Reed. (W.B. No. 995.) Pp. ii+23. (Washington, D.C.: Government Printing Office.) 10 cents.
- Proceedings of the Academy of Natural Sciences of Philadelphia, Vol. 81. A Further Collection of Birds from Siam. By Rodolphe Meyer de Schauensee. Pp. 523-588. Notes on Japanese and Chinese Fishes. By Henry W. Fowler. Pp. 589-616. (Philadelphia.)
- Proceedings of the United States National Museum. Vol. 79, Art 18: Two New Mollusks of the Genera *Ostrea* and *Exogyra* from the Austin Chalk, Texas. By Lloyd W. Stephenson. (No. 2815.) Pp. 6+3 plates. (Washington, D.C.: Government Printing Office.)
- Publikace Pražské Státní Hvězdárny. Čís. 6: The Spectral Distribution of Stars, magnitude 7.0 and brighter, in the Henry Draper Catalogue. By Dr. Otto Seydl. Part 1: Text and Tables. Pp. 54. Part 2: Maps. Pp. ii+14 maps. (Prague.)
- Bulletin of the American Museum of Natural History. Vol. 59, Art. 2: The Pennsylvanian Tetrapods of Linton, Ohio. By Alfred S. Romer. Pp. 77-147. (New York City.)
- United States Department of Commerce: Coast and Geodetic Survey. Serial No. 455: Results of Magnetic Observations made by the United States Coast and Geodetic Survey in 1928. By Daniel L. Hazard. Pp. ii+35. (Washington, D.C.: Government Printing Office.) 10 cents.

The University of Colorado Studies. Vol. 17, No. 3: Abstracts of Theses for Higher Degrees in the Graduate School, 1929. (University of Colorado Bulletin, Vol. 29, No. 14, General Series No. 275.) Pp. 193-268. (Boulder, Colo.) 1 dollar.

Unione Astronomica Internazionale. Immagini spettroscopiche del bordo solare osservate a Catania, Madrid, Zó-Sè e Zurigo negli anni 1925 e 1926. Pubblicate per cura del R. Osservatorio Astrofisico di Arcetri. Pp. 11+19 tavole. (Firenze.)

Pubblicazioni della R. Università degli Studi di Firenze. Fascicolo N. 46: Osservazioni e Memorie del R. Osservatorio Astrofisico di Arcetri. Pp. 98+2 tavole. (Firenze.)

#### CATALOGUES.

- X-Ray Couches, Screening Stands, Tube Stands, etc. Pp. 24. (London: Watson and Sons (Electro-Medical) Ltd.)
- The "Sonic" Surgical Diathermy Apparatus. Pp. 4. (London: Watson and Sons (Electro-Medical) Ltd.)
- English Colour Plate Books of the Nineteenth Century: a Catalogue of Books of Sport, Travel and Humour. (New Series, No. 5.) Pp. 32+7 plates. (London: Francis Edwards, Ltd.)

### Diary of Societies.

#### FRIDAY, FEBRUARY 28.

- ELECTRICAL ASSOCIATION FOR WOMEN (at 46 Kensington Court), at 3.—L. L. Robinson: Tariffs.
- PHYSICAL SOCIETY (at Imperial College of Science), at 5.—C. H. N. Lock: The Equations of Motion of a Viscous Fluid in Tensor Notation.—W. L. Watton: A New Type of Dewar Flask, for Use as a Calorimeter.—R. O. Cherry: Field Intensity Measurements around some Australian Broadcasting Stations.
- ROYAL SOCIETY OF MEDICINE (Disease in Children Section), at 5.30.
- JUNIOR INSTITUTION OF ENGINEERS (Informal Meeting), at 7.30.—J. Rowercroft: The Design of Dynamors for Automobiles.
- ROYAL SOCIETY OF MEDICINE (Epidemiology Section), at 8.—Sir Leonard Rogers: Further Experience in Forecasting Epidemics in India and their Bearing on the Reduction of Cholera Epidemics.
- ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. G. I. Taylor: A Tour in the East Indies.
- INSTITUTION OF ELECTRICAL ENGINEERS (West Wales—Swansea—Sub-Centre).—L. C. Grant: The Breaking Performance of High-Power Switchgear and of a New Form of Quenched-Arc Switch.

#### SATURDAY, MARCH 1.

- GEOLOGISTS' ASSOCIATION (at Museum of Practical Geology, Jermyn Street), at 2.30.—C. P. Chatwin: Demonstration of The Paleontology of the Reigate Sheet.
- ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—W. Rothenstein: Nineteenth Century Painting in France and England (2).
- MATHEMATICAL ASSOCIATION (London Branch) (at Bedford College), at 3.—Prof. W. M. Roberts: Energy and some Points in Statics.
- GILBERT WHITE FELLOWSHIP (at Queen Square, W.C.1), at 3.—Conversione and Exhibition.

#### MONDAY, MARCH 3.

- ROYAL SOCIETY, EDINBURGH, at 4.30.—W. N. McClean: River Flows of the Ness Basin.—Gertrude Lilian Elles and C. E. Tilley: Metamorphism in Relation to Structure in the Scottish Highlands.
- VICTORIA INSTITUTE (at Central Buildings, Westminster), at 4.30.—Lieut.-Col. T. C. Skinner: The Significance of the Old Testament Scriptures to our Lord Jesus Christ.
- ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—C. E. Shattock: Demonstration of Affections of Lymphatic Glands.
- SOCIETY OF ENGINEERS (at Geological Society), at 6.—J. Pickin: Machine Tools, followed by a Film entitled A British Key Industry.
- ROYAL INSTITUTION OF GREAT BRITAIN, at 6.—General Meeting.
- INSTITUTION OF AUTOMOBILE ENGINEERS (Bristol Centre) (at Merchant Venturers' Technical College, Bristol), at 7.—H. R. Ricardo: Combustion in Diesel Engines.
- INSTITUTION OF ELECTRICAL ENGINEERS (Informal Meeting), at 7.—J. J. Fisher and others: Discussion on Push-Button Control.
- INSTITUTION OF ELECTRICAL ENGINEERS (South Midland Centre) (at Birmingham University), at 7.—Lt.-Col. S. E. Monkhouse and L. C. Grant: The Heating of Buildings Electrically by means of Thermal Storage.
- INSTITUTION OF MECHANICAL ENGINEERS (Graduates' Section—London) (Annual Meeting), at 7.—Informal Discussion on Workshop Practice at Home and Abroad.
- ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.—F. Pick: The Design of Modern Railway Stations in Europe and America.
- ROYAL SOCIETY OF ARTS, at 8.—A. B. Searle: Recent Improvements in Methods of Brickmaking (Cantor Lectures) (3).
- SOCIETY OF CHEMICAL INDUSTRY (London Section) (at Chemical Society), at 8.—Dr. C. Ainsworth Mitchell: Circumstantial Evidence from Fibres and Hairs.—H. M. Langton: The Splitting of Castor Oil.
- TWICKENHAM LITERARY AND SCIENTIFIC SOCIETY (at Free Library, Twickenham), at 8.—Rev. Dr. J. J. Doyle: Some Aspects of Higher Education in the United States.
- INSTITUTION OF THE RUBBER INDUSTRY (London and District Section) (at Engineers' Club, Coventry Street).—Dr. H. A. Daynes: Methods and Appliances used for the Control of some Manufacturing Processes in the Rubber Industry.

#### TUESDAY, MARCH 4.

- ROYAL SOCIETY OF ARTS (Indian Section), at 4.30.—T. M. Ainscough: British Trade with India.
- ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Dr. J. A. Glover: The Incidence of Rheumatic Diseases (Milroy Lectures) (1).