

The Surface of the North American Continent

ON March 22, 1837, the Geological Society listened to a paper by Mr. Roy entitled "On the supposed ancient state of the North American continent, especially on the extent of an inland sea, by which a great portion of its surface is conjectured to have been covered". The author, who had been employed on extensive surveys in the Lake District of North America, found on drawing sections for professional purposes that the country everywhere exhibited successive ridges which encircled the lakes; and upon comparing sections to the north of Lake Ontario with others to the south, that the ridges exactly corresponded in elevation. The highest of these ridges is 996 ft. above sea-level or 762 ft. above that of Lake Ontario. Connecting this elevation with the physical features of the valleys of the Mississippi and Missouri, Mr. Roy supposed that the whole area from the Rocky Mountains to just below Quebec down to the Gulf of Mexico formed one vast inland sea 960,000 square miles in area.

British Railways

In a notice in the *Athenæum* of March 25, 1837, of F. Wishaw's "Analysis of Railways", the following quotation from the book was given: "The number of proposed Railways, including Diversions, Extensions and Branches in England and Wales, for which plans have been lodged in the Private Bill Office in the present Session, is seventy-five, of which only forty-eight are under the consideration of Parliament; these amount in length to 1233 miles, and are estimated at the sum of £19,352,726 or £15,625 per mile. The whole length of tunnelling is twenty-five miles and the number of bridges, exclusive of viaducts and culverts, 2,825 or nearly two and a third per mile. The weight of iron required for the rails is 193,500 tons, and of stone for the blocks 2,670,000 tons. The area of the land is upwards of 1,500 acres; and of felt for the chairs 130 acres. These Railways, if carried into execution, would employ at least 5,000 men and 1,500 horses for three years for the earth-works alone."

Dumont D'Urville's Voyage in the *Astrolabe*

In the *Nautical Magazine* of 1837, it is stated: "The king of the French has by a decision of the 26th March approved of a proposal for a new voyage round the world, the conducting of which is to be confided to M. Dumont D'Urville. Two vessels will be employed in this expedition; the *Astrolabe*, commanded by Captain D'Urville and the *Zeelee* by Captain Jacquinot. Leaving Toulon about the middle of September, they will proceed due south to the polar sea to pursue Weddel's track, who it will be remembered reached the latitude of 74° 15'. The vessels will penetrate as far south as possible and return to the Magellan Straits. In the spring of 1838 they will leave Valpairaso for the Polynesian Archipelago, and in June will be at Vavoo, where M. D'Urville will finish the work left undone by the *Astrolabe* in 1827. They would then visit in turn Banks Island, the Solomon Islands, the Dutch Settlements in Aroo and Key Islands, Amboina, New Holland, Tasmania, New Zealand, Borneo, Sumatra and return home by the Cape. Commenting on the announcement the *Nautical Magazine* said: "We look on this as a most interesting expedition and one that will yield important results. We cannot, however, but regret to see so extensive and important

an island as New Guinea, left year after year, in its original neglected condition and with but little addition to its coasts since the time of Dampier."

Jean Sebastian Cesar Dumont D'Urville, who was born on May 23, 1790, had circumnavigated the globe under Captain Duperrey (1756-1865) in the *Coquille* in 1822-25. Promoted to captain, in this ship, renamed the *Astrolabe*, he left Toulon in April 1826 and proceeded to the Pacific, returning in March 1829. His third voyage began on September 7, 1837. After his return home he began the publication of the results of his voyage and had completed the second volume, when on May 8, 1842, with his wife and son, he was killed in a railway accident on the line from Paris to Versailles.

Societies and Academies

Dublin

Royal Dublin Society, February 23

J. BREEN, G. M. KENNEDY, J. KEANE and T. J. NOLAN: Chemical constituents of lichens found in Ireland—*Lecanora sordida*. *Lecanora sordida* was found to contain atranorin, chloratanorin, roccellic acid, and, in minor amount, a product similar to thiophanic acid and containing fourteen per cent chlorine. Roccellic acid, $C_{17}H_{32}O_4$, was established by synthesis as α methyl α' dodecyl succinic acid.

J. W. PARKES, W. S. HAMILTON, E. J. SHEEHY, P. A. MURPHY, G. SHERRARD, M. J. GORMAN, D. MELLON and T. O'CONNELL: A symposium on fertilizers.

Paris

Academy of Sciences, February 15 (*C.R.*, 204, 457-532).

JACQUES HADAMARD: Observations on notes by Destouches and by Appert. These authors have arrived independently at the same results. The present note raises a question of nomenclature.

ARMAND DE GRAMONT and DANIEL BERETZKI: The determination of the surface of a piezo-electric plate as a function of its frequency.

MARCEL LINSMAN: Real left arcs and curves of the fourth order.

L. KANTOROVITCH and E. LIVENSON: Some theorems concerning the theory of projective ensembles.

JEAN DELSARTE: A generalization of Taylor's formula.

LAURENCE C. YOUNG: A generalization of the idea of variation of the p th power in the sense of Wiener, and on the convergence of Fourier's series.

JOSEPH BARTA: The fundamental vibration of a membrane.

F. GRUSON: The representation of the ground in aerodynamic trials of vehicles.

SVETOPOLK PIVKO: A rational definition of the quality of supporting helices.

LÉOPOLD ESCANDE and GEORGES SABATHE: Remarks on the calibration of hydrometric velocity meters by displacement in a confined medium. Study of the effects of the transversal dimensions of the channel in which the instrument is moved.

DIMITRY PANOFF and PAUL RIZ: An apparatus for recording the deformations and vibrations of an aerial screw during flight.

MLLE. PAULETTE FÉVRIER: The uncertainty relations of Heisenberg and logic.

JEAN ROUBAUD-VALETTE: The relations between the polarisation of a photon and the spins of constituent corpuscles.

J. J. PLACINTEANU: The properties of the electronic photon.

R. BERNARD: The influence of pressure on the function of stimulation of bands of the ionized nitrogen molecule.

MARCUS BRUTZCUS: The intrinsic values of the linkages (C—O) and (C—H) in hydrocarbons.

RENÉ DELAPLACE: The vapour pressure of saturated and unsaturated hydrocarbons at low temperatures. The method is based on previous work on the conductivity of gases under low pressures. Vapour pressures of nine gases are given over a temperature range of from -120°C . to -196°C .

PIERRE VALLET: A tetrahydrate of zinc sulphate.

MARCEL PATRY: The action of alcohol on aqueous solutions of potassium tellurate.

JEAN MARIE MERCIER: A double bromide of iron and ammonium. The double bromide $\text{NH}_4\text{FeBr}_3 \cdot 6\text{H}_2\text{O}$ was isolated; it gave a characteristic X-ray diagram, differing from those of its constituents.

PANOS GRAMMATICAKIS: The action of mixed organo-magnesium compounds on the phenylhydrazones of ketones. A new mode of action of mixed organo-magnesium compounds.

MAURICE MARIE JANOT and THÉODOR TOMESCO: The hydrogenation of some glucosides by active nickel. Details of the hydrogenation in the presence of Raney nickel of eleven glucosides.

GEORGES DARZENS: A new contribution to the synthesis of glycerol. The starting point is ethoxy-acetic ester, and the series of reactions proposed give good yields throughout.

MAXENCE MEYER: Two new ethylenic aldehydes.

RENÉ PERRIN: Non-metallic meteorites can give no information on the nature of stony rocks.

Mlle. FERNANDE FLOUS: The evolutive characters of the cone of the Abietinæ.

MME. H. HOCQUETTE: Considerations on the Anabacoliolum of the guinea pig and the rabbit.

MARIUS CHADEFAUD: Intranuclear cyclosis in the basidium of certain Hymenomyces.

ALBERT BERTHELOT and Mlle. GERMAINE AMOUREUX: The sensibility of some aseptic seedlings to some carcinogenic substances.

CONSTANTIN DAWYDOFF: The supposed metamorphosis of the larvæ of the Hexacorallæ.

CHARLES LAPICQUE: The coloration of retinal images and chromatism in general.

RENÉ SALGUES: The elements of normal phosphatemia in amphibians and reptiles.

ALEXANDRE GOURÉVITCH: The distribution of flavin in the tissues of mammals, in relation with their residual respiration in the presence of cyanides.

MME. VÉRA DANTCHAKOFF: The effects produced by a dose of 0.05 mgm. of testosterone on the histogenesis of the female in the guinea pig.

Moscow

Academy of Sciences (C.R., 4, No. 8; 1936).

S. SOBOLEV: A direct method for the solution of polyharmonic equations.

P. L. KALANTAROV: Fundamental values in the study of electromagnetism phenomena.

I. A. KHVOSTIKOV and A. N. SEVČENKO: Application of the polarimetric method to the study of the upper layers of the atmosphere.

A. E. FAVORSKIJ and P. A. TIKHOMOLOV: The problem of mutual influence of radicals on their migration. (2) Dehydration of tertiary phenylhexylcarbinol.

F. M. ŠEMIÁKIN and A. I. LAZAREVA: Investigation of the reaction in which magnesium hydroxide is produced in gelatine.

A. V. FROST, D. M. RUDKOVSKIJ and E. K. SEREBRĀKOVA: Reversible catalytic conversion of *n*-butylenes into isobutylene.

B. L. ISAČENKO and N. N. MALČEVSKAJA: Biogenic spontaneous heating of peat.

I. A. GOLJANIZKIJ and K. A. BRJUŠKOVA: Vitamin C (*l*-ascorbic acid) in tea.

V. GLIVENKO: Mendelian algebra.

L. V. POLEŽAEV: Determination of initial stages in the development of extremities in amphibians.

Sydney

Royal Society of New South Wales, October 7.

M. D. GARRETTY: Some notes on the physiography of the Lake George region, with special reference to the origin of Lake George. Following the work of Taylor in 1907, Lake George, New South Wales, has long been held to have had its origin in recent normal faulting along its western shore. The streams to the east were betrunked, deprived by the fault scarp of their connexion with the Murrumbidgee System, and impounded to form the lake. In the present paper the pertinent physiography of the region is described, and the tectonic origin of the western escarpment questioned. An alternative explanation for the lake based on normal stream development and gentle warping is submitted.

November 4.

D. P. MELLOR and H. MULHALL: The electrode potential of thin films of zinc on platinum. An attempt is made to determine the minimum thickness of zinc when plated on platinum to produce the same electrode potential as the massive metal. Experimental results indicate that it is impracticable to answer this question definitely.

R. LEMBERG and R. A. WYNDHAM: Some observations on the occurrence of bile pigment hæmochromogens in Nature and on their formation from hæmatin and hæmoglobin. Observations are dealt with on the formation of bile pigment hæmochromogens by autoxidation of hæmatin in presence of nitrogenous compounds and reducing substances, on their occurrence in Nature, and on the removal of iron from them. Verdohæmochromogens are found in catalase preparations from horse liver, in preparations of cytochrome *c* from yeast and (in traces) in extracts from blood of horse and pig. Verdohæmochromogens have to be considered as intermediate products of physiological bile pigment formation. Cytochrome a_2 is probably a biliviolin hæmochromogen.

ALMA G. CULEY and GERMAINE A. JOPLIN: Evidence of magmatic stoping in a dyke at Hartley, N.S.W. Field evidence is based on the facts (1) that the dolerite of the dyke follows prominent joint planes in the granite which it intrudes, (2) that inclusions of granite occur in the dolerite, and (3) that a small tongue or vein of dolerite surrounds a block of granite which is incompletely rifted off. This is probably the only recorded example of stoping in a small dyke. It is of interest, as emplacement of

small intrusions is usually attributed to the lateral displacement of wall-rock.

A. BOLLIGER: Chemistry of Jaffe's reaction for creatinine. Jaffe's reaction, that is, the interaction of creatinine and picric acid in an alkaline medium, was studied. If this reaction is executed in alcohol, an orange-red crystalline compound can be obtained which consists of one molecule of creatinine, one of picric acid, and two of sodium. This substance may be responsible for the red colour obtained in Jaffe's reaction. The chemical constitution of this compound has been considered to be that of an organic molecular complex between sodium picrate and 'sodium creatinine'. On treatment with acid it furnishes a red isomer of creatinine picrate.

E. H. BOOTH: Some observations of zonal discordance in diurnal magnetic variations. Sets of readings have been (and are being) taken at the station "Hills and Dales", Mittagong, a district where the magnetic variations from point to point are small, for comparison with concurrent readings at the magnetic station of the Victorian Government at Toolangi. "Hills and Dales" is on the side of the magnetic mass of the "Gib", a syenite hill rising 800 feet above the surrounding country; so that it is both on a magnetized body and on a prominence. The results, after full correction, show that though there is generally fair co-ordination with Toolangi readings, the "Hills and Dales" readings are often swinging in a direction opposite to those of the Victorian station, and sometimes show magnetic fluctuations twice as great as those occurring at the same time at Toolangi even when atmospheric conditions are not abnormal. The conclusion is drawn that it is not safe to accept the variations at an established magnetic station to apply as corrections to a survey over magnetic prominences.

M. D. GARRETTY: Geological notes on the country between the Yass and Shoalhaven Rivers. The regional geology of about 1,600 square miles of country on the southern tablelands of New South Wales is briefly described. Probable representatives of the Upper Ordovician, Lower and Upper Silurian, Middle and Upper Devonian, Kamilaroi and Tertiary systems occur. Granites of epi-Silurian and epi-Devonian age cover considerable areas, and associated with them are examples of differentiated and hybrid rocks. The general structure of the region is discussed.

Vienna

Academy of Sciences, December 3.

E. DITTLER and A. HOFMANN: Substitution of the group (Mg₂) by (LiAl) in magnesium silicates.

W. J. MÜLLER: Local current theory of metal potentials (2). Metal potentials in oxidizing solutions.

J. LINDNER, W. WIRTH and B. ZAUNBAUER: Aromatic halogen phosphine and its suitability for gravimetric analysis of water.

O. KRATKY and G. GIACOMELLO: Crystal structure of paraffin carboxylic choleic acid.

H. DOSTAL: Fundamentals of the kinetics of mixed polymerizations.

HANS SEELMEIER: Upper Silurian graptolites of the Gugel (Carnic Alps).

OTMAR M. FRIEDRICH: Mineralization of the Noek region.

KARL PRZIBRAM: Red fluorescence band of divalent samarium. The red fluorescence, observed in many fluorites after irradiation with radium, is shown to be due to traces of samarium.

LEONORE BRECHER: Coloration of the chrysalides of the cabbage white butterfly, *Pieris brassicae* L., and of the vanessæ, *Vanessa io* L. and *V. urticae* L. The effect of severing various nerves on the adaptation of the colour of the chrysalis to its surroundings is studied.

MARTHA GEIRINGER: Adrenalin as a synergist of thyroxin in the metamorphosis of toads (*Bufo vulgaris* Laur.).

JOSEF GLASER: Innervation of one or two legs grafted on *Dixippus morosus* Br. and Redt.

December 10.

ERWIN KAMPTNER: Coccolites of the south-west coast of Istria.

F. BUKATSCH: Influence of salts on the production of light by bacteria. Addition of salts increases the production of light, not by increasing the number of cells, but by increasing the light production of the individual cell.

Forthcoming Events

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

Monday, March 22

VICTORIA INSTITUTE, at 4.30.—Rev. T. E. R. Phillips: "Some Recent Views of the Universe and their Reactions on present-day Thought".

ENGINEERS' STUDY GROUP, at 7.30—(at 23, Grosvenor Place, S.W.1).—Prof. R. A. Fisher, F.R.S.: "Family Allowances".*

Tuesday, March 23

HOUSE OF INDUSTRY LEAGUE, at 8.15—(Essex Hall, Essex Street, Strand, W.C.1).—Dr. V. Cofman: "The Scientist's Task in the New Order".*

Wednesday, March 24

INSTITUTION OF CHEMICAL ENGINEERS, at 6—(at the Chemical Society, Burlington House, W.1).—Dr. D. Hunter: "Prevention of Disease in Industry".

Appointments Vacant

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:

SCIENTIFIC OFFICERS (radio and line communication), JUNIOR SCIENTIFIC OFFICERS (radio and line communication) and ASSISTANTS (Grades II and III—physics or electrical engineering) at the Bawdsey Research Station, Bawdsey Manor, Woodbridge, Suffolk—The Superintendent, Bawdsey Research Station, Bawdsey Manor, Woodbridge, Suffolk (March 22).

JUNIOR ASSISTANT ENTOMOLOGIST (sugar beet pests) in the School of Agriculture, Cambridge—The Secretary (March 30).

PRINCIPAL of the Huddersfield Technical College—The Director of Education, Education Offices, Peel Street, Huddersfield (March 31).

LECTURER IN MATHEMATICS in the Sir John Cass Technical Institute, Jewry Street, Aldgate, E.C.3—The Principal (April 3).

HEAD OF THE MECHANICAL ENGINEERING DEPARTMENT in the Rutherford Technical College—The Director of Education, City Education Office, Northumberland Road, Newcastle-upon-Tyne (April 7).

LECTURER IN CHARGE OF THE DEPARTMENT OF BOTANY in University College, Leicester—The Registrar (April 10).

PRINCIPAL AND HEADMASTER of the Gravesend Technical Institute and Junior Technical School—W. A. Clench, Bank Chambers, Windmill Street, Gravesend (April 10).

LECTURER IN GEOLOGY in the University of Birmingham—The Secretary (April 10).

CURATOR of the Nottingham Natural History Museum—The Town Clerk, The Guildhall, Nottingham (April 12).

ASSISTANT KEEPERS OF ZOOLOGY AND MINERALOGY in the British Museum (National History), S.W.7—The Secretary (May 1).

ASSISTANT CHEMIST for the Colne Valley Water Company—The Chief Engineer, Colne Valley Water Co., Aldenham Road, Watford, Herts.