

Societies and Academies.

LONDON.

Optical Society, December 10.—Col. H. S. L. Winterbotham: General principles of photographic surveying. A brief outline is given of the development of photogrammetry from terrestrial and aerial positions, and an indication of some of the points to be considered in the design of instruments required by the photogrammetric surveyor in Britain.—Lieut.-Col. W. N. MacLeod: Perspective conditions of photogrammetry. The perspective conditions which must be satisfied in aerial survey work are discussed and the methods of reconstructing these conditions from the photographs obtained are described. Attention is directed to the desirability of designing new apparatus with which to carry out the necessary reconstruction with the requisite accuracy.—Lieut. M. Hotine: Some precision problems in air survey. The various factors upon which accuracy in air survey measurements depends are described and suggestions are made as to some of the conditions which should be fulfilled in apparatus employed for such measurements.

The Physical Society, December 11.—E. A. Owen and G. D. Preston: The effect of rolling on the crystal structure of aluminium. Sheets of aluminium have been examined by the ionisation spectrometer and by photographic methods. When a cast specimen of aluminium containing a number of large crystals oriented at random throughout the body of the material is rolled, the crystals break up into a large number of minute crystals. As the thickness of the material is progressively diminished, the small crystals tend to take up a definite orientation, each crystal having a cube diagonal in the direction of rolling and a (211) plane in the plane of rolling. Two sets of crystals exist in the material after rolling, one set being the optical image of the other in the plane of rolling. The ionisation spectrometer indicates that the type of the space lattice remains unaltered, and that the parameter of the material in the severely worked condition does not differ from that of the annealed material by more than 0.5 per cent.—R. S. Burdon: The spreading of one liquid on the surface of another. Purest "conductivity" water in the presence of air spreads very slowly on a clean mercury surface; the spreading is greatly accelerated by traces of acid in solution, and totally inhibited by traces of alkali. All the neutral salts tested, even chlorides of mercury and silver, produce rapid spreading. The concentration of the solution controls the rate of spreading. All acid solutions tested spread rapidly, probably reacting chemically with the mercury. One part of hydrochloric acid in ten million of water definitely accelerates spreading. A drop of very dilute acid spreads rapidly to cover a definite area and stops, any further spreading being as slow as that of water. The area covered during the rapid stage is proportional to the number of acid molecules present, and is larger than would be expected if a monomolecular layer of the appropriate salt were formed on the mercury surface. Electrostatic fields up to 4,000 volts/cm. applied perpendicular to the surface produce no visible results. Placing a platinum wire from one terminal of a battery in the mercury and from the other terminal in the drop, and applying small voltages, causes spreading even in alkalis if the mercury be positive, and prevents spreading even in dilute acids if the mercury be negative. Photographs show that the spreading drop is preceded by a well-defined ridge.—J. T. Cambridge: On the advance of the perihelion of mercury. Attention is directed to the infinite possibilities of obtaining the Einstein equation for the orbit of a planet by using Newtonian mechanics

with an extended potential function. Observational tests being equally satisfied, Einstein's theory is to be preferred on account of its extensive unity and the spontaneity of its results.

Linnean Society, January 7.—Eric Marsden Jones: On the fertilisation of *Primula vulgaris* Huds. Observations were made by day and night in a wood at Potterne in Wiltshire in order to ascertain with the greatest degree of accuracy the part that day- and night-flying insects might play in the pollination of this plant. During day observations, five important species of insects were seen pollinating frequently. During night observations the only visitors seen were *Meligethes erythropus*, *Tachyporus salutus*, and *Forficula auricularia*, which are of no value from a pollinating point of view. Two blocks of 50 plants each were covered alternately day and night as a control. The patch from which insects were excluded at night produced 343 capsules, while the one exposed by night, and from which day-flying insects were excluded, produced only 5, for which there is an explanation. Six plants covered entirely day and night were absolutely sterile. It seems, therefore, that diurnal insects pollinate efficiently, and that nocturnal Lepidoptera play no part whatever in the pollination of *Primula vulgaris*.—M. A. C. Hinton: Persistent growth in the water vole and old age in the wart hog. A contribution to the growth and death discussion. The ancestors of the voles possessed tuberculate teeth of limited growth adapted for bruising and crushing the relatively soft and succulent substances composing a mixed diet. The voles have acquired the power of subsisting upon coarse, tough, vegetable substances, and this has led to modifications, particularly in the molar teeth. These have become tall-crowned, prismatic structures adapted for slicing and shearing the food; and the dentinal pulps and enamel organs of the teeth appear to remain active throughout life. The water vole (*Arvicola amphibius*) is remarkable in another way. In the oldest individual known, not only were the molar teeth actively growing at the moment of death but the skeletal development was still incomplete. It would seem that the water vole and some of its relations never stop growing. The last molar and the enormous canines of the wart hog have been described as being persistently growing teeth. Recently acquired material shows that, if the wart hog lives long enough, these teeth finish growing, develop roots, and wear out, so that in due course the animal becomes senile and dies. Probably if we could secretly defend a water vole from accident indefinitely while exposing it to normal Microtine existence, its growth would cease, and it would proceed to old age and death like a normal mammal.

SYDNEY.

Linnean Society of New South Wales, November 25.—A. Philpott: The labial palpi of *Trichophyssetis cretacea* and *Argyria amœnalis*. Modifications of the palpi occur in males although the females are quite normal.—John Mitchell: Descriptions of new species of *Leaia*. The genus is confined to rocks of Carboniferous and Permian ages; and consequently its occurrence, in great variety, in the Newcastle Coal Measures forms one of the most convincing proofs of the Permian age of these measures. Thirteen species are described as new.—H. M. Hale: The development of two Australian sponge-crabs. Two marine crabs, an oxyrhynch (*Paranaxia serpulifer*) and a dromiid (*Petalomera lateralis*), do not pass through the usual free-swimming larval stages, the young leaving the female in the adult form. In the latter, at least two advanced juvenile stages are spent in the brood-pouch

of the female. The metamorphosis is almost completely suppressed in another sponge-crab (*Cryptodromia octodentata*) and a third (*Platydromia thomsoni*) probably has a "direct" development.—**Ida A. Brown**: Geology of the Milton District. Within a radius of ten miles of Milton there are a number of outcrops of igneous rocks. An account is given of the albitisation and of the history of the intrusions.—**I. M. Mackerras**: The Nemestrinidæ (Diptera) of the Australasian region. Of the 40 specific names hitherto proposed, 22 are considered as valid and 2 cannot be placed; 1 genus, 16 species, 3 subspecies and 1 variety are described as new.—**E. W. Ferguson**: Description of a new species of Mycetophilidæ (Diptera) with luminous larvæ. A new species of Arachnocampa is described from Ida Bay Caves, Tasmania.—**L. Harrison and Hazel C. Weekes**: On the occurrence of placentation in the scincid lizard, *Lygosoma entrecasteauxi*. The occurrence of true placentation in two not very closely related scincid lizards, *Lygosoma* and *Chalcides*, in Australia and Europe respectively, indicates that the allanto-placenta is a functional adaptation which may have arisen independently many times in evolution, and upon the mere occurrence of which phylogenetic statements cannot justifiably be based. A consideration of reptilian placentation suggests three stages, chorio-placenta, omphaloplacenta and allanto-placenta arising in that serial order, both in ontogeny and phylogeny.—**W. J. Phillipps and F. J. T. Grigg**: The salinity of inshore oceanic waters of Australasia in relation to fishes.

Official Publications Received.

The Indian Forest Records, Vol. 11, Part 10 (Economy Series): Notes on the Antiseptic Treatment of Assam Timbers for Railway Sleepers. By J. H. Warr; assisted by S. Kamesam. Pp. iv+106. (Calcutta: Government of India Central Publication Branch.) 1.14 rupees; 8s. 3d.

Meteorological Office: Air Ministry. Advisory Committee on Atmospheric Pollution: Report on Observations in the Year ending March 31st, 1925. Forming the Eleventh Report of the Committee for the Investigation of Atmospheric Pollution. (M.O. 280.) Pp. 46. (London: H.M. Stationery Office.) 5s. 6d. net.

Madras Fisheries Department. The Fishing Methods of the Madras Presidency. By James Hornell. Part 1: The Coromandel Coast. (Report No. 2 of 1924, Madras Fisheries Bulletin, Vol. 18.) Pp. 59-110. (Madras: Government Press.) 12 annas.

Society for the Provision of Birth Control Clinics. Annual Report 1924-1925. Pp. 14. (London: 153a East Street, S.E.17.)

Dove Marine Laboratory, Cullercoats, Northumberland. Report for the Year ending June 30th, 1925. (New Series 14.) Edited by Prof. Alexander Meek. Pp. 58. (Cullercoats.)

Leeds University. Report to the Worshipful Company of Clothworkers of the City of London of the Advisory Committee on the Departments of Textile Industries and Colour Chemistry and Dyeing, during the Session 1924-25. Pp. 16. (Leeds.)

University of California Publications in American Archaeology and Ethnology. Vol. 17, No. 7: Archaic Culture Horizons in the Valley of Mexico. By A. L. Kroeber. Pp. 873-408+1 plate. (Berkeley, Calif.: University of California Press.) 45 cents.

Smithsonian Institution: United States National Museum. Contributions from the United States National Herbarium. Vol. 24, Part 7: The North American Species of *Stipa*; Synopsis of the South American Species of *Stipa*. By A. S. Hitchcock. Pp. xi+215-289. (Washington: Government Printing Office.) 15 cents.

Department of the Interior: Bureau of Education. Bulletin, 1925, No. 17: Professional Staff of State Departments of Education. By Arthur Wesley Ferguson. Pp. iv+64. (Washington: Government Printing Office.) 10 cents.

The Physical Society of London. Proceedings, Vol. 83, Part 1, December 15. Pp. 92. (London: Fleetway Press, Ltd.) 6s. net.

Transactions of the Royal Scottish Arboricultural Society. Vol. 39, Part 2, October. Pp. 89-218+31-39. (Edinburgh.) 3s.

Bernice P. Bishop Museum. Bulletin 15: Samoan House Building, Cooking and Tattooing. By E. S. Craighill Handy and Willowdean Chatterton Handy. Pp. 26+7 plates. Bulletin 16: Juan Fernandez and Hawaii, a Phytogeographical Discussion. By C. Skottsberg. Pp. 47. Bulletin 17: Music in the Marquesas Islands. By E. S. Craighill Handy and Jane Lathrop Winne. Pp. 51. Bulletin 18: String Figures from the Marquesas and Society Islands. By Willowdean Chatterton Handy. Pp. 92+4 plates. Bulletin 19: Hawaiian Fungi. By Frank Lincoln Stevens. Pp. 189+10 plates. Bulletin 20: Tropical Cyclones of the Pacific. By Stephen Sargent Visher. Pp. 163. Bulletin 21: Report of the Director for 1924. By Herbert E. Gregory. Pp. 55. Bulletin 22: Fishes of Guam, Hawaii, Samoa and Tahiti. By Henry W. Fowler. Pp. 38. Bulletin 23: Archaeology of the Marquesas Islands. By Ralph Linton. (Bayard Dominick Expedition, Publication No. 10.) Pp. 187+15 plates. (Honolulu, Hawaii.)

Imperial Department of Agriculture for the West Indies. Report on the Agricultural Department, St. Vincent, for the Year 1924. Pp. iv+46. (Trinidad.) 6d.

National Museum of Wales. Eighteenth Annual Report, 1924-25, presented by the Council to the Court of Governors on the 23rd October 1925. Pp. 42+7 plates. (Cardiff.)

Diary of Societies and Public Lectures.

SATURDAY, JANUARY 16.

SCOTTISH JUNIOR GAS ASSOCIATION (at Royal Technical College, Glasgow), at 7.—D. Garrie: Paper.

MONDAY, JANUARY 18.

ROYAL GEOGRAPHICAL SOCIETY (at Lowther Lodge), at 5.—The New Photo-Theodolite of Mr. A. Wild (Report and Discussion).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Sir Arthur Keith: Fossil Remains of Ape and Man: (1) The Anatomical Characters of the Galilee Skull.

FARADAY SOCIETY (at Chemical Society), at 5.30.—B. B. Banerji: The Electrode Capacity and Resistance of Electrolytes for a Wide Range of Frequencies.—J. A. V. Butler, W. E. Hugh, and D. H. Hey: The Effect of the Electrode Material on Oxidation Potentials.—R. E. W. Maddison: The Electromotive Behaviour of Cupric Oxide.—A. Highfield: The Colloidal Properties of Nitrocellulose Sols in Mixed Solvents.—E. P. Perinan and T. Lovett: Vapour Pressure and Heat of Dilution of Aqueous Solutions. Part I. (a) Vapour Pressure of Aqueous Solutions of Urea; (b) Heat of Dilution of Aqueous Solutions of Urea.—W. Taylor: A Note on Kinetic Activation as a Factor in Gas Reactions.

INSTITUTION OF AUTOMOBILE ENGINEERS (Loughborough Graduates' Meeting) (at the College, Loughborough), at 7.—C. Legge: Sparking Plugs.

INSTITUTION OF ELECTRICAL ENGINEERS (Teesside Sub-Centre) (at Cleveland Technical Institute, Middlesbrough), at 7.15.—E. E. Dunn, W. S. Ramsdale, and others: Informal Discussion on The Isolation, Location, and Repairs of Faults.

JUNIOR INSTITUTION OF ENGINEERS (North-Western Centre) (at 16 St. Mary's Parsonage, Manchester), at 7.15.—W. D. Adamson: The Importance of the Selling Aspect of Production Planning.

INSTITUTION OF AUTOMOBILE ENGINEERS (Scottish Centre) (at Royal Technical College, Glasgow), at 7.30.—J. D. Parkes: Logic applied to Failures.

INSTITUTION OF ELECTRICAL ENGINEERS (Mersey and North Wales (Liverpool) Centre) (at Liverpool University), at 7.30.—A. P. Trotter: Illumination and Light (Faraday Lecture).

ROYAL INSTITUTE OF BRITISH ARCHITECTS, at 8.—Award of Prizes and Studentships.

ROYAL SOCIETY OF ARTS, at 8.—H. P. Shapland: The Decoration of Furniture (Cantor Lectures) (1).

ARISTOTELIAN SOCIETY (at University of London Club), at 8.—Dr. F. W. Thomas: Conventional Existence.

CHEMICAL INDUSTRY CLUB.

INSTITUTE OF CHEMISTRY (Manchester and District Section) (at Manchester).—C. Hollins and others: Discussion: Chemical Nomenclature.

TUESDAY, JANUARY 19.

ROYAL ANTHROPOLOGICAL INSTITUTE (Edinburgh and the Lothians Branch) (at Synod Hall, Edinburgh), at 5.—Dr. J. Ritchie: The Arrival of Man in Scotland.

ROYAL INSTITUTION OF GREAT BRITAIN, at 5.15.—Prof. J. A. Crowther: X-rays and Living Matter (1).

ROYAL STATISTICAL SOCIETY (at Royal Society of Arts), at 5.15.—R. J. Thompson: The Productivity of British and Danish Farming.

ROYAL SOCIETY OF MEDICINE, at 5.30.—General Meeting.

MINERALOGICAL SOCIETY (at Geological Society), at 5.30.—Dr. C. E. Tilley: Some Mineralogical Transformations in Crystalline Schists.—Dr. A. Brammall: Gold and Silver in the Dartmoor Granite.—A. H. Halli-mond: On the Chemical Classification of the Mica Group. II. The Basic Micæ.—G. Greenwood: The Construction and Use of an X-ray Goniometer.

INSTITUTE OF MARINE ENGINEERS, at 6.30.—W. Blane: Poetry and the Engineer.

INSTITUTION OF ELECTRICAL ENGINEERS (East Midland Sub-Centre) (at Loughborough College), at 6.45.—A. B. Mallison: Justifiable Small Power Plants.

ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN (Scientific and Technical Group), at 7.—W. D. Baldsiefen, F. F. Renwick, and Dr. V. B. Sease: Silver Iodide in Photographic Emulsions.

INSTITUTION OF AUTOMOBILE ENGINEERS (Coventry Graduates' Meeting) (at Coventry), at 7.15.—E. W. Sisman: The Straight Eight Engine.

SOCIETY OF CHEMICAL INDUSTRY (Birmingham and Midland Section) (at Birmingham University), at 7.15.—B. D. Porritt: Early Days of the Rubber Industry.

INSTITUTION OF AUTOMOBILE ENGINEERS (Wolverhampton Centre) (at Wolverhampton), at 7.30.—H. Briggs: The Elimination of Noise in the Motor Cycle.

INSTITUTION OF ELECTRICAL ENGINEERS (North-Western Centre) (at College of Technology, Manchester), at 7.30.—A. P. Trotter: Illumination and Light (Faraday Lecture).

INSTITUTE OF METALS (North-East Coast Local Section) (at Armstrong College, Newcastle-on-Tyne), at 7.30.—Prof. F. C. Thompson: The Principles which Govern the Heat Treatment of Non-Ferrous Alloys.

NORTH-EAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS (Middlesbrough Branch) (at Cleveland Scientific and Technical Institute, Middlesbrough), at 7.30.—S. E. Burgess: Public Works and Housing at Middlesbrough.

ROYAL ANTHROPOLOGICAL INSTITUTE (Indian Section), at 8.15.—Discussion on Periods in Indian History.