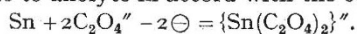


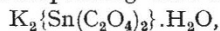
Societies and Academies.

LONDON.

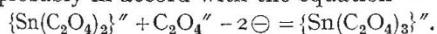
Faraday Society, July 7.—Sir Robert Robertson, president, in the chair.—G. R. D. Hogg: A note on the conduction of heat down the necks of metal vacuum vessels containing liquid oxygen. Approximate methods are given for calculating the "neck loss" of metal Dewar flasks containing liquid oxygen. These may also be used for determining the most suitable dimensions for the inner neck of a metal Dewar flask, the other dimensions of which are known.—C. L. Haddon: The mechanism of setting of calcium sulphate cements. There are fundamental differences in the hydration processes between plaster of Paris, flooring plaster and anhydrite. Further evidence in favour of Desch's theory of crystal thrust as the cause of expansion is put forward. There is a similarity between the coherence of calcium sulphate cements and that of metals.—J. J. Doolan and J. R. Partington: The vapour pressure of tellurium. The vapour pressure of sulphur has been determined in various ways, and at least one determination of that of selenium has appeared. The vapour pressure of tellurium, however, has, apparently, not previously been measured. Its value, at least approximately, has been determined at different temperatures.—E. E. Turner and W. H. Patterson: Cryoscopy in sodium sulphate decahydrate. The molecular weights of a number of sodium salts have been determined, using sodium sulphate as cryoscopic solvent, a method first investigated by Löwenherz, whose results have, in general, been confirmed. Abnormal results were obtained for the molecular weights of sodium oxalate and borax. The low result for the former substance is not due to solubility effects, whilst the molecular weight obtained for borax is in good agreement with the value obtained by Boutaric, Chauvenet, and Nabot, using sodium thiosulphate as solvent.—D. B. Macleod: The viscosity of binary mixtures.—J. B. Firth and F. S. Watson: The catalytic decomposition of hydrogen peroxide solution by animal charcoal; the production of highly active charcoals.—A. J. Allmand and A. N. Campbell: The electro-deposition of manganese. The best conditions for the electro-deposition of pure manganese consist in the electrolysis of a solution containing manganous and ammonium sulphates (the catholyte) separated by a diaphragm from the anolyte (ammonium sulphate solution), the H⁺ concentration being kept at 10⁻⁶ to 10⁻⁸ by the regulated addition, as required, of sulphuric acid or of ammonia. The temperature is 30° C. and the current density at the cathode 10-15 amps./d.m. The rotating aluminium cathode has a burnisher lightly pressing against it. Electrolyte manganese contains a considerable quantity of dissolved hydrogen, which is not, however, responsible for its brittle nature.—J. Grant: Concentration-cells in methyl alcohol. Part II. Solutions containing tetraethyl ammonium iodide.—F. H. Jeffery: The electrolysis of solutions of potassium oxalate with a tin anode, and an electrometric determination of the constitution of the complex anions formed. Electricity passes from anode to anolyte in accord with the equation—



A solid phase corresponding with this complex ion,



can be isolated. When the tin anode is coated with finely divided metal and the products of electrolysis allowed to accumulate on it, anodic oxidation takes place probably in accord with the equation—



NO. 2857, VOL. 114]

A solid phase derived from tetravalent tin is formed, but it has not been determined whether it is of the form Sn(C₂O₄)₂ or K₂{Sn(C₂O₄)₃}. No tin is deposited on the cathode during this stage. The anode potential remains constant for a wide range of current density provided the anode be kept free from finely divided metal and the products of the electrolysis: failing this precaution it may rise to more than nine volts referred to the normal hydrogen electrode as zero, the current being 0.1 amp. The Darwin thread recorder has been adapted to the measurement of variations of the electrolysis current and also the time-integral of this current. It shows the rapidity of the change from the stage of the formation of the stannous complex alone to the stage of anodic oxidation.—F. J. Fraser: An improved form of Crook's elutriator.

CAMBRIDGE.

Philosophical Society, July 14.—Mr. C. T. Heycock, president, in the chair.—E. V. Appleton, K. G. Emeléus, and M. Barnett: Some experiments with an α-particle counter. The "wave-form" and intensity of the transient impulses resulting from discharges stimulated by single electrified particles have been determined using a cathode-ray oscillograph. The nature of the impulse is determined largely by the capacity and resistance of the system. The potential impulse normally detected by string electrometer methods is proportional to the current responsible for the re-charging of the electrostatic capacity of the counter after the rapid discharge of the capacity initiated by the electrified particle. When the pressure in the ionisation chamber is made less than that at which self-restoring action is possible, persistent oscillations are found. These represent the periodic charging of the counter capacity after its periodic discharge between the point and the plane. The impulses normally produced by α-particles are thus represented by one unit of the sustained oscillation. The total quantity of electricity circulating round the system when an α-particle enters the chamber is, in normal cases, of the order of 10⁻¹⁰ coulomb, but in low resistance circuits may be made 10⁻⁶ coulomb. The "energy trigger ratio" of the counter for α-particles, which represents the ratio of the energy released in the system to that of the electrified particle acting as stimulus, is normally of the order of 10⁵, but may be made as high as 10⁹.—J. E. Littlewood: On the zeros of the Riemann zeta function.—S. Lees: A case of steady flow of a gas, in two dimensions.—P. A. M. Dirac: Note on the Doppler principle and Bohr's frequency condition.—B. M. Sen: The applicability and deformation of surfaces.—E. C. Titchmarsh: A system of linear equations with an infinity of unknowns.—J. B. S. Haldane: A mathematical theory of natural and artificial selection. Part II. Expressions are found for the effects of various degrees of self-fertilisation, inbreeding, assortative mating, and selective fertilisation, on the composition of Mendelian populations, and the progress of natural selection in them.—H. W. Turnbull: The vector algebra of eight associated points, of three quadric surfaces.

CALCUTTA.

Asiatic Society of Bengal, July 2.—Gilbert T. Walker: On the wings of gliding birds. A peculiar feature in the structure of the wings of gliding birds is comparable to a device adopted in the construction of Handley-Page aeroplane wings.—E. W. Gudger: The sources of the material for Hamilton-Buchanan's "Fishes of the Ganges," the fate of his collections, drawings and notes, and the use made of his data.—

L. M. Davies: Notes on the geology of Kohat, with reference to the homotaxial position of the salt marl at Bahadur Khel. The beds at Kohat are homotaxial with the beds at Bahadur Khel.—Baini Prashad: Revision of the Japanese species of the genus *Corbicula*.—W. Ivanow: (1) More on the sources of Jami's "Nafahat." A summary description of the rare work, *Risāla-i-Iqbāliyya*, containing an account of the discourses of 'Alāu'd-Dawla Samnānī (d. 1336). (2) Imam Ismail. New information concerning Ismail, the sixth Imam of the Ismailiyya. It was found in a rare and early book on Shi'ite tradition, by Kashī, dating from the tenth century.—K. N. Dikshit: Two Harsola copper-plate grants of the Paramara Sikaya (II.), V.S. 1005.—Amareshvar Thakur: Jail administration in ancient India. A brief review, mainly based on data furnished by the Buddhist Jātakas and Kautilya's Arthasāstra, drawing the conclusion that a humane element was not wanting in ancient Indian criminal justice.—Sir Gilbert T. Walker: A note on Indian boomerangs. Description, with illustration, of a new species, called *Kātar*, used as a throwing stick by the Bhils.—Paul Tedesco: The dialectical position of Ormuri.—N. G. Majumdar: A list of Kharosthī inscriptions.—H. Srinivasa Rao: Note on a brackish-water actinian from Madras. A form apparently new to science, probably closely allied to *Pelocoetes*, which was collected in 1922, was described.—H. Chaudhuri: *Oedogonium Nagii* sp. nov. Found at Lahore, developing in a bottle containing a collection of *Zygnemas*.

OTTAWA.

Royal Society of Canada (Section V., Biological Sciences), May 19-22 (Annual Meeting at Quebec).—F. C. Harrison (Presidential Address): Historical review of the red discoloration of foodstuffs.—A. H. Reginald Buller: (1) Luminous leaves; (2) *Sphaerobolus stellatus* and the dispersion of its spores by herbivorous animals.—C. W. Lowe: The fresh-water algae of Central Canada.—B. T. Dickson and G. A. Scott: Identity of the organism causing black-dot disease of the potato, Part I. and Part II.—B. T. Dickson and W. L. Gordon: The effect of various smut control treatments on the germination of oats.—C. D. Kelly: The bacteriology of the Kingston cheese.—N. S. Golding: A study of the moulds in blue-veined cheese.—A. G. Lochhead: (1) Microbiological relationships in frozen soils; (2) Psychrophilic soil bacteria.—G. W. Scarth: The toxic action of distilled water and the antagonism to it of cations.—A. B. Macallum: The origin of karyokinesis.—A. T. Cameron and J. Carmichael: After-effects of feeding thyroid to young rats.—A. T. Cameron: (1) The action of absorbable intestinal toxins on metabolism; (2) The cranio-facial axis of Huxley—Pt. I., Embryological considerations.—J. G. FitzGerald and Dorothy G. Doyle: A further study of the question of utilisation ("fermentation") of saccharose by *B. diphtheria*.—J. J. R. Macleod, J. Hepburn, J. K. Latchford, and N. A. McCormick: The effect of insulin on the percentage of sugar in blood from different regions of the body.—J. J. R. Macleod, E. C. Noble, and M. K. O'Brien: The influence of insulin on the glycogen content of the liver and muscles during hyperglycæmia.—G. S. Eadie, J. J. R. Macleod, and M. D. Orr: The soluble carbohydrates of liver and muscle and the influence of insulin on them.—F. N. Allan and S. S. Sokhey: Further observations on depancreatised animals.—S. U. Page: The effect of insulin on chloridzin diabetes in dogs.—J. Markowitz: The behaviour of the diastases in diabetic animals treated with insulin.—Frederick R. Miller and H. M.

Simpson: Viscero-motor reflexes.—R. Miller and R. A. Waud: Pulse and cardiac records obtained with electropolygraph.—G. A. Ramsay: Amplification of heart sounds by radio apparatus.—J. Miller: Classification of tumours arising from the trophoblast, with illustrative cases.—C. McLean Fraser: *Acaulis Primarius*, Stimpson.—A. G. Huntsman: Some results of the Belle Isle Strait Expedition, 1923.—R. H. McGonigle: The distribution of pile borers on the Canadian Atlantic coast.—A. H. Leim: Certain features in the life-history of the shad.—A. G. Huntsman and M. I. Sparks: Resistance of marine animals to high temperatures, and their distribution in Nature.—C. H. O'Donoghue: A list of the Nudi-branchiate Mollusca recorded from the Pacific coast of North America, with a note on their distribution.

VIENNA.

Academy of Sciences, January 10.—Kurt Ehrenberg: On the development of the base of the skull in cave bears from the Drachenhöhle near Mixnitz. The communication is chiefly concerned with the confirmation of a hitherto unobserved epiphysis formation in the lower half of the posterior head condyles of the cave bear (*Ursus spelaeus*), which appears during the second year of life. Later the epiphysis fuses completely with the original condylus occipitalis. Its formation is conditioned by a change in the attitude of the skull, a downward inclination of the skull as it becomes heavier, and appears to have arisen only in the males.—A. Skrabal and H. Airoldi: On the rate of hydrolysis of ethyl ether.—A. Skrabal and M. Baltadschiewa: On the rate of hydrolysis of ortho-acetic-ethyl ether.—R. Andreasch: Note on the paraban acids.—R. Andreasch: On the carbamide and guanidin derivatives of the sulphur-substituted fatty acids; Part II.—E. Müller: On combined conic sections of conic section pencils.—K. Ehrenberg: On the development of the anterior region of the skull of the cave-bear from the Drachenhöhle near Mixnitz.—A. Pisek: The development of the anthers and the meiotic division of the pollen mother cells in the juniper-mistletoe, *Arceuthobium Oxycedri*; the structure of the anthers and the number of chromosomes in the cells of *Loranthus europæus*. The anther of *Arceuthobium* is regarded as equivalent to a micro-sporangium. The meiotic division of the pollen mother-cells sometimes shows disturbances caused by insufficient nourishment of the parasite by the host plant.—R. Kreman, R. Kienzl, and R. Markl: Electrolytic conduction in fused alloys; Part III., The electrolysis of lead-cadmium and of lead-sodium-cadmium alloys. With currents of about 1 amp. per sq. mm., an increase in the concentration of lead was found to occur at the anode and of cadmium or sodium respectively at the cathode.

January 17.—R. Kreman, R. Müller, and H. Kienzl: Electrolytic conduction in fused alloys; Part IV., The electrolysis of mercury-sodium alloys. The increase in concentration of sodium at the cathode and of mercury at the anode was found to grow with the density of the current to a maximum of about 9 per cent.—R. Kreman, R. Müller, and R. Ortner: Electrolytic conduction in fused alloys; Part V., The electrolysis of mercury alloyed with potassium, calcium, and cadmium. An increase in the concentration of potassium, calcium, and cadmium is observed near the anode, the effect increasing with the density of the current.—L. Moser and A. Brukl: On solid compounds of hydrogen and arsenic. The formation of solid As_2H_2 , according to Reckleber and Scheiber is confirmed. A new solid compound, tetra-arsenic hydride As_4H_2 , was obtained by the use of weak oxidising agents on gaseous AsH_3 .—K. Schnarf:

Remarks on the position of the genus *Saurania*.—K. Keissler: *Fungi novi Sinenses* a H. Handel Mazzetti lecti II.

January 24.—H. Micoletzky: Final report on free-living nematodes from Suez. The Mediterranean and the Red Sea appear to have more nematodes in common than the Mediterranean and the North Sea.—G. Götzinger: Morphological studies after the great landslide of the Gras-mountain at Oberwang in Attergau.—H. Handel-Mazzetti: *Plantæ novæ Sinenses diagnosis brevibus descriptæ*.

February 7.—F. Werner: New or little known snakes from the State Museum of Natural History at Vienna. New genera of aglyptic Colubrids, *Procteria viridis* (n. sp.), South-west Africa, allied to *Pseudoxenodon*, *Pachyophis temporalis* (n. sp.), *Triacnopholis arenarius* (n. sp.), *Aryrogena rostrata* (n. sp.), Argentine, *M. elegantissima* (n. sp.), *Pseudoromacer lugubris* (n. sp.), San Paolo, Brazil, *Nerophidion hypsirhivoides* (n. sp.), allied to *hydræthiops*, *Padangia pulchra* (n. sp.), Padang, Sumatra, *Eominophis lineolata* (n. sp.), East Africa.—A. Skrabal and M. Baltadschiewa: On the rate of hydrolysis of ortho-carboxyl-ethyl-ether.—A. Skrabal and A. Matievic: The dynamical equilibrium of malic ester.—E. Schweidler: Studies in atmospheric electricity, No. 65, On the characteristics of the current in slightly ionised gases. The characteristic of the ions is calculated by linear recombination law and the proportionality between conductivity and the saturation deficit of the current is found to hold. The term semisaturation potential (corresponding to 50 per cent. saturation) is defined. The application to practical measurements is demonstrated.—W. Schlenck: Studies in atmospheric electricity, No. 66, Experimental investigations on the characteristic of the current in weakly ionised gases. With a cylindrical condenser as ionising vessel, the current-potential function was found to correspond to the linear law of recombination.—M. Blau: On the disintegration constant of radium A (Mitt. d. Ra-Inst's No. 161). A new experimental determination gives the radioactive constant $\lambda = 0.2273 \pm 0.0007 \text{ min}^{-1}$; the half value period was found to be $T = 3.05 \pm 0.009 \text{ min}$.—W. Riss: On the composition of bröggerites and on the genetic relationship between thorium and uranium (Mitt. d. Ra-Inst's No. 162). A large number of analyses on bröggerites have proved that idiomorphic bröggerites are probably all (many of them without doubt) older than the lodes in which they are found. As there are also non-idiomorphic bröggerites, it remains an open question whether these can be used for age measurements and also whether the large differences in the ages of the lodes found in this way are real. The results do not contradict the assumption of a genetic relationship between thorium and uranium.—E. Lohr: On the comparison made by Fr. Schenner between the Jaumann's theory of gravitation and observations.—G. Flumiani: On a dimethyl-tetroxy-anthrachin.—K. Brunner, W. Seeger, S. Dittrich: Diacyamine.—A. Tauber: On the integration of linear differential equations, IV.—O. Storch: Studies on dragonflies from the biological station at Lunz, Lower Austria, and the second Zoological Institute of the University of Vienna. *Somatochlora metallica*, an anisopterate odonate, lays its eggs in the earth inserting its ovipositor in the intervals of its flights over water. The Odonata anisoptera are not gliding air-machines; they make the best use of the freedom of movement which their mode of flight permits, lifting themselves straight into the air and performing all sorts of evolutions during oviposition.—F. M. Exner: On the release of cold and warm outbursts in the atmosphere.—F. Feigl: Contributions to the study of the relationship between the grouping of atoms and specific affinity, Part I.

February 17.—P. Weiss: (1) Regeneration of the whole from half the cut surface of an extremity in *Triton cristatus* (from the Institute of Experimental Biology of the Academy of Science, Vienna). If the leg be split and both parts shortened by amputation, a whole foot will regenerate from the half-cut surface when the second half regenerates nothing; otherwise regeneration of a whole foot occurs, divided between the two stumps, forming a split extremity or merging into one blastema. (2) Regeneration from a double cut surface of an extremity in *Triton cristatus*. When the arm is artificially bent in such a way that the radius lies parallel to the humerus, fixed in such a position, and the elbow cut off, exposing two cut surfaces, one from the humerus, one from the lower arm, a symmetrical structure regenerates, the regenerating part from one cut surface being the mirror image of the other.—I. Sciacchitano: The stage in which dopa is formed in the cocoon of the moth *Lophyrus pini* (from the Institute for Experimental Biology of the Academy of Science, Vienna). Dopa, i.e. dioxyphenyl-alanin, is only produced in the caterpillar during spinning and is already lost when the state of pupation is attained.—L. Kober: Contribution to the geology of anomalies in the gravitational force.—A. Köhler: Petrographic-geologic observations in the south-western forest district.—L. Kolbl: Report from petrographic-geological studies in the western part of the forest district in Lower Austria.—L. Waldmann: Preliminary report from the survey of the Moravian district to the south of the Eggenberg-Siegsmundherberg railway line.

February 21.—A. Skrabal, F. Pfaff, and H. Airoldi: On saponification of keto-carbonic-ester.—H. Lieb and D. Schwarzl: On elemic acid from Manila elemi-resin.

Official Publications Received.

Bulletin of the American Museum of Natural History. Vol. 51, Art. 1: Miocene Orodonts in the American Museum. By F. B. Loomis. Pp. 27. (New York City.)

University of Illinois Engineering Experiment Station. Circular No. 11: The Oiling of Earth Roads. By Prof. Wilbur M. Wilson. Pp. 27. (Urbana, Ill.) 15 cents.

Colony of Southern Rhodesia. Report of the Director of Veterinary Research for the Year 1923. Pp. 8. (Salisbury, S. Rhodesia: Government Printer.)

Memoirs of the Department of Agriculture in India. Botanical Series, Vol. 13, No. 2: The Wilt Disease of Safflower. By S. D. Joshi. Pp. 39-40+3 plates. (Calcutta: Thacker, Spink and Co.; London: W. Thacker and Co.) 1 rupee; 1s. 6d.

Smithsonian Institution: United States National Museum. Contributions from the United States National Herbarium. Vol. 24, Part 5: Economic Fruit-bearing Plants of Ecuador. By Wilson Popenoe. Pp. x+101-134+plates 34-49. (Washington: Government Printing Office.) 15 cents.

The South African Journal of Science. Vol. 20, No. 2, December 1923: Comprising the Report of the Twenty-first Annual Meeting of the South African Association for the Advancement of Science, Bloemfontein, 1923, July 9-14. Pp. iv+285-604. (Johannesburg.) 15s. net.

Experimental and Research Station, Nursery and Market Garden Industries' Development Society, Ltd., Turner's Hill, Cheshunt, Herts. Ninth Annual Report, 1923. Pp. 97. (Cheshunt, Herts.)

Proceedings of the Royal Society of Edinburgh, Session 1923-1924. Vol. 44, Part 2, No. 15: An Investigation into the Structure and Life-History of the Sulphur Bacteria (I.). By Dr. David Ellis. Pp. 153-167. (Edinburgh: R. Grant and Son; London: Williams and Norgate.) 1s. 3d.

The Organization, Achievements and Present Work of the Dominion Experimental Farms. Pp. 302. (Ottawa: Government Printing Bureau.)

National Association of Master Bakers, Confectioners and Caterers. Reports on Research at the National Bakery School, London, conducted by Dr. C. Dorée and John Kirkland. Pp. 26. (London: 89 Kingsway, W.C.2.) 2s. 6d.

Department of the Interior: Bureau of Education. Bulletin, 1923, No. 58: Statistics of Kindergartens 1921-22. Prepared by the Statistical Division of the Bureau of Education under the Direction of Frank M. Phillips. Pp. 7. (Washington: Government Printing Office.) 5 cents.

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. 75, 1923. Pp. iii+429+29 plates+87. (Philadelphia.)

Ministère de l'Instruction publique et des Beaux-Arts. Enquêtes et documents relatifs à l'enseignement supérieur. 119: Rapports sur les observatoires astronomiques de Province, année 1923. Pp. 129. (Paris: Imprimerie Nationale.)

Rapport annuel sur l'état de l'Observatoire de Paris pour l'année 1923, présenté au Conseil dans sa séance du 14 février 1924. Par M. B. Baillaud. Pp. 43. (Paris: Imprimerie Nationale.)