

some perennials die in the autumn, and these plants store up food for their future use in their roots. Some of these with which you are familiar are the carrot, turnip, beet, parsnip, burdock, blue weed, and dandelion. If you pull up any of these in the fall, you will notice that, just next the stem, they have a large thickened root,

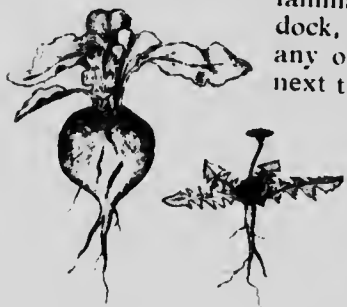


Fig. 8. The roots of the turnip and dandelion.

from which smaller roots branch off. This thickened part of the root is packed full of food to be used by the plant the next spring. Often the farmer takes advantage of such plants and, instead of leaving the roots in the earth for the plant's use next spring, pulls them up in the fall and uses them for himself or for his cattle. Many of you, no doubt, have helped to gather in turnips, carrots, and beets. Some time, when you have a chance, leave a few of

these in the ground and see what becomes of them next summer. Before passing on, I will give you a question to think about. Would you take the same means of destroying biennial and perennial weeds as you would of destroying annual weeds? Some common biennial and perennial weeds are burdock, blue weed, chicory, thistles, plantain, and dandelion.

These, then, are the three uses of roots: 1. To hold the plant in place; 2. To absorb food and water; 3. To act as storehouses of food for the future use of the plant.

Now, there is one thing I must ask you to notice before going any further, and that is, that not all parts of a plant beneath the earth are roots. Some plants have stems growing in the soil; and many people mistake these stems for roots. How many of you, for example, would call the potato a root of the potato plant? It is not, however; and if you will compare a potato with a carrot, which is a true root, you will notice some points in which they differ. You have often noticed the "eyes" of a potato. You will not find any such "eyes" in a carrot. These eyes are buds just the same as, though looking a little different from, the ones you have noticed on the stem and branches of a tree. Besides, if you look very closely, you will find little scale-like leaves just beside the eyes. These, however, soon rub off and you may not be able to see them. And then, if you carefully pull up a potato plant on which the potatoes have begun to form, you will find that the branches on which they are borne are not branches of the root but of the stem, appearing just above, that is, in the axil of a leaf. True roots do not bear these buds or leaves, and they never start in the axil of a leaf. The potato is simply the swollen end of a branch of the stem and is called a tuber. Examine in the same way the Canadian thistle, and couch



Fig. 9. Showing the eyes of a potato.