

Liverworts, Lichens, Mosses, and Evergreen Ferns in the Wild Garden, ca. 1914

Nature study is an all-the-year round pursuit. Several birds, among them the snow bunting and the evening grosbeak, sporting a yellow vest, are with us only in the winter. Lichens, also, are then potent to charm, when the attention is not diverted by the more spectacular features of other seasons. Some tree trunks are gardens in miniature, when encrusted by these symbionts of fungus and imprisoned alga, forming yellow patches, or ashy gray, or grayish green rosettes, pitted here and there with dark brown fruit-disks. The tamarack boughs are bearded with gray *Usnea*; and, when the snow melts away, ground species of *Cladonia*, allied to "reindeer moss," can be seen, with tiny branches tipped with vivid red or studded with pale green goblets. Rock lichens, however, must be sought for elsewhere, as the wild garden does not provide for them either ledges or boulders.

As the snow disappears, and before Mother Nature's spinning wheels whirl rapidly and her looms turn out a new carpet for the earth, a glance can be given to the mosses. A love for these tiny plants will surely awaken, if your "eyes were made for seeing," and a keener zest will be given to your out-of-door life. They are gregarious for the most part and everywhere present - by the roadside, on damp roofs and stones, as well as in the forest. Although it is especially true of mosses that "By their fruits ye shall know them," several genera can be readily determined by their leaves.

The fruit, or spore case, is usually a little urn-shaped body borne on a slender stalk. Some species fruit early. I have seen before March was half over, *Bartramia* [*Bartramia pomiformis*], the "apple moss." [photo right] a mass of little globes - Rhode Island greenings, one might pronounce them - which turn a rich brown when mature.



Apple Moss, *Bartramia pomiformis*. Photo Michael Lüth, Wisconsin Flora.

Sphagnum [*Sphagnum angustifolium*], or bog moss [photo below], may be recognized by its



pale green color and the compact bunches of minute leaves terminating the stems. Its paleness is due to large water cells which make this plant of great value to florists for packing plants for distant transportation. We are also indebted to sphagnum for peat, which in the course of ages has been formed from it by reason of antiseptic properties that render it immune from decay. Among other abundant mosses of the swamp are *Thuidium*, the fern-moss, with branches so finely divided that it resembles filmy lace; *Leucobryum*, nearly white in color, in dense mounds around the stumps.

Bryum proliferum [*Rhodobryum roseum*], with its leaves arranged in rosettes that have been likened to green roses; *Mnium*, attracting attention by its trailing stems and leaves of lucid green, small indeed, but larger than the leaves of most mosses; *Timmalea*, a rarer moss, resembling *Mnium*, but with a persistent little bristle projecting from the base of the fruit; *Climacium*, or tree moss, that might pass for an evergreen tree in a dwarf garden.



Polytrichum, Photo Michael Lüth, Wisconsin Flora

On the “Plateau” may be seen clumps of *Polytrichum* [photo right], a comparatively tall moss, with brownish, somewhat rigid leaves. Large masses of this moss bear rosettes which shelter sperm that will fertilize the ova enclosed in apparent buds tipping other masses of the same species. The “buds” will finally develop into conspicuous fruits with shaggy caps of pale tan, aptly named “pigeon wheat.”

In evolutionary order, liverworts should be mentioned before mosses. A few of them somewhat resemble in form their allies, the mosses; but the most common species in the garden are like branching green leaves coating the ground.

The fruit of *Conocephalum*, the giant liverwort, is borne on small toadstool-like growths, and the sperm on other individuals, in sessile disks. Liverworts “invented” the so-called breathing pores, or stomates [that may be seen] with the naked eye, looking like pin pricks in the center of the diamond-shaped divisions into which the surface of the plant is divided. The stomates of mosses, by the way, are found only on the fruit capsules.



Liverwort of many forms, *Marchantia polymorpha*.
Photo Michael Lüth, Wisconsin Flora

Marchantia polymorpha - liverwort of many forms [photo left], as the name implies - seems to the novice to be three distinct species. The vegetative form displays exquisitely fashioned green nests lined with tiny green eggs - not eggs, really, but what answers to bulblets in higher plants. On another individual, little stalked disks with scalloped margins carry the sperm, while a third form develops the fruit on the under surface of little, deeply fringed umbrellas. As these points are observed, one more character of liverworts will probably be noted - the cloying sweet odor.

Evergreen ferns make the woods attractive when other vegetation is brown and shriveled. They refresh eyes half blinded by reflection from the snow and serve to “keep in memory green” the delights of the growing season. Two species frequent tamarack bogs: The Spinulose shield fern, [*Dryopteris carthusiana*] whose dissected fronds have all the grace and delicacy of the well known Lady fern’s, and the crested shield fern that shows marked individuality in its deeply etched venation.

The Christmas fern [*Polystichum acrostichoides*] [photo right], so common farther east, but here an introduced species, takes kindly to the bog as well as to the rich black soil of the wooded slopes. It is sometimes mistaken for a short leaved variety of the cultivated Boston fern, but a comparison of the fruit dots on the backs of fronds will show the difference.



Also, on the same hillslope, have been naturalized the prostate, glossy holly fern, *Polystichum braunii*, the marginal shield fern [photo left], *Aspidium marginale* [*Dryopteris marginalis*] which can be especially recommended as one never wearying in well-doing. For its cheerful, blue-green fronds persist each year until the new annual growth is well-developed. The rock fern, common Polypody, that elsewhere mats the sides of overhanging bluffs, has been bribed to take root in the garden by a diet of ground rock and a bed of sunken stones.