TECHNICAL SESSIONS
Tuesday Morning, December 8, 1981

The thirty-first annual meeting of the Eastern Region of the International Plant Propagators' Society convened at 8:15 a.m. in the Grand Hall of the Holiday Inn, International Drive, Orlando, Florida.

PRESIDENT WOTT: Welcome to the thirty-first annual meeting of the Eastern Region of the International Plant Propagators' Society. This morning I would like to point out that it is a pleasure for us here at the Eastern Region to host the International Board. I would like to introduce from the Australian Region, Adrian Bowden; Great Britain and Ireland Region, Tom Wood; Western Region, J. Harold Clarke; International President, Donald Dillon; Vice-President, Raymond Evison; International Editor, Hudson Hartmann; and International Secretary-Treasurer, William Snyder.

We have an exciting program for you. I know that John Sparmann has put a lot of service into the program. I will now turn the program over to our first moderator, Don Shadow.

Editor's Note: Kathleen Freeland moderated a group of short presentations on solving difficult propagation problems. The following papers by Alfred Fordham, Leonard Savella, Richard Jaynes and James Wells were part of that session. Kathleen Freeland read James Wells' paper in his absence.

ELLIOTTIA — PROPAGATIONAL DATA FOR FOUR SPECIES

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Elliottia racemosa, the Georgia plume, is a small tree or large shrub native to the state of Georgia and southcentral South Carolina. A review of the literature concerning it reveals a history of frustration and disappointment. Despite the fact that it was discovered more than 180 years ago, and despite the fact that its impressive characteristics have often been described, it is still an exceedingly rare plant in cultivation. It has been reported to have lost its ability to produce seeds, to be difficult or impossible to transplant (even in areas

where it is native) and to have failed in most propagational efforts. It was also reported that a mycorrhizal association was necessary for the germination of its seeds and the well being of its propagules.

E. racemosa was discovered in the vicinity of Franklin and Hart Counties, Georgia, by William Bartram in 1773 and was later named for Steven Elliott who prepared the "Sketch of Botany of South Carolina and Georgia". For a time *E. racemosa* was considered lost. Through cutting of the woods and clearing of land for agriculture the original stands disappeared. Dr. Asa Gray visited the region and wrote "Not a vestige of *Elliottia* (in Columbia county) remains. A small patch is said to exist in Edgefield County, South Carolina, but all efforts to find it have failed."

Fortunately, the threat of extinction no longer exists and a number of stands have been found more recently both in the area of the original find and down into central Georgia. Also, information concerning pretreatment to germinate the seeds and a simple method of propagation by rooting juvenile shoots are now known. Therefore, there seems no reason why this beautiful subject should not become common in cultivation.

Propagation of Elliottia racemosa by Cuttings. In 1962, while visiting Mr. Henry Hohman of Kingsville Nursery, Kingsville, Maryland, we viewed his two plants of *E. racemosa* and discussed its propagation. A month or so later, the smaller of the two plants, a fine 8 foot specimen, arrived at the Arnold Arboretum from Mr. Hohman with his suggestion that I work out a method for its propagation. During my visit we had discussed the use of root cuttings in propagating *E. racemosa*, and when Mr. Hohman dug the plant he did not fill the resulting crater but let it remain empty. He thought the severed roots left in the crater well might produce shoots. This worked well, and a year later 18 plants were harvested from within the crater.

Mr. Hohman's plant prospered at the Arnold Arboretum and flowered well each year with inflorescences terminating the current seasons growth (Fig. 1). It should be noted that *E. racemosa* had not previously proven hardy at the Arnold Arboretum. The accession records show that all prior efforts to establish the species ended with the notation, "winter killed." Alfred Rehder in his "Manual of Trees and Shrubs" considered *Eliottia racemosa* to be a Zone 7 plant. Therefore, our specimen was lifted each autumn and placed in a cold storage unit. By 1972 my propagation trials had been successfully completed so our Hohman plant was planted out-of-doors to test its hardiness. It was positioned part way up a steep slope so that

on nights of radiational cooling cold air would drain away from the plant. Since that time it has survived with varying degrees of damage from winter to winter. Inflorescences terminate the current season's growth; therefore, flowers appear even after winters in which damage occurred.

Figure 1. Inflorescences terminate the current seasons growth — therefore, flowers can appear even after winters in which damage occurs. Photo A.J. Fordham

Repeated attempts were made to root stem cuttings of *E. racemosa* using an assortment of root inducing substances and a variety of timings. Success was mediocre. The next effort was to test whether or not root pieces would produce shoots. Shoots that arise from roots are physiologically juvenile and will root despite the fact that stem cuttings from the same

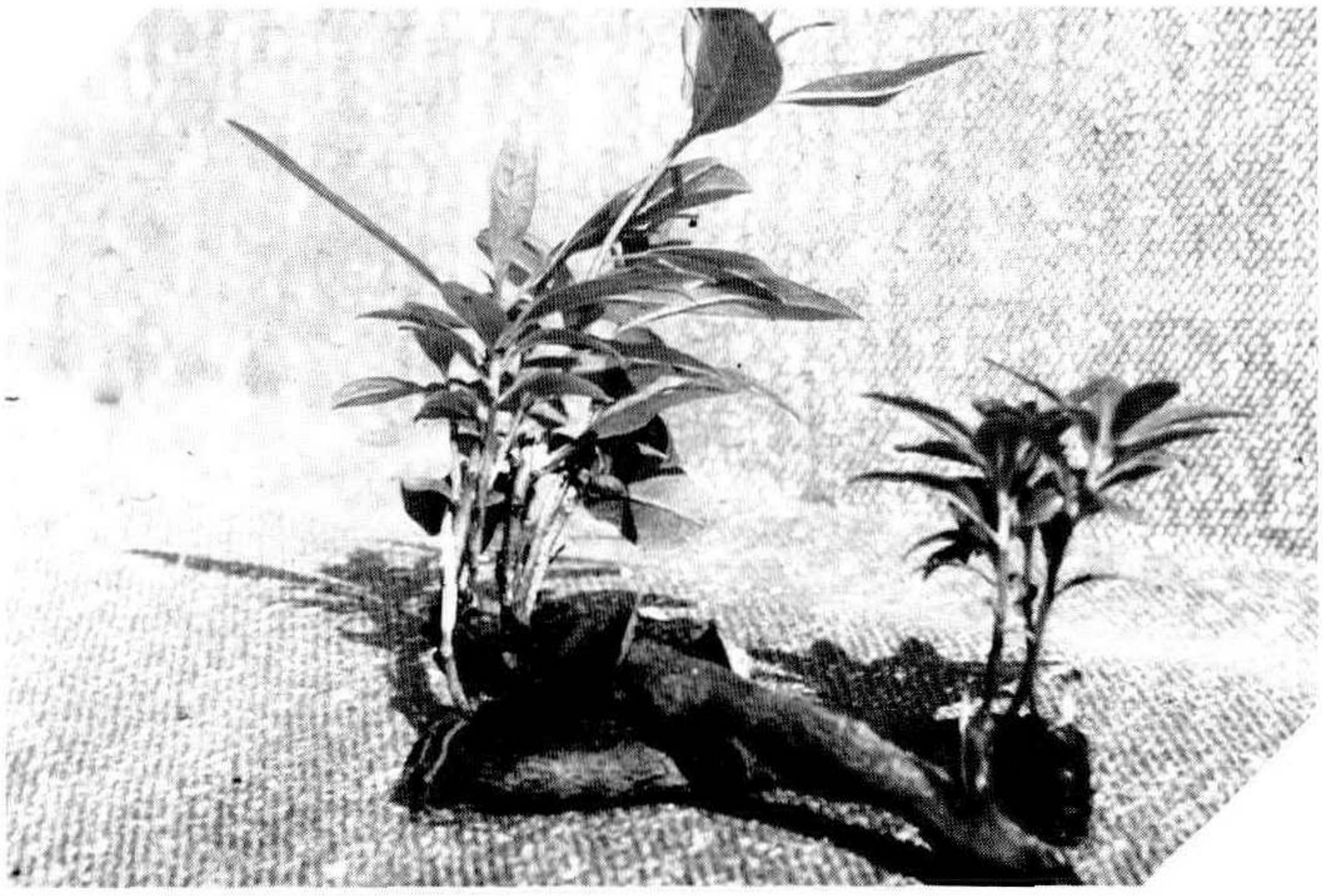

Figure 2. Shoots that arose from root pieces were physiologically juvenile and rooted very quickly. Photo A.J. Fordham

plant will not. With this fact in mind, root sections about ⅜ of an inch in diameter and about 4 inches long were taken from the plant when it was dormant. They were placed about ½ inch deep in flats of sandy soil. This was done on March 24th and by May 19th multiple shoots began to appear. The pressure of spring work was such that shoots were not taken from the roots until early July. By this time they were firm and woody (Fig. 2).

The first crop of shoot cuttings was divided into two lots. Lot #1 was treated with a root inducing product containing 3 mg of IBA in a gram of talc with Thiram added at the rate of 15%. Lot #2 was treated with a formulation consisting of 8 mg IBA plus 15% Thiram. In each case all cuttings rooted and did so quickly. The root pieces were left in place in the flats and they continued to produce shoots for 3 years. In autumn when they went dormant, they were transferred to a cold storage unit. In spring, when returned to the greenhouse, new crops of easily rooted shoots arose. These propagules have never presented survival problems.

Propagation of Elliottia racemosa by Seeds. Flowers of *E. racemosa* are attractive to pollinating insects. Observations at both Arnold Arboretum and the Watnong Nursery, Morris Plains, N.J. showed that one species of butterfly and 4 kinds of bees visit the flower in large numbers. The fruits, which develop after pollination, are 4 or 5 lobed capsules. The seeds are completely surrounded by a wing and are dish-shaped. Only a small percentage of the seeds are sound; many seeds abort. This, no doubt, can be explained by Dr. Frank Santamour's discovery that *E. racemosa* pollen is only 4% viable. In the literature one finds references stating that the plants are self-sterile and different clones are necessary to effect cross pollination. This, however, is not correct since isolated plants at the Henry Foundation, Watnong Nursery, and Arnold Arboretum have each produced sound seeds.

E. racemosa seeds have a cold requirement that must be satisfied before the seeds germinate. They can be prepared by mixing them with a dampened medium of sand or peat moss. The combination is then placed in a polyethylene bag and bound at the mouth with a rubber band to make it vapor proof. Three months of stratification in a refrigerator set at about 40°F prepares the seeds for rapid germination when they are sown. This recommendation applies to seeds treated within a few months of collection. Older seeds tend to acquire secondary dormancies and their behavior becomes unpredictable.

Propagational Information for Three Species of Elliottia.

In 1978 a team of plant taxonomists at the Harvard University Herbaria, using evidence from anatomy, chemistry, morphology and palynology, placed the following species in the genus *Elliottia*. Some propagational data are listed below with the thought they might provide guidance to those working with these plants.

1. *Elliottia bracteata* (previously *Tripetaleia bracteata*) Seeds had no dormancy and softwood cuttings rooted readily.

2. *Elliottia paniculata* (previously *Tripetaleia paniculata*) Seeds had no dormancy and softwood cuttings rooted readily.

3. *Elliottia pyroliflora* (previously *Cladothamnus pyroliflora*) Seeds germinated after 3 months of cold stratification at 40°F.

REFERENCES

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2. Fordham, A.J., 1969. *Elliottia racemosa* and its propagation. *Arnoldia* 29: 17-20.

3. Lee, Clermont H., 508 East 57th Street, Savannah, GA 31405. Personal correspondence, 1968-73.

4. Wood, C.E., Jr., 1961, The genera of Ericaceae in the southeastern United States. *J. Arnold Arb.* 42: 10-80.

PETER VERMEULEN: I have a question regarding hardiness in *Elliottia*. Watnong Nursery is in north central New Jersey and the plant looked good in your slides. We have had −23°F in our area. Do you think that the range extends beyond the Philadelphia area?

AL FORDHAM: No. I think the plant looked good as it was in a favorable location and the past winter had not been too severe. If a bad winter occurs the plant would, no doubt, be badly damaged or killed as would be the case in the Boston area.

HOW I SOLVED THE PROBLEM

LEONARD SAVELLA

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Propagation of *Picea pungens* 'Glauca' and other cultivars by grafting has been a successful method at Bald Hill Nurser-