

We learn from *Science* that at a recent meeting of the National Academy of Sciences, a grant of eight hundred dollars was made from the income of the J. Lawrence Smith bequest to Dr. O. C. Farrington, of the Field Columbian Museum, Chicago, to enable him to conduct certain investigations upon American meteorites.

JUST as in this country there are gratifying signs that teachers in secondary schools are making earnest efforts to acquaint themselves with scientific methods of teaching the subjects of the school curriculum, so in France there is a movement in the same direction. We learn from the *Revue générale des Sciences* that M. Liard, vice-rector of the Académie de Paris, is organising conferences of teachers in secondary schools at which the chief inspectors will explain to French schoolmasters the objects it is desired they shall have in view in their teaching. The first conference was confined to teachers of modern languages and the second was devoted to a consideration of the teaching of physical and natural science.

ANOTHER instance of the large scale on which provision is made for every grade of education in America is afforded by the post-graduate medical school that has recently been incorporated in the city of Washington. There are to be, we learn from the *Lancet*, 104 professorships established, as follows:—Six of preventive medicine, two of medical zoology, one of protective inoculation, serum-therapy and biochemistry, two of sanitary chemistry, eight of bacteriology, seven of pathology, fourteen of internal medicine and therapeutics, one of surgical anatomy, fourteen of surgery, six of military medicine and surgery, two of orthopædic surgery, nine of gynæcology, six of obstetrics, three of tropical diseases, four of diseases of children, two of mental and nervous diseases and electrotherapeutics, two of diseases of the stomach, eight of diseases of the eye, eight of diseases of the nose, throat and ear, four of special diseases and four of diseases of the skin.

THE examination of the calendars of different University Colleges soon convinces the student of education that every class of society in the city where the college is located must come under its influence. In the case of the University College of Nottingham, for example, we find from the new calendar that for the twenty-second session of the college there are, in addition to lectures for preparing to graduate in the various university faculties, classes for artisans engaged in the engineering, building, and lace and hosiery trades. Students of the same college may be studying subjects so far removed as Greek and plumbing, Anglo-Saxon and pattern-making. While one student is training to become a schoolmaster and is attending lectures on psychology and pedagogics, another hopes to develop into an electrical engineer, and spends his time at electrical measurements in the physical laboratory. In such an institution, it should be impossible for a student to obtain other than a broad, catholic way of regarding the various branches of human knowledge.

It is a pertinent question whether we as a nation are incapable of looking ahead or whether we are too apathetic to provide for future contingencies. On all sides, warning voices proclaim the deficiencies in our educational system, lack of enterprise and antiquated methods. Prof. Bower availed himself of the opportunity afforded when he was delivering his inaugural address before the North British branch of the Pharmaceutical Society to point out how one practical side of botany, the study of vegetable economics, is ignored in this country at the present time. What is required is a well-equipped staff, including specialists in botany, physics, chemistry and physiology, to provide training for students, to institute research and furnish expert advice. Neither at Kew, which, as Prof. Bayley Balfour later expressed it, acts as the clearing-house for the Empire, nor elsewhere is such a staff to be found. The study of vegetable economics might, in Prof. Bower's opinion, be advantageously pursued in commercial centres such as Glasgow, Liverpool and Belfast, and he has laid before the authorities of his University the desirability of appointing a special lecturer in this subject.

ON December 3, a conference on "Nature-study" was held with special reference to the development of the work of Stepney Borough Museum with the schools. Mr. J. H. Wylie presided over the meeting, which was held in the Art Gallery, and Canon Barnett, in welcoming the audience, brought forward a suggestion that the winter garden of the People's Palace should be made into a Nature-study centre. Mr. A. D. Hall gave a

general address and offered no explanation of the meaning of Nature-study, saying that as most of his audience were teachers that difficulty was removed. He urged that living things should be studied, not collections of dead things in boxes, and suggested the growing of food plants in East-end schools. Bean seedlings, he said, could be measured by the children, who could then make curves illustrating the growth on squared paper. His only allusion to the Museum was in connection with a supposed annual outing of the children, and he suggested that the journey then undertaken might be illustrated in the institution. Prof. Farmer alluded to the help as regards material to be obtained from the Chelsea Physic Garden. The Rev. Claude Hinscliff stated that the object of the conference had been lost sight of, and showed the necessity of opening the eyes of the East-ender by means of the Museum to what he might see when he did go into the country. Mr. F. C. Mills, the chairman of the Museum committee, expressed his pleasure as regards the interest taken in the conference, in spite of the fact that its purpose had been unfulfilled. The School Board inspector for the district alluded to work such as that suggested by Mr. Hall and of an elementary biological nature having been carried on for years at the schools in which he was interested. Mr. Wilfred Mark Webb urged the teachers not to introduce formal and systematic lessons, and Miss Kate Hall, the curator of the Museum, who had organised the conference, spoke of her intentions and requirements.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, November 27.—"Descending Intrinsic Spinal Tracts in the Mammalian Cord." By C. S. Sherrington, M.A., M.D., F.R.S., and E. E. Laslett, M.D. Vict.

Experiments inquiring into the existence of spinal paths connecting the activity of segments situate nearer the head with segments lying further from the head.

The method adopted may be termed the method of "successive degeneration." It consists in producing two or more successive degenerations with allowance of a considerable interval of time between them. In the piece of cord to be examined, a first degeneration is allowed time enough to remove all the tracts descending from sources other than those the immediate object of inquiry. When the time is complete, the cord is left, as it were, like a cleaned slate, on which once more a new degeneration can be written without fear of confusion with a previous one. The cord is then ready for receiving the lesion which shall cause degeneration of the particular tracts the existence of which is suspected. After a period suitable for the full development of the new degeneration, the cord is treated histologically by the Marchi method, and the microscopical examination proceeded to.

Results.

The spinal segments examined as sources of aborally-running fibre-systems have been posterior cervical, anterior thoracic, mid thoracic, posterior thoracic and anterior lumbar. From all these regions, the experiments demonstrate that copious aborally-running fibre-systems spring.

Speaking generally, of the fibres composing the aborally-running systems springing from the grey matter of the spinal segments examined, there may be distinguished two sets. For physiological description, it is in some ways convenient to regard the length of the spinal cord as divisible into regions; thus, a brachial for the fore limb, a thoracic for the trunk, a crural for the hind limb, a pelvic for pelvic organs, a caudal for the tail, and so on. A reflex initiated *vis à* an afferent path of one such spinal region may evoke its peripheral effect by efferent paths of a spinal region other than that to which the original entrant path belongs. Such a reflex has in a former paper by one of us¹ been termed a "long" spinal reflex, in contradistinction to reflexes the centripetal and centrifugal paths of which both belong to one and the same spinal region. The latter reflex it was proposed to term "short."² Analogously, in the aborally-running fibre-systems of the spinal segments examined, by our experiments fibres of two categories are found, one a set passing beyond the limits of the spinal region in which they arise, the other not passing beyond those

¹ C. S. Sherrington, "Croonian Lecture," *Phil. Trans.*, 1897.

² *Ibid.*

limits. The former we would term "long spinal," the latter "short spinal" fibres. In each of these main categories, there can be distinguished fibres of various intermediate length.

Again, the fibres of each of the above two categories may be classified into two sets or tracts, according to their topography relatively to the cross-section of the cord. Fibres of both of the above categories are situated both in the lateral columns and in the ventral columns of the cord. It is useful, at least for descriptive purposes, to indicate this by terminology. We thus recognise in the aborally-running intrinsic spinal fibre systems the following sets or tracts:—(a) *Ventral short fibres*, (b) *Ventral long fibres*, (c) *lateral short fibres*, (d) *lateral long fibres*. It must be added that the distinction into lateral and ventral is somewhat artificial, as there exists often, especially in the case of the "short" fibres, no distinct gap between the ventral and lateral fields of distribution of the fibres in the transverse area of the cord.

The paper concludes with an analysis of evidence as to decussation of the long and short fibres.

December 11.—"Quaternions and Projective Geometry." By Prof. Charles J. Joly, F.T.C.D., Royal Astronomer of Ireland. Communicated by Sir Robert S. Ball, F.R.S.

The object of this paper is to include projective geometry within the scope of quaternions.

Chemical Society, December 4.—Dr. W. H. Perkin, F.R.S., vice-president, in the chair.—The following papers were read:—The specific heats of liquids, by Mr. H. Crompton. When heat is applied to an unassociated liquid, there is an increase in molecular kinetic energy, internal work is done within each molecule, intermolecular attraction is diminished and a small amount of external work is done. The first two factors together make up the specific heat at constant volume. The evaluation of the diminution of intermolecular attraction is made by the author on the assumption that the total attraction is equal to the difference between the latent heat of vaporisation and the heat evolved when the vapour is compressed to the volume it would occupy as a liquid but without undergoing this change of state. Assuming that this attraction is zero at the critical point and increases regularly with decrease of temperature, its change with temperature is given by the expression $(L - RT \log V/v)/(T_c - T)$, where L is the latent heat, T_c and T the absolute critical temperature and absolute temperature respectively, V and v the volumes of the vapour and liquid respectively. Neglecting the fourth factor, viz., the external work done, the author shows that the molecular heats of various liquids for which the foregoing data are available agree fairly well with those calculated by this method.—The constitution of enolic benzoylcamphor, by Dr. M. O. Forster. It is shown that this substance is probably phenylhydroxymethylencamphor from a consideration of the derivatives and decomposition products obtained from it.—Isomeric benzoyl derivatives from isonitrosocamphor, by Dr. M. O. Forster. Two isomerides have been obtained; one crystallises in yellow prisms and melts at 105° ; the other is colourless, melts at 136° and does not give isonitrosocamphor on hydrolysis.—Action of phosphorus haloids on dihydroresorcin, by Drs. Crossley and Le Sueur.—The absorption spectra of metallic nitrates, ii., by Prof. Hartley. The positions of the characteristic absorption bands depend upon the molecular weights of the salts in solution. The characters of the spectra observed are equally well explained by the assumption that *partial* ionic or *partial* hydrolytic dissociation occurs on solution.—The constitution of the products of nitration of *m*-acetoluidide, by Dr. J. B. Cohen and H. D. Dakin.—The action of metallic thiocyanates upon carbonyl chloride, by Dr. A. E. Dixon. A description of the substituted thiocarbimides obtained.

Entomological Society, November 19.—The Rev. Canon Fowler, president, in the chair.—Dr. Sharp, F.R.S., exhibited the egg-cases made by a beetle of the genus *Aspidomorpha* (*A. puncticosta*), and stated that they had been sent to him by Mr. F. Muir, of Durban, Natal, where the beetle and the egg-cases are common.—Dr. Norman H. Joy exhibited a well-marked aberration of a female *Lycæna icarus* striped black on the underside in the place of the usual ocellations; a gynandromorphous specimen of the same species; an aberration of a male *Lycæna bellargus*, similarly striped on the underside; a specimen of *Everes argiades* taken in 1885 at Bournemouth; and specimens of *Apatura iris* from the neighbourhood of Reading, taken from what appeared to be the throne of the

ruling "Emperor" of the wood. Whenever another iris came by, the one on the "throne" attacked it, and after a fight, in which one would eventually pursue the other out of sight, the victor returned to the perch. If this was captured, the next *iris* coming along would take possession, and so on.—Mr. Claude Morley exhibited a specimen of *Diastictus vulneratus*, Sturm., new to Great Britain, and a rare blue form of *Mirador vitellinae* from Tuddenham Fen.—Mr. G. C. Champion exhibited specimens of *Nanophyges durieuri*, Lucas, a beetle from Central Spain, with drawings of the larva, pupa and perfect insect.—Prof. E. B. Poulton, F.R.S., stated that Mr. A. H. Church, of Jesus College, Oxford, had observed the larvæ of a species of *Cucullia* (probably *C. verbasci*), feeding upon *Buddleia globosa* which was growing against a wall in the Oxford Botanical Gardens. It is possible that the eggs were laid upon the *Buddleia* because of the very rough general resemblance in certain respects between its leaves and those of *Verbascum*. Mr. R. McLachlan, F.R.S., mentioned the case of *Manestra persicariae*, at Lewisham, choosing *Anemone japonica*. He had offered them fern and elder (which is reputed a favourite food), but the larvæ refused everything except the original anemone. Mr. Goss said that larvæ of *Choerocampa elpenor*, taken at Weybridge from a species of American balsam, afterwards refused willow herb, the usual food-plant of the species. Prof. Poulton read a communication from Mr. G. F. Leigh relating to the enemies of Lepidoptera in Natal. The very common grey South African rat seems to be particularly fond of almost any pupæ, and will gnaw through thick wooden boxes to get at them. They affect especially *Choerocampa eson* and *C. merii*. Even more remarkable than their keenness in hunting pupæ is the way in which they capture moths on the wing when feeding. Whilst flying at dusk, a rat would leap from the roof right on to their food-plant, and more often than not the moth selected for attack was captured. Bats are also very destructive of South African insect-life.

Ray Society, December 11.—Council Meeting.—Mr. John Hopkinson, treasurer, in the chair.—A vote of condolence with the widow and family of the late secretary of the Society, the Rev. Dr. Wiltshire, was passed, and in his place Mr. Hopkinson was elected secretary. The question of the appointment of treasurer was not finally decided.

MANCHESTER.

Literary and Philosophical Society, December 2.—Mr. Charles Bailey, president, in the chair.—Mr. C. L. Barnes showed a number of experiments depending on Hawksbee's law, viz., that the pressure on the walls of a tube containing a fluid is less when the fluid is in motion than when it is at rest. Several of these are well known, e.g., the apparent attraction which results when a current of air, radial or other, passes between two parallel discs, and the suspension of a ball on a jet of air or water. Other illustrations of the principle are that it is impossible to blow a celluloid ball, or even an inflated toy balloon, out of a funnel held in the ordinary upright position, though, if the funnel be reversed, the ball or balloon can be supported without difficulty. Also, if a couple of celluloid balls are placed on a kind of railway made by fastening two rods to one another, they cannot be separated by blowing between them. The experiment of forcing a celluloid ball out of a tall glass cylinder by blowing downwards upon it was also performed, as were also several others of a similar character.—Mr. Frank Southern exhibited and described a Japanese magic mirror, and Dr. C. H. Lees showed a small piece of apparatus used in the determination of the thermal conductivities of solids over wide ranges of temperature. It consists in principle of a differential hydrogen thermometer, one bulb of which is heated by an electric current either in a flat strip of metal wound round it or passing through the material of the bulb itself.

DUBLIN.

Royal Dublin Society, November 18.—Prof. D. J. Cunningham, F.R.S., in the chair.—Prof. T. Johnson read a paper on *Phellomyces sclerotiothorus*, Frank, a fungus of unknown affinities which causes a form of scab in potato-tubers and, in extreme cases, a dry rot. The author first observed the fungus in several potato varieties, grown in the west and other parts of Ireland, in the autumn of 1901.—*Phellomyces* causes the formation of discoloured patches in the skin of the

tuber, in the midst of which are generally present the minute sclerotia, 0.1 mm. in diameter, just recognisable, in washed tubers, with the naked eye. In mild attacks, the fungus simply makes the tuber unsightly; in more severe cases, it strips off layer after layer of the protecting skin of the tuber, and may ultimately penetrate through the skin into the flesh of the tuber, killing the protoplasm, sending the mycelial hyphæ between and through the cells, and boring into the starch grains. Both in appearance and action, *Phellomyces* is readily distinguishable from *Rhizoctonia*, an extremely common cause of scab and rot in potatoes. *Phellomyces* can pass from seed tubers to the resulting crop, and is communicable from infected ground to healthy tubers grown in it. The author found soaking the diseased tubers in 0.8 per cent. solution of formalin for 1½ hours destroyed the fungus, untreated diseased tubers giving, under otherwise similar conditions, a diseased crop. Three varieties imported from France, planted in Connemara, gave crops showing *Sclerotinia sclerotiorum* and *Phellomyces sclerotiphorus*, both unknown in France on the potato up to the present time. Frank first saw the fungus, in various parts of Germany, in 1894, and again in succeeding years. The author said he had nothing to add to the account given by Frank of its very imperfectly known life-history.—Mr. Leonard Murphy read a paper on a new method of determining the amount of liquid in distant and inaccessible tanks, &c.—Mr. G. H. Carpenter exhibited lantern slides of insects (Collembola) taken in Mitchelstown and Dunmore caves in the south of Ireland, pointing out that while some of the species seemed to be confined to such localities and to represent special modifications for life in caves, others were identical with insects found in the upper world with a discontinuous range, and must be regarded as the survivors of very old races.

EDINBURGH.

Royal Society, November 3.—The Hon. Lord McLaren, vice-president, in the chair.—The chairman in his opening remarks made special reference to the publication of the Ben Nevis observations, the first volume of which had just been issued. Half the expense of these publications, which would fill three volumes of the *Transactions*, was being borne by the Royal Society of London. Another matter of special interest was the systematic bathymetrical survey of the Scottish lakes which had been organised by Sir John Murray and Mr. Laurence Pullar. During the seven months beginning March last, they had surveyed 153 lochs and taken nearly 24,000 soundings. The greatest depth observed was in Loch Morar, 1009 feet, which exceeds by several hundred feet the depth recorded in any other lake in the British Islands. In addition to the routine work of taking soundings and determining heights, observations of temperature and of "seiches" and collections of plankton and bottom deposits were made by the staff. The results were now being prepared for publication in Edinburgh, and preliminary papers dealing with the work would from time to time be laid before the Society.—Sir William Turner communicated a paper entitled "Contributions to the Craniology of the People of Scotland." The material had been collecting for many years in his hand, and in this first paper he gave the detailed results of the measurement of nearly 200 skulls obtained from all parts of Scotland. Of these, 28 per cent. were dolichocephalic, 20 per cent. brachycephalic, and 52 per cent. belonged to the intermediate group. As regards their distribution, the brachycephalic type was characteristic of Fife, the Lothians, the eastern counties between the Tay and the Moray Firth, and Shetland; whilst the dolichocephalic type was most prevalent in Renfrewshire, Wigtownshire, Caithness and the Highlands. A very marked percentage of the brachycephalic skulls had distinct frontal sutures, a very unusual feature in adult skulls. This indicated growth in breadth during adult life. The skulls were capacious and somewhat above the average for western Europe. As regards the facial characters, the orbits were wide and circular and the noses long and narrow. The discussion of the ethnographical bearing of the facts was reserved for a second paper.—In a paper on the electrical conductivities and relative densities of certain samples of sea-water, Mr. J. J. Manley described some novelties of method in the accurate measurement of these quantities. The results were negative, there being no discoverable relation between the conductivities and densities.—Two papers by Dr.

Thomas Muir on generating functions of certain determinants were also presented.

November 17.—The Rev. Prof. Duns in the chair.—Dr. W. C. Aitchison Robertson read a paper on the local distribution of cancer in Scotland. In collecting his material, he had visited many of the larger institutions and infirmaries throughout Scotland, and from careful inspection of the registers had, as far as possible, allocated the various cases to their proper counties. In this respect, he believed that his statistics were more accurate than those derived directly from the reports of the Registrar-General, for it was quite evident that many of the cases recorded as having occurred in the larger towns really belonged to neighbouring or even remote country districts. His corrections made important changes in the chart of distribution. Thus, when corrected for the presence of strangers, the cancer mortality for the city of Edinburgh fell from 5.15 per cent. (as it appeared to be from the Registrar-General's returns) to 4.13 per cent., which is practically the normal for the whole of Scotland. On the other hand, by the same correction the cancer mortality for the county of Edinburgh increased to nearly 5 per cent. On the whole, the mainland rural districts and smaller towns had a higher cancer mortality than the large towns and cities. In the county of Nairn, the mortality was 9.73 per cent. In the outer Hebrides, the mortality was distinctly below the normal for Scotland. The statistics showed many curious features, and it was utterly impossible to connect the distribution with climatic or geologic conditions, or with race or food supply. That the towns were healthier than the rural districts seemed to dispose of several of the ordinary theories as to the undoubted increase of the disease within the last half-century. This could be regarded as only a first effort to get at information regarding local distribution of cancer, and Dr. Robertson urged upon the medical profession in Scotland the importance of a combined investigation of the causal relations of this dread disease.—Mr. J. Ross communicated a short note on the trisection of an angle, and a paper by Dr. Thomas Muir on pure periodic continued fractions was also read.

PARIS.

Academy of Sciences, December 8.—M. Bouquet de la Grye in the chair.—The president announced to the Academy the death of two members, M. Dehérain, member of the section of Rural Economy, and M. Hautefeuille, member of the section of Mineralogy.—On the transformation of the diamond into black carbon during its oxidation, and on the isomeric changes of simple bodies during decompositions and combinations, by M. Berthelot. Some remarks on work recently published by M. Moissan.—On the irreducibility of the equation $y'' = 6y^2 + x$, by M. Paul Painlevé.—On the quantity of free hydrogen in the air and the density of atmospheric nitrogen, by M. Armand Gautier. Four years ago, the author published work proving the existence of free hydrogen and methane in the air, and estimated their quantity. The proportion of hydrogen then found has been questioned by Lord Rayleigh, and M. A. Leduc has recently adduced other evidence in confirmation of Lord Rayleigh's objections. It is shown that the exact concordance between the percentage of oxygen by weight found by M. Leduc and the value calculated from the densities of the gases is accidental, and that the results are quite consistent with the presence of the amounts of hydrogen and methane found by the author.—On the development of the Peripatidæ of South Africa, by M. L. Bouvier.—On some Hæmogregarians of Ophidiæ, by M. A. Laveran.—The internal action of copper sulphate in the resistance of the potato to *Phytophthora infestans*, by M. Émile Laurent. The experiments described led to the conclusion that potato tubers should be immunised against this fungus by dipping them for a certain time in a solution of copper sulphate, but on actual trial it was found that potatoes so treated and then purposely infected with the *Phytophthora* were attacked as vigorously by the parasite as the untreated tubers.—Observations of the new comet Giacobini (δ 1902), made at the Observatory of Paris, by MM. G. Bigourdan, G. Fayet and P. Salst. On December 6, the comet was a nebulosity of magnitude 13.2, diffuse, vaguely rounded and of 30" diameter.—Provisional elements of the Giacobini comet, by M. G. Fayet.—On the properties of the plane from the point of view of the *Analysis situs*, by M. Combebiac.—On a summatory form in the theory of functions of two variables, by M. Martin Krause.—

On a dark chamber for three-colour photography, by M. Prieur. The problem to be solved was to devise a mechanism which, on closing the shutter, would remove the exposed plate and at the same time replace it by the succeeding plate, placing the latter accurately in the focus of the objective. This problem has been satisfactorily solved.—On bipolar electrodes with a soluble anode, by MM. André Brochet and C. L. Barillet. In an electrolytic cell containing a solution of copper sulphate, the interposition of an insulated copper plate gives results very similar to those previously described with a platinum plate. It was not found possible to predict the phenomenon in any given case.—On thallic chloride, by M. V. Thomas. The chloride $TlCl_3 \cdot 4H_2O$ can be dehydrated in a vacuum without any loss of chlorine. The properties of the anhydrous chloride are given.—On Gmelin's violet manganese metaphosphate, by M. Ph. Barbier.—Addition derivatives from cyclohexene, by M. L. Brunel.—On a dichlorhydrate and dibromhydrate of cadinene and on a dextrorotatory regenerated cadinene, by M. Emilien Grimal.—On the essence of vetiver, by MM. P. Genvresse and G. Langlois. This essence contains a sesquiterpene, a sesquiterpene alcohol, and an ester to which the odour is due.—On the excretion and variation of the kidney in carnivorous fowls of the second generation, by M. Frédéric Houssay.—The formation of chlorophyll in rarefied air and in rarefied oxygen, by M. Jean Friedel. In air expanded to one-sixth of the atmospheric pressure, the leaves of *Phaseolus* are almost entirely etiolated; in oxygen at the same pressure, the leaves are coloured as in ordinary air. It would thus appear that the relative pressure of the oxygen is the predominating factor, the total pressure having no sensible influence.—On some new fossil infusoria, by M. B. Renault.—On the immunisation of the lettuce against the fungus *Bremia Lactucae*, by M. E. Marchal. By treatment with solutions of copper sulphate of certain strength, it was found possible to prevent the growth of the parasite from interfering with the growth of the plant. The narrow margin, however, between the immunising dose of copper sulphate and that capable of acting injuriously on the lettuce plant renders the practical application of these results difficult.—Some mineralogical observations made on the products from the burning of St. Pierre, Martinique, by M. A. Lacroix.—On the Palaeozoic earths of Oued Saoura and Gourara, by M. E. F. Gautier.—On economic appreciation and improvements due to cultivation, by M. E. Rabaté.—On the application of chemical manures to the cultivation of the vine in the calcareous earths of Charentes, by MM. J. M. Guillon and G. Gourand.—On some exotic Gramineae employed in food, by M. Balland.—On some brilliant red sunsets observed at Athens during the months of October and November, 1902, by M. D. Eginitis.

NEW SOUTH WALES.

Linnean Society, October 29.—Mr. J. H. Maiden, president, in the chair.—On two remarkable Sporocysts occurring in *Mytilus latus*, on the coast of New Zealand, by Prof. W. A. Haswell, F.R.S.—(1) On *Eucalyptus polyanthemus*, Schauer; (2) on *E. bicolor*, A. Cunn, by Mr. J. H. Maiden. The author quotes the original descriptions of the species, cites their synonyms, discusses their affinities and gives an account of their range.—Contributions to a knowledge of the Australian flora, part iv., by Mr. R. T. Baker. A number of new localities for species are recorded, thus extending their known geographical range.—Notes on the botany of the interior of New South Wales, part vii., by Mr. R. H. Cambage. The conspicuous vegetation of the country between Forbes and Bathurst is described.—On the mammalian and reptilian vomerine bones, by Dr. R. Broom. The author shows that in the early stages of development the nasal capsules of the lizard and marsupial are essentially similar in structure and that in both a well-developed paraseptal cartilage runs by the base of the septum from the nasal floor cartilage in front to the hinder part of the capsule. He also shows that the so-called "vomer" in the lizard develops in connection with this cartilage; and as the dumbbell-shaped bone in *Ornithorhynchus* and the median bone of *Miniopterus* also develop as splints to the paraseptal cartilages (specialised as cartilages of Jacobson), he concludes that these mammalian bones are homologous with the so-called "vomeres" of the lizard and are therefore really *prevomeres*.

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DIARY OF SOCIETIES.

THURSDAY, DECEMBER 18.

LINNEAN SOCIETY, at 8.—Notes on Copepoda from the Faeroe Channel: Thos. Scott.—Amphipoda of the *Southern Cross* Antarctic Expedition; Alfred O. Walker.—The Deep-Sea Isopod *Anurus branchiatus*, Bedd.: Dr. H. J. Hansen.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Notes of Recent Electrical Designs: W. B. Esson.

FRIDAY, DECEMBER 19.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Electricity Supply from Double Current-Generators: P. R. Wray.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—Recent Practice in the Design, Construction and Operation of Raw Cane Sugar Factories in the Hawaiian Islands: J. N. S. Williams.

TUESDAY, DECEMBER 23.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Paper to be further discussed:—The Rupnarayan Bridge, Bengal-Nagpur Railway: S. Martin-Leake.—Paper to be read:—Electric Automobiles: H. F. Joel.

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