

Societies and Academies

LONDON

Royal Society, February 13. L. HOGBEN and D. SLOME: The pigmentary effector system. (7) The chromatic function in Elasmobranch fishes. (8) The dual receptive mechanism of the amphibian background response. Experiments, in which the effects of illumination from above and below, and of illumination with monochromatic lights of different wavelengths, have been compared, show that the visual chromatic ('background') response of vertebrates depends on distinct localised retinal elements. The ventral photoreceptors involved in the black background response activate the archaic pituitary mechanism present in Cyclostomes, Elasmobranchs and Amphibia, in all of which removal of the whole gland or part (neurointermediate lobe in Elasmobranchs and Amphibia) abolishes the black background response. The black background response can be evoked in hypophysectomised Elasmobranchs or Amphibia by extracts of which the active constituent is not identical with the pressor or oxytocic substances. Quantitative estimates based on the melanophore index show that more extreme pallor results from removal of the neurointermediate lobe alone than from removal of the neurointermediate lobe along with the pars tuberalis. This reinforces evidence previously adduced to support the existence of a second humoral component, the *W*-substance in the pars tuberalis of Amphibia. Removal of the pars glandularis of Elasmobranchs abolishes the white-background response, as does the removal of the pars tuberalis in Amphibia. This points to the conclusion that the same dual mechanism of endocrine control exists in the cartilaginous fishes. C. H. WADDINGTON, J. NEEDHAM and JEAN BRACHET: Studies on the nature of the amphibian organisation centre. (3) The activation of the evocator. The power of performing an induction can be caused to appear in those parts of the amphibian gastrula which do not normally possess it (such as the ventral ectoderm) by exposure to a temperature of 100° C., or treatment with organic solvents. It is now shown that the same effect can be brought about by the action of a respiratory catalyst such as methylene blue upon the isolated ectoderm. Subsequent implantation of these isolated pieces next to competent tissue leads to the formation of a neural tube, or to lesser degrees of neuralisation, in the host or in the graft, or in both simultaneously. This is interpreted as signifying the liberation of the natural evocator from previously inactive combination. The nature of this inactive combination is discussed and the suggestion is made that it is a complex of the type protein-glycogen-evocator. From this point of view the present position of our knowledge of the metabolism of the organisation centre, especially with regard to glycogen, is critically considered. Preliminary measurements of the oxygen uptake of the dorsal lip of the blastopore and ventral ectoderm in a micro-respirometer indicate that only a very small, if any, difference in respiratory rate exists between these regions. The significance of this in relation to other findings on the metabolism of the gastrula may be considerable. C. H. WADDINGTON, J. NEEDHAM, W. W. NOWINSKI, R. LEMBERG and A. COHEN: Studies of the nature of the amphibian organisation centre. (4) Further experiments on the chemistry of the evocator. The presence of an evocator substance in the digitonin precipitate of the

unsaponifiable material of ethereal extracts of crude glycogen from mammalian liver is confirmed. Attempts at fractionation of the sterolic portions of the unsaponifiable material of adult mammalian liver are described. It is shown that acetone extracts of adult mammalian brain, which should contain no kephalin, may be active, and that the activity of kephalin preparations may persist after the destruction of the lipin by saponification.

DUBLIN

Royal Irish Academy, January 27. W. J. McCALLEN: The Strabane pillow lavas. The best exposures occur at Strabane and Artigarvan, south of Londonderry. For the most part the lavas are in the condition of hornblende-schists, but porphyritic texture is frequently retained. Limestone and slate occupy the interspaces between the pillows. Associated with the lavas are green schists of sedimentary origin, in the condition of epidote-albite-schists with biotite and chlorite. T. J. NOLAN and T. G. BRADY: The pigment of the flowering currant (*Ribes sanguineum*) vars. *splendens* and *atrosanguineum*. Robinson in his survey of anthocyanins described the presence in the rose pink flowers of the flowering currant (*Ribes sanguineum*) of an anthocyanin of a novel type readily soluble in amyl alcohol and giving a pure blue solution in aqueous sodium carbonate; in addition, a 3-pentose glucoside of cyanidin was present. Two deeply pigmented varieties of *Ribes sanguineum*, namely, *atrosanguineum* and *splendens*, have been investigated. These varieties were found to contain none of the novel anthocyanin referred to by Robinson, but from them was isolated by a rapid and simple method cyanidin 3-ramno glucoside, identical with the antirrhinin of Scott-Moncrieff, and presumably the same as keracyanin obtained by Willstätter from the sweet cherry.

PARIS

Academy of Sciences, January 13 (*C.R.*, 202, 101-176). JULES HAAG: The asymptotic study of oscillations of relaxation. JEAN BAPTISTE SENDERENS and J. ABOULENC: The action of the anhydrous alkaline earths on the monohalogen derivatives of fatty hydrocarbons. The vapours of *n*-butyl, isopropyl and tertiary butyl chlorides and of *n*-butyl and isopropyl chlorides were passed over calcium or barium oxide at temperatures between 275° C. and 310° C. Hydrochloric acid is removed, and the corresponding ethylene hydrocarbon obtained. No carbon is deposited at these temperatures. VLADIMIR BERNSTEIN: The characteristic properties of indicators of growth. ALBERT TOUSSAINT and MIROSLAV NĚNADOVITCH: Contribution to the theory of rigid biplanes of infinite spread. JACQUES VALENSI: Aeroplane wings: the pressures in the axis of the nucleus of marginal vortices. ALBERT ARNULF: A method for the measurement of the apparent diameters of stars. The method is based on the detection of diffraction fringes of a star when there is occultation by the moon. The image of the star is photographed on a rapidly moving plate, and the negative analysed with the microphotometer. By this method it was found that the apparent diameter of Regulus is certainly less than 0.003", and is probably between 0.0018" and 0.0020". PIERRE BIQUARD: The existence of diffusion of ultra-sound waves in liquids. PIERRE VERNOTTE: The theory of cellular vortices

of Bénard. The experiments of Bénard with spermæti agreed closely with Lord Rayleigh's theory as regards the dimensions of the vortices; but differed widely as regards the limit of stability. The author shows that by a modification of the equations of convection assumed, the disagreement between the theory and Bénard's experiments disappears. Mlle. SUZANNE VEIL: The Volta effect of electrolytic solutions against water and the characters of acidity and basicity. Mlle. MARGUERITE QUINTIN: The activity coefficient of the ions. Discussion of the meaning of the parameter a in Debye's theory, with experimental results tending to show that a for cadmium and chlorine possess different values. JACOB NEUFELD: The mathematical expression of the hysteresis curve. An expression is developed for the cycle of hysteresis, as a functional relation between the magnetic induction and the intensity of the magnetic field. CHOONG SHIN PAW: The absorption spectra of the oxides of tellurium, TeO_2 and TeO . Results of a qualitative and quantitative study of two new spectra belonging to the molecules TeO and TeO_2 . RENÉ LUCAS and FERNAND GALLAIS: The magnetic rotatory power and the dispersion of the alkaline mercurtetraiodides. The exceptional properties of the mercurtetraiodides can be explained by the influence of an absorption band, without the aid of any additional hypothesis. RENÉ AUDUBERT: The spectral domain of emission of chemical reactions. HANS VON HALBAN, Jun. and PIERRE PREISWERK: The existence of new resonance levels for the capture of neutrons. MARCEL GUILLOT and GEORGES GENESLAY: The chemical formula of malachite. Malachite has been prepared artificially by several methods, all possessing the same percentage composition and giving X-ray spectra identical with natural malachite. The formula proposed is 8CuO , 4CO_2 , $5\text{H}_2\text{O}$. ARAKEL TCHAKIRIAN, MICHEL LESBRE and MICHEL LEWINSOHN: A new method of preparation of the alkyl and trihalogenaryl derivatives of tin. ANTOINE WILLEMART: Researches on the dissociable anthracene oxides: the influence of tolyl groups in the meso position. PAUL GAUBERT: Liquid crystals of some compounds of cholesterol and their crystalline surfusion. MICHEL WOLAROWITSCH and Mlle. ANNE LEONTYEW: The measurement of the specific volume of fused diabase. The specific volumes of three diabases over a temperature range of $1,090^\circ$ – $1,370^\circ$ C. are given. PIERRE MARIE: The microfauna of the Middle and Upper Cretaceous with bathyal facies of North Morocco. ERNEST CHAPUT: Geological observations in the southern regions of central Anatolia. GEORGE CANELLOPOULOS: Contribution to the dynamical study of climate. M. and MME. FERNAND MOREAU: The action of glycerol on the Saprolegniæ. ROBERT DOUIN: The phototropism of peduncular and capitular thallus of the Marchantiæ. ALBERT BESSEMANS, AREND RUTGERS and EMILE VAN THIELEN: Thermal measurements in the field of diathermy by short waves. Quartz thermometers filled with benzene are preferable to glass thermometers containing mercury or alcohol or to thermocouples, since they do not show a rise in temperature when exposed to the direct action of short waves. Mlle. MARIE LOUISE VERRIER: The retina of diurnal birds and the theory of duality of vision. JACQUES MONOD and GEORGES TESSIER: The concentration of food, as a quantitative factor of increase of populations of Infusoria. MICHEL MACHEBEUF and JOSEPH DIÉRYCK: The preparation of a chemiovaccine producing in the rabbit a marked

immunity towards tuberculous infection. MAURICE PIETRE: Concerning the permeability of the mammary cell. MARCEL LISBONNE and RAYMOND SEIGNEURIN: The bactericidal action of mercury. Distilled water, after remaining thirty-six hours in contact with metallic mercury, acquires a powerful bactericidal action. The form in which it is present in the water is uncertain; but traces of the metal can be detected. GEORGES MOURIQUAND, PAUL SÉDALLIAN and ANDRÉ CŒUR: Antidiphtheric immunity by anatoxine and irreversible dystrophy by disturbed food equilibrium (avitaminosis C). J. LAIGRET and E. BONNEAU: The long persistence of immunity by vaccination for yellow fever. Proofs that the immunity remains four years after inoculation.

MELBOURNE

Royal Society of Victoria, December 12. E. S. HILLS: Records and descriptions of some Australian Devonian fishes. G. BAKER: The petrology of the You Yangs—a study of contamination. The You Yangs granite has been contaminated by the assimilation and granitisation of igneous (diabase) and sedimentary (shales, etc.) inclusions. Orthite, new to the mineralogy of Victorian granitic rocks, occurs, associated with xenoliths, basic schlieren and clots of ferro-magnesian minerals. Corundum occurs in sedimentary xenoliths. Heavy mineral indices and assemblages indicate variations between the granite of the You Yangs and outcrops a few miles to the west. Joints, studied from aerial photographs and measurements of strike in the field, occur in two major directions, and control the strike of some of the dykes. All the dykes cut the granite, and contain partially digested xenoliths, indicating some degree of advance by stoping. A small dyke of nepheline monchiquite has been noted. F. CHAPMAN and D. E. THOMAS: The Cambrian Hydroidea of the Heathcote and Monegeeta Districts. In this paper further evidence of the occurrences of Palæozoic hydroid remains in Victoria is summarised. The fossil remains previously regarded as algæ from the Heathcote area have now definitely been correlated with the occurrence at Monegeeta. By the associated trilobite fauna a Middle Cambrian age has been established.

SYDNEY

Royal Society of New South Wales, December 4. A. R. PENFOLD and F. R. MORRISON: The occurrence of linalool in the essential oil of *Melaleuca ericifolia*. The essential oil was examined in 1922 by Baker and Smith, who showed the principal alcoholic constituent to be α -terpineol. This alcohol could not be detected in the oils now examined. The chemical and physical constants of the various consignments of leaves were determined. The presence of cineol (13–18 per cent) and terpenes was confirmed, but the sesquiterpenes are being re-examined. Linalool is an important constituent of perfumes of the bergamot type. Its occurrence in the essential oil of *M. ericifolia*, one of the most widely distributed tea trees in Australia, is of considerable commercial importance. M. B. WELCH: Notes on shrinkage of wood (2). The results of a number of shrinkage and density determinations are given, based on green sawn timber received from different parts of New South Wales. In some species, for example *Doryphora sassafras*, the ratio of radial to tangential shrinkage is approximately 1 : $3\frac{1}{2}$, but in general the ratio is less than 1 : 2. G. J. BURROWS

and E. P. SANFORD: Compounds formed from copper salts and tertiary arsines (1). Cuprous halides combine with phenyl dimethyl arsine or diphenyl methyl arsine to form compounds containing either one or two molecules of the arsine. Cupric salts on treatment with these arsines are reduced to the cuprous condition, yielding products identical with those obtained directly from cuprous compounds. Diphenyl methyl arsine on treatment with cupric chloride yields isomeric compounds of the composition $Cu_2Cl_3(Ph_2MeAs)_3$. The constitution of these compounds is discussed. A. P. ELKIN: Initiation in the Bard Tribe, North-West Australia. Initiation rites in this tribe consist of three series: the first includes the operations of tooth-knocking and circumcision, together with rites of separation and mourning and a period of seclusion which is terminated by a ritual reaggregation. In the second, the most important, the initiate is made a full partaker of the secret life of the tribe by a blood rite—both anointing and drinking—and by the revelation of the bullroarer and the myths associated with it. In the third series, the new man receives the finishing touches of his initiation (cicatrices, subincision and arm-ligaturing for the purpose of obtaining blood for ritual purposes), and is invested with the pearl shell apron.

Forthcoming Events

[Meetings marked with an asterisk are open to the public.]

Monday, February 24

ROYAL GEOGRAPHICAL SOCIETY, at 5.30.—C. P. Skrine: "Baluchistan before and after the Earthquake".

INSTITUTE OF EDUCATION (UNIVERSITY OF LONDON), at 5.30.—Prof. Edwin Mims: "Present Educational Tendencies in the United States".*

Tuesday, February 25

UNIVERSITY COLLEGE, LONDON, at 5.30.—T. D. Kendrick: "The Archaeology of the Scandinavians in England".*

UNIVERSITY OF BIRMINGHAM, at 5.30.—Sir Joseph Barcroft, F.R.S.: "The Influence of Chemical Conditions on Mental States" (Huxley Lecture).

Wednesday, February 26

ROYAL SOCIETY OF ARTS, at 8.—Sir Daniel Hall, F.R.S.: "Can Agriculture Provide Substantial Relief for Unemployment?"

Thursday, February 27

ROYAL SOCIETY OF ARTS (DOMINIONS AND COLONIES SECTION), at 4.30.—Viscount Bledisloe: "The Maori Race".

UNIVERSITY OF LONDON ANIMAL WELFARE SOCIETY, at 5.30.—(at the College of the Pharmaceutical Society, 17 Bloomsbury Square, W.C.1).—Discussion on "Poisons for Rodents". Speakers: J. G. Wright, J. D. Hamer and T. Howard. Discussion to be opened by Dr. G. D. Lander.

Friday, February 28

ROYAL INSTITUTION, at 9.—Lord Sempill: "World Air Transport".

ASSOCIATION OF TECHNICAL INSTITUTIONS, February 28–29. Annual General Meeting to be held in the Goldsmiths' Hall, Foster Lane, Cheapside, E.C.2.

February 28, at 10.30.—Lord Plender: Presidential Address.

Official Publications Received

Great Britain and Ireland

- The Scientific Proceedings of the Royal Dublin Society. Vol. 21 (N.S.), No. 30: The Nitro-Chromic Reaction and its Application to the Estimation of Small Quantities of Alcohol. By D. A. Webb. Pp. 281–284. (Dublin: Hodges, Figgis and Co.; London: Williams and Norgate, Ltd.) 6d. [42]
- London Shellac Research Bureau. Technical Paper No. 6: Sulphitation of Lac. By Dr. R. Bhattacharya and Dr. Lal C. Verma. Pp. 20. (London: London Shellac Research Bureau.) [42]
- Scottish Marine Biological Association. Annual Report, 1934–35. Pp. 24. (Glasgow: Scottish Marine Biological Association.) [52]
- The Journal of the Institute of Metals. Vol. 57, No. 2, 1935. Edited by G. Shaw Scott. Pp. 311+23 plates. (London: Institute of Metals.) 3s. 6d. [52]
- Report of the Third Imperial Botanical Conference, London, August 1935. Pp. 20. (Kew: Royal Botanic Gardens.) 1s. net. [52]
- The Engineer Directory and Buyers Guide, 1936–37. Pp. 252. (London: The Engineer.) [52]
- Proceedings of the Royal Society of Edinburgh. Vol. 55, Part 2, No. 12: The Experimental Analysis of the Growth of an Insect Population. By Dr. D. Stewart MacLagan and Edward Dunn. Pp. 126–139. (Edinburgh: Robert Grant and Son, Ltd.; London: Williams and Norgate, Ltd.) 1s. 3d. [102]
- The University of Manchester: The Manchester Museum. Museum Publication 108: Report of the Museum Committee for the Year 1934–35. Pp. 24. (Manchester: Manchester University Press.) 6d. [102]
- Department of Scientific and Industrial Research: Forest Products Research Records. No. 6 (Timber Series No. 1): The Properties of an African Mahogany (*Khaya anthotheca* C.D.C.). Pp. ii+4+1 plate. 6d. net. No. 7 (Timber Series No. 2): The Properties of *Mansonia* (*Mansonia altissima* A. Chev.). Pp. ii+4+1 plate. 6d. net. (London: H.M. Stationery Office.) [122]

Other Countries

- Det Kongelige Departement for Handel, Sjøfart, Industri, Handverk og Fiskeri. Norges Svalbard- og Ishavs-undersøkelser. Meddelelse Nr. 28: Arctic Nervous Diseases. By J. Baasch-Jessen. Pp. 310–345. Meddelelse Nr. 29: Til Ost-Grønlands Historie, av Oluf Kolrud; De Første Efterretninger om Ostgrønlandingerne 1752, av H. Ostermann. Pp. 48. Meddelelse Nr. 30: Hvitserk og Blåserk. Av J. Kr. Torneø. Pp. 15. Meddelelse Nr. 31: Holonemareste aus dem Devon Spitzbergens. Von A. Heintz. Pp. 8+1 plate. Skrifter om Svalbard og Ishavet. Nr. 40: The Downtonian and Devonian Vertebrates of Spitzbergen, 5. Suborder *Cyathospida*. Part 1: Tribe *Paraspida*, Family *Toraspidae* Kiaer. By Johan Kiaer and Anatol Heintz. Pp. 138+40 plates. 25.00 kr. Nr. 64: Die devonischen Ostracoden Spitzbergens. 1: *Lepiditidae*. Von Gerhard Solle. Pp. 61+4 plates. 5.50 kr. Nr. 65: Zoological Results of the Norwegian Scientific Expeditions to East-Greenland, 4. 1: Apiden aus Nordost-Grønland, von H. Friese; 2: Hemiptera aus Nordost-Grønland, von Håkan Lindberg; 3: Collembolen aus Nordost-Grønland, von Walter M. Linnaniemi. Pp. 25. 2.50 kr. Nr. 66: Zoological Results of the Norwegian Scientific Expeditions to East-Greenland, 5. 1: The *Isopoda* collected during the Norwegian Expeditions to East-Greenland, 1929, 1930, 1931 and 1932, by Åke Nordenstam; 2: Die *Amphipoden* der Norwegischen Expeditionen nach Ost-Grønland in den Jahren 1929, 1930, 1931 und 1932, von A. Schellenberg; 3: *Crustacea decapoda*, *Auphausiacea* and *Mysidacea* of the Norwegian Expeditions to East Greenland, 1929, 1930, 1931 and 1932, by Erling Sivertsen. Pp. 54. 5.00 kr. (Oslo: Norges Svalbard- og Ishavs-undersøkelser.) [32]
- School of Tropical Medicine, San Juan, Puerto Rico. Report of the Director for the Year ending June 1935. Pp. 66. (San Juan: University of Puerto Rico.) [32]
- U.S. Department of Agriculture. Circular No. 363: The Migration of North American Birds. By Frederick C. Lincoln. Pp. 72. 10 cents. Technical Bulletin No. 484: The Composition and Constitution of the Colloids of certain of the Great Groups of Soils. By Horace G. Byers, Lyle T. Alexander and R. S. Holmes. Pp. 39. 5 cents. (Washington, D.C.: Government Printing Office.) [42]
- Annuaire de l'Académie Royale de Belgique, 1936. Pp. 94+137+4 plates. (Bruxelles: Académie Royale de Belgique.) [62]
- Geological Survey of Uganda. Bulletin No. 2: A Short Record of Progress relating to some Investigations in the Field and Laboratory, and of some Results obtained Therefrom. Pp. 84. (Entebbe: Government Printer.) 5s. [102]
- The Indian Lac Research Institute. Bulletin No. 22: Further Notes on the *Chalcidoid* Parasites of *Laccifer lacca*, Kerr. By P. M. Glover. Pp. 4. 1 rupee. Annual Report for the Year 1st April 1934 to 31st March 1935. Pp. 36. (Namkum: Indian Lac Research Institute.) [102]
- Commonwealth of Australia: Council for Scientific and Industrial Research. Pamphlet No. 59: A Study of Persistence in certain Introduced Pasture Grasses. By Dr. A. McTaggart. Pp. 16. (Melbourne: Government Printer.) [102]
- Department of Agriculture: Straits Settlements and Federated Malay States. General Series, No. 22: Reports of the Field Branch for the Year 1934. Pp. iii+198. (Kuala Lumpur: Department of Agriculture.) 50 cents. [102]

Catalogues

- Apparatus fitted with Interchangeable Ground Glass Joints. (List No. 107.) Pp. 24. (London: A. Gallenkamp and Co., Ltd.)
- Catalogue of Books and Journals relating to Agriculture and Botany. (No. 474.) Pp. 50. (Cambridge: W. Heffer and Sons, Ltd.)