

Societies and Academies

Dublin

Royal Irish Academy, March 16.

J. J. DOWLING and T. G. BULLEN: Precision measurements with a radial deflection oscillograph. An extra pair of concentric cylindrical electrodes are fitted between the XY deflector plates and the screen of a gas focused cathode ray oscillograph. Employing a double frequency circular time-base locked to the signal frequency a so-called Radioid curve (resembling a Limaçon) is obtained, and the position of the node around the time base circle serves to measure phase or frequency differences in high-frequency circuits. Another application is as a 'time-comparator', and comparisons of the periods of a pair of two-seconds pendulums to within five parts in a million are easily obtained while the pendulums are executing twenty swings. An improved design of tube is described and further work promised.

Paris

Academy of Sciences, April 26 (*C.R.*, 204, 1225-1284).

SAMUEL EILENBERG: Slight enlargement.

SHING-SHEN CHERN: The geometry of a differential equation of the third order.

NIKOLA OBRECHKOFF: The zeros of some classes of polynomials.

PIERRE CHEVENARD, LOUIS HUGUENIN, XAVIER WACHÉ and ALBERT VILLACHON: New alloys of the elinvar type susceptible of structural hardening. Balance springs of elinvar, although giving excellent thermal compensation, are much softer than ordinary steel springs. The elinvar alloy can be modified by the addition of titanium. The modified alloy, while retaining the thermal advantages of elinvar, has an elastic limit approaching that of carbon steel.

Mlle. JACQUELINE HADAMARD: The dielectric constants of cyclohexane and benzene. The results given, for which an accuracy of 0.1 per cent is claimed, are compared with those of earlier workers.

GEORGES NADJAKOFF: The nature and origin of the large ions of the atmosphere. The author's observations are in agreement with the view suggested previously by other workers, that there is a close connexion between the number of large ions and the smoke of towns.

J. J. PLACINTEANU: The wave function of the photon.

MARCEL LAPORTE: The production of white light by the electrical luminescence of xenon.

JULES FARINEAU: An attempt at photometry in the field of the soft X-rays; application to the study of the free electrons of metals.

GEORGES MANO: The relation between the kinetic energy and path of the protons. The case of artificial transformations.

ROGER CHATELET: A thermo-chemical application of thermal analysis to the formation of the eutectoids of the binary alloys.

CLÉMENT COURTY: The diamagnetism of iodine solutions. An attempt to trace a connexion between the colour of iodine solutions in different solvents and their magnetic properties.

ERNEST TOPORESCU: The action of sulphur on silver.

ALBERT PORTEVIN, GEORGES CHAUDRON and LÉON MOREAU: Contribution to the study of the role of gases in metals. Study of the variations in hardness, conductivity and crystalline parameter after removing the gases at the ordinary temperature, after annealing and after charging with hydrogen by electrolysis. Data are given for iron and aluminium.

HUBERT FORESTIER and RICHARD LILLE: The variation of catalytic activity of ferromagnetic oxides at the Curie point. The experiments cited establish a clear relation between the magnetic transformation point and the catalytic properties of ferromagnetic oxides.

GEORGES DENIGÈS: Reactions for the identification of tellurium of microchemical order.

PAUL RENAUD and GEORGES COSTEANU: Anomalies in the action of steam or of ammonia on sodium or hæmatoxylin.

MAXENCE MEYER: The formation of hydrocarbons in the thermal decomposition of the α -ethoxyacids.

PANOS GRAMMATICAKIS: The action of mixed organomagnesium compounds on the phenylhydrazones of the symmetrical alkylphenylhydrazines. A new method of preparation of the symmetrical alkylphenylhydrazines.

PAUL FLEURY and Mlle. SUZANNE BOISSON: The action of periodic acid on lactic and pyruvic acids. In the oxidation of lactic acid by periodic acid, two primary products are aldehyde and methyl alcohol.

JACQUES DUCLAUX: The transparency of the air in the arctic regions.

PAUL BECQUEREL: The death of the plant cell by freezing in liquid nitrogen at -190° C.

MARCEL MASCRÉ and RENÉ PARIS: Scoparine (scaparoside) from *Sarothamnus scoparius*.

AUGUSTE CHEVALIER and PIERRE VIGUIER: The double origin of cultivated rice and the West African centre of rice dispersion.

JEAN RENAUD: A *Saccharomyces* presenting curious anomalies in its sexuality due to a dikaryotic state of its zygospores.

STEFAN NICOLAU and MME. LÉONIE KOPCIEWSKA: Data on the coloration and morphology of some viruses in animal tissue.

ALEXANDRE BESREDKA and LUDWIK GROSS: The immunization of the fowl against sarcoma by the intracutaneous method.

PAUL VALADE: The cancer-forming activity of methylcholanthrene.

Amsterdam

Royal Academy (*Proc.*, 40, No. 4; 1937).

R. WEITZENBOCK: Remarks on trivectors.

F. M. JAEGER and L. BIJKERK: Investigations on the complex salts of the racemic and optically active cyclohexanediamines with trivalent cobalt and rhodium (4). Crystallographic properties of the optically active tri-cyclohexanediamine cobalt salts and on ethylenediamine-cyclohexanediamine cobaltic salts of this series.

J. LE HEUX and A. DE KLEYN: Investigations on the isolated eye muscles of the rabbit during the positional nystagmus in acute alcohol poisoning.

T. L. DE BRUIN, J. N. LIER and H. J. VAN DE VLIET: The Zeeman effect of doubly ionized cerium, Ce III.

T. L. DE BRUIN: New terms in the spark spectra of argon, A II and A III.

J. POPKEN: An arithmetical property of certain integral functions (3).

C. VISSER: Certain infinite sequences.

N. H. SWELLENGREBEL, A. DE BUCK and H. KRAAN: Further investigations on 'healthy' human carriers of *Plasmodium vivax* in North Holland.

Capetown

Royal Society of South Africa, April 21.

Archæology of the Oakhurst Shelter, George. (1) A. J. H. GOODWIN: Course of the excavation. (2) A. J. H. GOODWIN: Disposition of skeletal material. (3) M. R. DRENNAN: Skeletal material. (4) J. F. SCHOFIELD: The pottery.

P. W. LAIDLER: An unusual grooved stone.

Geneva

Society of Physics and Natural History of Geneva,

March 4.

R. WAVRE and G. BILGER: Some polygons of similar attraction. The authors establish that a homogeneous regular polygon creates at every point external to the plane the same single layer logarithmic potential as the radii of the circumscribed circle touching the angular points.

March 18.

E. C. G. STUECKELBERG: (1) The analogy between the retarded potential of quantum physics and classical physics. A Lagrangian function is established by a system of n particles which react with each other. This function is invariant, but has the defect of containing higher potentials. However, the interaction terms can be expressed in quantum physics, where they give the necessary relations. (2) The establishment of the formula of retarded potential in quantum physics. By means of electrodynamics with multiple time quanta, the interaction terms established in the previous communication are here established rigorously to the second approximation in e .

E. CHERBULIEZ and J. JEANNERAT: Researches on casein. The authors have improved the method of separation of casein into various fractions. They show that one of these fractions, δ , is identical with a protein body, proteose, isolated by Hammarsten from the products of the action of rennet on casein. Hence proteose appears to be an original constituent of the milk and not a cleavage product due to the action of rennet on casein.

F. CHODAT: The enzyme decoloration of the petals of the poppy.

E. BRINER and E. PERROTTET: (1) The problem of the removal of ozone from air and from oxygen. The properties of air and oxygen free from ozone. The authors describe the method employed for removing ozone from ordinary air and ordinary oxygen. They point out the differences in oxidizing power of air and of oxygen free from ozone. (2) A method of analysing very dilute ozone: the determination of the ozone concentration in the air of Geneva. The application of the method described at the meeting of February 4, 1937, by the same authors has given for the concentration of ozone in the air of Geneva the value 7×10^{-8} with an error of $\pm 2 \times 10^{-9}$.

April 29.

F. CHODAT and R. CORTESI: Study of buffer action in culture fluids. The authors have observed fluctuations in buffer action in the culture of *B. mycoides*; a minimum is reached at the end of the first week, as soon as the gelatine medium is liquefied.

P. ROSSIER: A simplification in the calculation of the magnitude of a star, relating to a receiver with two sensibility maxima. The author replaces the usual formula by the simpler one of Stirling, some factors of which can be neglected in certain cases. This leads to a marked simplification in the calculations.

R. SULZER: The comparative study of the attitude of an animal deprived of a labyrinth and the attitude of a normal animal standing on a slope. The author studies the disturbances of equilibrium produced in the guinea pig by the unilateral suppression of the labyrinth.

G. TIERCY and CH. GOLAZ: The law of the variation with altitude of wind velocity. The note gives three numerical tables established with the view of controlling the theory by observation.

Melbourne

Royal Society of Victoria, April 8.

ELIZABETH A. RIPPER: (1) Some Stromatoporoids from Griffith's Quarry, Loyola, Victoria. This locality has yielded four species: *Clathrodictyon regulare* (von Rosen), *C. aff. chapmani* Ripper, *Stromatopora typica* von Rosen, and *S. bücheliensis* (Bargatsky), as well as a *Stromatoporella* not here described. This fauna has little in common with that of the Yeringian limestone at Liludale, and the abundance of *C. regulare* and *S. typica*, two Wenlock species, suggests that the limestone should be placed on a lower horizon than that of Lilydale, which contains a fauna with Devonian affinities. (2) The Stromatoporoids of the Buchan District, Victoria. Fourteen species and varieties are described, of which the following are new: *Actinostroma stellulatum* var. *distans*, var. nov., *A. contortum*, sp. nov., *Clathrodictyon convictum* var. *delicatula*, var. nov., *Hermatostroma episcopale* var. *buchanensis*, var. nov. The assemblages have, in the main, definite Devonian affinities, though typical Wenlock species, for example *Clathrodictyon regulare* (von Rosen), persist and make up a small proportion of the fauna.

G. BAKER: Orthite in some Victorian granitic rocks. The study of the distribution of orthite in some granites and associated xenolithic rocks in Victoria indicates that orthite has a contamination mode of origin in most Victorian examples, and a pyrogenetic mode of origin in a few cases.

F. CHAPMAN: Cherty Limestone with *Planorbis hardmani* Wade from the Mt. Elder Range, Kimberley District, W.A. The cherts were originally laid down in early Pleistocene times in shallow lakes on a peneplain, and are now perched on hills nearly 1,000 feet above sea-level. The Mollusca of the lake fauna comprise *Planorbis hardmani*, *P. aff. essingtonensis*, and a probable new species of *Bullinus*. Other indigenous organisms of this lake deposit are: calcareous algae allied to *Cladophora* and *Charophytes*, freshwater sponge-spicules, Ostracoda and probable insect remains. There is also evidence that minute Foraminifera had been carried into this lake deposit by wind agency from the coast-line, the nearest point to which now lies about 160 miles to the north.