

## Societies and Academies.

## LONDON.

Royal Meteorological Society, April 17.—The late W. H. Dines and L. H. G. Dines: Monthly mean values of radiation from various parts of the sky at Benson, Oxfordshire. Records for the five years 1922–1926 are given. The radiation is dealt with under two heads: (1) Luminous rays; (2) dark heat rays of wave-length exceeding about  $2\ \mu$ ; each is measured under conditions of (1) clear skies, (2) completely overcast skies.—L. H. G. Dines: An analysis of the changes of temperature with height in the stratosphere over the British Isles. The average temperature distribution in the stratosphere over the British Isles consists of a pronounced inversion of  $3^\circ\text{C}$ . at the bottom, followed by a lapse of about  $0.5^\circ\text{C}$ . per km. from ( $H_c + 3$ ) km. upwards to at least ( $H_c + 8$ ). There is no significant connexion between the magnitude of the inversion and either the lapse rate just below it, or the temperature in the troposphere in the layer  $3\frac{1}{2}$  to  $7\frac{1}{2}$  km. Such evidence as is available is against the existence of a diurnal variation of temperature in the stratosphere.—H. A. Hunt: A basis for seasonal forecasting in Australia. A fairly definite four-year cycle is indicated, consisting of two dry years followed by two wet years, and requiring two years to be allotted to the drying and heating phase and two to the wetting and cooling. The four-year period in the rainfall is also fairly well marked in the percentage of the continental area over which the rainfall is above the average each year.

## PARIS.

Academy of Sciences, Mar. 25.—P. Villard: Associations and forms of clouds. Discussion of the relations between the forms of clouds and production of rain.—F. E. Fournier: A means of extending French trade.—Alex. Véronnet: There are three distinct spaces and three only: Euclid, Riemann, and Cartan.—R. Chambaud: The deformation of arches.—J. H. Coblyn: Diagrams and monograms.—H. Weiss and E. Vellinger: The measurement of the interfacial tension between mineral oils and aqueous solutions. The influence of time and of the hydrogen ion concentration. The interfacial tension of a system mineral oil–aqueous solution of electrolyte depends not only on the hydrogen ion concentration of the aqueous phase but also on the nature of the electrolytes utilised. But the variations due to the nature of the electrolytes are negligible as a first approximation compared with those brought about by the variations of the hydrogen ion concentration.—F. Prevet: The influence of boric acid on the phosphorescence of zinc sulphides prepared by the explosion method. The phosphorescent zinc sulphide prepared with boric acid is unaffected by air and moisture. There is a marked increase in the luminosity of the product.—Pierre Leroux: Study of the absorption of a specimen of blue rock salt. A study of the variation of the absorption of blue rock salt as a function of the wave-length and of the temperature.—Jean Cabannes and Pierre Salvaire: The enlargement and displacement of the lines of the spectrum by molecular diffusion.—M. Ponte: Electronic analysis: lattice of the oxides of magnesium, zinc, and cadmium. The experimental results given permit of the conclusion being drawn that for the velocities of electrons utilised, electronic analysis is at least as accurate as analysis by X-rays, and may be used with confidence.—E. Sevin: The photoelectric effect and the continuous X-spectrum.—André Michel and Pierre Benazet: The reheating of austenitic steels.—

Léon Lortie: The combinations of the salts of tetra-valent cerium and of thorium with sodium carbonate (sodium cericarbonate and thorcarbonate). The ceric salt  $\text{Na}_6\text{Ce}(\text{CO}_3)_5 + 12\text{H}_2\text{O}$  has been isolated in crystals. A thorium salt of analogous composition has also been isolated.—L. Jacqué: The fusibility of the ferro-calcium alloys.—R. Cornubert and Ch. Borrel: Anomalies of condensation and of cyclisation. Studies on the condensation products of  $\alpha$ -methyl- $\alpha'$ -cyclopentanone and benzaldehyde in the presence of hydrochloric acid.—J. Bougault and Mlle. Bl. Leroy: Phenylloxymaleic anhydride. This substance gives crystallised compounds with amines, insoluble in ether, useful for the characterisation of the amines.—A. Demay: The antestephanian tectonic of the central French plateau to the east of the Loire.—René Bréon: Observations on beach deposits. In the bay of Authie pebbles and fragments of rocks are found which appear to have been transported at least 250–300 kilometres from the coast of the south of England. It is impossible for these to have been carried in suspension like sand, and the question as to the means of transportation is difficult of solution. One single specimen of rock had attached to it remains of *Fucus saccharinus*, and the author suggests that seaweed attached to the rocks may have been the cause of the flotation.—A. Vincent: The electrification of winds charged with snow. Winds charged with frozen snow caused the development of high potentials in an aerial capable of giving sparks up to 5 mm. in length.—Joseph Devaux: The measurement of the absorption factor of the surface of some Pyrenees glaciers for the solar radiations. If the surface of the glaciers consisted of pure ice limited by a plane surface, about 98 per cent would be absorbed. The absorption factors found were between 0.4 and 0.77, the lower value being undoubtedly due to the extensive alterations in the surface of the glaciers.—I. D. Streinikov: The ecological conditions of existence of the fauna of the Kara Sea.—C. Chabrolin: The decay of the inflorescence of the date palm (Khamedj). The author confirms the conclusions of Cavara that this disease is due to the parasite *Manginiella Scettæ*. The most practical treatment appears to be dusting the terminal bud with a mixture of powdered copper sulphate and slaked lime.—Jules Amar: Sex and nutrition.—Serge Yourievitch: The principal characters of the ocular movements. A summary of the results of a cinematographic study of more than 20,000 movements of the eye.—Jacques Pellegrin: The Cichlidæ of Madagascar.—E. Voisenet: New researches on the nature of the substance which produces the bitter taste in the disease of bitter wines. A description of the isolation of a very bitter substance, a derivative of acrolein, from 40 litres of wine attacked by the disease.—H. Colin and Marc Simonet: The viscous fermentation of the frozen beet. The viscous material is produced by a coccus at the expense of the sugar. The coccus has been isolated and cultivated. The viscous material appears to be identical with the dextrane previously isolated by various authors from sugar refinery juice contaminated with *Leuconostoc mesenteroides*.—Ducloux, Rinjard, and Mlle. Cordier: The symbiosis *in vivo* of the virus of Borrel's pustule in sheep and the virus of foot-and-mouth disease.

April 2.—A. Lacroix: A meteorite which fell at Beyrout (Syria) on Dec. 31, 1921.—L. Léger and O. Duboscq: *Harpella melusinae*, an ecrini-form entophyte parasite of the larvæ of *Simulium*.—J. A. Schouten: The geometrical significance of the semi-symmetrical property of an integral connexion which leaves the fundamental tensor invariant.—C. Bonnier: The determination of the

temperatures in explosion motors.—Georges Mignonac and René Vanier de Saint-Aunay: The polymerisation of acetylene by the silent discharge. The synthesis of dipropargyl and of its isomers. The complicated mixture produced by the action of the silent discharge on acetylene consists partly of a primary condensation product due to the discharge alone and partly of the secondary polymerisation of this by heat. By carrying out the reaction at  $-60^{\circ}\text{C}$ . the hydrocarbons dipropargyl, methylpentadiene and a hexadiene were isolated.—Pierre Bedos and Adrien Ruyer: The dehydration of the oxide of cyclohexene and the passage from the  $\text{C}_6$  ring to the  $\text{C}_5$  ring. Cyclohexene oxide can be dehydrated by phthalic anhydride giving 1,3-cyclohexadiene and this is generally accompanied by isomerisation of the oxide to cyclopentane aldehyde.—Paul Lemoine: The superposition of a Tertiary anticline on a Cretaceous syncline.

## BRUSSELS.

Royal Academy of Belgium, June 2.—G. Cesaro: The points of equal inertia of the rhombohedron.—Victor Willem: The polarity of the locomotor apparatus of the actinians.—Th. De Donder: The photonic field.—Ad. Mineur: Left projective cubics.—L. Van den Berghe: Researches on deglutition in the teleostean fishes.—Frans Halet: The discovery of an eruptive mass in the subsoil of Grammont.—L. Godeaux: The congruences formed by the Wilczynski lines of a surface.—L. Godeaux: The surfaces having the same quadrics of Lie.—G. Van Lenberghe: The calculation of the fugacities of a solution.—R. H. J. Gernay: The formula of Lagrange and its generalisation by M. T. J. Stieltjes.

Aug. 4.—A. de Hemptinne: The ionisation and chemical combination of gases.—Lucien Godeaux: The congruences of Goursat and surfaces having the same Lie quadrics.—J. Jaumotte, E. Lahay, and J. F. Cox: An apparatus for the measurement of the magnetic inclination intended to be utilised by an aviator to determine his latitude. The measurement is based on the electromotive force developed by a rotating coil, a null method being adopted in which the galvanometer, unsuitable for an aeroplane, is replaced by a telephone. An accuracy of  $10'$  is indicated as possible, fixing the position in latitude within about 20 kilometres.—P. Teilhard de Chardin: Complementary note on the mammalian fauna of the lower Tertiary of Orsmael.—M. D. V. Jonesco: A theorem of Lord Kelvin.

## CRACOW.

Academy of Science and Letters, Jan. 7.—T. Banachiewicz: Auxiliary tables for the calculation of the selenographic co-ordinates.—T. Banachiewicz: New methods for the correction of orbits.—W. Lesnianski: A method for the synthesis of acridone derivatives. The use of phosphorus oxychloride as the condensing agent in the transformation of arylamine carboxylic acids into derivatives of acridone is advantageous, good yields being obtained.—Mlle. E. Majdecka-Zdziarska: *Galinsoga parviflora* and *Galinsoga hispida*. A discussion of the geographical distribution of these American species in Europe and in Poland, and of the question whether these should be considered as varieties or distinct species.—Mlle. C. de Kleist: Phyto-sociological researches on the peat bogs of the region of the dunes of the right bank of the Vistula in the neighbourhood of Warsaw.—S. Macko: Researches on the geographical distribution and the biology of *Azalea pontica* in Poland.—W. Szafer: The element peculiar to the mountains in the flora of the Polish plain. The geographical distribution of mountain plants in the plain leads to conclusions

relating to the history of the migration of the plants during the diluvial period.—M. Thomaschewski: Pollen analysis of the peat bogs of Kalmuzy and Pomerania.—Z. Woycicki: The crystalloids in the nucleus and in the formations known as oleoplasts in *Ornithogalum caudatum*.—R. J. Wojtusiak: Comparative studies of the larvæ of the genus *Mamestra*.—S. Karasinski: Researches on the action of the antirachitic vitamin. Rickets should be considered as a trouble of development, due to a complicated avitaminosis which can only be partly suppressed by the antirachitic factor.

Feb. 4.—E. Zylinski: A theorem of the theory of algebraic numbers.—L. Marchlewski and O. Wyrobek: The absorption of the ultra-violet radiations by certain organic substances.—L. Marchlewski and A. Szymanski: Researches on chlorophyll.—P. Mazák and J. Susko: Researches on the oxosulphonic acids.—K. Dziewonski and A. Wulffsohn: Researches on  $\beta$ -methylnaphthalene.—B. Hryniewiecki: The geographical distribution of *Trapa* in Poland and contribution to the study of the varieties of this species.—T. Wisniewski: Associations of Bryophyta of Poland and especially of those of the virgin forest of Bialowieza.—R. Kobendza: The flora of the fallen ground in the massif of Ste. Croix.—B. F. Petschenko: New and little known forms in the development of *Bacillus megatherium* and their cytology.—St. Smreczynski: Experimental researches on gastrulation in the batrachians.—R. J. Wojtusiak: The orientation in space of the caterpillars of *Pieris*.—W. Heinrich: The function of the capillaries and the fixation of the attention.

## LENINGRAD.

Academy of Sciences (*Comptes rendus*, No. 24, 1928).—S. Borovik and Afanasjeva: Influence of a vacuum on the radium clock. Some improvements in the Strutt radium clock are offered, and a method of making exact measurements with it of the pressure in relative vacua.—A. Lukašuk: Helium in some thorium minerals of Russia. The quantity of helium found in four minerals examined was as follows: chevkinite 0.109 c.c., eshinite 0.648 c.c., ortite 0.0638 c.c., monatsit 0.287 c.c. in one gram of the mineral.—P. Svetlov: Osmotic pressure and the permeability of membranes of trout eggs. External membrane is permeable to electrolytes, organic molecules, and colloid particles. Osmotic pressure in the yolk of the eggs is constant throughout the period of development, so that some unknown mechanism for the regulation of the pressure must be present.—B. Stegmann: A preliminary communication on an ornithological expedition in the upper and middle course of the Amur and in the western part of the Stanovoi ridge. Notes on distribution, nesting habits, etc., of a number of local bird species.—C. Flerov: Preliminary note on the diagnostic characters in the genus *Moschus* Linn. (Mammalia, Cervidæ). A brief review of musk-deers, containing diagnoses of five subspecies of *Moschus moschiferus* (including two new ones, namely, *arcticus*, from north-east Siberia, and *sachalinensis*, from Sakhalin Island), two subspecies of *M. chrysogaster*, and of a new species, *M. berezovskii*, from the Sze-chuan province of China.

(*Comptes rendus*, No. 25, 1928).—B. Schtylko: Fossil remains of a pike from the Akmolinsk province. The remains are those of a *dentale*, and their study showed no differences from the *Esox lucius*; and it may be suggested that the latter species existed already in the Pleistocene.—A. Mordvilko: *Geoica* Hart and its anolocyclic forms. Plant-lice of the genus *Pemphigetum* Mordv., forming galls on *Pistachia* trees, proved to be able to migrate to roots of grasses, where they have been long known under the name

*Geioica*. The *Geioica* root-form occurs in the areas where there are no *Pistachia* at present (North America), but it is possible to state definitely that the trees grew there in previous geological ages; with their disappearance only the grass-root form of the aphid remained.—G. Lindberg: Southern elements in the fish fauna of the Bay of Peter the Great (Sea of Japan). The fauna differs strikingly from that of the Okhotsk and the Bering Seas in its subtropical character, while including a number of typical Arctic forms, many of which, however, penetrate as far south as the Korean coasts. At the same time, a number of southern forms are in their turn met with as far north as Vladivostok and Olga Bay.

## MELBOURNE.

Royal Society of Victoria, Dec. 13.—Edwin S. Hills: The geology and palæontology of the Cathedral Range and the Blue Hills, in North-Western Gippsland. This range is a double razorback composed of two beds of hard sandstone separated by softer shales and sandstones. Although formerly believed to be Upper Palæozoic in age, they are overlain with a strong unconformity by Upper Devonian rhyolites, basalts, tuffs, and sediments outcropping to the east, and are apparently conformable with Upper Silurian sediments which outcrop to the west. The Cathedral Beds have as yet yielded no fossils, but in the Upper Devonian rocks a new fish fauna was discovered.—F. Chapman: (1) On a fine example of the flanged cowrie, *Cypræa gastroplox* McCoy. The subgenus *Pallioicypræa*, to which the species was referred by M. Cossmann, is here given generic rank. The shell structure is discussed.—(2) On some trilobites and brachiopods from the Mount Isa District, North-West Queensland. For many years these beds were referred to as schists of unknown age. The rock in which the fossils are preserved is a cherty shale, horizontally bedded and found twelve miles west of Mount Isa at the head of the Templeton River. The assemblage of fossils indicates a middle to upper Cambrian horizon.—(3) On a new species of *Capulus* found attached to a *Pterygotus* carapace. Some attached univalves, *Capulus melbournensis*, adherent to the counterpart of the Silurian *Pterygotus* somite which was described by McCoy in 1899. This palæozoic *Capulus* shows, in its habit and form, a close resemblance to the related tertiary genus *Hipponix*.

## VIENNA.

Academy of Sciences, Jan. 31.—E. Haschek: On Talbot's Law.—M. Eisler and L. Porthem: Further researches on the nicotine poisoning of fruits and seeds. In *Nicotiana* and *Avena*, the alkaloid penetrates unhindered through the husk, in *Fagopyrum* with difficulty, in *Helianthus* scarcely at all. The embryos are unequally resistant to nicotine. Calcium and potassium chlorides influence the degree of poisoning.—L. Mirskaja: Regenerative processes in growing points of *Tradescantia guianensis*.—M. Holly: Some new African fish forms. Species of *Barbus* from rivers.

Feb. 8.—R. Wegscheider: Reactions in light and in the dark with counter and following effects.—L. Moser and A. Brukl: Determination and separation of rare metals from other metals (15). The quantitative analysis of gallium. For separation of little gallium from much iron, sodium thiosulphate was used; this reduces ferric to ferrous and precipitates gallium.—F. Staudinger: Heteromorphoses in stigmata and other organs of *Carausius morosus*.—H. Burchardt: Regeneration and symmetry of limbs stuck through the bodies of newts.—C. Zawisch-Ossenitz: The promotion of bone-growth by injection of bone extract.

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Feb. 14.—A. Kailan and G. Brunner: Velocity of esterification of alcohols in formic acid.—O. Gugenberger: The Brachiopoda of the *Cardita strata* at Launsdorf in Middle Carinthia.—O. Gugenberger: Upper Triassic Cephalopoda and Brachiopoda from Plakles on the Hohe Wand.—R. E. Mark: Researches on the influence of various altitudes on the action of the thyroid gland in the dog.—K. Federhofer: Graphical kinematics of a crank-loop oscillating in space.

## Official Publications Received.

## BRITISH.

- Royal Photographic Society of Great Britain. List of Honorary Fellows, Honorary Members, Fellows, Associates and Members, 1929. Pp. 31. (London.) 1s.
- Philosophical Transactions of the Royal Society of London. Series B, Vol. 217, No. 446: Chromosome Linkage in certain *Oenothera* Hybrids. By Prof. R. Ruggles Gates and F. M. L. Sheffield. Pp. 367-394+plates 89-90. (London: Harrison and Sons, Ltd.)
- Proceedings of the Royal Society of Queensland. Vol. 40, No. 1: Presidential Address. By Prof. E. J. Goddard. Pp. 12. (Brisbane: Anthony James Cumming.)
- Memoirs of the Department of Agriculture in India. Botanical Series, Vol. 17, No. 1: Non-dehiscence of Authers in Punjab American Cottons. By Trevor Trought. Pp. 5+2 plates. (Calcutta: Government of India Central Publication Branch.) 4 annas; 5d.
- Memoirs of the Commonwealth Solar Observatory, Mount Stromlo, Canberra, Australia. Memoir No. 1: The Luminosity of the Night Sky, observed with a Rayleigh Photometer at the Commonwealth Solar Observatory during the Years 1926 and 1927, by the Director and Staff, Pp. 29. (Melbourne: H. J. Green.)
- The Scientific Proceedings of the Royal Dublin Society. Vol. 19 (N.S.), No. 16: The Integration of Light by Photo-electrolysis. By Dr. W. R. G. Atkins and Dr. H. H. Poole. Pp. 159-164. 6d. Vol. 19 (N.S.), No. 18: The Photo-electric Measurement of the Illumination in Buildings. By Dr. W. R. G. Atkins and Dr. H. H. Poole. Pp. 173-188. 1s. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.)
- Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1205 (Ae. 566): Full Scale Tests of Bristol Fighter Aeroplane with R.A.F. 30 Wings, fitted with "Pilot Planes" at the Wing Tips. (T. 2666.) Pp. 4+2 plates. 4d. net. No. 1173 (Ae. 337): Full Scale Determination of the Effect of High Tip Speeds on the Performance of an Airscrew. By W. G. Jennings. (T. 2655.) Pp. 10+8 plates. 9d. net. (London: H.M. Stationery Office.)
- Commission of Inquiry into the Holborn Explosions and Fires. Report of the Commissioners appointed by the Home Secretary to inquire into the Circumstances of the Series of Explosions and Fires which occurred on the 20th and 21st December 1928 in the neighbourhood of New Oxford Street. (Cnd. 3306.) Pp. 34+4 plates. (London: H.M. Stationery Office.) 1s. 6d. net.
- Third Report of the Committee appointed by Viscount Peel to consider the Establishment of Bird Sanctuaries in the Royal Parks in Scotland. Pp. 6. (Edinburgh and London: H.M. Stationery Office.) 6d. net.
- Nyasaland Protectorate: Geological Survey. Water Supply Paper No. 3: Weirs, Dams and Reservoirs for Estate Purposes. By Dr. F. Dixey. Pp. 12. Annual Report of the Geological Survey Department for the Year 1928. Pp. 22. (Zomba.)
- Union of South Africa: Department of Agriculture. Division of Chemistry Series, No. 92: Manuring of Wattles, by C. O. Williams; and Fertilizer Trials with Wattles, by J. B. Osborn. Pp. 10. (Pretoria: Government Printing Office.)
- Colony and Protectorate of Kenya. Agricultural Census: Ninth Annual Report, 1928. Pp. 55. (Nairobi: Department of Agriculture.)
- Trinidad and Tobago: Department of Agriculture. Administration Report of the Director of Agriculture for the Year 1927. Pp. 42. (Trinidad, B.W.I.: Government Printing Office, Port-of-Spain.) 1s. 6d.
- Journal of the Royal Microscopical Society. Series 3, Vol. 49, Part 1, March. Pp. xvi+90. (London.) 10s. net.
- Imperial Chemical Industries, Ltd. Annual Report for the Year 1928. Pp. 18. (London.)
- Royal Astronomical Society. List of Fellows and Associates, March 1929. Pp. 54. (London.)
- Ministry of Health. General Circular on the Local Government Act, 1929. Pp. 14. (London: H.M. Stationery Office.) 3d. net.
- Ministry of Health: Advisory Committee on Water. Report on Rural Water Supplies. Pp. 38. (London: H.M. Stationery Office.) 9d. net.
- Air Ministry: Aeronautical Research Committee. Reports and Memoranda. No. 1165 (Ae. 329): Wind Tunnel Experiments on the Design of an Automatic Slot for R.A.F. 28 Section, and on Interconnection with Ailerons. By F. B. Bradfield and K. W. Clark. (T. 2625 a.b.c.) Pp. 20+13 plates. 1s. net. No. 1181 (Ae. 345): Instrumental Records of the Lateral Motions of a Stalled Bristol Fighter Aeroplane. By Prof. B. Melville Jones and Flight-Lieut. C. E. Maitland. (T. 2657.) Pp. 11+22 plates. 1s. net. No. 1186 (Ae. 348): Wind Tunnel Tests of various Servo Rudder Systems. By K. V. Wright. (T. 2630.) Pp. 17+10 plates. 1s. net. No. 1192 (Ae. 354): Wind Tunnel Tests for Design of an Automatic Slot for Avro 504.N. By E. T. Jones and K. W. Clark. (T. 2633.) Pp. 11+5 plates. 9d. net. No. 1193 (Ae. 355): The Longitudinal Control of an Aeroplane beyond the Stall. By H. M. Garner and K. V. Wright. (T. 2727.) Pp. 6. 4d. net. No. 1198 (Ae. 359): Wind Tunnel Tests with High Tip Speed Airscrews. The Characteristics of a Conventional Airscrew Section, 0-082c Thick, and of R.A.F. 27 and R.A.F. 28. By Dr. G. P. Douglas and W. G. A. Perring. (T. 2631.) Pp. 4+5 plates. 1s. net. No. 1202 (Ae. 363): Determination of the Twist of a Wing of an Aeroplane in Flight. By W. G. Jennings. (T. 2665.) Pp. 5+1 plate. 6d. net. (London: H.M. Stationery Office.)