

DETAILED DESCRIPTION OF PLANTS BY R. B. THOMSON.

As mentioned above I visited Whitewater Lake, near Sudbury, in the latter part of September, 1912, to study the plant food which the Northern lakes afford for ducks and collect specimens for illustration. With the exceptions noted under the figures, all the specimens shown are from Whitewater Lake.

In considering plants as food material it must be recognized that at one season of the year one part of a plant may contain a greater proportion of the food material than at another. For instance, a perennial withdraws its food material from the leaves in the autumn, and stores it in the stem or roots. Again, in the formation of the fruit much of the reserve of food finds its way into this region, the seed usually being packed with starch and other food materials.

DESCRIPTION OF PLANTS.

As a plant that is an important food for deep water ducks all through the season, first place must be given to the form so successfully introduced into Whitewater Lake, the so-called Wild Celery of duck hunters, illustrated in Fig. 1.

This plant (*Vallisneria spiralis*) is known by several other common names, Tape-grass, Eel-grass, etc. It is a submerged aquatic plant with long grass-like leaves about a half-inch wide and from a foot to a foot and a half in length. These leaves have three rather distinct veins running from the base to the tip, and here and there some transverse ones, which, no doubt, are responsible for the name Tape-grass, which is most frequently applied to the plant. These leaves all come from a very short stem, just as in the ordinary celery of the garden, with which, however, the plant has no botanical relationship, the whiteness of the leaves at their base and their crispness having, no doubt, given rise to the name wild celery. The roots of the plant are attached in a great bunch (see Fig.) just below the crown, from which the leaves come off. Their fibres penetrate the loose mud or sand at the bottom of the still water where this plant thrives.

Vallisneria has two very efficient methods of propagation. Runners (see Fig.) come from these plants in numbers, and from these a series of young plants arise. I have found five on one runner in a specimen from Whitewater Lake, though the one figured has but two attached to it. Just as in the strawberry, these young plants are smaller the farther they are from the mother plant. Their leaves are very crisp and delicate and form a valuable food for the ducks.

The plant is propagated by seed also. About the middle of August a long thread comes to the surface bearing the minute white flowers at the apex. One plant (the male) produces only pollen-bearing flowers, which will form no seed, while another plant has flowers which will bear the seed if they have been fertilized by the pollen from the other plant. The male flower usually breaks away from its anchoring thread and floats around among the female flowers, setting free its masses of pollen on the surface of the water. This reaches the female flower and fertilizes it, after which seed sets in the female flower and the male disorganizes. In most plants the pollen is carried by the wind or insects, but in the case of *Vallisneria* the pollen floats on the water from the one flower to the other. About the middle of September the thread supporting the female flower begins to coil into a loose spiral (from which the plant derives its scientific name) and the seed pod is drawn down from the surface. At this time of year the pod is usually about 2-3 inches in length and full of a jelly-like substance in which are incased the host of yellowish immature seeds. By October the pods have become 3 to 5 inches in length and very