

Birthdays and Research Centres.

May 24, 1855.—Dr. A. C. HADDON, F.R.S., formerly reader in ethnology in the University of Cambridge.

At present I am engaged in compiling published and unpublished information concerning the sea canoes of Melanesia, New Guinea, and North Queensland. The original craft are, in many areas, fast disappearing or becoming modified, and in some places have quite disappeared. Not only do these canoes often exhibit remarkable technical skill and adaptability to local circumstances, but also considerable diversity. The distribution of the various types and details of construction of these vessels is worth recording, since these were the means by which the various migrations and culture-drifts have spread over western Oceania. The names for canoes and their various parts are significant in this connexion. Very little has been recorded about the traditional relation between definite types of canoes and culture-heroes or culture-drifts. It is hoped that a foundation will be provided upon which other ethnologists may build.

May 24, 1860.—Prof. A. SMITHELLS, F.R.S., director of the Salters' Institute of Industrial Chemistry and emeritus professor of chemistry in the University of Leeds.

So far as research work is concerned, I continue with the study of some flame problems and, with a long-standing connexion in the gas industry, with scientific investigations relating to the carbonisation of coal and the use of gaseous fuel. The advances that are being made by this branch of our fuel industries in the application of science to its technical problems, and the results which have accrued from industrial research conducted by the gas industry and the benzol industry in association with the University of Leeds, are, I think, notable. The national importance of directing research to fuel problems on every side scarcely needs emphasising in the columns of NATURE.

May 25, 1858.—Sir HENRY MIERS, F.R.S., honorary professor of crystallography and lately vice-chancellor of the University of Manchester.

The splendid results of X-ray methods will not, I hope, distract attention from two promising lines of research in mineralogy and crystallography. (1) Experimental mineralogy: that is, the artificial production of minerals, both rock-forming and others, and the study of their origin and transformations. The lack of a geophysical laboratory in Great Britain has long been deplored. (2) Crystal growth: that is, the study of the conditions which prevail in and upon the surface of the growing crystal; these determine its actual form; perhaps also its external symmetry, as some believe.

May 25, 1865.—Prof. P. ZEEMAN, For.Mem.R.S., professor of experimental physics in the University of Amsterdam.

My co-workers and I are at present most interested in the experimental study of the influence of magnetic fields on the hyperfine structure of spectrum lines. Values of the mechanical moment of the atomic nucleus obtained from such magneto-optical resolutions are among the most important data for the further development of the quantum theory. A second line of work, concerning the more detailed analysis of the light given out by positive rays, which, as Stark and Lunelund have shown, is partially polarised, is in the charge of Miss W. Lub. An ex-

tensive study, made in my laboratory, of the magnetic resolutions of the spectra of the ionised noble gases, will soon be published by Mr. Bakker.

Constant progress is being made in the analysis of different spectra, especially by Dr. de Bruin.

May 28, 1861.—Dr. H. R. MILL, vice-president and formerly librarian of Royal Geographical Society and president of Section E (Geography) of the British Association in 1901, past-president of Royal Meteorological Society and Director of British Rainfall Organization.

I worked long at researches preliminary to the construction of an accurate map of the normal annual rainfall of the British Isles, and I hope that the work will be continued and completed by better equipped and more fortunate investigators.

The practical problem present to my mind is to draw isohyets of the average annual precipitation from air currents impinging horizontally on land slopes. Such a map would express exactly the control of a mobile distribution by crustal configuration, undisturbed by the sporadic precipitation produced by ascending air-currents of purely aerological origin occurring in cyclones, squalls, and thunderstorms. Centuries of observations would be required to produce a map of total rainfall in which such sporadic splashes would be smoothed out; but I believe that a method of eliminating these irregularities in shorter periods might be deduced from the study of very detailed maps of individual showers together with equally detailed synchronous maps of atmospheric pressure.

May 29, 1882.—Prof. H. BATEMAN, F.R.S., professor of mathematics, physics, and aeronautics in the California Institute of Technology, Pasadena, California.

My chief investigation now in progress is on reflection at an absorbing wall of the sound from a point source.

Societies and Academies.

LONDON.

Royal Society, May 7.—M. D. Waller: (1.) The measurement of actinic erythema produced by ultra-violet radiation with special reference to the latent time. Consistent results regarding the biological action of ultra-violet radiation, as measured by the resulting skin erythema, can be obtained provided certain precautions are taken. The latent time of erythema, which may vary from about one to seven hours, according to the length of exposure, provides the most accurate and simple way of estimating the effect of ultra-violet radiation on the skin, and it is easily measured. When it is desired to get the maximum contrasts due to differing conditions of radiation, exposures should be chosen which will lie on the steep part of the curve, corresponding to rapid variations of the latent time with exposure and to slight erythemas which will differ even visually one from another more than will deep erythemas.—(2.) The relation between energy doses of ultra-violet radiation and actinic erythema produced. Particular attention was paid to the question of how the intensity of the radiation decreases with the distance from the source. The intensities were varied over wide limits (200:1) corresponding to distances varying from 40 cm. to 5.5 m. The effect of a given dose of the weak intensity is just as great as that of the most powerful intensity used, and it is concluded that the production of erythema follows the Bunsen-Roscoe law for a

photo-chemical action, that is, the time factor is unity.—**J. W. Tudor Thomas**: On the return of sensitiveness in corneal grafts in rabbits. In a series of experiments on corneal grafting, some of the grafts became sensitive and others did not. The results of 29 experiments are analysed. Some of the grafts were central in position in the cornea, others marginal. Some remained or became clear; others became more or less opaque, while one exhibited a central clear area. The establishment of an afferent nerve supply to a corneal graft depends upon a precedent or concurrent growth of blood vessels in that graft. It does not seem to be necessary that the blood vessels should accompany or take the same path as the afferent nerves that grow in from the surrounding tissue.—**G. E. Briggs and A. H. K. Petrie**: Respiration as a factor in the ionic equilibria between plant tissues and external solutions. The conductivity of water containing slices of tissue from carrot root rises at first and then falls to a steady value, which is maintained as long as the tissue is alive. The rate of evolution of carbon dioxide by the system follows a similar course to that of the conductivity. Theoretical consideration shows that variations in the rate of production of carbon dioxide by the tissue will be accompanied by similar changes in the concentration of hydrogen ions in the tissue. This will result in changes in the degree of ionisation of indiffusible substances, such as proteins, with consequent changes in the distribution of diffusible ions, such as K and Cl, between the tissue and the external solution. The final result of this chain of events will be a parallelism between rate of production of carbon dioxide and conductivity of external solution.—**McKeen Cattell, T. P. Feng, W. Hartree, A. V. Hill, and J. L. Parkinson**: Recovery heat in muscular contraction without lactic acid formation. Muscles poisoned with iodo-acetic acid contract without producing lactic acid. Functional recovery in oxygen after stimulation can be demonstrated under certain conditions in such muscles. The persistence of this 'recovery' heat suggests that one effect of iodo-acetic acid is to interfere with the mechanism by which energy released in oxidation can be employed in driving the endothermic reactions necessary for functional recovery; it does not interfere with oxidation as such. Normal muscles stimulated to extreme exhaustion have a 'recovery' heat only about one quarter of its usual value in relation to the initial heat. Possibly in normal muscles pushed to extreme exhaustion, as in muscles poisoned with iodo-acetic acid, one reason of incomplete recovery is that phosphate set free by the breakdown of creatine-phosphoric acid is 'side-tracked' as hexose phosphoric ester and so cannot be recombined with creatine.—**A. G. R. Whitehouse**: Further investigation of sweating and sweat. For a given rise in body temperature, sweating is facilitated by the performance of muscular work when compared with sweating produced by the same rise in body temperature with the subject at rest. Some product of muscular metabolism is responsible for this, though the connexion may be a less direct one. The performance of a moderate amount of work would seem to be accompanied by little rise in the chlorine concentration of the sweat, although a marked increase with time, indicative of fatigue of the sweat-glands, is evident when the subject is at rest and the sweating is simply due to the wet-bulb temperature of the surrounding air. A progressive decrease in the proportion of organic matter to ash is observed as the sweating continues. The chlorine concentration, and also the ratio of chlorine to potassium in the sweat, is found to vary for different individuals.—**R. Snow**: Experiments on growth and inhibition (2). In decapitated pea seed-

lings, which have produced two equal shoots springing from the axils of the cotyledons, if one of the shoots is deprived of its leaves until only those of 1 mm. or less remain, it is rapidly arrested in growth and finally killed. This effect must be due to inhibition coming from the other shoot. The influence coming from developing leaves kills (directly or indirectly) those shoots or parts of shoots that are not in the line between developing leaves and roots and in which it travels towards the apex, and this fact also suggests that it is of a polar nature.

Geological Society, April 22.—**H. H. Thomas and W. Campbell Smith**: Xenoliths of igneous origin in the Trégastel-Ploumanac'h granite, Côtes-du-Nord, France. In the neighbourhood of Trégastel, a red porphyritic biotite-granite crops out along the coast and forms the rising ground for several miles inland. In parts, this granite is remarkable for the abundance of xenoliths which it contains. Some of these are of sedimentary origin, but the majority are of the kind usually referred to as 'basic segregations'. The occasional presence of large feldspars in the xenoliths is discussed, and the authors are of opinion that these are xenocrysts and have not grown in place. Evidence is produced to show that the basic mass from which the xenoliths were derived was most probably part of the roof of the granite.—**C. I. Gardiner and S. H. Reynolds**: The Loch Doon 'granite' area, Galloway. The plutonic rocks are almost everywhere surrounded by high hills composed of metamorphosed Ordovician sediments. Analyses were prepared by Mr. E. G. Radley of each of the three rock-types. The most interesting problem concerning the plutonic mass is to determine the mutual relations of the rocks and to ascertain whether their different varieties may be considered to have arisen by differentiation subsequent to intrusion, or whether the facts point to each of the three rock-types being a separate intrusion. The authors believe the latter to be the true explanation. No evidence was found of contamination of the igneous magma by the incorporation of sedimentary material.

PARIS.

Academy of Sciences, April 7.—**Charles Camichel and Léopold Escande**: An experiment of Joule concerning the mechanical equivalent of heat.—**A. Gelfond**: The order of $D(\lambda)$.—**G. A. Boutry**: Cycles and lag in photoelectric cells with a gaseous atmosphere.—**J. Barbaudy and A. Petit**: Study of the buffer effect in nickel-plating baths.—**E. Herzog and G. Chaudron**: The protection of iron plunged into aerated saline solutions and the realisation of an Evans battery.—**L. Meunier and M. Lesbre**: The action of electrolytes upon substantive colouring matters.—**H. Forestier**: The ferrites: the relation between their crystalline structures and their magnetic properties. The magnetic properties of the ferrites have been shown previously to fall into different groups. The X-ray study of the crystalline structure of these compounds proves a direct relation between the crystalline structure and the magnetic properties.—**Maurice Marie Janot**: Selareol and its derivatives. The formula $C_{17}H_{30}O_2$, provisionally given to the solid alcohol obtained from *Salvia sclarea*, is now found to be $C_{20}H_{36}O_2$. This results from a purer product and is confirmed by the preparation and analysis of a dihydrosclareol.—**Louis Lecoq**: The complex salts of gold and sodium derived from camphodithiocarboxylic acid.—**Acolat**: Physiological researches relating to the separation of the venous blood and arterial blood in the frog's heart. The peculiarities of the structure of the frog's heart described in an earlier paper

(*C.R.*, 192, p. 767) suggested that the separation of the two bloods in the ventricle is nearly complete. Confirmatory evidence is now given, based on the use of a coloured Ringer-Locke physiological liquid.—**R. Fabre and H. Simonnet**: Researches on beer yeast. The experimental conditions of its action on cystine.—**A. Boutroux**: The influence of lipoids on the separation of the proteins by neutral salts.—**Paul Durand**: *Rhipicephalus sanguineus* and the virus of the pustular fever of Tunis. In Tunis, as in the Midi (France), apart from any connexion with human cases, *Rhipicephalus sanguineus* can harbour the virus of pustular fever and keep it intact for several weeks.—**P. Delanoë**: The merion (*Meriones Shawi*) as a reservoir of the Moroccan spirochæte *Sp. hispanicum*, var. *marocanum*. Out of twenty-one merions, two were found to be infected, or about 10 per cent, but the exact proportion of infected merions can only be settled by further work. It is, however, certain that this rodent can be spontaneously infected by the Moroccan spirochæte.

GENEVA.

Society of Physical and Natural History, Dec. 20.—**L. A. Deshusses and J. Deshusses**: Estimation of the active principles of pyrethrum. The authors have studied pyrethrums of Swiss, French, Spanish, and Dalmatian origin, estimating the two active pyrethrins, which give a direct measure of the efficiency of pyrethrum insecticides. All these products contain about the same proportions of the active principles, the maximum having been furnished by French pyrethrum cultivated at Bossey (Haute-Savoie) and at Montpellier. For each of these products, the fully opened flower always gives a much higher percentage than the half opened flower, and the latter more than the closed flower.—**E. Cherbuliez, F. Neumeier, and H. Lozeron**: Some synthetic substituted ephedrins. The authors give results of a pharmacological study of some synthetic derivatives of ephedrin, showing how the specific action of this alkaloid is profoundly modified by slight changes of constitution.—**E. Cherbuliez and M. Schneider**: The non-homogeneity of casein. Casein, hitherto considered as a homogeneous substance, has been separated by physical methods into at least two constituents. This necessitates a modification of the current views on the physiological formation of this important substance and on the phenomena of its precipitation by rennet.—**E. Cherbuliez**: The behaviour of two antipodes in an unsymmetrical solvent. The author has examined the behaviour of two antipodes in a solvent, constituted for the two antipodes dissolved by the same active substance. A difference between the properties of the two antipodes is not shown by the solubilities, but, on the other hand, racemisation in presence of the active solvent appears to lead to an active body, and this proves a difference in the reaction of the two antipodes in solution, in spite of the absence of chemical combinations in the ordinary sense of the word.—**R. Wavre**: A measure of the deformation of a fluid. By an analysis based on the functional calculus, the author expresses more exactly the ideas of the deformation of a fluid, in order to obtain more rigid definitions of the stability of the states of a system depending on an infinity of parameters. The object of this is to study the changes of form that the earth may have undergone in the course of ages, influenced as it is by the solar-lunar attraction.—**W. H. Schopfer**: An active substance found with maltose. Its physiological action. The author shows that along with maltose there occurs a nitrogenous impurity, probably a vitamin: it accelerates the development of fungi.

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Official Publications Received.

BRITISH.

- Proceedings of the Royal Society of Edinburgh, Session 1930-1931. Vol. 51, Part 1, No. 3: On some Problems involving the Persymmetric Determinants. By J. Geronimus. Pp. 14-18. 6d. Vol. 51, Part 1, No. 4: A Note on the Secular Changes of Rock Temperature on the Calton Hill. By Dr. F. J. W. Whipple. Pp. 19-24. 6d. Vol. 51, Part 1, No. 5: Secular Changes of Rock Temperature—Note on Dr. Whipple's Paper. By R. W. Wrigley. Pp. 25-26. 3d. (Edinburgh: Robert Grant and Son; London: Williams and Norgate, Ltd.)
- The Transactions of the Entomological Society of London. Vol. 79, Part 1, April 24. Pp. 247. (London.) 21s.
- Dove Marine Laboratory, Cullercoats, Northumberland. Report for the Year ending June 30th, 1930. Edited by Prof. Alexander Meek. (New Series 19.) Pp. 68. (Newcastle-on-Tyne: Armstrong College.) 5s.
- Government of India: Department of Industries and Labour (Public Works Branch). Irrigation in India: Review for 1928-29. Pp. 37. (Calcutta: Government of India Central Publication Branch.) 1.2 rupees; 2s.
- India: Meteorological Department. Scientific Notes. Vol. 1, No. 8: Monthly Normal Isobars and Wind-Roses at 0.5, 1, 2 and 3 km. above Sea-level over India and Neighbourhood. Pp. 109-112+48 plates. 4 rupees; 6s. 9d. Vol. 3, No. 20: Correlation between Rainfall in N.W. India and Height of Indus River at Bukkur. By Rao Saheb Mukund V. Unakar. Pp. 15-20+2 plates. 6 annas; 8d. Vol. 3, No. 21: Upper Air Circulation over India and its neighbourhood up to the Cirrus Level during the Winter and the Monsoon. By H. C. Banerjee and Dr. K. R. Ramanathan. Pp. 21-27+13 plates. 2 rupees; 8s. 6d. (Calcutta: Government of India Central Publication Branch.)
- Report of the Haffkine Institute for the Year 1929. By Major L. A. P. Anderson. Pp. 69. (Bombay: Government Printing and Stationery Office; London: High Commissioner for India.) 4 annas; 5d.
- Department of Scientific and Industrial Research. Building Science Abstracts. Vol. 4 (New Series), No. 3, March. Abstracts Nos. 397-584. Pp. 71-105. (London: H.M. Stationery Office.) 9d. net.
- University College of Wales, Aberystwyth. Leaflet Series S. No. 2: New Varieties and Strains from the Welsh Plant Breeding Station. No. 2: Pure Line Strains of Ceirch Llwyd (*Avena Strigosa*) and Ceirch-du-bach (*A. sativa*). By E. T. Jones. Pp. 26. (Aberystwyth.) 1s.
- The National Physical Laboratory. Report for the Year 1930. Pp. vi+295+16 plates. (London: H.M. Stationery Office.) 12s. 6d. net.
- Commonwealth of Australia. Fourth Annual Report of the Council for Scientific and Industrial Research for the Year ended 30th June 1930. Pp. 51. (Canberra: H. J. Green.)
- Report of the Twentieth Meeting of the Australian and New Zealand Association for the Advancement of Science, formerly known as the Australasian Association for the Advancement of Science. Brisbane Meeting, May-June 1930. Edited by Dr. D. A. Herbert. Pp. xiviii+596. (Sydney, N.S.W.: Australian and New Zealand Association for the Advancement of Science.)
- The University of Leeds: Department of Coal Gas and Fuel Industries. Report of the Livesey Professor (J. W. Cobb) for the Sessions 1928-29 and 1929-30. Pp. 15. (Leeds.)
- A 21 Years' Chronology of Textiles, 1910-1931. Pp. 67+51 plates. (Manchester: The Textile Institute.) 5s.
- The Empire Forestry Handbook, 1931. Edited by Fraser Story. Pp. 189. (London: Empire Forestry Association.) 3s. 6d.
- Stonyhurst College Observatory. Results of Geophysical and Solar Observations, 1930; with Report and Notes of the Director, Rev. E. D. O'Connor. Pp. xxv+49. (Blackburn.)
- McGill University Economic Studies: National Problems of Canada. No. 15: The Alberta Coal Problem. By Herbert Leighton Draper. Pp. 65+viii. 75 cents. No. 16: The Negro in Canada. By Ida Greaves. Pp. 79. 75 cents. (Grillia, Ont.: The Packet-Times Press, Ltd.)
- Commonwealth Bureau of Census and Statistics, Canberra. Official Year Book of the Commonwealth of Australia. No. 23, 1930. Prepared under instructions from the Minister of State for Home Affairs by Chas. H. Wickens. Editor: John Stonham. Pp. xxxii+806. (Melbourne: H. J. Green.) 5s.
- The Scottish Forestry Journal: being the Transactions of the Royal Scottish Forestry Society. Vol. 45, Part 1, March. Pp. xvi+121+26. (Edinburgh: Douglas and Foulis.) 7s. 6d.
- Royal Astronomical Society. List of Fellows and Associates, 1931. March. Pp. 54. (London.)
- Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1364 (Ae. 492—T. 3030): The 5-ft. Open Jet Wind Tunnel, R.A.E. By F. B. Bradfield. Pp. 11+11 plates. (London: H.M. Stationery Office.) 1s. net.
- Ministry of Transport. Report of the Committee on Main Line Railway Electrification, 1931. Pp. 57. (London: H.M. Stationery Office.) 3s. net.

FOREIGN.

- Agricultural Experiment Station, Michigan State College of Agriculture and Applied Science. Circular Bulletin No. 185: Chestnut Blight in Michigan. By D. V. Baxter and F. C. Strong. Pp. 18. Special Bulletin No. 207: Public Health and Educational Services in Michigan. By C. R. Hoffer. Pp. 34. Special Bulletin No. 208: Services of Institutions and Organizations in Town-Country Communities. By C. R. Hoffer and Margaret Cawood. Pp. 37. Special Bulletin No. 209: Consumer Demand for Apples in Michigan. By H. P. Gaston. Pp. 50. Special Bulletin No. 210: Corn Growing in Michigan. By H. C. Rafter and J. R. Duncan. Pp. 35. Special Bulletin No. 212: School Financing in Michigan; a Plan to Equalise the Burden. By F. M. Thrun. Pp. 79. Special Bulletin No. 213: Investigations with Oat Varieties and Diseases in the Upper Peninsula. By B. R. Churchill. Pp. 15. Technical Bulletin No. 110: A Contribution to the Bacteriology and Pathology of the Bovine Udder. By L. B. Sholl and J. P. Torrey. Pp. 31. (East Lansing, Mich.)
- Carnegie Institution of Washington. Classified List of Publications. Pp. 208. (Washington, D.C.: Smithsonian Institution.)