

south in 1896, they met F. G. Jackson, in whose relief ship they returned to Norway, arriving at Vardø on Aug. 13, 1896, full of anxiety as to the fate of the *Fram*. On that very day the *Fram* broke out of the ice, the whole party meeting in Tromsø the following week. On this unique and daring journey no life was lost, the ship was undamaged, and a rich harvest of scientific data was secured.

Sept. 22, 1631.—Foxe Channel

Luke Foxe reached his highest latitude, 66° 47', after following the coast of Foxe Land and passing through Foxe Channel. He had left England in May 1631 in search of the north-west passage, feeling confident that he would return with a cargo of pepper from the East Indies. He did not succeed in this, but he rendered great service to geography by completing a rough survey of Hudson Bay, and by discovering and penetrating far into Foxe Channel. He also drew a map, now famous, showing with considerable accuracy the arctic regions as then known.

Societies and Academies

LONDON

Institute of Metals (Annual Autumn Meeting), Sept. 12-13.—H. J. Gough: Corrosion fatigue of metals (Autumn Lecture). Corrosion fatigue of metals is defined as the behaviour of metals subjected to cyclical stresses while exposed to an environment of an oxidising nature. Following a brief historical account, the nature of the general problem, the nomenclature employed, and the characteristics of laboratory tests are stated; representative failures in service are described. Consideration is then given to the general influences of chemical composition, heat treatment, and cold working on the resistance of metals to corrosion fatigue, also of the effect of time, number of cycles, and corrosivity of environment as factors in the process. Primary importance is attached to the behaviour of protective films under the straining actions associated with cyclical stressing.—W. R. Barclay, G. A. V. Russell, and H. Williamson: Modern works plant and equipment for the hot-working of nickel and nickel alloys. This paper describes a modern plant erected in Great Britain as a result of experience in the hot-working of nickel and its alloys, and a close study of the conditions under which similar work is carried out on the Continent and in America. The main features of the plant are: (1) hydraulic forging press; (2) hot rolling mill. The heating of sheet-bar for rolling into sheets is carried out in a specially designed electric resistance furnace.—G. L. Bailey: Mould materials for non-ferrous strip ingot casting. Grey cast iron is the material most generally used for moulds for the casting of non-ferrous strip ingots. Cast-iron moulds are subject to two particular defects, gas evolution from the face of the mould when this is overheated during pouring ('blowing'), and transverse cracking of the working faces. Copper is considered the most satisfactory material for strip ingot moulds. Its high thermal conductivity prevents serious temperature gradients and consequent distortion.—E. J. Daniels: Some reactions occurring in 'hot-dipping' processes. The part played by fluxes has been investigated and a general agreement found with diverse processes. The contamination of the liquid metal is an inevitable factor in hot-dipping, soldering, etc., and methods for controlling it are indicated.—N. P. Allen: The effect of pressure on the liberation of gases from metals, with special

reference to silver and oxygen. The liberation of oxygen from silver during solidification has been studied by means of cooling curves. The gas is evolved when the 'internal pressure' of the dissolved gas becomes greater than the hydrostatic pressure of the liquid metal, and by applying a sufficiently large pressure to the liquid metal the formation of blow-holes can be prevented. The equilibrium of the silver-oxygen system is discussed and the existence of a eutectic shown.—J. D. Grogan and T. H. Schofield: On the removal of gases from aluminium alloys by mixtures of nitrogen and volatile chlorides. Raw cylinder nitrogen may be employed. The quantity of chloride needed is small. Metal treated in this way possesses excellent mechanical properties.—H. A. Sloman: Researches on beryllium. With the progressive elimination of metallic impurities, the brittle nature of the early metal was not greatly altered. This brittleness was afterwards found to be due to a beryllium/beryllium oxide eutectic surrounding the metal grains. Most of the work has been directed towards the elimination of this oxide. Of all the methods attempted and described here, sublimation *in vacuo* has been the most effective.—R. J. M. Payne and J. L. Haughton: Some attempts at making beryllium-magnesium alloys. A description is given of various methods which were tried for the production of beryllium-magnesium alloys, all of which were unsuccessful.—D. Stockdale: The constitution of the lead-tin alloys. The micrographic method, two thermal methods, and a modified electrical conductivity method have been used in the determination of the solubility of tin in lead, which is shown to be 19.5 per cent by weight, at the temperature of the eutectic. This value is considerably higher than any other previously obtained.—M. Cook and H. J. Miller: The effect of different elements on the annealing and grain-growth characteristics of alpha brass. An examination has been made of the effect of additions of iron, phosphorus, manganese, and aluminium separately, and of aluminium with nickel, and aluminium with silicon, on the annealing characteristics of alpha brass by determining diamond pyramid hardness values and making grain-size measurements on cold-rolled alloys annealed at various temperatures, while the tensile properties on a number of alloys representative of the various series investigated have also been studied.—J. H. Watson: Liquefaction or 'inverse segregation' in the silver-copper alloys. The first formed primaries, whether of silver or of copper, are free to move under the influence of gravity, when the alloy is maintained for sufficient time at temperatures between the liquidus and the solidus. The primaries which have segregated under the influence of gravity are repelled from their position by the application of severe local chilling to their vicinity.

(To be continued.)

PARIS

Academy of Sciences, Aug. 1 (vol. 195, pp. 345-404).—J. Costantin: High-altitude heredity acquired by the sugar cane. Historical account of the relations between the resistance of sugar canes to disease and the altitude at which they are grown, and the results of transplanting from high to lower altitudes.—Paul Janet: The International Congress of Electricity of 1932.—P. Pascal and Mlle. J. Hansot: The quantitative study of the adsorption of metallic cations by cellulose. Results with lead nitrate, thallium nitrate, and lead chloride are given graphically.—Lucien Daniel: A curious graft of the chestnut and pear trees. An account of a pear tree on which a chestnut has been accidentally grafted. Each bears its proper fruit and

foliage, and both are fed by a single trunk.—E. Bataillon and Tchou Su: The comparative study of the initial kinetic process in the impregnated egg of *Hyla* at various stages of growth.—Vladimir Bernstein: The directions of Julia and of Borel of integral functions of finite order.—A. Lafay: The prediction of the action of a rapidly changing wind. Application to the Katzmayer effect and to autorotation.—R. de Fleury, H. Portier, and S. Benmakrouha: Rules of transpositions with homogeneous factors of safety of equilibrium and stability at critical deformations.—G. Rougier: The variations of atmospheric absorption.—J. Cayrel: The permeability of a vacuum and the theorems of Chipart.—Armand Bogros and Félix Esclangon: The excitation of atomic jets by an electromagnetic discharge of high frequency. The method described promises to be of service in the study of the hyperfine structure of spectral lines.—G. Bruhat and P. Chatelain: The realisation of a photoelectric polarimeter.—P. Soleillet: The fluorescence of a jet of zinc atoms.—F. C. Chalklin and L. P. Chalklin: The partial absorption in the region of the soft X-rays.—Mlle. J. Pernet: The magnetic rotatory power of cerous chloride in aqueous solution. The thermal variation.—P. Fourmarier: The response of a gas-filled photoelectric cell to a sudden illumination. Study of the causes of lag in photoelectric cells: the results are given in three curves.—Lemarchands and Jacob: Remarks on chemical inertia. Starting with the hypothesis that the reaction temperature between a metal and chlorine should be proportional to the product of the boiling points of the metal and the chloride formed, experimental results are given for the reaction temperatures of a number of metals with chlorine. The concordance between the measurements and the calculated temperatures is satisfactory.—Desmaroux and Mathieu: The influence of temperature on the structure of nitrocellulose films. A discussion of the causes of the differences between the authors' results and those of J. J. Trillat. The concentration of the solutions and the temperatures at which the film is dried affect the crystalline form.—Berthon: Selective adsorption by silica gel in ammoniacal solutions of the heavy metals. In ammoniacal copper solutions the complex ion $(\text{Cu}(\text{NH}_3)_2)$ is adsorbed. Ammoniacal zinc sulphate solutions behave similarly.—Georges Delbart and Edgar Lecœuvre: Contribution to the study of low carbon cast-irons.—Rambaud: A particular case of allyl isomerism.—A. Mailhe and M. Renaudie: The formation of various organic sulphur compounds starting with ethylene hydrocarbons. The hydrocarbons (ethylene, propylene, butylene, and amylene) mixed with hydrogen sulphide were passed over silica gel at 700° C. A complex liquid mixture was obtained containing alkyl sulphides, thiophene and its homologues, and other sulphur compounds.—Romer: The present condition of Mt. Pelée. The eruption of 1929-1932 resembled that of 1902 but was on a smaller scale. Some of the protective topographical features have disappeared: an eruption on the south or south-east side of the new cone might be very dangerous.—Y. Khovine: Study by means of X-rays of the chitin of *Aspergillus niger*, *Psalliota campestris*, and *Armillaria mellea*. Chitin of vegetable origin has not only the analytical characters of animal chitin, for example, the crayfish, but also has the same crystalline structure.—Maurice Leriche: The first fossils discovered, at the north of Angola, in the prolongation of the Lubilash strata, and the synchronism of the Lubilash and Lualaba deposits.—A. and R. Sartory, J. Meyer, and E. Keller: The determination of the quantity of magnesium contained in the essential foods and water of different communes of Alsace and Lorraine and its influence on cancer mortality.

CAPE TOWN

Royal Society of South Africa, April 20.—S. M. Naudé: The spectroscopic determination of isotopes. Molecular spectra offer a much greater opportunity for the discovery of isotopes, since the mass of the constituent atoms of the molecule enters directly in the expressions for the vibrational and rotational energy of the molecule.—B. F. J. Schonland and J. P. T. Viljoen: A penetrating radiation from thunderclouds (see NATURE, Sept. 10, p. 399).—M. Rindl and P. W. G. Groenwoud: A contribution to the chemistry of *Rauwolfia Natalensis*. The bark of the so-called 'quinine tree' (Koorsboom) is credited with possessing medicinal virtues. The cold alcoholic percolate furnishes: (a) Cane sugar. (b) An amorphous yellow alkaloid which, when administered orally or subcutaneously to cats in doses of 27 mgm. per kg. body weight, causes an elevation of temperature. The alkaloid has no definite melting point, and it resisted all attempts to obtain it or one of its derivatives in crystalline form. It is obtained by fractional precipitation of the aqueous alkaloid solution with sodium carbonate. (c) An amorphous alkaloid extracted from the aqueous alkaline solution with ether and giving the Rauwolfine reaction with concentrated nitric acid. (d) An amorphous alkaloid extracted from the aqueous alkaline solution with ethyl acetate and giving a fluorescent solution. This alkaloid does not give Rauwolfine reaction. (e) One or more alkaloids which appear to be very soluble in water and are not removed from the aqueous alkaline solution by shaking with immiscible solvents.

ROME

Royal National Academy of the Lincei, March 20.—T. Levi-Civita: Theorems of unicity and of existence for the small oscillations of a vortical thread of nearly circular form.—L. Tonelli: A theorem of the calculus of variations.—S. Cherubino: A property of oblique intuitive curves.—J. Mirguet: Certain new direct infinitesimal notions.—G. Lampariello: The instability of helicoidal vortices.—G. D. Mattioli: The reduction of degree of the canonical systems by means of generic integrals.—N. Moisseiev: The law of resistance to the motion of bodies in a pulverulent medium. (3) General case of an incoherent agitation.—G. Supino: Deformation of strips.—G. Conti: Contribution to the study of the variation of latitude.—T. Alippi: Certain peculiarities of the annual variation of the relative humidity. In relation to the recent communication on this subject by Viola, the author quotes the following conclusions drawn from various memoirs by Eredia (1908, 1919, 1931), dealing with observations made at a number of Italian towns. In coastal towns the moisture is lower in winter and higher in summer than in the interior of the country. On the seaboard the variations in the relative humidity, although marked, are less than in the interior. At Genoa and on the western Riviera generally, moisture is scanty (sometimes below 50) in January and reaches its maximum in summer and autumn; this anomaly is attributed by Eredia to the influence of air-currents.—Maria Lombardini: Calculation of the circulation in the movements of the atmosphere.—P. Straneo: A new unitary theory of gravitation and electricity by absolute geometrisation. The author's studies on the unitary problem of macroscopic physics lead to a solution which, owing to its maximum generality and its extreme simplicity, appears to be definitive.—G. Devoto: Investigations on the dielectric constant of liquids. (7) Dielectric constant and electric moment in aqueous solution. With the α -amino aliphatic acids, distinct proportionality exists between the dielectric constant and the electric moment; this is

confirmed by the results recently obtained for glycylglycine.—C. Jucci and C. Manunta: The colouring matter of the silkworm cocoons of the Japanese green race. This pigment, for which the name bombiclorin is proposed, dissolves very readily in water and only sparingly in alcohol, and forms yellow salts with alkalis.—M. Anelli: Folding of Pleiocene soils in the Reggian Apennines.—R. Pampanini: Plants collected in Libya by the Desio mission (1931).

Forthcoming Events

Societies

THURSDAY, SEPT. 22

OPTICAL SOCIETY.—Special General Meeting at the Imperial College of Science and Technology, at 5.30 P.M.

Congresses

SEPT. 19-24

BRITISH MYCOLOGICAL SOCIETY.—Annual General Meeting at the Haslemere Educational Museum, Surrey.

Wednesday, Sept. 21.—Miss G. Lister: "Field Notes on Mycetozoa" (Presidential Address).

SEPT. 21-23

FARADAY SOCIETY.—Second Colloid Meeting at Manchester. Discussion on the "Colloidal Aspects of Textile Materials and Related Topics".

SEPT. 23-26

ASSOCIATION OF SPECIAL LIBRARIES AND INFORMATION BUREAUX.—Ninth Annual Conference at Somerville College, Oxford.

Friday, Sept. 23.—Sir Charles Sherrington (Presidential Address).

Prof. J. L. Myers: "The Relationship between Science and the Humanities".

Saturday, Sept. 24.—Dr. S. C. Bradford and Prof. A. F. C. Pollard: "Classified Subject Indexes to Periodical Volumes".

Prof. M. Greenwood: "History and Sources of Official Vital Statistics".

Official Publications Received

BRITISH

Transactions of the Royal Society of Edinburgh. Vol. 57, Part 1, No. 9: Notes on Lower Old Red Sandstone Plants from Callander, Perthshire. By S. M. K. Henderson. Pp. 277-285+1 plate. 1s. 6d. Vol. 57, Part 1, No. 10: On the Structure and Function of the Alimentary Canal of the Limpet. By Alastair Graham. Pp. 287-308. 2s. 9d. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.)

Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1450: Reports and Memoranda published between 1st January 1931 and 1st April 1932. Pp. 8. (London: H.M. Stationery Office.) 6d. net.

Records of the Geological Survey of India. Vol. 65, Part 4. Pp. 445-541+iv+plates 19-29. (Calcutta: Government of India Central Publication Branch.) 2.12 rupees; 5s.

Commonwealth of Australia: Council for Scientific and Industrial Research. Pamphlet No. 27: Zebu (Brahman) Cross Cattle and their Possibilities in North Australia. By R. B. Kelley. Pp. 64. Pamphlet No. 28: The Pig Industry; Report on Conditions in Great Britain and America, with Suggestions Applicable to Australia. By R. B. Kelley. Pp. 44. (Melbourne: H. J. Green.)

Memoirs of the Geological Survey of India. Paleontologia Indica, New Series, Vol. 20, Memoir No. 2: *Homoxylon rajmahalense*, Gen. et sp. nov., a Fossil Angiospermous Wood, devoid of Vessels, from the Rajmahal Hills, Bihar. By Prof. B. SahnI. Pp. iv+19+2 plates. (Calcutta: Government of India Central Publication Branch.) 1.12 rupees; 3s. The Geology of the Baria State (Revakantha Agency). By R. Rama Rao. Pp. x+152+20 plates. (Devgad Baria: Secretariat Office.) 5 rupees.

Department of Scientific and Industrial Research. Report of the Food Investigation Board for the Year 1931. Pp. x+298+9 plates. (London: H.M. Stationery Office.) 5s. net.

Report of the Advisory Council of the Science Museum for the Year 1931. Pp. 40. (London: H.M. Stationery Office.) 9d. net.

Proceedings of the Royal Society. Series A, Vol. 137, No. A332, August 2. Pp. 243-480. (London: Harrison and Sons, Ltd.) 12s.

Empire Fibres for Marine Cordage: Sisal Hemp and New Zealand Hemp. Rope Tests (Fourth Series): Report of Investigations conducted by the Imperial Institute. Pp. 8. (London: Imperial Institute.) 6d.

The Indian Lac Research Institute. Bulletin No. 5: Humidity and Storage of Button Lac. By Dr. R. W. Aldis. Pp. 4. 8 annas. Bulletin No. 6: The Effects of Temperature and Humidity on Oviposition, Incubation and Emergence in the Lac Insect, *Laccifer (Tachardia) lacca*, Kerr. (Coccidae), and on the Resulting Lac Crop. By P. M. Glover, P. S. Negi, M. P. Misra and S. N. Gupta. Pp. 18. 1.4 rupees. Bulletin No. 7: Orpiment and the Iodine Value of Shellac. By M. Rangaswami and Dr. R. W. Aldis. Pp. 4. 8 annas. Bulletin No. 8: The Iodine Value of Shellac. By Dr. R. W. Aldis. Pp. 5. 8 annas. Bulletin No. 9: Comparative Study of Lac Hosts with Special Reference to *Acacia Catechu* and *Cassia florida*. By A. K. Thakur. Pp. 8. 8 annas. A Report on the State of Lac Cultivation and General Condition of the Lac Industry in Burma, 1931; with Appendices. By Dorothy Norris. Pp. 26. 8 annas. (Nankun, Ranchi.)

The Scientific Proceedings of the Royal Dublin Society. Vol. 20 (N.S.), Nos. 23 and 24: A Method for Automatically Recording the Oxygen Intake of Living Tissues, by Dr. T. A. Bennet-Clark; The Respiratory Quotients of Succulent Plants, by Dr. T. A. Bennet-Clark. Pp. 281-299. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 1s. 6d.

Transactions of the Royal Society of Edinburgh. Vol. 57, Part 2, No. 11: Studies in the Physiology of the Virus Diseases of the Potato; a Comparison of the Carbohydrate Metabolism of Normal with that of Leaf-Roll Potatoes. By Eustace Barton-Wright and Alan M'Bain. Pp. 309-349. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.) 5s.

Department of Scientific and Industrial Research. Third and Final Report of the Adhesives Research Committee. Pp. v+109+7 plates. (London: H.M. Stationery Office.) 2s. 6d. net.

FOREIGN

Malayan Forest Records. No. 10: Dipterocarpaceae of the Malay Peninsula. By F. W. Foxworthy. Pp. 289+24 plates. (Kuala Lumpur: Forest Department.) 3.50 dollars; 8s. 6d.

Agricultural Experiment Station: Michigan State College of Agriculture and Applied Science. Circular Bulletin No. 142: Common Diseases of Cereals in Michigan. By J. H. Muncie. Pp. 54. Special Bulletin No. 220: Comparisons of Methods of making Spray Applications. By H. A. Cardinell and H. P. Gaston. Pp. 25. Special Bulletin No. 222: Garden Roses. By C. E. Wildon. Pp. 47. Special Bulletin No. 224: Marl, its Formation, Excavation and Use. By S. G. Bergquist, H. H. Musselman and C. E. Millar. Pp. 34. Special Bulletin No. 225: Spinach Varieties. By Harm Drewes. Pp. 48. Technical Bulletin No. 121: Fermentation Studies with Soft Wheat Flours. By C. P. Wilsie, C. S. Robinson and O. B. Winter. Pp. 89. (East Lansing.)

U.S. Department of the Interior: Office of Education. Bulletin, 1931, No. 12: Research in Higher Education; Papers prepared for the First Regional Conference on Higher Education held under the joint auspices of the United States Office of Education and the University of Oregon, at Eugene, Oreg., April 14, 15 and 16, 1931. Pp. vi+133. Bulletin, 1932, No. 8: Safety Education; Helps for Schools in Constructing a Course of Study. By Florence C. Fox. Pp. iii+73. (Washington, D.C.: Government Printing Office.)

Publications of the Observatory of the University of Michigan. Vol. 4, No. 7: Atmospheric Pulsation in *Eta Aquilae*, Preliminary Results. By W. Carl Rufus. Pp. 101-108. Vol. 4, No. 8: Motions in the Atmosphere of *Eta Aquilae*. By David W. Lee. Pp. 109-128. Vol. 4, No. 9: The Light Curve of R Scuti, 1911-1931. By Ralph H. Curtiss. Pp. 129-138. Vol. 4, No. 10: The Light Variations of R Scuti from 1911 to 1931. By Dean B. McLaughlin. Pp. 135-149. Vol. 4, No. 11: Motions in the Atmosphere of *Zeta Geminorum*, Preliminary Results. By W. Carl Rufus. Pp. 151-162. (Ann Arbor.)

New York Zoological Society. Report of the Director of the Aquarium. Pp. 17. (New York City.)

Bernice P. Bishop Museum. Bulletin 92: Ethnology of the Tongareva. By Te Rangī Hiroa (P. H. Buck). Pp. iv+225+8 plates. Bulletin 93: Pteridophytes of the Society Islands. By Edwin Bingham Copeland. Pp. 86+16 plates. Bulletin 94: Report of the Director for 1931. By Herbert E. Gregory. Pp. 64. Occasional Papers, Vol. 9, No. 18: Fishes obtained at Samoa in 1929. By Henry W. Fowler. Pp. 16. Occasional Papers, Vol. 9, No. 19: Notes on *Pritchardia*. By Harold St. John. Pp. 5. (Honolulu.)

Norges Svalbard- og Ishavs-Undersøkelser: Skrifter om Svalbard og Ishavet. Nr. 87: Fazielle Verhältnisse des Mesozoikums im Eisfjordgebiet Spitzbergens; ein Beitrag zur Entwicklungsgeschichte des Skandika. Von Hans Frebold. Teil 1. Pp. 94+6 Tafeln. 8.75 kr. Nr. 39: Flowering Plants of Franz Josef Land collected on the Norwegian Scientific Expedition 1930. By Olaf Hansson and Johannes Lid. Pp. 42. 3.50 kr. Nr. 41: Lichens from North East Greenland collected on the Norwegian Scientific Expeditions in 1929 and 1930. By B. Lyngø and P. F. Scholander. Pp. 116+7 plates. 9.50 kr. Nr. 42: Beitrag zur Kenntnis der devonischen Fischfauna Ost-Grönlands. Von Anatol Heintz. Pp. 27+6 Tafeln. Nr. 43-46: Some Vascular Plants from South East Greenland collected on the Heimen Expedition in 1931, Preliminary Report, by Bjørn Bjørlykke; Vascular Plants from South East Greenland collected on the *Sigalhorn* Expedition in 1931, by Johannes Lid; Lichens from South East Greenland collected in 1931 on Norwegian Expeditions, by B. Lyngø; Beiträge zur Hieraciumflora Ost-Grönlands, von S. O. F. Omang. Pp. 8+12+15+5. 4.00 kr. Nr. 47: A Revision of the Genus *Rhizocarpon* (Ram.) Th. Fr. in Greenland. By B. Lyngø. Pp. 80. 2.00 kr. Nr. 48: Vascular Plants from Erik Raude's Land. By Jakob Vaag. Pp. 87+3 plates. 7.00 kr. Nr. 50: Détermination astronomique de Mygg-Bukta au Groenland Oriental. Par Hans S. Jelstrup. Pp. 44. 3.75 kr. (Oslo: Jacob Dybwad.)

Ministry of Agriculture, Egypt: Technical and Scientific Service. Bulletin No. 106: Cercospora Disease of *Calotropis procera*. By Dr. R. M. Natras. Pp. 6+7 plates. (Cairo: Government Press.) 3 P.T.

CATALOGUES

The B.D.H. Book of A.R. Standards. Second and revised edition. Pp. xii+194. (London: The British Drug Houses, Ltd.) 2s. 6d. net. Books on all Technical Subjects and Applied Science. (Catalogue of Dept. 7.) Pp. 104. (London: W. and G. Foyle, Ltd.)