

STEMS AND THEIR USES

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During winter time the chief thing to strike us during a country ramble is the bareness of the landscape. Trees and hedges have lost their leaves; herbs have died down. But this very bareness may be put to good account, if we will. We may observe closely many things which we passed by when the world of Nature around us was blooming and beautiful. Among such things are the stems of plants.

And what a number of stems we find! Every plant must possess one, but they are by no means alike. There are the tree trunks, hard, erect and woody; there are creeping stems, which wind in and out among the grasses; climbing stems, which find a way to rise in the world by aerial roots, suckers and tendrils; twining stems which twine around other plants, using them as crutches; scrambling stems, which seem to please themselves about their manner of growth; and there are even underground stems.

The Body of a Plant.—We come to the question, "What is a stem?" Looking at a tree we cannot imagine it as anything without its trunk which is really a stem. Now, the word "trunk" really means a body. Do we not use it ourselves when speaking of the main part of our body? We see, then, that the stem is the body of the plant, uniting all its parts, just as our body unites its members.

What work has the stem to do? First of all, it must bear the branches, leaves, flowers, and fruit of the plant. Sometimes there are no branches, the leaves just growing out of the stem; but, generally speaking, the stem has to hold up to the light the branches and leaves. When it cannot stand alone it uses some other stouter plant or other object as a support.

But to bear the branches and leaves is not the only function of the stem. It also has to form a conducting organ. We know how important are the roots to a plant, but what could the roots do without the stem to carry on the good work of feeding the plant? There are wonderful things to be found out when we study a stem. It contains thousands of tiny pipes or vessels along which liquid can flow, and which remind us of the blood-vessels in our bodies. In fact, when we compare a man with a tree we find many similarities.

The Struggle for the Light.—By making observations we shall find that no plant wants to make a very long stem. A tall plant, or a tall tree, is usually forced to become what it has become. And the secret of growth in plant-land lies largely in the struggle for light.

Look at an oak tree growing in the open field, then find another oak tree growing in a wood with other trees. Which is the taller? Compare the stalks of a dandelion found on the lawn with the stalk of one growing among

high grass. The latter has had to grow tall because of the lack of light which would have been its share had it stayed in a lowly position. Light is necessary to life, so all plants struggle towards it. It is the stem which grows and carries up the branches, leaves and flowers. But we must not think that it is light which makes a stem grow. All things grow more quickly in darkness, but such things are always of weak growth. We shall find growth most marked where there is lack of light, because all things are struggling towards it. We shall also find that the quicker the growth the weaker the plant.

Crutches.—Many plants, on springing into new life in the spring-time, must grow very quickly. Those with woody stems have already a good support, but even some of these use crutches. Many of them are so weak-stemmed that they could not stand alone. When growing wild they make use of neighboring plants and twine and climb, but when we grow such plants in our gardens we provide them with crutches. The gardener puts sticks for the peas and beans, the nasturtiums, and many other plants. Even the rambler roses and the creepers must have their arches, or they could not ramble or creep to give the effect we want.

We see Ivy climbing up a wall, or covering a tree trunk, by means of many tiny climbing roots; the Virginian Creeper uses its suckers; the Sweet Pea puts out many tendrils; the Hop, Honeysuckle, Convolvulus, and Scarlet Runner twine round and round their supports, while the Blackberry scrambles upward by means of its curved prickles. The weaklings of the plant world will lean against, or clutch and cling to, any sturdier plant near which they happen to grow.

Kinds of Stems.—All the many kinds of stems to be found among plants can be divided into groups. First we can separate all kinds of stems that grow in the light from those that grow in the dark, and then we can divide these two great classes. Of the first named we can make five divisions, beginning with climbing stems, such as Ivy and Honeysuckle, and creeping stems like the strawberry.

Our next division includes those stems which grow in an erect position. First, we have the thick, upright woody stems, called trunks—Elm, Oak and Chestnut, for instance. The next division contains such plants as Gorse and Holly, having smaller and more elastic stems, which can be called upright shrubby stems. The fifth section of stems in this class is a large one, including all those soft green herbs or herbaceous plants like the Nettle and Wheat. These are said to have upright herbaceous or upright soft stems.

Of those stems that grow underground in the dark we can make four divisions. These are bulbs, corms,