

and opened a new route across to San Gabriel. Thence he made a trip northward to the Tulare valley, returned to Mojave, and proceeded eastward to the Moqui country. Garcés had made many previous journeys of exploration, including a descent of the Rio Gila to the Colorado in 1771. Garcés was murdered by the Yuma Indians in a subsequent attempt to found a mission amongst them.

Sept. 17, 1822.—Weddell in the Antarctic

James Weddell in the *Jane*, accompanied by the *Beaufoy*, left on a voyage which combined whaling with discovery. Weddell had previously, in the *Jane*, visited the South Shetlands, discovered in 1819 by William Smith, and had carried out some surveys there. On this voyage he proved that the Aurora Islands, which were supposed to lie between the Falklands and South Georgia, did not exist. Weddell explored the sea which now bears his name, and reached 74° 15' S. He brought back with him a sea leopard (*Hydrurga leptonyx*); Weddell's seal (*Leptonychotes Weddelli*) is named after its discoverer.

Societies and Academies

PARIS

Academy of Sciences, July 25 (vol. 195, pp. 293-344).

—Robert Bourgeois: Obituary notice of Antonio Luiz de Tefé, *correspondant* for the Section of Geography and Navigation.—Émile Guyénot and A. Naville: Reduction of chromosomes in the female *Drosophila* and the theory of crossing over.—M. Syptak: The hypercircumferences and hyperhelices in Euclidian spaces of p dimensions.—Maurice Roy: The definition and laws of the sudden variation of section in gaseous jets.—Edmond Brun and Pierre Vernotte: The measurement of the coefficient of thermal exchange between a solid wall and a current of gas.—Henri Chaumat and Edouard Lefrand: An electric motor utilising the kinetic energy of gaseous ions. A description of the construction and working of an 'ionic turbine'.—René Audubert: The calculation of the average radius of the granules of a dispersed system. If, at high dilutions, the electrokinetic potential be considered as obeying the Debye-Hückel theory, then the average radius of the granules of a dispersed system can be calculated by means of relations deduced from this theory.—Radu Titeica: The vibration spectra of some polyatomic molecules. The results of measurements of the infra-red absorption bands of formaldehyde and of acetone are given.—Ny Tsi-Ze and Choong Shin-Piaw: The absorption of light by ozone between 3050 Å. and 3400 Å. (the region of the Huggins bands).—M. Bourguet: Double conjugated linkages.—Mlle. B. Grédy: The application of Raman spectrography to the study of the rhodinol-citronnellol isomerism. These experiments do not confirm the formula of citronnellol suggested by Verley (α form); rhodinol contains three isomeric alcohols.—D. Skobelzyn: The mechanism of the phenomena of the ultra-penetrating radiation (cosmic rays).—S. Rosenblum: The fine structure of the magnetic spectrum of the α -rays of radium.—H. Muraour and G. Aunis: Study of the velocity of combustion, at a low temperature, of colloidal powders.—Victor Lombard and Charles Eichner: Researches on the conditions of optimum diffusion of hydrogen through palladium.—A. Cochet and J. Houdin.—The phosphates of urea and of guanilylurea.—Henri Fournier: The results furnished by stamping tests and their relation with extension tests.—Ch. Bedel: The density of ferrosilicons. Thirteen alloys were prepared, ranging from 0 to 100 per cent iron. Indica-

tion of density variations were observed when the composition of the alloys corresponded to Fe_2Si and $FeSi$.—Ed. Chauvenet and Avard: The determination of barium in iron ores. The iron is removed as ferric chloride by heating to 900°-930° C. in the vapour of carbon tetrachloride.—P. Bugnon and A. Parrot: The morphological value of the cotyledon in monocotyledonous umbellifers.—Mme. Liou (Tchang-Tcheng-Houa): Various peculiarities of the development of the egg of *Bombyx mori* under the influence of bivoltinising agents.—Ch. Dhéré: The fluorescence of phyllaerythrin and the structure of its fluorescence spectra.—J.-E. Abelous and R. Argaud: The formation of adrenaline in the suprarenal gland. The results of the experiments described are inconsistent with the view that the medullary substance is exclusively concerned with the production of adrenaline.—Mme. Andrée Roche and Jean Roche: The participation of the hexosephosphoric acid in the glycolysis of the blood.—Aynaud, Peyron, and Falchetti: Cancer of the lung in sheep and its etiological connexion with parasitic and infectious lesions.

CAPE TOWN

Royal Society of South Africa, March 16.—W. A. Jolly: The living organism (Presidential Address). If we are ever to attain to self-knowledge, to explain ourselves, and to determine our place in Nature and our relation to the world around, it is to advance in biology that we must trust. All that we know of the universe is due to physiological changes of some kind. In the living organism, regarded as a whole, we have a phenomenon the unity and fundamental nature of which are as essential as any of the concepts of physics. Psychology, studied by subjective methods, working in collaboration with physiology, has an important part to play in our final achievement of self-knowledge. The address concluded with an account of the methods and difficulties of modern physiological research, with special reference to electro-physiology and the time-relations of the simple reflex.—F. Kirchheimer: On pollen from the Upper Cretaceous dysodil of Banke, Namaqualand. These pollen forms, probably of Upper Cretaceous age, do not in the least agree with the present-day flora of the area. This serves to show, in conjunction with the character of the megascopic plant remains, that the ecological character of the area at the time of formation of the deposits was widely different from that of to-day.—E. Reuning: The composition of the deeper sediments of the pipe at Banke, Namaqualand, and their relation to kimberlite. The various rocks known found in the neighbourhood—granite, dolerite, and Karroo sediments—can have contributed but little to the composition of the dysodil, which is apparently the product of the infilling of the pipe by finest mud obtained from the weathering of ejected kimberlite material lying on the granite in the neighbourhood of the pipe.—S. H. Haughton: On some South African fossil Proboscidea. New proboscidean remains attributed to the genera *Archidiskodon* and *Pilgrimia*. There is evidence of considerable dental variability within the confines of a single living race of African elephant. The geology of the various gravels of the Vaal River area is critically examined; the possibility that the gravels of the so-called 'Middle Terrace' and the 'River-bed Gravels' may be contemporaneous is discussed.

GENEVA

Society of Physics and Natural History, May 19.—R. Cherbuliez and A. Rilliet: On methylcodeine. The methylation of the hydroxyl group of codeine is made difficult by the presence of the basic tertiary function,

the latter being more easily methylated than the hydroxyl group. This difficulty is got over by transforming the codeine into its chlorbenzylate. After methylation of the alcohol group of this quaternary derivative, the original amino group is regenerated by reduction with sodium amalgam.—P. Rossier: (1) The relation between the abscissæ of the extremities of a solar spectrogram (2). The author gives a better approximation, because based on more complete data, of the constants of an astrophysical formula.—(2) On the spectral type of some stars. The *K* line shows an abnormal width on some spectrograms of stars of the type A_0 , obtained at the Geneva Observatory. On the majority of these negatives a spectrophotometric study based on the position of the extremities of the spectrograms appears to indicate a spectral type more advanced than A_0 .—H. Lagotala: The geology of the mining region of Renéville, French Equatorial Africa. The author gives an interpretation of the facts observed in numerous excavations and borings. The general characteristic of the tectonics of this region is given by a series of faults, between which the compartments have had displacements in varying directions. As a result, there are sudden interruptions of the outcrops.—J. Buffle and J. Corbaz: Researches on the chlorination of α -nitronaphthalene. This operation differs substantially from the usual process of chlorination. Although without practical value, it has a theoretical interest, as it leads to a knowledge of the nature of the various intermediate compounds preceding the final products, α -chloronaphthalene and polychloronaphthalene.—L. Reverdin: The fauna of the middle and later neolithic of the station of Auvernier, Neuchatel. Passing from the middle neolithic to the later neolithic, it is found that the percentage of bones belonging to domestic species increases from 49.2 to 90.4. The percentages of individuals increases from 46.7 to 72.4. For this station, the diminution in the utilisation of wild animals is very clear, but, starting with the middle neolithic only, the mean percentage of individuals belonging to domestic species was about seventy for the lower neolithic.—P. Dive: The risks of extrapolation in the field of geophysics. The author shows by calculation that the contradiction is only apparent, when the rigidity of the globe, such as results from the transmission of seismic movements, is opposed to the viscosity that it is necessary to attribute to the sima on which the continental masses are displaced. This contradiction arises from the fact that the experimental data of the laboratory are applied where the determining factors are magnitudes much too small compared with those factors which act in the mass of the globe. Reduced to the 'human scale' the globe appears as a body 300 times less viscous than water.—R. Wavre: The extension of a formula of H. Bruns. The author extends the formula which Bruns has made known for equilibrium figures to the case of a perfect fluid endowed with any movement.

MELBOURNE

Royal Society of Victoria, July 14.—D. E. Thomas and R. A. Keble: A revision of the subdivision of the Upper Ordovician and Silurian rocks of Victoria. The authors discuss the subdivisions of the two formations and propose a revision based on new and additional graptolite evidence.—Walter J. Parr: Notes on Australian and New Zealand Foraminifera (2). The genus *Pavonina* and its relationships. Two species of *Pavonina*, *P. flabelliformis* d'Orbigny and *P. triformis*, sp. nov., from the Tertiary of Victoria, are described and figured. *P. triformis* differs from previously known species of *Pavonina* in having the earliest chambers triserially arranged, and so resembles the genus *Reussia*. Evidence of the relationship of *P.*

triformis and *P. flabelliformis* is produced by the author, who considers that the genus should consequently be placed in the family Buliminidae, near the genera *Reussia* and *Chrysalidinella*.

ROME

Royal National Academy of the Lincei, March 6.—L. Cambi, L. Szegö, and A. Cagnasso: Magnetic behaviour of complex compounds. (5) Ferric dibutyl-dithiocarbamates. The results obtained with six isomeric compounds are analogous to those furnished by the dipropyl derivatives. Only the *NN*-*n*-butylisobutyl salt follows the Weiss-Curie law, the rest obeying a more complex law. This anomalous behaviour appears general in the dialkyldithiocarbamates and is shown also by ferric xanthates.—A. Stella: An interesting ferro-titaniferous deposit in the Arabian Desert. This mountainous deposit, known as Abu Galga, was found on ascending for about 20 km. the Madi Ranga valley, which opens out on to the Red Sea. When separated from the gangue the mineral contains about forty per cent of TiO_2 .—G. Andreoli: Reciprocal pairs of V_2 : law of the duality of linear and tangential metrics, of parallelism and metrisism. (2) Formation and properties of the pair of reciprocal varieties.—Patrick Du Val: Observations on the surfaces of one kind which are not bases for a system of quadrics.—M. Kourensky: Integration of the equations to partial derivatives of the second order with two functions of two independent variables.—L. Sona: Orthobaric surfaces of a body.—L. Campedelli: Double planes with curve of branching of the tenth order.—M. Crenna: Deformable Ribaucour congruences (2).—Giulio Supino: Clebsch's problem.—G. Krall: The asymptotic effects of the tides on the motion of celestial bodies. (2) Problem of three bodies.—N. Moisseiev: The law of resistance to the motion of bodies in a pulverulent medium. (2) Special noteworthy cases.—G. Agamennone: Ultra-powerful horizontal pendulum with mechanical registration.—G. B. Bonino and P. Cella: The Raman spectrum of quinoline and manifestations of the carbon-nitrogen linking. Six lines have previously been observed in the Raman spectrum of quinoline, but the authors' investigation reveals nine lines. Those at 3054 (cm^{-1}) and 1571 correspond with the aromatic C-H grouping and with the aromatic double linking respectively. An intense line between 1370 and 1380 must be attributed to the condensed double nucleus of the quinoline molecule; it appears very intensely in the spectrum of naphthalene, but is very weak in that of pyridine. Similar considerations apply to the lines 1142 and 764, which occur with equal intensity in the naphthalene spectrum. The line 1433, which lies within the zone (1200-1800) of the Raman spectrum assigned by Kohlrausch to double bonds, is ascribed to the double linkage between carbon and nitrogen, and is, indeed, shown by all compounds which contain a C:N group but no CH_2 group in the molecule.—G. Natta and M. Baccaredda: Mineral antimonates of calcium (atopite, romeite, calciferous antimony ochre). Descriptions are given of various antimony ochres containing combined calcium which correspond with the formula $2-3CaO, 2Sb_2O_5, 6-8H_2O$. They exhibit cubic lattices, unit cells of side $10.25-10.26$ Å., and lattice structures analogous to that of atopite. Romeite gives an X-ray (powder method) appearance similar to that of atopite and, like the latter, has the value 10.26 Å. for the side of the unit cell and belongs to the space group O_4^1 or O_4 .—Z. Jolles: Diazo-resins (2). As would be expected, phenylazoxycarbonamide, which is transformed into the normal diazo-hydrate by the action of alkali, gives a resin identical with that obtained directly from

diazotised aniline. Moreover, nitrosoacetanilide undergoes resinification when left in contact with alkali for some hours, yielding a product which is darker than, but of similar composition to, that derived from aniline. The passage of the nitrosoacetanilide to normal diazo-hydrate possibly takes place by way of an intermediate additive compound.—E. Molteni: A selection of the birds reported by the Desio mission to the Libyan Desert.—G. Lakhovsky: Cosmic waves and cellular oscillations. The experiments described by Rivera (1930) indicated that the observed excitation of cellular division cannot be ascribed to cosmic waves, which have a slightly depressive influence on germination. The results of these experiments confirm the author's theories, according to which variation in cosmic waves causes oscillatory dis-equilibrium of cells and hence disease and death.

VIENNA

Academy of Sciences, May 12.—G. Gorbach and H. Pick: Ultra-violet inactivation of sucrase in its dependency on the hydrogen ion concentration and ozone. With the purest possible sucrase solutions, the influence of the prevailing hydrogen ion concentration on inactivation by ultra-violet rays is vanishingly small. This inactivation cannot be ascribed to the ozone formed, but results from direct absorption of the short-wave energy either by the sucrase itself or by substances accompanying it.—G. Gorbach and D. Kimovec: After-inactivation of irradiated sucrase solutions, and the influence of added tryptophane and yeast-gum. Sucrase solutions which have been subjected for at least ten minutes to ultra-violet radiation, afterwards become inactivated; this after-inactivation is accelerated somewhat by addition of tryptophane or yeast-gum after the irradiation. If the sucrase solution is exposed to the rays for less than ten minutes, the enzyme retains part of its activity.—G. Gorbach and H. Güntner: Yeast lipase. Lipase from brewery or pure-cultured beer-yeast exerts its optimum activity at pH 6.6-6.8 and at $30^{\circ}C$. In general, pressed yeasts are richer in lipase than beer-yeasts, and pure-cultured yeasts than brewery process yeasts. Artificial fattening of yeasts causes marked increase in their lipase contents.—Richard Weiss and Ernest Knapp: Triphenylmethanes with their benzene nuclei linked together. (7) Methylene-diphenyl-phenyl-methane ketone.—J. Rosenhagen: Observations on the brightness and light-change of the planet Eros. The fact that the phase coefficient, the normal brightness, and the amplitude of the light-change of Eros are subject to wide variations is attributed not so much to physical changes as to a peculiar shape of the planet and to alternation in the position of its axis of rotation with regard to the earth. Other elements, such as precession phenomena, deformation of the body of the planet, etc., also produce secondary effects.—Otto Porsch: An interesting case of convergence of blossom by adaptation.—Emil Heinricher: Further investigations on the descendants of *Primula kewensis*.

May 27.—Ernst Beutel and Arthur Kutzelnigg: Luminescence analysis. (4) Fluorescence of zinc oxide.—Bruno Finzi: Results of a zoological expedition to Morocco in 1930. (5) Ants.—Josef A. Friebisch and Rudolf Steinmaurer: A year's observations of the cosmic ultra-radiation on the Sonnblick peak (3106 metres). Determinations of the ultra-radiation on this peak gave, in a slightly open iron sheath, the value $8.00 I$ (ion-pairs per second per c.c. of air at 760 mm. and $18^{\circ}C$.) and, in the closed sheath, $6.13 I$, reduced to 520.5 mm., which is the mean barometric pressure on the Sonnblick. During the winter months low, and during the summer months

high, values for the radiation intensity were observed, the minimum and maximum appearing to correspond respectively with the lowest and highest position of the sun. In the course followed by the variations, and in the yearly deviations (4 per cent), the results are in agreement with those obtained by Steinke in Königsberg. The intensity of the radiation is apparently not related to either the degree of cloudiness, amount of precipitation, or direction of the wind.

Forthcoming Events

Congresses

SEPT. 10-18

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE (Ninth Congress). To be held at Bucharest.

SEPT. 12-15

IRON AND STEEL INSTITUTE AND INSTITUTE OF METALS. Joint Autumn Meeting at the Institution of Civil Engineers, Great George Street, S.W.1; and the Institution of Mechanical Engineers, Storey's Gate, S.W.1.

Monday, Sept. 12.

Dr. H. J. Gough: "Corrosion Fatigue in Metals" (Annual Autumn Lecture), at 8 P.M.

SEPT. 12-15

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (Annual Conference). To be held at Aberdeen. Chairman's Address on Sept. 13, at 10 A.M.

Official Publications Received

BRITISH

- Transactions of the Institute of Marine Engineers, Incorporated. Session 1932, Vol. 44, No. 6, July. Pp. 271-322+xxxiv. (London.)
- Bulletin of the Department of Zoology, Panjab University. Vol. 1: Fauna of Lahore. 3: Preliminary Notes on the Life-History of the Firefly *Luciola gorhami* Rits. and Cytology of the Light Organs. By Dev Raj Mehta. Pp. 101-118+plates 9-10. (Lahore.) 1.8 rupees.
- Survey of India. Geodetic Triangulation. By Capt. G. Bomford. Pp. viii+109+37 plates. (Dehra Dun.) 2.8 rupees; 4s. 6d.
- Jamaica. Annual Report of the Department of Agriculture for the Year ended 31st December 1931. Pp. 86+3 plates. (Jamaica: Government Printing Office.)
- Journal of the Chemical Society. July. Pp. iv+1965-2088+x. (London: Chemical Society.)
- Ceylon. Part 4: Education, Science and Art (F). Administration Report of the Director of the Colombo Museum for 1931. By Dr. Joseph Pearson. Pp. F16+4 plates. (Colombo: Government Record Office.) 30 cents.
- Transactions of the Optical Society. Vol. 33, 1931-32, No. 4. Pp. ii+137-138. (London.) 10s.
- Journal of the Indian Institute of Science. Vol. 15A, Part 5: Bhadravarti Wood-Tar and its Utilization. By Y. K. Raghunatha Rao, B. Sanjiva Rao and H. E. Watson. Pp. 41-58. (Bangalore.) 1 rupee.
- The International Union for the Scientific Investigation of Population Problems: its Foundation, Work, Statutes and Regulations. Pp. 28. (London: c/o Royal Geographical Society.)

FOREIGN

- Memorias del Consejo Oceanográfico Ibero-Americano. Número 8: La corriente del Peru y sus límites nortefios en condiciones normales y anormales. Por Prof. Gerhard Schott. Pp. 57+3 laminas. Número 9: El Instituto Español de Oceanografía y la labor que ha realizado. Por Prof. Rafael de Buen. Pp. 72+10 laminas. Número 10: Nuevas investigaciones gravimétricas sobre los mares. Por Guillermo Sans Huélin. Pp. 14+2 laminas. Número 11: Cooperación española a la Oceanografía. Por Prof. Rafael de Buen. Pp. 32. (Madrid.)
- Egyptian University: Faculty of Science. Publication No. 1: The Food of Protozoa; a Reference Book for use in Studies of the Physiology, Ecology and Behaviour of the Protozoa. By H. Sandon. Pp. iii+187. (Cairo.) 20 piastres.
- Proceedings of the Imperial Academy. Vol. 3, No. 6, June. Pp. xvii-xviii+217-273. (Tokyo.)
- Préhistoire. Tome 1, Fascicule 1. Pp. iv+123+5 planches. (Paris: Ernst Leroux.) 125 francs.
- U.S. Department of Agriculture. Miscellaneous Publication No. 120: A Digest of the Literature of Derris (*Deguelia*) Species used as Insecticides, 1747-1931. By R. C. Roark. Pp. 86. (Washington, D.C.: Government Printing Office.) 15 cents.
- Koninklijk Magnetisch en Meteorologisch Observatorium te Batavia Jaarverslag 1931. Pp. 14. (Batavia.)
- Department of Agriculture: Straits Settlements and Federated Malay States. General Series, No. 9: The Cultivation and Manufacture of Tea in Ceylon and India. By E. A. Curtler. Pp. iii+94+5 plates. 1 dollar.
- Circular No. 3: The Cultivation of Allotments by Tamil Labourers. By J. N. Milsum. Pp. 12. 10 cents. (Kuala Lumpur.)