

## Societies and Academies

## LONDON

Mineralogical Society, March 23. L. J. SPENCER: Biographical notices of mineralogists recently deceased (fifth series). MAX H. HEY: A possible source of error in the determination of symmetry from optical extinction-angles. In certain cases a small departure of a cut plate from the intended section direction may lead to comparatively large errors in the extinction angle and hence to an incorrect determination of symmetry. This is well illustrated by mesolite. MAX H. HEY: Studies on the zeolites. (5) Mesolite. New analyses and X-ray studies of mesolite indicate that the correct formula is  $\text{Na}_4\text{Ca}_6\text{Al}_{16}\text{Si}_{24}\text{O}_{80}\cdot 22\text{H}_2\text{O}$ . There is often a slight replacement of sodium by potassium, and generally an appreciable replacement of calcium by two atoms of sodium. The axial ratio has been determined by goniometric and X-ray methods. Refractive index, birefringence and optical axial angle measurements have been made. The vapour pressure has been studied by the isohydric method previously described. A number of base exchange products have been prepared and the potassium and lithium derivatives shown to be identical with those obtained from natrolite. This provides the first conclusive proof that mesolite and natrolite are, as has been commonly assumed, isostructural. X-ray photographs of mesolite are very similar to those of natrolite, but show distinct differences. The space-group is  $C_2'$ . A. E. MOURANT: The dehydration of thomsonite. A study of the dehydration of thomsonite by the isobaric method. The results, obtained some years ago, are supplementary to those obtained by Hey by the isohydric method and differ from them in some respects. Dehydrated thomsonite does not absorb air. The lattice-shrinkage reaction has been further investigated. F. J. TURNER: Note on the occurrence of piedmontite in quartz-muscovite-schist from the Shotover valley, western Otago, New Zealand. A description of piedmontite in schist occurring as boulders in the Shotover River. The mineral has not previously been recorded from New Zealand.

## PARIS

Academy of Sciences, March 13 (*C.R.*, 196, 733-820). CHARLES NICOLLE and J. LAIGRET: The conservation of various types of typhus virus in the brain of infected rats and guinea-pigs. MARCEL BRELOT: The problem of Dirichlet. KRAWTCHOUK: The distribution of the roots of orthogonal polynomials. EDM. LAHAYE: A method of resolution of algebraical equations. CLAUDE CHEVALLEY: The generation of a topological group by infinitesimal transformations. NIKOLA OBRECHKOFF: Meromorph functions which are limits of rational fractions. G. VALIRON: Generalisations of theorems of Lindelöf and Phragmén. E. CRAUSSE and J. BAUBIAC: Transitory regimes in a cylindrical discharge tube containing an obstacle. ALBERT TOUSSAINT and HENRY GIBERD: The measurements of the aerodynamical characteristics of the upper and lower wings of 125 biplanes. HENRI PONCIN: The determination of the movements of a fluid round a cavitation. B. KWAL: The trajectories of the electrons in a longitudinal magnetic field. I. I. AGARBICEANU: The action of the magnetic field on the absorption lines of iodine ( $\text{I}_2$ ). G. BRUHAT and A. GUINIER: Improvement

of the photoelectric polarimeter: the rotatory dispersion of saccharose in the ultra-violet. With the apparatus described, the errors are less than one in a thousand up to a wave-length of 2950 Å. and one in five hundred below 2950 Å. RENE LUCAS and MARCEL SCHWOB: Anomalous dispersion in magnetic and electric double refraction. A description of the experimental results obtained with fenchone and ethyl phenylsuccinate. The anomalies observed can be explained by the hypothesis of the existence of different molecular forms in equilibrium, these forms possessing Cotton-Mouton constants or Kerr constants of contrary signs. M. M. QUINTIN: The application of Debye's theory (formula of Gronwall, La Mer and Sandved) to solutions of copper sulphate. The formula of Gronwall and La Mer does not agree well with the facts cited: three hypotheses to account for the disagreement are considered. A. DEBERNE: New radioactive substances. In the course of chemical treatments of radioactive minerals, the author has noted a certain anomaly in the distribution of activity, and concludes that radium is accompanied by radioactive substances not yet characterised. G. LEJEUNE: Comparison of the reduction velocities of solutions of ceric and perceric salts by the sugars. JEAN GRARD: The osmotic pressure of solutions of nitrocellulose. Comparison of osmotic pressure and viscosity of acetone solutions of nitrocellulose before and after heating to 130°C. L. GAY and J. SOULIÉ: A boiling point apparatus for the determination of the dew points and boiling points of mixtures of volatile liquids. Among the advantages claimed for the apparatus figured and described is the maintenance of the state of equilibrium between the vapour and liquid phases, and the uniform temperature in the two phases. M. CHOUKROUN: A correct arrangement for electrophoresis. The apparatus described can be used to concentrate colloids without alteration, and to separate a mixture of two kinds of particles unequally charged. MARCEL GODCHOT, ETIENNE CANALS and M. GERMAINE CAUQUIL: The Raman spectrum of some cyclic hydrocarbons. Data for cyclopentene, cyclohexene, cycloheptene and cyclooctene. B. BOGITCH: Roasting sulphides, particularly nickel mattes. N. YANNAQUIS: The polymorphism of the paraffins. V. KUNZL and J. KÖPPEL: The constant of the crystalline network of the rhombohedral face of quartz. RAYMOND HOCART: The symmetry of boracite and X-rays. JACQUES DE LAPPARENT: The signification of the granulites of Brittany and the genesis of the crystallophyllian. RAYMOND FURON: The discovery of the fossil-bearing intrusive Cenomanian and new Turonian deposits in the Niger Colony (geological material collected by M. Auguste Chevalier). MARCEL THORAL: The discovery of new fossil-bearing deposits in the Potsdamian and lower Arenig of the Montagne Noire. M. G. HOMERY: The magnetic declination on the whole of the globe. CH. MAURAIN: Remarks on the preceding note. LADISLAS GORCZYNSKI: The part of the solar radiation diffused by the celestial vault in the total insolation. L. EBLÉ and G. GIBAUT: The values of the magnetic elements at the Val-Joyeux station (Seine-et-Oise) on January 1, 1933. CHARLES KILLIAN: Ecological researches on the seasonal fluctuations of chlorophyll assimilation in plants of the Algerian maquis. RAOUL LECOQ: The rôle of the B vitamins in the utilisation of the glycerides by the organism of the pigeon. The comparative action of levulose, glucose, galactose and of some disaccharides (holosides) incorporated in

balanced regimes, rich in lipides. P. CAPPE DE BAILLON: The formation of the egg-shell in the Phasmidæ. MME. LOUISE NOUVEL: Casting the shell of *Leander serratus* affected with the parasite *Bopyrus Fougerouxi*. The growth and casting the shell in *Leander* is in no way influenced by the presence of the parasite. J. ANDRÉ THOMAS: The pure culture of the umbilical vitellin syncytium of the embryo of the fowl. The first stages. MLE. A. KRAMER: Contribution to the study of the heterosides of *Philyrea latifolia*. Two heterosides have been extracted from the bark of *Philyrea*, one named philyroside identical with the philyrine of Carboncelli and of Bertagnini and Luca, another proved to be identical with syringoside (syringine) isolated from various plants of the Oleaceæ. C. CHARAUX and J. RABATÉ: Contribution to the biochemical study of the genus *Salix*. Isosalipurposide. H. BORDIER: The continuity of Merget's phenomenon.

## SYDNEY

Linnean Society of New South Wales, Nov. 30. H. L. JENSEN: Contributions to our knowledge of the Actinomycetales. (4) The identity of certain species of *Mycobacterium* and *Proactinomyces*. A number of organisms previously described as species of *Mycobacterium* were found, on account of their definite mycelial growth in the initial stages of their life cycles, to have their proper place in the genus *Proactinomyces*. *M. agreste* Gray and Thornton and *B. mycoides corallinus* Hefferan must be regarded as one species, *P. corallinus*. *M. salmonicolor* den Dooren de Jong is closely related to this and should be called *P. salmonicolor*. *M. opacum* den Dooren de Jong and *M. crystallophagum* Gray and Thornton are identical; this species should be called *P. opacus*. *M. erythropolis* is closely related to this; its proper name should be *P. erythropolis*. *Microbacterium mesentericum* Orla-Jensen showed a very distinct mycelial growth and should be called *P. mesentericus*. T. G. B. OSBORN, J. G. WOOD and T. B. PALTRIDGE: The growth and reaction to grazing of the perennial saltbush, *Atriplex vesicarium*. An ecological study of the biotic factor. The root system is extensive and superficial, with deciduous feeding roots. The leaves, which are non-cuticularised with a high salt content, are able to absorb water vapour from a nearly saturated atmosphere. The plant is, indeed, dependent for a portion of its water upon moisture absorbed from the air. With continued drought and loss of vegetative vigour it passes through states of wilting, defoliation and anabiosis. Moderately heavily grazed saltbush is more vigorous during a drought period than lightly grazed bush or bush that is not grazed at all. Saltbush is most profitably utilised under a system of moderately heavy intermittent grazing. J. G. CHURCHWARD: The geographical distribution of *Tilletia* species on wheat in Australia in 1931. Two species of *Tilletia*, namely, *T. tritici* and *T. levis*, are widely distributed and prevalent in most of the wheat-growing areas of Australia. This fact has an important bearing on the development of disease-resistant varieties, as it has been shown by Johnston (1924), Kienholz and Heald (1930), and Holton (1930), that varieties do not necessarily react in the same way to the two species of bunt. I. M. MACKERRAS: The Australian species of *Graphomyia* (Diptera, Muscidae). One species of *Graphomyia* from North Australia is described as new. G. A. WATERHOUSE: Australian

Hesperidiæ (3). New subspecies are described as follows: two of *Trapezites symmomus*, one of *Netrocoryne repanda*, and a new form of *Euschemon rafflesia*.

## WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, 18, 677-730, Dec. 15, 1932). BARBARA McCINTOCK: A correlation of ring-shaped chromosomes with variegation in *Zea mays*. Diminution in size or loss of the ring chromosomes was observed in eight cases, seven of them the progeny of X-rayed pollen. This leads to variegation if the ring carries a 'genetic marker'. M. BIOT: Critical torsional oscillations of a rotating accelerated shaft. A theoretical discussion, assuming the forces applied to the shaft have a part (a moment of constant amplitude per unit length) varying with a frequency proportional to the angular velocity, and neglecting damping. BENJAMIN KROPP: The crustacean chromatophore activator and the gonads of the rat. Active extract from the eye-stalk of *Palæmonetes*, though like pituitrin causing melanophore movements in fishes and tadpoles, has no observable effect on the gonads of rats. MATILDA MOLDENHAUER BROOKS: The penetration of *m*-bromo-phenol indophenol and of guaiacol indophenol into *Valonia ventricosa*. Both these dyes penetrate the cells and are found inside in the reduced form. KENNETH V. THIMANN and JAMES BONNER: Studies on the growth hormone of plants. (2) The entry of growth substance into the plant. Curvature of oat coleoptiles is proportional to the concentration of growth substance supplied in solution in agar blocks. A theoretical discussion brings Went's observations, which suggested that the amount of growth substance was the effective factor, into line with the new results. HUDSON HOAGLAND: Impulses from sensory nerves of catfish. Electrical responses were recorded from lateral line nerves, spinal nerves supplying skin of flank, and branches of the facial supplying taste buds of lips and barbels, after mechanical, thermal and chemical stimulation of the receptors. The lateral line nerve appears to be in a state of continuous spontaneous activity and the individual neuromasts can be synchronised by a tuning fork. The system, contrary to the facial and spinal nerves, seems to be a thermal receptor. KARL T. COMPTON: Accommodation coefficient of gaseous ions at cathodes. An ion entering the positive ion space charge sheath round a cathode acquires a certain momentum and strikes the cathode; after neutralisation, it may leave the cathode with appreciable energy, a point hitherto neglected. Of the impulse given to the cathode, part is exactly compensated by the mutual pull of cathode and ion during approach and the remainder alone contributes to the pressure on the cathode. The effect is described in terms of the 'accommodation coefficient' used to give the energy transfer of gas molecules at temperature  $T_1$  striking a surface at temperature  $T_2$  and leaving at temperature  $T_3$ . GUSTAV A. HEDLUND: Recurrent geodesics on any closed orientable surface of genus one. W. J. TRJITZINSKY: (1) The general case of integro- $Q$ -difference equations. (2) A property of indefinitely differentiable classes. H. R. BRAHANA: Operators of order  $p^m$  in the group of isomorphisms of the Abelian group of order  $p^n$  and type 1, 1, . . . MARSTON MORSE and S. B. LITTAUER. A characterisation of fields in the calculus of variations. Dealing with a geometric characterisation of focal points and conjugate points in  $n$ -space for  $n > 2$ .