

the latter half of the month, the nauplii moult for the last time and assume the new cyprid form, which soon attaches itself by head and antennæ and glues itself by secretion from the cement gland to rocks, stones, shells, piles of piers or whatever object may be on the spot. Then in this, which Darwin called the "pupa stage", some of the juvenile structures are lost and the free-swimming larva is transformed into the immobile adult. This is why fishermen haul their boats from the sea during the month of May and scour and scrub their hulls, for the newly settled brood of barnacles is still easily removable, whereas in a week or two more they would form a firm encrustation. In the days of sailing ships the attachment and growth of vast numbers of barnacles, sessile and stalked, during a long voyage, materially obstructed the way of the ship.

Societies and Academies

LONDON

Geological Society, March 8. D. A. BRYN DAVIES: The Ordovician rocks of the Trefriw district, North Wales. The area described extends from Trefriw and Dolgarrog in the Conway valley south-westwards to Capel Curig. The Glanrafon beds are correlated with the beds immediately underlying the Snowdon volcanic suite in Snowdonia, and with the beds of the same name underlying the volcanic suite at Dolwyddelan. The Crafnant volcanic series is considered to represent an incomplete development of the Snowdonian suite, the bedded pyroclastic and probably also the upper rhyolitic series being absent. In the neighbourhood of Dolgarrog, the Crafnant series is faulted against a thick development of pumice-tuff and spilitic agglomerate overlain by rhyolite-tuff and rhyolite. These are regarded as contemporaneous with the Crafnant series, but representing, in part at least, the products of a different centre of activity. The fauna of the Llanrhydwyn Slates, comparing closely with that of the Lower Cadnant Shales of Conway, places the underlying volcanic series in the Llandeilian, and indicates its correlation with the upper part of the Conway Volcanic series. V. WILSON: The Corallian rocks of Yorkshire. (1) The Howardian Hills. Three divisions of the Corallian are recognised and their stratigraphical relations are dealt with in detail. The important rôle played by the spicular remains of the lithistid sponge *Rhaxella perforata* Hinde in the building up of the Lower Calcareous Grit is recognised for the first time. Calcareous, and many varieties of siliceous, spicules are described, and their distribution is discussed. Though perfect lithological continuity exists between the Lower Calcareous Grit and the overlying Osmington Oolite series, the absence of any representatives of the Hambleton Oolite series and the Middle Calcareous Grit containing fossils characteristic of these two divisions is considered to indicate the existence of a non-sequence in this area. In the later stages of the Osmington Oolite period reefs became established, and numerous facies deposits accumulated from the erosion of the reefs. As the Lower Calcareous Grit passes gradually into the Oxford Clay below, so the Upper Calcareous Grit gradually gives place to the overlying Kimeridge Clay in the North Grimston district, there being no unconformity such as was formerly supposed.

PARIS

Academy of Sciences, March 6 (*C.R.*, 196, 653-732). The President announced the death of Magnus de Sparre, *Correspondant* for the Section of Mechanics. E. MATHIAS: Contribution to the study of fulminating matter. The phases of its explosion by cooling. RENÉ LAGRANGE: Poncelet's theorem and a class of cyclids. GLAGOLEFF: Effective and general construction of the Cremona transformation in the plane and in space. JACQUES WINTER: An application of Schrödinger's theory of perturbations to a problem where the degenerescence persists up to the n th approximation (Mathieu's equation). HENRI CARTAN: Groups of pseudo-conformal transformations. N. ARONSAJN: The decompositions of uniform functions. Mlle. ESTRADÈRE: The oxidation of some hydrocarbons. A study of the oxidation of hexane, cyclohexane and cyclohexene under conditions favourable to the production of explosions. M. KÉFÉLI: The suppression of rolling and pitching. J. DELSARTE: Spherical evolution. PIERRE VERNOTTI: The best method of assuring a thermal isolation. TH. V. IONESCU and MME. IRÈNE MIHUL: The absorption of energy in ionised gases. L. DUNOYER and P. PAOUNOFF: A state of working of photoelectric cells containing gas. G. RIBAUD: The measurement of the total factor of transmission of the coloured filters used in heterochrome photometry. A. HAUTOT: The structure of the K line of boron. This line has been described as having a width of 3 Å. (Söderman) or 5 Å. (Prins). With a spectrograph of high dispersion it has been found to be double, the two lines being 1.25 Å. apart. PIERRE BRICOUT: A magnetic apparatus for the determination of thicknesses. The continuous and automatic measurement of the thickness of thin sheets or the diameter of fine wires is a problem of interest both in the laboratory and the works. The method described is applicable if the magnetic permeability of the specimen is practically equal to that of air: variations of 0.1 micron can be detected. K. BORATYNSKI and A. NOWAKOWSKI: The modifications of phosphoric anhydride. The crystalline modification has a specific gravity of 2.284 at 20° C., 2.207 being that of the amorphous modification. AUGUSTIN BOUTARIC and JEAN RATELADE: Rhythmic precipitation in stretched gels. A. PORTEVIN and P. BASTIEN: Contribution to the study of the physical and mechanical properties of the magnesium-aluminium-copper alloys, rich in magnesium. R. CAZAUD: The influence of the degree of cold hardening produced by wire drawing on the limit of fatigue of mild steel. GEORGES FOURNIER and MARCEL GUILLOT: The relation between the absorption of the β -rays by organic compounds and the molecular structure of the latter: halogen derivatives. PAUL BAUD: The soda factory of Nicolas Leblanc. A. TRAVERS and LU: The separation of phosphoric, arsenic and vanadic acids from aluminium. The vanadium is removed by heating to 400° C. in a current of gaseous hydrochloric acid. FÉLIX TROMBE: The preparation of metallic neodymium free from iron and silicon. The metal is prepared by electrolysis of the chloride, after removal of oxychloride by prolonged heating in dry hydrochloric acid. The metal is heated in a high vacuum at 1200° C. to remove potassium: it contains about 0.02 per cent of iron, less than 0.05 per cent of silicon and only spectrographic traces of calcium. R. TRUCHET: The oxidation of the true acetylenic

hydrocarbons by selenious oxide. The preparation of α -acetylene alcohols. The oxidation of the hydrocarbon $\text{CH}_3(\text{CH}_2)_4\text{C}\equiv\text{CH}$ with selenium dioxide gave the secondary alcohol $\text{CH}_3(\text{CH}_2)_3\text{CH}(\text{OH})\text{C}\equiv\text{CH}$. The next homologue, octyne, behaved in a similar manner on oxidation. L. ROYER: The orientation of certain crystals by hydrargillite. A peculiarity in the orientation of crystals deposited in contact with maced calcite. L. J. SPENCER: The origin of tectites. Michel and Lacroix have suggested that tectites are formed in the atmosphere from meteoric materials composed of silicon and the light metals, fused by the heat developed by friction with the air. The author suggests an alternative hypothesis according to which meteorites of meteoric iron impinging on desert sand have developed sufficient heat to melt the sand into a silica glass. This accords with the high percentage of silica found in tectites (see also NATURE, 131, 117, Jan. 28, 1933). F. BLONDEL: The average amount extracted from copper minerals. A. MARIN and P. FALLOT: The connexion of the dislocations of Punta Piscadores with those of the limestone chain of the Rif. C. E. BRAZIER and L. GÉNAUX: Some remarks concerning the earthquake of March 2, 1933. Discussion of the results obtained on the seismograms at the Observatory at Parc Saint-Maur. CH. MAURAIN: Remarks on the preceding communication. The amplitudes of the movements of the ground recorded during the earthquake of March 2 last are probably the greatest ever observed in the Paris region for movements of seismic origin. HENRY HUBERT: The climates of the French tropical domain. ZB. SUJKOWSKI: The presence of Radiolaria of the Phæodaria group in the lower Carboniferous of Poland. RENÉ VANDENDRIES and HAROLD J. BRODIE: The sexual radiations in the Fungi. Mlle. M. L. VERRIER: The eyes and vision of *Cerastes vipera* and *Vipera aspis*. MME. ANDRÉE DRILHON: Phosphorus and moulting in crustaceans. MME. HUFNAGEL and MARCEL JOLY: The action of the X-rays on the metamorphosis of insects. ROBERT SOREL: Tincture of iodine and asepis. The author questions the utility of tincture of iodine used as a preliminary wash for the skin in surgical operations, especially if lengthy. It appears to act as a varnish, and results as good can be obtained with a varnish not containing an antiseptic.

Forthcoming Events

Monday, April 24

- UNIVERSITY OF CAMBRIDGE, at 12—(Rouse Ball Foundation Lecture).—Prof. B. L. Van der Waerden: "The Aims of Modern Algebra".
- ROYAL GEOGRAPHICAL SOCIETY, at 5.30—(Film).—R. J. Flaherty: "South Pacific Pictures".
- NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY, at 6—(at the London School of Economics, Houghton Street, W.C.2).—Mrs. W. Raphael: "The Selection and Training of Office Staff".
- ROYAL SOCIETY OF ARTS, at 8—(Cantor Lectures).—W. Augustus Steward: "Goldsmiths' and Silversmiths' Work—Past and Present" (succeeding lectures on May 1 and 8).

Tuesday, April 25

- EUGENICS SOCIETY, at 5.30—(at the Rooms of the Royal Society, Burlington House, Piccadilly, W.1).—Symposium on "Eugenics and Religion". Speakers: Capt. G. H. L. F. Pitt-Rivers and the Rev. A. H. Gray.

GRESHAM LECTURES IN ASTRONOMY, at 6—(at Gresham College, Basinghall Street, E.C.2).—A. R. Hinks: "The Star Map of the Future" (succeeding lectures on April 26, 27 and 28).

INSTITUTION OF CIVIL ENGINEERS, at 6.—H. G. E. Cherry: "The Influence of Earthquakes on Structural Design". F. W. Furkert: "The Effect of Earthquakes on Engineering Structures". J. J. Booth: "The Design of an Earthquake-Resisting Structure: The Dominion Museum, Wellington, New Zealand".

Wednesday, April 26

LONDON SCHOOL OF ECONOMICS, at 5.—Prof. A. W. Marget: "The Natural Rate of Interest" (succeeding lectures on April 27 and May 3 and 4).

ROYAL SOCIETY OF ARTS, at 8.—Dr. W. H. Gibson: "Future Developments in the Flax and Linen Industries".

Thursday, April 27

LONDON MATHEMATICAL SOCIETY, at 5—(at Burlington House, Piccadilly, W.1).—Prof. B. L. van der Waerden: "Hypercomplex Numbers".

INSTITUTION OF ELECTRICAL ENGINEERS, at 6—(Twenty-fourth Kelvin Lecture).—Sir Frank E. Smith: "The Travel of Wireless Waves".

Friday, April 28

ASSOCIATION OF ECONOMIC BIOLOGISTS, at 11.45—(in the Botany Lecture Theatre, Imperial College of Science and Technology).—Dr. S. Dickinson: "The Nature of Saltation in *Fusarium fructigenum*". At 2.30, Special General Meeting. At 2.45, Dr. C. B. Williams: "Observations on the Desert Locust in East Africa"; A. M. Masee: "The Strawberry Tarsonemid Mite".

SOCIETY OF CHEMICAL INDUSTRY (CHEMICAL ENGINEERING GROUP), at 6.45—(at the Waldorf Hotel, Aldwych, London, W.C.2).—Annual General Meeting. The Right Hon. Lord Melchett: "Modern Economics and Unemployment".

ROYAL INSTITUTION, at 9.—Dr. James Gray: "The Muscular Movements of Fishes".

FARADAY SOCIETY, April 24–25—(at the Royal Institution, Albemarle Street, London, W.1).—General Discussion: "Liquid Crystals and Anisotropic Melts".

Official Publications Received

GREAT BRITAIN AND IRELAND

Wool Industries Research Association. Report of the Council, 1932–33. Pp. 39. (Leeds.)

Air Ministry: Aeronautical Research Committee: Reports and Memoranda. No. 1495 (T. 3187): Improvement of Aircrew-Body Performance by Radial Vanes. By F. C. Johansen. Pp. 27+8 plates. 1s. 6d. net. No. 1496 (T. 3315): Acceleration of an Aeroplane upon entering a Vertical Gust. By L. W. Bryant and I. M. W. Jones. Pp. 16+15 plates. 1s. net. (London: H.M. Stationery Office.)

OTHER COUNTRIES

University of California Publications in American Archaeology and Ethnology. Vol. 33, No. 2: The Eastern Kuksu Cult. By E. M. Loeb. Pp. v+139–231. (Berkeley, Calif.: University of California Press.) 1 dollar.

The University of Colorado Studies. Vol. 20, Nos. 2 and 3. Pp. 115–263. (Boulder, Colo.) 1 dollar.

L. S. Ornstein: a Survey of his Work from 1908 to 1933. Dedicated to him by his Fellow-Workers and Pupils. Pp. iv+121. (Utrecht.) Conseil Permanent International pour l'Exploration de la Mer. Rapports et procès-verbaux des réunions, Vol. 82: Interne Gezeiten-Wellen. By O. Pettersson. Pp. 26+viii. (Copenhagen: Andr. Fred Hest et fils.) 1.75 kr.

Isotophs: showing the Prevalence of Typhoons in Different Regions of the Far East for each Month of the Year 1932. By T. F. Claxton. Pp. 2+12 plates. (Hong Kong: Royal Observatory.)

Council for Scientific and Industrial Research. Pamphlet No. 37: The Sheep Blowfly Problem in Australia. Report No. 1. (N.S.W. Department of Agriculture: Science Bulletin No. 40.) Pp. 136+6 plates. (Melbourne: H. J. Green.)

Colony of Mauritius. Annual Report of the Royal Alfred Observatory for the Year 1931. Pp. 4. Miscellaneous Publications of the Royal Alfred Observatory. No. 13: The Cyclone Season 1930–31 at Mauritius. By M. Herschenroder. Pp. 6+22 plates. (Mauritius.)