

in the medical journals. International Health Division fellowships are given to graduates in medicine of high professional standing and assured of positions in the public health services of their own countries. In 1930, 173 such fellowships were held by natives of 33 countries, including the United States and its dependencies (52), China (18), Canada (12), Italy (12), other European countries (47), Brazil (8), India (8). In addition, the Foundation supported 102 fellowships in medicine for the supplementary training of young graduate physicians, from 35 countries, in preparation for definite positions in research or teaching. Among enterprises aided by the Foundation are an institute of experimental biology in Copenhagen, an institute of cell physiology in the Kaiser Wilhelm Institute of Biology, and the Kaiser Wilhelm Institute for Brain Research.

### Calendar of Geographical Exploration

#### March 2, 1705.—Coast of Northern Australia

Maarten van Delft sailed from Timor and surveyed the coasts of Melville Island and of the Coburg Peninsula, thus supplementing Tasman's chart of the region. One of the vessels penetrated some distance into Dundas Strait.

#### March 4, 1519.—Cortes in Mexico

Hernando Cortes landed in Mexico. The discovery of Mexico by Juan Grijalva led Velasquez to entrust to Cortes the exploration and conquest of the country. Starting from the coastal regions near the modern Vera Cruz, Cortes marched to the city of Mexico, sending a party to explore the snow-clad Popocatepetl *en route*. The city was captured in August 1521, and Cortes sent out exploratory parties in all directions, Alvarado making some conquests in Guatemala. Cristobal de Olid, who had been ordered to reach Cuba via Honduras, reached the southern shores of the gulf, but mutinied against Cortes. The latter left Mexico in 1524 and marched through Tabasco to the Gulf of Honduras. There he again sent out exploring parties from the town now known as Puerto Cortes and later from Trujillo.

#### March 4, 1791.—Islands of the Pacific

Capt. Edwards, in the *Pandora*, sighted Easter Island on a voyage undertaken partly in search of the mutineers from Bligh's *essel*. These men had apparently appreciated life in the South Sea islands so much that they wished to remain. Some of them successfully settled in Pitcairn Island. Edwards discovered some small islands in the Low Archipelago, and later, in his search for the mutineers, covered much of the Pacific not usually touched in trading voyages, thus many previously unknown islands were charted. In the neighbourhood of Torres Strait the *Pandora* was wrecked; some of the crew were drowned, but others escaped in the boats and after terrible hardships reached Timor.

#### March 4, 1905.—Charcot Land

Dr. Jean Charcot in the *Français* arrived in Puerto Madrina, Argentina. Charcot had planned a voyage to the Antarctic to rescue Dr. O. Nordenskjöld, but this had been effected by an Argentine vessel. Charcot then, in the course of two summer cruises, surveyed parts of the west coast of Graham Land and reached Alexander I. Land. His vessel was delayed by ice and anxiety was felt about its possible fate, but in spite of severe damage it escaped. In 1908-10, Charcot returned to the Antarctic and discovered the land which now bears his name.

### Societies and Academies

#### LONDON

Royal Society, Feb. 18.—D'Arcy W. Thompson: The geometry of the siliceous skeletons of the Radiolaria. The figures of equilibrium and minimal area which are assumed by soap-films in Plateau's experiments have proved helpful in explaining the configurations of various cells and simple tissues in plants and animals. Among the most curious and anomalous of cell-forms are those of certain Radiolaria. In some of these the skeleton resembles a minute spiked helmet with three curved lappets or straps below. Even such an anomalous configuration as this may be precisely imitated or reproduced by an artificial system of liquid films.—H. W. S. Massey and C. B. O. Mohr: The collision of slow electrons with atoms (1). The theory has been developed in which the zero approximation is not a plane wave but the wave representing the motion of the electron in the static field of the atom concerned. Exchange does not become very important until voltages lower than those obtained on Born's theory using the plane wave as first approximation. At lower voltages, strong interference effects occur between the incident and exchanged electron waves, giving peculiar angular distributions of the scattered electrons. These effects are observed experimentally.—H. C. Webster: The artificial production of nuclear  $\gamma$ -radiation. The production of nuclear  $\gamma$ -radiation by bombardment with  $\alpha$ -particles has been observed for the elements Li, Be, B, F, Na, Mg, Al. Negative results were obtained with H, C, N, Ni, Cu, Sn. The absolute efficiencies of production of the various radiations range from about 0.5 quanta per million  $\alpha$ -particles for magnesium to about 30 quanta for beryllium. In addition, the way in which the efficiency of production varies with the residual range of the  $\alpha$ -particles was investigated. The processes probably responsible for the radiations are discussed: some appear to be due to the capture of an  $\alpha$ -particle by a nucleus without proton emission, others are probably due to a secondary process following proton emission, others may arise from inelastic collisions without capture.

Geological Society, Dec. 16.—J. E. Richey: The Tertiary ring complex of Slieve Gullion (Ireland). This complex lies west of the Mourne Mountains and north-west of the Carlingford Peninsula. Topographically, it consists of a ring of curving ridges and hills, 7 miles in diameter, which is bisected by a mountainous belt extending to the north-west. The ring and the north-west belt mark the outcrops of a very simple ring-dyke complex and later Tertiary plutonics. The ring complex forms a complete ring, except to the south-west, where it is broken through by the north-west belt. The almost exact coincidence of the ring-fissure with the margin of the western portion of the Newry granite is perhaps its most remarkable feature. The constituent rocks of the ring are given.

#### PARIS

Academy of Sciences, Jan. 11.—E. Jouguet: Remarks on a theorem of Hugoniot relating to the flow of fluids.—Maurice Hamy: A property of the equation obtained by equating to zero the distance of two planets,  $P, P_1$ , which do not meet at real points.—Paul Qvale: Remarks on Thiele's semi-invariants.—Georges Bouligand: Various problems of infinitesimal geometry.—N. Aronszajn: The decomposition of uniform functions.—W. Orlicz: Some theorems on orthogonal developments.—René de Pessel: *Étoilées* functions and ensembles of the



maximum type.—E. Kogbetliantz : The convergence of Hermite's series.—N. Abramesco : The determination of holomorph functions in given domains.—Marcel Guillot : Reade's iriscope and the aptitude of solid and liquid surfaces to be moistened by water. This method of testing the cleanliness of a surface is based on the condensation on the surface of a small quantity of water vapour and subsequent examination of the interference effects produced. Glass cleaned with hot sulphuric acid containing chromic acid is found to be clean only in certain spots. Only surfaces obtained by fracture, by fusion, or prolonged treatment with hydrofluoric acid were found to be perfectly clean when tested by this method.—E. Henriot and O. Goche : Cathodic sputtering in a magnetic field. Cathodic sputtering in a magnetic field produces a deposit on a screen, the position of which varies on reversing the field. This deposit is due to carbon, and is independent of the nature of the metal employed as the cathode. The origin of the carbon is discussed.—Georges Fournier and Marcel Guillot : The increase of absorption of the  $\beta$ -rays in molecules possessing certain linkages between the atoms.—André Chevallier and Pierre Dubouloz : The application of fluorescence to photometric measurements in the ultra-violet. J. and J. F. Thovert have proposed the utilisation of photoelectric cells with thin walls (the latter being covered with a thin layer of a fluorescent substance) for detecting radiations of short wave-length. This method has been studied in detail with special reference to the composition of the fluorescent layer. An emulsion of dextrin and sodium salicylate has been found to give the best results.—Marcel Godchot, Etienne Canals, and Mlle. Germaine Cauquil : The Raman spectrum of some cyclohexane hydrocarbons. Comparison of the Raman spectra of cyclohexane, methylcyclohexane, the three isomeric dimethylcyclohexanes, and of hexane. The spectra are generally similar, but there are differences to which attention is directed.—Henri Lafuma : The solution and hydration of quicklime in the presence of calcium sulphate.—E. Herzog and G. Chaudron : The methods of testing the corrosion of metals. Comparison of the effects of uniform and localised corrosion. Localised corrosion, in which no appreciable loss of weight of the specimen is noted, may have a marked effect on the mechanical tests.—G. Darzens and Georges Lévy : The method of preparation of phenols by the direct dehydrogenation of the corresponding hydroaromatic ketones. Application of the removal of hydrogen by heating with sulphur.—Charles Dufraisse and Léon Enderlin : The formula and constitution of a colourless hydrocarbon with a violet fluorescence,  $C_{12}H_{26}$ .—M. Battegay and J. Meybeck : The amino-sulphonamides. By the interaction of *N*-chlorosulphonylacetanilide,  $C_6H_5(CO.CH_2).N.SO_2Cl$  upon dimethylamine, phenylaminodimethylsulphonamide ( $C_6H_5.NH.SO_2.N(CH_3)_2$ ) is obtained. The dimethylamine can be replaced by other amines, giving the corresponding amino-sulphonamides.—Mme. Ramart-Lucas and Mlle. Biquard : The prediction and verification of the colour differences between isomers.—A. Marin and P. Fallot : The geology of the Punta Pescadores region (Spanish Rif).—A. Dauvillier : The theory of the polar aurora.—Robert Lemesle : A structural peculiarity in the various species of *Kadsura*. The presence of small crystals of calcium oxalate in certain tissues appears to be general in all species of *Kadsura*.—Pierre Chouard : The diversity of the generic characters of the flowers, bulbs, and seeds in the genus *Ornithogalum*.—P. Lebard : The influence of altitude on the tuber formation of the potato. The existence of an optimum altitude. Comparisons of tuber formation

of the potato at altitudes of 214, 1500, 1650, and 2100 metres above sea-level. The alpine climate favours tuber production, the highest yields being obtained at 1500 metres.—A. Policard, A. Morel, and P. P. Ravault : The histospectrographic study of the localisation of calcium and magnesium in the human aorta, and their variations during atheroma.—Émile F. Terroine and Mlle. Marguerite Champagne : The influence of the acid-base ratio of diet on the magnitude of the nitrogen metabolism.—Émile Guyénot and Mlle. A. Moskowska and K. Ponce : The direct action of the hypophysis on the nuptial pad of *Bombinator pachypus*.—Mme. Y. Khouvine, G. Champetier, and R. Sutra : The X-ray study of the cellulose of *Acetobacter xylinum*.—René Legroux : Transmissible bacterial lysis. The principle producing lysis behaves towards antiseptics as a diastase. That it is a living organism is shown to be improbable.

## MELBOURNE

Royal Society of Victoria, Dec. 10.—A. B. Edwards : The dacite-granodiorite contact relations in the Warburton area. A granodiorite of Upper Devonian age is found intruding a contemporaneous series of dacites in the Warburton area (Victoria), at Nyora (Mt. Tool-be-wong), and south of Warburton township. At Nyora the dacite is but slightly altered. At Warburton three members of the dacite suite enter the metamorphic aureole of the granodiorite, and are converted into ortho-schists and ortho-gneisses, with accompanying mineral changes. As the granodiorite is approached, hypersthene is replaced by biotite, which in turn gives place to green hornblende. A patch of anthophyllite-garnet rock is developed from the hypersthene-dacite, apparently by repeated metamorphism. Andalusite is developed in the metamorphosed argillaceous sediments of Silurian age which enter the contact aureole.—Elizabeth A. Ripper : Palaeontological zoning of the Lower Ordovician near Ingliston. The Lower Ordovician slates and sandstones, three miles south-east of Ingliston, are shown by their graptolite faunas to belong to the uppermost zone of the Castlemaine series and all the Darrivil series, with the exception of the uppermost zone (*D. 1*). Passage beds between *D. 5* and *D. 4* with *Oncograptus upsilon* and *O. biangulatus* have been recognised. The area is the western limb of a geosyncline, of which the axis is unknown, since there is a passage from *C. 1* in the west to *D. 2* in the east, where beds of this age outcrop in the Werribee Gorge.—Frederick Chapman : Some palaeozoic fossils from Deep Creek and Evans' Creek, Saltwater River, Victoria. A preliminary note on the Deep Creek fossils by the author, published in 1903, gave a Silurian (doubtfully Yeringian) age to the collection from that locality. The conclusions now arrived at are a Silurian age for both collections, with a leaning towards the lower or Melbournian stage.—Walter J. Parr : Victorian and South Australian shallow-water Foraminifera (2). This part deals with the remainder of the material studied in Part 1, together with some additional species discovered since. The new species are *Gaudryina hastata*, *Vaginulina vertebralis*, *Bolivina elegans*, *Reussia armata*, *Discorbis australis*, *D. collinsi*, and *Anomalina nonionoides*.—S. Illichevsky : Does the flowering of plants of the Victorian flora repeat the order of their evolution?—Jean Heyward : The relation between flowering and degree of evolution.—Donald McCance : Weathering of the older basalt of Royal Park, Melbourne. A series of chemical analyses of different stages of decomposition of the rock, from the fresh basalt to the residual clay, are given. By means of a table based on these analyses the calculated losses of material, due to weathering, in the various stages, are compared. A



petrological description of the basalt is given, whilst the evidence points to the decomposition having been caused by infiltration of solutions from without.—F. A. Singleton: Studies in Australian Tertiary Mollusca (1). This paper deals with the status of fossils hitherto recorded as *Nucula obliqua* and *Limopsis insolita*. Included in the paper are descriptions of the following new species and sub-species from the Australian Tertiaries: *Nucula kalimnae*, *Glycymeris granti*, *Limopsis chapmani*, *L. chapmani valida*, *Cuculæa corioensis prelonga*.—David E. Thomas: The Kerrie series and associated rocks. The Kerrie series of conglomerates and associated sandstones, to which various ages of basal Upper Ordovician and basal Silurian have been given, rests unconformably on the upturned edges of the Upper Ordovician. The Lower and Upper Ordovician of the area are conformable, and no stratigraphical break has been proved between the Upper Ordovician and the Silurian. On the similarity to rocks elsewhere in the State an Upper Devonian age is assigned to the conglomerate.

## VIENNA

Academy of Sciences, Oct. 22.—R. Weiss and F. Müller: Triphenylmethanes the benzol nuclei of which are connected. (6) Trimethylene-triphenylmethane-triketone-4-carbonic acid and its reduction.—F. Wessely and F. Kallab: Substances contained in the root of *Pimpinella saxifraga*. Pimpinellin and isopimpinellin belonging to the coumarins and coumarone series.—F. Feigl and L. Popp-Halpern: The salts of *o*-, *m*-, and *p*-phenylene-diamine with organic acids.—G. Lock and F. Asinger: Steric inhibition in the saponification of benzal chlorides (1).—G. Machek: The anhydride of the symmetrical pyridine-tetra-carbonic acid and some of its condensation products.—O. Dischendorfer and E. Fransevic: *P*-chlor-benzal-di- $\beta$ -naphthol (sixth communication on condensation of aldehydes with phenols); also anthraquinone-2·1, 6·5-di-xanthone.—M. Pestemer and J. Cecelsky: Ultra-violet absorption of some aromatic hydrocarbons.—F. Werner: New Orthoptera collected during an expedition to Morocco undertaken with the help of the Academy in 1930.—R. Wagner: Mixed monochasiums of *Piriqueta sidifolia*. Curious inflorescences.—R. Weiss has deposited a sealed manuscript with the inscription "Stereochemie" and relating to racemic compounds with optically active substances.

Oct. 29.—K. Funke: Perylene and its derivatives. (33) The constitution of perylene-diamines.—P. Schebesta and V. Lebzelter: Anthropology of the pygmies of the Belgian Congo. In the years 1929-30 some 550 pygmies were measured. They were of various tribes, some more, others less, racially pure. Efe, Bambuti, Bakango, Aka, Bacwa, Batwa, Basua occupy different districts.

Nov. 5.—F. Arndt, J. Amende, and W. Ender: Syntheses with diazo-methane. The reactions of aldehydes and ketones.—F. Heritsch: The tectonic structure of the Carnic Alps.—E. Haberfelner: Geological survey between Kronhofgraben and Fuchsgraben.—W. Krassuski: Geological survey of the eastern Carnic Alps and of the western Karawanken.—I. Peltzmann: Graptolites from Dellach (Zollner) Alm.—F. Kahler: Investigations on the Fusulinidae of the Carnic Upper Carboniferous.—K. Metz: Detailed survey of the Nassfeld deposits in the neighbourhood of the Ahornach Alp.—H. Heritsch: Survey in the crystalline rocks of the Gail valley.—H. Tertsch: Cleavage measurements in the pressure planes of rock-salt and deductions concerning the cleavage process. The rhombododecahedral surfaces were tested in the same way as the cubic surfaces.—A. Brukl and B. Hahn: Heteropoly-acids of germanium.—B. Machan: New fish from Java.

## Forthcoming Events

## FRIDAY, FEBRUARY 26

- ASSOCIATION OF ECONOMIC BIOLOGISTS (Annual General Meeting) (in Botany Lecture Theatre, Imperial College of Science and Technology), at 2.30.—At 3.—Dr. H. Tattersfield, F. R. Cann, and others: Discussion on Laboratory Tests of Insecticides.—At 5.30.—Presidential Address: Temperature and Humidity in Relation to Insect Control.
- ROYAL ASTRONOMICAL SOCIETY (Geophysical Meeting), at 4.30.—Dr. S. F. Grace: A Method for the Determination of the Tides of a Broad, Deep Sea, with Application to the Gulf of Mexico.—Dr. H. Jeffreys: (a) On the Stresses in the Earth's Crust required to support Surface Inequalities; (b) The Deformation of the Earth due to Asymmetrical Cooling.
- BRITISH PSYCHOLOGICAL SOCIETY (at 54 Russell Square, W.C.1), at 8.30.—Dr. Susan Isaacs: Some Recent Advances in the Psychology of Children (Lecture).
- ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Prof. C. G. Darwin: The Uncertainty Principle in Modern Physics.
- ASSOCIATION OF TECHNICAL INSTITUTIONS (Annual Meeting) (in Leathersellers' Hall, St. Helen's Place, E.C.)—Prof. R. W. Angus: Technical Education in Canada.—W. H. Quinn: Technical Education in the Bakery Trade.—P. G. Wilson: Teaching of Modern Languages in Technical Colleges.—J. Cameron Smail: The Report on Policy in Technical Education.—Sir Francis Goodenough: The Report on Education for Salesmanship.

## SATURDAY, FEBRUARY 27

- ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Lord Rutherford of Nelson: Discovery and Properties of the Electron (1).
- ASSOCIATION OF TECHNICAL INSTITUTIONS (Annual Meeting) (in Leathersellers' Hall, St. Helen's Place, E.C.) (continued).

## TUESDAY, MARCH 1

- ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Dr. L. J. Witts: The Pathology and Treatment of Anæmia (Goulstonian Lectures) (1).
- ROYAL INSTITUTION OF GREAT BRITAIN, at 5.15.—Prof. W. E. Garner: Detonating Substances (1).

## WEDNESDAY, MARCH 2

- ROYAL SOCIETY OF ARTS, at 8.—E. C. Gordon England: Motorless Flying.

## THURSDAY, MARCH 3

- ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 5.—Dr. L. J. Witts: The Pathology and Treatment of Anæmia (Goulstonian Lectures) (2).
- ROYAL INSTITUTION OF GREAT BRITAIN, at 5.15.—Prof. J. B. S. Haldane: Heredity in Man (3).

## FRIDAY, MARCH 4

- SOCIETY OF PUBLIC ANALYSTS AND OTHER ANALYTICAL CHEMISTS (at Chemical Society) (Annual General Meeting), at 3.—Presidential Address.
- INSTITUTE OF MARINE ENGINEERS, at 6.—Annual General Meeting.
- GEOLOGISTS' ASSOCIATION (in Architectural Theatre, University College), at 7.30.—Prof. W. G. Fearnside: The Carboniferous Rocks of Derbyshire Derwent (Lecture).—W. Pulfrey: On the Occurrence of Radiolarian-bearing Nodules at the Base of the Edale Shales, near Calver, N. Derbyshire (In Abstract).
- ROYAL INSTITUTION OF GREAT BRITAIN, at 9.—Sir Harold Hartley: Michael Faraday and Electro-Chemistry.

## SATURDAY, MARCH 5

- ROYAL INSTITUTION OF GREAT BRITAIN, at 3.—Lord Rutherford of Nelson: Discovery and Properties of the Electron (2).

## Conference

## MARCH 2 AND 3

- CONFERENCE ON LIGHT IN ARCHITECTURE (Lighting Service Bureau, 15 Savoy Street, W.C.2).