terial and information to us. I move that such a resolution be formed and adopted by this body before the close of the meetings.

The motion was seconded by Mr. Pieter G. Zorg, Fairview Nurseries, Fairview, Pa., and was carried by an unanimous voice vote.

CHAIRMAN FILLMORE: The first discussion on cuttings is by Mr. John Bos of Clyde, Ohio. I was very much interested in the outline of the paper which Mr. Bos showed me, because he places a real emphasis on the management of the stock block. He believes in stock blocks, he believes in managing them, and he evidently believes that if we would culture the plants as carefully for the production of cutting wood as we culture them for sale, a good many of our propagation troubles would be overcome at the outset. Mr. Bos will discuss the rooting of cuttings of golden philadelphus.

Mr. Bos presented his paper, entitled "Some Experiences in Rooting *Philadelphus coranarius aureus* Cuttings in Ohio." (Applause)

Some Experiences in Rooting Philadelphus coranarius aureus Cuttings in Ohio

JOHN BOS
John Bos Nursery, Clyde, Ohio.

We find that the stock plants are the most important factors. We have a few hundred stock plants, about 18-24" that never seem to get any larger because we keep taking cuttings off them every year. In the early spring during a few warm days, the buds on these plants tend to swell and develop into tiny leaves. Then a cold rain or light frost damages the edges of the leaves. These leaves will later grow out, but make poor cuttings. In fact we lose about one half of them; no matter how carefully the small brown ends are cut off when making the cutting, the loss is still 50%. Last summer we went to a local nursery that had some beautiful plants in the field with a lot of young growth that was free of blemishes or black spot. This man wanted us to root some cuttings for him. We took 700 cuttings, and have now 685 potted up and in the frame.

In order to obtain healthy cuttings, we have wondered if putting the stock plants under lath would help prevent damage to the foliage in the early spring. The very best way would be to plant about 50 stock plants and sit back for 6 or 8 years waiting for them to grow up to about 4 by 4 ft. Once these plants are up to size, trim out all the fine wood in the winter and each plant will produce about 300 healthy, sturdy cuttings. This older wood does not develop as early as do the buds on young plants, and is therefore not so apt to get leaf spot during a cold wet spring. It is our experience that before even making a cutting you are already 50% successful if you have a healthy cutting to start with.

We take the cuttings from the middle to the end of June. They should

be firm but not too hard. If there is no dew on them, we carry a pail of water and each handful of cuttings is immediately dipped in water. Once they wilt the tops turn crooked and will not straighten out. The cuttings are made about 6 inches long with mostly 4 leaves left on. The soft tips are removed. Position of the cut makes no difference, just below or in between a node. Personally, it is second nature with us to make the cut just below a node. This goes for all deciduous cuttings.

We have tried both vermiculate in a closed bench in the greenhouse and in sand under sash outdoors. We like sand the best. In sand the cuttings develop a finer root system and if they are handled carefully, they come out of the media with a small ball of sand attached. The sand we use is ordinary lake sand, not sterilized. Again if the cutting is healthy, hormones do not make any difference. We do not use any on the easier to root plants.

After the cuttings have been inserted in the frame, they are watered down thoroughly. The sash is then put on and they are shaded with lath shades. The laths should run north and south. They are shaded from about 8 till 5 o'clock. Syringing is done about 3 or 4 times a day. About the third day one can start looking for fungus or damping off trouble. We do not wait until the disease starts. At that time we begin spraying with a fermate solution in the morning instead of using the plain water for syringing. This is done every other day and after ten days every third or fourth day. About the third week the foliage seems to have hardened somewhat and the danger of damping off is greatly lessened.

About the first of August the cuttings are fairly well rooted and we start airing the sash, slowly at first and by the 15th they are ready to be potted. After potting they are put on a greenhouse bench and kept watered and syringed several times a day. The soil in the pots should be kept moist at all times. Also do not let drafts or excessive air circulation hit the newly potted plants. The ventilators are kept almost closed to increase the temperature and humidity. At about the third week young shoots start coming from the bottom of the pot and shortly thereafter they can be plunged in a cold frame for overwintering. During the winter months they are covered with sash and shaded. These plants will overwinter 100%.

Another way is to take the cuttings the latter part of August. They are made and inserted the same way as in June only we use No. 2 Rootone. In favorable weather they will be lightly rooted or heavily calloused in September before cold weather sets in. After the middle of November the shades are left on and we just forget about them, with the exception of an occasional watering along the edges of the frame.

In April the plants will start to grow but do not take them up too soon. In our eagerness to get as much work done as early as possible we potted them one year in early April. Apparently the roots were not strong enough to withstand the shock of moving and we lost over half of them. We now pot them the first of May when the first leaves are quite developed. They are placed on a bench in the greenhouse. They must be

kept moist and free from drafts. By June 1, they are well developed plants with 6-8″ top growth.

At that stage our worries come to an end and then the other nurseryman must start thinking of how to get salable plants in the shortest possible time.

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CHAIRMAN FILLMORE: We thank Mr. Bos very much for his presentation. Time will permit only one question.

MR. FLEMER: Have you had any success with hardwood cuttings placed in the bench in winter?

MR. BOS: No, I have not.

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CHAIRMAN FILLMORE: Next is a discussion of a polyethylene case for rooting cuttings. This discussion will be presented by Mr. Roger G. Coggeshall of the Arnold Arboretum, whom I regard as one of the rising young men among propagators.

Mr. Coggeshall presented his paper, entitled: Propagation of Difficult Plants in a Plastic Case. (Applause)

Propagation of Difficult Plants in a Plastic Case

ROGER G. COGGESHALL

Arnold Arboretum, Cambridge, Mass.

The method of propagation that I am about to describe is both simple and inexpensive. The whole operation hinges upon the use of the plastic film called polyethylene. This is an air permeable, water impermeable plastic that allows for an exchange of oxygen and carbon dioxide, while at the same time retaining the moisture inside the plastic, thereby keeping the humidity very high.

This same plastic, as you may know, is now being used in a wide variety of ways, from packaging vegetables to balling plants.

Using this plastic that keeps the humidity so high, we built a frame out of one half inch strapping over a section of greenhouse bench. The frame was eight feet wide, eighteen feet long, and fifteen inches high from the surface of the medium.

Over this frame strips of polythene fifty-four inches wide and two thousandths of an inch thick were laid. By running the strips across the width of the case we were able to enclose it nicely with four sheets. An overlap of three inches was left on each sheet so that the case would be completely sealed.

Inside the case there were three different mediums: plain sharp sand; sand and Canadian peat mixed 50-50, and sand, peat and Styrofoam mixed by equal volume. The latter material, Styrofoam, an expanded plastic, was added to the medium to give better aeration.