

Bridge Grafting

This is a form of repair grafting, and is used in cases where the root system of the tree has not been damaged but where there is injury to the bark of the trunk. Sometimes cultivation implements, rodents, disease, or winter injury will damage a considerable trunk area, often girdling the tree completely. If the damage to the bark is extensive, the tree is almost certain to die, because the roots will be deprived of their food supply from the top of the tree. Trees of some species, such as the elm, cherry, and pecan, can heal over extensively injured areas by the development of callus tissue. Trees of most species, however, which have had the bark of the trunk severely damaged should be bridge grafted if they are to be saved.

The bridge grafting operation is best performed in early spring just as active growth of the tree is beginning and the bark is slipping easily. The scions to be used should be taken when dormant from 1-year-old growth, $\frac{1}{4}$ to $\frac{1}{2}$ inches in diameter, of the same or a compatible species, and held under refrigeration until the grafting work is to be done. (See page 356 for information on collecting and storing scion wood.) In an emergency, bridge grafting may be successfully performed late in the spring using scion

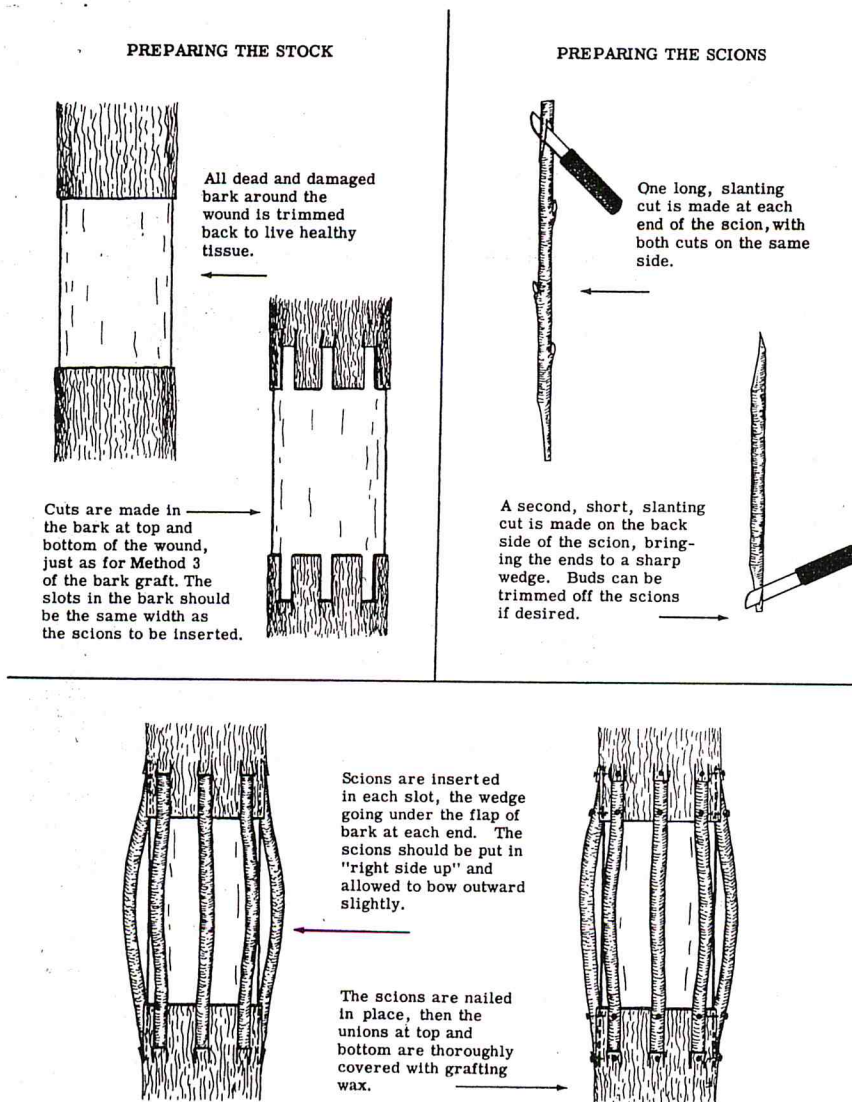


Figure 12-19. A satisfactory method of making a bridge graft, using a modification of Method No. 3 of the bark graft.

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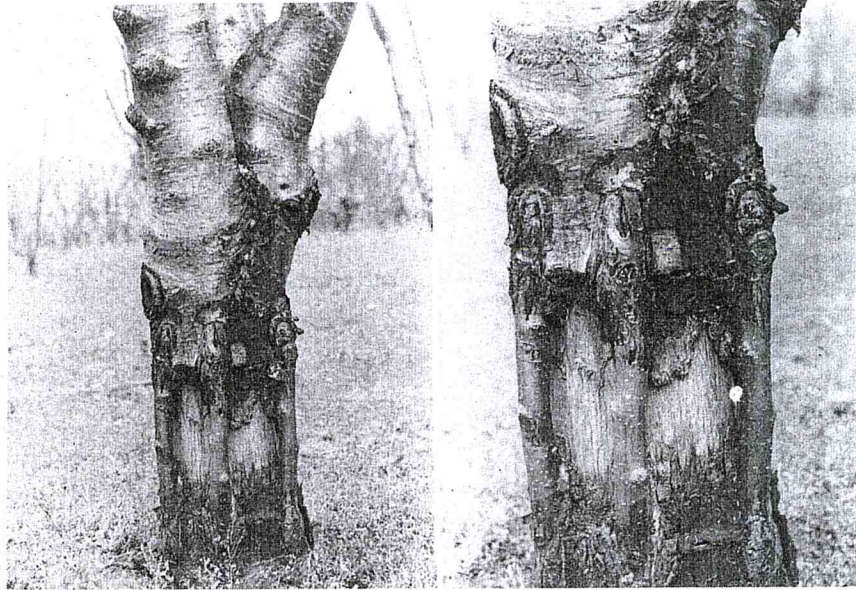


Figure 12-20. Injured trunk of a cherry tree successfully bridge-grafted by a modification of the bark graft.

wood whose buds have already started to grow. The developing buds or new shoots must be removed.

The first step in bridge grafting is to trim the wounded area back to healthy, undamaged tissue by removing dead or torn bark. Then every 2 or 3 inches around the injured section a scion is inserted, attached at both the upper and lower ends into live bark. It is important that the scions be inserted right side up. If they are put in reversed, they may make a union and stay alive for a year or two, but the scions will not grow and enlarge in diameter as they would if inserted correctly (see Figure 11-9).

Figure 12-19 shows the details of making a satisfactory type of bridge graft. It is essentially the same as method No. 3 of the bark graft. Just above and below the injured area, a slot 2 to 3 inches long and exactly the width of the scion is cut in the bark of the trunk for each scion. The piece of bark is removed with the exception of a flap about $\frac{1}{2}$ inch long which is left at the end of the slot. The scions are cut to the proper length so that they will fit into these slots at each end of the wound, being made long enough so they can be bowed outward slightly. This bow allows for good contact at each end and permits some swaying of the trunk in the wind without tearing the scions loose. To prepare the scions, a cut is made along both ends on the side which is to fit into the slot. The cut should be the same length as the slot and deep enough to remove some bark and wood and expose two strips of cambium tissue. Then, on the opposite side of the scion, at each end, another shorter cut, about $\frac{1}{2}$ inch long, is made so as to

bring the ends of the scion to a wedge shape. The ends of the scion should be inserted under the flaps of bark and nailed in place, using $\frac{3}{4}$ inch, No. 20 flat-headed wire nails. One nail should go through the flap of bark at each end of the scion with enough additional nails to hold the scion securely.

After all the scions have been inserted, the cut surfaces must be thoroughly covered with grafting wax, taking particular care to work the wax around the scions especially at the graft unions. The exposed wood of the injured section may also be covered with grafting wax to prevent the entrance of decay organism and to prevent excessive drying out of the wood, which is important as the path for upward movement of water and nutrients in the tree.

The buds on the scions will often push into growth if the grafts are successful. These shoots should be broken off, because no branches would be desired in this position. The scions will rapidly enlarge in size and completely heal over the wound in a few years.