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Articles and photographs (glossy finish) on daffodil culture and related subjects are invited from members of the Society. Manuscripts should be typewritten double-spaced, and all material should be addressed to the Editor.

DEADLINE FOR THE NEXT ISSUE IS JULY 15, 1980

SCHEDULE OF MEMBERSHIP DUES IN THE AMERICAN DAFFODIL SOCIETY
Individual .................................. $7.50 a year or $20.00 for three years
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ON THE COVER
is an arrangement by Mrs. Robert Hester which captured the mood of the modern up-to-date surroundings of the Hyatt-Regency in Memphis at the 1980 Convention.
(Gripshover photo)
MEMPHIS' DAFFODIL MAGIC
RUTH PARDUE, Columbus, Ohio

The 1980 ADS convention held in Memphis was hosted by the Mid-South Daffodil Society. The ADS members were welcomed by the sight of the modern mirrored tower of the Hyatt Regency with its surrounding lake.

Upon arrival, the 180-plus registrants were supplied attractive tote bags made by Mrs. Bert Pouncey and the Spade and Dream Garden Club of Hughes, Arkansas. The bags were filled with every imaginable need for the traveler.

The lobby and lower level of the hotel were filled with beautiful flower designs by the Interpreter's Study Club of Memphis. The arrangement by Mrs. Robert Hester, using lemon reverse bicolor daffodils, plastic, and metal captured the modern up-to-date mood of the surroundings.

Many ADS members arrived early to enter flowers in the National Show. The show was excellent, with the largest number of miniatures—175—and Junior entries—131—seen in one show. Miss Leslie Anderson won the Gold Ribbon with Achduart, while a Junior exhibitor, Kevin McKenzie, won the White Ribbon with a fine vase of three Willet. Mrs. Ernest Hardison was multi-winner of ADS Awards, capturing ribbons for the American-bred and Reverse Bicolor collections and
tropies for her English and Irish collections. The W. O. Ticknors won the Australia and New Zealand Trophies as well as the Gold Watrous Medal, and the Northern Ireland Trophy went to Mr. and Mrs. H. L. McKenzie. Mrs. Harold Stanford was the recipient of the Fowlds Medal for her cyclamineus bloom of Swift. The show was nicely staged and blooms held up remarkably well. A display of blooms from the garden of the late Mildred Simms, staged by her husband Bill, caused many a convention-goer to pause and reflect on personal memories of Mildred. Mrs. Morris Lee Scott, Flower Show Chairman, is to be commended for the outstanding show she and her committee put together for the ADS convention.

Friday morning, seminars began. The subject of “Daffodil Health Maintenance” attracted most of the people in attendance. We saw slides of things most of us would rather not admit are in our gardens. Dr. William Bender’s presentation made us aware that even the very best growers have problems with disease, but they do something about it. He recommended that you might try saving uninfected portions of expensive bulbs; but if it is a cheap one, rogue it, have a mint julep, and forget about it.

The mid-morning session was presented by Mrs. John Bozievich. Her subject, “The Art of Painting Daffodils,” was highlighted by examples of her art work. The flowers and home of John Lea were beautifully executed in a large painting. Mrs. Bozievich told her audience that there are three qualities that an artist must have—1) perceptivity, visual sensitivity, 2) intelligence, and 3) a willingness to work. The artist must acquire the skills and techniques and then the mind and eyes can work together to execute the artform.

The first afternoon program was a demonstration of “Daffodil Designs in the Japanese Manner” by Mrs. Van Winton. The ease with which Mrs.
Winton created the beautiful and dramatic designs was amazing. Her training in the Ichiyo School was evident. She was assisted by Frances Bradley. She concluded her presentation with the poem “To a Daffodil.”

The concluding seminar was by Mrs. Phil Lee, Awards Chairman for ADS. Her topic, “Planning a Daffodil Show,” was of interest. She gave many tips and ideas for shows such as classes for new collectors or classes for cheaper cultivars.

Mrs. Van Winton with some of her Japanese arrangements.

The Friday evening banquet was presided over by President Charles Anthony. A warm welcome to Memphis was given by Mrs. J. C. Ray. A slide overview of the historic as well as modern sites of Memphis was very interesting. The show awards were presented, and the prestigious Silver and Gold Medals of the ADS were given after an absence of several years. The recipient of the Silver Medal for Service to our society was Mrs. John Bozievich, and the Gold Medal for Distinguished Work with Daffodils was presented to Dr. Tom Throckmorton. The general business meeting included election of the new officers of the ADS.

The featured speaker of the evening was Mr. John Lea of Worcestershire, England. His subject, “Daffodils, Today and Tomorrow,” was quite to the point. He explained his method of pedigree book keeping and how he studies these pedigrees in order to achieve his successful, improved cultivars. He noted that it may take several generations to eliminate a fault and he would not select two flowers to cross if they both had the same defect. Mr. Lea said the weather is a factor in breeding daffodils, some years being better for certain crosses than others. His message was well received.
Saturday morning the previously wet weather had improved, and we all boarded our buses and struck out for the Memphis Botanic Garden located in Audubon Park. The forsythia, cherry trees, and magnolias were in beautiful bloom, but the highlight of the park was the Daffodil Trail. The cultivars were well labeled and many were in bloom. The Mid-South Daffodil Society planting is well done. The nearby wildflower garden was just beginning to show evidence of the thousands of plants growing there. Over 300 species and varieties are contained in the wooded cove. As we walked across the Japanese bridge spanning the lake, we wished we could linger in this beautiful setting, but the buses were revving up their motors and we were soon off again.

![Rosemary and Bill Roese and Brian Duncan enjoy a joke in the back of the bus.](image)

![Left: John Lea and Leslie Anderson in the Anderson garden. Right: Bill Pannill, Otis Etheredge, and John Lea in the Memphis Botanic Garden. (Gripshover photos)](image)
We made our way along the pine-tree-lined roads of DeSoto County to Hernando, Mississippi, to the home of Miss Leslie Anderson. We knew we were truly in "the land of cotton" as we were presented clever corsages of cotton balls. The Anderson daffodil plantings were outstanding with beds divided by hybridizer. Much of the extensive collection was in bloom. An abundant tea was served in the daffodil-filled home, and just as we were saying good-bye, a few sprinkles of rain fell, but nothing could dampen the hospitality shown by Miss Anderson.

Filled with lovely images of the day's tour, we made our way back to Memphis. The sight of the Mississippi River and the stately old homes of Memphis concluded our tour.

The conclusion of the convention was the Saturday banquet. Our newly installed president, Mrs. John Bozievich, presided. Vocal musical selections were enjoyed as we dined. "Thank God for Gardens" and a southern medley highlighted this portion of the program. The featured speaker, Mr. Charles Mullinnix of Tupelo, Mississippi, gave his views, "A Southern Humorist Looks at Daffodil Growers." His style was somewhat unorthodox, but his message to slow down and see the beauty in daffodils and the world was clear.

As the convention concluded, I felt rather sad to say good-bye to the many daffodil people there. The convention was one of the best and Mrs. Glenn Millar, General Chairman, and all of the hard-working people of the Mid-South Daffodil Society deserve our thanks for a delightful memory.

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CITATION FOR THE AWARD OF THE SILVER MEDAL OF THE ADS

For the past two years the Honors Committee has been unable to agree unanimously, as the rules require, on a candidate for the Society's high honor, the Silver Medal "for outstanding and distinguished service to the American Daffodil Society." It is not lightly given.

This year, I am pleased to report, there is a unanimous choice.

It goes to a person whose record as an outstanding horticulturist is just the first among many qualifications. A frequent contributor to the ADS quarterly Journal and frequent speaker to our Society and its groups, and to garden clubs generally, an accredited judge, and instructor at our Schools for Judges, an artist of superb talent—in it is no longer possible in these remarks to hide her identity. When I state that she was the designer and creator of our perpetual sterling trophies for the Best Standard Seedling in honor of Grant and Amy Mitsch, for the Best Miniature Seedling in honor of John and Betty Larus, the designer of our Membership Pin, and continue to recount her devoted service as an Officer of this Society, it is no surprise that this honor, The Silver Medal of the American Daffodil Society, is this year awarded to our new President, Mrs. John (better perhaps known as Marie) Bozievich.
CITATION FOR THE AWARD OF THE GOLD MEDAL OF THE ADS

Again after a lapse of two years, the Gold Medal of the Society is awarded for "Creative Work of a Pre-eminent Nature in the Understanding and Advancement of Daffodils."

A hybridizer, whether in commerce or an amateur, sometimes registers his or her creation without, in my opinion, adequate consideration of the factor of "Distinction." This recipient has, by some magic, created cultivars that change color, though not reverse bicolors, and thus meets the requirement of "Distinction." But this is a small part of the reasons for this award.

To quote from one of the several letters of nomination: "It is because this work is unprecedented, innovative, and of inestimable value to the Genus Narcissus that I present this name for consideration by your committee for the Gold Medal of the American Daffodil Society."

It should therefore be obvious that the recipient of this Award is a distinguished former President of our Society, who conceived and executed the idea of recording essential information on cultivars in a computer for fast recall, thus creating the first, and as far as I know, the only Data Bank in the flower world. He added to this a system of Color Coding, which he somehow managed to sell to the Royal Horticultural Society in London, which has the responsibility for registering and classifying all cultivars of daffodils. And thus Color Coding has for three years been the world wide system of classification.

I doubt that anyone has done as much to bring the ADS to worldwide prominence, and to present to that world easily available vital statistics on cultivars, thus amply meeting the requirement "Creative Work of a Pre-eminent Nature in the Understanding and Advancement of Daffodils."

It is my privilege to present our Gold Medal to Dr. Tom D. Throckmorton.

INTRODUCING MARIE BOZIEVICH

Marie Bozievich, the new president of our Society, grew up in Utah, exploring the canyons and climbing the rocky peaks. She studied music as a child; a little later she began learning ballet. She danced professionally before her marriage and then taught ballet classes for almost forty years.

Her interest in gardening began when she and her husband, John, built their Bethesda house in 1940, and she had an acre of woodland to "play with." About half of this remains as it was, full of dogwoods, redbud, oaks, beeches, and tulip poplars. Many wildflowers, native azaleas, and viburnums were added along with hybrid azaleas, rhododendrons, hollies, and other broad-leaved evergreens. Many perennials are grown in the sunny borders and thousands of early bulbs brighten up every part of the garden. As Marie says, "My special favorites are the daffodils, and of course there is no need to explain that to any Journal reader."

She is a charter member of the ADS, having participated in both of the organizational meetings, and has served as a member of the Board in various capacities over the years. She is an Accredited Judge as well as an Accredited Instructor in Judging Schools and has given countless talks (and bulbs) to garden clubs.
Recently she has returned to another of her life-long loves—the visual arts. She went back to college a few years ago, deciding to acquire some skills which would "nourish my spirit when old age made me too feeble to dig and weed." She says it has been an exciting adventure and she has learned to draw and paint, make prints, do silversmithing and ceramics.

Her husband, John, is retired after a career of medical research with the National Institutes of Health. They have three daughters and twelve grandchildren, all of whom went to Bethesda last spring to help Marie and John celebrate their Golden Wedding Anniversary.

Marie Bozievich prepares to unpack her flowers to enter a show.

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**DAFFODILS, TODAY AND TOMMORROW**

**JOHN LEA, Worcestershire, England**

To breed "tomorrow's" daffodils, the first essential is to see that "today's" daffodils are really well grown. Only then can we learn the good points, as well as the bad ones, of each flower. In this context the bad points, if anything, are more important than the good ones. It is impossible with a poorly grown flower to decide which are the good features and which are the bad ones—they are all atrocious!

When breeding, I like to choose a pollen parent that approaches as nearly as possible the picture of the flower I want when crossed with a suitable seed parent. To choose the seed parent I like to carry the flower of the pollen parent with me so that a close comparison can be made between the two flowers and to ensure that the two parents don't have the same defects.
When pollinating I use a pair of forceps to remove the anthers and so dab directly the pollen onto the stigma. You have, of course, to choose the right time; and the best time, I find, is to dab when the stigma first becomes sticky, which is a short time after the flower first fully opens. I don’t use a brush because a brush has to be sterilized in methylated spirits or something similar after each application—otherwise you’ll get your pollen lots mixed—and then it has to be dried out so it doesn’t kill the next lot of pollen.

Pollen from the early flowers is easily stored in little capsules, provided they are kept in a desiccator, a simple device you can make out of a jar with a screw lid and a little packet of silica gel in the bottom.

The difficulty that I find with stored pollen is having to rely on my memory, which is often faulty, and the notes that I take on the flower itself when comparing the pollen parent with the seed parent. Sometimes the defects are forgotten.

Also in comparing parents, a study of their pedigrees is important. But looking up pedigrees on a windy day in April can be quite a performance. To overcome this I use a split pedigree book, and this makes the job of comparing pedigrees quite simple, even out-of-doors.

It works like this. Take a small pocket-size looseleaf book and on each right-hand page, draw the pedigree of each variety you may want. You have one pedigree per page, but each pedigree is drawn twice, once at the top of the page and again on the bottom. The pages are then cut in half between the two.

To use the split pedigree book, you look up the seedling number or name on the top page, and then by turning over the bottom pages you get a rapid comparison with all the pedigrees available for that particular cross. It is really quite easy to use, even out-of-doors, especially if it is made of stiff paper or thin cards. And it provides a very useful and interesting job during the winter evenings. You need a separate book for each type of flower you are pollinating, i.e. one for reds and yellows, one for pinks, etc.

During the winter I used to work out a whole list of crosses to make. But when the time came, and the flowers opened, a comparison between flowers often showed the crosses to be wrong. It seems that during the winter one conveniently forgets that one’s flowers have faults.

Clearly one cannot get rid of all the faults in one generation; it may take several generations. This needs planning and of course you will never get perfection, luckily; but you will get progress.

I think there is little doubt that the best results generally do come when there is a common parent somewhere on both sides of the pedigree. I only grow some 1,000 to 1,500 seeds per annum from around 50 to 60 crosses. Seldom do I pollinate more than three or four flowers in any one cross, often less.

Generally speaking nearly all of my breeding now takes place on the seedling beds, and only occasionally are named varieties used, and then only if they can provide some particular characteristic that I want.

Perhaps I can take Dailmanach, one of the best pinks I have bred so far, as an illustration.

Dailmanach came from pollen of one of Taty de Navarro’s pink seedlings used on Inverpolly. At that time I was concerned that all pinks suffered from relatively poor perianths, and in an effort to try and cure this, I chose Inverpolly as a seed parent. It has a good perianth and also
A sample split pedigree book.

The cup shows signs of pink when the flower first opens.

The problem was to find a suitable pink as pollen parent. Looking around my beds, I had none that "looked just right." But one day, looking at Toty's seedlings, I saw one that did look just right, and Toty very kindly gave me the flower for pollen. He, too, used some of his other pink seedlings from the same batch on Inverpolly, but sadly, without any great success. He had given me the only flower of the "right" seedling.

Using seedlings does, however, restrict the number of flowers that can be crossed—the stock just isn't there.
But this doesn't really matter, as I prefer to repeat the cross for three or four years running, which I find preferable to a massive cross in one year. The reason for this is that out of all the seedlings raised from one particular cross during say a three to four year period, those produced in one of those years will generally be better than in any of the other years, not only producing the best seedling from that cross, but the general standard of all the brother and sister seedlings from that cross in that year will be better.

Two of my other flowers, Achduart, which today won the Best Flower in the Show, and Torridon, both came out of the same cross in the same year. The cross was repeated for two years afterward, and no seedlings from those other two years were ever selected. So only in one year did any worthwhile seedlings occur.

I don't know what the reason is, and if anybody here knows what the reason is of this curious effect, and I find it occurs quite regularly, I should be very interested.

Now I don't think that it can be the season, because if Cross A has a good year in, say, 1980, it doesn't mean that there will be other crosses for that year which will also have a lot of good seedlings.

I know of no obvious reason why this happens. The season clearly could be a cause if all the crosses made in that season were better. But they're not. Nor does it appear to be the weather at the time of pollinating, as this can be spread over several days. If you've only got four or five flowers to pollinate, they don't all open at once, and if you pollinate them just when the stigma gets sticky, it may take three or four days or even longer to complete the pollination.

Weather does, however, affect the number of seeds produced and also whether the cross sets any seed at all. But it doesn't appear, as far as my observations show, to affect the quality at all.

Having made a particular cross for three or four years running, I seldom if ever repeat that cross, even if after the seedlings have flowered it looks successful. I do, of course, make reciprocal crosses during that particular period.

I'd rather use the pollen of these seedlings on some other newer and hopefully better flower than go on repeating the same sort of cross. You can of course repeat a cross many times over for many years, in the hope that if you raise enough seedlings one will be especially good and better than any of the others. But in my view I doubt very much whether that in fact happens. What you are doing is to raise a number of good flowers but they are all of about the same general standard.

Take as an example the famous Kilworth-Arbar cross, from which so many fine and lovely flowers have been introduced over a very long period. Most of the flowers are different from each other, but the general standard in my view is all about the same.

Now, having made your crosses and raised the seedlings to five years, you have to select and reselect the seedlings, and to my mind this is the most difficult job because seedlings vary so much from year to year. Often a super flower in its first year is never repeated or if it does, it does it erratically and the flower is not consistent.

Like all sorts of general rules there are always exceptions, and I come back to Dailmanach as an exception. The first flower from the seedling bed at five years was very good. It was even better in the second year and
it was taken to London and won Best Flower in the Show; and it still remains a very successful flower.

On the other hand, one rather unexciting flower, which one sometimes wonders why one selected it in the first place, starts to improve year by year and often becomes not only the best flower of that particular cross but the most consistent.

If I may take another flower that I have mentioned tonight, Achduart, I looked up the field record of this, and it was selected at five years. The next four years of flowering, in my record book, I wrote down that it was to be scrapped. Somehow every year I gave it a reprieve. It didn't start to improve until the fifth year of flowering and is now very consistent.

I think it is very easy under these circumstances to miss such a potential winner and that is why detailed records must be kept, and why I choose a relatively large number of seedlings off the seedling beds for reselection in following years.

I think that it is possible with experience to get a sort of knack in picking out the rather dull flower that hopefully turns into a princess. But I would stress that this can only be done if very detailed records are kept.

Of course this can be an enthralling but arduous job that brings great satisfaction; but the difficulty is that there's always so much else going on that has to be done at the same time, like going to shows and even going to conventions.

But this is how tomorrow's daffodils are born.

(Thanks are due Loyce McKenzie who taped Mr. Lea's speech at the convention and typed it for all of us to enjoy.)

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MILDRED SIMMS

No more fitting tribute to our late and beloved member, Mildred Simms, could be imagined than the difficult decision of her husband, Bill, to bring to this National Show a broad example of her outstanding collection of daffodils.

May the minutes of this meeting of her associates record that we loved her and are eternally grateful for her many contributions to the American Daffodil Society. Always diligent, always gracious, she set a high standard for us to follow. To Bill we express our sense of loss and our deepest sympathy.

—From the Board of Directors Meeting, March 27, 1980
COMMENTS ON PINK CUPS
FRANCES ARMSTRONG, Covington, Virginia
(From the Middle Atlantic Region Newsletter, August, 1979)

Pink color in daffodils is capricious here but last spring's was gorgeous, just as intense as that in Oregon and the British Isles. Perhaps you may be interested in a few thoughts on pinks as grown here.

The group of pinks descended from Rose of Tralee have all inherited her longish cup and fine form. These include Passionale, Daybreak, Rose Royale, Salmon Trout, Luscious, Salome, Fionn, and Kildavin. All are dependable for their refinement, good form, and delicate pink color, more intense some years than others. The showiest of the above is Salome which sports a yellow rim on its pink cup. Kildavin is small but quite attractive.

With shorter cups and much showier, but not always in smooth form, are a group of American-bred beauties. While Accent's cup color set a standard unsurpassed for many years, its perianth left much to be desired. Two of her children, however, are real show winners. Arctic Char with its deep tomato pink cup draws attention from afar and Blushing Beauty, large with heavy substance and a slightly ruffled cup resembling that of its parent, is certainly one of the best pinks on the market today.

Three pink-rimmed cultivars with Mabel Taylor in their parentage are dependable Precedent, attractive Coral Ribbon, and distinctive almost red rimmed Audubon, one of the few pinks from Division 3. Precedent and Coral Ribbon are strong growers and multiply rapidly.

Grant Mitsch's cross, Precedent × Carita, has given us two spectacular pinks, Lilac Delight and Canby. The former has a large cup of deep pink with a paler circle around the edge. Canby is a large showy flower of thick substance and a clear pink wide cup rimmed with apricot. Both flowers have lavender tones deep inside their cups. Canby has multiplied well while Lilac Delight has languished.

Three from Murray Evans bred from Interim are Snow Pink which has an intensely colored cup but poor perianth, Rose City which I did not see this year, and Saucy. Saucy is a very perky daffodil with slightly reflexed, very white perianth and a small straight cup rimmed with soft pink in my garden although classified 2 W-P. Other interesting American-bred rimmed pinks are Coral Light, Julep, Foxfire, and Vantage. Coral Light's cup has a rosy-red ring which, as it ages, becomes coral inside—very interesting color. In cool weather Vantage's cup is fringed with raspberry pink; warm weather lightens it somewhat. Sadly, it has not increased for me nor bloomed for several years. Julep is a very white flower with smooth texture and a medium length cup rimmed in pink. While given the same classification as Julep, Foxfire is an entirely different flower. Its flat cup rimmed in apricot appears to be a Division 3 daffodil. Its color is somewhere between orange and pink, not fitting exactly into either class. Always in good form, perhaps it deserves a class of its own!

From the British Isles come four very good pinks having Rose Caprice for one parent: Conval, Highland Wedding, Rainbow, and Romance. The first three are rimmed. Conval has a large overlapping perianth and a cup rimmed in dainty rose pink. Highland Wedding has very white round sepals with pointed petals and a coral pink edging on the cup. Rainbow is much like it but with a rounder perianth and a wider rim of color.

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Also from Rose Caprice but with a solid cup of deep appleblossom pink is Romance. Romance has very thick substance, a distinctive bowl shaped corona scalloped along the edge, but, alas, always has a nick or "mitten thumb" where the petals have caught in the cup. When I was at Mrs. Lionel Richardson's in 1970, great bowls of Romance adorned the library and dining room. Their beautiful color and form combined to make a breathtaking sight and who could notice a few nicks and imperfections?

Two pinks we saw on the trip last spring which are real comers are Dailmanach from Mr. Lea and Fragrant Rose from Rathowen. Dailmanach won Best Flower in the RHS Daffodil Show this year and also in 1972. A very large rounded perianth with a clear pink long cup somewhat rolled at its rim, it is a very smooth and handsome daffodil.

Fragrant Rose, featured on the front of Rathowen's catalogue this spring, is advertised as having the fragrance of the Tropicana rose. But the real sleeper in this flower is the coloring of its perianth. When fresh, the bloom has a waxy white perianth and a deep reddish pink ruffled cup. As it ages, the perianth takes on definite pink tones while still retaining good substance and texture, surely a possibility for breeding a totally pink daffodil!
BULLETIN BOARD

WHERE CAN I GET...?

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Rubra 2W-YYO
Mitylene 2W-Y
Troubadour 2W-P
Milk and Cream 2W-Y
Damson 2Y-O
Yellow Poppy 2Y-Y
Carnlough 2Y-YYP
Dresden 3W-YYR
Sidhe 5Y-Y
Red Rum 2Y-R
Falstaff 2Y-R
Palmyra 3W-YRR
Matador 8Y-R

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FROM THE EDITOR'S DESK

We are continuing our experiment in mailing without envelopes for this current issue. Response to the last issue was inconclusive. We do want to emphasize that every member is entitled to a copy of the Journal in good condition, so please do write the Executive Director if your copy arrives in poor condition and request an additional copy. The comments received to date will be taken into consideration when a final decision is made, and we thank those who have contributed input.

Dear Daffodil Abbe,

I've been trying for two years to identify this little "old-timey" narcissus—have searched library books and bulb catalogues. I found it growing on state parkland at the site of an old homestead—no trace now of the house—but the spring flowers there bloom faithfully. It is probably a species—maybe a jonquil—never has more than the two flowers per stem. It blooms early to mid-April here; it opens yellow, but in a day or two perianth fades to a creamy white.

Mrs. H. B., Charleston, W. VA.
Dear Mrs. B.,

Your quest is ended. Undoubtedly your daffodil is *Narcissus biflorus*, known in the South as "Loving Couples." Botanists are trying to change its name from *N. biflorus* to *N. medioluteus* which isn’t nearly as good a name as *biflorus*. Your description and the pressed flowers you sent made identification easy.

*Biflorus* is a natural hybrid of *N. poeticus* and *N. tazetta* and is incredibly hardy and disease resistant. It is also sterile, or nearly so, a "mule" so to speak. It is scattered across our southern states. If you ever find seed on what you are sure is *biflorus* send it to me and I will send a bulb or so in exchange.

*Biflorus* is white and yellow as you describe, always two to a stem, and blooms very late in the daffodil season. In fact your date puzzles me a bit. It is a fine daffodil. I wish today’s beauties were as sturdy.

Daffodil Abbe

Dear Daffodil Abbe,

Please let me know if I can store daffodil bulbs for a year, and if I cannot. My friend gave me a basket of nice bulbs. Something turned up and I just won’t be able to plant them now.

Mrs. E.D., Northville, NY

Dear Mrs. E. D.,

One way or another you had better get the bulbs under soil. Bulbs out of the ground dry out and lose vital substance. They can easily stand two or three months out of ground but a whole year is very hard on them. In a year’s time many of your bulbs will die. The flower buds in those surviving will almost certainly die. The bulbs that do survive will take two or three years to recover enough strength to bloom.

Can you find a place in the field of a relative or friend to heel them in, perhaps on shares? Planted cheek by jowl in a long trench would keep them nicely until they could be dug next summer and planted properly next fall.

Daffodil Abbe

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AMERICAN DAFFODIL SOCIETY, INC.
INCOME AND EXPENSES — YEAR ENDED DECEMBER 31, 1979

INCOME:
Dues Paid in 1979 ........................................ $10,729.04
Life Memberships Paid in 1979 ....................... 1,100.00
Governing Contributions .................................. 36.00
Sale of Books, Supplies, etc.: Income Expenses
R.H.S. Yearbooks ...................................... $1,031.45 $ 91.73
A.H.S. Handbooks ........................................ 236.24 —
Daffodils to Show and Grow .................. 1,341.60 —
Handbook for Judging .................................. 500.50 —
Binders for Journals .................................. 119.00 —
Old RHS and Out of Print Books ......... 607.20 473.40
A.D.S. Membership Pins .......................... 352.50 199.86
A.D.S. Publications .................................. 298.95 450.56
Data Bank Printouts and Binders ............ 863.38 710.00
Show Entry Cards ...................................... 377.50 243.97
Color Charts ............................................ 137.00 142.88
Daffodils in Ireland .............................. 190.00 350.00
Medals and Trophies .............................. 45.40 44.74
Registration Fees ...................................... 124.50 —
Misc. — N.Z. Dues ...................................... 8.00 —

Advertising .................................................. — 415.00
Judges' Certificate Fees ........................... — 26.00
Slide Rentals ............................................. — 85.00
Interest Received ...................................... 1,661.39
Convention Surplus (Boston) .................. — 1,022.38

TOTAL INCOME ............................................ $19,200.79

EXPENSES:
Daffodil Journal-Printing, Envelopes and Mailing $ 7,006.20
Roster—July 1, 1979 ....................................... 304.18
Office Expenses:
Printing and Supplies ................................ $ 270.63
Postage .................................................... 1,046.41
Executive Director .................................. 2,625.00
Social Security Tax ................................... 144.61
Telephone ............................................... 45.53
Miscellaneous .......................................... 47.92

Regional Vice Presidents (Newsletters) .... 784.10
Secretary ................................................ 99.29
Committees ............................................. 72.54
Daffodil Data Bank .................................. 230.00
Library ........................................................ 100.00
Fall Board Meeting Deficit ..................... — 58.73
Transferred to Savings ............................ — 1,210.62

TOTAL EXPENSES ......................................... $14,245.77

AMERICAN DAFFODIL SOCIETY, INC.
BALANCE SHEET — DECEMBER 31, 1979

ASSETS:
Cash in Bank—Bank of North Carolina ........... $ 5,127.31
Cash in Savings Account—Bank of North Carolina .... 3,616.38
Savings Certificates 5-1-80, New Canaan Sav. Bank . 2,263.39
Savings Certificate, 6%, expiries 3-1-81, New Canaan Sav. Bank 3,149.18
Savings Certificate, 7%, 5-1-82, New Canaan Sav. Bank 2,257.28
Savings Certificate, 7%, 5-17-81, Bank of No. Carolina 2,612.50
Ford Motor Credit Corp. 8.5% Bonds due 3-1-91 10,000.00
Accrued Interest not due .......................... 247.90

Inventory of Publications:
R.H.S. Yearbooks, 78 and 79 (84) ............. $ 207.20
Old R.H.S. Yearbooks and Misc. (109) ....... 218.00
A.H.S. Daffodil Handbooks (106) ............ 169.15
Handbook for Judging (682) .................. 203.23
Binders For Journals (1) ....................... 1.40
Show Entry Cards (6,600) ................. 80.52
Daffodil Data Bank Printouts (19) ........ 190.00
Data Bank Binders (26) ....................... 31.20
Daffodils to Show and Grow (38) ........ 81.52
Daffodils in Ireland (62) .................... 217.00
A.D.S. Member Pins (43) ................. 187.05
R.H.S. Color Charts (3) ..................... 29.50
Out of Print Books (6) ......................... 50.00

Inventory of Medals and Trophies:
Medal Prices ........................................... 15.00
Gold and Silver Medals ......................... 221.36
Larry M. Mains Sterling Trays, min. replicas (6) 270.00

TOTAL ASSETS ............................................. $31,725.87

LIABILITIES:
Dues Paid in Advance (in whole or in part) $ 7,952.71
Life Memberships .................................... 10,000.00
Net Worth .............................................. 13,773.16

TOTAL LIABILITIES ..................................... $31,725.87
AUDIT STATEMENT

The above balance sheet and income statement for the year 1979 were prepared using the cash receipts and disbursements records maintained by the Executive Director. The cash balances were verified with the bank statements and the savings certificates of the banks indicated. The inventory of publications is shown at cost except that no cost is included for surplus ADS publications. In addition to the assets shown, the Society has a substantial library of books on daffodil culture, many of which are rare and valuable, and several colored slide collections. It also has a number of memorial silver trophies awarded at convention shows. These books, slides and trophies were mostly contributed by members and no value is included.

Dues received in the current year covering periods beyond the end of the year were prorated and amounts covering such future periods are shown as a liability as are payments for life memberships.

The receipts for dues and other income were verified with the deposit slips and the disbursements were verified with the suppliers’ invoices and the cancelled checks signed by the Treasurer and the Executive Director.

Based on this review, it is my opinion that this balance sheet and income statement present an accurate report of the financial condition of the Society and that the records are being maintained in a sound and orderly manner.

WELLS KNIERIM, TREASURER

Narcissus tazetta pachybolbus IN FLORIDA
WILLIS H. WHEELER, Gainesville, Florida

When we met at the annual ADS convention in San Francisco in 1977, Jay Pengra and I talked tazettas. Growing out of that meeting was an exchange of a few bulbs. From that exchange came what is probably the first flowering in Florida of Narcissus tazetta pachybolbus. That event occurred on December 22, 1979, in time for Christmas.

The blue-green foliage came in the early autumn and grew to a height of about 55 centimeters (21 3/4 inches). With it came the scape of the same length by flowering time. When the spathe broke it revealed 9 buds that gradually opened into the cutest little pure white symmetrical florets about 18 mm in diameter. The broad perianth segments measured 5 mm in length, both the inner and outer segments being almost identical in shape. The dainty white cup, 5 mm in diameter, had at first glance a yellow coloring in the center. That was found on closer examination to be the result of the copious pollen shed by the anthers.

The flower’s dainty perfume was not the strong, overpowering scent of the common Paper White tazetta so often flowered in bowls of gravel and water in a sunny window.

E. A. Bowles, in A Handbook of Narcissus (1934), gives us the following about the species:

N. pachybolbus, described by Durieu in Duchartre’s Rev. vol. ii, p. 425, 1846, is a native of Oran in North Africa. In flower and leaf it closely resembles certain European Tazetta forms with small flowers, but has an extraordinarily large bulb 2 1/2 inches in diameter and 4 in height and a strongly ribbed, flattened scape quite out of proportion with its small flowers.

The leaves are glaucous and except in their greater width resemble those of N. dubius. The flowers of both are similar in size and in the pleasing, rounded outlines of cup and segments. On the slender scape of dubius they are more charming than in the crowded head of twelve to seventeen on the thick scape of the African plant.

The reference to the bulb’s size is certainly accurate if I am to judge by the bulb I received from Jay. It was quite “thick” (the meaning of pachy), even though its labors produced only a small flower. The experience of growing it has been a real pleasure, partially making up for the trumpet daffodils I had to give up in my Florida garden.
These are a few of my favorite 3's

Otis Etheredge, Saluda, South Carolina

(from the Southeastern Region Newsletter, June, 1979)

Not long ago, a daffodil friend of mine said that after attending a convention and seeing overseas and Oregon grown cultivars she was glad to get back to the Southeast and admire "normal sized" daffodils. My sentiments are somewhat the same towards Division 3 flowers. Here are found modest sized flowers of wonderful form, not the often awkward, oversized specimens of the preceding two divisions. If severely pressed I might have to admit that the 3's are my favorites of the first three divisions. There are so many flowers of exquisite form and color here that to mention a few is to compromise many others. But, even at that risk, here are some of my favorites.

Of the flushed 3's, Altruist has proved to be a fine healthy cultivar. However, this year, Coppertone, which was purchased from Dettman in Australia, proved to be a better and refined flower. It has a nice round perianth with a darkly colored small cup and blooms midseason. It does burn, but this fault seems to be shared by most flushed cultivars.

Lemonade and Beige Beauty are the only 3Y-Y's that I grow. Drumnasole is a Carncairn cultivar which though listed as a 3W-Y becomes a light lemon self. Even though not what I would call true 3Y-Y's, Lemonade and Drumnasole are nice flowers and good for show and for hybridizing (both seed well). Beige Beauty has been extremely inconsistent color-wise. Doubtless very soon there will be much improvement in cultivars here. The wonderful specimen shown by Bill Pannill in Chapel Hill of his New Penny proves this point.

I don't grow Achduart, but Dimit (Jackson) and Trelay (Phillips) are wonderful 3Y-R's. Good cultivars are almost as scarce here as in the preceding 3Y-Y's. Dimit is the more consistent and better formed of the two, though Trelay is the more highly colored and healthier cultivar. Both are blue ribbon winners. As to 3Y-YYR's, I grow Perimeter (Richardson) and Sunapee (Evans). Perimeter, though inconsistent, will throw an occasional good flower. Sunapee has proved to be an excellent flower in all respects.

Once past the excellent cultivars of the above colors, the Division 3's truly come into their own. With the myriad of cultivars such as Bella Vista, Blithe Spirit, Aircastle, Chorale, Ibberton, Golden Eye, Marielle, Audubon, Green Meadows, Caprice, Anacapri, Dell Chapel, Eminent, Jessiman, Grace Note, Ben Rinnes, etc., how shall I mention them all? There is no way to do so!

To make some order out of this chaos (and at the risk of being braggadocious) I shall use as a guide the five cultivars which won the ADS Purple Ribbon in Chapel Hill this spring. These five cultivars were Glenwherry, Crepello, Silken Sails, Lynette Sholl, and Gowo.

Glenwherry (Dunlop, 1942) and Crepello (Richardson, 1955) are most consistent producers of excellent flowers. Also, they remind us that many of the older 3's are still wonderful blue ribbon winners. Just think, too, of Corofin (Richardson, 1943) and Merlin (Richardson, 1956). A real "oldie" and still one of my favorites is Guy Wilson's Dreamlight which was registered in 1934.
Dettman's wonderful Lynette Sholl shows us what fine down under 3's there are. One can tell this by noticing the Bell, Cotter, and Hancock bulbs in my above list. But, back to Lynette Sholl. This cultivar needs a couple of days to develop its best coloring. If too long, it will burn, but how wonderful this 3W-OOR is at its peak! It was a star among this year's flowers. Also before leaving this area of the world, I must mention Cotter's Craigieburn. For a 3, it is very early and of excellent form and color. The perianth is round and very white. The good red non-burning cup complements the perianth nicely. It has been a joy for the six years I've grown it.

Mitsch's Silken Sails is an example of the white 3's. This fine cultivar along with Angel have until now been my favorite 3W-W's. In fact, Angel has been close to the top of my list. However, if this year's bloom is any indication, deNavarro's Delos is going to give them a run for their money. It is not as white as Angel, but what size and form! The tall, strong stems carry the blooms triumphantly.
As new cultivars one must mention Eve Robertson’s 192A (a name please, Eve) and Ballydorn’s stable. Sir Harrison’s Favor Royal is my favorite of his new ones, but with Fairsel, Lancaster, Strangford, and Lusky Mills, the choice was hard.

Now, do I have the nerve to say that I’ve saved the best (?) to last? Forgive me Angel, Delos, Favor Royal, Lynette Sholl, 192A, etc., but Gow, ah Gow! How a cultivar bred from Owo × Gyda with such a strange name as Gow could be so lovely is a Jackson secret. Only a picture can do it justice, but perhaps its best feature is its unbelievable consistency. I’ve never had less than a 95+ bloom in six years. An occasional flower may have a white fleck on the cup rim, but the perianth is guaranteed perfection. I’ve entered three blooms in my short show career and two won their divisions while the third was part of the aforementioned Purple Ribbon group. This last bloom was also considered for best in show, no mean feat for a Division 3 flower. By the way, it should be a 3W-YYR instead of 3W-R as listed in Daffodils to Show and Grow. The rounded perianth is glistening white and is greatly overlapped so that it practically forms a circle. The saucer shaped yellow cup ends in a bright red band which is so well defined it seems painted on. A wonderful flower! The new Pannill, Carncairn, etc., cultivars have their work cut out to compare with this beauty.

With the excesses of the above I blush and close this article. I hope the daffodils of the other divisions don’t hear of this for they might sulk next year. I certainly don’t plan to mention it while lifting bulbs next month.

(Ed. Note: Robertson 192A has since been named Limey Circle.)

THE BRODIE — CHAMPION OF POETS

Meg Yerger, Princess Anne, Maryland

Ian Brodie of Brodie was one of the greatest daffodil breeders of his time, the others being P. D. Williams and G. H. Engleheart. In an article on the collecting of good studs for hybridizing he mentioned that, on the whole, poeticus varieties are the most useful for breeding purposes and the combinations with them are endless. So high were his standards in evaluating his flowers that only a handful of his poets were ever registered. Only five were registered by him: Hexameter, James Hogg, Moliere, Smyrna, and Tannahill. Two others were registered for him by Albert Calvert: Coverack Hope and Trevedron. James Hogg and Smyrna figure in the pedigree of some of the outstanding poets raised at the present time, such as Angel Eyes, Bon Bon, Poet’s Way, Poet’s Wings, Seraph, and Tart.

In learning what manner of man this Brodie was, we find he was a man “to the manor born.” He was Chief of the Clan with Brodie Castle as his home, and his was the noble obligation by family tradition to serve his country and country.

For this he was trained at schools like Eton and Cambridge. In his early twenties he served for three years as a member of the Royal Scots Guards which gave him experience for future service in the Boer Wars and in
World War I. Picture this young man as a member of that group trained in discipline and precision. The two battalions of Scots Guards wore resplendent uniforms of scarlet tunic with blue collar, cuffs, and shoulder straps, blue trousers and a high rounded bearskin cap. They were part of the combatant army as well as the sovereign's escort but did not serve abroad in peacetime.

Such precision training was reflected later in the exactness with which he planted daffodil seeds, each seed a measured three inches apart in rows eight inches apart. When the blooms came they made such a uniform display they might have been likened to a proud military unit lined up for review. And reviewed they were! Unless a flower was of the high standard demanded by the Brodie it was removed as fast as if it had been picked off by a sniper. In his breeding of daffodils he was consistent on good form and clear good color with no hint of coarseness. His greatest contributions to the development of better daffodils were from his work with pinks and the improvement of orange and red in coronas.

In spite of the drama and honor connected with being a member of the Scots Guards, young Brodie may have thought often of returning to the family castle at Forres in Morayshire in Northern Scotland, close to the seacoast of the North Atlantic where misty fog from the ocean and the smell of the sea would be part of his life again. At any rate he began to hybridize daffodils there in 1898.

The question as to why he became interested in daffodils is a matter of conjecture. Possibly his fellow Scotsman Peter Barr may have been an influence either personally or through his classic publication of 1884, Ye Narcissus or Daffodyl Flower, and bys Roots. More likely, perhaps, is that he was influenced by words quoted from W. B. Hartland who wrote The Original Little Book of Daffodils in 1885. He said daffodils "love the smell of the sea, and the bathing of its vapours." He emphasized that for daffodils humidity of atmosphere is of more importance than purity of atmosphere. This must have seemed an exact description of the environment at Forres and could easily have led to the use of the walled gardens of Brodie Castle near the North Atlantic for a hybridizing venture.

The Brodie acquired from Engleheart, P. D. Williams, and other raisers bulbs of types and varieties of daffodils that had a chance of producing good seedlings. Believing as he did that poeticus varieties were useful for crossing with all divisions, he used poets from Engleheart such as Ace of Diamonds, Cassandra, Chaucer, Dactyl, Epic, Hildegarde, Horace, Oliver Goldsmith, Raeburn; several unnamed Engleheart seedlings; species poets; his own named poets and poet seedlings; Distich by Chapman; Snow King by Dawson; and in particular a Backhouse flower, Moonbeam, which was fifty percent poet coming from the cross Mrs. Barton × recurvus. He believed in removing the anthers in order to be sure of the accuracy of a cross which, with poets, meant removal before the bloom actually opened because poets self-pollinate so readily.

Brodie had a lot of seedlings from Moonbeam crossed both ways with poets. The results in almost all cases were that if the poet flower was crossed with Moonbeam pollen almost all seedlings had red-rimmed eyes; but when Moonbeam was crossed with poet pollen they usually had pale yellow to white eyes, sometimes with a green center like Emerald Eye (Moonbeam × a poet). He found that Horace, too, was apt to give a greenish eye.
After only two years of hybridizing and growing seeds he volunteered for foreign service in the South African War with Lovat's Scouts until 1902. This interim filled in the time before he could expect first bloom from his crosses. It was probably 1903 before he could begin his ruthless selectivity and then grow on the rest to evaluate the vigor of the plants. By 1914 he was well enough known for the quality of the daffodils he raised that he was asked to do an article entitled "Notes on Some Seed and Pollen Parents" for The Daffodil Yearbook published by The Royal Horticultural Society. That same year he rejoined Lovat's Scouts to serve in World War I. A picture of him in one of the RHS Yearbooks shows him as a Major sprucely erect with shoulders squared in his khaki uniform with Distinguished Service Order and Military Cross decorations. He had a good head of hair for a man of middle age and a proper bushy British moustache.

Upon retirement from the army he resumed his work in breeding daffodils. It was said by Guy Wilson that his work had particular value because of the clearness and accuracy of his records, and that he did more than anyone else of his time to disseminate knowledge of breeding. The RHS Classified List is testimony to the number of flowers raised at Brodie Castle and the numbers of Awards of Merit won. His poeticus variety, Smyrna, registered in 1927, received unanimous votes for an A.M. in 1933 and was described as having pure white perianth segments that were broad and over-lapping, and the rather large corona was orange-scarlet edged with red.

Lionel Richardson and Guy Wilson, who came to be the "greats" of their time in the hybridization of daffodils, got much of their breeding stock from The Brodie of Brodie and both of them eventually registered a number of his flowers in his name. A picture of these two men with other guests of Ian and Violet Brodie and their black pug, Papageno, at a little house party at Brodie Castle shows the Brodie comfortably settled into chilly seashore life, with long woolen scarf and knee socks worn with soft knickers and jacket and a squaishy hat all so obviously Harris Tweed, it is almost possible to smell the peat aroma that is characteristic of that fabric. The bushy British mustache is still there along with an expression bespeaking goodwill and good humor.

The piecing together of clues about this man and his poets is like detective work. There is no lack of information about him but it is scattered a sentence here, a page there throughout many articles in the Royal Horticultural Society Yearbooks and in Albert Calvert's Daffodil Growing for Pleasure and Profit. Questions to people who knew Ian Brodie well brought the same answer—that if there were time to reminisce there could be many tales, but none would convey the mood of Brodie Castle and its owners better than the article by G. L. Wilson in the 1948 RHS Daffodil and Tulip Yearbook. It is quoted here with some deletions in the interest of brevity.

Brodie was a wise man; he probably enjoyed his Daffodils and his friends more than most of us; . . . he did not spend the Daffodil season dashing back and forth to shows and round the British Isles to other people's gardens, . . . but stayed at home quietly enjoying his flowers and carrying on his wonderful work of breeding with most methodical care. His friends came to see him and his flowers; . . . During their
visits life was mainly spent between the library and the garden, apart
from regular excursions into the wonderful little old dining-room,
... with its rough white-washed walls, stone floor, and great open
fireplace where logs burned. Or occasionally he and Mrs. Brodie
would take us through the greater part of the lovely old house to see
the pictures. They both loved and collected pictures, ... all available
space in the many rooms and corridors was occupied with them, be-
sides a large well-lit upstairs room which was specially allotted to
them, with racks for holding many for which space could not be
found on the walls.

But life ... centred in the library; guests were shown in there
immediately on arrival. One Daffodil season, [Lionel] Richardson and
one or two other friends had already arrived by the morning train;
Guy Wilson came by the late afternoon train. He had barely ex-
changed greetings all round, when he became ... speechless for a few
seconds as he caught sight of a most astonishing Daffodil ... on a
small shelf up in a rather dark corner of the room—deep golden
perianth of largest size with an enormous, almost terrifying dark
blood crimson crown; however, ... he quickly realized that a deep
red Rhododendron flower had been substituted for the poor Daf-
fodil's trumpet. A chuckle of laughter went round the room and the
new flower was classified as a Rhododil! ...

Mrs. Brodie was always to have a quaint little black pug dog, and
... a Peke; these little people were part ... of the household and
family....

In the evenings ... we would sit round the fire in the library,
Brodie always sat on the right-hand side of the fireplace with Mrs.
Brodie opposite, and their guests between them. Every aspect of Daf-
fodils and their pedigrees were discussed; and, of course, all the Daf-
fodil people. ... Brodie in his happiest mood sat or squatted with his
heels tucked up on his chair, the light from above shining on his
silvery hair and charming beaming countenance, as he laughed and
chuckled over endless recollections and reminiscences exchanged the
whole evening.

Likely at the far end of the room, as Mr. Wilson described it, near the
French door to the garden there would have been a round table covered
with vases containing first flowers of newly selected daffodil seedlings
that might become champions and parents of champions. Guests would
have enjoyed examining and commenting and hearing from the breeder
the reasons for the crosses.

While visiting with Matthew Zandbergen at the 1980 ADS convention,
he told me that The Brodie enjoyed driving his pony-cart himself to the
gate of Brodie Castle to meet his guests and take them with him for the
ride back to his home.

Elspeth Napier, Editor for the RHS, knowing of my interest in The
Brodie, wrote recently that Brodie Castle in northeast Scotland has re-
cently come into the care of the National Trust for Scotland, and they
hope to replant some of the daffodils he bred in the garden.
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TRIP-ING THROUGH THROCKMORTON’S TREASURY
DAVID KARNSTEDT, W. St. Paul, Minnesota

The Daffodil Data Bank, or Throckmorton’s Treasury as it’s been dubbed by the cognoscente, is one of those serendipitous creations that seem to be filled with revelations for the unwary. I frequently consult this 200-page compendium for one reason or another and often find, to my annoyance, that I’ve begun following another trail—usually one not related to my reason for going there in the first place!

I had been looking up parentage to fill in blank spots on some of my cultivar cards, when a random group of thoughts began to coalesce. Seed from open pollinated daffodils is ignored by many. As a matter of fact, we are told to remove faded flowers as a point of good cultural practice to prevent formation of seed pods. Yet, for a few observing and inquisitive people, collection of open pollinated seed has produced, or led to the production of, a number of remarkably valuable flowers.

With my curiosity aroused, I consulted the “oracle” to determine just how rewarding the trait of saving open pollinated seed might be. It soon became apparent the final result would be clouded, because the computer has not been fully taught to distinguish among the (so designated) open pollinated (OP) seed parent (SP); the SP whose pollinator, even though unknown, is represented by an educated guess; and the SP whose pollinator is both unknown and unguessed and whose status, therefore, is undetermined. Only extensive research would indicate which of the following options would be applicable:

a) a cross had intentionally been made involving the SP and another cultivar or species/varietv and, through some failure in record keeping, its identity was lost. (Interjection of that valuable ally, the honeybee, is appropriate here as it has occasionally been the unintentional confuser of the best laid plans of the hybridist!) The pollen parent (PP) thus listed represents an educated guess on the part of the breeder, e.g., Cameo Queen, Peaceful, Vireo.

b) the questionable PP listed represents, after observation and research, an educated guess on the part of the breeder. The daffodils Euphony, Milestone, Falaise, Titania, and Therm were the result of OP, but not specifically so listed in the Data Bank.

c) PP not listed, but it is unknown whether the SP of the registered cultivar is actually a case of open pollination or an intentional hybrid the identity of whose PP has been lost, e.g., Demure, Flomay, Margaret Mitchell.

d) the questionable PP listed represents, after research, an educated guess on the part of the compiler or other authority, e.g., Trevithian.

Seedlings raised from open pollinated seed have been named and registered for at least fifty years and, perhaps, further back to selections made from seed collected from open pollinated species as, for example, N. poeticus recurvus, the listed SP of 3 Y-YYR Barrii Conspicuus registered by Backhouse in 1886.

It was not unforeseen, I suppose, to find the major breeders of the time most frequently registering seedlings of this type. Each of them seems to have selected a few outstanding flowers. Occasionally, when using them
as breeding stock, far-sighted breeders have achieved some truly outstanding results.

In 1934, P. D. Williams registered the white small cup Rinsey. Whether Silver Coin, its SP, was intentionally bred or open pollinated is not clear from the Data Bank. Making extensive use of Rinsey, Guy Wilson produced a seedling, Chinese White, that was to have considerable success as a parent in the hands of Lionel Richardson, Grant Mitsch, Taty de Navarro, and others.

Lionel Richardson was, without doubt, the most fortuitous collector of OP seed. Not only was he lucky in being able to select really outstanding seedlings from batches of OP seed, but he also displayed remarkable skill as a hybridizer in using those selections to produce some of the most important daffodils in history. At least three flowers from the first category have achieved great reknown as show flowers: Golden Aura, Merlin, and My Love. Maintaining the tradition, OP seed saved from Merlin produced a couple of fine, red-rimmed, small-cup yellows—a rather scarce type.

There were two instances that forever establish Lionel Richardson's reputation as a hybridizer and as an astute "saver" as well. Several times he planted seed saved from White Sentinel OP. He subsequently registered the selections Templemore (1938) and My Love (1948). But it was a selection registered in 1937, Rose of Tralee, that was to prove of greatest importance. Rose Royale, registered in 1958 and still considered as one of the best pinks (as well as a show flower of considerable merit), has Rose of Tralee as a grandparent. However, it was seed collected in the early forties from Rose of Tralee OP that was to provide him with his greatest pink triumph. In 1948, Lionel Richardson registered Salmon Trout. A superb show flower, Salmon Trout has been a premier exhibition pink for decades and, even today, is still exhibited with considerable success. No piker as a parent either, Salmon Trout has produced the desirable show pinks Salome and Salmon Spray.

But is was his commendable act of insight in saving a pod of OP seed from that otherwise undistinguished double, Mary Copeland, that was to have unsurpassed impact on daffodils as we know them today. The selection made from those seedlings was, of course, Falaise, registered in 1945. That single plant has been the progenitor of an entire race of stunningly superb, double daffodils!

Nothing like the quality of Gay Time (Falaise × Limerick) and Double Event (Falaise × Green Island) had been seen up to that point—1952. Their impact was enormous! The cross of Falaise with Ceylon was to produce some of the best examples of the series: Hawaii and Tahiti in 1956, and Tonga in 1958. The best selection from Falaise × Limerick is, undoubtedly, Acropolis, registered in 1955. The smooth, very white petals are set off perfectly by the deep red-orange segments nestled about their bases. The RHS awarded Acropolis a First Class Certificate in 1959, as testament to its qualities as an exhibition flower. However, unlike many honored exhibition flowers, Acropolis makes a splendid garden plant! A vigorous grower, it consistently produces fragrant flowers of fine substance on stiff, weather-resistant stems. These strong stems are a characteristic possessed by many of the Richardson doubles. Double daffodils came of age in the decade of the fifties—no longer would they be desirably referred to as "salads on a stem!"
Twenty years afterward, the power of Falaise to provide superior progeny would seem to be undiminished, requiring only careful selection of an appropriate pollen parent, such as Rose Caprice which produced Hope in 1972, or King’s Ransom, which gave us Orotava in 1972.

One of the first children of Falaise, Gay Time, was eventually to become a seed parent of equal distinction. In time, this second generation double will probably have more fine seedlings to its credit than its famous parent, but that would in no way diminish the impact that Falaise has had. Of the second generation hybrids stemming from Gay Time, the superlative white and red double, Gay Challenger, has probably won more major show awards than any other member of the division. A new front opened in 1977 when Grant Mitsch registered Discovery and Elixir, lovely soft lemon and pale orange siblings, from Gay Time blessed with the pollen of Daydream. We have yet to see any of the third generation, but with many of these hybrids fertile, it’s only a matter of time and intuitive selection.

Falaise, that love child of Mary Copeland who knew not its father, has had (like many humans in similar circumstances) an enormous and lasting effect on the world far out of proportion to what humble birth might have predicted.

The story that ranks in importance second only to the history of Falaise concerns not so much OP seed, but, rather pods of OP seed. For it was the sharp eye of Grant Mitsch and fortuitous intuition that pulled him off the tractor to inspect what lesser observers would have missed. When relating the incident later, he pointed out that it’s not uncommon for jonquil hybrids to form large seed pods—but they are always empty. However, the pods this particular seedling produced were full—over fifty seeds each in several pods. The seed was saved, of course, and the bulb dug and replanted. The following year the seedling repeated its performance of the previous season. Since 1964 when the seedling was registered as Quick Step, Grant has produced hundreds of seedlings exhibiting characteristics not before seen. Quick Step’s unique value lies in the fact that it is fertile to the pollen from many different daffodils. For jonquil hybrids to be fertile at all is rare, and those that are seem to be so only under special circumstances.

Using Quick Step as the SP, Grant has so far registered the delightful pink-cupped jonquil Bell Song (1971), the reversed jonquil Step Forward (1972), and one of his most rewarding achievements to date, the extremely floriferous triandrus Petrel (1974). After hearing and reading of this special hybrid for so many years, I was finally able to get a bulb in 1974. Each spring the number of stems and flowers those bulbs produce is astounding—it’s one cultivar I would not be without! Such performance is not surprising, I suppose, when you consider that it is a Grant Mitsch product—daffodils whose catalog descriptions do not surpass their performance in your garden!

A word to the wise, then, from the man who has done more than any other to fill Divisions 5, 6, and 7 with desirable hybrids. Grant’s observation that, even yet, “almost unlimited possibilities exist for fine Quick Step hybrids to appear” carries the weight of long experience behind it—particularly when one considers its initial successes have produced hybrids in two separate and distinct divisions.

At the risk of engendering thoughts of overkill in the mind of the reader, I have but one last story to relate in support of my thesis. Division 8 hybrids, like many of those in Divisions 5 and 7, are virtually sterile.
under normal conditions. However, there sometimes occurs, in the course of events, a fortuitous juxtaposition of seed pod and observer. That was as true of Matthew Fowlds and Honey Bells and Grant Mitsch and Silver Bells, as it was of Jan de Graaff and the trio of seedlings that resulted from his discovery and retention of pods of OP seed on the poets admiration. W-O Fame, Y-O Golden Dawn, and Y-R Matador were registered as second generation Division 8 hybrids in 1958. Fame seems to have disappeared, but Golden Dawn graces many a springtime garden. Matador enjoyed some success, in the sixties, as a parent of red-cupped jonquil/tazetta seedlings produced by Harry Tuggle. A few of these still exist, although they've never received very wide distribution. It would be a real pity to lose a potential "Falaise" for so universally overlooked a problem as unstable cup color.

An example of the unrealized potential of Matador lies in a hybrid produced by Jack Romine. Dusting N. triandrus albus pollen onto a (particularly!) receptive stigma of Matador produced a unique hybrid. Slightly larger than the PP, but of the same configuration and perianth color, the seedling sports a red cup! There exists nothing remotely like it, yet it seems to have gone largely unnoticed since its first appearance on a California show bench several years ago. Many other examples could be shown, but I think that I've proved the worth of saving and planting that fortuitous occurrence of daffodils and nature — open pollinated seed.

In researching this article, I made an anomalous discovery of the type alluded to in the first paragraph. It is taken for granted, of course, that there exist many registered hybrids whose PP is unknown and the Data Bank reflects this. But what of the reverse situation, that is, where the pollen parent is known for certain and not the seed parent, which must be presumed to have existed, of course? Throckmorton's Treasury will have some explaining to do about that one!

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PLANS FOR THE FUTURE — MAYBE

WILLIAM O. TICKNOR, North Carolina

One of these days I am going to make a mixed planting of daffodils, sunflowers, marigolds, and basil. I fully expect it to be weedless and pest free. Marigolds have a long established reputation for keeping eelworms at a distance. (Willis Wheeler allows that marigolds plus Benlate will do a good job — or, for that matter, just the Benlate alone),

This past year I planted a row of sunflowers (they became gigantic 8 foot monsters) between rows of melons and collards. To my surprise the sunflower bed stayed weed free. Later I read that weeds won't grow under sunflowers. Unfortunately the melons and collards didn't grow much either.

The basil planting is an idea from Betty Darden and I believe everything Betty tells me. Flies just don't like the scent of the herb basil — and it is a bit peculiar. The Narcissus Bulb Flies are truly flies and if their grubs have victimized your bulbs you know how horrible they are. So, the basil should make the flies go pick an onion in a neighbor's garden.

Up until now I have relied on Bill Pannill's green mulch — a massive weed cover — for summer protection. Maybe some year I'll use the above mixed planting technique.
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PREPARING A DAFFODIL BED
(from Tête-a-Tête, newsletter of the Minnesota Daffodil Society,
December, 1979)

A few years ago, I became interested in growing daffodils. Since I
didn't know too much about growing daffodils in Minnesota, I used two
methods for planting the bulbs.

I planted some bulbs in regular level soil in the perennial border. These
were planted about six inches deep with a small amount of 20-20-20
fertilizer and lime worked in the bottom of the bed. They were covered in
the fall with six inches of marsh hay. They did all right.

The second bed was specially prepared. The soil level was raised eight
to ten inches with leaf mold. 20-20-20 fertilizer and lime were mixed in
with the leaf mold. The bulbs were planted six inches deep. A two inch
layer of pine needles was placed over the bed and in fall it was covered
with six inches of marsh hay. These daffodils, many of the same cultivars
as were planted by the first method, were superior the first year. The
flowers were larger and the leaves longer and darker blue-green.

The second year saw a real difference. Those planted in raised beds
increased more and had far more bloom. In general, they were much more
vigorous. Only one cultivar did not come up the following spring. On the
other hand, I lost over half the cultivars planted in the regular perennial
border. I attributed this loss to a lack of good drainage. When I dug down
to look for the bulbs, I could find nothing.

From this experience, I have been planting my daffodils in well-drained
raised beds.

—JULIUS WADEKAMPER, Elk River, Minnesota

(from Cod’s Corner, Newsletter of the Central Ohio Daffodil Society,
July, 1979)

Special care should be given to bulbs ordered from down under. I place
my order in December. When they arrive in May or early June, I fold each
bag all the way down or place the bulbs in separate net bags. Then they
are put in an open box in an air conditioned room with a constant
temperature of 72-75 degrees. Take them to your office if your home is
not constantly air conditioned. Another way to keep bulbs firm until our
planting time is to put them in dry sand. Dry the sand overnight in the
oven at 150 degrees or set your oven for three hours at 250 degrees. Make
sure the sand is dry and cooled before using this method. Put sand on
bottom of can or box, place netted bulbs on top of sand, bulbs not
touching, cover with sand, then place another layer of bulbs. Cover with
sand, etc. Also keep this in an air conditioned room. I have been
successful with Australian bulbs and most of the bulbs bloom the first
year and all bloom the second year. A lot of my David Bell bulbs became
soft or dried out before trying the above method. I also tried planting
Hancock bulbs as soon as I received them four years ago, but they took
four years to acclimatize. They finally bloomed this spring.

—CECILE SPITZ, Columbus, Ohio
DAFFODIL DISEASES AND PESTS: V - NEMATODES AND NEMATODE DISEASES

THEODORE E. SNAZELLE, PH. D.
Department of Biological Sciences
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"Many bulb growers look upon the disease (bulb and stem nematode disease) as 'one of Nature's gifts' and are of the opinion that the bulbs will ultimately right themselves. Suffice it to say that if the bulbs are left to themselves, the bulb industry will soon cease to exist." J. K. Ramsbottom (1917)

The exact date at which nematodes became a problem in narcissus is not really known; however, by 1917 the narcissus bulb industry in England and Holland was at a virtual collapse. The euphemistic thought of growers of that day that the bulb and stem nematode disease was 'one of Nature's gifts' had been transformed to one of despair (1). In 1917, the bulb and stem nematode, which had decimated the daffodil plantings of England and Holland, was called Tylenchus decebratix (1). Today, the bulb and stem nematode is named Ditylenchus dipsaci (2). Amid this devastation to the narcissus bulbs and the concomitant despair of the growers entered James Kirkham Ramsbottom and his hot water treatment of narcissus bulbs to rid them of the bulb and stem nematode (1). Indeed, Ramsbottom did give 'new life' to the narcissus!

In addition to the bulb and stem nematode, Ditylenchus dipsaci, there is another nematode which is sometimes a serious problem in narcissus, the root lesion nematode, Pratylenchus penetrans (2). Although it is comparatively rare, the bulb and leaf nematode, Aphelenchoides subtenuis, has been reported on occasion from the British Isles in Cornwall and on the Isles of Scilly (2).

WHAT IS A NEMATODE?

For years, the English have referred to the nematode as an eelworm; however, the proper term nematode comes from a Greek word, nematos, which means thread. Thus, the nematodes are thread-like worms which are classified as follows:

Kingdom — Animalia
Phylum — Nematodinia or Aschelminthes
Class — Nematoda

All the nematodes are unsegmented roundworms having bilateral symmetry and a cylindrical form as the name roundworm implies. The exception to this generalization is that a few species have females which become ovoid in shape. All the nematodes have a noncellular cuticle (external covering) which must be moulted and secreted anew by the growing nematode. Additionally, all the nematodes have a digestive system, rudimentary nervous system, reproductive system, rudimentary excretory system, and a muscular system (longitudinal muscles only); however, nematodes do not have a respiratory or circulatory system. All plant parasitic nematodes have stylers which they inject into the host plant cells to derive nutrients. Plant parasitic nematodes are small. The infamous Ditylenchus dipsaci adult is approximately 1250 microns in length whereas the root lesion nematode adult, Pratylenchus penetrans, is approximately 600 microns in length (3). A micron is one-millionth of a
meter. Thus, it is easy to see that individual plant parasitic nematodes are microscopic in size and can only be seen with aid of an ordinary light microscope. In many nematode species, the sexes are separate. Thus, there are both male and female nematodes. In these species, the male adult nematode furnishes the sperm which fertilizes the egg which is produced by the female adult nematode. From this fertilized egg will ultimately come the adult nematode. Secondly, some nematode species are hermaphroditic, i.e. the adult nematode has both male and female gonads. In these hermaphroditic nematodes, the male gonad is usually quite small in comparison with the female gonad. In some instances, the male gonad first produces sperm which is subsequently stored; then the male gonad atrophies. Of course, the ovary would then produce the eggs which are subsequently fertilized by the sperm which had been stored. Lastly, in a few nematodes which are parthenogenic, only the female gonad is present and the eggs which are produced develop into larvae without fertilization ever having taken place. The generalized life cycle of a plant parasitic nematode involves the fertilized egg, four larval stages, and finally the adult nematode. The going from one larval stage to the next involves moulting, i.e. shedding of the cuticle. Several stages of the life cycle of Ditylenchus dipsaci are shown in Figure 1.

Figure 1 — Photomicrograph of Narcissus Bulb and Stem Nematode. A - egg, B - larva, C - adult, D - adult in leaf tissue
WHERE ARE NEMATODES FOUND?

Nematodes can be found in marine, fresh water, and terrestrial habitats. The nematodes are the most numerous of the multicellular organisms found in the soil. Irregardless of their habitat, all nematodes require a film of moisture around their bodies. Some nematode species feed on fungi in the soil while others feed on soil bacteria. Also, some nematode species are parasitic on man and other animals. Lastly, there are an estimated 2000 species of plant parasitic nematodes (4). Some 90 - 95% of the plant parasitic nematode species infect the below ground parts of a plant, e.g. roots, bulbs, etc., whereas the remaining 5 - 10% infect the above ground parts of the plants, e.g. stems, leaves, seeds, etc. Another term which is used for plant parasitic nematodes is phytonematodes (4).

The phytonematodes are divided into two basic categories: 1) ectoparasitic nematodes are nematodes which remain outside the plant and penetrate with only a small portion of their bodies, and 2) endoparasitic nematodes are nematodes which enter tissues completely or with a large portion of their bodies (4). The discussion here will be limited to the endoparasitic nematodes as no ectoparasitic nematodes have been reported to parasitize narcissus. All the endoparasitic nematodes which infect narcissus, e.g. *Ditylenchus dipsaci*, *Pratylenchus penetrans*, and *Aphelenchoides subtenuis*, are said to be migratory endoparasitic nematodes (4). All stages of this type nematode, e.g. egg, larva, and adult, may be found either in the soil or in the host plant.

PHYTONEMATODES OF NARCISSUS

**BULB AND STEM NEMATODE**

Several bulb and stem nematodes, *Ditylenchus dipsaci*, usually enter the bulb from the soil in the region of the neck (2). The inoculum is nematodes which leave infected bulbs and move through the soil to infect healthy bulbs (2). There they invade the young leaf tissue (5). Some of the nematodes are carried upward with the growing foliage while others move downward to the leaf bases. The same is true for flower stems. After this distribution of nematodes within leaves and stems, the nematodes begin to breed and cause small, localized swellings which are often chlorotic. These swellings are called spickels (2,5) or spikkels (6,7). Spickels or spikkels are shown in Figure 2 and Figure 3. Spickels can usually be felt by running the leaves between the fingers (5,6,7). When leaves and flower stems are heavily-infected with *Ditylenchus dipsaci*, the spickels seem to run together causing the leaves to become twisted, distorted, and discolored (2,5,6,7). Leaves showing these symptoms are shown in Figure 4. Flower stems are often affected in the same way as the leaves. In addition, the flower stems are often shortened (Figure 5), and flowering may be delayed, or in extreme cases completely prevented (2). As the foliage of a nematode-infected plant dies down, the nematodes move into the scale leaves of the bulb through the bulb’s soft neck (5,6,7). Once the nematode enters the bulb, it begins to reproduce there. The fate of the nematode-infected bulb is always the same if it is left untreated; it rots. The nematodes spread from scale to scale by moving down through one scale and destroying it; then they enter the basal plate and subsequently spread upward in the scales which are adjacent to the destroyed scale (5). Thus, the nematodes move from scale to scale via the basal plate until the bulb is entirely destroyed. If a cross section is cut
Figure 2, top left: Spickels on Narcissus Leaf
Figure 3, top right: Spickels on Narcissus Leaf (Enlarged)
Figure 4, bottom left: Distorted Leaves Caused by Bulb and Stem Nematode
Figure 5, bottom right: Distortion of Flower Stem and Flower Caused by the Bulb and Stem Nematode
through the bulb, concentric rings of brown or necrotic scale tissue will be seen (Figure 6). A simple technique for inspection of bulbs for nematode infection has been described by Wheeler (14). This technique involves making successive cross-sectional cuts through the bulbs beginning with the nose to reveal the characteristic brown concentric rings indicative of nematode infection. Healthy bulbs do not appear to be adversely affected by this procedure. The formation of these concentric rings is a classic symptom of infection by *Ditylenchus dipsaci* (2). See Figure 7 for a longitudinal section through a nematode-infected bulb. The rotting or destruction of the bulb scales (Figure 8) is due to the production of an enzyme called pectinase which digests away the pectin-containing middle lamellae between adjacent cells of a bulb scale (4). Thus, the bulb scales become completely macerated. Another symptom of nematode infection of the bulb is separation of the basal plate from the bulb (5). Note the separation of the basal plate from the nematode-infected bulbs in Figure 9. As a bulb becomes completely infested with nematodes, pre-adult forms (fourth-stage larvae) begin to ooze onto the outer parts of the bulb, e.g. basal plate or the dry, outer bulb scales; or the nematodes may localize in air space between outer bulb scales (2,5). Here, the ooze of the fourth-stage larvae dries into masses which resemble tufts of cotton (Figure 10). These dried masses of fourth-stage larvae are often called 'nematode wool' or 'eelworm wool' (2,5,6,7). The wool stage is important for survival of the nematode. For in this state, the nematode can remain dormant for several years until moistened to become active again (2,5,6). When the nematodes in the wool become moistened and active, they can serve as the source of inoculum for new infections by *Ditylenchus dipsaci* (2,5,6,7). The nematode wool can be confused with the white mycelium of *Fusarium oxysporum f. sp. narcissi* which is often found along the periphery of the basal plate of a bulb with basal rot (2). Nematode-infected bulbs are often secondarily attacked by bulb mites, *Rhizoglyphus echinopus*, and by small narcissus fly larvae, *Eumernus* species (2).

**ROOT LESION NEMATODE**

The root lesion nematode, *Pratylenchus penetrans*, attacks roots of narcissus bulbs early in the growing season causing small, dark, slit-like lesions on the roots (Figure 11); however, it does not invade the bulb (2,6,7). The only foliage symptom of infection by the root lesion nematode is retarded growth (Figure 12) as a consequence of damage to the roots (2,6,7). Bulb size is reduced in narcissus infected by the root lesion nematode (6,7). Infection of narcissus by the root lesion nematode often shows up in plantings (Figure 13) as patches containing stunted plants (2,6,7). When bulbs from these patches are lifted late in the growing season, the roots will often be found to be brown, rotted, and usually broken off short. This root rot is due to the secondary infection of the lesions by the fungus *Cylindrocarpon radicola* (2,6,7,8). Thus, this root rot is a secondary consequence to the primary infection by the root lesion nematode. On hot, sunny days, plants infected by the root lesion nematode often wilt because of the impaired absorption of water by the damaged roots; premature death of the foliage may follow (6,7). The root lesion nematode is known to infect a number of plant species; therefore, populations of this nematode can build up in soil to a level high enough to pose a serious problem to narcissus plants. Unlike the bulb and stem
Figure 6, top left: Concentric Rings of Brown or Necrotic Bulb Scale Tissue Caused by the Bulb and Stem Nematode (x.s.)
Figure 7, top right: Brown or Necrotic Bulb Scale Tissue Caused by the Bulb and Stem Nematode (l.s.)
Figure 8, bottom left: Rotting or Enzymatic Digestion of Bulb Scale Tissue Caused by the Bulb and Stem Nematode
Figure 9, bottom right: Separation of Basal Plate from Bulb Caused by the Bulb and Stem Nematode
Figure 10, top left: Nematode Wool on Basal Plate of Bulb Infected by the Bulb and Stem Nematode
Figure 11, top right: Lesions on Roots Caused by the Root Lesion Nematode
Figure 12, bottom left: Root Damage and Stunted Growth Caused by the Root Lesion Nematode. (Left, healthy; right, infected.)
Figure 13, bottom right: Retarded Growth Caused by the Root Lesion Nematode
nematode, the root lesion nematode is most susceptible to desiccation; therefore, there is little chance of introducing this nematode into clean soil as a consequence of it being carried on the dry roots of bulbs (2,6,7). Infection of roots of bulbs occurs year after year in the spring in soils where the population of the root lesion nematode is high.

BULB AND LEAF NEMATODE

Infections of narcissus plants by the bulb and leaf nematode, *Aphelenchoides bulbivirus*, are rare (2). Infected bulbs show crinkling and blistering of outer bulb scales; additionally, the cut bulb shows a diffuse, grayish discoloration rather than the concentric rings of bulbs infected by the bulb and stem nematode (2). During the growing season, the foliage becomes heavily infected, chlorotic, and may die down prematurely; however, spickels are not formed on the foliage as is the case with plants infected with the bulb and stem nematode (2).

CONTROL

Control of nematodes in narcissus, depending upon the nematode species, variously involves hot-water treatment (HWT), nematicides, crop rotation, etc. Unfortunately, the control of nematodes in small plantings by narcissophiles is difficult because of the difficulty in obtaining nematicides or equipment for HWT.

BULB AND STEM NEMATODE

It was control of the bulb and stem nematode, *Ditylenchus dipsaci*, to which J. K. Ramsbottom turned his attention in 1917, culminating in the development of HWT for control of this nematode (1). The HWT method as developed by Ramsbottom is essentially the same as that which is used today. Basically, there are two HWT programs which are used to control the bulb and stem nematode (9). Firstly, there is the HWT program of bulb stocks which are obviously infected by the bulb and stem nematode. In this program, obviously infected bulbs are removed from the planting by roguing. As soon as the foliage dies down, the bulbs are lifted and immediately given a pre-soak for three hours in cold water containing 0.5% formalin (1 liter commercial formaldehyde/200 liters water) and a non-ionic wetter. After the pre-soak, the bulbs are given HWT for 3 hours at 44.4°C (112.0°F) in 0.5% formalin containing a non-ionic wetter. This early treatment for bulb stocks which are known to be infected by the bulb and stem nematode will damage the first year flowers but not the bulbs (5). The second HWT program is a late treatment which is designed for bulb stocks which are clean, i.e. show no visible signs of infection by the bulb and stem nematode. In late HWT, the bulbs are lifted at the regular time and can be given HWT at anytime up until the root initials have started to grow (5). The order in which cultivars bloom does not dictate the order in which they should be given HWT. Instead, poeticus-type cultivars should be treated first followed by short cup, long cup, and trumpet cultivars in that order. Doubles should be treated according to their origin, e.g. double whites of poeticus origin should be treated early (5). As mentioned earlier, HWT can damage first year flowers. Thus, if first year blooms are not required, the bulbs are given HWT for 3 hours at 44.4°C (112°F) in 0.5% formalin containing a non-ionic wetter. Ideally, these bulbs should be planted immediately or stored in a cool, dry place until planting. If first year flowers are
required, the bulbs should be first warm-stored for 7 days at 30°C (86.0°F) to minimize flower damage caused by HWT. Then, pre-soak the bulbs for 3 hours or overnight in 0.5% formalin containing a wetter. Lastly, give HWT for 3 hours at 46.7°C (116°F) in 0.5% formalin plus a wetter. After HWT, the ideal situation is to plant the bulbs; however, if this is not possible, the bulbs should be given cool, dry storage. In either early or late HWT, fungicides, e.g. 0.5% Benlate, can be added to the 0.5% formalin plus wetter for the control of the basal rot fungus, *Fusarium oxysporum* f.sp. *narcissi*.

The use of 0.5% formalin in the pre-soak is important as the formalin will kill any nematodes which become activated from the nematode wool state by the soak (2,5). Additionally, the formalin will kill spores of the basal rot fungus. Thus, HWT without formalin will never be as effective as HWT with formalin.

To the hobbyist it is clear by now that HWT, though desirable, may not be practical because of the lack of the appropriate equipment; however, Marie Bozievich’s husband designed and built an inexpensive, but effective, ‘bulb cooker’ for her (10). Thus, where there is a will and an inventive spirit, there will always be a way!

Another way to attempt to control the bulb and stem nematode is crop rotation where a field or bed known to be infested with the bulb and stem nematode is not planted again in daffodils for at least three years (5). In theory, it is possible to starve out any bulb and stem nematodes from the soil if a suitable host is not present (2). In the intervening period, non-hosts of the bulb and stem nematode can be planted, e.g. potatoes, lettuce, and nonbulbous flower crops (2).

Chemical control by use of a nematicide is also sometimes feasible to rid the soil of the bulb and stem nematode. One problem with nematicides is that they are not available to the hobbyist unless he (she) has a private pesticide applicator certification. In Tennessee, this certification is issued by the Tennessee Department of Agriculture after attending a short training session which is taught by personnel from the County Extension Agent’s office. Perhaps, the same is also true of other states. Another problem with nematicides is that they are all toxic to humans and other animals and should be handled with great caution. In England, D-D (dichloropropene-dichloropropylene) is recommended for injection in the soil at the rate of 400 lbs/acre; applications should be made six weeks before planting (2). Although covering with black plastic after injection with D-D is not required, its efficacy might be increased by covering the soil with black plastic so as to reduce loss of D-D by volatilization. Other brand names for D-D are Telone, Vidden-D, and Telone-11 (3). Perhaps the use of Nemacur, applied as granules or as an emulsion to the row at planting or in a 10-12 inch band over the row after planting, would minimize infection of bulbs by killing bulb and stem nematodes as they move through the soil. Nemacur is the brand name of a contact nematicide (3) which is known as phenamiphos (11).

The use of thionazin (Zinophos or Nemaphos) as a chemical dip offers the attractive possibility of controlling the bulb and stem nematode provided the stock of bulbs shows only a light infection (2). However, a thionazin dip is decidedly inferior to HWT if the stock of bulbs is obviously infected with the bulb and stem nematode. Thus, the thionazin dip might best be used as a precautionary measure in seemingly healthy bulb stocks. Thionazin dip of bulbs is sometimes a desirable alternative to
HWT if first year flowers are required as thionazin does not adversely affect flowering. The standard thionazin dip procedure of bulbs is done soon after lifting and cleaning. The bulbs are dipped for 2½ hours in a cool (65°F or 18°C) dip containing 0.23% thionazin (1 pint commercial 46% concentrate per 25 gallons water). Thionazin is absorbed by healthy, but not dead, bulb tissue. Prolonged contact of the bulb and stem nematode with thionazin may kill the nematode; however, most nematodes are killed by eating bulb tissue which has absorbed thionazin. One problem with the thionazin dip is that the bulb and stem nematode has been shown to leave the thionazin-treated bulb and enter the soil, only to return to the bulb when the thionazin has disappeared from the bulb (6,12). Thus, late-season infection of the bulbs by the bulb and stem nematode may occur, resulting in plants with no external symptoms which could lead to a disastrous loss of bulbs if subsequent treatment is not given (11). For perhaps this reason, the thionazin dip to control the bulb and stem nematode is sometimes not recommended (5).

ROOT LESION NEMATODE

Unlike the bulb and stem nematode, control of the root lesion nematode, Pratylenchus penetrans, can not be accomplished with HWT. Instead, control typically involves soil fumigation several weeks before planting with the nematicide D-D (2). The recommended rate of application is 400 lb/acre (2). Other nematicides would probably work as well as D-D on eradicating the root lesion nematode from the soil, e.g. Nemacur. Nemacur in the granular form offers the attractive possibility of control of the root lesion nematode when added to the furrows at planting or when applied above the rows in a 10 - 12 inch band after planting (13). Nemacur (15% granular) is applied at the rate of 40 to 80 lbs/acre (12,445 linear feet of row). Furthermore, Nemacur can be applied to year-old plantings as a fall application over the rows.

In the case of the root lesion nematode, HWT for the bulbs is not necessary as this nematode does not invade the bulb tissue. Furthermore, as the root lesion nematode is extremely susceptible to drying, it dies and poses no further problem to the lifted bulbs which might have originally had the nematode on or in their roots; nor is it a problem to these same bulbs planted in a new area which is free of the root lesion nematode (2).

A possible control measure for the root lesion nematode is the overplanting of beds with the African Marigold, Tagetes erecta. This marigold produces secretions which suppress the population of the root lesion nematode (2). Also, some suppression of the root lesion nematode population occurs in beds where residues from a previous crop of the African Marigold has been tilled under (2). Thus, bulbs planted in these beds might be at a lower risk of becoming infected by the root lesion nematode.

BULB AND LEAF NEMATODE

Control of the rare bulb and leaf nematode, Aphelenchoides subtenuis, is probably best accomplished by HWT of the bulbs and by crop rotation (2).

SUMMARY

As has been the attempt with the pathogens discussed in previous articles, nematodes have been discussed in terms of what they are, the species which infect narcissus, and possibilities for their control. Hopefully, this article will have provided the information sufficient for a narcissus specialist and necessary for the hobbyist.
LITERATURE CITED


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MINIATURES
THE MATTER OF DE-LISTING
Peggy Macneale, Chairman, Committee on Miniatures

The Committee on Miniatures has been polled, and the only flower on the Approved List which all nine of us agree is too large to be considered a miniature is The Little Gentleman. It will be officially de-listed in the December Journal unless I have a storm of negative feelings on the action by August 1. We appeal to members of the ADS who grow and show miniatures to express themselves. I must let Dr. Throckmorton know of any change in status of any miniature by September 1 so his new printing of Daffodils to Show and Grow will be correct.

Of course there are others which we considered de-listing. Next to receive almost unanimous votes is W. P. Milner, Division 1. Frosty Morn, Division 5, is close behind. A few committee members have suggested six other names which I will list for your thoughts, but which we will not consider for de-listing this year unless the membership gives me a mandate during the next month. These are: Eystettensis, Marionette, Rockery White, Cobweb, and Lintie.

It is important at this point to report that several ADS members have already discussed the de-listing matter with our committee, and have urged us to consider these facts:

1) There are so few miniatures available for purchase that it may be unwise to de-list any until supplies are better able to meet the demand.

2) A large miniature in Division 6, such as The Little Gentleman, is not much smaller, if any, than, say Beryl, which is a standard Division 6. BUT a Division 1 miniature such as W. P. Milner is much smaller than the average standard trumpet, and Marionette is much smaller than the average standard large-cup. Thus, it makes much more sense to de-list The Little Gentleman than to de-list those in Divisions 1 and 2. Where else can they be shown?

3) It is evident that the larger miniatures do grow somewhat smaller in some areas — climate and soil affect the size of these as well as the standard daffodils. Many exhibitors can successfully show Cobweb or W. P. Milner, though they may not necessarily show these in collections with very tiny ones. Careful staging, however, can overcome the variation in sizes of miniatures in collections.

Other thoughts not particularly relevant to de-listing:

We need to have a lot more information from miniature growers as to those bulbs which increase well enough so sharing, or exchanging, can take place. This will help those who are trying to make a representative collection but find few sources for many of them—see above 1).

We need to have more horticultural information on: twin-scaling of miniatures; amount of water needed by which miniatures, and when to apply (i.e. will doubles like Pencreebar and Kehelland bloom better if saturated during bud elongation?); a fool-proof remedy for N. Canaliculatus’ unwillingness to flower; the question of fertilizing miniatures: not at all?—a little?—how often?; the relationship of soil pH to success with miniatures; the best kind of mulch to use: chicken grit?—crushed stone?—bark?—grass clippings?; timing for digging, dividing, and re-planting those that do increase.

The Committee on Miniatures is addressing itself to these questions but we need and welcome the input from others with wide experience. We urge response from readers of this article.
HERE AND THERE

According to Virginia Perry’s PR newsletter, Meg Yerger reports that the 1979 show of the Somerset County Garden Club was presented the Award of Merit by the National Council of State Garden Clubs, Inc. This may be awarded for excellence in horticulture or horticultural education to a plant society which is an active or affiliated member of NCSGC on a local, state, or national level. Other societies take note!

From the Southeastern Region Newsletter comes word that the Chapel Hill (N.C.) Botanical Garden held its second daffodil workshop last September. There were panel discussions on choosing varieties, culture, disease, and miniatures. Panelists were Mrs. Pauline Butler, Dr. Fred Lopp, Mrs. Everett Wilson, and Mrs. W. L. Wiley.

The Daffodil Society of Minnesota is an enthusiastic new group which sponsored its first ADS approved show and Judging School I in May. The society newsletter, Tête-a-Tête, and excellent 1980 Yearbook will certainly keep the enthusiasm for daffodils high in Minnesota!

*The Camellia Journal*, February 1980, includes an article, “Versatile Gib,” by E. C. Snooks in which he states that soaking camellia seeds in a solution containing 100ppm gibberellic acid brought quicker germination of the seed. (After 32 days, 67% of the treated seed germinated compared to 8% for the control group.) Any daffodil hybridizers care to experiment and let us know if it works on daffodils?

Speaking of our hybridizers, they met for breakfast in Memphis and discussed registration of, and distinction in, new daffodils. It was pointed out that distinction can be many things, i.e. unusual bloom season, resistance to basal rot, etc., and it was reiterated that distinction plays no part in judging seedlings as ADS show schedules clearly state that “All seedlings will be judged by the regular ADS scale of points.”

“Springdale,” the garden of Libby and Jack Capen of Boonton, New Jersey, was open on April 30 to the Friends of The Frelinghuysen Arboretum. “Springdale” is internationally known for its collection of more than 2,000 cultivars of Narcissus which are planted in a test garden as well as in clumps and drifts displayed against a breathtaking background of choice spring flowering trees, shrubs, ferns, wildflowers, and perennials.

Dr. James M. Kaplan of Moorhead, Minnesota, wrote about a visit to the San Francisco studio of Henry Evans, noted print maker who specializes in linoleum cuts of botanical subjects. Dr. Kaplan says, “The most spectacular of his works, and surely the most interesting to the members of the Society, was a large triptych of daffodils. Mr. Evans captures a stretch of probably King Alfreds—ordinary daffodils—in all stages of opening, nodding this way and that, borne up by waving greenery. The triptych was pleasantly asymmetrical and seemed almost casual. One expected a waiting hand to come down and pluck one of the flowers.” Mr. Evans’ studio is at 555 Sutter St.

The Garden Center of Greater Cleveland has just published a significant reference work, *The Flowering Plant Index of Illustration and Information*. Search time for plant illustration and information is greatly reduced through use of this index. Each entry gives access to plant illustration and will also lead the user to such plant information as plant use, history, culture, plant lore, habitat, and other data. This index contains 55,000 entries arranged alphabetically by botanical name, of
which 105 are under Narcissus. (Garden Center of Greater Cleveland. The Flowering Plant Index of Illustration and Information. Compiled by Richard T. Isaacson. Boston: G. K. Hall, 1979. 2 vols. 760, 772p. $200.00)

Last but not least comes word of the 31st annual Narcissus Festival held in Honolulu during late January and early February and sponsored by the Chinese Chamber of Commerce. Narcissus Queen Renee Charla W. S. Quon reigned over a series of art displays, theatrics, cultural presentations, and other ceremonies honoring traditions of Hawaii's considerable Chinese-American community.

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MY TRIALS AND ERRORS IN GROWING DAFFODILS FROM SEEDS

BETTY BEERY, Frankfort, Ohio
(from Narcissus Notes, Newsletter of the Midwest Region, September, 1979)

In 1972 I planted my first daffodil seeds in two flats on top of the soil. I had two or three germinate along with a lot of weeds.

So in 1973 I tried again. I put my two flats in the soil with their tops at ground level and filled them with potting soil to eliminate the weeds. As the first year the foliage looks like a blade of grass, it is almost impossible to weed the seedlings without pulling up the bulblets. From the seed broker that year I received crosses made by Mr. Culpepper and Jack Schlitt. They germinated very well and I have 110 bulbs from this planting.

When they were two years old I transplanted them. I turned the flats upside down as the bulblets are near the bottom and easier to find this way. They were the size of a kitchen match head, oblong and white. I kept a record of the crosses in each row as I planted the seeds, then I transplanted in the same order, three inches deep. I then put a fine mesh wire over the planting to keep anything from digging in it. I cover the bed with leaves in the fall, being careful to exclude any weed seeds, and during the winter I sprinkle some wood ashes on the bed.

In 1978 I had my first blossom. What a thrill! Altogether I had eight blooms with some very good whites. This year some of my seedlings from the 1973 planting bloomed very early, but I refrigerated the midseason blooms and took them to our Adena Show for people to see. Not all of these seedlings have bloomed yet, but in 1980 I plan to try for the Rose Ribbon!

I had also made plantings in 1975 and 1976 of more of Jack Schlitt's crosses and in 1976 and 1977 open-pollinated crosses from Phil Phillips and J. A. O'More. These latter seeds didn't germinate as well for me, but I have 89 bulbs from the 1975 planting and my son and his wife have many bulbs from seeds they planted that year too.

It is always exciting to see how many bulblets there are when it is time to transplant them in the fall and I will be checking my 1977 planting this fall.

Recently I sent for my 1979 daffodil seeds. Why don't you send our Seed Broker, Tyner, North Carolina 27980, a request and a stamp and try growing daffodils from seeds?
The hybridizer of Snow Gem is dead. Charles Culpepper of Arlington County, Virginia, died on January 15, 1980, at the age of 91. He will always be remembered by those who knew him for the huge bunches of daffodils—or other flowers—for 50¢ a bunch, for $1.00 a dozen for mixed seedling bulbs, or as high as $1.50 or $2.00 for his own named varieties; for his 5 acres of garden wonderland in which over 60 different kinds of trees grew, where botanical curiosities abounded and where beauty could always be found. Those who knew him best remember him as a warm and friendly companion willing to share his tremendous knowledge of gardening.

Born and raised on a farm in Alabama, Mr. Culpepper received a degree in Botany at the University of Chicago. As a part of the war effort he came to work in 1918 for the Department of Agriculture in Washington in the field of food preservation. In 1924 he bought five acres of “blackberry bushes and sedge grass” way out in the country in Arlington County, Virginia. In 1927 he made his first daffodil crosses. He was a man of incredible energy and intensely cultivated every inch of the five acres while working many miles distant at Beltsville in Maryland. In a way he carried on the work of Edwin Powell as he got both named varieties and seedlings from Mr. Powell and used them in his hybridizing. As his seedlings came on he ran out of space and began selling bulbs while selecting out the best to grow on into stocks of bulbs.

His greatest prize is Snow Gem, a large poet-like flower with a brilliantly colored cup and glistening white petals. It was registered in 1957 and is listed in our most recent symposium as being among the top 20 daffodils. It has won untold ribbons and is still doing so. Grant Mitsch and the Havens catalog now, in addition to Snow Gem, Culpepper’s Golden Starlight, 1 Y-Y; Hazel Brilliant 2 Y-O; and White Gold 2 W-Y. Not to be forgotten are Red Sunrise 2 Y-R, a fine garden flower, and Novelty Crown 2 Y-O.

A remarkable quality of the Culpepper daffodils is their health. Raised in a hot, moist area that is most prone to basal rot his selections survived only on their own ability. It is doubtful that anyone has ever lost a bulb of Snow Gem except by generosity.

Twelve years ago he gave a great many daffodil seeds to a friend and told him to give the excess to members of the American Daffodil Society. The Seed Broker was in business and tens of thousands of Culpepper seeds have been planted across the country and overseas. Flowers from these seeds are winning top ribbons in seedling classes at our shows today.

In 1973 Charles Culpepper largely donated his five acres to a home for the elderly and now a high rise has taken the place of rows of daffodils. Mr. Culpepper went to live with his daughter. He was increasingly deaf in his later years and always less able to use his legs but he maintained his love for daffodils to the end.
Mr. Culpeppers's garden
IS THERE MORE THAN ONE STRAIN OF CANALICULATUS?

WILLIAM WELCH, Carmel Valley, California

It has sometimes been suggested to me that there is more than one strain of Canaliculatus, and that this is part of the explanation as to why some can succeed with it while others (like myself) are plagued with failure. I think that most, if not all, Canaliculatus being sold now are descended from the same original clone. It must be remembered that Canaliculatus of the type available today was first brought into cultivation in England, where it was grown by Barr at their Taplow Nurseries after being collected at Mentone in southern France. It was found to be a rapid increaser but poor bloomer, also more cold-hardy than other species tazettas. From this information I would think it likely that all Canaliculatus available commercially are descended from this importation.

However, those which were in cultivation before this time of introduction (early 1900's) were probably of a different type. Under what name they would have been sold, I don't know, but perhaps they were called Lacticolor or some other botanical name. Some of the wild forms of N. tazetta are known to be quite small so it seems reasonable to expect that during the 1800's, when many different tazettas were widely available, there would have been miniatures offered that were similar to the modern day Canaliculatus. Even today there is a larger version of Canaliculatus grown under the name Odoratus. Not small enough to be a miniature, it was found by Alec Gray in the Scilly Isles. This plant grows a foot tall sometimes, but like Canaliculatus is a slender plant, in no way to be compared with the larger tazettas in size. It can always be distinguished from a well-grown Canaliculatus by its ragged-edged cups. The cup is much larger and more flared than Canaliculatus, and the broad, quite rounded segments overlap much more. Perianth segments do not reflex as do those of Canaliculatus. I doubt it is as cold-hardy as Canaliculatus, and it does bloom earlier, but one thing is for sure—it is a much more reliable bloomer provided it gets the required summer baking. It is a good multiplier, but not overly so, and blooming sized bulbs are good hard, tight rounds, about the size of a walnut. I think it is fertile, but have not done enough with it to find out. Like Canaliculatus, it is described as a triploid with 30 chromosomes.

From Australia I have gotten a similar plant (perhaps the same) under the name "Odorus" (not to be confused with the jonquil hybrid).

I've read that other miniature tazettas can be found in old gardens in the southern states, but have not had the chance to try any yet. Most likely some of these have been mis-identified as Canaliculatus, and I suspect that some of the bulbs grown in gardens under this name are actually something different. This would explain many instances of success.

But I do know for a fact that many members have the true Canaliculatus and yet get terrific blooms from them. Many and varied are the suggestions I have received to achieve success with them, and I will keep trying until I can achieve reliability of bloom. Only once have I had blooms in the second year after purchase, when I got a full sized head of 11 florets. Maybe this one got enough baking to satisfy its needs. Perhaps the cure, at least in this climate, is as simple as providing a sunnier
location. Where I live it is very cool and shady in the winter months due to being located at the foot of a 2100' mountain. I have now moved most of my Canaliculatus and Odoratus to my new farm which is in a very sunny location. I may also try putting plastic over the plantings during part of the summer to increase the heat in the soil. This must be done though only when the soil is fully dried out or rot would be likely.

I am always willing to try new suggestions on growing these things successfully. It is time that someone either find a solution to the problem or else find (or breed) something similar to take its place.

Perhaps some members have Canaliculatus coming from old gardens, with which they have been successful, that might turn out to be of a distinct free-blooming type. If anyone could spare a bulb or two for me to try, it would certainly be helpful. I am convinced that, right now, someone in our Society has what I am looking for.

I have a letter from Polly Brooks, who has had a great deal of experience with miniatures, in which she tells me that in two locations in Virginia she has seen what she believes to be a free-blooming, slower-multiplying form of Canaliculatus. But now both locations have given way to housing developments. One of these was grown under the name “Lacticolor.” I know that this name is often applied to Canaliculatus, but even in A. M. Kirby’s 1909 book, Daffodils, Narcissus, and How to Grow Them, he lists a “Lacticolor” (not any mention of Canaliculatus) but does not describe it. I am certain that the use of the name Lacticolor in cultivation pre-dates the introduction of present-day Canaliculatus. Perhaps even now the name Lacticolor is used to refer to something different, maybe something a little larger. It was suggested to me that perhaps 30 years ago Alec Gray used to offer one as distinct from the other but I have no proof of this.

For those who can bloom Canaliculatus, don’t forget that it is fertile, both as a seed and pollen parent. I don’t think it can self itself. Although my few efforts have not been successful at crossing it, I know that Phil Phillips does have seedlings coming along from it, mostly by pollen of N. cyclamineus.

The relative cold-hardiness and rapid multiplication (if it can be separated from reluctance to bloom) are desirable characteristics that most of the pure tazettas don’t equal.

I’ll certainly welcome any correspondence on the subject of this article or otherwise pertaining to tazettas.

THE RICHARDSON INFLUENCE

P. PHILLIPS, Otorohanga, New Zealand

There can be very few people who remember what the best daffodils were like when Lionel Richardson started growing them before World War I. There were no pinks, the yellow trumpets were a pale lot, generally weak and short in the stem, the whites were weak in stem and constitution and the bi-colors were a washed out lot generally with thin twisted perianths. The doubles were regarded as monstrosities and were heavy headed and weak in the stem. The present Division 3 was known as Barri and there were very few yellow perianths and little color in any of them. Yet many of the growers and hybridizers of the day thought that
they had almost reached perfection in many of their flowers.

It was 1922 when Lionel Richardson commenced hybridizing in earnest and he acquired from P. D. Williams some of the best yellow and reds available at that time, namely Fortune, Cornish Fire, and Porthilly. Many growers may still remember these flowers. Fortune became a great market flower but never bred anything of any consequence. Cornish Fire had good red color in the perianth and a thin, narrow, pale yellow perianth. Porthilly was broader in the perianth and had a bowl-shaped cup of red, but a weak, soft stem. Penquite, which he also acquired, had better substance in the lemon perianth and a spreading conical crown edged with red. When A. M. Wilson introduced Carbineer in 1927, Lionel acquired a bulb. This had much better substance than earlier cultivars and a bowl-shaped corona of pale orange. It occasionally produced an outstanding flower and won several championships. After World War II, Lionel had nearly two acres of it which he disposed of. From Miss Evelyn he obtained bulbs of Marksman, Diolite, and Rustom Pasha, the latter reputed to be sunproof with a greenish margin to the corona on opening which faded while the corona intensified in color as it aged. These then were the stocks from which a whole series of outstanding yellow and reds were to be produced, the likes of which had never previously been seen with golden perianths and solid red cups. First came Bahram, 1935, large but lacking in substance in the yellow perianth; next Narvik, 1940, smaller but better color; then Ceylon, 1943, the most colorful both in the corona and the golden pointed perianth, and described at the time as perfection in the yellow reds. However, better flowers were to follow with Air Marshal, Border Chief, Firecracker, and Royal Charger in 1953; Vulcan in 1956; Falstaff, 1960, winning Best in Show in London, 1968; Pinza in 1962; and Johore in 1968.

From the time that Peter Lower introduced Royalist in 1914 until Lionel Richardson displaced it in 1938 with Kingscourt, it was the leading yellow trumpet. Kingscourt was a tremendous advance and an instant success. It headed the Daffodil Ballot for many years and won prizes all over the world. It was followed by other good yellow trumpets such as Spanish Gold, 1948; Arctic Gold, 1951; Golden Rapture, 1962; Bayard, 1956; Golden Horn, 1958; and Viking, 1956, which if it had not been so prone to virus would still have been one of the best. Carrickbeg and Olympic Gold in 1963 added two more good ones and Sir Ivor in 1972 completed this imposing array of yellow trumpets. Galway, 1943, reigned supreme in the large cups until displaced by Camelot in 1962 and Golden Aura in 1964 with Celtic Gold coming later in 1974. This had always been a difficult division in which to make improvement but with the introduction of Daydream, which was crossed with Camelot, several unusual colored flowers in shades of pale lemon were produced and have recently been seen on the show benches.

Monaco was introduced in 1937. It has a white perianth of good texture and a goblet shaped cup of orange paling towards the base. When crossed with Forfar, a small flower with white perianth and neat red cup, it produced Arbar in 1948, a large flower of good texture in the white perianth and a neat red cup. This was a decided breakthrough and its pollen used on Kilworth resulted in a series of outstanding white and reds that still dominates the show benches today. Amongst the foremost of
these are Avenger, Hotspur, Norval, Don Carlos, Lorenzo, and Royal Regiment to mention a few. Leonora and Irish Rover came later, followed by Red Marshal and Lanzarote.

The small cups were also greatly improved: Limerick, Matapan, and Merlin, all renowned for their white perianths; Doubtful, Lemonade, Montego, and Perimeter in the colored perianths; and Blarney and Ariel with their unusual colors in the corona. Great progress was made in the all white small cups with the introduction of Verona in 1958, to be followed by Clogheen and Cascade in 1961, and the fine trio of Snowcrest, Benvoy, and Valediction in 1973.

Salmon Trout, introduced in 1948, was for a long time the leading pink but was followed by Debutante, Rose Royale, Salome, Merry Widow, Rainbow, Coralita, Fair Prospect and a host of others of equal renown. So many good pinks were being produced in the seventies that it was difficult to keep abreast of them, and the remarkable advances made were of great credit to the Richarson's.

Probably the greatest advances were made with the doubles. From Falaise, 1945, there came doubles with white perianths, yellow perianths, and coronas of various colors. The white perianths included Acropolis, Irani, Candida, Monterrico, Takoradi, Double Event, and Gay Time. This latter produced several fine doubles including Gay Challenger, Gay Kybo, Gay Ruler, Gay Symphony, and Kaua. Yellow doubles included Fiji, Tonga, Papua, Hawaii, Orotava, Ocarino, and Tahiti. Two pink doubles were introduced in 1972, Pink Champagne and Samantha.

Although progress in the 2 W-Y was slower and less spectacular, many fine flowers were produced. For a long time Tudor Minstrel, 1948, dominated this section but My Love, Irish Minstrel, Careysville, Amber Light, Green Island, Blarney's Daughter, and Tudor Love all were prominent show flowers.

With Guy Wilson showing the way with his magnificent whites, the Richarson's generally had to take second place, but some very fine flowers were raised. These included Killaloe, Devon Loch, Glacier, Pericles, Perseus, South Pole, Matterhorn, Himalaya, and Arctic Mist which is probably their best white trumpet.

So many wonderful flowers were produced and introduced that many of them enjoyed only a short period on the show benches before being displaced by something better, and so it continued throughout the whole Richardson era. These two people, Lionel and Nell Richardson, together with their foreman, Jack Goldsmith, the man behind the spade, made so much improvement to daffodils over a period of fifty years that it is unlikely that their record will ever be equaled, and certainly it will never be surpassed.

Daffodil growers all over the world owe a great debt of gratitude to them as their efforts have brought much pleasure and happiness to many people. What better object could one have in life?

(The preceding article was written for the New Zealand Annual Reports, with a copy of the manuscript also sent to your editor.)
DR. JOHN C. WISTER HONORED
JOY MACKINNEY, West Chester, Pennsylvania

To thousands and thousands of residents of the Delaware Valley and visitors from all parts of the country, spring came a little early this year. The 1980 Philadelphia Flower and Garden Show opened on March 9.

This amazing four acre display of trees, flowering shrubs, green, green grass, annuals, perennials, forced bulbs, and tropical plants was the most beautiful ever. Of course, seasoned show-goers say this every year, but then the show gets better every year.

As in the past, one of the most interesting aspects of the show was the section devoted to the various plant associations. There were exhibits staged by the African Violet, Fern, Cactus, Rhododendron, Rock Garden, Indoor Light Gardening, and Daffodil Societies.

The daffodil exhibit, a section of a small garden, was the joint effort of the Delaware Daffodil and the Philadelphia Area Daffodil Societies. The display featured a rustic garden gate, flowering azaleas, benches, and thirty-six varieties of forced daffodils. The garden received a Silver Award of Merit.

The exhibit this year had a special appeal to daffodil lovers. It was dedicated to Dr. John C. Wister, one of the country’s best known and respected horticulturists, “in recognition of his contribution to daffodils.”

On March 19, Dr. John celebrated his 93 birthday.

DURABLE, READABLE LABELS THAT CAN BE MADE FROM RECYCLED MATERIALS
JEAN MANFREDI, Amherst, Massachusetts

For about seven years I have been making inexpensive, simple, durable, and readable labels from used 9/1000” guage aluminum photo-offset plates and wire coathangers. The 22½” x 36” plates are sold after use by a local newspaper office for a modest sum and cleaners’ coathangers accumulate at home and in the neighborhood at an adequate rate.

The label is a simple rectangle of thin aluminum folded like a place card and trimmed to remove sharp corners. (Mine are approximately 2¼” folded to 1½” by 3½”.) The information is engraved on the front flap using a hard, spent ballpoint pen as a stylus. The label is then mounted by threading a large 7½” hairpin, made from one half of what is left of a wire coathanger after removal of the hook, through two holes punched ⅛” apart on a horizontal line centered in the back flap.

I have recently been given a supply of lighter weight aluminum sheets from a smaller press and have worked out a similar label, using a double fold, which I hope will prove durable because it is easier to make, to engrave, and more readable. The first fold forms the bottom edge of the front flap created by the second fold and the coathanger holds the open edges of the back flap together.

The labels look like this:
I hope that details of construction are obvious from the foregoing but the following tips may help to avert difficulties. 1) Clean surplus ink from the plates with detergent and scouring powder. The print will remain but will not be seen because it will be on the inside of the fold. 2) Plan cuts so that folds will be against rather than with the grain of the aluminum. Otherwise cracks will occur at the folds. 3) Use old household shears rather than tin snips to make the cuts. They will give a cleaner, smoother edge. 4) Engrave the information on the folded label before mounting in order to have a smooth surface. 5) A simple way to make the holes in the back flap is to open the fold to 90 degrees, rest the outside of the back flap against a board, and punch the holes from the inside with a hammer and a nail of the same gauge as that of the coathanger wire. 6) If a wire cutter is not readily available for cutting the coathanger, pliers may be used to bend the wire sharply back and forth four or five times at the desired breaking point.

I try to have my labels ready to pair off with bulbs as orders are checked off. It is handy however to have a supply of unmounted blanks and 7½” hairpins ready for bonus bulbs in orders, unexpected appearances at blooming time, and for divided lots at lifting time. It is easy to have both along with hammer, nail, board, and ballpoint pen in the garden cart.
MY FAVORITE DAFFODILS
DAVID KARNSTEDT, W. St. Paul, Minnesota
(from the Daffodil Society of Minnesota 1980 Yearbook)

Which are the daffodils I look forward to seeing each spring? To be eligible for inclusion, a given cultivar must exhibit consistent performance over a period of time. I must admit, however, that occasionally I will succumb and include a new acquisition because some one thing — usually color or form — is particularly appealing. I would place the new 1 Y-P Lorikeet from Grant Mitsch in that category because of its appealing color: soft lemon perianth and quite intense apricot pink trumpet.

To many people, the great golden trumpets are daffodils. I do grow over 130 cultivars of the 1 Y-Y daffodils of which Arctic Gold is my favorite. It can be depended upon to produce flowers in abundance. Aside from the bonus of early bloom it has deep uniform golden color and elegant form. Arctic Gold’s quality has been recognized by the award of an FCC for both exhibition and garden display. It is one of the best of Lionel Richardson’s introductions.

Among daffodil fanciers white daffodils are often favorites. There are a number of good cultivars among which Broomhill and Easter Moon are classics. Each possesses a distinctive form. Easter Moon’s heavy substance and fine form have made it an exhibition favorite ever since its introduction by Guy Wilson in 1954. It has proven itself to be a marvelous parent, as it transmits its best characteristics. Easter Moon is a parent of Broomhill, a fine white long cup, and other fine Division 2 whites such as Misty Glen a 2 W-GWW. In addition to its achievements as a superb exhibition bloom Broomhill makes a fine garden daffodil too, with its two foot stems a real bonus. Its clear snowy-white flowers, heavy substance and consistent performance make it my favorite white.

Another old and new combination of value to me is Ceylon, 2 Y-R, and Torridon, 2 Y-R. Although Ceylon is now approaching the 40th anniversary of its introduction I admire its clear bright sunny-yellow color, perfect form and distinctive pose. Torridon will quite consistently
develop its reddish cup color in Minnesota. For me its perfect form is unsurpassed. The perianth is flat, smooth and without a nick or crease.

For a long time double daffodils were not very highly respected. Seedlings bred from Falaise, 4 W-WOO, by Lionel Richardson in the 1950's changed that image. Of the dozens produced since, Acropolis 4 W-WRR remains my favorite single flowered double. Acropolis possesses a strong stem and neck. This characteristic enables the flowers to remain upright through much of the worst spring weather. Acropolis is a pure, clean, clear white, and interspersed among the bases of the petals are the deep red fragments of the cup. The beautiful form and uniform build make it a hard double to beat on the show table. An appropriate finishing touch is the heady poeticus perfume. Due to its poeticus heritage it does have one fault, albeit a minor one, it is a slow multiplier.

For Division 2 standards Avenger, 2 W-R, is a rather small flower, but one of great perfection. The perianth needs a couple of days to whiten after opening but the ruffled deep orange red cup stays that color. If it can be protected from the sun and wind which will burn the edges, the flowers possess such a jewel like form and coloring that the extra work is worthwhile. Although the cross Kilworth × Arbar has produced dozens of 2 W-R flowers, Avenger and Don Carlos possess the consistency to make them classic.

One of the most important and distinctive color breaks in daffodils occurred with the introduction of Binkie 2 Y-W, the forerunner of an entire color group, the reverse bicolors. At first the color grouping Y-W was confined to the first two divisions. Largely through the efforts of Grant Mitsch, this color pattern can now be found in several divisions. My favorite reverse bicolor remains the classic 2 Y-W Daydream. It is a perfect flower in its class. For many years Daydream's competition on the show table was its fine sibling Bethany. Today there are others. Daydream is a winner under garden conditions as well.
Festivity remains a formidable show daffodil. It is a daffodil that will respond to good cultural conditions and plenty of water. I've seen individual flowers 5" across without loss of refinement. The clean, clear white perianth and medium yellow long cup are enhanced by the flat perianth and heavy substance. The perianth petals are opaque and are highlighted with green at their base. In unfavorable weather Festivity seems to have an annoying propensity to "mitten thumb". It seems to require frequent lifting and division to consistently produce good show flowers.

Much breeding has been done in the white-pink group in the last twenty years. Hence picking a favorite pink daffodil is difficult. I have several favorites, each chosen for an outstanding characteristic in addition to color. First of all would have to come Rima, 1 W-P. Under ideal growing conditions the pink of the trumpet deepens to raspberry. While you'll seldom see that color in Minnesota, Rima does have enough merit in several respects—form, season, and overall balance—to earn it a solid place on my list of favorites. For a deep color—rose red—I would include Cool Flame and Rubythroat, still quite expensive however. Beautiful color is their most appealing characteristic. For consistent success as a show flower one would fine Passionale difficult to surpass. The perianth is perfect. The cup is formed like a half trumpet and tends to be a rather pale pink but one of clarity and softness. It also produces a hard round bulb that is a joy to behold. Accent is a good garden pink since it's not expensive and its color is deep enough to have good carrying power in the garden. The perianth petals have a tendency to crease so it is not a first class show bloom unless one is willing to take the time to groom it as the flowers develop. Accent together with Precedent have been among the best daffodils for providing deeper color in pinks. These two are the parents of Cool Flame which when used as a parent has produced some astounding seedlings.

I intend to cover my favorite daffodils in class 5 and the succeeding classes in a subsequent article.
BEGINNER’S CORNER

In the last issue of the Journal, we promised you a list of good daffodils available for $1.00 or less. After going through the current catalogues, we found it necessary in these inflated times to raise our price limit to $2.00, but those at $1.00 or less are indicated by an *. All bulbs listed are available from growers whose ads were in recent Journals.


DIVISION 4 — DOUBLES: *Double Event, Papua, Coral Strand, Cheerfulness, Acropolis, Tahiti


DIVISION 6 — CYCLAMINEUS: *Charity May, Dove Wings, Bushit, Beryl, Joybell, Titania


DIVISION 8 — TAZETTA: Geranium, *Golden Dawn, Matador, Chinita, Canarybird, L’Innocence

DIVISION 9 — POETICUS: Cantabile, *Milan, Actaea, Perdita

DIVISION 11 — SPLIT-CORONA: Baccarat, Lemon Beauty, Square Dancer

MINIATURES: *April Tears, Hawera, *Jumblie, *Tête-a-tête, Clare, Baby Moon, Chit Chat, Sundial, Sun Disc, Wee Bee, Minnow

From a grower in Pennsylvania comes the advice that one “cannot expect to find good exhibition cultivars in the fall at local retail outlets (with a tiny number of exceptions) and that they must order from specialists, should order early, and should not be afraid to order from overseas.”
DAFFODIL DIGGING TIME
FRANCES ARMSTRONG, Covington, Virginia
(from the Middle Atlantic Region Newsletter, May, 1979)

Daffodil digging time is close upon us. If you have trouble with basal rot, and most growers in warm climates do especially with certain cultivars, you should use a Benomyl dip immediately after digging your daffodil bulbs. Inspect each bulb for discoloration and softness which indicate fungus disease or basal rot. Also look for holes made by the bulb fly at the bases of bulbs. Inexpensive bulbs should be discarded if found suspect; expensive or irreplaceable ones may be saved by a strong Benomyl soak. If the bulb fly is discovered when digging, it may be possible to cut out the larva and then soak the wounded bulb in Benomyl. If not treated, by planting time the larva will have destroyed the inside of the bulb.

Immediately after digging, wash your bulbs with a hose to remove dirt, place in mesh bags keeping the cultivars separated and soak in a solution of one tablespoon of Benomyl to one gallon of warm water. Stronger solutions will do no harm but are expensive. Let the bulbs remain in the soak for one to three hours. Temperature of the solution should be kept between 80 to 100 degrees F. I use my candy thermometer and add a little boiling water when necessary. Most gardeners feel it's better not to use the solution a second day. It may be poured over the daffodil beds.

Hang the bulbs outside in the shade until well dried, then store in a dry, well ventilated, fairly cool place either by hanging the mesh bags or by placing in shallow trays. Do not put too many bulbs in one bag as they may heat up in the middle.

Take precautions in using Benomyl. Do not allow it to touch the skin, eyes, clothing, etc. All this is troublesome, but well worth it for growing those difficult whites and reverse bicolors as well as other cultivars susceptible to basal rot. For cultivars that grow strongly, I do not bother.

Mostly, I find digging daffodils one of the greater pleasures. I begin early before the foliage disappears, and try to give myself enough time to do it leisurely. Digging up fat bulbs which have increased well is true joy; finding room to put them back is a worry that can be postponed until fall.

If you have absolutely no storage space, replant the bulbs as soon as they are dry. Most gardeners prefer waiting until September when the soil has cooled.

May you discover lots of treasures when you dig this year!
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8. Classification and Color Coding

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Daffodil Pin (tie back, pin back, or ring back) .................. $ 7.50
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The Daffodil Handbook, 1966
.................................................. Paper Cover, $3.40; Cloth 4.90
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Make checks payable to American Daffodil Society, Inc. Prices include postage. Correspondence is invited concerning out-of-print publications on daffodils. Copies of these are sometimes available or names will be placed on want list.

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