

Japanese region, the climates and conditions of which are very similar; and that the fossilised representatives of many of them have been brought to light in the late Tertiary deposits of the Arctic zone wherever explored. In mentioning some of the plants of this category I include the Magnolias, although there are no nearly identical species, but there is a seemingly identical Liriodendron in China, and the Schizandras and Iliciums are divided between the two floras; and I put into the list Menispernum, of which the only other species is Eastern Siberian, and is hardly distinguishable from ours. When you call to mind the series of wholly extra-European types which are identically or approximately represented in the Eastern North American and in the Eastern Asiatic temperate floras, such as Tratvetteria and Hydrastis in Ranunculaceæ; Caulophyllum, Diphylleia, Jeffersonia, and Podophyllum in Berberidæ; Brasenia and Nelumbium in Nymphaeacæ; Stylophor in Papaveracæ; Stuartia and Gordonia in Ternstromiacæ; the equivalent species of Xanthoxylum, the equivalent and identical species of Vitis, and of the poisonous species of Rhus (one, if not both, of which you may meet with in every botanical excursion, and which it will be safer not to handle); the Horse-Chestnuts, here called Buckeyes; the Negundo, a peculiar offshoot of the Maple tribe; when you consider that almost every one of the peculiar Leguminous trees mentioned as characteristic of our flora is represented by a species in China or Manchuria or Japan, and so of some herbaceous Leguminosæ; when you remember that the peculiar small order of which Calycanthus is the principal type has its other representative in the same region; that the species of Philadelphus, of Hydrangea, of Itea, Astilbe, Hamamelis, Diervilla, Triosteum; Mitchella, which carpets the ground under evergreen woods; Chiogenes, creeping over the shaded bogs; Epigæa, choicest woodland flower of early spring; Elliottia; Shortia (the curious history of which I need not rehearse); Styrox of cognate species; Nyssa, the Asiatic representatives of which affect a warmer region; Gelsemium, which, under the name of Jessamine, is the vernal pride of the Southern Atlantic States; Pyrularia and Buckleya, peculiar Santalaceous shrubs; Sassafras and Benzoins of the Laurel family; Planera and Maclura; Pachysandra of the Box tribe; the great development of the Juglandaceæ (of which the sole representative in Europe probably was brought by man into South-Eastern Europe in prehistoric times); our Hemlock-Spruces, Arbor-Viteæ, Chamaecyparis, Taxodium, and Torreya, with their East Asian counterparts, the Roxburghiaæ, represented by Croomia—and I might much further extend and particularise the enumeration—you will have enough to make it clear that the peculiarities of the one flora are the peculiarities of the other, and that the two are in striking contrast with the flora of Europe.

(To be continued.)

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, December 18, 1884.—Sir John Lubbock, Bart., F.R.S., President, in the chair.—The following gentlemen were elected Fellows of the Society:—Lieut.-Col. W. R. Lewis, and Messrs. T. B. Blow, H. G. Greenish, A. G. Howard, L. de Nicieville, C. B. Plowright, and F. Shrivell.—Mr. H. Ling Roth showed roots of sugar-cane grown in Queensland; the plant appearing to him to possess two sorts, viz. ordinary matted fibrous roots and others of a special kind.—Mr. E. Alf. Heath exhibited a wild cat found dead in a trap in Ben-Armin Deer Forest, Sutherlandshire, where they are still frequently met with.—Mr. W. H. Beeby called attention to examples of bur-reed (*Sparganium*) obtained at Albury Ponds, Surrey, the plant being quite distinct from the other British species; he proposed for it the name of *S. neglectum*.—In illustration of ornithological notes, Mr. Thos. E. Gunn showed an interesting series in varied plumage of the somewhat rare British bird, the blue-throated warbler. The examples in question were procured by Mr. G. E. Power at Cley, on the Norfolk coast, in September, 1884. Mr. Gunn also exhibited an immature female little bittern, shot at Broxbourne Bridge, Herts, on October 15 in the same year; as likewise a hybrid between a goldfinch and bullfinch, which possessed the marked characteristics of both parents.—Attention was drawn to Mr. R. Morton Middleton's examples of varieties of Indian corn (*Zea mays*, L.) from the United States, Natal, and the borders of the River Danube. The specimens showed marked differences from each other in size, colour, form, and in

ornamentation of the seeds.—Mr. Thiselton Dyer exhibited life-size photographs of cones of two species of *Encephalartus* from South Africa, viz. *E. longifolius* and *E. latifrons*, neither hitherto figured in European books. He also showed tubers of *Ullucus tuberosus* from Venezuela, which, though esteemed as an esculent in South America, proved inedible when grown at Kew.—A paper was read by Mr. Henry O. Forbes, on contrivances for insuring self-fertilisation in some tropical orchids. The author described in detail the structural peculiarities of certain Orchidaceæ which had been made the subject of study by him under favourable circumstances. He arrives at the conclusion that a number of orchids are not fertilised by insects, but are so constructed as to enable them to fertilise themselves. This paper was illustrated by diagrams referring more particularly to such forms as *Phaius Blumei*, *Spathoglottis pliata*, *Arundina speciosa*, *Eria javensis*, and others.—Prof. St. G. Mivart read a paper on the cerebral convolutions of the Carnivora and Pinnipedia, and wherein were described for the first time in detail the brains of *Nandinia*, *Galidia*, *Cryptoprocta*, *Bassaricyon* (from a cast of the skull), *Mellivora*, *Galictis*, and *Grisonia*. The author, confirming the views of previous observers, gave additional reasons for a three-fold division of the Carnivora into Cynoidea, *Aeluroida*, and Arctoidea, though he remarked that amongst the *Aeluroids* the section of Viverrina formed a very distinct group, judged by the cerebral characters. He specially called attention to the universal tendency amongst the Arctoidea to the definition of a distinct and conspicuous lozenge-shaped patch of brain substance defined by the cruciate and precruciate sulci. This condition, which he found in no single non-arctoid Carnivora, he also found in the brain of *Otaria Gillespii*, and afterwards in *Phoca vitulina*, where it is very small and much hidden. This fact he adduced as an important argument in favour of the view that the Pinnipedia were evolved from some Arctoid, probably Ursine, form of land Carnivora.—Mr. F. O. Bower read a paper on apospory in ferns. His microscopical investigations on the growth of sporophore generation to the prothallus without the intervention of spores but confirms the statements of Mr. Chas. T. Drury on *Athyrium Filix-femina*, var. *clarissima*, previously communicated to the Society. Mr. Bower, moreover, finds the case in point to hold good in certain other ferns, for example, *Polystichum angulare*, where there is the formation of an expansion of *undoubted prothallid nature* bearing sexual organs by a process of purely vegetative outgrowth from the fern plant. That is, there is a transition from the sporophore generation to the oosphere by a vegetable growth, and without any connection either with spores or indeed with sporangia or sori. The author goes on to point out the bearing of these observations and cultures on the general life history of the fern, so far as the modifications of the genetic cycle are concerned; and he further compares this new phenomenon of "apospory" in ferns with similar cases in other plantas, while insisting on the importance of the cases at issue.—A communication on the aerial and submerged leaves of *Ranunculus lingua*, L., was read by Mr. Freeman Roper. He shows from specimens obtained near Eastbourne that the two sets of leaves in question differ so materially from each other that they might not be suspected to belong to the same plant, the submerged being larger, broader, ovate or cordate, and possessing abundance of stomata.

Geological Society, December 14, 1884.—W. Carruthers, F.R.S., Vice-President, in the chair.—David Llewellyn Evans was elected a Fellow of the Society.—The following communications were read:—On the south-western extension of the Clifton fault, by Prof. C. Lloyd Morgan, F.G.S., Assoc. R.S.M.—On the recent discovery of Pteraspidian fish in the Upper Silurian rocks of North America, by Prof. E. W. Claypole, B.A., B.Sc. Lond., F.G.S.—On some West-Indian phosphate deposits, by George Hughes, F.C.S. (Communicated by W. T. Blanford, LL.D., F.R.S., Sec. G.S.).—Notes on species of *Phyllopora* and *Thamniscus* from the Lower Silurian rocks near Welshpool, Wales, by George Robert Vine (Communicated by Prof. Martin Duncan, F.R.S., F.G.S.).

Victoria (Philosophical) Institute, January 5.—A paper on "The Religion of the Aboriginal Tribes of India," by Prof. Avery, was read. In it the author sketched the peculiarities of the beliefs of those tribes, so far as was known.

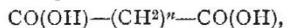
SYDNEY

Royal Society of New South Wales, November 5, 1884.—H. C. Russell, B.A., F.R.A.S., President, in the chair.—Five

new members were elected and 129 donations received. A paper was read, "Notes on some mineral localities in the northern districts of New South Wales," by D. A. Porter. The following extracts from a letter, dated from Queensland, October 8, to Prof. Liversidge, from Mr. Caldwell, were read:—"Ceratodus has interfered with Platypus. The Platypus eggs were hatched three weeks ago, and I should have been in New England by now, but Ceratodus is much more important. Platypus embryos are quite easy to get. I can't understand how they have not been got before. The fact that the monotremes are oviparous is the end of the research for many. They don't understand that it is the fact of the egg having a lot of yolk that promises to yield valuable information. Here are some of the principal points in the development of Ceratodus as observed on the whole embryos. I have not attempted to make sections yet; you know what section-cutting is now-a-days. The egg measures about $2\frac{1}{2}$ mm. diameter, and has the protoplasmic pole darker, as in Amphibia. This egg is surrounded by a strong, closely-investing gelatinous membrane about $3\frac{1}{2}$ mm. thick. The segmentation is complete (Holoblastic). Part of the blastopore remains open, and persists as anus. The stages up to hatching closely resemble those of the newt, *Ambystoma*. After hatching, the larva goes into the mud. It lies on its side like *Pleuronectidae* among Teleosteans, and the oldest stages I have reared still show no signs of external gills. The larval changes I expect will continue for many weeks, and I have two plans to save my waiting here, both of which I intend to put into execution at once. First, I shall leave an aquarium with a large number of the larvae here on a station, where a friend has kindly promised to put a few of the fish in a bottle every day. Second, I shall bring a supply of eggs to Sydney, and attempt to rear them in my laboratory. I hope to get to Sydney in about a fortnight or three weeks' time. I have more than thirty blacks with me now; they have found over 500 Echidna in the last six weeks."—Prof. Liversidge exhibited specimens of sapphires, zircons, the topaz and diamond from the old gold workings near Mittagong, and stated that flints occurred at these mines closely resembling those of the cretaceous formations at home.—Mr. C. S. Wilkinson exhibited specimens of chloride of silver from Silverton, native antimony in calcite, Lucknow, also dendritic gold and arsenical pyrites in massive serpentine.—Mr. Charles Moore announced the discovery of a new species of the giant Australian lily, between the Clarence and Richmond Rivers, and promised some notes upon it at the next meeting.

PARIS

Academy of Sciences, December 29, 1884.—M. Rolland, President, in the chair.—Note on the classification of the moles (genus *Talpa*, L.) of the old world, by M. Alph. Milne-Edwards.—Theorem regarding the complete algebraic polynomials; its application to the rule of Descartes' signs, by M. de Jonquieres.—On the integers of total differentials, by M. H. Poincaré.—On the integers of total differentials, and on a class of algebraic surfaces, by M. E. Picard.—On a series analogous to that of Lagrange, by M. Amigues.—Some simple and closely related formulas for the equilibrious pressure of sandy masses or bodies without cohesion, by M. Flamant.—Rectification of the numerical results indicated in a previous communication for the calculation of compressed gas manometers, by M. E. H. Amagat. The rectifications here made are stated by the author in no way to affect his general conclusions.—On scleeno-uria and the substances derived from it, by M. A. Verneuil.—On the solubility of the substances comprised in the oxalic series—



by M. Friedel.—On the composition of the seed of the cotton-tree and on the abundance of alimentary substances contained in this grain, by M. Sacc. Writing from Cochabamba under the date of October 25, 1884, the author announces the discovery of a new alimentary substance presenting some most remarkable features in its composition. The accompanying analysis shows that this seed of the cotton-tree, of which several varieties are cultivated in Bolivia, is the richest of all known grains in nitrogenous substances. When milled, it yields the following results:—

Yellow meal	...	...	56·50	kilogrammes
Black bran	...	...	40·50	"
Waste	...	...	3·00	"
		100		"

The writer is convinced that this flour is destined to take an important place in human alimentation, and in the preparation of all kinds of pastes, where it may act as a substitute for milk.—Note on the history of the discovery of the action of the white globules of the blood in inflammatory complaints, by M. A. Horvath. This discovery, hitherto attributed to Cohnheim, is here assigned to Dutrochet, who, so far back as 1824, accurately described the migration of the sanguine globules and their passage into the organic tissues.—Note on the biological evolution of the genus *Aphis*, and of the allied genera in the family of the *Aphidae*, by M. Lichtenstein.—On the discovery of the impression of an insect in the Silurian sandstones of Jurques, Calvados, by M. Ch. Brougnart. The traces are described of the wing of a blattina, to which the author gives the name of *Paleoblattina douvillei*, in honour of M. Douville of the Paris School of Mines.—On a crystalliferous vitreous mass resembling obsidian, and evidently derived by igneous action from the schistose rocks of the Compton coal-measures, by M. Stanislas Meunier.

STOCKHOLM

Royal Academy of Sciences, December 10, 1884.—Prof. Edlund communicated some observations made during the last years confirming his theory on the origin of the electricity of the air, and also of the origin of the aurora borealis and of thunderstorms.—Prof. Nordenskjöld presented a paper on krykonite from the inland ice of Greenland by himself.—Prof. Ångström gave an account of a report by E. D. Norrman, civil engineer, concerning his observations on ship-building, &c., during a Continental tour undertaken with a grant given by the Academy from the funds of the Litterstedt donations.—Dr. Widman reported on his own researches on a new sort of indigo and on some new derivations of chinolin produced by him from kuminol. The Secretary, Prof. Lindhagen, presented the following papers:—On the passage of the light through isotropical substances, by Prof. Rubenson.—A method to separate chlorine and bromine quantitatively, by Dr. E. Berglund.—On Vortmann's method to determine chlorine directly, and also the presence of bromine, by the same.—On the intermediate orbit of the comet of Faye in the vicinity of Jupiter in the year 1841, by Dr. Alexander Shdanow of Pulkowa.

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