

## Friday Evening Session

October 19, 1962

The fourth session convened at 8:00 P.M. with Moderator Denison Morey, Director of Research, Jackson & Perkins, Pleasanton, California, presiding.

### PROPAGATION OF SELECTED PLANTS

MODERATOR MOREY: Our evening program will start with a talk by Mr. W. J. Curtis, Sherwood, Oregon, on some of his experiences in grafting ornamentals. Mr. Curtis.

#### THE GRAFTING OF KOSTER SPRUCE *CEDRUS ATLANTICA GLAUCA*, COPPER BEECH, PINK AND VARIEGATED DOGWOODS

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We in the Pacific Northwest who graft conifers are somewhat unorthodox in the method and procedure we follow. This came about several years ago, when the late Frank Speybrock of Beaver Creek Nursery, filled his greenhouse benches with freshly potted Norway Spruce understock and immediately began to graft. His percentage was in the high nineties, while those who grafted spruce understock that had been potted in the early spring, had from 50-75%. Was this blind luck? It was later proved not. Frank's success gave all who grafted conifers food for thought. Since that time, 15 years ago, there have been some changes in procedure, at least on my part.

I will try and give you, step by step, the method I use for grafting Koster spruce, *Cedrus atlantica glauca*, copper beech, pink and variegated dogwood.

We either use Norway Spruce of pencil size or collected Sitka spruce. In November we get the understock and trim the roots so they will fit easily into a 3 or 4" pot without bunching. We also trim off a number of the lower branches, which gives us a clean trunk for grafting later. This potted understock is set out in a ground bench of 55-60 degrees F., night temperature, being treated as any other transplanted conifers. We do use a soil mixture of about 50% peat.

In 60 days or less, new feeder roots will be showing around the edge of the pots. You can start to graft now, but I prefer to wait until there is a heavy showing of roots. Your understock is easy to work with, the root system is such that you will not damage the new roots by a great deal of handling.

We always attempt to graft a heavy scion on a heavy understock; when possible to get branched scions, we do so. It has been proven

that you get a better take with a scion of two-year, or three-year wood. A two- or three-year wood scion gives a heavy, branched plant ready for the field in one year.

Using a sharp knife, remove the needles from the scion for about 2½ inches. Cut a long, slanting cut one-third the way through the scion at the base. On the opposite side, the side away from the understock, the cut is long and slanting, but just under the cambium layer. Cut off the lower end at about 45 degrees to get away from the bruise caused by the pruning shears. Take your understock and cut a thin slice just below the cambium layer. Set your scion into the understock, bringing this thin layer up over the scion, matching both sides, if possible. Bind with a 4" rubber budding strip, coat the whole area with grafting wax, paraffin, or as I prefer, Treheal. Set in a bench this time, for a little more heat will help your graft to callus in. Too much overhead heat will bring your understock along too fast. Watch your watering, for such a dense mass of foliage is an ideal environment for fungus growth.

In 30 days or so, the bud will begin to swell and break on the graft. At this time, spread out your pots, leaving a space of 2 to 4 inches between each pot. This depends upon the size of your scion. Cut off ½ of your understock and watch for fungus. You must have good circulation of air for this tender growth is most susceptible to damping-off fungi.

By now your Koster spruce grafts have reached the extremity of this season's growth. You can set them out into beds or shift them to gallon containers, which I prefer. Trim off more of the understock, but leave a single branch for a nurse, and leave this on until the following spring. You will lose fewer grafts during the summer, if any.

*Cedrus atlantica glauca* are grafted on pencil size or smaller *Cedrus deodara*. We have always handled this understock the same as we have the spruce, until last fall. We had several *Cedrus deodara* that were too small to graft, left over from the year before. These were potted in 4" clay pots with a nice peaty mixture. By fall they had increased in caliber and had filled the 4" pots with roots. It was a mild fall so in 30 days they began to show new growth. They were grafted and in two weeks the buds began to swell on the *Cedrus atlantica* scions, with no needle drop. Not one dropped a needle. You, who have grafted *Cedrus atlantica glauca*, and especially those of you who grafted it for the first time, have looked upon those naked scions and wondered whether to throw them out or not. In a short time for some, longer for others, they start to grow and your percentage is quite good. Those same *Cedrus atlantica glauca* put on such growth that they were lined out in the field the last week in September with the majority 18" tall.

This year all my *Cedrus deodara* understock is well established in 4" clay pots. Will let you know if this was a freak happening.

We use the same long slim cut on the scion both front and back as on the Koster. This type of cut exposes more of the cambium. A nurse branch is left on the *Cedrus atlantica glauca* until they go

into the field. A two-foot bamboo stake is tied in at least three places to prevent breakage.

Let us review. We use a scion that has a large area of cambium exposed. Our understock is cut in such a way that we have an extremely large area of cambium to lay against the cambium of the scion. This will give a stronger and a quicker union with a greater percentage of grafts. We feel very bad if we lose a half dozen out of 500 grafts. The third thing we do differently is to leave a nurse branch to keep the sap flowing until there is an excellent union.

The dogwoods and the beech are handled a little differently, for both must be established in their pots. As we pot them a year before we use them, they also go into 4" clay pots in the same peaty mixture.

The dogwood, both pink and variegated, are grafted high on 18-24 inch seedlings of pencil thickness. Scions are selected of  $\frac{3}{16}$ - $\frac{1}{4}$ " diameter of this season's growth. The understock is cut off at a height to match the caliber of the scion. A whip graft is used, which is bound with a budding rubber and painted with Treheal. The lower side buds are allowed to grow and develop until the graft is almost leafed-out. The side buds are then rubbed off. By June, the new growth has developed enough so that the plants can be shifted to gallon containers and put outside under lath. By fall they can go into the field. A large number of the pink will be branched and have flower buds. The variegated dogwood should be in a shade house another year, before setting out in the field.

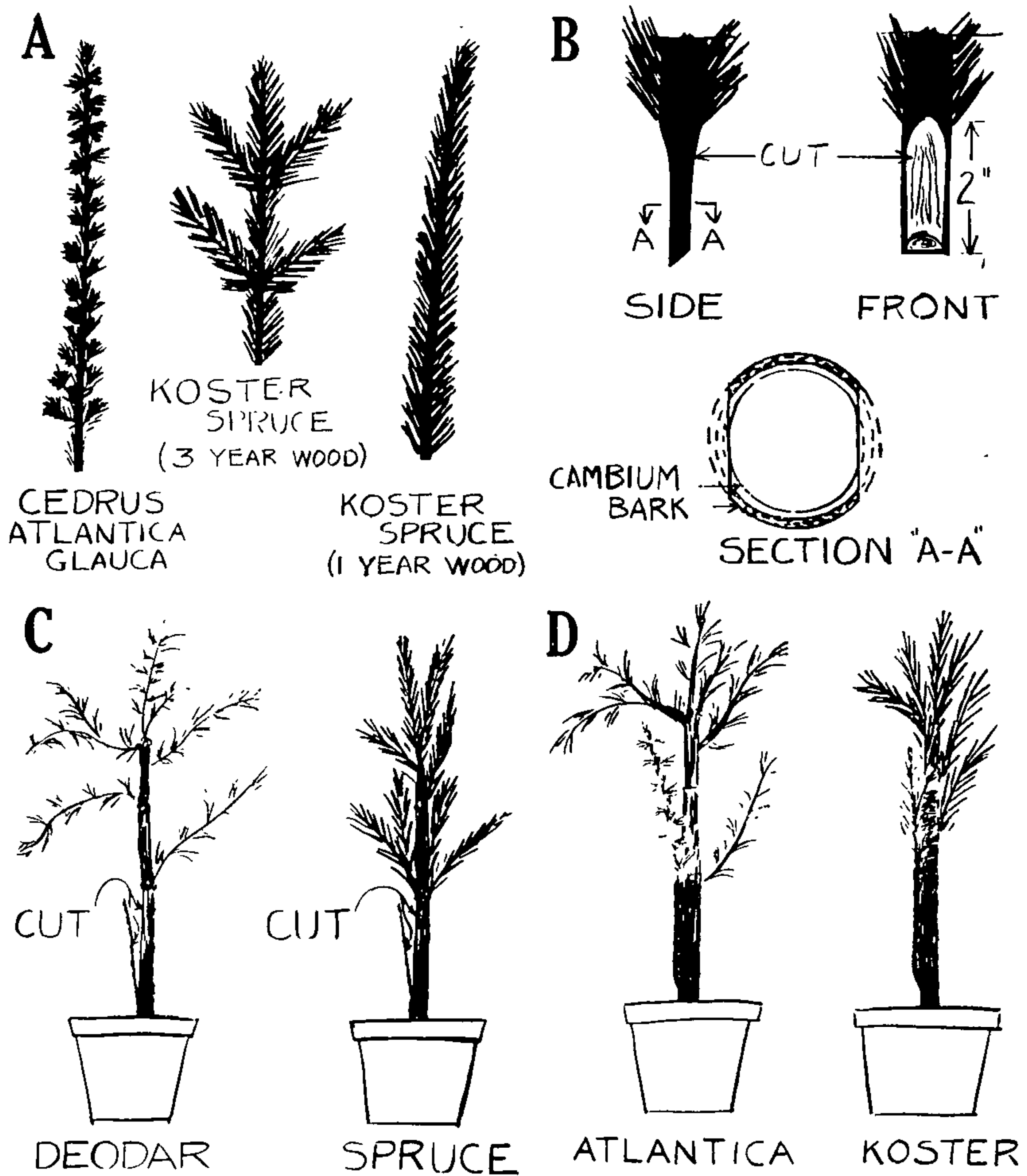
European beech, *Sylvatica*, of  $\frac{1}{4}$ - $\frac{5}{16}$  caliber, established for one year in 4" clay pots, is the ideal understock for grafting copper beech. Again we use the whip graft, cutting off the understock as close to the pot as is convenient for working. I match scion and understock for size, for the greater the area of matching cambium, the better percentage of your take. The graft union is bound with a budding rubber and sealed with Treheal. In a relatively short time your new growth will burst forth. The same care in watering and ventilating, as with all other grafts, must be followed. When the new growth has fully developed, the new graft can be shifted to gallon containers and set in the shade house to harden up. They also can go into the field in the fall or early spring.

There are a number of operations in common to all four of the grafted plants we have just covered:

All the understock should be moved into a cool greenhouse by mid-November and allowed to begin growth slowly.

The greatest of care must be taken to match the cambium layers on all grafts. A rubber budding strip is used to hold all grafts firmly. Treheal, or a hot wax, is used to seal all grafts. If hot wax is used, great care must be taken to keep the wax the right temperature—if too cold, it will not do a good job of sealing, and if too hot, the cambium will be injured and your graft will not take.

Free air circulation around the grafts is a must, and especially so, on the Koster and *Cedrus atlantica glauca*, for the new foliage is subject to damping off or molding. By watering early in the morning, or on sunny days, you can keep your losses down.



**Figure 1.** Grafting *Cedrus atlantica glauca* on *Cedrus deodara* and Koster spruce on Norway or Sitka spruce. (A). Materail for the scions. (B). Preparing the scions. (C). Stock plants after cutting. (D) Completed grafts before tying.

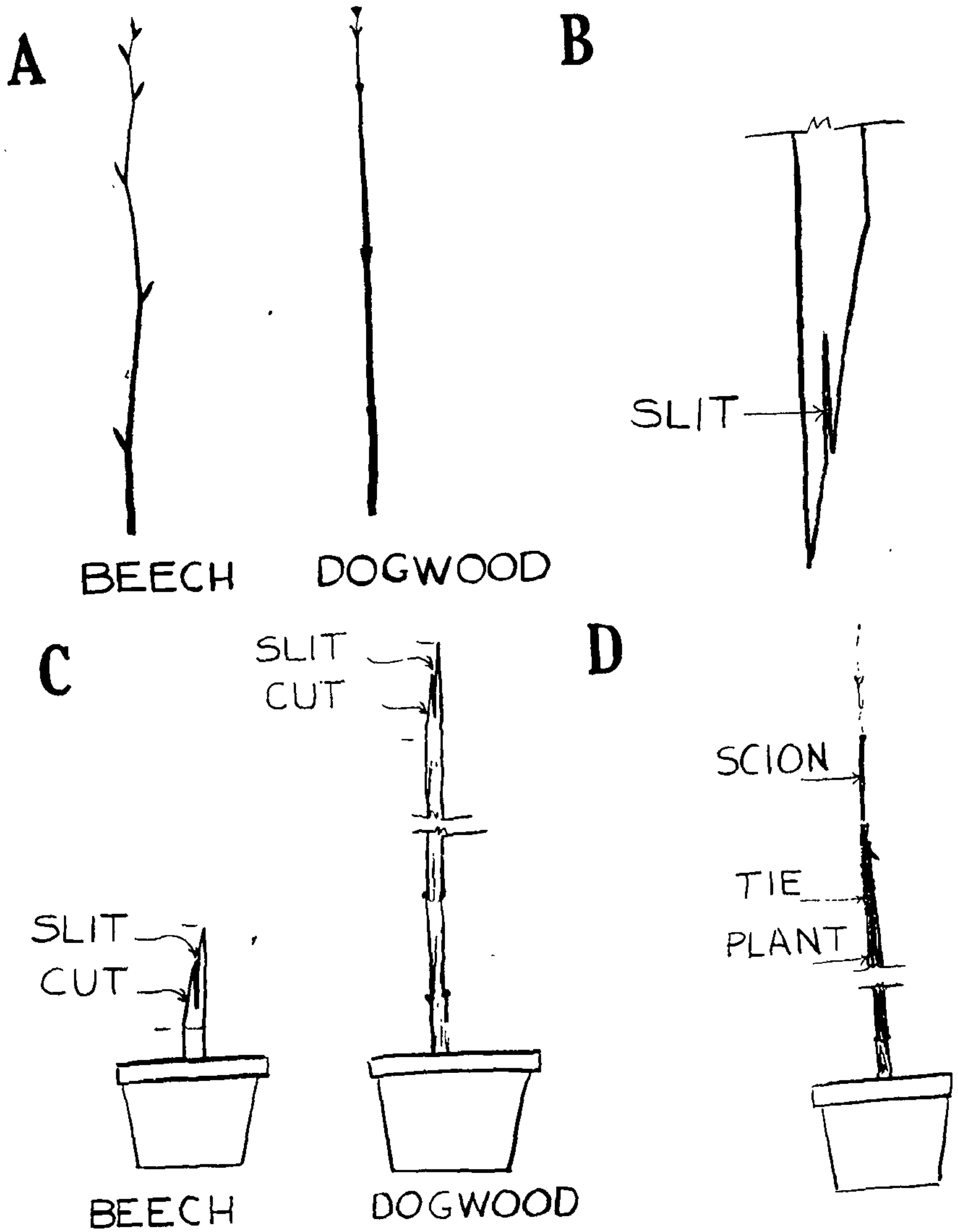


Figure 2. Whip grafting method used for beech and dogwood. (A). Material used for scions. (B) Type of cut made at base of scion. (C). Cuts prepared in stock plants. (D). Completed graft after tying.

MODERATOR MOREY: Thank you, Bill. We will go on now to a discussion by Robert Boddy of Descanso Nurseries, Chino, California, on the propagation of lilacs. Mr. Boddy.