

this pest. The cane has all the appearance of being slashed, and under the ridges between the slashings will be found a small borer. The body is slim, yellow, approaching to white, composed of a chain of bead-like sections, with the anterior ones considerably flattened, adapting it greatly to carry out its depredations. It bores through the cane into the sap, lives there, traversing up and down the cane to secure abundance of sap-food. The head is brown, jaws black, and the whole body is about three-fourths of an inch long. In May the larvæ reach the pit core, there undergo their change, and early in summer the beetle appears. She deposits her eggs in July, and thus this circle of destruction is continually kept up.

One, and only one, effectual remedy is at the disposal of the fruit-culturist, and that is to cut out the affected canes and commit them to the flames. Too great care cannot be observed when trimming the vines in the spring to see that all the affected stems are eliminated.

The raspberry cane-borer is another potent enemy of this culture. The beetle is half an inch long, long-horned, slim black body, the thorax and breast pale yellow. They first appear in June, and after pairing the canes with a double circle about an inch and a half apart. Between the girdled circles the cane is punctured, an egg deposited, and hatched in a few days. The wound causes the cane to droop, and as they begin their destructive work and continue it throughout the most of July, the estimated damage is not easily realized. A free use of pruning shears is the only effectual remedy, topping the cane, so that the part operated on by the beetle is completely destroyed.

THE RASPBERRY SAW-FLY.

This is a four-winged fly, and appears in its winged state about the end or middle of May. This insect has dark metallic wings, the body is dark and the abdomen dull red. She deposits her eggs beneath the skin of the leaf by means of a saw-like apparatus, and in due time the young larvæ appear, and when full grown are over half an inch. They penetrate the ground and construct for their young little oval earthy cocoons, in which they remain until the following spring.

THE STRAWBERRY LEAF-ROLLER.

They are thus named from rolling up leaves with their webs to form a tent for protection. Ingeniously enough they provide for being disturbed by securing an opening at the open of the folded leaves, through which they descend to the ground by means of a self-made thread. Their larvæ attain their full size at the end of May or beginning of June, then line the twisted leaf in which they live with their web, and undergo their change. After the lapse of a few weeks, they make their egress in the form of a perfect moth. The effectual remedy is to crush the leaf with clippers in the shape of butter prints from the middle to the end of June. There is no need to make examination of the death of the chrysalid, being satisfied that the chrysalids have not escaped in the moths; a slight squeeze completely destroys the inhabitant.

THE RASPBERRY NEGRO BUG.

In eating raspberries we are sometimes disgusted with a disagreeable *buggy* odor. The insect that causes this uninviting flavor is black, with a white stripe on each side. He is a compact, *dutchy* fellow, seldom seen until it is too late to give him a wide berth. A sucker of rather singular construction enables him to first pierce and then suck the juices from the fruit. June and July are the seasons favored with the countless increase of these noxious pests. We have never heard of any effectual plan of lessening these pestilential fellows. They are not very fastidious in their likings, attacking not only the valuable and cultivated varieties of raspberries, but also the wild sorts, and they luxuriate on other plants of a less profitable nature, such as Pruslane, Speedwell and the like.

THE ENEMIES OF THE STRAWBERRY.

The strawberry [false-worm] has been very destructive to the strawberry plants during the past summer. Mr. A. M. Smith, of Drummondville, sent me along on trial some new variety and they completely riddled the leaves, and finally killed three-fourths of the plants. The average length of the larvæ when full grown is about six-tenths of an inch, pale white, greenish skin, semi-transparent and eight pairs of prolegs. These creatures also form cocoons by sticking together small fragments of earth, and in these making their change.

THE BLACK STRAWBERRY BEETLE

is another pest of common occurrence, very active and destructive. The beetle is "about three-twentieths of an inch long, dark body, and wing covers spotted with black, and ornamented with regular rows of punctures which disappear toward the tip." We are not aware that any remedy has been found readily destructive of the insect.

A CUT WORM.

This enemy is a night-worker, and requires careful watching. A patch of Nicanor of mine at Hamilton once nearly disappeared, until I had a visit from the late Mr. Mesten, who unearthed the caterpillar and taught me how to destroy him. In many respects he is not unlike, in his habits, to the cut worm that attacks young cabbage plants newly set out, and nips them off just on a level with the ground, and buries himself in the daytime. He is an inch and a half long, coiled up when at rest, and when jerked from his hiding place rolls along like a perfect ring. The color is dull green, and semi-transparent. They enter the chrysalis state at the end of June, and the moths appear about the middle of August. The only remedy is to search and unearth them in their caterpillar state—a sure guide in the discovery being the leaves of the vine being either partially or wholly cut, and dropping on the ground.

THE INSECTS AFFECTING THE CHERRY.

The greatest enemy the cherry has is the white and black Aphid. They breed in vast numbers under the leaves, which curl, it seems, for their protection. The insect is small, transparent, bright-eyed and long-legged. Its eggs are deposited under the leaves at the end of June and first of July. Their food is the juice of the leaves, and their ravages are often to such an extent that the trees are killed outright.

Having killed one of my cherry trees, after its death they attached themselves to the places where I had pruned and grafted a yellow Bellflower. No remedy is known to me worthy of mention, but that of destroying them by hand, whenever the clusters begin to appear.

THE CHERRY CURCULIO

is most destructive to the fruit. It not unfrequently happens that the caterpillar is found by twos and threes in the same fruit. They render the cherry worthless, and, undestroyed, soon increase to such an extent as frustrates the whole labor of the cultivator.

INSECTS AFFECTING THE PLUM.

The great insect enemy of this fruit is the curculio, a "little Turk," as he has been termed from the crescent-like wounds on the fruit. This beetle is of a deep grey color, approaching to black, about two-tenths of an inch in length. It is in its general contour as like the seed of some of the fine varieties of grapes as it can well be. The formidable instrument which renders him so destructive is his snout or proboscis. With this the beetle pierces the tender skin of the plum, and therein deposits the ova. I have, with the point of my penknife, often removed the egg immediately after the operation, and thus saved the plum.

The insect undergoes transformation in about fifteen or twenty days in the month of June or the beginning of July. The larvæ that go into the earth as late as the 20th of July remain there in the pupa state until next spring.

(To be Continued.)

Raw and Cooked Roots.

Dr. E. Wolff, a German chemist, reports the following experiments in feeding roots to cattle. Two cows were experimented on, which together weighed 1,650 pounds. They received daily, during the whole time, 8½ lbs. of hay, 31 lbs. of oat straw, 4½ lbs. of rape-seed cake, 4½ lbs. of lentil straw, and the roots mentioned in the following table, which also gives the weight of butter and milk produced in the several cases:

Week of experiments.	Food, lbs.	Milk per week, lbs.	Butter, lbs.	Milk to 1 lb. Butter, lbs.
First, raw beet.....	82½	248½	8½	30
Second, raw potatoes..	82½	282½	6½	42
Third, cooked beet..	123½	288½	9½	30
4th, cooked potatoes	82½	248½	9½	27

From the above it will be seen that the cooked potatoes greatly increased the butter without adding so much to the volume of milk as the raw ones, which made the milk of a thin and watery appearance.—*Agricultural Gazette.*

The Apiary.

Wintering Bees.

How shall we winter our bees successfully? This is a problem that apiarists have been endeavoring to solve for many years. Houses, cellars, pits, green-houses, and manure heaps, have all had their day; none of them answering the requirements perfectly, as safe repositories. The method recommended by G. H. Townley, of Tompkins, Michigan, is the most fashionable at the present time. His plan has been tried by many apiarists, and pronounced a success. It is to protect the bees with a covering of chaff, and leave them out of doors. Some of our southern apiarists say, that they have been chaffed to death the last year, with hearing so much about this chaff business; but we at the North will not mind the chaffing, if we can only protect our little pets, in such a way, that they will survive the winter's cold, and enliven our May mornings, with their happy hum. I'm now making my bees bedding; in order to keep their ticks clean, and free from propolis I've purchased white duck for sheets, costing twenty cents per yard. Indian head muslin would have been cheaper, but they might eat it through. When the sheets are all out, and whipped around to keep them from ravelling, I'll make the ticks; as the ticks are to have the duck between them and the bees, any sort of material, that will hold chaff, will answer the purpose. Old grain sacks, or old calico will do very well—but if we expect them not to go out of fashion, we might as well make them of good material, so they will last for years. Each hive will need three cushions; and to have them nice, a band should go clear around, that the edge instead of being sharp, may be square, making a shallow box as it were, of cloth before the chaff is put in. Those which are to be put in on the sides I'll make of the size to fit nicely, when one frame is removed—tacking it through and through, so it will be of the same thickness. Those that are to go on top should be a foot thick, and fit nicely into the cap—so that when the bees are tucked up in their winter's bed, there will be no crack for cold draughts—for bees are as sensitive to cold draughts as a rheumatic. Mr. Townley says: "I am not very particular about the kind of chaff used, but after having tried wheat, oat, and buckwheat, and clover, I prefer the first named, as it does not get wet or damp as easily, either from rain or by dampness from the cluster of bees." I shall fix up my bees for the winter as soon as possible, having the entrance small in front, and giving plenty of ventilation above the cushions, so that there may be no dampness. The truth in a nut-shell, with regard to wintering bees, appears to be this: confine the bees to as small a space as they can crowd into, with plenty of food, pure air, warmth and dryness.—*Mrs. L. Harrison, Prairie Farmer.*

Land Draining.

The experience of Meehi and many others in England, and of Waring and others in this country, has taught that the depth of four feet, a pitch of one inch in ten feet, and a good discharge at all times and seasons are desirable. The depth of four feet gives a drain which will operate at all times, even in the coldest of our New England winters; it admits of a deeper and more perfect action of the frost in winter, and provides for its earlier departure in spring; it provides innumerable channels for the escape of water to a depth beyond the point where its presence is injurious, and furnishes channels for the admission of the air into the soil. We find by careful examination that the same channels which carry the water to the drains from the adjacent soil serve, when not occupied in that office, as conductors, whereby the atmosphere enters and aerates the ground at a depth to which its influence has never before penetrated. We further find that the roots of several kinds of grasses have extended in the vicinity of the drains to a much greater depth than upon ground of the same character not underdrained, and that the growth of the plants is in ratio to that of the roots. It also appears that since the introduction of the underdrains timothy, red-top, and especially clover, thrive to a gratifying extent upon very low, flat heavy clay, which formerly produced only an almost worthless variety of water-grasses. We are satisfied that a rainfall of one inch is immediately removed to such an extent, that never for a moment is the effect of stagnant water exerted upon the roots of plants in a space of at least forty feet on each side of an efficient drain.—*Maine Farmer.*