

# Grafting Deciduous Magnolias

by P.C. R. Dummer

The most common method of grafting magnolias is generally carried out in the spring under glass by using an established understock which has as close affinity to the scion as possible regarding compatibility.

The stocks are normally cut to within 1½ inches of soil level and the scion applied by use of the traditional whip graft. The union is then waxed and the plant stood down on an open and slightly heated bench in the greenhouse to callus and grow away.

However, whilst this method still holds good and a fairly high rate of success has been attained with it in the past, a different mode which I devised a few years ago outdates it, in my opinion, because it results in a higher percentage of "takes."

For this new mode of grafting we are creating an understock similar to that used for summer grafting, that is, one in full leaf.

Two- or three-year-old stocks are lifted from open growing beds with care taken to retain a small ball of soil on the roots. The stocks are best transported in boxes to a shed and balled up in rot-proof hessian [burlap], using slightly moistened peat as a filler. Care should be taken when balling up. The hessian should be kept free from the neck of the understock; otherwise, difficulties could arise when grafting.

Because of this it is better to ball up using twine instead of knotting the hessian. The ball of the stock should measure at least 7 to 8 inches when completed. Many propagators, and indeed nurserymen, might think the size of the rootball a trifle large, but it should be remembered that many magnolias, particularly the Asiatic types, are large growers and bear huge leaves, so I feel that making up large balls not only allows a good formation of roots but also permits them to be adequately spaced when set down on the grafting bench.

**Preparing the Bench** • To create the best conditions for this type of grafting a low span-house is ideal. The glazing bars [sash bars] should be covered on the interior with a thin, white, opaque polythene [polyethylene] material, fastened to the wood framing by use of a stapling tool. The same type of polythene should be hung from the glazing bars and permitted to extend about 18 inches below the bench. If several strips are used it is wise to overlap them about 9 inches to create a polythene tent; also required will be a thin lath 2 inches by ½ inch which is stapled to the bottom of each strip of polythene. This makes it hang correctly and keeps the wind from blowing it about when

ventilation is eventually given. Two large hooks are required for each 6-foot length of hanging polythene and these are placed at the top to hold the polythene when rolled up. These hooks can be easily made from heavy gauge fencing wire.

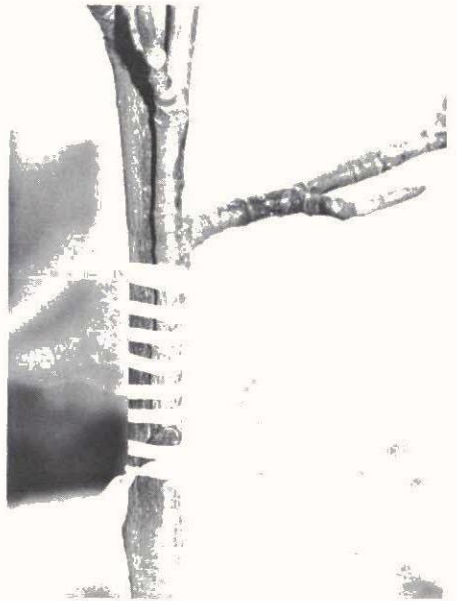
To create the right conditions a 2-inch layer of peat should be spread over the bench and thoroughly saturated with water.

**Heating** • Heating is, of course, a very important factor in all glasshouse grafting, some genera requiring a little, and others needing no heating at all to produce successful "takes."

My own preference is to have thermostatically controlled heating cables for the grafting benches while the house itself is heated by hot water pipes. One should aim for 10 degrees difference between the bottom heat and air heat. In the case of magnolia grafting, a bottom heat of 65° F. is desirable, while the air temperature should not be lower than 55° F.

**Scion Wood** • Strong, short, one-year-old wood is to be preferred, but there is no reason why two- or even three-year-old material cannot be used, providing it is in a healthy condition.

**Grafting** • Since grafting commences in



*Magnolia side veneer graft showing method of tying.*



*Magnolia campbellii alba grafted on a campbellii seedling. Understock snag has been completely removed.*

the first week in March the stocks must be prepared by the middle of February and placed under the polythene structure. Light fogging should be carried out each morning if the weather is bright, using a syringe or a pressurized pipe fitted with the appropriate nozzle. Under no conditions should the stocks be overwatered.

Under these conditions the stocks should break into full leaf in about 14 days. They are now ready for grafting and are prepared by cutting off about a third of the tops. This topping should also include cutting back any small side shoots. Doing this creates numerous emergency escape routes from which any excessive sap can flow out if the need should arise. Also, the stocks being in full leaf offer yet another point in favour of scion wood becoming flooded with sap when grafted. I must emphasise that the control of sap flow in *all* deciduous plants is the most important factor governing the success of the crop.

The actual union consists of a side veneer graft.

*Magnolia* wood is naturally pithy; therefore, great care should be taken when cutting. The knife should never pass or expose the centre of the scions.

Tying of the grafts is accomplished by using a  $\frac{3}{8}$ -inch rubber strip. Starting from the top, two rounds of the tie are made before working the tie down the scion and

stock in a spiral fashion, leaving small gaps of  $\frac{1}{8}$  inch between the ties. When the bottom of the scion is reached the tongue should not be tied in, as the flap on the stock could be easily bruised by doing so. One turn of the rubber strip below the flap is made before finishing off with a half hitch. This is followed by sealing with a paraffin wax before standing the grafted plant down on the prepared bench.

**Aftercare** • Not much attention will be needed for the first two weeks after grafting, other than a light spray over the grafted plants each morning. Care should be taken against getting the ball of the plant too wet.

After approximately three weeks the callus should be quite prominent on the stock and scion.

The first heading back of the understock should now take place, with care used not to remove too much at this stage lest damage occur to young roots which are being formed. A light watering can now be given to *those* which need it. The few weeks which follow the first heading-back operation are probably the most vital part of the aftercare treatment, because after the heading-back operation and watering the young grafts will begin to break leaf.

Regular morning prickings of leafbud scales should be carried out while the plants are being aired; failure to remove these spent leafbud scales can result in damping off of the young, emerging leaves. A spray at this stage with the fungicide 'Benlate' will benefit them. More ventilation must now be given and naturally they can take much more water. The bottom heat can be lowered a few degrees at this stage.

When six to eight leaves have expanded, a second heading back to approximately  $2\frac{1}{2}$  inches from the scion can take place, care being taken to keep a few leaves on the understock.

The final snagging should be done about two weeks later and the wound sealed with wax. So that plants can get over the shock of the snag removal they should remain on the bench for a few more days. They can then be transported to a frame outside and plunged in peat. Slats should be placed over the grafts for a few weeks to prevent sun-scorch. The plants should remain in the cold frame throughout the winter under controlled watering, which naturally means that they will need the protection of glass lights [panes].

The grafts should be planted out in well prepared beds or, alternatively, containerized when bud burst is imminent in late spring.

**Compatibility** • Success on all graft unions between plants depends, of course,

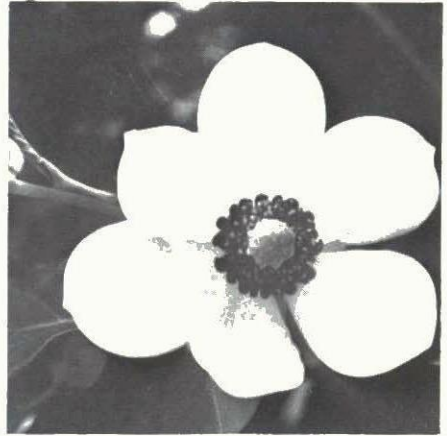
upon intimate affinity between the two subjects to be joined together. Magnolias on the list which follows have been found successful when used as understocks for grafting. The majority of stocks are raised from cuttings. To avoid any unnecessary suckers it is advisable to remove the basal eyes before inserting cuttings for rooting.

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<u>Scion</u>	<u>Stock</u>
campbellii alba	campbellii seedlings or × soulangiana
c. 'Charles Raffill'	"
c. 'Darjeeling'	"
c. 'Ethel Hillier'	"
c. 'Kew's Surprise'	"
c. 'Lanarth'	"
c. 'Sidbury'	"
c. 'Wakehurst'	"
c. 'Werrington'	"
× 'Charles Coates'	tripetala or obovata (hypoleuca)
acuminata	
subcordata	kobus
cylindrica	× soulangiana
dawsoniana	× soulangiana
fraseri	tripetala or obovata
officinalis	tripetala or obovata
officinalis biloba	tripetala or obovata
salicifolia	
and forms	kobus
sargentiana	× soulangiana
sargentiana	
robusta	× soulangiana
× 'Michael Rosse'	× soulangiana
sieboldii	tripetala or obovata
sprengeri	× soulangiana
s. 'Claret Cup'	× soulangiana
s. elongata	× soulangiana
× thompsoniana	kobus
virginiana	kobus
× watsonii (wieseneri)	tripetala or obovata

## Holly, Cherry Booklets

Two booklets are available as single copies free upon request to Gene Eisenbeiss, U.S. National Arboretum, Washington, D.C. 20002. They are "International Checklist of Cultivated Ilex, Part I—Ilex Opaca," March 1973, 85 pp., and "The Japanese Flowering Cherry Trees of Washington, D.C.," December 1977, 66 pp., an illustrated and documented narrative of the events attending presentation of these trees from Japan to the U.S. in the early part of the century.



*Magnolia sieboldii* taken by Dick Figlar, an officer of AMS and also a photographer when the occasion demands, as it obviously did here when he saw the garden of Ray Hartz, Bernardsville, New Jersey.

## 'Wada's Snow White'

'Wada's Snow White' is a hybrid by Koichiro Wada between *Magnolia heptapeta* and *M. salicifolia* being introduced by Mr. Wada's Hakoneya Nurseries, Inc., 15-14 Minami-Karuizawa, Nishi-ku, Yokohama, Japan. He says it has snow white flowers (*heptapeta* flowers are creamy white) with a most exquisite fragrance that can "rival favorably with the best perfumes."

Mr. Wada adds: "This hybrid is also outstanding in flowering at a young age, is more vigorous in growth than either of its parents, and we take it a valuable addition to the garden plants now available." He has promised to send the American Magnolia Society 10 plants of this new cultivar, the first hybrid recorded with these parents.

K. Wada's name is associated with several earlier magnolia introductions dating back to the 1920's. These are *M. × soulangiana* 'Picture' (syn. 'Wada's Picture'), *M. × s.* 'Sundew' (an English-raised seedling of 'Picture'), and 'Wada's Memory,' which originated at the University of Washington Arboretum, Seattle, from seed sent by Mr. Wada as *M. kobus*. There is now disagreement whether it is that species, a hybrid with *M. salicifolia*, or pure *salicifolia* (Sponberg's 1976 placement).

Mr. Wada's catalog of about 1925 had a "M. conspus," supposedly a hybrid of *M. heptapeta* and *M. kobus*, now probably lost to cultivation. He also selected the *M. heptapeta* 'Japanese Clone' (syn. 'Wada's Form') which Phil Savage has grown with satisfaction at Bloomfield Hills, Michigan.