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were fully sufficient to have called into action their dormant vitality, had they possessed the power of retaining it. In fine, the numerous unsuccessful experiments we have made on this point certainly justify us in concluding, that the spores of ferns do not retain their germinative power for any length of time in the ordinary conditions of Herbaria. What their capabilities may be for retaining *it* when buried in the soil, we cannot at present positively say, though it would appear, from experiments now pending, that they, like certain phanerogamic seeds, may retain this power for long periods.

II. *Gleanings among the Irish Cryptogams*. No. I. By BENJAMIN CARRINGTON, M.D., F.L.S., &c.

Introductory Remarks.—Killarney is professedly a place of autumnal resort. There are few visitors before the beginning of July. Why this should be is hard to say, for nothing can be more varied and lovely than the early summer tints; nothing sweeter than the songs of summer birds; and the only period almost uniformly free from rain is that from April to June. I was unable to obtain accurate statistics of the rain-fall, but in Galway, in 1861, it was upwards of 57 inches—24 inches falling between July, and September. The proportion is still greater in the mountain regions of Kerry, and many a visitor has found the meaning of the lines :—

“Thy suns with doubtful gleam
Weep while they rise.”

If the botanist desires to pursue his calling unmolested by crowds of visitors, and picturesque but pestiferous beggars, he should reach Muckross in May. Most of the distinctive plants of the district are then in perfection; he will find the hotels empty, and landlords and guides ready enough to oblige him.

It would be vain to attempt a description of these famous lakes. I have visited most of the English lakes, and the more beautiful scenery of Loch Lomond and the Trossachs; but there is a fulness of beauty, and enchantment about Killarney, which surely exists nowhere else. Like the author of the “*Irish Sketch Book*,” we felt inclined to pronounce “each of the lakes in turn the most beautiful, and so at every point we stopped at, we determined that that particular spot was the prettiest in the whole lakes.” It is only gradually, as day by day the mind drinks in the varied loveliness of colour and outline, that we are able to form a critical judgment of the whole. The mountains which enclose the lakes on either hand, are less remarkable for height than for gracefulness of form. The culminating peaks of Mangerton, and Carron Tual, measure respectively 2756 feet, and 3414 feet. The geological features of the district are worthy of study. On the eastern shores we find scars of carboniferous limestone, strangely honeycombed, and worn into most fantastic shapes by the action of the waves. Underlying these are dark slaty strata, like the Silurian rocks beneath the limestones of Craven. Further west the mountains divide, forming bold headlands between the indented bays of Dingle and Bantry, and are for the most part composed of shales, and conglomerates of the Old Red system. But the rugged skeleton of the rocks only peeps out here and there; the general surface is clothed with a “pomp of groves,” and an exuberance of vege-

tation only equalled in the isles of the Southern Ocean. Many hills, such as Torc, Cromaglan, and Glena, are covered from the water's edge to the very summit, with a continuous forest. Near the summit, the heather, 6 or 8 feet in height, mingling with trees and shrubs, forms an almost impenetrable barrier. The trees are of various kinds—oak, beech, and ash predominating. There are some lofty pines on the Torc mountain, and the yew, and holly are not uncommon. Solitary trees of the former occur of great age. The ivy luxuriates everywhere, hanging pendant from the trees, or covering rocks and walls with its dark lustrous foliage. But the plant which will possess most novelty to the botanist is the *Arbutus Unedo*. It is found both on the islands and shores of the lakes, but nowhere in great abundance. In size and form it is not unlike an apple tree, with a smooth cinnamon-coloured stringy bark, and shining rhododendron-like leaves.

It is interesting to note how the introduction of one species like the *arbutus*, and the prevalence of other evergreens, alter the tone of the woods, giving them a sub-tropical aspect. Even in winter they must be very beautiful. There is some danger that this interesting species, like the *Trichomanes*, may become exterminated before very long by the rapacity of the guides. Young plants are now extremely rare, and when found are invariably taken and sold to visitors. As it is a tender plant, most of these perish in English gardens. The young *arbutus* resembles the rhododendron, and I was informed that some of the guides keep a supply of slips of the latter, and pass them off for the true plant. While upon this subject, I may state, with a regret which all true botanists will share, that the *Trichomanes brevisetum*, not many years ago the gem of the Torc and other ravines, is now nearly extinct in the Killarney woods. I searched for it many a day in places where it once abounded, but without success. It has been in such request with the fern collectors, that the guides are constantly on the look-out, and when a tuft is found, they exterminate it root and frond. Patches are still brought from the distant ravines above Glencoe.

Although vegetation is so profuse, the number of flowering plants about Killarney is probably smaller than in any area of like extent in England. We miss the various introduced species, colonists, escapes from gardens, from corn-fields, and viatical plants.

Still more remarkable, considering the elevation of the land, is the entire absence of the Highland type of flora. On much lower hills in England and Wales, many subalpine species are met with. This fact would seem to militate against the theory of Forbes, and to indicate some ancient communication with the Spanish coast, rather than with those of Britain. Nor do we find the absence of accustomed forms compensated by many indigenous species. The greatest novelties are the saxifrages, represented by *Saxifraga Geum*, and *S. umbrosa*, their starry blossoms forming a conspicuous object by the wayside. Tufts of *Euphorbia hibernica* were often met with, as was also that floral gem of Killarney, *Pinguicula grandiflora*, in fine blossom early in June. Few plants excel it in delicacy of form, and intensity of colour. The waters abound with lacustrine species. Among them I observed a peculiar variety of *Nymphaea alba* with crisped leaves, and a form of *Nitella flexilis* with dense, distant whorls of capsules, looking to the naked eye like balls of gooseberry pulp, an exquisite object under the microscope. But the real attraction of the south-west of Ireland consists in the variety of its cryptogamic flora. Those accustomed to observe mosses and lichens in England can form no idea of their luxuriance and beauty there. They form so considerable a proportion of the entire vegetation, as to give a peculiar type to the scenery, obvious even to the uneducated eye. Many rare species will be met with on banks and walls. The trunks of trees are often hidden beneath an eruption of strange forms—crustaceous and

frondose lichens—great purple patches of *Frullania*, and other *Hepaticæ*, and a variety of mosses.

On young oaks, growing with *Orthotrichum Drummondii*, *O. crispum*, *O. phyllanthum*, &c., I was fortunate enough to secure a supply of a new species, *Ulota calvescens*, with the calyptra almost smooth. It was first collected by my friend Mr D. Moore, but the specimens were immature, and both Mr Wilson and M. Schimper passed it over as a form of *O. crispum*.

On leaving the roadside we are at once shut out by the foliage from the external world, and only catch an occasional glimpse of the lakes from some ledge of rock. Ascending over rocks literally paved with cryptogams, new and unaccustomed forms continually meet the eye of the botanist—*Hypnum micans*, *H. demissum*, and *H. eugyrium*, and a crowd of hepaticæ, and lichens. Thus he passes on in a whirl of wonder and excitement, until the shades of evening warn him to return. The only drawbacks are the heat of these close coverts, and the swarms of gnats which assault all who invade their humid domains. This plenitude of cryptogamia seems due, less to the equability of the climate, than its extreme humidity. The warm air, laden with the vapours of the Gulf-stream, meets its first barrier in the mountains of Kerry. On looking at a physical atlas, it will be seen that the zone of greatest moisture passes through the south-west of Ireland, then crossing the Channel, intersects a portion of Devon and Cornwall. In connection with this fact, we may state that many of the rarer Irish cryptogams reappear again in Cornwall—viz., *Dumortiera* (*Marchantia*) *irrigua*, *Blyttia hibernica*, *Phragmicoma Mackaii*, *Lejeunia minutissima*, *L. calyptrifolia*, *Frullania fragilifolia*, and such mosses as *Hookeria late-virens*, *Campylopus polytrichoides*, and *Bartramia rigida*.

Although I devoted six weeks to Killarney, so thoroughly has the district been examined, that I met with few novelties. My investigations will rather tend to reduce the number of species adopted by Dr Taylor, and others. The finding new species in our day must be a rare circumstance; but every botanist may add something to the common stock of knowledge, by finding new stations, and by testing the permanency of specific forms, and the limits of variation.

Dr Douglas MacLagan stated to the meeting that, in examining the ovaries of *Richardia æthiopica*, he found them to contain abundance of acicular crystals or raphides, and starch granules,—the former being 1-1000th of an inch in length, and the latter 1-6000th of an inch in breadth. By chemical analysis he ascertained the crystals to be composed of oxalate of lime and not phosphate of lime.

Professor Balfour announced that General Grey had transmitted to the Museum at the Botanic Garden, by command of the Queen, a collection of Scotch Alpine flowers, modelled in wax. The flowers are some of those found in the neighbourhood of Balmoral, and they have been modelled by Miss Matheson of Aberdeen. Their names are as follow:—*Calluna vulgaris*, common heather or ling; *Erica cinerea*, fine-leaved bell heath; *Erica Tetralix*, cross-leaved bell heath; *Vaccinium Myrtillus*, bilberry or blaeberry; *Vaccinium Vitis-Idæa*, red whortleberry, flower and fruit, the fruit of this plant is usually called cranberry in the Highlands; *Arctostaphylos Uva-ursi*, red bearberry; *Empetrum nigrum*, black crowberry; *Rosa canina*, dog rose; *Rubus cæsius*, dewberry; *Potentilla reptans*, creeping cinquefoil; *Campanula rotundifolia*, round-leaved harebell; *Bellis perennis*, common daisy. The flowers are neatly arranged on a small rockwork of granite, which is raised on an oval pedestal of imitation granite. The whole is covered by a bell-jar, and the date is marked "June 1862."

Dr Greville exhibited roots of New Holland acacias which emitted a strong garlic odour. He stated that while repotting a number of these plants he found the same strong garlic smell to be given off by twenty different species.

William A. Stables, Esq., sent specimens of *Pinguicula alpina*, from the Black Isle, Ross-shire, accompanied by the following note:—"I was lately in the vicinity of the habitat of *Pinguicula alpina*, and send you herewith a few dried specimens. I have sent a few roots at the same time to the Botanic Garden. The station is woefully encroached upon by the plough, a very small corner of it indeed being left. One outlying portion of the habitat, and the first I came to, afforded no specimens at all—the marsh being converted into square fields, on which large bullocks were grazing. The progress of improvement along the 'Millbu' is very great, and will, I fear, soon remove *P. alpina* from the list of British plants."

A letter was read from Mr John Sim, in which he mentioned that he had found *Claytonia alsinoides* in great abundance, along with *Asperula taurina*, *Symphytum officinale*, *Valeriana pyrenaica*, *Doronicum plantagineum*, &c., by the side of a small stream in the woods of Murrayshall, about three miles east of Perth. On Moncrieffe Hill, near Bridge of Earn, he had also met with the following plants:—*Asperula taurina*, *Doronicum pardalianches*, *D. plantaginea*, *Anchusa sempervirens*, *Allium scorodoprasum*, and *Scrophularia vernalis*.

The following note from John Anderson, Esq., Perth, was read:—"I enclose a very singular shoot from the plant known as *Taxus japonica* or *Cephalotaxus Koriana*, which proves it not to be a distinct species as described, but a sub-variety of *Cephalotaxus drupacea*, or Fortune's female variety."

Lieutenant William Jardine, of H.M.S. Nile, sent specimens of foliage, fruit, and wood of the Bermuda cedar (*Juniperus bermudiana*), from Bermuda.

W. Marshall, Esq., sent specimens of *Matthiola incana* from the Isle of Wight.

Mr John Scott presented a series of specimens illustrating the formation of the fertile fronds of *Anemia* and *Anemidictyon*.

Mr James G. Reid presented fruit of *Mesembryanthemum edule*, called Hottentot's Fig.

Mr Gorrie exhibited the following plants from New Zealand in flower:—*Hydrocotyle heteromeria*, DC; *Epilobium nummularifolium*, Cunn.; and varieties *pedunculare* and *brevipes*; *E. glabellum*, Forst.; *E. pubens*, A. Rich.

10th July 1862.—Professor BALFOUR, V.P., in the Chair.

The following candidates were duly elected members of the Society:—

As Resident Fellow.
JOHN BERRYMAN, M.D.

As Associate.
MR JOHN SCOTT.

The following donations to the Society's Library were laid on the table:—

Proceedings of the Royal Horticultural Society, Vol. II. No. 7.
—From the Society.