

YOUNG CANADIAN WILD FLOWER CLUB.

UNDER THE DIRECTION OF VERY YOUNG CANADIANS.

AMONG OUR WILD FLOWERS.

And Nature, the old nurse, took
The child upon her knee,
Saying, "Here is a story book
Thy Father has written for thee"

"Come, wander with me," she said,
"Into regions yet untried,
And read what is still unread
In the manuscripts of God!" —Longfellow

PAPER IV.

In our last paper we described how the germ descended, forming the roots, and gave sketches and descriptions of the different kinds of roots.

We will now describe how the ascending part grows. This is called the Sprout, which afterwards turns into stem, leaves, and flowers. Thus the radicle, which may be called the starting point, extends downwards, forming the root, and upwards, forming the stem, which, after growing a certain distance, different in different plants, sends out a leaf, grows a little, send out one or two more, and up and up it grows and branches, and forms leaves, so that the stem is used to elevate the leaves and flowers into the light and the air. If the plant, in growing above the surface of the earth, has two leaves, and they are all crossed like a net, like the Bean, it is called the *Dicotyledon*. If it comes up in a single spear, and has long lines from end to end on it, like Corn, it is called a *Monocotyledon*. The first pair of leaves form the store of food for the plant, which the roots took in from the soil, and it is carried by the stem up to the leaves and there changed into vegetable matter.

As the little sprout grows up it forces the provisions up with it to the surface, where the little plant, complete, is left to take care of itself.

Like the roots there are a number of different kinds of stems. The Upright growing straight up or almost straight, the Decumbent lying along, as it too weak to stand, the Trailing one that trails its whole length upon the ground, the Creeping one that runs along the ground, and here and there sends down little rootlets, like the Strawberry: the Climbing one which climbs up poles or anything set for it, like the Morning Glory.

The formations of stems are just as different as those of the root and the ways of growing. Some grow in layers from the centre outwards, each layer or ring representing a year's growth, so that in a fallen tree, if you count the number of rings from the bark inwards, you will find the age of the tree. Some have pith in the centre, with a woody tube around it. These are the grown up *Dicotyledons*, and are known by the name of *Exogens*.

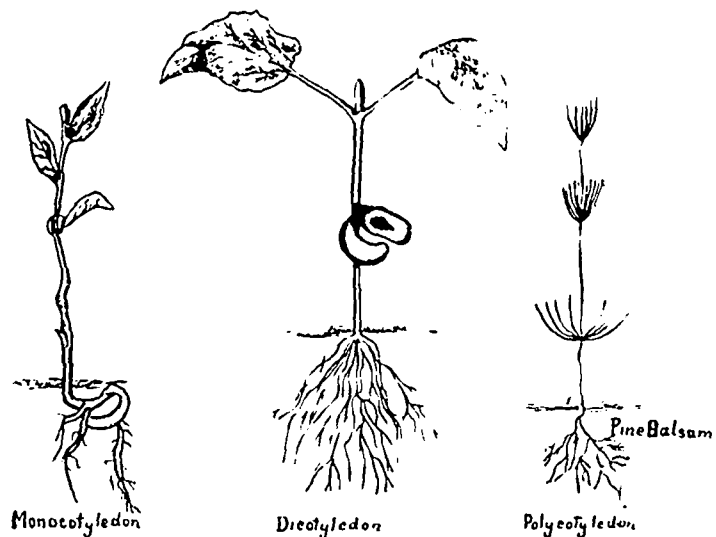
Others have the wood growing in threads, and the spongy substance scattered among them. These are

Monocotyledonous plants, and are known as *Endogens*, as the Blue Flag, Trillium, and the Sugar cane.

Stems also have different shapes, some of which go a long way towards making it easy to find the name of the family to which the plant belongs. For instance, if we pick up a plant with a square stem, we are almost sure it belongs to the Mint family. Stems may be round, square, oval, triangular, grooved (having more or less furrows), flattened nearly round, and looking on one side as if a slice had been cut off the length of it.

Stems have different formations. Some have small holes going through them, as in a piece of cane. Others are hollow tubes like the Bamboo. There is another almost like the Bamboo, but it has a spongy substance called the Pith, like the Elder, in the inside. Others have little cells in them, like the Water Lily. Stems are also hard and solid like the wood of trees.

The Bark is the coat of the tree, and protects it. There is an inside bark, or shirt, which is used in the Flax and Hemp to make linen of. Then the coat has a lining called a Green layer. It is very tender, and is of the same matter as the leaves. This Green layer makes



Cambium, which is a soft matter that the inner bark deposits on the stem, and which becomes the next ring of wood. The work is chiefly done by this Inner bark in the growth of the Stem.

The outside of the coat is called *Cork*, and is of many different shades of colour, and the outside of this corky coat has a thin facing layer called the *Skin* or *Epidermis*. It is the inner layer or shirt that makes the new growth of wood every year. This wood, when new, is called *Sapwood*, on those where the growing is done on the outside. By and by this gets overlaid, and becomes the *Heartwood* and dies.

To repeat: there are two kinds of stems; growing from within, *Monocotyledons*, with *one leaf* sprouting at a time, and this having parallel lines on it; growing from the outside, *Dicotyledons*, with *two leaves* sprouting at a time, which have netted veins.

The Bark has four layers: the Inner, the Green, the Corky, the Epidermis. The Inner bark forms the *Cambium*, which hardens and forms the ring of wood fibre for that year.

W. & O. W.