

# PLANT LIFE



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# PLANT LIFE

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The cover design shows a scene during Narcissus time on the estate of Carl H. Krippendorf in the State of Ohio.

## MY INTRODUCTION TO NARCISSUS SEROTINUS

TOM CRAIG, *California*

It was late in October 1943 that I was temporarily stranded in Casablanca with three other war correspondents—Allen Raymond, Barry Farris and Jack Barnett. We were waiting for transportation to take us on to the Italian front.

One afternoon, having nothing better to do, we hired an ancient hackney coach and with a couple of ragged arab boys for drivers, we started out to see the sights. The city was colorful and excitingly exotic. Dark-skinned native men wearing bright robes and red fezes sauntered along languidly or stood about in small groups. Native women with faces veiled moved about quietly and inconspicuously, almost as though hoping not to be seen.

All this interested me very much since it was so different from life at home. The gardens, however, pleased for the opposite reasons—they were full of plants just like we grow in California: Oleanders, Bougainvillea, Plumbago, Bignonia, Lantana, Agave, Parkinsonia, Washingtonia palms, pepper trees and Eucalyptus.

We saw the native quarter, bargained for leather cigaret cases, and ended by driving along the beautiful bathing beaches toward the historic Anfa Hotel, where the Casablanca conference was held. Since I am interested in endemic plants wherever I may be, especially Narcissus, I therefore kept my eyes to the ground as we headed toward the country. Somewhere in Morocco, I knew, were endemic *Narcissus*, particularly the fall bloomers, *N. serotinus* and *N. Broussonetii*, and I was hoping to see at least one of them.

By this time our Rosinante was a bit tired and was taking the steep hill at a lagging pace. The arab boys cracked their whips and screamed encouraging invectives at our skinny and sweating nag. On that hill I first saw them! Scattered about in the field and in the ditches along the road were patches of white six-pointed stars. Without a thought as to what my companions would think, I jumped out over the back of the hack into the ditch to gather a few of these little stars in my hand. This mite of a flower with no foliage and with but a flat vestige of a cup, a miniature fall-blooming Narcissus, was undoubtedly *serotinus*.

Now, *serotinus* means more to me than a rare, fall-blooming, Moroccan *Narcissus*. It brings back memories of a long series of experiences of which this was the first. I saw it a number of times after that—all around the outskirts of Casablanca and not uncommonly around Algiers. It put up its bare flower scape among the tents where our soldiers were camped, in our engineer supply dumps, and along the margins of airfields and roadways—never abundant, but decidedly no great rarity. I never came across it without secretly wondering how its relatives were growing in my Los Angeles garden.

For years I had planned an attempt to bring the Moroccan fall bloomers into the parentage of my *Narcissus* seedlings in the hope of developing fall and early winter blooming daffodils. Ironically enough, there I was with an abundance of pollen but nothing on which to put it—just another of the annoying fortunes of war. I understand that some breeders are trying to work these Moroccan *Narcissus* into their hybrids. I hope they will tell us of their results.

## THE 1942 AND 1943 NARCISSUS SEASONS AT BROUGHSHANE

GUY L. WILSON, *North Ireland*

[Since the Daffodil Year Book of the Royal Horticulture Society has not been published for several years, due to war conditions in England, many daffodil enthusiasts have missed Mr. Wilson's interesting yearly articles. We are therefore very glad to publish Mr. Wilson's letters on the two past seasons. It should indeed be gratifying to Mr. Wilson to see how these reports have been passed along and eagerly read by the Daffodil planters and growers in America. —*Narcissus Committee.*]

## 1. SEASON 1942

The bulb harvest of 1941 was late, foliage kept green for longer than usual, and exceptionally fine bulbs were developed; so I looked forward to good flowers in 1942.

Owing to severe and prolonged winter weather in the early months of this year, the season was again very late; so much so that at one period I wondered whether we should manage to get even the bulbs we had potted into bloom in time for the London show. The main interest of late March and early April was in watching these develop, and trying to time them to suit the show date, April 14 and 15. We managed to do this fairly successfully, and had a very nice lot of flowers. I have never seen finer *Flemish*: we had several potfuls, each of which gave six or eight superb flowers. *Leinster* was one of the finest yellow trumpets; *Integrity* also was astonishingly good. Of red cups I find that *Dunkeld* does excellently in pots, coming in first rate form, with good colour. My newer intense yellow and scarlet *Indian Summer*, of which two offsets were potted, also came with brilliant colouring, and was useful in the Engleheart cup class, as was likewise my pink cupped Leedsii *Lisbreen*, which was very good, and can apparently be relied upon to show a definite amount of pinkness. A single offset of *Chinese White* gave a lovely flower which was a strong support in the cup class. Watching these and many others develop under reasonably good conditions, safe from weather damage, before the more hectic and congested rush of the season was, as always, a great delight.

When I left for London, the weather showed signs of improving and things were beginning to move out-of-doors, although as yet there was very little indeed in flower. As Richardson had told me that he was at the peak of his season's bloom, I had small hope of winning anything, so I was surprised and much pleased to win the Engleheart cup, as well as being awarded the medal for the best flower in the show, and winning the only other two classes which I had entered; namely 12 trumpet varieties yellow, white and bicolor, three blooms of each, and 12 large Leedsii, three blooms of each. I think that my good fortune was partly due to the fact that owing to transport difficulties, Richardson had been obliged to leave home a day sooner than I did, and his

flowers were getting just a little bit tired; however, my own when staged were nothing to be ashamed of. My "best flower", which was shown in the Engleheart cup class, was a new and superb 4 A of nearly trumpet measurements and distinct character; in form it rather suggested a giant trumpet-cylamineus hybrid, as the very broad but sharply cut perianth reflexed slightly from the somewhat bell shaped trumpet-crown. The flower which had immense substance and faultless texture was intense icy-white with exquisite green shading at the base of the segments where they join the crown, and in the base of the crown itself. It was bred from *Samite* by *Stemish*, and I named it *Murmansk*.

Richardson had a gorgeous lot of flowers from amongst which some half dozen varieties gained awards of merit. Some of these, of course, had been seen before; e. g., *Narvik* and *Buncrana*, the latter a very fine white and deep apricot orange incomp. of perfect show quality. Two that I had not seen before were a first class incomp. having broad smooth clean cut golden perianth, and not too large, nicely frilled deep orange red cup, a flower of excellent form and habit bred from *Penquite* by *Killigrew*; it was shown under number, and has since been named *Cotopaxi*. The other was a glorious tall strong stemmed rich deep *Trenoon* gold coloured flower, classed as incomp. but bordering on Ajax proportions; splendid in size, build, proportion, stature and colour, it should make a magnificent garden plant as well as a grand show flower; it has since been named *Galway*. Richardson's exhibits seemed especially rich in these magnificent deep yellows. His superb trumpet *Kingscourt* was again shown in great form, whilst a new one named *Gold Digger* was outstanding; it is a large flower of perfect form with broad flat perianth standing erectly at right angles to the somewhat slender neatly flanged trumpet; the texture is smooth and very firm, and the colour quite uniform intense deep gold. Amongst a bewildering display of brilliant incomp. I recall a strikingly effective show flower named *Jerpoint* which had velvet smooth texture and great substance; the broad slightly spoon shaped segments being intense clear yellow, the well proportioned rather bowl shaped cup was also rich yellow edged with a bold and very sharply defined band of brilliant orange scarlet.

My recollection of most other exhibits is foggy, but I clearly recall in Col. George Johnston's Engleheart cup group a most charming and distinct small crowned Leedsii with circular pure white perianth of perfect quality and almost flat solid coral pink crown.

During my absence in London there had been six days of most perfect Spring weather with warm sunshine at home; and when I got back, all except the very latest things and the poets had rushed into full flower, so that I found an overwhelming feast of glorious bloom. I could not help feeling a sense of regret that I had not been here to see them open, and a fear that I should never have time to study their individual beauty. It was a lovely calm day of warm sunshine, and the flowers were in perfect fresh undamaged condition. What a time I had going over them all and selecting some seventy odd seedlings from the seedling beds that afternoon. Never have I seen the whites in such

superb condition. *Truth* and *Kanchenjunga* were quite marvellous, finer than I have ever seen them: some of the flowers of *Kanchenjunga* were of amazing size and perfect form carried on taller stems than usual; while my great white trumpet *Broughshane* again fully justified my opinion of it as the most spectacular thing I have yet raised. Two blooms in particular from strong single nosed bulbs one year down towered head and shoulders above their neighbors, faultless in form and balance, their immense size, beauty and giant foliage were quite arresting.

Yellow trumpets were also magnificent. Brodie of Brodie's *Elgin* was really wonderful, its great rich golden flowers measuring up to  $5\frac{3}{4}$  inches in diameter, being at the same time of fine form, substance and quality. My own *Principal* and *Garron* grew with enormous vigour, but being somewhat later than *Elgin* they scarcely attained the remarkable development which they would have done but for the fact that after a few days of ideal weather, a strong cold harsh and very dry east wind set in which persisted without ceasing, day and night till practically the end of the season, and hindered full development of many of the later flowers, as well as inflicting damage on all but those in exceptionally sheltered spots.

Red cups generally were short of colour, having been rushed out too suddenly to permit their full development. There were, however, several notable exceptions, e. g., *Tinker*, bred from *Damson* by *Rustom Pasha*, which is rather early; this was finer than I have yet had it, being magnificently brilliant. Then there was a small stock of an unnamed seedling from *Market Merry* by *Clackrattle*, from the same batch of seedlings as *Indian Summer*: previously this, though of splendid colour, had been inclined to come a bit rough; but this season it appeared as quite the finest red and yellow Barri I have ever seen, carrying big tall stemmed circular flowers with very broad smooth clear golden perianth and shallow intense deep vivid red crown, a gorgeous thing, so I have named it *Chunking*.

Flowers having pink tinted crowns were, curiously enough, in most cases better coloured than usual; Brodie of Brodie's little *Wild Rose* in particular was quite startling, its cups being really rosy pink.

Amongst seedlings which had flowered for the first time in 1941, several very good things appeared; notably a most magnificent Leedsii bred from *White Sentinel* by *Kanchenjunga*; an immense flower more than 5 inches in diameter of quite perfect form, balance and quality, having great broad flat smooth pure white perianth and perfectly proportioned widely flanged or bell mouthed finely frilled milk-white crown; this I think is the finest Leedsii of such large size that I have yet seen. Another Leedsii bred from *Gracious* by *Truth*, a tall plant, is a beautiful self white of extraordinary purity; whilst a third bred from *Niphotos* by *Truth* is another pure white of superb texture and faultless modelling.

Amongst a large batch of seedlings flowering for the first time this season the most striking break was a series of very attractive and novel,

large cool clear greeny sulphur lemon trumpets, bred from *King of the North* by pollen of *Content*. Some were almost selfs; others very pale with a marked frill of deeper lemon at the mouth of the trumpet: one or two were actually reversed bicolors; the most striking being a wonderful large trumpet of fine form having bright clear greeny lemon perianth with a whitish halo around the base of the segments where they join the trumpet; the trumpet itself being clear greeny lemon on the outside, and almost white inside, its well serrated brim being tipped with sparkling lemon. Of course it remains to be seen whether these beautiful and interesting flowers will be good doers. Amongst other good flowers were one bred from *Bridal Robe* by *Samite*; a large late white trumpet of noble build and lovely quality having beautiful greenish shading in the base of the trumpet and segments. From *Dunluce* by *Broughshane* came a superfine larger clear pure self white trumpet. From *Hebron* mated both ways with other good yellow trumpets came some very promising rich yellow trumpets. I find that I am getting a relatively large proportion of good results from *Kanchenjunga* as a parent, as from some 141 seedlings in all, selected for further trial 15 have been bred from *Kanchenjunga* pollen and 3 from its seed.

Dry weather from flowering time till the end of June and a late ripening season resulted in magnificent bulbs, so if we get reasonably good weather next April we ought again to see fine flowers.

## 2. SEASON 1943

This will be remembered as the year of the south-west wind, in striking contrast to 1941, when from December to June the wind blew from east to north east without a break. This season there has never been any east wind, a circumstance without precedent in my memory; consequently, it has been the most wonderfully beautiful early spring that I have ever known. We had literally no winter at all; nothing more than a few night frosts, and once a sprinkling of soft snow that disappeared in a few hours. It was like the winter of south-west Cornwall or Scilly. The only flaws in this otherwise quite perfect season were several big westerly gales during flowering time, which did some flower damage; but, as the wind was moist and mild, the damage was very much less than would have been inflicted by east wind: and fortunately the main planting of my best flowers was in a position partially sheltered from the prevailing wind.

Snowdrops were in full bloom early in January, and during this month, all my little early Crocuses made full display, while the common yellow Crocus was in flower at the end of the month. *Rhododendron Praeox*, which usually tries to flower here at the end of March and gets spoilt by frost, began to open on January 30th, and gave the best display it has ever done since I have had it. The first bloom of the earliest little golden trumpet daffodil, *Dorothy Bucknall*, was out on January 31st; *Pallidus Praeox* had joined it by February 5th, and sheltered clumps of old double *Telamonius Plenus* in the grass were in bloom during the last week in February. A red and yellow numbered seedling

incomp. was in flower in one of the daffodil beds at the same time, and I selected my first 5 year old seedling, a yellow trumpet on March 1st.

February was a marvelous month: green leaves appeared on thorn hedges in sheltered spots, and during the last week of the month, the common *Prunus* gave the finest display of blossom I have ever seen from it; and I saw Black-thorn in flower at the same time. Before the end of March, hedges were quite green, and some trees bursting into leaf. In short, the season was 3 weeks to a month early.

The bulb ripening season of 1942 had again been exceptionally favourable, and I had had about the finest bulbs I have ever grown, and so hoped for exceptionally good flowers, given a favourable season in 1943. I have often noted that daffodils grow with great vigour if the spring is late in coming, and they have been somewhat retarded by cold weather. Actually during February and the early part of March I feared that the quite abnormally advanced growth would result in softness and lack of vigour, owing to insufficient sunlight during the short days, and indeed in the case of some things growth did look rather weak at this early stage. However, as the sunlight grew stronger during the lengthening days of March the plants visibly and rapidly gained vigour and strength till by the 10th of April, when they were in mid-season bloom, they were finer than I have ever seen them, indeed quite marvellous.

Lionel Richardson's season in County Waterford is always much earlier than mine, and this year *Forerunner* and *Fortune* were in flower with him in January. I paid him a visit from Friday March 19th till Monday 22nd when his flowers were already about in midseason bloom, and a gorgeous feast they provided.

He had one field of fully an acre in extent, completely filled by a few large stocks, notably 12,000 each of *Porthilly* and *Carbineer* which were in their early prime and in perfect condition when I saw them, and what a wonderful sight they were. Both of these will make grand garden plants, as also will be the beautiful *Diolite*—a flower of faultless quality, grand carriage, and habit, and charming colour: while the beauty and value of *Leedsii Brunswick* cannot be exaggerated, especially in view of its earliness and exceptional power of lasting. *Rustom Pasha* of which there was also a large stock, is perhaps the best red and yellow for garden decoration yet seen, as its very brilliant colour is quite sunproof, and it is a strong and sturdy plant. Of newer things of Richardson's own raising and seedlings, of course there were abundance to be seen. He excels in red and yellow incomps. A new one named Ceylon is about as brilliant as anything I have yet seen; a well built, shapely flower with smooth perianth of intense aureolin gold and well proportioned dark intense clear orange red crown. A large and brilliant flower named *Sun Chariot* has big broad spreading perianth of intense sunflower yellow, and well proportioned frilled bowl shaped blazing orange scarlet crown: it is quite sun-proof. *Narvik* which is perhaps the best of the splendid *Carbineer* x *Porthilly* series was in very fine form: it has wonderful substance and quality, combined with beautiful

shape and proportion. There was quite a bed of the astonishing *Krakatoa*—Richardson intends to exhibit a spectacular group of it after the war, and it will certainly cause some excitement. It is a flower of largest size, which might be described as a scarlet and gold *Great Warley*, but of better form and substance, with broad intense gold perianth and large frilled, basin shaped, fiercely hot, orange-scarlet crown. There are also other magnificent seedlings as yet un-named.

There are also a set of superb yellow trumpets: of these, *Kingscourt* is perhaps the finest exhibition yellow trumpet I have yet seen; very large, of perfect form and balance, very satin smooth faultlessly overlapping perianth of wonderful thick texture, the whole flower being uniform rich gold. *Golddigger* is also a first class flower like an enlarged and improved *Cromarty*, of intense uniform dark gold: white *Galway* is quite magnificent, a taller plant than the others, with very strong stem and grandly formed large flower of pure and brilliant intense deep gold. It will make a glorious garden plant.

At the Dublin Show on March 30th and 31st, Richardson, W. J. Dunlop of Ballymena, and myself all put up gold medal groups which made a very fine display along one side of the Baggotrath Hall. While in Dublin the first of the westerly gales came, and wind was so violent that I was much worried as to the fate of my flowers at home. I got home about mid-night on the 31st and next morning, April 1st to my great relief, I found that surprisingly little damage had been done. From then till about April 6th conditions were perfectly ideal. There was never any lack of moisture, and the daffodils grew with immense vigour: length of stem, size, substance and quality of bloom were all quite wonderful. By Sunday 4th April very many things were in their early prime: it was one of those still balmy April days of heavenly beauty with soft air and gentle sunlight filtered through thin cloud: in the evening the masses of wonderful and perfect flowers seemed to be of quite unearthly beauty.

Never have I seen *Cantatrice* so fine, a crowd of big flowers on tall stems, so smooth in texture that they were like the finest marble. *Askelon* was also finer than I have ever seen it, immense faultless blooms with enormous broad foliage. *Fortune*, by now over its best, was still a thick mass of bloom on towering stems. Of yellows, *Principal* was this year on top of its form it is a really grand all round plant and flower, and will, I am confident, be one of the standard varieties of the future.

One of the outstanding high-lights of the season, both here and at Waterford, was *Trousseau*: it is undoubtedly one of the very finest things ever raised by anyone. It has every virtue—ample stem, grand sturdy habit, perfect carriage, fine size, perfect form and proportion, with its broad, flat perianth, and neatly flanged trumpet, great substance and durability, and marvellous quality. Its satiny white perianth and velvety rosy buff cream trumpet create an effect of extraordinarily rich, but enchantingly delicate loveliness. The flowers attained great

size and perfect development without flaw, and were an almost unbelievable dream of beauty.

Of coloured things, my grand, large, early gold and orange red incomp. *Armada* was particularly fine. *Tinker*, intense clear yellow and deep orange scarlet, seems to be gaining size and vigour year by year. A bed of little *Leprechaun* opened with jewel-like brilliance, looking lovely with its exceptionally blue green foliage. *Fairy King* was superb, I think larger and finer than I have ever had it.

Amongst newer things and seedlings, my *King of the North* x *Content* greeny lemon trumpets were again most exciting and promise to be a wonderful acquisition: one of them, a lovely smooth flower, opened first early. Brodie's beautiful *Hunters Moon*, a flower of enchanting moonlit sulphur-lemon came superbly indoors. It also grew most vigorously, lasting a quite amazing time in the open, its charming colour being retained till the flower died; so it will make a most desirable garden plant. As it has a good stem, it will also be an ideal cut flower, and altogether promises to be a most important introduction. No. 30/90, bred from a seedling from *Quartz* x *Naxos*, by pollen of *Chinese White*, is a Leedsii of perfect form, proportion and pose, fine texture and substance, and purest icy-white with a green base; it is, I think, one of my very best Leedsii up to date. There were several fine flowers bred between *Kanchenjunga* and *Truth* both ways. From *Truth* x *Slemish* came a tall silken smooth trumpet Leedsii of purest self snow-white. Another remarkable Leedsii was bred from *Gracious* x *Broughshane*: this bloomed rather late, and was a very large, grandly built flower, with broad flat perianth and well flanged crown, its stem attaining the astonishing height of 33".

It was a good pink year, and a little family selected last year from a batch bred from *White Sentinel* by *Evening* were particularly charming: all very neat nicely proportioned flowers, some with well frilled crowns of quite rosy pink. Another from *White Sentinel* by *Carnlough* was a lovely large flower with big, wide spread, smooth, pure white perianth, and nicely proportioned, rather basin shaped crown of the most entrancing delicate shell pink. Radcliff's *Rosairo*, sent from Tasmania, has not yet fully acclimatised, but is very promising: I took a flower to London: it was not exhibited, as it was nearly over, but its colour astonished some who saw it the day before the show.

On Wednesday April 7th came the second of the big westerly gales of the season: the wind blew with such force that several of our strongly fixed shelter covers inside the six foot hop-screening fences became detached; but fortunately, most of our shelters stood up, and damage was very much less than might have been expected, and I was able to collect a grand lot of flowers to take to London on the night of the 10th.

*Broughshane*, Brodie's *Hunters Moon*, and *Tamino*, which I showed all got Awards of Merit. Nine noble flowers of *Broughshane* arranged in one of the R.H.S.' big glass vases were indeed an impressive sight. To my considerable surprise, I was awarded the medal for the best flower in the competitive classes for a fine *Silver Coin* Leedsii seedling

which I had cut the day before I left home in almost tight bud: it has very broad solid flat white perianth of great substance and velvet smoothness and neat smallish creamy cup, very good strong stem, and short neck. The more important classes I won were Class I for three blooms each of 12 varieties, representing at least 4 Divisions, and the class for 3 blooms each of 6 varieties not in commerce. Amongst the latter I included *Moina*, a charming flower, bred by C. E. Radcliff of Hobart, Tasmania, between *Mystic* and the Australian-raised *Pink Un*; it is a good sized very shallow crowned 4b with broad white perianth and creamy citron white crown, edged with a sharp ribbon of salmon cerise. I also showed an exquisite icy-white trumpet seedling and *Virtue*, an intense deep self lemon yellow of faultless form and quality. My group of 12 large trumpet varieties was, I think, the finest I have yet staged.

Richardson won the Engleheart cup with a magnificent group, amongst which a superb bloom of *Fermoy*, shown in perfect condition, was, I think, the finest red and white incomp. I have seen yet. It is bred from *Niphotos* by a red cup seedling, and inherits much of *Niphotos*' good form and balance. It is a big flower, with broad and wide spread pure white perianth, and perfectly proportioned beautifully frilled clear orange red crown, which is gold in the base. I quite thought that this flower would have been chosen as best in the competitive classes. *Tampico*, in the same group, was a remarkably fine large tall red and white Barrii of beautiful form, bred from *Warlock* by *Forfar*; while the smaller *Mahmoud*, with smooth circular poeticus-white perianth and solid deep red eye, is a brilliant flower of highest quality; and *Innisfallen*, bred from *White Emporer* by *Gracious*, is a pure white and soft chrome bicolour incomp. of faultless form, balance and wonderful quality, rather like a more refined *Polindra*.

As it was only a one day show, and we had a fairly lengthy meeting of the Narcissus Committee, and as there was a very crowded attendance of the public, it was a terribly hectic business, and I found it quite impossible to see a great many of the class exhibits at all, but several very good and promising seedlings were shown by amateur raisers, notably those from Mr. F. E. Gibbs of Hayes, Middlesex, who had two very fine gold incomp. and several other flowers of merit.

After the show, the Richardsons and myself went up to Brodie Castle in Scotland, and found the flowers there in incomparably finer condition than they were last year; but it was sad indeed to go round the garden without Brodie himself. Everything was clearly labelled in his neat handwriting just as he left them, and it was easy to find the parentage of seedlings flowering for the first time in the seedling beds from his carefully kept records. Amongst 4 and 5 year old seedlings there were two very outstanding flowers: one, a glorious large white near-trumpet bred from *Cotterton* by *Broughshane*; *Cotterton* is a rather short stemmed well formed pure ice-white flower, bred from the white trumpet *Tain* by Leedsii *Evening*. The seedling from *Cotterton* by *Broughshane* had very large and broad erect or almost slightly re-

flexing, smooth, pure white perianth, and beautifully proportioned, well flanged trumpet crown; it has great substance, quality, splendid carriage, and good stem. The other notable 5 year old seedling was the most intensely dark gold trumpet I have yet seen: a fine tall plant, the flower being of semi decorative form: it was bred from a dark yellow large crowned near-trumpet of un-known parentage, by pollen of *Mariston*.

I got home again on the 20th April to find most of my early and mid-season flowers pretty well over or past their best, but the later things were still glorious, and their size and length of stem were astonishing. I found *Red Hackle* in magnificent condition: and a seedling of my own which I have named *Gala*, also bred from *Polly* by *Red Abbott*, which were the parents of *Red Hackle*, in finer form than I have ever seen it; indeed, I was much pleased with it—its perianth is almost Poeticus white, just visibly purer than even the very white perianth of *Red Hackle*, while the well frilled crown is blazing orange scarlet with a greenish citron base. My intensely brilliant scarlet and gold *Indian Summer*, which was just opening when I left on the 10th for London, was still in splendid condition and it kept its colour remarkably well.

Amongst seedlings flowering for the first time this season, there did not seem to be anything very startling, though several were promising and will probably improve. There were one or two good first early rich gold trumpets; one bred from *Magnificence* by *Hebron* was of good form, carriage, and very rich deep colour. Two or three beautiful deep clear gold trumpets came from *Hebron* by pollen of Richardson's *Goldcourt*. A 4 year old seedling from an un-named seedling (from *Sincerity* x *Carmel*) by pollen of *Murmansk*, was a pure icy-white green based trumpet of perfect quality; it was not large, but when it grows stronger, may develop into a fine thing. I think I selected 19 seedlings with pink tinted crowns for further trial: one, bred from *Pink O' Dawn* by *Lisbreen*, was of more or less trumpet dimensions, the trumpet being uniform pink of about the deepest tint I have yet seen.

Another terrific westerly gale during Easter weekend, April 24th to 26th, practically finished the season, though of course, the very latest small crowned Leedsii and Poets continued into May.

In spite of these gales, it was a long and memorable season providing a rich and satisfying feast of the most glorious daffodils I have ever seen for fully 7 weeks.

## DAFFODIL NEWS NOTES

ARNO H. BOWERS,

*Associate Chairman, Narcissus Committee*

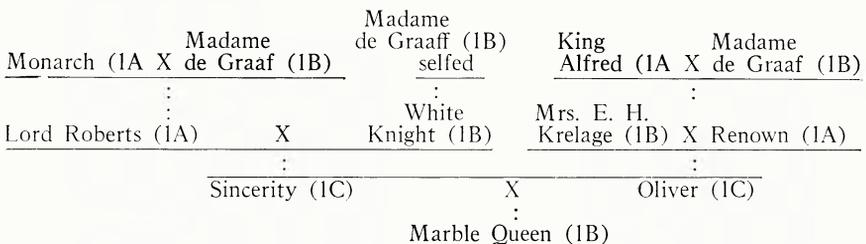
Due to disturbed world conditions, reports of daffodil shows both here and abroad are not as numerous as they have been in the past. However, it is encouraging to learn in those that have been sent to us recently that most of the English and Australian Shows are being continued—certainly a commendable effort in the face of difficulties. Entries appear to be excellent and attendance splendid.

It is interesting to note that in these shows the amateurs have come to the fore. At the Royal Horticultural Society Daffodil Show held in London, the Engleheart Cup given for 12 varieties of the exhibitor's own origination has for years gone to either Mr. J. Lionel Richardson or Mr. Guy L. Wilson, both commercial daffodil growers and breeders. Last year this most coveted trophy in the daffodil world went to an amateur, Major F. C. Stearn. Among his winning flowers were several bred from *St. Egwin* by *Crocus*.

Another amateur, Mr. W. B. Cranfield was awarded a medal for the best flower in the show—a very fine bloom of Mr. Richardson's *Goldcourt*.

At the Melbourne Show in 1943 Mr. O. Ronalds, also an amateur, won the Henry Boyce Perpetual Challenge Cup for the best lot of seedlings in the show over two excellent exhibits shown by West and Fell and H. A. Brown. One of these clones *Sweet Lass*, was awarded the distinction of being the best seedling in the show. It is described as "a very smooth, round perianthed incomparabilis of a uniform rich yellow, the perianth segments overlapping and slightly reflexing, and with a prettily formed crown of intense red right to the base."

Four other daffodils of Mr. Ronalds, all seedlings were considered to be "best in the show" in their particular divisions—yellow trumpet, white trumpet, bi-color trumpet, and incomparabilis with white perianth. The white trumpet champion, named *Marble Queen*, was bred from two bi-colors, both having the old *Madame de Graaff* in their past, *Sincerity* x *Oliver*, the later also a champion seedling of Mr. Ronalds. Those interested in pedigrees may study the heritage of *Marble Queen* given in the figure below. *Renown*, the pollen parent of *Oliver*, is a famous Australian yellow trumpet.



When one notices the recognition given to some of the breeders still classed as amateurs, one cannot help but wonder whether the classification does not detract from the very good seedlings that are developed. In the usual sense of the word, "amateur" means a beginner or "one unskilled." Yet in the case of some of the breeders of amateur standing their names have been appearing in the award lists of shows for years. A seedling of Mr. Ronalds in 1939 was given the distinction of being the best seedling in the Canterbury and District Horticultural Society Show.

Hence, while amateur is used to distinguish the exhibitors or breeders from the commercial or professional, it would appear that some consideration should be given to another designation—some classification between amateur and professional, denoting achievement but not requiring commercial activity.

Sales of daffodil bulbs in 1944 appear to have been excellent. Quite a few growers in this country were sold out long before the end of the planting season and we learn that with the Irish breeders business was so brisk that it was impossible to fill all orders—in fact, orders had to be taken for future delivery.

It would appear that in spite of the fact that people may not have as much time to devote to the garden as previously, they are still buying bulbs to plant. In some cases—and it is an encouraging note—the increased wages have made it possible for some to purchase bulbs they have never felt able to afford previously.

My own great disappointment in not being able to obtain certain bulbs was pretty much confined to *N. minimus*, *cyclamineus* and *trianthus concolor*. Perhaps I waited too long to order.

Speaking of these miniatures, it is curious that many of the new and more interesting seedlings mentioned in recent correspondence are species hybrids. It would almost appear that with Mrs. Reynolds' valuable and informative article on them in this issue, there is a collusion on the part of the Narcissus Committee to emphasize this relatively undeveloped field of breeding. However, such is not the case. If this coincidence has any special significance, it would appear that more interest is accruing (or can interest "accrue" only on money?) in the miniature hybrids.

Grant E. Mitsch of Lebanon, Oregon writes: "Several years ago, one of my *Gladiolus* customers in England sent me two small bulbs of the cyclamineus hybrid, *Mite*, and I have been trying to build up a little stock of this before letting any of it go. Have endeavored to find additional stock but apparently no commercial grower either here or in the British Isles lists it and it apparently must have been all but lost to cultivation. Be that as it may, it is the prettiest and most delightful little cyclamineus hybrid that I have seen and it is fertile both ways. A few of my four year old seedlings from it bloomed this year and one from it crossed with *Malvern Gold* gave me one of the most interesting seedlings that I have seen. This flower was very much like a miniature edition of *Malvern Gold* but more perfect and formal in form and with

texture suggesting jonquil ancestry. The stem and foliage were of a yellow green color and I anticipated that it might die after blooming once. However, on digging it recently I got a nice sound double nozed bulb and I am now hoping to be able to save it. There were several other seedlings which resemble *Mite* rather closely. One lot of *Mite* crossed with pollen of the species *N. cyclamineus* gave a lot which bloomed at three years and nearly all showed close resemblance to *cyclamineus* in both size and form.

“Another interesting lot this year was from the Australian variety *Vera West* x *Fortune*. Three from this group were quite distinctive—light lemon yellow jonquils with three or four blooms to a stem. I usually do not emasculate the flowers I cross and do not cover them but since I am sure there were no jonquils blooming when this cross was made, and if there were, they were quite some distance from these varieties, it seems likely that the incomp. *Vera West* may contain some latent jonquil blood.”

A letter from C. F. Coleman of Cranbrook, Kent, England reports further on his *Mitylene* x *N. cyclamineus* cross, previously reported in his article “Miniature Hybrids” in the 1940 R. H. S. Daffodil Year-Book. He had stated in the article that of the thirty seedlings that had flowered, 90 per cent showed the reflexing habit of *N. cyclamineus*, and that in color the seedlings were about equally divided between gold selfs or gold trumpets with lighter perianths and white selfs or fading to white. The height averaged about ten to twelve inches with the foliage resembling the glossy green of the pollen parent. The later report states that of the 45 flowering from 59 seeds, approximately 56% are whites or pale bicolors that go off white, 13% are true bicolors, and about 31% are gold selfs. So, white is dominant in this combination with the form predominantly *cyclamineus*.

Some of these *cyclamineus* hybrids are fertile and are being used in further crossing. Another *cyclamineus* hybrid, *Pepys*, bred by P. D. Williams, is fertile, as is *Le Beau* reported to be, in addition to Mitsch's almost-lost *Mite*. However, these are rather rarely found in this country. Were it not for the widespread misinformation that *February Gold* is sterile, it is likely that it would have been used much more in breeding since it is the most widely grown of the *cyclamineus* hybrids in the United States. Certainly it isn't sterile in southern California although no one could call it a generous seedbearer—ten seeds per pod being very good production (with *Fortune* pollen), two to five seeds being the usual range, 25% to 70% of which may not germinate. At least, that is my experience.

From this I judged that *Orange Glory*, listed as a *cyclamineus* hybrid, would give but few seeds. That conclusion was pleasingly erroneous as it proved to be as good a seeder as the average large daffodil. Since species hybrids are considered to be sterile or nearly so, doubt arose as to whether it was a primary hybrid until I read in the 1920 Midland Daffodil Society Report where Mr. Guy Wilson stated that he heard *N. cyclamineus* was the grandfather of *Orange Glory*.

Most of its progeny therefore will probably not be miniature but some interesting forms should appear.

An English breeder writes that he is putting *N. cyclamineus* on *Beryl* (*poeticus* x *cyclamineus*) to test the Mendelian theory as to whether the hybrid and pure cyclamineus will result in equal numbers. Along these same lines, I wonder if the use of *N. cyclamineus* on some of the cyclamineus hybrids might not give more vigorous *N. cyclamineus* as a result—"cyclamineus" which may show a greater desire to live from year to year under ordinary garden conditions. At least, it sounds like worth while experiment even if genetically it may or may not be significant.

Red-cupped cyclamineus hybrids are probably not impossible—at least, none have been reported as yet. However, red-cupped Jonquil hybrids have been mentioned but apparently none are in commerce. It is particularly interesting to hear the following from Edwin C. Powell, Rockville, Maryland:

"Two red-cupped jonquil hybrids that appeared in the 1940 bed of seedlings gave me the greatest thrill of the past season. One was from *Trevisky*, a red and yellow incomparabilis, and the other from *Tredore* a red and yellow Barrii, by *Jonquilla*. Although I have used *Jonquilla* pollen on more than 80 varieties and produced more than 500 seedlings, these are the first ones to have red cups. They were of good size for first-year flowers, of excellent form having broad flat perianth segments of good substance, and small globular orange-red cups. Both were tall upright flowers on strong stiff stems.

"*Tredore* and *Trevisky* were raised by the late P. D. Williams, the former being introduced in 1928 and the latter in 1930. *Tredore* was rated as 'one of the best red and yellow Barriis' and *Trevisky* as 'one of the finest and most brilliant flowers' bred by that peerless breeder."

Two very good articles on daffodil breeding appeared in American gardening journals during 1944. In "The Flower Grower" for April, Jan de Graaff discussed breeding for pink daffodils, listing possible parents and telling how crossing should be done. Edwin C. Powell wrote on "Raise your Own Daffodils" in the September issue of "Gardener's Chronicle of America". Both articles encourage more gardeners and daffodil lovers to take up daffodil hybridizing if only on a small scale.

This is excellent not only from the standpoint of publicity but it should result in interesting more people in crossing this most widely-grown group of the Amaryllids. It fits in nicely with a part of the program of the Narcissus Committee to encourage more extensive breeding of daffodils as in this way better daffodils can probably be developed faster for the many and varied climates and soils of this country. To give the beginner helpful information as to which are good parents and what may be expected if certain varieties are crossed, Mr. Sydney Mitchell was asked to write the article which is published in this issue of PLANT LIFE. Drawn from many years of daffodil breeding, Mr. Mitchell's excellent article will be of interest not only to beginners.

Since practically every serious breeder of daffodils harvests more seeds every year than he can plant and grow to maturity, it is hoped that the Narcissus Committee can distribute seeds upon request this year to members of the American Amaryllis Society. It is urged that requests be made before August first and that requests state approximately the number of seeds the member can plant and grow on. While no assurance can be given now that crosses of trumpets, incomparabilis, Leedsii, miniatures or any other divisions will be available as such, those requesting seed should state a preference. The Committee will try to oblige but can make no promise. Requests should be sent to the Associate Chairman of the Committee, 1708 Oak Grove Avenue, San Marino 5, California.

A report from the Narcissus Committee cannot be made at this time as the difficulty and extremely busy times have greatly delayed an adequate organization of activities.

## DAFFODIL BREEDING FOR AMATEURS

SYDNEY B. MITCHELL, *California*

The urge for improvement is strong in America—we even want to improve ourselves—and in the case of the amateur it is in what we love most that we desire to achieve perfection, as instance the efforts of wives to improve their husbands. It is therefore quite natural that those who love daffodils most should want to improve them, first of all by growing them to perfection, then, by breeding, to try to get even better flowers to grow as well as possible.

These notes by an amateur are for amateurs. The objectives of the professional or commercial breeder are the ultimate breeding of a few very distinct flowers. He wants a good clean bulb which is resistant to disease and increases well, a bulb which does well under many conditions and climates and produces a pretty uniformly good flower of clear color, large size, on good stiff stems, with such substance that it keeps well. In a market flower, that it is very early or very late may be its chief recommendation. The commercial breeder may have to spend half a lifetime to get what he wants. Frank Reinelt estimates it may take four generations, that is about 20 years, to get the flowers he has in mind. This kind of breeder is not much interested in what he gets along the way, except as parents for his ultimate flowers.

The amateur's attitude is different. He may merely, as I once did, raise many seedlings because he has more time than money, and if he starts with good parents he will get from seed hundreds or thousands of bulbs, many of them of almost as great beauty as costly named varieties, with the added satisfaction that they are his own. This pride of personal product is quite legitimate and undoubtedly with many is a considerable part of the pleasure derived from long extended and sometimes discouraging efforts. Commoner, however, is the feeling of the amateur that he would just like to see what improvement, or even variation, he can get in the flower of his choice. His concern is less with ultimate perfection—he often thinks he has achieved it anyway—and he doesn't have to wait 20 years or to get something which will be grown everywhere or sold to anyone. He craves variation in size, form, color, season of bloom, anything which gives distinction, and these he can get even in the first generation. He has his fun along the way rather than on arriving. His objectives may often change from, in the case of daffodils, trying one year for trumpets large enough for the angel Gabriel, next year to ones which could only be blown by fairies inhabiting little rock gardens. There is of course no reason why the amateur should not take himself quite seriously and aim at real improvement of his favorite flower, particularly in the development of daffodils better adapted to his climatic conditions than those in commerce, often bred where winters are wetter and summers shorter than his own. He may possibly raise something of commercial value—many of the best daffodils were raised by British amateurs—but he should work without hope of such profit, getting his reward "in the joy of the working."

For the maximum in results he needs time, patience, room to grow his seedlings for five years, records to show the results of his crosses, and a good breeding stud, named varieties for parents which seem likely to give good seedlings from the experience of others. A study of the parentage of good named varieties will greatly help, and the experience of earlier breeders, especially those working under similar conditions, should be of value. It is this last which alone justifies these notes. For whatever value they may have to the amateur I shall relate my results from breeding with named varieties and then describe the methods used here in crossing and in raising the seedlings. Our garden is in the Berkeley Hills, just about a thousand feet above San Francisco Bay. It faces east, sloping down towards Wildcat Canyon, so it is well drained. The soil is a heavy black loam underlaid by clay, rich but too tight a soil for daffodils, as it seems to favor basal rot. We average about 25 inches annual rainfall, all of it between October and May. Winter temperatures rarely go below 26° F. Summers are long, cool, foggy and rainless. Our season is long and, for California, late—from the end of February to the beginning of April.

The first seeds I sowed, about 15 years ago, were from self set *King Alfred*. All the seedlings were yellow trumpets very like *King Alfred*, but two or three were of better form, that is with wider, flatter perianths. From my limited experience of sowing self sets, I believe daffodils when they set seed themselves, rather rarely here, are fertilized by their own pollen rather than from some other flower, so variation tends to be limited unless the parents themselves came from wide crosses. It is certainly more interesting, more fun, to make your own crosses. Beginning with yellow trumpets, I find I have made almost no crosses with other yellow trumpets. Minor improvements of existing varieties have always interested me less than the possibilities of bigger breaks. I have therefore used *King Alfred*, *King of May*, *Dawson City*, and *Magnificence* either with white trumpets or yellow incomps, in either case getting good seedlings. *King of May* X *Beersheba* and *King of May* X *Naxos* both gave me good very pale bicolor trumpets which finish pure white. So did *Beersheba* X *King Alfred*. White seems dominant in such crosses, and the progeny, even if lacking smoothness and perfection, are far more permanent in my garden than the big British whites, which all die out after a few years. I would now be inclined to try similar crosses with *Mortlake* as the yellow trumpet parent, it is so husky here. *Dawson City* X *Tenedos* gave one or two fine bicolor incomps, and from *Dawson City* X *Fortune* I got several good red cup incomps. *Magnificence* X *Fortune* also gave yellow incomps with deeper gold cups. If I were now working for better yellow trumpets I should use *Principal* and *Royalist* for their fine finish. With bicolor trumpets I have had little experience. I prefer those with paler rather than deeper yellow cups, and you get them in crossing yellow and white trumpets. I hope in 1945 to see seedlings flower from the pale bicolor trumpet *Trostan*, a rather poor grower here, and from *Content*, but I cannot yet report on them. Pure white trumpets do poorly here. *Beersheba* gave its huge, long-nosed flowers for a few years and then passed on. Its stems were disproportionately short here, but in a colder garden at the foot of Mount

Diablo it is taller and stronger. Both as a seed parent and from its pollen on strong yellow trumpets one can get more vigorous whites for our conditions. Its trumpet is so long it might very well be crossed with big yellow or bicolor incompes or with giant Leedsiiis like *Tenedos* and still produce whites of shorter but better proportioned trumpets.

Far more of my crosses have been in the yellow, yellow and red, and yellow and white incompes and the giant Leedsiiis, which are practically indistinguishable from bicolor incompes. I have as yet no seedlings from *Crocus*, *Trenoon* and *St. Issey* nor from the underestimated *Faithful*, all outstanding pure yellows, but *Golden Pedestal* has proven an excellent seed parent, carrying on its tall stem, good neck and early flowering. From *Golden Pedestal* X *Tunis* I selected two of my best seedlings, one a white and yellow bicolor very like *Brunswick* and the other a self yellow far superior to its seed parent; both of these I have used in later crosses due to flower in 1945. *Lucinius* and *Osiris* bred with red cups both gave nice but not distinguished flowers, and so did *Havelock*, this last particularly good with *Fortune*. *Pilgrimage* X *Tenedos* gave a large batch of nice seedlings I still grow for garden effect—whites, bicolors and yellows, mostly with the somewhat fluted petals of *Pilgrimage*, all of great vigor. Among them is one little jonquil-like flower, apparently a throwback to a jonquil in the parentage of *Pilgrimage*. Of the yellows with red or partly red cups I have flowered most seedlings from *Fortune*. Few of them have met my hopes; however most of them had deeper cups than *Fortune* and a little better form, and they carried on its earliness, vigor and tall stems. From *Killigrew* X *Fortune* I got several nice red cups with better stems than *Killigrew*, which has a weak neck, but *Fortune* X *Tregoose* threw a better lot, a bit rough, but colorful and very vigorous. From the best of these crossed by *Carbineer* I now have large batches of seedlings to flower next spring and the few which bloomed last spring at three years of age showed how good a parent was *Carbineer* for yellows with red cups and nice flat round perianths. I am not over fond of *Porthilly* and I imagine the cross between it and *Carbineer* has been made by many. The few I flowered did not persuade me to repeat the cross. *Rustom Pasha* has been too weak to use much here, but *Diolite* is a grand tall vigorous thing and ought to be a good parent with varieties with stronger red cups and rounder, broader petals, as it is somewhat like *St. Egwin* in form as well as in vigor and height.

With bicolor incompes my breeding has been quite limited and some of it so recent I can as yet report no results. It is of course obvious that for early flowers in red and white it is worth trying the Australian *Jean Hood*, which, though by no means a perfect flower, lacking something both in cleanness and form, its first early season here, its very tall stems and its great vigor, all exceptional in whites and reds, commend it for use in trying for better flowers in clearer contrast. *Polindra* too, doubtless the best white and yellow incomp, should be an excellent parent as it has every good quality. Of the older varieties in this section I have most used the now common and cheap *John Evelyn*, and, though it is not a fine flower and its seedlings are rather rough, bred with red cups it has given some lovely variations in buff, orange, apricot, red and even pink cups,

with generally inferior white perianths, gay and informal garden flowers, if that is all that is wanted. Its heavily frilled cup is often perpetuated and I believe that by breeding and selection it should be possible to get from it distinct and double cup frills. From the breeder's standpoint the giant Leedsii are so like bicolor or pure white incomps that their use may as well be considered here. I have had more seedlings from *Tunis* than from anything else, as it sets seed so very readily and by several plantings in varying aspects I can have it in flower from very early to midseason. Its tall strong stem and its vigor commend it as a parent in spite of a rather wavy perianth and the length of time it takes for its yellow cup to pale to white and develop its bronzy rim. The latter may limit its use as a commercial cut flower, but it seems to predispose it to variation and to throw cups of pastel colors when the pollen of *Rewa* and other orange and red cups is used. My records show pleasant garden flowers from crosses on it of *John Evelyn*, *Treskerby*, *Corregio*, *Killigrew*, *Varna* and *Aleppo*. I even got some fair pure white short trumpets from it, not surprising as *Tunis* itself may be a *King Alfred* seedling, though that cannot be proved as P. D. Williams kept no records. *Tenedos* also has been a good parent, carrying on its huge white flowers, losing its tendency to split cups, and often improving its stems by crosses with taller, stiffer stemmed varieties. A big batch of *Tenedos* X *Tunis* seedlings I flowered several years ago made a fine garden group, mostly whites and bicolors, but some with more subtly colored cups including one nice pink one I fortunately was able to use before I later lost it. I am looking forward in 1945 to seedlings from *Tenedos* crossed with a fine *Golden Pedestal* X *Tunis* bicolor seedling, with *Trostan*, and with *Content*. Some years ago I had a few bulbs of a very nice giant Leedsii from Mrs. Foote of Grand Rapids, Michigan, and though I later lost it and its seedlings, they were of such fine form, such nice clean flowers I always hoped to use it again. Now I note that *Green Island*, Richardson's outstanding and still rare and expensive variety, is from *Gracious* X *Seraglio*. Frank Reinelt reports it as stunning and he is not easily knocked over.

Of quite a different type of large Leedsii are *Mitylene*, *White Sentinel* and *Sea Shell*, the first two known sisters and the third certainly either an unacknowledged one or from a very similar cross of the same breeder, that is from *Beacon* and a large Leedsii seedling. The effect of *Beacon* seems to have been to give its seedlings fine finish and form and leave them very susceptible to color. Here, however, where I could not keep the weakly *Beacon* alive, these three of its progeny are also short-lived, but apparently in colder climates without our long dry summers they do well and there they are well worth trying as parents. My crosses with them were nearly all with red cupped white Barriis or Poets, though I did cross all of them with colored cupped incomps. My records show several seedlings selected from *Mitylene* X *Sunstar*, but I also kept selections from *Mitylene* X *Elspeth*, by *Prince Fushimi*, by *Damson*, by *Rewa*: from its sister *White Sentinel*, a poorer doer here, I had seedlings of fine form and color but indifferent constitution, from pollen of *Ace of Diamonds*, *Brightling*, *Folly*, *Rewa* and *Suda*, and on *Sea Shell*

the best results were from pollen of *Rewa* and *Treskerby Nelly*, a late Leedsii which P. D. Williams particularly drew to my attention, suffers from a long neck which will be hard to breed out, but I found it gave nice big flowers bred to Barriis and I have used it for pinks not yet flowered. The only really tough and persistent flat-crowned Leedsii is *Hera*, the parent, by the way, of *Nette O'Melveny*, according to its raiser, Jan de Graaff's father. It is itself a nice white of good form and the little yellow rim to its cup can be developed into stronger color by crossing it with red edged flowers. Its drawback is a long neck, but as it is cheap and a good breeder I commend it to beginners. *Hera* X *Killigrew* gave several lovely colored cupped things and from *Hera* X *Torrid* I saved a pure white with a large nasturtium-orange cup, but it was pollen of *Sunstar* and *Crimson Braid* which gave me a whole series of small late flowers on tall stiff stems, from pure white to yellow and orange edged cups many of which I still have when all comparable imported varieties have passed away.

Among the Barriis, *St. Eguin* stands alone with its great self yellow pointed flowers and very tall strong stems. Most of my early seedlings from it were disappointing because of lack of substance and I now put on it only pollen of round-petalled heavy flowers. Colonel Stern showed some outstanding progeny of it at the 1944 daffodil show in London and I understand the other parent was *Crocus*. Last season I crossed it with all the heavy yellow or white trumpets I could find and a few flat cups like *Oslo* with unusual substance. The sisters *Seraglio* and *Therapia* have been responsible for a lot of recent British introductions. Bred with *Fortune* they gave me lots of big bright flowers, more yellows with red edged cups than anything else, and often a bit rough. *Seraglio* is so much the better grower that the amateur might concentrate on it and cross it with Leedsiiis and smaller, better formed flowers, working for color. *Warlock* is an excellent seeder and crossed with *Hades* I raised from it my best red and white, which I have had for some years under the garden name of *Warlord*, about as good as many British introductions and I am afraid not going to be much more permanent. Though *Hades* is listed as an incomp its use as a pollen parent is much the same as similar Barriis. It certainly gives the best red cups of anything I have used. For this purpose I would put *Sunstar* next, though I hate to pass on to later generations its poor keeping, long necked bulb. *Crimson Braid*, a very late red edged Barrii, I have already mentioned in connection with *Hera*. Its reflexed perianth sometimes persists in its seedlings, but used with any hooded variety it helps to iron out the perianth to a desirable flatness and it gives substance. I have had a few odd flowers from it with greenish edges and very much cut cups. *Mystic* gives nice seedlings but I have quit using it; its children are not adapted to our hard world. Maybe I missed a bet in rarely using Poets, but they come at the end of my season when my interest is turning to irises, and have been neglected here.

Because there is much interest in raising pink cupped or trumpeted daffodils and I had some early success in this, though I lost all my seedlings through disease, I will give some of the crosses from which I got

one or more pinks. *Sea Shell* X *Rewa* gave the largest number and the pinkest cup; *Tenedos* X *Tunis*, the biggest and strongest pink cup; *Tunis* X *Teskerby*, *Riva* X *Rewa*, *Suda* X *Rosary*, *Lovenest* X *Mrs. Backhouse*, *White Sentinel* X *Mrs. Backhouse*, *White Sentinel* X *Suda*, and *John Evelyn* X *Therapia* (believe it or not) gave pinks. *Mrs. Backhouse*, which never sets seed here, transmits its poor perianth. My late pink crosses with these seedlings, with a lot of Tasmanian pinks and with *Carnlough*, *Pinken* and *Trousseau*, of which I was given pollen, are still to come.

For no apparent reason—for I love them—I have made no crosses with Jonquils or any other little species excepting *Narcissus triandrus calathinus*. From time to time I buy a bulb or two of this very late and lovely little thing, and as long as I keep it I use its potent pollen on all the late flowers in the garden. From pollen of trumpets like *White Emperor* and *Halfa* on it I still have lemon yellow, white, and bicolor trumpets, and from pollen of *Kingdom* and *Phyllida*, old timers, I still grow their dainty and with me quite permanent progeny, of clustered cupped flowers mostly in clean whites, though there are a few pale bicolors like miniature Leedsis.

The practices of breeding, seed sowing and bulb raising I follow are the usual ones. I shall therefore discuss these briefly. I find here that it is hardly worth while crossing in rainy or even dull foggy weather; no seed sets. I deanthelize soon after the flower opens if I can. It seems essential to do this before the pollen comes up in flat flowers like *Barriis* and *Poets* where the anthers are right around or above the stigma, but where the latter is lifted above them the chances of self pollination are so reduced I am less particular. I keep the anthers I want to use in little cellophane or paper envelopes in a screw-top jar on the bottom of which I have put half an inch of calcium chloride, a dessicator which keeps the pollen usable for the whole daffodil season. I don't use brushes, but tweezers to put the pollen on the stigma, and I mark each cross with a sales label, procurable in stationery stores. Seed is collected before the pods split and is sown in fall when I can get to it. I use wire bottomed, board edged beds about 8 inches deep, sowing the seeds about an inch deep and an inch apart. I keep the seedlings in these beds two years, prolonging the growing season as long as possible by late flooding. The bulbs are about the size and shape of peanuts when they are moved into the open ground in August while they are dormant, and when well grown I find we get an odd flower or two in the third year, a good sampling in the fourth, and most of the rest in the fifth year, though some weaklings never bloom. It seems a long time, especially if you are young, to wait for the first flowering. After that there is always a batch coming into bloom each year and they become of even greater interest than the novelties, you may buy, indeed you find your buying is likely to be limited to what you think are promising parents.

## DAFFODIL CROSSES CLOSE TO THE SPECIES

MRS. KENYON L. REYNOLDS, *California*

Recently, during a few days of enforced inactivity, I reread some of the old Royal Horticultural Society Daffodil Year Books and was charmed again by Mr. Alec Grey's "Notes on Dwarf Daffodils." How really delightful the small species are and how they reward the hybridist for a little effort in their direction!

I shall never forget our delighted surprise upon blooming a chance cyclamineus cross early in our hybridizing career. The cross was *Sirdar* x *N. cyclamineus*. I think we used cyclamineus pollen because we had nothing else suitable at the moment, not from any hope of a good result, and we were rewarded by a whole range of diminutive hybrids, nearly all charming and desirable. From that beginning, we have made other crosses with the dwarfs which have pleased us very much and I always intend to make a great many more and then forget to do it in the fever of excitement that the Daffodil season never fails to arouse.

But this time I am determined not to be led astray. I shall keep before my mind's eye those two charmers of Dr. Stillman Berry, *Golden Chimes* (*Jonquilla simplex* x *N. cyclamineus*) and *Dancing Fairy* (*triandrus albus* x *Bernardino*). It would be hard to imagine more delightful flowers. In the case of *Dancing Fairy* it is interesting to note that the species is the seed parent. This is much more tedious "crossing" as the small flowers are harder to work with and often have to be torn apart to deanthier in time to prevent self-pollination. However, any amount of trouble is to be endured to obtain such satisfactory results.

We are confronted with one difficulty in Pasadena. It seems hard to keep *N. cyclamineus* or any of the triandrus species happy in this hot, dry climate. We have raised them from seed, but even so, have lost them later; so it is necessary to keep replenishing the stock and often I do not have the species for seed parents. However, one can always use hybrids both ways.

Our very first cross with a cyclamineus hybrid was *February Gold* x *Fortune* which gave us two unusually good flowers, one about the size of *February Gold* with a colored cup and one slightly larger, but with no orange in the cup. These two have been used repeatedly in various combinations since then and last year we bloomed some charming small things from them.

Perhaps the best was from a cross with *Pentreath*, a medium sized red-and-yellow. *Pentreath* is a flower of P. D. Williams' raising so the parents are not known, but one wonders at the delightful midget resulting from the use of its pollen on our *February Gold* x *Fortune* cross. This enchanting thing has a deep yellow, overlapping, reflexed perianth and a blazing red sun-proof cup; a most satisfactory saucy result if it continues to stay small.

One of our most refined miniatures was from *Cicely* x *cyclamineus*. It was a pure white very small trumpet. *La Vestale* x *cyclamineus* gave a series of pale bicolor trumpets which aged cream color throughout. They are very nice indeed and they seem to be strong growing as are

the *Sirdar* x *cyclamineus* hybrids. *Penrose* x *cyclamineus* gave a very long trumpet with a nice "melony" tone. A red-and-yellow seedling (*Market Merry* x *Trevisky*) x *cyclamineus* gave a nice range of orange cups varying in length, with the typical reflexed perianth. These are all small and very desirable. From *Aerolite* x *cyclamineus* there are nice all yellow forms, some light and some dark. *Beryl*, that appealing hybrid of P. D. Williams, reputed to be *cyclamineus* x *poeticus*, has given us seedlings when used as a seed parent, but so far, we have had nothing as charming as the parent.

We have been quite successful getting seeds on the jonquil hybrid *Lady Hillingdon*. In Daffodil literature *Hesla* is given as the surest jonquil hybrid to set seed, but evidently *Pasadena* is exactly right for *Lady Hillingdon* and we have had seeds on it by such things as *Ballarat*, *Bodilly*, *Brunswick*, *Cornish Fire*, *Ellen Ney*, *Fortune*, *Killigrew*, *Niphotos*, *Penrose*, *Rewa*, *St. Egwin*, *Seabank* and *Trenoon*. These have given some very nice flowers and a few may have a future value, but they are not small. The only small one is *Lady Hillingdon* x *cyclamineus*. We got one seed and bloomed a most delightful very deep yellow jumbo *cyclamineus*. It charmed everyone who saw it and we promptly named it *Jack-be-Quick*. Unfortunately, it has not a satisfactory constitution so far. We must repeat that cross.

Another exciting cross that gave us only one seed in 1937 still has us eagerly awaiting a bloom. It is *cyclamineus* x *Paper White*. This year we cleared the seedling bed containing it and it is a nice two-nose bulb resembling *Paper White* bulbs but smaller. Also the foliage resembles *Paper White* so it must be a true cross. It could be wonderful and, of course, the true hybridist is sure it will be—until it blooms at last.

I feel we should try to do more with *Paper White* here in Southern California where it grows so easily. Years ago we made a few crosses, but forgot them for the more spectacular members of the Daffodil group. We still have a few plants of the first cross which was *Sunrise* x *Paper White*. There were some rather nice flowers in that lot—three and four small flowers on a stem with a good thick substance, but the stem was too heavy for the cluster and as the first hybrid from a species is usually sterile or nearly so, we allowed ourselves to be discouraged after a few attempts to use it in further crosses. Perhaps when times are normal again and we have more leisure, we will work again on these and the *Lady Hillingdon* seedlings as they might produce new strains particularly suited to our climate.

#### TAZETTA HYBRIDS

L. S. HANNIBAL, *California*

In checking over various Daffodil parentage records one can find an amazing number of crosses involving all *Narcissus* types. The ease with which most forms interbreed is evident by the number of times representative forms appear in the listings. Recently a casual search for Tazetta

parents revealed that very few had ever been used, and that the crosses were limited essentially to *Tazetta* on *Poeticus*, or *Triandrus*. Only one or two questionable crosses involving trumpet Daffodils could be found. This was a bit disconcerting since the writer has long been interested in making *Tazetta* crosses, and in most cases where such were tried no apparent seed would develop. The basis of the trouble may be attributed to chromosome incompatibility.

The *Tazettas* according to Dr. Fernandes have a paired chromosome number of 20, 21, or 22, whereas the *Triandrus*, *Poeticus*, and *Trumpets* are usually 14. From the hybridizers experience with various plants it is often possible to cross two related species with different chromosome numbers provided the pollen parent has the higher number; for some technical reasons the reverse cross is not possible. Thus on a theoretical basis the *Tazettas* with a number of 20 or 22 should cross with other *Narcissus* having a number of 14, provided certain involved chromosome irregularities do not exist. Unfortunately with the *Tazettas* such a condition seems highly prevalent. The forms with a  $2n = 21$  complement can promptly be discounted as self sterile, but seemingly many of the other garden forms are too. Viable pollen has never been obtained here from the following: *N. t. chinensis* (*Sacred Chinese Lily*), *Scilly White*, *White Pearl*, *Compressa*, *Grand Primo*, *Soleil d'Or*, and a form of *italicus*.

Some of our readers may justly criticize this list as several of the clones have been reported in the parentage list and seemingly have had viable pollen. This is not impossible, but under the varying weather conditions of California it should be possible sooner or later to have ideal conditions for viable pollen. To date such has not been obtained. Out of thousands of bloom nary a seed has ever developed. Poor weather conditions? Hardly! The *papyraceus* (*Paper White Grandiflorus*) always sets seed, and so does the dwarf *canaliculatus* when the weather is clear. Both have very potent pollen for breeding purposes. It is just chromosome incompatibility.

The *tazetta* hybrids are not many; the *Poetaz* forms are the best known and these owe their origin to the firm of Messrs. R. Van der Schoot who made extensive crosses in 1885. The hybrid *Elvira*, still popular today, came from this first crossing, and a score of others have followed. As far as known the *Poetaz* are all sterile, including the wild hybrids, *N. biflorus*, *N. Trewianus* (*Bozzlemen Major*, or *Orientalis*) and *N. cypri* being examples.

The *Tridymus* or *triandrus* hybrids are next best known, with *Silver Chimes* as the finest example. The latter is a cross of *Grand Monarque* on *Triandrus calathinus* (The parentage in the 1936 Daffodil Year Book seems in error) and probably no finer hybrid exists. Similar crosses using other *Tazettas* on *Triandrus* have been recorded. The work of Dr. Pope mentioned below shows how easily this combination can be effected.

The species *N. intermedius* is a cross of *Tazetta* on *Jonquilla*, and we are not surprised to find several similar horticultural hybrids in circulation.

Several crosses of *Tazetta* on "Incomps" and *Trumpets* have been

listed, but these crosses so far have been very inconsistent and we have not been able to repeat them with satisfactory results.

To give a practical insight into the problems of working with Tazettas Dr. Pope has kindly furnished his notes for examination and they promptly bear out all we say regarding the chromosome influence in Tazetta breeding. In 1937 he held a number of "Paper Whites" back in the ice box and had the impudence to make several score of crosses with other potted bulbs as they came into flower. These crosses were made in the house where neither rain, insects or irregular humidity could contaminate the tests. As an added precaution he deathered all bloom, performing what he called a laparectomy on both the *Triandrus* and Tazetta to remove the three anthers down in the throat of the flower. The following table gives the number of seed and plants produced.

<i>Cross</i>	<i>Seed produced</i>	<i>Plants developed</i>
<i>Paper White</i> on <i>Triandrus alba</i>	300	200
<i>T. alba</i> on <i>Paper White</i>	150	No germination
<i>T. calathinus</i> on <i>Paper White</i>	—	No germination
<i>Paper White</i> on <i>T. calathinus</i>	25	Some germination
<i>Mme. Krelage</i> on <i>Paper White</i>	3	No germination
<i>T. alba</i> on <i>Hera</i>	300	Complete germination
<i>Paper White</i> on <i>Hera</i>	none	

Examination of the mature plants in 1944 while in flower verified the hybridity of these crosses. The *Paper White* on *Triandrus* dwarfed Tazetta foliage and the blossoms were very numerous, being mostly *Triandrus* in shape, but the odor was potently that of *Paper White*. The *calathinus* hybrids had much larger flowers. However in either case due to the *Paper White* parentage the bloom lacked substance and could not compare to *Silver Chimes*.

It is interesting to note that some seed formed in the *Paper White* pods, but that it failed to germinate. This seed according to the magnitude of the chromosome numbers involved should have been nonviable, and apparently it was. Sterile seed is not unusual in breeding work. Those who know the hybrid *Amaryllis* have readily produced numerous crosses, some very beautiful, when using *Amaryllis Johnsonii* as a pollen parent, but out of numerous attempts and many apparent takes never has *A. Johnsonii* produced a viable seed which would germinate for the writer, and we have never heard of a bulb having this popular old hybrid as a seed parent. The same applies to *Narcissus* seed. We do not wish to discourage people from attempting to make Tazetta crosses or Hybrids, but if one understands the mechanism of the cross it may save a lot of lost effort as one will not be working entirely in the dark. There is a nice field of work to be explored using Tazettas such as *Grand Monarque*, if it can be obtained, on *Triandrus aurea* or some of the *Jonquilla*.

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