

which has since been described a number of times by others. Roger Coggeshall of Cherry Hill Nurseries, West Newbury, Mass.

MR. ROGER COGGESHALL: The use of polyethylene plastic by the plant propagator has certainly been discussed to a great extent here already. As you might imagine the use of plastic under our conditions is a little different. Our operation is relatively small and therefore the figures I will give pertain to a small operation

Now we have two sash houses 25 feet long and they are 12 feet across. In addition to that, we have a lean-to house which is 178 feet square plus a pit type of house which also is 45 feet long.

Now in these houses we have a total propagating area underneath polyethylene plastic of 716 square feet.

In setting up this type of plant propagation unit I have attempted to keep costs to ascertain actually how much it cost us.

To cover this 716 square feet we have needed four rolls of the so-called Turkey wire, which is a three-foot roll of wire with the individual squares measuring 2 x 4 inches. The original roll we had was 82 feet long and cost us \$17.95. Shortly after that we purchased three additional rolls of 100 foot length each and they cost \$16.50 apiece. So in the wire alone we had a cost of \$67.45. I wish to give credit at this time to Harvey Gray since it was at his greenhouses that I first saw this wire being used

As far as the polyethylene is concerned, we use the two mil thickness which is bought in a roll which measures eight and one-third feet across, and 200 feet in length. A roll of this size is sufficient to cover all the plastic cases we require. A roll of this size is \$14.50.

Now as Bill Flemer has already mentioned, our houses are equipped, as were his, with the hot water type of heat, which we use, of course, in propagating evergreens in the winter. However, during the spring and summer months when it comes to propagation by softwood cuttings we employ lead cables. These are 60 foot lead cables, thermostatically controlled. These cost a total of \$17.50 and the 60-foot cables are around \$11.40. We have six thermostats in use, plus 12 cables. Of course, each thermostat handles 2 cables. The total cost of this equipment is about \$241.80.

Now I look at it from the standpoint that the only part of this entire facility that is perishable is the plastic. I don't wish to imply that we don't have trouble with the cables, but if they are handled properly you should not have too much trouble from year to year. Consequently, if we look at this \$14.50 for the cost of the plastic as an annual expense you have as an initial cost a total of \$323.75. As I mentioned, this is just for our own setup, and, of course, it would vary according to your own operation.

I frankly like the polyethylene plastic as many of you know. I think it works very well.

*(Editor's note. Mr. Coggeshall continued his discussion using colored slides. Some of the comments follow.)*

As Harvey Gray has pointed out, we are actually growing these cuttings in a contained area with a very high humidity condition. When

the weather is cloudy or when we have a rain, we actually turn back the plastic. We have run into trouble both at the Arnold Arboretum and at my present place of employment if the cases are filled, and left closed for a period of a month or two. Now in spite of the spraying which we do, which is a must with the softwood cuttings in the months of May, June and July, we have too much of a mold buildup, if you do not open it up in this manner. I grant you that with the softwood cuttings the cases may be open only an hour or two at the most. In the propagation of rhododendrons the case would be open all day. We start making our rhododendron cuttings in the middle of July right on through the month of November just as long as the space is available.

These wire frames covered with polyethylene plastic are a foot high and they will vary in width according to the width of the bench. The burlap shading is placed only on the southern side of the house. It is very necessary during the hotter parts of the year as you no doubt know, as the buildup of heat under the polyethylene in exposed areas is just tremendous. You must shade them at least partially. The shading is very critical and is difficult to explain. It is your location that will determine the amount and time of shading. It is only through trial and error that the actual procedure can be modified to fit your particular needs. In our case there is very little shade on the glass of the greenhouse itself. This is done because we certainly want to root more than one crop of cuttings per year.

**MODERATOR SNYDER:** Thank you, Roger. Several years ago at a Plant Propagators' meeting we were very fortunate indeed to have a speaker from North of the border. Mr. Hancock discussed his Burlap Cloud method. Prior to this time I doubt if there were many of us using it, although since this time many have visited his nursery. I think it was one of the most inspiring visits I have ever made. The morning would certainly be incomplete if this procedure were not included in this discussion. Therefore, I call on Mr. Leslie Hancock of the Woodland Nurseries, Cooksville, Ontario, to discuss the "Burlap Cloud Method."

**MR. LESLIE HANCOCK:** Thank you very much, Dr. Snyder.

Those of you who are old members of our Society will probably remember that occasion. There may be some here who are new, but I would feel it would be an imposition on the records of our Society if I went to any great length to describe this system again, which has already been fully described in the Third Proceedings.

You have heard or will hear about four different methods which we are using for rooting cuttings of plants. I think it will be a long, long time before the conventional greenhouses will be put out of business. I think next will probably come the polyethylene tenters, and then a poor third and fourth, the other two.

However, let me say that I am very pleased to see that Hugh Stevenson finds burlap very useful to put over the holes he pokes into the polyethylene tent. I am very pleased to see that Roger has picked up two or three pointers which I suggested several years ago. He finds it necessary to use burlap to shade his cuttings. Also, I notice he knows



the value of fresh air for the cuttings once in a while. Also, I have noticed he has learned it is a good procedure not to take off any leaves from a cutting.

Mr Hancock presented his prepared discussion, on the Burlap Cloud method of rooting softwood cuttings during the summer. (Applause)

## **THE BURLAP CLOUD METHOD OF ROOTING SOFTWOOD SUMMER CUTTINGS**

LESLIE HANCOCK

*Woodland Nurseries*

*Cooksville, Ontario, Canada*

This method has been described in two previous issues of the Proceedings of our Society, and in the short time at my disposal it would hardly be possible for me to fully describe it again. For those, however, to whom the idea may be new, it will be necessary to give at least a brief review of the principles involved.

It is a method of rooting summer cuttings in ordinary sandy nursery soil by using light portable wooden frames with burlap covers. From experience it has been found that the best practicable length for these frames is twelve feet, and the width three feet nine inches outside measure. Because burlap comes in forty inches standard width, it has not been practicable to have the frames any wider. The lumber used is 1" x 10" x 12 feet Pacific Coast cedar for both sides and ends. To give the frame rigidity, a cross bar of 1" x 3" lumber of the same material connects the two sides of the frame exactly at the point of balance, which also enables one man to carry a frame easily. Similar strips of lumber 1" x 3" x 12' are nailed along the upper edges at either side of the frame for rigidity and for the purpose of securing the burlap. The Burlap used, which is nine ounce weight, is cut 12½ feet long to offset shrinkage and is stapled firmly along one side of the frame.

The cutting beds which can be any length or number desired, are raised beds on which the frames can be set tightly end to end, and then sunk into the ground slightly. The soil within the frame which is now two or three inches higher than the outside path, is rubbed through a large 3' x 6' sieve of ¾ inch mesh which fits half of the frame. The amount of soil sifted should be finger depth and the earth floor below the sifted soil should be level and compact to ensure capillary action. This sifted soil within the frame is usually left in heaps, and only made uniformly level as required.

The cuttings which are gathered in pails with an inch or so of water in the bottom, are usually about five or six inches long. No leaves are removed from the cuttings unless they are too large and would impede sticking. The only preparation the cuttings receive is a dusting of the cut surfaces with Tersan 75 powder as a fungicide. Before sticking, water is poured on the required area until the sifted soil is completely saturated and some free water remains on the surface. The cuttings are then stuck into this soft mud at the required spacing. Since