

## THURSDAY AFTERNOON SESSION

November 29, 1956

The second session of the Sixth Annual Meeting of the Plant Propagator Society convened at 1:30 p.m. with President Scanlon presiding.

PRESIDENT SCANLON. The program this afternoon includes a discussion of the propagation of peonies and the Speaker-Exhibitor Symposium. It will be a full program but extremely interesting.

The first part of our program is a discussion of the propagation of tree peonies by Mr. Harold E. Hicks, The Cottage Gardens, Lansing, Michigan.

(*Editor's Note:* Mr. Hicks determined that few of those present had very much experience with tree peonies. He, therefore, prefaced his paper with a number of kodachrome slides illustrating various types of peonies.)

Mr. Hicks presented his paper entitled "The Propagation of Tree Peonies." (Applause).

### THE PROPAGATION OF TREE PEONIES

HAROLD E. HICKS  
*The Cottage Gardens*  
*Lansing, Michigan*

HISTORY. By way of introduction I would like to give a brief history of the tree peony. Its earliest existence has been traced to Asia, where it has been growing in the wild state, in mountainous country, references being made of it back as far as 536 A.D. It was known as "The King of Flowers" and was given the most prominent and sacred place in the gardens of the imperial places.

The Dutch people were the first to write about the tree peonies of China but it was more than a 100 years later when English Explorers sent plants home and that a real interest was born. From about the year 1860 Dutch, English and French nurserymen imported tree peonies, propagated them, and made selections.

I might say here that Mr. N. I. W. Kriek has imported many varieties of the Lutea hybrid types to this country, especially those from the famous "House of Lemoine" in France.

TYPES. There are three main types of tree peonies, namely, the European, the Lutea Hybrids and the Japanese.

Because of the greater activity of the European nurserymen, the European varieties, such as Banksi, Souv. de Ducher, Reine Elizabeth and Jules Pirlot, became the most wide spread in this country during the last 50 years. We are gradually discarding this type, however, in favor of the Lutea hybrids and the Japanese varieties because they are more floriferous and bloom at an earlier age.

The Lutea Hybrids originated in France through the effort of the great hybridizers, Prof. Louis Henry and Victor and Emile Lemoine

This type is outstanding in having many pure yellow (there are no true yellow herbaceous peonies), oranges, and terra cotta colors. A few varieties that should be mentioned are *Souv. de Maxime Cornu*, a full double deep yellow, heavily shaded orange salmon, *Alice Harding*, a nearly pure lemon yellow, and *Flambeau*, *Satin Rouge* and *Surprise*, three beautiful full double varieties of yellow, heavily shaded with orange or red. The one draw-back to the Lutea types is the habit of the flowers drooping and hiding in the foliage. However, as the plant gets larger and older, 4-6 feet in height, this drawback becomes an asset in that flowers then can be seen at eye level from the side.

I must make mention of the work of the late Prof. A. P. Saunders, of Hamilton College, who developed a new group of tree peonies, mostly single and semi-double with a wide range of colors in nearly 75 varieties. Only a few, such as *Argosy*, a clear bright single yellow, are available now, but I am sure we will be seeing many of his varieties in the future.

The Japanese types are more graceful plants, their foliage is more beautiful, the flowers are single, semi-double and double, are born well above the foliage, and the colors are always vivid. One must see to appreciate such varieties as *Yeso-no-mine*, a pure double white with blossoms 8-10 inches across, *Kuro-Botan*, a semi-double dark velvet maroon and *Adzumi Kagami*, glowing deep carmine.

**PROPAGATION** Tree peonies can be propagated by several methods of which all but one will be only briefly mentioned.

Seedlings can be produced quite easily and the resulting plants are sturdy and vigorous. However, only 10 to 15% will produce blooms of pleasing color, the great majority of the flower color being magenta. We have always felt it an injustice to sell a plant that would almost surely be a disappointment when it began to bloom 3 to 5 years later.

We have been experimenting with propagation by cuttings, however, results have been too poor to be of commercial value. We have succeeded in rooting 20 to 30% under summer mist and fully intend to continue our efforts on the theory that if one will root there must be a way to get two to root, etc.

The common method of propagation is by grafting in late July and August. We use herbaceous peony roots for the understock. Best results are obtained by using *Mons Jules Elie*, *Sarah Bernhardt* and *Felix Crousse*. The understock should be about 4 inches long and  $\frac{1}{2}$  to  $\frac{3}{4}$  inches wide. We use scions from our own named varieties. Each scion is a stem about  $1\frac{1}{2}$  inches long with one leaf left attached and one bud in the leaf node. The understock is slit about 2 inches at the top end and along one side. A good union is always assured because the herbaceous root is pliable. The graft is dipped in a *terbam* solution, placed in a sweat box in a greenhouse bench, in a medium of sand and peat. They remain here until about October 1st at which time the scion has easily knitted and new roots have formed on most of the understocks.

The grafts are then potted in 3-inch rose pots and plunged in cold frames, covering them with about two inches of sharp sand. The only

care is to keep them watered and the dead leaves picked out. We spray them three times in early spring with ferbam or a similar solution to keep any disease from entering.

The following Fall the plants are shifted to 5-inch pots and then plunged six inches deep in outside frames. This is done so that new roots will be formed above the graft union. The plants can be left in the 5-inch pot for a year or two and then planted to field rows, where again they should be planted deeply, 6 to 10 inches, under the surface to induce true own roots to form.

I might say here that some criticism has been made because the old herbaceous root tends to enlarge and it is felt that is not a good root for long life. However, if the plants are planted deeply, the union being from 6 to 10 inches below the surface, true roots will almost always develop and the herbaceous root becomes secondary.

I would like to warn the new propagator that all is not as simple as it sounds, mainly because of the difficulty in getting the plants to live until true tree peony roots are formed. The actual grafting is easy, and good results are obtained from the greenhouse bench. But the period while they are potted is the critical stage. Results obtained vary considerably with the variety. For example, with Yeso-no-mine, a beautiful Japanese double white, we expect 70 to 80%, but with Adzumi-kagami, a semi-double violet red, we hope to get 20 to 30%. I doubt that we or anyone else expect much more than 50% results. We naturally keep striving for better methods and a higher percentage of established plants.

**CULTURE** Culture of the tree peony, like the herbaceous type is completely simple. Well drained soil, full sun or semi-shade and normal fertilization is all that is required, with one exception. Tree peonies are susceptible to Botrytis blight of the stems. Cutting out of dead wood and general cleanliness will normally be sufficient. We have found, however, that spraying or dusting with Fermate or Bordeaux once before buds break and two times at two week intervals after leaves are formed will give good control. Tree peonies are completely hardy and when properly planted will remain in the garden practically forever.

I urge each one of you to obtain two or three varieties to plant in your own garden, only then can you appreciate them as the people of China and Japan did 1000 years ago.

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Question: How long will the herbaceous root survive on a grafted plant?

MR. HICKS: Always, I think. There has been a lot of criticism of the herbaceous roots — people say that the tree will not be as vigorous. As you know, as the herbaceous peony grows older, the roots get very large and will almost always have some rot in the center. We have always felt that there is nothing wrong with the way we graft and that the herbaceous root doesn't enlarge too much.

MR. WILLIAM H. BURTON (Burton's Hill Top Nurseries, Castown, Ohio): Have you ever tried grafting in the greenhouse in the winter time?

MR. HICKS: We never have tried it, so I can't give you an answer. However, I don't know any reason why you couldn't. We have more time in the summer and good scions are available then

MR. BURTON. Wouldn't you have to use harder wood in winter?

MR. HICKS: Yes, it would be harder. We have tried some other methods. We have taken regular herbaceous seedlings and grafted onto those because they have more roots. We have never gotten into any quantity of that because so many of the little seedlings have to be almost a full-grown plant (five years old) before they are big enough to graft.

MR. JACK SIEBENTHALER (The Siebenthaler Co., Dayton, Ohio): Did I understand you to say you have not tried root cuttings?

MR. HICKS: No, we have not tried root cuttings.

MR. SIEBENTHALER. On the stem cuttings which you said you have tried with moderate success. Could you explain when you took the cuttings?

MR. HICKS: We have tried several methods. We have tried cuttings in winter. The results are very poor because the stem is too woody and hard. We tried cuttings in June just after we get enough growth, like a softwood cutting, in the greenhouse just in ordinary sand. The results have been practically nothing.

The last three years we have been using mist. We have rooted as I said 10 to 20 per cent. Some varieties have been better than that. Normally, the ones we really want to root are the hard ones. The European forms have been a little bit easier. I think there is a long way to go in experimentation. We haven't used any of the hormones nor the polyethylene case yet

MR. ROBERT A. NOETHEN (The Cottage Gardens, Lansing, Michigan): We are going to try air conditioned mist. It is a bench covered with reinforcing material covered with polyethylene. At one end is the exhaust fan that pulls the mist through the covered bench and there is an electronic leaf to govern the amount of water.

MR. PETER G. ZORG (Cartwright Nurseries, Collierville, Tenn.): Is there any difference between root stocks for tree peonies?

MR. HICKS: Is there any difference between using herbaceous roots or *Officinalis*, or *Chinensis*? When I say herbaceous, I do not mean *Officinalis*. I just learned this morning then in Holland they use *Officinalis* for roots. We haven't used it so, I really don't know. In all of my reading, I have not seen anything about *Officinalis* roots. I certainly want to try them next summer.

MR. ZORG: The roots of *Officinalis* are heavier than *Chinensis*.

MR. ROGER COGGESHALL (The Arnold Arboretum, Jamaica Plain, Mass.): When you graft and tie with the budding strip, do you do anything further, such as waxing the union, or just rely on the plunging alone to prevent drying out?

MR. HICKS: We do not wax them. I think some growers in the East did wax until they heard we were not waxing and they stopped it. We put them in the sand and peat mixture in a sweat box. The scion knits very easily. As far as we are concerned, there is no problem.

MR. COGGESHALL. When do you remove the rubber band?

MR. HICKS: We remove the rubber band when we repot from the three-inch to the five-inch pot. However, I think we could do it earlier.

MR. TED E. FOULKE (Peeper Hollow Farm, Cleveland, Ohio): The nursery where I work was originally a peony farm. After I took over and cultivated the ground, we dug out a lot of peonies. They looked very nice. The thing I am a little confused about is that for years afterward I had peonies coming up. Of course, in this operation they were just like weeds. When one was dug out, two to five plants would come up. Did the plants come from the little roots which were left?

MR. HICKS: I am certain they didn't come from the roots. When the plants were dug, a root with an eye (bud) broke off. This year we dug about 40 acres of peonies. We use a digger to get all of the plant. We don't get all of the roots and I doubt if there will be five plants come up next summer. It is necessary to have eyes or buds on the roots in order to get plants.

MR. CASE HOOGENDOORN (Hoogendoorn Nursery, Newport, Rhode Island): When grafted plants have gone on their own roots, have you ever used these roots for grafting?

MR. HICKS: No, we haven't because we have never had enough of these roots. Roots from seedling tree peonies are compatible, however, it would be bad if suckering occurred. However, suckering probably would not be common.

MR. LESLIE HANCOCK (Woodland Nursery, Cooksville, Ontario): Have you been able to get any information at all on the Japanese method of propagation?

MR. HICKS: I haven't even tried to find out.

MR. HANCOCK: I think it would be wise if we could get that information to check with our methods.

MR. C. H. HENNING (Niagara Falls Park Commission, Niagara Falls, Ont.): Have you observed any influence of removing the herbaceous peony root stock and letting the tree peony go ahead on its own roots?

MR. HICKS: I expect that, if we would take the time, especially on a field plant, to remove the herbaceous root, it might give a little more area for the tree peony. Most of our tree peonies are sent out in five-inch pots.

MR. RICHARD VAN HEININGEN (Van Heiningen Nurseries, Deep River, Conn.): What is the range of the tree peony?

MR. HICKS. The herbaceous and tree peonies are very similar. The tree peony came from the mountains in China. They have been perfectly hardy with us in Michigan, and we have shipped to Canada,

Massachusetts, and California. The herbaceous peony doesn't do well in the deep south.

MR. CONSTANT DE GROOT (The Sheridan Nurseries, Sheridan, Ontario): We have found some die-back in New England.

MR. HICKS. The terminal buds quite often will freeze back. The plant is hardy but that doesn't mean that the terminal growth won't die-back in Michigan. If you have a foot of new growth, three or four inches of new growth may die back.

MR. DE GROOT: There is killing of the flowers. If there are five or six buds in the summer, there might be only one left the next spring.

MR. CAMERON VERHALEN (Verhalen Nursery Co., Scottsville, Texas): What can be expected from tree peony seed?

MR. HICKS: Nothing but disappointment. Seventy to eighty percent will be poor color.

MR. JOHN B. ROLLER (Verhalen's Nursery Co., Scottsville, Texas): How long does it take to grow a good tree peony?

MR. HICKS: Five years.

MR. RALPH SYNNESTVEDT (Glenview, Illinois): What is the time and length of bloom for the tree peony?

MR. HICKS: If you had 25 to 30 varieties you could extend the period of bloom to about 10 weeks. Each plant will bloom for about two weeks. They last longer than the herbaceous peony. Rain doesn't hurt the tree peony flower. The lutea hybrids bloom two to three weeks after the herbaceous peony, but the European varieties bloom before the herbaceous forms.

MR. JACK SIEBENTHALER: What are the diseases and insects to look for?

MR. HICKS: There are no insect pests that amount to anything. Botrytis is the major disease. If a plant gets Botrytis it will finally die. If you have tree peonies in the yard, it is desirable to cut away the wilted stems. Bordeaux is quite good. We once thought that Botrytis could not be controlled, but since we have been using Fermate it has not been a problem.

The only other disease is leaf spot which appears quite late in the year. It doesn't amount to much if you clean up the old leaves.

MR. WINTHROP H. THURLOW (Cherry Hills Nurseries, West Newberry, Mass.): Have you ever tried using inverted root pieces as we have done so successfully with lilacs?

MR. HICKS: No, we haven't.

PRESIDENT SCANLON. As much as we would like to continue this discussion on peonies, time dictates that it must be concluded. Perhaps if there are further questions they can be included in the Question Box Session tomorrow night. Our sincere thanks to you, Harold, for your excellent discussion and exhibit.

PRESIDENT SCANLON: We will now continue with the Speaker-Exhibitor portion of our program. Mr. Roger Coggeshall, Propa-

gator at the Arnold Arboretum, Jamaica Plains, Massachusetts, is chairman of this portion of the program and will moderate the discussion.

MODERATOR COGGESHALL: This part of our program, as in previous years, will be devoted to short talks on plant propagation. There will be a short question period following each talk.

The first speaker is Mr. F. B. Gorton, Gorton's Nursery, Harbor Creek, Pa.

Mr. Gorton presented his talk, entitled "Own Root Versus Grafted Plants." (Applause).

## OWN ROOT VERSUS GRAFTED PLANTS

F. B. GORTON

*Gorton's Nursery*

*Harbor Creek, Pennsylvania*

Until several years ago, many ornamental plants, that would not come true from seed and could not be propagated successfully from hardwood cuttings, were grafted, budded or layered. A few of these were the Japanese red maple, certain forms of magnolia, pink flowering dogwood, selected forms of Blue Spruce, rhododendrons, lilacs, etc. Since that time, however, tremendous strides have been made in propagating plants from softwood cuttings. In many instances this has eliminated the need for grafting.

The introduction of polyethylene plastic film, misting or fogging, and chemical rooting agents have created a mild revolution in the nursery industry. It has spurred the imagination of many propagators to experiment for new and better ways of propagating certain plants. From these experiments came a large number of new methods for inducing root growth on softwood cuttings. A few of these were the intermittent or constant mist systems, the Burlap Cloud method, the plastic case method, and the Phytotektor System. All of these systems, and several more not mentioned, are very successful in propagating large quantities of own-root plants at very low cost. The system you would use depends upon the climate in which you lived and the type of soil available. In the Northern part of the country, most of the various systems in use require side and top protection of some type. Most of the own-root plants, propagated by any one of the above mentioned methods, have a very low mortality rate while being grown and will develop into beautiful true-to-name plants.

At Gorton's Nursery, which is located in Northern Pennsylvania, we do all of our propagating in shaded, glass-covered cold frames and in a greenhouse. The cold frames are watered by hand and the greenhouse has an automatic intermittent mist system. Strange as it seems, the plants from the cold frames usually have a better root system than those from the greenhouse. As soon as the cuttings are well rooted, they are sprayed or dipped into a plastic wax and planted outside into well prepared and shaded beds.

As we are concerned only with own-root versus grafted plants at this time, we will not discuss the merit of the other methods of propa-