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THE TREATMENT OF APPLE TREES GIRDLIED
BY MICE.

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The possibility of trees being girdled by field mice has always been a factor in the growing of orchard trees, especially apples, but in recent years not until the winter of 1917-18 has the damage been sufficiently serious to call for special attention by fruit growers. For the last three winters the damage done young apple trees, that is, to those fifteen years old and younger, has been increasingly great, culminating in the winter just past with very serious and widespread injury to both apples and peaches, as well as many other shrubs and trees. Conditions during the past winter have been very favorable for the girdling of trees by mice. Field mice were abundant and the snow was deeper

than usual and stayed on for a longer period of time, affording the cover under which mice prefer to work. If the ground was covered with a heavy mulch of weeds and grass the damage has in most cases been greater than where the orchard has been kept fairly clean.

In this bulletin we confine the discussion to apples, to show as briefly as possible a method of bridge-grafting which is both practical and efficient for saving trees which have been girdled by mice, and give our observations on methods for the prevention of the injury.

TREATMENT OF INJURED TREES.

If the trees are small, it is often best to pull them out and replant. If injured high up on the trunk, the entire upper portion should be removed and new sprouts grown from below the injury and above the point where budded or grafted. If the trees have been planted several years they can be saved by bridge-grafting, without sacrificing the time necessary to grow new trees to a similar size.

BRIDGE-GRAFTING.

Bridge-grafting is not nearly as complicated an operation as many suppose, and if done carefully a large percentage of damaged trees can be saved. The question may be raised whether trees which have been bridge-grafted will live as long as normal trees. To this we can answer that while we have not lived long enough to get final proof on this point, several different cases have come under observation where the bridge-grafted trees so far are in a healthy condition and are not seriously disturbed in their normal growth or production of fruit. These trees would have been in the wood pile had nothing been done, and even if their lives are shortened ten years from the normal life of uninjured trees the grafting has been worth while.

Bridge-grafting consists in bridging the area from which the bark has been gnawed with scions inserted in the bark above and below the wound at intervals around the trunk of the tree, these scions taking the place of and performing the functions of the bark.

The details are given in the following figures and descriptions:



FIG. 1. Taking the scions from the tree to be grafted, using wood of the past season's growth. It is not necessary to use wood from the same tree if better scions can be secured elsewhere. Scions may be cut and kept dormant in moist sawdust if it is not possible to complete the work before the buds start.

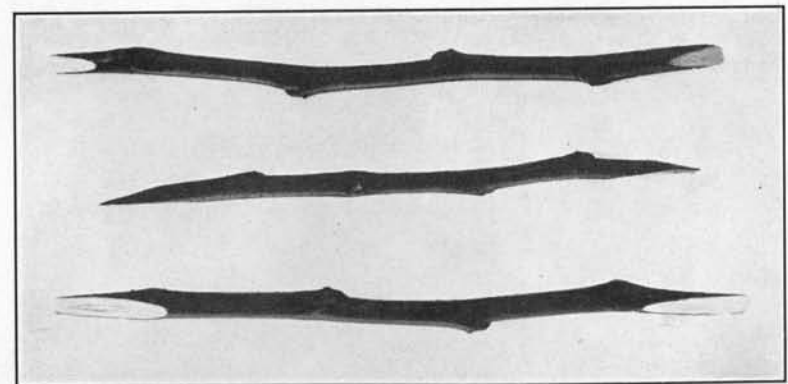


FIG. 2. The scions, cut with a long slant on the inside and a short one on the outside. The scions should be a little longer than the distance between the points of insertion, so that when sprung into place they will hold firmly.

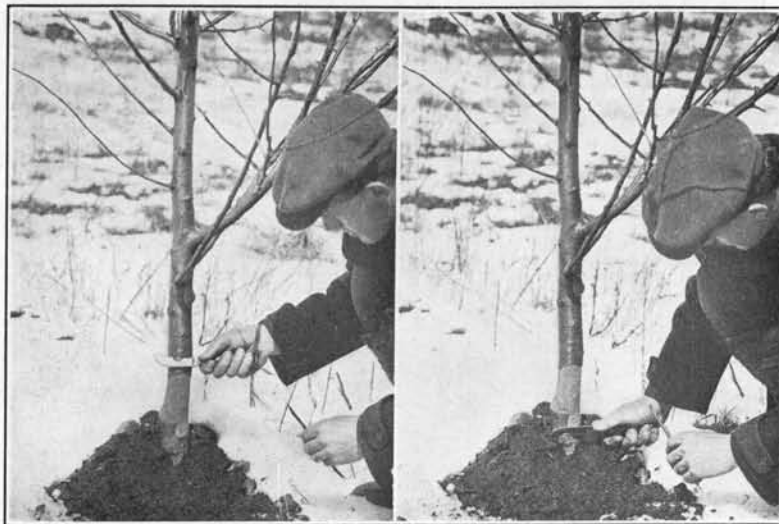


FIG. 3. Cutting the bark to receive the scions. Be careful not to break the bark when cutting. Cut at least one inch from the edge of the wound.



FIG. 4. Springing the scion into place. This leaves the scion slightly arched in the middle.



FIG. 5. Waxing with melted grafting wax. All cut surfaces should be thoroughly covered. The melted wax can be kept in a liquid state for some time if the container is suspended in a pail of hot water with a cloth or bag covering it.



FIG. 6. The completed graft. There should be one set at intervals of about two inches around the trunk.

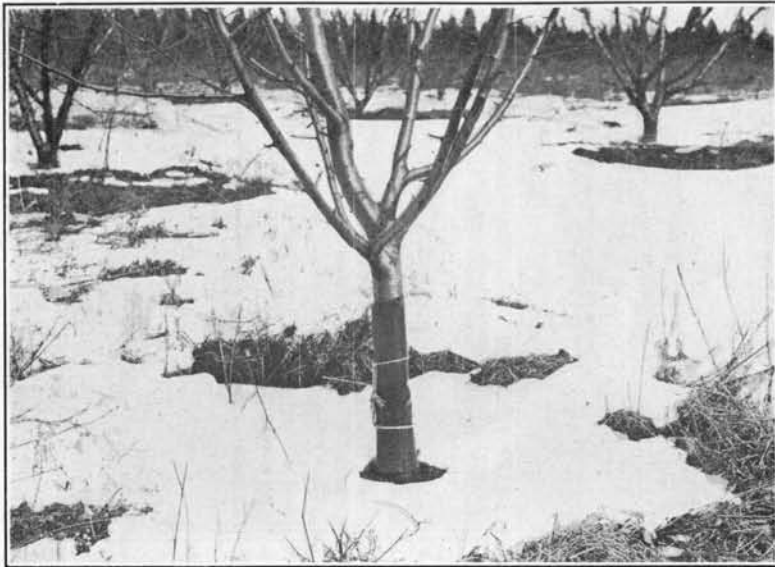


FIG. 7. Tree wrapped with tarred paper.

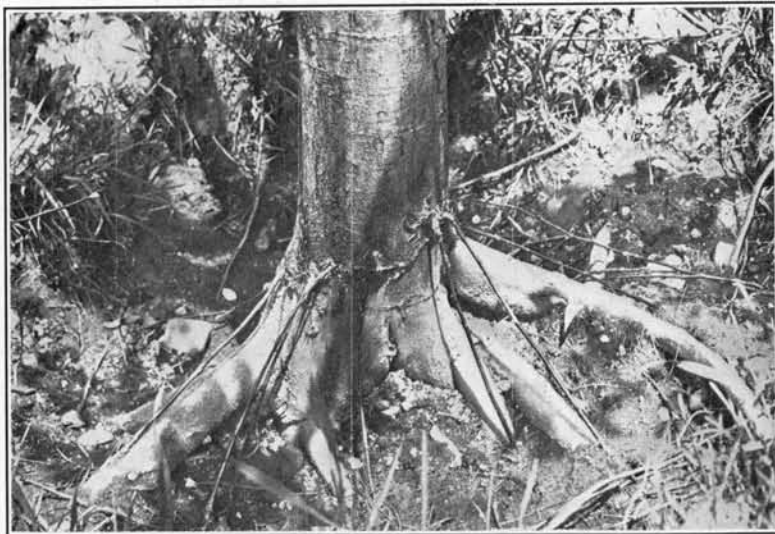


FIG. 8. An extreme case of girdling. The ground was not frozen and the roots were stripped of bark for nearly two feet. This tree has been bridge-grafted.

The only tool needed is a *very sharp* knife, and the mistake of thinking that a knife once sharpened will always be sharp should not be made. The grafting knife needs *frequent* honing on a *fine* stone. A supply of melted grafting wax, with the necessary containers for wax and hot water, and an old paint brush, complete the necessary equipment. It is advisable to paint the exposed wood of the girdled tree with melted grafting wax or white lead and oil before grafting, to prevent drying of the wood and also to prevent, as far as possible, the setting in of decay. Trees over four years old should be cut back one-half to reduce the leaf area and thus prevent excessive evaporation of moisture during the first season.

The success of bridge-grafting depends on having the scions perfectly fresh and on thorough waxing at once of all exposed wood and openings made where the scions are set. If care is taken on these two points, one may be reasonably sure of success in saving a large percentage of the trees.

MEANS OF PREVENTION.

From our observations, wrapping the trees with cheap tarred paper (as illustrated in Fig. 7) is the only sure method of preventing the girdling of trees by mice. Occasionally an over-ambitious mouse will gnaw through the paper, but in such cases the injury to the tree is usually slight. Quarter-inch mesh galvanized wire will, of course, prevent damage if kept close to the trunk at the top, but the initial cost, at present prices, is nearly four times as great as for tarred paper, and the time required for cutting and putting on is also greater. Putting poisoned grain and traps in the orchard has been tried by several persons, and while each method may kill some mice, the results do not justify recommending these practices. Possibly lime-sulphur and lead arsenate sprayed or brushed upon the trunks late in the fall may prevent injury from mice, but evidence on this point is too meagre to be conclusive.

The writer is indebted to Mr. B. H. Walden for a large share of the photographs used in this bulletin.