

the pod and is not the remains of the calyx, as in the thistle and dandelion. The fruit of the maples, the elms and the ash has a wing-like out-growth. This out-growth has different forms in the three classes of plants mentioned, but it serves the same purpose in them all. The resistance of the air on these wings is so great as to materially increase their time of falling and thus afford an opportunity for the wind to carry them a greater distance before they reach the ground. In the case of the maple the fruit, on account of the peculiar form of the wing-like attachments, falls with a whirling motion which carries it some distance from the parent tree, even in the entire absence of wind. The fruits of the elm, ash and maple differ, but the wings attached to the seed serve the same purpose in all. The fruit of the basswood is also provided with an appendage which offers a resistance to the wind. In this tree the fruit grows in cymose, clusters to the common peduncle, to which is attached a brace of considerable size. This is the appendage referred to above and there is little doubt but it serves to assist in distributing the seeds. The inflated pod of the American bladder nut with its enclosed seeds, is a good example of a fruit which is carried from place to place by the wind rolling it along the ground.

There is a second class of plants which depend on passing bodies for the transportation of their seeds. Of this class the first that demands our attention is the burdock. The involucre which surrounds and encloses the seeds, consists of a great number of scales each of which is provided at its extremity with a small hook which serves to fasten it to the covering of passing animals. The carpel in the bidens is provided with two sharp pointed awns covered with barbs directed towards the base

of the awn, so that when once the seeds have fastened themselves to any passing object the barbs prevent them readily falling out.

The legume of the desmodium is jointed, and covered with numerous fine bristles, which serve the same purpose as the hooks in the burdock or the barbs in the bidens. The pod easily breaks into sections, and each section adheres independently to passing objects. In the cynoglossum and the echinospermum the nutlets are either partially or wholly covered with bristles so that they readily adhere to the rough coats of passing animals.

The fruit of a number of the galiums is a small globular body thickly covered with hooked prickles. These prickles are not large but they are so numerous that the fruit appears to be covered with a fine down. Numerous other examples of plants of both classes will be readily found, but these are sufficient to indicate to the beginner what to look for in connection with his study of this subject.

The movements of bodies of water, also perform an important function in the distribution of seeds. So also do the highly-colored and edible fruits of plants serve an important purpose in the same connection.

The pod of *Impatiens*, or shapweed is interesting from the peculiar manner in which it expels its seeds. When the pod has reached maturity, if it be seized by the extremity and pulled off the peduncle the valves burst elastically and the seeds are thus thrown some considerable distance before reaching the ground. The hygroscopic elaters of the spores of the *equisetaceae* are also interesting on account of the part they take in scattering the spores.

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The poorest education that teaches self-control is better than the best that neglects it.—*Sterling*.