

SELECTING, GROWING, AND HYBRIDISING SPECIES OF DAFFODILS

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Some of you may be mildly surprised to see my name associated with daffodils rather than rhododendrons, misting, hormones, wounding or similar topics. How has this come about? Most nurserymen, I feel certain, do not plan to retire. I did not. I thought that eventually, in the distant future, I would perhaps collect the mail daily, make a few pungent comments to those who really do the work, and then move off to examine an unusual plant I had noticed the day before. But this was not to be.

Our nursery began in 1956 at Red Bank, New Jersey. We started with an open field, in which a few pegs were placed to indicate roads, frames, etc. We propagated a crop of rhododendrons and in 1957 began to plant out our first beds. Twenty years later we had reached a point at which we were able to help host the summer meeting of the IPPS Eastern Region. That year, 1976, was the apogee of our New Jersey nursery. The previous year we had decided to move, and a farm on the edge of the Blue Ridge Mountains near Brevard, North Carolina had been purchased. Stock moved briskly from New Jersey to North Carolina, and the land in New Jersey quickly reverted to nature with a wonderful array of Michaelmas daisies. The North Carolina nursery grew apace.

It had been planned that I should go to the new nursery first, but medical problems made it essential for me to remain in New Jersey so Jeremy went in my place. In passing, this was one of the very best decisions that we made for it enabled the nursery to be laid out by a young fresh mind. I remained in New Jersey to be near my doctors.

In two years the nursery in New Jersey was gone. What was I to do now? Five operations and my need to stay near New York clearly indicated a complete retirement. Accordingly, the full responsibility for the new nursery was given to Jeremy and I looked about for something of interest, appropriate to my limited capacity, and of course, horticultural.

My career had commenced with the mass production of alpine plants of the easier types, and I found that I liked plants of a limited stature with possibly cultural and propagation quirks which required careful study in order to succeed. In addition, the family had given me as a present some years ago, a greenhouse attached to the dining room so that one could just walk out into it. A few miniature bulbs had been grown some years back, but since lost in the pressure of running a business. Recalling these, I decided to attempt

a collection of most of the dwarf species, coupled with a similar collection of some of the better miniature hybrids. I joined the Daffodil Society, brought in as many books as I could find on daffodils, and sent off a number of orders to both wholesale and retail suppliers. In due course the bulbs were received and planted. What a mess! Most lots were diseased to some degree, and hardly one was true to name. I discovered that in most cases the bulbs were in fact collected material, gathered from the Spanish and Portuguese mountains by local people, who just dig anything. Clearly quite a task lay ahead.

The epicenter for the natural distribution of narcissus is the Iberian Peninsula: Spain and Portugal, where most of the well-known and important species are to be found. From this area bulbs have slowly spread to adjacent areas in North Africa, Morocco and Algiers, and around most of the Mediterranean coast, including the islands of Sardinia and Corsica, and into Asia Minor. Bulbs can be traced right across Asia to China, but it is believed that these were spread by travellers, for bulbs are to be found only along the line closely followed by early traders from Europe to China. Bulbs also spread slowly north to areas of France, Switzerland, and one or two found their way to the British Isles.

I began by ordering duplicate lots from as many sources as possible and followed this up by vigorous correspondence with just about everyone I knew to be interested in these bulbs. As a result I steadily widened my contacts to people in many parts of the U.S., England, Holland, Portugal, Australia, and New Zealand. From each I obtained new contacts, and so my circle rapidly increased.

In the literature two names, Douglas Blanchard and his son John, in England continually crop up. I wrote to John Blanchard and asked if I could obtain some bulbs from him. When he said that this would be possible, I decided to make a trip to England to meet him and to collect what bulbs he could spare. This trip proved to be of immense value, for not only did I receive bulbs of many unusual kinds in generous measure, but I learned some of the cultural pitfalls, and obtained a list of still more people to whom I could go. Thus, slowly over the past seven years I have gathered together quite a substantial and interesting collection of most of the wild species, plus a number of the better miniature hybrids, close to 350 different types and cultivars. I have managed to sort out to some degree bulbs which I have so that they conform to the published descriptions of the various species, and have managed to control most of the more prevalent problems and diseases to which these small bulbs may be subject. The process continues.

It is not my intention, even if it were possible, to give you a complete survey of the genus *Narcissus*, but I would like to try to introduce you to some of the more interesting wild forms, and then show you some of the hybrids, small in stature, which have been developed.

Before we go any further let me say that the correct name for all these bulbs is narcissus. Most people tend to associate the name daffodil—which is a corruption of asphodel—with the large yellow flowers having a substantial trumpet, while narcissus are the later flowering bulbs which have white petals and a neat red rimmed corona in the middle of the flower. The common name is pheasant's eye, but to be correct all are narcissus.

In the most recent botanical revue, *Flora Europea*, the genus *Narcissus* is now divided into 9 sections instead of the previous 12. Some of these are of little practical importance, being of interest only to the collector, yet I thought you might be interested in seeing just how varied the genus can be.

First comes a group which flower naturally in the fall. *Narcissus humilis* is the only member of the section *Tapeianthus*. The small star-like yellow flowers are produced towards the end of September. *Narcissus serotinus* in the section *Serotini*, another fall bloomer, is native to southern Spain—around Gibraltar and in Morocco. It flowers in October in a cool greenhouse. Another member of the fall-flowering group (in the section *Jonquilleae*) is *N. viridiflorus*. It has a green flower, and flowers at the same time as *N. serotinus*. This last species has little value except as an oddity.

The *Tazetta* or *Hermione* section is also very early blooming and, depending upon location, some can be in flower from mid-November onwards. They are found naturally more or less circling the Mediterranean region, and none are considered really hardy. Most of you will recognize the yellow 'Soleil d'Or' and the white 'Paper White', *N. tazetta* cultivars that are in the florists' shops from Christmas onwards. They are grown here in the north mainly as throw-away pot plants, but in the southern U.S. they are excellent for outdoor planting. Unfortunately there are almost no miniature types in this section. The same is true for the section *Narcissus* in which there are two or three species all very similar, but none truly miniature. The section *Jonquilla* has a substantial array of interesting plants, both as species and hybrids. This section used to be divided into two sub-sections. One of these was for a species whose flower stems are naturally rather tall: 9 in. or more in height and with multiple flowers on each stem. The other was for species with stems from 3 to 6 in. tall and usually only one flower on each stem.

A number of selections of the *Jonquilla* section have been made in the wild. The one most often seen is *N. requenii* [syn. *N. juncifolius*]. Two other species differing slightly are *N. fernandesii* and *N. henriquesii*. I think that *N. henriquesii* is perhaps the best of the group. As a matter of interest only, there is a small-flowered bulb with multiple flowers known as *N. gaditanus*. It is most difficult to flower and is of little interest except to collectors. White-flowered species in the *Jonquilla* section are all dwarf and come from Morocco. One of the best is *N. watieri*, with clear crisp white

flowers on 3 to 4 in. stems. *Narcissus atlanticus*, also from Morocco, is also white, although the color is not quite so crisp as *N. watieri*. It is interesting to note that all the *N. atlanticus* now in cultivation have come from one original collection of seed made sometime in the 1930's. The bulb in flower has never been found again in the wild.

Narcissus rupicola is the main dwarf yellow jonquil, and it is found in Spain. It is in effect a yellow form of *N. watieri*. *Narcissus rupicola* is quite varied and both large and small-flowered forms have been collected. One last bulb which must be mentioned in this section is *N. scaberulus*. It is diminutive, yet with 2, 3 or more flowers per stem. Although it is a jonquil it does not seem to fit into either group.

Most of you will have come across the species, *N. triandrus*, commonly known as angel's tears. Although a pan of these bulbs may show many minor differences, there are only 4 or 5 recognized botanical varieties. All of them have played a substantial part in the development of many of the most attractive hybrid bulbs we plant and enjoy in the garden. The varieties are not very satisfactory in the garden unless you have just the right place. However they grow very well under the modest protection of a cool greenhouse or frame. The species has creamy white flowers, sometimes pure white, and used to be called *N. triandrus* var. *albus*. The correct name now is *N. triandrus* var. *triandrus*. As mentioned there are other numerous minor variations, none of which are now recognized as varieties nor sub-species. *Narcissus triandrus* var. *pulchellus* has a much shorter cup or corona and should be a deep cream. Those with an even deeper cream color and longer corona, are now called *N. triandrus* var. *pallidulus*. The small-flowered intense golden yellow form known as *N. triandrus* var. *aurantiacus* is outstanding. The fourth variety is *N. triandrus* ssp. *capax*, which is found only on a small island off the coast of Brittany. It has a beautiful flower which has been used widely for breeding. However it is most difficult to obtain.

The *Bulbocodium* section is one of the largest and most confused of them all. These are the so-called "Hoop Petticoat" daffodils, found in many forms throughout Spain, Portugal, and Morocco. The yellow-flowering species seem to predominate in Europe, while white and cream ones are found mostly, but not exclusively, in Morocco. The most common and readily available form is *N. bulbocodium* var. *conspicuus*, with stems from 6 to 8 in. tall and each carrying one bright yellow flower of the typical hoop petticoat type. A form with a greatly enlarged corona or cup is, quite correctly called *Obesus* while yet another form with pale yellow flowers striped with green is *N. bulbocodium* var. *citrinus*. The standard white flowered form, found mostly in southern Spain is called *N. cantabricus*, and yet another form of this, found only in

Morocco, is called *N. cantabricus* var. *petunoides*, because the corona is quite flat and looks like a petunia. In North Africa there are duplicates of practically all the Spanish forms. They have different names, although they are clearly related. The basic type is known as *N. romieuxii*, which is slightly shorter in stem than most with clear, light-yellow flowers. A number of forms with white flowers are grouped under the one name *N. romieuxii* var. *albidus*. One form with a wide flat corona similar to *N. cantabricus* var. *petunoides* but with a clear yellow color is known as *N. bulbocodium* 'R. Julis Jane'.

Moving now to the typical trumpet type narcissus, the smallest is *N. asturiensis*, and then next in size would be *N. minor*. There are numerous forms of both of these with flower size and height varying widely. Truly white narcissus are few. There is one in this group known as *N. moschatus* and, in turn, there is a dwarf form with the most delicate drooping white flowers known as *N. moschatus* var. *alpestris*. It is most difficult to find and to grow successfully.

Finally, we come to a species, *N. cyclamineus*, which is attached to the Ajax or trumpet section. This is a delightful bulb, quite easy to grow if given the right conditions. It reproduces true from seed and has been an important parent in many of our current hybrids. This brings us to the consideration of some of the better and more readily available dwarf hybrids with a sufficiently strong constitution to be of value in any planting. Here are some of the best.

Narcissus 'Hawera' and *N.* 'April Tears' are almost identical. 'Hawera' was raised in New Zealand and 'April Tears' in England. 'Hawera' is generally available each year from any reputable garden center. It grows well, producing a number of clear yellow flowers on the top of 9 to 12 in. stems. It is a cross between a jonquil and *N. triandrus* var. *albus* and was introduced in 1938. *Narcissus* 'Tete-a-Tete' is another beauty, being in many ways almost the ideal bulb. With *N. cyclamineus* in its parentage it may have some reflexed petals at times, but it is first class for forcing, for growing in pans or for planting in the garden. 'Jetfire' is another species of the Cyclamineus Division which is much closer to *N. cyclamineus* in form but which has a rich red trumpet.

The jonquil group contains a number of first class garden plants, but hardly any are better than the two basic forms found in the wild, *N. henriquesii*, *N. fernandesii* and *N. willcommii*. Of these three *N. henriquesii* is perhaps the best. However, it is not so readily available as *N. jonquilla*, *N. × odorus*, or the double form with the old name 'Campernelle'.

For the real enthusiast there are a host of other hybrids not readily available except from other enthusiasts, but those detailed above should generally be available year by year from your local retailer.

JIM BLEW: Have you tried twin scaling with your bulbs?

JIM WELLS: No, I have not tried it. It is quite easy. You just slice a bulb up into 8 or 16 sections in August or September, dip in Benlate for ½ hour, place them in a plastic bag with damp peat or vermiculite, and leave them for 2 months. Little bulbs will develop on the edge of the scales and basal plate. You can plant them and they will grow.

A SURVEY OF HARDY BAMBOOS: THEIR CARE, CULTURE, AND PROPAGATION

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Bamboos belong to the Bambusoideae division of the grass family, Graminae or Poaceae. Some people have given the name "tree grass" to bamboo because of the giant size they can attain, especially in the tropics and subtropics. Since some bamboo species only reach a maximum height of 18 to 24 in. (and some varieties even less), the "tree grass" name is not appropriate for all bamboos.

There are two main divisions in the bamboos based on rhizome habit. The clump growers, or pachymorphs, have constricted rhizomes so that the plant remains in a relatively tight clump. Although the clump increases in size over the years, its increase per year is generally measured in inches rather than feet. The other group, the leptomorphs or running bamboos, spread rapidly by vigorous rhizomes which can extend out from the parent plant several feet, or more, per year. For garden purposes, the clump growers are more desirable, but, generally speaking, they are the tropical or subtropical species. On the other hand, those species that are hardy in the temperate zones are the runners. Fortunately, there are two species of pachymorphs or clump growers which are hardy and therefore valuable garden subjects, especially since they are hardy even in the Boston area. I refer to *Sinarundinaria nitida* and *S. murielae* (also known as *Thamnocalamus spathaceus*).

There are many species of hardy bamboos of the runner or leptomorphic type, ranging in height from the low growing 18 to 24 in. species to the giants of 60 ft or more. The hardiness of this group varies, but by creating microclimates and by changing our expectations, one can still grow some of these bamboos in colder areas.

Before I can explain how a bamboo grows, I need to describe and identify the plant parts. Bamboos have three main parts: the