R. yedoense var. *poukhanense*. The cross was made to increase the hardiness of *R. y.* var. *poukhanense;* it blooms about 2 weeks later than anything else. It is hardy and is grown in Rhode Island; we sent some to Alabama and it stands the heat there. I sent some to the West Coast and have heard very favorable comments from there. I entered it in the New York Azalea Show 2 years and both times it won first prize.

AL FORDHAM: Joerg Leiss has a plant he would like to describe.

JOERGE LEISS: This is a weeping form of *Cercidiphyllum japonicum;* and only other one I know of was found in a temple garden in Japan and has been described in the literature. This one has been grafted on a 6 ft stem of the normal Katsura tree. It grafts quite readily as long as you do not trim the stems up too quickly; otherwise the stem will die back.

FRIDAY EVENING SESSION
December 7, 1973
PROPAGATORS' POTPOURRI

The Friday evening session convened at 8:05 p.m. Larry Carville served as moderator.

MODERATOR CARVILLE: The Potpourri is a little different concept than our usual Question Box in that I've asked two of our members to begin this evening's program with slide presentations showing some new and innovative methods and techniques. Some of these new ideas you saw last night when the tour leaders were discussing the different tours which we went on in England. Some of you were not able to go with us on the "Propagator's Tour of a Lifetime" and I felt it would be a good idea to try to show you some of the things they are doing over there. I've asked Hugh Steavenson to lead off this evening's program by showing you some slides of a new technique that we saw on the tour in England.

EDITOR'S NOTE: Mr. Steavenson showed slides and discussed a jacketed cold storage unit for nursery stock; conifer seedlings and transplants can be stored in these units for as long as 18 months and then taken out to the field and planted with as much as 98% survival. Their soil fumigation procedures are much like ours except that they do not use methyl bromide because a licensed applicator must be hired to do this and it is too expensive. Planting boards of a specific width and notched to indicate where the plants are to be set are used at one nursery and

planting using these boards is as fast as any of the mechanical methods that we use. They have mechanical lifters which bundled trees as they are dug in the field. Slides were shown of a machine which rolls out a layer of polyethylene. Peatmoss and seedlings are placed on it and it is then rolled up forming what is called a jelly roll pack. The rolls are placed on a truck and taken to the field where they are grown for one season. The seedlings are then moved or shipped to areas where they are to be planted in their final location. Mr. Steavenson also commented on the constant training programs used in England to continually upgrade their workmen.

MODERATOR CARVILLE: The jacketed cold storage unit was discussed in several of the papers from GB&I in Volume 20 of the Proceedings. The main concept we wanted to present to you is the growing of seedlings essentially in a shipping container.

Another new concept which we want to present to you tonight is controlling the environment for liners in northern Michigan. Rich Brolick of Zalenka's Nursery will show you what they have been doing in this regard.

EDITOR'S NOTE: Mr. Brolick showed slides and discussed the construction of two structures each 114 ft wide by 1911 ft long. The two structures provide about 10 acres under lath. The structures are domed with 12 ft sidewalls and are about 23 ft high at the center. It is constructed of zinc-plated steel tubing 1-1/2 to 2 inches in diameter all bolted together with galvanized fittings and was covered with 3600 rolls of snow fence. The central portion of the structures are open and of sufficient height so that trucks, tractors, planters and other field equipment could be used inside without impairing their operation. The cost of the structure was given as 42 cents/sq ft of useable area though estimated cost on a new structure to cover another 5 acres is estimated to be 60 cents/sq ft of useable area. The present structures have withstood winds up to 65 mph without any damage.

MODERATOR CARVILLE: In their area it is necessary to have a structure which snow can freely pass through and so they have used snow fence. I'm sure many of us will be keeping an eye on these structures to see how well they work for you.

We will now begin with questions for this evening's program. The first one is for Arie Radder. How critical is the depth of inserting rhododendron cuttings into the medium. One article said that it was important not to insert the cuttings any deeper than needed to keep them upright?

ARIE RADDER: We have never been too fussy about this, but we insert the cuttings about 1 to 1-1/4 inches deep into the medium.

MODERATOR CARVILLE: Another question for you Arie; in your talk you said you discontinued using Benlate in your hormone mixture for rhododendrons but you drenched the cuttings at least twice with 50% Benlate after they are in the bench. Please explain.

ARIE RADDER: Dr. Hoitinck still thinks Benlate is necessary, but when we were using it in our hormone mix we were getting stubby roots and slow rooting on some varieties so we went back to Phygon and got much quicker rooting.

MODERATOR CARVILLE: Does anyone else wish to comment on the use of Benlate in the hormone mix?

JOHN SPARMANN: We tested Benlate in several combinations with IBA for rhododendrons in Florida and we find that Phygon is much superior.

MODERATOR CARVILLE: Does paraquat have any bad effects when used around tree stems, specifically birch and *Tillia*, in nursery rows?

ELTON SMITH: Paraquat will kill any green tissue and I have seen some problems where green tree stems were hit by this material. Caution is needed when you are using paraquat around any tissue which is green.

MODERATOR CARVILLE: Is there a winter control for crabgrass that will last into the summer?

ELTON SMITH: Simazine will control crabgrass but whether or not it will last into the summer depends on many factors. I have had it last into the summer from a fall application at 3 pounds active material per acre but at low rates it will not control it.

MODERATOR CARVILLE: Elton, were any trials made using herbicides on seedbeds?

ELTON SMITH: No, they were not.

FRANCES GOUIN: A couple of years ago I applied herbicides to pine and spruce beds immediately after seeding and topped with a mixture of half sand and half sawdust. This was a fall seeding and CIPC was applied at 8 pounds per acre and then the beds were covered with straw for winter protection. I had very good seed germination and no mustard or chickweed in the CIPC treated plots, but the untreated plots were badly infested with these two weeds. This was only one year's work and I intend to repeat it.

RALPH SHUGERT: I have used dacthal on seed beds of conifers, most woody ornamentals, and many perennials and have only killed one plant with it. I want to caution that anyone using this material should be sure that the seedlings have their

true leaves formed before the material is applied. If the seedlings are still in the cotyledonary stage it will kill them. I applied the material at the rate of 12 pounds per acre as it comes from the bag.

MODERATOR CARVILLE: Can *Syringa amurensis* var. *japonica* seed be germinated earlier by warm treatment?

BILL CUMMING: Based on our work at Morden, seed stratified for 2 months at 40°F followed by 2 months at 70°F and planted out in May will hasten the germination by about 6 weeks.

RALPH SHUGERT: In Nebraska I sowed the seed in the fall and got about 60 to 65% germination in the spring. This was with no prior stratification.

MODERATOR CARVILLE: What is a cheap product to color seed coats for ease of seeing in seeding operations?

HUGH STEAVENSON: Venetian red should do it.

MODERATOR CARVILLE: At this point I want to ask Frank Gouin to show us slides on some work he has been doing with respect to depth of sticking of cuttings.

FRANK GOUIN: Nursery practices are constantly evolving and sometimes these new practices can get us into trouble. In Maryland, some of our growers have been experiencing increased losses up to as much as 90% in the rooting of rhododendrons and azaleas. In an attempt to determine the cause of this, I observed that the rooting medium depth has evolved from 5 to 6 inches or deeper in a bed down to 2 to 3 inches in a flat and in one instance about 1 to 1-1/2 inches deep in a plastic tray. So what has happened? The media have remained the same, the depth of sticking has remained the same, but the water table has been gradually moved up closer to the surface of the medium. I believe that oxygen is needed for the rooting of ericaceous plant materials especially and, as you go deeper in the medium, you have less oxygen and more water. I set up a small test to demonstrate the effect of depth of sticking on the rooting in flats. The results were quite dramatic. On those cuttings stuck deep the base rotted off and sent out roots in the upper portion of the medium; on the cuttings stuck only 1/2 inch into the medium, we stuck 250 cuttings and got 250 with good root balls. The cuttings were treated similarly in both instances except for the depth of sticking. These are the results of only a one year study and we intend to repeat it next year in a more elaborate fashion but I offer this information to you as something you may also want to consider.

MODERATOR CARVILLE: Those of us who have had the experience of sticking cuttings in 6 inches of medium then going

down to a 4 inch depth and possibly changing again to 3 inches of medium because you're going into some sort of a pot operation and rooting percentages have decreased along with these changes because you have not considered this correlation may well want to look into this depth-of-sticking in more detail.

JOHN ROLLER: I'd like to ask Dr. Gouin if he has ever worked with pine sawdust as a rooting medium. I've been a big advocate of this material for a long time because it is almost impossible to overwater.

FRANCES GOUIN: When I was in New Hampshire we did use it for the rooting of lilacs, but I have not used it since I've been in Maryland.

MODERATOR CARVILLE: Jim Wells, I have two questions for you. (1) Does Aqua-gro cause higher salt accumulation and, (2) what is a good water pressure for misting plants to avoid droplets?

JIM WELLS: No — and 800 psi in that order.

MODERATOR CARVILLE: Jim is being very cautious tonight; he had dinner with Tour A.

I have some questions for Dick Wolff; would you explain the side grafting technique you use on Japanese maples and the need for waxing?

DICK WOLFF: I have drawings of this technique and will submit them for insertion in my paper. The need for waxing arises because if that graft is not tight, air will get in, the cut surfaces will dessicate and the graft will not take.

MODERATOR CARVILLE: Do you cover the graft area with perlite and do you leave the top of the bench open?

DICK WOLFF: The graft area is not covered with perlite; it is used only to keep the base of the pot moist so it is not pushed into the perlite very deeply. The tops of the benches are left open.

MODERATOR CARVILLE: Do you graft red on red seedlings or red on green seedlings or is there no difference in graft takes?

DICK WOLFF: All of our grafting is done on *Acer palmatum* 'Littleleaf' which is the green Japanese maple. If you graft on the red seedlings you just don't get the growth out of them. Years ago we did do some grafting on red seedlings but in an attempt to standardize and make our product more uniform we've gone entirely to the 'Littleleaf' understock.

CASE HOOGENDOORN: Were your percentage of takes as good on the red understocks as on the green understocks?

DICK WOLFF: I can't really answer that because that was a

number of years ago and I was not as skilled at grafting then as I am now; as my grafting skill has increased over the years, so have the percentage of "takes." I really can't make a fair comparison.

MODERATOR CARVILLE: Joe Cesarini, would you explain your procedure for rooting dormant cuttings of *Acer palmatum* cultivars?

JOE CESARINI: Sometime in February, depending upon the weather, we go out and select stems and bring them in and cut them into pieces, cutting just above each set of nodes. The cuttings are wounded slightly and treated with 1% IBA in talc. These are stuck in a mixture of peatmoss and perlite which is very dry; if you can squeeze water out of it it is way too wet. The cuttings are stuck close together in the flats and are kept cold on the top with perhaps just a little bottom heat. The cuttings are left in the flats outside all during the next growing season. In February, they are brought in and potted in 3-inch pots and pinched to fill them out. These are later transferred to 3-gallon cans.

DICK WOLFF: I took some of the green dormant tops which we were cutting off from our grafts and made cuttings of these. They were dipped in 1.2% IBA with some fungicide added and stuck in a very dry peat-perlite mixture, just as Joe has described, and these were well rooted in 40 days. About 95% of them rooted; and they were potted up and grew just fine.

I tried rooting some completely dormant 'Littleleaf' taken a month earlier and they rooted but they were a lot slower. I also tried rooting some of the red varieities such as 'Bloodgood' and although the rooting was only about 60% I believe this method is economically feasible.

We're experiencing a lot of bark explosion on the base of these cuttings during the first or second year after they are set outside. I was wondering if Joe is having any of this problem?

JOE CESARINI: We don't have much of that though occasionally a few cuttings turn black on the bottom but I don't know what causes it.

MODERATOR CARVILLE: Is there a material to remove sooty mildew from plant material in a closed greenhouse?

ARIE RADDER: Botran should do it.

MODERATOR CARVILLE: We now have another brief slide presentation which covers a new technique for storage of plants for growing on. This will be presented by Case Hoogendoorn.

CASE HOOGENDOORN: I copied this idea from Bald Hill Nurseries. They had a storage house 5 or 6 years ago in which they used to store their red Japanese maple and pink dogwood

cuttings. This is not a greenhouse but rather a storage house; I call it my "big deep hole". It is set 6 feet deep in the ground with a roof of corrugated fiberglass over the top. The idea behind this is that when we have a severe winter the frost may go down as much as 3 feet but, because we are below the frost line, the temperature will only go down to 37°F — at least this is what they tell me. Now we can rely on the temperature of the soil to prevent freezing of the materials we store in it yet we get sufficient cold to overcome the dormancy and it will be uniform — which will prevent splitting. I can't tell you anything about how this storage performs yet since this will be our first winter to use it, but I thought I could show you my "big hole in the ground".

MODERATOR CARVILLE: Case didn't mention it, but perhaps you noticed the fans and vents which are on automatic controls to ventilate heat from the structure on bright sunny days. Hopefully Case will be able to tell us more about this structure next year.

Another new technique which we saw in England involved apple production and I've asked Chiko Haramaki to show you some slides on what they're doing over there.

CHIKO HARAMAKI: With this new method of apple production they are planting 30,000 to 50,000 trees per acre. After the first year of growth the shoots are sprayed with B-Nine or Alar at 2500 ppm. This induces the whips to produce flower buds the next year and each whip will bear 5 to 6 apples. By this method they can get between 1,000 and 1,500 bushels of apples per acre. After the bearing year, the stems are cut off close to the ground and a new whip is allowed to form the next year but no apples are formed that year. In other words, with this method you get apples only every other year but the yields are fantastic.

One of the problems they're working on is the cost of propagating these trees. With 50,000 trees per acre the cost of planting material is quite expensive. They estimate that with current methods it cost them 75 cents per tree but they hope to bring it down to 25 cents per tree which will make this method economically possible. They are also looking at different methods of growing the trees such as trellising, different regulators to control flowering and fruiting, methods of harvesting and many other things related to this method of growing. It has stimulated a lot of thinking and trying of new things and even if the method itself proves to be impractical there should be many new exciting ideas come out of this work.

MODERATOR CARVILLE: This method has not been used in this country, it is still being developed in England. It does still have many problems associated with it but it does have the possibilities for studying all kinds of new practices such as methods

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