Societies and Academies.

LONDON.

Geological Society, November 17.—C. J. **Stubblefield** and O. M. B. **Bulman**: The Shineton shales of the Wrekin district, with notes on their development in other parts of Shropshire and Herefordshire. In the Wrekin district, the Shineton shales represent almost the whole of the Tremadocian succession, as developed in the Tremadoc district. The subdivision of shales in this main outcrop are:—(6) Arenaceous beds; (5) zone of *Shumardia pusilla*; (4) Brachiopod beds; (3) zone of *Clonograptus tenellus*; (2) transition beds; (1) zone of *Dictyonema flabelliforme*. In the smaller outcrops of the shales lying on the west and south-west, only the lower part of the sequence has been identified. In the Wrekin district a thick mass of shales has been compressed against a north-eastern ridge formed of earlier Cambrian and pre-Cambrian strata, resulting in isoclinal folding with faulting in the north-eastern part of the shale outcrop. In the south-west of the district the shales are less disturbed, except in the immediate neighbourhood of the Church Stretton fault. Six new species of trilobites have been established, of which three belong to new genera; one new brachiopod and three new hyolithids are described.—W. J. **Arkell**: The Corallian rocks of Oxfordshire, Berkshire, and North Wiltshire. The subdivisions adopted are: (5) upper Calcareous grit; (4) *Trigonia-clavellata* beds; (3) Osmington Oolite series; (2) Berkshire Oolite series; (1) lower Calcareous grit. It is particularly emphasised that the Coral Rag is a facies deposit which may occur at any date, and that the use of 'the Coral Rag' as a stratigraphical term is not permissible. The substitution of the term by Blake and Hudleston's 'Osmington Oolite Series,' is suggested. Coral associations started in Yorkshire at the time of the lower Calcareous grit, and migrated southwards during the Corallian epoch, failing to become established in Dorset until the closing phase of the upper Calcareous grit. The chief feature of the Berkshire Oolite series, the Trigonia beds of Berkshire, are contrasted with the much later Trigonia beds of Dorset; whereas the former belong to the Argovian, the latter must be assigned to the Sequanian, the intervening Osmington Oolite series undoubtedly representing the Rauracian.

Linnean Society, November 18.—Miss E. R. **Saunders**: The origin of the double garden stock. A plant which appeared in the present season in an F_2 family from the cross, pure-breeding glabrous single cream ♀ × double-throwing glabrous white ♂, is of considerable interest, for the normal single and fully double condition were here exhibited in the same individual. The cross was made in 1923 and the resulting seeds sown the same autumn. The F_1 plants, which were purple and hoary (the factorial constitution of the parents being RHK and CK respectively), flowered in 1924. The seeds collected from one of these plants, which was covered, were not sown until the spring of 1926, when they yielded 179 hoary and 100 glabrous, of which 214 were single and 58 double. One of the hoary single-flowered plants produced six primary lateral axes in addition to the main axis; some of the flowers on the main axis showed characters intermediate between those of the single and those of the double flower. The sixth lateral branch produced mainly double flowers indistinguishable from those borne by the ordinary double-flowered plant. It is therefore possible that the mutation occurring here in only one branch may at some time have occurred throughout a whole individual, and so have given rise at one step to the double-flowered type.—Miss A. E. **Chesters**: The vascular supply of the bracts of some species of Anemone. In types exhibiting a large leafy involucre the vascular system of the peduncle is dominated by that of the involucre. In species like *A. Hepatica*, in which the involucre closely approximates to a calyx, the incoming bundles take a less prominent part in the formation of the vascular ring of the axis. The resemblance between the course of the bract bundles of *A. Hepatica* and the sepal bundles of *Ranunculus Ficaria* is very striking. The vascular supply of the bracts of *Eranthis hyemalis* resembles that of *A. nemorosa* in all essentials, suggesting that the modifications shown in the vascular system of *A. Hepatica* and *A. angulosa* are correlated with the reduction of the involucral leaves rather than with the difference in position. The evidence appears to support the view of the homology of the involucre of *A. Hepatica* and the calyx of *Ranunculus Ficaria*.

Physical Society, November 26.—H. C. **Hepburn**: Electro-endosmosis and electrolytic water transport. Determinations were made of liquid transport produced by passing an electric current through aqueous solutions of copper sulphate divided perpendicular to the flow of electricity by a diaphragm of powdered glass. The probable factors that determine the liquid transport are investigated over a wide range of concentrations, by an examination of the dependence of the flow at constant applied voltage and of the electric charge of the diaphragm on the electrolyte concentration, and also by a study of the relation between the flow per faraday and the dilution of the electrolyte.—L. **Hartshorn**: The input impedances of thermionic valves at low frequencies. Accurate measurements of input admittance (or of input impedance) under various conditions can be made by means of the Schering capacity bridge. The input circuit is regarded as being equivalent to a condenser with a definite phase angle, ϕ, or "loss angle," $\delta = 90° - \phi$, and the results are expressed by stating the effective capacity and value of tan δ for each set of experimental conditions. The effective capacity may vary from about 10$\mu\mu$F. to 100$\mu\mu$F. for an *R* valve, and the phase angle may vary from about 80° leading to 126° leading, depending mainly on the load in the anode circuit. Values of phase angle greater than 90° correspond to a negative resistance or negative power factor, and occur when the load in the anode circuit is inductive.

CAPETOWN.

Royal Society of South Africa, September 29.—T. R. **Sim**: The Bryophyta of South Africa.—E. Percy **Phillips**: Some notes on South African grasses. The characters and distribution of the various South African grasses, and the economic questions associated with them are discussed, and the effects of veld burning described.—J. H. **Power**: Some tadpoles from Griqualand West.

October 20.—John **Phillips**: Faurea McNaughtonii Phill. ("Terblanz"), a note on its ecology and distribution. This stately forest tree (Proteaceæ: sect. Persoonioideæ) is of peculiar regional and local distribution.—M. R. **Levyns**: Note on the genus Lobostemon (Lehm.) A new classification, based on floral characters, is used. It is proposed to restrict the genus Lobostemon to those forms in which a definite scale or swelling is present on the corolla at the base of each stamen, and to constitute a new genus for those forms in which

a scale or swelling is absent.—P. R. v. d. R. **Copeman**: Studies in the growth of grapes. Equations have been developed for the growth changes in the acid, sugar, and soluble solid content of the juice and in the total solids in the berry for six different varieties of grapes analysed during three seasons. The growth of the grape berry may be divided into two distinct cycles. In the first cycle the soluble solids formed consist mainly of acid and protein. During the second cycle the changes in the soluble solids are practically entirely due to the changes in the sugar and acid. Growth constants can be derived which serve as a means of comparison between the different varieties for the different seasons.—H. O. **Monnig**: On a new Physaloptera from an eagle and a Trichostrongyle from the cane rat, with notes on *Polydelphis quadricornis* and the genus Spirostrongylus.—D. F. **Bleek**: Bushmen of Central Angola. These Bushmen are Kung, speaking a language similar to the like-named inhabitants of the South-West Protectorate. They are much influenced by the surrounding Bantu tribes, on whom they are becoming more and more dependent. Their religious beliefs are akin to those of other Bushmen, save for an acquired fetish worship. The tribe will probably be absorbed by the Bantu races.

ROME.

Royal National Academy of the Lincei, Communications received during the vacation.—U. **Cisotti**: Inversion of Poisson's formula on rigid motions.—Giorgio **Abetti**: Observations on the motions of metallic vapours in sunspots.—L. A. **Herrera**: Chemotaxis and phagocytosis in imitation of leucocytes. The microscopic amœba-like forms produced in petrol and olive oil by the injection of drops of alkaline water are due to currents and movements produced by rapid penetration into the osmotic pockets of the oil rendered more fluid by the petrol. The results indicate that phagocytosis must be regarded as of mechanico-physico-chemical character. Acetic acid acts as an anti-body or opsonin which determines the chemotaxis of the oily 'amœbæ.' It seems probable that similar currents are produced between the natural leucocytes and bacteria.—Tommaso **Boggio**: The geodetic deficit.—E. **Bompiani**: The geometry of surfaces considered in ruled space.—Alessandro **Terracini**: The linear projective element of a surface.—E. **Raimondi**: General formulæ for the calculation of the dynamic effect of a current flowing between a strip and an indefinite plane wall.—Renato **Mancinelli**: The Evershed effect in sunspots.—Mario **Picotti**: Results of the physico-chemical investigations made in the Italian cruiser *Marsigli* in the Straits of Messina. The amount of oxygen dissolved in the water of the Straits of Messina rises to maximum values in April and in September, in which months plankton are exceptionally plentiful. The value of pH lies mostly between 8·1 and 8·2, but values below 8·1 are sometimes encountered in the depths and values above 8·25 at the surface.—Marya **Kahanowicz**: Spectrum of the Pickering type in argon. Under a suitable pressure and when strongly excited, argon gives rise to an enhanced spectrum of the Pickering type. The emissive atom exhibits hydrogenoid behaviour, an electron revolving about the nucleus.—G. **Wataghin**: The aberration of light and the theory of relativity. The relativistic formula for aberration, established by Einstein for plane-waves, is valid also for spherical waves. The theory of aberration may be developed on the basis merely of the hypothesis that light is propagated in a straight line with respect to any inertial system whatever. Various particular aspects of the theory are discussed.—Bianca **Nannei**: Method for the measurement of variations in the calorific capacity in magnetic fields.—Marcelle **Philibert**: Apparent doubling of the optic axis of calcite with Federow's plate.—G. **Carobbi**: Investigations on some noteworthy Vesuvian sublimates. The presence of traces of soluble vanadium compounds is observed for the first time, and that of soluble titanium compounds and boric acid confirmed, in deposits on Vesuvius.—Gaetano **Charrier**: 1-*N*-Phenyl-$\alpha\beta$-naphtho-1:2:3-triazolequinone.—Raoul **Poggi** and Angiolo **Polverini**: The determination of phosphorus and arsenic in organic substances. The method suggested consists in oxidising the substance by means of concentrated sulphuric acid and potassium persulphate, and afterwards determining the phosphorus or arsenic by the ordinary methods.—G. **Scagliarini** and G. **Tartarini**: Compounds of titanium halides with oxygenated organic substances.—Edoardo **Benedetti**: The action of the high frequency oscillating electromagnetic field on vegetable seeds. Experiments made with maize, wheat, barley, and rice show that the oscillating field results in both accelerated growth and increased percentage germination.—Umberto **D'Ancona**: The reproduction of *Alosa finta* (Cuv.)

SYDNEY.

Royal Society of New South Wales, October 6.—A. R. **Penfold** and R. **Grant**: The germicidal values of some Australian essential oils and their pure constituents; together with those of some essential oil isolates, and synthetics (Part 4). The Rideal-Walker co-efficients of some Australian essential oils and perfume synthetics have been determined. The following coefficients were measured: Western Australian sandalwood oil, 1·5; East Indian sandalwood oil, 1·5; *Zieria macrophylla*, 2·0; zierone, 2; isomenthol, 20; phloracetophenone-dimethyl-ether, 10; hydrocinnamic-aldehyde, 7 (5·3); hydroxycitronellal, 6 (4); C_8 aldehyde, 16 (22); C_9 aldehyde, 9·5 (23); C_{10} aldehyde, 7 (9·25); C_{11} aldehyde, 7 (9·25); C_{12} aldehyde (methylnonyl acetic), 1 (3·5); C_{12} aldehyde (laurinic), 3 (5); C_8 alcohol, 25 (26); C_9 alcohol, 13 (19); C_{10} alcohol, 5 (6·25); C_{11} alcohol, 4·5 (5·75); C_{12} alcohol, 2·75 (3·5). The dispersions consisted of 1 per cent. of the constituents in 7·5 per cent. rosin-soap solution. The numerals in brackets refer to the dispersions in absolute ethyl alcohol.

Official Publications Received.

BRITISH AND COLONIAL.

Royal Agricultural Society of England. Report of the Council to the Annual General Meeting of Governors and Members of the Society, to be held at the Royal Agricultural Hall, Islington, London, N., on Wednesday, December 8, 1926, at 2.30 P.M. Pp. 20. (London.)

Journal of the Chemical Society: containing Papers communicated to the Society, November 1926. Pp. viii+iv+2763-2973. (London: Gurney and Jackson.)

Transactions of the Institution of Chemical Engineers. Vol. 3, 1925. Pp. 137. (London.)

Calendar of the Royal Society of Medicine, 1926-27. Pp. 77. (London.)

Department of the Interior, Canada: Topographical Survey. Bulletin 58: The March of the Compass in Canada, and Daily Variation Tables. By W. H. Herbert. Pp. 20. (Ottawa: F. A. Acland.) 10 cents.

The Journal of the Royal Horticultural Society. Edited by F. J. Chittenden. Vol. 51, Part 2, November. Pp. 177-356+xciii-cliv+44 plates. (London.) 7*s.* 6*d.*

Tide Tables for the Eastern Coasts of Canada for the Year 1927: including the River and Gulf of St. Lawrence, the Atlantic Coast, the Bay of Fundy, Northumberland and Cabot Straits; and Information on Currents. Issued by the Tidal and Current Survey Branch of the Hydrographic Survey, in the Department of Marine and Fisheries of the Dominion of Canada. (Thirty-first Year of Issue.) Pp. 76. (Ottawa: F. A. Acland.)