

## Societies and Academies.

## LONDON.

Mineralogical Society, June 9.—G. E. L. Carter: On an occurrence of vanadiferous nodules on the coast of South Devon. The author describes an occurrence of vanadiferous nodules in the red marls that underlie the Budleigh Salterton pebble beds on the coast of South Devon. These nodules consist of siliceous and argillaceous material impregnated with vanadium oxide and calcium carbonate. A typical nodule examined at the Imperial Institute showed a roughly concentric structure, ill-defined black shells alternating with shells of light-coloured material. Radiating black bands stood out as ribs on the surface of the nodule. Analyses by Miss Hilda Bennett showed that the black portion of the nodule contained 13.96 per cent of vanadium oxide, estimated as pentoxide. The light-coloured portion of the nodule contained only 1.91 per cent of vanadium oxide, and was relatively richer in calcareous and siliceous matter than the blacker and more vanadiferous portion.—M. H. Hey: Studies on the zeolites. Part 2: Thomsonite (including faroelite) and gonnardite. A chemical, optical, and X-ray study of a considerable number of thomsonite specimens has led to the conclusion that thomsonite and faroelite form a continuous isomorphous series. The true symmetry of thomsonite is shown to be didigonal polar ( $C_{2v}$ ). The unit cell is shown to contain  $(Ca, Na)_6(Al, Si)_{20}O_{40} \cdot 12H_2O$ . The mean refractive index ranges from 1.517 to 1.535, falling with increase in the Si/Al ratio. Apparatus has been designed and applied to measure the vapour pressure of thomsonite at various temperatures and degrees of dehydration, and it appears very probable that a dimorphous high-temperature form exists, the transition being readily reversible. Gonnardite is probably identical with the high-temperature dimorphous form of thomsonite (meta-thomsonite), and is therefore to be regarded as a separate species.—A. Russell: An account of British mineral collectors and dealers in the seventeenth, eighteenth, and nineteenth centuries. A second instalment: John Woodward (1665–1728) and Charles Francis Greville (1749–1809).—L. J. Spencer: Hoba (South-West Africa), the largest known meteorite. The large mass of meteoric iron discovered in 1920 on Hoba West farm, 12 miles west of Grootfontein, measures about 10 × 9 feet on its flat upper surface, and is estimated to weigh 60 metric tons. It belongs to the group of nickel-rich ataxites. Chemical analysis by Mr. M. H. Hey shows iron 83.44 per cent, nickel 16.24 per cent, with small amounts of cobalt, copper, sulphur, phosphorus, and carbon. Photomicrographs (× 820) by Dr. J. M. Robertson show a minute plesite-like structure.—L. J. Spencer: Twelfth list of new mineral names. Since the publication in 1928 of the eleventh list of this series (the first was in 1897), 120 names have been collected from the current literature. In addition to the bibliographical reference, a brief description of the essential characters of the mineral and derivation of the name are given.—J. Drugman: On different habits of fluorite crystals. In fluorite the cube is usually the predominating form. Crystals of other habits—octahedral, rhombic-dodecahedral, and triakis-octahedral—are described. The temperature during the growth of the crystal has perhaps influenced its habit.

## EDINBURGH.

Royal Society, June 1.—H. Briggs: The relation between the yield of crude oil and the composition of retortable carbonaceous minerals. Using graphical methods, the author showed that, while on the one hand the yield is connected to the percentage of

volatile hydrocarbons, and on the other hand to the C/H ratio, these relations are too intangible to be of value. A more definite relation exists between the yield and the percentage of volatiles diminished by twice the oxygen percentage—a conclusion leading to the formula  $Y = 0.47(V - 2O)^{\frac{1}{2}}$ , in which  $Y$  is the yield of crude oil in British imperial gallons per ton,  $V$  the percentage of volatile hydrocarbons, and  $O$  the percentage of oxygen in the mineral retorted.—C. H. O'Donoghue: Abnormalities of the vascular system of the Anura. One or more striking abnormalities in the blood vascular systems of forty-two specimens of *Rana temporaria* are described. A consideration of the developmental history of the vessels shows that many abnormalities are due to the retention of larval arrangements, and some due to the failure of a portion of the adult system to develop. For others there appears to be no explanation at present available, as, for example, the absence of a precaval vein on one side accompanied by the development of a transverse anastomosis whereby the precaval drainage is transferred to the other side. Connexions between the visceral arteries and veins and the lung find no explanation in the development of vessels or lungs, but analogous vessels to and from the visceral trunks and the swim bladder are found in some Teleostomi. The abnormalities throw a light on the normal relationships of certain vessels in the adult, and often suggest homologies with those of the generalised elasmobranchs.—G. L. Purser: The early stages of development of the vertebrates. The only growth-centre is the organiser, the position of which, throughout the phylum, is correlated with the apical pole and a meridian of latitude on the egg which depends upon the amount of yolk. Gastrulation is the formation, under the influence of the organiser, of a meristematic ring, by the proliferation of which the primary germ layers are laid down and growth to any length is made possible. There is no concrescence and the origin of the mesoderm is the same throughout the phylum, except for variations in the head. The evolution of yolkier eggs made it necessary for this ring to be split into a yolk and an embryogenic blastopore, which evolve into the edge of blastoderm and primitive streak respectively. In mammals the homology of all primitive streaks makes the derivation of the trophoblast and Rauber's layer or *Träger* from the yolk-laden cells of lower forms essential. Loss of yolk began in correlation with mammary secretion. Blastula-formation within the confining coats of the zygote is impossible, and the slipping of the cells over one another causes the final enclosure of the apical cells by the abapical ones. The true and false amnia are products of the extra-embryonic coelom, which allows the expansion of the life-preserving allantois. The 'doubleness' of the endoderm of the blastocyst is due to the absence of yolk and consequent continued extension of the endoderm from the meristematic ring, first seen in the frog.—Richard Elmhirst: Studies in the Scottish marine fauna: the Crustacea of the sandy and muddy areas of the tidal zone. A study of quantitative samples from various parts of the coast reveals definite specific zoning in the genera *Bathyporeia* and *Corophium*.

## PARIS.

Academy of Sciences, May 11.—Jean Pierre Robert: Some properties of  $n$ -metaharmonic functions.—J. Dieudonné: Univalent functions.—Edouard Callandreau: The lines of slip of a pulverent mass.—L. Escande and M. Teissie Solier: The conditions of working of the Pitot tube.—Georges Marboux: An electrical oscillator of low frequency stabilised by a tuning fork. The apparatus described and figured is

closely analogous with the apparatus using piezo-electric quartz. The tuning fork replaces the quartz.—M. Aumeras and A. Tamisier: The constitution and stability of two copper-nitrogen complexes.—Dumanois, Mondain-Monval, and Quanquin: The presence of peroxides in the gases from internal combustion motors. An experimental proof of the formation of peroxides and of aldehydes under conditions of working of an ordinary internal combustion engine.

## ROME.

Royal National Academy of the Lincei, Dec. 7.—T. Levi-Civita: Plane sections of a body and orthobaric directrices.—Enea Bortolotti: Specialised differential quadratic forms. Ricca's calculus is shown to be easily extensible to these forms.—F. Conforto: Metric and foundations of absolute differential calculus in a continuous functional space.—Miron Nicolesco: Metaharmonic functions in  $n$  variables.—E. Okhlopova: Certain problems on the limits of the theory of logarithmic potential. The theory of the functions of the complex variable is applied to the solution of certain problems of the limits of the theory of logarithmic potential for the circle.—V. Hlavaty: The curvature of non-holonomous varieties.—D. Graffi: An observation on the equation of the motion of a body of variable mass.—A. Signorini: The profile of bridge piers. The variation in kinetic energy between a stream disturbed by bridge piers and the non-disturbed stream is found to be independent of the configuration of the profile of the piers.—E. Bossa: Correction to the note on "The Hall effect for the metals, nickel, iron, and copper, in feeble magnetic fields".—Remo de Fazi and Antonio Hemmeler: Reactions between organic and mineral compounds (1). Natural sulphides and certain acyclic compounds. Pyrites yields (1) ferrous and ferric chlorides, ferrous sulphide, sulphur, carbon, and thiophosgene when treated with carbon tetrachloride at  $320^{\circ}$ - $400^{\circ}$  or at  $450^{\circ}$ ; (2) ethyl mercaptan and ethyl sulphide respectively with ethyl alcohol and ether at  $450^{\circ}$ - $500^{\circ}$ ; (3) thioacetic acid, traces of methyl mercaptan, methyl sulphide, carbon dioxide, hydrogen sulphide, and sulphur with acetic acid at  $480^{\circ}$ - $500^{\circ}$ ; (4) hydrogen sulphide, carbon and sulphur dioxides, and thioacetic anhydride with acetic anhydride at  $450^{\circ}$ - $480^{\circ}$ . Stibine gives carbon disulphide and antimony trichloride when treated with carbon tetrachloride at  $300^{\circ}$ - $325^{\circ}$ , and thioacetic anhydride and antimony trichloride when treated with acetyl chloride at  $300^{\circ}$ - $350^{\circ}$ .—A. Mazzucchelli: Electrolytic deposition of chromium from ammonium chromo-oxalate.—Carmela Ruiz: Strophomenides of the Permian of the Sosio basin (Palermo).—Constantino Gorini: Acido-proteolytes and thermophiles in the pasteurisation of milk. Experimental results confirm the importance of these organisms in the pasteurisation of milk, and emphasise the necessity of cooling the milk thoroughly immediately after pasteurisation and keeping it cool until it is consumed. Examination for these bacteria furnishes a means of judging of the efficiency of the pasteurisation.—G. Mezzadroli and E. Vareton: Action of ultra-short electromagnetic waves (2-3 metres) on amylase. These waves exert a favourable effect on the enzymes of seeds, especially on the amylase. When subjected to their action for 30 minutes prior to steeping, barley attains its maximum saccharifying power 0.5-1 day earlier than the untreated control, this period being increased to 2 days if irradiation is continued daily. Moreover, the absolute value of the maximum saccharifying power is increased by as much as 15 per cent.—D. Cattaneo: Observations on the structure of the vitreous.—B. Finzi: Tuberculin and anæstotuberculin.

No. 3218, Vol. 128]

## VIENNA.

Academy of Sciences, Feb. 12.—E. Habermayer: Graptolites from the Upper Silurian of the Carnic Alps. Part I. Summit, north side.

Feb. 19.—A. Müller and E. Feld: The thermal decomposition of hydrochloric-1, 6-diamino- $n$ -hexane.—A. Müller and E. Feld: Synthesis of  $\gamma$ -amino- $n$ -capronic acid and of  $\alpha'$ -ethyl- $\alpha$ -pyrrolidine.—E. Tschermak: Some flower anomalies and their mode of inheritance in primulas. Doubling of flowers is common in the plant world, but the formation of a corolla-like calyx, so-called 'calycanthemie', is only known in Primulaceæ and a few other orders. The inheritance of calycanthemie has been studied by crosses between these and normal forms of *Primula acaulis*, *elatior*, and *officinalis*, also by crosses with *P. juliae*. In double garden primroses, andrœcium and gynœcium become petaloid, but in double auricula the gynœcium generally remains intact, its doubling concerning the corolla. It is also possible to raise hybrid primulas in which doubling is combined with calycanthemie.—H. V. Graber: Report No. 5 on geological and petrographic researches in the Upper Austrian and Bohemian primitive rocks.—K. Fritsch: Contributions to the knowledge of the Gesneriaceæ. (3) The inflorescence of *Haberlea rhodopensis*.—G. Orban: Radium Institute communication No. 271. Investigations on the natural ionisation of air with the Wilson chamber using alcohol vapour.

Feb. 26.—A. Tornquist: The mineralisation phases of the younger east-alpine ore deposits.—A. Rollett: The course of esterification with mixed anhydrides and mixtures of anhydrides.—H. Lieb and M. Mladenovic: Elemic acid from Manila elemi-resin.—M. Mladenovic and H. Lieb: A new resinic acid from Manila elemi-resin.—F. Hölzl: Hexacyano-cobaltic acid and methyl alcohol.—K. W. F. Kohlrusch: Additive nature of the atomic chemical combining force.—F. Werner and R. Ebner: Results of a zoological expedition to Morocco. Two new forms of fish and several previously undescribed Amphibia and Reptilia.—O. Pongracic: Contributions to the anatomy of the Gesneriaceæ.

March 5.—H. Rebel: The biological significance of societies of larvae.

March 12.—M. Kohn and S. Fink: On dichlorophenols, trichlorophenols, and their bromination products. Thirty-sixth communication on bromo-phenols.—M. Kohn and L. Steiner: Brominated hydroquinone- and toluhydroquinone ether. Thirty-seventh communication.—M. Kohn: Debromination by benzol and aluminium chloride.—G. Orban: Radium Institute communication, No. 272. Researches on the radioactivity of the alkali metals by the cloud track method. No activity was detected with cesium. The  $\beta$ -rays of potassium and rubidium were examined.—A. Schedler and M. Toperczer: First report on the distribution of declination in Austria at the epoch 1930.0. A new magnetic survey was undertaken in 1928, declination, inclination, and horizontal intensity being measured at more than a hundred evenly distributed points. A table of results is added.

## Official Publications Received.

## BRITISH.

Nyasaland Protectorate. Annual Report of the Geological Survey Department for the Year 1930. Pp. 16. (Zomba.)  
The Empire Forestry Handbook, 1931. Edited by Fraser Story. Pp. 189. (London: Empire Forestry Association.) 8s. 6d.  
Department of Scientific and Industrial Research. Report of the Food Investigation Board for the Year 1930. Pp. vii+175. (London: H.M. Stationery Office.) 3s. net.