

government of Spain has been reduced in the war with Don Carlos, a large quantity of bells, which were the property of the convents and were transferred from them for the relief of the Queen's cause, were sent to Marseilles and sold as old metal. About sixty were purchased by an American gentleman and shipped to New York, where the most experienced bell-founders examined them and pronounced that they are such that cannot be made in America, nor probably anywhere at this time. It is well known that the ancient Spanish bells and indeed all the old bells cast in Catholic countries were considered as sacred; the more precious their metal, the greater their sanctity, and nearly all of them are thought to have more or less silver in their composition. The art of compounding silver with the other metals entering into the composition of bells is now entirely lost. The tones are said to be inimitably beautiful; and it is stated that one of these bells weighing 100 pounds has as much power and strength of tone as an ordinary bell weighing 300. They weigh from 100 to 1700 pounds each; and are often highly ornamented with figures of the Cross, royal Arms of Spain and various devices *in alto relievo*. After being a certain time on view at New York, they were dispersed by public sale, and will now be scattered about in every quarter of the States. . . . The largest weighing 1700 pounds is already doing duty on the top of the New York City Hall."

### University Events

**BELFAST.**—Mr. A. H. Naylor has been appointed professor of engineering as from October 1, in succession to Prof. F. Hummel, who is retiring. Mr. Naylor is at present research officer of the Institution of Civil Engineers.

**LEEDS.**—Dr. D. T. A. Townend has been appointed Livesey professor of coal gas and fuel industries, to take office from October next, in succession to Prof. J. W. Cobb (see p. 964).

**LONDON.**—Prof. H. H. Read has been appointed, as from January 1, 1939, to the University chair of geology tenable at the Imperial College of Science and Technology. Since 1931 he has been George Herdman professor of geology in the University of Liverpool.

Dr. G. R. de Beer has been appointed to the University readership in embryology tenable at University College. For the last eleven years he has been Jenkinson lecturer in embryology and senior demonstrator in zoology and comparative anatomy in the University of Oxford.

The title of professor of natural philosophy in the University has been conferred on Dr. Herbert Dingle, in respect of the post held by him at the Imperial College—Royal College of Science.

The following doctorates have been conferred: D.Sc. in biochemistry on W. T. J. Morgan, of Queen Mary College, Lister Institute of Preventive Medicine, and West Ham Municipal College; D.Sc. in botany on A. E. Muskett, of the Imperial College—Royal College of Science; D.Sc. in chemistry on H. N. Rydon, of the Imperial College—Royal College of Science.

The Dunn exhibitions in anatomy and physiology for 1938 have been awarded to Mr. S. D. V. Weller (of University College) and Mr. J. W. L. Doust (of King's College) respectively.

### Societies and Academies

#### London

Royal Society (*Proc.*, B, 125, 187–290, April 27, 1938).

D. KEILIN and T. MANN: Polyphenol oxidase: purification, nature and properties.

J. MELLANBY and C. L. G. PRATT: The coagulation of plasma by trypsin.

A. S. PARKES and I. W. ROWLANDS: Studies on the hypophysectomized ferret. (10) Growth and skeletal development.

E. C. DODDS and W. LAWSON: Molecular structure in relation to oestrogenic activity. Compounds without a phenanthrene nucleus.

P. N. MARTINOVITCH: The development *in vitro* of the mammalian gonad: ovary and ovogenesis.

H. G. SMITH: The receptive mechanism of the background response in chromatic behaviour of Crustacea.

H. WARING: Chromatic behaviour of elasmobranchs.

LORD ROTHSCHILD: The polarization of a calomel electrode.

#### Dublin

Royal Irish Academy, April 25.

A. FARRINGTON: The glaciers of Mount Leinster and Blackstairs Mountain. The moraines of the local glaciers are described and their relations to one another discussed. The level of the snow-line during the late glacial period is estimated at 1,650 feet O.D.

#### Edinburgh

Royal Society, May 2, 1938.

R. CARRICK: The life-history and development of *Agriolimax agrestis* L., the grey field slug. Seasonal activity, copulation, oviposition, hatching and growth of *Agriolimax agrestis* are dealt with. There is no seasonal sexual cycle, but reproductive activity is controlled directly by weather conditions and is most evident during August–November. Under field conditions, the incubation period varies from 21 to 96 days. Embryological points of interest are fusion of the third tentacles, development of large contractile sacs, direct transition of blastopore into mouth, and the composite structure of larval nephridia from mesodermal bands and ectodermal invaginations. The structure and function of the modified larva, associated with development within the albuminous egg-capsule on land, are compared with less specialized gasteropods.

EDITH A. T. NICOL: The brackish-water lochs of Orkney. The brackish-water lochs of Orkney are the only Scottish localities where *Neritina fluviatilis* L. is found. The Loch of Stenness is entered by spring tides and has a salinity varying between 10.2 and 26.8 per cent. Its fauna and flora are mainly brackish in character, but many marine forms occur. The Loch of Stenness flows into the other and has a low salinity, 0.8–4.3 per cent, and many freshwater species occur along with brackish ones. The calcium contents in both lochs varies between 56 and 139 mgm. per litre, which partially accounts for the presence of *Neritina*.

MARIE E. CAMPBELL: An investigation of the Mucorales in the soil. Fifteen soil samples were taken

from seven distinct soil types and the species of *Mucor* were isolated in pure culture. The results show that there is no well-marked *Mucor* association for the soil types. Certain species such as *Mucor hiemalis* and *M. racemosus* occur in almost all soils. The proportion of positive to negative forms of *M. hiemalis* in the soil was found to be 25 : 4. By experiment it has been shown that the positive hyphæ of *M. hiemalis* are more resistant to drying than the negative hyphæ. Hybrid zygospores have been obtained between different species of the same genus and also between different genera of the Mucorales.

D. MEKSYN: Green's function for an ellipse and its application to the motion of a point vortex. Green's Function for the space external to an infinitely long elliptic cylinder, and for the space enclosed between two such confocal cylinders are evaluated. The stream lines and the motion of a rectilinear vortex outside an elliptic cylinder are found.

### Paris

Academy of Sciences, March 28 (*C.R.*, 206, 961-1064).

CHARLES EUGÈNE GUYE: Relativity, resonance and molecular diffusion.

JEAN BOSLER: Earth currents and magnetic disturbances. From a study of the records of the Parc Saint-Maur Observatory it is shown that the variations of the N-S earth currents follow those of the magnetic declination and those of the E-W current those of the horizontal force. A general principle is enunciated: when two phenomena are such that the curves which represent them as a function of the time are parallel, the two are related by a law of proportionality.

JEAN VILLE: A continuous game. Discussion of a problem in probability.

ARYEH DVORETSKY: The abscissæ of holomorphy and meromorphy of analytical functions represented by Dirichlet series.

JEAN LEGRAS: An integral equation with principal part.

HUBERT DELANGE: The domain of absolute convergence of multiple series of powers.

V. A. KOSTITZIN: The singular points of the differential equations of the problem of natural selection.

CHI TAI CHUANG: The behaviour of a holomorph function in a circle.

MICHEL KIVELIOVITCH: Hydrodynamic equations and quantic statistics.

RENÉ ANTHOUARD: Some characters of sparks submitted to an air current.

Mlle. EDITH COULLAUD: Concerning physical tests for cement. Tests on cement in different laboratories, made in every detail in accordance with a rigorous specification, show differences of 4-15 per cent. Replacement of hand mixing by mechanical mixing in the preparation of the test pieces is suggested as likely to lead to greater concordance in the results.

PIERRE DIVE: Analyticity of the square of the angular velocity of a fluid star.

SANTIAGO ANTUNEZ DE MAYOLO: The principle of the critical velocity in the materialization of the photon.

GÉRARD PETIAU: A form of the solutions of the Dirac equations and the equations of the photon.

JEAN GUASTALLA: A new technique for the measurement of very small surface pressures.

PIERRE VERNOTTE: The practical determination of the relative values of the thermal conductivity of metals.

JEAN SAVARD and MARC DE HEMPTINNE: The simple critical potentials of carbon monoxide.

ROBERT GUILLIEN: The dielectric constant of carbon disulphide at a low temperature. The experiments of Mazur indicated an anomaly for the dielectric constant at about  $-90^{\circ}\text{C}$ ., pointing to the existence of two different liquid states of carbon disulphide. The author has been unable to confirm this; provided that the liquid is efficiently stirred no anomaly exists between  $+20^{\circ}\text{C}$ . and  $-110^{\circ}\text{C}$ .

BRUNO PONTECORVO: The diffusion of mono-kinetic neutrons by protons.

RENÉ AUDUBERT and J. MATTLER: The influence of vapours on the curve of spectral sensibility of photo-electric counters.

PIERRE LAMBERT and JEAN LECOMTE: The application of infra-red absorption spectra to the determination of the position of the ethylene linkage in a fatty carbon chain.

FRANÇOIS GANS: The spectral distribution of the white light obtained by electrical stimulation of the xenon. The tubes studied contained either xenon or a mixture of xenon and neon. The energy distribution of the continuous spectrum was very nearly the same as that of a black body at  $3,800^{\circ}\text{C}$ . The lines showing were xenon lines only; no neon lines were seen.

JULES FARINEAU: The *L* spectrum of iron.

MARCEL FRILLEY: The spectrography by diffraction of the  $\gamma$ -rays of actinium and of its derivatives.

ANDRÉ MOUSSA and Mlle. HÉLÈNE LAURENT: The periods of disintegration of the radio-silvers.

YVES DEUX: The semihydrobenzoin transposition of phenylmethylvinylglycol by dehydration and by the isomerization of the corresponding epoxide.

MARCEL TUOT: The secondary reactions observed in the course of the organo-magnesium condensation of ketones in the fatty series. Study of two secondary reactions produced by the enolization of the ketone by the action of the Grignard reagent.

FRANÇOIS SALMON-LEGAGNEUR: A new structural isomer of campholic acid:  $\beta$ -campholic acid.

JEAN DÉCOMBE and CLÉMENT DUVAL: The double formula of organo-magnesium compounds. Support for the hypothesis of the double formula for organo-magnesium compounds is given by the formation of a zinc-magnesium complex compound by the action of a zinc-magnesium alloy on methyl iodide in ethyl acetate solution.

MAURICE MÉTRA, LUCIEN LESAGE and FERNAND DESCATOIRE: The detection of small quantities of isopropanol in alcohols. The method described has been applied to the examination of more than a hundred specimens of ethyl alcohol from various sources: in no case was isopropyl alcohol detected.

RAYMOND PAUL: The influence of the nature of the cycle on the physical properties of some 1,4 and 1,5 isomeric epoxides.

PAUL GAUBERT: Role of the foreign matter in the structure of liquid crystals.

JACQUES FLANDRIN: The relations of the deposits with Medjano-Numidian facies and of the Oligocene with Lepidocyclines in the littoral and

tellian chains of the Department of Algiers and the adjacent regions.

JEAN CUVILLIER: The presence of Miogypsines in the Egyptian Miocene.

JEAN BRICARD: Study of the coronas of the natural fogs at the summit of the Puy de Dôme.

ANDRÉ MIRIMANOFF: Ascorbic acid and the carotenoid pigments. The meaning of the Molisch reaction and attempt at the localization of ascorbic acid.

JOSEPH LEFÈVRE: Polarity problems produced on plant cuttings by various substances.

VICTOR VINCENT, JEAN HERVIAUX and YVES COIC: Liming acid soils by natural limestones and agricultural lime.

GEORGES DELOFFRE: The influence of some organic acids on nuclear metabolism and on amylogenesis in the lupin.

MAURICE PIETTRE: Mechanical treatment of defibrinated blood or blood rendered incoagulable.

MME. ANDRÉE DRILHON: The alexic power the sera of the Teleosteans.

MME. YVONNE JÉRÔME-LÉVY: Cultures of the lower plants such as *Aspergillus niger*, *Aspergillus repens* and *Penicillium glaucum* in the presence of carbon. A marked increase in the development of *Aspergillus niger* is shown when carbon is added to the culture fluid (Raulin). With *Aspergillus repens* there is a slight increase of growth; no increase of weight is shown by *Penicillium glaucum*.

MME. PAULETTE CHAIX: The influence of treated cystine on the Pasteur effect in washed *Propionibacterium pentosaceum*.

JEAN LAVOLLAY and MME. FRANÇOISE LABOREY: The circumstances in which yellow pigments appear in the culture fluid of *Aspergillus niger*. The production of the yellow pigment is due to a deficiency of magnesium.

ANDRÉ DONATIEN and FERNAND LESTOQUARD: The evolution of the agent of Rickettsian conjunctivitis of ruminants.

MICHEL MACHEBEUF, JOSEPH DIERYCK and MME. BLANCHE DIERYCK: The comparative study of the phagocytal reaction of guinea pigs with intraperitoneal injection of dead tubercle bacilli and of bacilli partially deprived of lipids (chemicovaccine).

DANIEL FLORENTIN: The coli bacillus flora of cheese and food poisoning. The presence of coli bacilli in various cheeses was proved, one of which, containing the largest number of bacilli per gram, had been the cause of food poisoning. It is regarded as rather alarming that, whilst the coli bacillus is prohibited in water, oysters, etc., the consumption of certain cheeses leads to the absorption of considerable quantities.

SPIRO LIVIERATO, MARINO VAGLIANO and NEARCHOS KOKARAKI: Two new antigens for the sero-reaction of paludism according to Henry's method.

### Moscow

Academy of Sciences (*C.R.*, 18, No. 3, 1938).

I. M. RAPOPORT: The inverse problem of the variation calculus.

A. BERMANT: Some properties of regular functions.

M. IELCHIN: Problem of oscillation for the linear differential equations of second order.

E. R. MUSTEL: The problem of radioactive equilibrium of a stellar atmosphere when the coefficient of absorption depends on the frequency.

V. STEPANOFF: The definition of probability of stability.

M. BEBOUTOFF: Dynamic systems which are stable in the sense of Liapounoff.

I. MALKIN: On the stability of movement in the first approximation.

I. MALKIN: Generalization of the fundamental theorem of Liapounoff on the stability of movements.

P. NOVIKOFF: The inverse problem of the potential.

B. G. ŠPAKOVSKIJ: Propagation of supersonic waves in liquids. (1) Dispersion in some pure liquids and aqueous solutions. (2) Dispersion in acetic acid.

E. REICHRUDEL and G. SPIVAK: Influence of magnetic field on the potential gradient in plasma.

A. FILIPPOV, A. GDANOW and I. GUREVICH: The disintegration of nuclei by cosmic rays.

A. A. TRAPEZNIKOV and P. REHBINDER: Mechanical properties (viscosity, rigidity and strength) of adsorption layers and their relation to the area per molecule and nature of underlying liquid.

A. A. SAPEGHIN: The course of the development of wheat ear.

G. N. EREMEJEV: Drought resistance and dehydration resistance of plants.

G. ABOLINA: The significance of mineral elements in the process of vernalization.

M. S. JAKOVLEV: The endosperm structure of the principal selection varieties of wheat of the U.S.S.R.

A. A. YATSENKO-KHMELEVSKY: The discoloration of beech wood.

L. N. ŽINKIN: Stimulation of metamorphosis in Ascidian larvæ.

### Rome

National Academy of the Lincei (*Atti*, 26, 129-191; 1937).

G. FANO: Observations on some finite geometries (2).

O. SCARPA: Formation of pseudo single crystals in the electro-deposition of copper.

C. AGOSTINELLI: Resolution by means of definite integrals of the equation

$$\frac{\delta^2 u}{\delta x^2} + \frac{\delta^2 u}{\delta y^2} + \frac{\delta^2 u}{\delta z^2} + \frac{1}{x} \frac{\delta u}{\delta x} = f,$$

and a problem analogous to that of Dirichlet for a hemispherical field.

G. GHERARDELLI: Cayley groups of points above an elliptical curve.

I. POPA: Projective-differential geometry of singularities. The point of inflexion of any surface whatsoever.

M. SCHÖNBERG: The function  $\delta(x)$  of Dirac (2).

A. TERRACINI: A possible particularity of the principal lines of a surface (2).

E. MEDI: Researches on the ionization produced by the evaporation of water.

R. MANZONI ANSIDEI: Raman spectrum of hydrocarbons with condensed nuclei (2). 9-10-dihydroanthracene, acenaphthene, fluorene.

G. CHARRIER and M. IORIO: 8-substituted 2-3 pyridinotriazoles.

G. TEDESCHI: Rate of dissolution of lead in acids (2).

G. SCOZ and E. TRIA: Ascorbic acid content of the frog's liver under various experimental conditions.

E. TRIA: Electrometric determination of peptic activity.