

Islands was discovered, though Carteret himself identified them wrongly. Carteret's most important discovery was that the strait between New Britain and New Ireland was a channel and not a bay, as Dampier had concluded. Other small islands were discovered and the south coast of Mindanao was examined, the *Swallow* returning home in 1769.

#### Aug. 13, 1829.—The North Magnetic Pole

Sir John Ross in the *Victory*, accompanied by his nephew, James Clark Ross, in a ship fitted up by Sir Felix Booth, reached Fury Beach, where Parry had abandoned the *Fury* in 1825. Their object was to find the north-west passage. In this they failed, but the land called Boothia in honour of Sir Felix Booth was discovered, and James Clark Ross, by means of sledge journeys, located the north magnetic pole in  $70^{\circ} 5' 17''$  N.,  $95^{\circ} 46' 53''$  W., on the western coast of Boothia. He also discovered and named King William Land and surveyed its northern shore. Their boat was frozen in during its first winter and the Rosses were unable to extricate it. They thus spent four winters in the region, when fortunately they were picked up by a whaling vessel in Lancaster Sound, which they had reached by boat. This whaler, the *Isabella*, was the same ship in which J. C. Ross made his first voyage to the arctic regions in 1818. J. C. Ross in 1839-43 did magnificent work in the antarctic. (See Calendar for Jan. 1.)

### Societies and Academies.

#### DUBLIN

Royal Dublin Society, May 24.—Irish Radium Committee Report for the year 1931. 16,756 millicuries of radon were issued during the year for therapeutic purposes. Detailed reports from some of the largest users record the results of the treatment of 400 cases.—J. Stuart Thomson: The anatomy of the tortoise. A study of the morphology of the closely allied species, *Testudo ibera* and *T. graeca*, system by system, in a way never attempted in a chelonian since the classic work of Bojanus on *Emys europæ* in 1819. The dissections of the vascular system from injected specimens, showing the complicated connexions of the arteries and veins related to the carapace, are some of the important features. Transverse sections of a six-weeks-old *Testudo* cut in celloidin are figured. The author recommends the importance of some dissections from the dorsal surface, after dissolving away the carapace with acid.—W. E. Abraham: Contact angles in an oil-water interface and their application to free flotation in the Weva inclinometer. In this instrument a floating magnet is used to determine the magnetic meridian. The magnet is encased in ebonite coated with gutta-percha, which lies in an oil-water surface in a containing glass vessel. As the water does not wet the gutta-percha, capillary repulsion ensures free rotation.—J. Lyons and G. T. Pyne: Factors affecting the body or viscosity of cream and relative matters. Data are presented to show the effect of separation temperature, previous chilling, and pasteurisation of milk, and re-separation of chilled pasteurised cream on the viscosity of the ultimate product.

#### EDINBURGH

Royal Society, June 20.—Pierre Rijlant: Automatism and conduction in the mammalian heart. The contraction of the heart starts in the sinus region. This initial activity is accompanied by mechanical and electrical changes limited to the sinus. The cathode ray oscillographic records of the pacemaker's

activity show a series of electric waves, each of them being localised to a limited region of the sinus. The initial wave appears in a limited spot situated at the venous side of the sinus and corresponding to the embryological remnant of the right duct of Cuvier. The transmission of this initial activity to the auricle occurs through a differentiated contractile conduction system. In the mammalian heart automatism and rhythmicity occur in a limited region with characteristic structure. These regions are contractile and their contraction is independent from that of the myocardium. Transmission occurs through a differentiated system which unites the different segments of the myocardium.—L. Hogben: Filial and fraternal correlations in sex-linked inheritance. When inheritance is sex-linked, the correlations of relatives differ from those based on the more typical mode of transmission, and differ according to the sex of the pairs. As compared with filial correlations of the Pearsonian type, the correlation for father and son is zero, for mother-daughter it remains unchanged, and for father-daughter or mother-son it is raised. The correlation for brother-sister is lowered as compared with Pearson's fraternal coefficient. For brother-brother it remains unchanged and for sister-sister it is raised. From the formulæ given it is seen that no comparison between twin correlation is valid unless the sex composition of the groups compared is identical. In addition, it is seen that a study of correlation between relatives classified in every possible way with respect to sex could provide a means of estimating the contribution of sex-linked genes to the observed variants in a population.—A. Graham: On the structure and function of the alimentary canal of the limpet. In *Patella vulgata* the radula, lubricated by the salivary secretion, scrapes the food particles, mainly diatoms and small algæ, off the rocks on which the animal is living, and conveys them to a ciliated food channel running down the fore-gut. Into this channel ciliary currents convey an amylolytic enzyme secreted by side folds in the same region. The mixture of food and enzyme is absorbed by absorbing cells in the digestive gland. The rest of the alimentary canal, of which five histologically different portions may be distinguished, is chiefly concerned with elaborating the waste matter into rod-shaped faecal masses.—S. M. K. Henderson: Notes on Lower Old Red Sandstone plants from Callander, Perthshire. South of Callander, plant-bearing flagstones occupy the centre of a great syncline, and are exposed in the area between the Rivers Teith and Forth. The following have been obtained from an exposure in the Tarr Burn at Ballanucater Farm: (1) *Pachytheca* sp.; (2) *Arthrostroma gracile*, Dawson; (3) *Psilophyton*, Dawson, and associated remains that may belong to the one plant. Those included under (3) may be grouped into (a) spiny stems, (b) slender spineless dichotomous branch-systems, (c) stout and slender branch-systems with axillary structures. The consideration of these remains has raised two questions: Does the association of plants of type (b) with those of type (a) indicate the appearance of *Hostimella*-like plants in the Lower Old Red Sandstone, or may they be classed under some such form as *Psilophyton goldschmidtii*? The second question concerns the demonstration of axillary structures in some of the branch-systems (c). Do they belong to spiny axes of *Psilophyton* type, or do they indicate the presence of another type that would have to be classed as *Hostimella* sp.?

#### PARIS

Academy of Sciences, June 20 (vol. 194, pp. 2181-2248).—H. Douville: Notice on the work of Albert de Grossouvre.—C. Matignon and M. Léon: The thermo-



chemistry of the calcium orthophosphates.—Louis Blaringhem: The inheritance of sex in meadow sage (*Salvia pratensis*). Although the author has been unable to establish a line of *S. pratensis* containing only female descendants, it is probable that in six generations the percentage of individuals of this sex could be raised to 90 per cent.—Jean Tilho was elected a member of the Section of Geography and Navigation in succession to the late General Ferrié. Jean Cabannes was elected *correspondant* for the Section of Physics.—Jean Bosler: The apparent rarity of hyperbolic comets.—A. Buhl: Multipoint movements corresponding to the Schrödinger equation written for the case of a single point.—C. Courty and C. Chéneveau: The direct measurement of the magnetic susceptibilities of liquids, by the Curie-Chéneveau magnetic balance. Data are given for carbon tetrachloride, chloroform, alcohol, and pyridine.—T. N. Panay: The realisation of a black body at the boiling point of metals. A method of obtaining black body radiators at fixed temperatures. Details are given of the construction of a black body radiator working at the boiling point of zinc.—J. Gilles: The variation in the wave-length of lines emitted by a copper arc of great intensity. The stability of the arc was ensured by using a brass anode and graphite cathode. Three wave-lengths were studied, 5218, 5153, and 5105. The last showed no change, but the first two showed displacements of the same order.—F. Wolfers: The possibility of a Compton effect in optics. From a mathematical study, the trajectories of the photons are reflected and refracted at the surface of separation of two media in such a manner that the frequency of the photons remains invariable. Hence in interference phenomena there is no difficulty due to the Compton effect.—Marcel Cau: The interpretation of the experiments of Pogány; the influence of the thickness.—S. V. Sze: The magnetic spectrum of the  $\beta$ -rays emitted by  $\text{ThC} + \text{C}' + \text{C}''$ . Details of measurements of 28 lines, half of which are new.—Mme. Irène Curie, F. Joliot, and P. Savel: Some experiments on the radiations excited by the  $\alpha$ -rays in light bodies. Experiments on the action of the  $\alpha$ -rays on lithium and beryllium.—Francis Perrin: The possible emission of demi-helions during certain induced radio-activities. The possibility of the existence of a demi-helion, resulting from the reunion of a proton and a neutron (mass 2, charge 1) is discussed, and some consequences deduced.—Pierre Dubois: The reduction of permanganate by manganese sulphate. Study of the variations in oxygen content of the precipitate produced by changing the amount of permanganate and the pH of the liquid.—M. Battagay and L. Denivelle: Amino-sulphonamide or sulphamide,  $\text{SO}_2(\text{NH}_2)_2$ .—P. Carré and D. Libermann: Thionylaniline as a reagent in organic chemistry. Its use for the characterisation of acids as anilides. Thionylaniline may serve to identify many acids as anilides. Cases are described for which the method is unsuitable.—Mailhe and Creusot: The thermal decomposition of isopentane in the presence of silica gel. At  $680^\circ \text{C}$ ., with silica gel as catalyst, for 15 seconds heating, isopentane gives 75 per cent gaseous products and 25 per cent liquid rich in ethylenic and aromatic hydrocarbons.—Paul Gauthier: Tints due to the pleochroism of crystals and of artificially coloured spherulites.—N. Stoyko: The periodic displacements of continents. A discussion of the periodic variations of longitudes of various observatories. The period of the variation is about eleven years, the same period as the sunspot variation.—Ernest Esclangon: Remarks on the preceding communication.—G. A. Nadson and C. A. Stern: The action at a distance of metals on micro-organisms. A continuation of previous work on the same subject. The action of the metal is stronger (that is, the colonies

developed are fewer) as the atomic number of the metal increases. The possible cause of this action is discussed; it is not due to the production of ozone or of hydrogen peroxide.—J. M. Lys: The composition and evolution of the reserves in *Cyclamen latifolium*.—E. Sollaud: The development of *Palæmonetes mesopotamicus* compared with that of other *circæo-Mediterranean Palæmonetes*.—Emile Terroine, Mlles. Marguerite Champagne and Gilberte Mourot: The distribution of the urinary type of nitrogenous metabolism in various species of mammals during the minimum of specific endogenous discharge.—Jules Amar: Conclusions on hydrothermal metabolism.—A. M. Monnier and H. H. Jasper: The action of the centres on the various characteristics of the nerve fibre. The analogy with electrotonus.—J. Lignières: The causes of the attenuation and exaltation of the aphthous virus. Recurrence in aphthous fever. The choice of virus for antiaphthous vaccination.

## MELBOURNE

Royal Society of Victoria, April 14.—G. F. Hill: Australian *Rhinotermes* (Isoptera). The first two species described, *Rhinotermes intermedius* Brauer and *R. reticulatus* Froggatt, are regarded as being specifically distinct, whilst the remaining hitherto described species, *R. breinli* Hill, is proposed as a subspecies of the former. Three new subspecies are described, namely: *R. intermedius seclusus*, *R. i. actuosus*, and *R. i. derosus*, as in the soldier caste (two forms) of Brauer's species. Comparative measurements of species and subspecies of *Rhinotermes* are given.—R. B. Withers: A new genus of fossil king-crabs. The author described a new genus and species of fossil king crabs, *Rutroclypeus junori*, from the Silurian, Kinglake West, Victoria. The relatively large dorsal shield and long tail spine are adaptations to the animal's burrowing habits.—C. W. Brazenor: A new record of a beaked whale (*Mesoplodon*) from Victoria. This is the first discovery of *Mesoplodon grayi* Haast on the Victorian coast. The upper half of a skull and two caudal vertebrae were found at Cape Schanck, near Flinders.

## ROME

Royal National Academy of the Lincei, Feb. 21.—U. Cisotti: Motion with 'wake' of a flexible profile; dynamic actions (2).—G. Abetti: Altitude of the chromosphere in 1931. For the mean height of the chromosphere during 1931, observations at Arcetri on 118 days give the value  $9.84''$ , whereas those at Madrid on 29 days give  $10.14''$ . The former indicate diminution of  $0.44''$  in comparison with 1930, and the latter an increase of  $0.33''$ , the latter result being probably due to the small number of observations made. As was previously noted, the value is highest at the poles and lowest at the equator. The observations at Arcetri, Catania, Madrid, and Zurich show that the total area of the prominences, measured in units of prominence, diminished by 68 from that of 1930, whilst for the preceding year the decrease was 291. In 1931 the maximum frequency of the prominences is shown in both hemispheres at latitude  $45^\circ$ , this being regarded as an indication of the commencement of a new cycle.—E. Paternò: (1) Cryoscopy and molecular weight of polymerides of carbohydrates. Cryoscopic determinations of the molecular weights of derivatives of cellulose and analogous products are regarded as valueless.—(2) Cellulose in Schweitzer's reagent. The preparation of a solution of cellulose in Schweitzer's reagent, without previous preparation of this reagent, is described. In this way a solution is obtained which is much richer in cellulose than those made in the ordinary way.—(3) Cellodextrin, amyloids, and pentosans.—L. Cambi, L. Szegö, and A. Cagnasso:



Magnetic behaviour of complex compounds. (4) Ferric *N:N*-dipropyl dithiocarbamates. The results now given refer to the di-*n*-propyl, *n*-propyl-isopropyl, and di-isopropyl compounds.—G. Andreoli: Reciprocal pairs of  $V_2$ : laws of duality of the linear and tangential metrics, of parallelism, and of metrisism. (1) Variational problems.—Patrick Du Val: Surfaces of one kind which are not bases for a system of quadrics.—Luisa Pelosi: Levi-Civita's parallelism.—C. Antoni and F. Zanelli: Investigations in the phytosterol group: Sterols of grape-seed oil. When the crude sterol product of grape-seed oil is subjected to acetylation and bromination according to Windaus's method, a single soluble bromo-acetyl derivative is obtained. The presence of stigmasterol and analogous sterols is thus excluded.—A. Corbellini and C. Pizzi: Stereoisomerism of 2:2'-disubstituted derivatives of diphenyl. The resolution of 2-[bisphenylmethoxy]-2'-diphenylcarboxylic acid into its optical antipodes is described.—Z. Jolles: Diazo-resins (1). Diazo-resins obtained, usually together with the corresponding aromatic hydrocarbons, from the normal diazohydrates of aniline, *m*- and *p*-toluidines, *o*- and *p*-anisidines, *o*- and *p*-phenetidines, *o*- and *p*-amino-benzoic acids, and  $\alpha$ -naphthylamine in presence of sodium hydroxide, are described. The nitrogen contents of the products are mostly in good agreement with those calculated from the equation (for aniline),  $4C_6H_5 \cdot N_2OH = C_{24}H_{16}ON_2 + H_2O + 3N_2$ . The resinification seems to result from internal oxidation of the diazo-compounds.—A. Rossi: Crystalline structure of praseodymium. X-ray examination by the powder method of a specimen of praseodymium (of 99.4 per cent purity) gives the value 1.62 for the axial ratio  $c : a$  and 3.657 A. for the side of the unit cell. The calculated density is 6.777, the experimental value being  $6.765 \pm 0.008$ . Good agreement is shown between the calculated and observed intensities of the spectral lines.—F. V. Madon and S. Goldberger: The adrenaline blood-sugar curve during fatigue and the potassium-calcium ratio. The experiments described were made on four individuals. Fatigue is accompanied by a marked increase (15-20 per cent) in the potassium content of the blood, the calcium content remaining constant. The influence of fatigue on the action of adrenaline on blood-pressure shows irregular and individual variations. The blood-sugar is, however, always markedly lower after labour than during rest.—A. Baroni: Existence of polythionic chlorides: determination of the refractive indices of solutions of sulphur in sulphur chlorides. Measurements have been made of the refractive indices of mixtures of sulphur with sulphur chlorides ( $SCl_2$  and  $S_2Cl_2$ ) heated to 100°, 150°, or 200°, and of the same mixtures after these have aged for about six months. The results render probable the existence of a polythionic chloride  $S_3Cl_2$ , and seem to exclude the existence, within this range of temperature, of compounds richer in sulphur.—G. Piccardi and A. Sberna: Molecular spectra and spectroscopic analysis. (3) Investigations on yttrium. Yttrium monoxide, YO, obtained by volatilising any yttrium compound, exists as such in the oxy-hydrogen flame, and yields a spectrum composed solely of bands of the monoxide and free from atomic lines. The orange and red regions show two systems of irresolvable narrow bands with origins at  $\lambda 5972$  and  $\lambda 6132$ , and a vast system of wide bands with origin at about  $\lambda 4817$ , these being resolvable into lines by a powerful apparatus.—G. Checchia-Rispoli: *Sanfilippaster*, a new genus of echinoids of the upper cretaceous.—Zippora Danin: Gaseous content of the cenobia of *Rivularia polyotis* (J. Ag.) Hauck. The gases secreted in these cavities are similar to those formed in the corresponding cavities of brown and green algae.

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## Official Publications Received

## BRITISH

- Journal of the Indian Institute of Science. Vol. 15A, Part 2: Chemical Examination of the Root-Bark of *Plumbago rosea*, Linn. By M. C. Tummin Katti and V. N. Patwardhan. Pp. 9-16. 8 annas. Vol. 15A, Part 3: Dilatometric Studies in Enzyme Action. Part 2: Contraction Constants of Enzyme-Substrate Reactions. By M. Sreenivasaya and H. B. Sreerangachar. Pp. 17-24. 12 annas. Vol. 15A, Part 4: Aryl Di- and Poly-Stibinic Acids; Distibinous Oxides and Distibino-Compounds. By Sohrab M. Mistry and Praphulla Chandra Guha. Pp. 25-40. 1 rupee. Vol. 15B, Part 2: Measurement of Power Factor and Loss in Dielectrics. By T. J. Mirchandani, G. Yoganandam, S. K. Roy and N. V. Narayanaswami. Pp. 17-32. 1.4 rupees. (Bangalore.)
- Transactions of the Institute of Marine Engineers, Incorporated. Session 1932, Vol. 44, No. 5, June. Pp. 219-270+xxxii. (London.)
- Journal of the Chemical Society. June. Pp. v+1641-1964+viii. (London: Chemical Society.)
- British Standards Institution. No. 458: British Standard Specification for Xyloles (Pure Xylole, 3° Xylole and 5° Xylole). Pp. 29. (London: British Standards Institution.) 2s. net.
- School Buildings. By John Sargent and A. H. Seymour. Pp. 30. (London: National Union of Teachers.)
- Proceedings of the Physical Society. Vol. 44, Part 4, No. 244, July 1. Pp. iv+439-528. (London: Physical Society.) 7s. net.
- Quarterly Journal of the Royal Meteorological Society. Vol. 58, No. 245, July. Pp. 217-320. 7s. 6d. No. 246: Report on the Phenological Observations in the British Isles from December 1930 to November 1931. By J. Edmund Clark, Ivan D. Margary, Richard Marshall and C. J. P. Cave. (No. 41.) Pp. 221-376. 3s. (London: Edward Stanford, Ltd.)
- British Empire Cancer Campaign. Ninth Annual Report of the Grand Council, presented at the Meeting held at the House of Lords, 11.7.32. Pp. 209. (London.)
- Proceedings of the Royal Society of Edinburgh, Session 1931-32. Vol. 52, Part 3, No. 14: The Faecal Pellets of the Anomura. By Hilary B. Moore. Pp. 296-308+2 plates. 1s. 6d. Vol. 52, Part 3, No. 15: A Study of the Tyrosinase of Potato Tubers. By Dr. Ian M. Robertson. Pp. 309-314. 9d. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.)
- Canada: Department of Mines: Geological Survey. Summary Report, 1931, Part C. (No. 2308.) Pp. ii+C93. Economic Geology Series, No. 10: Gold Occurrences of Canada; Summary Account. By H. C. Cooke and W. A. Johnston. (No. 2309.) Pp. iii+61. 20 cents. (Ottawa: F. A. Acland.)
- Annals of the (Mededelingen van het) Transvaal Museum. Vol. 14, Part 4. Pp. 251-430. (Pretoria.)
- Proceedings of the Sugar Cane Investigation Committee. Vol. 4, Part 1, June. Pp. 61. (Trinidad: Imperial College of Tropical Agriculture.)
- The Freshwater Biological Association of the British Empire. Report of the Council, 1932. Pp. 7. (Cambridge: J. T. Saunders, Hon. Sec., Christ's College.)
- Harper Adams Agricultural College, Newport, Shropshire. Pig Feeding Report No. 1: The Work of the Harper Adams College Pig Feeding Experimental Station, 1926-31. Pp. 44. (Newport.) 1s.

## FOREIGN

- Beiträge zur Natur- und Kulturgeschichte Lithauens und angrenzenden Gebiete. Herausgegeben von Prof. Dr. E. Stechow. Vegetationsstudien auf lithauischen und ostpreussischen Hochmooren. Von Dr. H. Reimers und Dr. K. Huseh. Pp. 409-494+12 Tafeln. Biologische und morphologische Notizen über den Kaukasuswiesent. Von E. W. Pfizenmayer. Pp. 497-504+3 Tafeln. Über die einstige Hege des Wisent im Urwalde von Bialowies; Über einige Muriden aus Lithauen. Von Prof. Dr. E. Stechow. Pp. 505-510+1 Tafel. Archäologische Untersuchungen im Urwalde von Bialowies. Von Prof. Dr. A. Götze. Pp. 511-550+10 Tafeln. Über Wachstums- und Altersveränderungen am Skelett des Wisents. Von Dr. Walter Koch. Pp. 553-673+3 Tafeln. Vorwort und Inhaltsverzeichnis. Pp. viii+1 Tafel. (München: Bayerische Akademie der Wissenschaft.)
- Proceedings of the United States National Museum. Vol. 80, Art. 22: New West Indian Cerambycid Beetles. By W. S. Fisher. (No. 2922.) Pp. 93. (Washington, D.C.: Government Printing Office.)
- Agricultural Experiment Station: Michigan State College of Agriculture and Applied Science. Circular Bulletin No. 141: Some Chewing Insects infesting Michigan Evergreens. By E. I. McDaniel. Pp. 54. Circular Bulletin No. 143: The Construction and Management of Air-Cooled Storages with Special Reference to Apples. By Roy E. Marshall. Pp. 43. Special Bulletin No. 221: Controlling the Codling Moth in Southwestern Michigan. By Franklin Sherman III. Pp. 31. Special Bulletin No. 223: Bald Rock Wheat. By E. E. Down and H. M. Brown. Pp. 19. Technical Bulletin No. 122: The Dissociation of *Salmonella typhimurium* and related Species. By W. L. Mallman. Pp. 40. Technical Bulletin No. 123: The Diagnosis of *Brucella* Infection in Animals and Man by Rapid Macroscopic Agglutination. By I. F. Huddleson. Pp. 18. (East Lansing, Mich.)
- Cornell University Agricultural Experiment Station. Bulletin 533: A Statistical Analysis of the Results of Breeding High-Line and Low-Line Leghorns. By D. R. Marble and G. O. Hall. Pp. 38. Bulletin 537: The Chemical Composition of the Muck Soils of New York. By B. D. Wilson and E. V. Slaker. Pp. 25. Bulletin 538: Soil and Field-Crop Management for Cayuga County, New York, by A. F. Gustafson: Pastures, their Improvement and Management, by D. B. Johnstone-Wallace. Pp. 114. (Ithaca, N.Y.)

## CATALOGUES

- Important and Rare Books on Gardening and Agriculture (1801 to Recent Times), including Forestry, Fruit-Culture, Medical Botany, Tobacco, etc. (New Series, No. 29.) Pp. 164. (London: Wheldon and Wesley, Ltd.)
- Diathermy Apparatus (Surgery and Treatment). (Publication No. P. 92.) Pp. 24. (London: Newton and Wright, Ltd.)