Monotropa.—The instalment of Mr. J. G. Baker's synopsis of the Rhizocarpeæ is occupied by a monograph of the forty species of *Marsilea*.—The remaining articles in these and those in the October number are of less general interest, or are reprints or reports.

Rivista Scientifico-Industriale, September 15.—Experiments on the electric conductivity of vapours and gases, by Prof. Giovanni Luvini. The important experiments here described have been carried out for the purpose of exposing the commonly accepted fallacy that moist air and gases in general are good conductors. Having already argued against this view in his recent memoir on the origin of atmospheric electricity, the author now clearly shows by a series of carefully conducted experiments that such bodies as moist air, aqueous vapour, and other gases are under ordinary pressure absolute non-conductors. Under pressures varying from 16° to 100° C. none of the vapours tested by him betrayed the least conductivity, all acting as excellent insulators. He promises to resume the subject in his work on the Polar auroras, to which the present essay and the memoir on the origin of atmospheric electricity serve as introduction. The conclusions so far arrived at, combined with Faraday's memorable experiments on the causes of the electricity in Armstrong's hydro-electric machine, tend to show that gases and vapours are not even electrified by friction with themselves or with solid or fluid bodies. Henceforth physicists must reject, as erroneous, all such theories respecting the electricity of machines, of the air, or the clouds, as rest on the assumed conductivity of moist air or on the property of gases to be electrified by friction. It is pointed out that, were the saturated atmosphere and clouds really good conductors, such a phenomenon as lightning would be simply impossible, or at all events extremely rare.—Separation of nickel from cobalt, by Pietro Gucci. For the new method here proposed and described it is claimed that it is both easier and much more expeditious than that of Fischer and Stromeyer, also that it determines the presence of the smallest particle of nickel in any quantity of cobalt.—New hygrometric formula and tables, by Prof. Paolo Cantoni.

SOCIETIES AND ACADEMIES

LONDON

Entomological Society, October 6.—Robert McLachlan, F.R.S., President, in the chair.—Mr. W. Bartlett Calvert, of Santiago, Chili, was elected a Fellow.—Mr. McLachlan exhibited a number of seeds of a Mexican species of *Euphorbiaceæ*, popularly known as "jumping seeds," recently received by him from the Royal Horticultural Society. He stated that these seeds were known to be infested with the larvæ of a species of *Tortricidæ*, allied to the apple *Tortrix*. They were first noticed by Prof. Westwood at a meeting of the Society held on June 7, 1858, and the moths bred therefrom were described by him as *Carpocapsa saltitans*. These seeds have since, from time to time, been referred to both in the United Kingdom and America.—Mr. Roland Trimen exhibited and read notes on some singular seed-like objects found in the nests of *Termites*, and also in those of true ants, in South Africa. They were apparently of the same species as those from the West Indies, described in 1833 by the Rev. L. Guilding as *Margarodes formicarius*, which was usually referred to the *Coccidæ*. They were of various shades from yellowish pearly to golden and copper colour, and were strung together by the natives like beads, and used by them as necklaces.—Mr. W. F. Kirby exhibited, on behalf of Mr. John Thorpe, of Middleton, a long series of buff and melanic varieties of *Amphidasis betularia*, and read notes on them communicated by Mr. Thorpe.—Mr. Kirby also exhibited, on behalf of Mr. Nunney, a dark variety of *Argynnis aglaia* from Caithness, and a tawny-coloured variety of *Vanessa urticæ* from Bournemouth.—M. Alfred Wailly exhibited a fine series of Saturnias and other Bombyces, mostly bred by him, from South Africa; also specimens of *Dirphia tarquinia*, *Attacus orizaba*, *Platysamia cecropia*, *P. ceanothi*, *Callosamia angulifera*, and *C. promethæa*, from Central America. M. Wailly stated that several of the large South African *Saturnidæ* formed no cocoons, the larvæ entering the earth to undergo the change to the pupal state. Mr. Trimen said he was able to confirm this statement.—The Rev. W. W. Fowler exhibited a number of minute *Acari* which had been doing injury to fruit trees near Lincoln.—Mr. Poulton gave an account of the experiments recently made by him with the larvæ of several species of the genus *Vanessa*, for the purpose of ascertaining the relations of pupal colour to that of the surface on which the larval skin was thrown off, which had formed the subject of a paper lately read by him before the British Association. He also exhibited the frame constructed by him for the purpose of these experiments.—Mr. Slater exhibited a specimen of *Prionus coriarius* found in Devonshire on fennel, and a specimen of *Calandra palmarum* from Pembroke Dock.—Mr. Enock exhibited *Mymar pulchellus*, and a specimen of *Atypus piceus* recently taken on Hampstead Heath.—Mr. Elisha exhibited a series of *Gelechia hippophaëlla*, bred from larvæ collected at Deal on *Hippophaë rhamnoides*.—Mr. Billups exhibited *Echthrus lancifer*, a species of *Ichneumonidæ* new to Britain, taken at Walmer on August 15 last. He remarked that Brischke had bred members of this genus from *Sesia spheciformis*, *S. formicæformis*, and *Leucania obsoleta*; but that in this country the genus was little known, only one species being mentioned in Marshall's list of *Ichneumonidæ*.—Mr. E. A. Butler exhibited living specimens of *Chilacis typhæ*, received from the Rev. E. N. Bloomfield, of Guestling, Hastings; and a pair of *Harpalus discoideus*, obtained in August last, near Chilworth, Surrey.—Mr. A. J. Rose exhibited specimens of a mountain form of *Lycæna virgaurea*, recently collected by him in Norway.—Mr. Champion exhibited *Teratocoris antennatus* and *Drymus pilicornis*, taken near Sheerness.—Mr. W. White exhibited a specimen of *Chelonia caja* with abnormal antennæ, and read notes on the subject.—Mr. Elisha read a paper on the life-history of *Geometra smaragdaria*.—Mr. C. O. Waterhouse communicated a paper on the tea-bugs of India and Java.

SYDNEY

Linnean Society of New South Wales, Aug. 25.—Prof. W. J. Stephens, M.A., F.G.S., President, in the chair.—The following papers were read:—Note on *Eucalyptus leucoxylon* (F. v. M.), by W. Woolls, Ph.D., F.L.S. In the "Flora Australiensis," vol. iii., two Eucalypts previously regarded as distinct species (*E. leucoxylon*, F. v. M., and *E. sideroxylon*, A. Cunn.) were united under the former name. Dr. Woolls has long thought that this step was a mistake, and in his paper he gives reasons based upon the examination of specimens of both forms, in favour of their specific distinctness, and of the restoration of Cunningham's name to the red-flowering iron-bark of New South Wales, the other name being restricted to the white gum of Victoria and South Australia.—Contributions towards a knowledge of the Coleoptera of Australia, No. III., by A. Sidney Olliff, F.E.S. This paper contains notices of several new species of *Nascio*—a genus of Buprestidæ—of which two are named *L. munda* and *N. multesima*. Additional localities for some previously known species are also given, *N. carissima* being recorded from Sydney.—List of the Orchideæ of the Mudgee District, by Alex. G. Hamilton. In this paper, which is a contribution towards a knowledge of the geographical distribution of plants in New South Wales, fifty-seven species of orchids are enumerated as occurring in the Mudgee District; and particulars are given concerning their habitats and the months during which they flower. In addition a comparison of the orchids of this district with those of the county of Cumberland and of the other Australian colonies is also given.—On an undescribed species of *Chilodactylus* from Port Jackson, by E. P. Ramsay, LL.D., F.R.S.E., and J. Douglas Ogilby. Under the name of *Chilodactylus polyacanthus*, a new species of Morwong is described, and its affinity to *C. carponemus*, Cuv. and Val., is discussed.—Dr. Ramsay exhibited a number of very rare birds from Derby, North-West Australia, recently collected in that district by Mr. Cairns. He particularly drew attention to the following:—*Poephila acuticauda*, *Poephila mirabilis*, *Donacicola pectoralis*, *Emblema picta*, *Estrelda annulosa*, *Estrelda ruficauda*, *Pœcilodryas cerviniventris*, *Smicrornis flavescens*, *Pardalotus rubricatus*, *Pardalotus uropygialis*, *Malurus coronatus*, *Malurus cruentatus*, *Cacatua gymnopis*, *Climacteris melanura*, *Geophaps albiventris*, *Astur cruentus*, *Trichoglossus rubritorquatus*.—Mr. Macleay exhibited the following new or rare reptiles and fishes collected by Mr. W. W. Froggatt in the vicinity of Cairns, Queensland:—Snakes: *Tropidonotus picturatus*, Schlegel, *Dipsas boydii*, Macleay, *Hoplocephalus assimilis*, Macleay, *Hoplocephalus nigrostriatus*, Krefft, *Nardoa crassa*, Macleay, and *Dendrophis bilcrealis*, Macleay. Lizards: *Varanus ocellatus*, Gray, *Varanus*, sp. ?, *Hinulia*, n. sp., four species of Geckotidæ unknown, one with tail of remarkable width, and several other unknown lizards. Fishes: *Dules Haswellii*, Macleay, *Aristeus rufescens*, Macleay,

Serranus lanceolatus, Bleek, a species new to Australia, and a species of *Eleotris*, probably undescribed, remarkable for its minute scales. Collected from the same district were a number of frogs, among which Mr. Fletcher pointed out examples of *Hyla dolichopsis*, *H. cærulea*, *H. lesueurii*, *H. peronii*, *H. nasuta*, *H. gracilenta*, *Limnodynastes ornatus*, and two other species not determined.

PARIS

Academy of Sciences, October 11.—M. Jurien de la Gravière, President, in the chair.—On a principle in rational mechanics, and on a demonstration used by Daniel Bernoulli in 1757, by M. de Jonquières. The reference is to the author's recently-explained theory of the hydro-extractor, the fundamental principle of which he now finds was already known to Bernoulli, at least so far as concerns the action of the pendulum. His demonstration, analogous to that of M. de Jonquières, is contained in his memoir entitled, "Principes hydrostatiques et méchaniques, &c.," which obtained the prize of the Royal Academy of Sciences.—On the persistence of the instinctive functions and voluntary movements in bony fishes after extraction of the cerebral lobes, by M. Vulpian. In supplement to his previous paper on this subject, the author mentions the case of a carp operated upon on March 18, 1886, and which survived till September 29. During this period it acted in almost every respect like any ordinary fish, noticing and avoiding obstacles, seizing and swallowing its food, rejecting non-alimentary substances, and so on. With the exception of smell, it evidently retained all its senses and instinctive and intellectual faculties. This experiment fully confirms the results already determined by the researches of M. Is. Steiner, and shows that in fishes instinct and will survive the extraction of the cerebral lobes, which in reptiles, birds, and mammals are the seat of those faculties.—Experimental researches on the nature of *rigor mortis*, by M. Brown-Séquard. The object of these studies is to show that the rigidity ensuing after death is due neither altogether nor even to any great extent to the coagulation of the albuminous substances of the muscles, as still maintained by most physiologists on the authority of Brücke, Kuhne, and Wundt.—On the temperature of the bed of oceanic basins compared with that of the continents at the same depth, by M. Faye. In connection with the reference made to this subject in the opening address of the President of the British Association at Birmingham, the author takes the opportunity of generalising the law already established by him respecting the more rapid and deeper cooling of the earth's crust under the seas than under the continents. Not only is this law applicable to the Polar seas, whose lowest depths have a temperature very near zero, but also to those which do not freely communicate with the Poles. In these waters also the temperature decreases with the depth, the difference between them and the continents at the same depths being, within about 15°, as great as for the oceans.—Purification of yttria, by M. Lecoq de Boisbaudran. In the process of purification here described the earth A, differing little from that of M. Clève, yielded a beautiful phosphorescence of a pink auroral tint, due not to the yttria itself, as supposed by Mr. Crookes, but to the presence of a minute trace of bismuth derived either from the primary substance or from the reagents.—Fluorescence of the compounds of bismuth subjected to electric effluvium *in vacuo*, by M. Lecoq de Boisbaudran. In this paper the author sums up his observations on the pink fluorescence referred to in his previous communication. He remarks incidentally that during these studies he detected traces of bismuth in numerous chemical products, several of which were supposed to be quite pure.—Summary of the meteorological observations made during the year 1885 at four stations in the Upper Rhine and Vosges districts, by M. Hirn. The observations here tabulated give the highest and lowest temperatures from month to month at Colmar, Thann, Schlucht, and Munster, the actinometric readings taken at the Colmar Observatory, the atmospheric pressure, rainfall, and other meteorological data at these stations.—On the transformation of surfaces, and on a class of differential equations, by M. E. Picard.—The reciprocal relations of the great forces of Nature, by M. Emile Schwœrer. The author's remarks are in reference to his French translation of M. A. Klein's remarkable analysis of MM. Hirn and Clausius's recent memoirs contributed to *Gaea*.—Saturation of normal arsenic acid with lime-water and with the water of strontian, by M. Ch. Blarez.—Contribution to the study of the alkaloids, by M. Oechsner de Coninck. Two very sensitive reagents are described, which are easily produced, and which are likely to prove very serviceable in the diagnosis of the various alkaloids and of the different bases treated by the author.—On the genus *Entione*, Kossmann, by MM. A. Giard and J. Bonnier. In the *Porcellana longicornis* of Concarneau the authors have discovered an *Entoniscus* closely allied to those met by Fritz Müller in the Porcellanæ of the Brazilian seaboard. The study of this species, here named *Entoniscus müllleri*, justifies the division of the genus proposed by Kossmann. The term *Entoniscus* being reserved for the two species of parasites of the Porcellanæ, the *Entoniscus* of the crabs would then constitute the genus *Entione*.—Diseased grapes in the vineyards of La Vendée, by M. Prillieux. The vineyards of this district have this year been attacked by a species of mildew here fully described.—On some garnet-bearing rocks of Puy-de-Dôme, by M. Ferdinand Gonnard. It is shown that, contrary to the received opinion, the important group of garnets, whether as a mineralogical accident, or as an essential constituent element of the different grenatites, is largely represented in the primitive or plutonic formations of Puy-de-Dôme.—On the phosphated deposits of Beauval (Somme), by M. Stanislas Meunier. From a careful study of the phosphate of lime recently discovered at Beauval, the author infers that the phosphated chalk of Picardy belongs to an older geological epoch than that of Belgium.

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