

DR. MAHLSTEDE: We've irradiated them, but we haven't set up this dosage yet. As you might imagine that it is pretty sensitive at this time. We've killed everything we've treated so far.

VOICE: Have you been able to find any chromosomes yet in these cells?

DR. MAHLSTEDE: Yes, but of course, with *Kolkwitzia* they are difficult to find.

JIM ILGENFRITZ: John, do you have any data on the number of generations or divisions or the length of time before we begin to get differentiation from a single call?

DR. MAHLSTEDE: We haven't determined the exact number of divisions but certainly there are a great number of them.

MODERATOR TOM PINNEY: At this point we have asked five Canadian Nurserymen to discuss propagation of difficult, unusual and rare plants. At this time it gives me real pleasure to introduce the first of these gentlemen whom all of you I am sure know, Mr. Ray Halward of the Royal Botanical Gardens.

PROPAGATION OF DIFFICULT, UNUSUAL AND RARE PLANTS

RAY E. HALWARD
Royal Botanical Gardens
Hamilton, Ontario, Canada

The plants included in this article are not necessarily difficult to root, but certainly could be classified as unusual, especially in our area. The *Davidia* or Dove Tree has been mentioned in previous papers. In 1958, Miss Mary Milton, former propagator of the Morris Arboretum, related its performance in the Philadelphia area. In 1960, Alfred Fordham, explained the best treatment for seed germination. My interest in *Davidia* was aroused in 1960, when I observed a 30' specimen growing in Hamilton. It was imported in 1935 a 6' plant from Daisy Hill Nurseries, Neury, Northern Ireland, and given some protection with evergreen boughs for four years. In 1947 it flowered for the first time, and has flowered every year since that time. I tried rooting softwood cuttings on two occasions and was unsuccessful. In the meantime, seed I had received from Denmark and the Arnold Arboretum in 1960, had germinated and were doing quite well, in an acid medium under lath house conditions. On July 14th this year I took the cuttings from the seedling plants which were over six feet high. The cuttings were six inches long and the large leaves were reduced in size. They were dipped in a mixture of one half Captan 50 W and one half Seradix No. 3 and they were put in boxes with a mixture of four sand and one peat, and put under intermittent mist with bottom heat supplied by a cable set at 70°.

In the first lot of 22 cuttings from the Danish source, only six were rooted by October 31st. In the second lot of all cuttings from the Arnold Arboretum's seedlings, five of which had

been wounded lightly, eight were well rooted by October 31st. It was obvious that wounding had aided considerably in the root formation.

Other plants which I have had success in rooting under exactly the same conditions as for *Davidia* are listed below, and may act as a guide for someone wishing to propagate the same species.

Date	Name	No Cuttings	Hormone Used	Transplanted Date	No Rooted
7/20/61	<i>Acer tegmentosum</i>	84	Seradix #3	Sept. 27	50
7/22/60	<i>Acer carpinifolium</i>	15	Seradix #3	Oct. 7	11
7/20/61	<i>Corylopsis sinensis</i>	50	Seradix #1	Sept. 22	48
7/13/60	<i>Halesia monticola</i>	50	Seradix #1	Oct. 7	35
7/13/60	<i>Pterostyrax hispida</i>	24	Seradix #1	Oct. 6	16
5/30/62	<i>Parrotia persica</i>	5	Seradix #3	Aug. 27	5
7/8/65	<i>Prunus Maackii</i>	10	1/2 Seradix #3 1/2 Captan 50W	Sept 28	7
7/19/65	<i>Stewartia Pseudocamellia</i>	44	1/2 Seradix #3 1/2 Captan 50W	Sept. 29	40

PROPAGATION FROM CUTTINGS OF PICEA PUNGENS 'GLAUCA GLOBOSA'

JENS PEDERSEN
Rose Arbor Nurseries
Oakville, Ontario, Canada

We have propagated this dwarf blue spruce from cuttings in cold frames in the shadehouse for the last few years with fairly good results. We take the cuttings about June 20th with a good heel, this is important. We do not strip the needles off. We put the cuttings in flats as we find this is an easy way to move them. It takes 18 months to get a good root before transplanting by the first fall. We leave them in the cold frames for the winter and about June the following summer, we take them outside in the shadehouse. As our medium has very little nutrients, if any, we use some fertilizer at this time.

The following spring we plant them out in beds with 40% shade. Our medium is 50% sharp sand and 50% perlite or similar material. Be very careful not to over water. Our catch is about 65 to 75% and we use the same method for all dwarf spruce.