MODERATOR MAHLSTEDE: We certainly appreciate your giving us a very excellent talk, Don, of your conditions and methods of propagation in Hamilton, Bermuda.

The next paper is entitled, "Evergreen Grafts Under Plastic Covers," and will be presented by Hans Hess. He has driven over very treacherous roads to be with us for the afternoon, and I hope for the rest of the session. Mr. Hans Hess, Hess Nursery, Wayne, New Jersey.

Mr. Hess presented his prepared paper.

EVERGREEN GRAFTS UNDER PLASTIC

C. W. M. Hess, Jr.
Hess Nursery
Wayne, New Jersey

For many years there has been little if any change in grafting procedures. The well known pony sash or half sash have constituted the standard enclosure for the Wardian Case. These sash are quite heavy, have an abundance of sharp splinters, and to air the grafted plants they must either be hung or removed to the greenhouse path. This procedure requires about a minute per sash for removal and replacement. This short period of time in itself doesn't mean much until you multiply it by the one hundred and thirty sash in a four bench propagating house, one hundred feet long. Approximately fifteen hours a week are required for the average seven weeks the grafts are in the Wardian Case. You will find that your pocket is lighter by more than one hundred and fifty dollars on this basis.

Realizing this overhead expense, some growers have experimented with mist lines to eliminate the need for using sash. During the summer this has proved very successful in grafting Japanese maples, dogwoods and other deciduous material. Evergreen grafts for the most part do not like this type of treatment. Mist for winter grafting has not been very successful.

In the past five or six years we have seen great advances in the use of plastic, such as for lining greenhouses to conserve heat, building economical greenhouses and even as a substitute for glass. The need for a number of additional sash for a new propagating house and the prohibitive price, prompted us a few years ago to try plastic as a substitute. Light, one by two inch frames, four feet wide were constructed. Four mil plastic was then stapled to this frame. These sash, for labor and material cost less than one dollar and fifty cents, or about twelve cents a square foot compared to seventy five cents a square foot for the conventional pony sash. These sash proved superior to the pony sash, since they were much lighter and easier to handle. The grafts had far more light, since these sash have a narrow frame. There was less moisture loss than with conventional glass sash.

As more and more uses for plastic were found and advertised and from hearing Harvey Gray explain his vapor proof case we decided we might save some more time and money with these plastic sash. We cut our airing of the grafts from a daily operation to once a week and have

observed no change in the percentage of good plants. The deciduous material is not aired at all until time for hardening off. We find no mold problem if we apply a spray of Captan before closing the cases. For the outside grafting in early spring, we use a plastic cover over the grafts and sash on top with a twelve inch air space between. The plastic is left intact until the time comes for hardening the grafts.

This past year we have begun to use, on a limited scale, a different method, in our plastic cover, grafting procedure. The grafts are placed upright in the bench, the union plunged and the entire bench covered with a plastic sheet. This is removed each night at sundown and left off until the following morning. On cloudy days the plastic is left off all day. This procedure has given good results and the grafts come into growth naturally making them much stronger for field planting. The understock for this procedure must be spring potted for satisfactory results.

These are the uses of plastic which we have adopted to save time and labor in our propagation program. I sincerely hope that this information may be of use to the members of the Plant Propagator's Society.

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MODERATOR MAHLSTEDE: We now have ample time for any questions from the floor, relative to the use of plastic frames or sash covers on grafting cases or grafting beds.

MR. GERALD VERKADE: What type of understock do you use *on your junipers?*

MR. HANS HESS: We offer the customer a choice of either *J. chinensis hetzi* or *Juniperus virginiana* understock.

We grow our *J. virginiana* understocks. We take a one-year seedling and transplant it in April and it develops a very fine understock by fall. We have found that if these are then carried over and spring potted, that it is extremely difficult to control the blight because of the closeness of plants in pots.

MR. HOOGENDOORN: I haven't asked you, Hans, did you say summer grafting of maples and dogwoods is very successful under mist? Is that in a greenhouse bench?

MR. HAN HESS: Yes, that would be in a greenhouse bench.

PRESIDENT TEMPLETON: Hans, you said juniper grafts made in the winter under mist were not successful. Would you describe, please, in fair detail the conditions under which those grafts were carried? In cases where they failed, why do you think they failed?

MR. HANS HESS: We have used both peat and sand in which to plunge the union. In either case, with junipers, using mist, it seems that the amount of water necessary to keep the scion in good condition is detrimental to the healing of the union.

PRESIDENT TEMPLETON: How much light did you have on the grafts after they were made and while they were under mist? What was the light intensity?

MR. HANS HESS: This was done in the greenhouse with clean glass.

MR. VERKADE: You talked about propagating dogwood and maples in the summer. How do you winter these?

MR. HANS HESS: They have to be in a temperature controlled, frost free environment.

MR. EDWARD DAVIS: We do not graft a very large number of junipers. I thought ,however, that this might contribute a little something to this discussion. Some three years ago we decided that we could use the polyethylene cover on the grafts. We use about 50 per cent shading on the greenhouse and were very careful with the misting, using a humidistat to control the moisture. We have had good success with this technique.

MR. HENRY C. KIRSCHNER (Fairview, Pennsylvania): Mr. Hess, have you found that the peat moss and your junipers are not compatible? Does the acid peat have a reaction on the growth of the understock or the union?

MR. HANS HESS: In the conventional grafting case we want the union under peat during the period when the graft is growing together. This has proved very satisfactory and we have had no difficulty whatsoever. I might also say, that using sand as a plunging medium has also worked out very satisfactorily without any detrimental effects at all.

MR. WELLS: Hans, have you tried these methods you have just described in the grafting of the fastigiate Scotch pine, *Pinus sylvestris fastigiata?*

MR. HANS HESS: I have not tried them. I have someone who is generously going to send me some scions this winter.

MR. MARTIN VAN HOF: Do you just drape the plastic cover over the grafts and take it off at night?

MR. HANS HESS: Yes, Martin. It is draped over and hangs over the side of the bench. It is not nailed absolutely tight. There would be some very small loss of air out of the case itself.

MODERATOR MAHLSTEDE: Any further questions? All right, if not, we have a little time here and I am going to ask President Harvey Templeton to come forward and make any announcements that might be pertinent at this time. Harvey!

PRESIDENT TEMPLETON: I have just a few announcements. The members of the Resolutions Committee are Jim Scarff and Paul Wilms.

The members of the Audit Committee are: Warren Richards and Ralph Fisher.

The members of the Nominating Committee are: Chairman Hugh Steavenson, Louis Vanderbrook and L. C. Chadwick.

MODERATOR MAHLSTEDE: Although we are running a little ahead of time, I think it would be in order to call on Mr. David Leach, Brooksville, Pennsylvania, who will discuss the general topic of "Outside Green Grafting of Rhododendrons Under Polyethylene." Dave Leach.

Mr. Leach presented his discussion of a procedure for green grafting rhododendrons which was illustrated at various points by colored slides.