

Societies and Academies

Dublin

Royal Dublin Society, March 23.

D. A. WEBB and W. R. FEARON: Studies on the ultimate composition of biological material. (1) Aims, scope and methods. A spectrographic survey has been made of peat from samples taken at different depths: (a) surface, (b) five feet down, and (c) twenty feet down. The following elements were plentiful in all samples: aluminium, calcium, magnesium, manganese, strontium. The following decreased with depth: lead, phosphorus, silver. The following increased with depth: barium, iron, silicon, zinc. The following were present as micro-constituents and showed no significant variation with depth: copper, molybdenum, potassium, tin. Surveys were made also of related organisms, namely, bakers' and brewers' yeast, and of various regions of a single structure, namely, the outer and inner layers of the testa and the endosperm of the Brazil nut. The data are discussed in connexion with the classification of biological elements into primary, secondary, and micro-constituents, and contaminants.

L. O'DROMA and M. GRIMES: A study of *Escherichia communior* found as a contaminating organism in 'starter'. A commercial 'starter' for use in cheese-making was found to produce a gassy curd. Manipulation of the mother starter failed to eliminate the gas former. Isolation revealed *Escherichia communior*, a coliform organism which ferments sucrose. Details of the cultural and physiological characters of the organism were given.

Paris

Academy of Sciences (C.R., 204, 829-924; March 15).

LAUGE KOCH: The question of the Ozakian in Greenland. The arrangement of the strata in northern Greenland is tabulated, in accordance with the author's view. The upper Cambrian is not represented, and the term Ozakian is omitted as being unnecessary.

MAURICE NICLOUX: The diffusion of ethyl alcohol in marine animals, and the hypothesis of combined water. Experiments bearing on the hypothesis of the existence of a protein-water complex in which the water has lost its usual solvent properties.

MENDEL HAIMOVICI: Finsler spaces.

CHRISTIAN PAUC: Ensemble of finite systems of points of a continuum.

LUBOMIR TCHAKALOFF: A problem of Laguerre.

MAURICE POTRON: Non-negative matrices.

HENRI MILLOUX: The Schottky-Landau theorem and the theory of normal families of functions.

ROBERT D'ADHÉMAR: The elementary theory of the gyroscopic movement of projectiles. Nature of the approximation. The Magnus effect.

JEAN LOUIS DESTOUCHES: The properties of the generalized Lorentz transformation.

OUANG TE-TCHAO: The size of smoke particles suspended in the air.

RAYMOND CHEVALIER and Mlle. SUZANNE MATHIEU: The variation of the magnetic susceptibility of a hæmatite powder as a function of the size of the grains. The magnetic susceptibility diminishes regularly as the grain size is reduced. No explanation can be given at present.

ROGER SERVANT: The examination and working of quartz plates cut perpendicularly to optic axis.

MARCEL CHÂTELET: The kinetics of the oxidation of cobalt in ammoniacal solution.

MARCUS BRUTZCUS: Combustion yields of hydrocarbons and energy values of the linkages of their atoms.

MME. ALMA DOBRY: The electro-chemical nature of cellulose solutions.

MARCEL SERVIGNE: A sensitive method for detecting traces of rare earth elements. The method is based on the production of a photo-luminescence spectrum, and will detect certain rare elements (samarium, dysprosium, europium) in concentrations so low as one part in a million.

PIERRE BONNEMAN: The tetrametaphosphates.

ARMAND MARIE DE FICQUELMONT: The mechanism of the polymerization of the phosphonitril chlorides, $(Cl_2PN)_x$.

THADÉE URBANSKI and MARIAN SLON: The nitration of the paraffin hydrocarbons by means of nitrogen peroxide. With normal paraffins ranging from pentane to nonane, mixtures of mono- and dinitro-derivatives were obtained.

JACQUES PARROD: The influence of some compounds on the formation of hydrocyanic acid, by oxidation of lævulose or of alloxan, in a copper-ammonium medium.

EUGÈNE WEGMANN: The Precambrian base of southern Greenland.

LOUIS EBLÉ: The values of the magnetic elements at the Val-Joyeux (Seine-et-Oise) station on January 1, 1937.

EMILE THELLIER: The so-called permanent magnetization of basalts. The magnetization of a basalt is altered by the action of even a very small magnetic field. Hence researches on the variations of the terrestrial magnetic field with time based on the study of the magnetic properties of basalts are of doubtful validity.

ROBERT LEMESLE: A new secreting apparatus with tannoids in the genus *Eupomatia*.

ROBERT ECHEVIN and ARTHUR BRUNEL: Nitrogen metabolism in the course of the germination of the lupin, *Lupinus albus*.

ROGER ULRICH: Some factors of the premature fall of the fruit in the ivy (*Hedera Helix*).

ROBERT QUETEL: The evolution of various forms of phosphorus in forced lily-of-the-valley.

ROGER GAUTHERET: The action of the root on the survival of isolated cells of the cap of *Lupinus albus*.

MARCEL MASCRÉ: Leucænoïl, a definite principle extracted from the seeds of *Leucæna glauca* (Papilionatæ).

RENÉ SOUÈGES: The embryology of the Amarantaceæ. The development of the embryo in *Amarantus retroflexus*.

MARC SIMONET: A new case of chromosome division in a hybrid of *Iris pogocyclus*, *I. Ricardii*, var. *Leverrier* × *I. Iberica*.

JULES PAVILLARD: Hybridization (or perhaps mutation) in pelagic diatoms of the genus *Rhizosolenia*.

MAURICE ROSE and Mlle. M. HAMON: The physico-chemical conditions of bursting and of the dehiscence of the spermatophores of some Cephalopods.

Mlle. YVETTE NEEFS: Various cases of functional hermaphroditism in *Strongylocentrotus lividus*.

VLADIMIR DRABOVITCH and PIERRE WEGER: Two cases of experimental neurosis in the dog.

PAUL CHAUCHARD: Chronaximetric analysis of the mechanism of the synergic and antagonistic actions in the field of the autonomous nervous system.

PHILIPPE L'HÉRITIER, Mlle. YVETTE NEEFS and GEORGES TEISSIER: Apterism of insects and natural selection.

MAURICE LECAMP: The morphological determination of the regeneration of members in the *Phasma*.

MME. PAULETTE CHAIX: The influence of traces of oxygen on the glycolysis of *Propionibacterium pentosaceum*.

MME. ANDRÉE DRILHON: The influence of parasitism on the mineral equilibrium of the tissues (asaculline in the crab).

Mlle. GILBERTE MOUROT: The nature of the excremental compounds resulting from the catabolism of the amino acids.

IWO LOMINSKI: Is alexin a corpuscular element?

GEORGES BLANC and M. BALTAZARD: The influence of fasting on the persistence of the virus of typhus in the flea, *Xenopsylla cheopis*.

GEORGES MOURIQUAND, HENRI TÊTE, GEORGES WENGER and PAUL VIENNOIS: Rheumatism with ankylosis in partial C avitaminosis.

Cracow

Polish Academy of Science and Letters, February 8.

S. MAZURKIEWICZ and Mlle. H. SZMUSZKIEWICZ: The zeros of quasi-analytical functions (*B*).

TH. BANACHIEWICZ: The calculations of determinants with the aid of Cracovians (2).

W. SWIETOSŁAWSKI and E. RAMOTOWSKI: Distillation with simultaneous expansion of vapours. Results obtained with an apparatus consisting of four fractionating columns connected by four narrow jets, producing differences of pressure in the four columns. The separation is more efficient with the expansion than without it.

W. SWIETOSŁAWSKI and S. PIESZCZEK: The comparative method of determination of the critical temperature of liquids and their mixtures.

K. DZIEWONSKI and L. STERNBACH: Studies on pyrene.

J. TUR: The extent of the neoplasmodic action of blastodermic cauterization.

J. GALLERA: The teloblast of platyneuric embryos.

Washington, D.C.

National Academy of Sciences (*Proc.*, 23, 41-131, Feb. 15).

K. W. COOPER: Reproductive behaviour and haploid parthenogenesis in the grass mite, *Pediculopsis graminum* Reut. (Acarina, Tarsonemidæ). After attachment to the source of food, the hysterosoma of the female swells with fluid to 100-500 times the original body volume of the mite; eggs form within, and develop through larval and nymphal stages to adults, when mass birth occurs. Such mass births contain about 5 per cent of males; a male is invariably present in every brood. Copulation often occurs before the mass birth. Virgin females, isolated before birth, produce only males, which seem to be haploids (chromosome number, 3).

A. V. MANZA: The genera of the articulated corallines.

CHESTER STOCK: An Eocene titanotherium from San Diego County, California, with remarks on the age of the Poway Conglomerate.

A. G. STEINBERG: Relations between chromosome size and effects of inversions on crossing-over in *Drosophila melanogaster*. The effect of an inversion on crossing-over in a non-homologous chromosome is a function of both the inversion itself and of the length of the chromosome affected.

HELEN D. KING and W. E. CASTLE: Linkage studies of the rat (*Rattus norvegicus*) (2). The occurrence of waltzing in an inbred race of rats at the Wistar Institute is linked with albinism, and its gene is now found to be borne in the same chromosome as the albino gene.

H. H. LAUGHLIN: The coefficient of prediction-accuracy: computation of the portion of individual cases common to both the particular prediction-distribution and to the subsequently determined actual-distribution of the same measured and counted phenomena.

W. J. CROZIER: Strength-duration curves and the theory of electrical excitation. Data on the relationship of current strength and time for a fixed magnitude of effect due to repetitive electrical excitation in nerve and muscle, and also data on phenomena of stimulation by light and by sound, can be described by a logarithmic probability integral.

H. RADEMACHER: A convergent series for the partition function $p(n)$.

J. L. WALSH: Curvature of level curves of Green's function.

A. H. CLIFFORD: Representations induced in an invariant subgroup.

S. PASTERNAK: The mean value of r^s for Keplerian systems.

PAUL S. EPSTEIN: The equation of diffusion. A discussion of two equations for a general theory of diffusion published by Kolmogoroff under the title "The Analytical Theory of Probability" and their relation to other forms of the diffusion equation used in physics.

TH. VON KÁRMÁN: The statistical theory of turbulence.

F. ZWICKY: Intrinsic properties of light and corpuscles from distant sources. The importance is stressed of investigating the change in time of dimensionless ratios of significant physical quantities. Data already available indicate that nebular light and terrestrial light possess intrinsically identical physical properties. Certain recent observations, however, suggest that the velocity of light may depend on its frequency. Similar inquiries should be made with regard to extra-terrestrial corpuscles.

DORRIT HOFFLEIT: Spectroscopic absolute magnitudes of three hundred and seventy southern stars.

T. E. STERNE and L. CAMPBELL: Changes of period in variable stars of long period. A study of the data available for 377 variables by Pearson's χ^2 test indicates that while certain of them have sinusously changing true periods, there is no good evidence for any secular change of period of an evolutionary nature among long-period variables as a whole.

D. E. ADELSON and M. T. BOGERT: The synthesis of gamma-methyl-5,6-cyclopentenorene, a compound structurally related to 'Diels' hydrocarbon'. It is thought this substance may be of biological interest.

W. D. HARKINS: The intermediate nucleus in the disintegrative synthesis of atomic nuclei: disintegration in steps. A discussion of various nuclear reactions based on the view put forward in 1926 that one or more intermediate nuclei are first formed, each of which has an actual life and separate existence.