

since I feel that it tends to curl up the roots to too great an extent. I also believe that between the soil and the pot, root growth is definitely restricted. I have found that when the cuttings are placed in boxes containing humus (native Pennsylvania humus which is fine in texture and black) the roots are spread out and ready to grow immediately after they are in the transplant beds. Mr. Jack Hill indicated earlier that he likes to move his plants as rooted cuttings right into containers, without pott-
ing. I am certainly in agreement with him for the reason that the roots continue growth without any severe set-back.

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MODERATOR MAHLSTEDE: Thank you, Bob. Since we have agreed to hold all questions pending completion of the program our next contributor whom I have the privilege to introduce is Mr. Charles Hess, Sr.

Mr. Hess discussed the subject on "Rooting Cuttings Under Mist in Containers."

ROOTING CUTTINGS IN CONTAINERS UNDER MIST

MR. CHARLES HESS, SR.

Hess' Nurseries, Mountain View, New Jersey

A few years ago I had the pleasure of listening to Mr. Hancock discuss his burlap-cloud method of propagation. His talk interested me so much that the following summer we went up and looked at his operation. I was still more surprised. Seeing his operation led me to believe that we were working at a disadvantage. Our operations were too expensive and therefore it appeared to me that we should cut some corners. With this in mind, last summer we put up an outdoor mist unit using Harvey Templeton's nozzles and a minute interval timing device.

We did not start to make cuttings until August 13th. They were collected and trimmed in the usual manner and placed singly in plant bands containing a mixture of one-third vermiculite, one-third styrofoam, and one-third peat. We put these bands in a bed which was surrounded with a plastic windshield and covered with cheesecloth. We installed a timing device which operated between 6 A.M. and 8 P.M. at a frequency of one minute on and four minutes off. All cuttings rooted within two weeks with the exception of *Taxus spp.*, *Juniperus hetzi*, and *Ilex opaca*. The *Ilex* rooted in three weeks, the Juniper four, and the *Taxus* took about six weeks.

In this operation we attempted to get a finished product with the minimum amount of labor. The rooted cutting is ready for shipment, in a light weight medium. We found that by using this method we obtained better results in a shorter period of time than if we had used a greenhouse. It is a very cheap operation enabling us to sell a better product for less money.

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MODERATOR MAHLSTEDE: Last in the sequence of discussions of propagation techniques under mist I have asked Mr. A. R. Buckley, of the Dominion Arboretum, Ottawa, Canada to speak on some of his observations regarding the rooting of cuttings under mist and under polyethylene tents.

Mr. Buckley presented a discussion "Mist and Polyethylene Tents for the Rooting of Softwood Cuttings." (Applause.)

MIST AND POLYETHYLENE TENTS FOR ROOTING SOFTWOOD CUTTINGS

MR. A. R. BUCKLEY

Curator, Dominion Arboretum, Ottawa, Canada

Ladies and Gentlemen: First of all, I would like to take this opportunity to express my pleasure at being here at this meeting.

We at the Arboretum have quite a different problem from most of you, in that we are primarily concerned with rooting cuttings of woody plants in small numbers. After they have been rooted they are either placed on the grounds or occasionally disseminated to interested personnel. We had this past year the intermittent mist unit operated both with the minute timer and Electronic Leaf, as well as polyethylene tents, which were without mist. We had only minor difficulties with the Electronic Leaf control unit itself, although a malfunction of the solenoid valve necessitated replacement.

We started out with the idea of trying to determine what one of the particular methods of propagation was best. Unfortunately we had an excellent summer from the propagating standpoint and consequently it would be really impossible to say that one method was any better than the other, unless we interpret it in other terms.

We had less difficulty this year with plant survival after rooting. Although rooted cuttings transplanted from a mist bed gave us particular trouble last year, the difficulty was minimized this year. We never have had a problem transplanting from polyethylene tents.

The polyethylene tent was constructed of ordinary one-inch lumber in the form of a tent. The wood form was covered with half-inch chicken wire which in turn was covered with 1½ mil. polyethylene and factory cotton. Each frame is an individual unit and therefore portable. These frames were watered regularly three times a week. During the summer just past, the temperatures were extreme. Under these polyethylene tents the maximum temperature of 124° F. was not uncommon. If we haven't discovered anything about propagating we discovered that some plants can withstand extremely high temperatures without burning. There were some types which did burn severely. This was experienced generally when we took very soft cuttings, i.e., *Ulmus carpinifolia* which within two days from the date of placement were completely brown. This was also true of *Taxus* and juniper cuttings as well as *Fagus sylvatica aspenifolia*, the Fern-leaved Beech.