

Roadside Botany for September.

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Every roadside fence now affords a lodging place for a mass of Golden-rods, Asters, Tansy, Thistles, Raspberries, Hay-scented Ferns, and other plants of the same society. What do they offer of interest to the boys and girls on the way to school? How many kinds of Golden-rod and Aster can we find by the wayside? Even though we do not know their specific names, we may count them.

Would it not be a good exercise to have the children bring a list of all the plants they know between their home and the school? Have them also bring a specimen of every kind they cannot name. A good-natured contest among pupils would lend ardor to the exercise.

The Thistle and some of the larger Asters furnish good illustrations of two sub-divisions of the Composite Family. Children of the upper grades will have probably discovered earlier that the Dandelion head was a cluster of flowers. Here, again, are clusters somewhat on the same plan. Does the Aster or the Thistle more closely resemble the Dandelion? The child may discover that the central florets of the Aster are much like the thistle-florets; and the outside (ray) florets, like those of the Dandelion. In a way, therefore, it is midway between them. Now, classify all composite flowers into (1) the Dandelion group (all florets flat); (2) Thistle group (all florets tubular), and (3) Aster group (outside florets flat and central ones tubular). To which does the Golden-rod belong?

Notice how well fitted these plants are for scattering their seeds. Which could be blown about most easily?

Do you see any insects visiting these flowers? What is their reward? Does the plant benefit by this? How? (Here is a chance to teach a lesson on cross-pollination; and to start the children toward observing plant and insect relations.)

Each individual flower is very small. Is there any advantage therefore, in their being grouped in large clusters? Here, again, Nature accomplishes the same purposes in different ways. In some plants insects are attracted by large, single flowers; in others, by small, clustered ones. Have the children notice a dozen examples of each.

Besides the flowers, the leaves call for investigation. Why are the leaves of the Thistle spiny? What part is modified to form the spine? What

part is modified to form the sharp hooks on the Burdock? Is the modification for the same purpose?

In what other ways do plants protect themselves against hungry animals, besides spiny leaves? Examine the stems of barberry, thorn, rose, raspberry, rushes, etc. (Rushes and ferns have no thorns or briars; but they have tough, woody stems.)

Our roadside flora is rich in raspberries. Why do they grow along fences? There are several reasons. Cultivation keeps them out of fields. Absence of light prevents their growth in woods. Therefore, a neglected spot with good light is a favorable locality. But possibly more important is the fact that birds perch on the fence to eat berries they have carried from elsewhere; and, consequently, the seeds are dropped there in abundance.

Are you acquainted with the hay-scented fern that grows abundantly by every fence and stone-pile? Or do all ferns look alike to you? If so, begin on this one, which you can identify by its location. You will find it described in the text-books under the name *Dicksonia punctilobula*. Notice the very small spore-dots on the under side of the frond. Compare these with the dots on other ferns; and, thereby, learn how greatly they differ. Growing with these, you may find small clumps of the Cinnamon Fern; but it has no spores on its green leaves. Or you may find the Lady Fern (*Asplenium Filix-foemina*), which has crescent-shaped fruit-dots.

The foregoing plants are abundant along fences in the open country. Possibly someone is more familiar with a bit of woodland bordering the roadside. If so, the flora will be very different. The opportunity then presents itself to compare plants growing in shade with those in sunshine. If flowering plants cannot survive, their place will be taken by mosses and club mosses. The trees and shrubs along the roadside are also worthy of attention. Notice the scanty vegetation beneath trees, where light is excluded.

If the ground is somewhat sandy, vegetation will be different from that on a clay soil. It will be profitable for the children to associate certain plants with certain kinds of soil. Intelligent farmers often judge the fertility or physical condition of a piece of land by the wild plants that grow on it. They are thereby enabled, sometimes, to decide whether a certain rough piece of land is worth