

Early Science at the Royal Society.

October 19, 1664. Dr. Merret brought in his catalogue of trades, which was read and approved of; and it was ordered, that the amanuensis should fairly transcribe it against the next meeting, and that then it should lye exposed, at the time of the meeting of the society, for the several fellows to look it over, and to choose what trade they would give or procure the history of.—Mr. Hooke said he had observed, that upon the fall of the mercury wet weather followed.—Sir Paul Neile renewed his former motion of observing the figure of the sun at his rising and setting, both at Whitehall and Greenwich. Sir R. Moray was desired to observe it at Whitehall, and to recommend the observation of it at Greenwich to Mr. Marre.

1674. Mr. Hooke acquainted the council, that Sir Jonas Moore had been with him at Chelsea College, and made an overture of engaging a gardiner, a sufficient man, to take a lease of the house and land about it, and paying a yearly rent; allowing withal to the Society to make hortulan experiments there; as also to build an astronomical observatory, which latter Sir Jonas Moore would undertake to do at his own charges, to the value of an hundred and fifty or two hundred pounds.

October 21, 1669.—A Latin letter from Signor Malpighi was read acknowledging the favour of election, and in causing his discourse on the silk-worms to be printed.—Thomas Willisel the botanic traveller, employed by the society, brought in his collection of plants gathered in several parts of England and Scotland, together with some rare Scottish birds and fishes.—The lord bishop of Chester acquainted the society, that his Majesty had expressed a desire of having the measure of a degree of the earth determined, and expected the assistance of the society in it.

October 22, 1662. Dr. Merret mentioned, that live worms are sometimes found in the stomachs and guts of salmons. He was desired to make some observations in those and other fishes. This gave occasion of discoursing upon what is called equivocal generation.—Dr. Charlton brought in his papers, in which he had reduced birds into certain families, in Latin and English; which papers were ordered to be kept; and the doctor was desired, in conjunction with Dr. Merret, to reduce fishes into the like classes.

1668. There was presented from Mr. Hevelius his "Cometographia," wherein he takes particular notice of the society in his address to the reader.

October 24, 1666. It was moved that the materials for building, and the several sorts of earth for making brick and tile, might now be considered by the society; who were desired to think upon it against the next meeting.—A paper communicated by Sir Theodore de Vaux was read concerning several ways of making cheap and sweet fires of coal-balls wherein sea-coal is by the mixture of other combustible bodies both sweetened and multiplied.—Sir Robert Moray presented the society for the repository with some stag's tears.

1667. The method of transfusing blood into a man, as it was contrived by Dr. King was read and ordered to be registered.—It being moved, that the experiment might be made accordingly, as it had been done already in foreign parts, Sir George Ent suggested, that he thought it most advisable to try it upon some mad person in the hospital of Bethlem. This being seconded by divers other physicians of the society, Dr. Lower [and others] were desired to speak with the physician to Bethlem, about the execution of this trial.

Societies and Academies.

MANCHESTER.

Literary and Philosophical Society, October 7.—Miss Laura Start: The significance of some Iban textile designs.—J. Walton: On the existence of liverworts as fossils in the Carboniferous rocks of England. Dr. Lucy Wills has described some small dichotomously branched thalloid plants in shales of Upper Coal Measure Age in Staffordshire and suggested that they might possibly be fragments of a Bryophyte. Some clayey shale from the Middle Coal Measures of the Denbighshire coal-field yielded thalloid plants of a similar type of organisation, some with rhizoids attached. In addition, two fragments of a plant which cannot be other than a foliose liverwort were isolated by treatment of the same shale. This latter plant is distinctly dorsiventral. There are two rows of leaves, one on each side of the somewhat stout axial part of the shoot. The members of the two series alternate. On the under (or the upper?) surface of the axial part are two rows of smaller leaf-like appendages, each in definite relation to one of the larger leaves and lying close to it. Thus it is now clear that there were both thalloid and foliose forms of liverworts in existence in Carboniferous times.

PARIS.

Academy of Sciences, September 15.—M. Emile Roux in the chair.—Henry Le Chatelier: The viscosity of glass. A discussion of the experiments of E. Washburn and E. Shelton on the viscosities of soda lime glasses. These authors give their results in graphical form, but it is shown that the results of these measurements can be very exactly represented by the double exponential formula: $\text{Log}(\log \eta) = -Mt + P$, in which η is the viscosity, t the temperature, and M and P constants. Extrapolation to the annealing temperatures, 500° C. to 600° C., gives results not in agreement with earlier work, and it is suggested that glass, like sulphur, exists in two allotropic states.—W. Abbott: The breaking up of the southern polar cap of Mars. A description of the changes in the shape and appearance of the polar cap between May and August 14 of this year.—L. Dunoyer and P. Toulon: The interpretation of the sheath phenomena in arc relays.—H. Robert, P. Vernotte, and A. Jeufroy: The measurement of the heating of the brushes of electrical generators. The advantages of using a thermocouple instead of the conventional mercury thermometer are demonstrated: the differences are magnified when the size of the dynamo is reduced.—E. Hultén: The origin of the band spectrum of mercury. There is some evidence, not quite conclusive, that the bands are due to the formation of some compound of the metal with hydrogen. The bands are more intense when a current of hydrogen at low pressure (1 mm.) is passed through the tube, whilst a current of air has the opposite effect.—P. Vaillant: The conductivity of solid salts at high temperatures. The conductivity of solid sodium chloride first increased, then fell sharply. At 150° C. there was a rapid increase to the highest temperature employed (420° C.). On reheating, the initial rise and fall were not repeated but the increase from 150° C. was the same as on the first heating. Potassium sulphate and chloride behave similarly.—P. Loisel: The radioactivity of the granites from Guérat, near Bagnoles-de-l'Orne. Study of emilium. The study of the gases dissolved in the water of a certain number of springs in the Bagnoles-de-l'Orne region led the author to conclude

that these gases contained, in addition to the radium emanation, a new emanation (period 22 minutes). The granites, treated by the method of Strutt and Joly, gave a gas the curve of which differed from the characteristic curve of the radium emanation.—H. Gault and A. Funke: The alkylidene-dibenzoylpyruvic esters.—A. Némec and K. Kvapil: The composition of forest soils. Analyses of soil layers at different depths in forests of epicea, oak, and pine, the data including acidity, organic matter, and nitrogen.—Lesné and Vagliano: The production of cow's milk with antirachitic properties. The addition of cod-liver oil to the food of a cow modifies the composition of the milk and butter. The butter is rich in lecithine and the growth vitamin. The antirachitic factor present in the butter is not identical with vitamin A.—G. Mouriquand, Paul Michel, and M. Berheim: New researches on the sensibilisation of the guinea-pig to C-avitaminosis. After an attack of experimental scurvy, the guinea-pig is more sensitive to a second attack. This condition is not permanent, and slowly disappears. It is not fundamentally a true sensibilisation, and is closely connected with the long persistence of lesions only capable of detection by histological methods.—M. Parat and J. Painlevé: Constitution of the cytoplasm of a glandular cell: the cell of the salivary glands of the larva of the Chironome.—Auguste Lumière: The mechanism of anaphylactic shock. Reply to the criticisms of M. Bordet, maintaining the adequacy of the author's flocculation theory.

ROME.

Royal Academy of the Lincei, June 15.—V. Scialoja in the chair.—M. La Rosa: The ballistic principle and the velocity of light, and recent investigations by Rudolph Tomaschek.—A. Piutti and Pasquale Badolato: Action of light on solutions of certain organic substances in chloropicrin. Although chloropicrin is stable in the dark, it undergoes decomposition when exposed to light, and the products thus formed exert on dissolved compounds either a chlorinating, an oxidising, or a substituting action; in some instances the nitro group is reduced to the ammonium group, which separates as chloride or oxalate.—Gaetano Rovereto: Tectonic conditions of the Circean Promontory [of the Apennines].—Francesco Tricomi: Numerical resolution of Fredholm's integral equations.—Gina Zanoni: Extension of Hadamard's equation for the functional derivatives of Green's function to elasticity.—Luigi Amoroso: Mathematical theory of annuities.—Bruno Finzi: A noteworthy class of fluid motions.—Emilio Adinolfi: Hall's effect in bismuth in the case of weak fields. In the case of bismuth, the value of Hall's coefficient varies linearly with the strength of the magnetic field and exponentially with the temperature.—Vasco Ronchi: Study of optical systems by means of the biprism and Fresnel's mirrors.—Mario Amadori: Hydrated active tartaric acid. At temperatures below about 5°, tartaric acid separates from aqueous solution in a monohydrated form, which crystallises in blunt prisms belonging to the rhombic system and gradually changes to the ordinary anhydrous crystals at temperatures above about 10°.—L. A. Herrera: Imitation of nervous and cellular tissue by means of potassium hydroxide, silica and alcohol.—C. Mazzetti and F. De Carli: Reactivity of boric anhydride in the solid state with metallic oxides. The borates of various metals may be obtained by heating the corresponding oxides with boric anhydride at temperatures below those at which the respective mixtures undergo fusion.—G. R. Levi and A. Ferrari: The crystalline lattices of the rhombohedral carbonates of divalent metals.—S.

Ranzi: Increase of the surface and increase of the volume during the development of the otocysts of the Bufo. In the development of these otocysts, the increase in the surface does not always proceed *pari passu* with the increase in the volume. At certain periods of the embryogenesis there is predominance of the former, expressed by demarcation of the parts and by slight wrinkling of the walls, whilst at other periods increase of the volume, indicated by disappearance of the demarcation and by a tendency of the organ to become spherical, assumes ascendancy.—G. Fadda and I. Schiacchitano: The significance of the polar groove in relation to that of the diameter of the fertilisation membrane.—M. Topi: Existence of various species of vine Phylloxera, and the susceptibility of American vines to Phylloxera. Like Arizona vines suffering from Phylloxera, infected roots of Italian vines seem unable to impart this disease to American vine varieties.—G. Cotronei: The phenomenon of contraction in relation to sexual maturity and to senescence in *Petromyzon*. Although these organisms persist sexually immature for several years, the senescent phase, expressed by a profound atrophy, occupies only about a month, during which period the animal is used up by the activity of the reproductive elements.—C. Artom: Variation in the radio-sensibility of the cellular elements in peciliothermic organisms. The results of Packard's recent work on the susceptibility of cells to radium emanations fully confirm the conclusion drawn by the author from his experiments on *Paludina vivipara*: that in cold-blooded organisms the radio-sensibility of the cellular elements varies considerably with the temperature and that such organisms therefore constitute excellent material for determining the exact relationship between temperature and cellular radio-sensibility.—C. Verdozzi: Modifications of certain internal secretory glands (suprarenal capsule, thyroid, ovary, spleen) during lactation.

SYDNEY.

Linnean Society of New South Wales, August 27.—Mr. J. J. Fletcher, vice-president, in the chair.—T. Steel: The nectar of flowers. Direct observation of the disappearance of nectar from protected flowers shows that, when not removed by birds or insects, this secretion is soon re-absorbed by the plant, apparently going to nourish the growing ovary. This may be the original purpose of nectar secretion in general. There are great differences between the densities of nectar as it occurs in flowers, and of honey in the comb. In the flowers examined the total sugar in the nectars varied between 9.05 and 41.20 per cent. Each species appears to have a fairly constant nectar density.—T. Harvey Johnston: An Australian caryophyllæid cestode. The paper describes the structure and relationships of the first caryophyllæid cestode to be described outside Europe, Asia, and North America, making the eighth species known in the family. A new genus is proposed to receive it. The parasite is noteworthy as being the first member of the family known to parasitise fish other than cyprinoids, its host being the jewfish, *Tandanus tandanus* Mitchell, a silurid, from Queensland rivers.—J. R. Malloch: Notes on Australian Diptera. No. iv. Notes on the families Drosophilidæ and Chloropidæ, eight species being described as new in the former, and two genera and six species as new in the latter.—P. D. F. Murray: The motor nerve-endings of the limb muscles of the frog (*Rana temporaria*) and of the muscles of the pectoral fin of the dog-fish (*Squalus acanthias*). The nerve-endings were impregnated by the Bielschowsky method. Two kinds of motor nerve-endings are

described in the limb muscles of the frog, one coarse, one fine; the latter may be the sympathetic innervation. In connexion with the motor nerve-endings in the muscles of the pectoral fin of *Squalus acanthias*, at least two types of periterminal network are described, and another terminal organ in the sarco-plasm under the end-ring, which seems not to have been described hitherto.—J. M. Petrie: Studies in plant pigments. Part ii. The red pigment induced by insect injury in *Eucalyptus stricta*. Leaves of *Eucalyptus stricta* were found to be injured by a microscopic mite, and, as a result, great fasciation had taken place, and a bright red colour produced. The colouring matter of these red fasciated leaves was isolated and examined chemically. No trace of anthocyanin could be identified, but instead, the pigment was proved to be a catechol tannin red. It was obtained in red non-crystalline flakes, and soluble in alcohol and alkalis. The red pigment is probably one of the first anhydrides, or soluble phlobaphenes, of a catechol tannin.

Official Publications Received.

Proceedings of the Royal Society of Edinburgh, Session 1923-1924. Vol. 44, Part 2, No. 20: The Magnetic Quality of very Pure Nickel. By Ada M. Malcolm. Pp. 206-210. Vol. 44, Part 3, No. 21: The Law of Recurrences and Decay of After Images. By Winifred J. Smith. Pp. 211-217. (Edinburgh: R. Grant and Son; London: Williams and Norgate, Ltd.) 9s. each.

A Verbatim Report of a Meeting of the National Advertisers Dept. of the International Advertising Convention held at Conference Hall No. 1, Palace of Industry, British Empire Exhibition, Wembley, on July 15th, 1924. Subject: Truth about Circulation. Pp. 36. (London: Incorporated Society of British Advertisers, Ltd., 134 Fleet Street.)

Department of the Interior: United States Geological Survey. Water-Supply Paper 503: Surface Water Supply of the United States, 1919 and 1920. Part 3: Ohio River Basin. Pp. vi+257+2 plates. (Washington: Government Printing Office.) 25 cents.

University of London, University College. Calendar, Session 1924-1925. Pp. lxxviii+10+441+lxix-clxxx. (London: Taylor and Francis.)

Diary of Societies.

SATURDAY, OCTOBER 18.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, at 4.—Sir Archibald E. Garrod: Harveian Oration.
 PHYSIOLOGICAL SOCIETY (at Guy's Hospital), at 4.—E. D. Adrian: The Reflex Electric Response of Antagonistic Muscles.—F. Roberts: The Short-circuited Circulation.—J. Mellanby: The Action of Digestive Enzymes on the Red Cell.—J. F. Fulton: Alterations in the Size of the Electrical Responses of a Muscle Fibre produced by small Alterations in Tension.—D. T. Barry: Some Points in the Formation of a V-wave in the Venous Pulse.—R. J. S. McDowall and B. L. Worsnop: The Effect of Histamine on the Aorta of the Living Animal.—J. Barcroft, C. A. Murray, and I. Sands: The Effect of Splenectomy on Coal-gas Poisoning.—I. Sands: Self-oxidation in the Blood of the Earthworm.—J. M. H. Campbell, G. O. Mitchell, M. S. Pembrey, and A. T. W. Powell: The Effect of Muscular Work upon Digestion.—M. S. Pembrey: The Weight of the Heart in Different Conditions.—A. N. Drury: The Spread of the Excitatory Process in Articular Muscle subjected to Pressure.—A. N. Drury and E. C. Andrus: The Influence of Hydrogen Ion Concentration on the Mammalian Auricle.—Demonstrations.
 BIOCHEMICAL SOCIETY (at Cambridge).

MONDAY, OCTOBER 20.

SOCIETY OF CHEMICAL INDUSTRY (Yorkshire Section) (at Queen's Hotel, Leeds), at 7.—Annual General Meeting.
 JUNIOR INSTITUTION OF ENGINEERS (North-western Section) (at 16 St. Mary's Parsonage, Manchester), at 7.15.—G. E. Blyth: Powdered Fuel.
 CHEMICAL INDUSTRY CLUB (at 2 Whitehall Court, S.W.), at 8.

TUESDAY, OCTOBER 21.

ROYAL HORTICULTURAL SOCIETY, at 4.—Lecture.
 ROYAL SOCIETY OF MEDICINE, at 5.—General Meeting of Fellows.
 ZOOLOGICAL SOCIETY OF LONDON, at 5.30.—Secretary: Report on the Additions to the Society's Menagerie during the months of June, July, August, and September.—Prof. H. M. Lefroy: Exhibition of lantern-slides illustrating the life-history and habits of the Death-Watch Beetle.—R. I. Pocock: The External Characters of the South American Edentates.—Rev. Dr. F. J. Wyeth: The Development and Neuromy of the Fore-brain in Sphenodon.—H. C. Abraham: Some Mygalomorph Spiders from the Malay Peninsula.—Joan B. Procter: Unrecorded Characters seen in Living Snakes and Description of a new Tree-Frog.

NO. 2868, VOL. 114]

INSTITUTE OF MARINE ENGINEERS, at 6.30.—Sir James Kennal: Present Tendencies in Steam Generation.
 INSTITUTION OF ELECTRICAL ENGINEERS (East Midland Sub-Centre) (at the College, Loughborough), at 6.45.—F. W. Nicholls: Realisation of Heat Units in Steam and Electric Power Plant.
 ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—H. A. Tipping: Old English Country Homes.
 INSTITUTION OF AUTOMOBILE ENGINEERS (Coventry Centre) (at Coventry) at 7.15.—Dr. W. R. Ormandy: Research (Presidential Address).
 INSTITUTE OF CHEMISTRY AND SOCIETY OF CHEMICAL INDUSTRY (Edinburgh and East of Scotland Section) (at 36 York Place, Edinburgh).—W. F. U. Woolcock: Opening Address.

WEDNESDAY, OCTOBER 22.

FARADAY SOCIETY, GEOLOGICAL SOCIETY, AND MINERALOGICAL SOCIETY (at Geological Society), at 3.—Dr. J. S. Flett: Introductory Address.—Dr. G. W. Tyrrell: Review of Recent Work on the Origin and Differentiation of Igneous Rocks.—Prof. W. E. S. Turner: The Physical Properties of Silicate Glasses.—A. F. Hallimond: The Formation of Eutectic and Similar Structures in Silica Melts.—Prof. J. W. Gregory: Magmatic Ore Deposits.—Dr. J. W. Evans: Proposed Researches in the Chemistry and Physics of Igneous Magmas Rocks.—Prof. C. H. Desch: The Theory of Crystallisation in Rock Magmas.—Dr. A. Scott: Equilibrium of Igneous Rocks and the Influence of Certain Factors on it.—Prof. P. Niggli: Homogeneous Equilibria in Magmatic Melts and their Bearing on the Processes of Igneous Rock Formation.—Dr. W. A. Richardson: Some Ultimate Problems in Petrogenesis.
 INSTITUTION OF ENGINEERING INSPECTION (at Royal Society of Arts), at 5.—A. Hamilton: Crankless Engines.
 INSTITUTION OF AUTOMOBILE ENGINEERS (North of England Centre) (at 244 Deansgate, Manchester), at 6.30.—Dr. W. R. Ormandy: Research (Presidential Address).
 INSTITUTION OF ELECTRICAL ENGINEERS (South Midland Centre) (at Grand Hotel, Birmingham), at 7.—W. Lawson: Chairman's Address.
 ROYAL MICROSCOPICAL SOCIETY (Industrial Applications Section), at 7.30.—J. E. Barnard: The Elementary Principles of Microscopical Illumination—(1) Transmitted Light.—Dr. R. H. Greaves: Super-saturated Solid Solutions.—H. Wrighton: New Photo-micrographical Apparatus for all purposes.

THURSDAY, OCTOBER 23.

SOCIETY OF CHEMICAL INDUSTRY (Chemical Engineering Group) (at Engineers' Club, Coventry Street, W.C.), at 5.—H. Griffiths: Crystallisation.—T. V. Barker: The Development and Formation of Crystals.
 INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—W. B. Woodhouse: Inaugural Address.
 INSTITUTION OF AUTOMOBILE ENGINEERS (Luton Centre) (at Luton), at 7.—G. L. Ensor: Positive Valve Control.
 C.B.C. SOCIETY FOR CONSTRUCTIVE BIRTH CONTROL AND RACIAL PROGRESS (at Essex Hall, Essex Street, W.C.), at 8.—Dr. Marie Stopes: The Present Position of the Birth Control Movement (Presidential Address).
 INSTITUTION OF WELDING ENGINEERS (at Engineers' Club, Coventry Street, W.), at 8.—E. A. Atkins: Steel Wire: its Manufacture, Properties, and Uses for Welding and other Purposes.
 ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE (at 11 Chandos Street, W.), at 8.15.—Sir Malcolm Watson: Observations on Malaria Control with special reference to the Assam Tea Gardens.

FRIDAY, OCTOBER 24.

PHYSICAL SOCIETY OF LONDON (at Imperial College of Science and Technology), at 5.—D. Gunnalya and G. Subrahmaniam, with Demonstration by D. J. Blakley: Underblown Pipes.—W. Mandell and J. West: The Temperature Gradient in Gases at Various Pressures.—J. F. S. Ross: Vectorial Dimensions.
 ROYAL COLLEGE OF SURGEONS OF ENGLAND, at 5.—Sir Arthur Keith: Anatomy and Malformations of the Heart (2). Specimens illustrating the common kinds of Congenital Malformation.
 ROYAL PHOTOGRAPHIC SOCIETY OF GREAT BRITAIN, at 7.—J. E. Saunders: "Close-ups" at the Zoo.
 JUNIOR INSTITUTION OF ENGINEERS, at 7.30.—F. F. Evans: Powdered Fuel.
 NORTH-EAST COAST INSTITUTION OF ENGINEERS AND SHIPBUILDERS (Middlesbrough Branch) (at Cleveland Institution), at 7.30.—J. McGovern: Address.

PUBLIC LECTURES.

SATURDAY, OCTOBER 18.

HORNIMAN MUSEUM (Forest Hill), at 3.30.—H. Dewey: Cornish Scenery and its Causes.

MONDAY, OCTOBER 20.

KING'S COLLEGE, at 5.30.—Prof. E. W. Scripture: Prose and Verse analysed by the Newer Methods.

TUESDAY, OCTOBER 21.

BEDFORD COLLEGE FOR WOMEN, at 5.15.—Prof. H. Piéron: La Douleur, au point de vue des fonctions affectives et perceptives (in French). (Succeeding Lectures on October 22, 24.)
 GRESHAM COLLEGE, at 6.—W. H. Wagstaff: Geometry (Gresham Lectures). (Succeeding Lectures on October 22, 23, 24.)

SATURDAY, OCTOBER 25.

HORNIMAN MUSEUM (Forest Hill), at 3.30.—F. Balfour-Browne: Social Life amongst Insects—(1) Ants, Bees, and Wasps.