

Societies and Academies

LONDON

Royal Society, February 21. F. W. ASTON: The isotopic constitution and atomic weights of hafnium, thorium, rhodium, titanium, zirconium, calcium, gallium, silver, carbon, nickel, cadmium, iron and indium. Mass-spectrograph analyses both by anode rays and the ordinary discharge have been made of thirteen elements. Rays from some twenty new isotopes were discovered in all. The atomic weights estimated by the photometrical measurements of abundance are generally in good accord with the accepted ones. In the case of cadmium, success was attained in an unexpected manner and interesting observations were made on the behaviour of metallic methyls in the discharge. Work on the isotopic constitution of elements is now fairly complete. All but four, palladium, iridium, platinum and gold, have given positive results of some sort. Some 247 stable isotopes are known and one of the most astonishing facts revealed is the occurrence of a stable elementary atom for practically every natural number up to 210. J. M. STAGG: The diurnal variation of magnetic disturbances in high latitudes. For some years it has been known that irregular, short-period perturbations ('disturbances') in the earth's magnetic field at a few isolated localities have a daily variation in their time of incidence, but it was not known whether the variation is governed by local or universal time or how it is affected by magnetic latitude. Using the records from ten magnetic observatories in both hemispheres, it has been established that short-period irregular disturbance is controlled by local time up to the magnetic axis pole. Below magnetic latitude 70° , the variation in disturbance has a dominant single maximum in the late evening throughout the year; above 80° its phase is reversed and the transition from summer to winter conditions involves radical change both of type and scale. In the intermediate zone the incidence of disturbance varies also with season and with the state of general disturbance, both forenoon and evening maxima being conspicuous.

PARIS

Academy of Sciences, January 14 (C.R., 200, 77-268). JULIEN COSTANTIN: The practical consequences of the germination of potato seeds in the mountains. The art of raising potatoes from seed requires a special technique which is not generally known. This is of importance in connexion with the production of strains of potatoes capable of resisting disease, and details are given. HENRI VALLÉE was elected *Correspondant* for the Section of Rural Economy. I. VINOGRADOV: A new variant of the demonstration of Waring's theorem. TIBÈRE POPOVICIU: Remarks on the algebraic equations the derived equations of which have all their roots real. PAUL DUBREIL: An ideal attached to a skew algebraical curve defined by its monoidal representation. SIMON STOÏLOW: The topological characterisation of Riemann surfaces. GEORGES TZITZÉICA: Certain networks. JEAN LOUIS DESTOUCHES: A new conception of physical space. B. GAMBIER: Quadrics with one parameter touching their envelope along two conics. ST. GOLAB: The measurement of areas in Finsler spaces. FLORIN VASILESCO: The method of *balayage* of Poincaré extended by M. de La Vallée Poussin, and its relations with the generalised problem of Dirichlet. ROBERT MEYNIÉUX:

The continuous functions of a real variable which possess a theorem of algebraic addition. G. DEDEBANT, PH. WEHRLÉ and PH. SCHERESCHEWSKY: The maximum of probability in permanent movements. Application to turbulence. ALBERT TOUSSAINT: Contribution to the study of infinite multiplanes in a plane current. JULIEN KRAVTCHEKO: Theorems of validity in problems of wakes. MME. MARIE LOUISE DUBREIL-JACOTIN: The theorems of existence relating to permanent periodic waves in two dimensions in heterogeneous liquids. PIERRE CHEVENARD: A micromachine with photographic registration for the mechanical testing of metals. This machine utilises test-pieces of 1-1.5 mm. diameter only, an advantage when dealing with costly alloys. An outline of the possible applications of the machine is given. GEORGES MANEFF: The effects of the theory of relativity. JEAN DUFAY and MME. M. BLOCH: Rapid changes in the spectrum of Nova Hereulis. Absorption bands attributed to cyanogen. Discussion of observations made at the Lyons Observatory. The rapid changes noted about December 25 and 27 appear to be due to a large cyanogen absorption band, the head of which is at 4216 Å. This appears to be the first time cyanogen bands have appeared in a Nova. BERNARD LYOT: The spectrum of the solar corona in 1934. Eleven diagrams are given showing the intensities of the green line observed in 1934. PAUL BERNARD: The absence of hysteresis in piezo-electric phenomena. An experimental study of the effect of the rate of increasing or decreasing the pressure on the quartz on the quantities of electricity set free. No such effect could be measured and hence there is no hysteresis. L. G. STOKVIS: The geometric loci of the neutral point of a triphase system. PIERRE JACQUET: The adsorption of certain colloids by metallic surfaces and its influence on the structure of electrolytic deposits. ANDRÉ ARON: The magnetic properties of thin sheets of nickel. Study of semi-transparent nickel films deposited in hydrogen or in nitrogen, with special reference to the effect of temperature on the Curie points. ADOLFO WILLIAMS: The persistence of intercombination lines [of the spectrum]. PAUL MONDAIN-MONVAL and ROGER WELLARD: The influence of temperature on the explosion of mixtures of air and hydrocarbons. Experiments bearing on the causes of knocking in internal combustion motors: the results support the peroxide theory. PIERRE MONTAGNE: The calculation and graphical representation of the elementary displacements in reactions of homogeneous chemical equilibria. Variations of temperature and pressure. JEAN PERREU: The calorimetry of saline solutions: system sodium sulphate, magnesium sulphate, water. LOUIS DOMANGE: The action of steam on copper fluoride. ALEXIS TCHITCHIBABINE and MICHAEL BESTOUGEFF: The action of ethylene oxide on hydrogen sulphide. The primary reaction product is thioethylene glycol, $\text{HO}\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{SH}$, but if the temperature is allowed to rise, further condensation takes place, one of the products being a strong base, triethylol sulphonium hydroxide. JEAN TABUTEAU: The oxidation of carvomenthene by selenious anhydride. The synthesis of carvotanacetol. EDMOND SAURIN: Some deposits of tectites of southern Indo-China. NORBERT CASTERET: The deepest known penetrable hydrogeological opening, the Martel abyss (Ariège). EMMANUEL DE MARTONNE: Areism and the movements of the soil in the Argentine plains. MARCEL MASCRÉ and MME. ALICE ROLLEN: The influence

of tensio-negativity on the structure of the plant cell. ALBERT MAIGE: The variations of plastidal imbibition during chloroplastogenesis, amylogenesis and amylolysis. J. MAGROU: The immunity reactions of plants towards *Bacterium tumefaciens*. MLLÉ. JEANNE LEVY, MLLÉ. DENYSE KOHLER and L. JUSTIN-BESANÇON: The relations between the constitution of some aminoether oxides and their pharmacodynamical actions. MLLÉ. MARIE LOUISE VERRIER: The comparative morphology of the visual cells and the theory of duality of vision. ALBERT VANDEL: The crossing of geographical races of *Trichoniscus (Spiloniscus) provisorius* giving an exclusively male descent. W. KOPACZEWSKI: The jelling of human serum by acids.

LENINGRAD

Academy of Sciences (C.R., 4, No. 5-6). I. VINOGRADOV: A new evaluation of $G(n)$ in Waring's problem. A. GORGIDZE: A method of successive approximations as applied to a problem of the theory of elasticity. A. POPOV: Some applications of the simplest discontinuous functions. I. ASTAPOVITCH: New determination of the mean heliocentric velocity of meteors by means of the diurnal variation method. J. SEKEZH-ZENKOVITCH: The problem of a discontinuous movement of a liquid around a circle. B. GALERKIN: Contribution to the theory of an elastic cylindrical shell. E. GAPON and D. IWANENKO: Alpha-particles in light nuclei. N. NYBERG: The possibility of approximate spectrophotometry without obtaining a spectrum. N. ORLOV: A new synthesis of the hydrocarbons of the C_nH_{2n+2} series. The proposed synthesis of saturated aliphatic hydrocarbons differs from all those previously described by the complete hydrogenation of the furane derivatives. I. NAZAROV: The action of metallic sodium on fatty ketones (3). The reaction between metallic sodium and isobutyrene. A. PETROV and L. ANCUS: Low temperature hydrogenation and polymerisation of acetylene in the presence of nickel catalysts. Liquid products of hydrogenation and polymerisation of acetylene were obtained both at atmospheric pressure and temperature of 180°-200° C., and at increased pressure (up to 25 atmospheres) and temperatures not above 40° C. V. TCHELINTSEFF: Acid oxygenetic organic compounds. L. NIKITIN: On some acoustic electrochemical phenomena. V. KARASIK and M. LIKHATCHEV: The relation between the chemical nature and biological activity of dihydroxide of methyl-diphenylarsine and its derivatives. V. SOLOVJEV: Hydromodulus of the spring wheat, *T. durum*, in the Transvolga hills. A. POTAPOV: Tyrosinase of tea leaves, and its probable rôle in tea manufacture. G. MOLOTKOVSKI: Determination of the coefficient of ventilation in leaves. The coefficient of ventilation is the volume of air, in cubic millimetres, passing through one stoma in a second. A method for its determination is described. I. KOLOMTEC: Scheduling the dates of watering and drought in accordance with the stages of plant growth as a means of controlling the yield. A. VACENKO: Inheritance of glume pubescence and of the black colour of the ear in *T. durum*. A. SVETOVIDOV: Geographical variability of *Coregonus lavaretus pidschian*. V. ARGAMAKOVA: Some Ophiuræ from the east coast of Sakhalin. *Ophiocten miocaenicum*, another *Ophiocten* species and *Amphiophiura aenigma* are described from Miocene deposits of the Island of Sakhalin.

SYDNEY

Royal Society of New South Wales, November 7. J. C. EARL and H. M. PARKIN: The fastness of certain aminoazo dyes to washing. Aminoazobenzene and its *N*-methyl, *NN*-dimethyl, *N*-benzyl and *NN*-methyl benzyl derivatives were studied comparatively as regards the fastness to washing of dyeings on wool made with them under exactly similar conditions. The *p*-sulphonic acids of the last four of the above compounds were also compared. In both series the *NN*-methyl benzyl derivatives were very much faster to washing than the other dyes. F. P. DWYER and D. P. MELLOR: Compounds of palladium with benzildioxime. An investigation of the compounds of palladium with the isomeric forms of benzildioxime has shown that palladium is strictly analogous to nickel, in that one molecule of the metal is coordinated with two molecules of α (anti)-benzildioxime and with one molecule of γ (amphi)-benzildioxime. However, unlike all the common metals and the other metals of the platinum group, palladium gives an insoluble compound Pd ($C_{14}H_{10}N_2O_2$) with β (syn)-benzildioxime. J. G. CHURCHWARD: Note on the occurrence in New South Wales of black chaff of wheat caused by *Bacterium translucens*, var. *undulosum*, S.J. and R. Infected stems, leaves, chaff and grain of commercial and other varieties were found in several wheat-growing districts in New South Wales. Work at the University of Sydney would suggest that the disease is widespread and has been present in New South Wales, unrecognised, for a number of years. The extent of the losses caused by it are not yet known. A number of the most popular varieties of wheat in New South Wales are susceptible. C. C. TOWLE: An inquiry concerning a certain conventionalised type found along the coast of New South Wales. Of the flaked stone implements found, the conventionalised types are essentially asymmetrical in form, and various interpretations have been given concerning the uses to which they were put by the aborigines. Systematic inquiry shows that the most probable reason for the asymmetrical form of the implements was the highly refractory nature of the material available for flaking. For several reasons, the flakes of this form produced the most satisfactory implements. The conventionalised implements dealt with in the paper have been classified as scrapers, and they have been correlated with some of the conventionalised scrapers from the far western areas of New South Wales. The implements from those parts where a tractable material was available are more symmetrical in form. M. B. WELCH: The moisture equilibrium of timber in different parts of New South Wales. (2) Murwillumbah. During the period October 1930-October 1932, a moisture equilibrium investigation was conducted at Murwillumbah, New South Wales. It has been found that in general the atmospheric humidity conditions are higher than at Sydney, and the mean moisture content of ten different timbers kept indoors over the period was 13.2 per cent, whereas similar timber under the same conditions at Sydney showed a mean of 12.0 per cent. Periods of very high humidity were found to occur during which the mean monthly moisture content for timbers such as tallowwood and blackbutt was in the vicinity of 16 per cent and Queensland maple exceeded 17 per cent. During such periods, satisfactory air seasoning of timber for the Sydney market does not appear to be practicable.