

been able to root a single one. We produce it by grafting on unrooted cuttings of *Chamaecyparis pisifera plumosa* with satisfactory results.

*Chamaecyparis pisifera plumosa* roots very readily in both summer and winter. In fact, before we could afford a greenhouse, we rooted them in cold frames.

MODERATOR HESS: Thank you, Joe, for a tremendous job. Our next speaker will be Dick Fenicchia who will talk on the propagation of the dove tree from seed.

### PROPAGATION OF THE DOVE TREE FROM SEED

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In 1869 the French missionary priest, Abbe David, discovered a remarkable tree while making botanical collections in the western Chinese province of Szechuan. In 1871 it was named *Davidia involucrata* for its discoverer. Nineteen years later the hairless-leaved variety which has proved to be usually hardier than the first hairy-leaved type, was found in the same province and another explorer sent seed to the French horticulturist, de Vilmorin, who raised one plant. The news of this rare discovery reached the Veitch Nursery in England, then at the height of its prominence. They sent E. H. Wilson on his first expedition to China (1899-1901) for the sole purpose of bringing this plant into cultivation. This was a successful venture since from the fruits sent back at this time the Veitch Nursery produced thirteen thousand seedlings. In 1903 and 1904, Wilson collected the pubescent-leaved type for Veitch who now were able to offer his diary of 1910 and the entry for May 30 and 31:

"On a precipitous slope facing our lodgings, a score or more *Davidia* trees occur; they vary from 35 to 60 feet in height and the largest is six feet in girth. The bark is dark and scales off in small, irregular flakes. The flowers and their attendant bracts are pendulous on fairly long stalks, and when stirred by the slightest breeze, they resemble huge butterflies hovering amongst the trees. The bracts are somewhat boat-shaped and flimsy in texture and the leaves often hide them considerably but so freely are they borne that the tree looks, from a short distance, as if flecked with snow. To my mind, *Davidia involucrata* is at once the most interesting and beautiful of all trees of the north temperate zone."

W. J. Bean of Kew points out that *Davidia* stands much apart in the vegetable kingdom; its nearest ally is considered to be *Nyssa*. In the latest study of the forests of China by C. W. Wang (Harvard University, 1961), both forms of *Davidia* occur in the mixed deciduous forests of both eastern and western Szechuan Province in China; *Davidia* is locally abundant in eastern Szechuan at elevations of 1,600 to 2,400

meters elevation. From a study of the fruits of *Davidia*, K. A. Beckett, in the *Journal of the Royal Horticultural Society*, January 1962, gives some support to accepting a third form, var. *laeta*, as grown from Wilson's collections in the same area.

Fruits were gathered about the middle of October from several plants in Durand Eastman Park, Rochester, New York.

Seeds were immediately given an after-ripening warm period of five months. Seeds stratified between layers of sand in a tub and kept moist at all times. They were stored in a warm temperature of 65 to 70 degrees.

Seeds were stratified in this mixture from middle of October 1964 until March 3, 1965. On March 3, 1965, seeds were removed from stratification box — washed and cleaned — all pulp removed from stones.

After a drying period of several hours, the seed was then dusted with fine sulphur. Seeds were then stratified in layers of sand in stratification box. Seeds were then subjected to a cold period March 3, 1965. Box was set outdoors to freeze under natural conditions. Seeds remained outdoors all summer and sand was kept moist at all times. After twelve months of stratification to March 3, 1966, seeds were removed from stratification box, brought into the greenhouse and planted in flats.

(Seeds received two warm after-ripening periods and also received two cold dormancy periods.)

While removing seeds from stratification box, I noted radical and cotyledon development. Media used in the planting of these seeds comprises equal parts of sand and sandy loam.

After seeds were inserted in this mixture of soil they were firmed in at soil level and then covered with 1/2 inch of sand. Sand was firmed in; flat was immediately watered in, set in the greenhouse at a temperature of 65 to 70 degrees. The following day the flats were saturated with a fungicide (Captan or Fermate) — three or four weeks after flats were brought into warm greenhouse, sporadic germination began to take place. Seedlings are subject to stem and root rot. Fungicide sprays are helpful in preventing spread of diseases. Watering also plays an important part during the germination of the Dove Tree. During the germinating period, the soil should be on the dry side. Water should be given only to maintain soil moisture. During the germinating period and as the seedlings progress to a height of three inches more water can be given to the flats. Actually, the Dove Tree consumes a lot of water.

About the middle of July, seed flats were put outdoors to acclimate and harden them off. After several light frosts, seed flats were taken into a root cellar to be stored for the winter months.