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# Grafting Walnut Trees

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The instructions for grafting printed in this circular were largely contributed by Scott Parrott, walnut nurseryman at Newberg, Oregon. Mr. Parrott is recognized throughout the Pacific Northwest as a successful walnut nurseryman and an exceptionally skillful walnut propagator. He has taught many persons to graft walnuts, and they have benefited greatly from his willingness to give advice and counsel.

In other areas of the world walnuts are propagated by budding, but almost all attempts at budding in Oregon have failed. For grafting, scionwood is best selected from shoot growth of the past season. It should be solid with little pith so that there will be sufficient wood contact. Shoots with long, vigorous growth usually make the best scionwood unless the distance between buds is too great. The best scionwood has buds about 3 to 4 inches apart. Usually wood from more vertical limbs is better than

that from branches which hang down. Scionwood may be any diameter from one-fourth inch on up, as long as it is not too big for the rootstock. Scionwood from bearing trees may be as good as that from nonbearing trees. However, one should be certain of the variety and strain. Scionwood should be cut in February. The terminal should be removed and the ends of the sticks waxed to prevent drying. They should be kept in storage, preferably about 35° F. Enough wood may be taken out of storage for several days' grafting but it should not be replaced in cold storage.

Walnut seedlings are usually large enough to be grafted after they have grown two summers in the nursery. Walnut grafting in the nursery is usually begun about April 1 when the stocks have begun to leaf out. If the weather has been unusually cold, postpone grafting. Grafting may be continued into June.

## Side Grafting

First, the rootstock should be cut off 12 to 18 inches from the ground. The stock will "bleed" because of root pressure. Bleeding is worse in the spring before walnut trees have fully leafed out. Grafts will not take if bleeding is excessive. Whenever bleeding is so bad that the stock stays wet below the graft, it is too early to graft. If the stocks are wet from bleeding at times and dry at other times, grafting may begin. A good grafting knife has a blade about 4 inches long and a stout handle which one can grip tightly. It should be razor sharp. The cuts on the scion are made downward with a slight pull and a swinging motion.

Figure 1 shows the scion cut with one straight side and one slightly concave. One side of the scion is cut wider than the other. Figure 2 shows how the cut is made at an angle and halfway through the stock. Figure 3 shows how the scion is pushed into the cut, taking care not to loosen the bark. The cambium on the thick

side of the scion is aligned with that of the stock. The top of the cut on the scion is set slightly deeper than the top of the cut on the stock so that callus growth will not push the graft out. Note the position of the buds. The concave side faces away from the stock; the excessive lip is cut off for more callus. A rubber band holds the scion in tightly. Figure 4 shows that the back side of the scion is narrow, leaving bare wood. This is desirable, as it results in strong callus growth.

The graft and the tip of the scion should be covered with melted grafting wax, but the top of the rootstock should not be waxed, as it must be permitted to bleed. Figure 5 shows how the growth of the upper bud encourages growth on the back side to fill in better. But if the lower one grows better, use it and remove the rest. As the stock begins to die back, cut it off at the graft, leaving no overhang to interfere with good healing.

## Steps in Making a Side Graft



Front cut is wider than back cut.

Concave side.

Figure 1. Back view of cut scion.

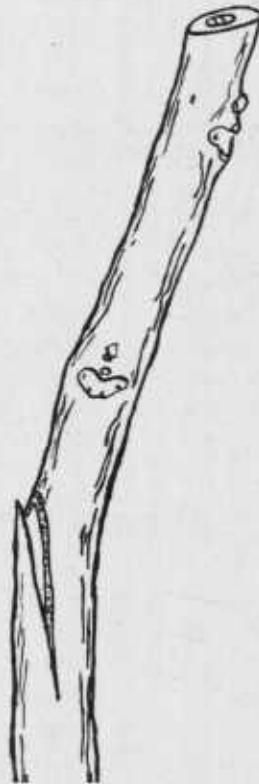


Figure 2. Top of stock is bent away from cut to allow setting of scion.

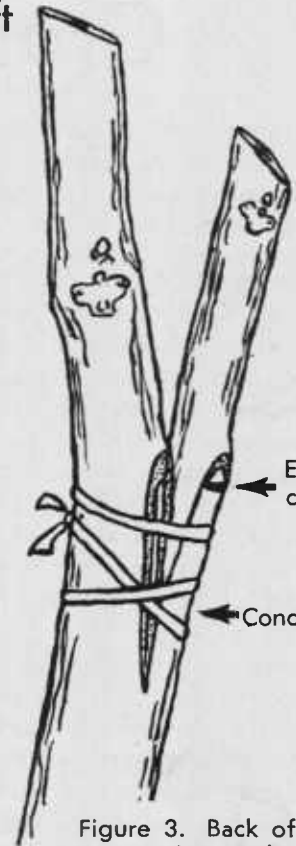


Figure 3. Back of scion is narrow, leaving bare wood. This insures strong callus.

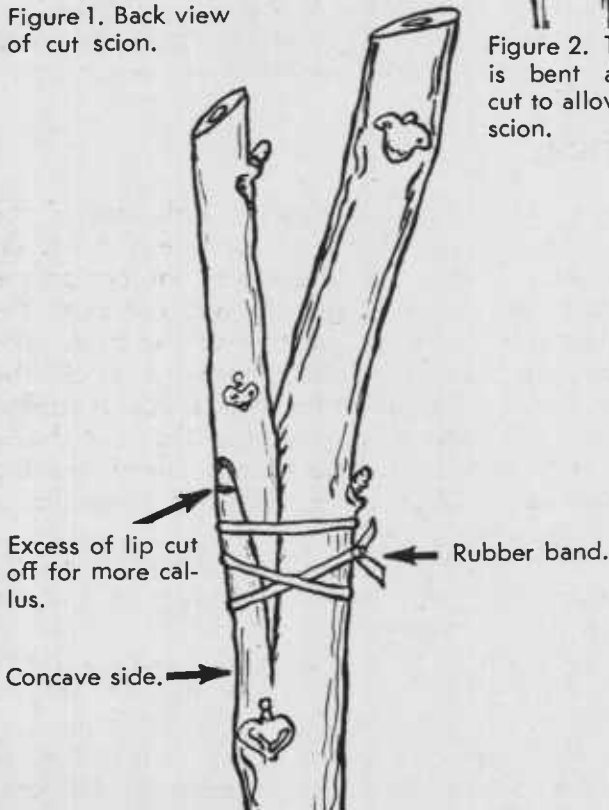


Figure 4. Front view of scion in place. Point of graft set slightly deeper.

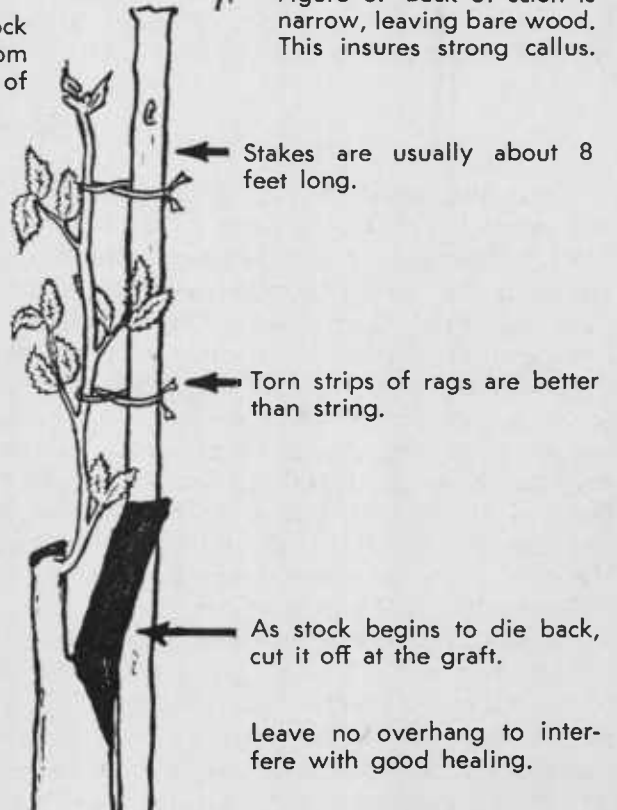


Figure 5. Method of tying to stake.

Leave no overhang to interfere with good healing.

## Cleft Grafting

Cleft grafting is one of the best methods of grafting large trees in the orchard. It is generally done somewhat later than nursery grafting. Either the main trunk or the branches may be grafted. If the scaffold branches of a hardy stock are large enough, it would be better to graft into them. Cutting the scaffold limbs back fairly close to the trunk will reduce the number of suckers which arise from them. The entire top of the tree should be cut off, because if part of it is left it will outgrow the scion. Figure 6 shows how the stock is sawed off and split with a knife. Figure 7 illustrates a wedge placed in

the split to hold it open for the scion. Figure 8 shows how the scion is cut on two sides, one side slightly wider than the other. The scion is pushed gently into the split in the stock with the wide side facing out. The cambium of the scion is aligned with that of the stock. Then the wedge is removed, permitting the split to close and hold the scion in place.

A scion may be placed on either side. Hot grafting wax should be used to cover all cut surfaces, including the end of the scion. Paper or other foreign matter should not be placed in the split since this may result in "sour sap."

### Steps in Making a Cleft Graft

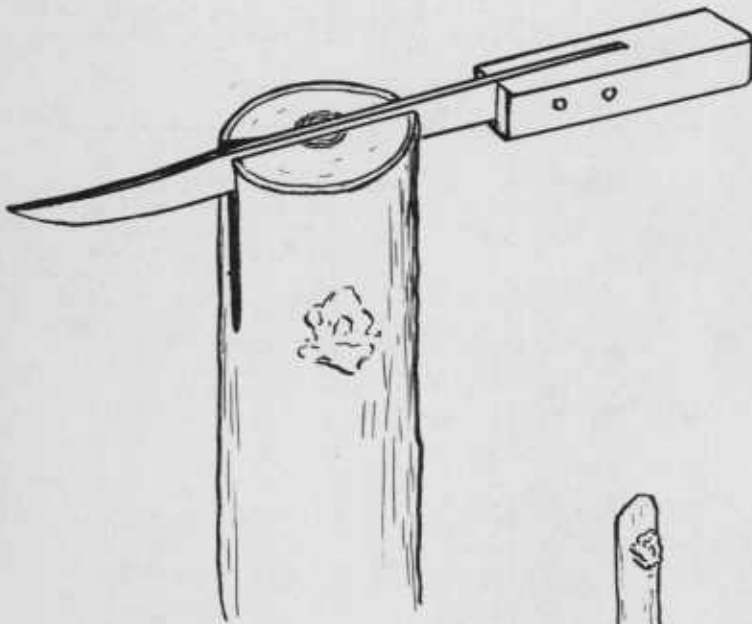


Figure 6. How the stock is sawed off and split with a knife.

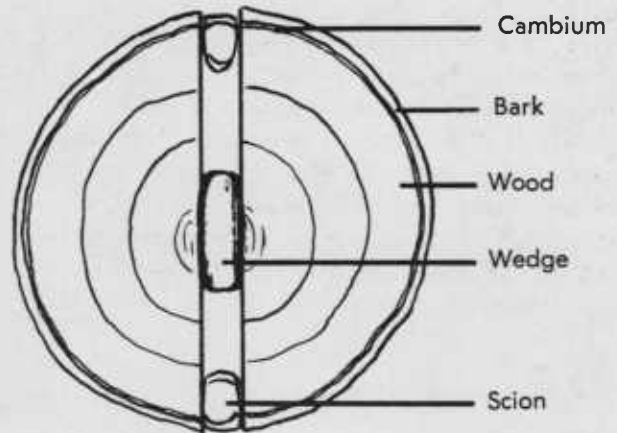


Figure 7. How the wedge is placed in the split.

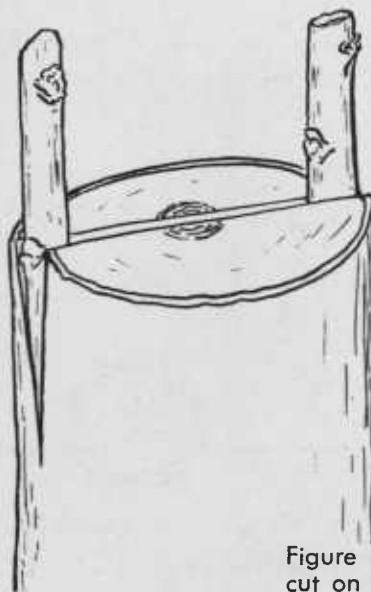


Figure 8. How the scion is cut on two sides.

## Care of Grafts

The following is the formula for Scott Parrott's grafting wax: 2 pounds of clean, clear beeswax, 3 pounds of rosin, and 4 ounces of powdered wood charcoal. Melt the beeswax and rosin together and stir in the charcoal; then pour this mixture into shallow pans or containers where it will not become too thick and hard to break. When applying the wax, be careful not to heat it so hot that it is thin and runny. If it is too thin when growth starts, it will crack and break instead of stretching. As soon as the graft is completed, cover it with a new paper bag and tie it with string. A small amount of foliage should be allowed to grow on the top of the stocks. Then, if the graft does not survive, the stock can be regrafted in the same year or the following year. By the first of June, the scions either ought to be growing or nearly dead. If the weather becomes hot after the grafts have been made and bagged, it is best to remove the bags; otherwise bags should not be removed until there is an inch of growth on the scions. White casein paint rather than bags

should be used for protection from sunburn in June. All of the stocks and scions should be painted.

A strong 8-foot stake of wood or heavy bamboo is required to support a grafted nursery tree. Small nut growths may arise on the growing scion; these should be pinched off as they will retard growth. Cleft grafts on older trees will require support also. Torn strips of cloth are better than string for tying the scions to the stakes. It is important to remove unwanted growth below the grafts, as this growth may compete and interfere with the growth of the scions.

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The drawings of side grafting were made by the late D. Herbert Thatcher from observations of the work of Scott Parrott, walnut nurseryman.

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