Societies and Academies.

PARIS.

Academy of Sciences, July 24.—M. Haller in the chair.—Charles **Moureu**: The third international conference of pure and applied chemistry. This conference was held at Lyons from June 27 to July 1, and was attended by representatives from 24 nations. The next meeting will be held at Cambridge in June 1923.—Maurice **Leblanc**: The electrification of railways by means of high frequency alternating currents.—V. **Grignard** and A. C. **Purdy**: α-β'-dichlorethyl ether. Three of the four possible dichlorethers are known. The fourth, $CH_3 . CHCl . O . CH_2 . CH_2Cl$, has now been prepared by the action of dry hydrochloric acid upon a mixture of paraldehyde and ethylene monochlorhydrin.—M. **Abramesco**: The series of polynomials with two complex variables.—Farid Boulad **Bey**: The geometrical examination of the internal forces and displacements round a point in an elastic body.—Paul **Dienes**: The displacement of tensors.—Paul **Sacerdote** and Pierre **Lambert**: A new method for detecting the presence of a submarine. The plan proposed is suitable for a narrow entrance to a port and is based on the difference between the electric conductivity of the submarine and of sea water.—G. **Athanasiu**: An actinometer with electrodes of mercury covered with a thin layer of mercurous chloride, bromide, fluoride, or sulphide. A cell is constructed of H form, with mercury electrodes covered with a thin film of haloid salt. Exposure of one electrode to light causes an immediate increase in the E.M.F. of the cell.—St. **Procopiu**: The variations in the arc spectrum of mercury with the conditions of emission. In a vacuum, working at 14 to 15 volts, with low vapour pressure, there are more lines visible in the ultra-violet (up to 2191) than when working with 65 volts and 3·5 amperes. Other modifications are noted if the arc is working in air or in coal gas, the lines forming the triplets in the two secondary series being specially affected.—Mlle. Irène **Curie**: The determination of the velocity of α rays of polonium. The method of deviation in a magnetic field was employed; and this gave $1{\cdot}593 \times 10^9$ cm. per second for the velocity of the α rays of polonium, with a precision of about 0·3 per cent. Geiger, by a different method, obtained a result within 0·4 per cent. of the above.—P. **Lebeau** and M. **Picon**: The reactions furnished by sodammonium with hydrocarbons. Paraffins and ethylene derivatives are unacted upon by sodammonium: allylene gives 66 per cent. of the sodium derivative and 33 per cent. of propylene, and other hydrocarbons of the acetylene series behave similarly. Benzene and its derivatives are unacted upon, as are also the terpenes. Naphthalene, acenaphthene, and phenathrene give tetrahydrides.—Octave **Mengel**: The fall of dust called a "rain of blood." Remarks on the coloured snow which fell in Briançon on March 12, 1922. The meteorological data suggest that this dust came from the Sahara.—Emile F. **Terroine** and René **Wurmser**: The utilisation of ternary substances in the growth of *Aspergillus niger*. This mould would appear to utilise indifferently any sugar in its growth, and shows no qualitative preference. The sugars used were glucose, levulose, saccharose, maltose, arabinose, and xylose. The concentration of the nitrogenous food (ammonium sulphate) was also without effect on the growth, but the nature of the source of nitrogen had a marked influence.—L. **Blaringhem**: The heredity of the physiological characters in the hybrids of barley (second generation).—Paul **Becquerel**: The theory of the meriphyte in the phenomena of vascular ontogeny.—A. **Pézard**: The idea of the "seuil différentiel" and progressive masculinisation of certain female birds. The experimental results relating to the action of the ovary on the plumage of birds can explain, on the hormone theory alone, some anomalies apparently in disagreement with recent theories of endocrinology.—Paul **Wintrebert**: The mode of building of the vomer in the course of metamorphosis in the Salamandridæ.—Paul **Carnot** and Marc **Tiffeneau**: A new hypnotic in the barbituric series: butyl-ethyl-malonylurea. The hypnotic properties of the dialkyl-malonylureas were studied by E. Fischer from dimethyl to the di-isoamyl derivative; but the unsymmetrically substituted malonylureas were not examined. This has been taken up by the authors, who find in ethyl-butyl-malonylurea a useful new hypnotic. It has three times the hypnotic power of veronal and has given satisfactory results in clinical practice.

July 31.—M. Guignard in the chair.—The president announced the death of M. Louis Favé.—Emile **Picard**: The meeting of the International Research Council held at Brussels in July 1922. The address given by M. Picard at the opening of the meeting.—L. **Maquenne** and E. **Demoussy**: The influence of calcium on the utilisation of the reserves during the germination of seeds. It has been shown that the influence of calcium on the germination of seeds is specific, and other electrolytes do not produce the same effect. Calcium salts are almost without influence on the diastatic conversion of the insoluble reserves into soluble products; it is possible, but not yet proved, that the ferments responsible for the reconversion of the soluble products into plant tissue may be stimulated by the presence of lime.—R. **Chodat** and E. **Rouge**: The intracellular localisation of an oxydase and localisation in general.—Jules **Baillaud**: Some data on the constitution of the galactic cluster deduced from the study of the zone of the Paris photographic catalogue.—Jean G. **Popesco**: The relation between photo-electric phenomena and the surface tension of mercury. The surface tension of an electrically charged drop of mercury was measured by a photographic method before and after exposure to ultra-violet light. The results of the experiments show that there is a relation between the photo-electric phenomenon and the surface tension.—E. M. **Lémeray**: The structure of the universe and general relativity.—R. de **Mallemann**: Molecular double refraction and optical activity.—M. **Yovanovitch** and Mlle. **Chamié**: The preparation of a standard radium salt. A solution of barium chloride containing radium is precipitated by ammonium carbonate in a special apparatus due to M. Jolibois. The radiferous barium carbonate produced was fairly satisfactory as a standard, different preparations agreeing in their radioactive properties within 0·5 per cent.—Er. **Toporescu**: The preparation of sodium bicarbonate.—Mlle. G. **Marchal**: The dissociation of beryllium sulphate. The dissociation pressures are given for seventeen temperatures ranging from 590° C. to 830° C.—Maurice **François** and Louis Gaston **Blanc**: A method of preparing the iodobismuthates of the alkaloids in the crystalline state.—H. **Gault** and T. **Salomon**: The alkyl-methyl-pyridazinone carboxylic esters.—G. **Vavon** and A. **Husson**: Catalysis by platinum black. Platinum black may have its hydrogenating power reduced by the gradual addition of catalyst "poison," such as carbon bisulphide. Thus the activity of a certain specimen of platinum black, after treatment with 0·4 mgr. of carbon bisulphide, lost the power of reducing acetophenone, but retained its catalytic power as regards the reduction of cyclohexene.—Kenneth C. **Bailey**: The direct synthesis of

urea starting with carbon dioxide and ammonia. Applying the device of the hot and cold tube, carbon dioxide in presence of ammonia in excess and with thoria as catalyst, gave a 19 per cent. conversion into urea.—M. **Gignoux** and P. **Fallot**: The marine Pliocene on the Mediterranean coasts of Spain.—A. **Guilliermond**: Remarks on the formation of chloroplasts in the bud of *Elodea canadensis*.—G. **André**: The filtration of plant juices. Comparative analyses of juice expressed from the potato, after clarification by the centrifuge, filtration through porous porcelain filter, and filtration through collodion. In the last case, the proportions of nitrogen and phosphorus present are reduced.—Gabriel **Bertrand** and B. **Benzon**: The importance of zinc in the food of animals. Experiments on mice.—H. **Vallée** and H. **Carré**: The degree of infection of aphthous fever.—Georges **Bourguignon**: Double chronaxy and a double motor point in certain human muscles.

SYDNEY.

Linnean Society of New South Wales, June 28.—Mr. G. A. Waterhouse, president, in the chair.—W. F. **Blakely**: The Loranthaceæ of Australia, Part ii. A revised classification of the Loranthaceæ, based on that of Engler, is put forward. The most notable changes in the nomenclature affect the genus Atkinsonia which is displaced by Gaiadendron, while the species under Loranthus, with versatile anthers, are transferred to Phrygilanthus.—Dr. R. J. **Tillyard**: Some New Permian Insects from Belmont, N.S.W., in the collection of Mr. John Mitchell. Nearly half the insect wings discovered at Belmont belong to the family Permochoristidæ. In association with these are two other Mecopteroid types, viz., Belmontia and a new type, described in this paper, which stands in the same relation to the Order Diptera that Belmontia does to the Trichoptera and Lepidoptera. In addition the first discovery of a true Lacewing (Neuroptera, Planipennia) of Palæozoic times is recorded. The remainder of the fauna consists of Homoptera, both Auchenorrhyncha and Sternorrhyncha, a new genus of the latter being described.—J. **Mitchell**: A new Gasteropod (fam. Euomphalidæ) from the Lower Marine Series of New South Wales. Description of a new species of Platyschisma from Allandale, where it occurs associated with *P. oculus*, *Eurydesma cordatum*, and *Aviculopecten mitchelli*.—**Vera Irwin-Smith**: Notes on Nematodes of the genus Physaloptera. Part iii. The Physaloptera of Australian Lizards. This paper deals with specimens of Physaloptera contained in three collections. They were found to consist of two forms, one of which has been identified as *P. antarctica* Linstow var. *typica*. The other has been treated as a new variety of the same species. Linstow's brief and inadequate diagnosis of the species has been supplemented by a detailed description. The rest of the paper is devoted to a special study of the female reproductive organs, in which it is pointed out that the practice of helminthologists of basing specific distinctions, in this group, upon the dimensions and arrangement of these parts is not reliable, since very considerable variations have been found within the one species.—J. **McLuckie**: Studies in Symbiosis. i. The Mycorhiza of *Dipodium punctatum* R.Br.

Royal Society of New South Wales, July 5.—Mr. C. A. Sussmilch, president, in the chair.—A. R. **Penfold**: Observations respecting some essential oils from *Leptospermum Liversidgei*. The variation in the essential oils obtained from a well-known Tea Tree (*Leptospermum Liversidgei*) is tabulated as follows:—

	Yield.	Specific Gravity 15° C.	Optical Rotation.	Refractive Index.	Solubility in 70 per cent. Alcohol.	Citral.	Citronellal.	
	Per cent.					Per cent.	Per cent.	
No. 1	0·8	0·8960	+ 6·2°	1·4854	1 in 1·5 vols.	75	..	type "*b*"
No. 2	0·5	..	..	..	..	..	70	type "*c*"
No. 3	0·25	0·8885	+12·10°	1·4822	insol. 10 vols.	46	..	type "*a*"
No. 4	0·33	0·8905	+12·75°	1·4820	ditto.	46	..	type "*a*"
No. 5	0·55	0·8826	+11·2°	1·4603	1 in 1·5 vols.	..	82	type "*c*"
No. 6	0·6	0·8910	+ 7·25°	1·4832	ditto.	70	..	type "*b*"

The author is inclined to the opinion that there are probably three forms of this shrub, and points out that the types "*b*" and "*c*" are of great economic importance. The type "*a*" (the original one) is of very little commercial value, hence the importance of the other types, particularly as botanical diagnosis has so far failed to distinguish them.—A. R. **Penfold** and F. R. **Morrison**: Preliminary note on a new Stearoptene (probably a phenol ether) occurring in some essential oils of the Myrtaceæ. The authors announced the isolation of a beautifully crystalline solid of a yellow colour from the essential oils of *Bækea crenulata* and *Darwinia grandiflora*. It has a melting-point of 103-104° C., molecular formula $C_{13}H_{18}O_4$, and contains two methoxy groups. It is apparently a phenol ether. It has, so far, only been obtained in small quantity, amounting to 6 per cent. in the former, and 2 per cent. in the latter oils, but it is anticipated that other essential oils at present being investigated will yield it in greater amount.—J. K. **Taylor**: A chemical and bacteriological study of a typical wheat soil of New South Wales. Monthly determinations of soil moisture, bacterial numbers, nitrates, and nitrifying power were made in soil from various plots at Wagga Experiment Farm. The bacterial numbers, nitrates and nitrifying power were greater in summer than in winter in spite of the partial drying out of the soil. The general order of merit of the plots for bacterial activity and accumulation of nitrates was cultivated fallow, cropped land, uncultivated fallow, and grass land. The bacterial numbers are comparable with those from soils from similar climatic regions but the nitrifying power is not particularly good and fluctuated curiously from month to month.

Official Publications Received.

Annals of the Astrophysical Observatory of the Smithsonian Institution. Vol. 4. (Publication No. 2661.) Pp. xii+390. (Washington: Smithsonian Institution.)

The British Mycological Society. Transactions, 1920. Vol. 7, Part 4. Edited by Carleton Rea and J. Ramsbottom. Pp. 221-324. (London: Cambridge University Press.) 12*s.* 6*d.*

Memoirs of the Asiatic Society of Bengal. Vol. 6: Zoological Results of a Tour in the Far East. Edited by Dr. N. Annandale. Part 7. Pp. 397-433+plates 15-17. 2 rupees; 3*s.* Part 8. Pp. 435-459+plates 18-21. 2 rupees; 3*s.* Vol. 7, No. 4: Introduction to the Study of the Fauna of an Island in the Chilka Lake. By Dr. N. Annandale. Pp. 257-319+plates 7-11. 3 rupees; 4*s.* 6*d.* (Calcutta: Asiatic Society of Bengal.)

The Newcomen Society for the Study of the History of Engineering and Technology. Transactions, Vol. 1, 1920–1921. Pp. 88+18 plates. (London: Newcomen Society.) 20*s.*

University of Colorado Bulletin. Vol. 22, No. 3; General series, No. 180: Catalogue, 1921–1922. Pp. 426. (Boulder, Colo.: University of Colorado.)

Experimental Researches and Reports published by the Department of Glass Technology, The University, Sheffield. Vol. 4, 1921. Pp. ii+118. (Sheffield: The University.)