

## ENTOMOLOGY.

## Apple-Tree Borers.

E. Copley Thompson, British Columbia, writes the ADVOCATE as follows: "I have a pet apple tree that dropped the fruit this fall rather mysteriously, and afterwards the leaves turned brown before the others. On examining it closely I find that the stem is riddled with holes, as of a borer of some kind. I tried following them up with a wire, but couldn't strike any of them. Most of the holes are about half way up the stem, and I am told the apple borer works only just above the ground and thence downwards. What is the matter with the tree? Do you think it will survive? It is now rising five years old and is the most forward of an orchard of about fifty."

It is impossible to say from Mr. Thompson's description which of the apple-tree borers is the culprit that is injuring his tree. I fear from what he says, however, that he may lose his pet tree. As is well known, all injurious insects are apt to attack unhealthy or weakened trees in preference to those which are sound and healthy. For this reason, the first thing to do in such a case as he describes is to invigorate the tree by feeding and cultivation. If standing in sod the ground should next spring be plowed up beneath the tree and for some distance around the roots and a good liberal dressing of barn-yard manure worked in. This may be followed the following spring with a dressing of hardwood ashes.

The size of the holes made in the trunk by the borers is not stated, consequently, there is some doubt as to which of the apple-tree borers is infesting Mr. Thompson's tree. There are two species of beetles which commonly attack the trunk, viz., the flat-headed apple-tree borer (*Chrysobothris femoralis*) and the round-headed apple-tree borer (*Saperda candida*). In addition to these, in British Columbia there is another kind—the bronze apple-tree weevil (*Magdalis aeneas*), which has been frequently sent to me as the cause of serious injury.

**The Flat-headed Apple-tree Borer.**—During June and July active flattened bronze beetles about half an inch in length and of the shape shown at figure *d* may be found laying their eggs upon the trunks and large limbs of the apple, mountain ash, and some other trees. The eggs soon hatch into the curious flat-headed or horseshoe-nail shaped grubs shown at *a*. These for a time feed in the sapwood just beneath the bark, where they hollow out broad, flat channels. As the grub becomes full-grown it bores into the solid wood and then works back again towards the outside, eating nearly, but not quite, through the bark. It changes into a pupa inside its burrow, and the beetle emerges during June of the season after the egg was laid. The burrows and the exit holes of these beetles are easily recognized by their flattened oval shape. The presence of the grubs in young trees may be easily recognized after a little experience by the flattened and discolored appearance of the bark over the burrow or by a slight exudation of sap and the red sawdust-like castings which are pushed out by the larva. When these indications are seen the bark should be shaved off and the grub destroyed. If they have penetrated the wood it may be necessary to make use of a piece of wire, as described by Mr. Thompson.

**The Round-headed Apple-tree Borer.**—This borer nearly always works near the base of the tree it infests, for which reason it is in some places called the "collar worm." This grub is much thicker than that of the flat-headed borer, and takes three seasons instead of one to complete its changes. The eggs are laid in June, near the base of the trunk of the tree, and, like that of the previous species, the grub remains for some time feeding in the sapwood, where it hollows out large, flat, shallow cavities which are filled with sawdust-like castings. When, as is sometimes the case, there are several of these in the same tree, the tree is girdled and dies quickly. As in the last species, the presence of this borer in young trees may be detected from the bark becoming darkened. It also frequently dries and cracks sufficiently for some of the castings to fall through. On the approach of winter the grub burrows down towards the root. It returns, however, the following spring and resumes its work, when its presence can again be detected by the castings at the base of the tree. The beetle which is cylindrical in form, of a pale brown color above and with two white stripes running the whole length of the body, is three-quarters of an inch in length. It makes its appearance in June of the third season after the eggs are laid. While the flat-headed borer is most active in hot sunshine, this one is nocturnal in its habits and seldom seen. The holes through which the beetle eats its way out through the bark are perfectly round, and thus quite distinct from those of the flat-headed borer. They are about a quarter of an inch in diameter. As in the case of the former, when the presence of the grub is detected the bark should be cut away and the insect destroyed by knife or wire.



**The Bronze Apple-tree Weevil.**—Little is known for certain about the periods of the life-history of this insect, and the fact that it is infesting trees is generally made known only when it is too late to remedy the evil. The holes of exit are very small, only about one-tenth of an inch in diameter; the beetle itself being less than a quarter of an inch in length, of a bronzy black color, elongated pear-shaped in form, with the head terminating in a slender beak.

For all these borers undoubtedly the best remedies are of a preventive nature, and consist of applying to the trees some material which will not injure the bark, but which will keep off the female insects at the time they resort to the trees to lay their eggs. There are several well-known alkaline or poisonous washes which are very effective for this purpose.

Of these probably the best-known is the "Saunders Wash," which consists of soft soap reduced to the consistency of thick paint by the addition of a strong solution of washing soda in water. If applied during the morning of a warm day this will dry in a few hours and form a tenacious coating not easily dissolved by rain.

Another good wash which has given good results against the peach bark-borer is: Five pounds of washing soda, three quarts of soft soap, enough water to make six gallons, air-slaked lime sufficient to make the mixture of the consistency of thick paint. To this is added three ounces of Paris green and one ounce of carbolic acid. This is then painted on to the trunks of the trees with a white-wash brush, and one application will last for the whole season. It certainly pays all fruit-growers to apply a preventive wash to their trees every year as a regular practice, whether they know borers to be present or not.

JAMES FLETCHER, LL.D.,  
Dominion Entomologist.  
Central Experimental Farm.

## APIARY.

## Canadian Honey for England.

To the Editor FARMER'S ADVOCATE:

SIR,—In reply to your inquiry of the 7th, would say that last year our Mr. Holtermann was requested by the Hon. John Dryden to send a case of our comb honey, and extracted also, to the Department of Agriculture, Toronto, to be forwarded to the Imperial Institute at London, England. We gladly complied with the request, feeling that the quality of Canadian honey would give that product an opening in the British markets if only the attention of the consumer and dealer in Great Britain could be drawn to it. Since that exhibit was sent we have a letter from the Imperial Institute in London saying they thought there would be a good opening for the article, recommending an exhibit of honey on a larger scale to be sent, and stated that there was a feeling in England which would give the preference to Canadian products. At the same time, they want to know if we would be in a position to supply large quantities of honey the year round to dealers in Great Britain. Canada, or, more properly, Ontario, has a surplus for a few months in the year, which finds its way to distant parts of the Dominion, but we are not yet producing enough for export to any extent. Mr. Holtermann called upon the Department of Agriculture in Toronto, which decided to pay freight on the exhibit of honey to the Imperial Institute; and our Company has sent 100 packages of honey to be used as an exhibit and as samples to the leading dealers in Great Britain. The honey is our own production, from the County of Brant, and is a fair sample of Ontario honey. As we are anxious to see connections made with the British dealers, at the request of Mr. Holtermann we sent 50 packages in the name of the Ontario Bee-keepers' Association (of which he is president), and filed with the exhibit a list of members of the Ontario Bee-keepers' Association. In this way we have done the best in our power to bring the Ontario honey producer in touch with the British buyer, and also to draw attention to Canadian honey. We feel quite sure there is an opening in bee-keeping which few recognize at present. We trust the above will be pleasing to the FARMER'S ADVOCATE, which is always ready to do anything in its power to advance the agricultural interests of the country.

GOULD, SHAPLEY & MUIR Co. (Ltd.)  
Brantford, Ont., Nov. 10, 1896.

## GARDEN AND ORCHARD.

## Protecting Trees from Rabbits.

Prof. J. L. Budd, of Ames, Iowa, gives in an exchange, in answer to an enquiry, the following recipe for protecting trees from rabbits: "The consensus of opinion of all who have used grease or oil on fruit tree bark is that it results in serious injury. The best wash known to the writer is prepared as follows: To one gallon of stale urine add one quart of fresh lime. Then heat, if the lime does not make it hot enough, and add one pint of pine tar. Then thicken with sulphur until you have a bright yellow color. We have not known this to fail, and it does no harm to the bark."

In the Northwest Assembly, at its recent session an amendment to the License Act was passed prohibiting the sale of liquors or beer at agricultural fairs or industrial exhibitions.

## Cold Storage and Better Transportation for Fruit Products.

To the Editor FARMER'S ADVOCATE:

SIR,—Allow me to call the attention of the readers of your paper and the fruit-growers of Canada to the fact that the subject of how best to preserve and transport the annually increasing fruit product of the Dominion with the greatest advantage to the grower is now being carefully considered by the Department of Agriculture. The Hon. the Minister of Agriculture has expressed his keen interest in this matter and wishes to obtain the views of fruit growers and shippers as to how these more or less perishable products may be taken from the orchard of the grower and placed before the foreign consumer in the best possible condition and manner and with the greatest profit to the producer. I would advise growers and shippers who have ideas upon this question to correspond with the Agriculture and Dairy Commissioner, Department of Agriculture, Ottawa. I would also suggest that a full discussion of the picking, packing, storing, and transportation questions take place at the annual meeting of the Ontario Society, to be held in Kingston, December 1st and 2nd. This discussion would undoubtedly bring out apt and useful information for the guidance of those who may be interested in the carrying out of such cold storage arrangements as may be decided upon.

JOHN CRAIG, Horticulturist.  
Central Experimental Farm, Ottawa.

## QUESTIONS AND ANSWERS.

[In order to make this department as useful as possible, parties enclosing stamped envelopes will receive answers by mail, in cases where early replies appear to us advisable; all enquiries, when of general interest, will be published in next succeeding issue, if received at this office in sufficient time. Enquirers must in all cases attach their name and address in full, though not necessarily for publication.]

## Legal.

TRUSTEES AND TEACHER.

W. S., Peel Co., Ont.:—"B, who is holder of a second-class Normal certificate, applies personally for a school. He secures the promise of the school, in the presence of a witness, from two of the trustees. At the meeting held some time after one of the two sides with third one, thus leaving only one in favor of B, and, to simplify matters, the two agree to cast lots for which teacher should be engaged. The names of the different teachers were placed upon slips of paper and put in a bag and shaken. The one drawn was C. Can B hold the trustees to the bargain, or what course could he pursue legally?"

[Until the agreement between teacher and trustees is signed by them, and bears the incorporate seal, the section is in no way responsible for their promises. If B can prove that he has sustained an injury by reason of the promise made to him by the two trustees, he can collect damages to the extent of the same from them personally.]

## Miscellaneous.

APPLE-TREE SUNSCALD.

W. B., Warkworth, Ont.:—"Kindly tell me the most successful way to treat Northern Spy apple trees now dying from sunscald? They are about 16 years old; about 50 are affected."

[In this instance, as in many others in the successful culture of fruits, prevention is much easier than cure. High-headed trees, with long, unprotected stems, are frequently sunscalded, especially those not quite hardy. 1. Among preventives are: (a) low heads, planted with a southern inclination; (b) wrapping the stems in building paper in the autumn; (c) shading the stems by means of laths or cornstalks. 2. When trees have become injured: (a) cut away the affected bark, paint the bared wood surface with some material which will prevent the absorption of water; (b) when trees are badly affected they might as well be replaced at once, as their profitable life tenure is certain to be brief. Trees in well-drained soils, on northern slopes, are usually less affected than those having southwesterly aspects.]

JOHN CRAIG,  
Central Exp. Farm. Dominion Horticulturist.]

A. M., Skead's Mills, Ont., asks for a selection of 50 apple trees suitable for planting at a point near Ottawa?

[In making up an orchard of 50 trees on your farm, I would recommend the following trees: 10 Yellow Transparent, 10 Wealthy, 5 McIntosh Red, 10 Duchess, 10 Golden Russet, 5 Pewaukee. In the Experimental Farm report for 1895 you will find information relative to the planting and cultivation of the orchard. There are more summer apples in this list than I would recommend were you distant from a good market.]

J. C.]

FALL PRUNING AND PROTECTION OF GRAPEVINES IN EASTERN ONTARIO.

A. D., Russell Co., Ont.:—"Do you cut all of this year's growth off or leave some of it on? What is the best way to put them down for the winter—to cover them over with strawy manure or cover them with earth? How do you put cuttings down, in the fall or in the spring?"

[In cutting back the vines in the autumn we endeavor to first remove the weakest of the old bearing wood, with a view of replacing it by the strongest shoots of the last season's growth. The new shoots are generally cut back to within two buds of the old wood. All weak shoots about the