

comfortable quarters for all strangers; but the town is small, and therefore they should get as early advice as possible. Letters should be addressed to Prof. Noeggerath."

The German Association was formed some years before the British Association, and Brewster, writing to Phillips on February 22, 1831, said: "It is proposed to establish a British Association of men of science similar to that which has existed for eight years in Germany, and which is now patronized by the most powerful sovereigns of that part of Europe."

#### Darwin in Peru

ON July 19, 1835, Darwin records that the *Beagle* anchored in the Bay of Callao, the seaport of Lima, the capital of Peru. Callao he found 'a filthy, ill-built, small seaport', while, owing to the troubled state of affairs, he was able to see little of the country. "I cannot say," he wrote, "I liked the very little I saw of Peru; in summer, however, it is said that the climate is much pleasanter. In all seasons, both inhabitants and foreigners suffer from severe attacks of ague. This disease is common on the whole coast of Peru, but is unknown in the interior. The attacks of illness which arise from miasma never fail to appear most mysterious. So difficult is it to judge from the aspect of a country, whether or not it is healthy, that if a person had been told to choose within the tropics a situation appearing favourable for health, very probably he would have named this coast. The plain round the outskirts of Callao is sparingly covered with a coarse grass, and in some parts there are a few stagnant, though very small, pools of water. The miasma, in all probability, arises from these: for the town of Arica was similarly circumstanced, and its healthiness was much improved by the drainage of some little pools. . . . In all unhealthy countries the greatest risk is run by sleeping on shore. Is this owing to the state of the body during sleep, or to a greater abundance of miasma at such times?"

#### Faraday on Tour in Switzerland

THE year 1835 was not one of Faraday's periods of great activity. It was in fact a time of rest and recuperation between the electrochemical researches, which were completed, and those on electrostatics, which he began to think of in November 1835. There is no entry of any kind in his Diary after April 27 until August, and in the month of July he was on a holiday tour in Switzerland with his wife and brother-in-law, George Barnard. The need for relaxation after a long period of hard work had evidently been felt, for in a letter he wrote to Magrath from Switzerland on July 19, he speaks of "occupation, fatigue and rheumatism". In the same letter he says: "We had a rough passage to Dieppe from Brighton, so rough that we found the French people wondering that we had ventured, but were so unhappy in our sickness as to be quite unconscious of everything else".

The party travelled by Rouen and Paris to Geneva, where Faraday met Prof. De la Rive again, and then to Chamonix and on for a tour of the mountain scenery. "We are almost surfeited with magnificent scenery", he wrote to Magrath; and again: "No artist should try to paint Mont Blanc; it is utterly out of his reach. He cannot convey an idea of it". They were back in England in August, for on August 6 the Diary entries begin again.

## Societies and Academies

### DUBLIN

Royal Irish Academy, June 25. H. L. MOVIOUS, JR.: An excavation in the diatomaceous deposit of the Lower Bann Valley. The site, which was excavated in June 1934 by the Harvard Archaeological Expedition to Ireland, lay at the base of an extensive deposit of diatomite where some thirty hearths were discovered. Implements of flint in addition to three polished stone axes were found. Typical of the industry are pointed flakes with a superficial tanging of the bulbar end. The site never served as a place of permanent habitation, since the hearths show evidence of seasonal floodings by the river. A nearly complete pot from quite near the site has proved to belong to the Windmill Hill family of Neolithic ware, according to Prof. V. G. Childe. The archaeological evidence points to about the beginning of the second millennium B.C. as a rough date for the culture. Such a view is substantiated by Prof. K. Jessen's palaeobotanical studies at the site, and on the basis of his work Late Atlantic to Early Sub-Boreal time is probable. As a whole, the industry seems to be an indigenous North Irish development derived from earlier coastal elements which had come in contact with a fully developed neolithic civilisation.

### PARIS

Academy of Sciences, May 27 (*C.R.*, 200, 1805-1892). The president announced the death of Hugo de Vries, *Correspondant* of the Academy. ARMAND DE GRAMONT: An optical inverter. CHARLES CAMICHEL, JEAN PARMENTIER and LOUIS ESCANDE: Contribution to the study of liquid veins: multiple solutions: non-commutative operations. Experiments carried out on reduced models and on the Vives-Eaux barrage on the Seine. RENÉ MAIRE and LOUIS EMBERGER: The vegetation of the western Anti-Atlas. MARC KRASNER: The theory of the ramification of ideals. EMILE VAULOT: The application of the calculus of probabilities to the theory of telephone traffic. P. J. MYRBERG: The determination of the type of a simply connex Riemann surface. PIERRE BOOS: The general integral of certain differential equations considered as a function of the constants of integration. CARLO MIRANDA: A new criterion of normality for families of holomorphic functions. NIKOLA OBRECHKOFF: The summation of the ultra-spherical series by the method of arithmetical means. GEORGES VALIRON: A generalisation of Schottky's theorem. EUGÈNE BLANC: Monotone multifunction correspondences. GÉRARD PETIAU: A form of the equation of the photon. JULIEN KRAVCHENKO: The validity of solutions of the problem of [ships] wakes. F. CHARRON: Various utilisations of the bifilar suspension. L. DUNOYER: The principal cause of the inferiority of spirit-levels compared with liquid baths. JEAN P. E. DUCLAUX: The influence of light on the anodic polarisation of tungsten. ROBERT GUILLIEN: The electrical double refraction of liquid oxygen and nitrogen. MME. IRÈNE CURIE, HANS VON HALBAN, JR. and PIERRE PREISWERK: The artificial creation of the elements of an unknown radioactive family, during the irradiation of thorium by neutrons. M. H. ZAVIZZIANO: The co-precipitation of protactinium with titanium. Titanium dioxide, formed by the hydrolysis of titanium



sulphate solutions, carries with it the whole of the protactinium in solution, and is better adapted for this purpose than the substances hitherto employed. VICTOR LOMBARD and CHARLES EICHNER : The large and sudden variation in the permeability of palladium to hydrogen at a temperature just below 200° C. Palladium foil loses 99.95 per cent of its diffusive power to hydrogen by cooling from 225° C. to 125° C. The critical temperature, which varies slightly with the purity of the metal, is between 180° C. and 190° C. The author regards this not as being due to a change of state of the metal but as a change of behaviour of hydrogen towards the palladium. Mlle. NIUTA KLEIN : Study of the inequalities of the index of refraction of a glass. ELIE RAYMOND : A method for the quantitative separation of nickel and cobalt. ANDRÉ DE PASSILLÉ : The thermochemistry of the ammonium arsenates. PIERRE BRAUMAN : The isoamyloxyvanadylsalicylates. ALFRED MAILLARD : The hydrogenation of anthracene. The addition of hydrogen to anthracene is a reaction similar to the hydrogenation of naphthalene; the addition takes place in stages and the reactions are reversible. E. VELLINGER and G. RADULESCO : The use of cracked spirit in internal combustion motors. The unsaturated hydrocarbons are valuable in preventing knocking, but the tendency to gum formation is objectionable. The latter can be removed by adding stabilisers such as polyphenols; that this addition prevents gum formation has been confirmed by experiment. GEORGES DUPONT and RAYMOND DULOU : The presence of active secondary butyl alcohol in certain fusel oils. A sample of propyl alcohol, sold as pure, was found to contain 17 per cent of active secondary butyl alcohol. JEAN WYART : The crystalline structure of paratoluidine. STOYAN PAVLOVITCH : The petrographical study of the peridotites of the Zlatibor massif (Western Serbia). GILBERT MATHIEU : The age of the primary series without fossils of Vendée. JEAN MICHEL : Observations on the projections in the chalk between Tréport and Ault. ADOLPHE LEPAPE and GEORGES COLANGE : The composition of the air of the stratosphere. The air of the stratosphere has the same composition as at the ground-level and it would appear that the atmosphere has sensibly the same composition throughout. L. DONCIEUX and J. CUVILLIER : The Foraminifera of the lower Lutetian in the south of the Arabian desert. GEORGES ADAM NADSON : Hereditary variations produced experimentally in yeasts. Starting with a single yeast cell, under the influence of the X-rays various new stable strains of yeasts have been obtained. These yeasts are so distinct that, if found in Nature, they would be classified not only as different species, but even as distinct genera. The distinctive characters have been maintained after several years of culture. EMILE MIEGE : The indigenous cultivation of the potato in the mountainous regions of Morocco. The potato has been cultivated for a long period in the mountain regions of Morocco. In spite of the primitive methods, two crops a year with high yields without degeneration have been obtained. These results show the favourable effect of cultivation at a high altitude. LÉON BERTIN : The *Oxytomus* of Rafinesque is a distinct form among the leptocephalian larvæ. ALPHONSE LABBÉ : The silicogen function in the Silicoderms. JAMES BASSET, STEFAN NICOLAU and MICHEL A. MACHEBEUF : The action of ultra-pressure on the pathogenic action of some viruses. JACQUES PARROD : The formation of hydrocyanic

acid and urea by the oxidation of cellulose, in ammoniacal solution, at laboratory temperature. Mlle. HÉLÈNE WINOGRADSKY : The nitrifying micro-flora of activated sludge of Paris. E. GRASSET : Preliminary results on the treatment of human tuberculosis by means of living formalised lysates of B.C.G. and tuberculous bacillus.

## BRUSSELS

Royal Academy (*Bull. Classe Sci.*, 31, No. 4, April 6). L. GODEAUX : (1) Researches on the cyclic involutions belonging to an algebraic surface. (2) The order of the rational correspondences between two surfaces each of genus one. TH. DE DONDER : Application of quantum mechanics to generalised statistical mechanics. L. HENRIOT : Electromagnetic moments. A discussion of the vectors torque and momentor in Lorentz's electromagnetic theory and a comparison with the results of Maxwell's theory. G. BOULIGAND : On certain linear classes of functions. M. WINANTS : Solution of the problem ( $a_n$ , IV, 1). J. GÉHÉNIAT : Generalisation of the formulæ of excess of Weierstrass deduced from the theorem of independence of Hilbert-De Donder. YVONNE DUPONT : De Donder's thermodynamic synthesis applied to the Nernst and Ettingshausen transverse effects (2). GEORGETTE SCHOOLS : Application of statistical mechanics to the thermodynamics of a gas. Theoretical considerations leading to a calculation of the molar entropies of chlorine, bromine and iodine, allowing for the energy of vibration. J. M. DELFOSSE and R. GOOVAERTS : Raman spectrum of silicobromoform. Comparison of the Raman effect in silicobromoform with that in chloroform, bromoform and silicochloroform. H. WUYTS and R. VERSTRAETEN : Optical analysis and rotatory power of the glycothiodiazolines. M. FLORKIN : Influence of the cryoscopic depression of the exterior medium on that of the blood and urine of *Anodonta*. B. ROSEN and M. DÉSIKANT : Researches on the molecular spectrum of selenium vapour. H. SAUVENIER : Some remarks on the subject of the interpretation of the shift towards the red of the spectral lines of nebulae. M. NICOLET : Identification of the lines of neon in the spectrum of B stars. M. LEGRAYE : Note on a particular fuel in the Famenian of the Couthuin region. J. MELON : Analysis and optical properties of thoreaulite.

## GENEVA

Society of Physics and Natural History, May 16. M. GYSIN : Copper minerals of Kinsenda (Belgian Congo) (2). Presence of two varieties of chalcosine. Studying the minerals of Kinsenda (Belgian Congo), the author has observed two varieties of chalcosine, a blue chalcosine, isotropic, formed by hypogene replacement of primary bornite, and a white chalcosine, granular, anisotropic, formed by supergene replacement of blue chalcosine and of chalcopyrite. E. BRINER and M. CARCELLER : Catalytic action of oxidation exercised by ozone in the oxidation of hydrocarbons. E. CHERBULEZ and R. WEIBEL : Action of sulphur on water below 100° C. and the geological significance of this reaction. P. WENGER, C. CIMMERMAN and C. RZYMOWSKA : The gravimetric micro-estimation of potassium in the presence of sodium by means of chloroplatinic acid. The authors specify the conditions of F. Emich's micromethod for the determination of potassium in the presence of ten times the quantity of sodium, and have



established a micromethod based on the work of Smith and Gring. C. CIMMERMANN and P. WENGER: The micro-estimation of zinc by means of anthranilic acid. The authors have worked out a rapid and exact micromethod based on the use of this reagent.

#### LENINGRAD

Academy of Sciences (C.R., 2, No. 1, 1935). I. VINOGRADW: On approximation by means of rational fractions having powers of total numbers for denominators. V. IGNATOVSKIJ: The Laplacean transformation. L. RADZISHEVSKIJ: Contribution to a general theory of linear functional equations. V. KUPRADZE: A generalised 'principle of radiation' in the theory of elasticity. L. LEIBENSON: (1) The theory of the turbulent boundary layer. (2) The energy form of the integral condition in the theory of the boundary layer. A. MITKEVITCH: The influence of mechanical vibration on the subsequent manifestations of magnetic viscosity. V. IPATJEV and W. TRONEV: The separation of metals of the platinum group by hydrogen under pressure. M. KABATSHNIK and M. KATZNELSON: Amination of alkaloids with sodium and potassium amides. A. KLEBANSKIJ and K. CHEVYCHALOVA: Synthesis of  $\beta$ -chlorpropionic acid by condensation of phosgene with ethylene. P. BORODIN and M. GADD: An investigation of the radioactivity of the springs of the Ilmen district and of Lake Turgoyak (South Urals). M. CLAIRE: Some notes on the hydrogeology of the springs of the Ilmen district and of Lake Turgoyak (South Urals). V. LEVSHIN and M. ALENCEV: Researches on the phosphorescence of calcites. J. SALKIND, S. SONIS and N. BLOCHIN: Studies in the synthesis of vitamin A. (1) The action of magnesium-bromovinyl-acetylene on the  $\beta$ -ionone. (2) Biological properties of the product of synthesis. Z. KATZNELSON: The sources of development of the latero-ventral part of the body muscles and of the tail muscles in Amphibia. V. DONTCHENKO and N. MEDVEDEV: A case of dependence of success of interspecific hybridisation upon a single gene. DONTCHO KOSTOFF: Changes in karyotypes induced by centrifugation. V. CIVINSKIJ: The effect of fruiting upon transpiration. N. KALABUKHOV: The physiological peculiarities of the mountain and the plains sub-species of the forest mice (*Apodemus sylvaticus ciscaucasicus* Ogn. and *A. sylvaticus mosquensis* Ogn.).

#### MELBOURNE

Royal Society of Victoria, April 11. AUSTIN B. EDWARDS: Three olivine basalt-trachyte associations and some theories of petrogenesis. Investigation of the olivine basalt-trachyte associations in three Tertiary igneous provinces, in Victoria, at Otago in New Zealand, and at Kerguelen Island, supports the theory advanced by W. Q. Kennedy that alkaline lavas are the normal product of differentiation of an olivine-basalt magma, so long as there is no undue amount of contamination by contemporary syntaxis. Desilication of basaltic magma by its assimilation of calcareous sediments has not occurred in either of the three provinces. In the absence of an immediately previous orogeny, such alkaline rocks will develop in a continental region as readily as in an oceanic region; but an orogeny appears to provide conditions favourable to large-scale assimilation of siliceous and argillaceous sediments, with an accompanying production of andesitic types.

## Forthcoming Events

[Meetings marked with an asterisk are open to the public.]

Sunday, July 14

BRITISH MUSEUM (NATURAL HISTORY), at 3 and 4.30.—  
M. Burton: General Tour of the Museum.\*

INTERNATIONAL CONGRESS FOR SCIENTIFIC MANAGEMENT,  
July 15–19.—Sixth Congress to be held in the Central  
Hall, Westminster, S.W.1.

July 15 at 12. Opening of the Congress by H.R.H.  
the Prince of Wales.

## Official Publications Received

### Great Britain and Ireland

Annual Report of the Council to the Members of the City and  
Guilds of London Institute, to be presented at the Yearly Meeting  
in May 1935. Pp. liii+112. (London: Gresham College.)

The National Central Library 19th Annual Report of the Executive  
Committee, 1934–35. Pp. 57. (London: National Central Library.)

### Other Countries

U.S. Department of Agriculture. Technical Bulletin No. 463:  
Biological and Ecological Factors in the Control of the Celery Leaf  
Tier in Florida. By E. D. Ball, J. A. Reeves, B. L. Boyden and W. E.  
Stone. Pp. 56. (Washington, D.C.: Government Printing Office.)  
10 cents.

Agricultural Experiment Station of the Rhode Island State College.  
Bulletin 247: Blackhead (Enterio-Hepatitis) Investigations. By  
John P. Delaplane and Homer O. Stuart. Pp. 16. (Kingston, R.I.:  
Rhode Island State College.)

Meddelelser fra Kommissionen for Danmarks Fiskeri- og Havundersø-  
gelses. Serie Fiskeri, Bind 10, Nr. 1: Cod Marking Experiments in  
the Waters of Greenland, 1924–1933. By Paul M. Hansen, Ad. S.  
Jensen and A. Vedel Tåning. Pp. 119. (København: C. A. Reitzels  
Forlag.)

Zoologica. Vol. 19, No. 3: A Second List of Antillean Reptiles and  
Amphibians. By Thomas Barbour. Pp. 77–141. (New York: New  
York Zoological Society.)

Ceylon Part 4: Education, Science and Art (G). Administration  
Report of the Marine Biologist for the Year 1934. By A. H. Malpas.  
Pp. G7. (Colombo: Government Record Office.) 10 cents.

Kungl. Sjökartverket, Stockholm. Resultat af de Beobachtungen  
des Magnetischen Observatoriums zu Lovö (Stockholm) im Jahre  
1931. Pp. 95. (Stockholm.)

Commonwealth of Australia: Council for Scientific and Industrial  
Research. Bulletin No. 87: 1. On the Rotation of the Plane of  
Polarization of Long Radio Waves, by Dr. A. L. Green and Dr.  
Geoffrey Bulder; 2. A Field-Intensity Set, by Dr. A. L. Green and  
H. B. Wood; 3. Measurements of Attenuation, Fading and Inter-  
ference in South-Eastern Australia, at 200 Kilocycles per Second,  
by G. H. Munro and Dr. A. L. Green; 4. A Frequency Recorder, by  
Dr. D. F. Martyn and H. B. Wood. (Radio Research Board, Report No.  
6.) Pp. 58. Bulletin No. 88: 1. The Propagation of Medium Radio  
Waves in the Ionosphere, by Dr. D. F. Martyn; 2. The Character-  
istics of Downcoming Radio Waves, by Dr. D. F. Martyn and Dr. A. L.  
Green; 3. The Influence of Electric Waves on the Ionosphere, by  
Dr. V. A. Bailey and Dr. D. F. Martyn; 4. Long Distance Observa-  
tions of Radio Waves of Medium Frequencies, by Dr. D. F. Martyn,  
R. O. Cherry and Dr. A. L. Green. (Radio Research Board, Report  
No. 7.) Pp. 63. Bulletin No. 89: 1. Simultaneous Observations of  
Atmospherics with Cathode Ray Direction-Finders at Toowoomba  
and Canberra, by G. H. Munro, Dr. H. C. Webster and A. J. Higgs;  
2. Atmospheric Interference with Reception, by W. J. Wark. (Radio  
Research Board, Report No. 8.) Pp. 61. Pamphlet No. 54: Thrips  
Investigation; Some Common Thysanoptera in Australia. By H.  
Vevers Steele. Pp. 59. (Melbourne: Government Printer.)

Proceedings of the Academy of Natural Sciences of Philadelphia,  
Vol. 87. South American Land and Freshwater Mollusks, 9: Colom-  
bian Species. By Henry A. Pilsbry. Pp. 83–88. (Philadelphia:  
Academy of Natural Sciences.)

Bulletin of the American Museum of Natural History. Vol. 68,  
Article 5: The Taxonomy of the Genera of Neotropical Hystricoid  
Rodents. By G. H. H. Tate. Pp. 295–447. (New York: American  
Museum of Natural History.)

Indian Central Cotton Committee: Technological Laboratory.  
Technological Bulletin, Series A, No. 27: Combing of Good Quality  
Indian Cottons. By R. P. Richardson and Dr. Nazir Ahmad. Pp. 31.  
(Bombay: Indian Central Cotton Committee.)

Nigeria. Sessional Paper No. 17 of 1935. The Nigerian Goldfield.  
By Dr. W. Russ. Pp. 11. (Lagos: Government Printer.)

### Catalogues

A Catalogue of Scientific Periodicals and Publications of Learned  
Societies and Public Institutions. (No. 506.) Pp. 68. (London:  
Bernard Quaritch, Ltd.)

Sands, Clays and Minerals. Vol. 2, No. 3, June. Pp. 160. (Chatteris:  
Algernon Lewin Curtis.)