

ing how easily we could grow the roots to perfection in Canada, I felt very anxious to see the establishment of such factories in my own country, and visited many places with that view, and at last came to the conclusion that we could not manufacture to advantage, however well we could grow the beet, and for this simple reason: the time was too short between the maturity of the root and the severe winter, in fact only a few weeks at most available for the purpose, while in France the winter is so mild that the roots can be preserved almost without any covering, while here they would require to be covered so carefully to protect them from our severe frost that they would heat and rot, unless proper cellars were provided for their safety; and then they would have to be very extensive, so as to prevent too large masses being thrown together, and on many days during the severe frost they could hardly be carted from the cellar to the factory without freezing, which would materially injure them for sugar-making.

Many in the country will remember the celebrated humbug, Dr. Napheg, and his sugar-beet establishment at Paris, U. C., and how he fooled and cheated many worthy people by his lectures and samples.

DENIZEN.

### The White Willow for Fences.

I have seen the white willow growing in many places in this State and the West, and wish to say something regarding its value for fencing. Those who pronounce it a humbug are generally of that class of men who expect nearly all kinds of shrubbery and fruit trees to grow vigorously and do well with little or no culture or pruning. Such men should not plant the willow, or any kind of hedge plant, expecting to make a good fence. I speak advisedly and positively when I say the white willow is *not* a humbug.

It is suited to making stockades or tree fences, but is unfit for hedges. But very few of those who try it succeed in making a good fence—perhaps not more than one in twenty. Want of care is the great trouble. It is often neglected for want of knowledge as to its management and not getting it started rightly. I will give a few directions for making a fence or stockade with the white willow:

Plant your cuttings in nursery rows, and cultivate them as well as you would so many rows of cabbage. After one season's growth take them up and plant them on the fence line, where they are to remain, taking particular care to have them stand perfectly upright or perpendicular, leaning neither to the right or left. In nearly all cases where the cuttings are planted on the fence line, at first the young shoots diverge in many ways from a perpendicular, and it is very difficult to make them grow straight up as they should. Hence they should be set in nursery rows one season, and then when replanted on the permanent fence line they can be set so as to avoid thus diverging, in various ways, from the proper upright position so necessary to make a decent-looking tree fence. They should be well cultivated with a horse-hoe on both sides of the row for two years at least after being set on the fence line; with as much care as a farmer would give to a row of corn. All the lower limbs should be carefully trimmed off twice during the season and the young plants encouraged to run up tall and straight, and no browsing from cattle or horses allowed. In this way good durable fences can be made, which will, in a few years, be quite a screen or shelter from the winter winds.

To make a fancy or ornamental tree fence and windbreak—set evergreens; Norway spruce, red cedar, white pine, are among the best, and white willow. Set about three evergreens, then a white willow, and so on alternating. Keep the willows trimmed up high so as not to interfere with the evergreens, and they will fill the entire space below, while the willows will shoot up much higher, their trunks being but little in the way of the evergreens. This style of fence, if well cared for, would, in a few years, be an ornament to any plantation.—*Cor Country Gentleman.*

**SALT AND ASHES AS A MANURE.**—A Georgia farmer writes the *Southern Cultivator* concerning two experiments made by him with salt and ashes mixed as manure for corn land. The salt used was the dirty article which fell from bacon while being stored in a warehouse, and mixed with leached ashes. About eight bushels of this mixture were sown broadcast upon an acre, with most marked and flattering results. The yield of corn per acre on the ground thus fertilized was very much greater than on that not thus prepared, paying the cost of the preparation many times over.

**UNFERMENTED MANURE.**—Many excellent farmers have an idea that manure to be most efficient in raising crops should be well-rotted; but this is a mistake. Manure loses a very heavy per centage of its real value by decomposition. Fresh manure, dripping with animal urine, and hauled directly from the stable on to the land, ploughed under, is worth nearly double that which has decomposed to a saponaceous consistence. When it is convenient for farmers to haul their manure on corn-ground from the stable as fast as it is made, it saves handling it twice, and forwards the work in busy spring time. No fears need be entertained that the atmosphere will carry off the strength of the manure if left on the surface. The only danger to be apprehended by this method will be in case of the ground being frozen and covered with snow or ice when the manure is applied; if upon sloping land, the virtue of the manure might wash away; but on level land there is no exception to this plan of operation during the entire fall and winter season.—*Germanstown Telegraph.*

### Entomology.

#### Insects Injurious to the Turnip Crops.

The cultivation of the turnip as a field-crop has of late years increased to so great an extent, and the value of the root as a winter food for stock is becoming so generally acknowledged and appreciated, that any information respecting its culture, its natural history, its economy, and its insect enemies, must be of importance. In this department of THE CANADA FARMER, we shall, of course, confine ourselves to the discussion of the last mentioned particular—the insect enemies of the turnip, and their remedies.

There are few plants whose foes of this description are so numerous as those of the turnip. The late Mr. Curtis, whose writings on insects in relation to agriculture have proved of so much value in England, enumerates nearly forty species of insects, besides slugs and snails, which to some extent and on some occasions prove injurious to turnip crops. A writer in the *Popular Science Review* (January, 1866) draws a gloomy picture indeed of the work of these depredators, and were it not that he afterwards tells us how these foes are kept in check by various birds and insect parasites, we should be inclined to think that the English turnip growers would be driven to utter despair. "The ants," he says, "run off with the seed as soon as it is sown; that which is spared by the ants is attacked the moment the tender leaves appear above the surface, by one of the most formidable, albeit diminutive, enemies of all—namely, the little flea-beetle, popularly known throughout England as "the fly." Should the crop weather this storm, another blasting influence occasionally attacks it, in the shape of the "nigger" caterpillars of the turnip saw-fly, and the larvæ of the white butterflies; these soon make skeletons of the leaves, and defile them by their excrements. Beneath the cuticles of the leaves the larvæ of different kinds of two-winged flies excavate their winding tunnels; other dipterous larvæ riddle the turnip bulbs with innumerable mines, while the smother-fly, in two or three of its species (*Aphis*), entirely destroys the leaves. Fat grubs—bad luck to them!—the larvæ of certain moths, bite off the young root and sever it from the green portion; wire-worms,—i. e., the larvæ of various click-beetles (*Elateridæ*), centipedes, and weevil beetles, must be added to the long catalogue of turnip enemies. When we reflect on this formidable list of destructive agents in the form of insects, and add to it various fungi, it would seem almost to be a matter of wonder that turnips ever come to perfection at all in this country."

Such are the various kinds of depredators that the turnip crops of the English farmers are exposed to; let us now consider whether we have to encounter any similar attacks in this country. To take them in the order of the writer we have quoted:—First come the ants to run off with the newly-sown seed. Of these insects we have many species in Canada,

which may be found in infinite numbers in our gardens, and fields and forests, and some of them far surpass in size and strength any that inhabit the British Isles: their depredations, however, on the particular crop we are considering, have never, that we are aware, been noticed in this country.

Next, the flea-beetle, or "the fly," as it is commonly called. This little pest is, unfortunately, but too well known among us, though its ravages here cannot be compared with what it often commits in the "old country." Our species (*Ialtica striolata*, Fabr.), which differs slightly from its congener on the other side of the Atlantic, is a tiny little black beetle, with a wavy yellowish stripe down each wing-cover; it is rather less in length than a tenth of an inch, but though so small, it can leap to a comparatively enormous distance. It begins its work of destruction in the larva state by burrowing into the soft pulpy substance of the young leaves, and making winding passages under the outer skin: and then, when it becomes a beetle, it completes the mischief by eating holes through and through the leaves, especially the first pair that come up from the seed. A great number of remedies have been proposed from time to time in order to get rid of these pests; probably the best plan is to have, first of all, good, clean seed, free from charlock, of which this insect is especially fond, and then strive to produce as rapid a growth as possible by selecting new seed, steeping it before sowing, and putting it in the ground when there is a prospect of showery weather.

The next insect on the list is "the nigger" caterpillar of the turnip saw-fly (*Athalia centifolia*, Albin). An insect identical with, or very similar to this, has made its appearance in Canada west, as recorded in THE CANADA FARMER for Oct. 16, 1865 (vol. II, page 311), to which we must refer our readers for more detailed descriptions and information. One of the English white butterflies (*Pieris rapæ*) whose caterpillars feed upon the leaves of turnips and similar plants, about four years ago migrated to this side of the Atlantic, and has since been frequently captured in the neighbourhood of Quebec; its chief food, however, is the cabbage. In addition to this new-comer, we have an indigenous butterfly of the same genus (*Pieris oleracea*, Harris), whose pale green caterpillars have long been known for their habit of eating irregular holes in the leaves of turnips, cabbages and other cruciferous plants. The best remedy against these and many similar insects is the protection and encouragement of small birds—the farmer's true friends.

The foregoing insects, together with the plant-lice (*Aphides*) all attack the leaves of the turnip. We now come to a still more insidious class of enemies, those, namely, that make depredations upon the root. And here again we have something to correspond to those mentioned as found in England. Most people have noticed little white maggots in the roots of radishes; a similar kind may often be found in turnips, riddling the bulbs with their mines, and causing them to rot prematurely and become unfit for use. These maggots turn after a time into two-winged flies, which (according to Dr. Harris) strikingly resemble the *Athomyia canicularis* of Europe—the same genus of flies as those referred to by the writer in the *Popular Science Review*. Wire-worms, so called from their slenderness and unusual hardness, which prey upon roots during, it is said, four or five successive seasons, and then turn into the well-known spring-back or click beetles (*Elateridæ*), are by no means uncommon in this country. And even more destructive than these, are the horrid, fat, greasy-looking caterpillars called cutworms, from their disagreeable practice of cutting off the tops of young plants just at the surface of the earth; with these we are all, probably, but too familiar. The dull-coloured moths (*Agrotis*), into which they turn, may be taken in abundance on almost any summer night. These complete the long catalogue of insect ills which turnips are heir to; when we recount them all, we are inclined to wonder that there are over any left for the food of ourselves or our cattle; but Providence mercifully keeps them in check in various ways, so that we seldom find that they assail us in any great numbers at a time, though occasionally they appear to be let loose for destruction.