

WINTER BOTANY.

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Not every winter is so favorable for winter botany as this one has been. Every winter, however, brings a few warm days with bare ground, when one cannot resist a tramp afield.

Did you ever hear a teacher complain against the lack of botanical material during the winter season? Ask that teacher how many evergreen shrubs she knows. Winter botany need not end with the study of trees. Winter has one advantage over summer for field study. In summer, one finds such an abundance of vegetation that one may possibly view even the naming of the common plants as a bewildering problem. In winter, the number is so much smaller that one may undertake identification work with more confidence.

Though the mere naming of all plants one finds is not botany, yet it is an important step towards further acquaintance with these plants. Take, for instance, some of our trailing evergreens. The Mayflower is well known. Comparatively few, however, can recognize by their leaves the Twin Flower, Partridge Berry (also called Snake Berry), and the Creeping Snow Berry. The last bears small white, sweet berries in August, and is often called Tea Berry. This name, however, is oftener applied to the red Wintergreen or Checkerberry. The leaves of the Speedwell are frequently confused with those of the Twin Flower. The spike of fruits is sufficient, however, to distinguish it in winter. Moreover, the Twin Flower likes the shade of trees; and the Speedwell prefers the open field. The Upland Cranberry (whose fruit is sold as Foxberry) may be confused with the Partridge Berry. So does the Bog Cranberry somewhat resemble the Creeping Snow Berry.

The foregoing plants, which are extremely common, are worth observing in winter. If one be doubtful of the identification, visit the same spot next summer when the plant is in flower or fruit. All doubts can be settled then. It would be wise to watch these plants throughout the spring to learn their date of blooming, the kind of blossom, the length of blooming period, the date their fruit ripens; and to study any ecological subject these blossoms or fruits may suggest. For example, why are the petals of Partridge Berry so woolly? How does the fruit get its two "eyes"? Have all these plants solved the problem of pollination in the same

way? Do they always bear leaves of the same smoothness or greenness? Why?

These questions cannot all be answered in winter. But if we get acquainted with these plants in winter, when other vegetation is out of the way, we shall know where to look for them during the spring and summer. Thus, part of the coming summer's work can well be disposed of now.

The Wintergreen is another well known evergreen. When does it bloom? When does its fruit mature? Have you noticed its half-grown berries in winter? Do you know any other shrub which blooms in autumn and matures its fruit the following spring?

Other small evergreens worthy of note are the Gold Thread, Pyrola, Silver Cinquefoil, Strawberry, Daisy, Buttercup, etc., to say nothing of the mosses, club-mosses and ferns.

Among slightly larger shrubs, one could study the Leather Leaf, Labrador Tea and Lambkill with profit. Compare the winter behavior of these plants in open places and in woods. I have noticed, for instance, that the Labrador Tea is an evergreen in sheltered woods; but it sheds its leaves in the open field. Have others noticed this? May we accept it then, as a general fact?

From this, may we infer that there is a sharp division line between evergreen and deciduous plants? Would not Labrador Tea be on the border line? What else is near the border? Compare the winter color of Lambkill leaves in the open fields with those in the woods. Which, therefore, is the more strictly orthodox evergreen, Lambkill or a Pine Tree?

Could it be possible that the evergreen habit is largely a matter of geography? If, in the same locality there is a difference between woodland and field specimens of the same species, might there not be greater differences in different countries? Maple trees, which hold their leaves five months here, retain them nine or ten months in the southern middle states.

Would not these few winter observations be worth following farther? How long do various trees and shrubs hold their leaves in this country? We know an ash tree keeps its leaves slightly over four months; a maple about five months; and a beech often considerably longer—though they do not remain green. Lambkill keeps its leaves about thirteen months; white pine two years; and fir five or six years. Won't some reader find out about other trees?