

in slight excess, and barium chloride, and filter through a double filter. To the filtrate add iodine until the solution takes on a permanent yellow tinge, and then bleach with stannous chloride. A precipitate indicates the sulphite. Filter, add bromide water in faint excess to the filtrate, bleaching again with stannous chloride. A precipitate on adding bromine indicates a thio-sulphate originally present.—The origin and significance of spines, by C. E. Beecher (concluded). Spinose forms were simple and inornate during their young stages, and were all derived from non-spinose ancestors. Spines represent an extreme of superficial differentiation which may become fixed in ontogeny. Spinosity represents a limit to morphological and physiological variation. After attaining the limit of spine differentiation, spinose organisms have no descendants, and out of spinose types no new types are developed.

THE following are the titles of the more important papers in systematic and geographical botany contained in the *Journal of Botany* for August-October:—Two new genera of Compositæ, *Pseudotrachia* and *Adenogonium*, from Africa, by W. P. Hiern; the Mosses of Cheshire, by J. A. Wheldon; a new genus of Ericaceæ from Angola, *Ficalhoa*, by W. P. Hiern; critical notes on some species of *Cerastium*, by F. N. Williams; new species of *Crassula*, by S. Schönland and E. G. Baker; the Flowering Plants of Novaya Zemlya, by Colonel H. W. Feilden.—Mr. W. Whitwell establishes the occurrence of *Botrychium matricariaefolium*, and of its subspecies (or distinct species) *lanceolatum*, as British plants. In their Notes on Freshwater Algae, Messrs. W. and G. S. West propose the establishment of a new genus *Stipitococcus*, near to *Perionella*.

#### SOCIETIES AND ACADEMIES.

##### MANCHESTER.

**Literary and Philosophical Society, October 4.**—J. Cosmo Melville, President, in the chair.—The President referred to the loss sustained by the Society through the deaths of Mr. H. M. Ormerod, Dr. R. M. Pankhurst, Dr. James Rhodes, and Mr. John Wright, ordinary members; and of Prof. Ferdinand Cohn, Lord Playfair, and Mr. Osbert Salvin, F.R.S., honorary members.—Mr. H. W. Freston exhibited a male specimen of *Asagena phalerata*, an extremely rare species of spider which by itself represents the genus *Asagena*, whose nearest congener is the genus *Steatoda*. The present individual is the only male that has been found, at all events in recent years. The habitat of this species has hitherto been unknown, but it would seem now that it is a simple Theridion snare in grass amongst rocks. The most striking features of the genus are a denticulated edge to the cephalothorax, and a denticulated socket in the front of the abdomen, forming a stridulating apparatus which would produce a squeaking noise when rubbed against the rough hinder edge of the thorax.—Mr. John Butterworth read a paper on the structure of some fragmentary specimens of a new *Psaronius*, which he concluded to be the roots of *Heterangium tilioides*. The special feature of these roots was the presence of a distinct secondary thickening, which is unknown in the other species of *Psaronius*.—In a second paper, Mr. Butterworth dealt with the presence of a leaf-sheath surrounding the nodes of some of the Calamites of the Lancashire Coal-measures. Such a sheath has not been described before from British Calamites.

##### PARIS.

**Academy of Sciences, October 17.**—M. van Tieghem in the chair.—On an old alloy, by M. Berthelot. The alloy contains copper, lead, and small quantities of tin and zinc. The oxidation has taken place in such a manner, that removal of the external coating of rust shows an apparently reddish metal underneath, probably cuprous oxide. From its external appearance the metal might have been taken for pure copper.—Physiological researches on the contraction of the *sphincter ani*, by MM. S. Arloing and Edouard Chantre. Experimental results confirming the conclusions arrived at in a previous paper with regard to the existence of a number of sensitive fibres in the two symmetrical nerves of the sphincter.—On the resultant of two equations, by M. P. Gordan.—On differential equations of the second order with fixed critical points, by M. Painlevé.—On the variation of dielectric constants with temperature, by MM. H. Pellat and P. Sacerdote. Measurements were carried out with paraffin and ebonite at temperatures varying between 11° and 33°. The dielectric constant of paraffin diminishes with rise of temperature, that of ebonite, on the other hand,

increasing on warming.—On the duration of emission of Röntgen rays, by M. Henri Morize. The rays from a Crookes' tube were allowed to fall through a narrow slit upon a photographic plate, the latter being rapidly rotated at a constant known velocity. The effect of rotation would be to widen the photographic image of the slit if the time of emission were appreciable. The results obtained were in general agreement with those of M. Colordeau, several images of the slit being formed, separated by equal intervals for each discharge in the primary in the coil, corresponding to successive discharges in the tube. The average duration of total emission was about one-thousandth of a second. On a new action undergone by light in traversing certain metallic vapours in a magnetic field, by MM. D. Macaluso and O. M. Corbino. A ray of polarised sunlight is passed through a sodium flame placed in an intense magnetic field, then successively through a second nicol and a cylindrical lens, is then received on a concave Rowland grating, and the second diffraction spectrum observed through a micrometer eye-piece. Under these conditions, on completing the circuit round the electromagnet parallel, bands appear on each side of the two D lines, which are displaced on rotating the analyser, the axis of each ray following the direction of the current. A lithium flame exhibits similar phenomena, but not so well marked as with sodium.—On a new hydrated chromium oxide, by H. G. Baugé. The new hydrate, which has the composition  $\text{Cr}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$ , is obtained by the action of boiling water upon the carbonate in the absence of air.—Action of sodammonium upon arsenic, by M. C. Hugot. The single product of the reaction is  $\text{AsNa}_3$ .—Researches on double iodides and borates, by M. H. Allaire. A mixture of a borate and a metal is heated in iodine vapour. The double salts obtained in this way were of the type  $6\text{RO} \cdot 8\text{BO}_3 \cdot \text{RI}_2$ , where R=Mg, Zn, Cd, Mn, Ni, Co, or Fe.—On the solubility of camphor, by MM. C. Istrati and A. Zaharia. Camphor is appreciably soluble in water, the camphor in solution affecting the density, and having a perceptible rotation. The solubility is much greater in aqueous hydrochloric acid, a chlorhydrin perhaps being formed. The solubility in the latter case appears to diminish with rise of temperature.—Researches on incandescent lamps charged with an explosive mixture of methane and air, by MM. H. Couriot and J. Meunier. The glowing filament of an incandescent lamp was allowed to come in contact with an explosive mixture of marsh gas with air, under varying conditions. In no case did an explosion take place.—On the transformation of fat by direct oxidation, by M. Hanriot. Fat, treated with ozonised oxygen, gained considerably in weight; in one case as much as 23 per cent. No reducing substance appeared to be formed, tests for sugar, starch, cellulose, formic and oxalic acids giving uniformly negative results. The products of the oxidation appear to be chiefly fatty acids.—On the cause of the spiral structure of the roots of certain Chenopodiaceæ, by M. Georges Fron. The asymmetrical structure, which gives the fibrovascular bundles in a transverse section the appearance of a double spiral, is caused by the mechanical compression of the cotyledons in the radicle.—On *Blepharopoda jauriana*, by M. E. L. Bouvier.—Anatomy and physiological functions of the arborescent organs or aquatic lungs of some Holothuria, by M. L. Bordas. These organs appear to have numerous functions, as they are concerned in breathing, moving, in excretion, and in the production of numerous amebocysts.—The pegmatic and granulitic lodes of the rock masses in contact with the granite of Ariège, by M. A. Lacroix.—On the circulation of water in the Rhône glacier, by M. F. A. Forel. Fluorescin was introduced at various points, and the times which elapsed before its appearance in the main torrent noted. The velocities found were of the same order as those for the free stream, whence the conclusion is drawn that in the interior of the glacier the water circulates without stopping in basins, reservoirs, or lakes, and hence there is no sub-glacial lake under the Rhône glacier.—Results obtained in an experimental balloon ascent on August 23, by MM. G. Hermite and G. Besançon. The curves obtained from the self-registering baro-thermograph were unusually good, the greatest height registered being 7300 metres, with a corresponding minimum temperature of  $-60^\circ \text{C}$ .

##### NEW SOUTH WALES.

**Linnean Society, August 31.**—Mr. E. G. W. Palmer in the chair.—Contributions to a knowledge of the fauna of British New Guinea. No. i. Communicated by T. Steel. This com-

munication consists of a number of papers by various authors describing a collection sent to Mr. Steel from Fife Bay, New Guinea, by the Rev. H. P. Schlenker. The only form new to science is a snake described by Mr. J. Douglas Ogilby as *Demarellaphis schlenkeri*. Mr. T. Whitelegge notes the occurrence of a shrimp, *Palaemon affinis*, not previously recorded for New Guinea. Amongst the lizards, *Gehyra oceanica*, *Gymnodactylus pelagicus* and *Lepidodactylus lugubris* are recorded, apparently for the first time from New Guinea, by Mr. A. H. S. Lucas, while several other species, including the interesting form *Homolepida englishi*, described in 1890 by De Vis, are now recorded for the second time.—New genera and species of fishes, by J. Douglas Ogilby. In this paper there are described as new a xiphodontid, two species of silurids, a genus of plotosids, two pleuronectids, and a small fish, the position of which is uncertain.—On the Echinoderm fauna of New Zealand, by H. Farquhar. The Echinoderm fauna of New Zealand, as at present known, comprises two Crinoids, sixteen Ophiuroids, twenty-eight Asteroids, twenty-three Echinoids, and twenty-one Holothurians: total, ninety species. It is not homogeneous, nevertheless it contains a large number of peculiar forms which give it a strongly distinct character of its own. Its affinities are strongest with that of Australia. Omitting doubtful and deep-water forms, fifty-eight per cent. of the known species are endemic, thirty-six per cent. occur in Australia, and only six per cent. have been found elsewhere and not in Australia.—Notes on the subfamily *Brachyscelinae*, with descriptions of new species, Part v., by W. W. Froggatt.—Descriptions of six new species of Mollusca, by John Brazier.—A contribution to a knowledge of the Arachnid fauna of New Guinea, by W. J. Rainbow. In this paper sixty-eight species are enumerated, and of these fourteen are described as new. The most interesting specimen of the collection is a species of the family Aviculariidae, for the reception of which a new genus, *Antrochares*, is proposed. This makes the third known genus of the six-eyed Aviculariidae.—Descriptions of the eggs and nests of four species of Australian birds, by Alfred J. North.

## AMSTERDAM.

Royal Academy of Sciences, September 24.—Prof. Van de Sande Bakhuyzen in the chair.—Prof. Bakhuis Roozeboom communicated the results of a theoretical inquiry into (1) the phenomena occurring during the congelation of a mixture of two substances, when during the process "mixed" crystals exclusively are formed, which may either be continuously mixable or not so; and (2) the changes which the solid mixture may undergo, when the two components on further cooling are transformed into other stable modifications.—Prof. Haga communicated that the phenomena of "maxima and minima of brightness as a consequence of an optical delusion," mentioned by himself on behalf of Dr. Wind at the meeting in May, were already known and described by E. Mach in the *Wiener Berichte*, II. Abth. Bd. 52, 54 and 57.

## DIARY OF SOCIETIES.

## FRIDAY, OCTOBER 28.

PHYSICAL SOCIETY, at 5.—An Influence Machine: W. R. Pidgeon.—The Repetition of an Experiment on the Magneto-optic Phenomenon discovered by Righi: Prof. S. P. Thompson, F.R.S.—The Magnetic Fluxes in Meters and other Electrical Instruments: Albert Campbell.

## TUESDAY, NOVEMBER 1.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Address by W. H. Preece, C.B., F.R.S., President, and Presentation of Medals and Prizes awarded by the Council.

## WEDNESDAY NOVEMBER 2.

ENTOMOLOGICAL SOCIETY, at 8.

## THURSDAY, NOVEMBER 3.

CHEMICAL SOCIETY, at 8.—A Determination of the Equivalent of Cyanogen: George Dean.—Note on the Action of Light on Platinum, Gold, and Silver Chlorides: E. Sonstadt.—Methanetrissulphonic Acid: E. H. Bagnall.—A Composite Sodium Chlorate Crystal in which the Twin Law is not followed: W. J. Pope.—On the Composition of American Petroleum: Dr. Sydney Young, F.R.S.—(1) On the Separation of Normal and Iso-heptane from American Petroleum; (2) On the Action of Fuming Nitric Acid on the Paraffins and other Hydrocarbons: Dr. F. E. Francis and Dr. Sydney Young, F.R.S.—On the Boiling Points and Specific Gravities of Mixtures of Benzene and Normal Hexane: D. H. Jackson and Dr. Sydney Young, F.R.S.

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## BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Books.—Practical Mechanics: S. H. Wells (Methuen).—University College of North Wales, Calendar for the Year 1898-99 (Manchester, Cornish).—Naturae Novitates (Berlin, Friedländer).—Key to Algebraical Factors: D. H. Vachha, 3rd edition (Longmans).—On the Instincts and Habits of the Solitary Wasps: G. W. and E. G. Peckham (Madison, Wis.).—Quantitative Exercises for Beginners in Chemistry: A. H. Mitchell, Part 1, 2nd edition; Ditto, Part 2 (Reading, National Publishing Association).—Aids in Practical Geology: Prof. G. A. J. Cole, 3rd edition (Griffin).—Almanaque Nautico, 1900 (San Fernando, Gay).—British Museum: a Guide to the First and Second Egyptian Rooms (The Trustees).—Handbook of Insects injurious to Orchard and Bush Fruits, with Means of Prevention and Remedy: E. A. Ormerod (Simpkin).—First Stage Inorganic Chemistry (Practical): Dr. F. Beddow (Clive).—Gas and Petroleum Engines: translated and edited by A. G. Elliott (Whittaker).—Through Asia: Sven Hedin, 2 Vols. (Methuen).—An Elementary Text-Book of Botany: Prof. S. H. Vines (Sonnenschein).—Bibliotheca Geographica, Band iv. (Berlin, Köhl).—Gesammelte Botanische Mittheilungen: S. Schwendener, 2 Vols. (Berlin, Gebrüder Borntraeger).—Die Moderne Entwicklung der Elektrischen Principien: Prof. F. Rosenberg (Leipzig, Barth).—Übersicht der Lepidopteren: Fauna des Grossherzogtums Baden: C. Reutti, Zweite Ausgabe herausgegeben von Meess und Spuler (Berlin, Gebrüder Borntraeger).

PAMPHLETS.—On the Forestry Conditions of Northern Wisconsin: F. Roth (Madison, Wis.).—Antarctic Exploration: a Plea for a National Expedition: Sir C. R. Markham (R. G. S.).

SERIALS.—Proceedings of the Liverpool Geological Society, Part 2, Vol. viii. (Liverpool).—U.S. Department of Agriculture: Division of Biological Survey, Bulletin Nos. 9, 10, 11 (Washington).—Scottish Geographical Magazine, October (Edinburgh).—Journal of the Franklin Institute, October (Phil<sup>a</sup>).—Quarterly Review, October (Murray).—Zoologist, October (West).—Journal of Anatomy and Physiology, October (Griffin).—Geological Survey of Canada Report, Nos. 627, 628, 651, 657 (Ottawa).—Bulletin de la Société d'Anthropologie de Paris, 1898, Fasc. 2 (Paris, Masson).—Mémoires de la Société d'Anthropologie de Paris, Tome ii (3<sup>e</sup> série), 2<sup>e</sup> Fasc. (Paris, Masson).—Journal of the Chemical Society, October (Gurney).—Bulletin of the American Museum of Natural History, Vol. xi. Part 1 (N.Y.).—Sitzungsberichte der K. Akademie der Wissenschaften, Math.-Naturw. Classe, Anatomie, &c., 1897, January to July, October to December; Ditto, Mineralogie, &c., 1897, January to July, October to December; 1898, January to May; Ditto, Mathematik, &c., 1897, January to July, October to December; 1898, January and February; Ditto, Chemie, 1897, January to July, October to December; 1898, January to March; Ditto, Register zu dem Banden, 101 to 105 (Wien, Gerold).—An Illustrated Manual of British Birds: H. Saunders, 2nd edition, Parts 9 to 12 (Gurney).—Journal of the Royal Horticultural Society, October (117 Victoria Street).—Bulletin of the American Mathematical Society, October (N.Y., Macmillan).—Agricultural Gazette of N.S.W., August (Sydney).—Monthly Weather Review, July (Washington).

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