

MR JOLEY. When they are grown in containers it is easy to move large size *Pistacia* seedlings. I have planted moderately large, dormant, bare-rooted seedlings in 5 gallon cans in early March and later moved these to the field the following August and September without apparent injury or shock as long as the ball of soil remained intact. Furthermore, there is a commercial planting of several thousand seedlings under way that were grown in soil tubes and transplanted during the heat of July, August and September with almost no losses from transplanting shock.

Chairman LeValley introduced Mr. Dwight Long, Street Tree Foreman, Modesto Parks and Recreation Department.

BUDDING AND GROWING PISTACIA CHINENSIS FOR STREET TREES

DWIGHT LONG

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The *Pistacia chinensis* has great possibilities as a street tree in all but the coldest climates, even in narrow planting spaces. The *Pistacia* becomes more value when budded from selected males on rootstock that has been selected for type and vigor. The best techniques for budding, growing and training have not, as yet, been fully established. The City of Modesto Parks and Recreation Department, in the last five years, has tried a number of ideas with encouraging results.

We use the shield bud and have had the best success with using buds that have not pushed or enlarged, and the wood mature enough to be firm. This selection has given about a 96% take, whether budded in spring or fall, or at what height the bud is placed on the seedling stem.

In growing the *Pistacia*, we have tried several methods and are still using or testing three. They are described as follows:

1. Plants are field grown and bare root transplanted.
2. Plants are field grown and bare root transplanted to five gallon cans for the second year growth in the nursery.
3. The seeds are started in small, bottomless containers and when about five inches high, they are placed on top of five gallon, soil filled, bottomless cans to complete growth in the nursery.

Three root prunings are performed. They are listed as follows:

1. The root is cut 9" below surface when the seedlings are from 3" to 5" high and the small tap root is 12" to 20" deep. With container grown plants, the root is pruned when plant and container are being moved to larger containers.
2. The second root pruning is done at the end of the first season's growth, just in time to check and harden tender tip growth and to confine winter storage of plant food. Roots of container grown plants are cut just under the large container. Roots of field grown plants are cut about 15" below ground level with power-drawn tree digger.

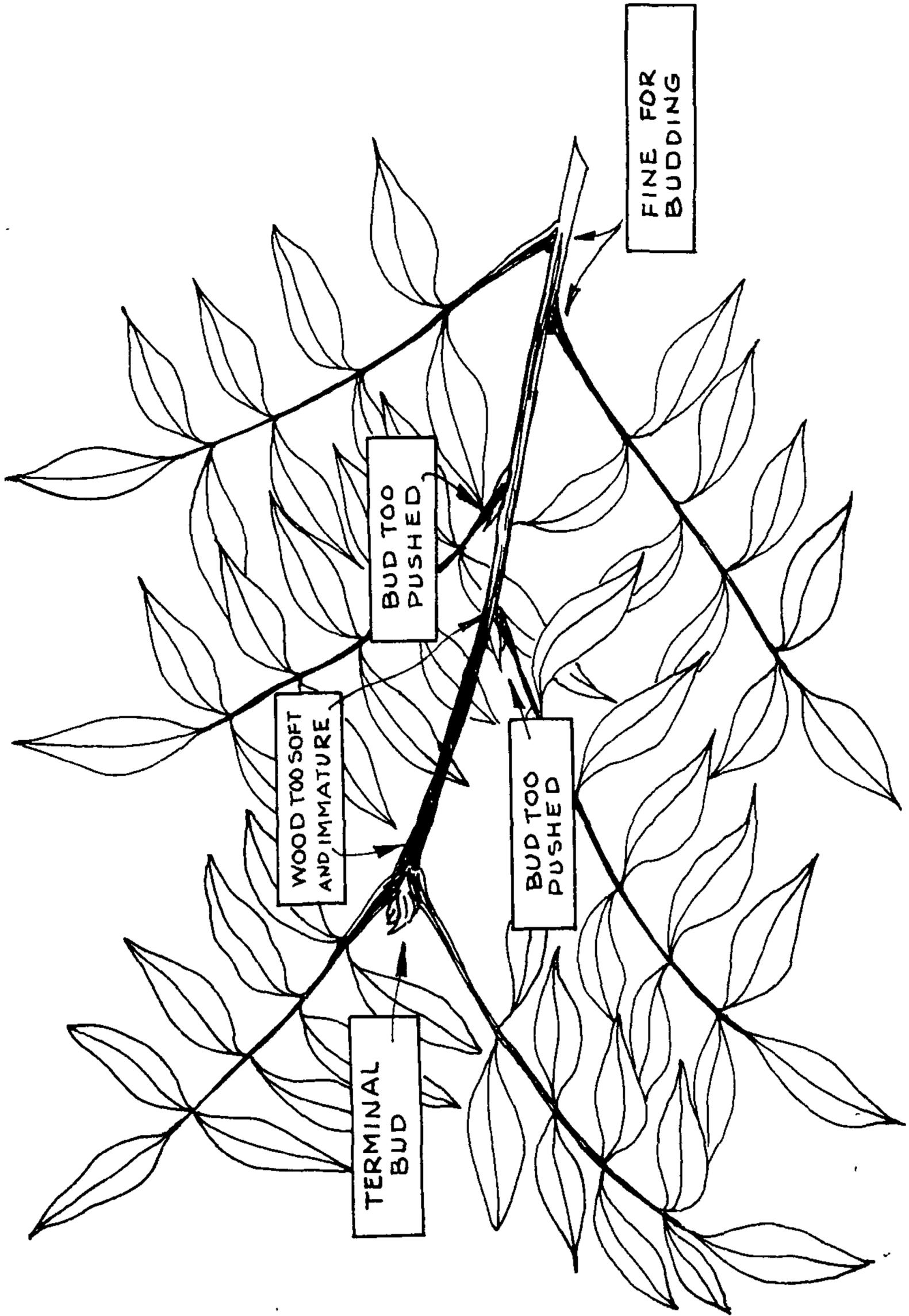


Figure 1.—*Pistacia chinensis* shoot with buds in different stages of development in relation to budding.

3. The third root pruning is done at the end of the second season, about 3" deeper than the second root pruning and for the same reasons.

Digging the tree for planting on streets is done about a month later and at the same depth. We examine, make clean cuts and correct or remove objectionable roots at every opportunity when roots are exposed. All three of these methods give us about a 9-inch undivided tap root and 18 inches of additional branched roots, trained and selected for growing deep. We are now able to produce trees ready for street planting in two years. We realize that our method is more expensive than commercial methods, but the results are more satisfactory in the long run. We expect very soon to be using one system, greatly simplified.

We are testing other techniques, such as starting the seed in a greenhouse or hot bed in December. This method will have the tree ready for the first root pruning and transplanting by the time danger of frost is over. This will give us a larger and more fully developed tree.

Each year, we select some of our most outstanding seedlings and plant them where they can be observed in our vicinity, hoping to select a better source of seed or bud stock.

By planting large numbers of cross-pollinated seeds and observing them, we have already developed two trees with a combination of several good qualities. We may soon be using these new varieties for our source of root and bud stocks.

We wish to thank the U.S.D.A. staff at Chico; Mr. Van Rensselaer, Director of Saratoga Horticultural Foundation; and Dr. Harris, Landscape Horticulture, University of California at Davis, for their help and encouragement.

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CHAIRMAN FOWLER: When and for how long do you bend the *Pistacia chinensis* at an angle to produce low branch development?

MR. LONG: Well, this year we thought we would be successful without doing it, and so it was quite late (early, September) when I found I wasn't getting as much low branch development as I wanted. I bent them over by running a wire two feet high down between the rows, pulled them over, and with plastic tape just gave them a quick tie. In three weeks, 90% had all the side branching they needed and I was afraid to leave them down any longer, because at this time of year, they might get so hard when we went to straighten them back up, some might break. I hate to take so much time on this, because I don't think you wholesale nurserymen can quite go to that trouble — but for us concerned with street tree planting, it is worth a lot to us, because it saves money in not having to stake them so long, and they don't sunburn. I will go ahead and follow up on what I am going to do another year. I really believe now with some I tried this year that the most successful way is in the spring when we cut back. We cut about 5 inches above the bud and then we destroy the buds that are above our scion buds.

When that scion bud starts, we have that stem to tie it to, and we do not place a stake to the side. We don't put up the stake until the new shoot is up about three feet high. This year, I am going to bend them at that time. When they begin sprouting, we will put in the stake and cut that five inch stub off.

CHAIRMAN FOWLER: How many years do you have to stake this tree before it will support itself?

MR. LONG: If I can put them out on the street with plenty of low branches, I don't need a stake or a support more than two years. If they go out straight, it may take six years, and so we have to go back and restake them. The little extra trouble I can go to in training is worth it.

CHAIRMAN FOWLER: With *Pistacia chinensis*, does a root bound condition in a gallon can indicate a complete loss?

MR. LONG: Well, it's a complete loss as far as the use that we have for it. I wouldn't take one of them even as a gift.

Chairman LeValley introduced Mr. Robert Weidner, Buena Park Greenhouses Inc, La Habra, California.

PROPAGATION OF TROPICAL PLANTS FOR THE FOLIAGE PLANT TRADE

ROBERT WEIDNER

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There is scarcely a species in this field that is difficult to propagate. There is scarcely a field where disease is so great a factor. For this reason, we can never separate disease control from propagation.

We have reduced cutting loss to a point so close to zero that it no longer interests us to figure loss. Cuttings grown under glass are expensive! We cannot afford to lose them.

In addition, under the sanitary conditions of the U. C. System, we have cut production time almost in half by being able to propagate a large percentage of our material in the pots in which they are sold. For example, Crotons take twenty-eight days to root to satisfy us. If rooted in bed, bare-rooted, then potted, we must allow nearly the same time for establishing. By rooting in the pot, we use merely the twenty-eight days. From our point of view, this is a gift of 60% to 70% more greenhouses.

We have the usual aids — low and high pressure mist, heating cables, fan and pad cooling, etc. We have learned from our use, which aids fit which plants.

We might divide all our propagation into several classes by methods.

- Leaf Cuttings
- Tip Cuttings
- Cane Cuttings
- Leaf & Eye Cuttings